*ARMY TM 9-2320-366-20-1
AIR FORCE T.O. 36A12-1C-1102-1

TECHNICAL MANUAL
MAINTENANCE INSTRUCTIONS
UNIT MAINTENANCE
M1083 SERIES, 5-TON, 6 X 6,
MEDIUM TACTICAL VEHICLES (MTV)
VOLUME NO. 1 OF 5

MODEL	NSN	EIC
TRK, CAR., MTV, M1083		
W/WN	2320-01-360-1895	BT3
W/O WN	2320-01-354-3386	BR2
TRK, CAR., MTV, W/MATL HDLG EQPT (MHE), M1084	2320-01-354-3387	BR3
TRK, CAR., MTV, LWB, M1085		
W/WN	2320-01-360-1897	BT5
W/O WN	2320-01-354-4530	BR7
TRK, CAR., MTV, LWB, W/MATL HDLG EQPT (MHE), M1086	2320-01-354-4531	BR8
TRK, TRACTOR, MTV, M1088		
W/WN	2320-01-360-1892	BTY
W/O WN	2320-01-355-4332	BTJ
TRK, WKR, MTV, M1089	2320-01-354-4528	BR4
TRK, DUMP, MTV, M1090		
W/WN	2320-01-360-1893	BTZ
W/O WN	2320-01-354-4529	BR5
TRK, CHAS, MTV, M1092	2320-01-354-3382	BRZ
TRK, CAR., MTV, AIR DROP, M1093		
W/WN	2320-01-360-1896	BT4
W/O WN	2320-01-355-3063	BR9
TRK, DUMP, MTV, AIR DROP, M1094		
W/WN	2320-01-360-1894	BT2
W/O WN	2320-01-355-3062	BTK
TRK, CHAS, MTV, LWB, M1096	2320-01-354-4527	BR6

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HEADQUARTERS, DEPARTMENTS OF THE ARMY AND THE AIR FORCE
15 SEPTEMBER 1998

*Supersedes copy dated October 1995.

WARNING SUMMARY

WARNING

EXHAUST GASES CAN KILL

1. **DO NOT** operate your vehicle engine in an enclosed area.
2. **DO NOT** idle Vehicle engine with cab windows closed.
3. **DO NOT** drive vehicle with inspection plates or covers removed.
4. **BE ALERT** at all times for exhaust odors.
5. **BE ALERT** for exhaust poisoning symptoms, they are:

   Headache

   Dizziness

   Sleepiness

   Loss of Muscular Control

6. **IF YOU SEE** another person with exhaust poisoning symptoms:

   Remove person from area.

   Expose to open air.

   Keep person warm.

   Do not permit person to move.

   Administer cardiopulmonary resuscitation, if necessary.*

* For cardiopulmonary resuscitation, refer to FM 21-11.

WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock. Batteries can explode from a spark. Battery acid is harmful to skin and eyes. Always wear eye protection and rubber gloves when working with batteries. Failure to comply may result in injury to personnel.

WARNING

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

WARNING SUMMARY (CONT)

WARNING

Battery acid (electrolyte) is extremely harmful. Always wear safety goggles and rubber gloves, and do not smoke when performing maintenance on batteries. Injury will result if acid contacts skin or eyes. Wear rubber apron to prevent clothing being damaged. Failure to comply may result in injury to personnel.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

WARNING

Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 130°F (50°C). Failure to comply may result in serious injury or death to personnel.

If personnel become dizzy while using Dry Cleaning Solvent, immediately get fresh air and medical help. If Dry Cleaning Solvent contacts skin or clothes, flush with cold water. If Dry Cleaning Solvent contacts eyes, immediately flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.

WARNING

Diesel fuel is flammable. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

WARNING

Diesel fuel is flammable. Do not fill fuel tank with engine running, while smoking, or when near an open flame. Never overfill the tank or spill fuel. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

WARNING

Use care when removing/installing springs. Springs are under tension and can act as projectiles when being removed. Failure to comply can cause injury to personnel.

WARNING

Adhesive sealant MIL-S-46163 can damage your eyes. Wear safety goggles/glasses when using; avoid contact with eyes. If sealant contacts eyes, flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.

WARNING

After Nuclear, Biological, or Chemical (NBC) exposure of vehicle, all air filters shall be handled with extreme caution. Unprotected personnel may experience serious injury or death if residual toxic agents or radioactive material are present. If vehicle is exposed to chemical or biological agents, servicing personnel shall wear protective mask, hood, protective overgarments, and chemical protective gloves and boots in accordance with FM-3-4. All contaminated air filters shall be placed in double-lined plastic bags and moved swiftly to a segregation area away from the worksite. The same procedure applies for radioactive dust contamination. The Company NBC team should measure radiation prior to filter removal to determine extent of safety procedures required per the NBC Annex to the unit Standard Operating Procedures (SOP). The segregation area in which the contaminated air filters are temporarily stored shall be marked with appropriate NBC placards. Final disposal of contaminated air filters shall be in accordance with local SOP. Decontamination operation shall be in accordance with FM-3-5 and local SOP. Failure to comply may result in serious injury or death to personnel.

WARNING

Ensure exhaust system is cool before performing maintenance. Failure to comply may result in injury to personnel.

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

WARNING

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel, fuel lines or fuel tanks. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Do not operate vehicle with muffler removed. Toxic exhaust fumes may enter cab, resulting in serious injury or death to personnel.

WARNING SUMMARY (CONT)

WARNING

Exhaust pipe, transmission oil lines, and transmission scavenge pump hose may be hot to the touch. Extreme care should be taken when checking exhaust pipe, transmission oil lines, and transmission scavenge pump hose for leaks. Failure to comply may result in injury to personnel.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc). Failure to comply may result in injury to personnel.

WARNING

Wheel drum weighs approximately 90 lbs (41 kgs). Use the aid of an assistant to help remove wheel drum. Failure to comply may result in injury to personnel.

WARNING

Wheel drum weighs approximately 90 lbs (41 kgs). Use the aid of an assistant to help install wheel drum. Failure to comply may result in injury to personnel.

WARNING

Brake shoes may be covered with dust. Breathing this dust may be harmful to your health. Do not used compressed air to clean brake shoes. Wear a filter mask approved for use against brake dust. Failure to comply may result in injury to personnel.

WARNING

Cage spring brake before air chamber is removed or severe injury to personnel will occur.

WARNING

Ensure air chamber is caged prior to installation. Failure to comply may result in injury to personnel.

WARNING

Ensure that tire is totally deflated before removing self-locking nuts. Failure to comply may result in serious injury or death to personnel.

WARNING

Spring brakes must be caged before attempting replacement of a rear axle wheel stud. Failure to comply may result in severe injury to personnel.

WARNING

Wear protective goggles to protect against possible injury from release of high pressure air. Failure to comply may result in injury to personnel.

WARNING

Prolonged contact with lubricating oil (MIL-L-2104) may cause a skin rash. Skin and clothing that come in contact with lubricating oil should be thoroughly washed immediately. Saturated clothing should be removed immediately. Areas in which lubricating oil is used should be well ventilated to keep fumes to a minimum. Failure to comply may result in injury to personnel.

WARNING

Hydraulic fluid (MIL-H-5606) is TOXIC. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes. Skin and clothing that come in contact with hydraulic oil should be washed immediately. Saturated clothing should be removed immediately. Failure to comply may result in injury to personnel.

WARNING

Never let moving wire rope slide through hands, even when wearing gloves. A broken wire could cut through gloves and cut hands. Failure to comply may result in injury to personnel.

WARNING

Wear appropriate eye protection when removing rivets. Failure to comply may result in injury to personnel.

WARNING

Wear appropriate eye protection when drilling holes. Failure to comply may result in injury to personnel.

WARNING

Wear leather gloves at all times when handling winch cable. Do not allow cable to slide through hands even with gloves on. Broken wires may cause injury.

WARNING SUMMARY (CONT)

WARNING

Use extreme caution when working around moving cable. Failure to do so may result in serious injury to personnel.

WARNING

Caution must be exercised while cab is raised. Ensure that locking mechanism is functioning properly before proceeding. Failure to comply may result in death or serious injury to personnel and damage to equipment.

WARNING

Diesel fuel is flammable. Arctic heater components and fuel lines may contain small amounts of fuel. If fuel is spilled, clean up immediately. Failure to comply may result in serious injury or death to personnel.

WARNING

Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.

WARNING

Light Material Handling Crane (LMHC) weighs approximately 250 lbs (114 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel.

WARNING

Light Material Handling Crane (LMHC) mast weighs approximately 110 lbs (50 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Light Material Handling Crane (LMHC) boom assembly weighs approximately 150 lbs (68 kgs). Use an assistant when removing boom assembly. Failure to comply may result in injury to personnel.

WARNING

Light Material Handling Crane (LMHC) boom weighs approximately 60 lbs (27 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Machine gun ring assembly weighs approximately 350 pounds (159 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Ensure vehicle is on level ground prior to installation/removal of collapsible drums. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Ensure cargo bed is free of equipment and debris and not warped or damaged in any way. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Both collapsible drums weigh approximately 235 lbs (107 kgs) empty and 3800 lbs (1725 kgs) full. Attach a suitable lifting device prior to installation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

S-280 shelter weighs approximately 1500 lbs (680 kgs) empty. Attach a suitable lifting device prior to installation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Ensure vehicle is on level ground prior to installation or removal of tank and pump unit. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Tank weighs approximately 500 lbs (227 kgs) empty or 4000 lbs (1816 kgs) full. Attach a suitable lifting device prior to installation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING SUMMARY (CONT)

WARNING

Pump unit weighs approximately 870 lbs (395 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Do not remove oil filter while engine is hot. Failure to comply may result in injury to personnel.

WARNING

Starting fluid is toxic and highly flammable. Container is pressurized. NEVER heat container and NEVER discharge starting fluid in confined areas or near open flame. Failure to comply may cause serious injury or death to personnel.

WARNING

Tab of HAND THROTTLE lever must be positioned above throttle pivot bar. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Use extreme care when opening cab door with cab raised. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Do not operate vehicle with exhaust pipe removed. Toxic exhaust fumes may enter cab, resulting in serious injury or death to personnel.

WARNING

Radiator and charge air cooler assembly weigh approximately 160 lbs (73 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Cargo sling must be placed under charge air cooler inlet and outlet ports. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Alternator weighs approximately 50 Ibs (23 kgs). The aid of an assistant is required to remove alternator. Failure to comply may result in injury to personnel.

WARNING

Starting motor weighs approximately 60 Ibs (27 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Negative battery terminals must be connected last. Failure to comply may result in serious injury or death to personnel.

WARNING

Negative battery terminals and battery tester negative terminal lug must be disconnected first. Failure to comply may result in serious injury or death to personnel.

WARNING

Battery box weighs approximately 70 Ibs (32 kgs). The aid of two assistants is required to remove battery box from vehicle frame. Failure to comply may result in injury to personnel.

WARNING

Battery box weighs approximately 70 Ibs (32 kgs). The aid of two assistants is required to position battery box on vehicle frame. Failure to comply may result in injury to personnel.

WARNING

Ensure WTEC Ill cab transmission harness does not interfere with throttle linkage. Failure to comply may result in injury to personnel.

WARNING

Self-adjusting brakes will not self-adjust without applying brake pedal. Failure to comply may result in injury to personnel.

WARNING SUMMARY (CONT)

WARNING

Ensure air hoses are connected to correct fittings. Failure to comply may result in serious injury or death to personnel.

WARNING

Proper adjustment of load sensing valve may only be accomplished with vehicle unloaded. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Always use an inflation safety cage to inflate tires mounted on multipiece rims, and tire/rim assemblies not mounted on a tire changing machine that has a positive lock down device designed to hold the assembly during inflation (TM 9-2610-200-14). When using a tire changing machine, always follow manufacturer's mounting and safety instructions. Failure to comply may result in serious injury or death to personnel. Always inflate tires that are mounted on rims with demountable side ring flanges or lockrings in an inflation safety cage or serious injury or death may result.

WARNING

Tire weighs approximately 350 lbs (159 kgs). Use extreme care when handling tire. Failure to comply may result in injury to personnel.

WARNING

Wheel drum weighs approximately 92 lbs (42 kgs). Use the aid of an assistant to help remove wheel drum from axle. Failure to comply may result in injury to personnel.

WARNING

The sudden release of high pressure air can cause damage to eyes. Wear appropriate eye protection when working near pressurized air. Failure to comply may result in injury to personnel.

WARNING

Leave shackles installed in front bumper to support front bumper until ready to remove. Failure to comply may result in injury to personnel.

WARNING

Front bumper weighs approximately 100 lbs (45 kgs). Use the aid of an assistant to remove front bumper. Failure to comply may result in injury to personnel.

WARNING

Tractor platform weighs approximately 550 lbs (250 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Spare tire retainer weighs approximately 150 lbs (68 kgs). The aid of two assistants is required to remove spare tire retainer from vehicle. Failure to comply may result in injury to personnel.

WARNING

Rear stabilizer bar weighs approximately 50 lbs (22 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Cab roof weighs approximately 110 lbs (50 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel.

WARNING

Use care when removing/installing window. Do not force window, or window may shatter. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Tailgate assembly weighs approximately 130 lbs (59 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Tow bar weighs approximately 150 lbs (68 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING SUMMARY (CONT)

WARNING

Rear tool box weighs approximately 75 lbs (34 Kgs) empty. Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Cable can become frayed or contain broken wires. Wear heavy leather-palmed gloves when handling cable. Frayed or broken wires can injure hands. Failure to comply may result in injury to personnel.

WARNING

Remote control must be used to operate 30K winch while breaking in cables. Failure to comply may result in injury to personnel.

WARNING

Cab weighs approximately 3000 lbs (1362 kgs) attach a suitable lifting device prior to raising cab. Failure to comply may result in injury to personnel.

WARNING

Hydraulic tank weighs approximately 190 lbs (86 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Extreme care must be taken when lowering gravel deflector. Coolant hoses could be pulled loose. Failure to comply could result in serious eye injury.

WARNING

Retaining rings are under tension and can act as projectiles when released causing severe eye injury. Use care when installing retaining rings. Failure to comply may result in injury to personnel.

WARNING

Do not open coolant fill cap if temperature reads above 110 degrees F (43 degrees C). Steam or hot coolant is under pressure. Failure to comply may result in injury to personnel.

WARNING

Pressure in reservoir tank must be released before removing cap. Failure to comply may result in injury to personnel.

WARNING

Excess coolant may splash out when hoses are removed from swingfire pump. Wear appropriate eye protection. Failure to comply may result in injury to personnel.

WARNING

200 amp alternator weighs approximately 72 lbs (33 kgs). The aid of an assistant is required to install 200 amp alternator. Failure to comply may result in injury to personnel.

WARNING

100 amp alternator weighs approximately 70 lbs (32 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel.

WARNING

Both collapsible drums weigh approximately 235 lbs (107 kgs) empty and 3800 lbs (1725 kgs) full each. Attach a suitable lifting device prior to removal. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Air dryer may contain air pressure. Loosen input air hose connector slowly to vent off air pressure. Failure to comply may result in injury to personnel.

WARNING

Radiator and charge air cooler assembly weigh approximately 160 lbs (73 Kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Tractor platform weighs approximately 550 lbs (250 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel or damage to equipment.

WARNING SUMMARY (CONT)

WARNING

Spare tire retainer weighs approximately 150 Ibs (68 kgs). The aid of two assistants is required to install spare tire retainer on vehicle. Failure to comply may result in injury to personnel.

WARNING

Rear stabilizer bar weighs approximately 50 Ibs (22 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Cab roof weighs approximately 110 Ibs (50 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel.

WARNING

Do not remove radiator cap when the engine is hot; steam and hot coolant can escape and burn skin. Failure to comply may result in injury to personnel.

*ARMY TM 9-2320-366-20-1
AIR FORCE T.O. 36A12-1C-1102-1

TECHNICAL MANUAL
NO. 9-2320-366-20-1

TECHNICAL ORDER
NO. 36A12-1C-1102-1

HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE AIR FORCE
Washington D.C., 15 September 1998

Unit Maintenance Manual

M1083 SERIES, 5-TON, 6 x 6, MEDIUM TACTICAL VEHICLES (MTV)

VOLUME NO. 1 OF 5

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TRK, DUMP, MTV, AIR DROP, M1094		
W/WN	2320-01-360-1894	BT2
W/O WN	2320-01-355-3062	BTK
TRK, CHAS, MTV, LWB, M1096	2320-01-354-4527	BR6

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of any way to improve the procedures, please let us know. Mail your letter, DA Form 2082 (Recommended Changes to Publications and Blank Forms), or DA form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-AC-NMLI, Rock Island, Ill, 61299. A reply will be furnished to you.

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HOW TO USE THIS MANUAL

OVERVIEW

This Technical Manual (TM) is provided to help you maintain the MTV at the Unit Maintenance level. Because of its size, it is divided into five volumes. Volumes 3, 4, and 5 contain information which will assist you in the performance of Unit Maintenance on the MTV. Volume 1 contains the following major sections in order of appearance:

- **WARNING SUMMARY.** Provides a summary of the most important warnings that apply throughout the manual.
- **TABLE OF CONTENTS.** Lists, for all volumes, the chapters, sections, appendixes, and indexes with page numbers in order of appearance.
- **CHAPTER 1, INTRODUCTION.** Describes the MTV and provides equipment data.
- **CHAPTER 2, VEHICLE MAINTENANCE.** This chapter contains information for finding tools; special tools; Test, Measurement, and Diagnostic Equipment (TMDE); and repair parts. It also contains the preventive maintenance checks and services (PMCS) and troubleshooting tables.
- **APPENDIX A, REFERENCES.** Lists publications used with the MTV.
- **APPENDIX B, MAINTENANCE ALLOCATION CHART.** The maintenance allocation chart denotes the level of maintenance which performs specific maintenance tasks and the time required. It also lists tools and special tools required for each task.
- **APPENDIX C, TOOLS IDENTIFICATION LIST.** Lists equipment used in the performance of maintenance and references publications which contain information regarding the equipment.
- **APPENDIX D, EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST.** Lists expendable and durable items used in the performance of maintenance.
- **APPENDIX E, ILLUSTRATED LIST OF MANUFACTURED ITEMS.** Illustrates and describes items that must be fabricated from bulk materials for repair of the MTV.
- **APPENDIX F, TORQUE LIMITS.** Lists the standard torque values for specific attaching hardware.
- **APPENDIX G, MANDATORY REPLACEMENT PARTS.**
- **APPENDIX H, LUBRICATION ORDER.**
- **APPENDIX J, ADDITIONAL AUTHORIZATION LIST (AAL).**
- **SUBJECT INDEX.** Lists important subjects contained in volumes 1, 2, 3, 4, and 5 in alphabetical order and gives the associated paragraph number.

Volume 2 contains the following major sections in order of appearance:

- **WARNING SUMMARY.** Provides a summary of the most important warnings that apply throughout the manual.
- **CHAPTER 2, TROUBLESHOOTING (CONT)**

- **APPENDIX A, REFERENCES.** Lists publications used with the MTV.
- **APPENDIX B, MAINTENANCE ALLOCATION CHART.** The maintenance allocation chart denotes the level of maintenance which performs specific maintenance tasks and the time required. It also lists tools and special tools required for each task.
- **APPENDIX C, TOOLS IDENTIFICATION LIST.** Lists equipment used in the performance of maintenance and references publications which contain information regarding the equipment.
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- **APPENDIX J, ADDITIONAL AUTHORIZATION LIST (AAL).**
- **SUBJECT INDEX.** Lists important subjects contained in volume 2 in alphabetical order and gives the associated paragraph number.

Volume 3 contains the following major sections in order of appearance:

- **WARNING SUMMARY.** Provides a summary of the most important warnings that apply throughout the manual.
- **CHAPTER 2, TROUBLESHOOTING (CONT)**
- **CHAPTER 3, ENGINE MAINTENANCE**
- **CHAPTER 4, FUEL SYSTEM MAINTENANCE**
- **CHAPTER 5, EXHAUST SYSTEM MAINTENANCE**
- **CHAPTER 6, COOLING SYSTEM MAINTENANCE**
- **CHAPTER 7, ELECTRICAL SYSTEM MAINTENANCE**

Volume 4 contains the following major sections in order of appearance:

- **WARNING SUMMARY.** Provides a summary of the most important warnings that apply throughout the manual.
- **CHAPTER 7, ELECTRICAL SYSTEM MAINTENANCE (CONT)**
- **CHAPTER 8, TRANSMISSION MAINTENANCE**
- **CHAPTER 9, PROPELLER SHAFT MAINTENANCE**

OVERVIEW (CONT)

- **CHAPTER 10, FRONT, INTERMEDIATE, AND REAR AXLE MAINTENANCE**
- **CHAPTER 11, BRAKE SYSTEM MAINTENANCE**
- **CHAPTER 12, WHEEL, TIRES, AND HUBS MAINTENANCE**
- **CHAPTER 13, STEERING SYSTEM MAINTENANCE**
- **CHAPTER 14, FRAME, TOWING ATTACHMENTS, AND DRAWBARS MAINTENANCE**
- **CHAPTER 15, SUSPENSION SYSTEM MAINTENANCE**
- **CHAPTER 16, BODY AND CAB MAINTENANCE**
- **APPENDIX A, REFERENCES.** Lists publications used with the MTV.
- **APPENDIX B, MAINTENANCE ALLOCATION CHART.** The maintenance allocation chart denotes the level of maintenance which performs specific maintenance tasks and the time required. It also lists tools and special tools required for each task.
- **APPENDIX C, TOOLS IDENTIFICATION LIST.** Lists equipment used in the performance of maintenance and references publications which contain information regarding the equipment.
- **APPENDIX D, EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST.** Lists expendable and durable items used in the performance of maintenance.
- **APPENDIX E, ILLUSTRATED LIST OF MANUFACTURED ITEMS.** Illustrates and describes items that must be fabricated from bulk materials for repair of the MTV.
- **APPENDIX F, TORQUE LIMITS.** Lists the standard torque values for specific attaching hardware.
- **APPENDIX G, MANDATORY REPLACEMENT PARTS.**
- **APPENDIX H, LUBRICATION ORDER.**
- **APPENDIX J, ADDITIONAL AUTHORIZATION LIST (AAL).**
- **SUBJECT INDEX.** Lists important subjects contained in volume 4 in alphabetical order and gives the associated paragraph number.

Volume 5 contains the following major sections in order of appearance:

- **WARNING SUMMARY.** Provides a summary of the most important warnings that apply throughout the manual.
- **CHAPTER 17, MATERIAL HANDLING CRANES, 30K WINCHES, AND 15K SELF-RECOVERY WINCH (SRW) MAINTENANCE**
- **CHAPTER 19, BODY, CHASSIS, AND ACCESSORY ITEMS MAINTENANCE**
- **CHAPTER 19, HYDRAULIC SYSTEM MAINTENANCE**

- **CHAPTER 20, SPECIAL PURPOSE KITS MAINTENANCE**
- **CHAPTER 21, ARMAMENT/SIGHTING AND FIRE CONTROL MATERIEL MAINTENANCE**
- **CHAPTER 22, ELECTRICAL ILLUMINATING EQUIPMENT MAINTENANCE**
- **CHAPTER 23, AIR SYSTEM MAINTENANCE**
- **CHAPTER 24, GAGES (NON-ELECTRICAL) MAINTENANCE**
- **APPENDIX A, REFERENCES.** Lists publications used with the MTV.
- **APPENDIX B, MAINTENANCE ALLOCATION CHART.** The maintenance allocation chart denotes the level of maintenance which performs specific maintenance tasks and the time required. It also lists tools and special tools required for each task.
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- **APPENDIX G, MANDATORY REPLACEMENT PARTS.**
- **APPENDIX H, LUBRICATION ORDER.**
- **APPENDIX J, ADDITIONAL AUTHORIZATION LIST (AAL).**
- **SUBJECT INDEX.** Lists important subjects contained in volume 5 in alphabetical order and gives the associated paragraph number.

FINDING INFORMATION

There are several ways to find the information you need in this manual. They are as follows:

- **FRONT COVER INDEX.** The front cover index contains a list of the most important topics contained in each volume. If features a black box at the right edge of the cover which corresponds with a black box on the page containing the topic. The topics listed on the front cover are highlighted in the table of contents with a box.
- **TABLE OF CONTENTS.** Lists chapters, sections, appendixes, and indexes with page numbers in order of appearance.
- **CHAPTER INDEXES.** List paragraphs contained in the individual chapters with paragraph and page numbers in order of appearance.
- **SYMPTOM INDEX.** Lists malfunctions contained in the troubleshooting table with page numbers in order of appearance.

TROUBLESHOOTING

Troubleshooting is contained in chapter 2. When a malfunction occurs, look at the symptom index for the vehicle troubleshooting table in chapter 2. Find the malfunction in the index. Turn to the page number listed for the malfunction in the troubleshooting table. Perform the steps required to correct the malfunction. If you can't find the malfunction, or the malfunction is not corrected, notify your supervisor.

MAINTENANCE

- **SCHEDULED MAINTENANCE.** Your scheduled maintenance is located in **Table 2-1. Preventive Maintenance Checks and Services.** These checks and services are mandatory at the intervals listed. Always follow the WARNINGS and CAUTIONS.

- **UNSCHEDULED MAINTENANCE.** Unscheduled maintenance is located in chapters 3 thru 24. The PMCS and troubleshooting tables often reference you to these procedures. When you perform maintenance, look over the entire procedure before starting. Make sure you have the necessary tools and materials at hand. Always follow the WARNINGS and CAUTIONS.

FOLLOW THESE GUIDELINES WHEN USING THIS MANUAL:

- Become familiar with the entire maintenance procedure before beginning a maintenance task.

- Read all **WARNINGS** and **CAUTIONS** before performing any procedures.

CHAPTER 1
INTRODUCTION

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Section I. GENERAL INFORMATION

1-1 SCOPE

This chapter provides general information, equipment description, and principles of operation for the M1083 series Medium Tactical Vehicle (MTV). The MTV will herein be referred to as the vehicle.

a. Type of Manual: Unit Maintenance Instructions, TM 9-2320-366-20-1.

b. Model Numbers and Equipment Names. The vehicle model numbers and names are listed below:

M1083 Truck, Cargo: 5-Ton, 6x6, Dropside (Figure 1-1).
M1084 Truck, Cargo: 5-Ton, 6x6, Dropside, W/MHC (Figure 1-2).
M1085 Truck, Cargo: 5-Ton, 6x6, Dropside, LWB (Figure 1-3).
M1086 Truck, Cargo: 5-Ton, 6x6, Dropside, LWB, W/MHC (Figure 1-4).
M1088 Truck, Tractor: 5-Ton, 6x6 (Figure 1-5).
M1089 Truck, Wrecker: 5-Ton, 6x6 (Figure 1-6).
M1090 Truck, Dump: 5-Ton, 6x6 (Figure 1-7).
M1092 Truck, Chassis: 5-Ton, 6x6 (Figure 1-8).
M1093 Truck, Cargo: 5-Ton, 6x6, Dropside, AIR DROP (Figure 1-9).
M1094 Truck, Dump: 5-Ton, 6x6, AIR DROP (Figure 1-10).
M1096 Truck, Chassis: 5-Ton, 6x6, LWB (Figure 1-11).

1-1. SCOPE (CONT)

c. Purpose of Equipment. The MTV series is a family of 6x6 wheeled vehicles. The purpose of these vehicles is as follows:

(1) M1083 - Cargo hauling vehicle; can be outfitted for troop transport when equipped with a troopseat kit.

(2) M1084 - Cargo hauling vehicle; equipped with a Material Handling Crane (MHC).

(3) M1085 - Long Wheelbase (LWB) cargo hauling vehicle; can be outfitted for troop transport when equipped with a troopseat kit.

(4) M1086 - Long Wheelbase (LWB) cargo hauling vehicle; equipped with a Material Handling Crane (MHC).

(5) M1088 - Tractor with fifth wheel; used to pull various types of fifth wheel trailers.

(6) M1089 - Wrecker with two winches, an underlift assembly, and a Material Handling Crane (MHC); used for recovering disabled vehicles.

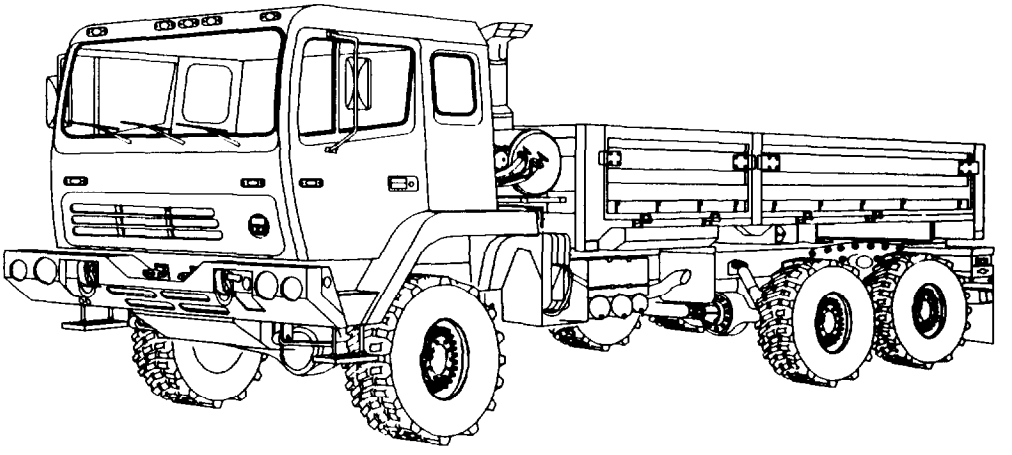
(7) M1090 - Dump truck; can be outfitted for troop transport when equipped with a troopseat kit.

(8) M1092 - Standard wheelbase vehicle chassis; this chassis will accept a standard cargo bed or may be modified for special missions.

(9) M1093 - Cargo hauling vehicle; can be airdropped and outfitted for troop transport when equipped with a troopseat kit.

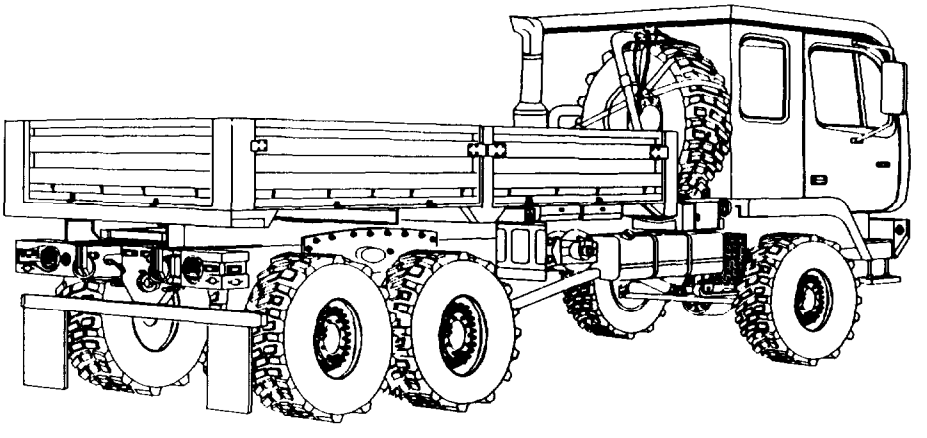
(10) M1094 - Dump truck; can be airdropped and outfitted for troop transport when equipped with a troopseat kit.

(11) M1096 - Long Wheelbase (LWB) vehicle chassis; this chassis will accept a long cargo bed or may be modified for special missions.



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LEFT FRONT VIEW

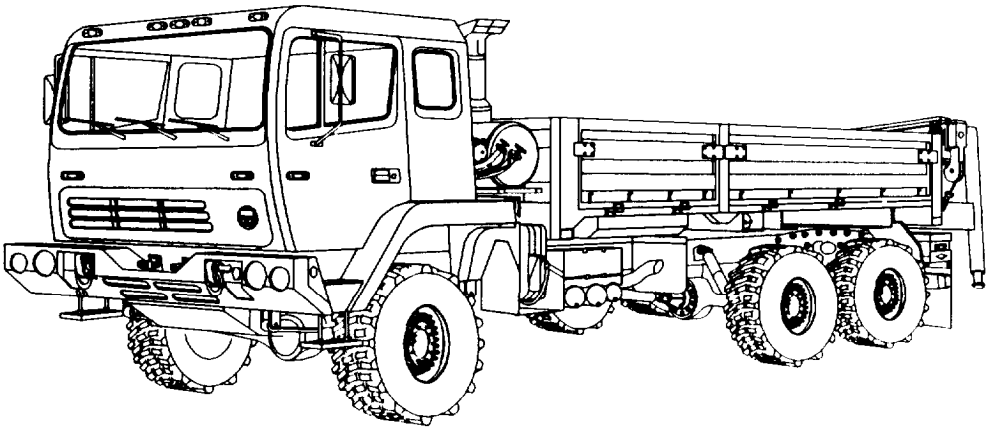


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RIGHT REAR VIEW

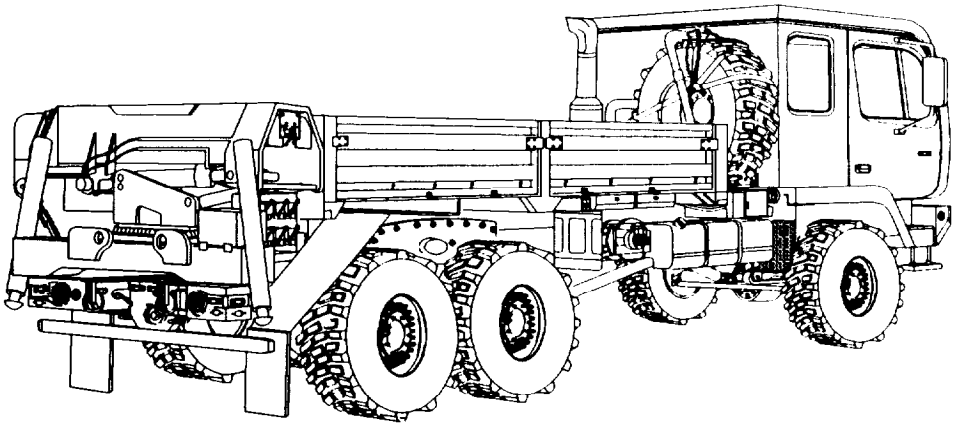
Figure 1-1. M1083 Truck, Cargo: 5-Ton, 6x6, Dropside

1-1. SCOPE (CONT)



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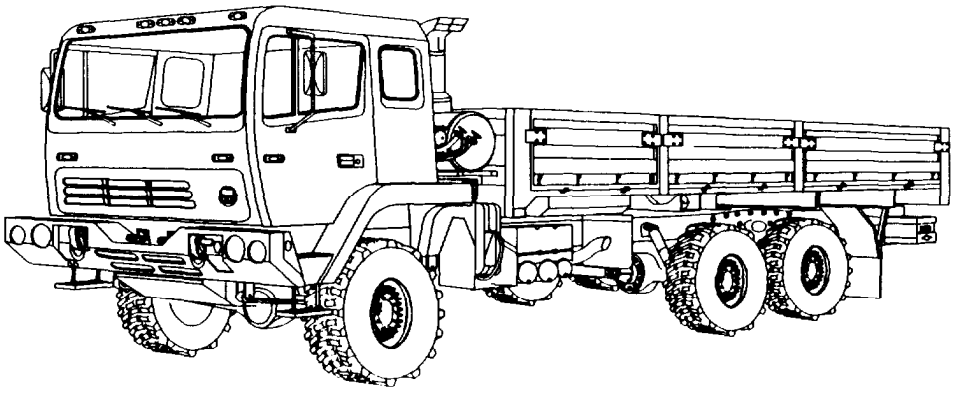
LEFT FRONT VIEW



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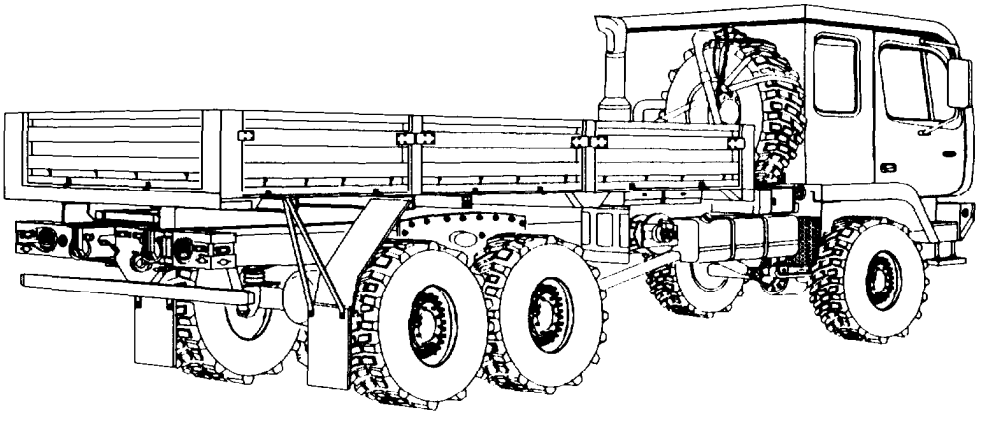
RIGHT REAR VIEW

Figure 1-2. M1094 Truck, Cargo: 5-Ton, 6x6, Dropside, W/MHC



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LEFT FRONT VIEW

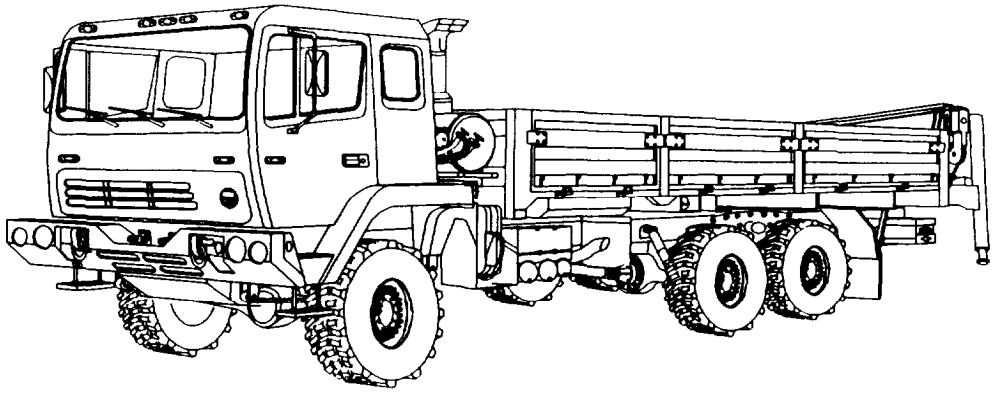


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RIGHT REAR VIEW

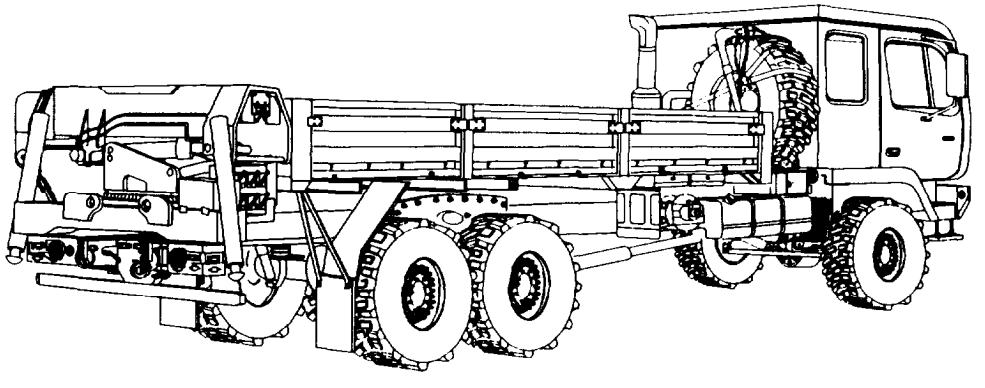
Figure 1-3. M1085 Truck, Cargo: 5-Ton, 6x6, Dropside, LWB

1-1. SCOPE (CONT)



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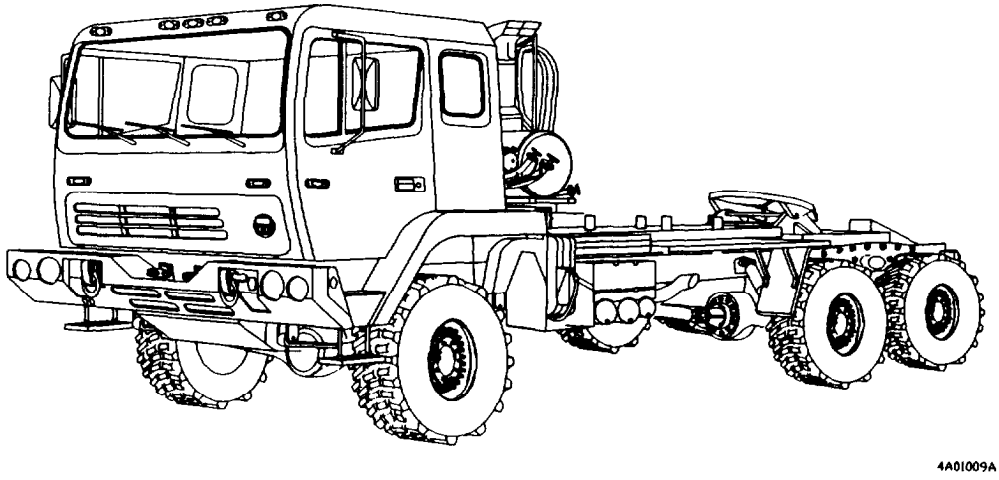
LEFT FRONT VIEW



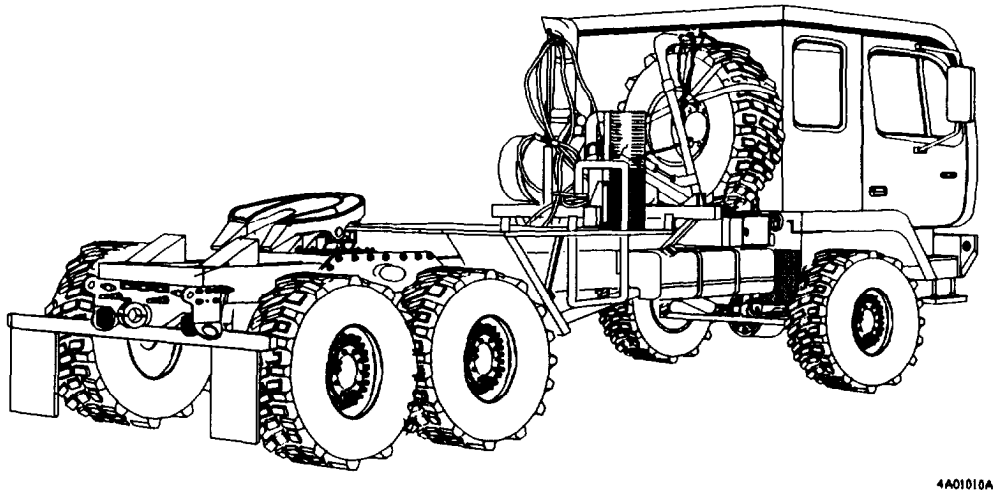
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RIGHT REAR VIEW

Figure 1-4. M1086 Truck, Cargo: 5-Ton, 6x6, Dropside, LWB, W/MHC



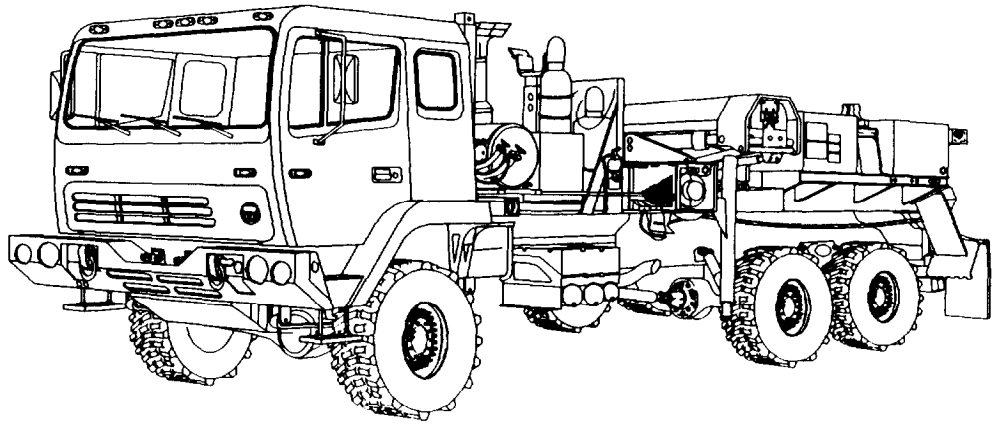
LEFT FRONT VIEW



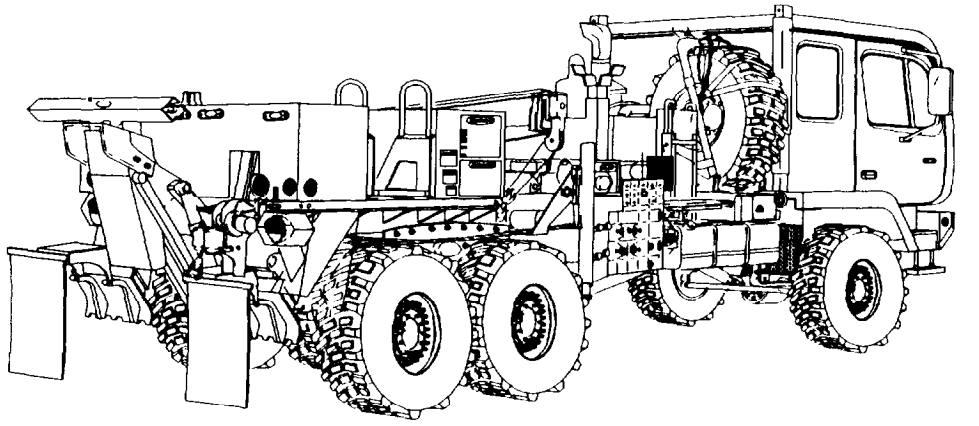
RIGHT REAR VIEW

Figure 1-5. M1088 Truck, Tractor: 5-Ton, 6x6

1-1. SCOPE (CONT)

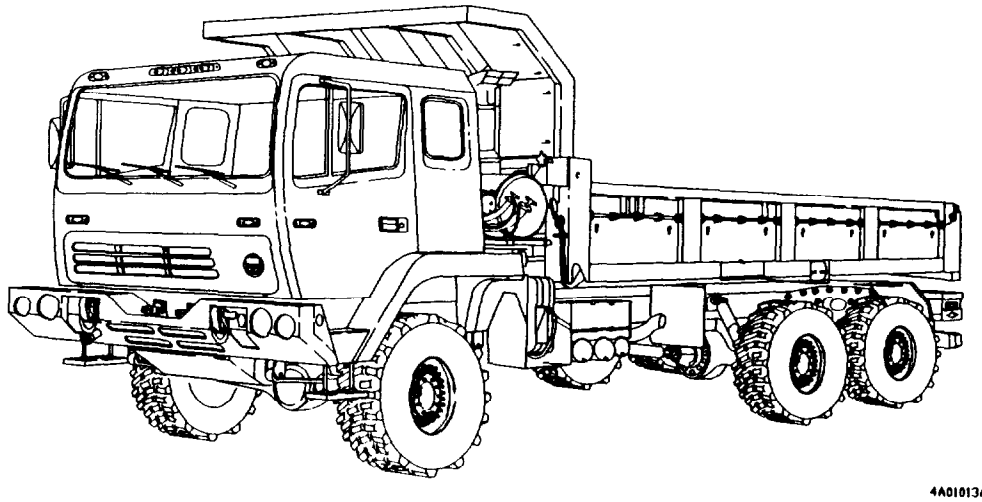


LEFT FRONT VIEW

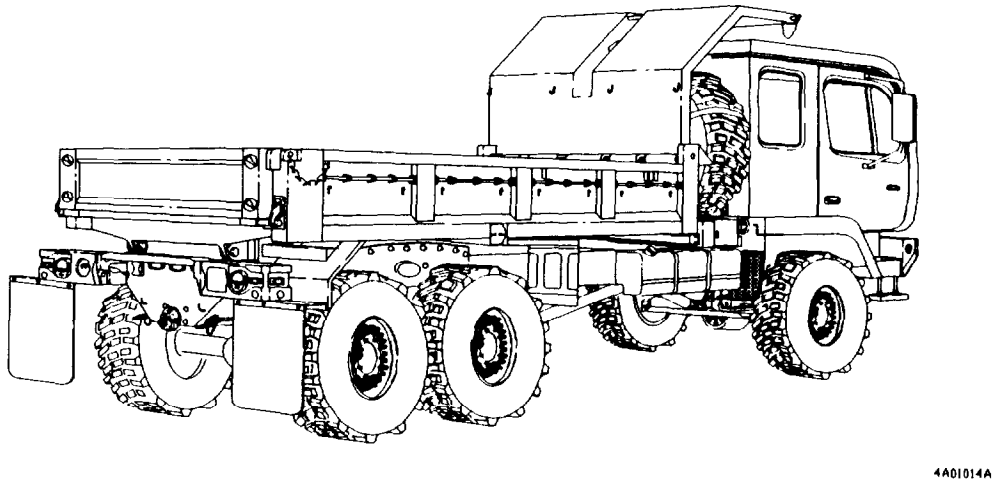


RIGHT REAR VIEW

Figure 1-6. M1089 Truck, Wrecker: 5-Ton, 6x6



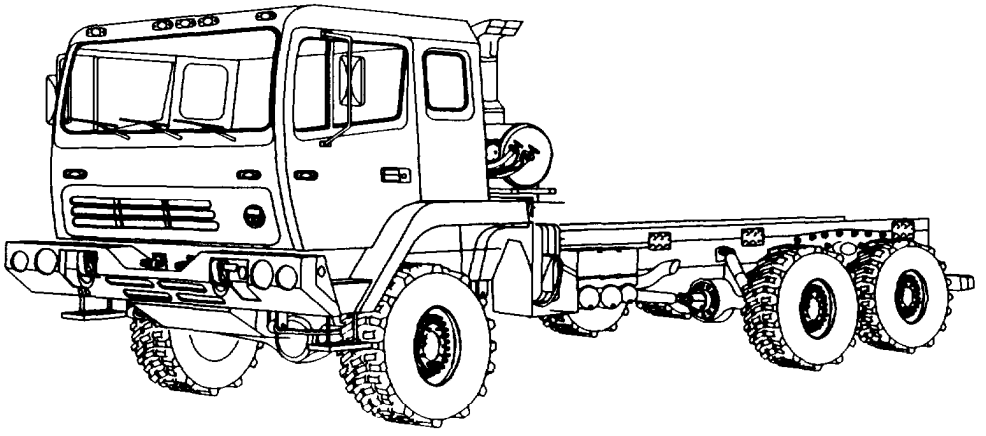
LEFT FRONT VIEW



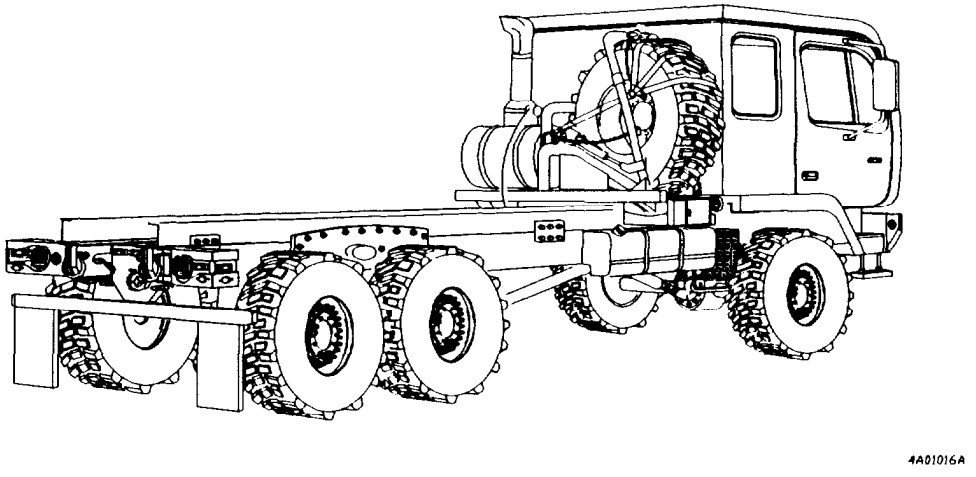
RIGHT REAR VIEW

Figure 1-7. M1090 Truck, Dump: 5-Ton, 6x6

1-1. SCOPE (CONT)

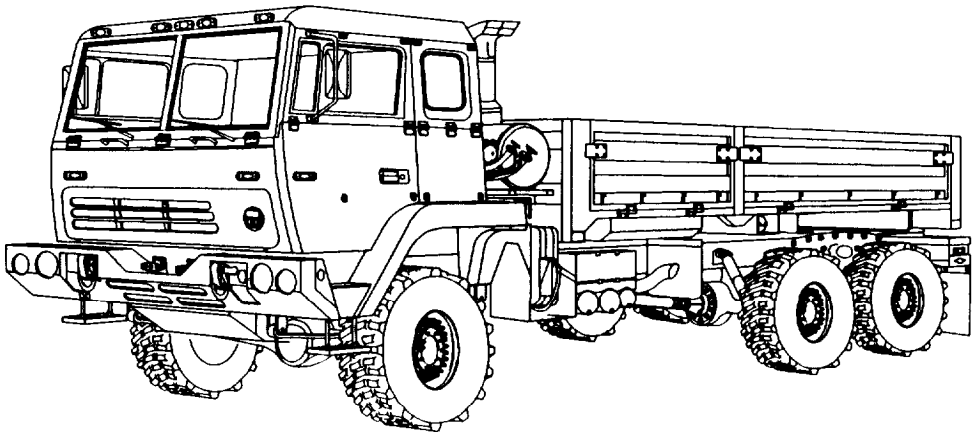


LEFT FRONT VIEW

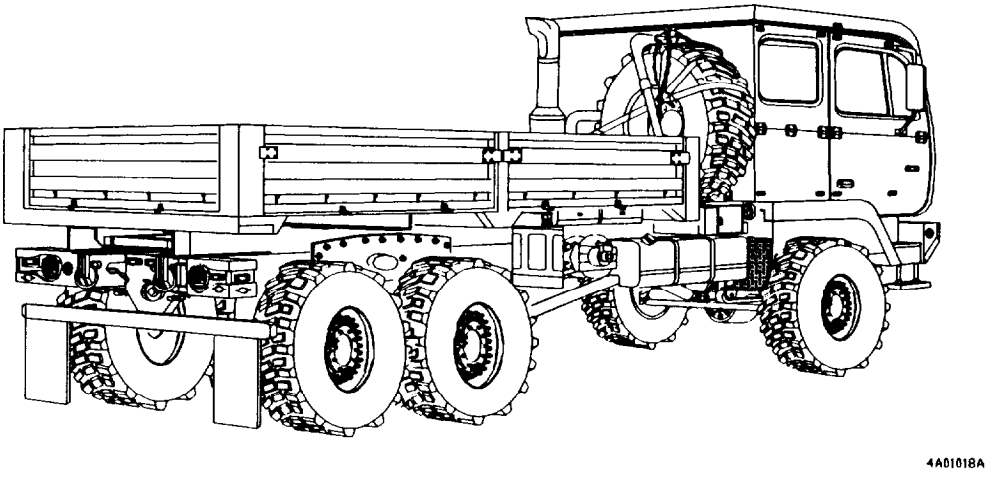


RIGHT REAR VIEW

Figure 1-8. M1092 Truck, Chassis: 5-Ton, 6x6



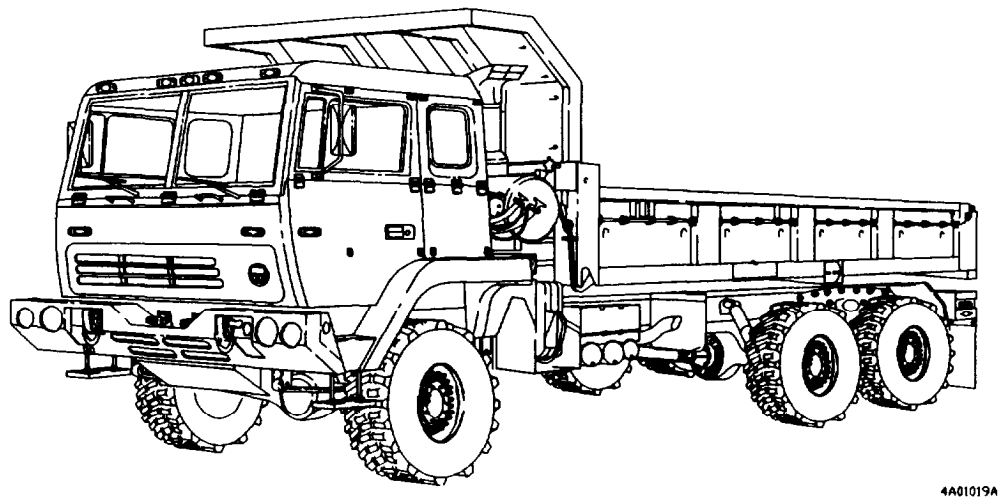
LEFT FRONT VIEW



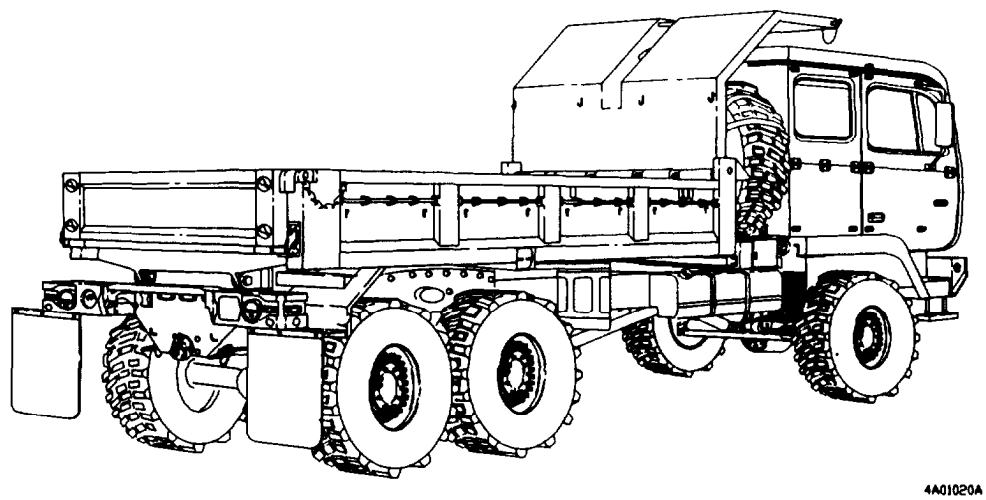
RIGHT REAR VIEW

Figure 1-9. M1093 Truck, Cargo: 5-Ton, 6x6, Dropside, AIR DROP

1-1. SCOPE (CONT)

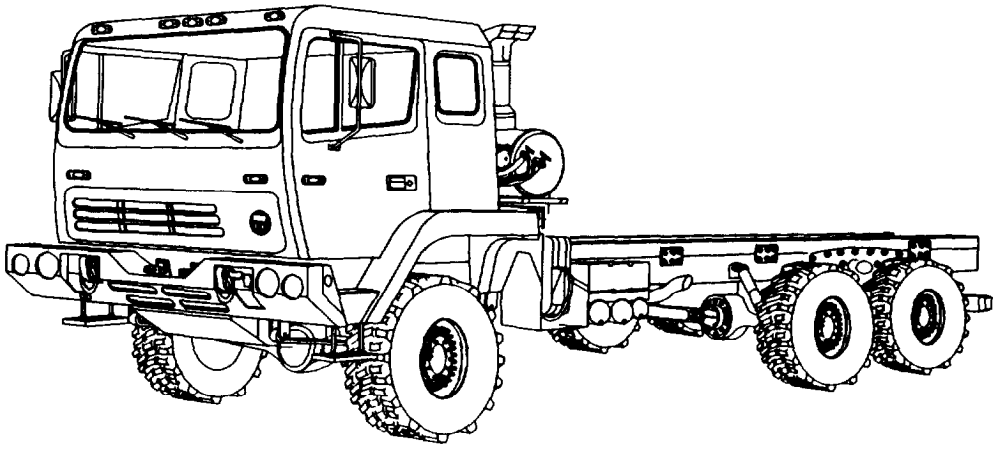


LEFT FRONT VIEW



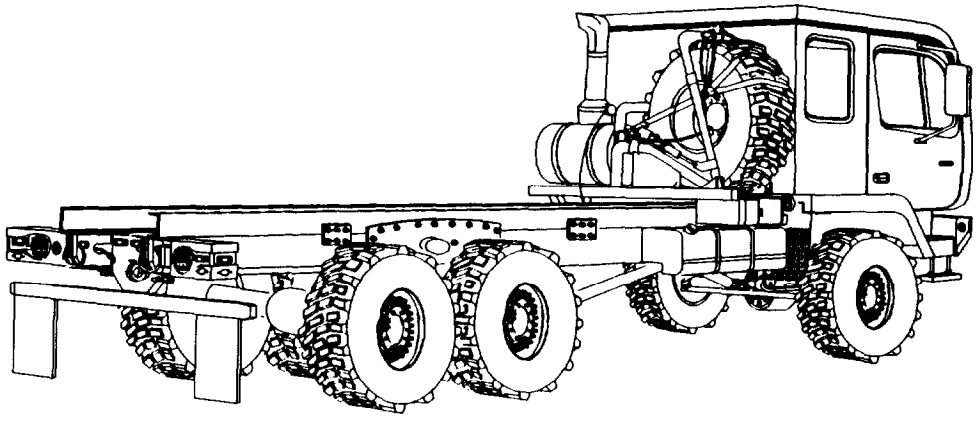
RIGHT REAR VIEW

Figure 1-10. M1094 Truck, Dump: 5-Ton, 6x6, AIR DROP



4A01021A

LEFT FRONT VIEW



4A01022A

RIGHT REAR VIEW

Figure 1-11. M1096 Truck, Chassis: 5-Ton, 6x6, LWB

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by (as applicable) DA Pam 738-750. The Army Maintenance Management Systems (TAMMS); DA Pam 738-751, Functional Users Manual for the Army Maintenance Management Systems; or AR 700-138. Army Logistics Readiness and Sustainability.

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Command decision, according to the tactical situation, will determine when the destruction plan of the M1083 vehicles will be accomplished. A destruction plan will be prepared by the using organization unless one has been prepared by a higher authority. For general destruction procedures for this equipment, refer to TM 750-224-6, Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use (U.S. Army Tank-automotive and Armaments Command).

1-4. OFFICIAL NOMENCLATURE, NAMES AND DESIGNATIONS

Table 1-1 lists the nomenclature cross-reference used in this manual.

Table 1-1. Nomenclature Cross-Reference

Common Name	Official Nomenclature
Cold Start System	Ether Quick-Start System
Engine Coolant	Antifreeze, Ethylene, Glycol, Inhibited
Gladhand	Quick-Disconnect Coupling
Vehicle	Medium Tactical Vehicle (MTV)

1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your Medium Tactical Vehicle (MTV) needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/MPA, Warren, MI 48397-5000. We'll send you a reply.

1-6. WARRANTY INFORMATION

Refer to M1083 Series Warranty Program Technical Bulletin, TB 9-2300-366-15, for complete warranty information covering the vehicle. Warranty starts on the date found in block 23, DA Form 2408-9, in the logbook. Report all defects in material or workmanship to your supervisor, who will take appropriate action.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-7. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

Refer to TM 9-2320-366-10-1 for equipment characteristics, capabilities, and features.

1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

Refer to TM 9-2320-366-10-1 for location and description of major components.

1-9. DIFFERENCES BETWEEN MODELS

Refer to TM 9-2320-366-10-1 for differences between models.

Section III. PRINCIPLES OF OPERATION

1-10. POWERTRAIN

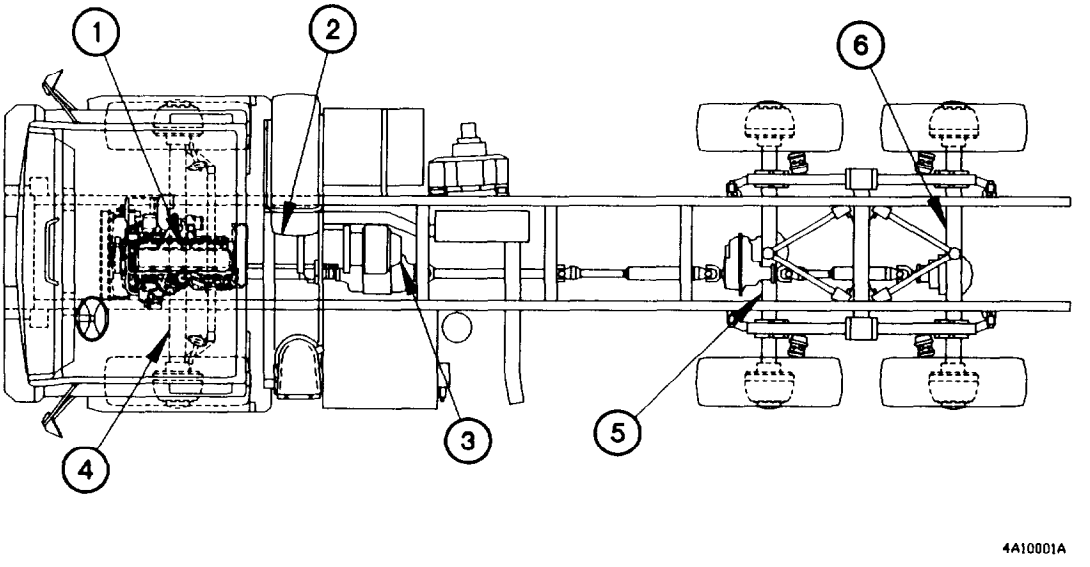


Figure 1-12. Powertrain

Power for the vehicle is provided by a diesel engine (1, Figure 1-12) which is coupled directly to an automatic transmission (2). Power from the automatic transmission is transferred to the transfer case (3) and on to the front steering and rear drive axles (4, 5, and 6) through a series of drive shafts and universal joints. The vehicle drive train is enhanced by the use of an electronically controlled seven-speed transmission. The primary components of the Allison MD3070PT transmission consist of either a WTEC II Transmission Electronic Control Unit (ECU) Pushbutton Shift Selector (WTEC II TEPSS) or a WTEC III Transmission Pushbutton Shift Selector WTEC Ill TPSS) coupled with a WTEC III transmission ECU; a control module located directly beneath the transmission main housing; a Throttle Position Sensor (TPS) which detects the percentage of throttle being used; engine, turbine, and output speed sensors which, in combination with each other, send information to the ECU to provide the smoothest possible shifting and allow the ECU to monitor overall transmission performance.

1-10. POWERTRAIN (CONT)

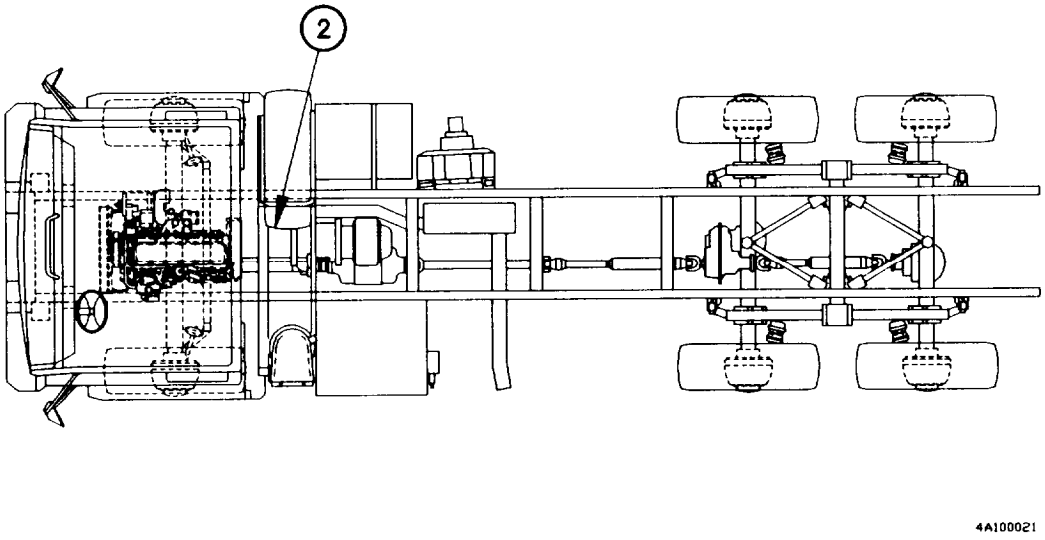


Figure 1-12. Powertrain (Cont)

a. Engine. The vehicle is equipped with a Caterpillar diesel engine, model 3116 ATAAC (Air-to-Air After Cooler) (1, Figure 1-12), rated at 290 HP.

b. Transmission. The vehicle is equipped with an Allison automatic transmission, model MD3070PT (2, Figure 1-12). It is a fully automatic electronically controlled seven-speed close-ratio transmission.

(1) The WTEC II TEPSS contains microprocessor based electronics, and is located in the instrument panel to the driver's left. The WTEC III TPSS is located in the instrument panel to the driver's left, while the WTEC III transmission ECU is located behind the kick panel. The ECU receives information, in the form of electrical signals from the various sensors, processes that information, then sends the appropriate signals to the solenoids which control transmission function. The ECU incorporates a diagnostic program which enables it to identify numerous actual and/or potential transmission problems. The WTEC II TEPSS and WTEC III TPSS are capable of displaying diagnostic codes in the Light Emitting Diode (LED) display on the pushbutton shift selector. These diagnostic codes are stored in the ECU for later retrieval. The pushbutton shift selector is used for selecting transmission range. The transmission defaults to Neutral (N) whenever electrical power is removed from the vehicle. The Drive (D) gear selection is used for normal driving conditions. The transmission will engage 2nd gear when D is selected and the vehicle is stopped. As the accelerator is depressed and speed increases, the transmission will automatically upshift through 3rd, 4th, 5th, 6th, and 7th gears. Low gear (1st gear), is available only by manual selection. Selecting a specific gear; for example, 3rd; will prevent the transmission upshifting past the selected gear. This is useful if road or load conditions require lower gear range operation. When road conditions improve or load is reduced, the shift selector can be returned to the normal (D) driving position. When electrical power is applied to the WTEC II TEPSS and a fault is detected in the transmission controls, the WTEC II TEPSS will emit an eight second series of beeps. When electrical power is applied to the WTEC III TPSS and a fault is detected in the transmission controls, "--" will appear in the WTEC III TPSS LED display. In either case, the transmission will not engage a range (forward or reverse) when D or Reverse (R) range is selected on the pushbutton shift selector, TM 9-2320-366-10-1 provides full operating instructions for the transmission.

(2) The transmission may include a Power Take-Off (PTO). The PTO powers a hydraulic pump which supplies hydraulic pressure for hydraulically operated components.

c. Transfer Case. The transfer case (3, Figure 1-12) provides the transmission (2) with the seventh gear (low gear, or 1st gear) and delivers power from the transmission to the front and rear driveshafts. In normal driving conditions, the transfer case splits the output torque of the transmission, providing 70 percent of the torque to the rear output drive yoke and 30 percent to the front output drive yoke. In low gear the output torque of the transmission is split evenly, with 50 percent going to the front output yoke and 50 percent going to the rear.

d. Suspension. The suspension system is designed to maintain tire/ground contact in all types of terrain. the vehicle is equipped with 395/85R20 tires. The tires have a tread pattern designed to maximize traction on all types of terrain.

e. Axles. Front, Intermediate and Rear axles (4, 5, and 6, Figure 1-12) feature wheel end planetary drives designed to allow the vehicle to carry heavy loads. When the vehicle is operated in MODE, all axles become driving axles. When the vehicle is operated in MODE, 7th gear is unavailable.

1-11. ENGINE AIR INTAKE SYSTEM

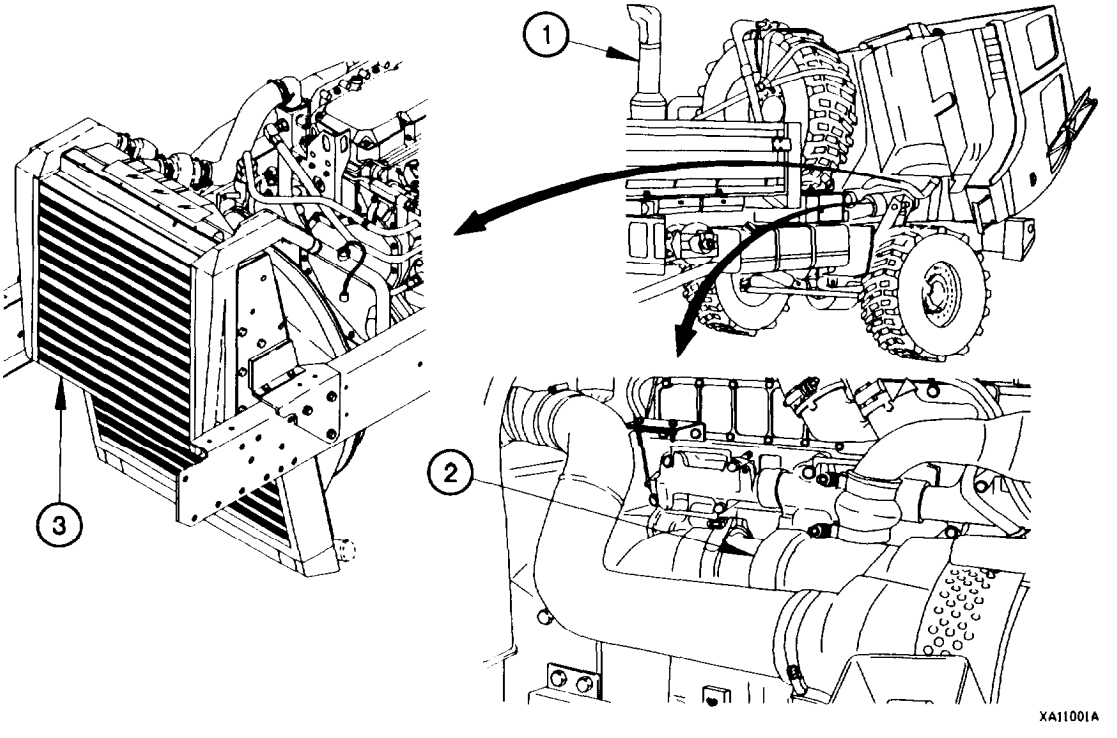


Figure 1-13. Engine Air Intake System

The engine air intake system consists of a dry-type air cleaner (1, Figure 1-13), turbocharger (2), and a charge air cooler (3). The turbocharger increases engine horsepower by delivering a higher volume of air to the engine. Engine exhaust gases flow through the turbocharger, causing a turbine wheel to spin. As the turbine wheel spins, a compressor wheel on the opposite end of the turbine wheel shaft spins and draws fresh air through the air cleaner. The compressor wheel compresses the air and delivers it to the charge air cooler. The air flows through the charge air cooler which cools the air before it is delivered to the engine cylinders. The charge air cooler allows a denser charge of air to be delivered to the engine, which also aids in increasing engine horsepower.

1-12. FUEL SYSTEM

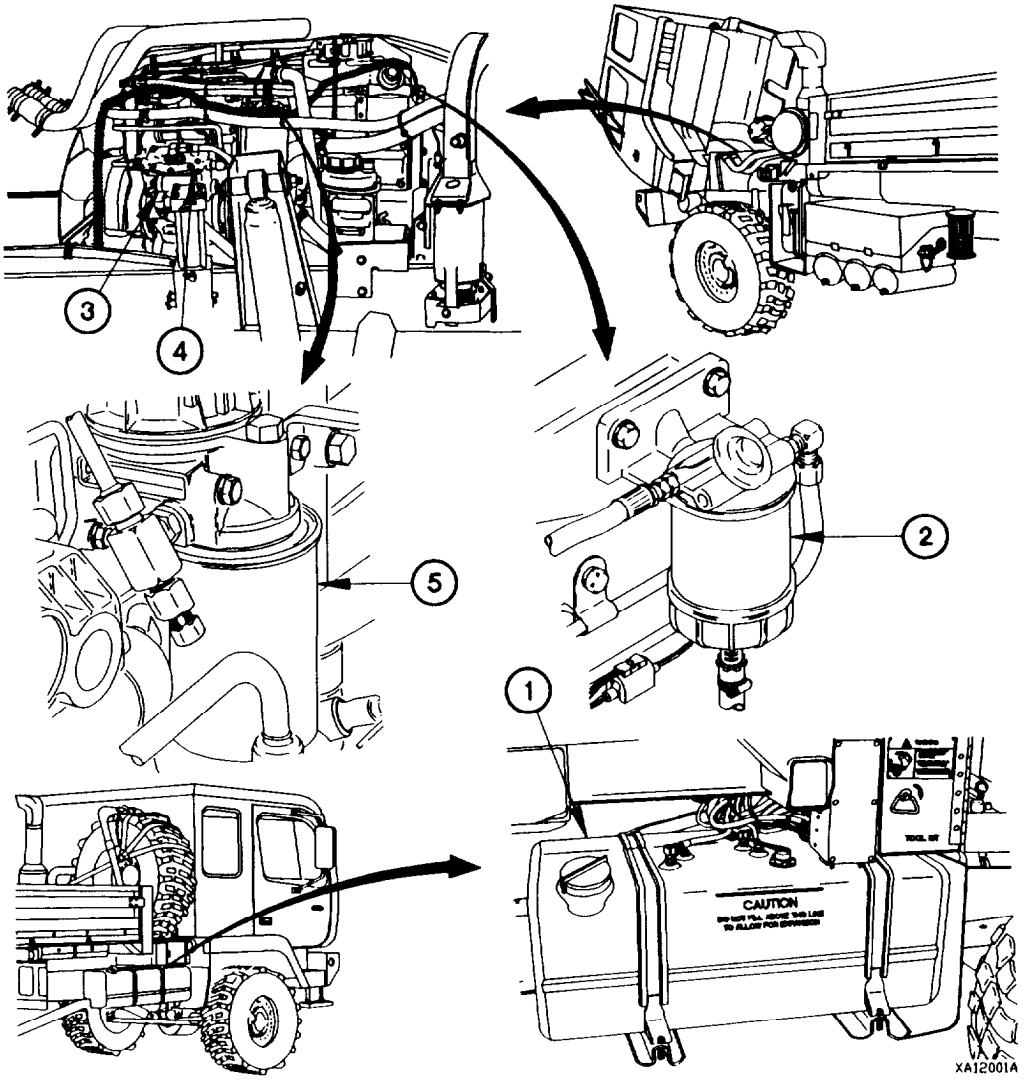


Figure 1-14. Fuel System

The primary components of the fuel system are the fuel tank (1, Figure 1-14), fuel priming pump and fuel/water separator (2), fuel shutoff solenoid (3), engine fuel governor (4), and secondary fuel filter (5). The mechanical fuel pump acts as an engine priming feature. The fuel/water separator removes water and large solid particles from the fuel before it is passed to the engine fuel governor. The fuel shutoff solenoid, when energized, frees the governor output shaft to move to the FUEL ON position. When electrical power is removed from the fuel shutoff solenoid, the governor output shaft is locked in the FUEL OFF position. The engine fuel governor contains a mechanical link to the fuel control linkage and fuel transfer pump. The engine fuel governor responds to input from the accelerator pedal and causes the fuel control rack to rotate, resulting in an increase or decrease in engine speed. The governor adjusts the amount of fuel delivered to the engine as engine speed changes. The secondary fuel filter removes finer particles from the fuel before it reaches the cylinder head. A fuel pressure regulator redirects excess fuel, through a fuel return hose, back to the fuel tank.

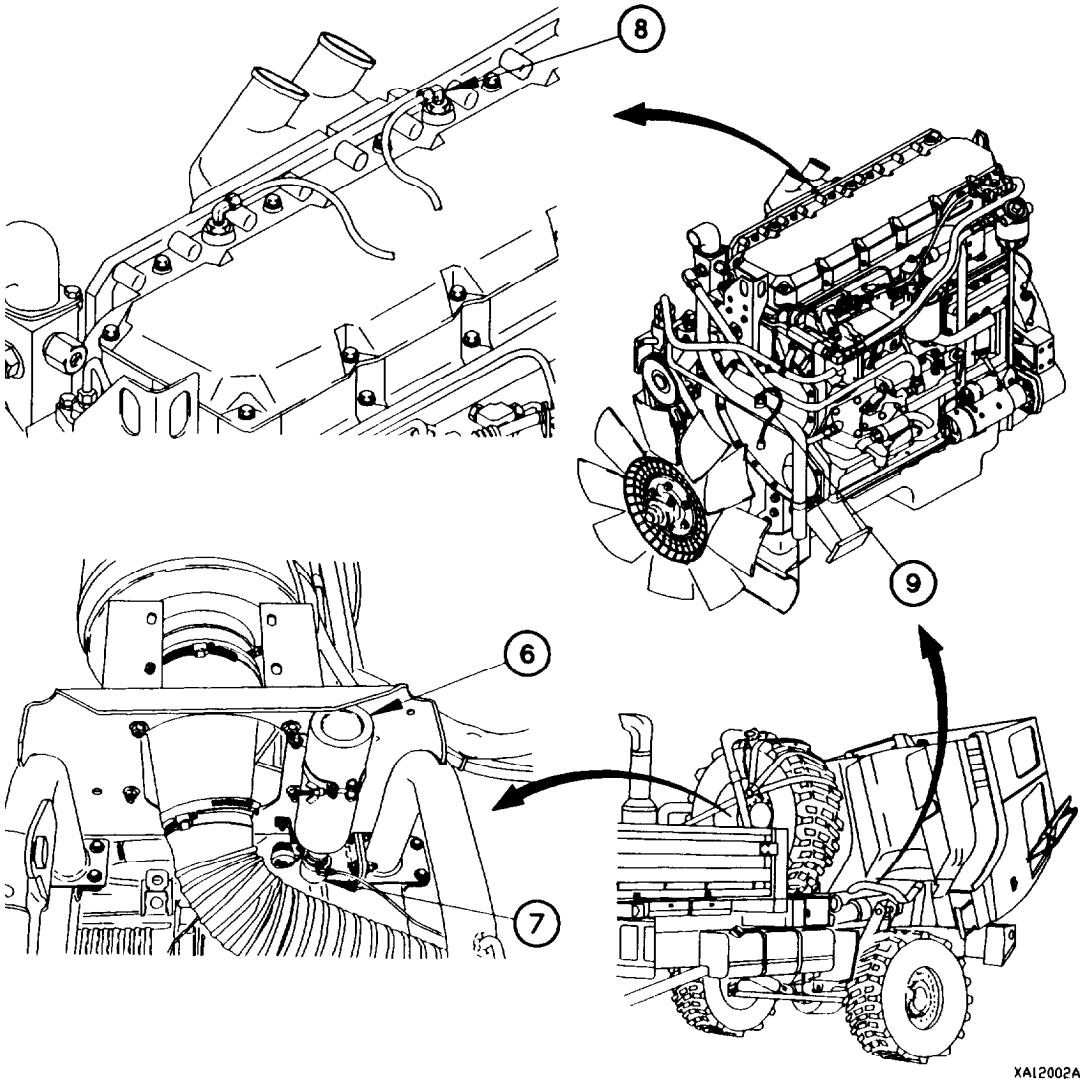


Figure 1-14. Fuel System (Cont)

Additionally, the vehicle is equipped with an ether quick start system designed for starting the engine when ambient temperatures are below 32°F (0°C). The ether quick start system is composed of an ether cylinder (6) ether valve (7), two ether nozzles (8), and an ether sensor switch (9). The ether sensor switch detects the temperature of the engine coolant and disables the ether valve above 32°F (0°C). The ether valve delivers a controlled charge of ether to the ether nozzles.

1-13. COOLING SYSTEM

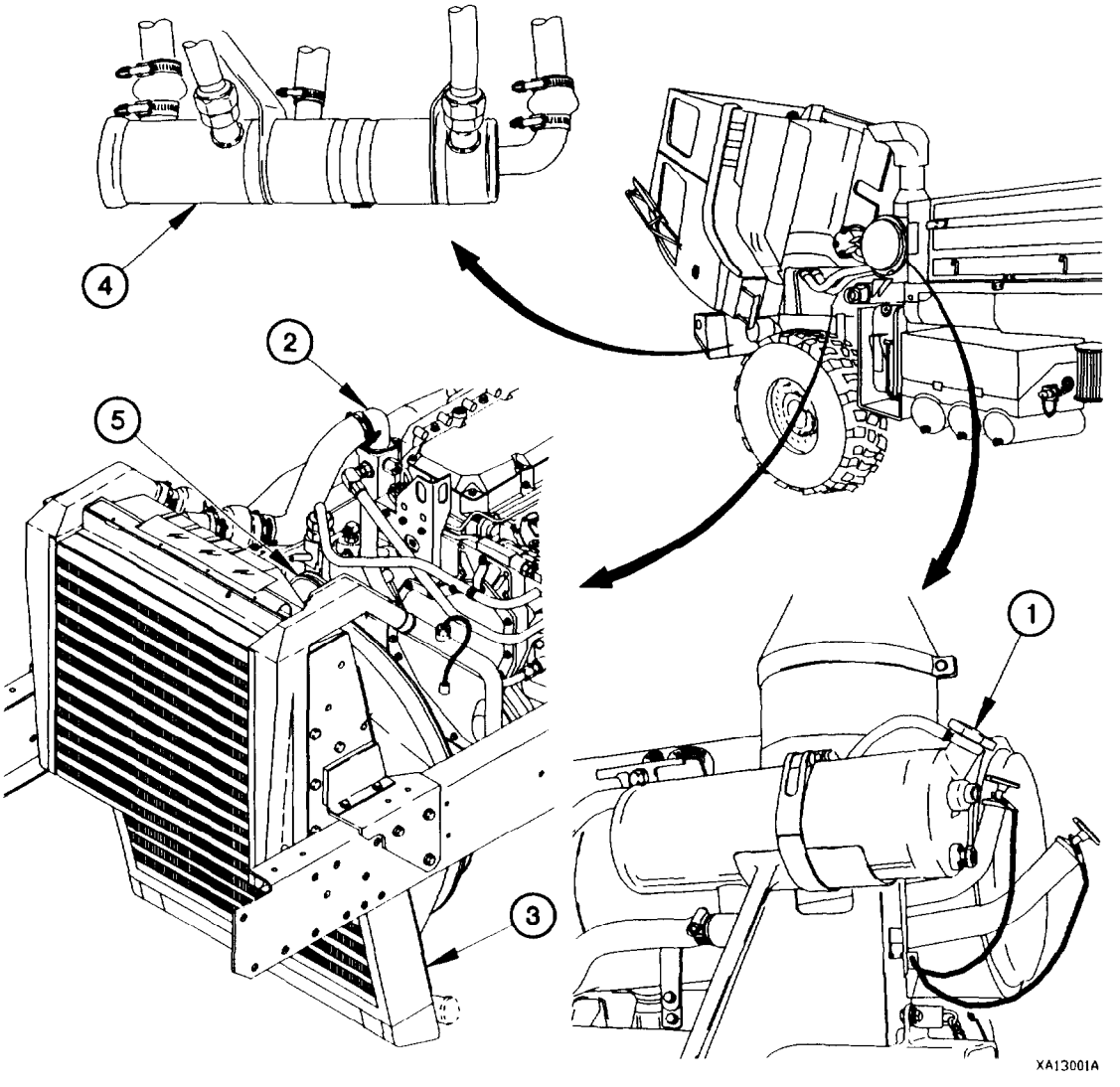


Figure 1-15. Cooling System

a. Cooling System. The pressurized cooling system protects the engine, transmission, and air compressor by providing a means of dissipating heat generated during operation of the vehicle. The radiator pressure cap (1, Figure 1-15), in combination with the ethylene glycol-based antifreeze, effectively raises the boiling point of the coolant to well above 212° F (100° C). The thermostat (2), located in a housing on the right side of the engine, helps the engine to warm up quickly by remaining closed until the coolant temperature reaches approximately 180° F (82° C). When the coolant reaches 199° F (93° C), the thermostat is fully open and coolant is circulated through the water jackets in the engine to maintain the correct operating temperature for the engine. Coolant is drawn from the radiator (3), through the transmission oil cooler (4), and circulated throughout the cooling system by the water pump (5). The water pump, located on the front of the engine toward the right side, is driven by two V-belts from the crankshaft pulley.

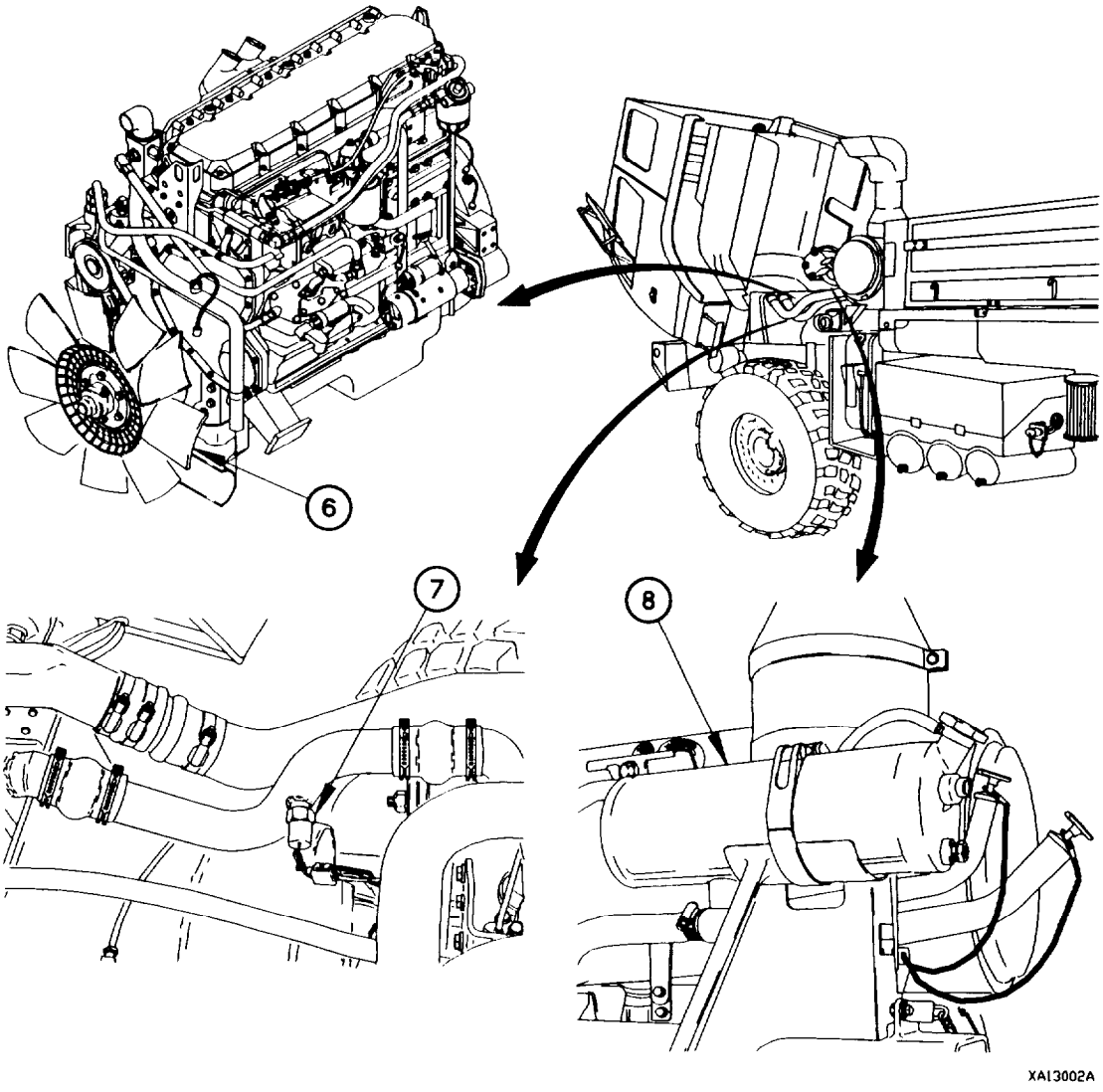


Figure 1-15. Cooling System (Cont)

An engine fan (6) with pneumatic clutch is activated by the water temperature switch (7). When this switch detects a high temperature condition, air pressure is removed from the fan clutch and the engine fan is engaged. Excess heat is drawn from the radiator by the flow of air created by the engine fan over the radiator cooling fins. A radiator overflow tank (8) is provided to allow for expansion of the coolant. The radiator overflow tank also serves as the point where new coolant is introduced into the cooling system.

1-13. COOLING SYSTEM (CONT)

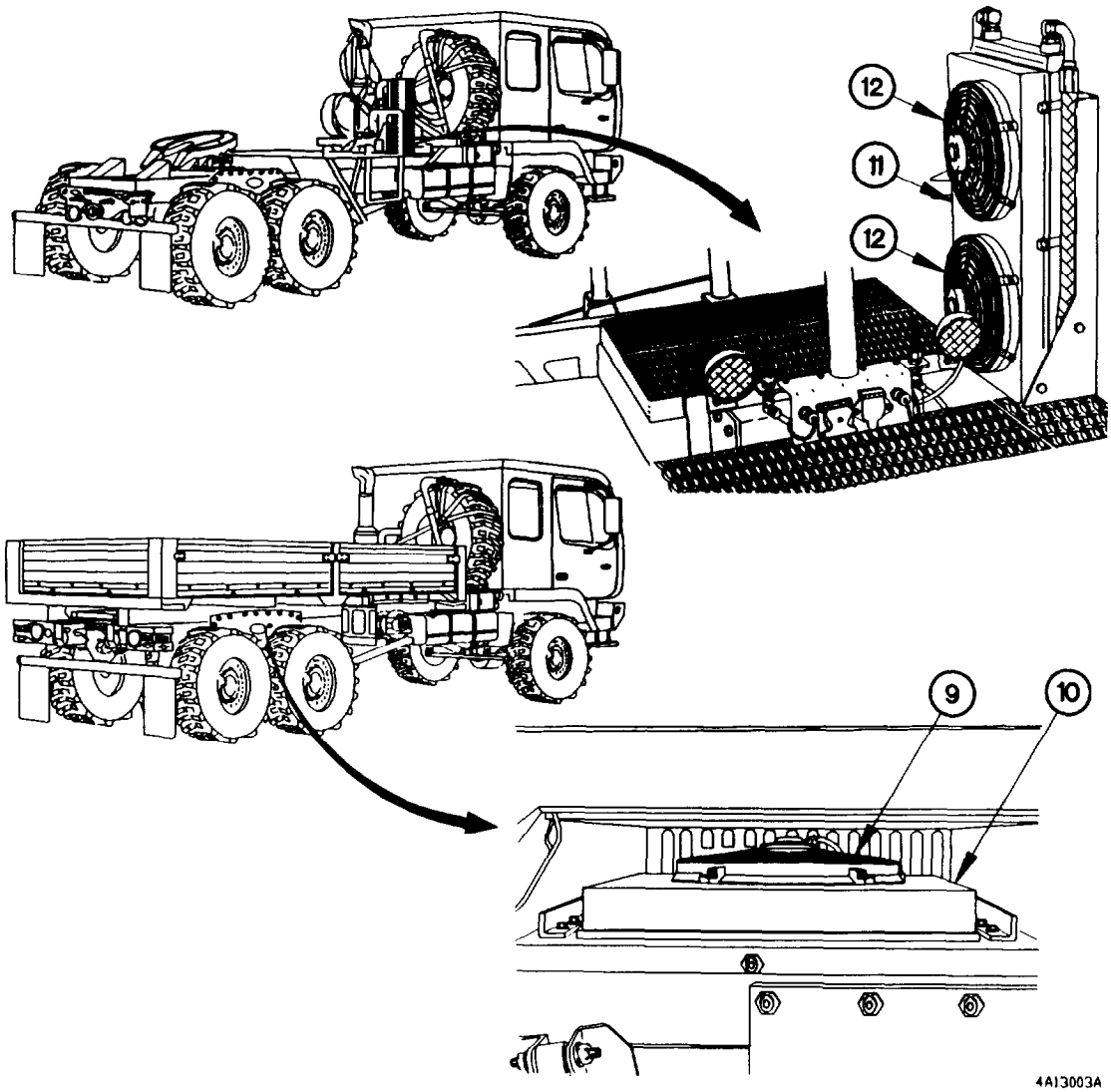


Figure 1-15. Cooling System (Cont)

Cooling capacity for the transmission is increased through the use of a transmission auxiliary oil cooler (9). All MTV vehicles, except M1088 and M1089, are supplied with a transmission auxiliary oil cooler equipped with a single electric fan (10) to draw air over the oil cooler core. The M1088 and M1089 vehicles are supplied with a larger transmission auxiliary oil cooler (11) equipped with dual electric fans (12) to provide even more air flow across the oil cooler core.

1-14. ELECTRICAL SYSTEM

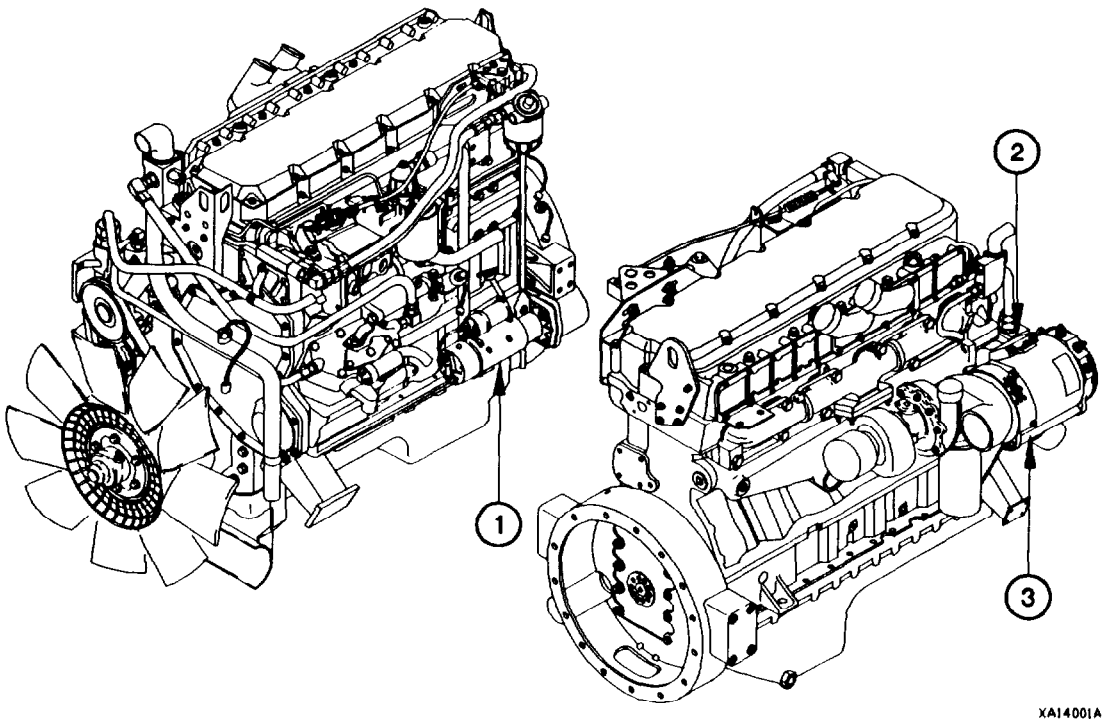


Figure 1-16. Electrical System

In the Electrical System, a heavy duty starting motor (1, Figure 1-16) is mounted on the engine flywheel housing and provides the cranking power necessary for starting the engine. The voltage regulator (2) maintains both a 14- and 28-volts level for proper battery charging. The alternator (3) provides sufficient amperage to operate all electrical components and charge the batteries during engine idling. Vehicle exterior lights are mounted in protective locations or are protected to prevent damage. Protection is provided for lights during cross country travel. Polycarbonate lenses are provided for all lights except the sealed beam headlights. The electrical system supplies all of the electrical power needed to operate the vehicle and trailer. The complete Electrical System is made up of the following subsystems:

- Power Storage and Generating
- Engine Starting and Stopping
- Service Lighting
- Blackout Lighting
- Accessory Lighting
- Instruments
- Indicator Lights and Alarm
- Material Handling Crane (MHC)
- Troubleshooting Aid
- M1089 Underlift

a. Power Storage and Generating. Power storage for the vehicle consists of four 12-volt batteries. The four batteries are divided into two sets. Two batteries in each set are wired in parallel to produce higher amperage. The two sets are then wired in series to produce 24 volts Direct Current (DC). While the batteries can power all of the systems for a limited time, their primary purpose is to supply power to the engine starting system. Once the engine is running, the generating system provides electrical power for all of the systems. The engine driven alternator generates Alternating Current (AC) which is passed through a set of rectifiers that change it into DC current. This DC current is used to charge the batteries and is distributed to the electrical sub-systems of the vehicle. The voltage regulator adjusts alternator output to fit the needs of the electrical system.

1-14. ELECTRICAL SYSTEM (CONT)

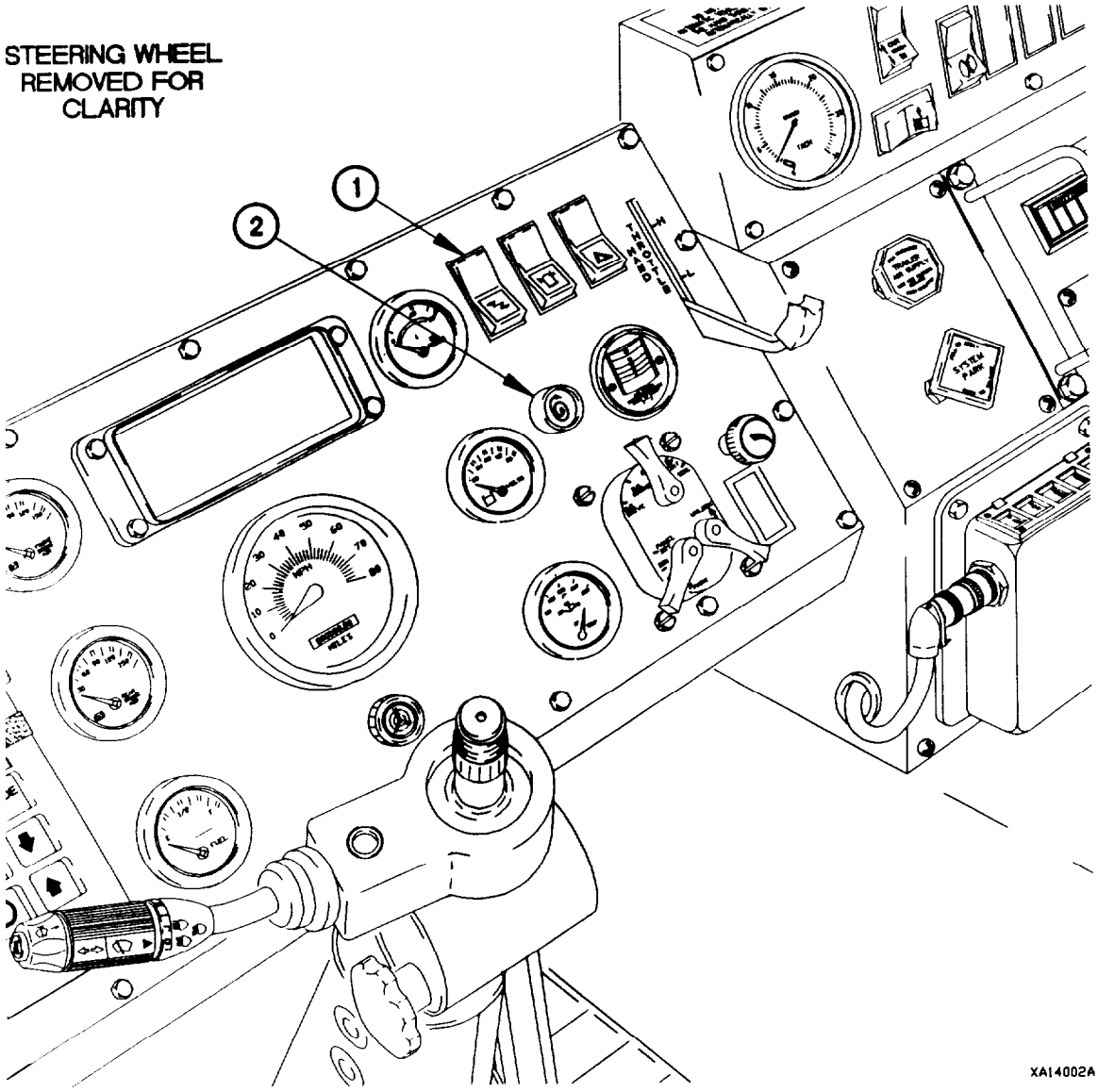


Figure 1-17. Engine Starting System.

b. Engine Starting and Stopping. The Engine Starting System uses the stored electrical energy of the batteries to the turn the starting motor. When the master power switch (1, Figure 1-17) is positioned to on and the starter pushbutton switch (2) is depressed, electrical power passes through the starter pushbutton to the auxiliary starter solenoid. The auxiliary starter solenoid draws electrical power directly from the batteries and sends it to the starting motor solenoid. When the starting motor solenoid is energized, electrical power from the batteries is supplied to the starting motor and the engine begins cranking. Positioning the master power switch to off stops the engine.

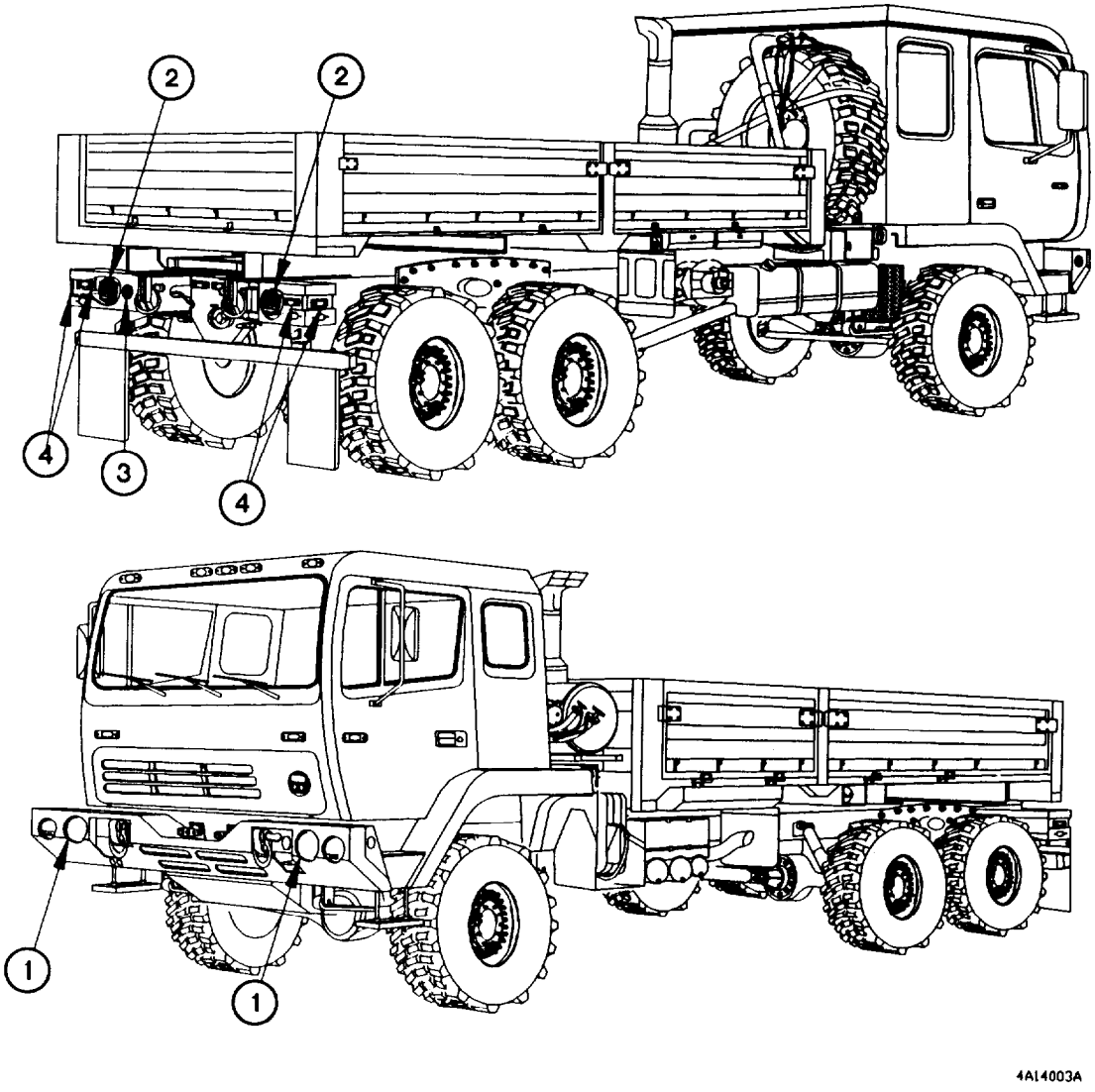


Figure 1-18. Service Lighting System

c. Service Lighting. The Service Lighting System includes the headlights (1, Figure 1-18), taillights (2), backup light (3), and clearance and marker lights (4). They are energized by positioning the main light switch to the appropriate position (TM 9-2320-366-10-1).

1-14. ELECTRICAL SYSTEM (CONT)

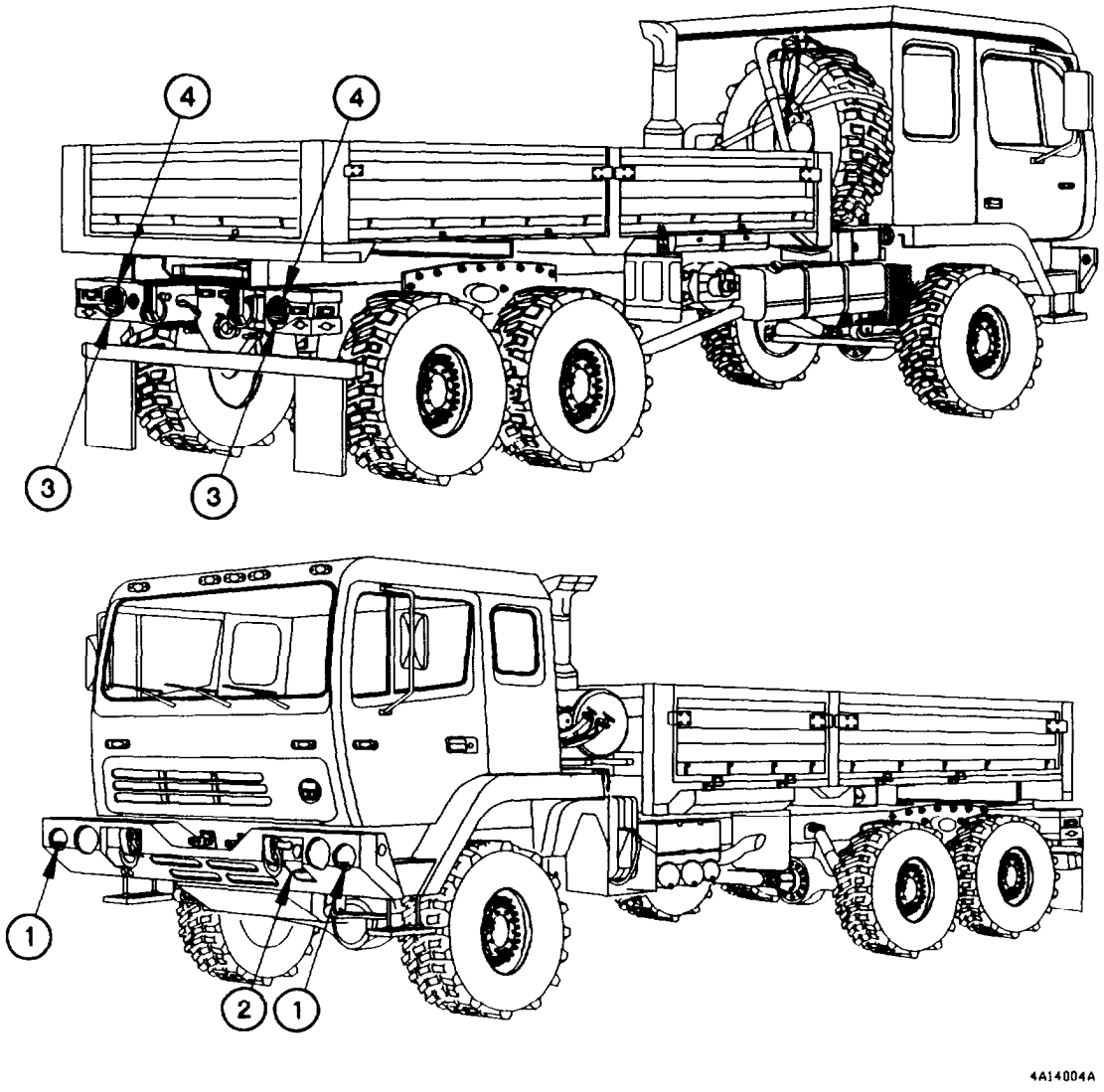


Figure 1-19. Blackout Lighting System

d. Blackout Lighting. The Blackout Lighting System includes the front blackout marker lights (1, Figure 1-19), blackout drive light (2), rear blackout marker lights (3), and blackout stop lights (4). These lights are energized by positioning the main light switch to the appropriate position (TM 9-2320-366-10-1).

e. Accessory Lighting. The accessory lights are the warning light and worklights. These circuits are energized by positioning the appropriate switch (TM 9-2320-366-10-1) to on. The worklights are then controlled by a separate switch on the worklight.

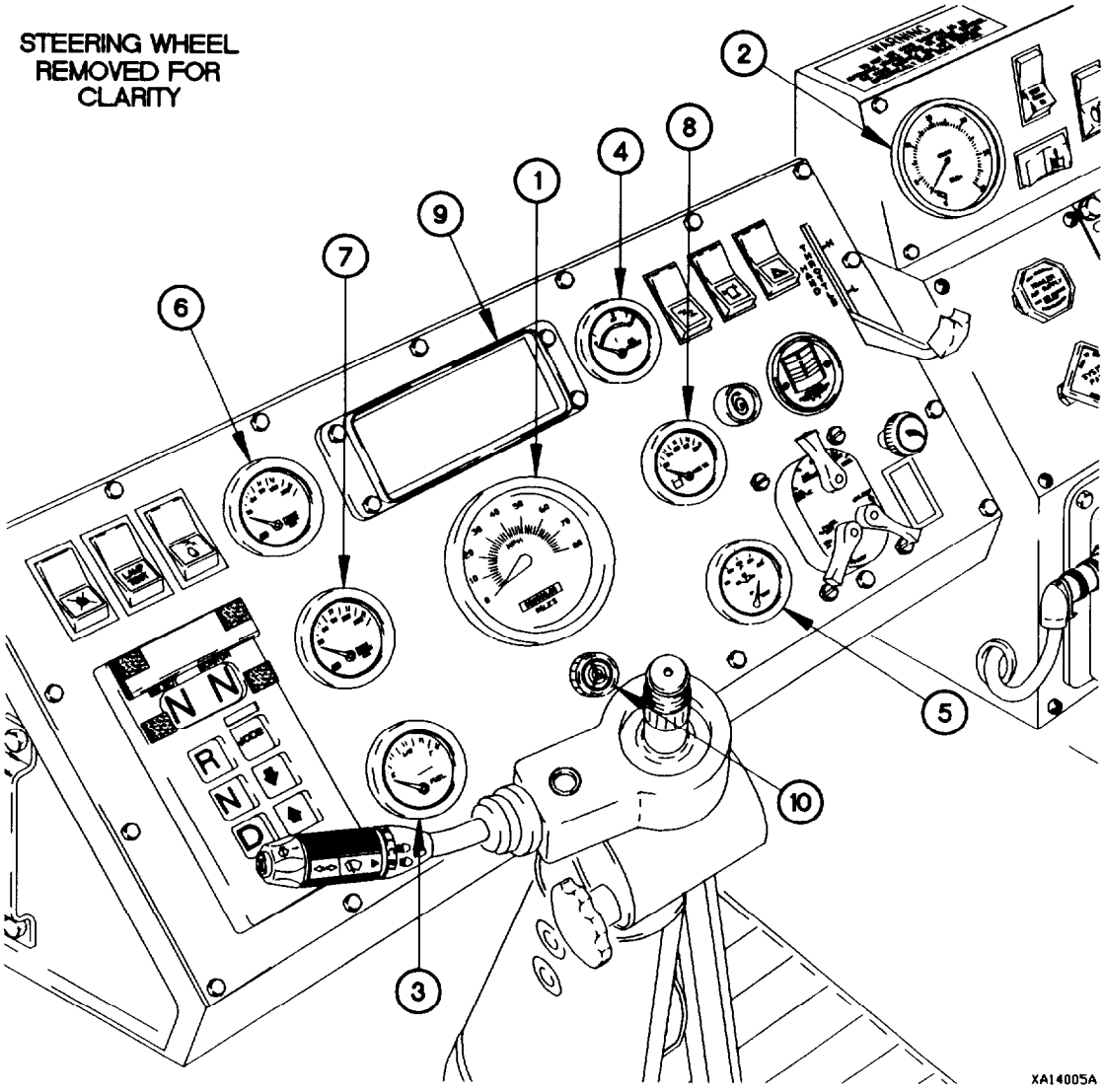


Figure 1-20. Instrument Panel

f. Instruments. The instrument Panel includes all gages that provide the operator with information about vehicle condition and operating status. The speedometer (1, Figure 1-20) receives electrical input from the WTEC II Vehicle Interface Module (VIM) on vehicles equipped with WTEC II transmission controls. The speedometer receives electrical input from the WTEC III transmission ECU on vehicles equipped with WTEC III transmission controls. The WTEC II VIM and the WTEC III transmission ECU are both located behind the kick panel. Tachometer (2) input is provided by the engine speed sensor located on the engine flywheel housing. The fuel gage (3), oil pressure gage (4), water temperature gage (5), front brake air pressure gage (6), rear brake air pressure gage (7), and volts gage (8) receive electrical signals from sending units. The sending units respond to changes in fluid level, pressure, temperature, and DC currect and send this information to the gages.

g. Indicator Lights and Alarms. The lighted indicator display (9) and audible alarm (10), located on the instrument panel assembly, are activated by switches located in various systems. These include, but are not limited to; master stop, low engine oil pressure, low air pressure, high water temperature, engine fan off, and high transmission oil temperature. When any of these switches are activated, they energize the proper indicator and/or alarm, alerting the operator of a potential problem or condition which needs to be monitored.

1-14. ELECTRICAL SYSTEM (CONT)

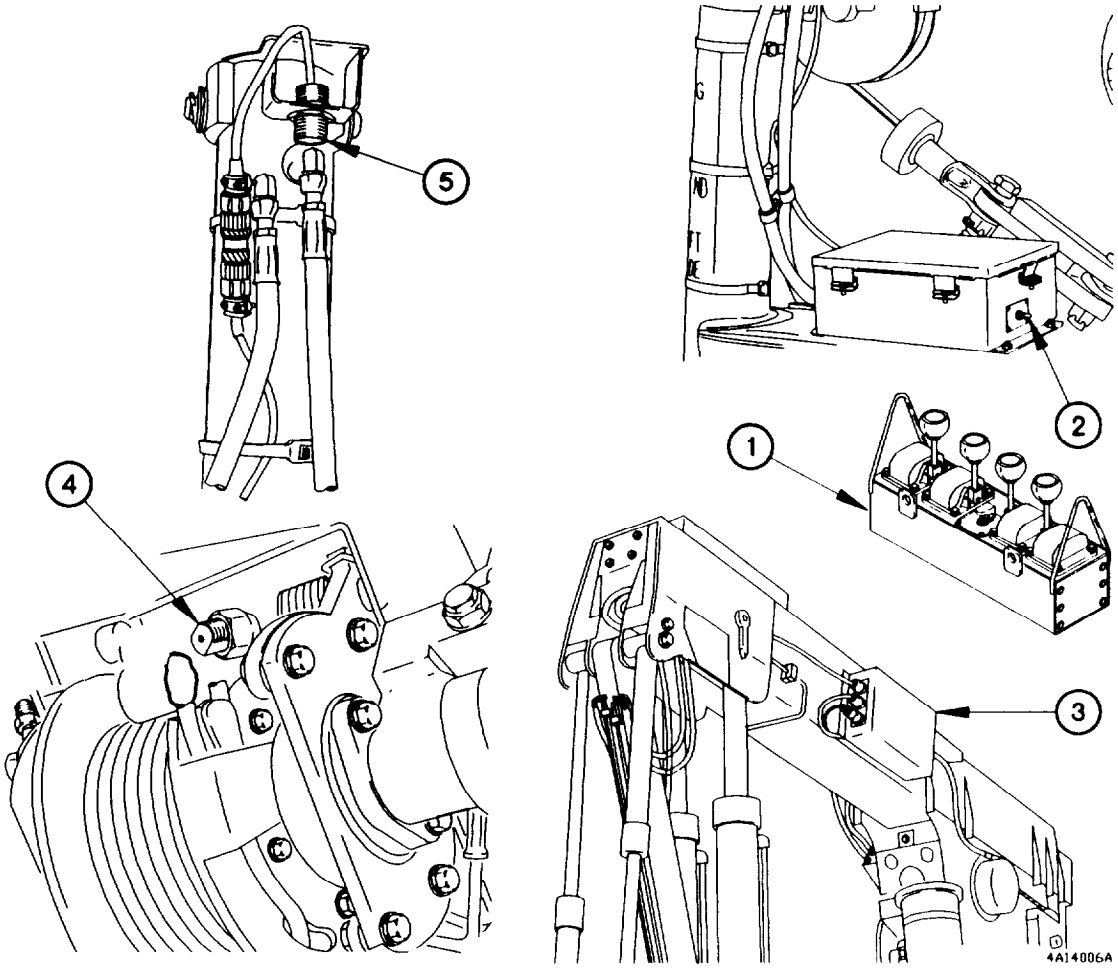


Figure 1-21. Material Handling Crane (MHC) System

h. Material Handling Crane (MHC). The primary electrical components of the MHC System are the remote control box (1, Figure 1-21), junction box (2), overload shutdown box (3), tension load cell (4), left and right side jack cylinder proximity sensors (5) and several function and lockout solenoids. When the operator selects an MHC function using the remote control box, electrical current is sent through the junction box and to the appropriate solenoid. When energized from the remote control box, the function solenoid controls hydraulic pressure to the function selected by the operator. When the function solenoid is de-energized, hydraulic pressure is removed and the function stops. The overload shutdown system controls the lockout solenoids. The lockout solenoids prevent operation of certain MHC functions when an overload condition is sensed. Overload conditions are sensed, in combination, by the tension load cell and a microprocessor inside the overload shutdown box which monitors boom angle and extension. When an overload condition is sensed, the boom up/boom down, hoist up, telescope out functions are locked out. The hoist down and telescope in functions will still operate and allow the operator to safely lower the load to the ground. When the power switch on the remote control box is used as an emergency shutdown, all crane functions are locked out. The left and right side jack cylinder proximity sensors prevent operation of the MHC until both jack cylinder outrigger pads are lowered fully to the ground.

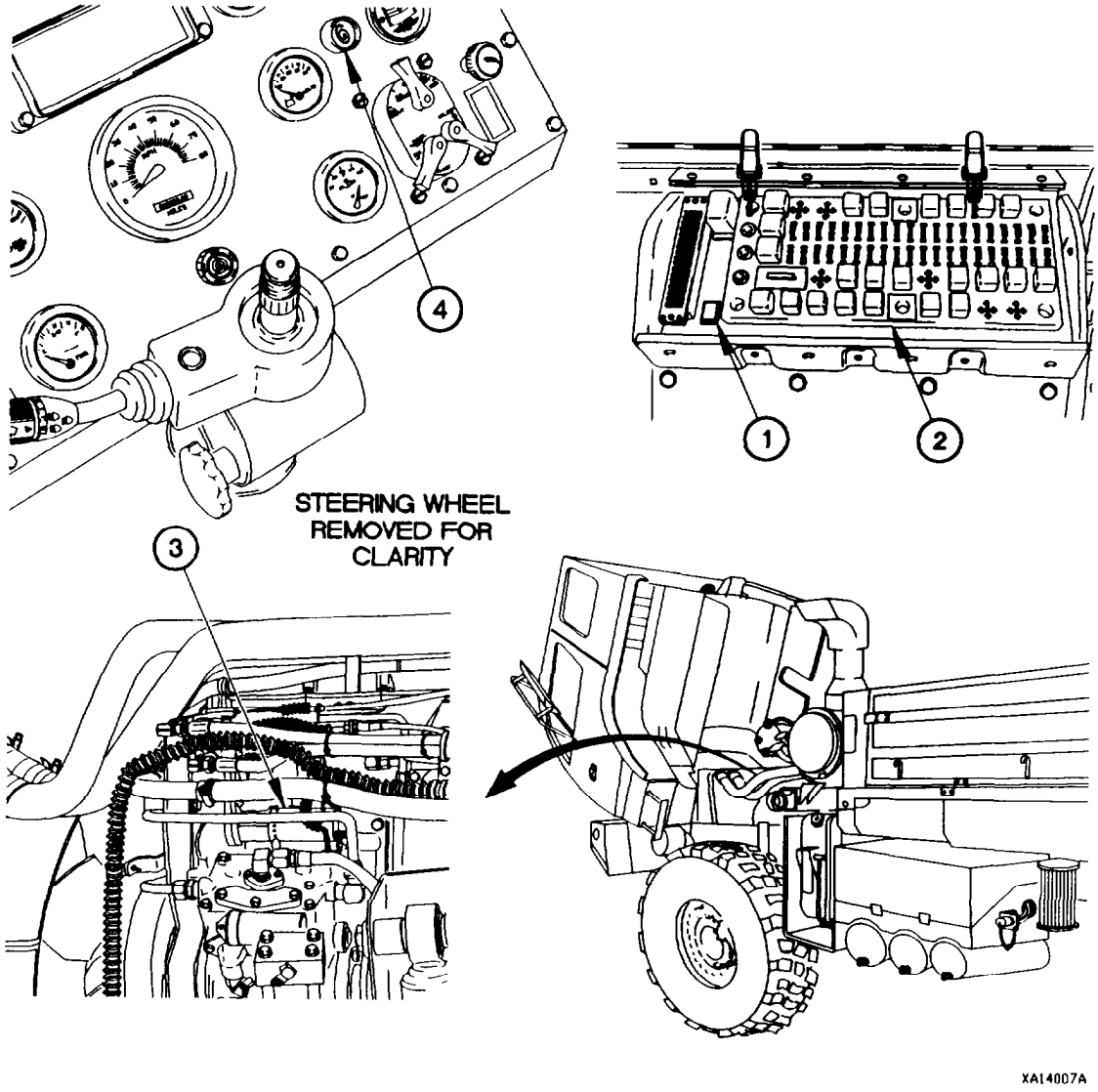


Figure 1-22. Troubleshooting Aid

i. Troubleshooting Aid. A start inhibit switch (1, Figure 1-22), located on the Power Distribution Panel (PDP) (2) is provided as a troubleshooting aid for the Unit and DS Maintenance levels and as a maintenance tool at the GS Maintenance level to stop fuel flow at the fuel shutoff solenoid (3). By pressing the start inhibit switch first, the starter pushbutton (4) can be pressed and the engine cranked without allowing the engine to be started. The start inhibit switch is reset when the master power switch is positioned to off and then to on again.

1-14. ELECTRICAL SYSTEM (CONT)

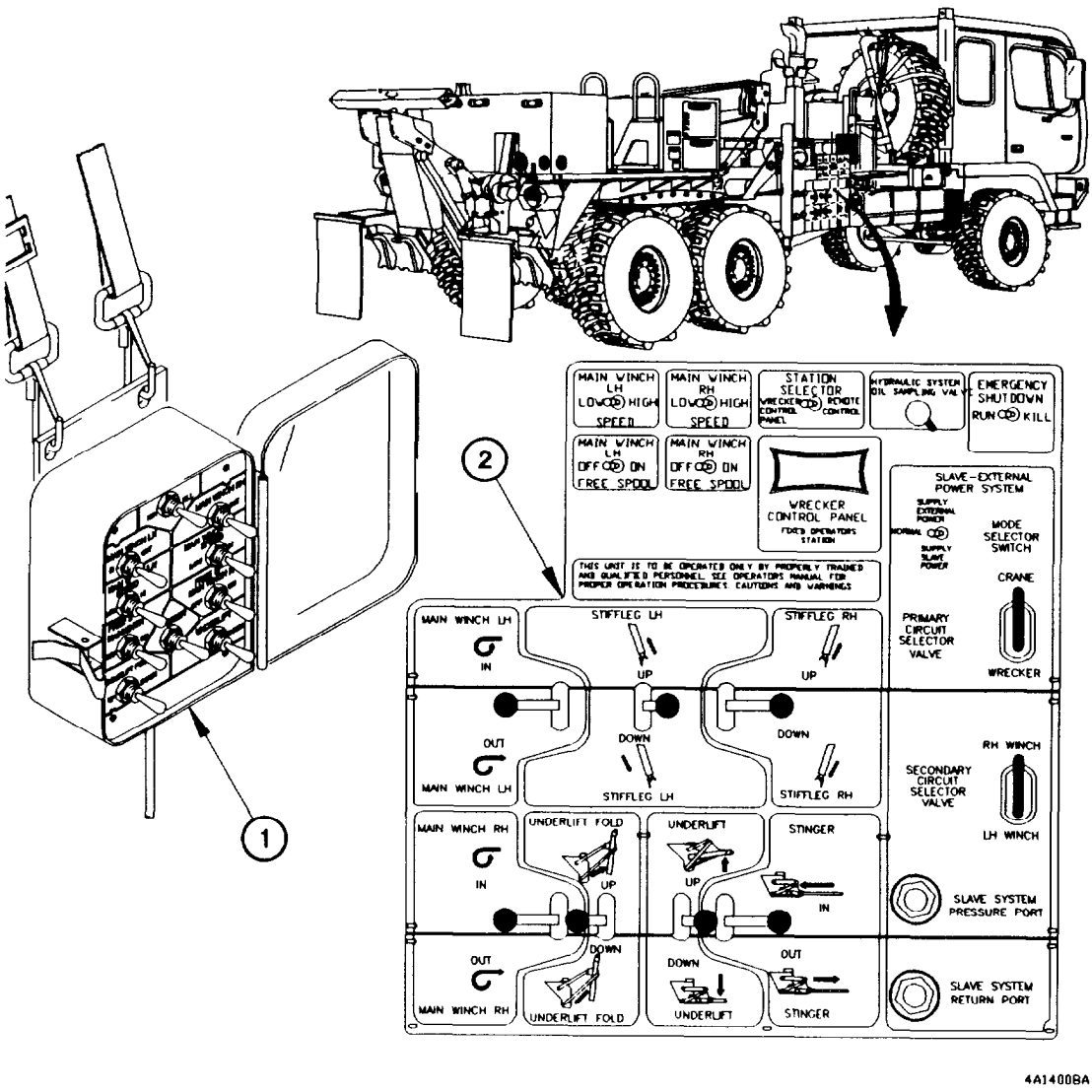


Figure 1-23. M1089 Underlift System

j. M1089 Underdift. The electrical portion of the M1089 Underlift consists of a remote control box (1, Figure 1-23) and solenoids attached to the function valves in the WRECKER CONTROL PANEL (2). When the operator selects an underlift function from the remote control box, electrical current is sent to the solenoid which controls the selected function. The solenoid is energized and hydraulic pressure is supplied to the selected component(s). When the solenoid is de-energized, hydraulic pressure is removed and the selected function stops.

1-15. BRAKE SYSTEM

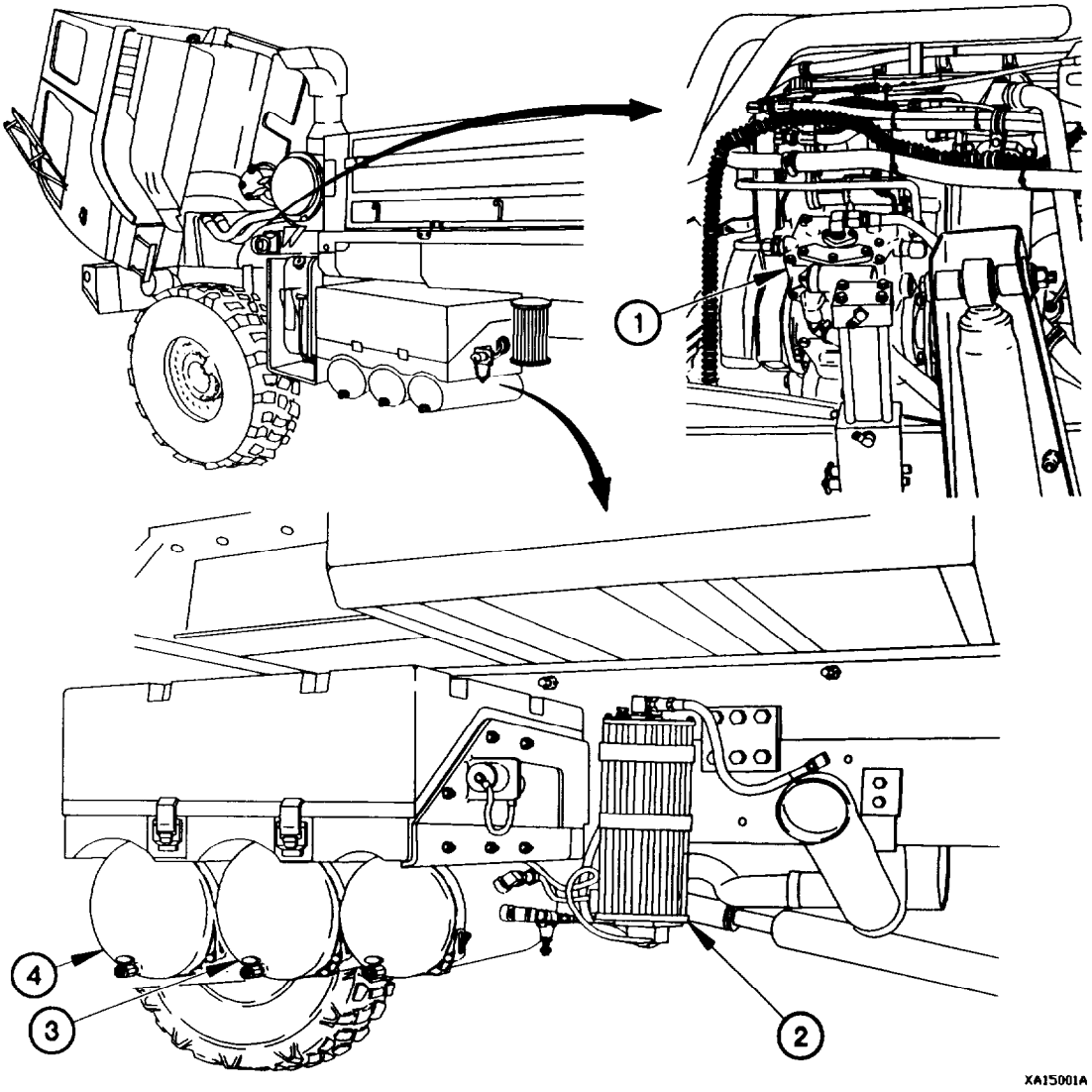


Figure 1-24. Brake System

The vehicle is equipped with an air brake system which complies with the Federal Motor Vehicle Safety Standard (FMVSS) 121. The brake system is made up of a number of components including an air compressor, air dryer, primary and secondary air tanks, and several valves which control the application and release of the brakes. The air compressor (1, Figure 1-24) supplies approximately 120 psi (827 kPa) to the air dryer (2). The air dryer contains a heating element and a desiccant cartridge to remove moisture from the air before it is delivered to the primary air tank (3) and secondary air tank (4).

1-15. BRAKE SYSTEM (CONT)

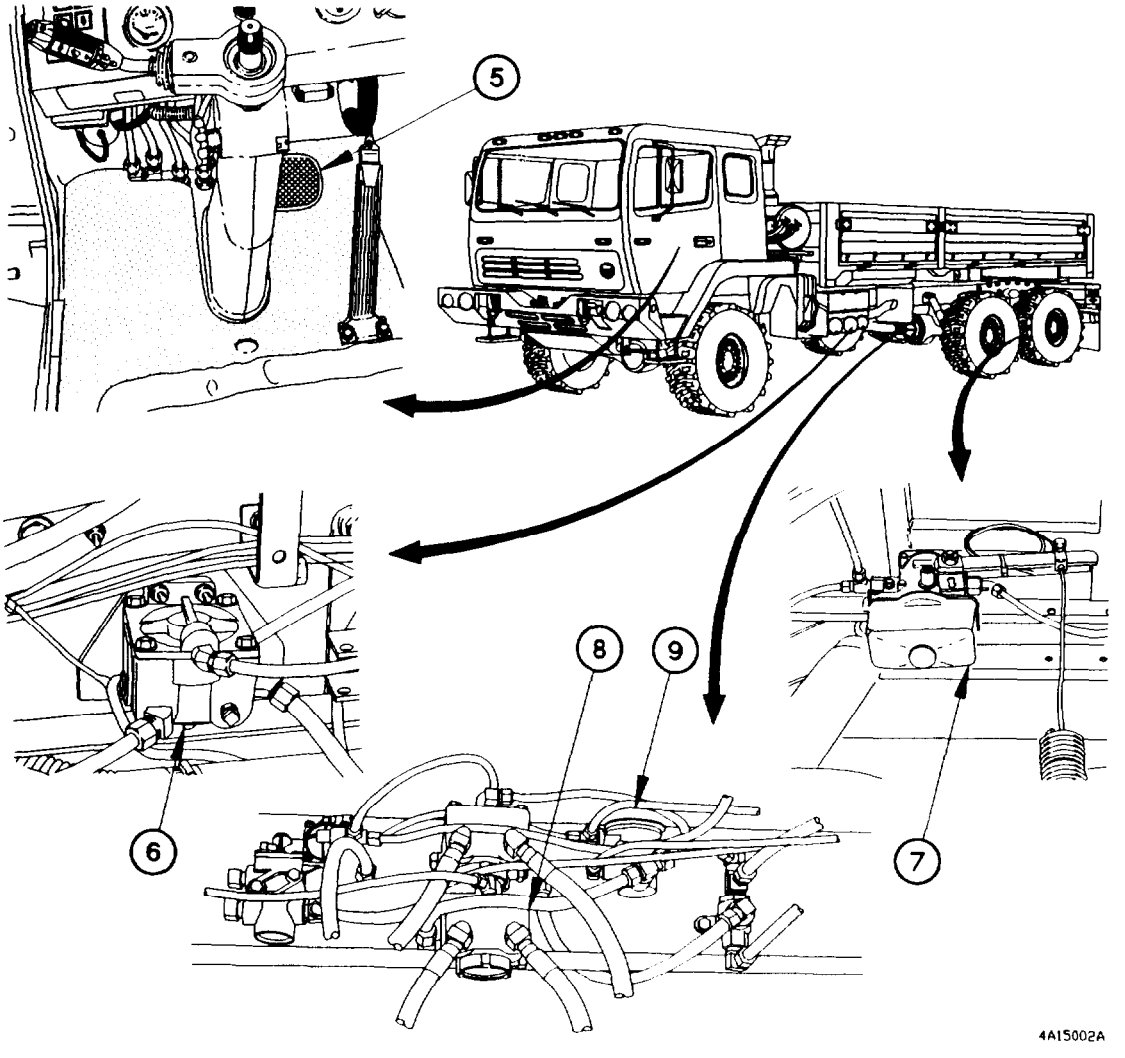


Figure 1-24. Brake System (Cont)

The foot control valve is operated by the brake pedal (5) and receives pressurized air from both the primary and secondary air tanks. The foot control valve is a dual activation design, with one set of ports supplying air to the front brakes from the secondary air tank and another set of ports supplying air to the rear brakes from the primary air tank. The plumbing between the primary and secondary air tanks is designed to allow controlled braking in the event of a failure in either the primary (rear brakes) or secondary (front brakes) brake circuit. A booster valve (6) is incorporated into the primary brake circuit to provide a more rapid braking response. Air from the booster valve is supplied to the load sensing valve (7) which, in turn, controls air delivery to the relay valve (8). The load sensing valve is mounted on a crossmember and connected, by a spring and cable, to the load averaging channel. This arrangement of the load sensing valve and load averaging channel provides a mechanical anti-lock feature to the rear brakes by sending less air to the rear brakes when the vehicle is not heavily loaded. The relay valve is used to provide the operator with quicker brake response. An inversion valve (9) redirects air from the secondary brake circuit to the primary brake circuit in case of loss of pressure in the primary brake circuit. This feature allows control of the spring brakes and prevents early rear brake lock-up.

1-16. STEERING SYSTEM

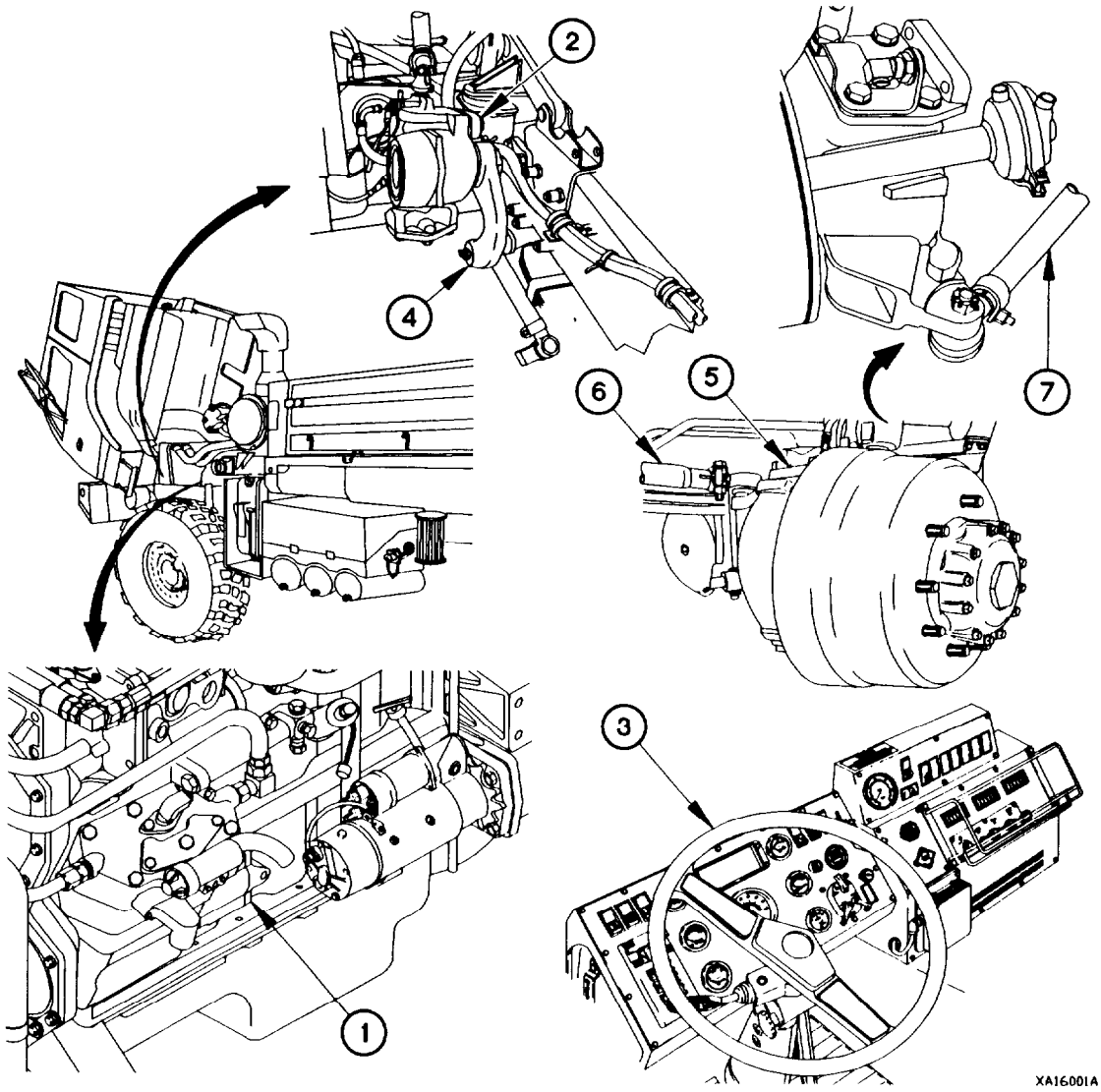


Figure 1-25. Steering System

The vehicle is equipped with hydraulically-assisted power steering. The power steering pump (1, Figure 1-25) is driven by a shaft at the rear of the air compressor. The steering gear box (2) is a recirculating ball design. The steering wheel (3) is linked to the steering gear box by a shaft and two universal joints. The power steering pump supplies constant hydraulic pressure to the steering gear box. The steering pitman arm (4) is attached to the left steering knuckle (5) by the drag link (6). The left and right steering knuckles are connected to each other by the tie-rod (7). Turning the steering wheel to the right causes the steering pitman arm to move toward the front of the vehicle and the front wheels to turn right. Turning the steering wheel to the left causes the steering pitman arm to move toward the rear of the vehicle and the front wheels to turn left. The tie-rod allows for front wheel toe-in adjustment.

1-17. 15K SELF-RECOVERY WINCH (SRW)

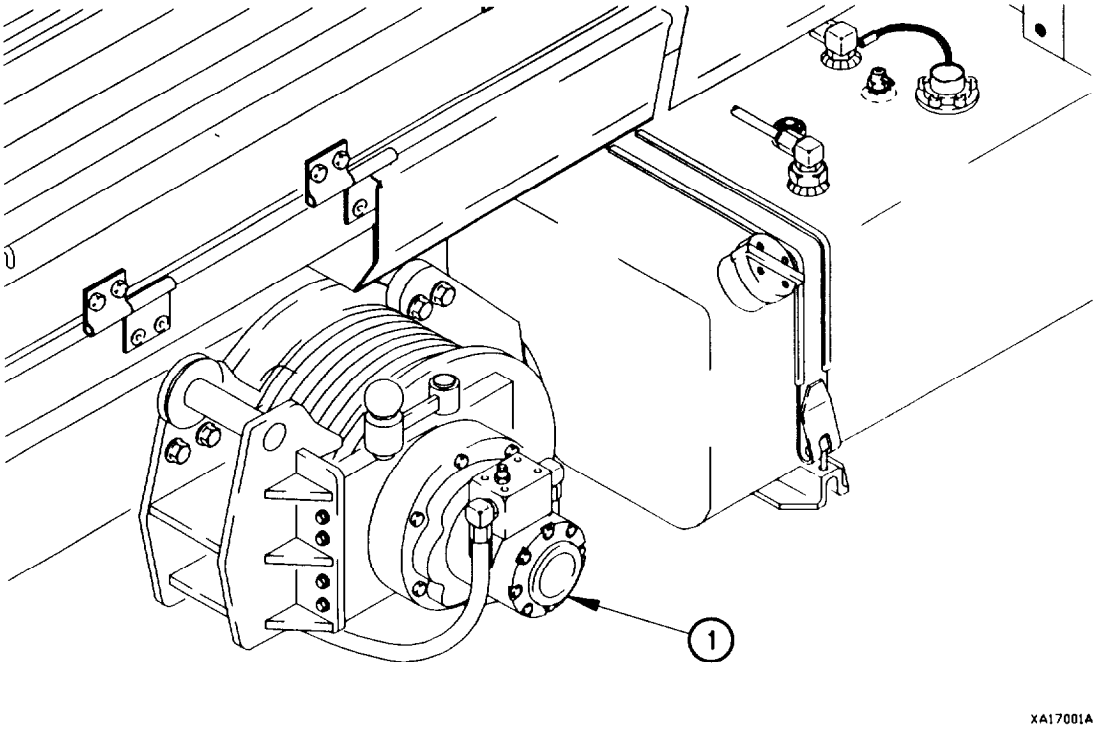


Figure 1-26. 15K Self-Recovery Winch (SRW)

When specified, any vehicle except models M1084 and M1086 may be equipped with a 15K Self-Recovery Winch (SRW) (1, Figure 1-26) mounted on the right hand frame rail. The SRW is rated for 15,500 lbs (68,944 N) pull when the winch drum has one full layer of cable. One full layer of cable is the minimum amount of cable that may be left on the drum when using the SRW. Pulling capacity is reduced with each layer of cable that is added to the winch drum. Pulling capacity with seven full layers of cable on the winch drum is 9,090 lbs (40,432 N). For recovery operations, the SRW cable may be routed to the front on all vehicles so equipped. The SRW cable may be routed to the rear of the vehicle on models M1083, M1085, M1090, M1093, and M1094. The SRW is equipped with a fail-safe brake which is spring applied and hydraulically released. The fail-safe brake is automatically applied when hydraulic pressure falls below 270 psi (1,862 kPa). The fail-safe brake will hold the load until hydraulic pressure is restored. The winch control valve functions as a throttling valve when cable is being payed out. The winch control valve controls the flow of fluid to the winch motor. When cable is being pulled in, the winch control valve acts as a free flow check valve. The winch control valve is preset at the factory and is not to be adjusted under any circumstances.

1-18. M1084/M1086 MATERIAL HANDLING CRANE (MHC)

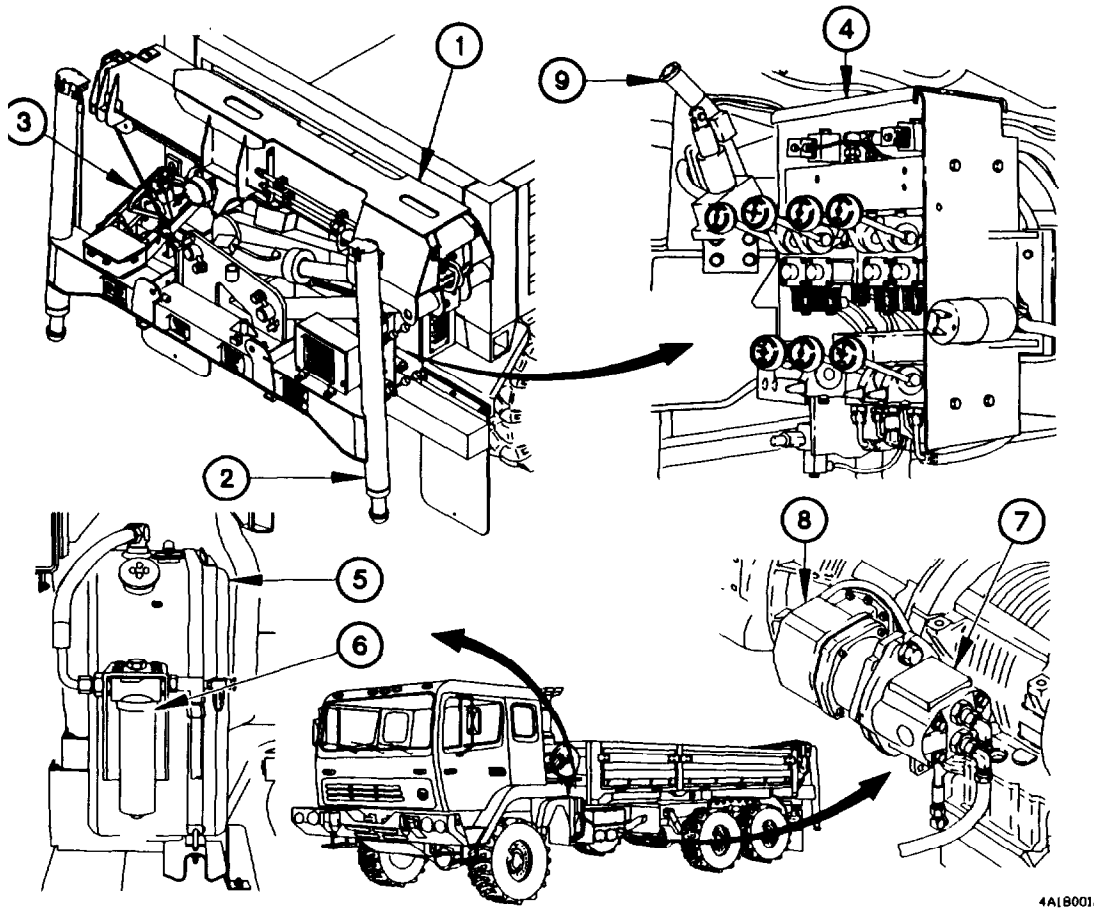


Figure 1-27. M1084/M1086 Material Handling Crane (MHC)

Vehicle models M1084 and M1086 are equipped with a Material Handling Crane (MHC) (1, Figure 1-27) mounted on the frame at the rear of the vehicle. The M1084/M1086 MHC has a lifting capacity of 5,000 Ibs (2,270 kgs). The MHC contains an overload shutdown system which monitors boom angle, boom extension, and load weight. If the overload shutdown system senses an overload condition, certain crane functions become locked out. The vehicle is stabilized during crane operation by jack cylinders (2). Proximity sensors are attached to the jack cylinders to prevent operation of the crane unless the jack cylinders are extended to the ground. Outrigger pads (3) are provided and are attached to the bottom of the jack cylinders by quick release pins. All crane functions are hydraulically controlled by levers at the control station (4). All exposed hydraulic cylinder rods are hard chrome plated to resist corrosion and wear.

a. MHC Hydraulic System. The hydraulic reservoir (5) provides for 21 gal (79 L) of fluid. A fluid filter (6) is mounted on the hydraulic reservoir. The filter removes contaminants from the oil and is easily replaced. Hydraulic pressure for the MHC is supplied by a hydraulic pump (7) attched to the rear of the Power Take-Off (PTO) (8). The hydraulic cylinders contain cartridge-type holding valves which lock the cylinder in case of sudden hydraulic pressure loss. A hand operated back-up hydraulic pump (9) allows the operator to lower any load to the ground and stow the crane if the hydraulic pump fails.

1-18. M1084/M1086 MATERIAL HANDLING CRANE (MHC) (CONT)

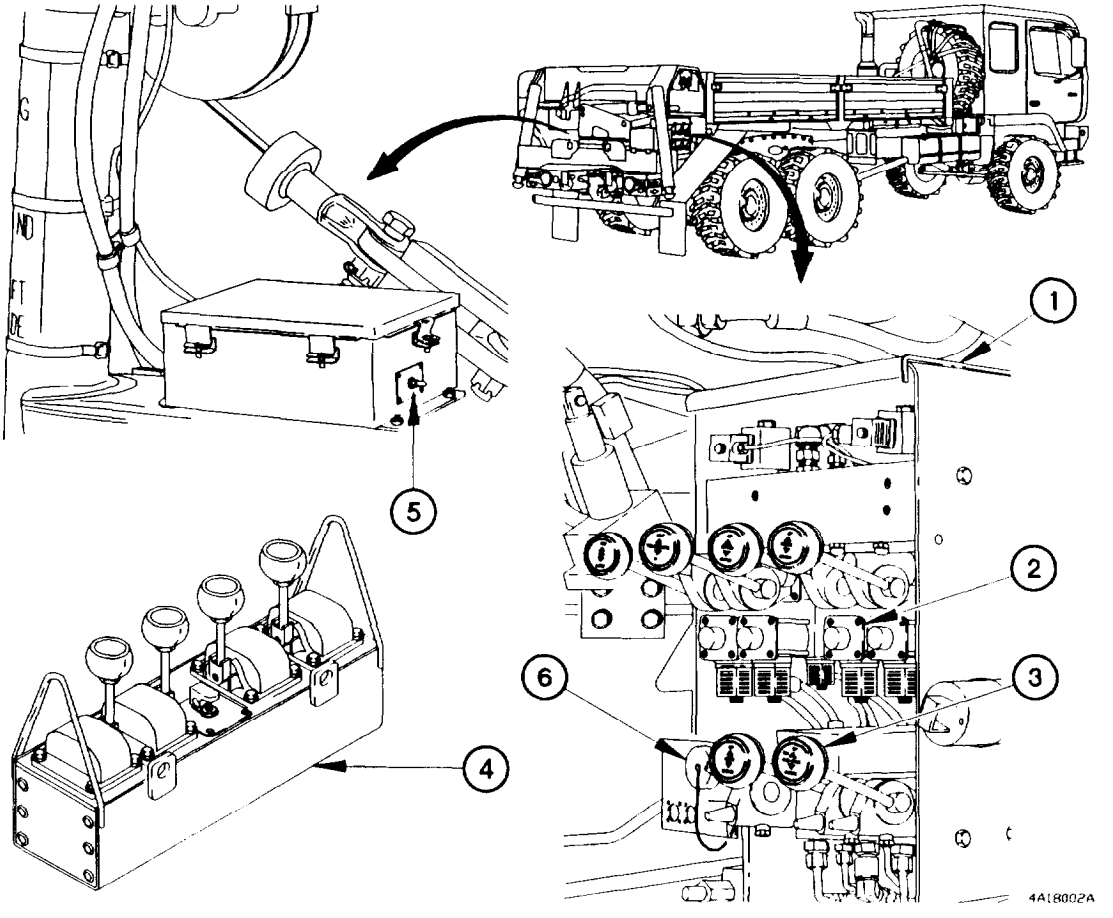


Figure 1-28. MHC Control Station and Remote Control

b. MHC Control Station. All crane functions can be controlled by the operator from the control station (1, Figure 1-28). A lever controlled valve (2) is provided for each control function. All control valves are spring-loaded and will return to the center, or neutral, position when they are released. The control valves are proportionately variable. A small movement from the neutral position results in a small change in the function which that valve controls. A larger movement from the neutral position results in a faster change. The function of each control lever is identified on the end of the control knob (3).

c. MHC Remote Control. The MHC remote control (4) permits operation of the crane from either side of the vehicle. This feature allows the operator to keep the load in sight at all times. A remote control switch (5) activates power to the remote control connector (6). The remote control is attached to the crane by an electrical cable. When the remote contro is active, solenoids on the control valves respond to input from the remote control. The levers on the remote control are proportionately variable. A small change in lever position results in a small change in the function controlled by that lever. A larger change in lever position results in a faster change in function. The levers on the remote control are also spring-loaded and will return to the neutral position when released. The remote control can be used to operate hoist up/down, boom up/down, telescope in/out, and swing clockwise/counterclockwise.

1-19. M1089 MATERIAL HANDLING CRANE (MHC), 30K WINCHES, AND UNDERLIFT

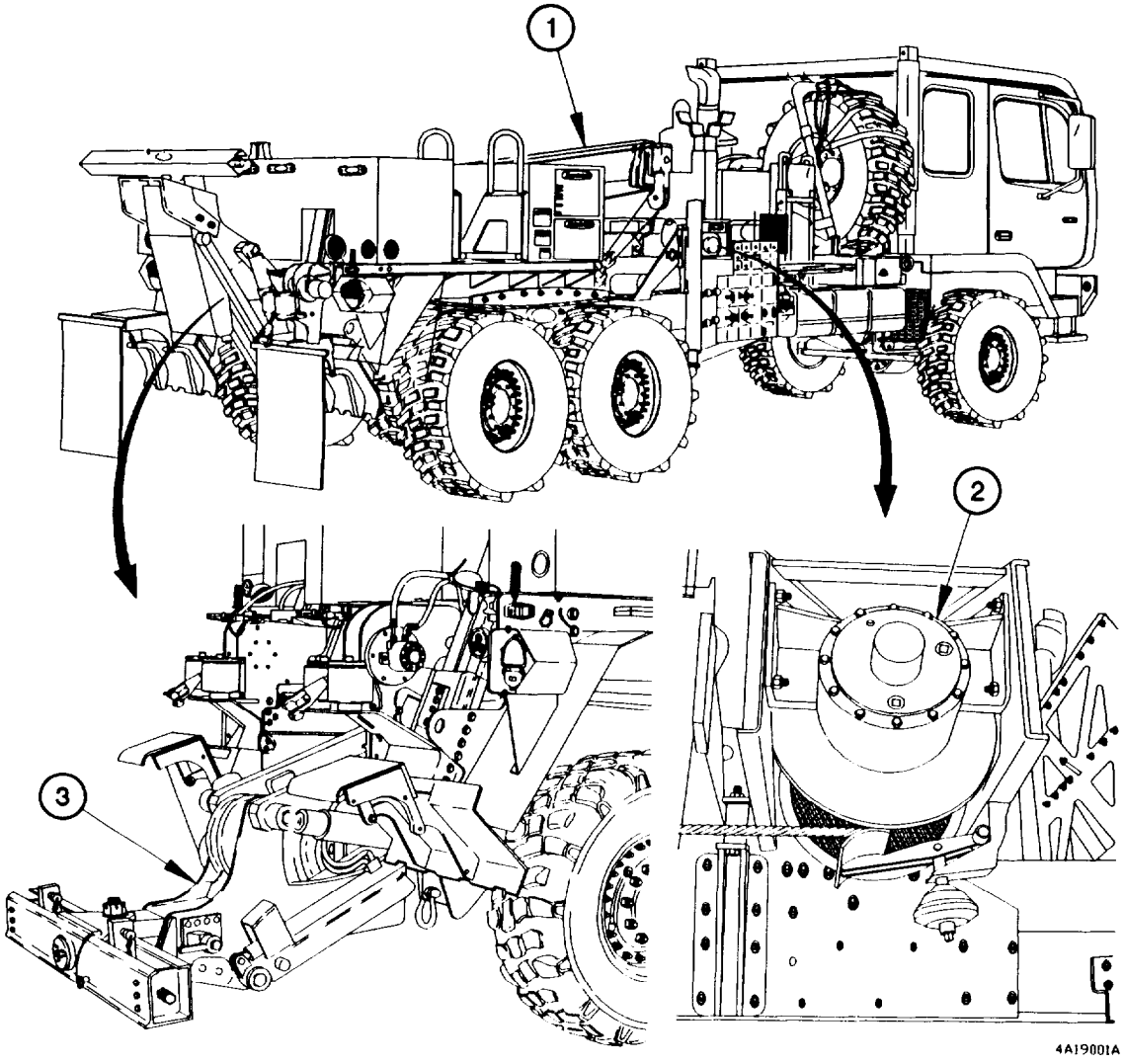
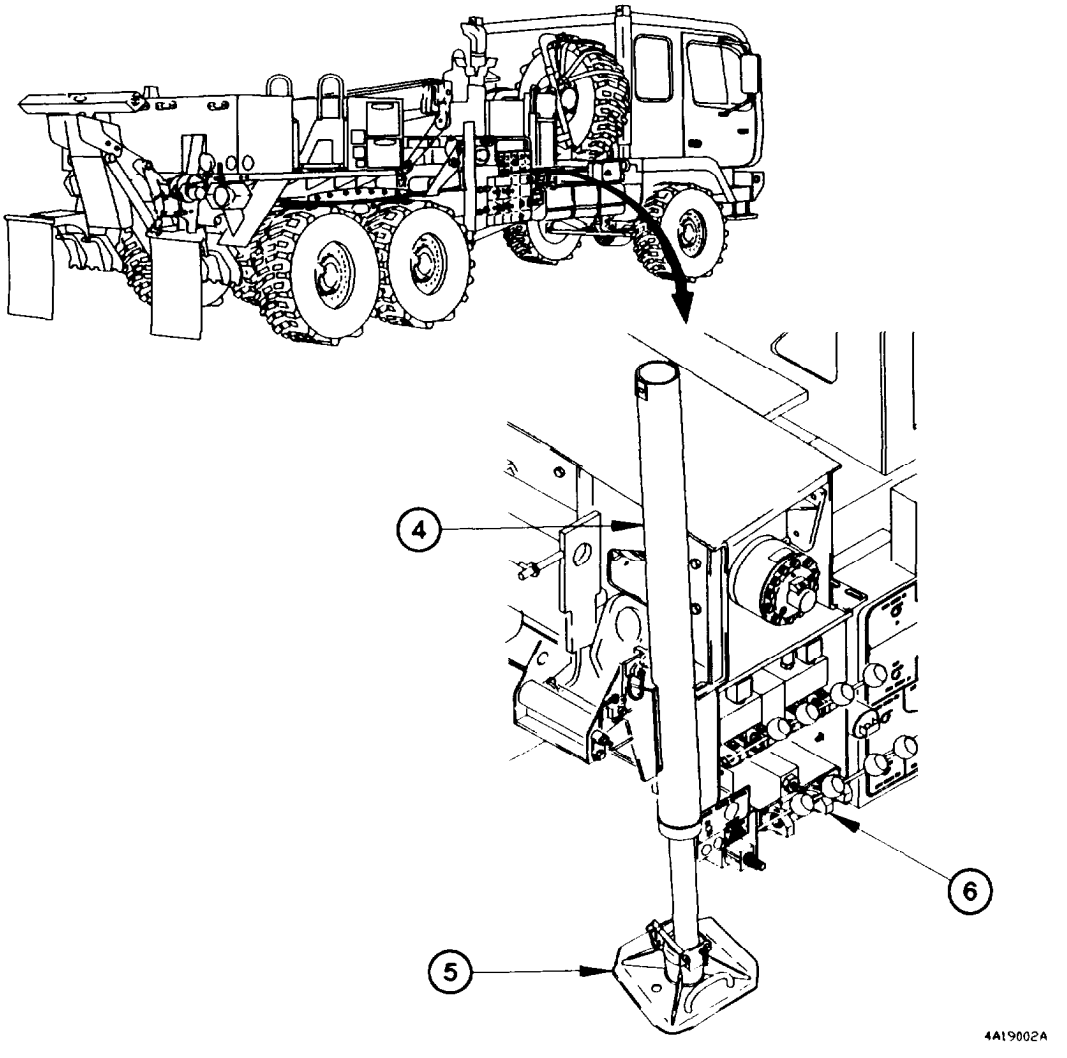


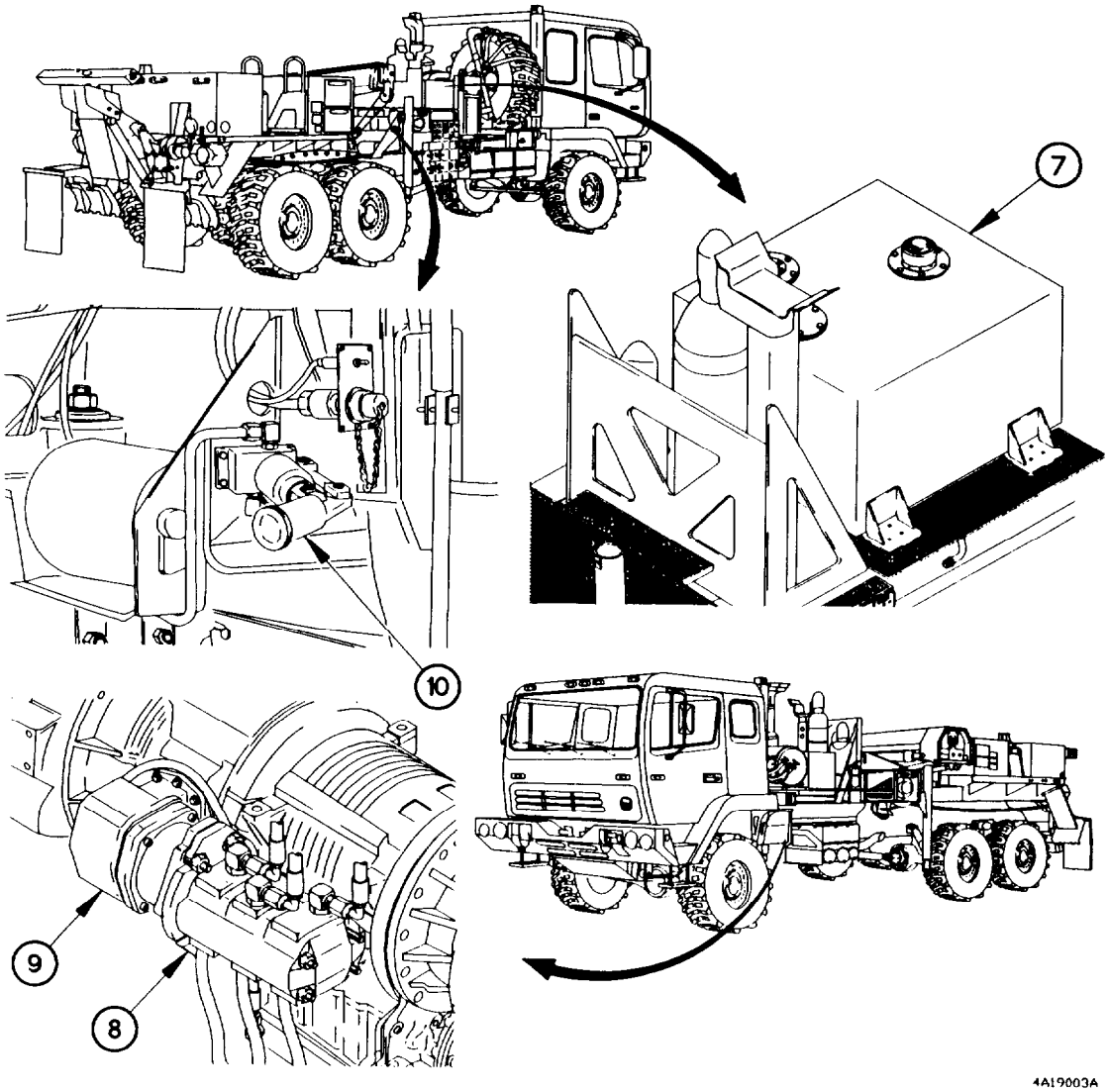
Figure 1-29. M1089 Material Handling Crane (MHC), 30K Winches, and Underlift

Vehicle model M1089 is equipped with a Material Handling Crane (MHC) (1, Figure 1-29) mounted on the frame near the middle of the vehicle; left and right 30K winches (2), located ahead of the MHC; and an underlift (3), attached to the rear of the vehicle.

1-19. M1089 MATERIAL HANDLING CRANE (MHC), 30K WINCHES, AND UNDERLIFT (CONT)



a. Material Handling Crane (MHC). The M1089 MHC has a lifting capacity of 11,000 lbs (4,994 kgs). The MHC contains an overload shutdown system which monitors boom angle, boom extension, and load weight. If the overload shutdown system senses an overload condition, certain crane functions become locked out. The vehicle is stabilized during crane operation by jack cylinders (4) attached to outrigger beams. Outrigger pads (5) are provided and are attached to the bottom of the jack cylinders by quick release pins. All crane functions are hydraulically controlled by levers at the control station (6). All exposed hydraulic cylinder rods are hard chrome plated to resist corrosion and wear.



b. Hydraulic System. All of the hydraulics on the M1089 are driven by a common power source and supply system. The M1089 is provided with a hydraulic tank (7) which has a capacity of 74 gal (280 L) of fluid. The hydraulic tank contains an internal fluid filter. The filter removes contaminants from the oil and is easily replaced. Hydraulic pressure for the MHC is supplied by a three stage hydraulic pump (8) attached to the rear of the Power Take-Off (PTO) (9). The hydraulic cylinders contain cartridge-type holding valves which lock the cylinder in case of sudden hydraulic pressure loss. A hand operated back-up hydraulic pump (10) allows the operator to lower any load to the ground and stow the crane if the hydraulic pump fails.

1-19. M1089 MATERIAL HANDLING CRANE (MHC), 30K WINCHES, AND UNDERLIFT (CONT)

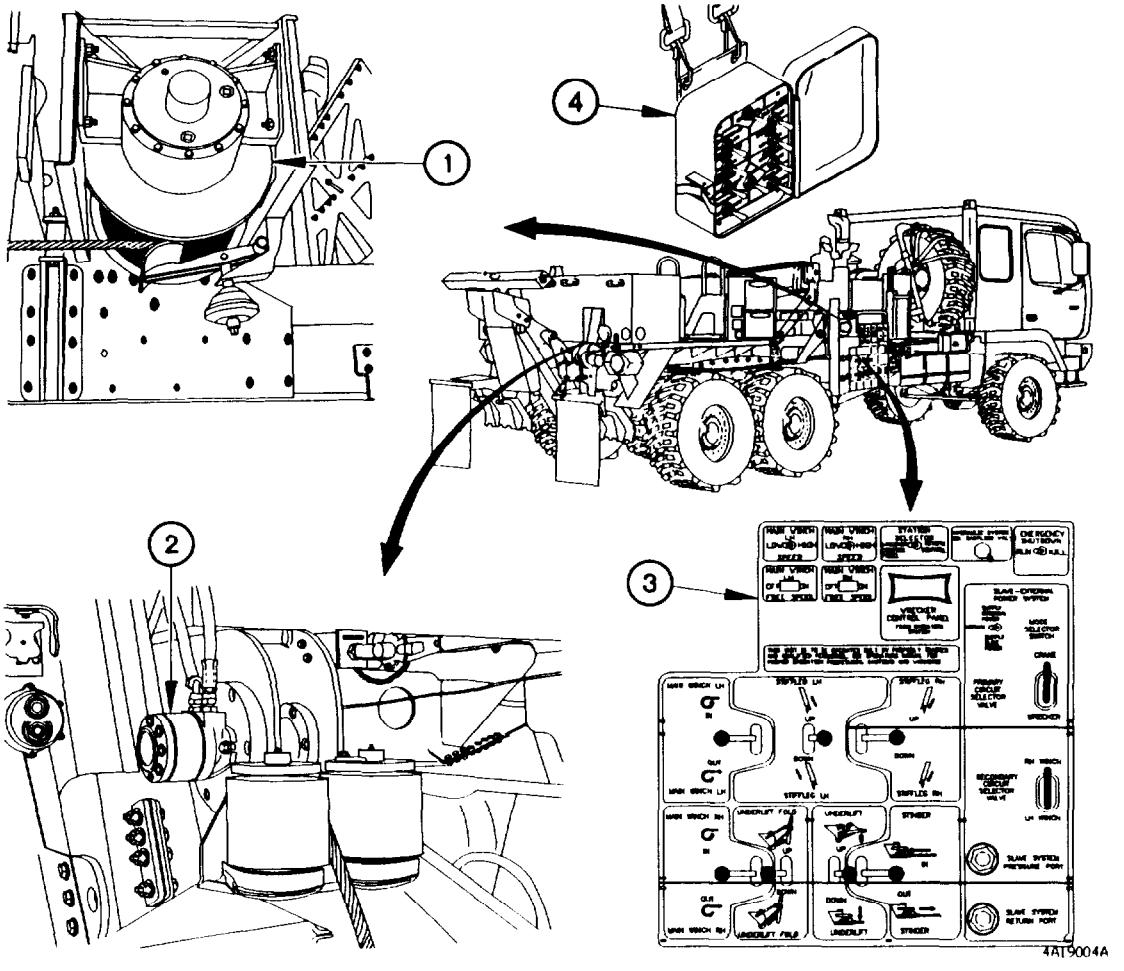


Figure 1-30. M1089 30K Winches

c. M1089 30K Winches. The left and right 30K winches (1, Figure 1-30) are designed to be used for recovering stranded vehicles from the rear of the M1089. The 30K winches are rated for a 30,000 Ibs (13,620 kgs) pull with a full drum of cable. Pulling capacity is reduced with each layer of cable that is taken off the winch drum. Pulling capacity with only one full layer of cable on the winch drum is 15,830 Ibs (7,187 kgs). One full layer of cable is the minimum amount of cable that may be left on the drum when using the winch. The winch is equipped with a fail-safe brake which is spring applied and hydraulically released. The fail-safe brake is automatically applied when hydraulic pressure falls below 270 psi (1,862 kPa). The fail-safe brake will hold the load until hydraulic pressure is restored. The winch control valve functions as a throttling valve when cable is being payed out. The winch control valve controls the flow of fluid to the winch motor. When cable is being pulled in, the winch control valve acts as a free flow check valve. The winch control valve is preset at the factory and is not to be adjusted under any circumstances. The 30K winches are equipped with pay-in/reel out spoolers (2) to keep tension on the cable when cable is payed-in/reeled out. The 30K winches can be controlled from either the M1089 control panel (3) or from the remote control (4).

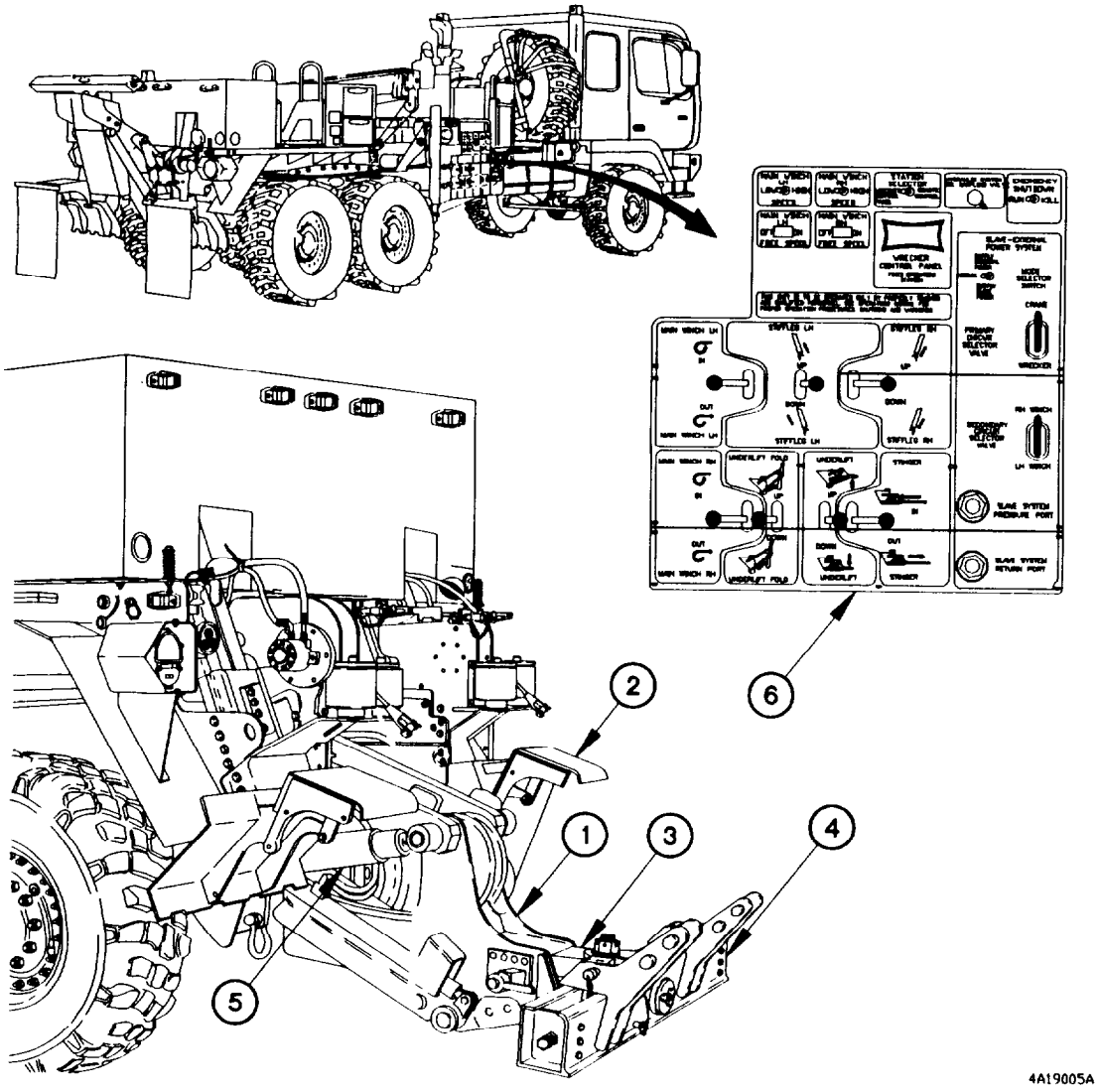


Figure 1-31. M1089 Underlift

d. M1089 Underlift. Vehicle model M1089 is equipped with a hydraulic underlift (1, Figure 1-31) component. The underlift is used for towing a disabled vehicle. Stifflegs (2) are used to keep the M1089 vehicle stable during recovery operations. The stinger (3) can be extended to position the crossbar (4) beneath the vehicle being recovered. The crossbar is equipped with adapters which make it suitable for towing a wide range of vehicles. Two underlift cylinders (5) control the height of the crossbar to allow the operator to tow a disabled vehicle with the front wheels off the ground. All underlift functions are hydraulically controlled from the wrecker control panel (6).

1-20. AIR TRANSPORTABILITY HYDRAULIC SYSTEM

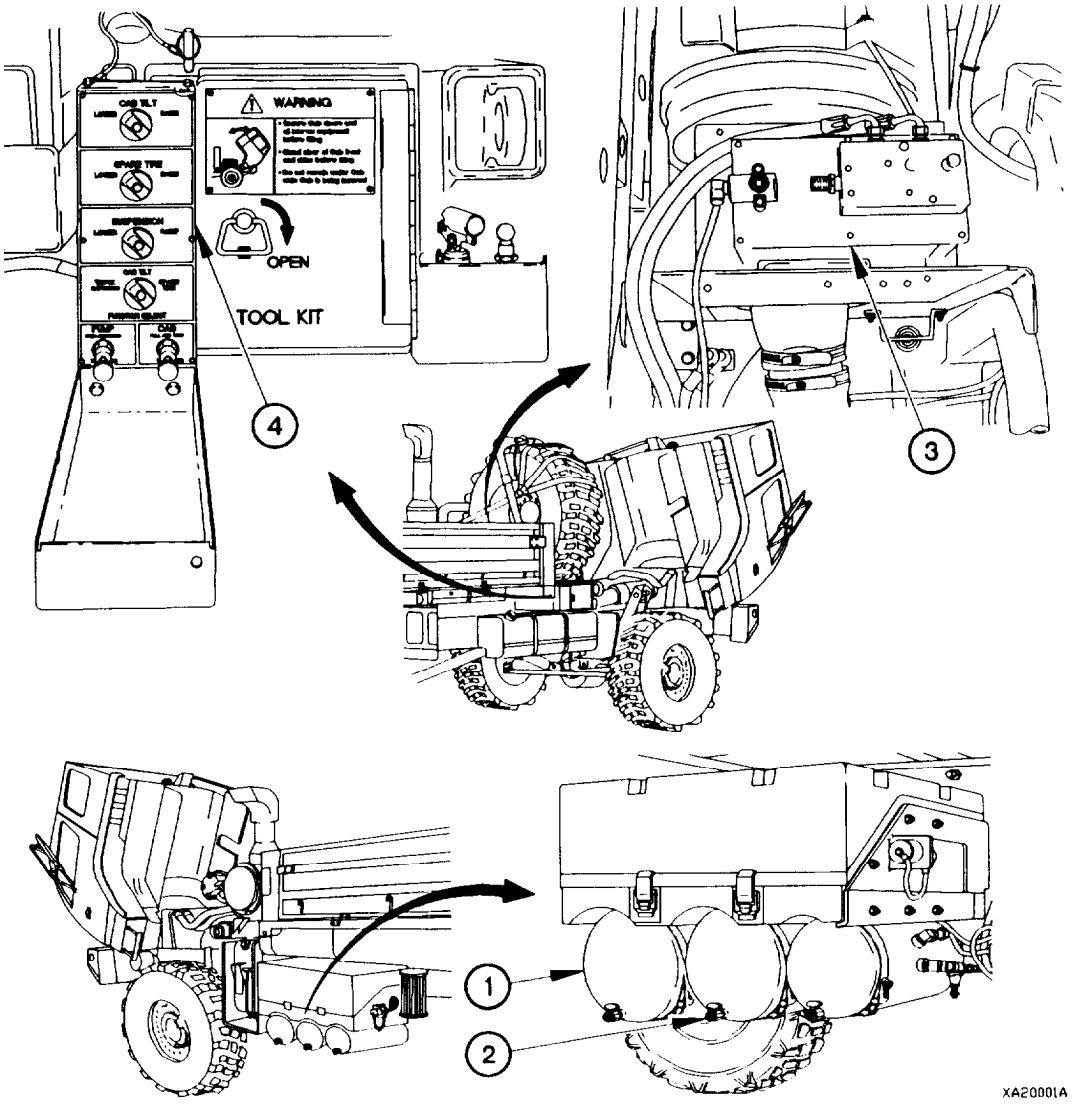


Figure 1-32. Air Transportability Hydraulic System

The entire series of M1083 vehicles is equipped with a hydraulic system which allows the vehicle to be prepared for internal air transport in a short time by a minimum number of personnel. Air from the secondary and primary air tanks (1 and 2, Figure 1-32) powers the air/hydraulic power unit (3). The air/hydraulic power unit supplies hydraulic power to the rest of the system. The system is controlled by valves in the hydraulic manifold (4).

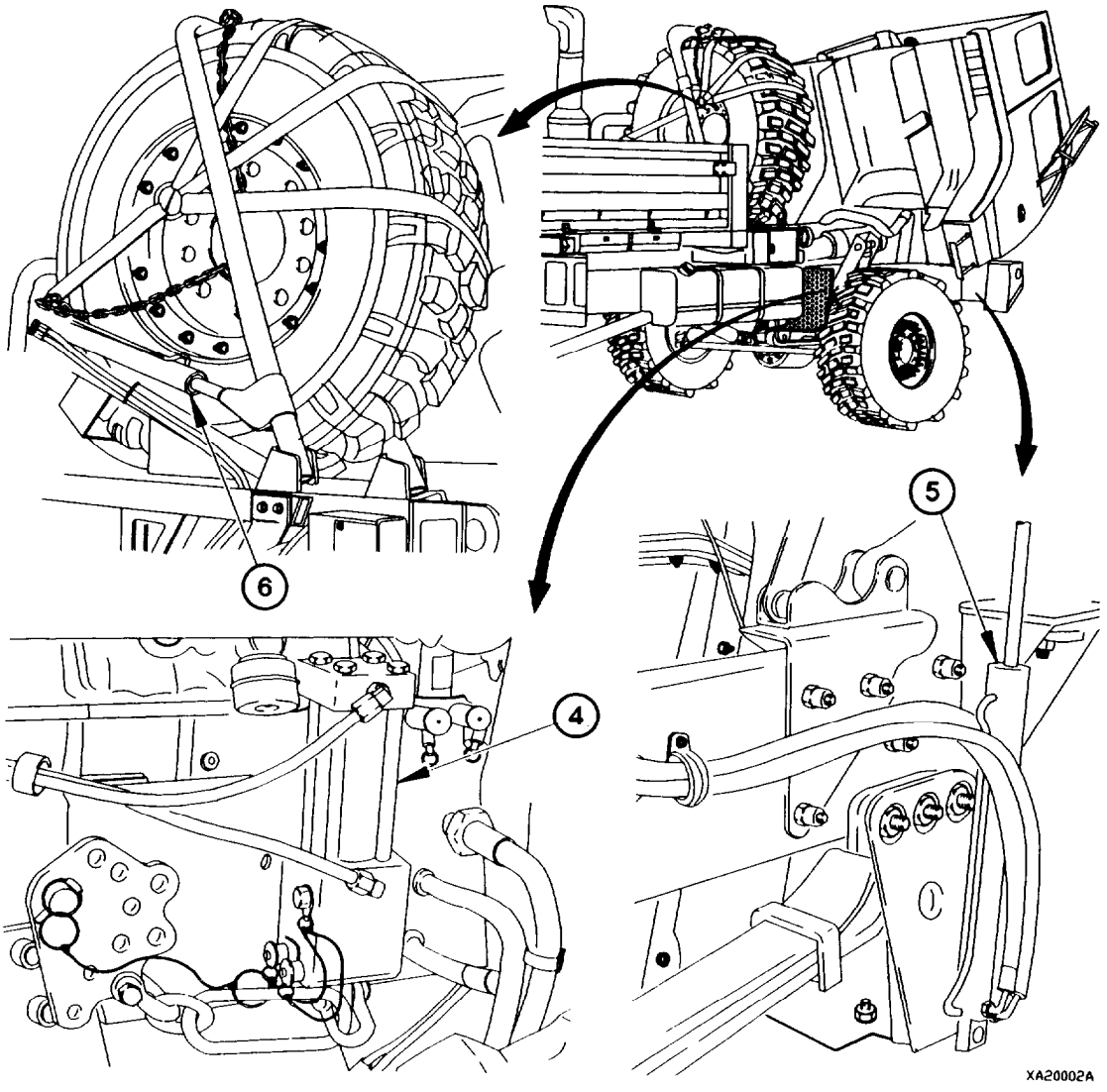


Figure 1-32. Air Transportability Hydraulic System (Cont)

Two suspension cylinders (4), mounted on the frame, are used to compress the suspension so that the vehicle can be loaded into an aircraft. Valves on the hydraulic manifold control pressure to the cab tilt cylinder (5); to raise and lower the cab, and the spare tire retainer cylinder (6); to lower and raise the spare tire.

1-21. AIR SYSTEM

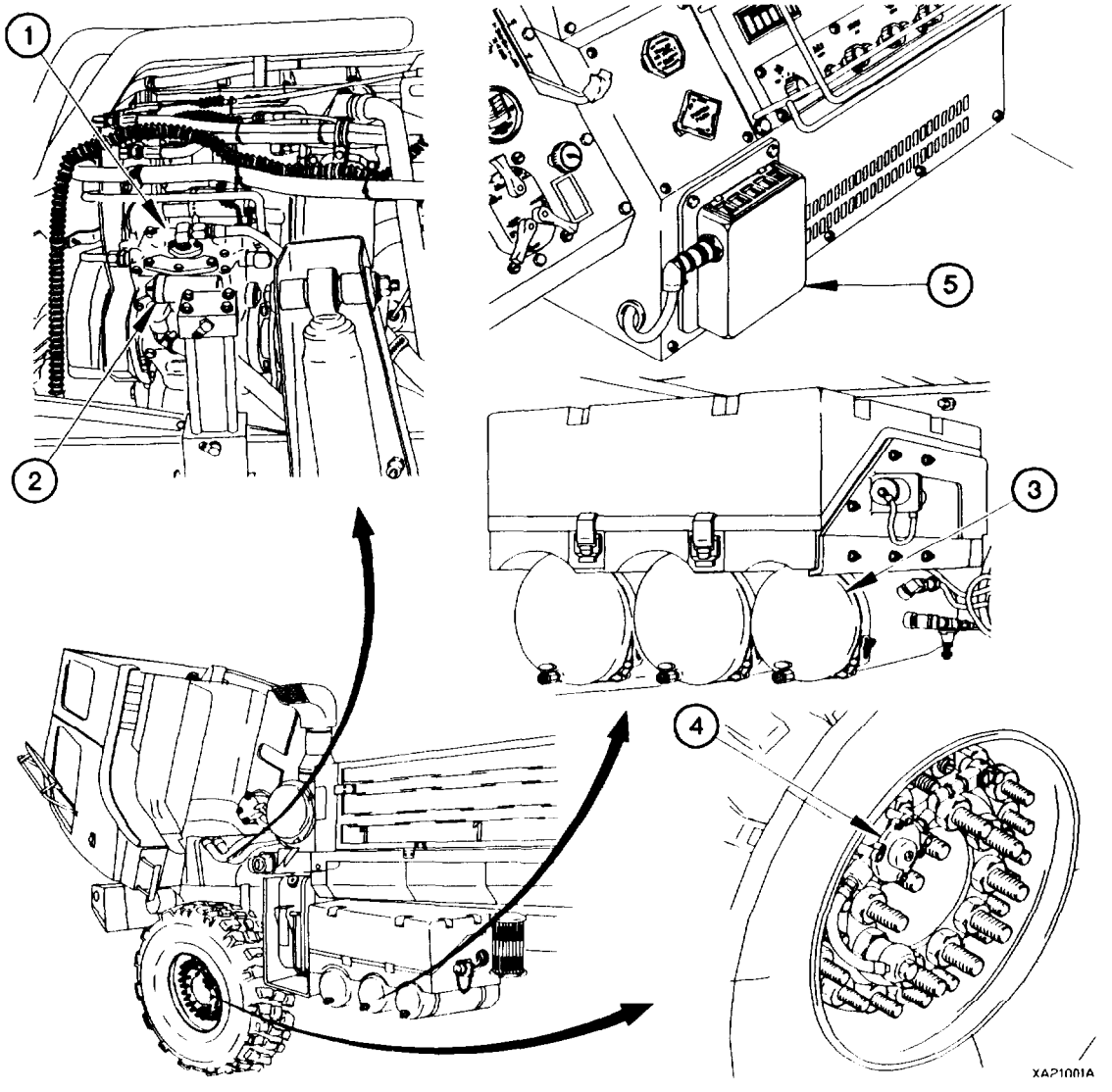


Figure 1-33. Air System

The air system provides clean, dry air for use in the air brake system and the Central Tire Inflation System (CTIS). The air system is pressurized by an engine driven air compressor (1, Figure 1-33) with a nominal output pressure of 125 psi (862 kPa). The system pressure is controlled by an unloading type pressure governor (2) which maintains the output pressure between 105 psi (724 kPa) and 125 psi (862 kPa). Air is supplied to the air brake portion of the air system from the primary and secondary air tanks. Air for the CTIS comes from the wet tank (3) and is supplied to the axles by the CTIS manifold valve (4). Air pressure in the tires is controlled by the CTIS Electronic Control Unit (ECU) (5). The CTIS ECU provides for four tire pressure settings.

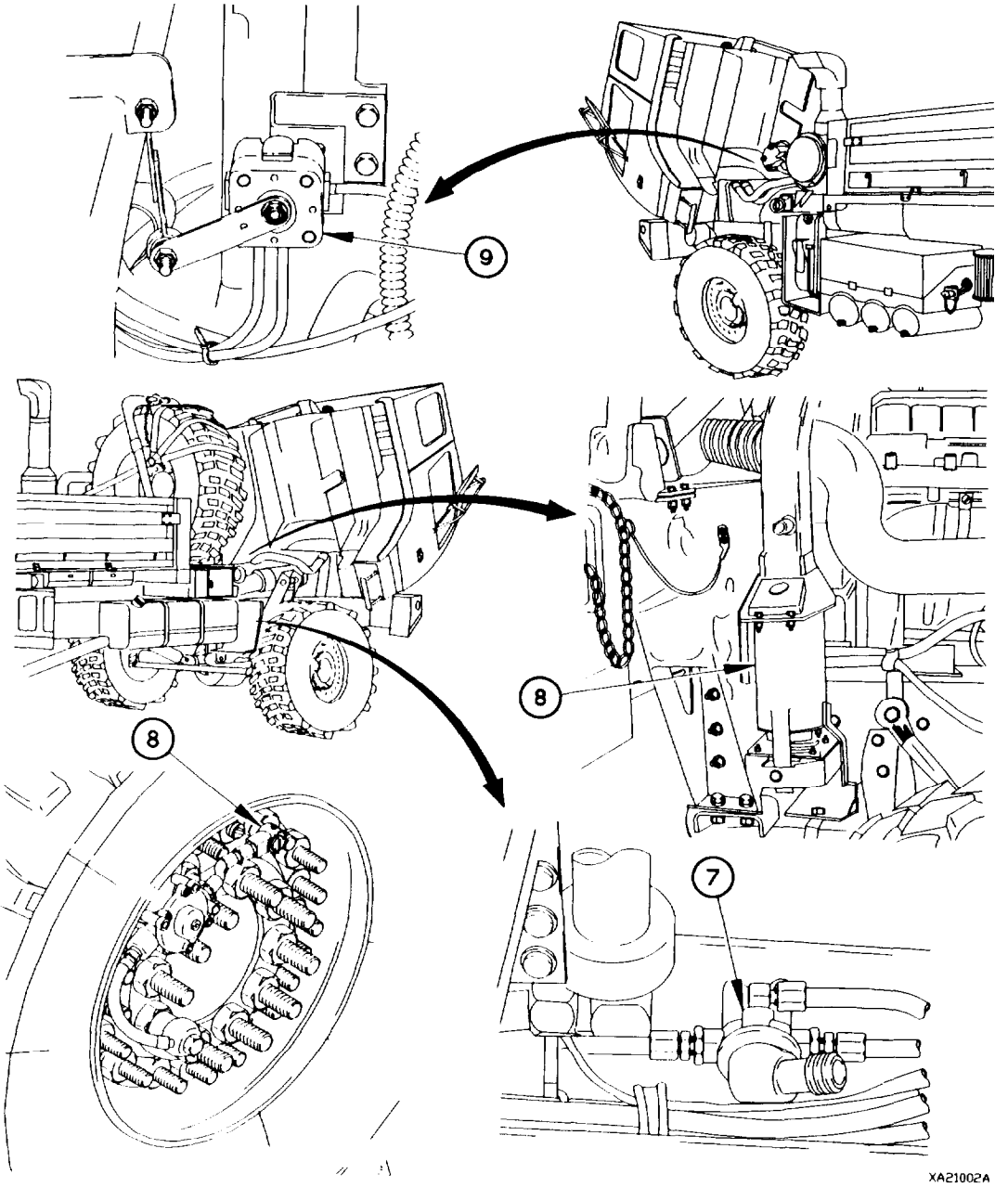


Figure 1-33. Air System (Cont)

Kneeling valves (6) on the front tires allow the front of the vehicle to be lowered for internal air transport. Quick release valves (7) are provided for each axle to exhaust air from the CTIS when the operator selects a mode which requires a lower pressure setting. Air pressure is also used to keep the cab level through the use of air springs (8), mounted below the rear cab support, and a cab leveling valve (9). The air system has enough reserve capacity to keep the vehicle operational in the event of a partial system failure.

CHAPTER 2
VEHICLE MAINTENANCE

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Section I. REPAIR PARTS, TOOLS, SPECIAL TOOLS, TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE), AND SUPPORT EQUIPMENT

2-1. COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE), CTA 50-970, or CTA 8-100 as applicable to your unit.

2-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

For a listing of special tools, TMDE, and support equipment, refer to the Maintenance Allocation Chart (MAC), Appendix B, of this manual and to the Repair Parts and Special Tools List (RPSTL), TM 9-2320-366-24P.

2-3. REPAIR PARTS

Mandatory replacement parts are listed in Appendix G. Repair parts are listed and illustrated in the RPSTL, TM 9-2320-366-24P, covering Unit Maintenance repair parts and special tools for vehicle.

Section II. SERVICE UPON RECEIPT

2-4. UNPACKING AND DEPROCESSING

a. Unpacking. Upon receipt of a new vehicle, the receiving organization must see if it has been properly prepared for service and is in good condition. Inspect all assemblies, subassemblies, and accessories to be sure they are in proper working order (TM 9-2320-366-10-1). Secure, clean, and correctly adjust and/or lubricate as needed (Appendix H). Check all tools and equipment to be sure every item is accounted for (TM 9-2320-366-10-HR) in good condition, clean and properly mounted or stowed (TM 9-2320-366-10-1).

b. Deprocessing. Read "Processing and Deprocessing Record of Shipping, Storage and Issue of Vehicles and Spare Engines" tag, (DD Form 1397) and follow all precautions checked. This tag should be attached to the steering wheel or hand throttle lever.

2-5. HAND RECEIPT MANUAL AND INVENTORY OF EQUIPMENT

When a new vehicle is first received by the using organization, it is necessary to inventory the vehicle equipment. For detailed procedures, refer to Hand Receipt Manual, TM 9-2320-366-10-HR.

2-6. SERVICE BEFORE OPERATION

a. General.

(1) Refer to TM 9-2320-366-10-1 for operating instructions for the vehicle.

(2) Upon receipt of a new, used, or reconditioned vehicle, the receiving organization must see if it has been properly prepared for service and is in good condition (TM 9-2320-366-10-1). Inspect all assemblies, subassemblies, and accessories to be sure they are in proper working order. Secure, clean, correctly adjust, and/or lubricate (TM 9-2320-366-10-1 and Appendix H) as needed. Check all tools and equipment to be sure every item is there (TM 9-2320-366-10-HR), in good condition, clean and properly mounted or stowed (TM 9-2320-366-10-1).

(3) Follow general procedures for all services and inspections given in TM 9-2320-366-10-1.

b. Inspection and Servicing Equipment.

NOTE

If vehicle has been driven to the using organization, most or all of the following work should have been done.

(1) When vehicle is received, inspect all items for damage that may have occurred during shipping and unloading operations. Pay close attention to any loose or missing nuts, bolts, screws, access plates, drain plugs, draincocks, oil plugs, assemblies, subassemblies, or components that may be easily lost or broken in transit. Check Basic Issue Items (Bll) against checklist to make sure all items are accounted for and are in good condition (TM 9-2320-366-10-HR). Carefully list all discrepancies.

WARNING

- **Dry Cleaning Solvent P-D-680 is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from open flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 130°F (50°C). Failure to comply may result in serious injury or death to personnel.**

- **If personnel become dizzy while using Dry Cleaning Solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes. immediately flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.**

(2) Clean all exterior surfaces coated with rust-preventive compound with Dry Cleaning Solvent (Item 65, Appendix D).

(3) Perform the Semiannual Preventive Maintenance Checks and Services (PMCS), Table 2-1.

(4) Lubricate all points shown in Appendix H regardless of interval. Schedule services in accordance with DA Pam 738-750.

(5) Initial Service Intervals:
a. Initial 500 miles (805 km) of operation:
(1) Perform Front, Intermediate, and Rear Axle oil change.
(2) Perform Front Axle Wheel end Planetary Hub oil change.

2-6. SERVICE BEFORE OPERATION (CONT)

b. Initial 1000 miles (1609 km) of operation:
Tighten self-locking nuts on leaf spring U-bolt to 390-510 lb-ft (529-692 N•m), in 50 lb-ft (68 N•m) increments, in a crisscross pattern.

c. Initial 5000 miles (8045 km) of operation:
(1) Perform Engine oil and filter change.
(2) Perform Transmission oil and filter change.

(6) Activate battery if vehicle is delivered with dry-charged battery (TM 9-6140-200-14).

WARNING

Do not remove radiator cap when the engine is hot; steam and hot coolant can escape and bum skin. Failure to comply may result in injury to personnel.

(7) Check radiator coolant. Check if solution is adequate for expected climatic conditions. Refer to TB 750-651 for preparation of antifreeze solutions. Put tag near filler cap with type of antifreeze and degree of protection written on tag.

c. Special Service Instructions.

(1) Vehicle Body and Sheet Metal Inspection (TM 9-2320-366-10-1).

(a) Inspect body and sheet metal for evidence of damage during shipment.

(b) Check doors, latches, and hinges on compartments for proper operation.

(c) Check mounting hardware and tighten as necessary.

(2) Vehicle Cab Inspection (TM 9-2320-366-10-1).

(a) Inspect cab for evidence of damage during shipment.

(b) Inspect windshield and window glass for cracks or other damage.

(c) Check door latches, hinges, and windows for proper operation.

(d) Check seats and seatbelts mounting hardware to ensure they are securely installed and tighten as necessary.

(e) Check operator seat adjustments to ensure they are functioning properly.

(3) Engine Inspection (TM 9-2320-366-10-1).

(a) Examine intake air cleaner element for dirty or restricted condition.

(b) Remove any seals, plugs, or tape used to seal air inlets and ports on the engine during shipping.

(c) Check crankcase oil level with dipstick.

(d) Inspect engine and coolant hose connections for evidence of leakage.

(e) Check for obstructions of cooling air flow to radiator.

(4) Transmission Inspection (TM 9-2320-366-10-1).

(a) Check fluid level with dipstick.

(b) Check external tubes and hoses for evidence of leakage.

(5) Transfer Case Inspection (TM 9-2320-366-10-1).

(a) Check level of lubricant at fill plug.

(b) Inspect lubrication pump and external hoses for evidence of leakage.

(c) Operate driveline control and observe drive power to front axle.

(d) Inspect bolts on driveline U-joints.

(6) Electrical System Inspection (TM 9-2320-366-10-1).

(a) Inspect battery cable connections and clean and tighten as necessary.

(b) Check all lights for burned out lamps, loose connections, and dirty or broken lenses.

(c) Check that alternator is charging batteries properly.

(d) Check that all electrical equipment functions properly.

(7) Air System Inspection (TM 9-2320-366-10-1).

(a) Drain any water from air tanks.

(b) Inspect all accessible air hose and tubing connections for leakage.

(8) Steering System Inspection (TM 9-2320-366-10-1).

(a) Check steering hydraulic reservoir for proper fluid level.

(b) Examine steering linkage and steering gear for damage incurred during shipment.

(c) Examine steering hoses and connections for evidence of leakage.

(d) Check steering system for proper operation during road test.

(9) Chassis and Front, Intermediate, and Rear Axle Inspection (TM 9-2320-366-10-1).

(a) Check all lubricant levels.

(b) Check axle housing pressure vents to ensure freedom from foreign matter.

2-6. SERVICE BEFORE OPERATION (CONT)

(10) Tire Inspection.

(a) Check tire pressure (TM 9-2320-366-20-1).

(b) Inspect tires for serious cuts, bubbles, cracks, bruises, dry-rot, foreign objects, or exposure of internal cords. Remove any foreign objects lodged between treads (TM 9-2320-366-20-1).

(c) Check all wheel mounting nuts for proper torque (para 12-4).

(11) Fuel System Inspection (TM 9-2320-366-20-1).

(a) Check fuel level and replenish if necessary.

(b) Inspect fuel tubes, hoses, connections, and filters for evidence of leakage.

(12) Arctic Kit. If vehicle is equipped with an arctic kit, and is going to operate in non-arctic climates, remove arctic alternator belts and replace with standard belts (para 7-4).

Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-7. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION

This section contains Unit Maintenance Preventive Maintenance Checks and Services (PMCS) requirements for the vehicle. The PMCS table contains checks and services necessary to ensure the vehicle is ready for operation. Using the PMCS table, perform maintenance at the specified intervals. Perform PMCS in TM 9-2320-366-10-1 before doing the Unit Maintenance PMCS.

2-8. GENERAL MAINTENANCE PROCEDURES

WARNING

- **Dry Cleaning Solvent P-D-680 is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from open flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 130°F (50°C). Failure to comply may result in serious injury or death to personnel.**

- **If personnel become dizzy while using Dry Cleaning Solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.**

a. Cleanliness. Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Use Dry Cleaning Solvent (Item 65, Appendix D) on metal surfaces and soapy water on rubber.

b. Bolts, Nuts, and Screws. Check bolts, nuts, and screws for obvious looseness, missing, bent, or broken condition and replace as necessary. If they cannot be checked with a tool, look for chipped paint, bare metal, or rust around bolt heads.

c. Welds. Look for loose or chipped paint, rust, or gaps where parts are welded together. If a bad weld is found, notify your supervisor.

d. Electric Wires and Connectors. Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connectors and ensure wires are in good shape.

e. Fluid Lines and Fittings. Look for wear, damage, and leaks and make sure clamps and fittings are tight. Wet spots show leaks, but a stain around a fitting or connector can mean a leak. If connector or fitting is loose, tighten it. If something is broken or worn out, replace or repair using the applicable procedure.

f. Fluid Leakage. It is necessary to know how fluid leakage affects the status of fuel, oil, coolant and the hydraulic systems. The following are definitions of the type/classes of leakage necessary to know in order to determine the status of the vehicle. Learn, then be familiar with them and REMEMBER - WHEN IN DOUBT, NOTIFY THE SUPERVISOR!

CAUTION

Equipment operation is allowable with minor leakage (Class I or II). Consideration must be given to the fluid capacity in the item/system being checked/inspected. When in doubt, notify the supervisor. When operating with Class I or II leaks, continue to check fluid levels as required in the PMCS. Class III leaks should be repaired using the applicable procedure.

(1) Class I. Seepage of fluid as indicated by wetness or discoloration not great enough to form drops.

(2) Class II. Leakage of fluid great enough to form drops but not enough to cause drops to fall from item being checked/inspected.

(3) Class III. Leakage of fluid great enough to form drops that fall from the item being checked/inspected.

g. Air System Components. Look for worn, damaged, or leaking components. Make sure clamps and fittings are tight. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, replace or repair it.

h. Damage. Damage is defined as any condition that affects safety or would make the vehicle unserviceable for mission requirements.

2-9. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE

a. Do the SEMIANNUAL PREVENTIVE MAINTENANCE (Table 2-1) once every six months.

b. Refer to the specified technical manuals for preventive maintenance for special purpose kits.

c. Always perform the PREVENTIVE MAINTENANCE in the same order until it gets to be a habit. Once practiced, it will be easy to spot anything wrong in a hurry. Perform the checks and services listed in Table 2-1 in the order listed.

d. If something does not work, troubleshoot with instructions in Section IV.

e. If anything looks wrong and is too hard to fix, notify the supervisor.

f. When doing preventive maintenance, take along the tools and supplies needed to make all the checks, including a clean cloth or two.

2-9. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT)

g. The following is a breakdown of the PMCS table:

(1) Item number column. Checks and services are numbered in a logical order for moving around the vehicle. The item number column is used as a source of reference for the TM Number Column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, for recording results of the PMCS.

(2) Items to be inspected. This column identifies the item to be inspected.

(3) Procedures column. This column contains all the information required to do the check/inspection. Art is integrated into the column to aid the user in identifying items. Whenever replacement parts or repair is recommended, reference is made to the applicable maintenance instructions.

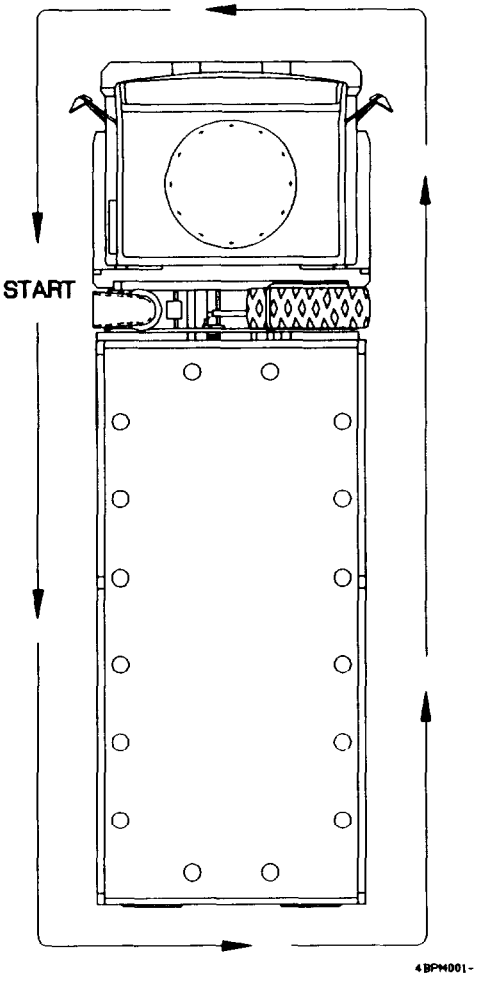


Table 2-1 Preventive Maintenance Checks and Services

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
			ROAD TEST Maintenance personnel will be with vehicle operator during the road test. **NOTE** • Perform the following during road test. • For road test, vehicle will be driven at least five miles over different ground to give enough time to detect any malfunctions.	
1	Semiannual	**Preservice Checks**	**a.** Notice if starter engages smoothly and turns engine at normal cranking speed.	**a.** Starter inoperative or makes excessive grinding sound.
			b. Listen for unusual engine noise at idle, at operating speeds, and under acceleration. Be alert for excessive vibration and the smell of oil, fuel or exhaust.	**b.** Engine knocks, rattles or smokes excessively.
			c. Check for transmission response to shifting and for smoothness of operation in all speed ranges. Be alert for unusual noises and difficulty in shifting in any speed range.	**c.** Transmission shifts improperly, does not shift or makes excessive noises.
			d. Test for accelerator response. Observe for sticking pedal.	**d.** Pedal sticking or binding.
			e. With vehicle speed approximately 5 mph (8 kph) turn steering wheel to left, then right, to detect steering backlash, shimmy or freeplay of more than 1-1/2 in. (3.8 cm) in either direction. Vehicle should respond instantly. With vehicle moving on straight, level terrain, lightly hold steering wheel to check for pull and wandering.	**e.** Steering binds, grabs, wanders or freeplay is more than 1-1/2 in. (3.8 cm) in either direction.

Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
1	Semiannual	**Preservice Checks (CONT)**	**NOTE** Do not turn tires when turning wheel to check for steering wheel free play.	
			f. Place a strip of tape around steering wheel at 12 O'clock position. Turn steering wheel right until resistance is felt. Place a ruler lightly against outer rim of steering wheel with end of ruler at one edge of tape. Turn steering wheel left until resistance is felt. Measure distance designated edge of tape has traveled. Maximum free play measured at outside rim of steering wheel is 2-1/2 in. (6.4 cm).	**f.** Steering wheel exceeds 2-1/2 in. (6.4 cm) free play.
			g. Apply brake pedal with steady force. Vehicle should slow down and stop without pulling to one side or jerking. Release brake pedal. The brakes should release immediately and without difficulty.	**g.** Brakes chatter, pull to one side, will not release, or do not work.
			h. Observe vehicle response to road shocks, side sway or continuous bouncing indicates a malfunction.	**h.** Handling is unstable.
			CAUTION Do not hold steering wheel at full left or right position for longer than 10 seconds. Oil overheating and pump damage can result. Failure to comply may result in damage to equipment.	
			i. With vehicle stopped, turn steering wheel to extreme left, then to extreme right to check for binding or jerking.	**i.** Hard steering is evident.
			j. Check engine operation at all speeds. Ensure that engine does not go over engine governed speed - (55 mph or 2600 rpm).	**j.** Engine exceeds or fails to reach governed speed.

Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
2	Semiannual	**WHEELS, HUBS, AND CTIS**	**WARNING** **Completely deflate tires before removing from axles only if there is obvious damage to wheel components. Removing damaged tires from axles without deflating tires may cause wheel components to separate. Failure to comply may result in serious injury or death to personnel.** **a.** Check wheels for obvious cracks around lug holes. If cracks are found, repair wheel (para 12-2). **b.** Replace any loose or damaged wheel studs (para 12-3). Tighten lugnuts (para 12-4). **c.** Check for oil leaks. **d.** Check and fill wheel end hub (Appendix H). **e.** Check wheels for CTIS air leaks. **f.** Remove manifold valve (para 12-5) and inspect manifold filter for damage. Clean any debris from manifold filter.	**a.** Cracks are found around lug holes. **b.** More than one lugnut or wheel stud is damaged or missing. **c.** Class III leak is evident.

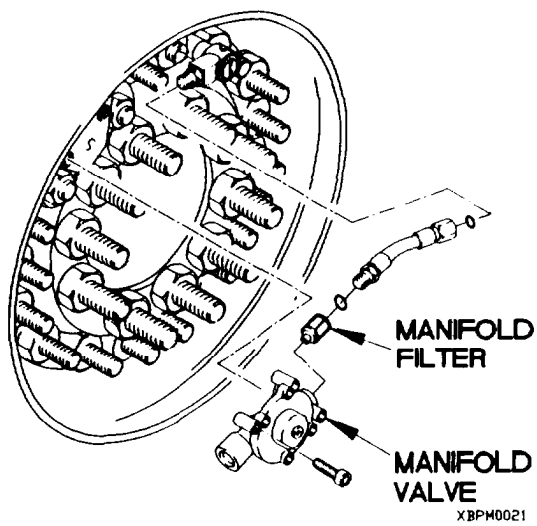


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
3	Semiannual	SERVICE BRAKES	**WARNING** • **Brake shoes may be covered with dust. Breathing this dust may be harmful to your health. Do not used compressed air to clean brake shoes. Wear a fitter mask approved for use against brake dust. Failure to comply may result in injury to personnel.** • **Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.** **a.** Shut down engine (TM 9-2320-366-10-1) and drain primary air tank. Rear service brakes should not apply. If rear service brakes apply, inversion valve is inoperative. Replace inversion valve (para 11-13). If rear brakes are not applied, depress brake pedal. Depressing brake pedal should apply front brakes and control rear spring brakes through inversion valve and modulation of relay valve.	**a.** Rear portion of brake system fails.

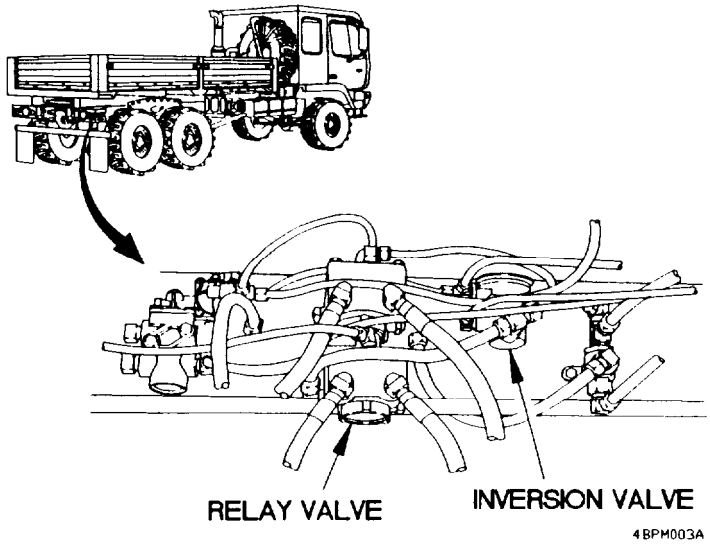


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
3	Semiannual	SERVICE BRAKES (CONT)	**b.** Inspect load sensing valve for signs of corrosion.	
			c. Check security of mounting hardware.	
			d. Check for air leaks around brake hose fittings.	**d.** Air leaks are found.
			e. Inspect control cable for corrosion and abrasions.	**e.** Control cable is damaged or missing.
			f. Check security of control cable upper and lower attaching hardware and adjust (para 11-10).	
			g. Inspect brake air chambers for obvious cracks and corrosion.	**g.** Brake air chamber leaks.

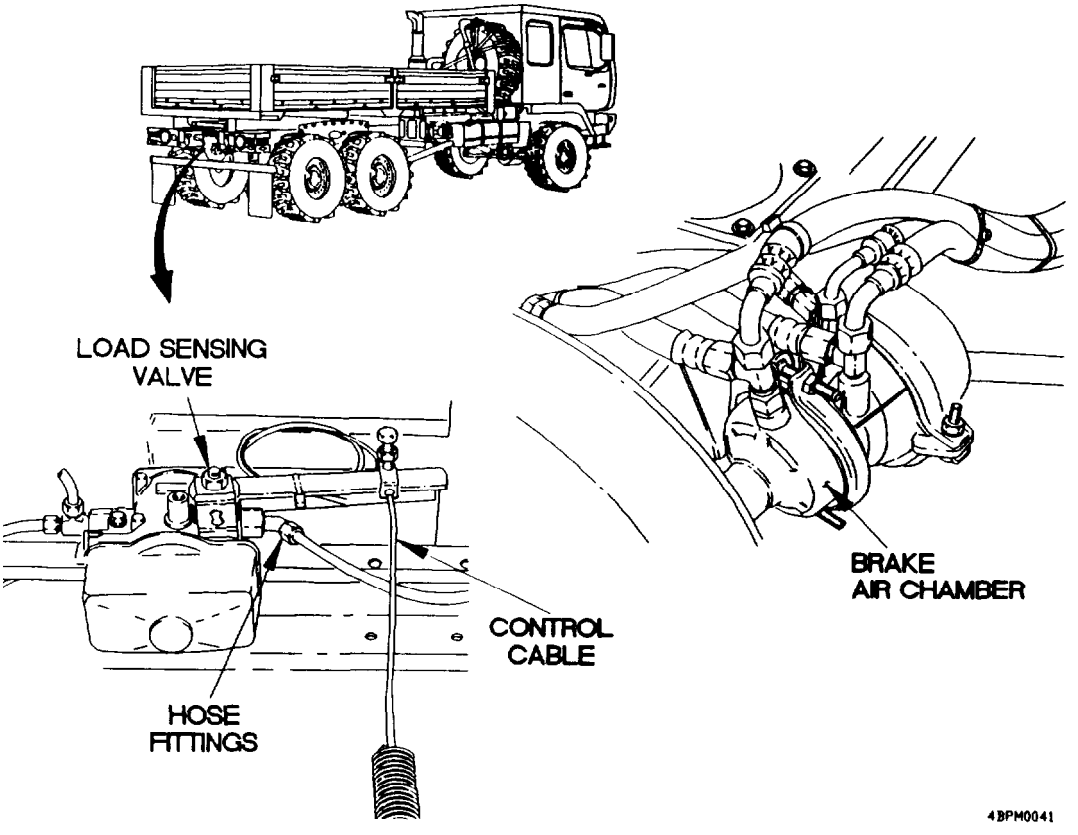


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
3	Semiannual	SERVICE BRAKES (CONT)	**WARNING** **Brake drums can become very hot during vehicle operations. Place hand near drum to check for excessive heat but do not touch drum. Failure to comply may result in injury to personnel.** **CAUTION** Brake drum clearance must be checked along centerline of brake shoe. Failure to comply may result in damage to equipment. **NOTE** Over time a ridge will form on the outer edge of the brake shoes. This is normal and does not affect brake shoe serviceability. **h.** Examine and compare each brake drum for evidence of overheating. Excessive heating of brake drums may indicate a dragging brake shoe. Cool brake drums could mean improper adjustment, defective or inoperative brakes, or rust on braking surfaces.	**h.** Brake drums are excessively hot, cool, or rusted.

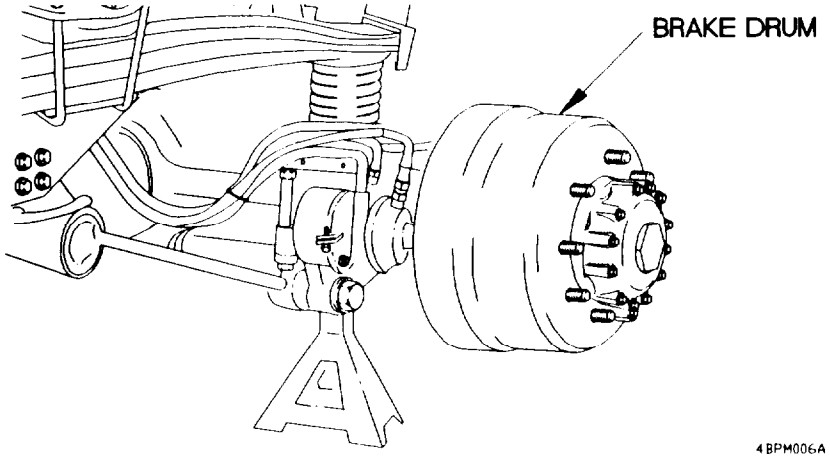


Table 2-1. Preventive Maintenance Checks and Services (Cont)

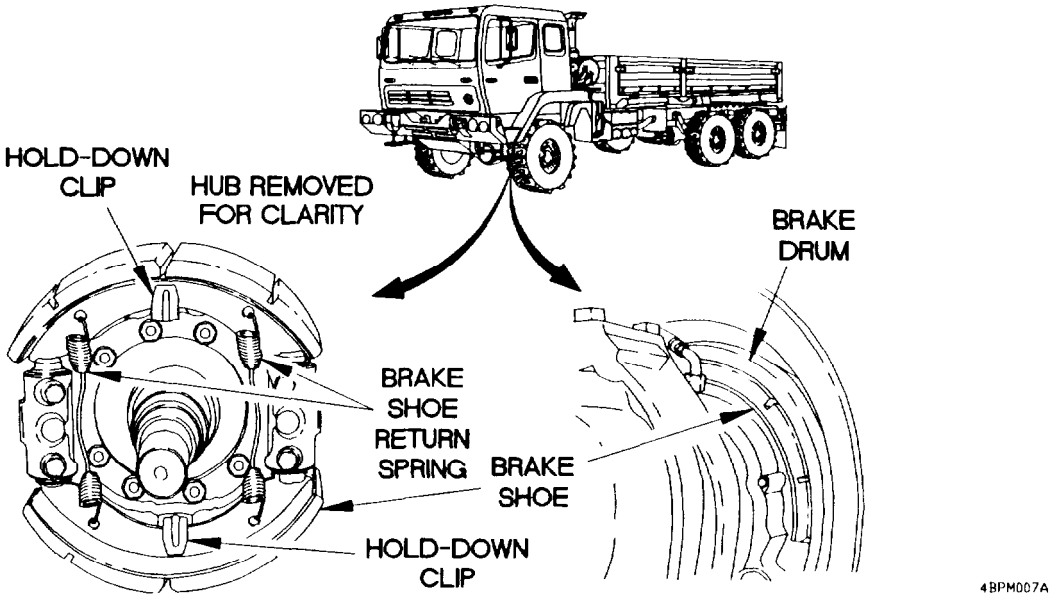
Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
				
3	Semiannual	**SERVICE BRAKES (CONT)**	**i.** Check brake lining to brake drum clearance along centerline of shoe at scallop to ensure automatic adjusters are functioning properly. Clearance should be 0.020-0.040 in. (0.051-0.102 cm) maximum. **WARNING** **Do not allow grease or oil to contact brake linings. Linings can absorb grease and oil, causing early glazing and very poor braking action. Failure to comply may result in serious injury or death to personnel.** **j.** Examine brake shoes for excessive brake lining wear and cracking (para 11-2 and 11-3). **k.** Inspect brake shoe return springs and hold-down clips for cracks.	**i.** Brake shoe adjustment is out of tolerance. **j.** Brake linings are cracked or excessively worn. **k.** Springs or clips are cracked or broken.

Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
3	Semiannual	SERVICE BRAKES (CONT)	**l.** Inspect actuator plunger seals for cuts, tears, and leaks (para 11-4 and 11-5).	**l.** Plunger seals, adjusting pawl assembly, adjusting plunger or actuator are damaged.
4	Semiannual	SHOCK ABSORB-ERS AND SPRINGS	**a.** Inspect shock absorbers for oil leaks and damage.	**a.** Shock absorber is bent or Class III leaks are evident.
			b. Check shock absorber mounting hardware for security.	
			c. Check rubber bushings for looseness which may result in inner sleeve contacting eve ring of shock absorber.	**c.** Rubber bushings are loose or inner sleeve is contacting eye ring of shock absorber.

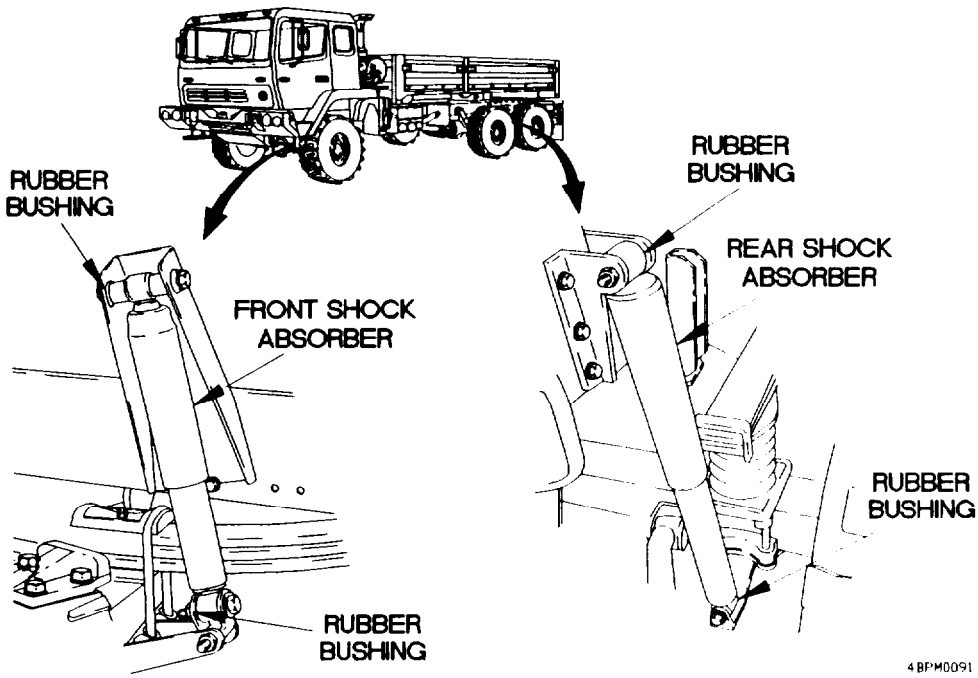
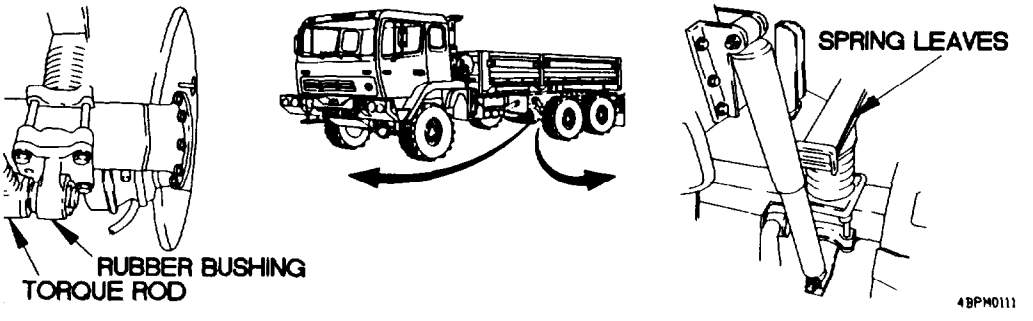


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable tf:
4	Semiannual	SHOCK ABSORBERS AND SPRINGS (CONT)	**d.** Inspect spring leaves, spring clips, saddles, saddle caps, and U-bolts for cracks or breaks.	**d.** Cracks or breaks are found.
			e. Check torque rods for cracks or bends. Inspect rubber bushings for damage or dry rot.	**e.** Any torque rod is cracked or bent.



5	Semiannual	AXLES	**WARNING** **Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.** Inspect axles for leaks around wheel end assemblies, pinion seal, drive yoke, and drain plug.	

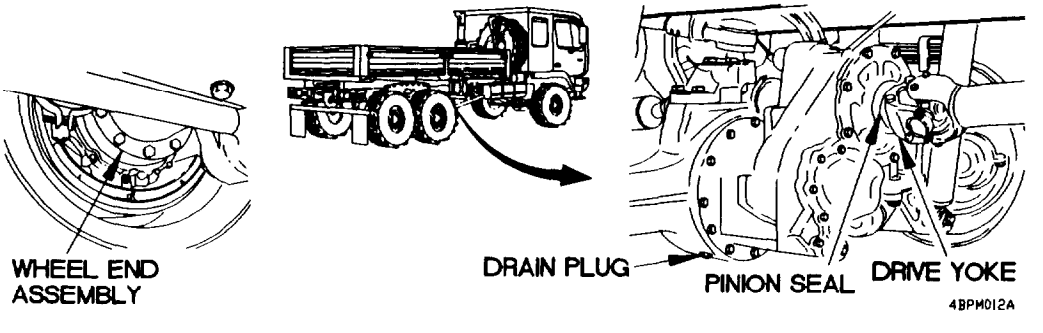


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
6	Semiannual	AXLE BREATHER VALVES	a. Inspect axle breather valves to ensure up and down movement.	

WARNING

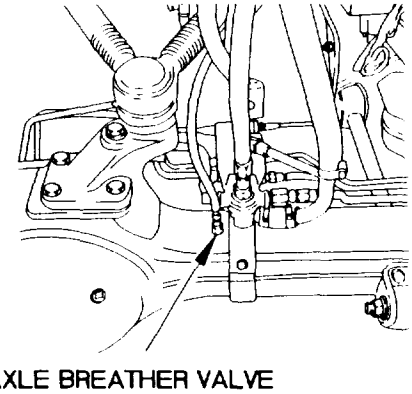
- **Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 130°F (50°C). Failure to comply may result in serious injury or death to personnel.**
- **If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If dry cleaning solvent contacts skin or clothes, flush with cold water. If dry cleaning solvent contacts eyes, immediately flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.**

		b. Remove axle breather valve from fitting. Wash breather in dry cleaning solvent (Item 65, Appendix D) and allow to air dry.	b. Axle breather valve missing.

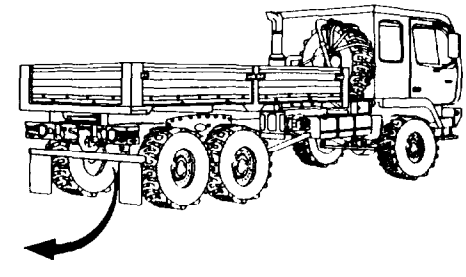
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in well-ventilated area. If adhesive, solvents, or sealing compounds get on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

		c. Coat threads of axle breather valve with antiseize compound (Item 13, Appendix D) and install axle breather valve in fitting.	



AXLE BREATHER VALVE



4BPM0131

Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
7	Semiannual	PROPELLER SHAFTS	**WARNING** **Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.**	
			a. Inspect U-joints for play, broken and missing lubrication fittings (Appendix H).	**a.** Lubrication fittings, screws or lock tabs are broken or missing, or play is evident.
			b. Check torque on propeller shaft strap bolts. Tighten all bolts to 43-53 lb-ft (58-71 N•m).	**b.** Bolt(s) missing or cannot be tightened.
			c. Inspect all propeller shafts for bends and cracks.	**c.** Bends or cracks are evident.

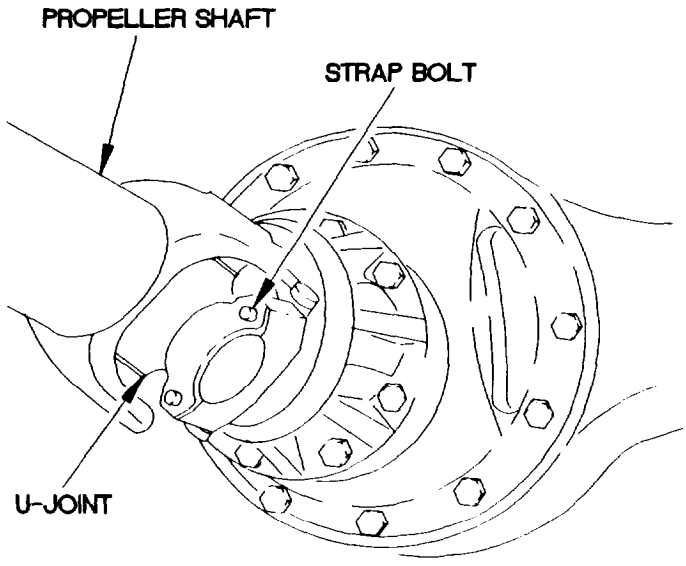


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
8	Semiannual	TRANS-MISSION	**WARNING** **Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.**	
			a. Check transmission for cracks, loose bolts, leaks, and damage.	**a.** Cracks, loose or missing bolts, or Class III leaks.
			b. Check that transmission oil pan bolts and drain plug are tight.	**b.** Oil pan bolts or drain plug are loose or missing.
			c. Inspect transmission output shaft seal for damage or leaks.	**c.** Damage or Class Ill leaks are evident.

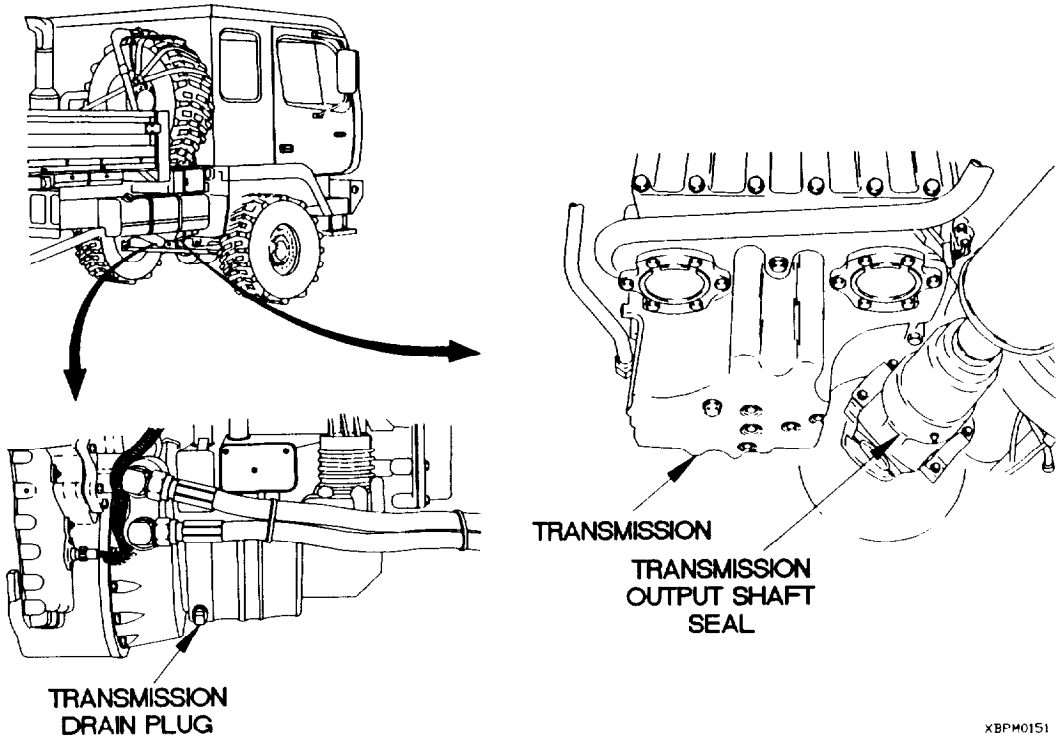


Table 2-1. Preventive Maintenance Checks and Services (Cont)

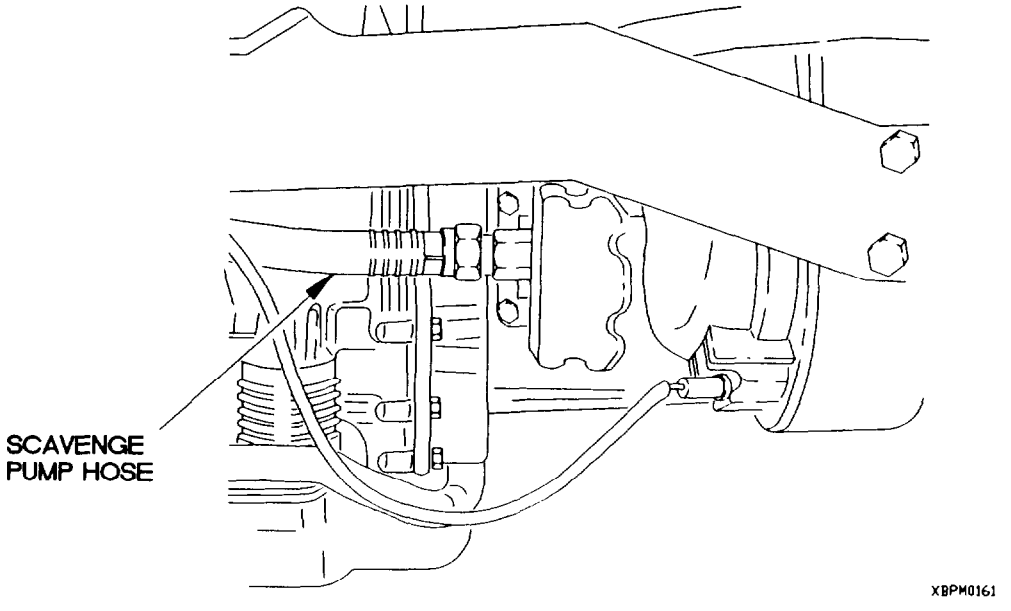
Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If :
8	Semiannual	TRANS-MISSION (Cont)	**d.** Inspect transmission oil cooler tubes for leaks.	**d.** Class III leak is evident.
			e. Inspect scavenge pump hose for leaks.	**e.** Class III leak is evident.
				
9	Semiannual	ENGINE MOUNTS	**WARNING** **Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.** Check engine mounts for loose hardware or cracks.	Engine mounts are loose or damaged.

Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
10	Semiannual	ENGINE CRANK-CASE	**NOTE** COLD TEMPERATURE OPERATION For operation of equipment in continuous temperatures below 0°F (-18°C), remove lubricants prescribed in the key for temperature above 0°F (-18°C). Relubricate with lubricant specified in the key for temperatures 0° to -50°F (-18° to -46°C). **a.** Start engine (TM 9-2320-366-10-1) and run for five minutes. **b.** Check for oil leaks around top of engine oil filter. **c.** Shut down engine (TM 9-2320-366-10-1). **d.** Check oil level on engine oil dipstick. **e.** Add lubricating oil, if required, to bring oil level to full mark on engine oil dipstick.	

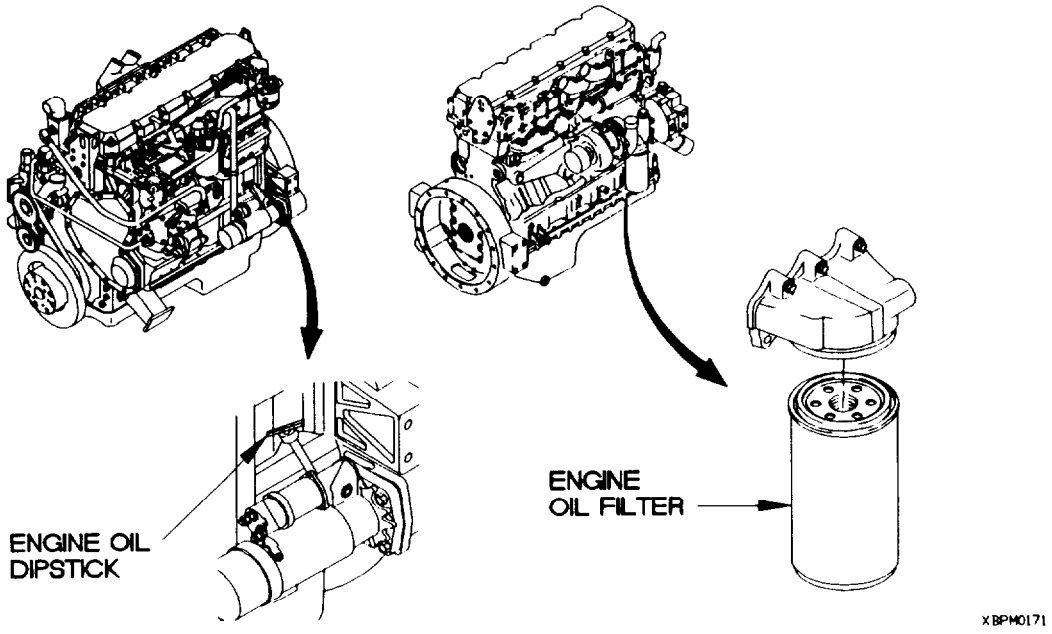
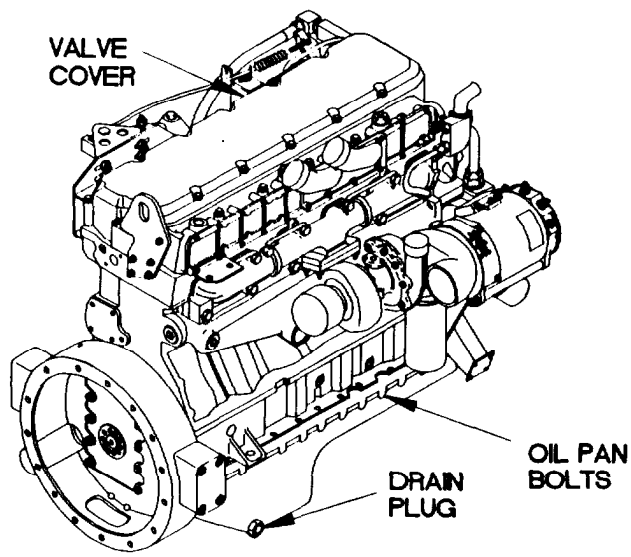


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
10	Semiannual	ENGINE CRANK-CASE (Cont)	f. Check oil pan bolts and oil pan drain plug for tightness.	f. Drain plug or oil pan bolts are loose or missing.
			g. Check valve cover for evidence of oil leaks.	g. Class Ill leak is evident.
11	Semiannual	ENGINE WIRING	Check all engine compartment wiring for frays, splits, missing insulation or poor connections.	Insulation missing. Frays, splits, poor connections evident.



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Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
12	Semiannual	AIR SYSTEM	**a.** Observe air dryer purge valve operation and ensure proper functioning. **b.** Inspect purge valve seal for cracks and leaks. **c.** Check wiring to heater portion of air dryer. Ensure there are no loose connections or frayed wires.	**c.** Loose connection cannot be tightened or frayed wires are evident.

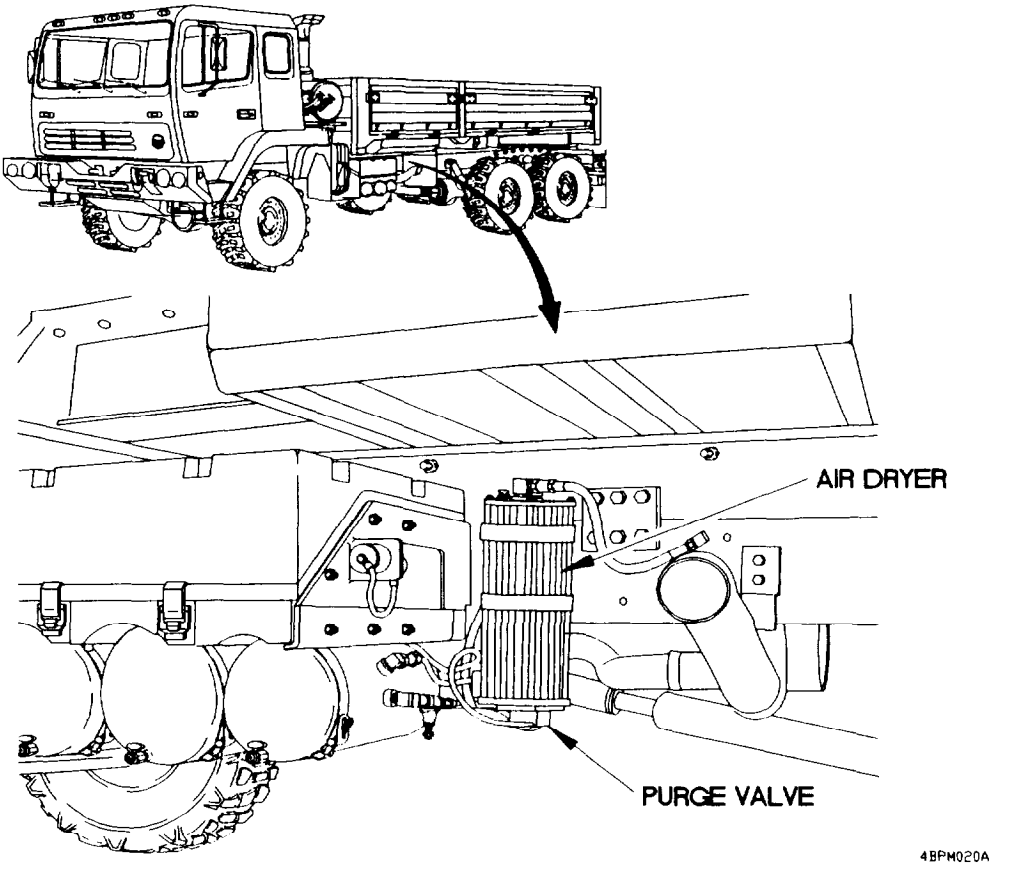


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
13	Semiannual	EXHAUST SYSTEM	**WARNING** **The exhaust pipe and muffler can become very hot during vehicle operation. Be careful not to touch these parts with bare hands, or allow body to come in contact with pipe and muffler. Exhaust system parts can become hot enough to cause serious burns. Failure to comply may result in injury to personnel.** **a.** Inspect exhaust manifold, exhaust pipes, muffler, and tailpipe for corrosion, carbon deposits, loose clamps, or leaking gaskets.	

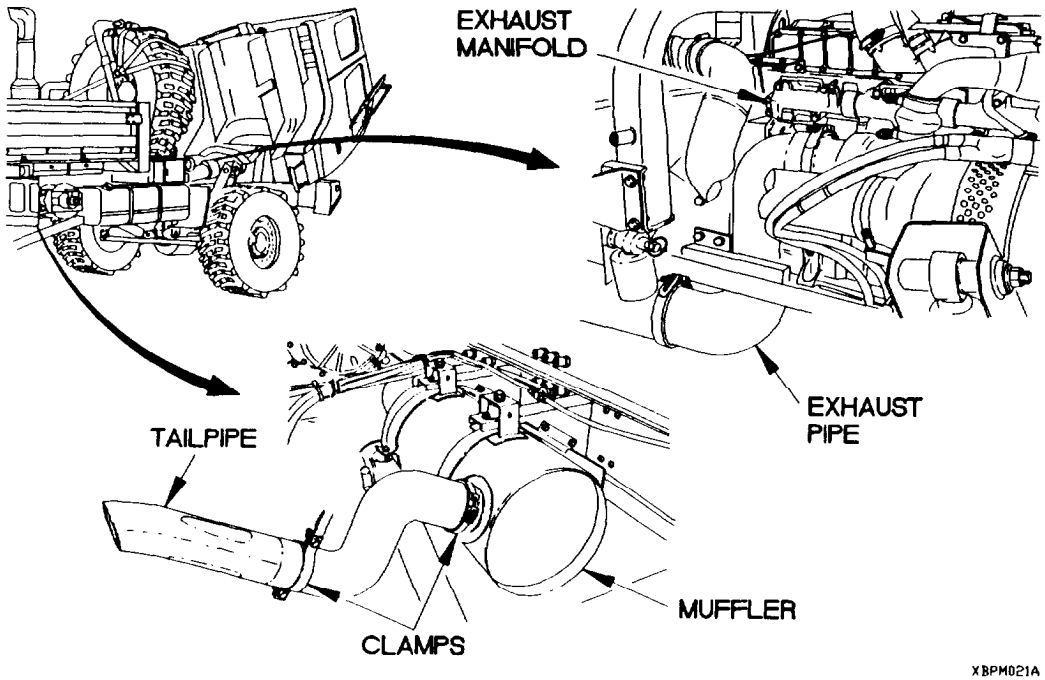


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
14	Semiannual	STABILIZER BAR (EXCEPT M1089)	a. Check rear stabilizer bar for secure mounting. b. Inspect stabilizer rubber bushings for cracks and dry rot.	

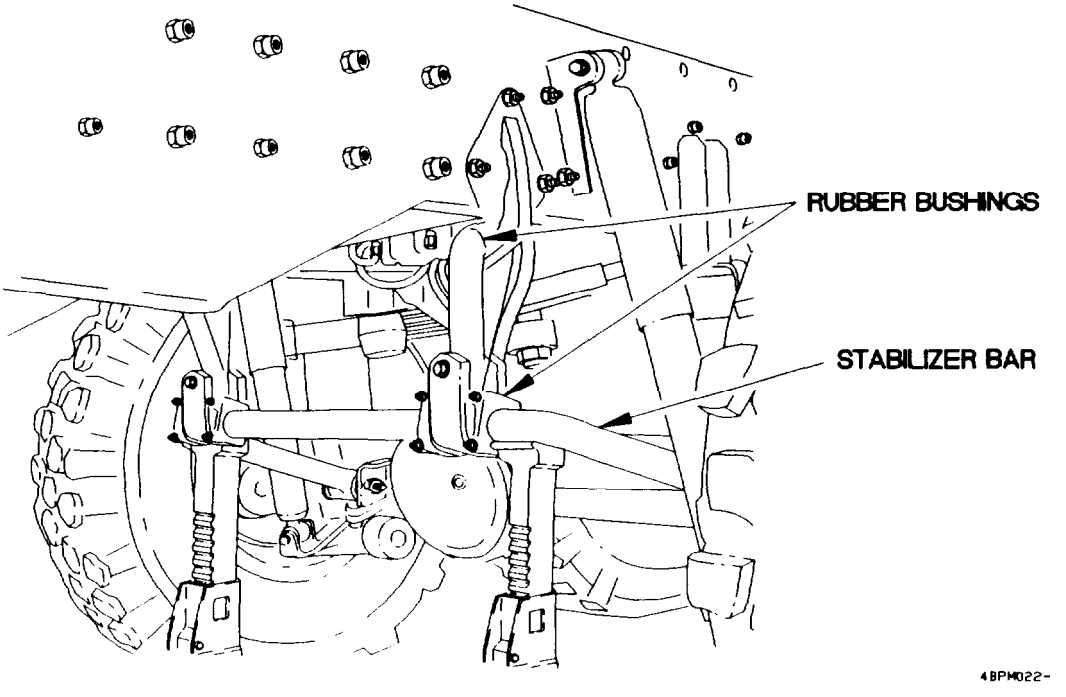


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
15	Semiannual	PINTLE TOWING HOOK	**a.** Check for free rotation and operation of pintle towing hook. **b.** Inspect pintle towing hook and mounting plate for cracks or loose hardware. **c.** Inspect pintle cotter pin for presence.	

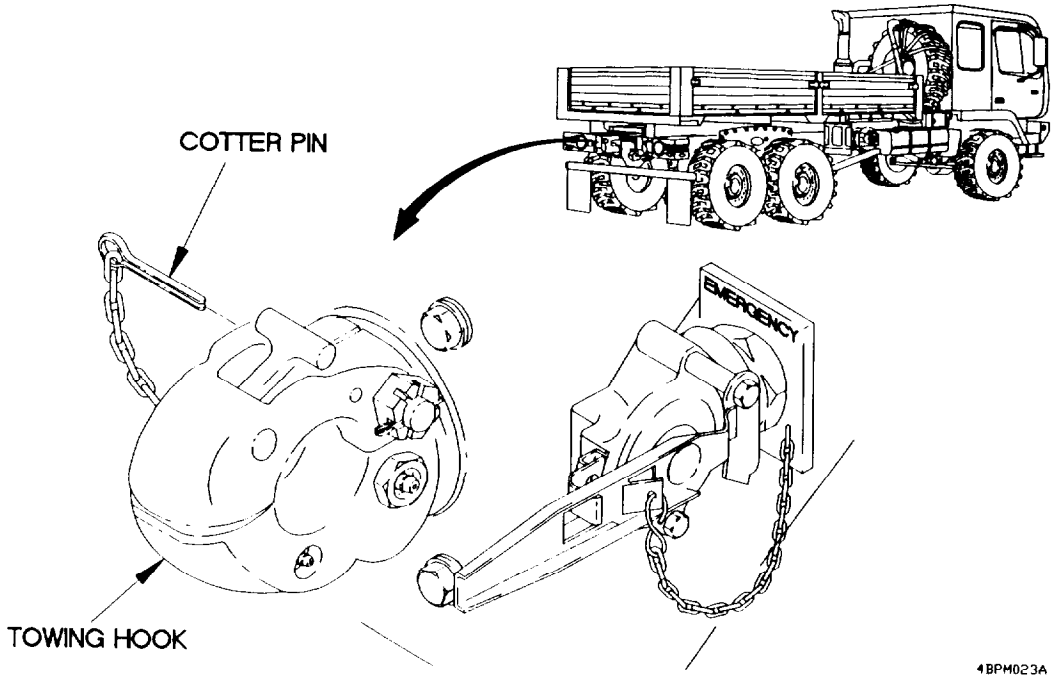


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
16	Semiannual	VEHICLE EXTERIOR	Inspect vehicle exterior for evidence of corrosion damage such as surface color change, surface separation, seam separation, blistered paint, rust through, in accordance with TB 43-0213.	
17	Semiannual	AIR CLEANER	**a.** Remove air cleaner cover and examine air cleaner cover gasket for dry rot and/or missing sections.	**a.** Cover gasket is not intact or capable of making a good seal.

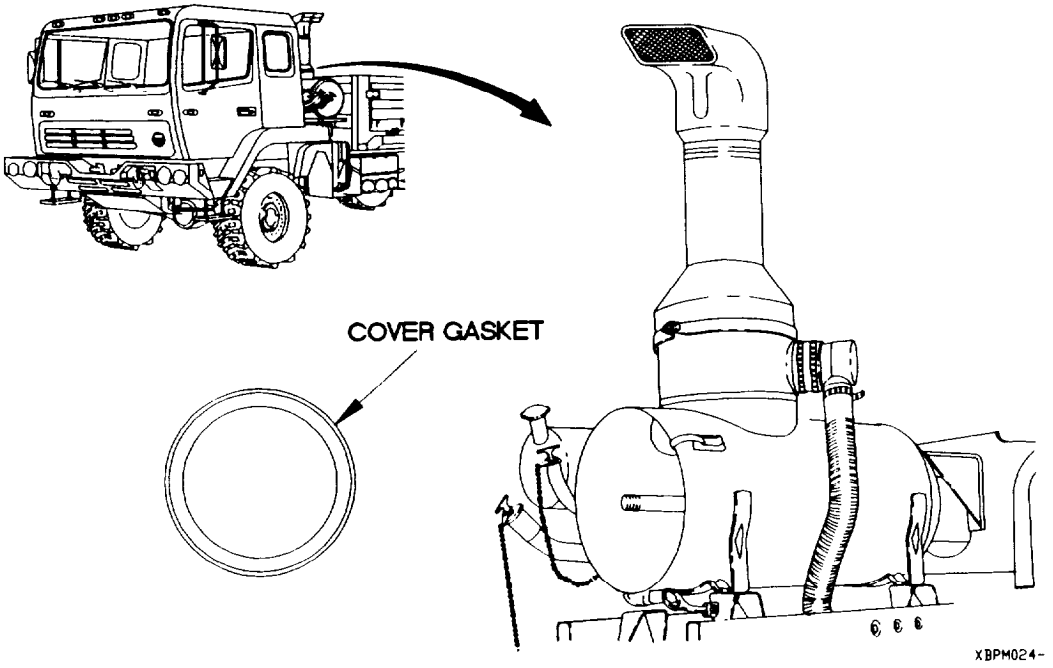


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
17	Semiannual	**AIR CLEANER (CONT)**	**b.** Inspect air shutter by loosening one hose clamp, removing cover, and ensuring air shutter moves freely without binding or resistance.	**b.** Air shutter binds or is stuck.
			c. Inspect air shutter gasket for cracking and dry rot.	**c.** Gasket is broken or dry rotted.
			d. Check security of clamps on particle extraction hose between air cleaner and tailpipe. Tighten if loose (35-45 lb-in. (4-5 N•m)), replace if broken. Examine particle extraction hose. Replace if excessively worn.	**d.** Particle extraction pathway between air cleaner and tailpipe is not intact.

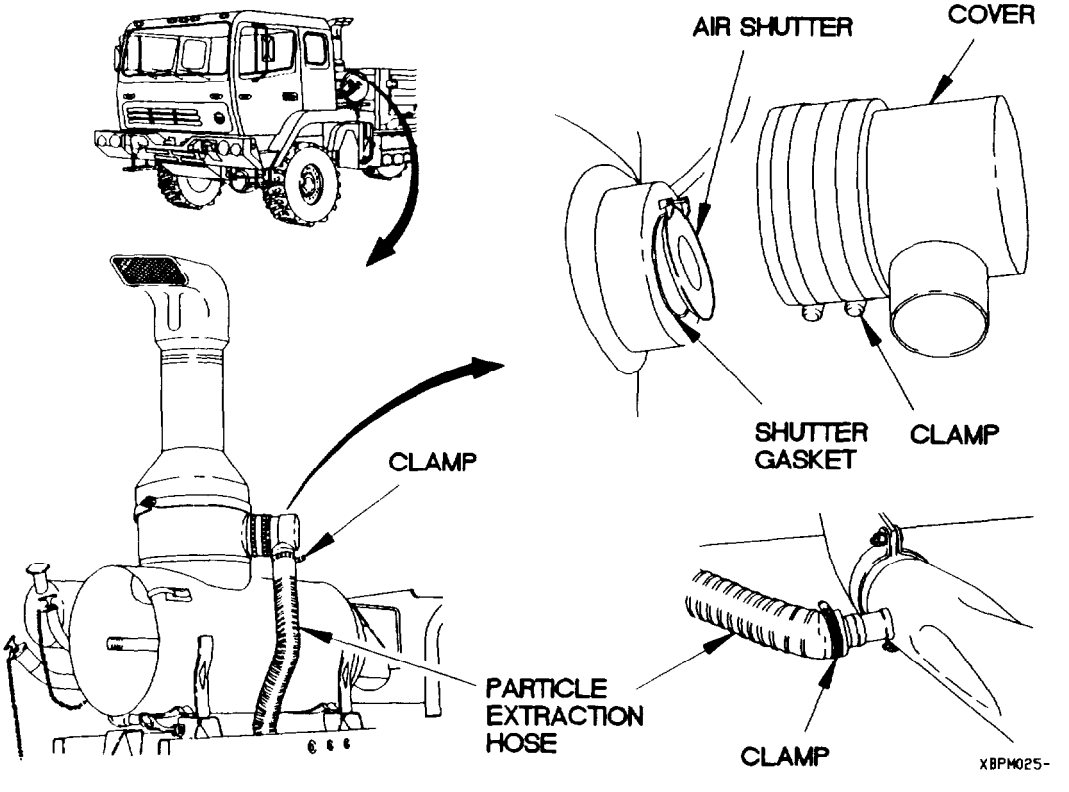


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
18	Semiannual	BATTERIES AND BATTERY BOX	**WARNING** • **Remove or disconnect batteries prior to performing maintenance in battery area or when working on electrical system. Failure to comply may result in severe electrical shock to personnel or damage to equipment.** • **Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry contacts battery terminal, a direct short may result in instant heating of tools, damage to equipment, and serious injury or death to personnel. Failure to comply may result in serious injury to personnel.** • **Wear safety glasses or goggles when checking batteries. Always check electrolyte level with engine shut down. Do not smoke or use exposed flame when checking battery; explosive gases are present and severe injury to personnel can result. Failure to comply may result in injury to personnel.** **a.** Inspect battery box for obvious signs of corrosion and for loose mounting hardware.	

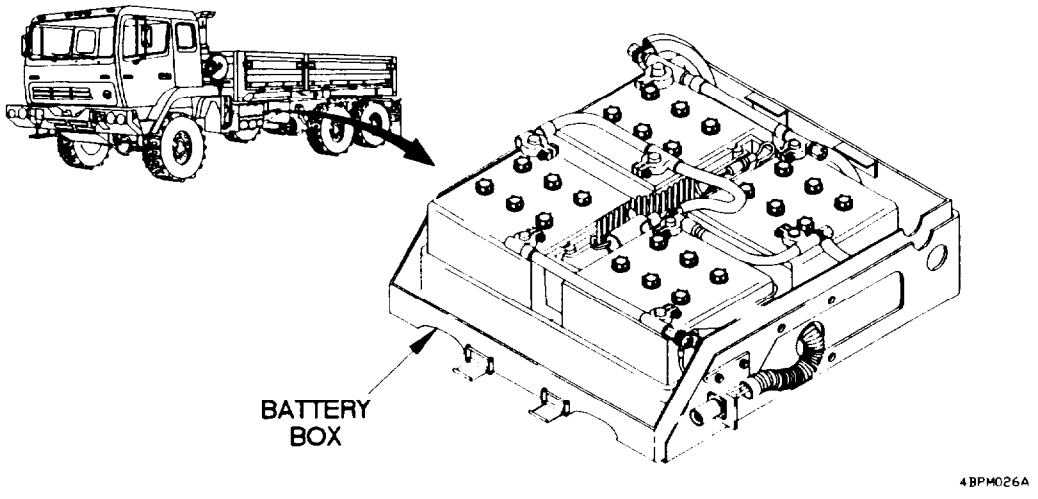


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
18	Semiannual	BATTERIES AND BATTERY BOX (CONT)	**b.** Inspect external condition of batteries; check for cracks and loose or corroded terminal posts. **c.** Check and record specific gravity of each cell in all batteries.	**b.** Batteries cracked.
			d. Inspect battery cables for corrosion, frays, splits, chafing and secure attachment.	**d.** Battery cables are worn, frayed or corroded.

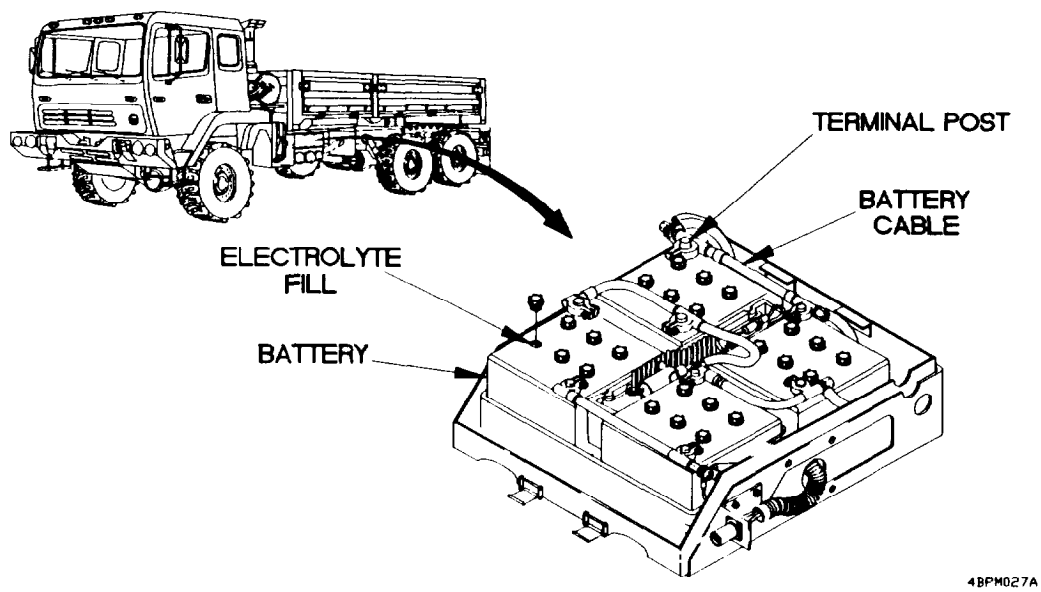
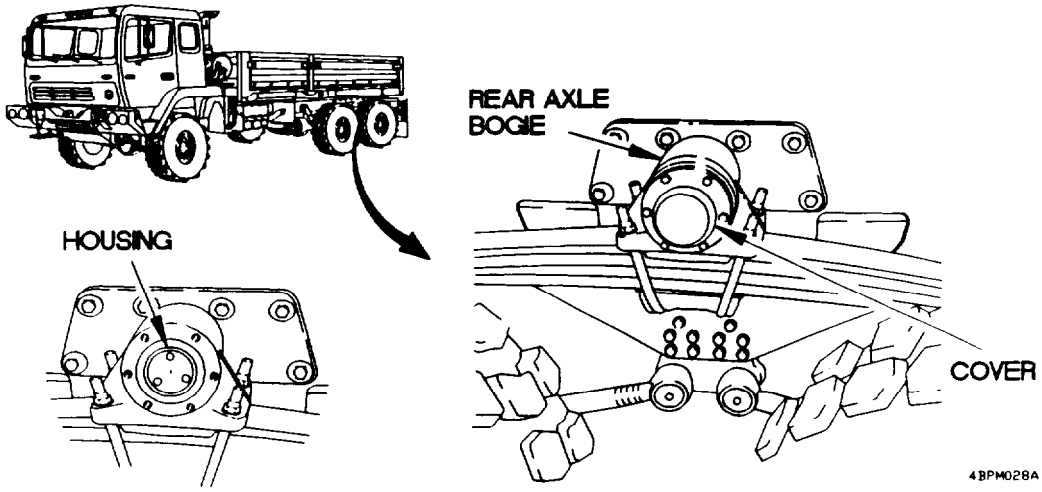


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
19	Semiannual	BOGIE AXLE	Inspect axle bogie for damage.	Damage to or excessive movement in axle bogie.



Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
20	Semiannual	SPARE TIRE RETAINER	**a.** Inspect hydraulic hoses for cracks and abrasions. **b.** Inspect hydraulic cylinder for leaks around cylinder rod and fittings. Check cotter pins for presence.	**a.** Class III leak is evident. **b.** Class III leak is evident.

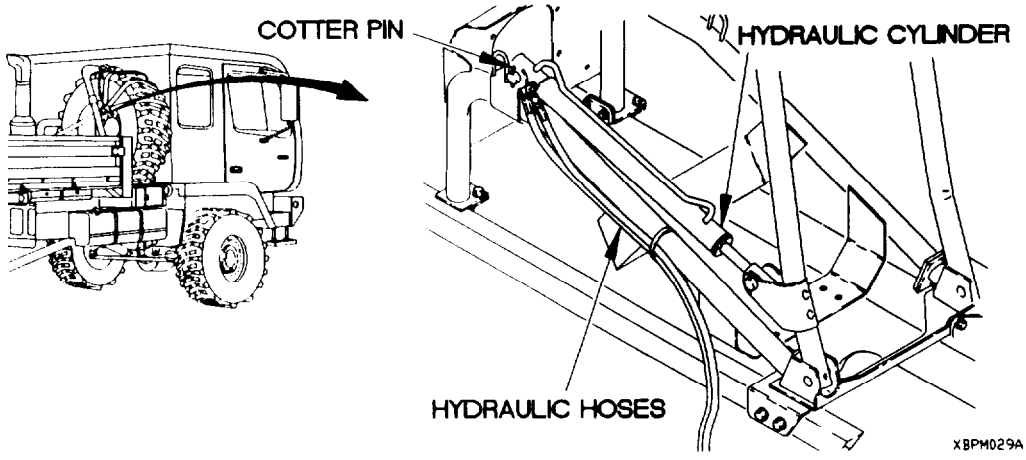
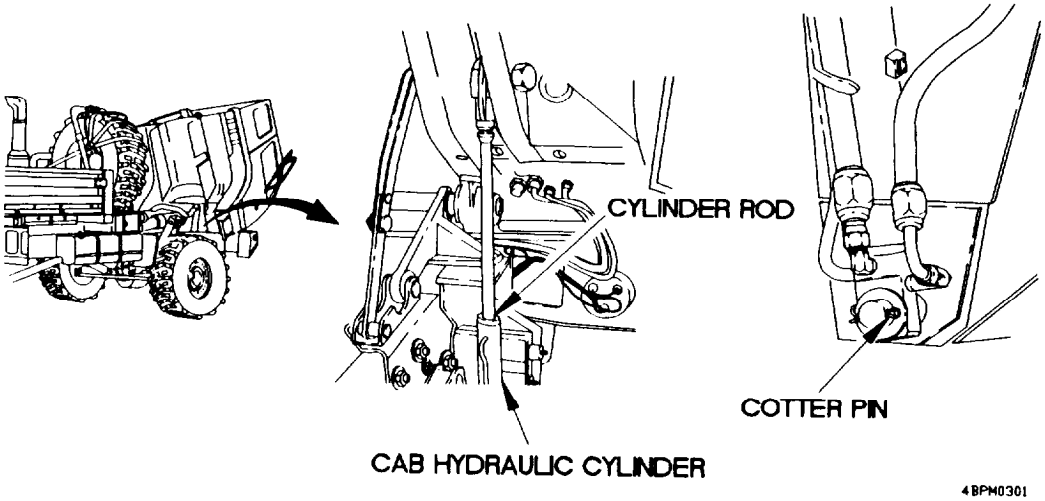


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
21	Semiannual	CAB HYDRAULIC CYLINDER	**a.** Inspect cab hydraulic cylinder for leakage around cylinder rod. **b.** Check security of attaching hardware at cylinder rod end and cotter pin for presence.	**a.** Class III leak is evident. **b.** Cab hydraulic cylinder is unsecured.



Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
22	Semiannual	CAB HYDRAULIC LATCH	Check security of attaching hardware for hydraulic cab latch.	**a.** If cab will not securely latch. **b.** missing or loose hardware.

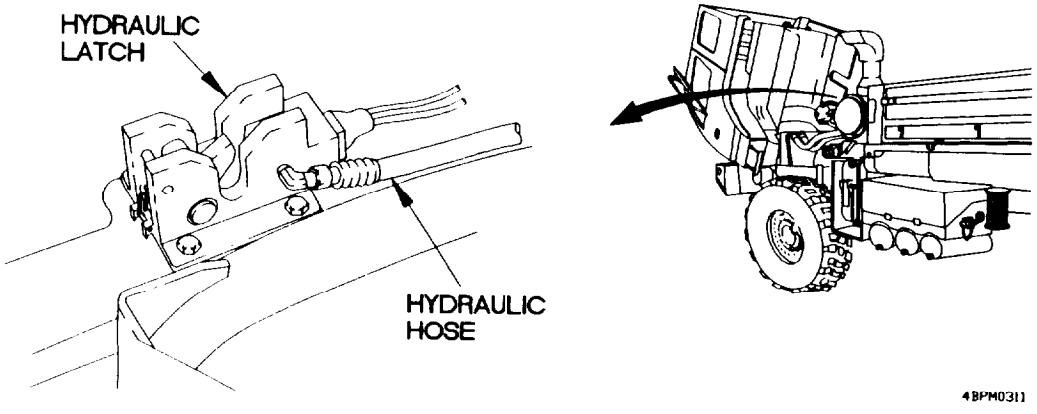
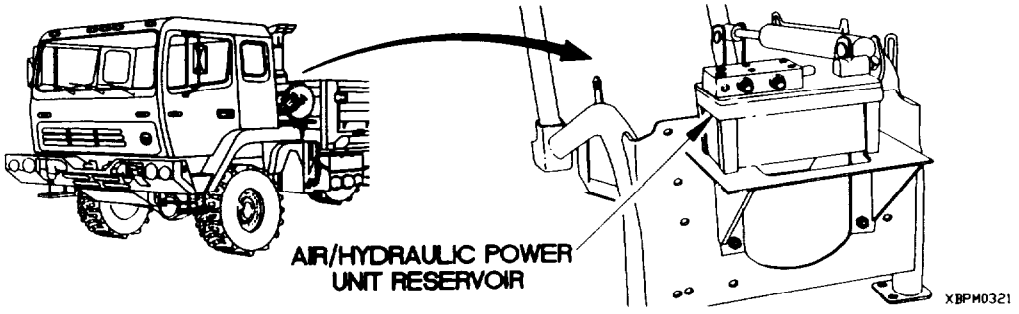


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
23	Semiannual	AIR/HYDRAULIC POWER UNIT	Check air/hydraulic power unit reservoir and refill in accordance with Appendix H.	



24	Semiannual	SUSPENSION CYLINDER	Check suspension cylinder for oil leaks and damage.	Class III leak is evident.

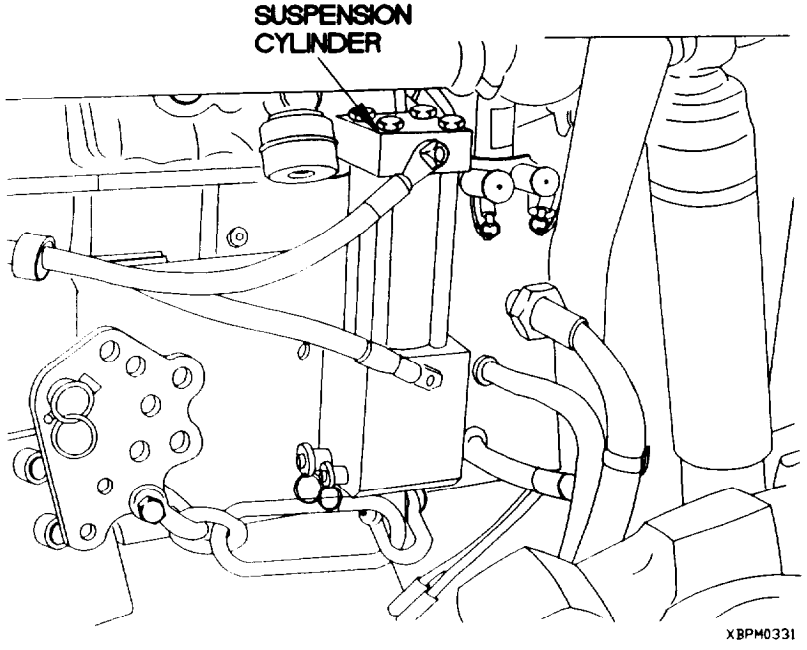


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
25	Semiannual	STEERING SYSTEM	**a.** Inspect steering column universal joint attachment hardware for security.	**a.** Universal joint is loose, broken, cracked, or hardware is missing.
			NOTE Wheels must be centered before performing step b.	
			b. Inspect staking of pitman arm attachment nut.	**b.** Pitman arm nut is loose.
			c. Inspect power steering hoses for leaks, cracks, and chafing.	**c.** Class III leak is evident. Chafing is severe or hoses cracked.
			d. Check steering gear mounting bolts for tightness.	**d.** Bolts loose or missing.
			e. Check steering column U-joint, steering knuckles, tie rod, drag link, pitman arm, and steering gear for tightness, breaks, cracks, rust, and serviceability.	**e.** Bolts are loose. Breaks or cracks are evident.

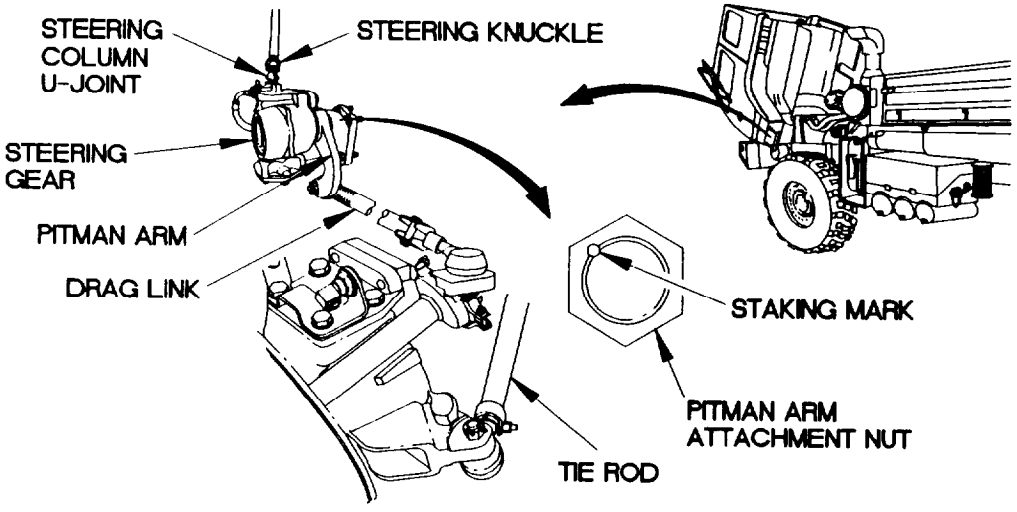
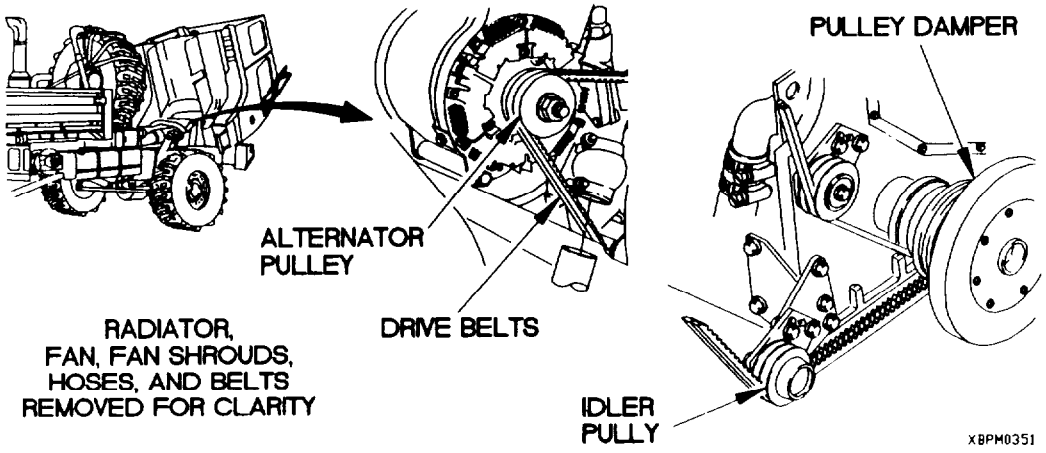


Table 2-1. Preventive Maintenance Checks and Services (Cont)

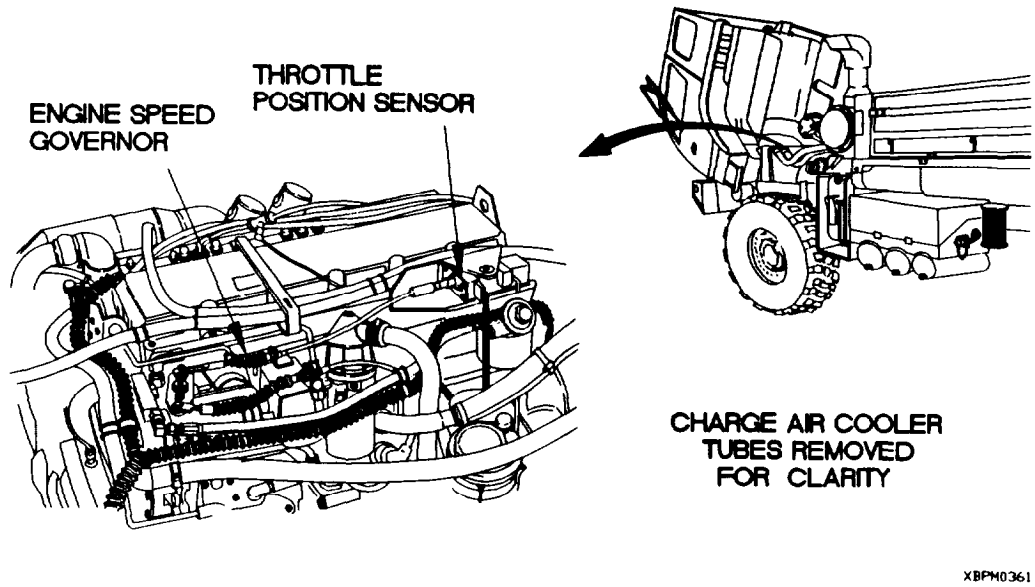
Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
26	Semiannual	PULLEY DAMPER	Inspect pulley damper for dents.	Pulley damper is damaged.



27	Semiannual	ALTER-NATOR PULLEY	Inspect alternator pulley for dents, nicks, and cuts in flanges.	Pulley is damaged to the point that it affects belt wear.
28	Semiannual	ALTER-NATOR BRACK-ETS	**a.** Check for loose or cracked mounting hardware on alternator bracket and alternator pulley.	**a.** Alternator bracket or idler pulley is cracked or loose.
			b. Check idler pulley for dents, nicks, and cuts in flanges.	**b.** Pulley is damaged to the point that it affects belt wear.
29	Semiannual	ALTER-NATOR DRIVE BELTS	Check alternator drive belts for cracks, frays, and shiny spots.	Any drive belt has more than one crack 1/8 in. (0.3 cm) in depth or 50 percent of belt thickness, any fray more than 2 in. (5.1 cm) long, or has excessive play.

Table 2-1. Preventive Maintenance Checks and Services (Cont)

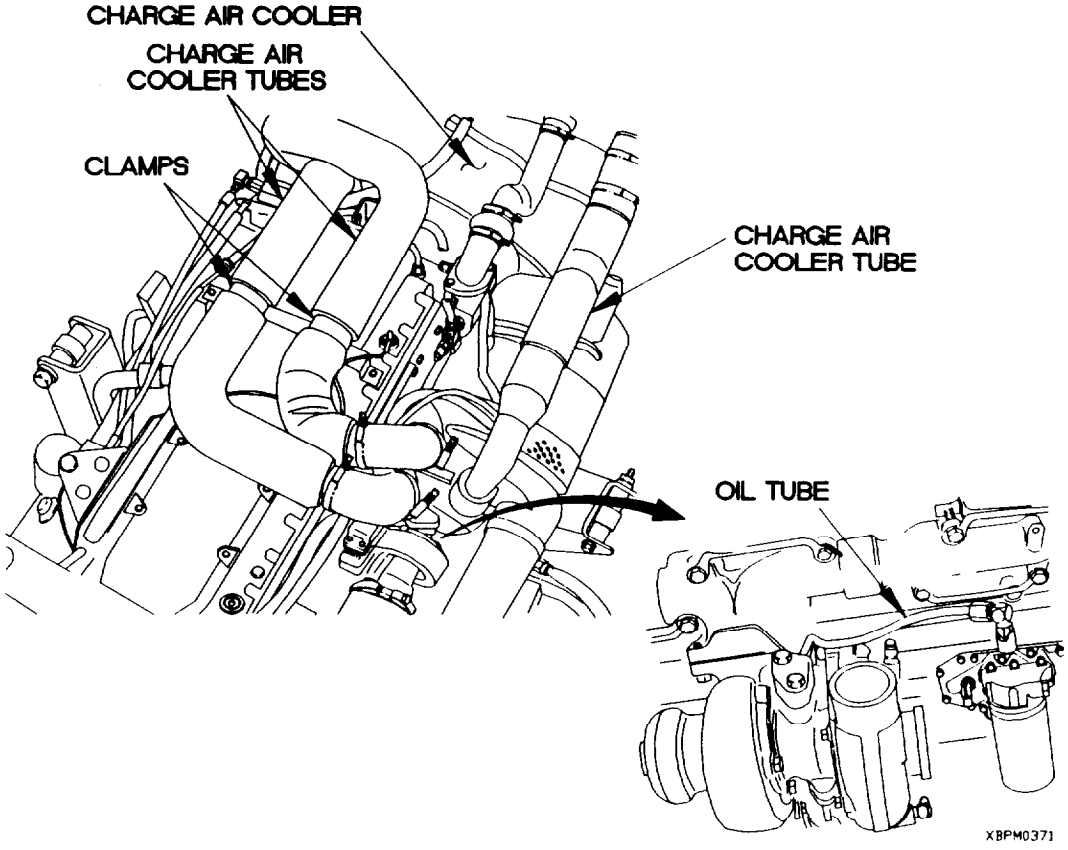
Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
30	Semiannual	THROTTLE POSITION SENSOR (TPS)	Check TPS for secure mounting.	TPS is not firmly mounted or securely attached to throttle lever.



31	Semiannual	ENGINE	**a.** Inspect engine speed governor for loose mounting hardware. **b.** Check for fuel leaks around fittings and for abrasion of fuel hoses.	**a.** Mounting hardware is loose or missing, **b.** Fuel leaks are evident.

Table 2-1. Preventive Maintenance Checks and Services (Cont)

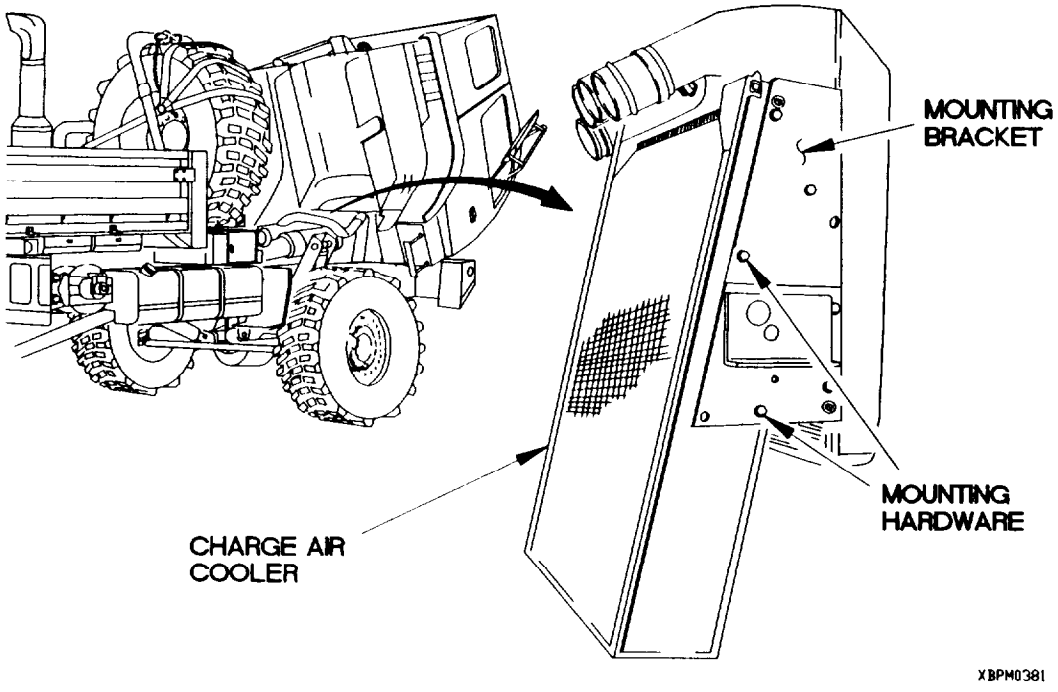
Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
31	Semiannual	ENGINE (Cont)	**c.** Check for oil leaks around fittings and for crimps in oil tubes. **d.** Check for secure attachment of throttle control cable.	**c.** Class III leak is evident. **d.** Control cable is not securely attached.



32	Semiannual	TURBO-CHARGER	Check turbocharger oil tubes for leaks or crimping which would restrict oil flow.	Class III leak is evident.
33	Semiannual	CHARGE AIR COOLER TUBES	**a.** Inspect charge air cooler tube assembly for obvious signs of corrosion or cracking.	**a.** Charge air cooler tubing is cracked.

Table 2-1. Preventive Maintenance Checks and Services (Cont)

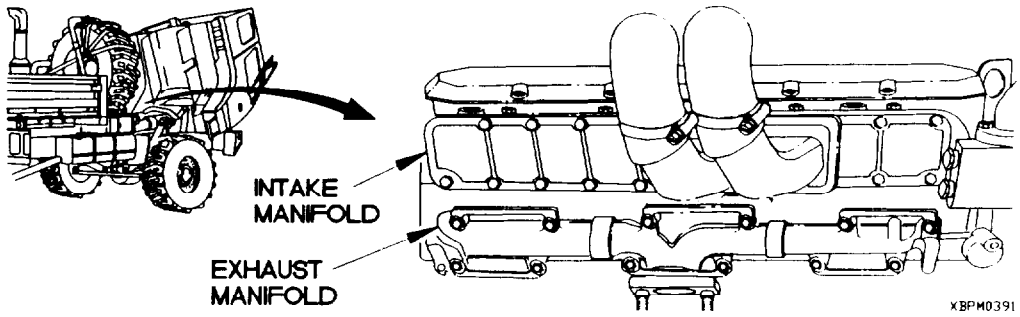
Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
33	Semiannual	CHARGE AIR COOLER TUBES (Cont)	**b.** Check all hose clamps between turbocharger and intake manifold and verify that they are tight (90-100 lb-in. (10-11 N•m)).	
			c. Check turbocharger rubber charge air hoses for cracking and chafing.	**c.** Rubber hose(s) is damaged.



34	Semiannual	CHARGE AIR COOLER	**a.** Inspect charge air cooler for bent or clogged cooling fins.	**a.** Charge air cooler is damaged.
			b. Check charge air cooler mounting for security and tighten any loose hardware.	
			c. Inspect mounting brackets for cracks and damage.	

Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
35	Semiannual	**EXHAUST AND INTAKE MANI-FOLDS**	**a.** Check exhaust manifold for damage, loose mounting bolts and for exhaust leaks.	**a.** Exhaust manifold is damaged, exhaust leaks, or mounting hardware is loose.
			b. Check intake manifold for loose mounting bolts and damage.	**b.** Intake manifold is damaged. Mounting hardware is loose.



36	Semiannual	**ENGINE CRANK-CASE BREATH-ER**	Inspect crankcase breather for oil leaks around breather base. Check security of mounting hardware.	Class III leak or loose or missing hardware are evident.

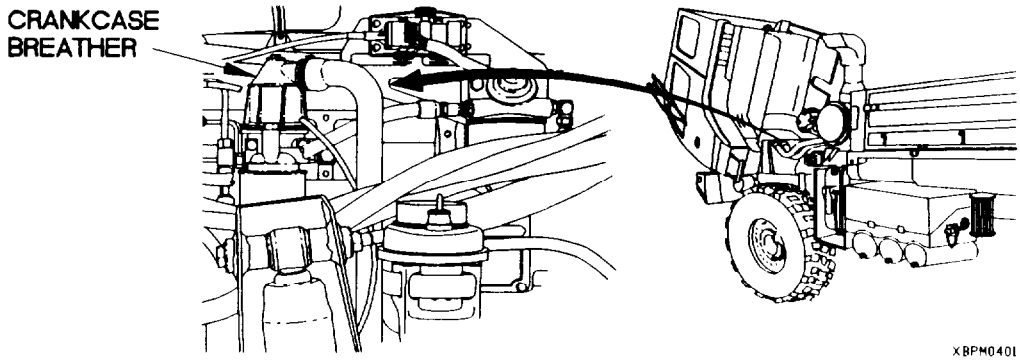


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
37	Semiannual	ENGINE WIRING	Check all engine wiring for signs of fraying, chafing, cracking, and burnt insulation.	Wiring is burned, cracked, frayed, or broken.
			a. Inspect air compressor and air compressor governor for leaks and loose hardware.	**a.** Class III leak is evident or hardware is missing or loose.
			b. Inspect air compressor oil tube for leaks and kinks/bends which would cause a restriction.	**b.** Class III leak, kinks or bends are evident.
38	Semiannual	AIR COMPRESSOR AND GOVERNOR	**c.** Check air compressor coolant tubes for leaks and kinks/bends.	**c.** Class III leak, kinks or bends are evident.

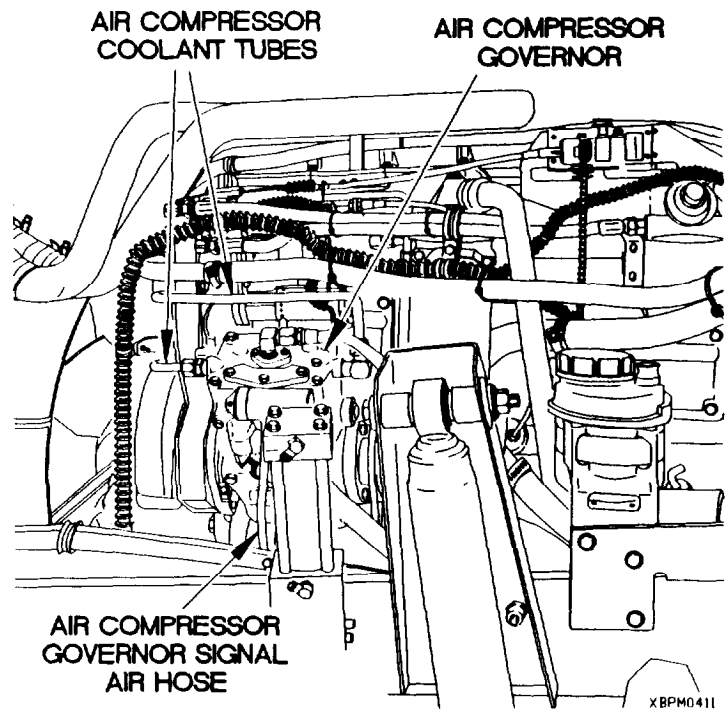


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
39	Semiannual	COOLING SYSTEM	**WARNING** **If vehicle has been operating, use extreme care to avoid being burned when removing radiator cap. Use heavy rags or gloves to protect hands. Turn radiator cap only one-quarter turn to the left and allow pressure to be relieved before fully removing cap. Failure to comply may result in injury to personnel.** **a.** Check coolant condition. Test coolant to see if draining is necessary (TB 750-651). **b.** Replace coolant if required (Appendix H).	

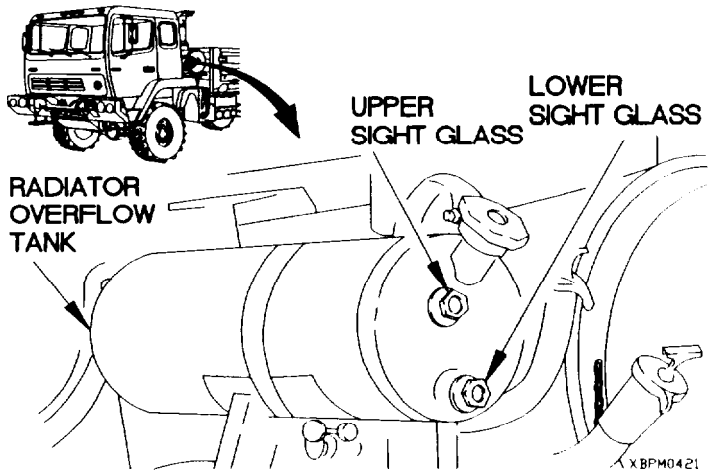


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
40	Semiannual	THERMO-STAT HOUSING	**a.** Check thermostat housing for loose mounting bolts and leaks around base. Tighten loose mounting bolts. **b.** Inspect upper coolant tube for cracks and splits. Refer to para 6-9 if clamps are found to be loose. **c.** Check for leaks around water temperature transducer and coolant temperature switch.	**a.** Class III leak is evident. **c.** Class III leak is evident.

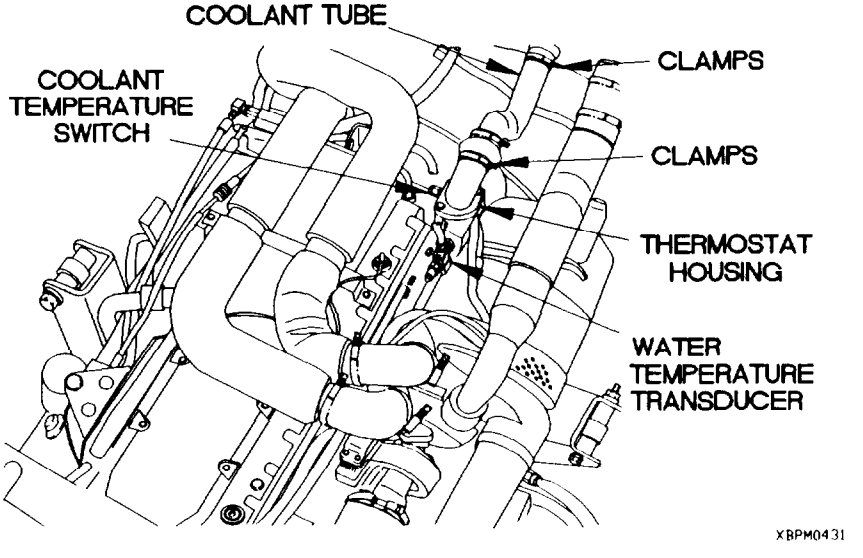


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
41	Semiannual	WATER PUMP	**a.** Check security of water pump attachment bolts and hose clamps. Refer to para 6-12 if clamps are found to be loose.	**a.** Bolts are stripped.
			b. Inspect water pump for leaks around impeller shaft.	**b.** Class III leak is evident.
			c. Inspect water pump pulley and idler pulley for damage.	**c.** Water pump pulley or idler pulley is damaged to the point that it affects belt wear.
			d. Check drive belt for cracks, frays, and shiny spots.	**d.** Drive belt has more than one crack 1/8 in. (0.3 cm) in depth or 50 percent of belt thickness, any fray more than 2 in. (5.1 cm) long, or has excessive play.

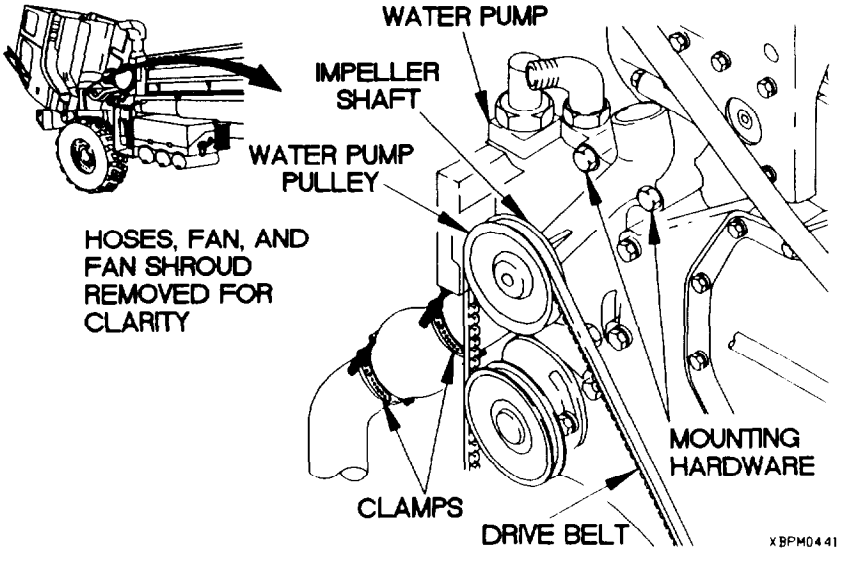
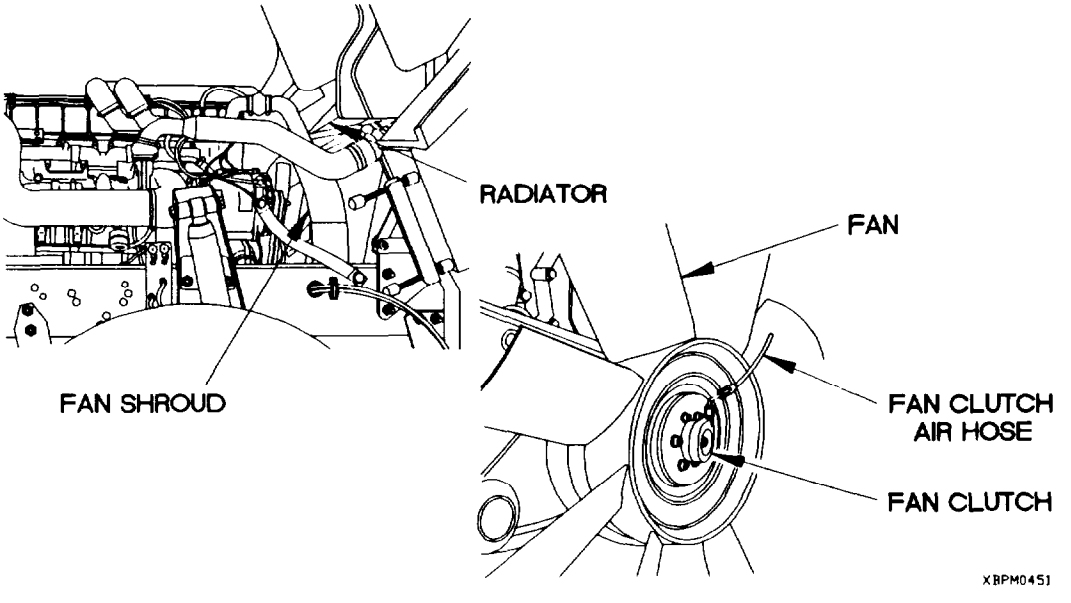


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
42	Semiannual	FAN BLADE AND CLUTCH	a. Inspect fan for chipping, cracking, and missing fan blades. b. Inspect fan clutch for loose bolts (para 6-14). c. Check fan clutch air hose and fitting for leaks.	a. Fan blades chipped, cracked, or missing. b. Loose or missing bolts.



43	Semiannual	RADIA-TOR	a. Check radiator for leaks and bent or clogged cooling fins. b. Check fan shroud for cracks and missing pieces.	a. Class III leak is evident.

Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
44	Semiannual	**FUEL/ WATER SEPARA-TOR**	**a.** Inspect fuel/water separator assembly for dents and cracks that could cause leaks. **b.** Replace filter element every 6,000 miles (9,656 km) or every six months, whichever occurs first (para 4-13).	**a.** Any leak is evident.

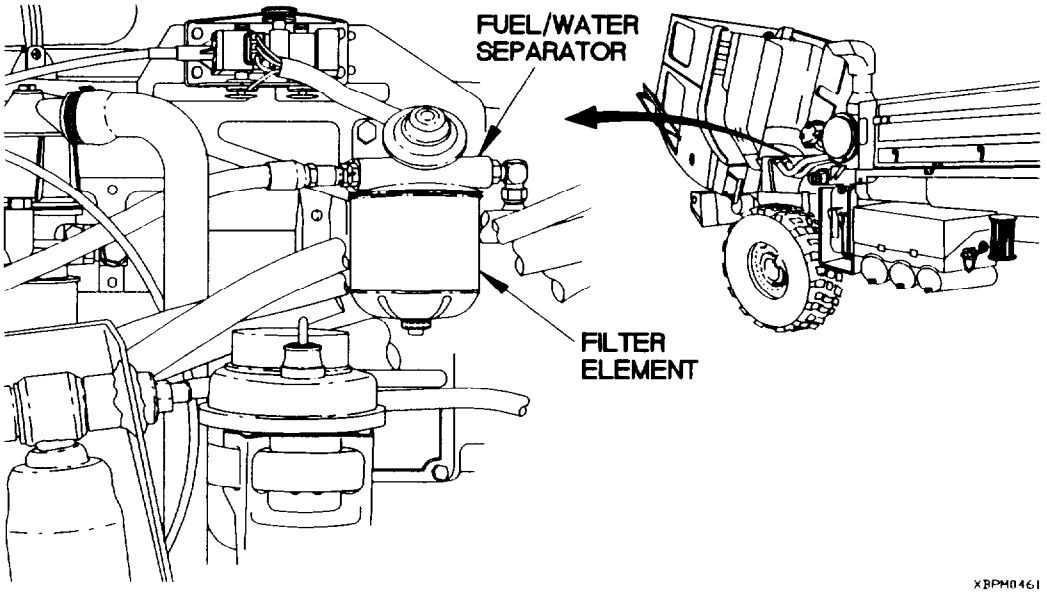


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
45	Semiannual	FRONT WHEEL ALIGN-MENT	Check front wheel alignment (para 13-5). **NOTE** Do not turn tires when turning wheel to check for steering wheel free play. Place a strip of tape around steering wheel at 12 O'clock position. Turn steering wheel right until resistance is felt. Place a ruler lightly against outer rim of steering wheel with end of ruler at one edge of tape. Turn steering wheel left until resistance is felt. Measure distance designated edge of tape has traveled. Maximum free play measured at outside rim of steering wheel is 2-1/2 in. (6.4 cm).	Front wheels cannot be aligned. Steering wheel exceeds 2-1/2 in. (6.4 cm) free play.

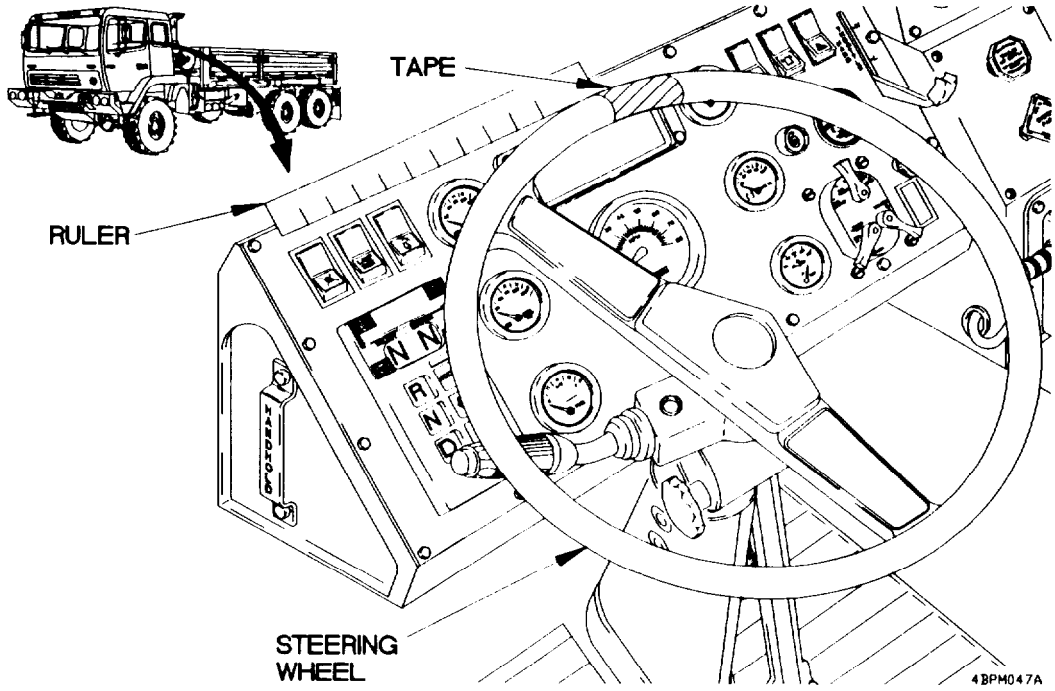
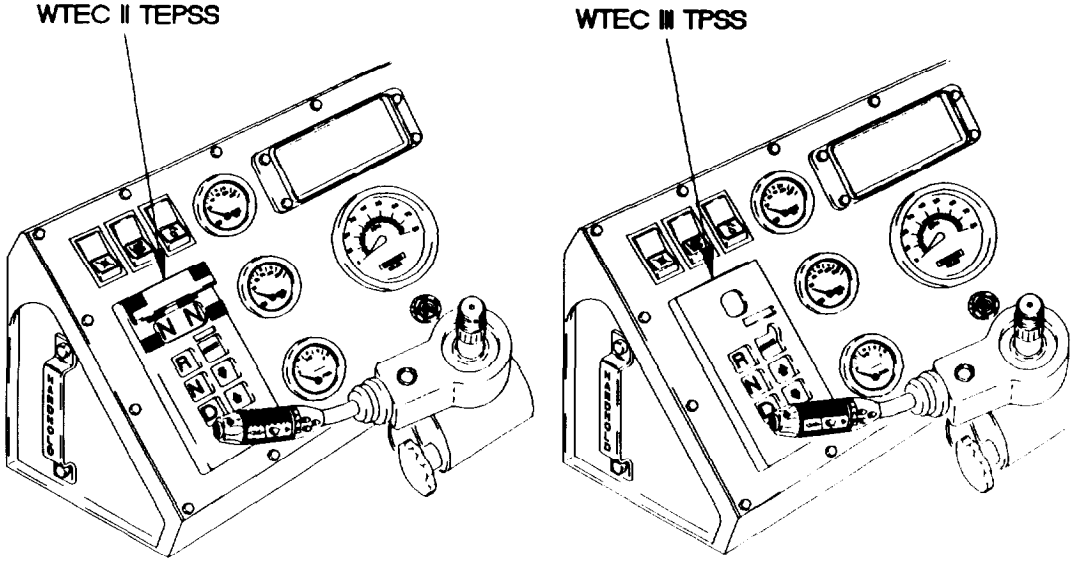


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
46	Semiannual	**TRANS-MISSION**	Check to see if any diagnostic codes are logged in WTEC II TEPSS (para 8-4) or WTEC Ill TPSS (para 8-5). **a.** Perform Transmission System Troubleshoot-ing (para 2-17) for any diagnostic code(s) logged in WTEC II TEPSS or WTEC III TPSS. **b.** Clear diagnostic code(s) from WTEC II TEPSS (para 8-4) or WTEC Ill TPSS (para 8-5).	



STEERING WHEEL REMOVED FOR CLARITY

4BPM0611

Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
47	Semiannual	HYDRAULIC TANK (M1089)	**a.** Inspect hydraulic tank for leaks, cracks, or dents.	**a.** Class III leak is evident.
			b. Check valve and manifold beneath tank for leaks and cracks. **c.** Check operation of valve.	**b.** Class III leak is evident.

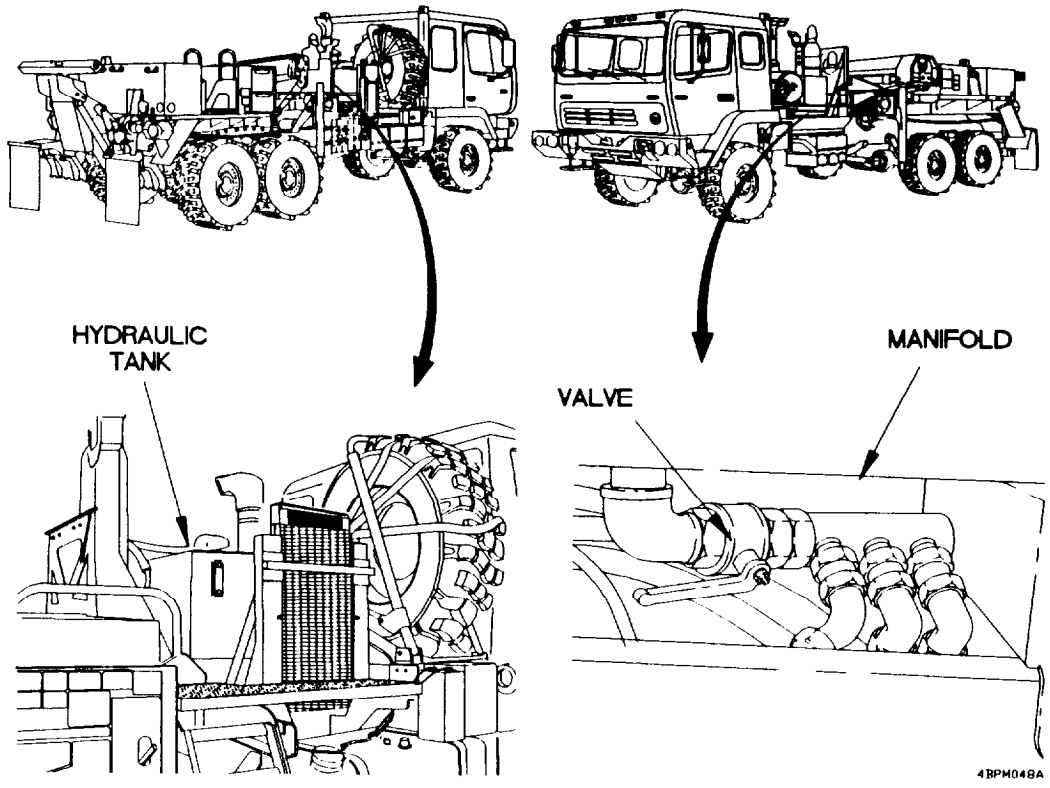


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
48	Semiannual	HYDRAULIC RESERVOIR (If Equipped)	Inspect hydraulic reservoir for leaks, cracks, or dents.	Class III is evident.

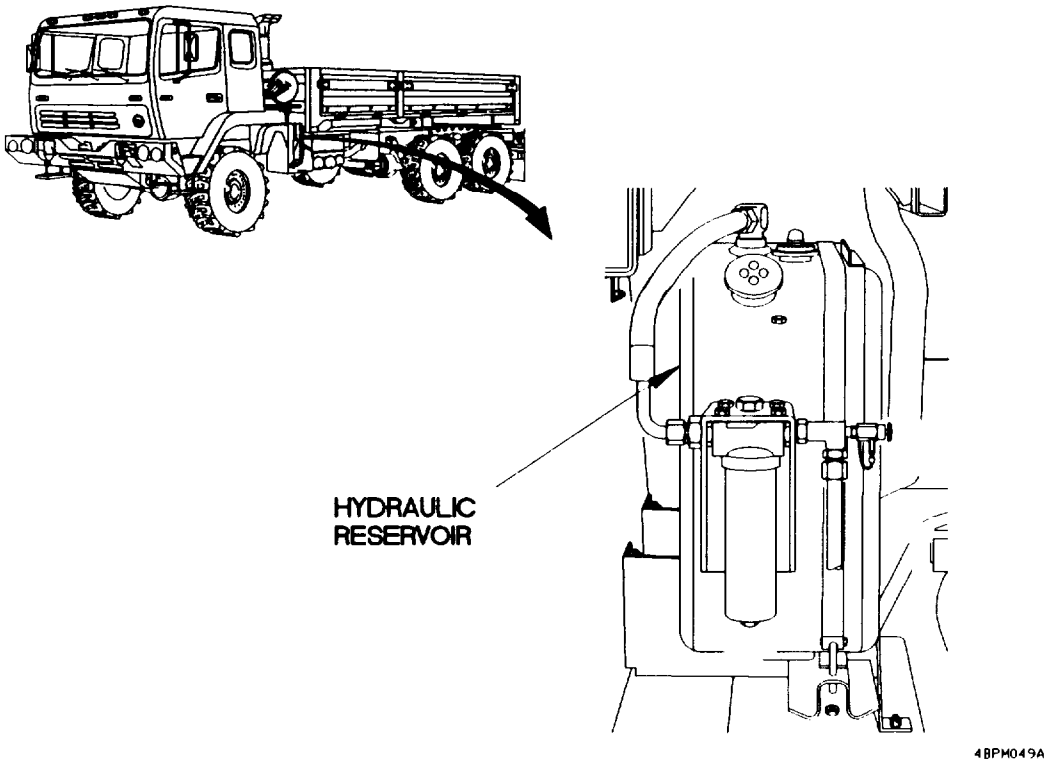
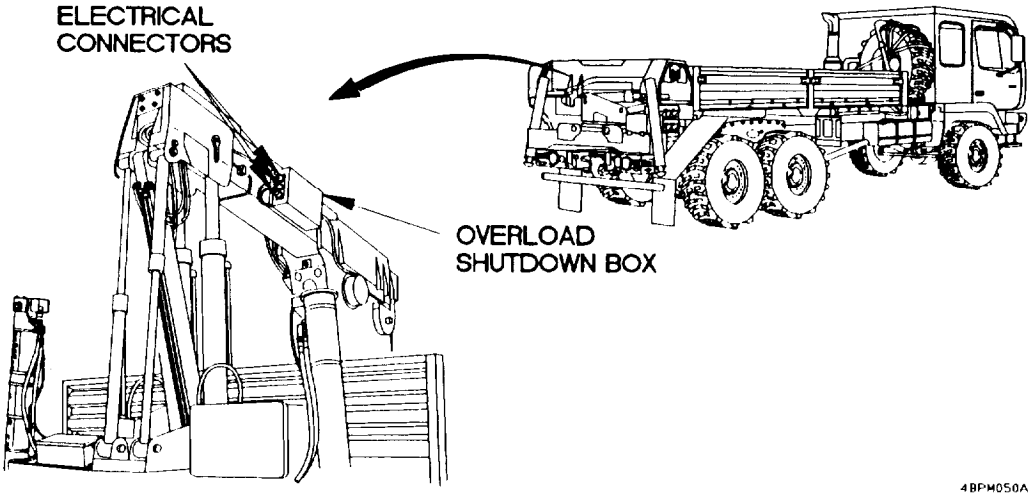


Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
49	Semiannual	**M1084/ M1086/ M1089 MHC**	**a.** Check crane for cracks and security of mounting hardware. **b.** Check security of electrical connectors on overload shutdown box.	**a.** Crane is damaged or not securely mounted.



	c. Inspect electrical cables for cracking, fraying, and chafing.	

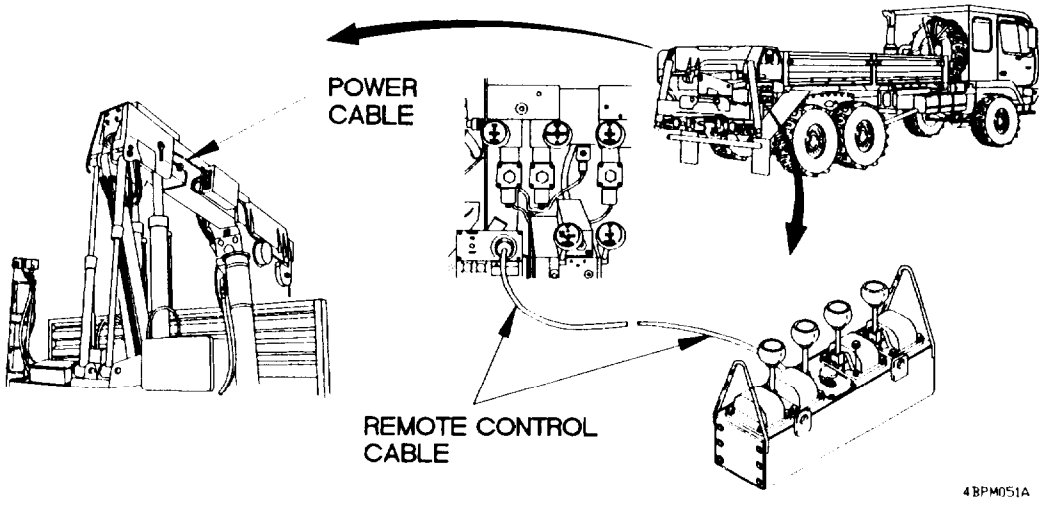


Table 2-1. Preventive Maintenance Checks and Services (Cont)

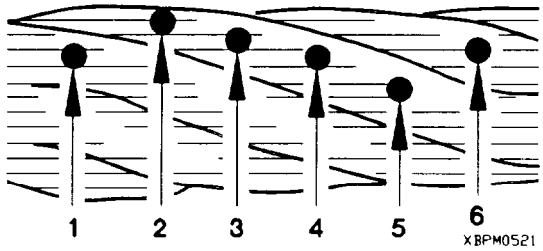
Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
50	Semiannual	**M1084/ M1086/ M1089 MHC CABLE**	**WARNING** **Cable can become frayed or contain broken wires. Wear heavy leather gloves when handling cable. Frayed or broken wires can injure hands. Failure to comply may result in injury to personnel.** **a.** Spool out hoist cable completely (TM 9-2320-366-20-1); and inspect for kinks, sharp bends, abrasions, and broken wires. **b.** Check that there are no more than six randomly distributed broken wires in any six-inch section of cable or three broken wires in one bundle (breaks 3,4,5) in a six-inch section.	**a.** Hoist cable is damaged or excessively worn. **b.** More than six broken wires in a six-inch section or three broken wires in one bundle in a six-inch section is evident.
				
			c. Kinking, crushing, or any other damage resulting in distortion of the cable structure.	

Table 2-1. Preventive Maintenance Checks and Services (Cont)

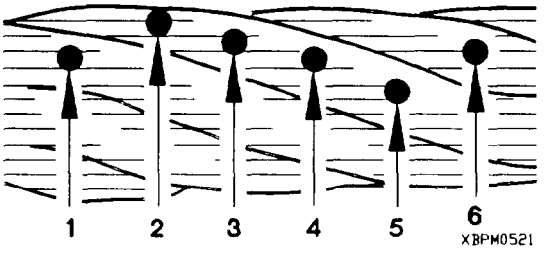
Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
51	Semiannual	**30K WINCH CABLES (M1089)**	**WARNING** **Cable can become frayed or contain broken wires. Wear heavy leather gloves when handling cable. Frayed or broken wires can injure hands. Failure to comply may result in injury to personnel.** **a.** Spool out main winch cables completely (TM 9-2320-366-20-1); and inspect for kinks, sharp bends, abrasions, and broken wires. **b.** Check that there are no more than six randomly distributed broken wires in any six-inch section of cable or three broken wires in one bundle (breaks 3, 4, 5) in a six-inch section. result	**a.** Winch cable is damaged or excessively worn. **b.** More than six broken wires in a six-inch section or three broken wires in one bundle in a six-inch section is evident.
				
			c. Kinking, crushing, or any other damage resulting in distortion of the cable structure.	

Table 2-1. Preventive Maintenance Checks and Services (Cont)

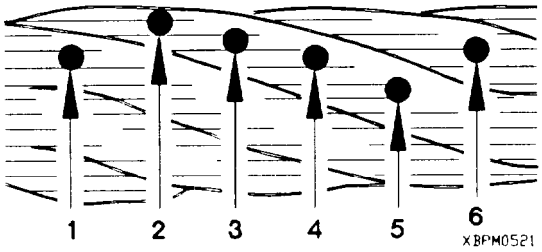
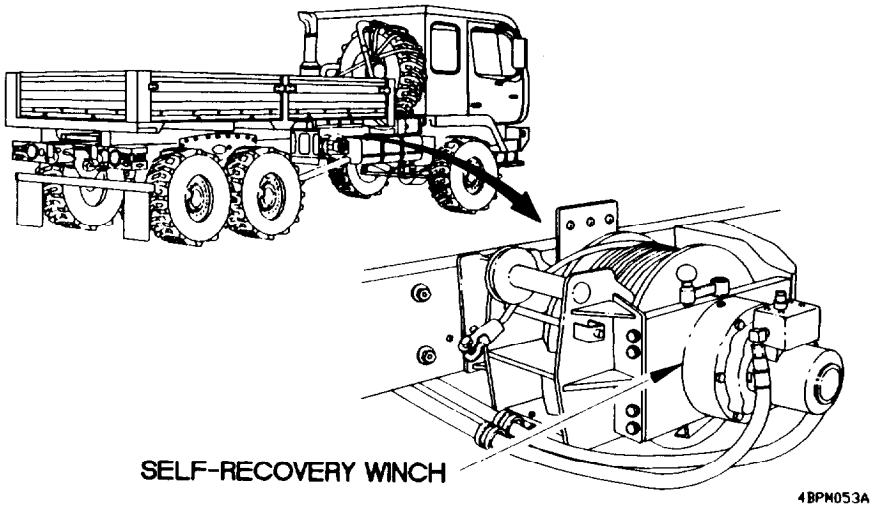
Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
52	Semiannual	15K SRW CABLE	**WARNING** **Cable can become frayed or contain broken wires. Wear heavy leather gloves when handling cable. Frayed or broken wires can injure hands. Failure to comply may result in injury to personnel.** **a.** Spool out 15K SRW cable completely (TM 9-2320-366-20-2); and inspect for kinks, sharp bends, abrasions, and broken wires. **b.** Check that there are no more than six randomly distributed broken wires in any six-inch section of cable or three broken wires in one bundle (breaks 3, 4, 5) in a six-inch section. result	**b.** More than six broken wires in a six-inch section or three broken wires in one bundle in a six-inch section is evident.
				
			c. Kinking, crushing, or any other damage resulting in distortion of the cable structure.	

Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
53	Semiannual	15K SRW	Check security of 15K SRW mounting hardware.	Mounting hardware broken or missing.



54	Semiannual	CARGO BODY	**a.** Check cargo body for corrosion and damage. **b.** Inspect ladder for damage and cracks.	

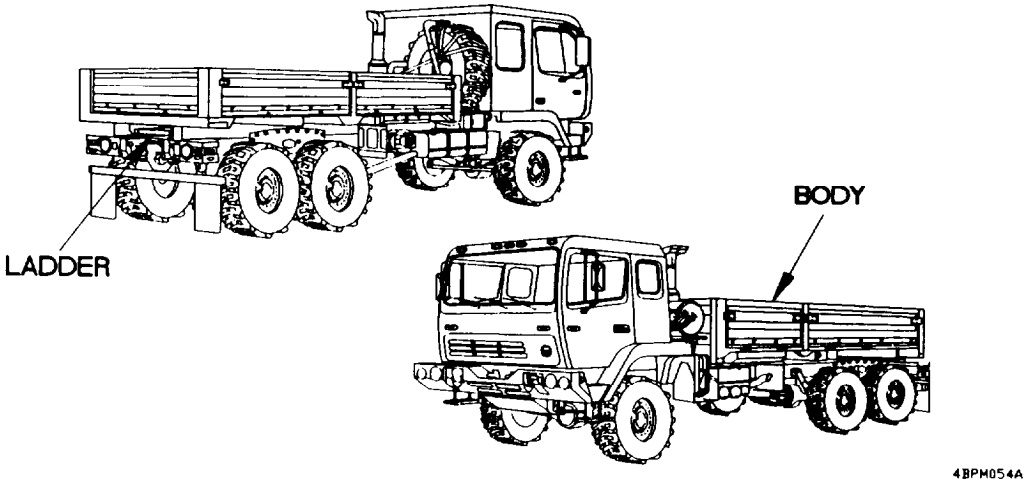


Table 2-1. Preventive Maintenance Checks and Services (Cont)

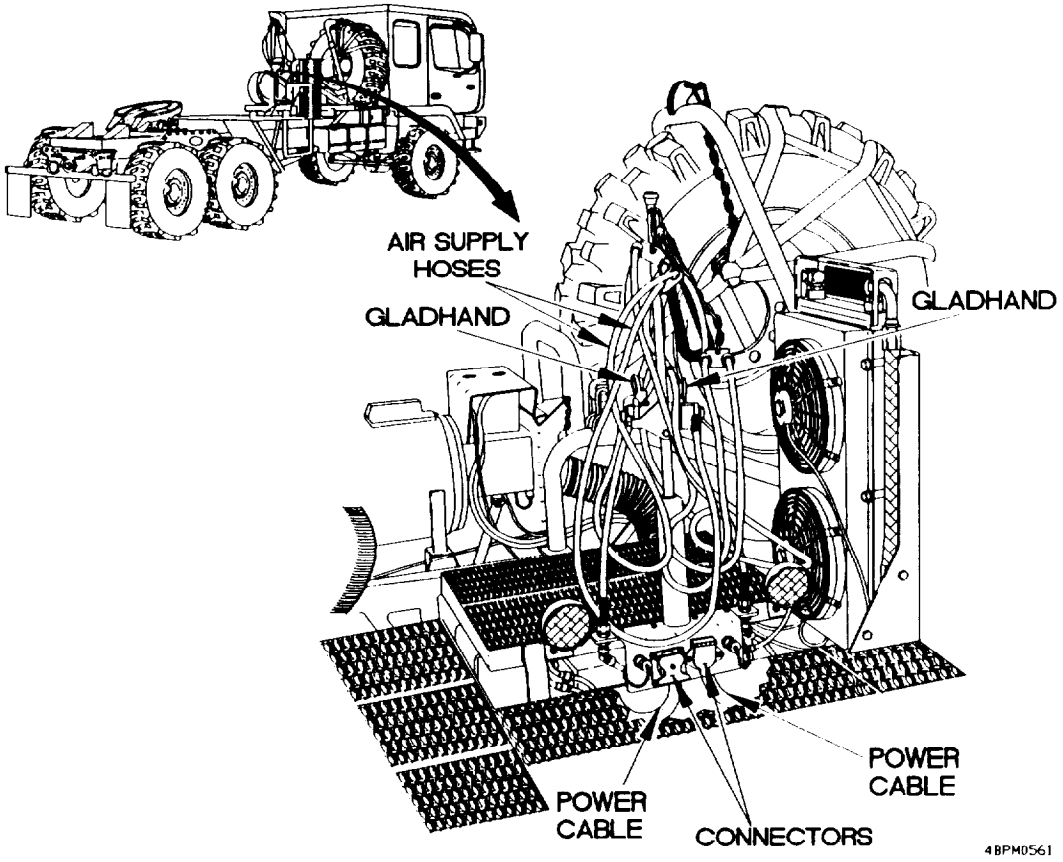
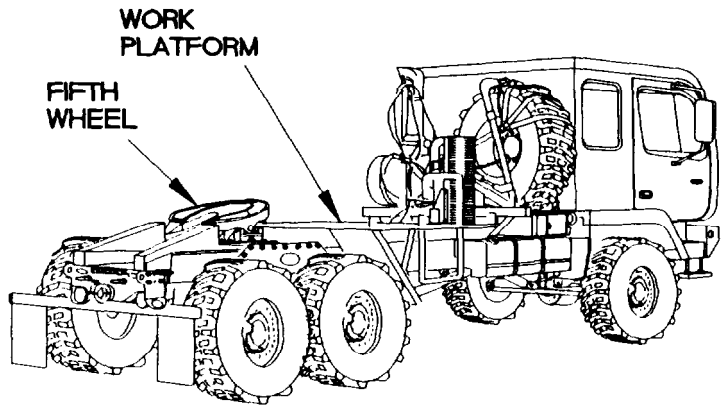
Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
55	Semiannual	**TRAILER AIR HOSES (M1088)**	**a.** Check trailer air supply hoses for cracks and leaks. **b.** Inspect gaskets in gladhands for cracking and dry rot.	**a.** Trailer air supply hoses damaged. **b.** Gladhands are damaged.
				
56	Semiannual	**TRAILER ELECTRIC-AL POWER**	**a.** Check trailer electrical power cables for cracking, chafing, and bare wires. **b.** Check electrical connectors for secure attachment to cables.	**a.** Tractor electrical power supply cables are damaged.

Table 2-1. Preventive Maintenance Checks and Services (Cont)

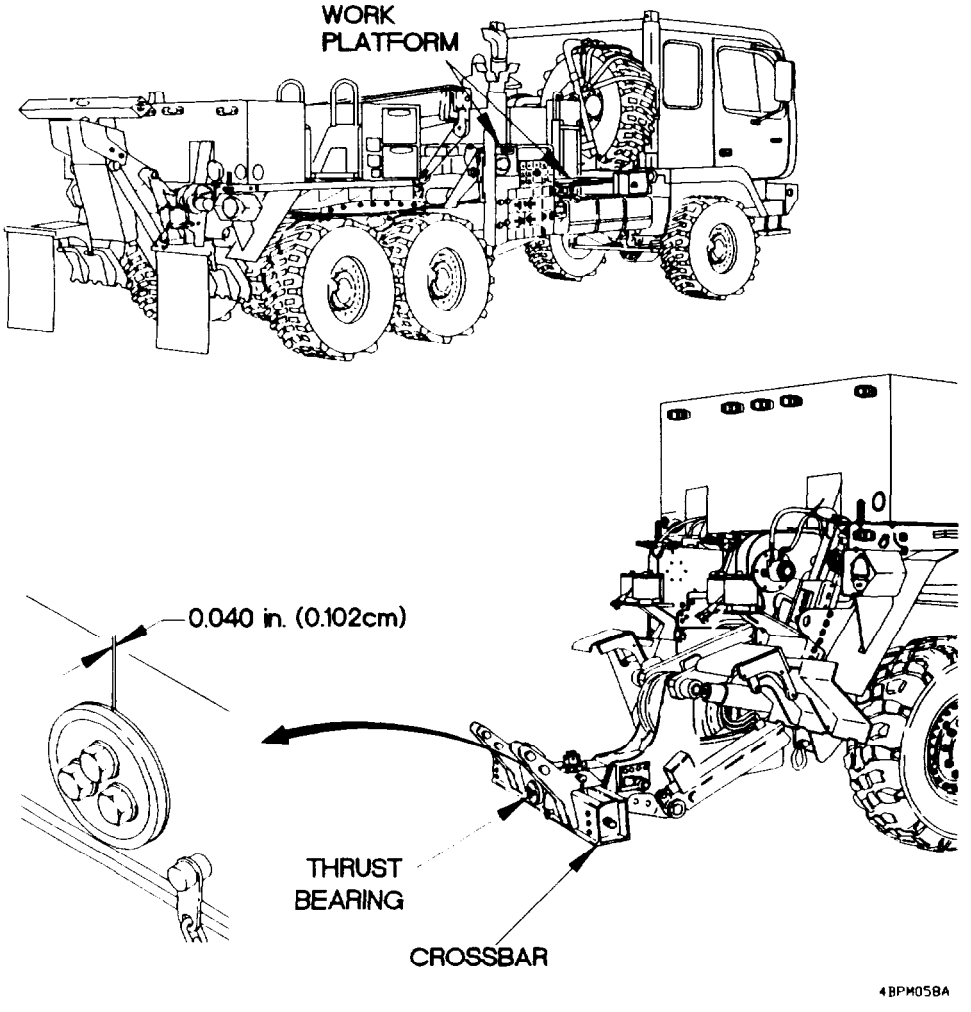
Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
57	Semiannual	**FIFTH WHEEL (M1088)**	Check fifth wheel for gouges and loose or missing mounting hardware.	Fifth wheel mounting hardware is loose or missing.



58	Semiannual	**WORK PLATFORM (M1088)**	Inspect work platform for corrosion, damage, and cracks. Check security of platform mounting hardware.	

Table 2-1. Preventive Maintenance Checks and Services (Cont)

Item No.	Interval	Location Item to be Checked or Serviced	Procedure	Not Fully Mission Capable If:
59	Semiannual	WORK PLATFORM (M1089)	Inspect work platform for corrosion, damage, and cracks. Check security of platform mounting hardware.	
60	Semiannual	CROSSBAR (M1089)	**a.** Inspect crossbar thrust bearing for cracks and grooves. **b.** Inspect crossbar thrust bearing clearance between crossbar and thrust bearing maximum clearance 0.040 in. (0.101 cm).	**a.** Cracks or grooves are evident. **b.** More than 0.040 in. (0.101 cm) clearance is evident.



Section IV. TROUBLESHOOTING

2-10. INTRODUCTION TO LOGIC TREE TROUBLESHOOTING

This section contains step-by-step procedures for identifying, locating, isolating, and repairing equipment malfunctions.

This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify your supervisor.

2-11. TROUBLESHOOTING INSTRUCTIONS

a. Page Layout. Troubleshooting procedures are divided into logic tree pages and test pages.

(1) A logic tree page is always a left-hand page, facing the test page on the right. The logic tree page provides the sequence of steps required to isolate a fault to a failed component. All critical information for decision making is on the left-hand page. Each logic tree page contains the following information:

(a) **INITIAL SETUP** - This box is located only on the first logic tree page of a fault. INITIAL SETUP lists tools, materials, references, personnel, and equipment needed to troubleshoot the fault.

(b) **KNOWN INFO** - This box is located in the top left-hand column. KNOWN INFO lists conditions and information that will eliminate specific components as the cause of the fault.

(c) **POSSIBLE PROBLEMS** - This box is located directly below KNOWN INFO. All of the system components that could cause a fault are listed in the POSSIBLE PROBLEMS box. The first component listed in the POSSIBLE PROBLEMS box is the one that will be tested at that step in the logic sequence. When one of the components is tested and found to be operational, it is entered at the bottom of the KNOWN INFO box as OK.

(d) **QUESTION** - Each question, located in the middle column, refers to the first possible problem listed in POSSIBLE PROBLEMS. If the answer to the question is YES, proceed to the next step. If the answer is NO, follow the NO arrow to obtain directions for correcting the problem. If the step contains a WARNING or CAUTION message, a small shadow box is printed above the question. Text for WARNINGs or CAUTIONs is on the following right-hand page.

(e) **TEST OPTIONS** - This box is located in the top right-hand column. TEST OPTIONS lists tests available for testing parts suspected of failing.

(f) **REASON FOR QUESTION** - This box is located directly below TEST OPTIONS. It explains the purpose for the question in the middle column.

(2) A test page is always a right-hand page, facing the logic tree page on the left. The test provides detailed instructions for testing the first component listed in the POSSIBLE PROBLEMS box. This test will also provide an answer for the question in the middle column. Note the arrow connecting the test on the right-hand page to the REASON FOR QUESTION. When possible, illustrations are included to provide visual details. Notes contain additional information for testing.

2-11. TROUBLESHOOTING INSTRUCTIONS (CONT)

b. How to Begin Troubleshooting.

(1) Determine the symptom or condition that indicates a problem or failure. Troubleshooting is divided into symptoms peculiar to a vehicle system or component, for example: pneumatic system or engine. Refer to **Table 2-2. Vehicle Troubleshooting.**

(2) Go to the referenced page to begin troubleshooting. Open the manual flat so both the left-hand and right-hand pages are displayed before you. The information on both pages is important to resolve the problem or failure. However, the experienced technician can follow the left-hand page instructions and refer to the right-hand page when necessary.

(3) Follow the Diagnostic Procedure. Answer question No. 1 on the left-hand page and follow the YES or NO path to either the remedy or the next question. If necessary, look on the right-hand page for test instructions and illustrations.

(4) Observe warnings, cautions, and notes. The formatting and symbols used in this manual for warnings, cautions, and notes are as follows:

WARNING

This is the symbol for a warning statement. If you see the word WARNING above a question on the left-hand page, look on the right-hand page for the text of the message. WARNINGs describe a situation which could cause serious injury or death to personnel.

CAUTION

This is the symbol for a caution statement. if you see the word CAUTION above a question on the left-hand page, look on the right-hand page for the text of the message. CAUTIONs describe a situation which could cause damage to equipment.

NOTE

This is a symbol for a note. Notes are located directly above the test to which they refer. NOTEs provide additional information for performing a test.

c. Confidence Tests. Before performing any STE/ICE-R test, a confidence test must be run to ensure proper operation of the STE/ICE-R. In addition, a confidence test must be performed after each use to ensure the STE/ICE-R is performing properly. Refer to TM 9-4910-571-12&P.

d. Verifying Repair. When troubleshooting, there is an additional step that must be performed after taking any corrective action, This step will show that the malfunction has been corrected, or that additional troubleshooting is required, example follows:

On malfunction r1. Wanders, pulls to one side, or shimmies; the question is asked "Are front shock absorbers secure and free from damage?". if the question was answered NO, the damaged shock absorber(s) was replaced. After replacing the damaged shock absorber(s), the vehicle must be checked to determine if the original malfunction is still present, If corrected, troubleshooting is completed. If malfunction is still present, continue troubleshooting.

Table 2-2. Vehicle Troubleshooting

Malfunction		Troubleshooting Procedure (Page)
a. ENGINE SYSTEM TROUBLESHOOTING		
a1.	Engine Does Not Crank/24 VDC Circuits Do Not Operate	2-72
a2.	Engine Cranks But Does Not Start	2-76
a3.	Low Engine Oil Pressure	2-80
a4.	Engine Stalls at Low RPM	2-82
a5.	Engine Overspeeds on Start	2-88
a6.	Too Much Engine Vibration	2-90
a7.	Coolant in Engine Lubrication Oil	2-92
a8.	Excessive Engine Oil Consumption	2-94
a9.	Engine Overheats	2-98
a10.	Excessive Black or Gray Exhaust Smoke	2-100
a11.	White Exhaust Smoke	2-104
b. FUEL SYSTEM TROUBLESHOOTING		
b1.	Engine Cranks But Does Not Start or Engine Stalls After Starting	2-110
b2.	Ether Starting Aid Does Not Operate	2-116
b3.	Fuel Consumption Too High	2-120
b4.	Accelerator Pedal Sticks	2-122
c. EXHAUST SYSTEM TROUBLESHOOTING		
c1.	Exhaust System Unusually Noisy or Vibrates Excessively During Engine Operation	2-128
c2.	Exhaust Fumes in Cab	2-132
d. COOLING SYSTEM TROUBLESHOOTING		
d1.	Engine Overheats	2-138
d2.	Oil in Cooling System	2-150
d3.	Loss of Coolant	2-152
e. ELECTRICAL SYSTEM TROUBLESHOOTING		
e1.	Circuit Breaker Does Not Operate	2-158
e2.	Engine Does Not Crank/24 VDC Circuits Do Not Operate	2-164
e3.	12 VDC and 24 VDC Circuits Do Not Operate	2-264
e4.	12 VDC Circuits Do Not Operate (100 Amp Alternator)	2-268
e5.	12 VDC Circuits Do Not Operate (200 Amp Alternator)	2-286
e6.	Engine Cranks But Does Not Start	2-310
e7.	Fuel Gage Does Not Operate or is Inaccurate	2-318
e8.	Water Temperature Gage Does Not Operate or is Inaccurate	2-324
e9.	Rear Brake Air Pressure Gage Does Not Operate or is Inaccurate	2-328
e10.	Front Brake Air Pressure Gage Does Not Operate or is Inaccurate	2-332
e11.	Engine Oil Pressure Gage Does Not Operate or is Inaccurate	2-336
e12.	Speedometer Does Not Operate or is Inaccurate	2-342

2-11. TROUBLESHOOTING INSTRUCTIONS (CONT)

Table 2-2. Vehicle Troubleshooting (Cont)

Malfunction		Troubleshooting Procedure (Page)
e. ELECTRICAL SYSTEM TROUBLESHOOTING (CONT)		
e13.	Volts Gage Does Not Operate or is Inaccurate	2-356
e14.	Tachometer Does Not Operate or is Inaccurate	2-358
e15.	Audible Alarm Does Not Operate (All Models Except M1083/M1090/M1093/M1094)	2-368
e16.	Audible Alarm Does Not Operate (Models M1083/M1090/M1093/M1094 only)	2-372
e17.	Lamp Test Switch Does Not Illuminate	2-382
e18.	Instrument Panel Switch Does Not Illuminate	2-388
e19.	Instrument Panel Cage Does Not Illuminate	2-392
e20.	Auxiliary Instrument Panel, Personnel Heater, and Instrument Panel Do Not Illuminate	2-396
e21.	Tachometer Does Not Illuminate	2-400
e22.	Auxiliary Instrument Panel Switch Does Not Illuminate	2-404
e23.	Auxiliary Instrument Panel Does Not Illuminate	2-408
e24.	High Engine Temperature Indicator Does Not Operate	2-412
e25.	Central Tire Inflation System (CTIS) Overspeed Indicator Does Not Operate	2-420
e26.	Chemical Detector Indicator Does Not Operate	2-434
e27.	Left Turn Signal Indicator Does Not Operate	2-438
e28.	Right Turn Signal Indicator Does Not Operate	2-442
e29.	Turn Signal Indicators and High Beams On Indicator Do Not Operate	2-448
e30.	High Beams On Indicator Does Not Operate	2-450
e31.	Parking Brake Indicator and/or Emergency Brake Indicator Does Not Operate	2-454
e32.	Power Take-Off (PTO) Indicator Does Not Operate	2-470
e33.	Fan Off Indicator Does Not Operate	2-482
e34.	Dump Up Indicator Does Not Operate	2-488
e35.	WTEC II Transmission Temperature Indicator Does Not Operate	2-498
e36.	WTEC III Transmission Temperature Indicator Does Not Operate	2-506
e37.	Front Brake Air Indicator Does Not Operate	2-512
e38.	Rear Brake Air Indicator Does Not Operate	2-518
e39.	Engine Oil Pressure Indicator Does Not Operate	2-524
e40.	Master Stop Indicator Does Not Operate	2-530
e41.	One or Both Headlights (High and Low Beam) Do Not Illuminate	2-532
e42.	One or Both Headlight Low Beams Do Not Illuminate	2-540
e43.	One or Both Headlight High Beams Do Not Illuminate	2-546
e44.	Parking Lights Do Not Illuminate	2-554
e45.	LH Door and/or LH Front Marker Lights Do Not Illuminate	2-562
e46.	RH Door and/or RH Front Marker Lights Do Not Illuminate	2-572
e47.	One or More Cab Top Marker Lights Do Not Illuminate	2-582
e48.	Side and/or Rear Marker Lights Do Not Illuminate	2-596
e49.	One or Both Composite Taillights Do Not Illuminate	2-606
e50.	One or Both Front Blackout Marker Lights Do Not Illuminate	2-616
e51.	Blackout Drive Light Does Not Illuminate	2-626
e52.	One or Both Rear Blackout Marker Lights Do Not Illuminate	2-636
e53.	Amber Warning Light Does Not Illuminate (All Models Except M1089)	2-646
e54.	M1089 Amber Warning Light Does Not Illuminate	2-658
e55.	Backup Light Does Not Illuminate	2-670

Malfunction		Troubleshooting Procedure (Page)
e56.	Blackout Marker Lights Do Not Illuminate	2-708
e57.	Rear Hazard Lights Do Not Operate	2-710
e58.	Front and Rear Hazard Lights Do Not Operate	2-712
e59.	Front and Rear Turn Signals Do Not Operate	2-722
e60.	Left or Right Front Turn Signal Does Not Operate	2-734
e61.	One or Both Stoplights Do Not Operate	2-742
e62.	One or Both Blackout Stoplights Do Not Operate	2-760
e63.	Stoplights and Blackout Stoplights Do Not Operate	2-772
e64.	Stoplights Do Not Operate When M1088 Trailer Brakes Are Applied	2-782
e65.	Trailer Marker/Taillights Do Not Operate	2-786
e66.	Trailer Right Stop/Turn Light Does Not Operate	2-796
e67.	Trailer Left Stop/Turn Light Does Not Operate	2-806
e68.	Trailer Blackout Marker Lights Do Not Illuminate	2-816
e69.	Trailer Blackout Stoplights Do Not Illuminate	2-826
e70.	Intervehicle Clearance Lights Do Not Operate	2-836
e71.	Intervehicle Left Turn Signal Does Not Operate	2-840
e72.	Intervehicle Right Turn Signal Does Not Operate	2-846
e73.	Intervehicle Stoplights Do Not Operate	2-852
e74.	Intervehicle Taillights Do Not Operate	2-858
e75.	Personnel Heater Control Illumination Does Not Operate	2-862
e76.	Personnel Heater Fan Does Not Operate	2-868
e77.	Windshield Washer Does Not Operate	2-874
e78.	Windshield Wiper Does Not Operate on Low Speed	2-886
e79.	All Windshield Wiper Speeds Do Not Operate	2-894
e80.	Windshield Wiper Does Not Operate on Intermittent Speed	2-900
e81.	Windshield Wiper Does Not Operate on High Speed	2-910
e82.	Horn Does Not Operate	2-916
e83.	Chemical Alarm Does Not Operate	2-928
e84.	Chemical Detector Does Not Operate	2-936
e85.	Central Tire Inflation System (CTIS) Does Not Operate	2-946
e86.	Central Tire Inflation System (CTIS) Does Not Inflate Tires	2-960
e87.	Central Tire Inflation System (CTIS) Does Not Deflate Tires	2-970
e88.	15K Self-Recovery Winch (SRW) Does Not Reel In or Pay Out	2-980
e89.	15K Self-Recovery Winch (SRW) Does Not Reel In	2-986
e90.	15K Self-Recovery Winch (SRW) Does Not Pay Out	2-998
e91.	Power Take-Off (PTO) Does Not Operate	2-1010
e92.	Electrical System Does Not Maintain a Charge	2-1050
e93.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Illumination Does Not Dim	2-1058
e94.	Differential Lock Solenoid Does Not Operate	2-1068
e95.	Engine Fan Runs Constantly	2-1094
e96.	Engine Fan Does Not Turn Off Using Radiator Fan Off Switch	2-1102
e97.	Ether Start Does Not Operate	2-1110
e98.	Excessive Condensation in Fuel	2-1126
e99.	Radio Does Not Operate	2-1130
e100.	Start Inhibit Pushbutton Does Not Operate	2-1136
e101.	Air Dryer Does Not Operate (All Models Except M1090/M1094)	2-1142
e102.	M1090/M1094 Air Dryer Does Not Operate	2-1148
e103.	Battery Tester Does Not Operate	2-1158
e104.	M1084/M1086 Material Handling Crane (MHC) Does Not Operate	2-1162

2-11. TROUBLESHOOTING INSTRUCTIONS (CONT)

Table 2-2. Vehicle Troubleshooting (Cont)

Malfunction		Troubleshooting Procedure (Page)
e. ELECTRICAL SYSTEM TROUBLESHOOTING (CONT)		
e105.	M1084/M1086 Material Handling Crane (MHC) Does Not Operate From Remote Control	2-1170
e106.	M1084/M1066 Material Handling Crane (MHC) Hoist Up Does Not Operate From Remote Station	2-1176
e107.	M1084/M1086 Material Handling Crane (MHC) Hoist Down Does Not Operate From Remote Station	2-1188
e108.	M1084/M1086 Material Handling Crane (MHC) Room Up Does Not Operate From Remote Station	2-1200
e109.	M1084/M1086 Material Handling Crane (MHC) Boom Down Does Not Operate From Remote Station	2-1212
e110.	M1084/M1086 Material Handling Crane (MHC) Telescope In Does Not Operate From Remote Station	2-1224
e111.	M1084/M1086 Material Handling Crane (MHC) Telescope Out Does Not Operate From Remote Station	2-1236
e112.	M1084/M1086 Material Handling Crane (MHC) Swing CW Does Not Operate From Remote Station	2-1248
e113.	M1084/M1086 Material Handling Crane (MHC) Swing CCW Does Not Operate From Remote Station	2-1260
e114.	M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate	2-1272
e115.	M1084/M1086 Material Handling Crane (MHC) Overload Shutdown System Stays Activated	2-1274
e116.	M1084/M1086 Material Handling Crane (MHC) Hoist Up Lockout Does Not Activate	2-1276
e117.	M1084/M1086 Material Handling Crane (MHC) Boom Down Lockout Does Not Activate	2-1280
e118.	M1084/M1086 Material Handling Crane (MHC) Boom Up Lockout Does Not Activate	2-1284
e119.	M1084/M1086 Material Handling Crane (MHC) Telescope Out Lockout Does Not Activate	2-1288
e120.	M1089 Material Handling Crane (MHC) Does Not Operate	2-1292
e121.	M1089 Material Handling Crane (MHC) Does Not Operate From Remote Control	2-1300
e122.	M1089 Material Handling Crane (MHC) Hoist Up Does Not Operate From Remote Station	2-1306
e123.	M1089 Material Handling Crane (MHC) Hoist Down Does Not Operate From Remote Station	2-1318
e124.	M1089 Material Handling Crane (MHC) Boom Up Does Not Operate From Remote Station	2-1330
e125.	M1089 Material Handling Crane (MHC) Boom Down Does Not Operate From Remote Station	2-1342
e126.	M1089 Material Handling Crane (MHC) Telescope In Does Not Operate From Remote Station	2-1354
e127.	M1089 Material Handling Crane (MHC) Telescope Out Does Not Operate From Remote Station	2-1366

Malfunction		Troubleshooting Procedure (Page)
e128.	M1089 Material Handling Crane (MHC) Swing CW Does Not Operate From Remote Station	2-1378
e129.	M1089 Material Handling Crane (MHC) Swing CCW Does Not Operate From Remote Station	2-1390
e130.	M1089 Material Handling Crane (MHC) Hoist Up Lockout Does Not Activate	2-1402
e131.	M1089 Material Handling Crane (MHC) Boom Down Lockout Does Not Activate	2-1406
e132.	M1089 Material Handling Crane (MHC) Boom Up Lockout Does Not Activate	2-1410
e133.	M1089 Material Handling Crane (MHC) Telescope Out Lockout Does Not Activate	2-1414
e134.	M1089 Material Handling Crane (MHC) Overload Shutdown System Does Not Activate	2-1418
e135.	M1089 Material Handling Crane (MHC) Overload Shutdown System Stays Activated	2-1420
e136.	All M1089 Control Functions Do Not Operate From Wrecker Control Panel and Wrecker Remote Control	2-1422
e137.	All Wrecker Functions Do Not Operate From Wrecker Remote Control	2-1436
e138.	All Wrecker Functions Do Not Operate From Wrecker Control Panel	2-1442
e139.	30K Winch Left or Right Speed Function Does Not Operate From Wrecker Control Panel	2-1446
e140.	30K Winch Left or Right Freespool Function Does Not Operate From Wrecker Control Panel	2-1452
e141.	One Wrecker Function Does Not Operate From Wrecker Remote Control	2-1458
e142.	M1090/M1094 Tailgate Release Does Not Operate	2-1468
e143.	DUMP BED Up Does Not Operate	2-1480
e144.	DUMP BED Down Does Not Operate	2-1492
e145.	Transmission Auxiliary Oil Cooler Fan(s) Run Constantly	2-1504
e146.	Transmission Auxiliary Oil Cooler Fan Does Not Operate (All Models Except M1088/M1089)	2-1508
e147.	M1088/M1089 Transmission Auxiliary Oil Cooler Fan Does Not Operate	2-1526
e148.	M1088/M1089 Worklights Do Not Illuminate	2-1540
e149.	M1088/M1089 (LH) Worklights Do Not Illuminate	2-1558
e150.	M1088/M1089 (RH) Worklights Do Not Illuminate	2-1562
e151.	M1088/M1089 Worklights Do Not Illuminate in Blackout Mode With Blackout Override Switch On	2-1566
e152.	M1084/M1086 Worklights Do Not Illuminate	2-1576

f. TRANSMISSION SYSTEM TROUBLESHOOTING

f1.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Emits Eight Seconds of Beeps and/or Transmission Does Not Shift Gears	2-1584
f2.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 22 Sub Code 14	2-1586
f3.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 22 Sub Code 15	2-1594
f4.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 22 Sub Code 16	2-1600
f5.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 24 and/or 33 and Any Sub Code	2-1606
f6.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 32 and Any Sub Code	2-1620
f7.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 41, 42, 44, and/or 45 and Any Sub Code	2-1624

2-11. TROUBLESHOOTING INSTRUCTIONS (CONT)

Table 2-2. Vehicle Troubleshooting (Cont)

f. TRANSMISSION SYSTEM TROUBLESHOOTING (CONT)

Malfunction		Troubleshooting Procedure (Page)
f8.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 43 and Any Sub Code	2-1628
f9.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 52 and Any Sub Code	2-1634
f10.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 57 and Any Sub Code	2-1640
f11.	Transmission Unusually Noisy When Operating	2-1644
f12.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 21 and Any Sub Code	2-1654
f13.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 51 Sub Code 10, 12, 21, 43, 45, or 65	2-1668
f14.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 25 and Any Sub Code	2-1672
f15.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 53 and Any Sub Code	2-1676
f16.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 54 Sub Code 01, 07, 10, 12, 17, 21, 23, 27, 32, 34, 43, 45, 54, 56, 65, 70, 71, 72, 80, 81, 82, 83, 85, 86, 92, 93, 95, 96, or 97	2-1680
f17.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 55 and Any Sub Code	2-1686
f18.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 56 and Any Sub Code	2-1692
f19.	WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS) Displays Main Code 13 and Any Sub Code	2-1698
f20.	Metal Particles Found During Transmission Oil Change	2-1708
f21.	Transmission Does Not Shift or is Slow to Shift When Cold	2-1710
f22.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 22 Sub Code 14	2-1712
f23.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 22 Sub Code 15	2-1718
f24.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 22 Sub Code 16	2-1722
f25.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 24 and/or 33 and Any Sub Code	2-1728
f26.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 32 and Any Sub Code	2-1742
f27.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 42, 44, and/or 45 and Any Sub Code	2-1748
f28.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 52 and Any Sub Code	2-1752
f29.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 57 and Any Sub Code	2-1758

Malfunction		Troubleshooting Procedure (Page)
f30.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code and Any Sub Code	2-1762
f31.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 51 and Any Sub Code	2-1776
f32.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 25 and Any Sub Code	2-1780
f33.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 53 and Any Sub Code	2-1784
f34.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 54 and Any Sub Code	2-1788
f35.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 55 and Any Sub Code	2-1794
f36.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 56 and Any Sub Code	2-1800
f37.	WTEC Ill Transmission Pushbutton Shift Selector (TPSS) Displays Main Code 13 and Any Sub Code	2-1806
f38.	WTEC III Transmission Pushbutton Shift Selector (TPSS) Indicator Displays "--" and/or Transmission Does Not Shift Gears	2-1820

g. PROPELLER SHAFT TROUBLESHOOTING

g1.	Propeller Shafts or Universal Joints Unusually Noisy When Operating	2-1824

h. POWER TAKE OFF (PTO) TROUBLESHOOTING

h1.	Power Take-Off (PTO) Does Not Engage	2-1832

i. BRAKE SYSTEM TROUBLESHOOTING

i1.	Excessive Braking Distance	2-1836
i2.	Rear Brakes Do Not Apply	2-1848
i3.	Parking Brake(s) Will Not Release	2-1878
i4.	Front brakes overheat	2-1904
i5.	Vehicle Brakes Unevenly, Brakes Pull to One Side or Grab	2-1910
i6.	Front Brakes Do Not Apply	2-1924
i7.	Rear Brakes Overheat	2-1934
i8.	Parking Brake Does Not Apply	2-1942

j. AIR SYSTEM TROUBLESHOOTING

j1.	Air System Loses Pressure During Operation/Slow Air Pressure Buildup	2-1948
j2.	Large Quantity of Moisture Expelled From Air Reservoirs	2-1964
j3.	Air Dryer Purges Constantly	2-1968
j4.	No Air Pressure or Low Air Pressure Present at Rear Gladhands	2-1972
j5.	Air System Pressure Builds Up More Than 120 psi (827 kPa) (Compressor Fails to Unload)	2-1978
j6.	Noisy Air Compressor Operation	2-1982
j7.	M1088 Rear Gladhand Leaks or Does Not Operate	2-1986

2-11. TROUBLESHOOTING INSTRUCTIONS (CONT)

Table 2-2. Vehicle Troubleshooting (Cont)

Malfunction		Troubleshooting Procedure (Page)
	k. WHEEL TROUBLESHOOTING	
k1.	Tires Wear Unevenly or Excessively	2-1990
k2.	Wheel Wobbles or Shimmies	2-1994
	l. HYDRAULIC SYSTEM TROUBLESHOOTING	
l1.	Loss of Hydraulic Pressure (Single Stage Pump)	2-1998
l2.	Loss of Hydraulic Pressure (Three Stage Pump)	2-2002
	m. CENTRAL TIRE INFLATION SYSTEM (CTIS) TROUBLESHOOTING	
m1.	Two Steady Mode Lights Illuminate on Central Tire Inflation System (CTIS) ECU	2-2008
m2.	Four Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing	2-2042
m3.	Five Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing	2-2070
m4.	Central Tire Inflation System (CTIS) Repeatedly Resumes Cycling 30 Seconds After Indicator Lights Stop Flashing	2-2104
m5.	Central Tire Inflation System (CTIS) ECU Lights Work But CTIS Fails to Inflate or Deflate	2-2110
m6.	No Overspeed Warning Light and/or Overspeed Pressure Change	2-2122
	n. AXLE TROUBLESHOOTING	
n1.	Axle Differential(s) Noisy	2-2144
	p. STEERING TROUBLESHOOTING	
p1.	Hard to Steer	2-2152
p2.	Wanders, Pulls to One Side, or Shimmies	2-2158
p3.	Excessive Play When Turning Steering Wheel	2-2164
p4.	No Response When Turning Steering Wheel	2-2168
	q. FIFTH WHEEL TROUBLESHOOTING	
q1.	Fifth Wheel Does Not Lock When Coupling Trailer to Tractor	2-2174
q2.	Excessive Movement of Trailer King Pin in Fifth Wheel	2-2178
q3.	Fifth Wheel Does Not Unlock When Disconnecting Trailer From Tractor	2-2182
q4.	Fifth Wheel Sliding Mechanism Does Not Operate	2-2186
	r. SUSPENSION SYSTEM TROUBLESHOOTING	
r1.	Wanders, Pulls to One Side, or Shimmies	2-2190
r2.	Leans to One Side or Rear of Vehicle Sags	2-2200

Malfunction		Troubleshooting Procedure (Page)
s. 15K SELF-RECOVERY WINCH (SRW) SYSTEM TROUBLESHOOTING		
s1.	15K Self-Recovery Winch (SRW) Does Not Work	2-2206
t. STEERING HYDRAULIC SYSTEM TROUBLESHOOTING		
t1.	Steering Hard or Does Not Work	2-2214
u. AIR TRANSPORT TROUBLESHOOTING		
u1.	Cab Tilt, Spare Tire Retainer, and Suspension Compression Do Not Work	2-2220
u2.	Suspension Does Not Compress or Return to Normal Properly	2-2230
u3.	Cab Leveling Air Springs Do Not Work Properly	2-2232
v. DUMP BODY HYDRAULIC SYSTEM TROUBLESHOOTING		
v1.	Dump Body Does Not Raise or Lower	2-2238
w. WRECKER HYDRAULIC SYSTEM TROUBLESHOOTING		
w1.	M1089 Material Handling Crane (MHC) Does Not Operate	2-2244
w2.	M1089 Stifflegs/Left 30K Winch/15K SRW Do Not Operate	2-2246
w3.	M1089 Stiffleg Does Not Operate or Operates Slowly	2-2248
w4.	M1089 Left 30K Winch Does Not Operate	2-2254
w5.	M1089 Stinger/Telescopic Lift Cylinders/Fold Cylinder/Right 30K Winch Do Not Operate	2-2256
w6.	M1089 Stinger Does Not Operate	2-2258
w7.	M1089 Underlift Telescopic Lift Cylinder(s) Does Not Operate	2-2260
w8.	M1089 Fold Cylinder Does Not Operate	2-2262
w9.	M1089 Right 30K Winch Does Not Operate	2-2264
w10.	M1089 Material Handling Crane (MHC) Hand Pump Does Not Work	2-2266
w11.	No Service or External Hydraulic Power From M1089	2-2268
x. SPECIAL PURPOSE KIT TROUBLESHOOTING		
x1.	Cargo Arctic Heater Combustion Starts Immediately When Switched On	2-2272
x2.	Cargo Arctic Heater Does Not Start	2-2274
x3.	After Cargo Arctic Heater is Switched On, Heater Switches On and Off Repeatedly	2-2280
x4.	Cargo Arctic Heater Hard to Start	2-2290
x5.	Cargo Arctic Heater Turns Itself Off	2-2296
x6.	Cargo Arctic Heater Emits Black Smoke	2-2298
x7.	Cargo Arctic Heater Emits White Smoke More Than 20 Seconds After Start-up	2-2304
x8.	Cargo Arctic Heater Cannot Be Switched Off	2-2310
x9.	Cargo and Cab Arctic Heater Diagnostic Procedure with Testing Apparatus 440.280	2-2314
x10.	Cab Arctic Heater Combustion Starts Immediately When Switched On	2-2324
x11.	Cab Arctic Heater Does Not Start	2-2326
x12.	After Cab Arctic Heater is Switched On, Heater Switches On and Off Repeatedly	2-2332
x13.	Cab Arctic Heater Hard to Start	2-2344
x14.	Cab Arctic Heater Turns Itself Off	2-2354

2-11. TROUBLESHOOTING INSTRUCTIONS (CONT)

Table 2-2. Vehicle Troubleshooting (Cont)

Malfunction		Troubleshooting Procedure (Page)
	x. SPECIAL PURPOSE KIT TROUBLESHOOTING (CONT)	
x15.	Cab Arctic Heater Emits Black Smoke	2-2356
x16.	Cab Arctic Heater Emits White Smoke More Than 20 Seconds After Start-up	2-2362
x17.	Cab Arctic Heater Cannot Be Switched Off	2-2368
x18.	Troop Transport Alarm Does Not Operate	2-2372
x19.	Light Material Handling Crane (LMHC) Does Not Operate	2-2382
x20.	Light Material Handling Crane (LMHC) Hoist In Does Not Operate	2-2400
x21.	Light Material Handling Crane (LMHC) Hoist Out Does Not Operate	2-2404
	y. M1084/M1086 MATERIAL HANDLING CRANE (MHC) HYDRAULIC TROUBLESHOOTING	
y1.	M1084/M1086 Material Handling Crane (MHC) Hand Pump Does Not Work	2-2410
	z. CAB TILT AND SPARE TIRE RETAINER TROUBLESHOOTING	
z1.	Cab Does Not Raise or Lower Properly	2-2414
z2.	Spare Tire Does Not Raise or Lower Properly	2-2416
	aa. M1089 AIR SYSTEM TROUBLESHOOTING	
aa1.	One Wrecker Function Does Not Operate From Wrecker Remote Control	2-2420
aa2.	Wrecker Left or Right 30K Winch Freespool Does Not Operate	2-2424
aa3.	Wrecker Left or Right 30K Winch Cable Drum Tensioner Does Not Operate	2-2428
	ab. FRAME TROUBLESHOOTING	
ab1.	Tires Continue to Wear After Front End Alignment and/or Vehicle Drives Sideways Down Road	2-2436

2-12. ENGINE SYSTEM TROUBLESHOOTING

This paragraph covers Engine System Troubleshooting. The Engine System Fault Index, Table 2-3, lists faults for the engine system of the vehicle.

Table 2-3. Engine System Fault Index

Fault No.	Description	Page
a1.	Engine does not crank/24 vdc circuits do not operate	2-72
a2.	Engine cranks but does not start	2-76
a3.	Low engine oil pressure	2-80
a4.	Engine stalls at low rpm	2-82
a5.	Engine overspeeds on start	2-88
a6.	Too much engine vibration	2-90
a7.	Coolant in engine lubrication oil	2-92
a8.	Excessive engine oil consumption	2-94
a9.	Engine overheats	2-98
a10.	Excessive black or gray exhaust smoke	2-100
a11.	White exhaust smoke	2-104

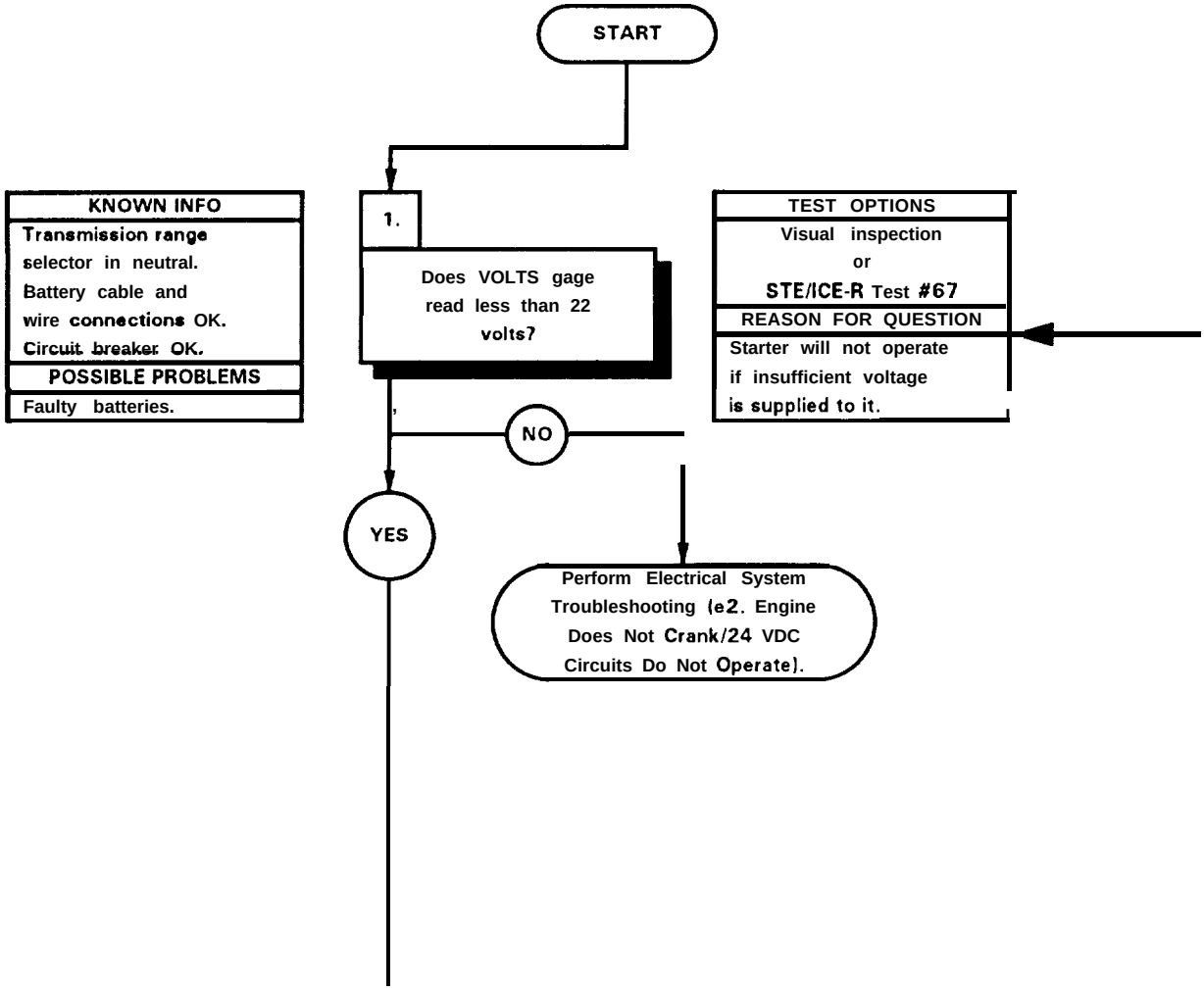
a1. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE

INITIAL SETUP

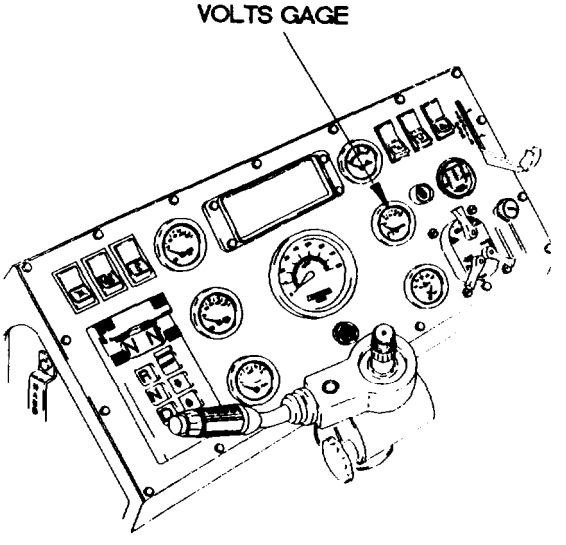
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

References
TM 9-4910-571-12&P
TM 9-6140-200-14

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 4 1, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Tester, Antifreeze and Battery (Item 42, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Apron, Rubber (Item 3, Appendix C)



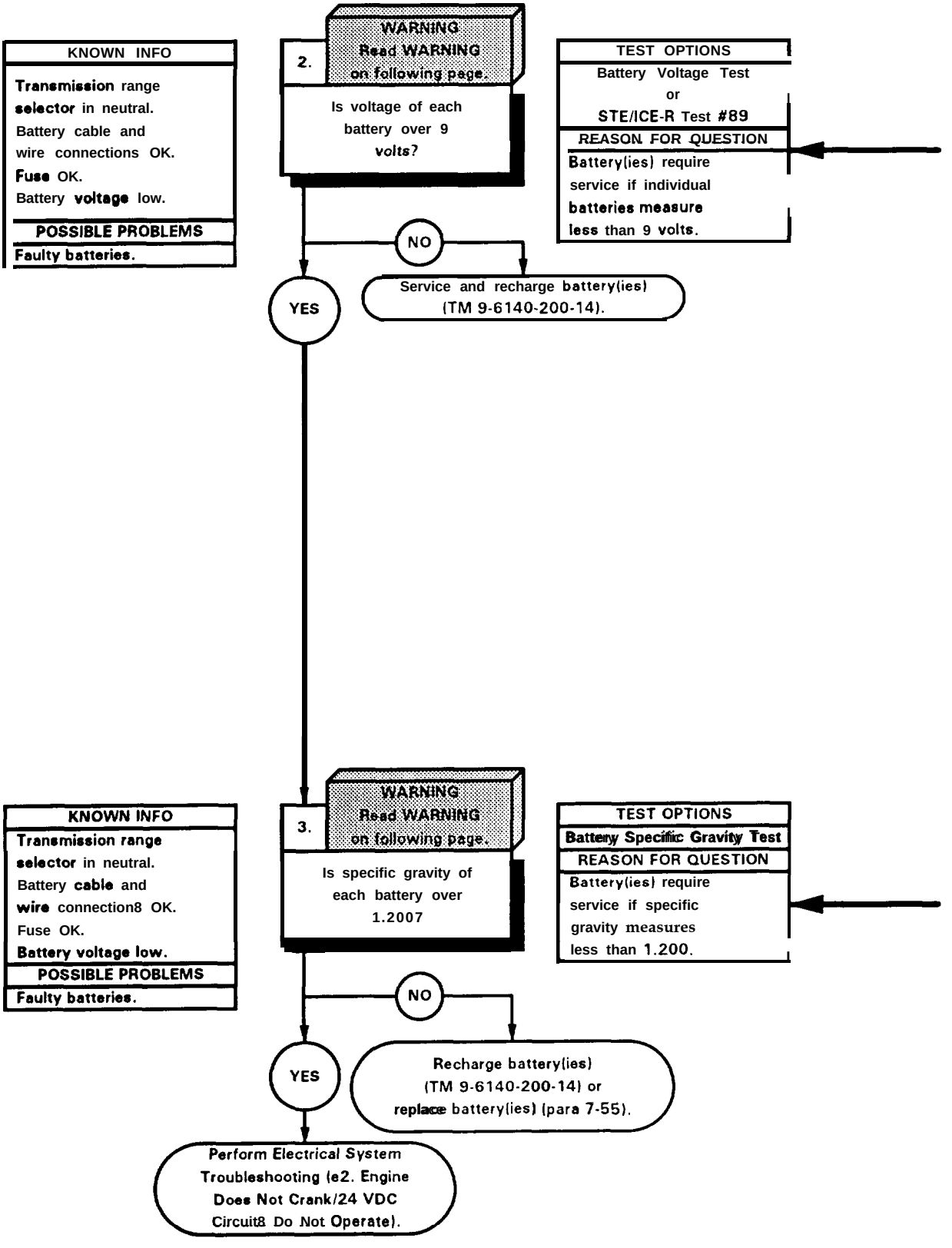
(1) Position master power switch to on (TM 9-2320-366-10-1).
(2) Check VOLTS gage 124 volt system). VOLTS gage should read greater than 22 volts.
(3) If VOLTS gage reads less than 22 volts, perform Electrical System Troubleshooting (e2. Engine Does Not Crank124 VDC Circuits Do Not Operate).
(4) Position master power switch to off (TM 9-2320-366-10-1).



STEERING WHEEL REMOVED FOR CLARITY

X2A01 01A

al. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burn8 or electrical shock. Batteries can explode from a spark. Battery acid is harmful to skin and eyes. Always wear eye protection and rubber gloves when working with batteries.

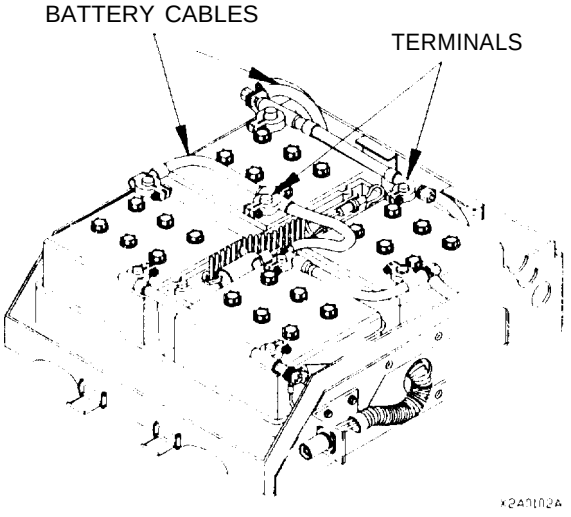
BATTERY VOLTAGE TEST

(1) Remove battery box cover (TM 9-2320-366- 1 O-2).

NOTE

When performing steps 2 and 3, place probe8 of multimeter on same battery.

(2) Place positive (+) probe of multimeter on positive (+) terminal of battery.
(3) Place negative (-) probe of multimeter on negative (-) terminal of battery and note reading on multimeter.
(4) Repeat steps (2 and 3) for remaining battery(ies).
(5) If battery voltage is not over 9 volts, service and recharge battery(ies) (TM 9-6140-200-14)

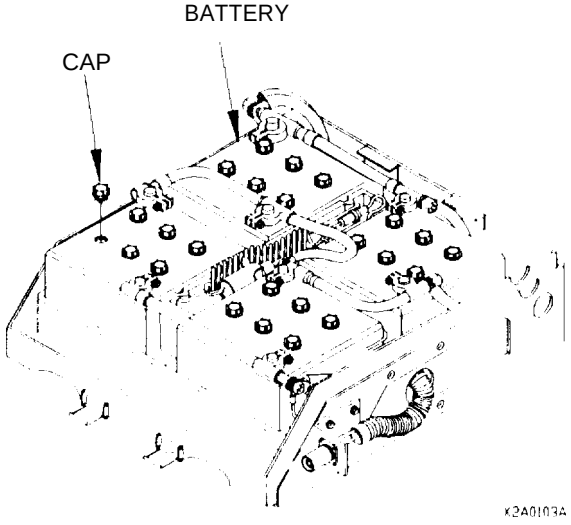


WARNING

Battery acid (electrolyte) is extremely harmful. Always wear safety goggle8 and rubber gloves, and do not smoke when performing maintenance on batteries. Injury will result if acid contacts skin or eyes. Wear rubber apron to prevent clothing being damaged.

BATTERY SPECIFIC GRAVITY TEST

(1) Remove caps from battery.
(2) Place a few drop8 of electrolyte on exposed portion of measuring window using black dipstick.
(3) Point tester toward light source and note reading 1.200 or greater.
(4) If specific gravity is not over 1.200, recharge (TM 9-6140-200-14) or replace battery(ies) (para 7-55).
(5) If specific gravity is over 1.200, perform Electrical System Troubleshooting (e2. Engine Does Not Crank/24 VDC Circuits Do Not Operate).
(6) Install caps on battery.
17) Repeat steps (1 through 4) for remaining battery(ies).
(8) Install battery box cover (TM 9-2320-366-10-2).



a2. ENGINE CRANKS BUT DOES NOT START

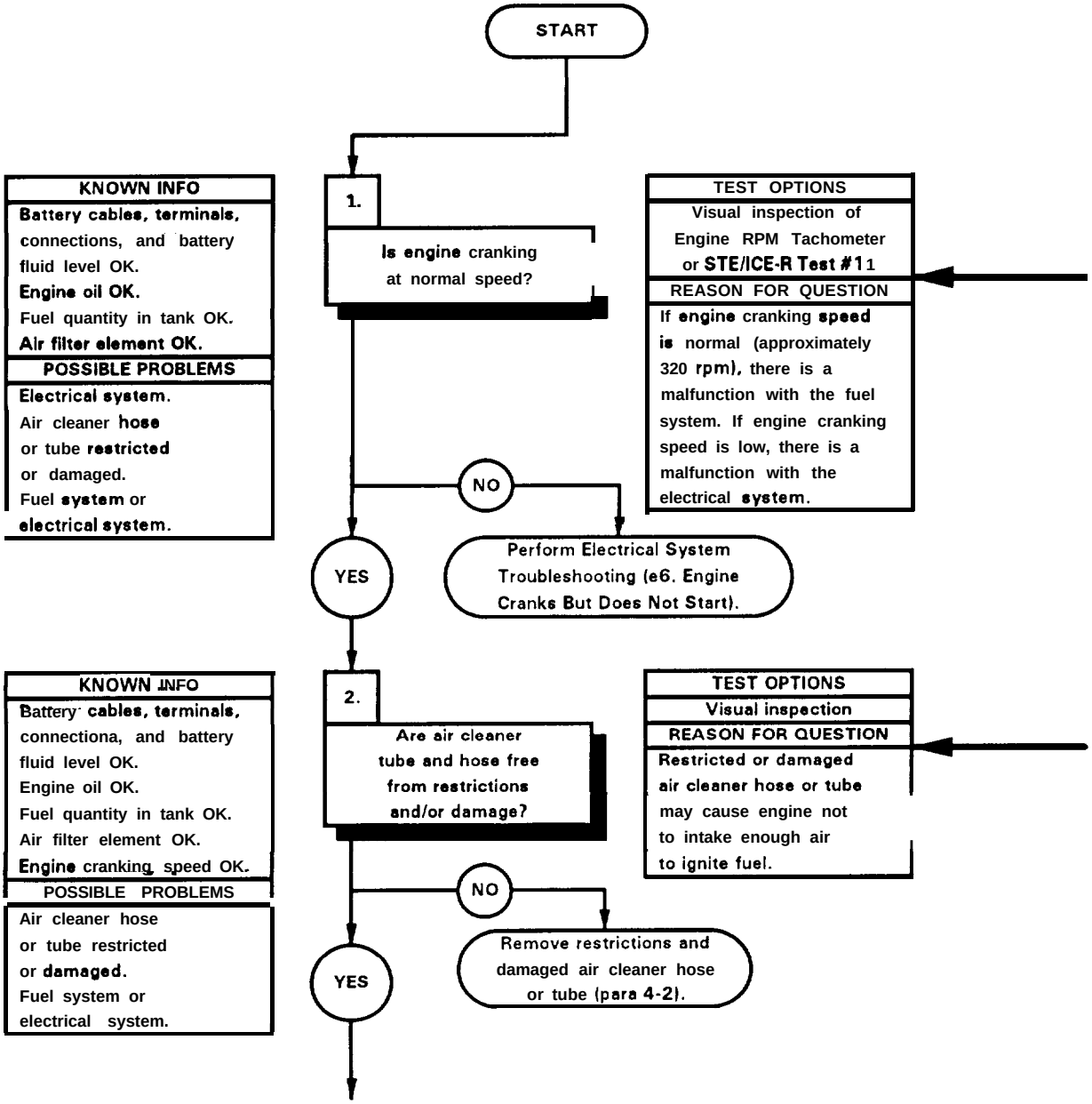
INITIAL SETUP

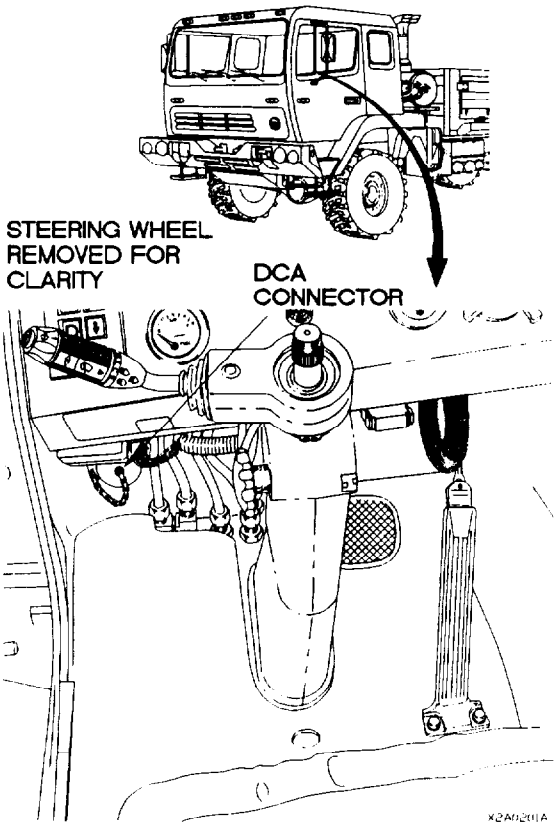
Equipment Conditions
Engine shut down (TM 9-2320-366-1 O-I).

Personnel Required
(2)

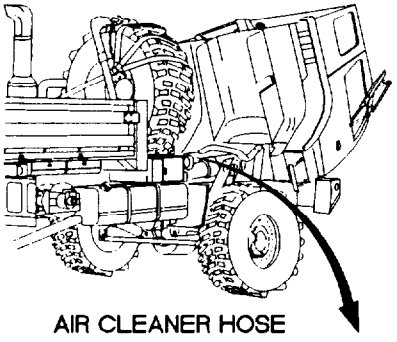
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix CI
STE/ICE-R (Item 41, Appendix C)
Pan, Drain (Item 24, Appendix C)

References
TM 9-4910-571-12&P

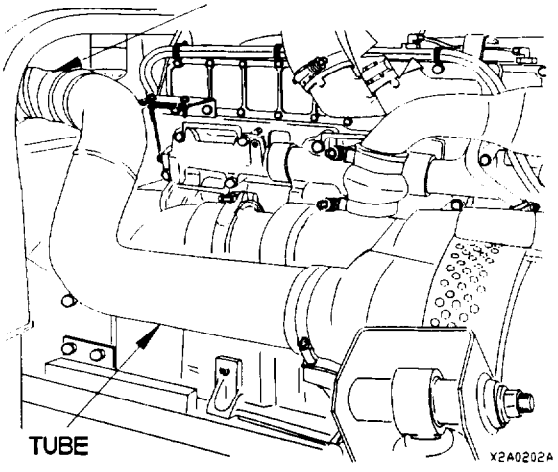




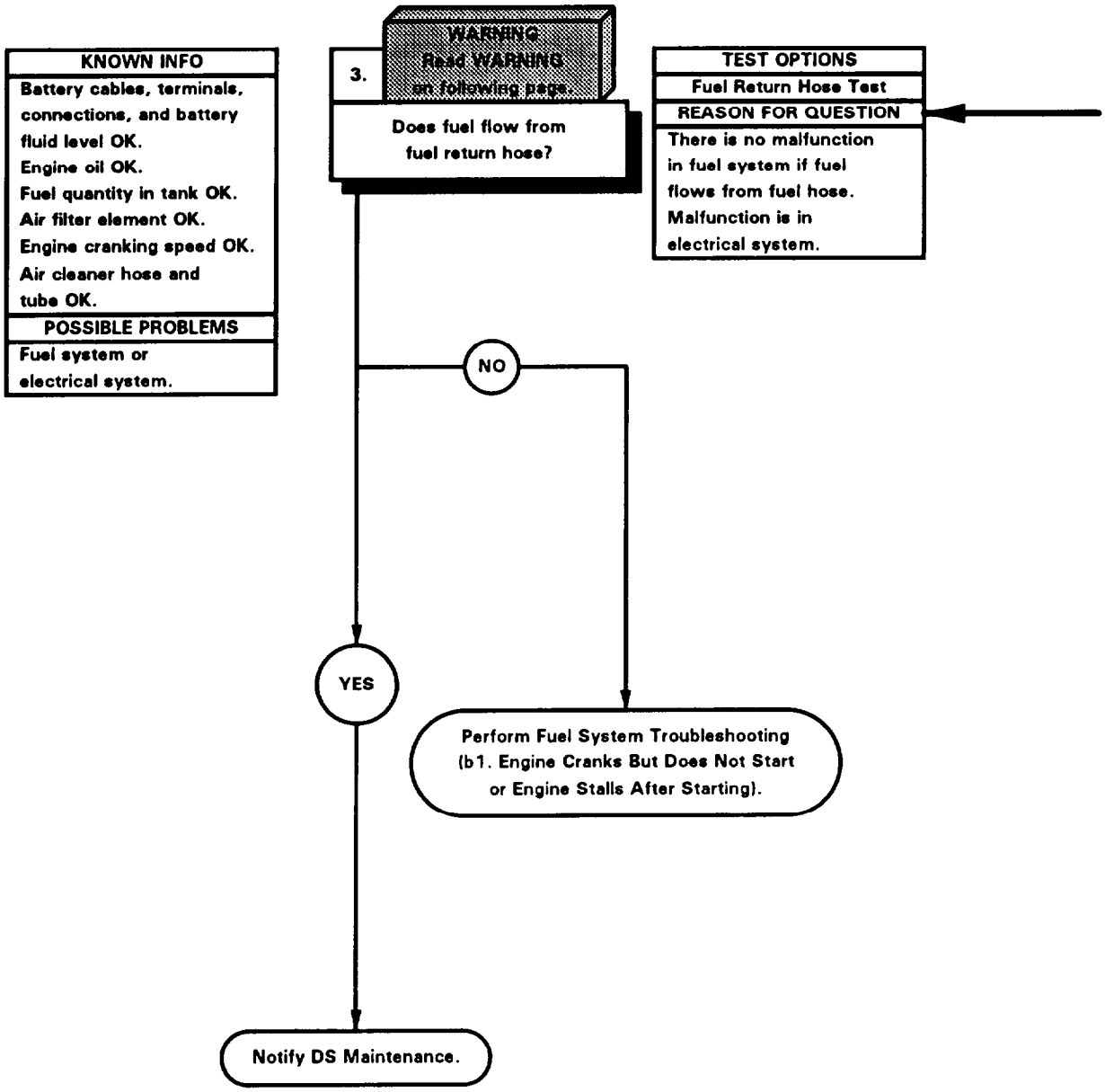
Check engine cranking speed on tachometer, if equipped. If not equipped with tachometer, perform STE/ICE-R Test #11.



Remove air cleaner hose and tube and inspect for restrictions and damage which would cause a loss of intake air (para 4-2).



a2. ENGINE CRANKS BUT DOES NOT START (CONT)



WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death, keep flame away from fuel and keep fire extinguisher within easy reach. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET OF VEHICLE.

FUEL RETURN HOSE TEST

(1) Remove fuel return hose from fuel tank.

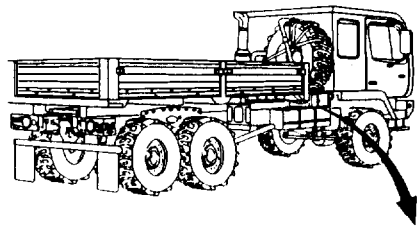
(2) Place fuel hose in drain pan.

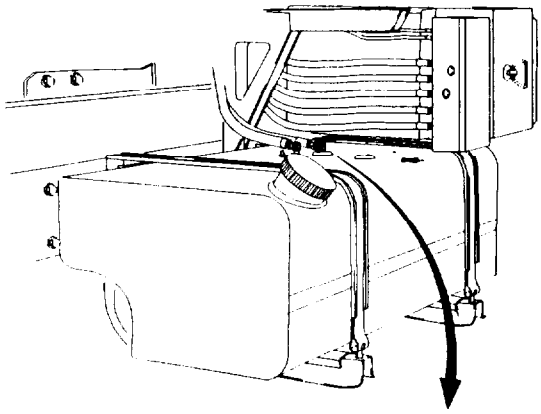
NOTE

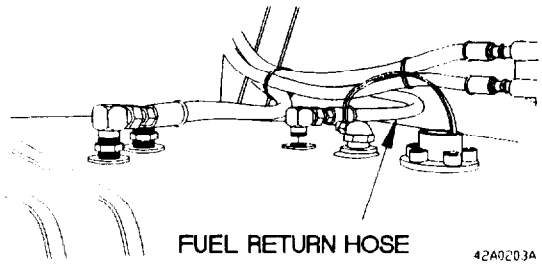
Fuel should flow freely from fuel hose with no restriction.

(3) Attempt to start engine (TM 9-2320-366-10-1) and observe fuel flow from fuel return hose.

(4) Install fuel return hose on fuel tank.







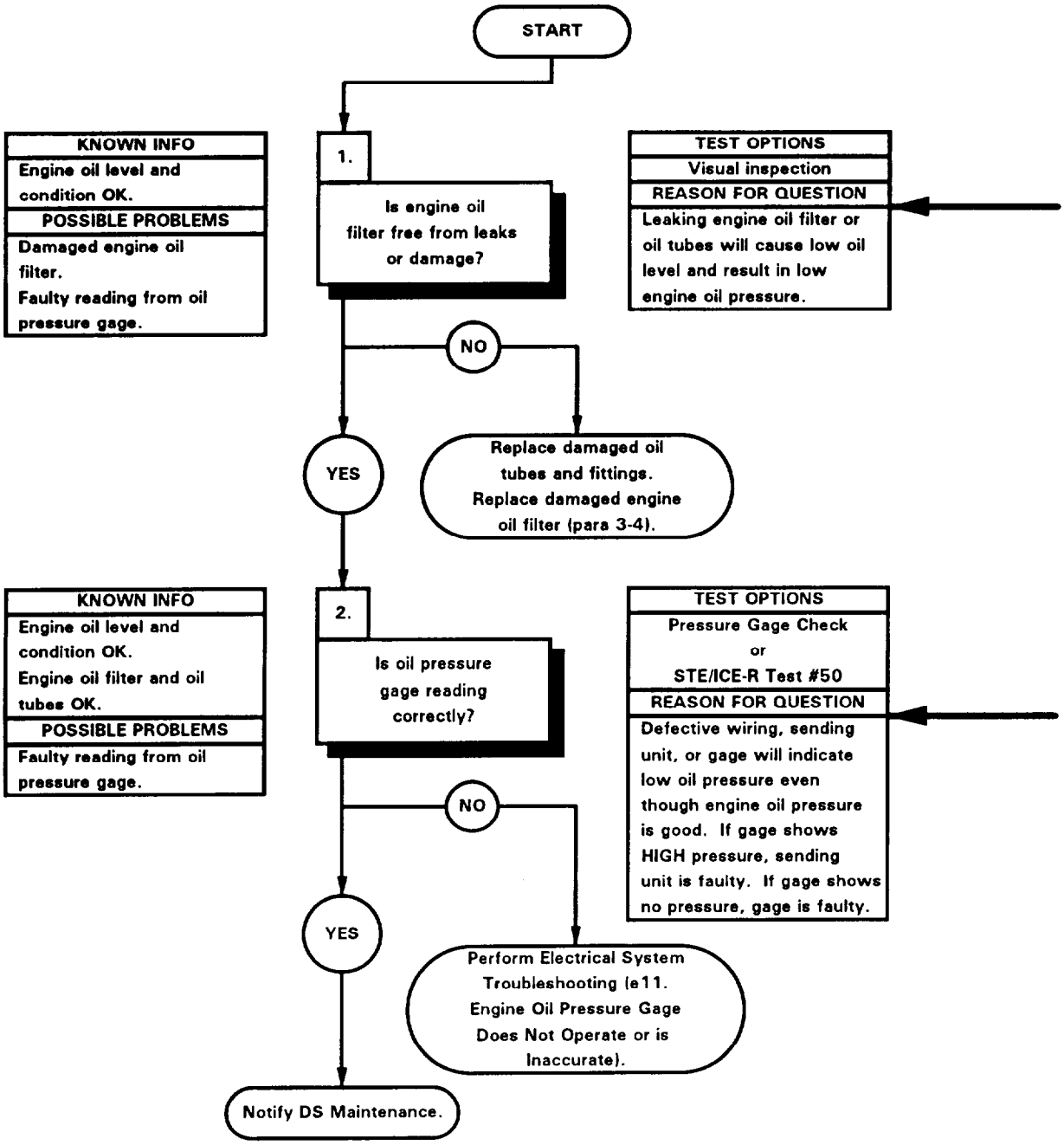
a3. LOW ENGINE OIL PRESSURE

INITIAL SETUP

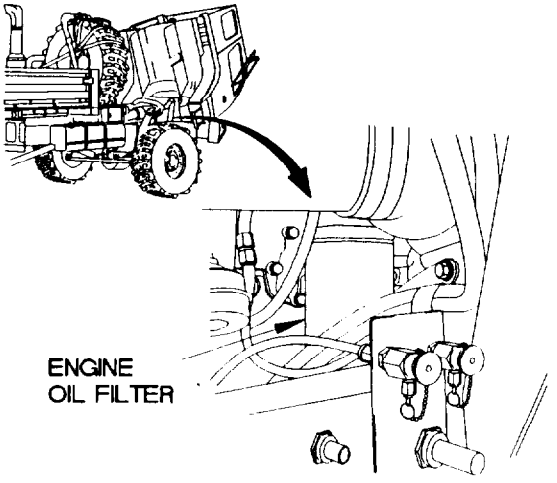
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)

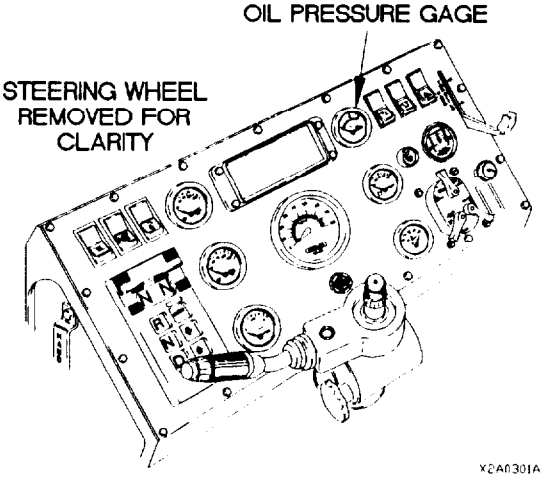
References
TM 9-4910-571-12&P



(1) Raise cab (TM 9-2320-366-10-1).
(2) Check engine oil filter for leaks and damage.
(3) If engine oil filter is not free from leaks and damage, replace engine oil filter (para 3-4).



PRESSURE GAGE CHECK
(1) Lower cab (TM 9-2320-366-10-1).
(2) Start engine (TM 9-2320-366-10-1).
(3) Perform STE/ICE-R test #50.
(4) Oil pressure gage should read 15 PSI (100 kPa) at 750 RPM and maximum at full load condition of 88 PSI (600 kPa).
(5) If oil pressure gage does not read correctly, perform Electrical System Troubleshooting (e11. Engine Oil Pressure Gage Does Not Operate or is Inaccurate.
(6) If oil pressure gage reads correctly, notify DS Maintenance.
(7) Shut down engine (TM 9-2320-366-10-1).



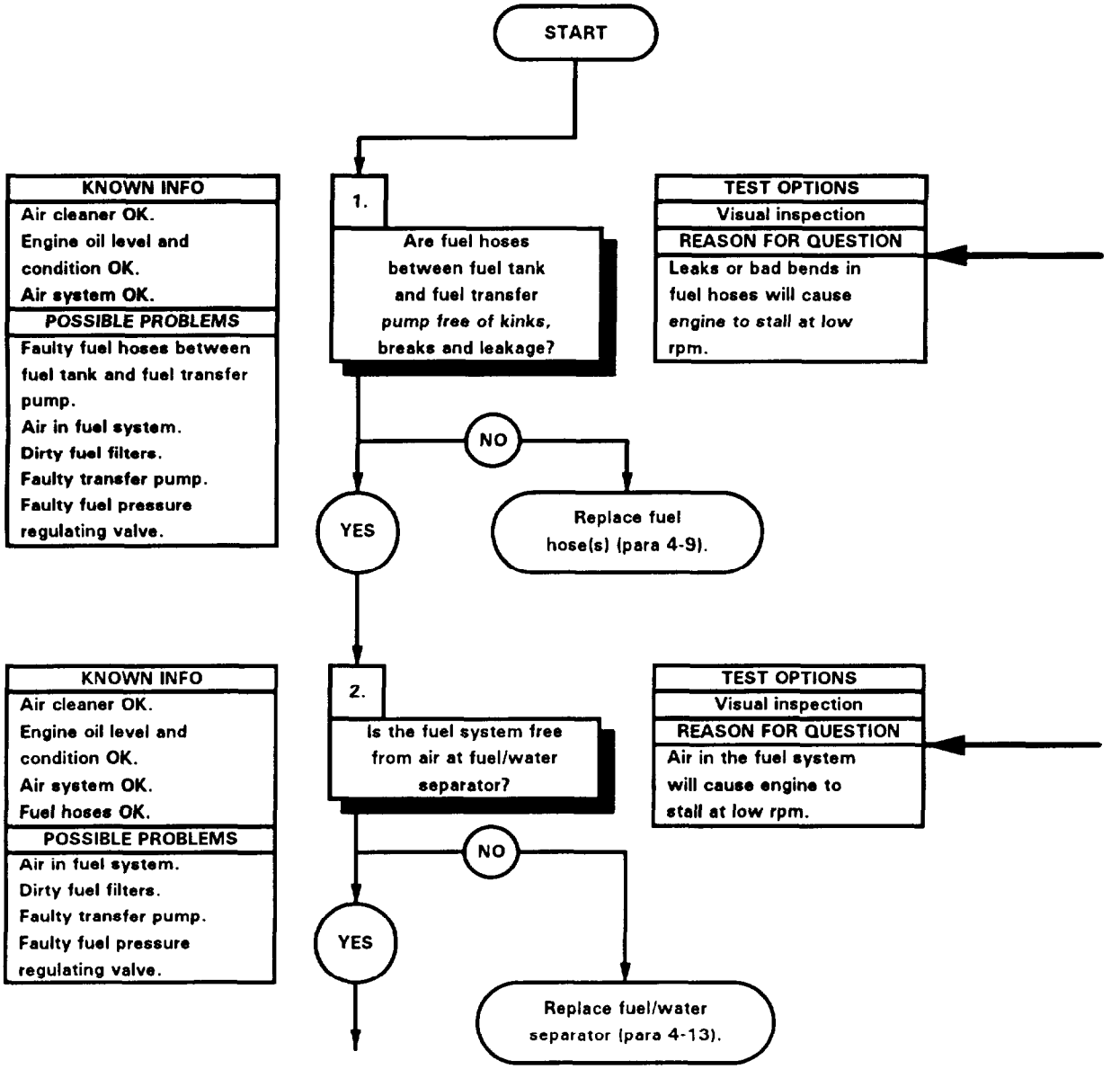
a4. ENGINE STALLS AT LOW RPM

INITIAL SETUP

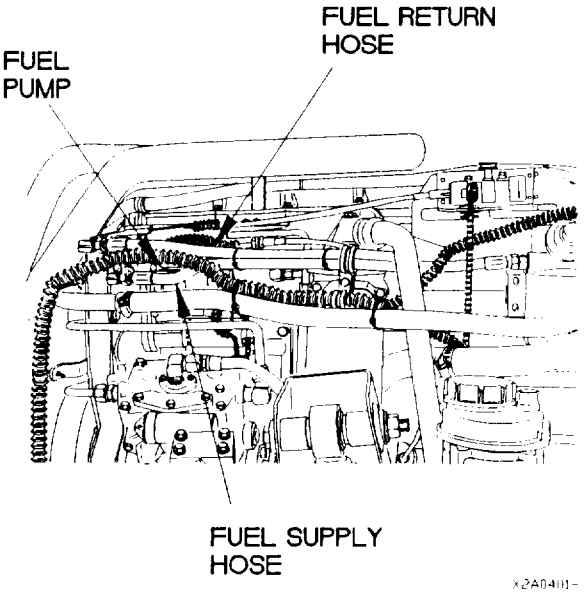
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)

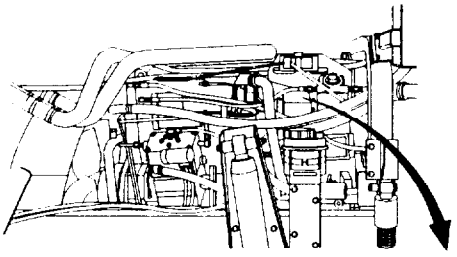
References
TM 9-4910-571-12&P

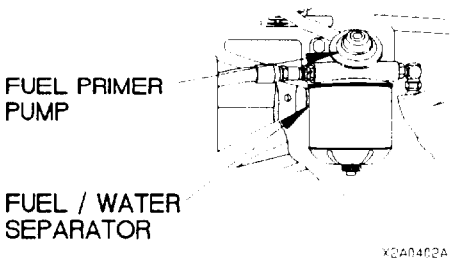


(1) Raise cab (TM 9-2320-366-10-1).
(2) Check fuel tank and fuel transfer pump hoses for kinks, looseness, and leakage.
(3) If fuel hoses are not free from kinks or leaks, replace fuel hose(s) (para 4-9).

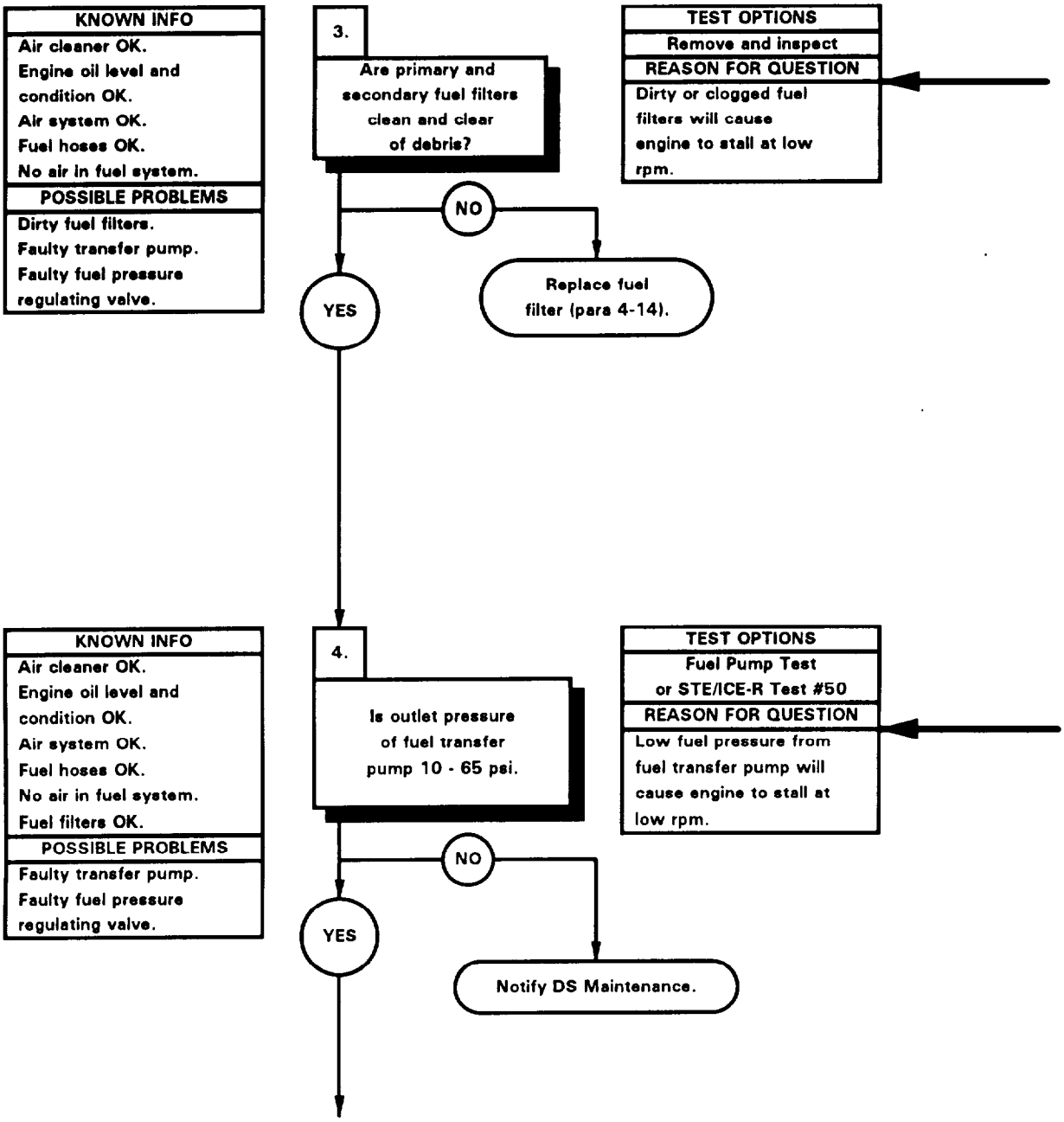


(1) Push in fuel primer pump on fuel/water separator.
(2) Pump fuel primer pump until resistance is felt to purge air from fuel system.
(3) If no resistance is felt, replace fuel/water separator (para 4-13).

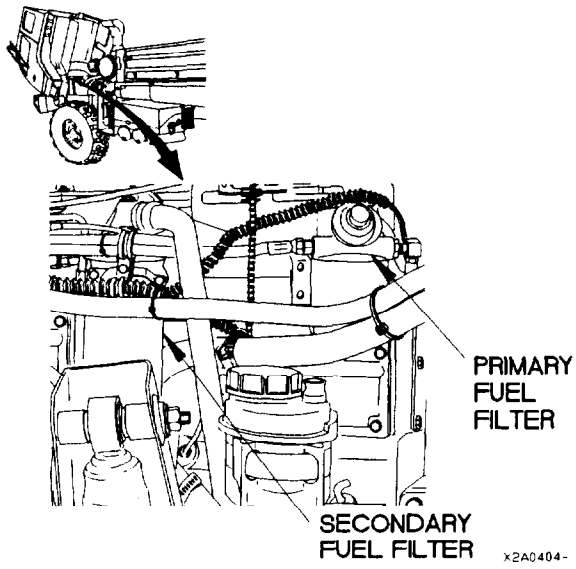




a4. ENGINE STALLS AT LOW RPM (CONT)

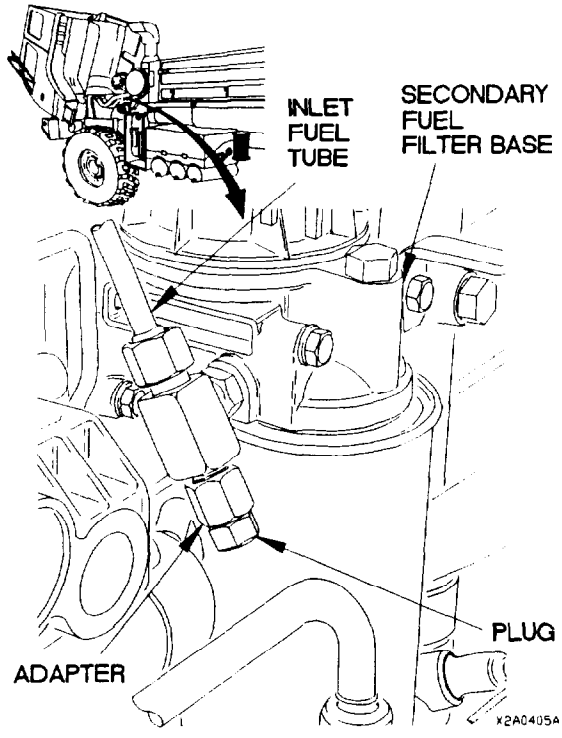


(1) Check primary and secondary fuel filters for dirt and contamination.
(2) Position drain pan under filter.
(3) Remove filter element from base.
(4) Inspect for clogs and debris.
(5) If filter is clogged, replace filter (para 4-14).

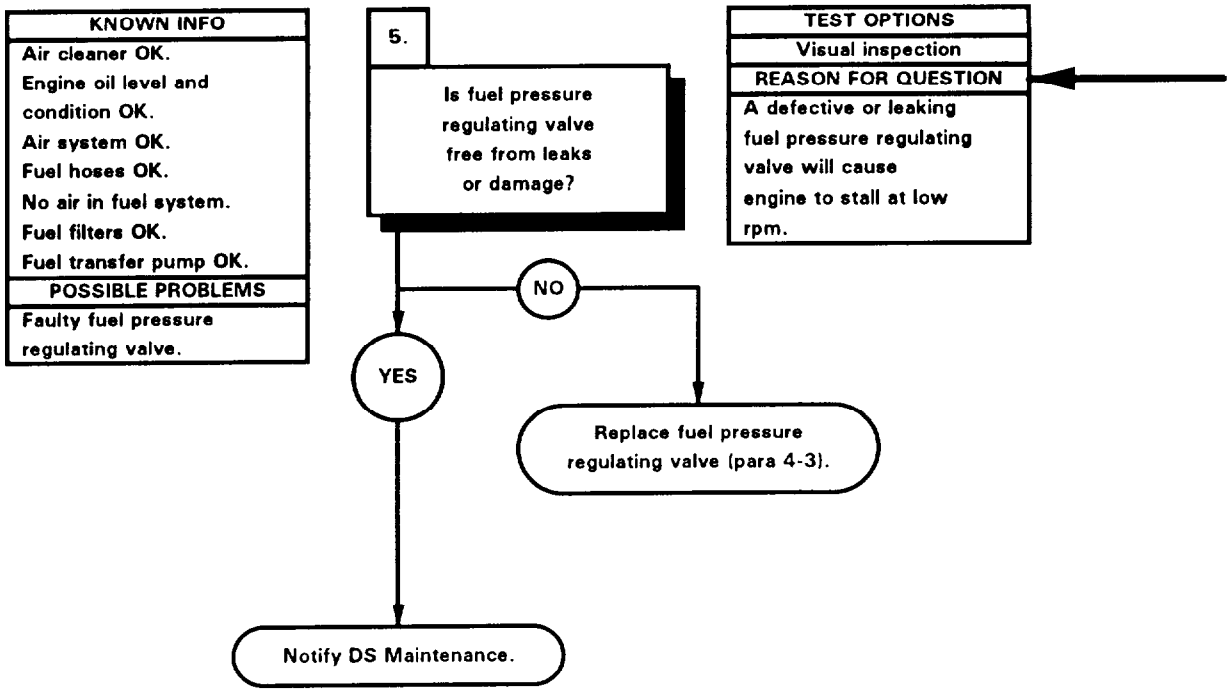


FUEL PUMP TEST

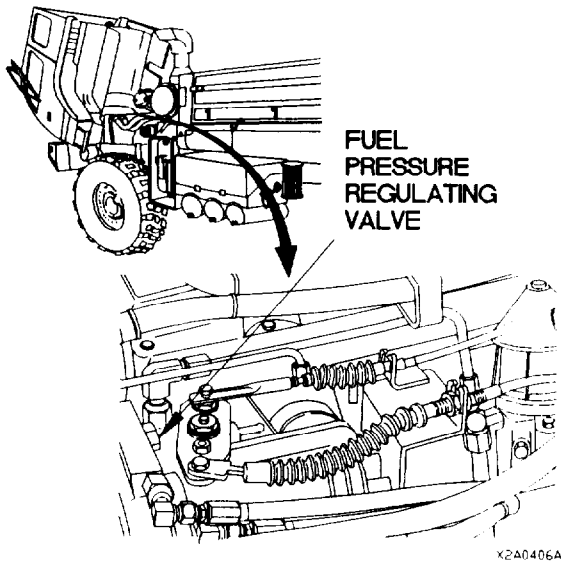
(1) Remove inlet fuel tube from secondary fuel filter base.
(2) Position drain pan under inlet fuel tube.
(3) Attempt to start engine (TM 9-2320-366-10-1).
(4) Check for fuel flow from inlet fuel tube while attempting to start engine.
(5) If fuel does not flow from inlet fuel tube, notify DS Maintenance.
(6) Install inlet fuel tube on secondary fuel filter base.



a4. ENGINE STALLS AT LOW RPM (CONT)



(1) Check fuel pressure regulating valve for leaks or damage.
(2) If fuel pressure regulating valve is damaged, replace fuel pressure regulating valve (para 4-3).
(3) If fuel pressure regulating valve is free from leaks and damage, notify DS Maintenance.
(4) Lower cab (TM 9-2320-366-10-1).

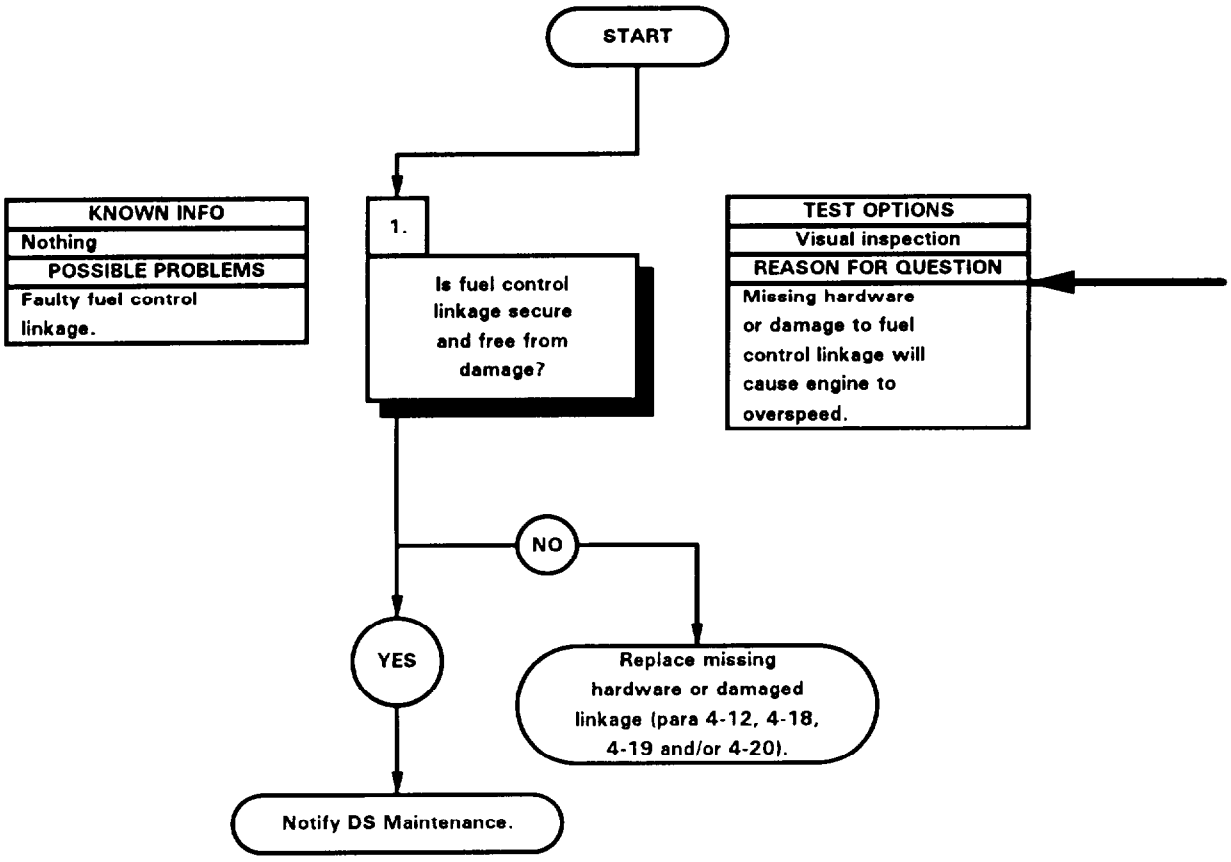


a5. ENGINE OVERSPEEDS ON START

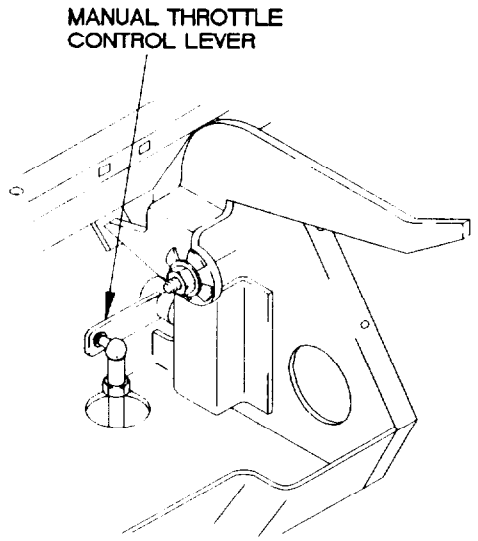
INITIAL SETUP

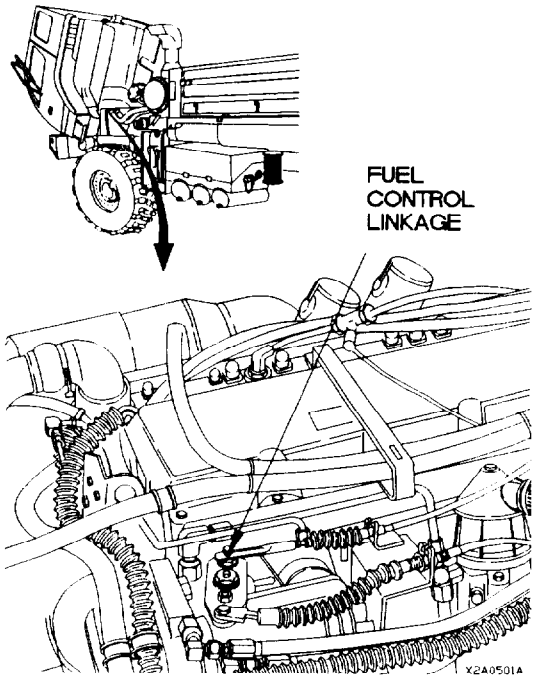
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

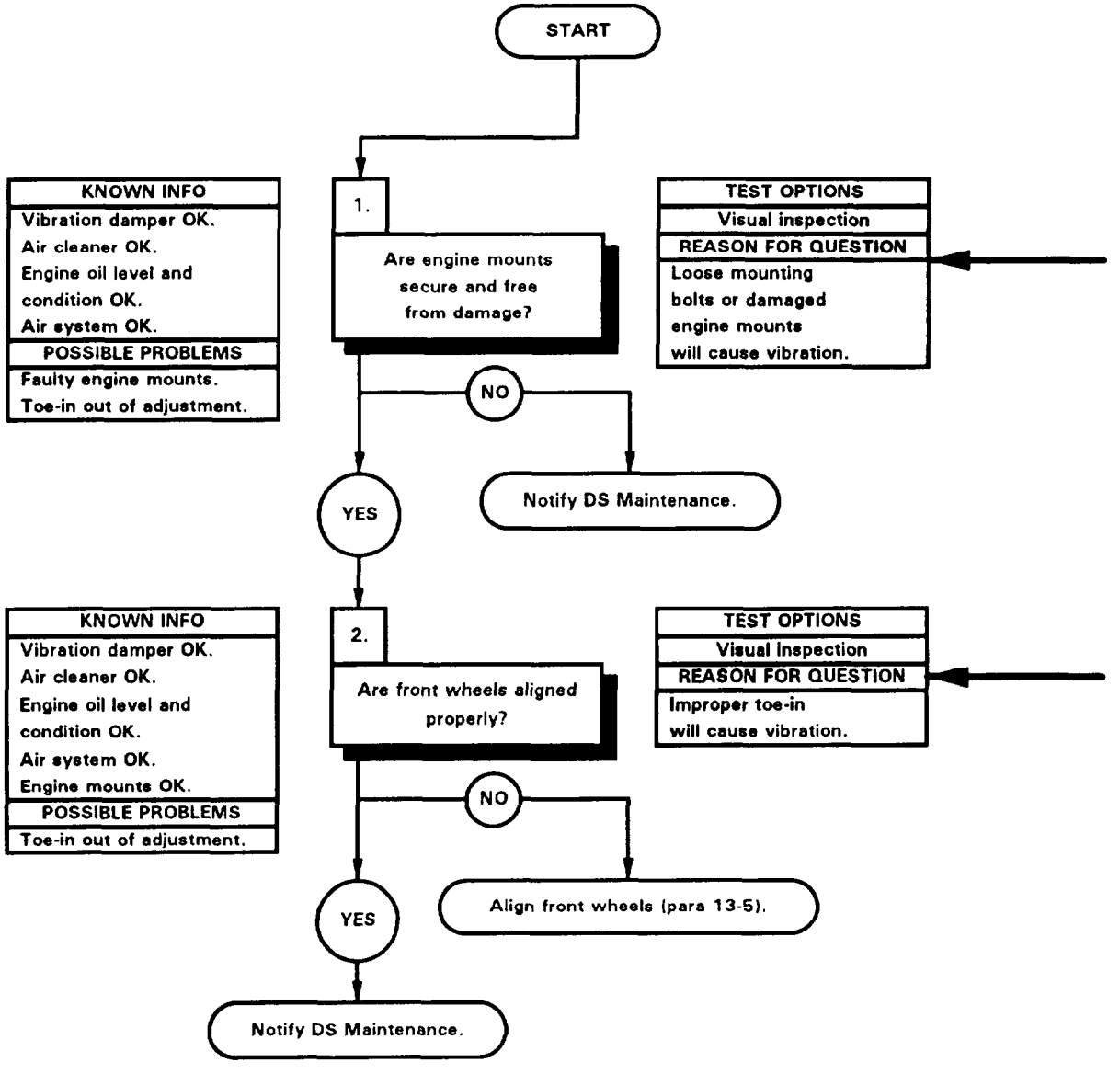


(1) Remove instrument panel assembly (para 7-15).
(2) Check fuel control linkage for improper assembly, missing hardware, and damaged parts.
(3) Install instrument panel assembly (para 7-15).
(4) Raise cab (TM 9-2320-366-10-1).
(5) Check fuel control linkage for improper assembly, missing hardware, and damaged parts.
(6) Lower cab (TM 9-2320-366-10-1).

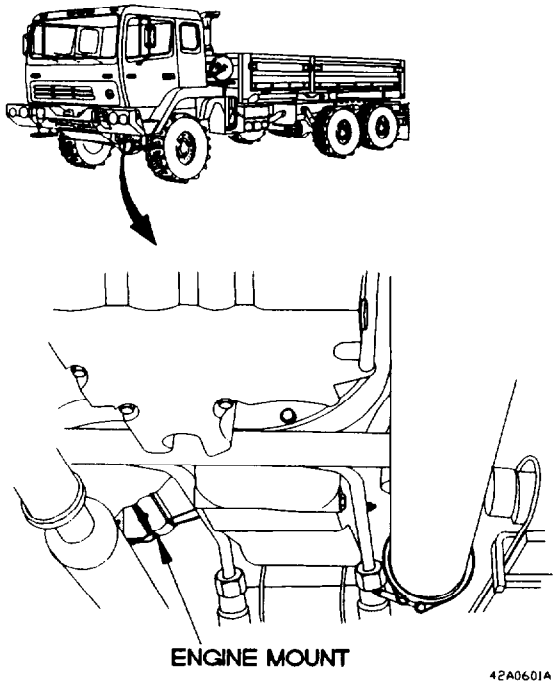




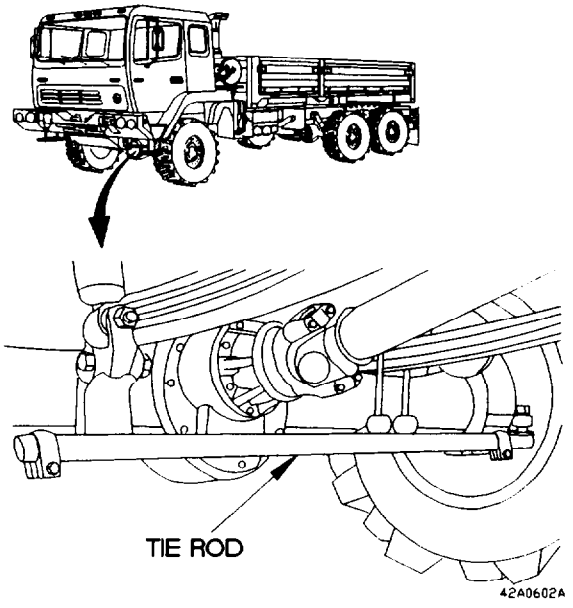
a6. TOO MUCH ENGINE VIBRATION	
INITIAL SETUP	
Equipment Conditions	**Tools and Special Tools**
Engine shut down (TM 9-2320-366-10-1).	Tool Kit, Genl Mech (Item 46, Appendix C)



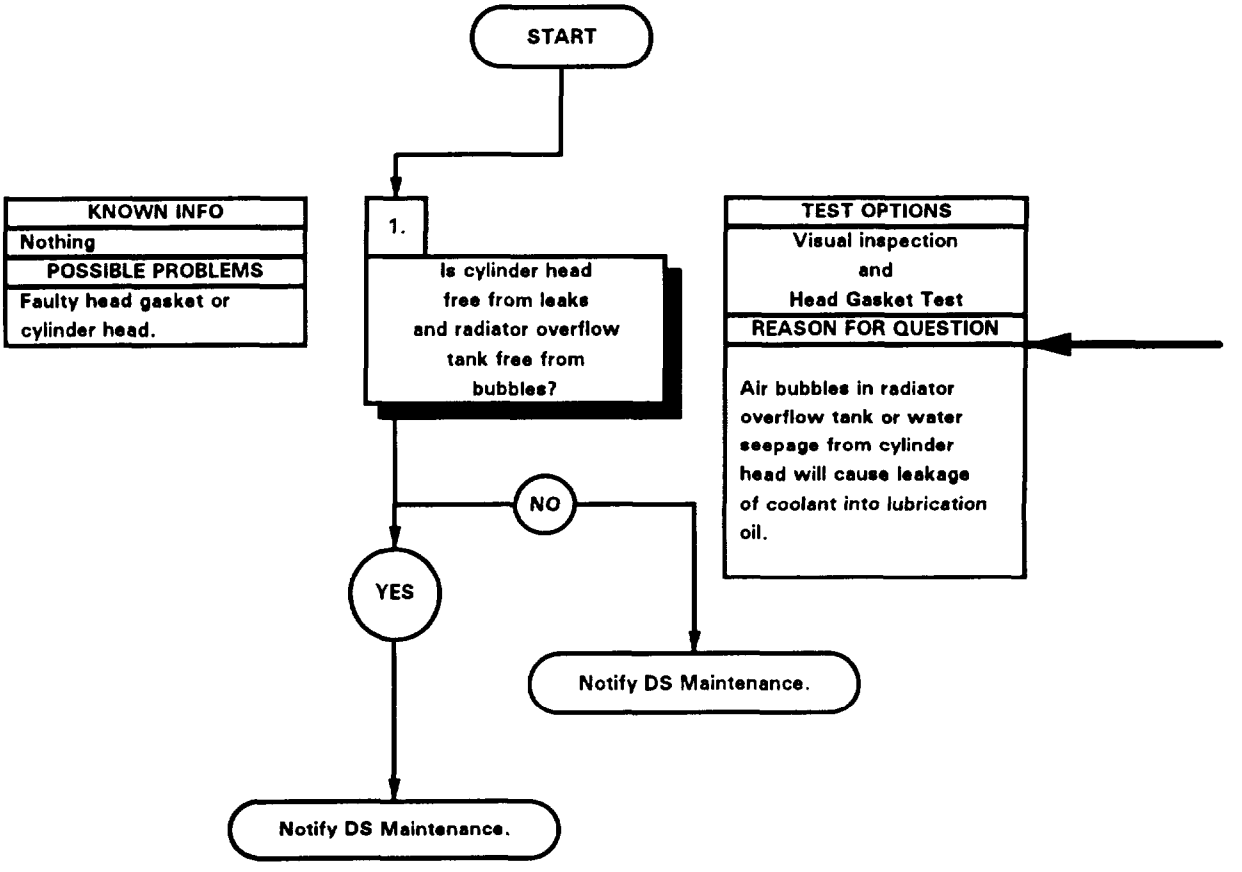
(1) Check engine mounts for loose mounting hardware and damage.
(2) If engine mounts are damaged or mounting hardware is loose, notify DS Maintenance.



(1) Check tires for uneven tire wear.
(2) If uneven tire wear is found, align front wheels (para 13-5).
(3) If front tires do not have uneven wear, notify DS Maintenance.

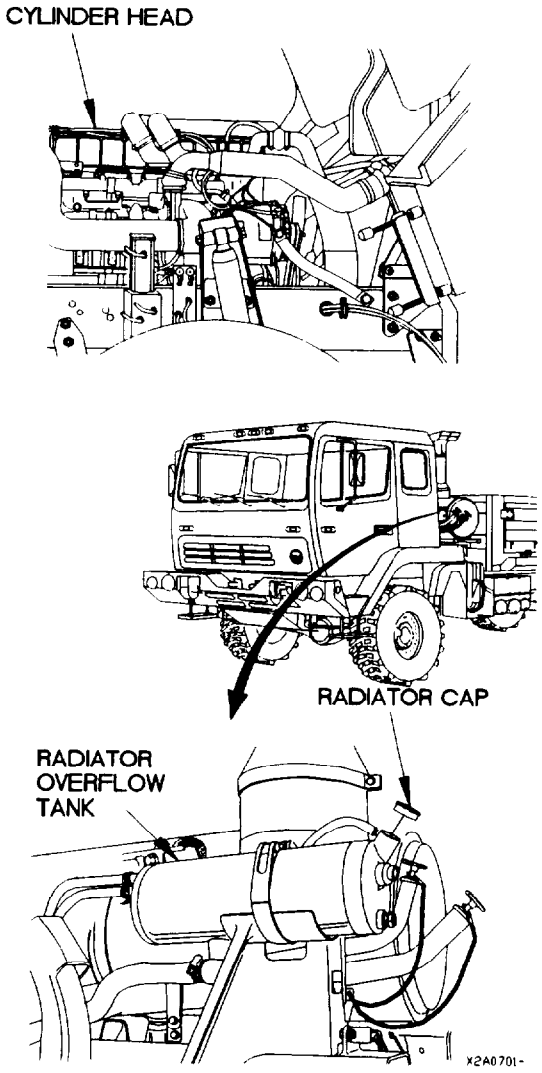


a7. COOLANT IN ENGINE LUBRICATION OIL	
INITIAL SETUP	
Equipment Conditions Engine shut down (TM 9-2320-366-10-1).	**Tools and Special Tools** Tool Kit, Genl Mech (Item 46, Appendix C)

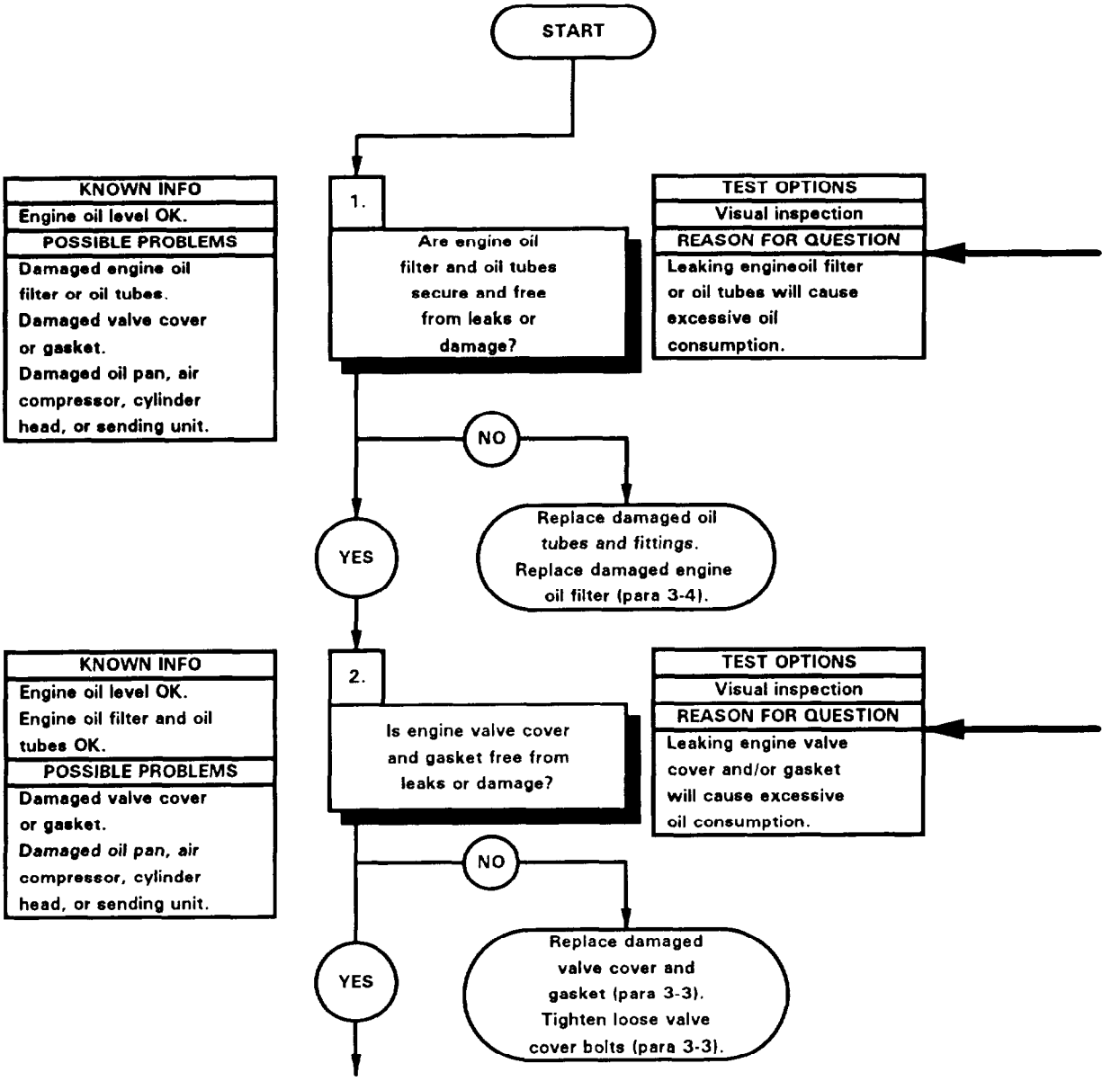


(1) Raise cab (TM 9-2320-366-10-1).
(2) Check sides of engine block at cylinder head for obvious signs of water leakage.
(3) Lower cab (TM 9-2320-366-10-1).

HEAD GASKET TEST
(1) Remove radiator cap.
(2) Start engine (TM 9-2320-366-10-1).
NOTE Air bubbles in the coolant are a sign of probable leakage at the head gasket.
(3) Look for air bubbles in coolant.
(4) Install radiator cap.
(5) Shut down engine (TM 9-2320-366-10-1).



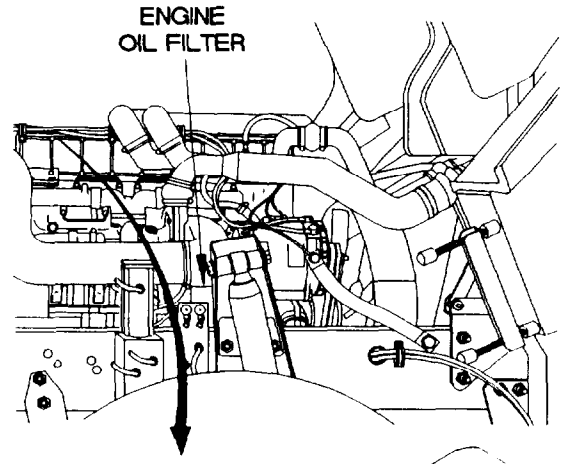
a8. EXCESSIVE ENGINE OIL CONSUMPTION	
INITIAL SETUP	
Equipment Conditions Engine shut down (TM 9-2320-366-10-1).	Tools and Special Tools Tool Kit, Genl Mech (Item 46, Appendix C)



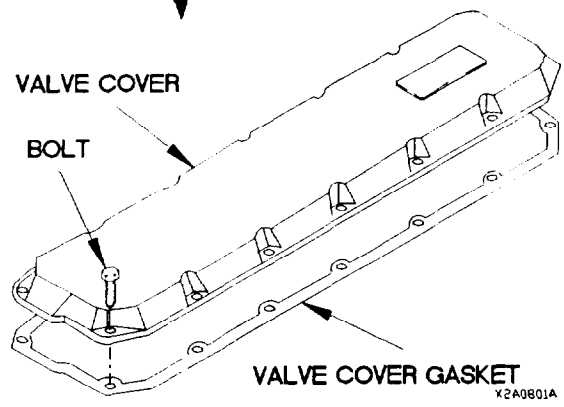
NOTE

Oil consumption is considered normal up to 12,000 mi (19,308 km) at a rate of one qt (one L) of oil per 45 gal (170 L) of fuel. After 12,000 mi (19,308 km), oil consumption is considered normal at a rate of one qt (one L) of oil per 60 gal (227 L) of fuel.

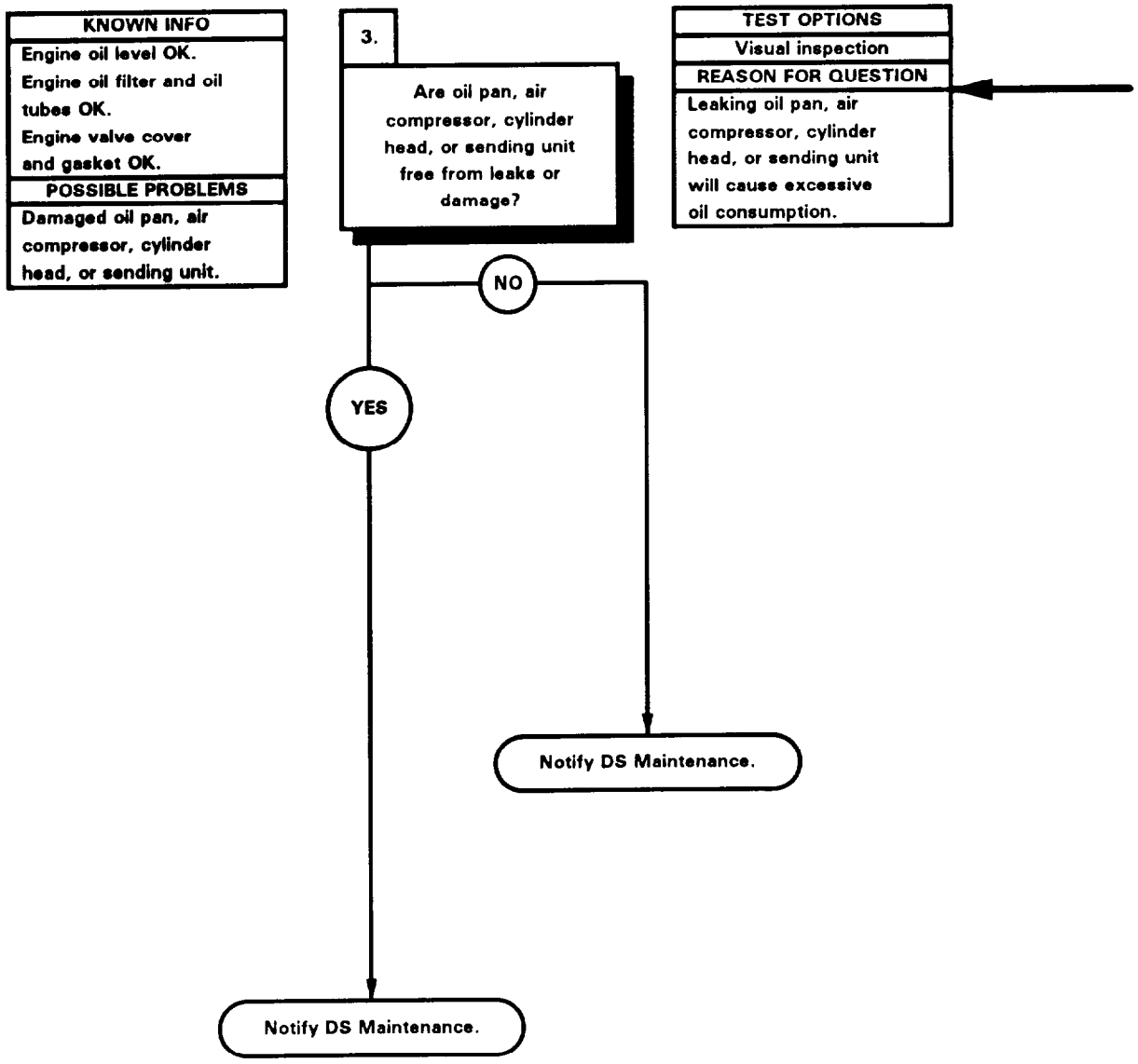
(1) Raise cab (TM 9-2320-366-10-1).
(2) Check engine oil filter and oil tubes for leakage or damage.
(3) If engine oil filter is damaged, replace engine oil filter (para 3-4).



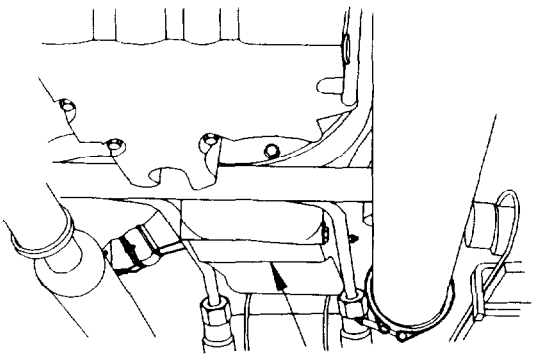
(1) Check engine valve cover and gasket for leaks and damage.
(2) If engine valve cover or gasket leaks, tighten loose valve cover bolts (para 3-3).
(3) If engine valve cover or gasket is damaged, replace valve cover and gasket (para 3-3).



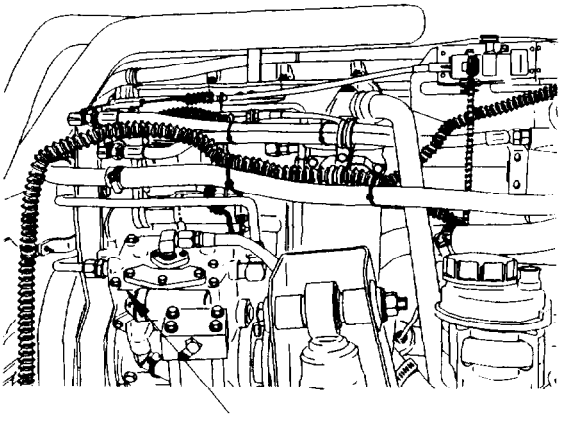
a8. EXCESSIVE ENGINE OIL CONSUMPTION (CONT)



(1) Check oil pan, air compressor, cylinder head, and sending unit for leakage or damage.
(2) If oil pan, air compressor, cylinder head, or sending unit is leaking or damaged, notify DS Maintenance.
(3) If oil pan, air compressor, cylinder head and sending unit are free from leaks and damage, notify DS Maintenance.
(4) Lower cab (TM 9-2320-366-10-1).



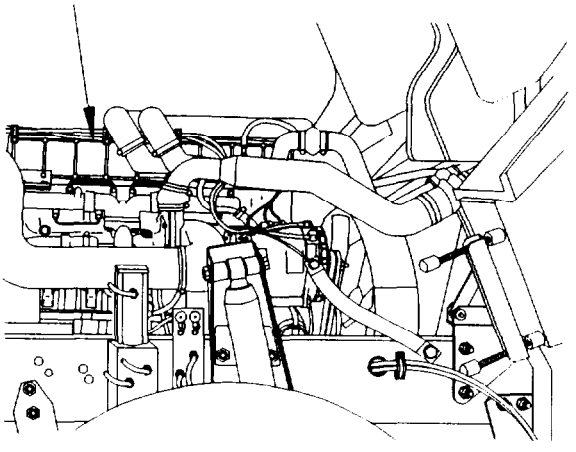
OIL PAN



AIR COMPRESSOR

X2A0803-

CYLINDER HEAD



X2A0801-

a9. ENGINE OVERHEATS

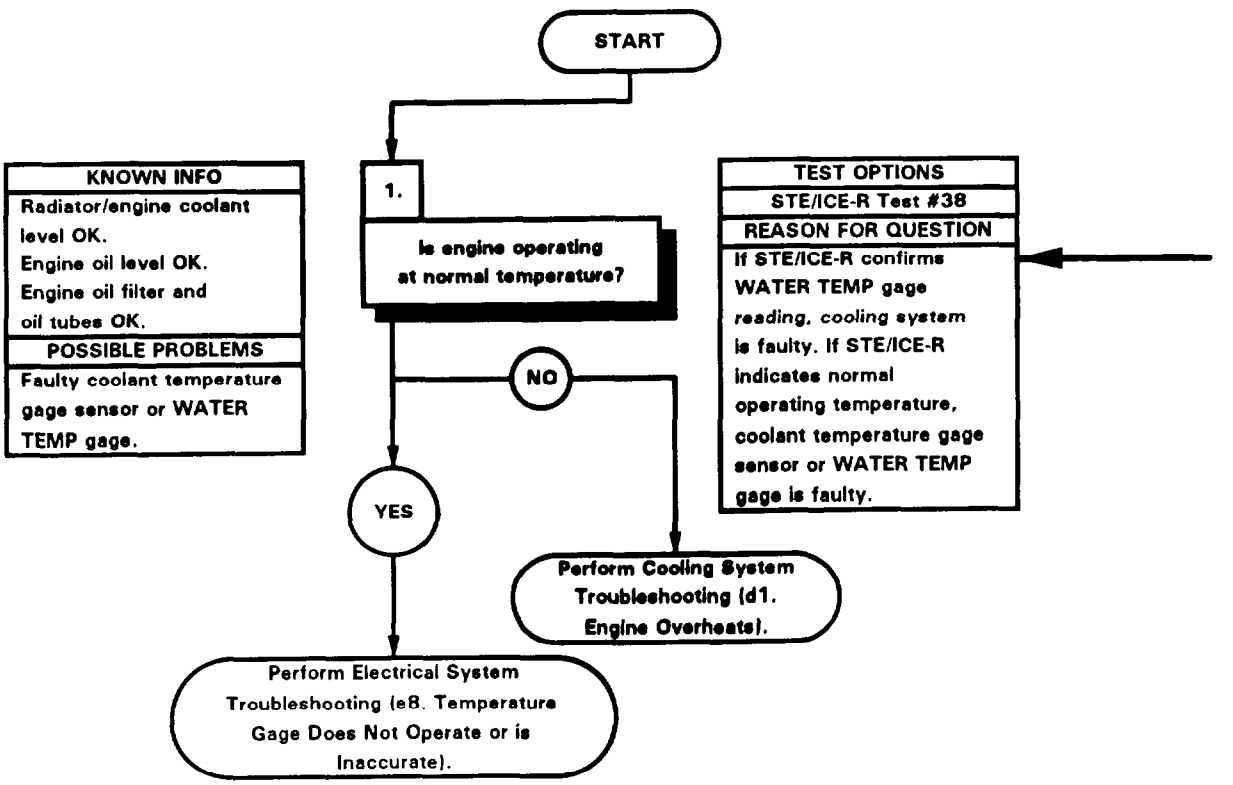
INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)

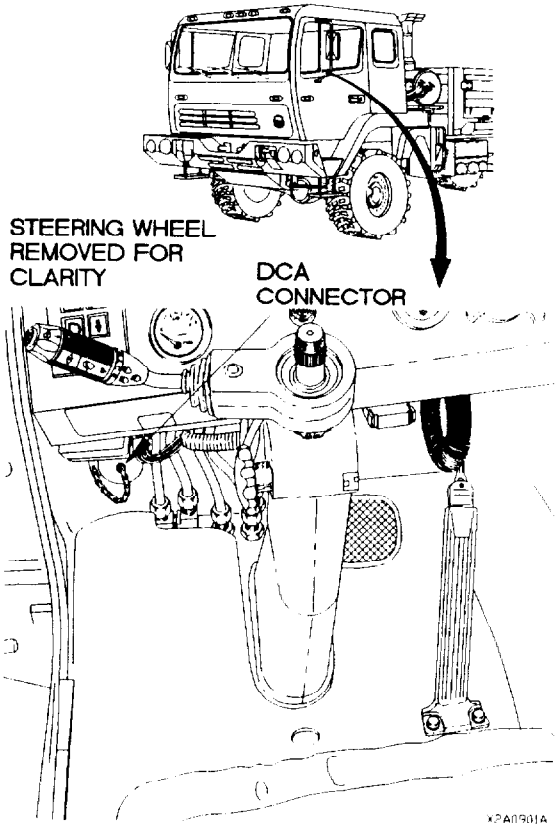
References
TM 9-4910-571-12&P



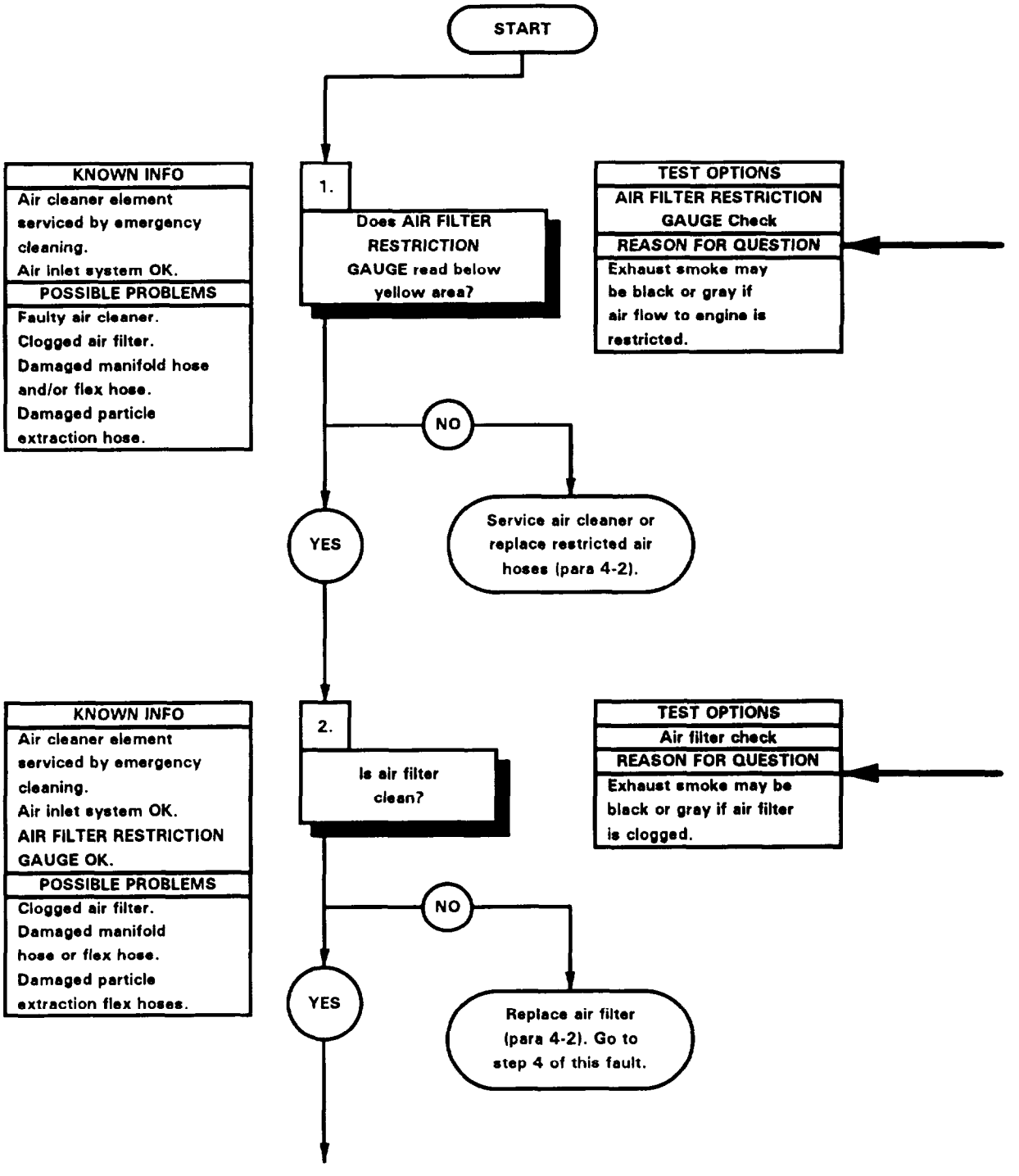
NOTE

STE/ICE-R Test #38 measures engine coolant temperature.

STE/ICE-R TEST #38
(1) Hook up STE/ICE-R to DCA.
(2) Press and hold the TEST button on the STE/ICE-R until -45 to +45 appears in the display. This will ensure that the test results are accurate.
(3) Start engine (TM 9-2320-366-10-1) and raise engine idle until engine is at normal operating temperature, 180-205°F (82-96°C).
(4) Coolant temperature should read between 160-210°F (71-99°C).
(5) Record test results.
(6) If coolant temperature is not 160-210°F (71-99°C), perform Cooling System Troubleshooting (d1. Engine Overheats).
(7) If coolant temperature is 160-210°F (71-99°C), perform Electrical System Troubleshooting (e8. Temperature Gage Does Not Operate or is Inaccurate).
(8) Shut down engine (TM 9-2320-366-10-1).
(9) Remove STE/ICE-R from DCA.

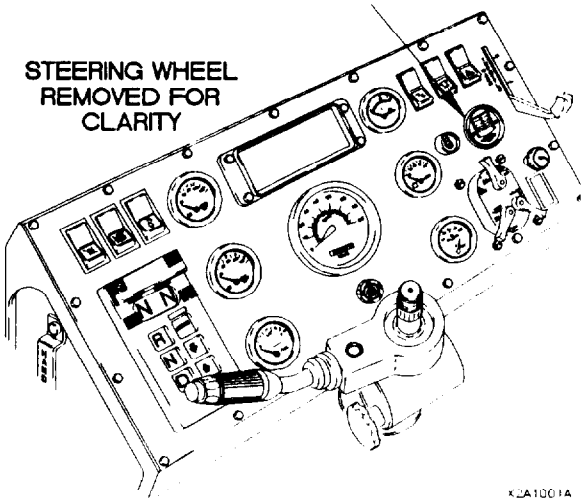


a10. EXCESSIVE BLACK OR GRAY EXHAUST SMOKE	
INITIAL SETUP	
Equipment Conditions Engine shut down (TM 9-2320-366-10-1).	Tools and Special Tools Tool Kit, Genl Mech (Item 46, Appendix C)



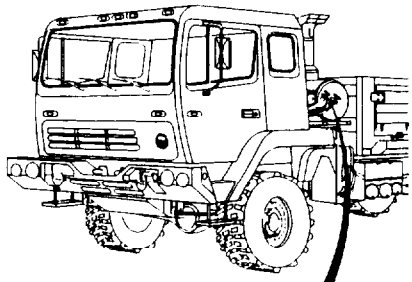
AIR FILTER RESTRICTION GAUGE

STEERING WHEEL REMOVED FOR CLARITY

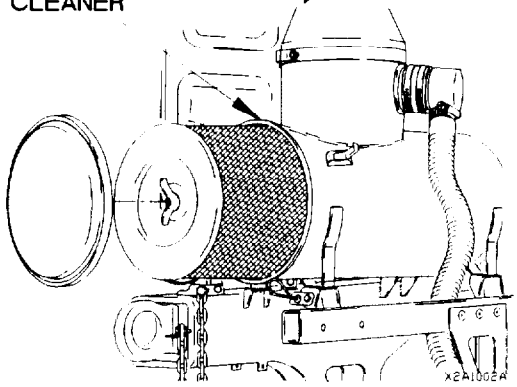


AIR FILTER RESTRICTION GAUGE CHECK

(1) Check reading on AIR FILTER RESTRICTION GAUGE.
(2) Press RESET button on AIR FILTER RESTRICTION GAUGE if reading is between 15 and 20 (in yellow area) or above 20 (in red area).
(3) Start engine (TM 9-2320-366-10-1) and check AIR FILTER RESTRICTION GAUGE again.
(4) Shut down engine (TM 9-2320-366-10-1).



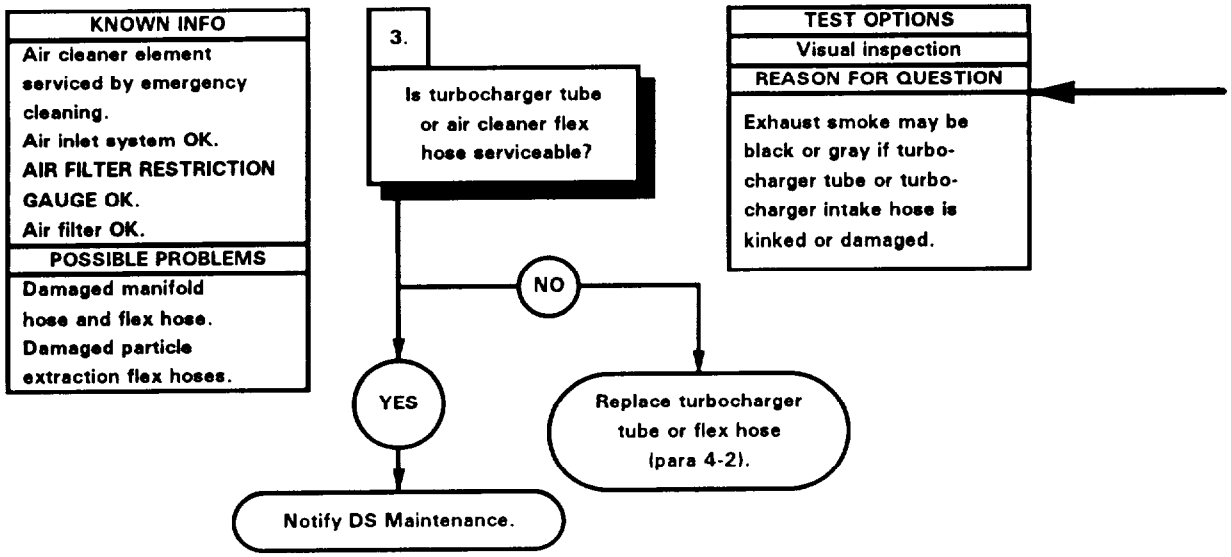
INTAKE AIR CLEANER

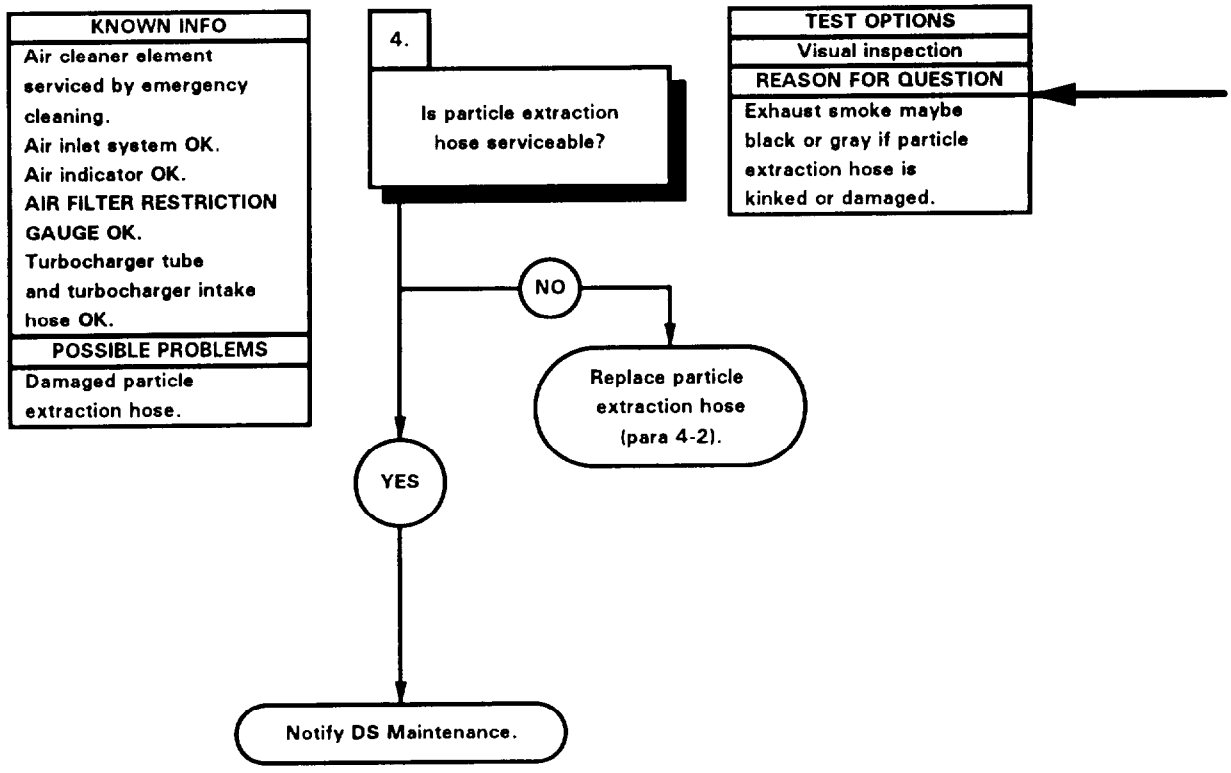


AIR FILTER CHECK

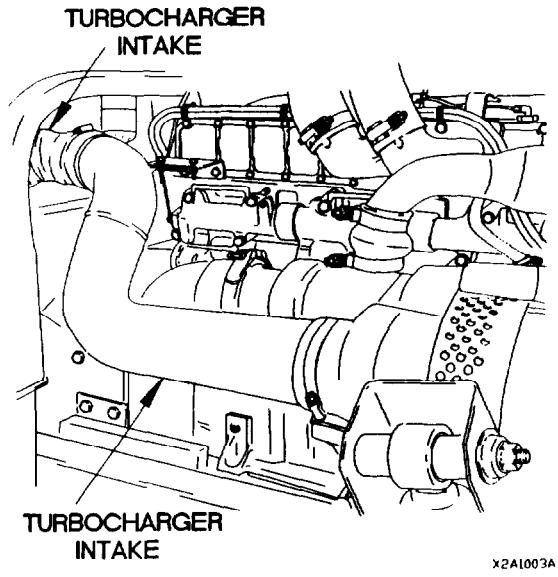
(1) Release three spring latches on intake air cleaner cover.
(2) Remove intake air cleaner cover.
(3) Remove air filter. Replace air filter if clogged (para 4-2).
(4) Install air filter.
(5) Install intake air cleaner cover.
(6) Install three spring latches on intake air cleaner cover.

a10. EXCESSIVE BLACK OR GRAY EXHAUST SMOKE (CONT)

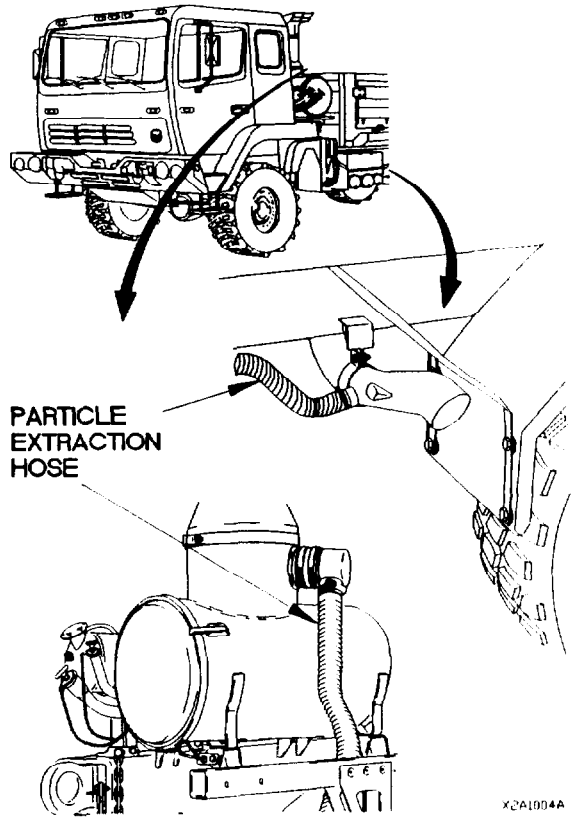




(1) Raise cab (TM 9-2320-366-10-1).
(2) Check turbocharger tube and turbocharger hose for kinks and damage.
(3) If turbocharger tube or turbocharger hose is damaged, replace turbocharger tube or turbocharger hose (para 4-2).
(4) If turbocharger tube and turbocharger hose are free from kinks and damage, notify DS Maintenance.
(5) Lower cab (TM 9-2320-366-10-1).



(1) Check particle extraction hose for kinks and damage.
(2) If particle extraction hose is damaged, replace particle extraction hose (para 4-2).
(3) If particle extraction hose is OK, notify DS Maintenance.

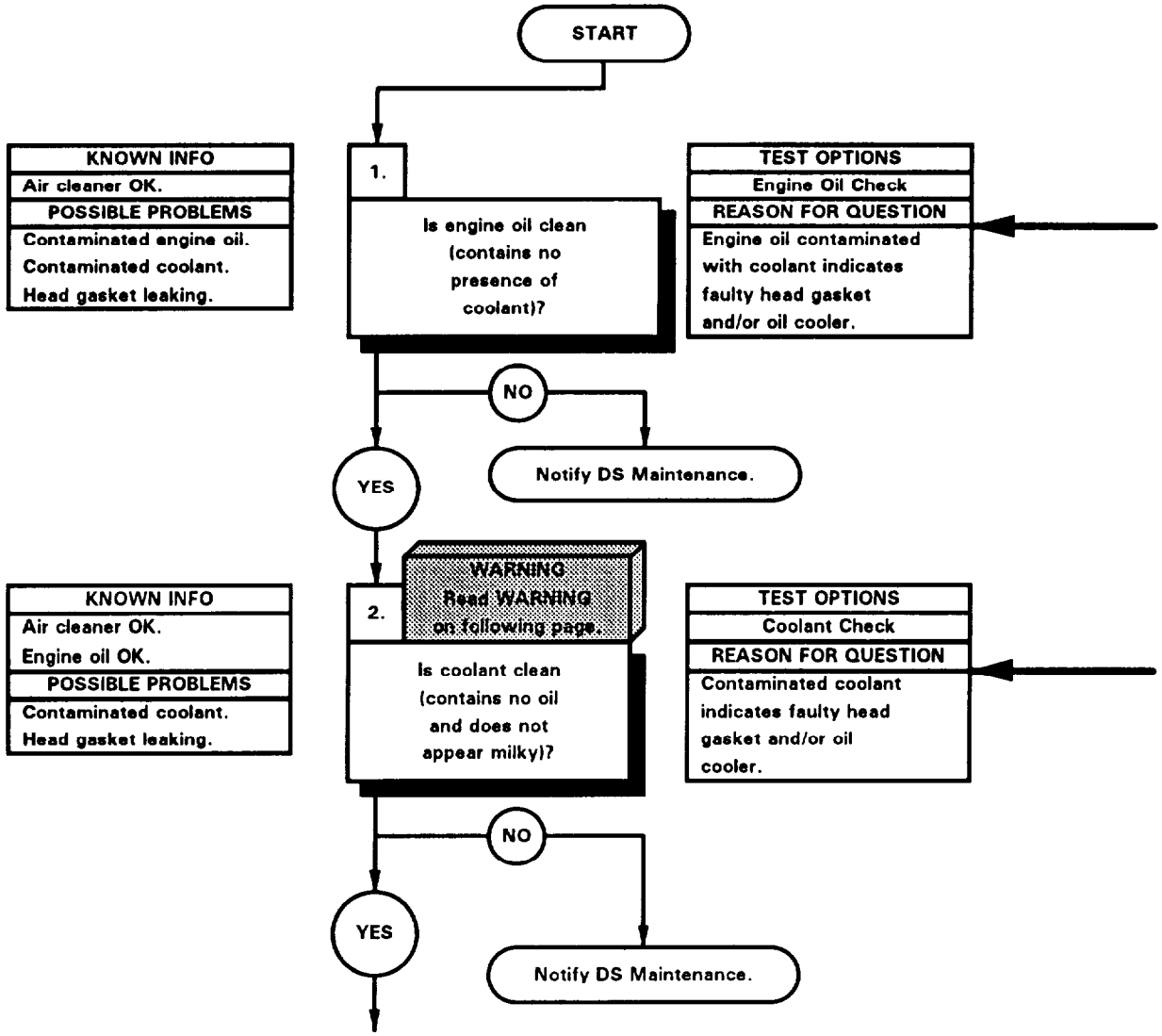


a11. WHITE EXHAUST SMOKE

INITIAL SETUP

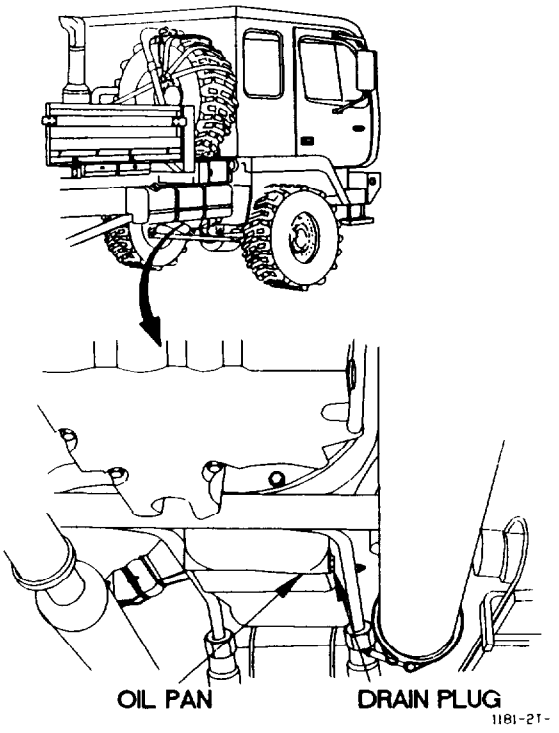
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Container (Capacity 40 qt (38L))
Goggles, Industrial (Item 15, Appendix C)



ENGINE OIL CHECK

(1) Position container under engine oil pan.
(2) Remove drain plug from engine oil pan and drain engine oil.
(3) Observe condition of engine oil.
(4) If engine oil is not clean, notify DS Maintenance.
(5) Install drain plug in engine oil pan.
(6) Refill engine with oil (Appendix H).

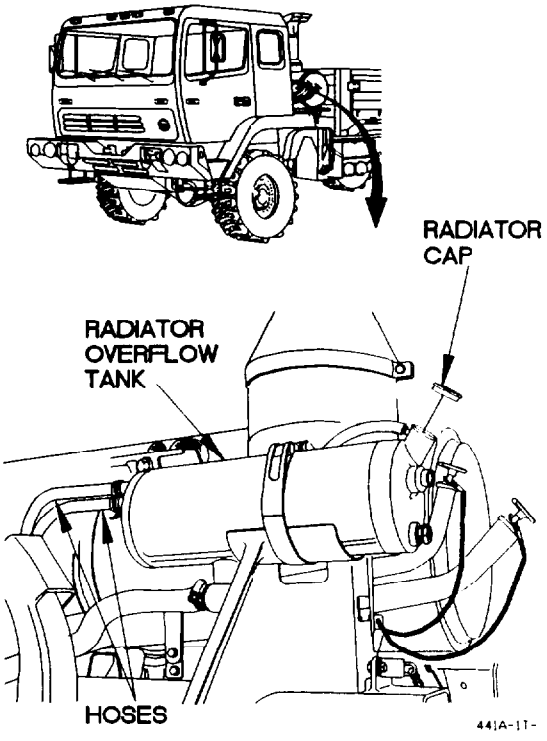


COOLANT CHECK

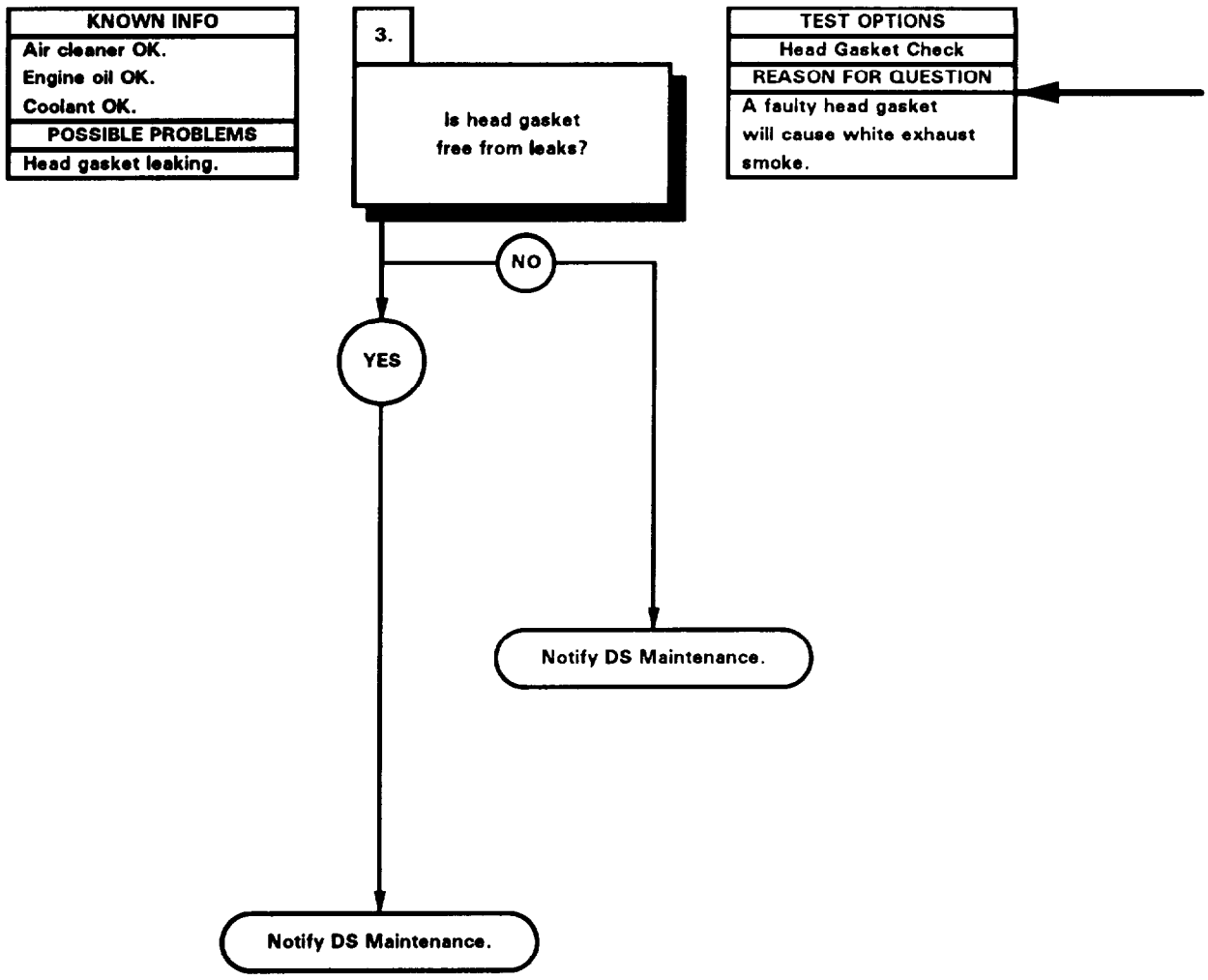
WARNING

Do not remove radiator cap when engine is warm. Coolant may be very hot and under pressure. Failure to comply may result in injury to personnel.

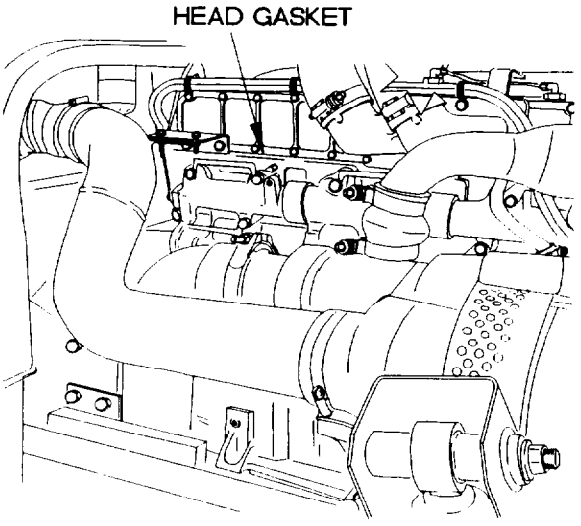
(1) Remove radiator cap from radiator overflow tank.
(2) Observe condition of coolant inside radiator overflow tank.
(3) If coolant is not clean, notify DS Maintenance.
(4) Install radiator cap on radiator overflow tank.



a11. WHITE EXHAUST SMOKE (CONT)



HEAD GASKET CHECK
(1) Start engine (TM 9-2320-366-10-1).
(2) Raise cab (TM 9-2320-366-10-1).
(3) Check head gasket for leak.
(4) If head gasket is leaking, notify DS Maintenance.
(5) If head gasket is not leaking and white exhaust smoke still exists, notify DS Maintenance.
(6) Lower cab (TM 9-2320-366-10-1).
(7) Shut down engine (TM 9-2320-366-10-1).



Y2A1105-

2-13. FUEL SYSTEM TROUBLESHOOTING

This paragraph covers Fuel System Troubleshooting. The Fuel System Fault Index, Table 2-4, lists faults for the fuel system of the vehicle.

Table 2-4. Feel System Fault Index

Fault No.	Description	Page
b1.	Engine cranks but does not start or engine stalls after starting	2-110
b2.	Ether starting aid does not operate	2-116
b3.	Fuel consumption too high	2-120
b4.	Accelerator pedal sticks	2-122

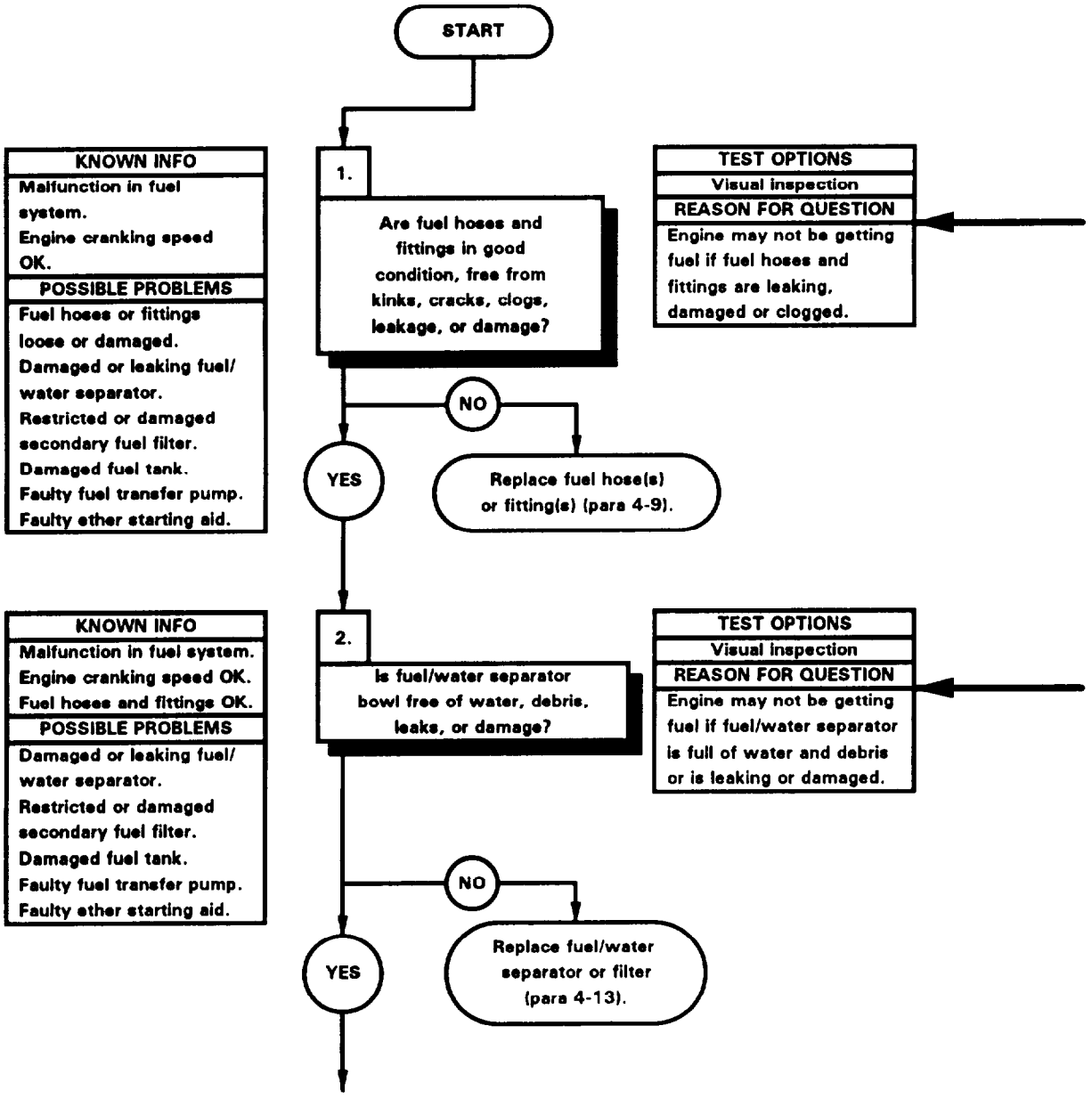
b1. ENGINE CRANKS BUT DOES NOT START OR ENGINE STALLS AFTER STARTING

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Cab raised (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Pan, Drain (Item 24, Appendix C)

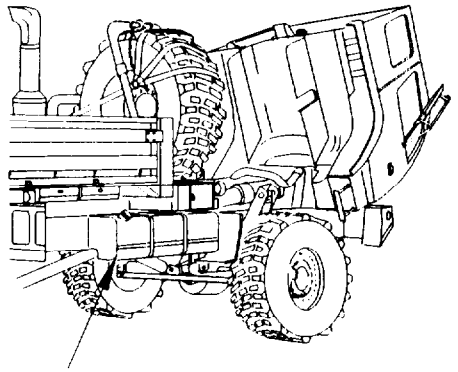
References
TM 9-4910-571-12&P



NOTE

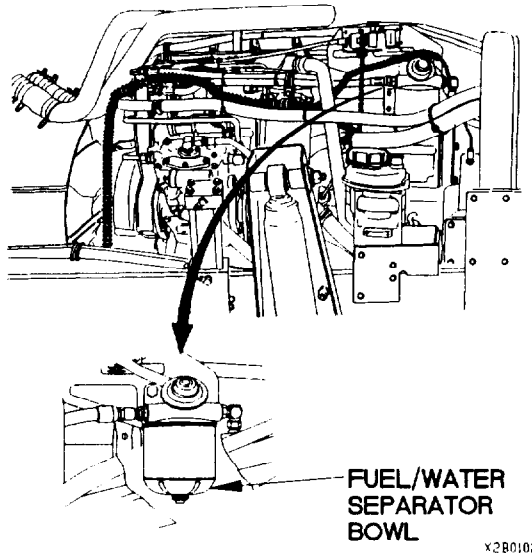
- **Perform Engine Troubleshooting (a2. Engine Cranks But Does Not Start) before starting here.**
- **Fuel tank hoses and fittings may be loose, allowing air to be drawn into fuel system.**

(1) Check fuel tank hoses and fittings for leakage, damage or clogs.
(2) If fuel tank hoses and/or fittings are damaged, replace fuel hose(s) or fitting(s) (para 4-9).



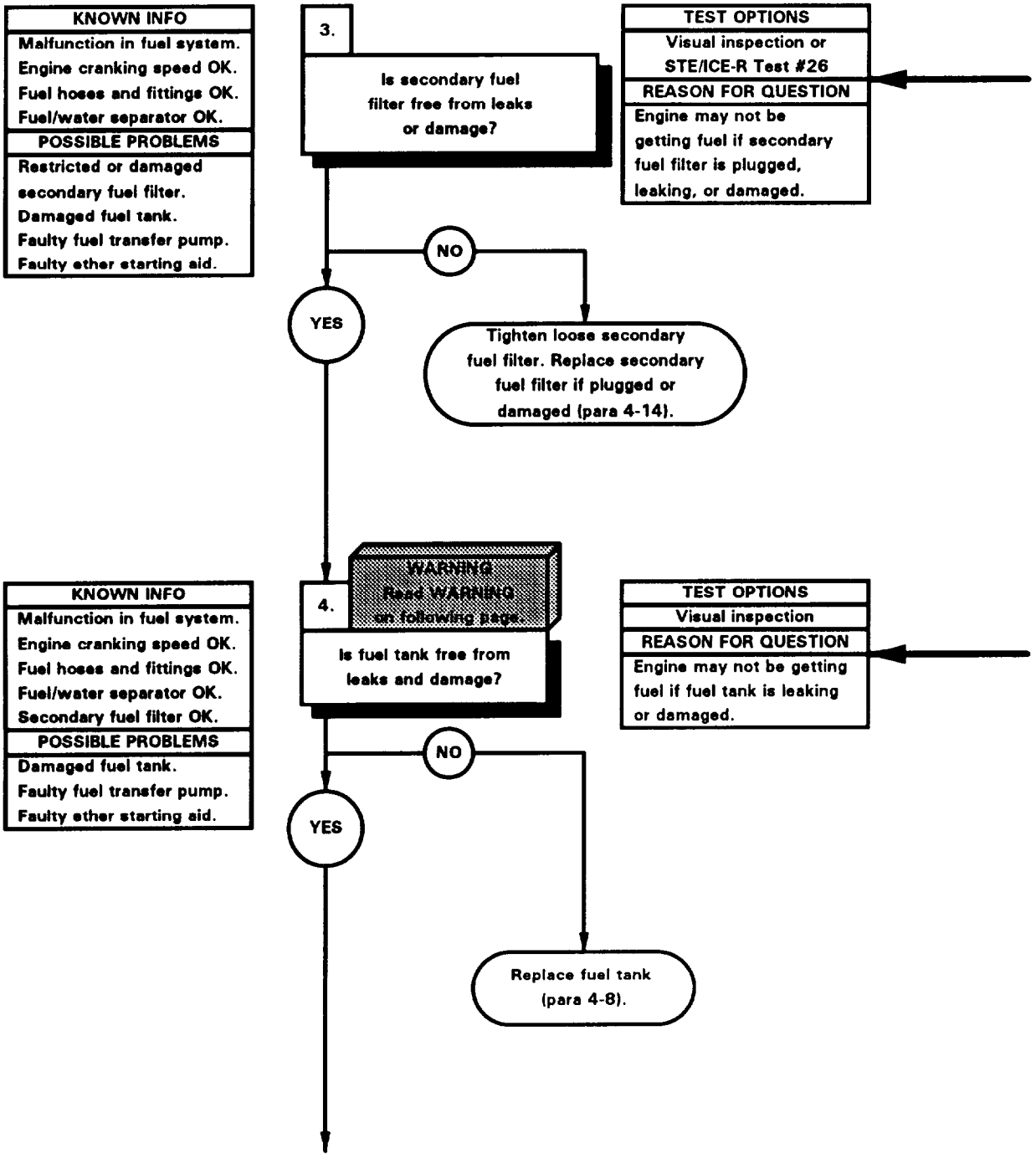
X280104A

(1) Check fuel/water separator bowl for water, debris, leaks or damage.
(2) If fuel/water separator bowl is damaged, replace fuel/water separator (para 4-13).



X280102A

b1. ENGINE CRANKS BUT DOES NOT START OR ENGINE STALLS AFTER STARTING (CONT)

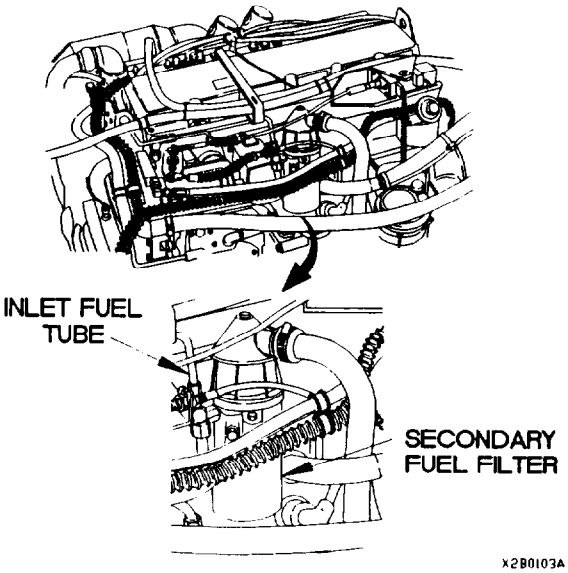


(1) Check secondary fuel filter for restrictions, leaks, and damage.
(2) If secondary fuel filter is damaged, replace secondary fuel filter (para 4-14).
(3) Lower cab (TM 9-2320-366-10-1).

NOTE

- STE/ICE-R Test #26 will display results of restriction test as pass or fail.
- Engine must be running to perform STE/ICE-R Test #26.

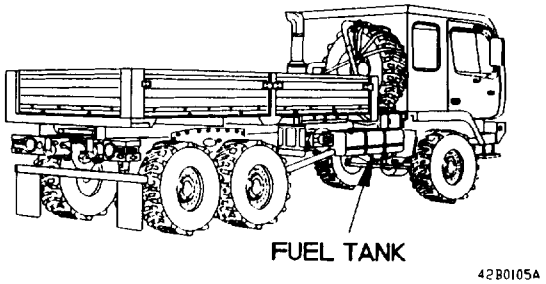
STE/ICE-R TEST #26
(1) Hook up STE/ICE-R to DCA.
(2) Start engine (TM 9-2320-366-10-1).
(3) Test results will read PASS or FAIL. Record test results.
(4) Shut down engine (TM 9-2320-366-10-1).
(5) Remove STE/ICE-R from DCA.



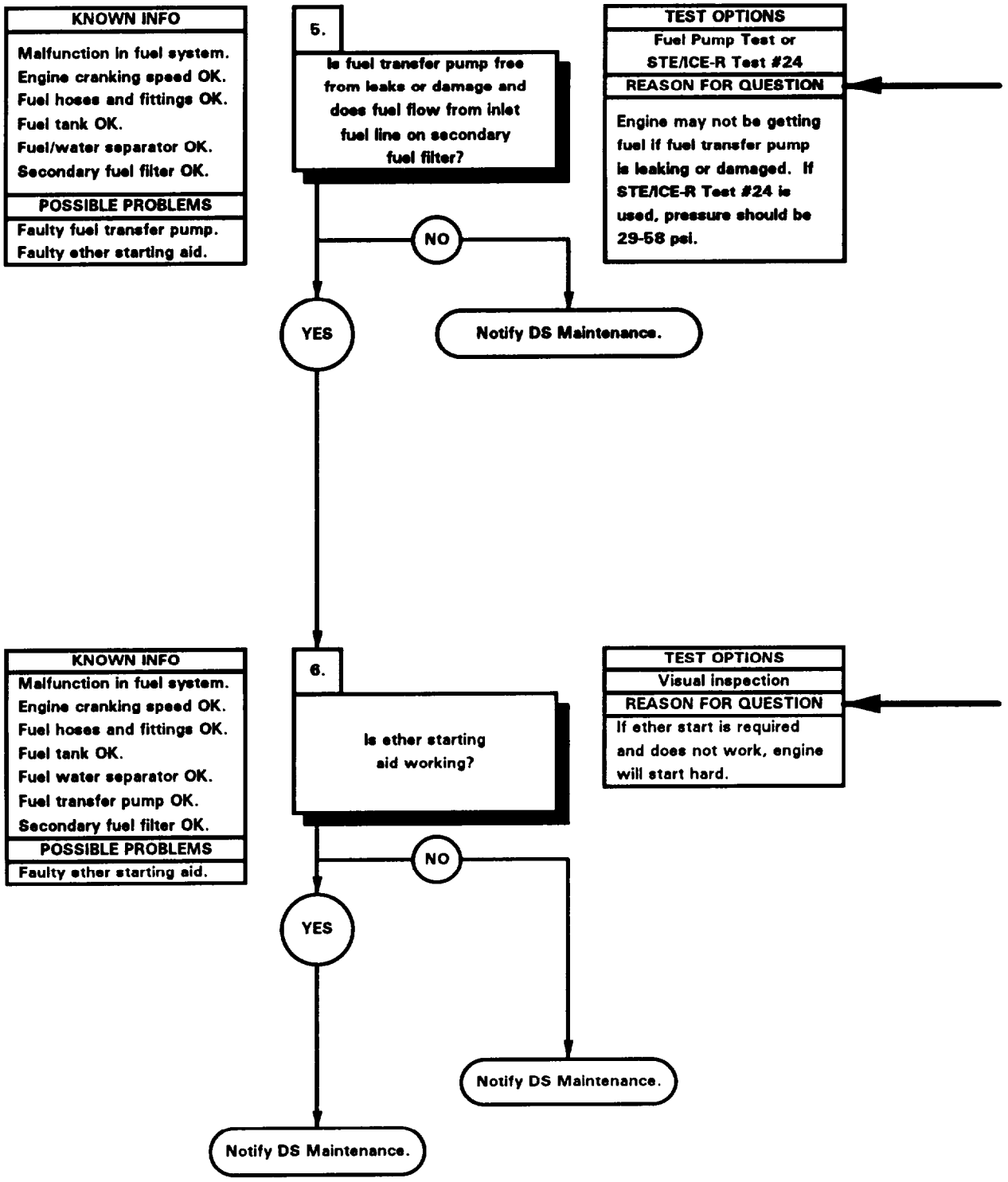
WARNING

Diesel fuel is flammable. If fuel is spilled, clean it up immediately. Failure to comply may result in injury or death to personnel.

(1) Check fuel tank for damage, and for loose or missing mounting hardware.
(2) If fuel tank is damaged, replace fuel tank (para 4-8).



b1. ENGINE CRANKS BUT DOES NOT START OR ENGINE STALLS AFTER STARTING (CONT)

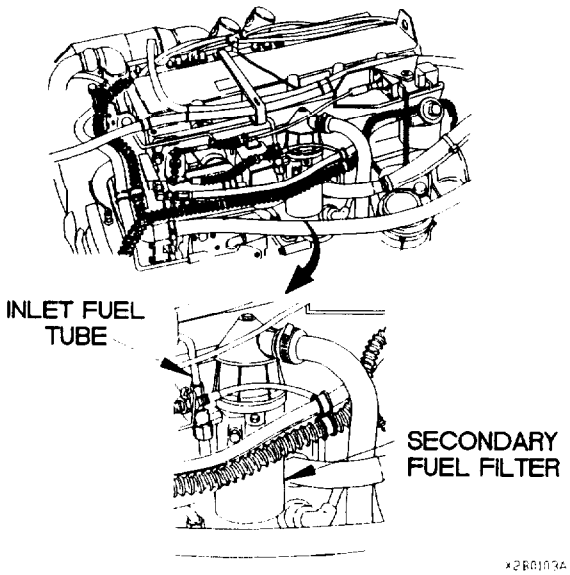


FUEL PUMP TEST

(1) Position drain pan under secondary fuel filter.
(2) Remove inlet fuel tube from secondary fuel filter.
(3) Attempt to start engine (TM 9-2320-366-10-1).
(4) Check for fuel flow from inlet fuel tube while attempting to start engine.
(5) Install inlet fuel tube on secondary fuel filter.

STE/ICE-R TEST #24

(1) Lower cab (TM 9-2320-366-10-1).
(2) Hook up STE/ICE-R to DCA.
(3) Press and hold TEST button on STE/ICE-R until -15 to +15 appears in display. This will ensure that test results are accurate.
(4) Start engine (TM 9-2320-366-10-1) and raise engine idle to 2600 rpm for 8-29 seconds.
(5) Pressure should read between 29 psi and 58 psi.
(6) Record test results.
(7) Shut down engine (TM 9-2320-366-10-1).
(8) Remove STE/ICE-R from DCA.



NOTE

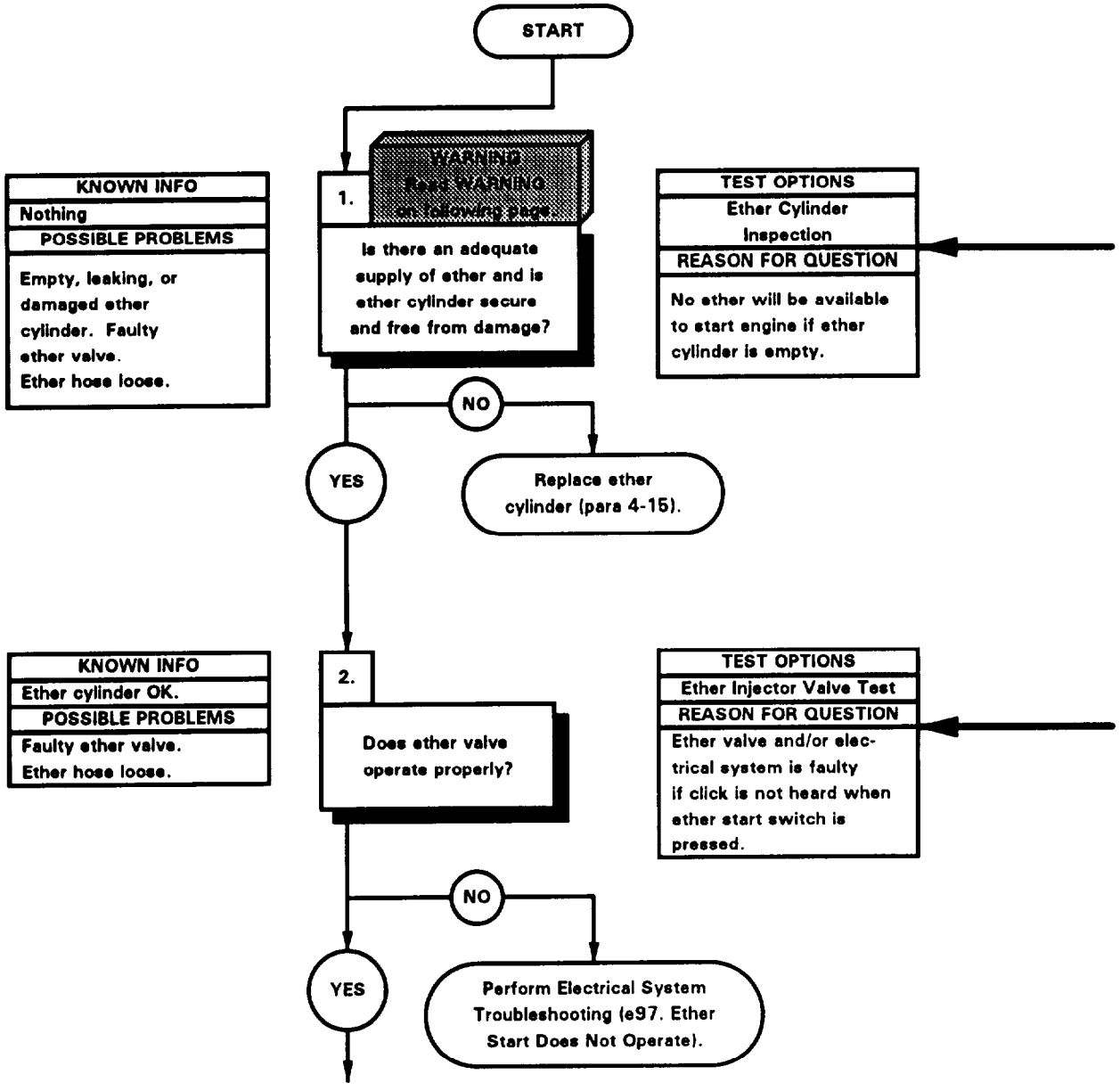
- Ether start system has a thermostatic switch that will not let the system work if engine temperature is above 100°F (38°C).
- Ether start is only required below 45°F (7°C).

Attempt to start engine using cold engine starting procedure (TM 9-2320-366-10-1).

b2. ETHER STARTING AID DOES NOT OPERATE

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Spare tire lowered (TM 9-2320-366-10-2).



WARNING

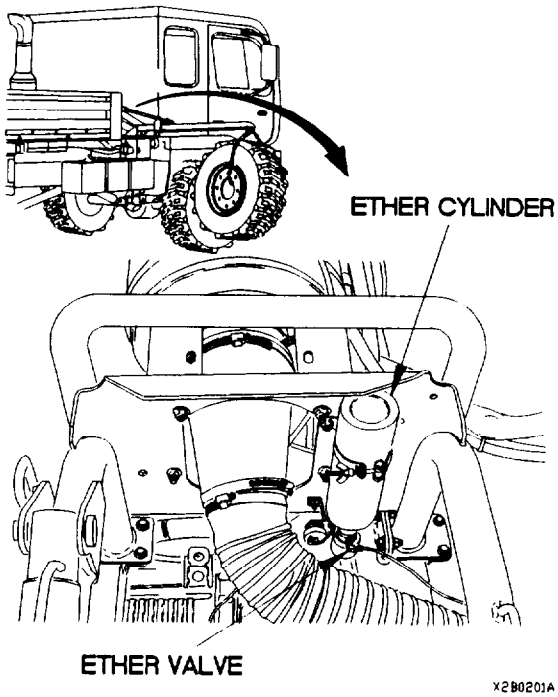
Starting fluid is toxic and highly flammable. Container is pressurized. NEVER heat container and NEVER discharge starting fluid in confined areas or near open flame. Failure to comply may result in injury to personnel.

NOTE

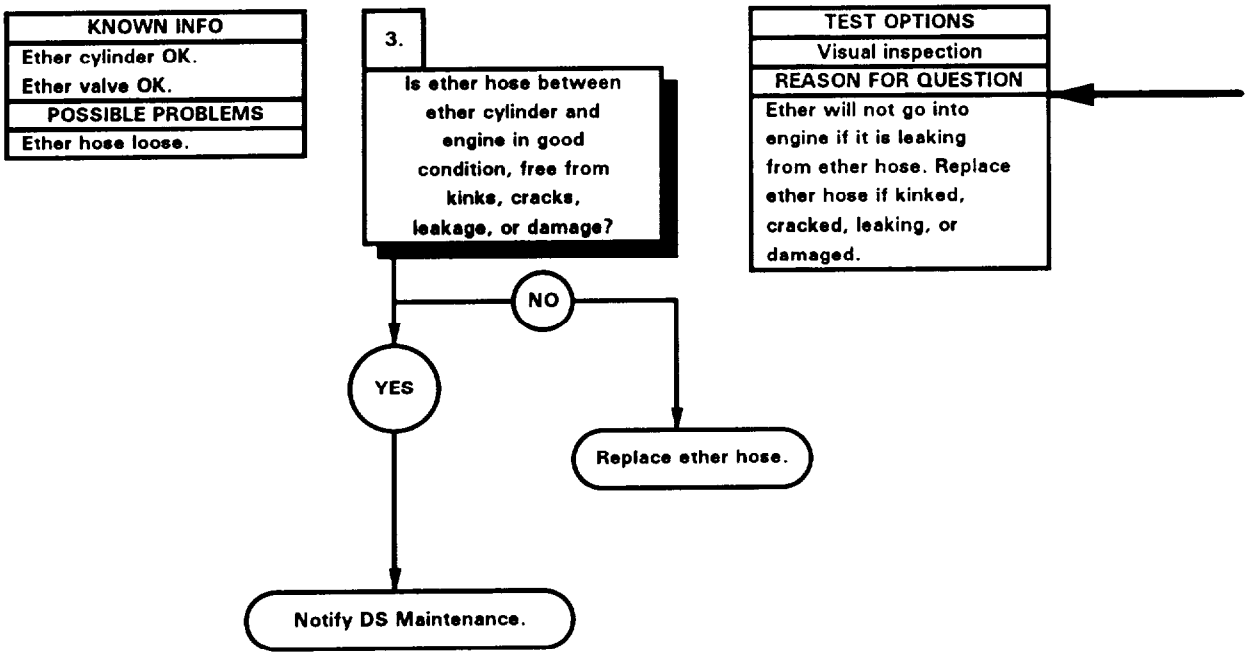
Temperature at engine block must be below 100° F (38° C) before ether starting aid will work.

ETHER CYLINDER INSPECTION
(1) Remove ether cylinder (para 4-13).
(2) Shake ether cylinder to determine if ether is present.
(3) Check ether cylinder for damage.
(4) Install ether cylinder (para 4-13).

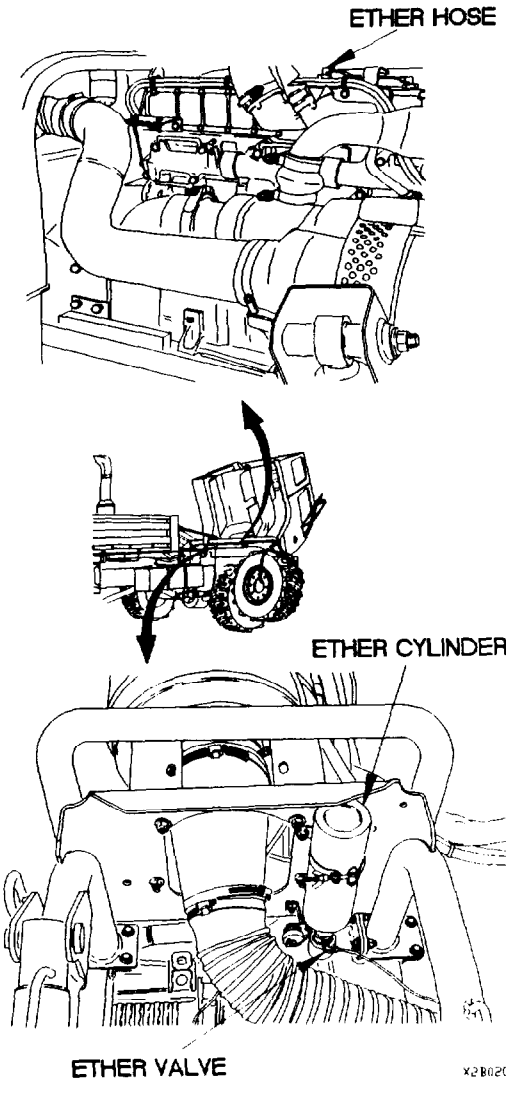
ETHER VALVE TEST
(1) Position master power switch to on (TM 9-2320-366-10-1).
(2) Press ether start switch (TM 9-2320-366-10-1) and listen for ether valve to click.
(3) Position master power switch to off (TM 9-2320-366-10-1).



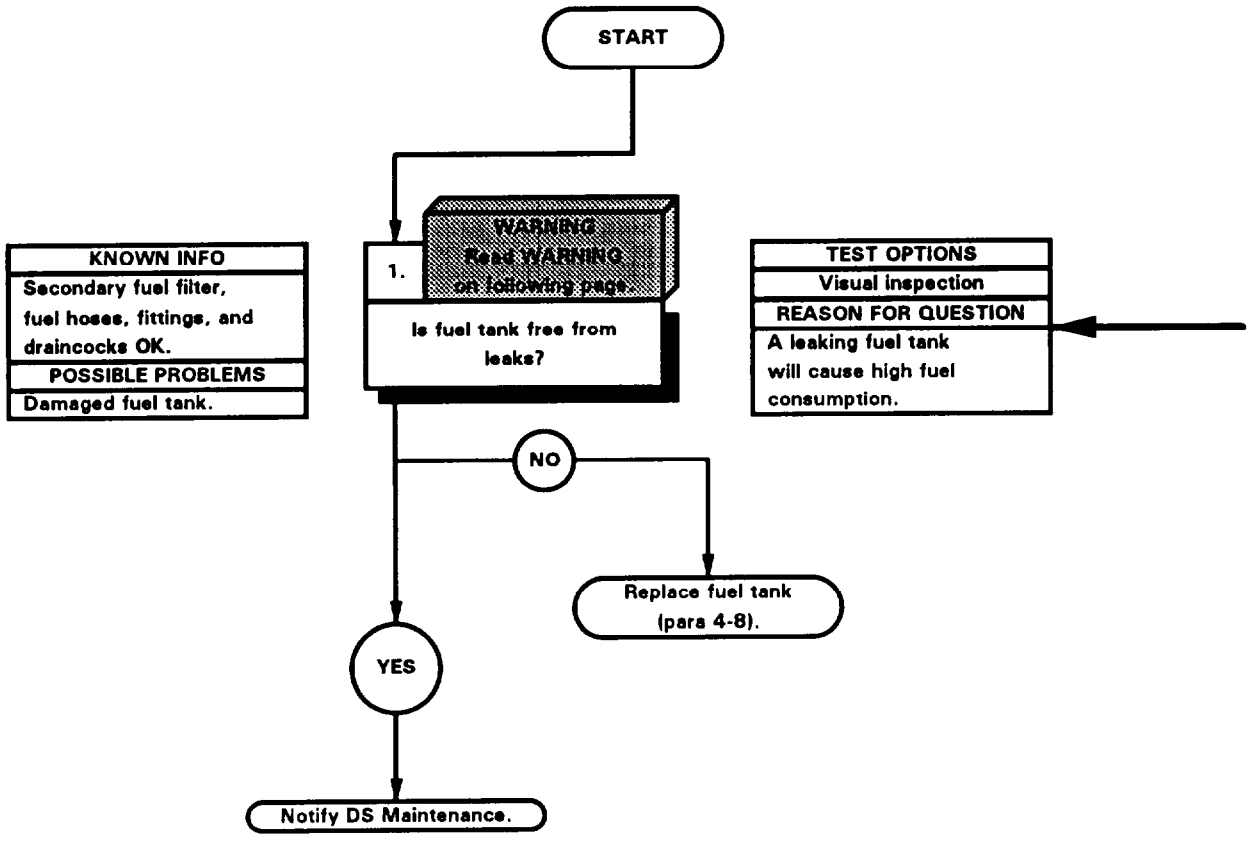
b2. ETHER STARTING AID DOES NOT OPERATE (CONT)



(1) Raise cab (TM 9-2320-366-10-1).
(2) Check ether hose between ether cylinder and engine for leaks and damage.
(3) Lower cab (TM 9-2320-366-10-1).



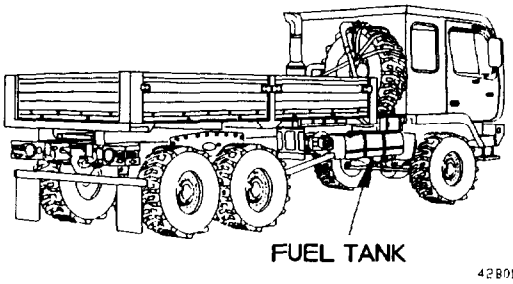
b3. FUEL CONSUMPTION TOO HIGH
INITIAL SETUP **Equipment Conditions** Engine shut down (TM 9-2320-366-10-1).



WARNING

Diesel fuel is flammable. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

(1) Check fuel tank for damage, and for loose or missing mounting hardware.
(2) If fuel tank is damaged, replace fuel tank (para 4-8).

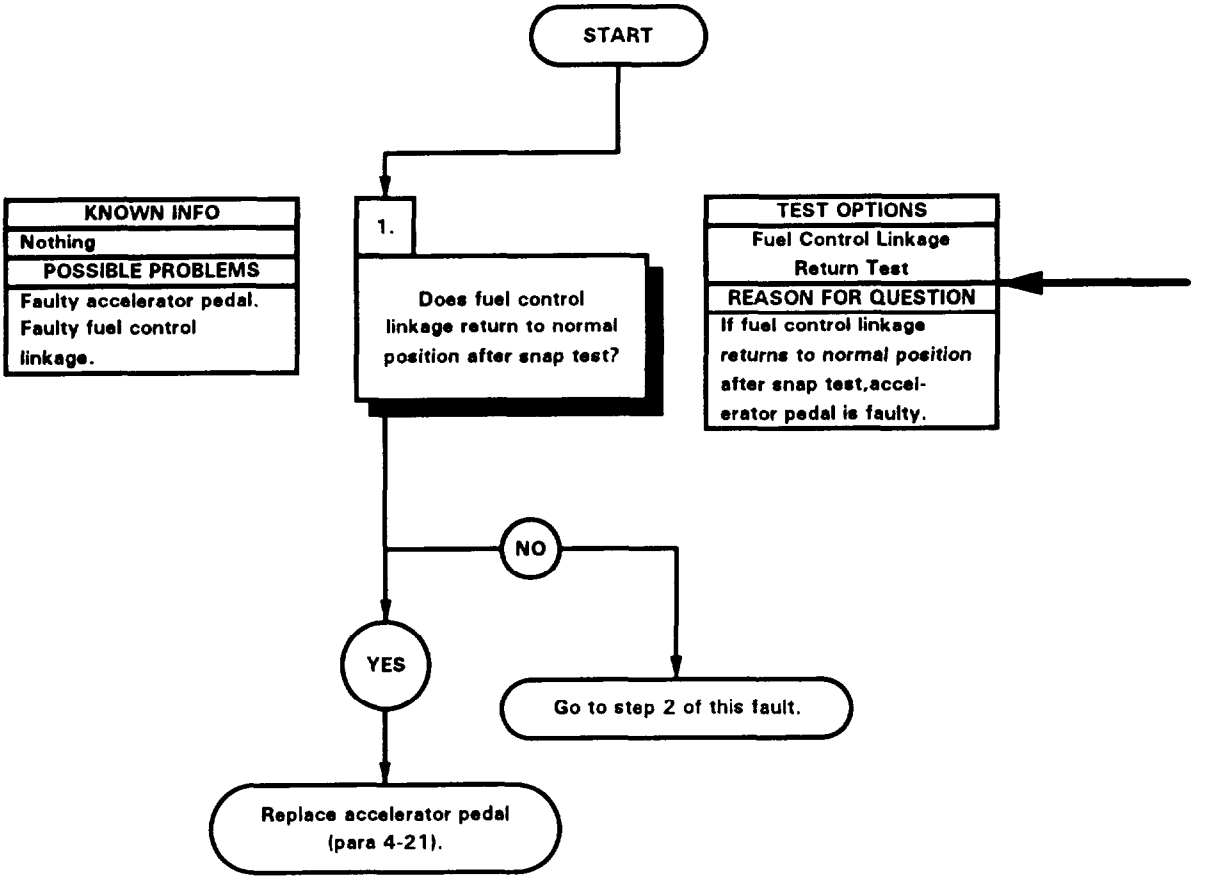


b4. ACCELERATOR PEDAL STICKS

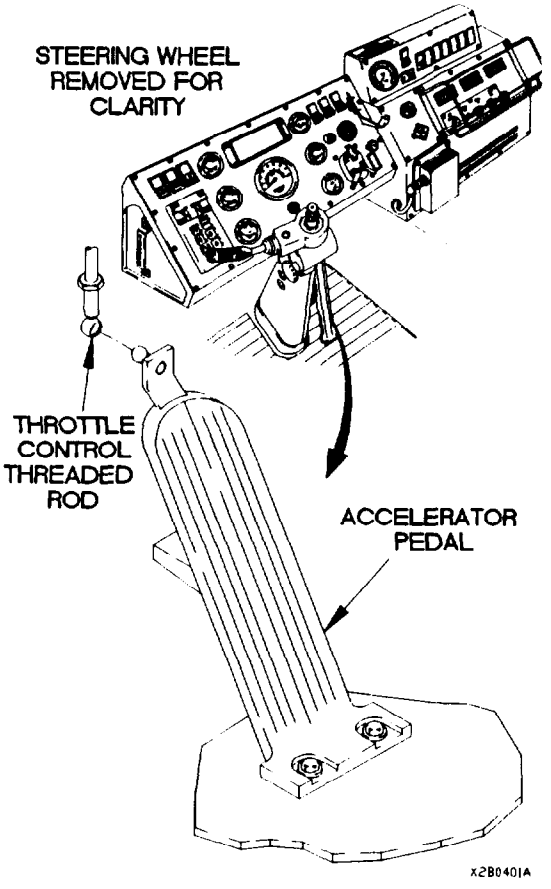
INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

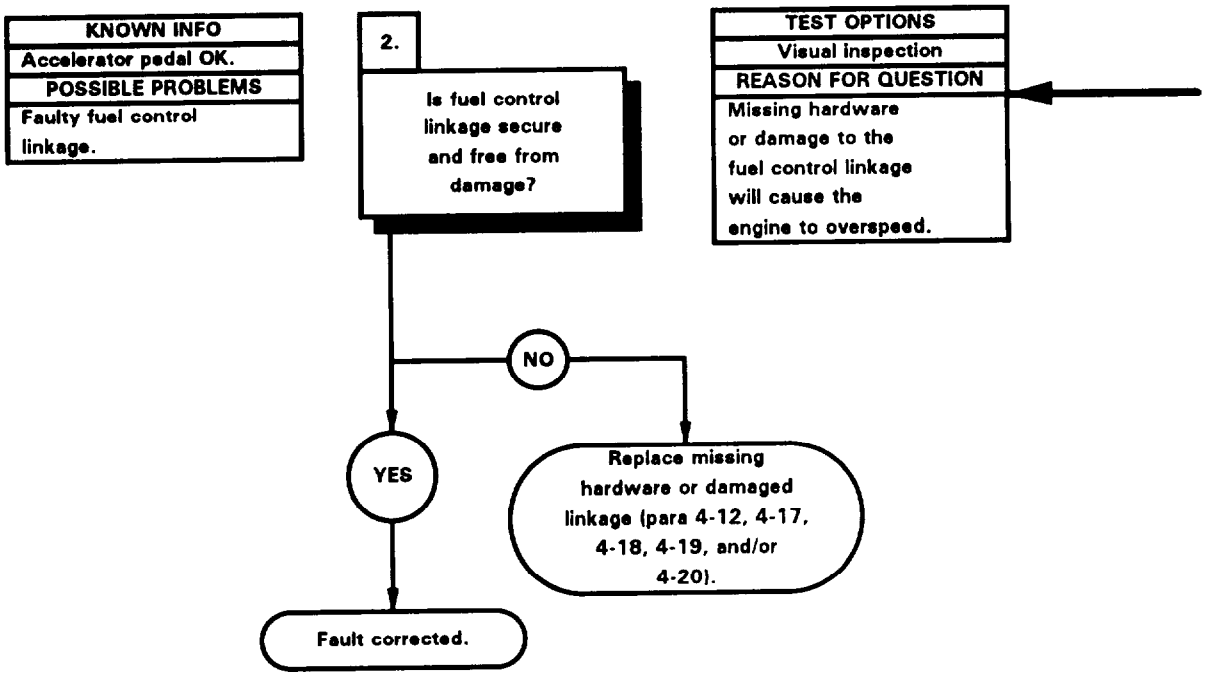
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)



FUEL CONTROL LINKAGE RETURN TEST
(1) Disconnect accelerator pedal from throttle control threaded rod (para 4-21).
(2) Pull down throttle control threaded rod and release.
(3) If throttle control threaded rod snapped back to normal position, replace accelerator pedal (para 4-21).
(4) If throttle control threaded rod did not snap back to normal position, go to step 2 of this fault.
(5) Connect accelerator pedal to throttle control threaded rod (para 4-21).



b4. ACCELERATOR PEDAL STICKS (CONT)



(1) Remove instrument panel assembly (para 7-15).
(2) Check fuel control linkage for improper assembly, missing hardware, damaged parts, and proper lubrication (para 4-17, 4-19, and 4-20).
(3) Install instrument panel assembly (para 7-15).
(4) Raise cab (TM 9-2320-366-10-1).
(5) Check fuel control linkage for improper assembly, missing hardware, and damaged parts (para 4-16, 4-12, and 4-18).
(6) Lower cab (TM 9-2320-366-10-1).

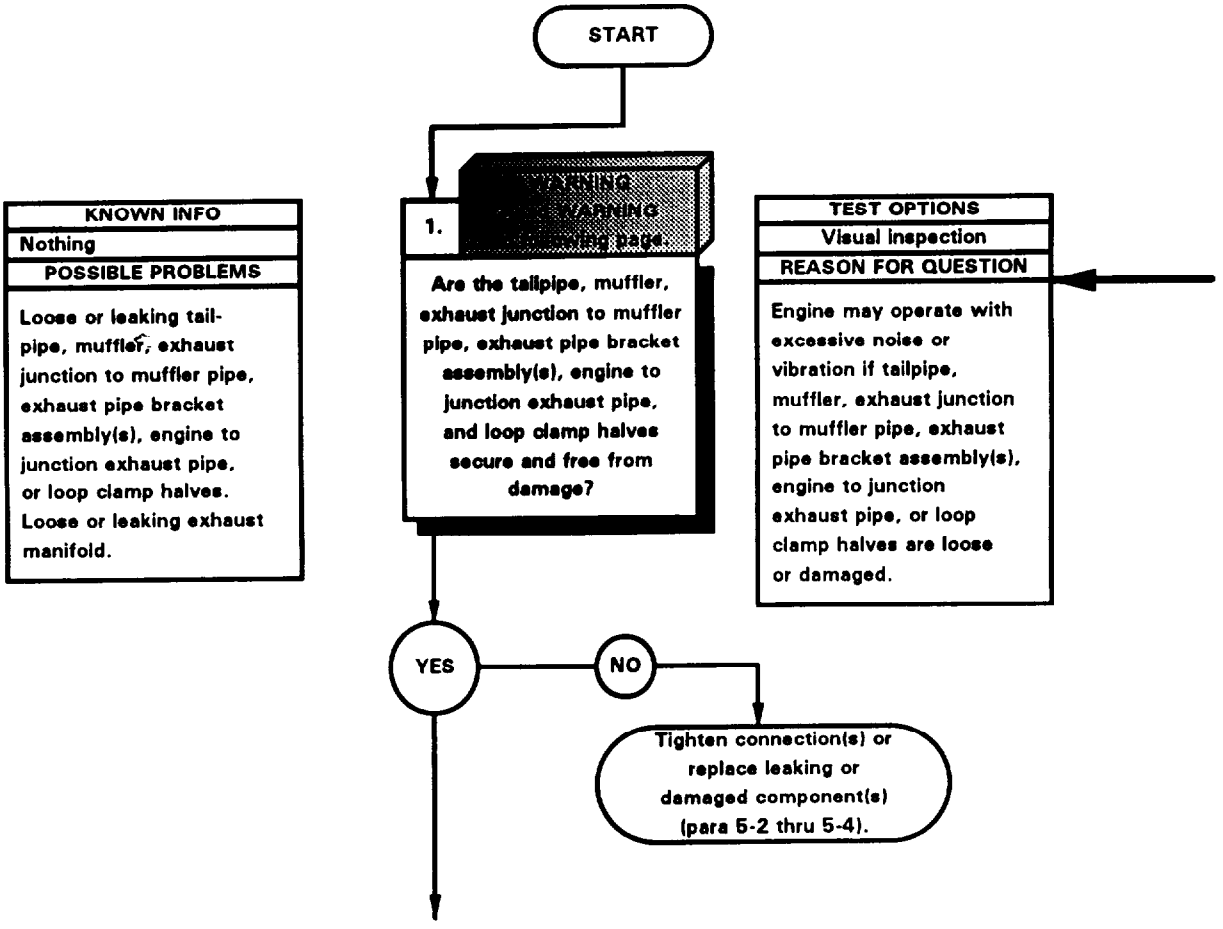
2-14. EXHAUST SYSTEM TROUBLESHOOTING

This paragraph covers Exhaust System Troubleshooting. The Exhaust System Fault Index, Table 2-5, lists faults for the exhaust system of the vehicle.

Table 2-5. Exhaust System Fault Index

Fault No.	Description	Page
c1.	Exhaust system unusually noisy or vibrates excessively during engine operation	2-128
c2.	Exhaust fumes in cab	2-132

c1. EXHAUST SYSTEM UNUSUALLY NOISY OR VIBRATES EXCESSIVELY DURING ENGINE OPERATION	
INITIAL SETUP	
Equipment Conditions Engine shut down (TM 9-2320-366-10-1). Cab raised (TM 9-2320-366-10-1).	Tools and Special Tools Tool Kit, Genl Mech (Item 46, Appendix C) Goggles, Industrial (Item 15, Appendix C)



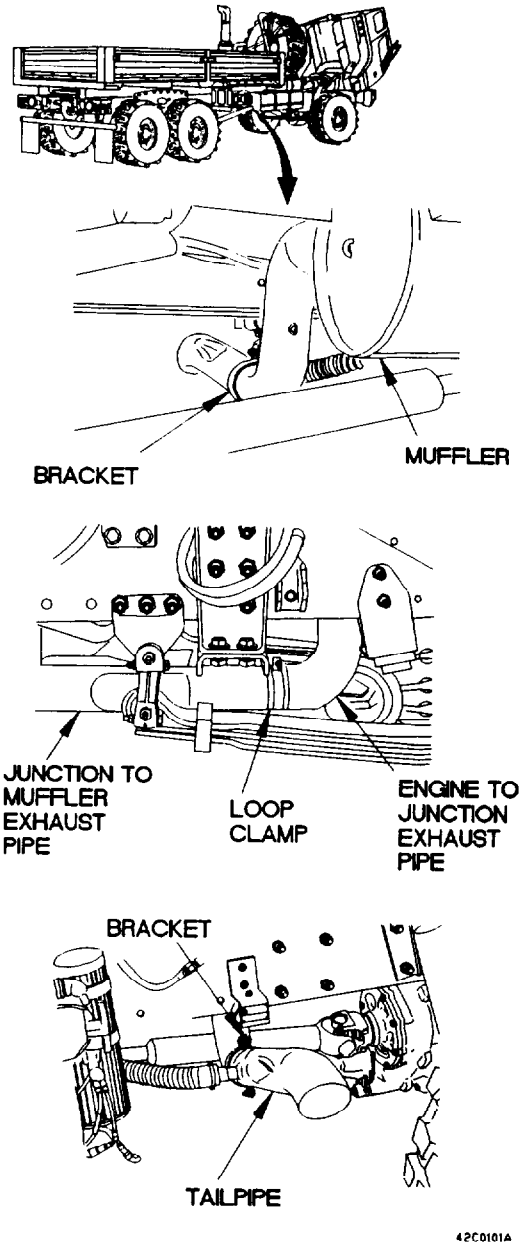
WARNING

Ensure exhaust system is cool before performing maintenance. Failure to comply may result in injury to personnel.

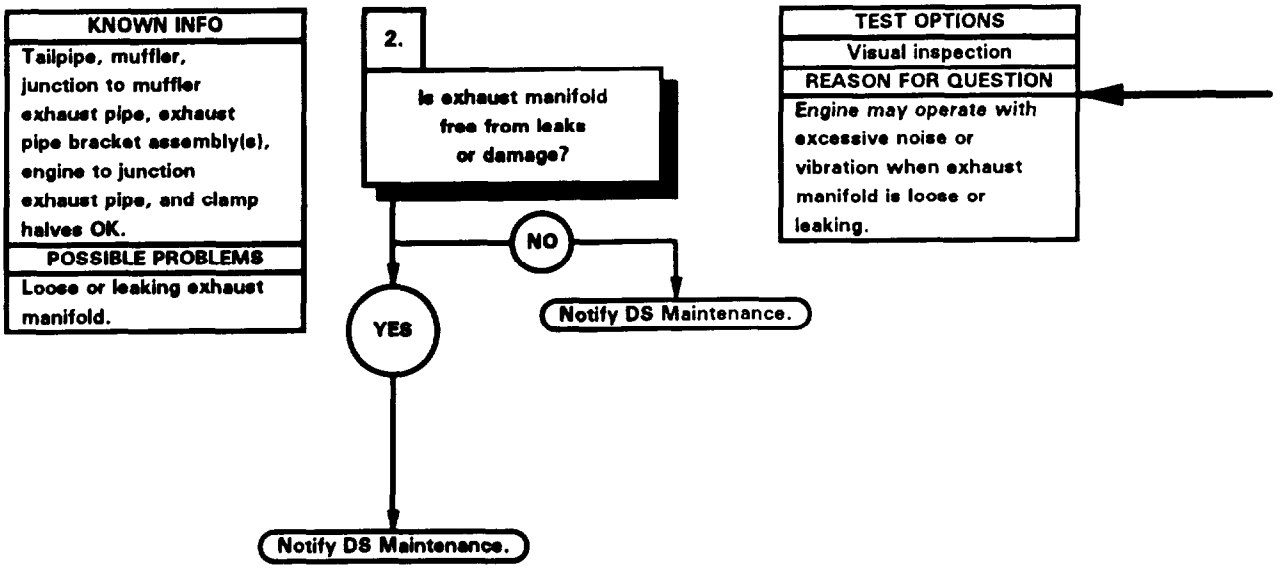
NOTE

Exhaust system component hardware has to be torqued. Refer to para 5-2 thru 5-4.

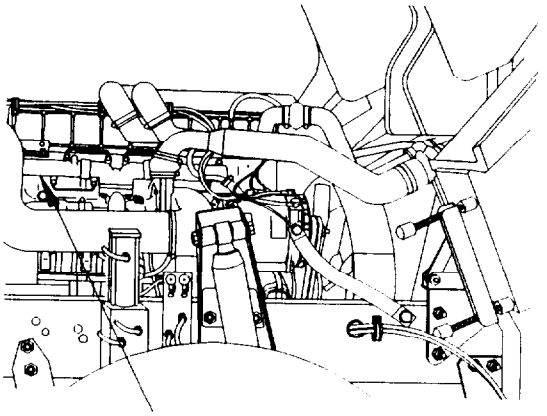
Check tailpipe, muffler, and exhaust pipes for loose connections and damage.



c1. EXHAUST SYSTEM UNUSUALLY NOISY OR VIBRATES EXCESSIVELY DURING ENGINE OPERATION (CONT)

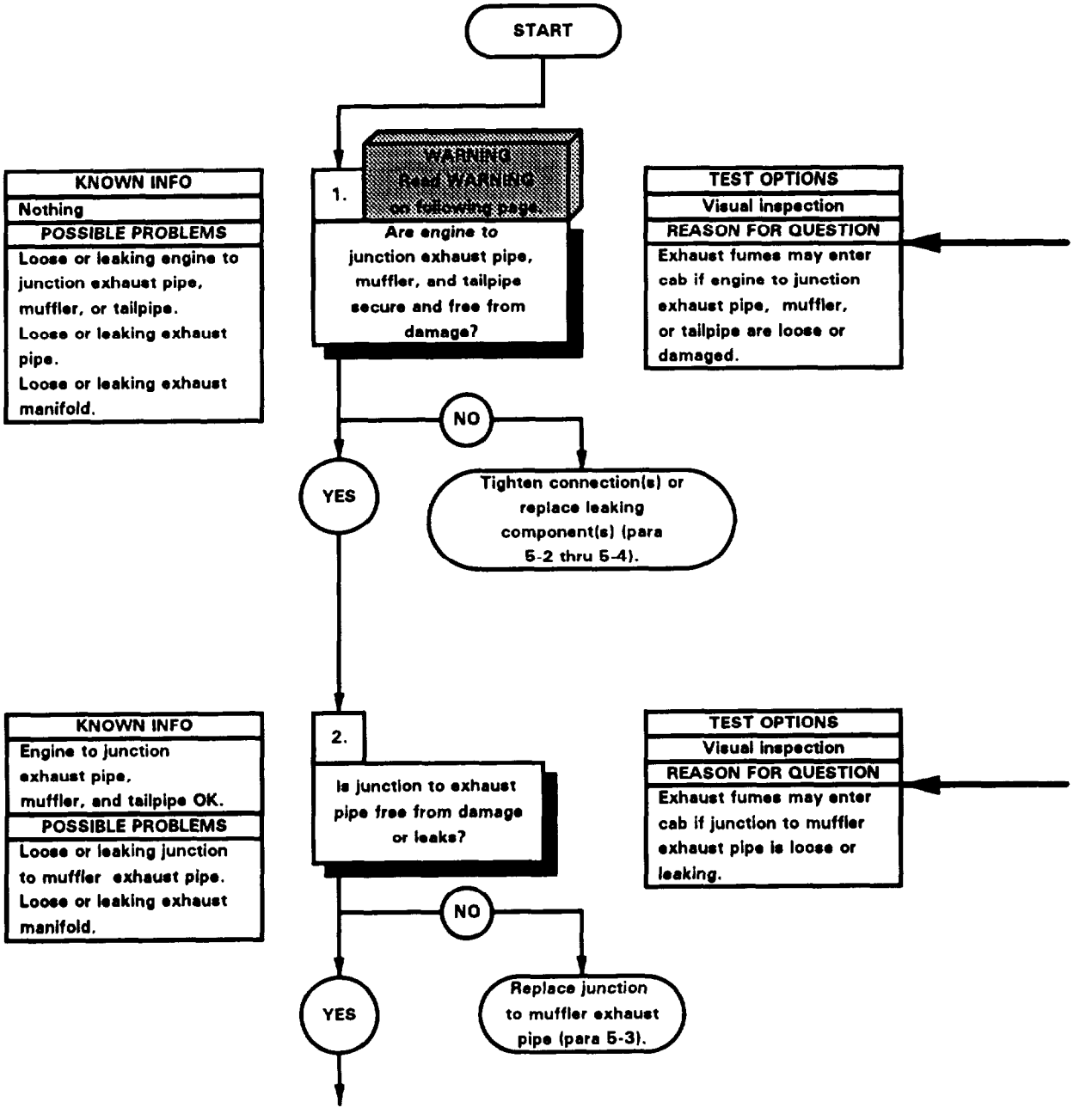


(1) Start engine (TM 9-2320-366-10-1).
(2) Check exhaust manifold for looseness or evidence of exhaust leakage.
(3) Shut down engine (TM 9-2320-366-10-1).
(4) Lower cab (TM 9-2320-366-10-1).



4B2C1BA-

c2. EXHAUST FUMES IN CAB
INITIAL SETUP *Equipment Conditions* Engine shut down (TM 9-2320-366-10-1).



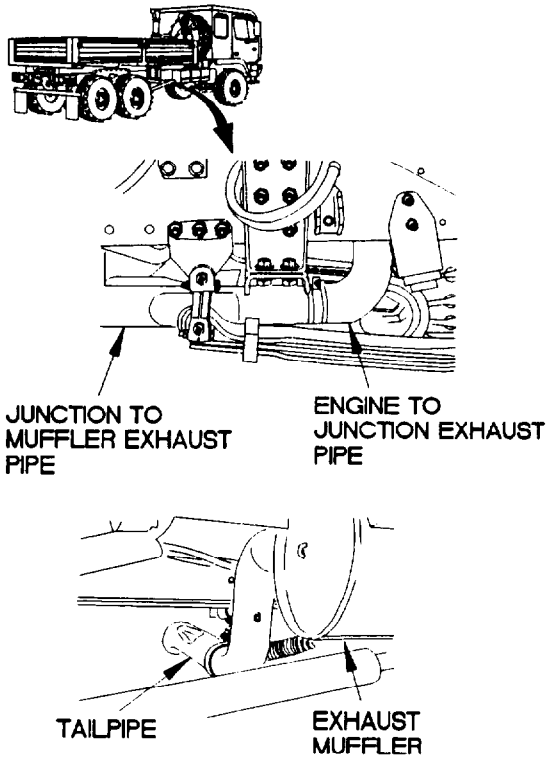
WARNING

Ensure exhaust system is cool before performing maintenance. Failure to comply may result in injury to personnel.

NOTE

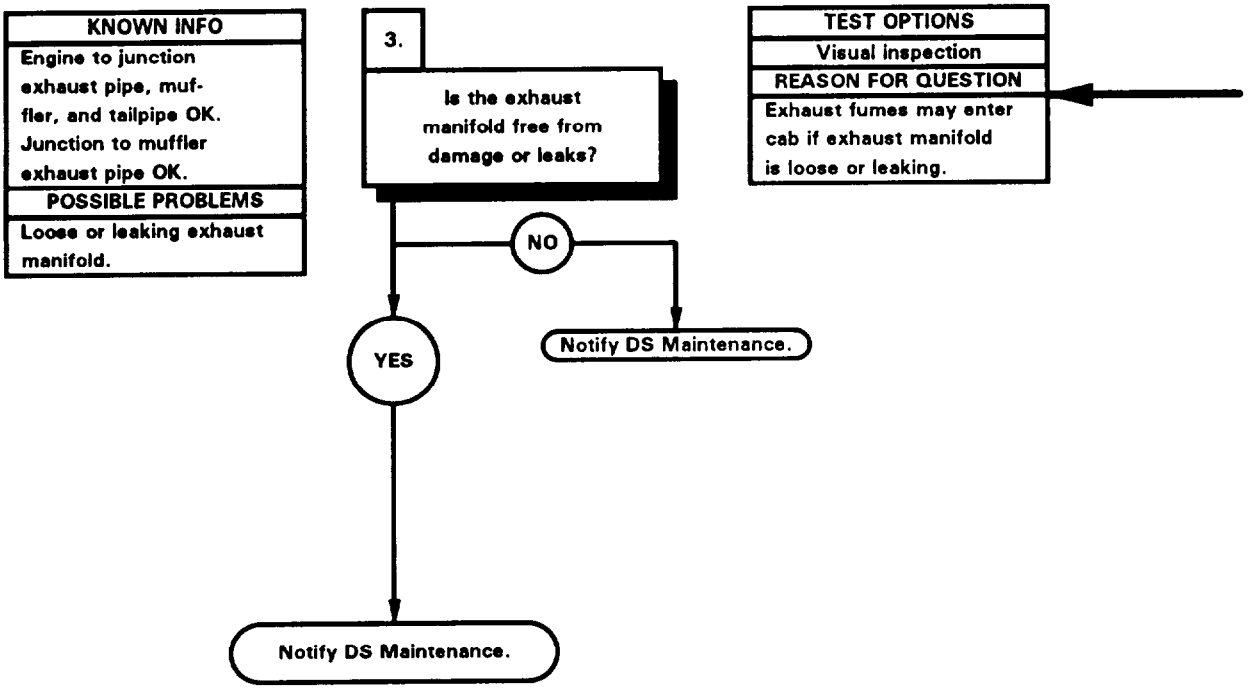
Exhaust system component hardware has to be torqued. Refer to para 5-2 thru 5-4.

Check junction to muffler exhaust pipe, muffler, and tailpipe for loose connections and leaks.

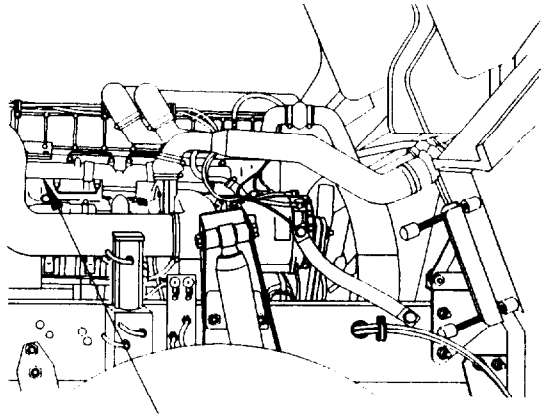


Check engine to junction exhaust pipe for loose connections or leaks.

c2. EXHAUST FUMES IN CAB (CONT)



(1) Raise cab (TM 9-2320-366-10-1).
(2) Start engine (TM 9-2320-366-10-1).
(3) Check exhaust manifold for looseness or leaks.
(4) Shut down engine (TM 9-2320-366-10-1).
(5) Lower cab (TM 9-2320-366-10-1).



EXHAUST MANIFOLD

4B2C1BA-

2-15. COOLING SYSTEM TROUBLESHOOTING

This paragraph covers Cooling System Troubleshooting. The Cooling System Fault Index, Table 2-6, lists faults for the cooling system of the vehicle.

Table 2-6. Cooling System Fault Index

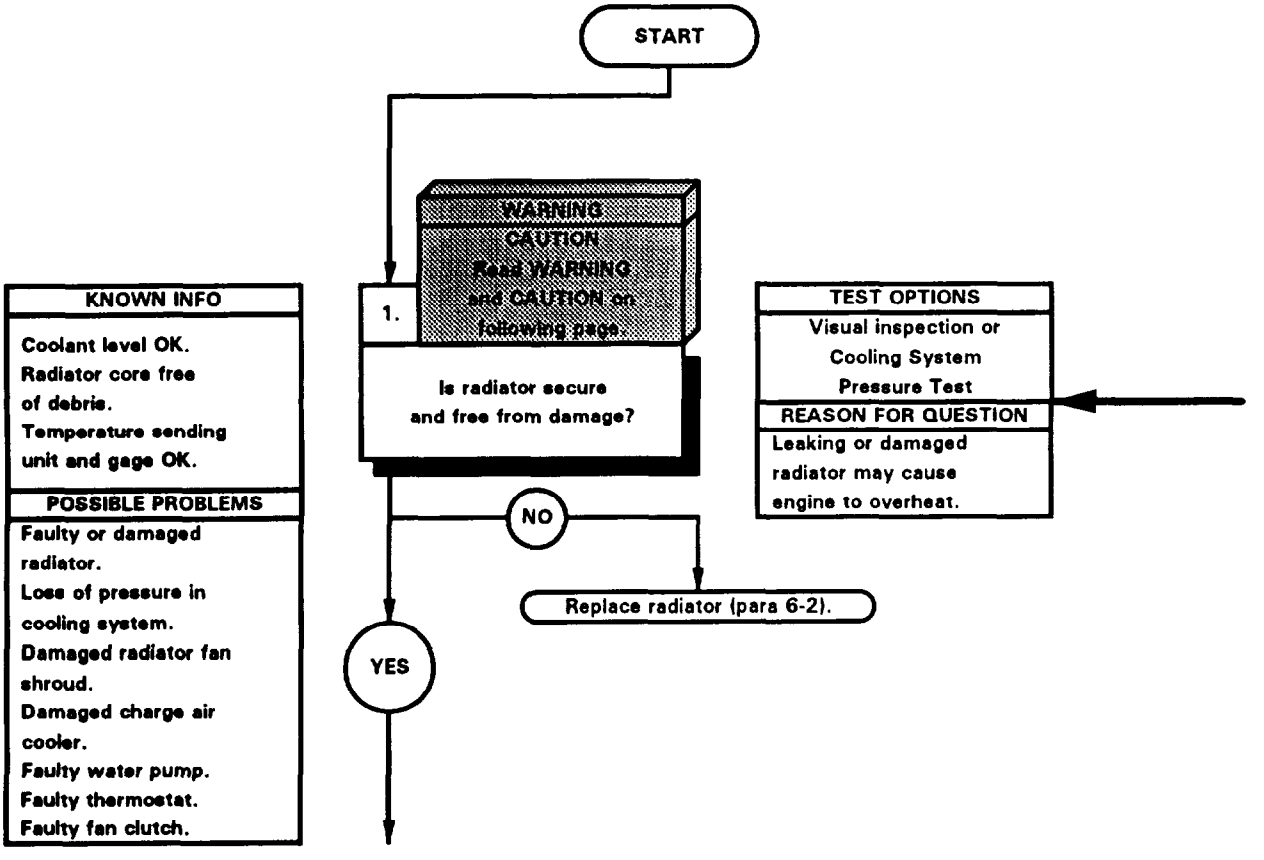
Fault No.	Description	Page
d1.	Engine overheats	2-138
d2.	Oil in cooling system	2-150
d3.	Loss of coolant	2-152

d1. ENGINE OVERHEATS

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Adapter, Radiator (Item 1, Appendix B)
Pressure Tester, Radiator (Item 26, Appendix C)
Pan, Drain (Item 24, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)



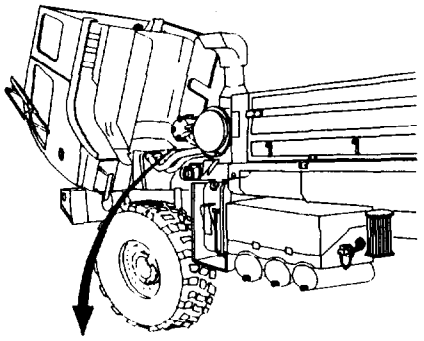
WARNING

Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.

NOTE

Perform Engine Troubleshooting (a9. Engine Overheats) before starting here.

(1) Raise cab (TM 9-2320-366-10-1).
(2) Check radiator for leaks and damage.



COOLING SYSTEM PRESSURE TEST

(1) Remove radiator cap from radiator overflow tank.
(2) Install adapter on radiator overflow tank.
(3) Install radiator tester on adapter.

CAUTION

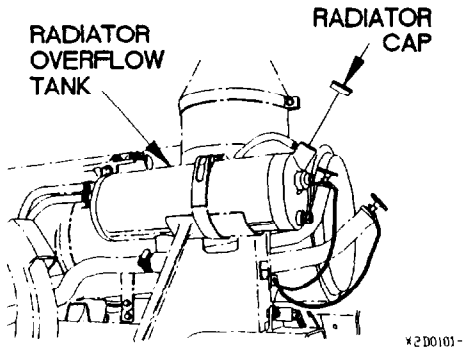
Do not pressurize over 16 psi (110kPa). Failure to comply may result in damage to cooling system.

(4) Pressurize radiator overflow tank, using tester, to 15 psi (103 kPa).
(5) Observe radiator for coolant leaks.

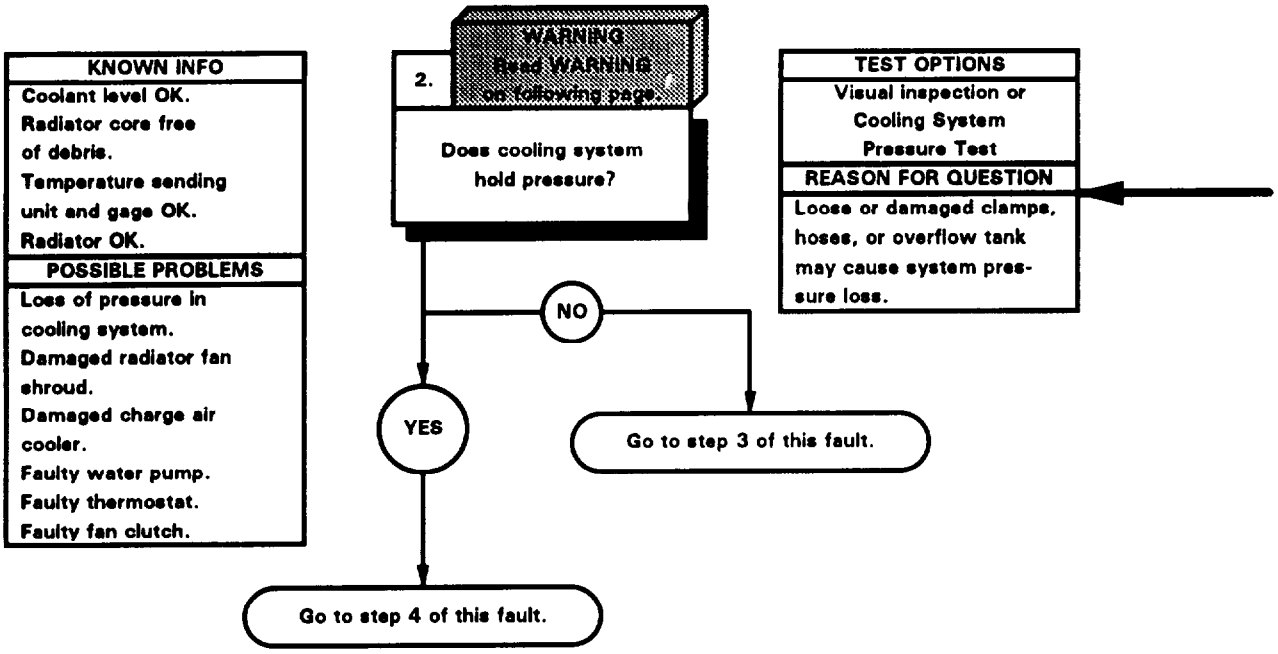
NOTE

Pressure loss without external leaks indicates engine internal coolant leaks.

(6) Observe radiator tester for loss of pressure.
(7) Remove tester and adapter from radiator overflow tank.
(8) Install radiator cap on radiator overflow tank.



d1. ENGINE OVERHEATS (CONT)



WARNING

Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.

NOTE

Check radiator and radiator overflow tank for leaks and damage.

COOLING SYSTEM PRESSURE TEST

(1) Remove radiator cap from radiator overflow tank.
(2) Install adapter on radiator overflow tank.
(3) Install radiator tester on adapter.

CAUTION

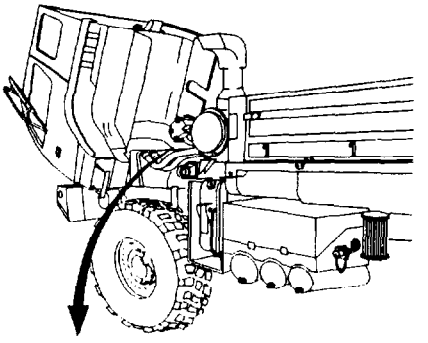
Do not pressurize over 16 psi (110 kPa). Failure to comply may result in damage to cooling system.

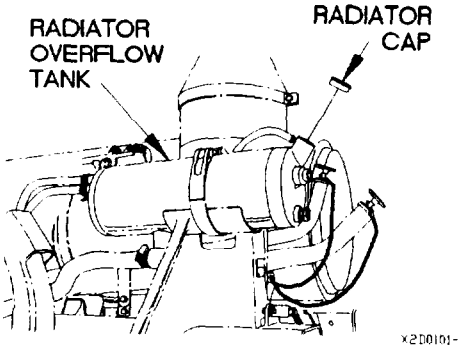
(4) Pressurize radiator overflow tank, using tester, to 15 psi (103 kPa).
(5) Observe radiator overflow tank for coolant leaks.

NOTE

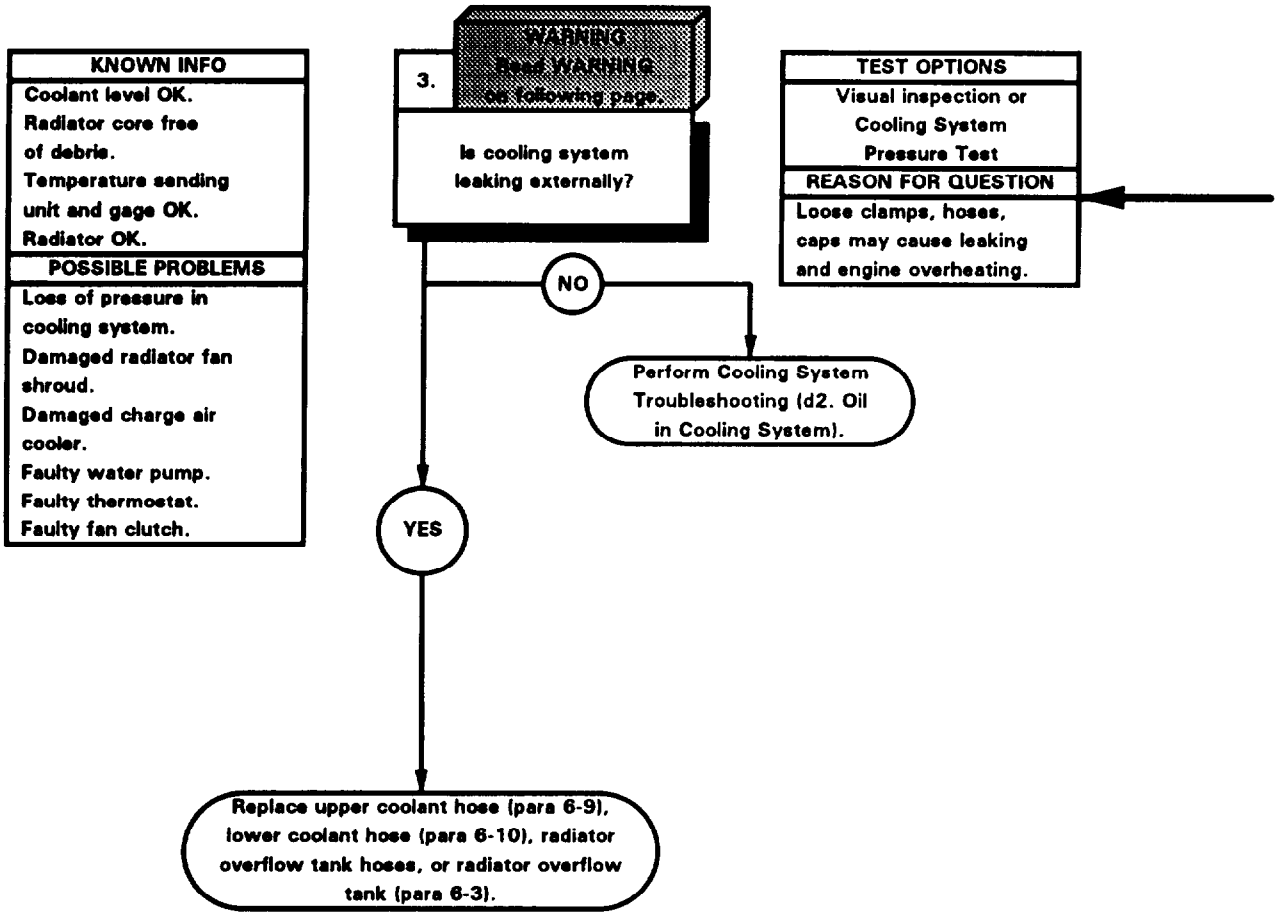
Pressure loss without external leaks indicates internal coolant leaks.

(6) Observe radiator tester for loss of pressure.
(7) Remove tester and adapter from radiator overflow tank.
(8) Install radiator cap on radiator overflow tank.





d1. ENGINE OVERHEATS (CONT)



WARNING

Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.

NOTE

Check clamps and hoses for leaks.

COOLING SYSTEM PRESSURE TEST

(1) Remove radiator cap from radiator overflow tank.
(2) Install adapter on radiator overflow tank.
(3) Install radiator tester on adapter.

CAUTION

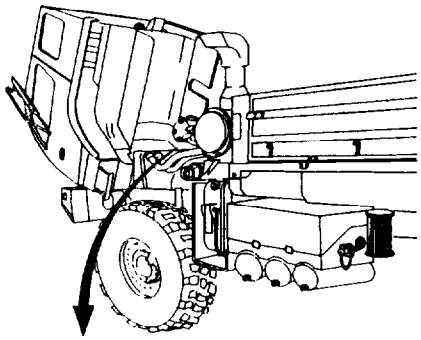
Do not pressurize over 16 psi (110 kPa). Failure to comply may result in damage to cooling system.

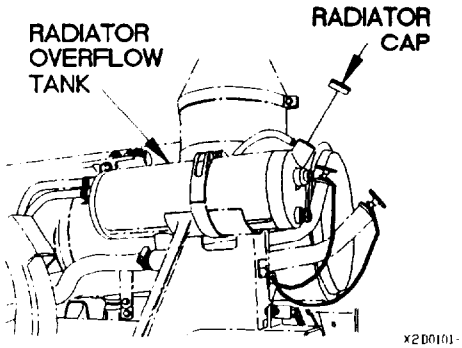
(4) Pressurize radiator overflow tank, using tester, to 15 psi (103 kPa).
(5) Observe hoses for coolant leaks.

NOTE

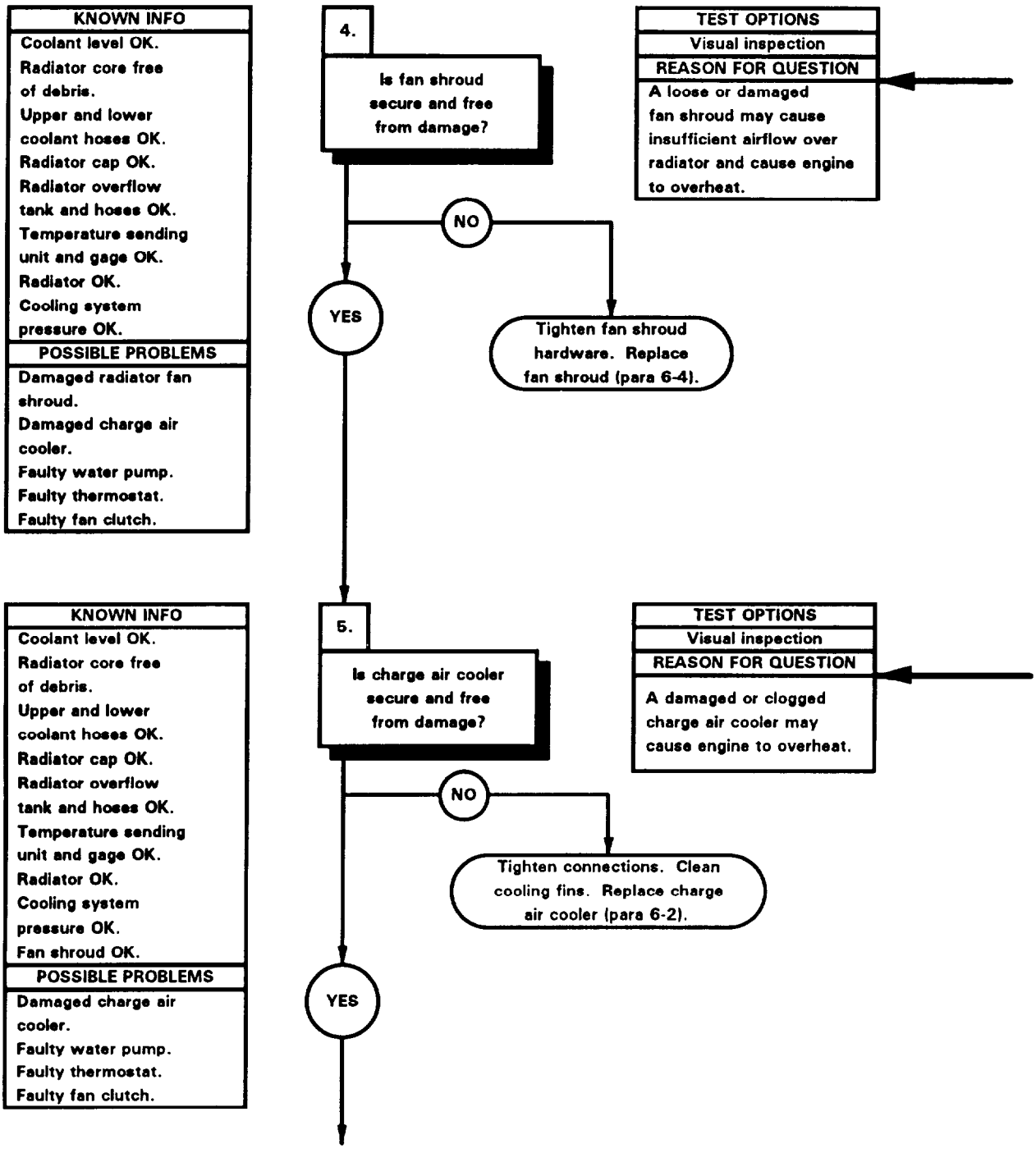
Pressure loss without external leaks indicates internal coolant leaks.

(6) Observe radiator tester for loss of pressure.
(7) Remove tester and adapter from radiator overflow tank.
(8) Install radiator cap on radiator overflow tank.

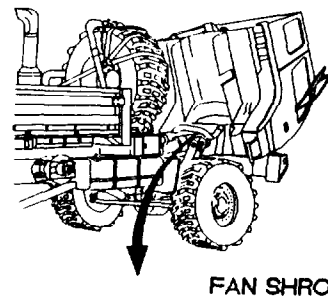




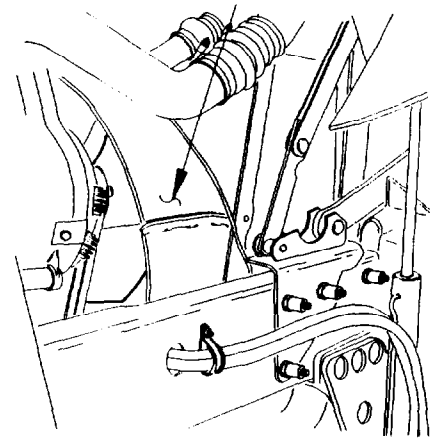
d1. ENGINE OVERHEATS (CONT)



Check fan shroud for loose hardware and damage.

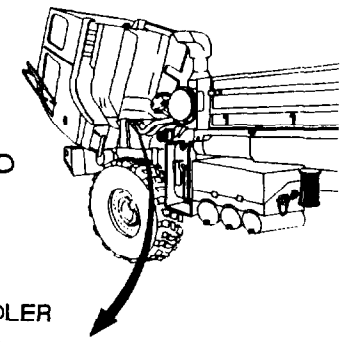


FAN SHROUD



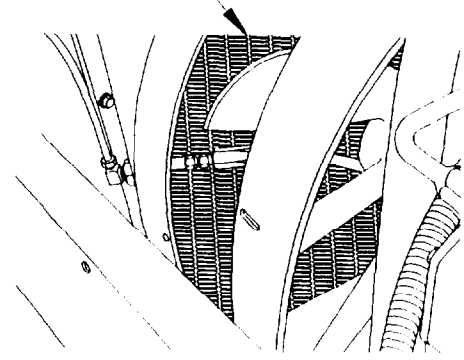
X2D0104-

Check charge air cooler for punctures, cracks, damage, clogged cooling fins, or loose hardware.



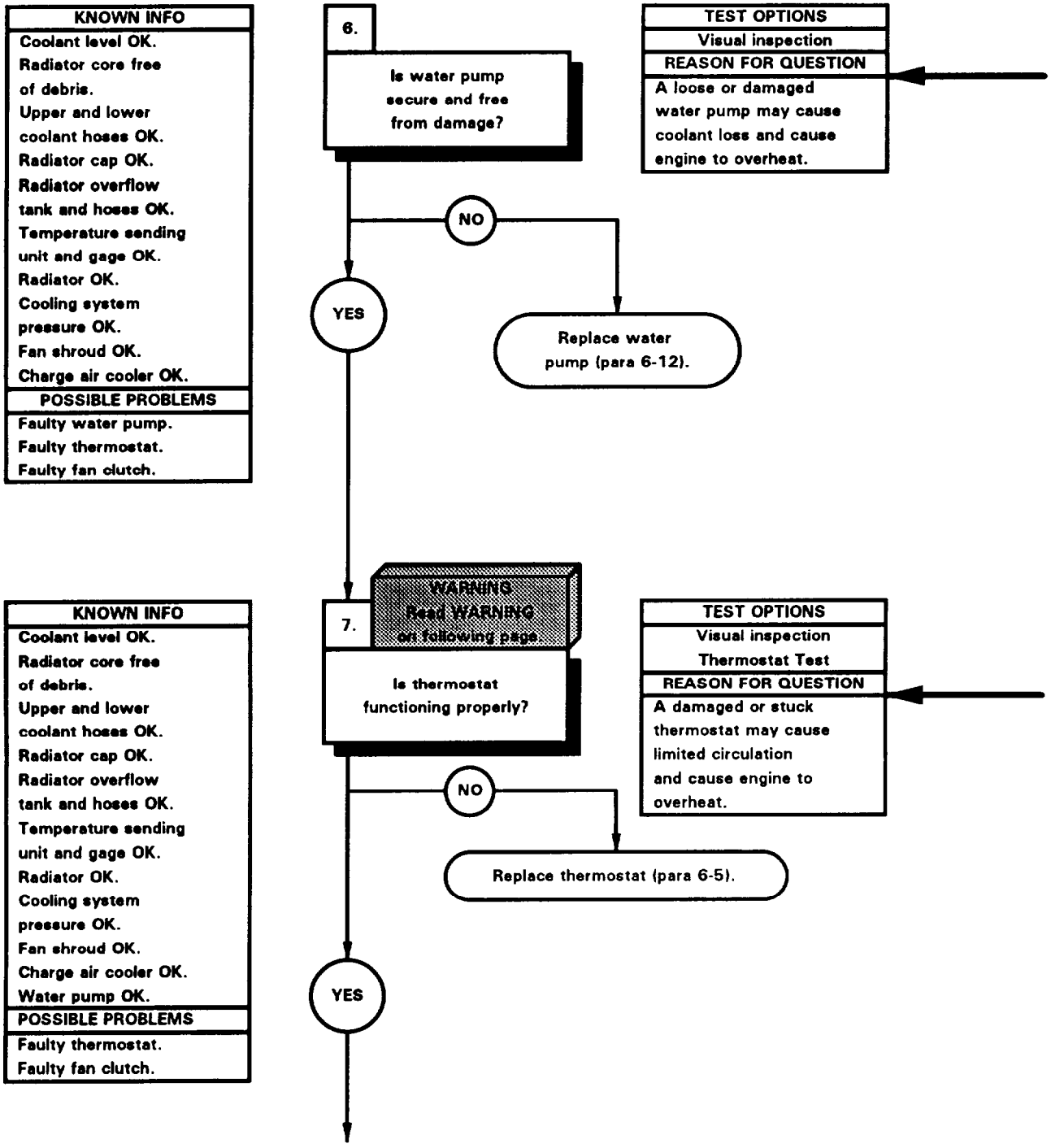
FAN SHROUD DISASSEMBLED FOR CLARITY

CHARGE AIR COOLER

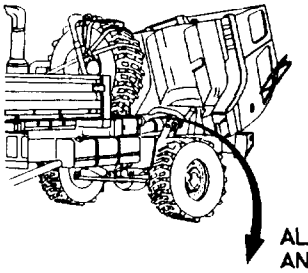


X2D0105-

d1. ENGINE OVERHEATS (CONT)

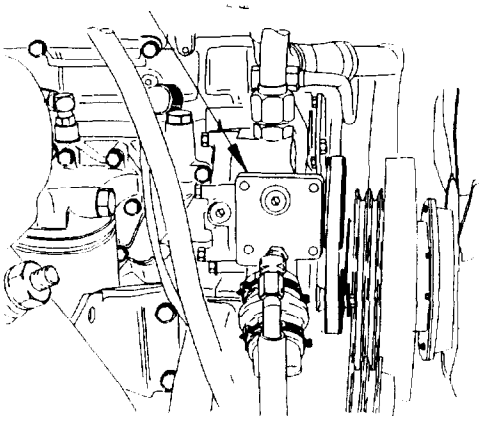


Check water pump for damage and loose or missing mounting hardware.



ALTERNATOR AND ALTERNATOR BRACKET REMOVED FOR CLARITY

WATER PUMP



THERMOSTAT TEST

WARNING

Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.

(1) Remove coolant hose from overflow tank to radiator (para 6-3).
(2) Place coolant hose in drain pan lower than thermostat.
(3) Start engine (TM 9-2320-366-10-1).

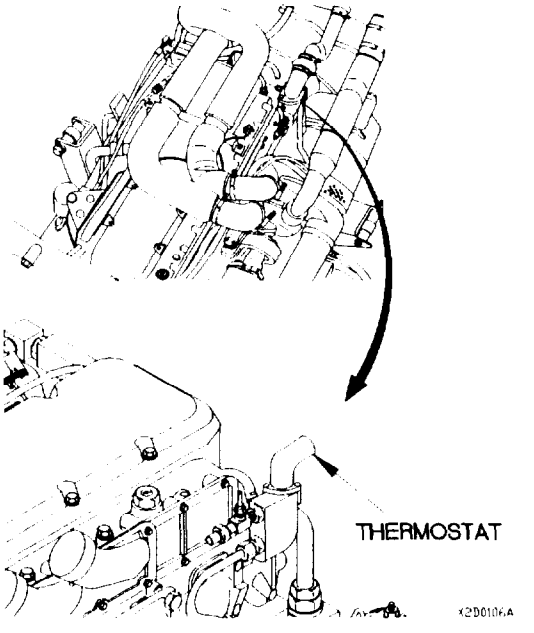
WARNING

Use care when opening door with cab raised. Failure to comply may result in injury to personnel and damage to equipment.

NOTE

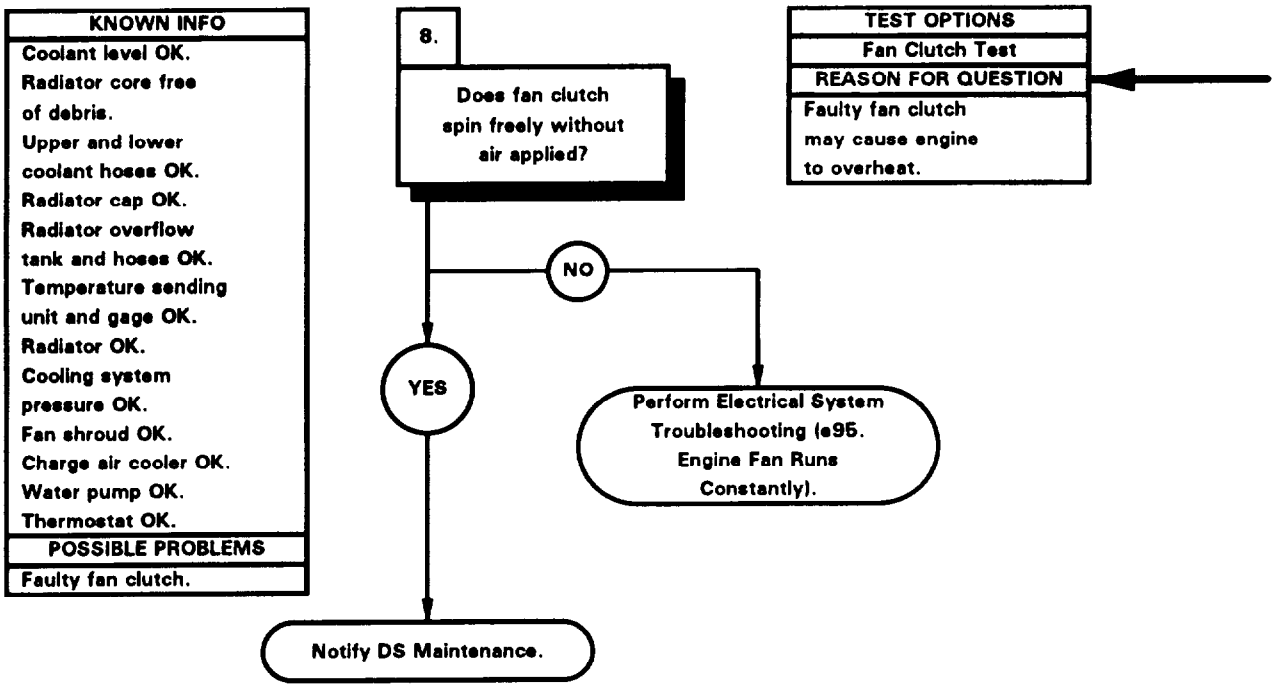
Coolant flowing constantly through return hose indicates closed thermostat.

(4) Observe constant flow of coolant from coolant hose.
(5) Shut down engine (TM 9-2320-366-10-1).
(6) Install coolant hose on overflow tank (para 6-3).
(7) Refill overflow tank to proper level (TM 9-2320-366-10-1).
(8) Lower cab (TM 9-2320-366-10-1).



THERMOSTAT

d1. ENGINE OVERHEATS (CONT)



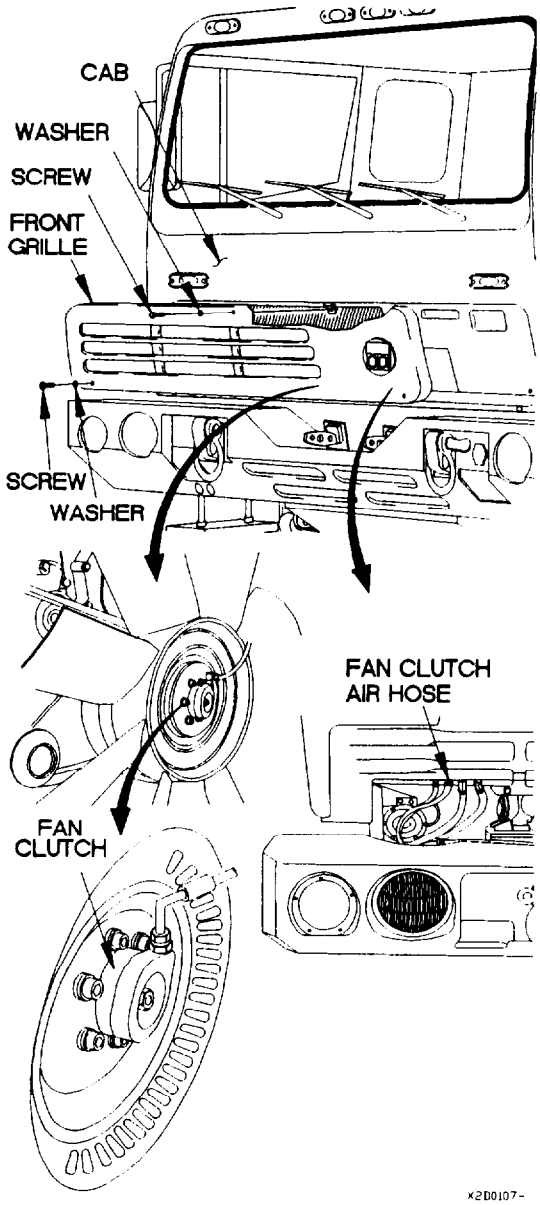
FAN CLUTCH TEST

(1) Remove two screws and washers from front grille.
(2) Remove screw and washer from front grille.
(3) Remove front grille from cab.
(4) Disconnect air hose going to fan clutch.

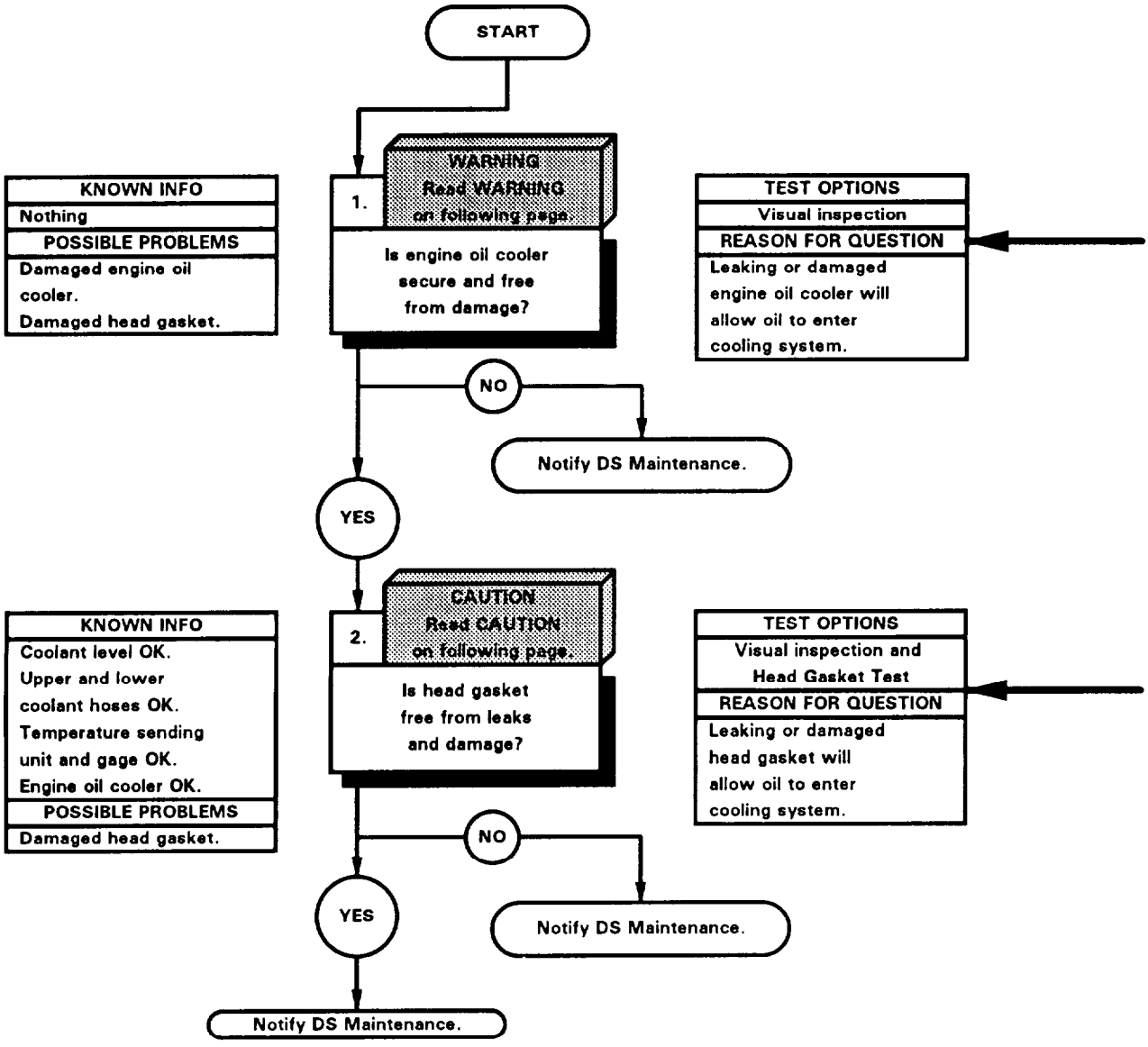
NOTE

If fan clutch turns freely, fan clutch is defective.

(5) Ensure fan clutch does not turn freely.
(6) Connect air hose going to fan clutch.
(7) Start engine (TM 9-2320-366-10-1).
(8) Check for leaks in air hose.
(9) Shut down engine (TM 9-2320-366-10-1).
(10) Position front grille on cab with washer and nut.
(11) Position two washers and screws in front grille.
(12) Tighten screw to 48-60 lb-in. (5-7 N·m).
(13) Tighten two screws to 24 lb-in. (3 N·m).



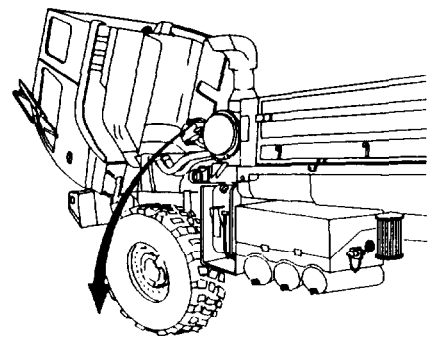
d2. OIL IN COOLING SYSTEM	
INITIAL SETUP	
Equipment Conditions Engine shut down (TM 9-2320-366-10-1).	**Tools and Special Tools** Tool Kit, Genl Mech (Item 46, Appendix C) Adapter, Radiator (Item 1, Appendix B) Pressure Tester, Radiator (Item 26, Appendix C)

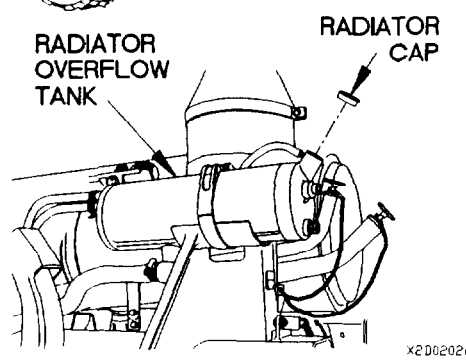


WARNING

Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.

(1) Raise cab (TM 9-2320-366-10-1).
(2) Check engine oil cooler for leaks and damage.





Check head gasket area for obvious signs of leaks and damage.

HEAD GASKET TEST

(1) Remove radiator cap from radiator overflow tank.
(2) Install adapter on radiator overflow tank.
(3) Install pressure tester on adapter.

CAUTION

Do not pressurize over 16 psi (110 kPa). Failure to comply may result in damage to cooling system.

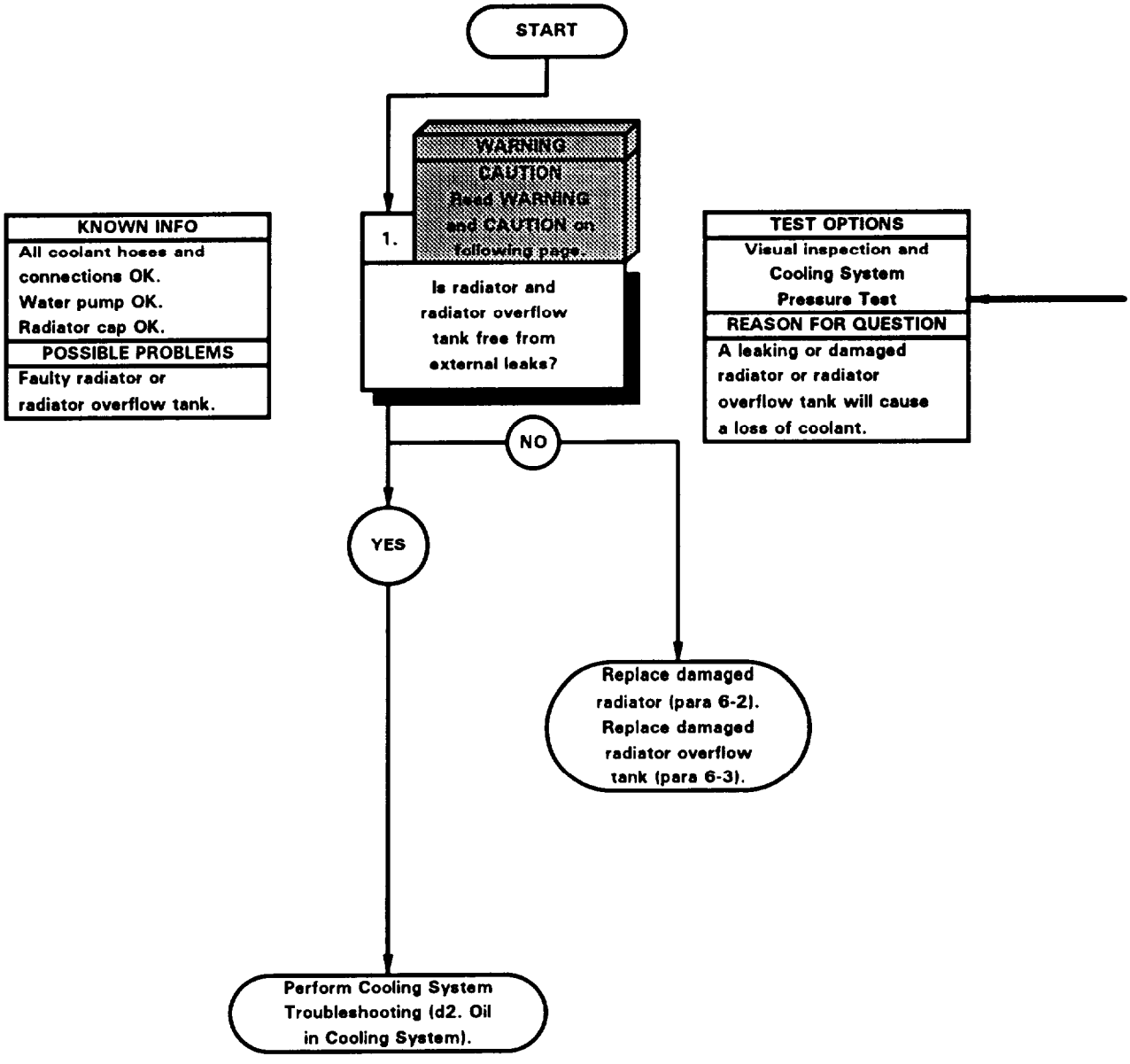
(4) Pressurize cooling system to 15 psi (103 kPa) and check cylinder head for leaks.
(5) Release pressure and remove pressure tester from adapter.
(6) Remove adapter from radiator overflow tank.
(7) Install radiator cap on radiator overflow tank.
(8) Lower cab (TM 9-2320-366-10-1).

d3. LOSS OF COOLANT

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Adapter, Radiator (Item 1, Appendix B)
Pressure Tester, Radiator (Item 26, Appendix C)



WARNING

Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.

(1) Raise cab (TM 9-2320-366-10-1).
(2) Check radiator and radiator overflow tank for leaks and damage.
(3) Lower cab (TM 9-2320-366-10-1).

COOLING SYSTEM PRESSURE TEST

(1) Remove radiator cap from radiator overflow tank.
(2) Install adapter on radiator overflow tank.
(3) Install pressure tester on adapter.

CAUTION

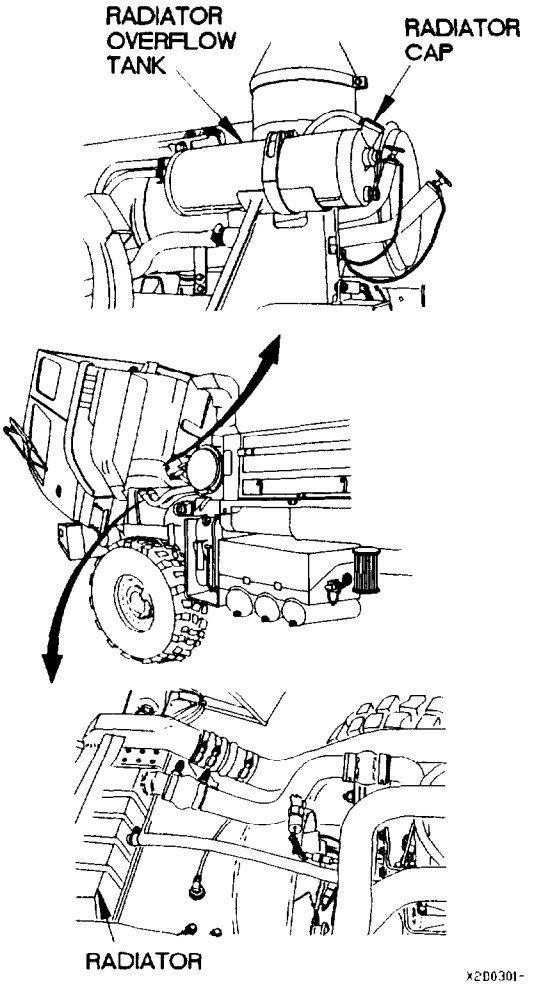
Do not pressurize over 16 psi (110 kPa). Failure to comply may result in damage to cooling system.

(4) Pressurize radiator overflow tank, using tester, to 15 psi.
(5) Observe radiator and radiator overflow tank for coolant leaks.

NOTE

Pressure loss without external leaks indicates internal coolant leaks.

(6) Observe radiator tester for loss of pressure.
(7) Remove pressure tester and adapter from radiator overflow tank.
(8) Install radiator cap on radiator overflow tank.



2-16. ELECTRICAL SYSTEM TROUBLESHOOTING

This paragraph covers Electrical System Troubleshooting. The Electrical System Fault Index, Table 2-7, lists faults for the electrical system of the vehicle.

Table 2-7. Electrical System Fault Index

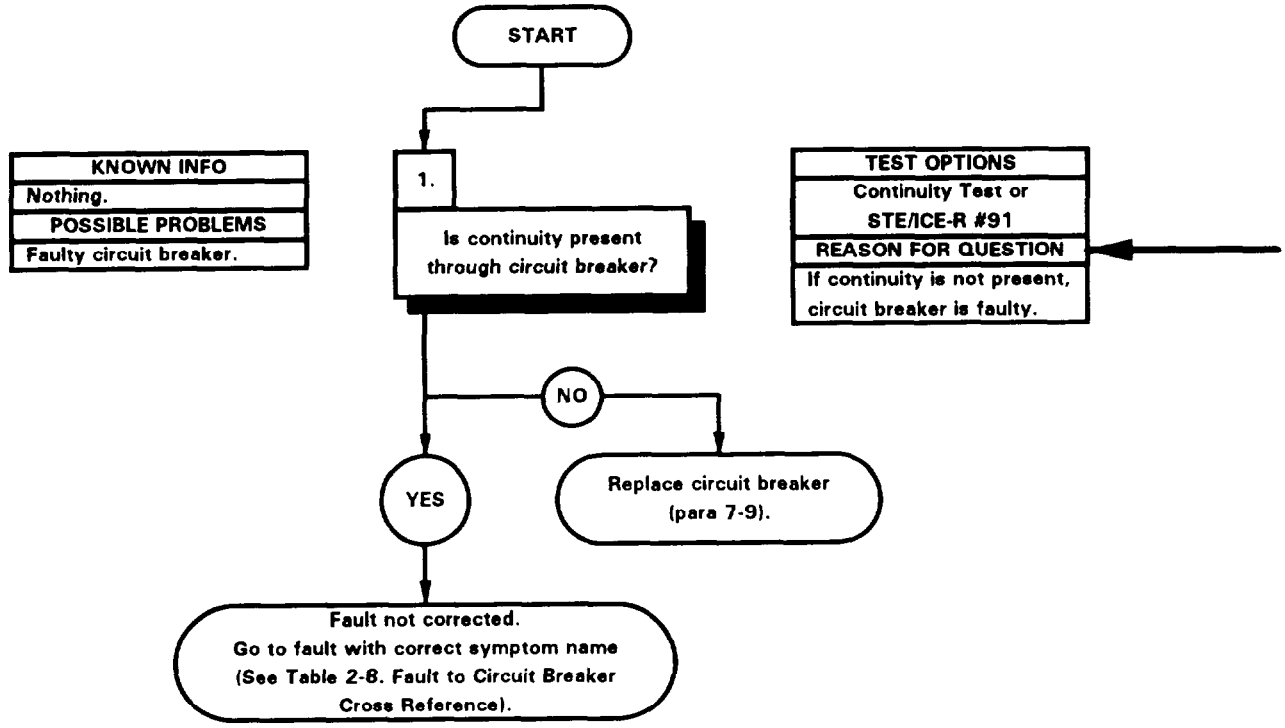
Fault No.	Description	Page
e1.	Circuit Breaker Does Not Operate	2-158
e2.	Engine Does Not Crank/24 VDC Circuits Do Not Operate	2-164
e3.	12 VDC and 24 VDC Circuits Do Not Operate	2-264
e4.	12 VDC Circuits Do Not Operate (100 Amp Alternator)	2-268
e5.	12 VDC Circuits Do Not Operate (200 Amp Alternator)	2-286
e6.	Engine Cranks But Does Not Start	2-310
e7.	Fuel Gage Does Not Operate or is Inaccurate	2-318
e8.	Water Temperature Gage Does Not Operate or is Inaccurate	2-324
e9.	Rear Brake Air Pressure Gage Does Not Operate or is Inaccurate	2-328
e10.	Front Brake Air Pressure Gage Does Not Operate or is Inaccurate	2-332
e11.	Engine Oil Pressure Gage Does Not Operate or is Inaccurate	2-336
e12.	Speedometer Does Not Operate or is Inaccurate	2-342
e13.	Volts Gage Does Not Operate or is Inaccurate	2-356
e14.	Tachometer Does Not Operate or is Inaccurate	2-358
e15.	Audible Alarm Does Not Operate (All Models Except M1083/M1090/M1093/M1094)	2-368
e16.	Audible Alarm Does Not Operate (Models M1083/M1090/M1093/M1094 only)	2-372
e17.	Lamp Test Switch Does Not Illuminate	2-382
e18.	Instrument Panel Switch Does Not Illuminate	2-388
e19.	Instrument Panel Gage Does Not Illuminate	2-392
e20.	Auxiliary Instrument Panel, Personnel Heater, and Instrument Panel Do Not Illuminate	2-396
e21.	Tachometer Does Not Illuminate	2-400
e22.	Auxiliary Instrument Panel Switch Does Not Illuminate	2-404
e23.	Auxiliary Instrument Panel Does Not Illuminate	2-408
e24.	High Engine Temperature Indicator Does Not Operate	2-412
e25.	Central Tire Inflation System (CTIS) Overspeed Indicator Does Not Operate	2-420
e26.	Chemical Detector Indicator Does Not Operate	2-434
e27.	Left Turn Signal Indicator Does Not Operate	2-438
e28.	Right Turn Signal Indicator Does Not Operate	2-442
e29.	Turn Signal Indicators and High Beams On Indicator Do Not Operate	2-448
e30.	High Beams On Indicator Does Not Operate	2-450
e31.	Parking Brake Indicator and/or Emergency Brake Indicator Does Not Operate	2-454
e32.	Power Take-Off (PTO) Indicator Does Not Operate	2-470
e33.	Fan Off Indicator Does Not Operate	2-482
e34.	Dump Up Indicator Does Not Operate	2-488
e35.	WTEC II Transmission Temperature Indicator Does Not Operate	2-498
e36.	WTEC Ill Transmission Temperature Indicator Does Not Operate	2-506
e37.	Front Brake Air Indicator Does Not Operate	2-512
e38.	Rear Brake Air Indicator Does Not Operate	2-518
e39.	Engine Oil Pressure Indicator Does Not Operate	2-524
e40.	Master Stop Indicator Does Not Operate	2-530
e41.	One or Both Headlights (High and Low Beam) Do Not Illuminate	2-532
e42.	One or Both Headlight Low Beams Do Not Illuminate	2-540

2-16. ELECTRICAL SYSTEM TROUBLESHOOTING (CONT)

Table 2-7. Electrical System Fault Index (Cont)

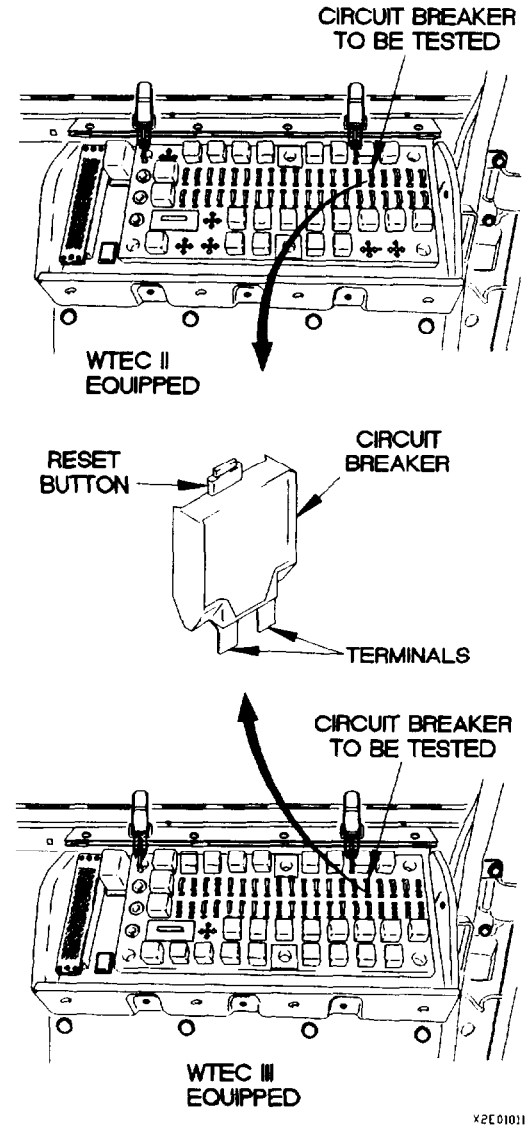
Fault No.	Description	Page
e43.	One or Both Headlight High Beams Do Not Illuminate	2-546
e44.	Parking Lights Do Not Illuminate	2-554
e45.	LH Door and/or LH Front Marker Lights Do Not Illuminate	2-562
e46.	RH Door and/or RH Front Marker Lights Do Not Illuminate	2-572
e47.	One or More Cab Top Marker Lights Do Not Illuminate	2-582
e48.	Side and/or Rear Marker Lights Do Not Illuminate	2-596
e49.	One or Both Composite Taillights Do Not Illuminate	2-606
e50.	One or Both Front Blackout Marker Lights Do Not Illuminate	2-616
e51.	Blackout Drive Light Does Not Illuminate	2-626
e52.	One or Both Rear Blackout Marker Lights Do Not Illuminate	2-636
e53.	Amber Warning Light Does Not Illuminate (All Models Except M1089)	2-646
e54.	M1089 Amber Warning Light Does Not Illuminate	2-658
e55.	Backup Light Does Not Illuminate	2-670
e56.	Blackout Marker Lights Do Not Illuminate	2-708
e57.	Rear Hazard Lights Do Not Operate	2-710
e58.	Front and Rear Hazard Lights Do Not Operate	2-712
e59.	Front and Rear Turn Signals Do Not Operate	2-722
e60.	Left or Right Front Turn Signal Does Not Operate	2-734
e61.	One or Both Stoplights Do Not Operate	2-742
e62.	One or Both Blackout Stoplights Do Not Operate	2-760
e63.	Stoplights and Blackout Stoplights Do Not Operate	2-772
e64.	Stoplights Do Not Operate When M1088 Trailer Brakes Are Applied	2-782
e65.	Trailer Marker/Tailights Do Not Operate	2-786
e66.	Trailer Right Stop/Turn Light Does Not Operate	2-796
e67.	Trailer Left Stop/Turn Light Does Not Operate	2-806
e68.	Trailer Blackout Marker Lights Do Not Illuminate	2-816
e69.	Trailer Blackout Stoplights Do Not Illuminate	2-826
e70.	Intervehicle Clearance Lights Do Not Operate	2-836
e71.	Intervehicle Left Turn Signal Does Not Operate	2-840
e72.	Intervehicle Right Turn Signal Does Not Operate	2-846
e73.	Intervehicle Stoplights Do Not Operate	2-852
e74.	Intervehicle Taillights Do Not Operate	2-858
e75.	Personnel Heater Control Illumination Does Not Operate	2-862
e76.	Personnel Heater Fan Does Not Operate	2-868
e77.	Windshield Washer Does Not Operate	2-874
e78.	Windshield Wiper Does Not Operate on Low Speed	2-886
e79.	All Windshield Wiper Speeds Do Not Operate	2-894
e80.	Windshield Wiper Does Not Operate on Intermittent Speed	2-900
e81.	Windshield Wiper Does Not Operate on High Speed	2-910
e82.	Horn Does Not Operate	2-916
e83.	Chemical Alarm Does Not Operate	2-928
e84.	Chemical Detector Does Not Operate	2-936

e1. CIRCUIT BREAKER DOES NOT OPERATE	
INITIAL SETUP	
Equipment Conditions Engine shut down (TM 9-2320-366-10-1).	**Tools and Special Tools** Tool Kit, Genl Mech (Item 46, Appendix C) STE/ICE-R (Item 41, Appendix C) Multimeter, Digital (Item 22, Appendix C) **References** TM 9-4910-571-12&P



CONTINUITY TEST

(1) Remove power distribution panel (PDP) cover (para 16-2).
(2) Locate circuit breaker to be tested on PDP (see Table 2-8. Fault to Circuit Breaker Cross Reference).
(3) Check reset button on circuit breaker. If button is up (circuit breaker tripped), press button to reset.
(4) Remove circuit breaker to be tested from PDP.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to one circuit breaker terminal.
(7) Connect negative (-) probe of multimeter to other circuit breaker terminal and note reading on multimeter.
(8) If continuity is not present, replace circuit breaker (para 7-9).
(9) If continuity is present, fault not corrected. Go to fault with correct symptom name (see Table 2-8. Fault to Circuit Breaker Cross Reference).
(10) Install tested circuit breaker in PDP.
(11) Install PDP cover (para 16-2).



e1. CIRCUIT BREAKER DOES NOT OPERATE (CONT)

TABLE 2-8. FAULT TO CIRCUIT BREAKER CROSS REFERENCE

SYMPTOM	CIRCUIT BREAKER
e2. Engine does not crank/24 vdc circuits do not operate.	CB21, CB70, CB77, CB95
e6. Engine cranks but does not start.	CB35, CB79
e7. Fuel level gage does not operate or is inaccurate.	CB77
e8. Water temperature gage does not operate or is inaccurate.	CB77
e9. Rear brake air pressure gage does not operate or is inaccurate.	CB77
e10. Front brake air pressure gage does not operate or is inaccurate.	CB77
e11. Engine oil pressure gage does not operate or is inaccurate.	CB77
e12. Speedometer does not operate or is inaccurate.	CB77
e13. Volts gage does not operate or is inaccurate.	CB77
e14. Tachometer does not operate or is inaccurate.	CB77
e15. Audible alarm does not operate (all models except M1083/M1090/M1093/M1094).	CB35, CB79
e16. Audible alarm does not operate (models M1083/M1090/M1093/M1094 only).	CB35, CB79
e18. Instrument panel gage does not illuminate.	CB77
e19. Instrument panel switch does not illuminate.	CB77
e20. Auxiliary panel, instrument panel, and personnel heater do not illuminate.	CB23
e21. Tachometer does not illuminate.	CB23
e22. Auxiliary panel switch does not illuminate.	CB23
e23. Auxiliary panel does not illuminate.	CB23
e24. High engine temperature indicator does not operate.	CB77
e25. CTIS overspeed indicator does not operate.	CB40
e26. Chemical detector indicator does not operate.	CB30
e27. Left turn signal indicator does not operate.	CB74
e28. Right turn signal indicator does not operate.	CB74
e29. Turn signal indicators and high beams on indicator do not operate.	CB61, CB62, CB74
e30. High beams indicator does not operate.	CB74
e31. Parking brake indicator and/or emergency brake indicator does not operate.	CB74
e32. PTO indicator does not operate.	CB49
e33. Fan off indicator does not operate.	CB22
e34. Dump up indicator does not operate.	CB50
e35. WTEC II transmission temperature indicator does not operate.	CB77
e36. WTEC III transmission temperature indicator does not operate.	CB77
e37. Front brake air indicator does not operate.	CB77
e38. Rear brake air indicator does not operate.	CB77
e39. Engine oil pressure indicator does not operate.	CB77
e40. Master stop indicator does not operate.	CB77
e41. One or both headlights (high and low beams) do not illuminate.	CB61, CB62, CB63, CB64
e42. One or both headlight low beams do not illuminate.	CB63, CB64
e43. One or both headlight high beams do not illuminate.	CB61, CB62/CB76, CB43
e44. Parking lights do not illuminate.	CB65

TABLE 2-8. FAULT TO CIRCUIT BREAKER CROSS REFERENCE (CONT)

SYMPTOM	CIRCUIT BREAKER
e45. LH door and/or LH front marker lights do not illuminate.	CB67
e46. RH door and/or RH front marker lights do not illuminate.	CB67
e47. One or more cab top marker lights do not illuminate.	CB67
e48. Side and/or rear marker lights do not illuminate.	CB67
e49. One or both composite lights do not illuminate.	CB43, CB44, CB67
e50. One or both front blackout marker lights do not illuminate.	CB66
e51. Blackout drive light does not illuminate.	CB54, CB66
e52. One or both rear blackout markers do not illuminate.	CB66
e53. Warning light does not illuminate (all vehicles except M1089)	CB38
e54. M1089 warning light does not illuminate.	CB38
e55. Backup light does not illuminate.	CB73
e56. Blackout marker lights do not illuminate.	CB66
e57. Rear hazard lights do not operate.	CB71
e58. Front and rear hazard lights do not illuminate.	CB71
e59. Front and rear turn signals do not operate.	CB74
e60. Left or right front turn signal does not operate.	CB74
e61. One or both stoplights do not operate.	CB43, CB44, CB67
e62. One or both blackout stoplights do not operate.	CB76
e63. Stoplights and blackout stoplights do not operate.	CB76
e64. Stoplights do not operate when M1088 trailer brakes are applied.	CB39
e75. Personnel heater illumination does not operate.	CB23
e76. Personnel heater fan does not operate.	CB23
e77. Windshield washer does not operate.	CB54
e78. Windshield wiper does not operate on low speed.	CB37
e79. All windshield wiper speeds do not operate.	CB37
e80. Windshield wiper does not operate on intermittent speed.	CB37
e81. Windshield wiper does not operate on high speed.	CB37
e82. Horn does not operate.	CB36
e83. Chemical alarm does not operate.	CB30
e84. Chemical detector does not operate.	CB30
e85. CTIS does not operate.	CB40
e86. CTIS does not inflate tires.	CB40
e87. CTIS does not deflate tires.	CB40
e88. Winch does not reel in or pay out.	CB49
e89. Winch does not reel in.	CB49
e90. Winch does not pay out.	CB49
e91. PTO does not operate.	CB49
e92. Electrical system does not maintain a charge.	CB77
e93. WTEC II transmission ECU pushbutton shift selector (TEPSS) illumination does not dim.	CB77
e94. Differential solenoid does not operate.	CB21
e95. Engine fan runs constantly.	CB22
e96. Engine fan does not turn off using radiator fan off switch.	CB22
e97. Ether start does not operate.	CB22
e98. Excessive condensation in fuel.	CB79
e99. Radio does not operate.	CB20

e1. CIRCUIT BREAKER DOES NOT OPERATE (CONT)

TABLE 2-8. FAULT TO CIRCUIT BREAKER CROSS REFERENCE (CONT)

SYMPTOM	CIRCUIT BREAKER
e100. Start inhibit pushbutton does not operate.	CB79
e104. M1084/M1086 Material Handling (MHC) Does not operate.	CB48
e105. M1084/M1086 Material Handling Crane (MHC) does not operate from remote control.	CB48
e106. M1084/M1086 Material Handling Crane (MHC) HOIST UP does not operate from remote station.	CB48
e107. M1084/M1086 Material Handling Crane (MHC) HOIST DOWN does not operate from remote station.	CB48
e108. M1084/M1086 Material Handling Crane (MHC) BOOM UP does not operate from remote station.	CB48
e109. M1084/M1086 Material Handling Crane (MHC) BOOM DOWN does not operate from remote station.	CB48
e110. M1084/M1086 Material Handling Crane (MHC) TELESCOPE IN does not operate from remote station.	CB48
e111. M1084/M1086 Material Handling Crane (MHC) TELESCOPE OUT does not operate from remote station.	CB48
e112. M1084/M1086 Material Handling Crane (MHC) SWING CW does not operate from remote station.	CB48
e113. M1084/M1086 Material Handling Crane (MHC) SWING CCW does not operate from remote station.	CB48
e114. M1084/M1086 Material Handling Crane (MHC) overload shutdown system does not activate.	CB48
e115. M1084/M1086 Material Handling Crane (MHC) overload shutdown system stays activated.	CB48
e116. M1084/M1086 Material Handling Crane (MHC) hoist up lockout does not activate.	CB48
e117. M1084/M1086 Material Handling Crane (MHC) boom down lockout does not activate.	CB48
e118. M1084/M1086 Material Handling Crane (MHC) boom up lockout does not activate.	CB48
e119. M1084/M1086 Material Hanlding Crane (MHC) telescope out lockout does not activate.	CB48
e120. M1089 Material Handling Crane (MHC) does not operate.	CB48
e121. M1089 Material Handling Crane (MHC) does not operate from remote control.	CB48
e122. M1089 Material Handling Crane (MHC) HOIST UP does not operate from remote control.	CB48
e123. M1089 Material Handling Crane (MHC) HOIST DOWN does not operate from remote control.	CB48
e124. M1089 Material Handling Crane (MHC) BOOM UP does not operate from remote control.	CB48
e125. M1089 Material Handling Crane (MHC) BOOM DOWN does not operate from remote control.	CB48
e126. M1089 Material Handling Crane (MHC) TELESCOPE IN does not operate from remote control.	CB48
e127. M1089 Material Handling Crane (MHC) TELESCOPE OUT does not operate from remote control.	CB48
e128. M1089 Material Handling Crane (MHC) SWING CW does not operate from remote control.	CB48
e129. M1089 Material Handling Crane (MHC) SWING CCW does not operate from remote control.	CB48

TABLE 2-8. FAULT TO CIRCUIT BREAKER CROSS REFERENCE (CONT)

SYMPTOM	CIRCUIT BREAKER
•130. M1089 Material Handling Crane (MHC) hoist up lockout does not activate.	CB48
•131. M1089 Material Handling Crane (MHC) boom down lockout does not activate.	CB48
•132. M1089 Material Handling Crane (MHC) boom up lockout does not activate.	CB48
•133. M1089 Material Handling Crane (MHC) telescope out lockout does not activate.	CB48
•136. All M1089 control functions do not operate from wrecker control panel and wrecker remote control.	CB53
•137. All wrecker functions do not operate from wrecker remote control.	CB53
•138. All wrecker functions do not operate from wrecker control panel.	CB53
•139. Main winch left or right speed function does not operate from wrecker control panel.	CB53
•140. Main winch left or right freespool function does not operate from wrecker control panel.	CB53
•141. One wrecker function does not operate from wrecker remote control.	CB53

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE

INITIAL SETUP

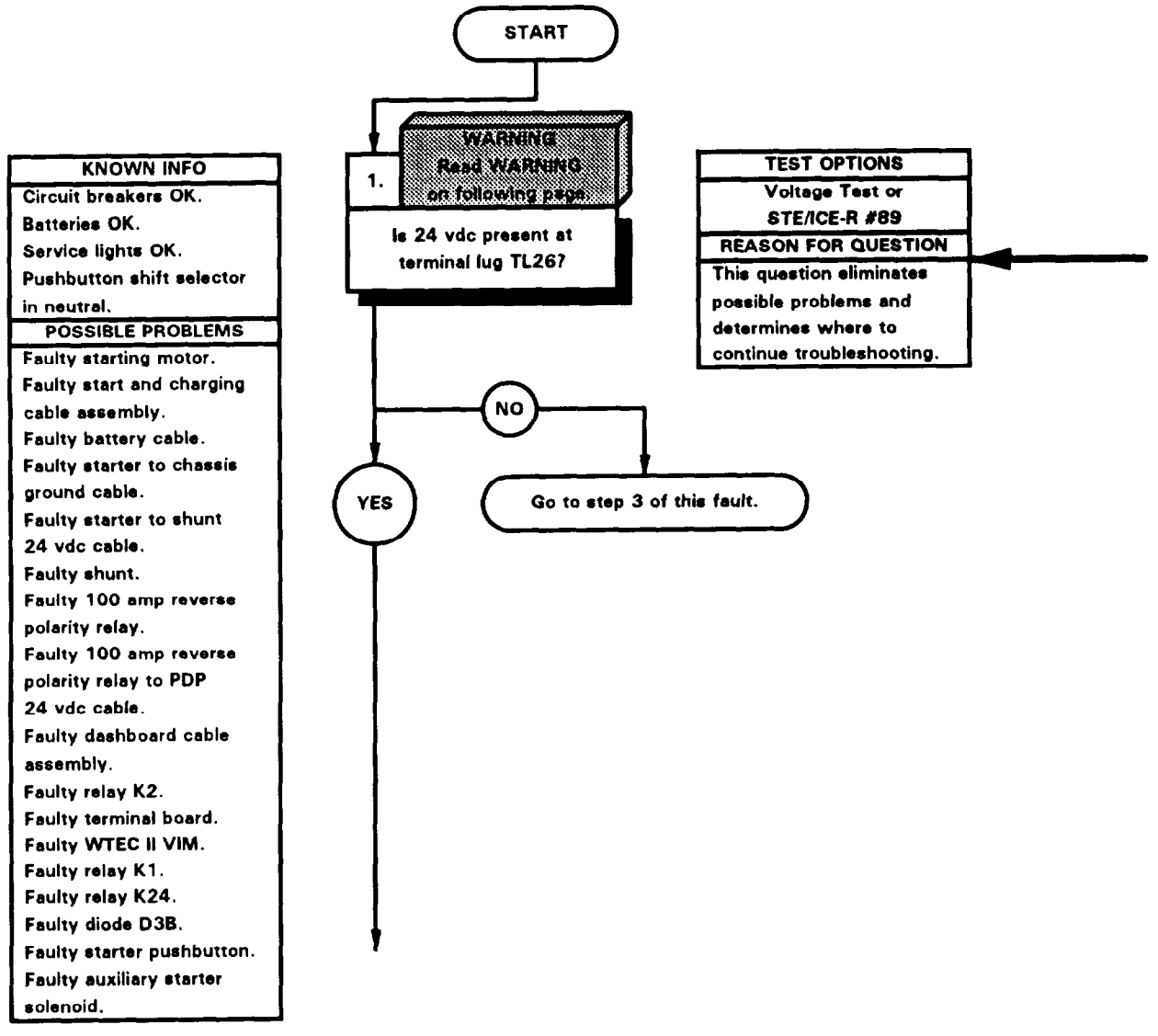
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Cab raised (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)
STE/ICE-R (Item 39, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

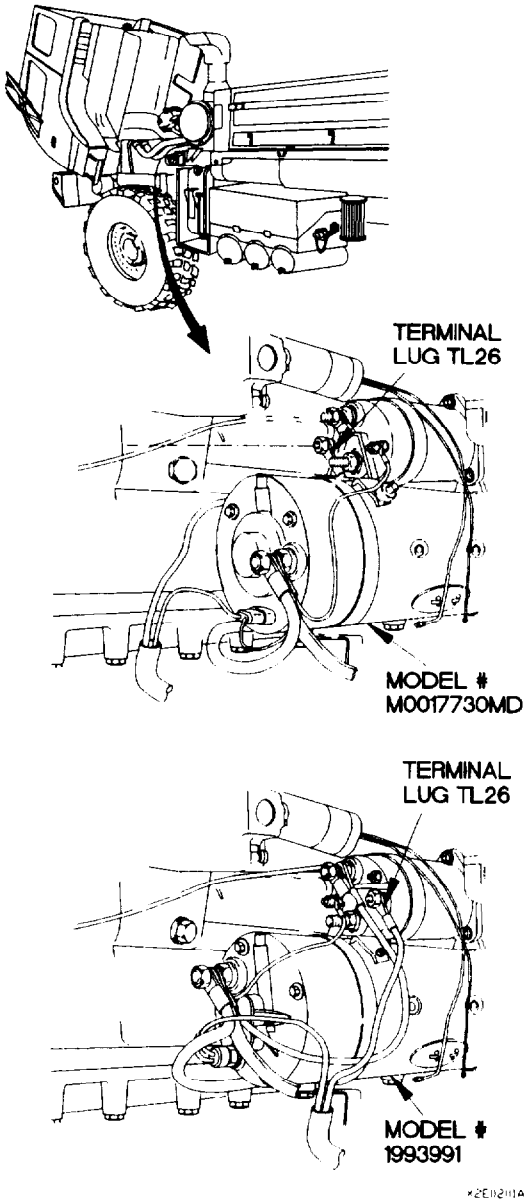


WARNING

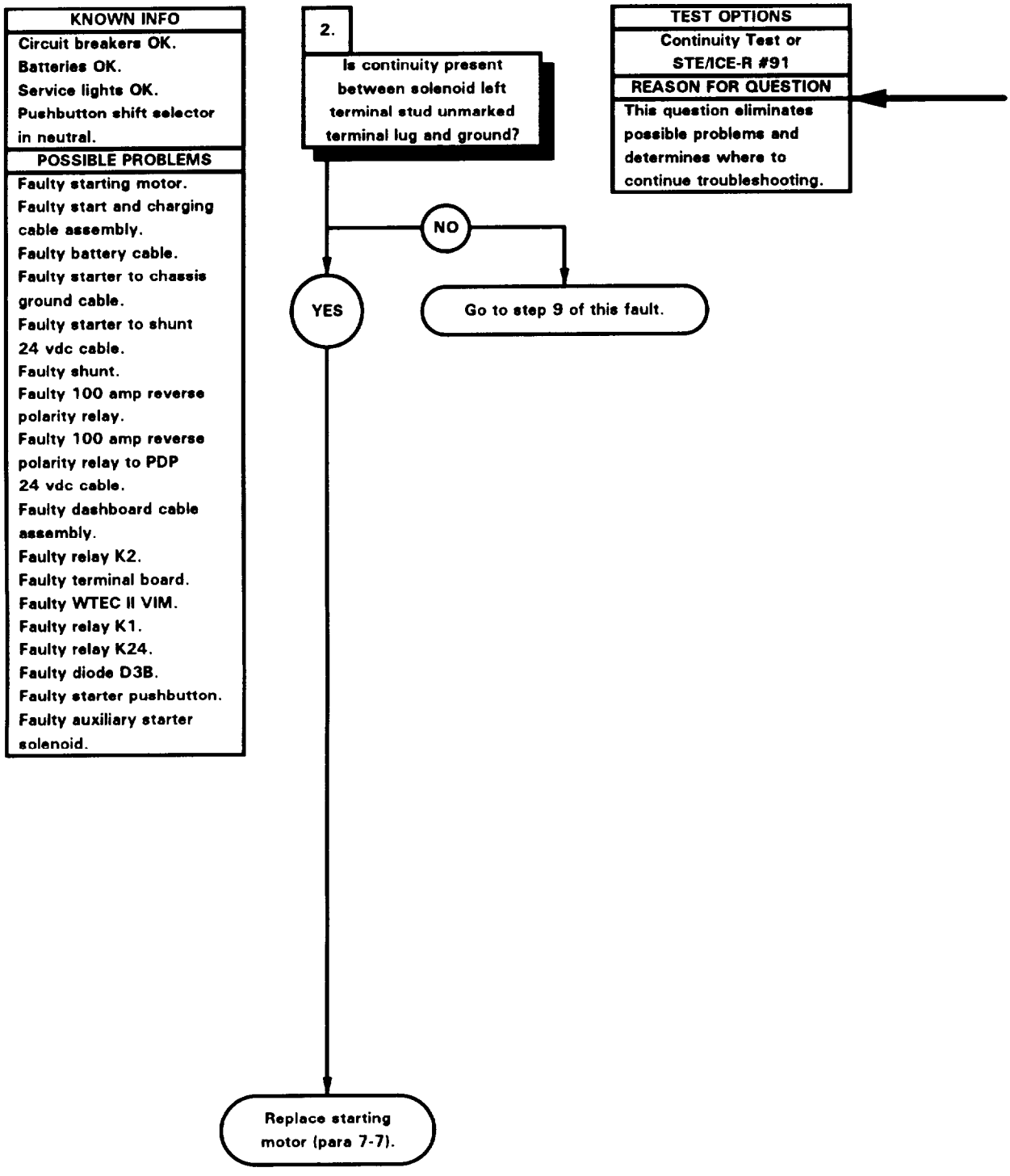
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

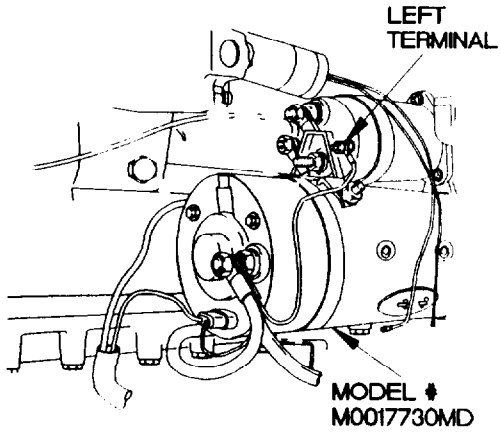
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal lug TL26.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1).
(5) Press starter pushbutton (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, go to step 3 of this fault.
(7) Position master power switch to off (TM 9-2320-366-10-1).

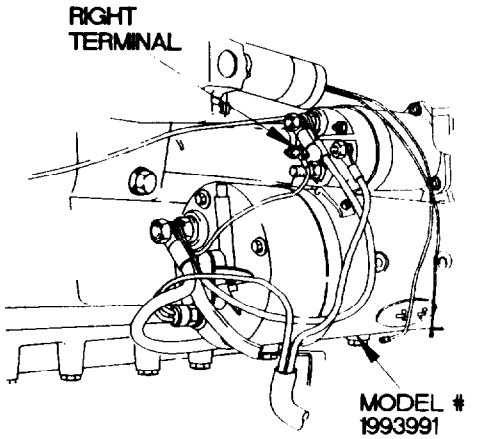


e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

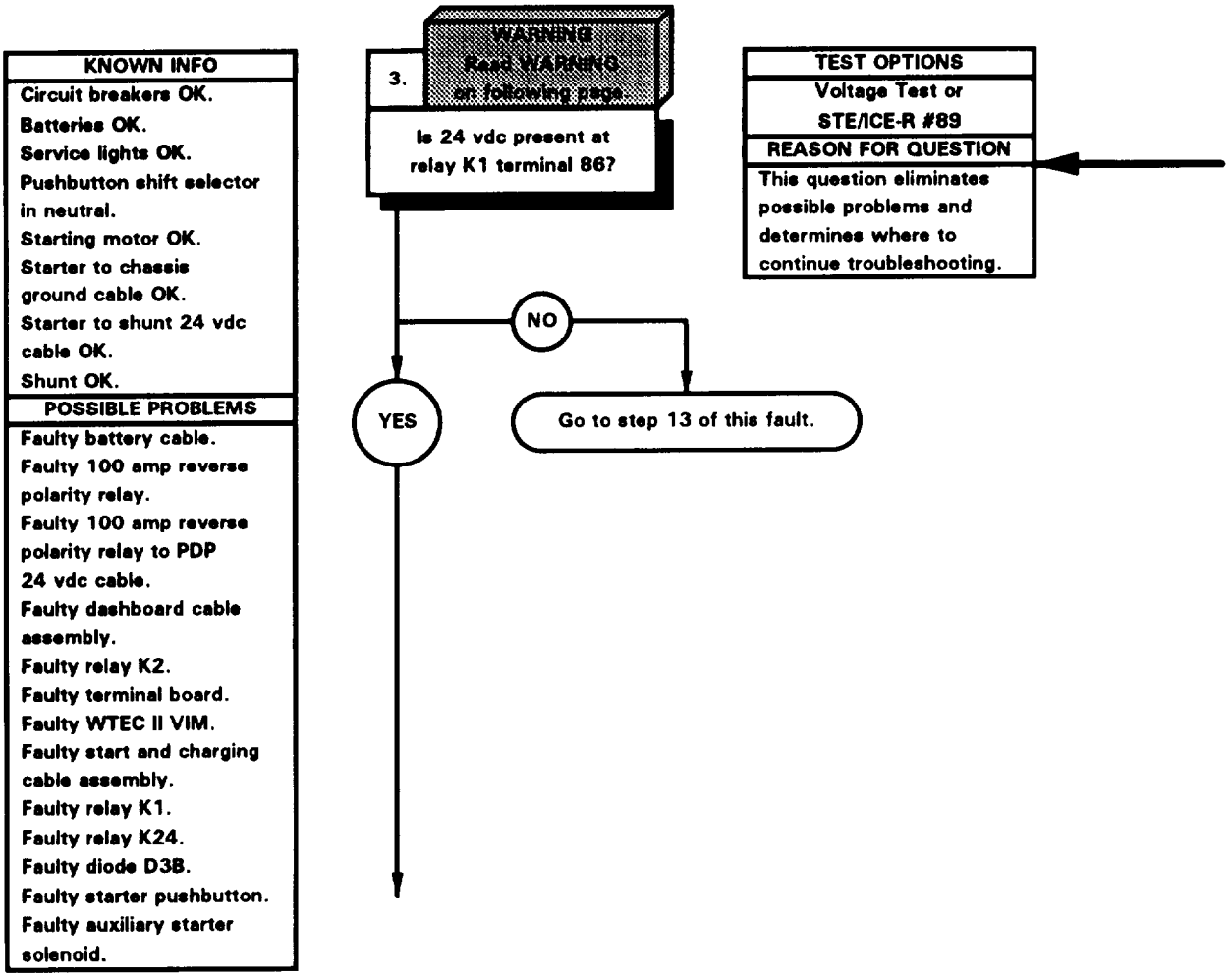


CONTINUITY TEST
(1) Disconnect batteries (para 7-57).
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to solenoid left (starting motor M0017730MD) or solenoid right (starting motor 1993991) terminal stud unmarked terminal lug.
(4) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(5) If continuity is not present, go to step 9 of this fault.
(6) If continuity is present, replace starting motor (para 7-7).





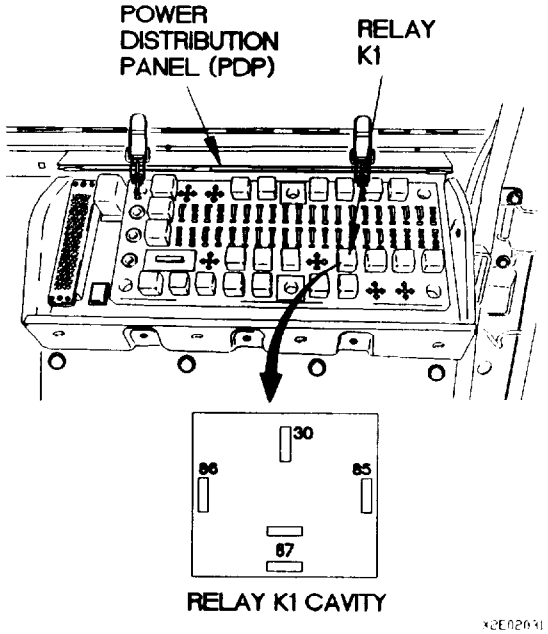
e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



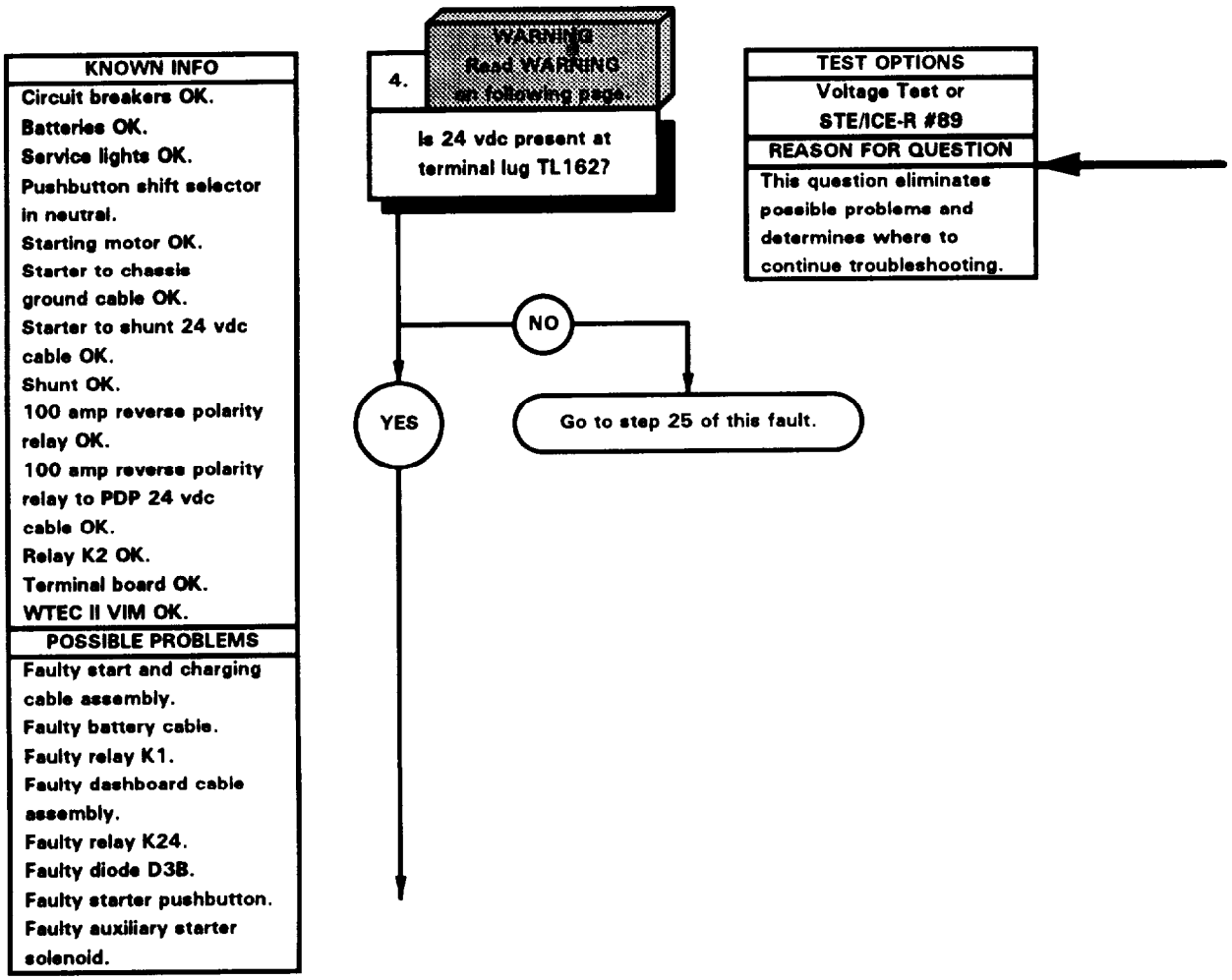
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST
(1) Lower cab (TM 9-2320-366-10-1).
(2) Remove PDP cover (para 16-2).
(3) Remove relay K1 from PDP.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to PDP terminal 86, where relay K1 was removed.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, go to step 13 of this fault.
(9) Position master power switch to off (TM 9-2320-366-10-1).
(10) Install relay K1 in PDP.



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

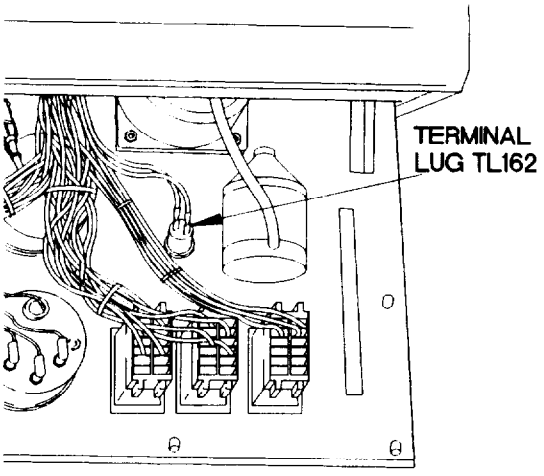


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

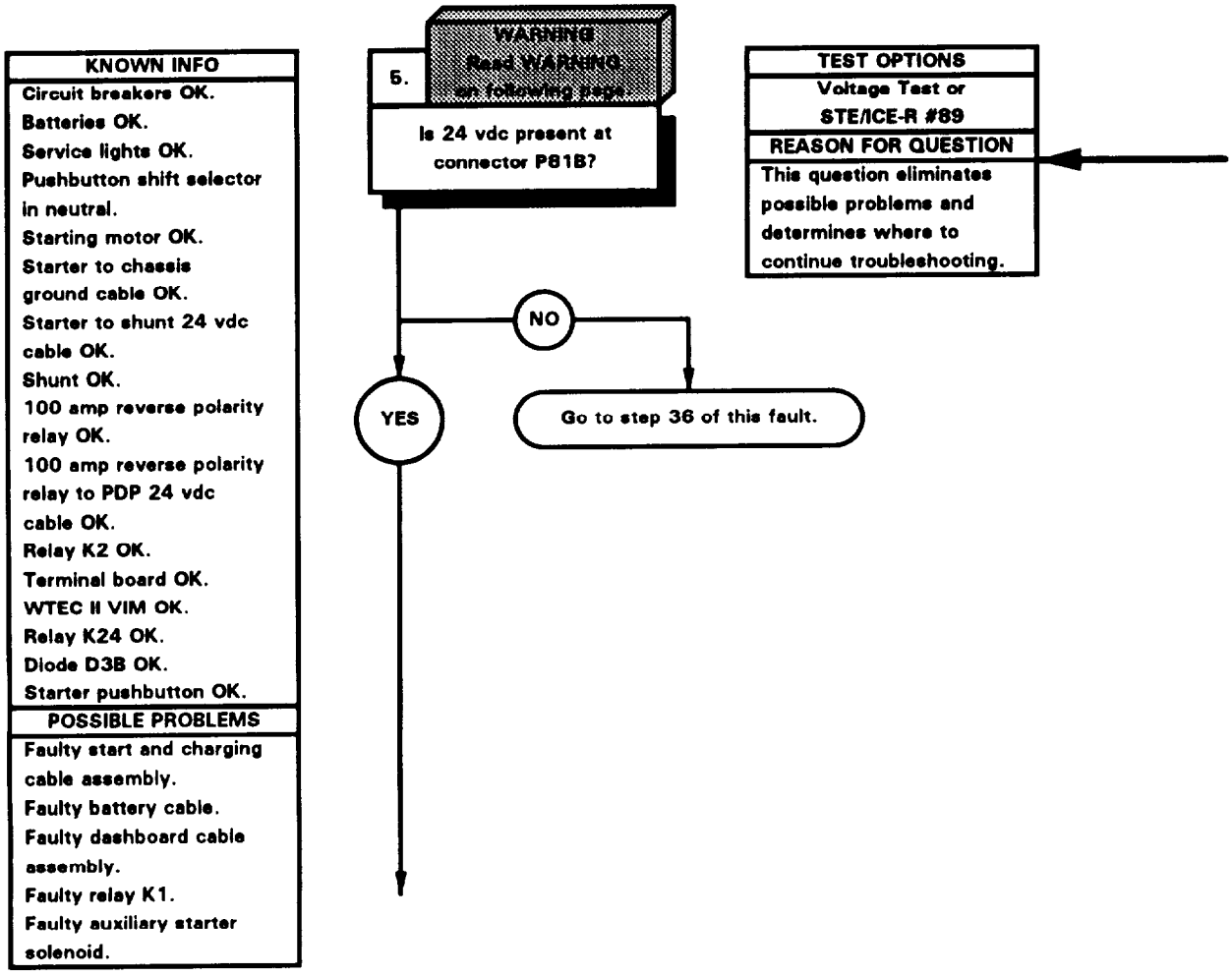
VOLTAGE TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal lug TL162.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, go to step 25 of this fault.
(7) Position master power switch to off (TM 9-2320-366-10-1).



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e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

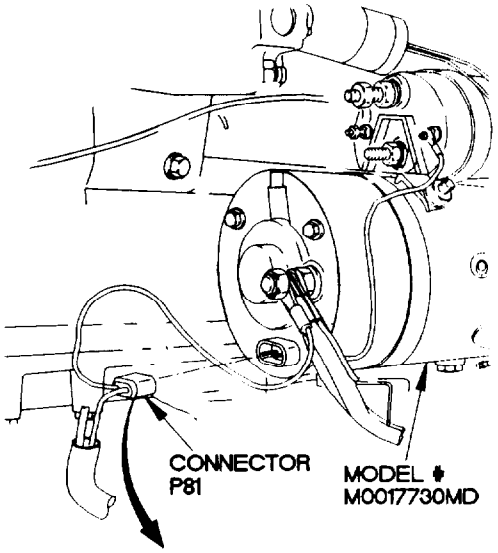


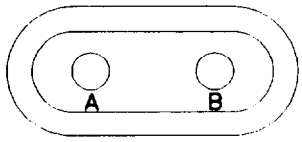
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

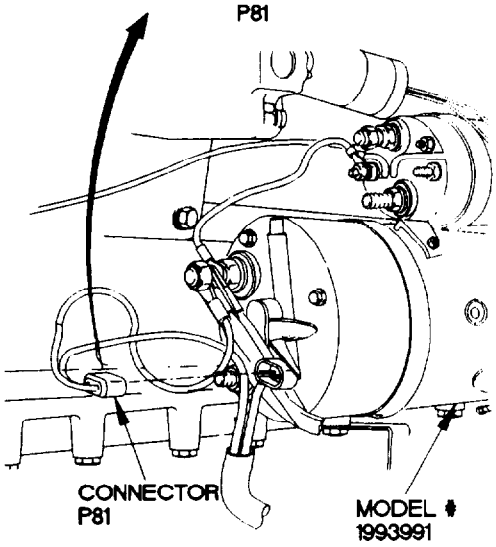
VOLTAGE TEST

(1) Install instrument panel assembly (para 7-15).
(2) Disconnect connector P81 from starting motor.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector P81B.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1).
(7) Press starter pushbutton (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, go to step 36 of this fault.
(9) Position master power switch to off (TM 9-2320-366-10-1).



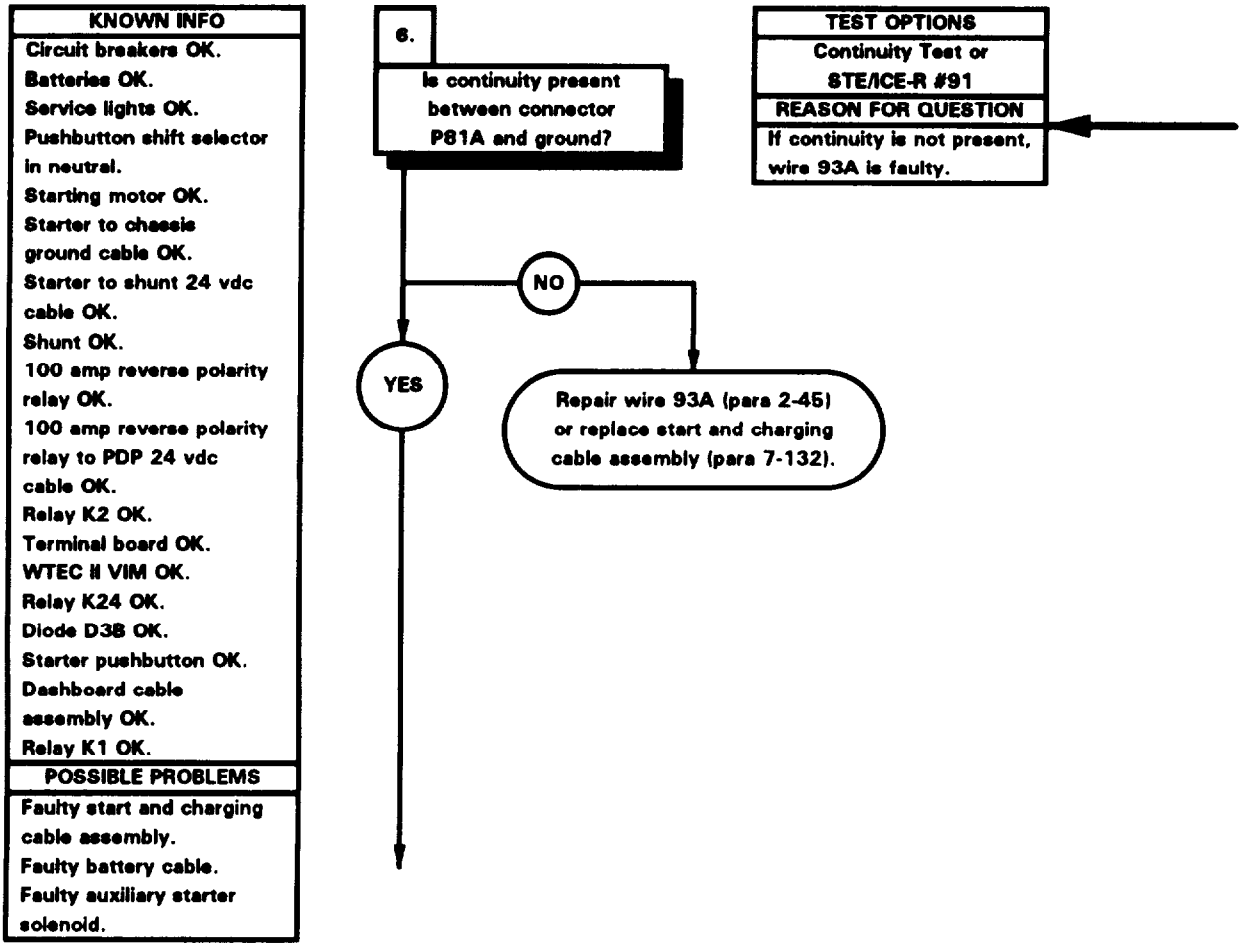


P81



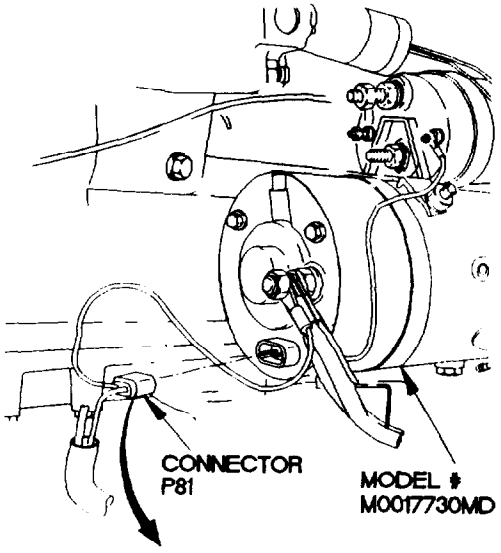
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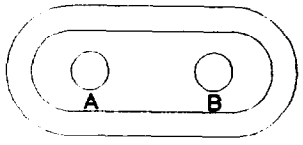
e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



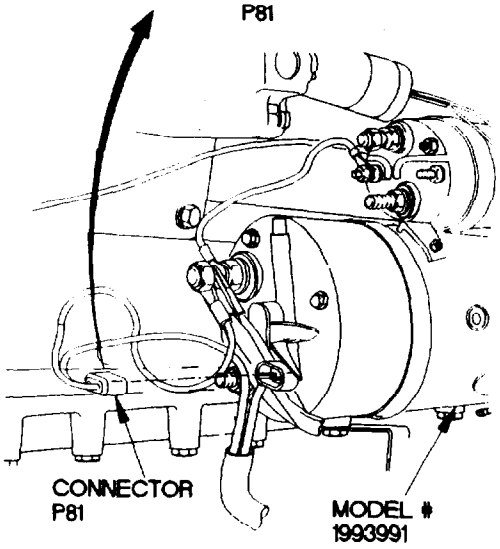
CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector P81A.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 93A (para 2-45) or replace start and charging cable assembly (para 7-132).
(5) Connect connector P81 to starting motor.

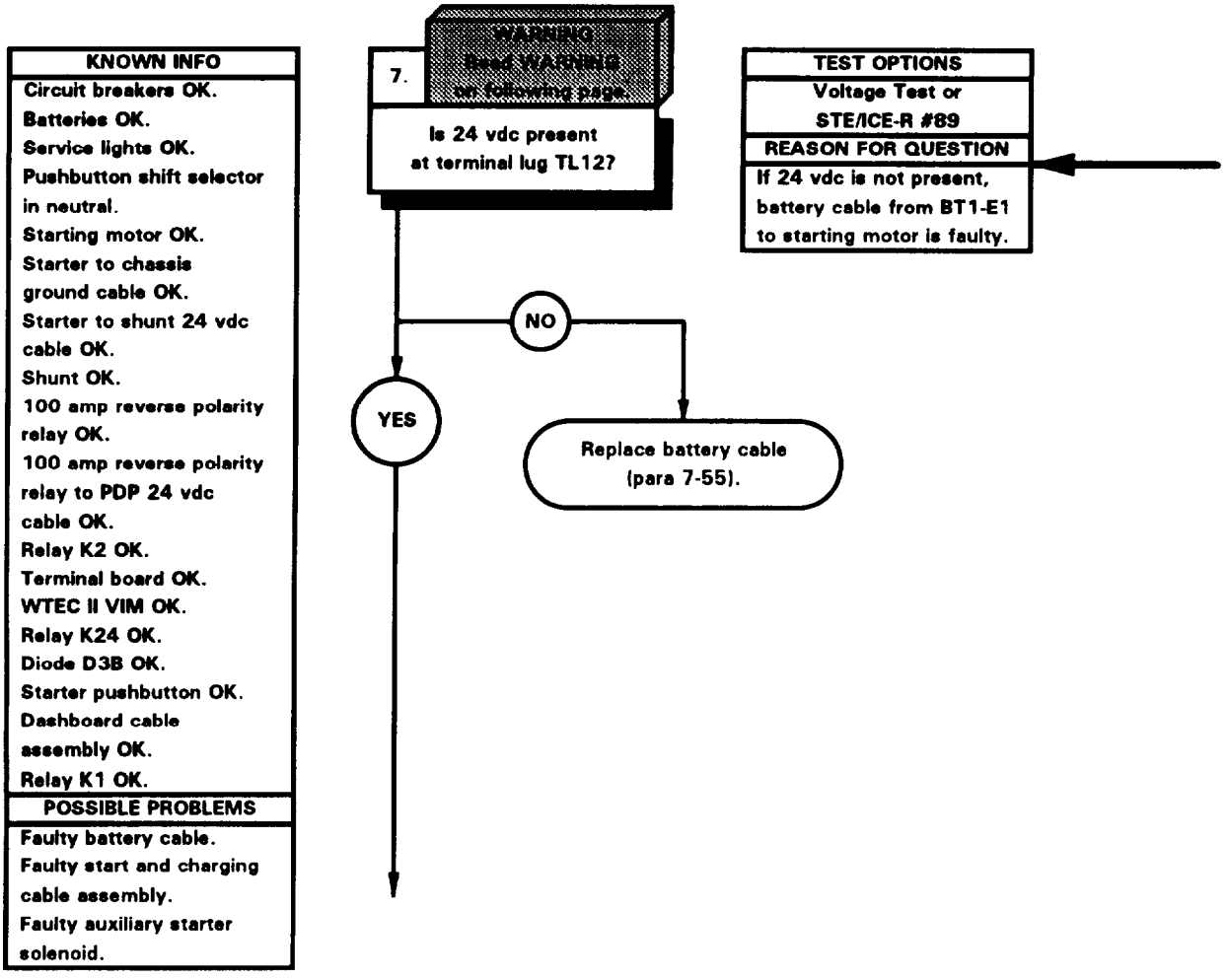




P81



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

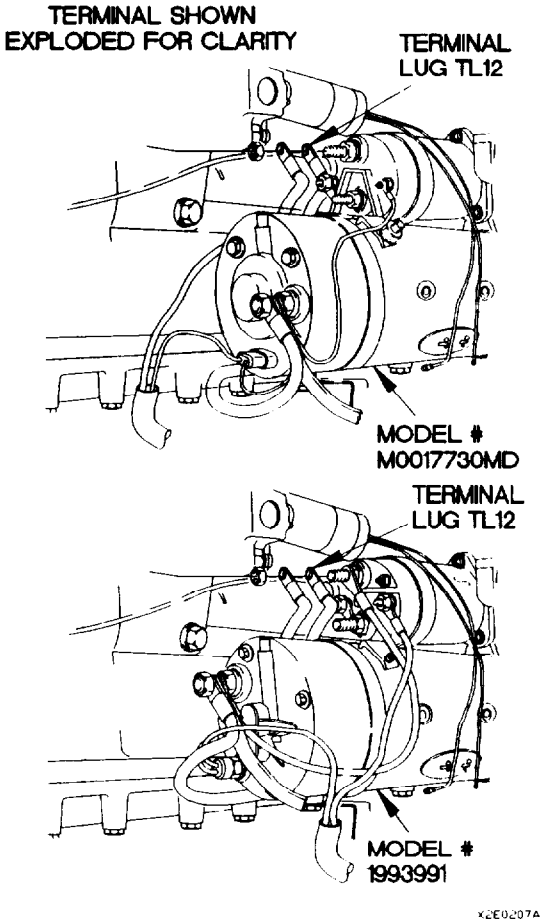


WARNING

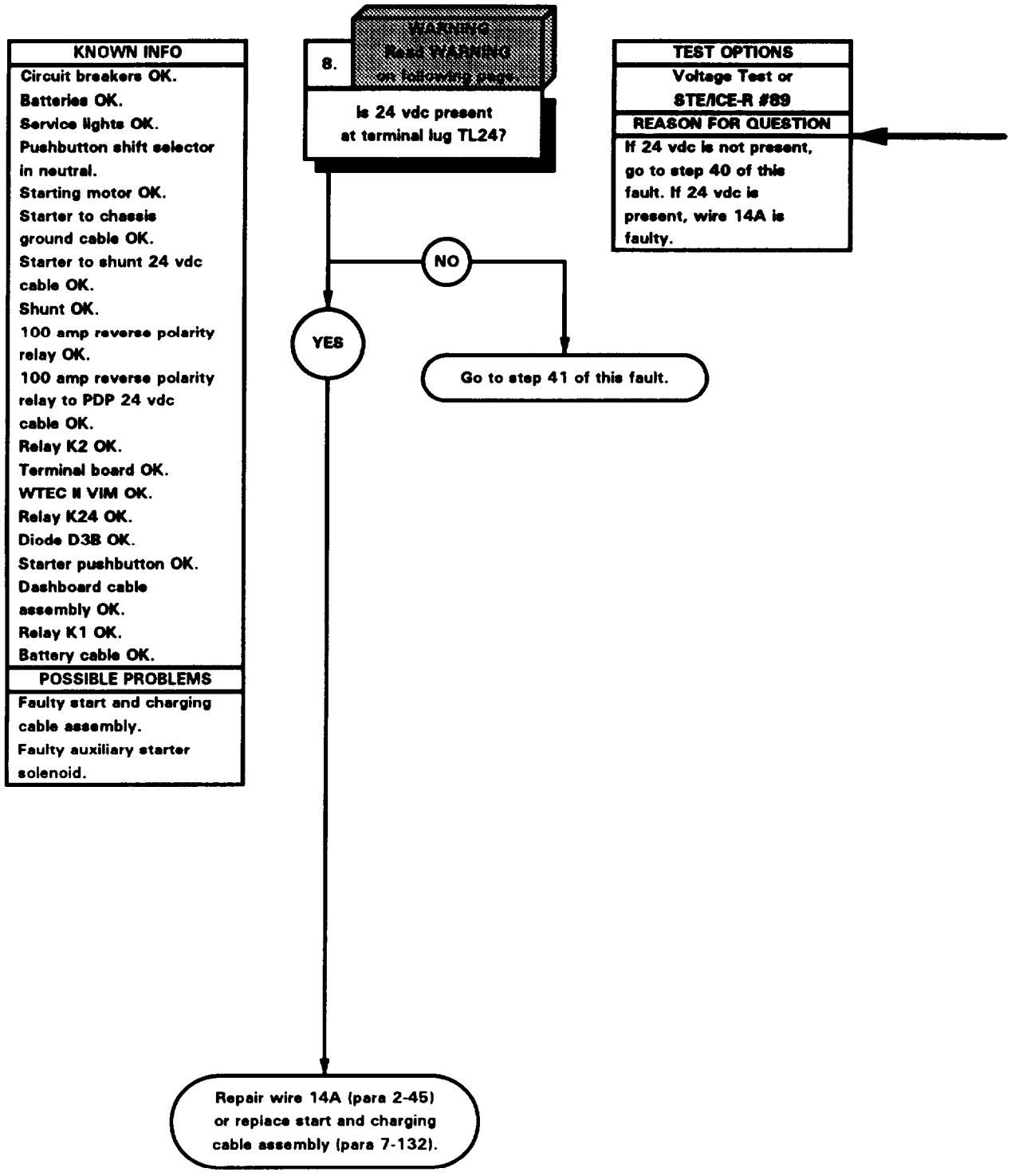
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Raise cab (TM 9-2320-366-10-1).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal lug TL12.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, replace battery cable (para 7-55).
(7) Position master power switch to off (TM 9-2320-366-10-1).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

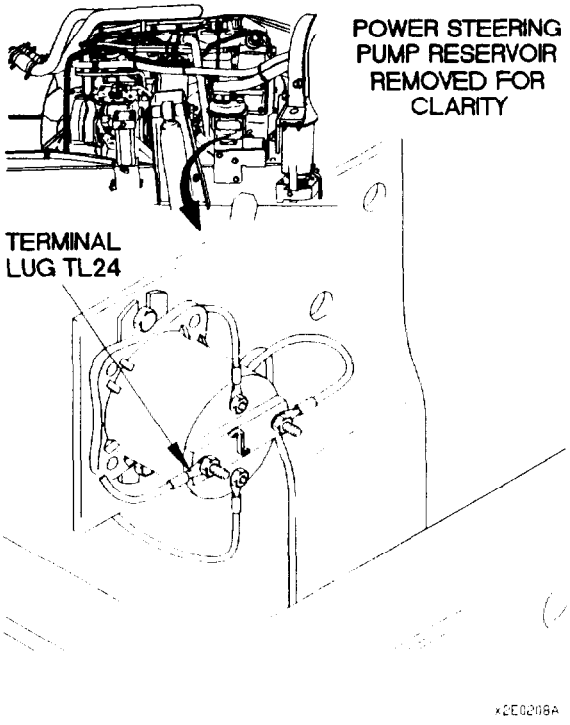


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

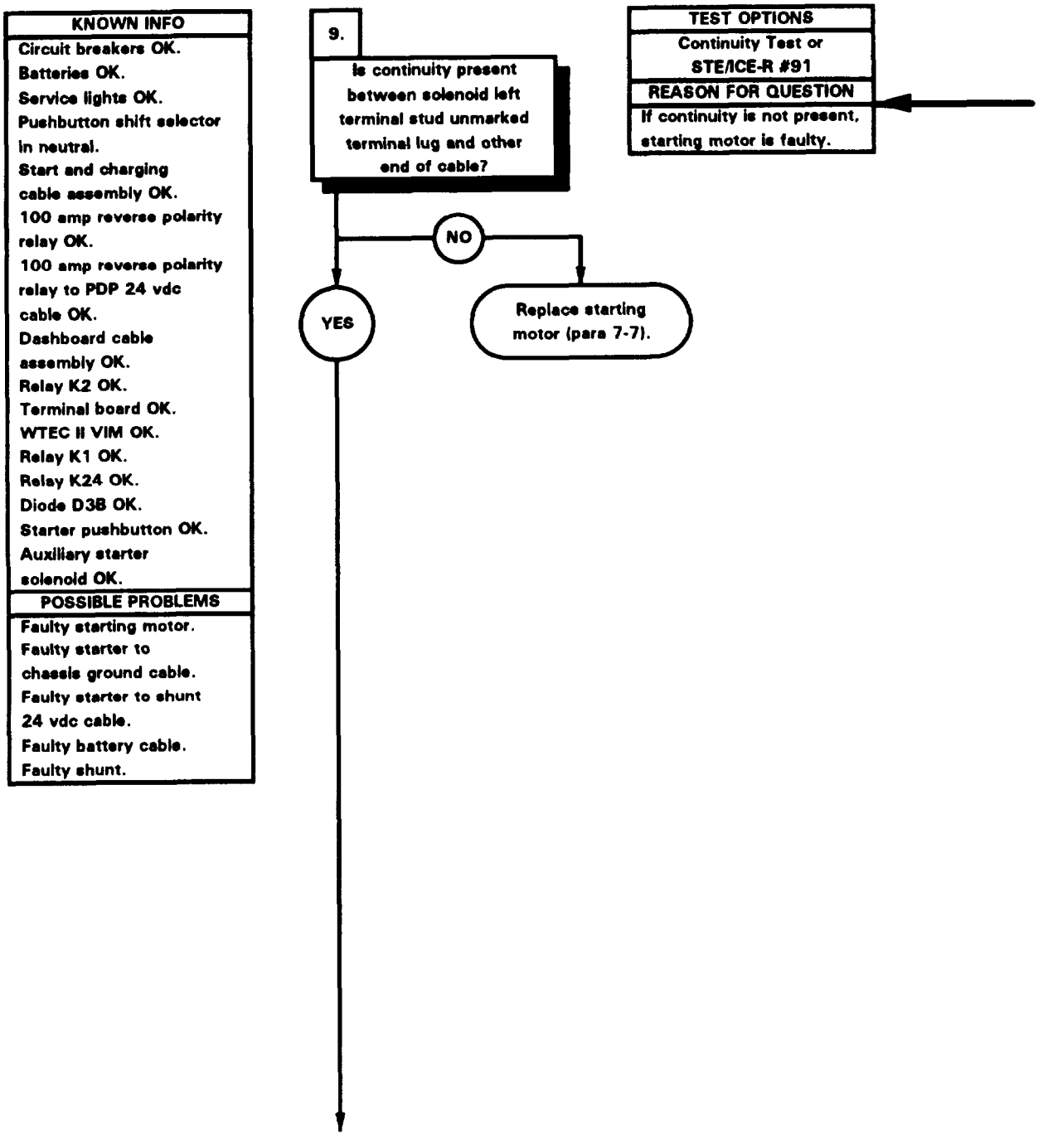
CONTINUITY TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal lug TL24.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1).
(5) Press starter pushbutton (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, go to step 41 of this fault.
(7) If 24 vdc is present, repair wire 14A (para 2-45) or replace start and charging cable assembly (para 7-132).
(8) Position master power switch to off (TM 9-2320-366-10-1).
(9) Lower cab (TM 9-2320-366-10-1).
(10) Install PDP cover (para 16-2).



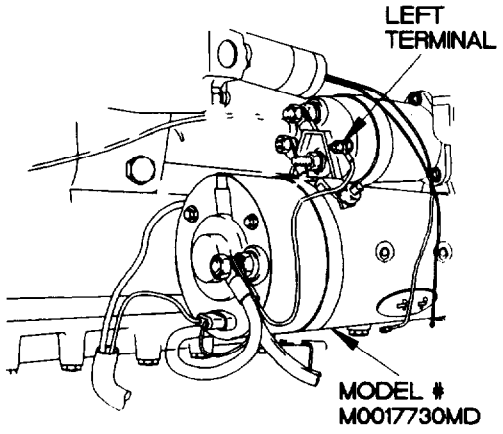
xCE0208A

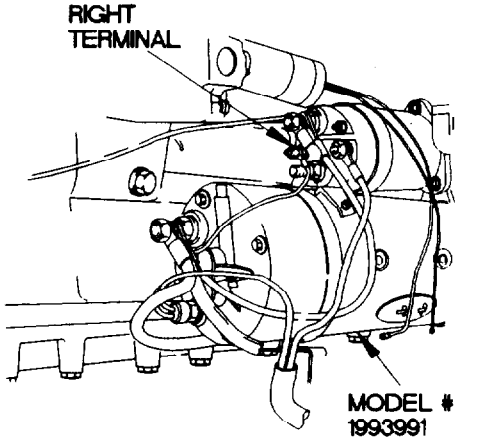
e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



CONTINUITY TEST

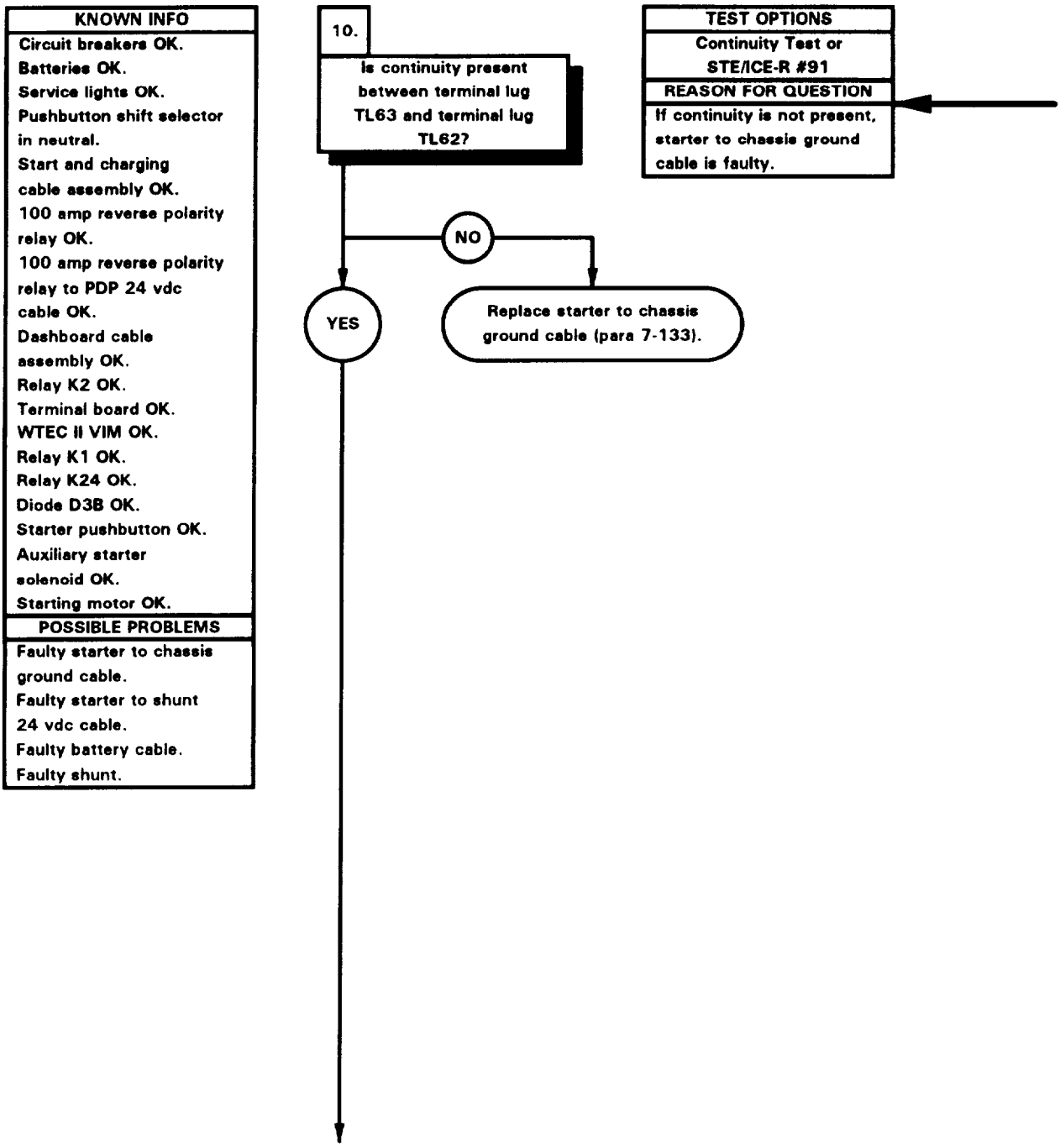
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to solenoid left (starting motor M0017730MD) or solenoid right (starting motor 1993991) terminal stud unmarked terminal lug.
(3) Connect negative (-) probe of multimeter to other end of cable and note reading on multimeter.
(4) If continuity is not present, replace starting motor (para 7-7).





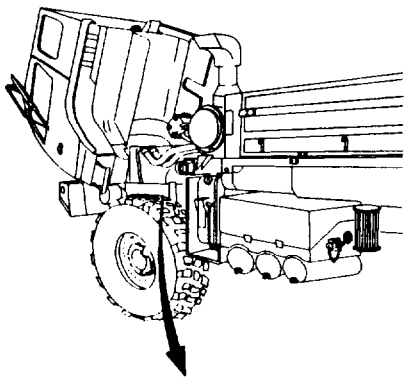
X2E0209A

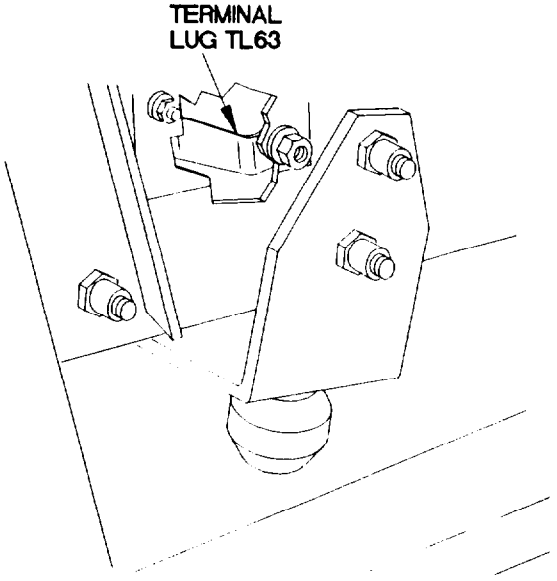
e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



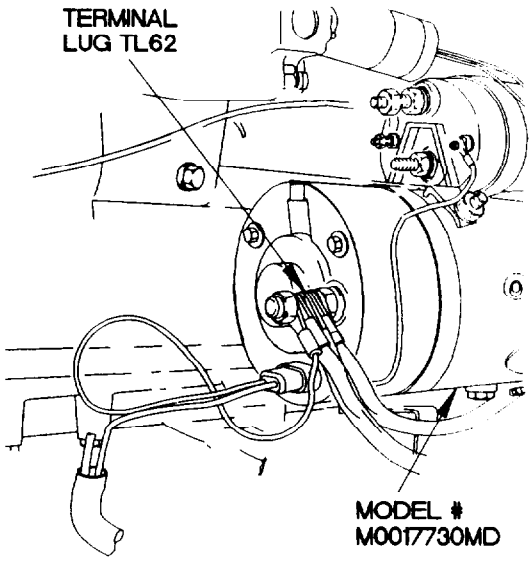
CONTINUITY TEST

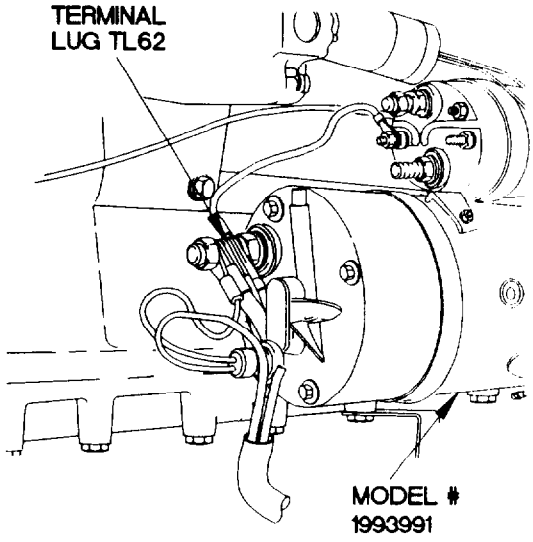
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to terminal lug TL63.
(3) Connect negative (-) probe of multimeter to terminal lug TL62 and note reading on multimeter.
(4) If continuity is not present, replace starter to chassis ground cable (para 7-133).





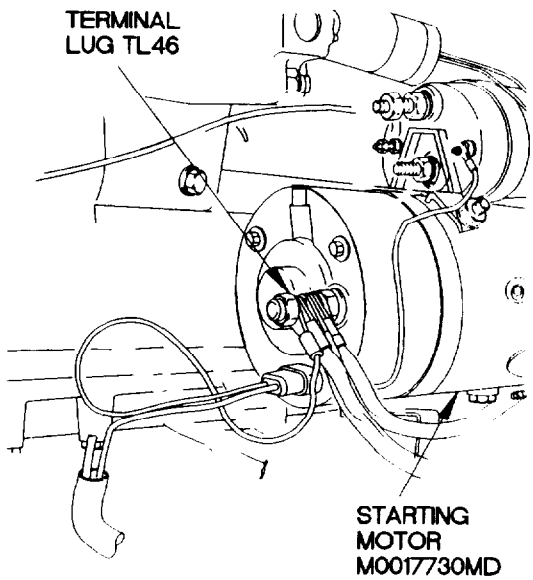
X2E0246A

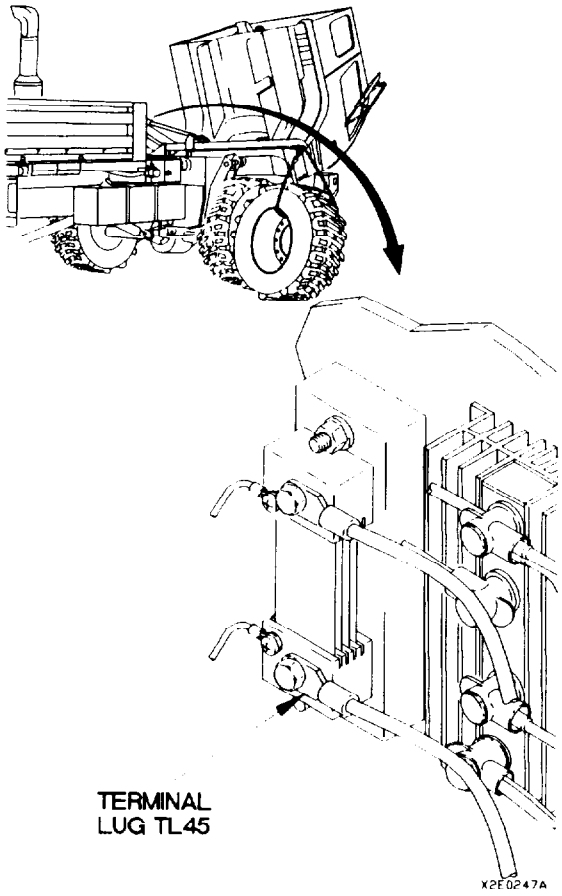


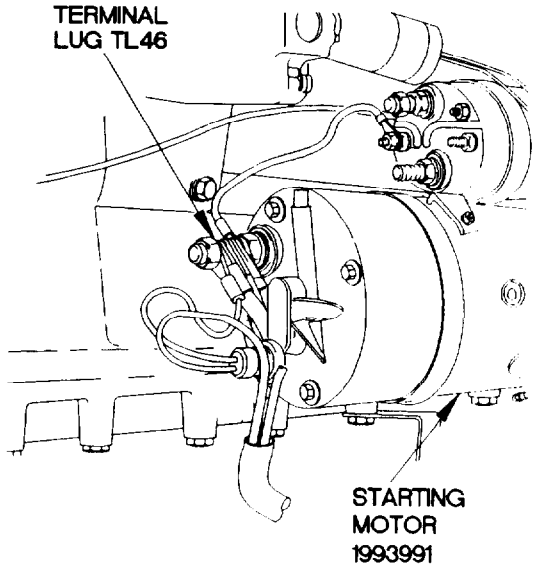


X2E0210A

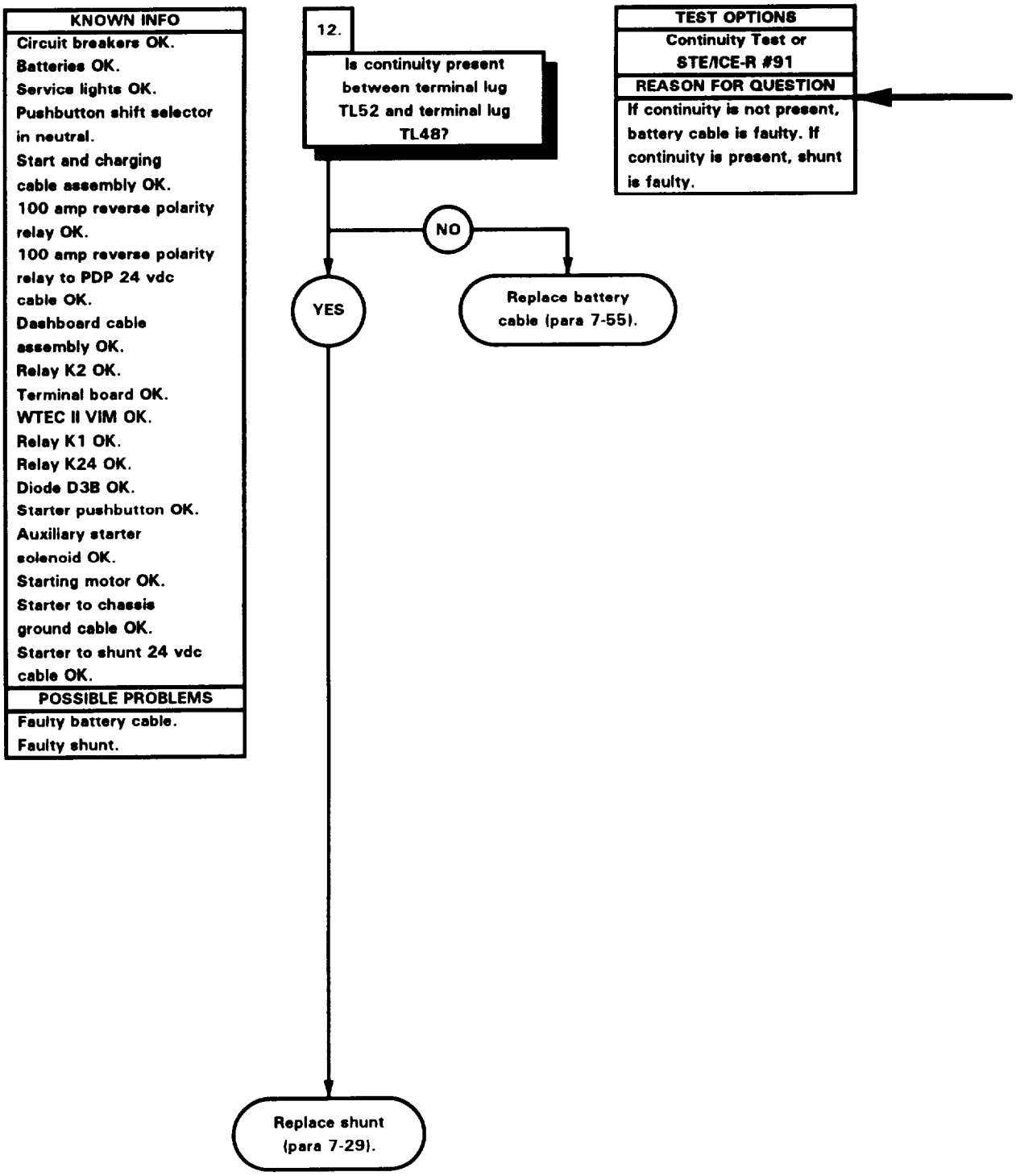
CONTINUITY TEST
(1) Lower spare tire (TM 9-2320-366-10-1).
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to terminal lug TL46.
(4) Connect negative (-) probe of multimeter to terminal lug TL45 and note reading on multimeter.
(5) If continuity is not present, replace starter to shunt 24 vdc cable (para 7-134).





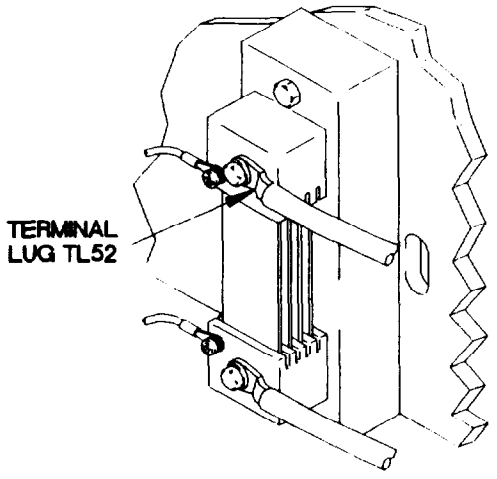


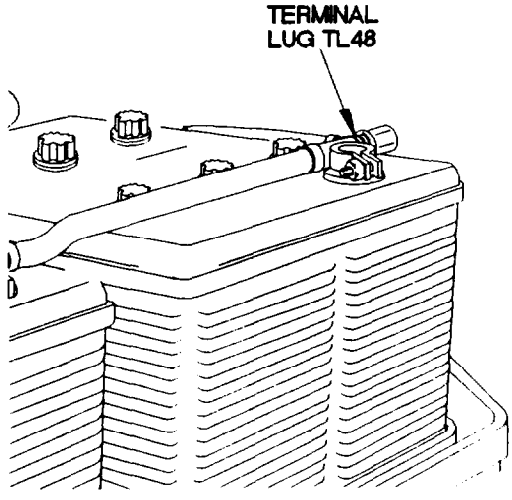
e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



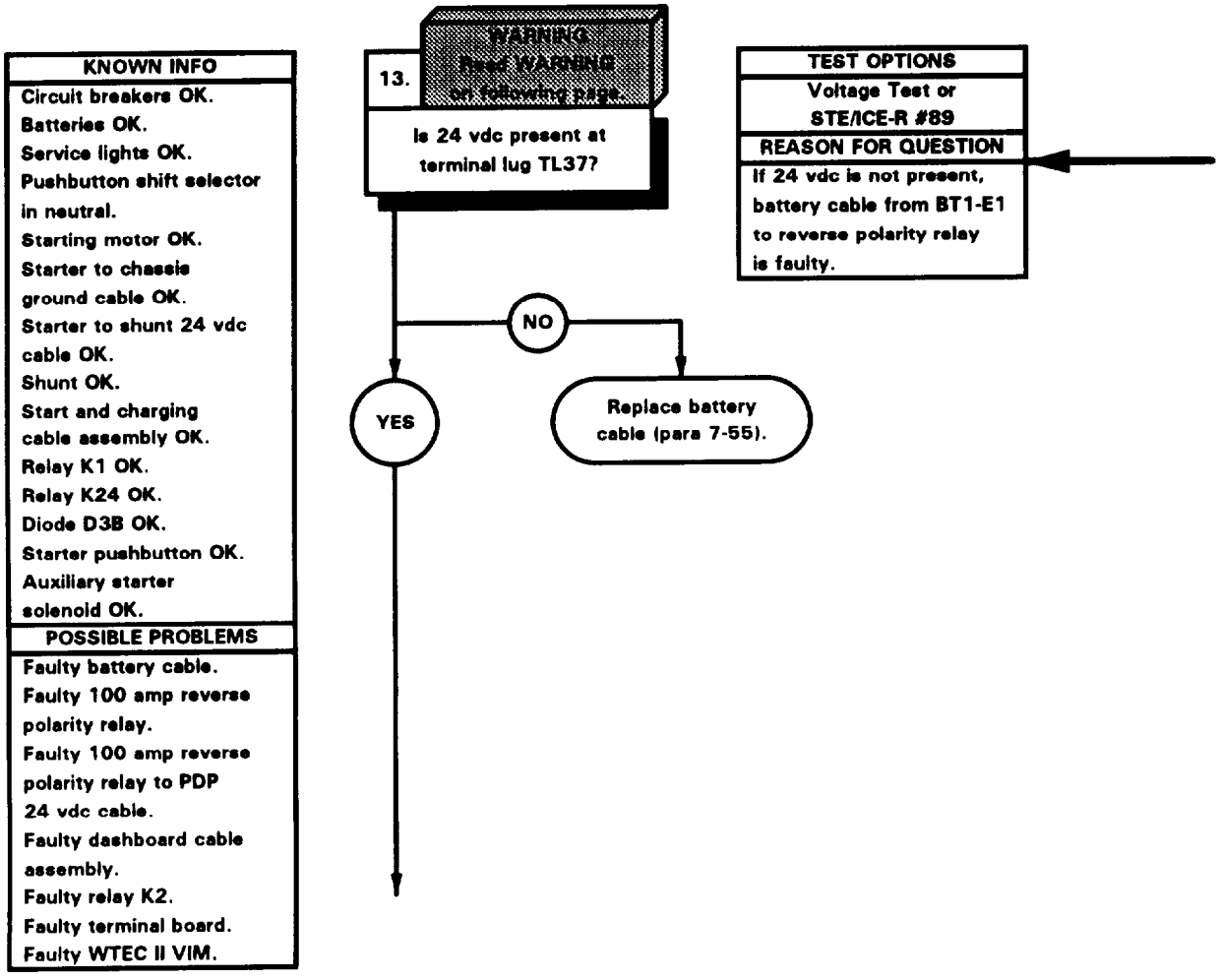
CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to terminal lug TL52.
(3) Connect negative (-) probe of multimeter to terminal lug TL48 and note reading on multimeter.
(4) If continuity is not present, replace battery cable (para 7-55).
(5) If continuity is present, replace shunt (para 7-29).
(6) Connect batteries (para 7-57).





e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

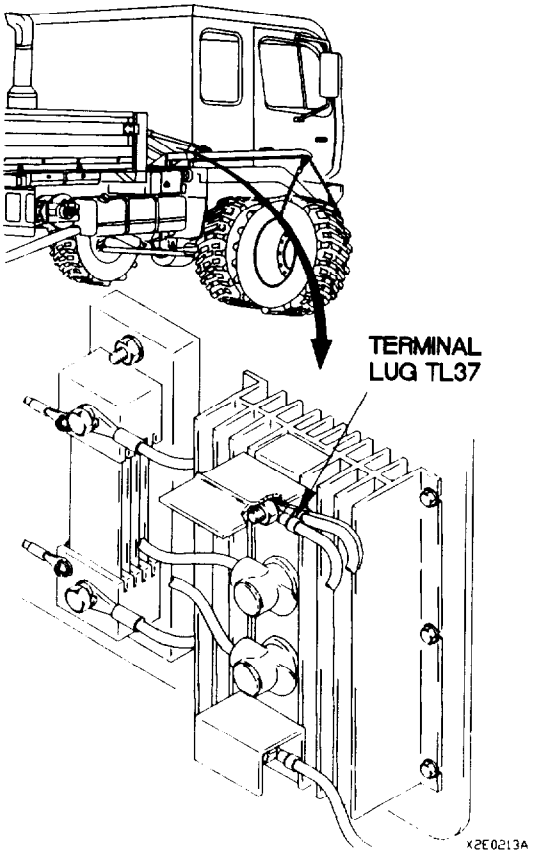


WARNING

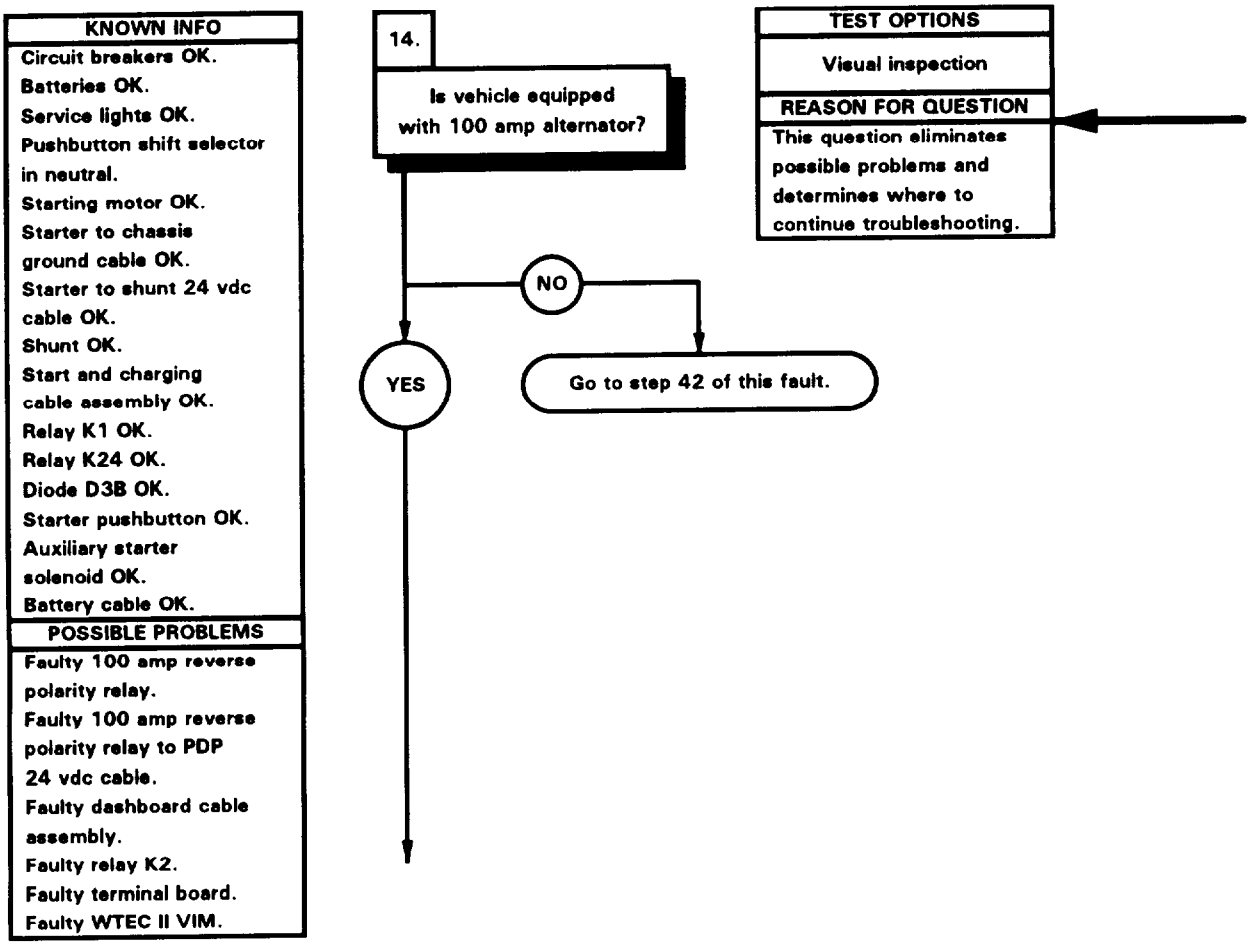
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Lower spare tire (TM 9-2320-366-10-1).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal lug TL37.
(4) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(5) If 24 vdc is not present, replace battery cable (para 7-55).

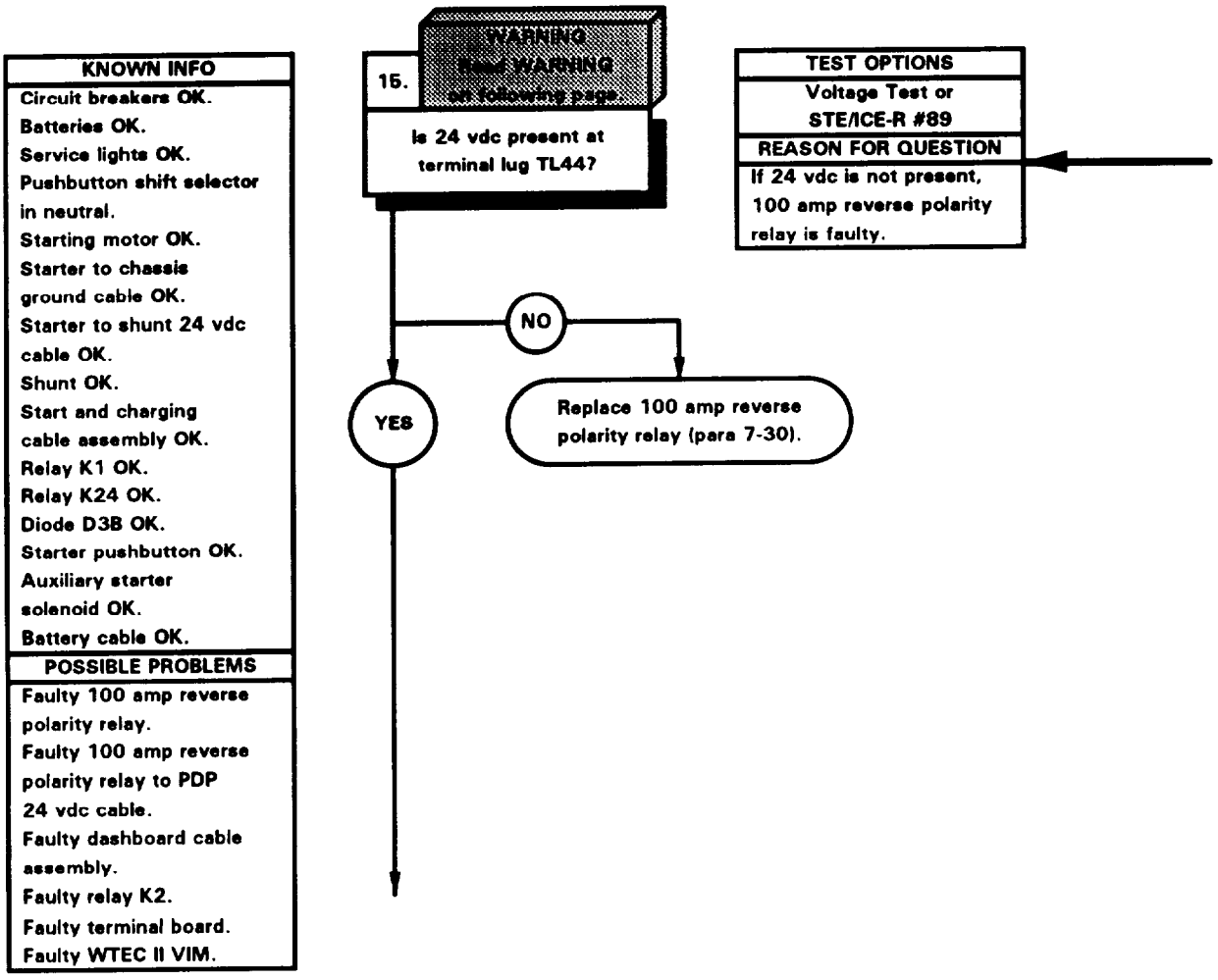


e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



(1) Raise cab (TM 9-2320-366-10-1).
(2) Check if vehicle is equipped with 100 or 200 amp alternator kit.
(3) If vehicle is equipped with 200 amp alternator kit, go to step 42 of this fault.

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

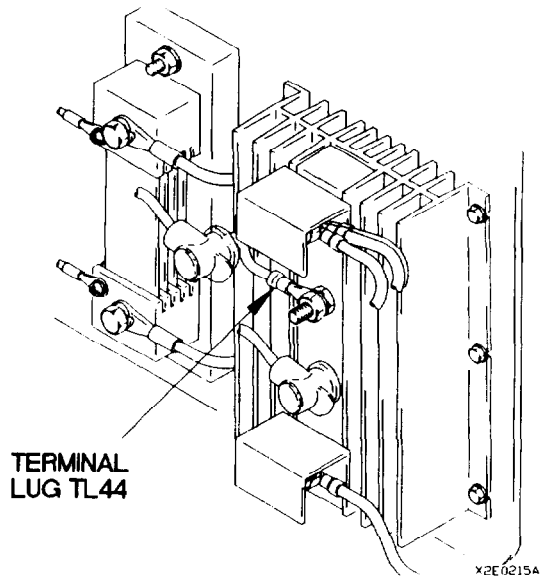


WARNING

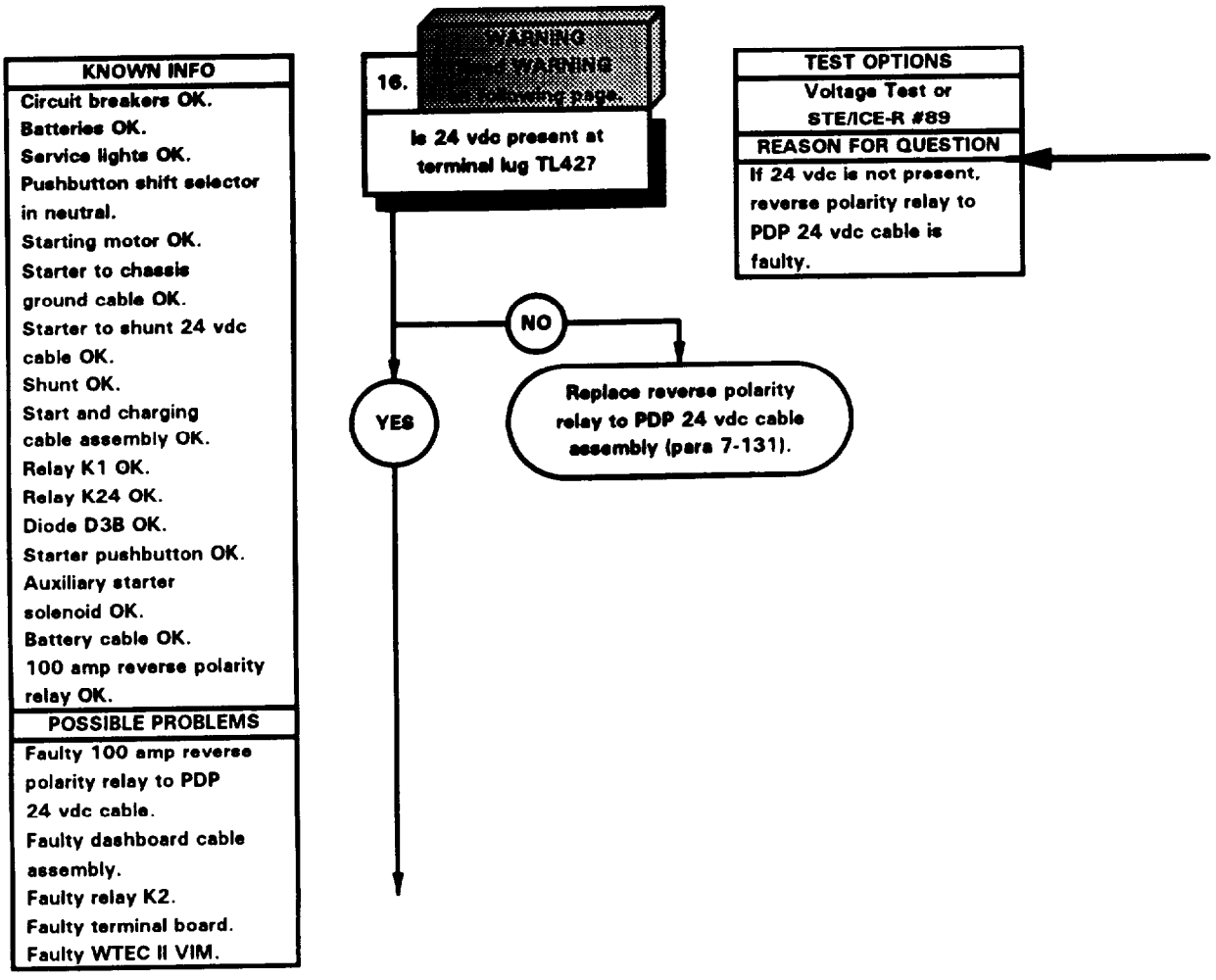
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal lug TL44.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 24 vdc is not present, replace 100 amp reverse polarity relay (para 7-30).
(5) Lower cab (TM 9-2320-366-10-1).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

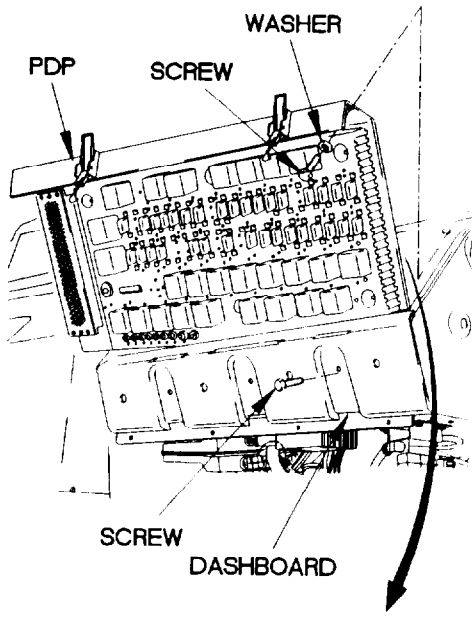


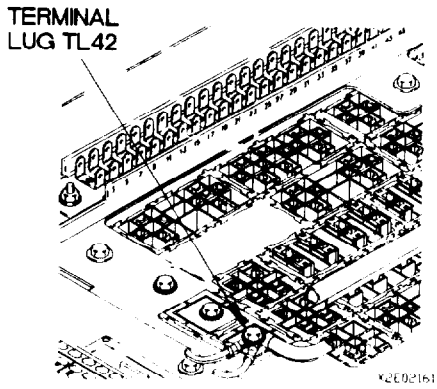
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

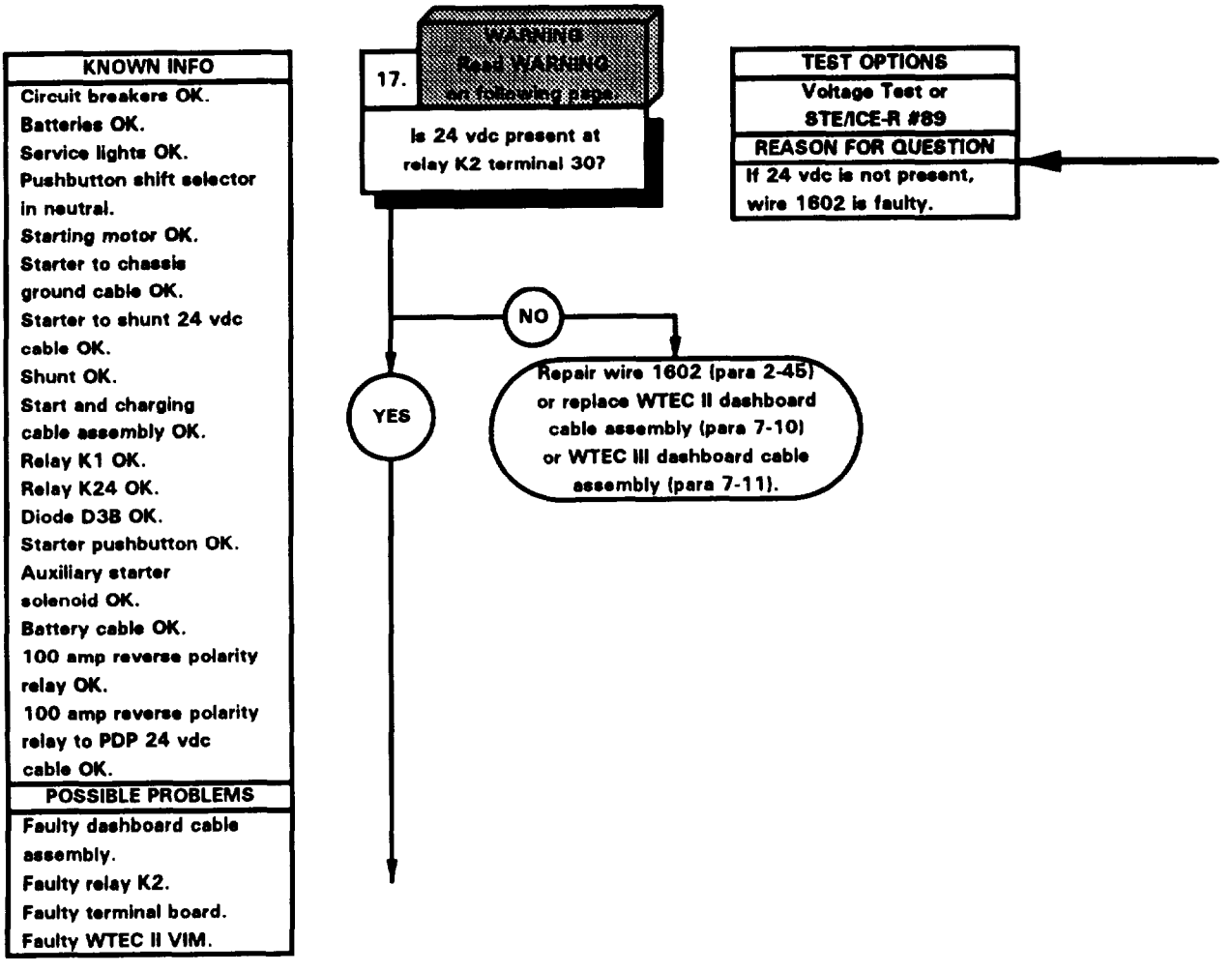
VOLTAGE TEST

(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to terminal lug TL42.
(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(7) If 24 vdc is not present, replace reverse polarity relay to PDP 24 vdc cable (para 7-131).





e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

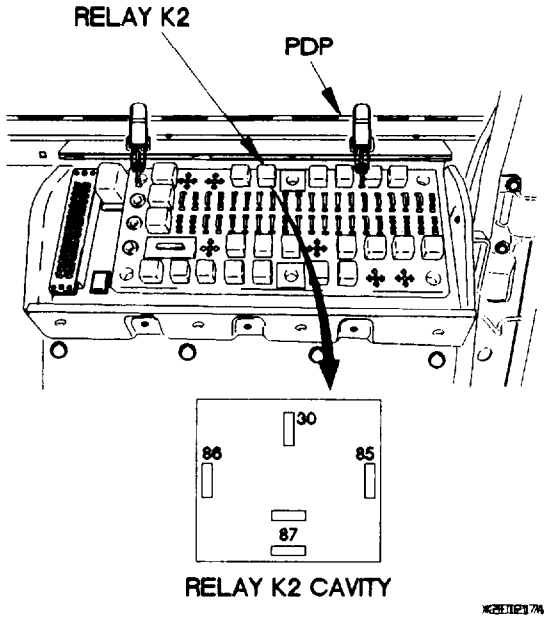


WARNING

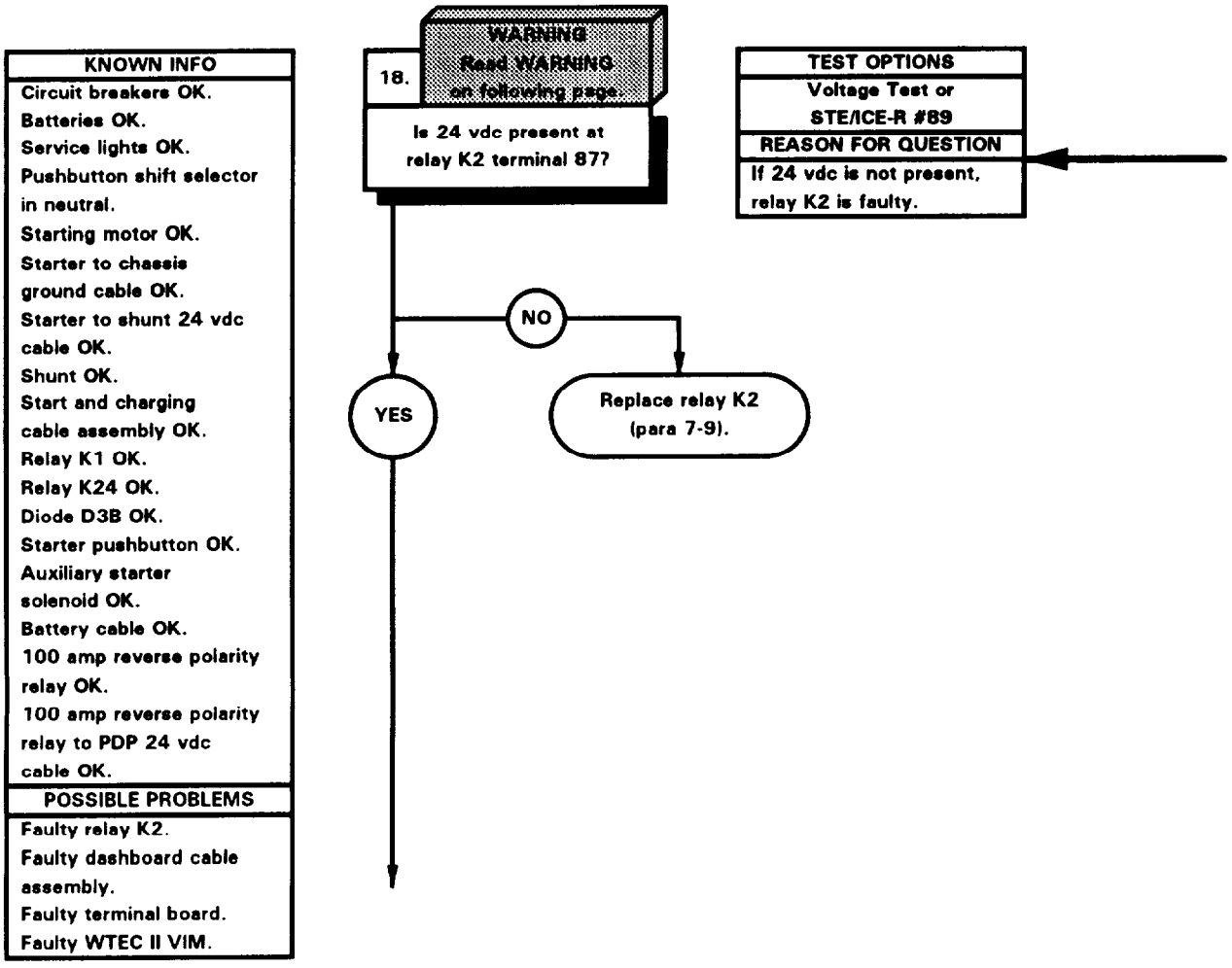
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove relay K2 from PDP.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to PDP terminal 30, where relay K2 was removed.
(4) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1602 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Install relay K2 in PDP.



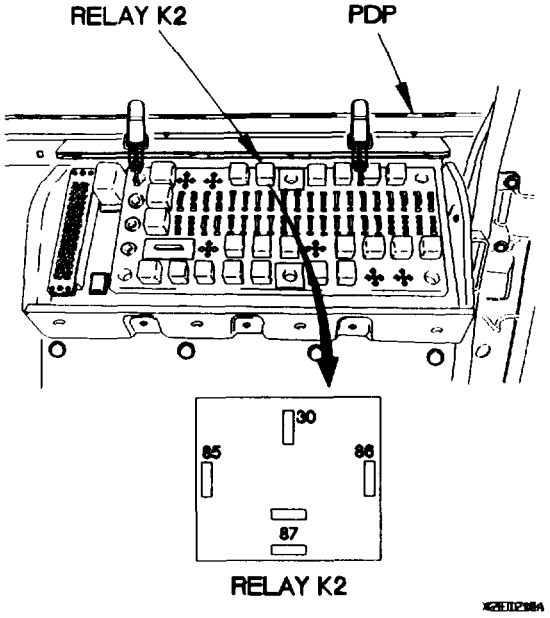
e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



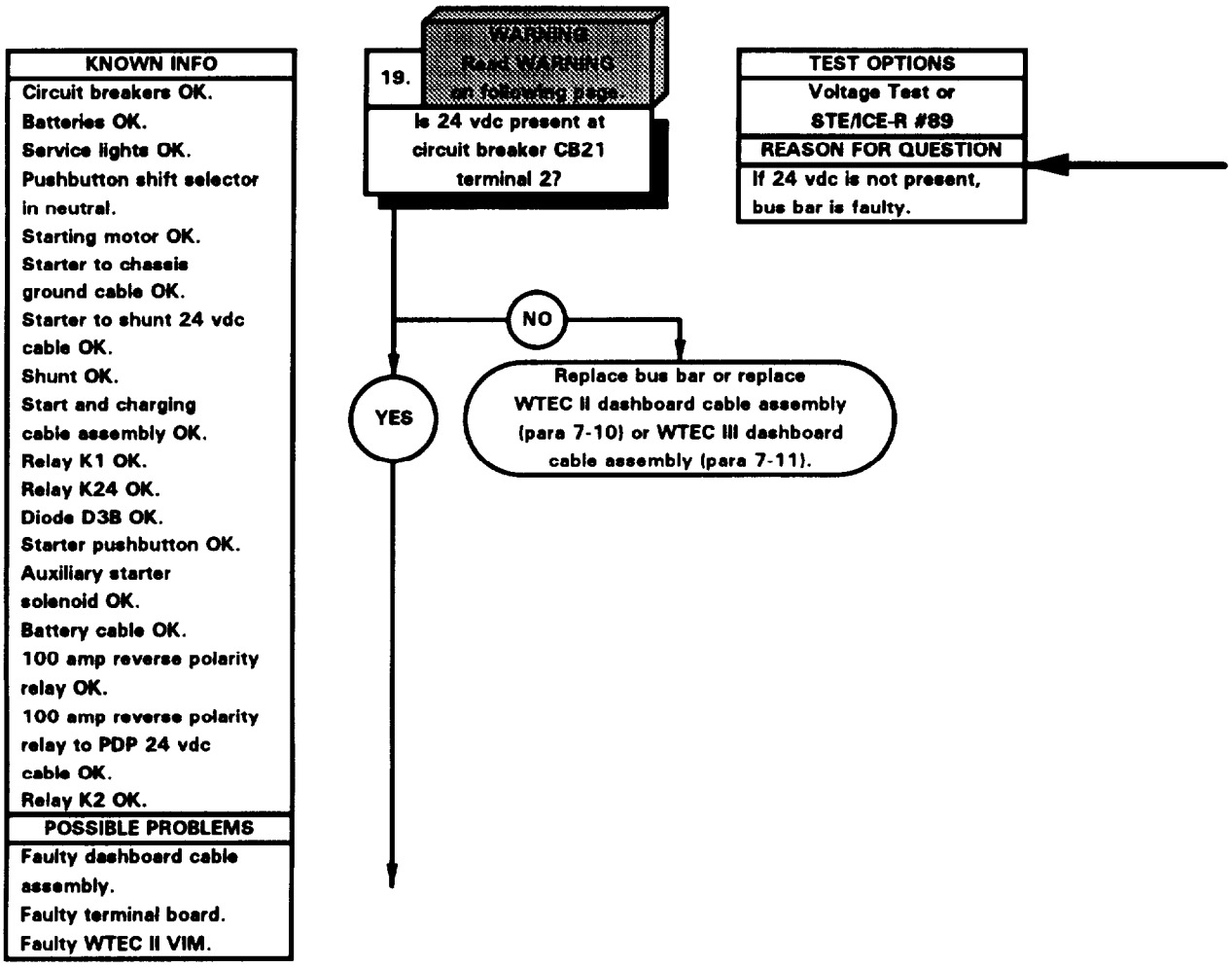
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to back of PDP terminal 87 of relay K2.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, replace relay K2 (para 7-9).
(6) Position master power switch to off (TM 9-2320-366-10-1).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

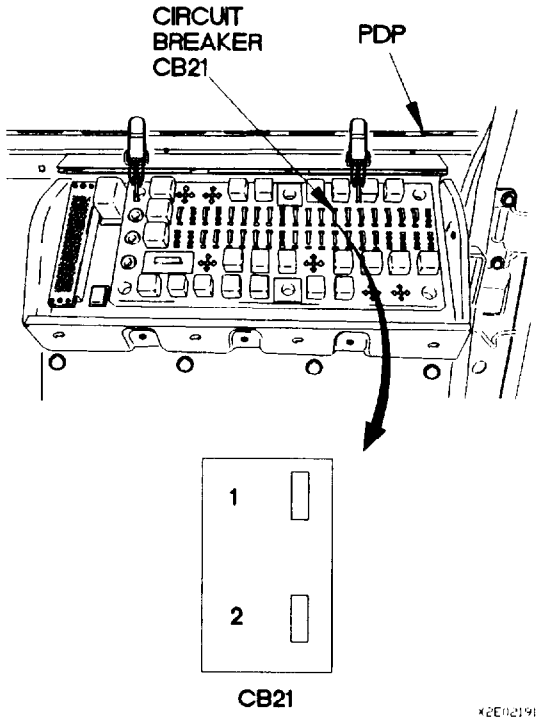


WARNING

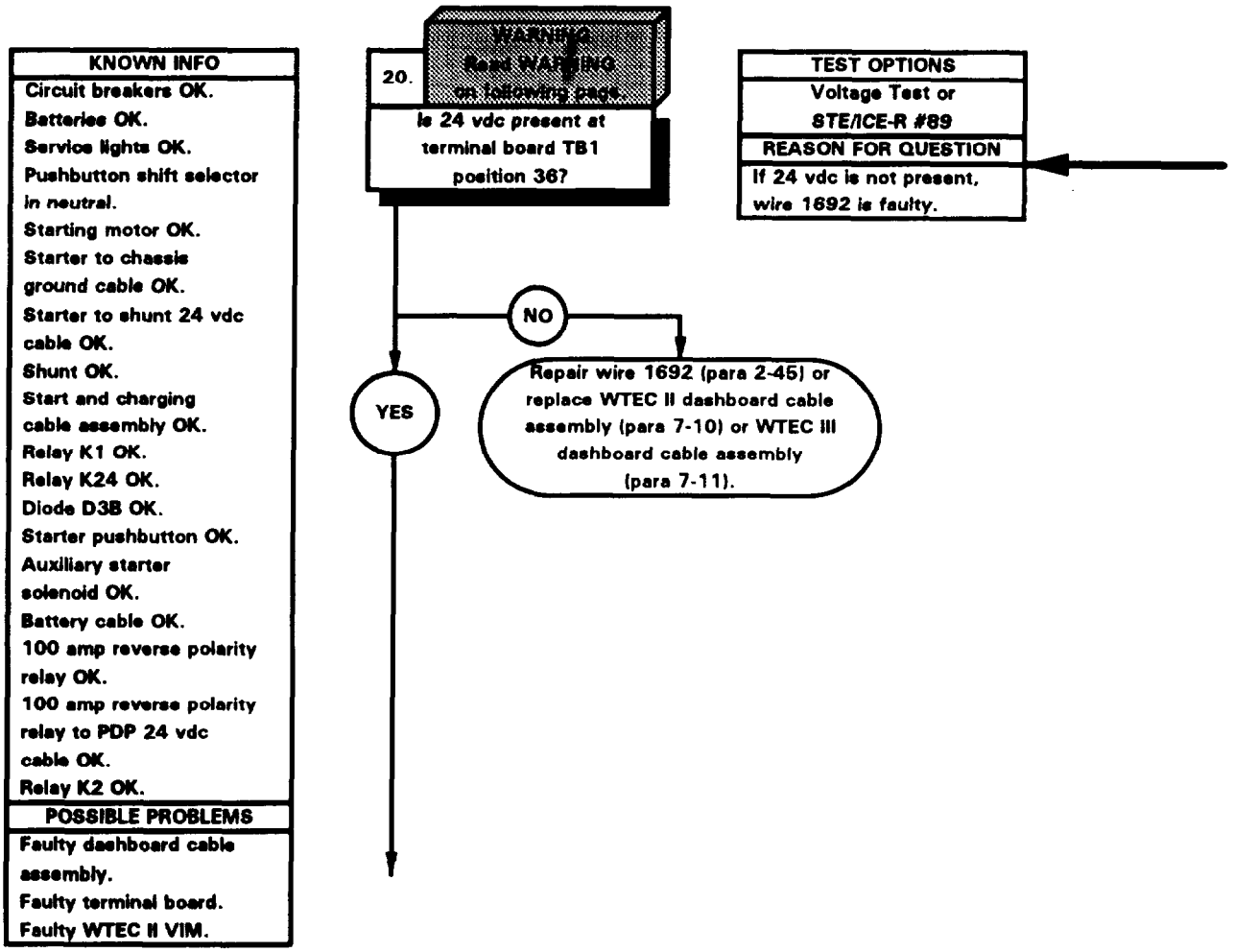
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove circuit breaker CB21 from PDP.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal 2 of PDP, where circuit breaker CB21 was removed.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, replace bus bar or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position master power switch to off (TM 9-2320-366-10-1).
(8) Install circuit breaker CB21 in PDP.



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

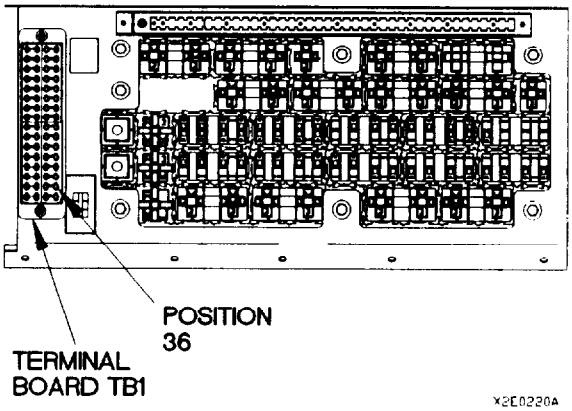


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

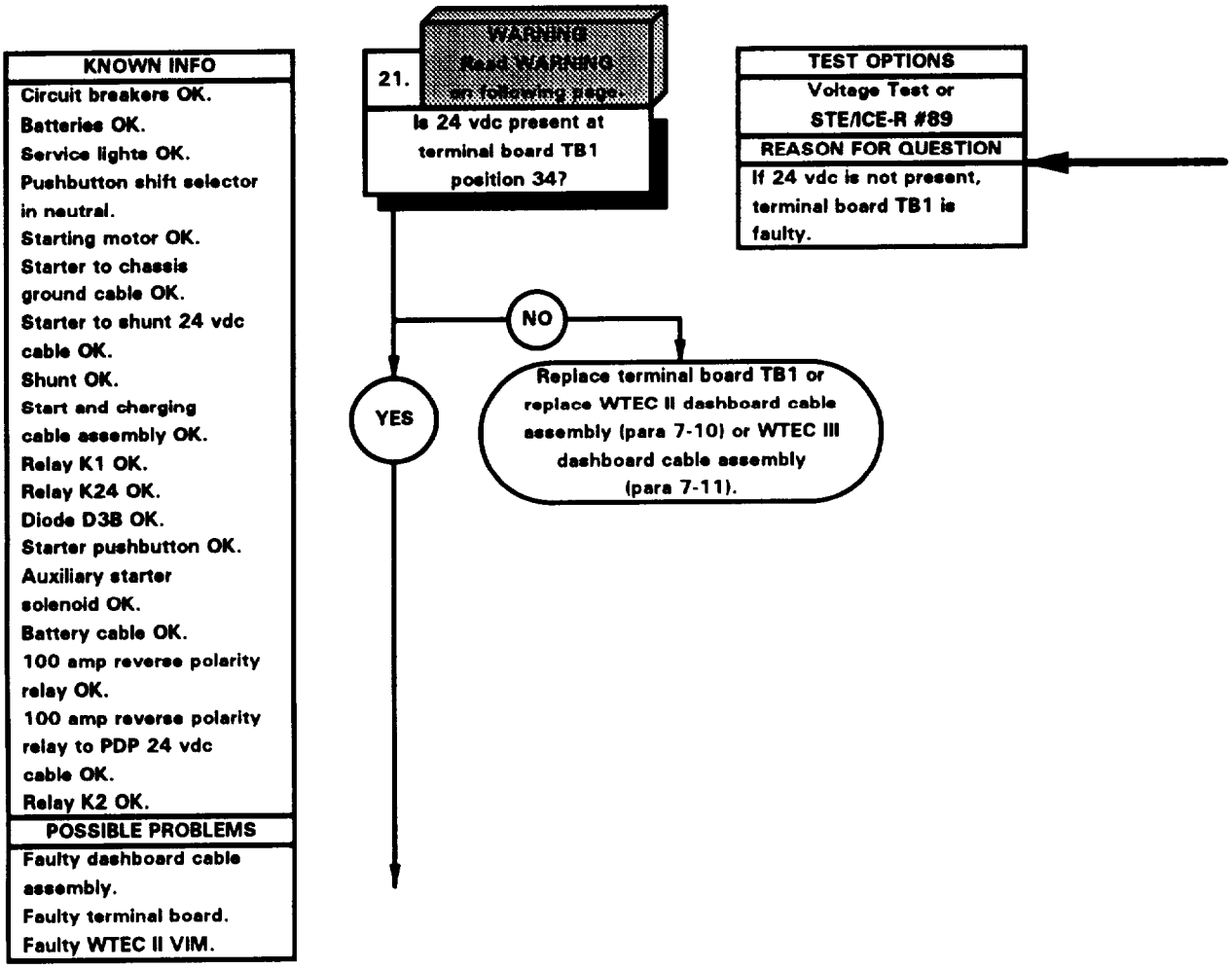
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal board TB1 position 36.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1692 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-11) or WTEC III dashboard cable assembly (para 7-11).
(6) Position master power switch to off (TM 9-2320-366-10-1).



X2E0220A

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

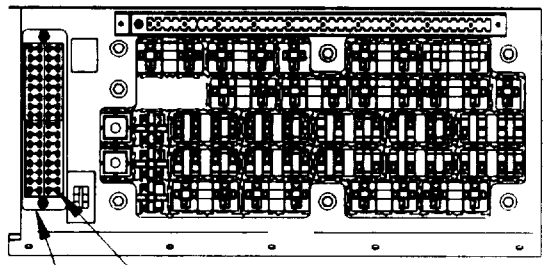


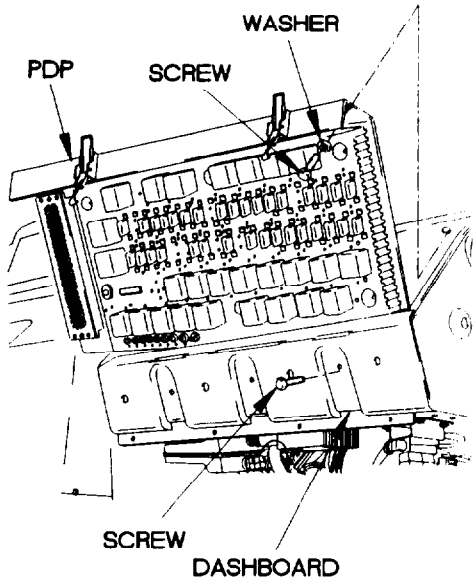
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

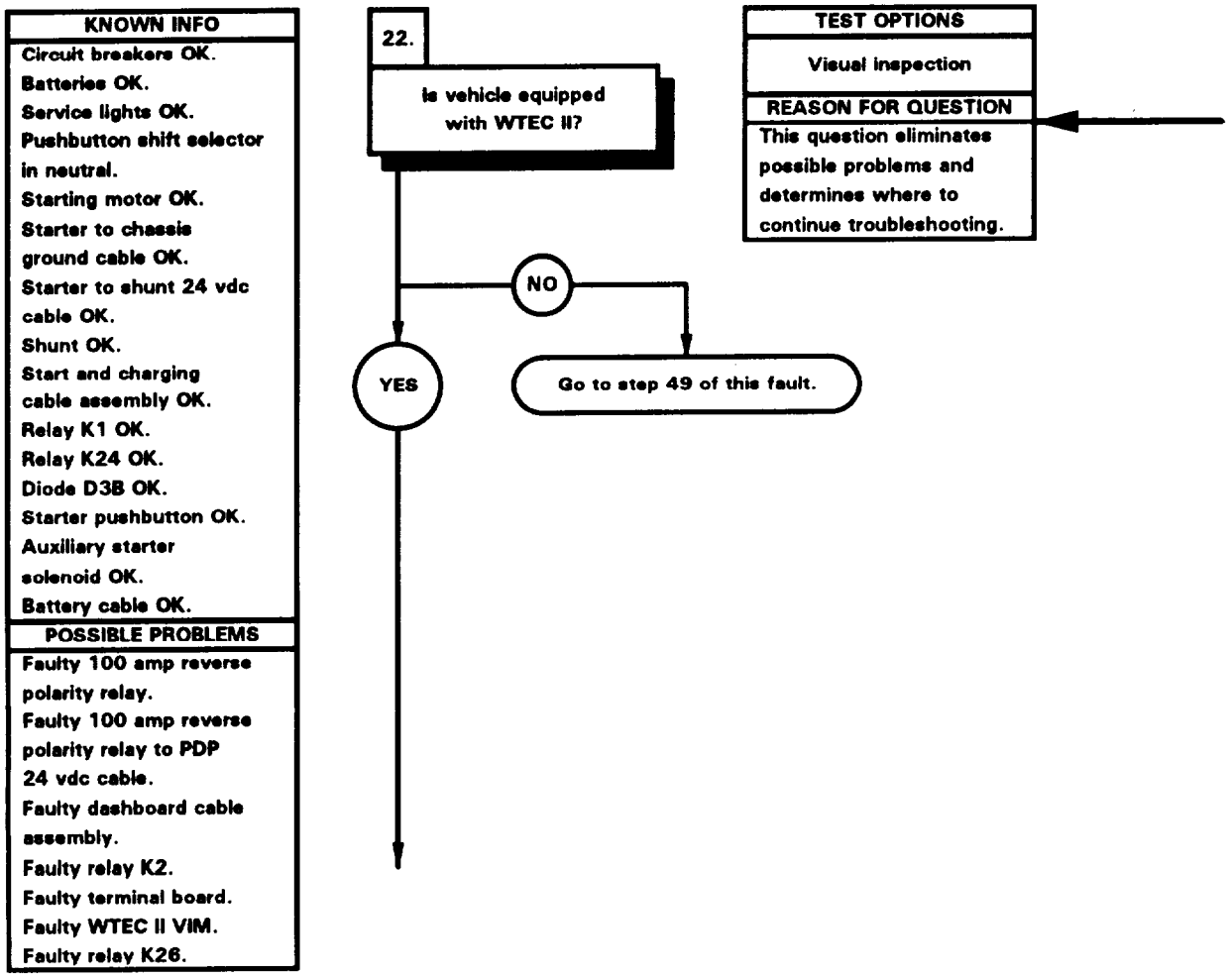
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal board TB1 position 34.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, replace terminal board TB1 or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position master power switch to off (TM 9-2320-366-10-1).
(7) Install PDP in dashboard with three screws.
(8) Install three washers and screws in PDP.



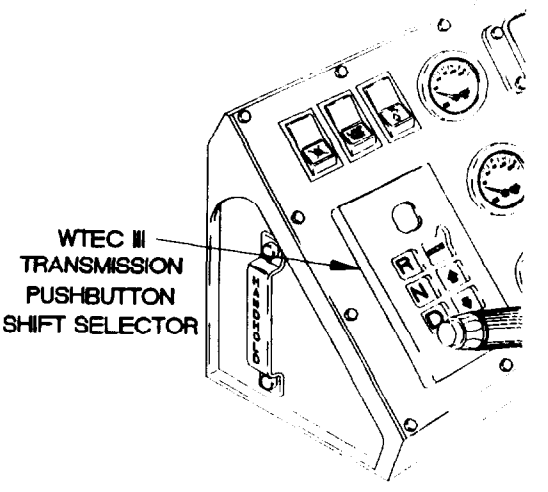


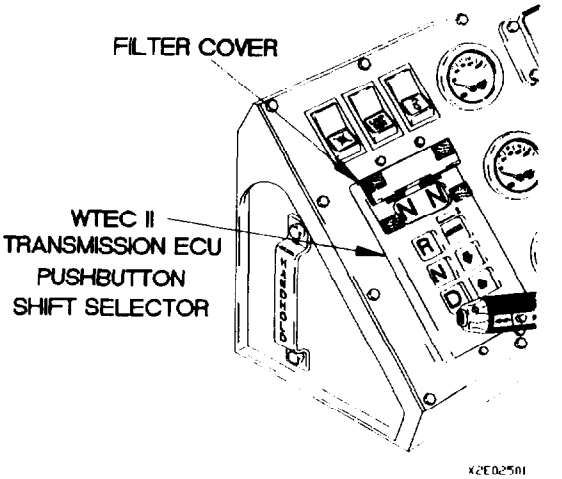
X2E02211

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



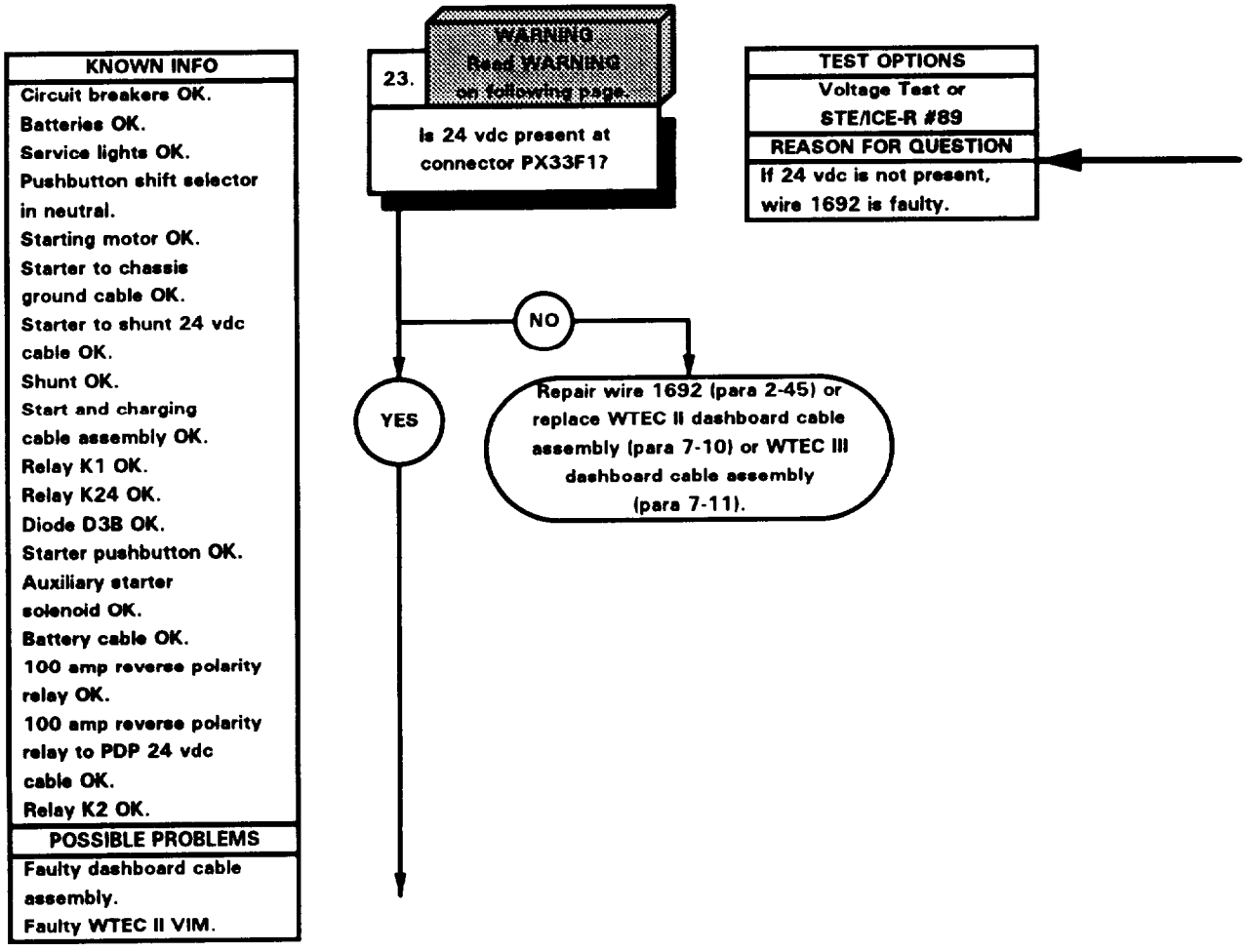
(1) **Check if vehicle is equipped with WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS).**
(2) **If TEPSS is mounted with four screws and has a filter cover, go to step 49 of this fault.**





X2E02501

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

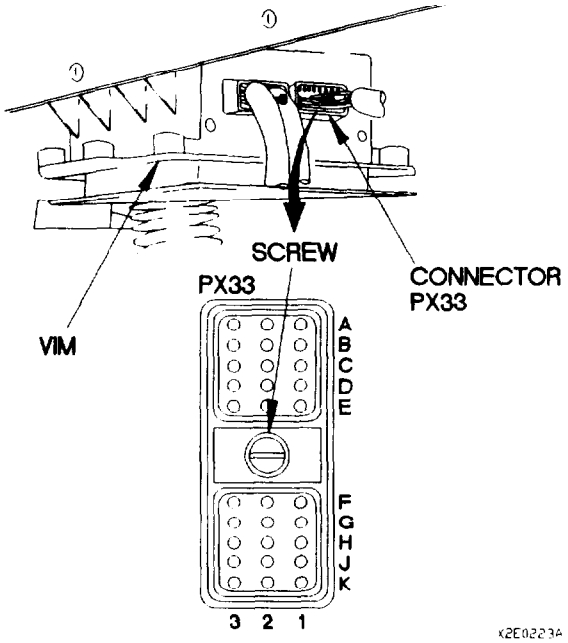


WARNING

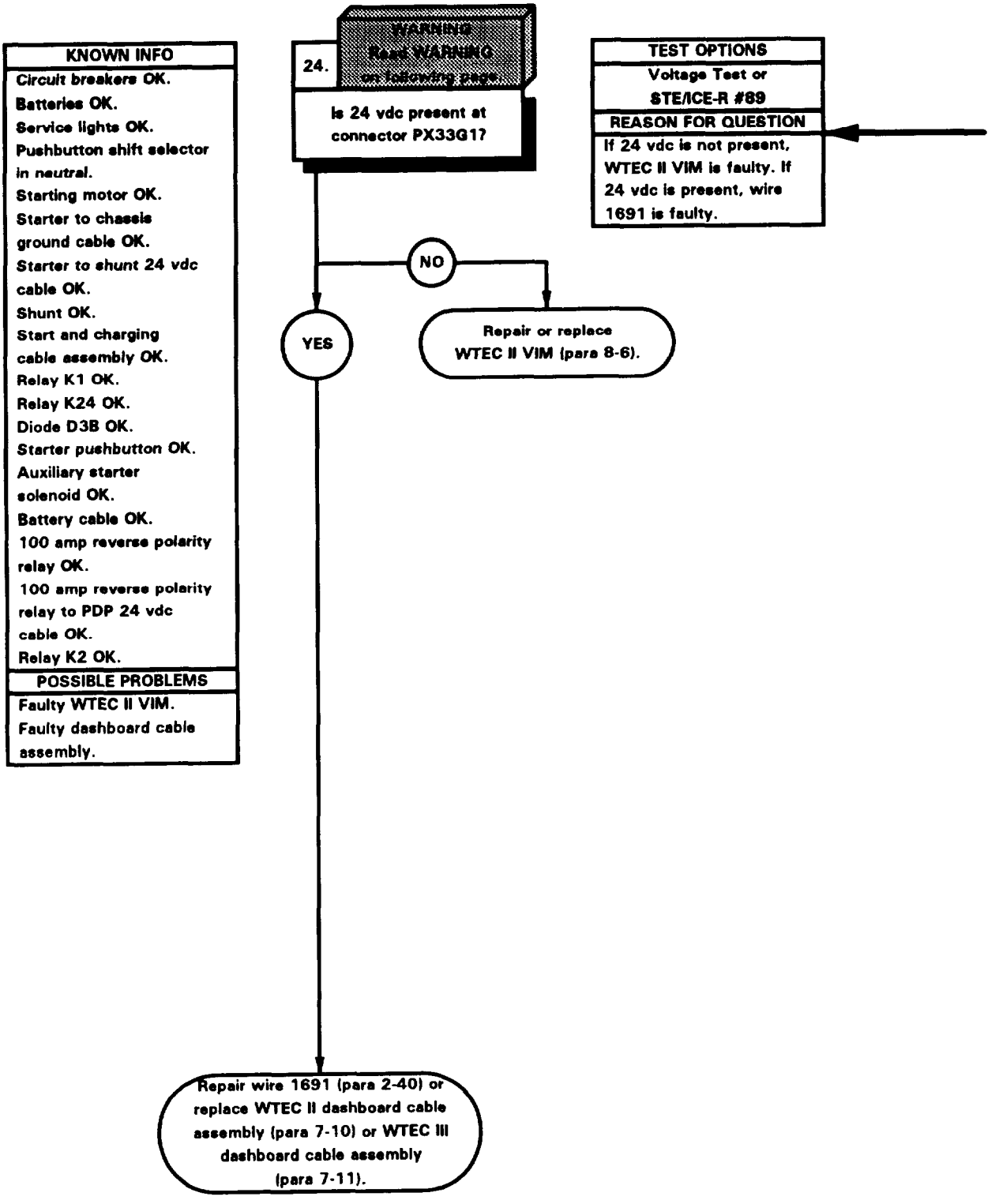
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove kick panel (para 16-3).
(2) Loosen screw in connector PX33.
(3) Disconnect connector PX33 from WTEC II VIM.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector PX33F1.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, repair wire 1692 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position master power switch to off (TM 9-2320-366-10-1).
(10) Connector connector PX33 to WTEC II VIM.
(11) Tighten screw on connector PX33.



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

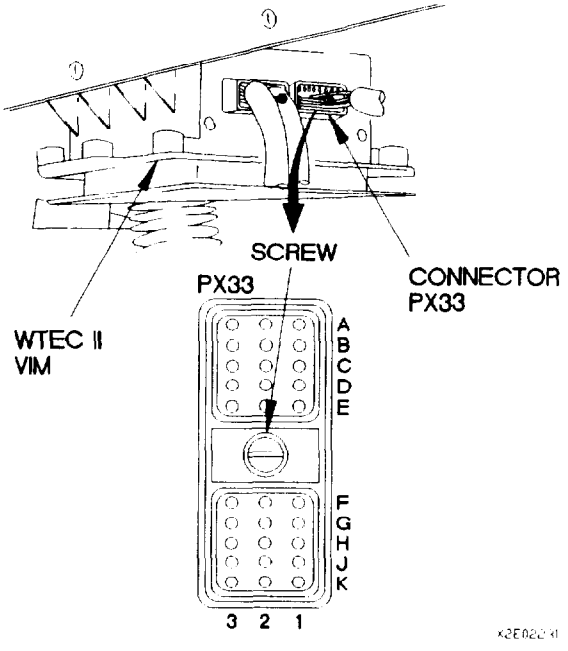


WARNING

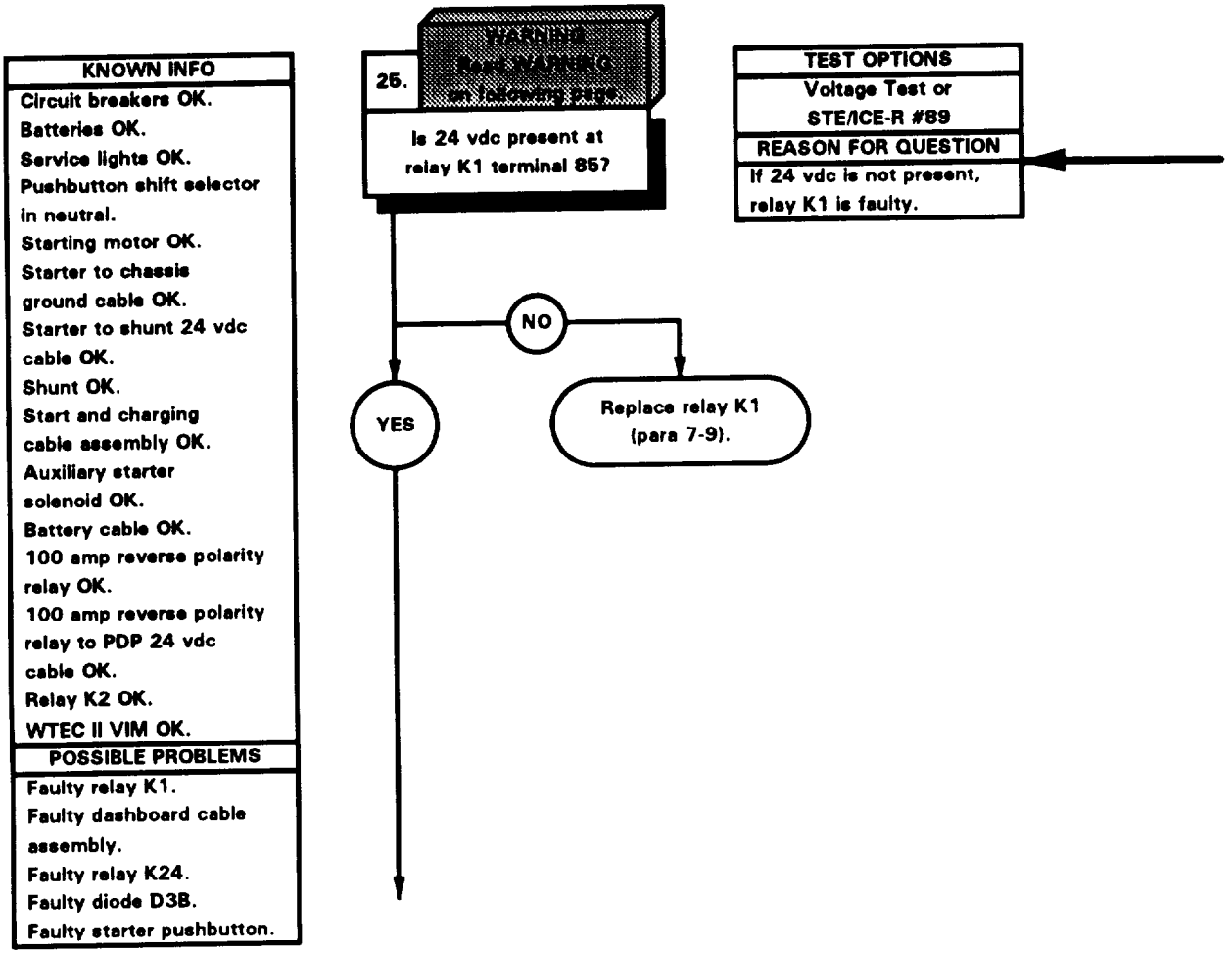
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to connector PX33G1.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, replace NS relay or WTEC II VIM (para 8-6).
(6) If 24 vdc is present, repair wire 1691 (para 2-40) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position master power switch to off (TM 9-2320-366-10-1).
(8) Install kick panel (para 16-3).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

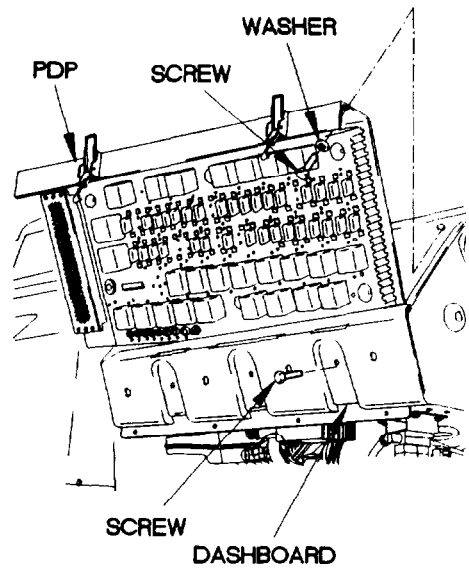


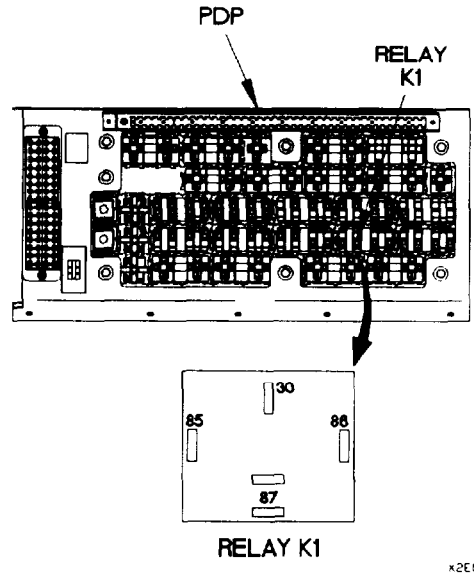
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

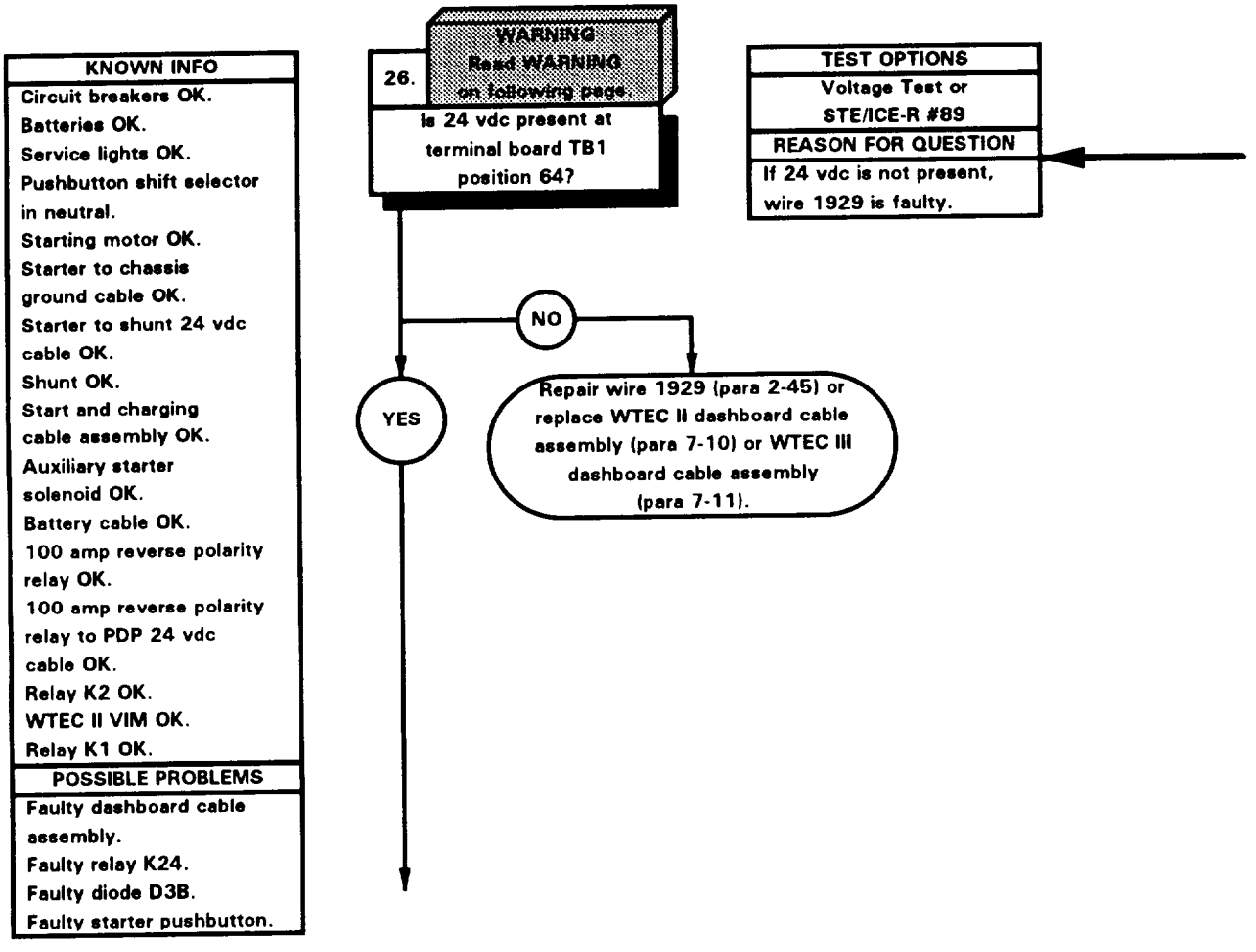
(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to back of PDP terminal 85 of relay K1.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, replace relay K1 (para 7-9).
(9) Position master power switch to off (TM 9-2320-366-10-1).





K2E02241

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

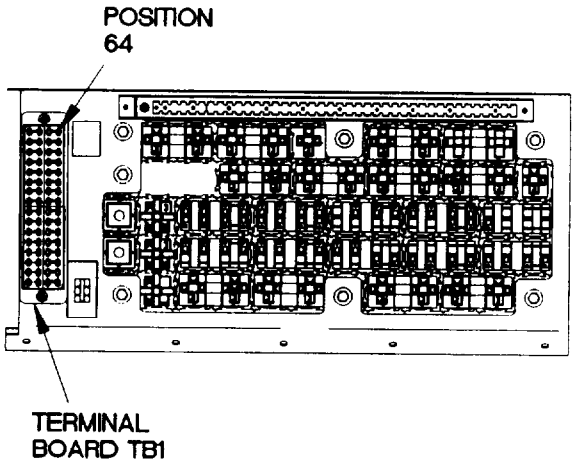


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

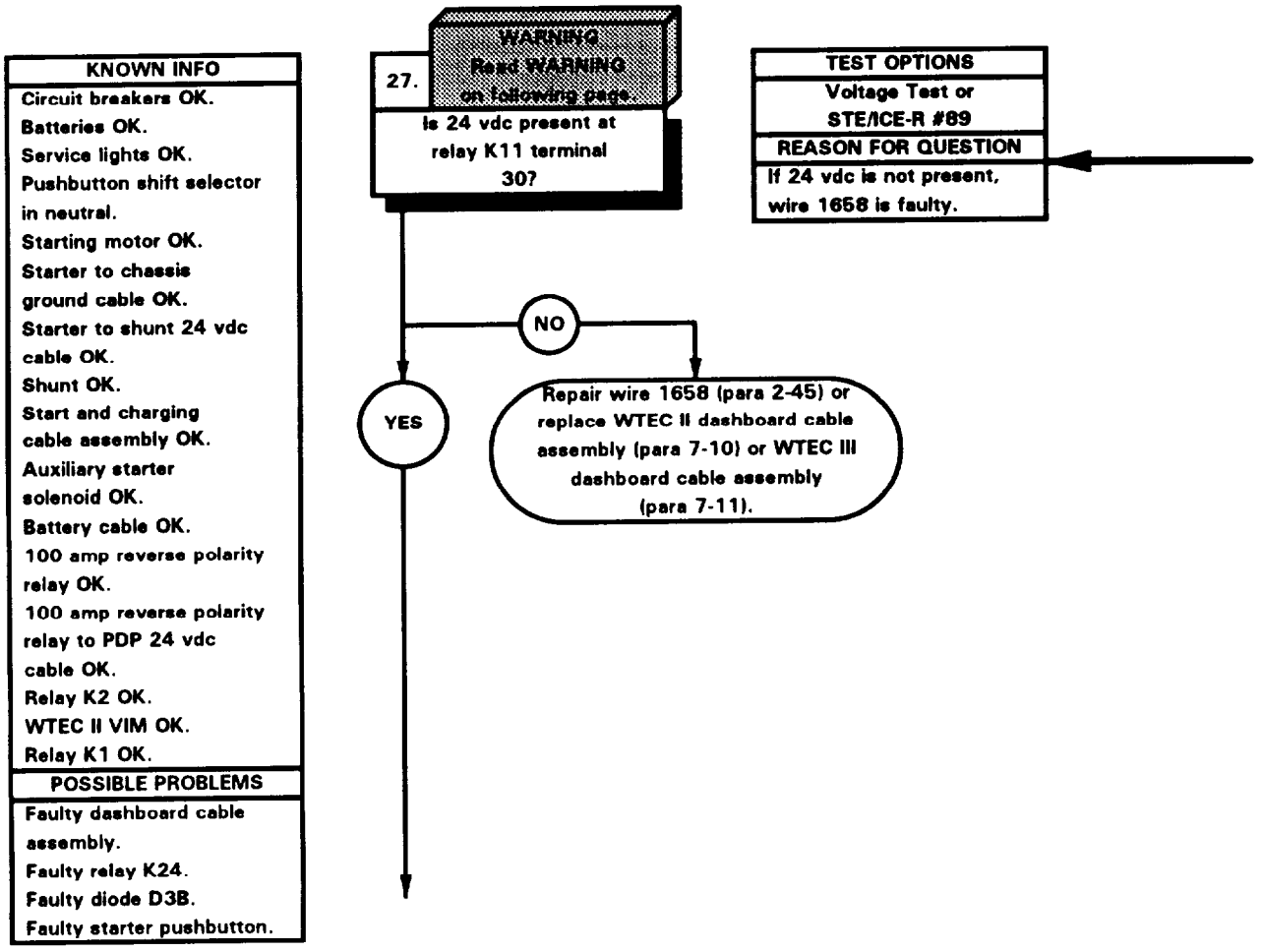
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal board TB1 position 64.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1929 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position master power switch to off (TM 9-2320-366-10-1).



X2E0225A

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

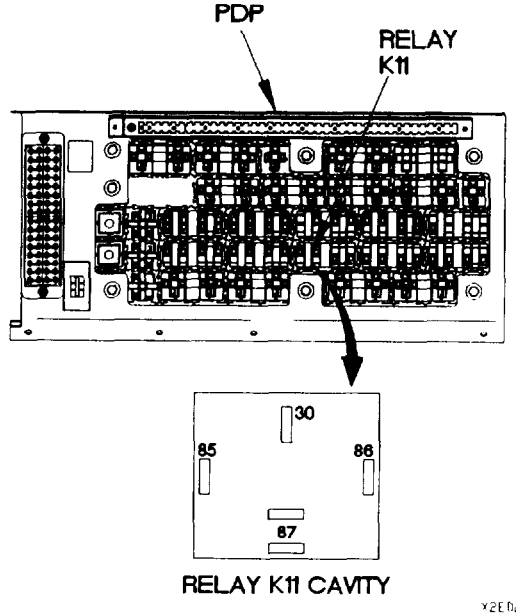


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

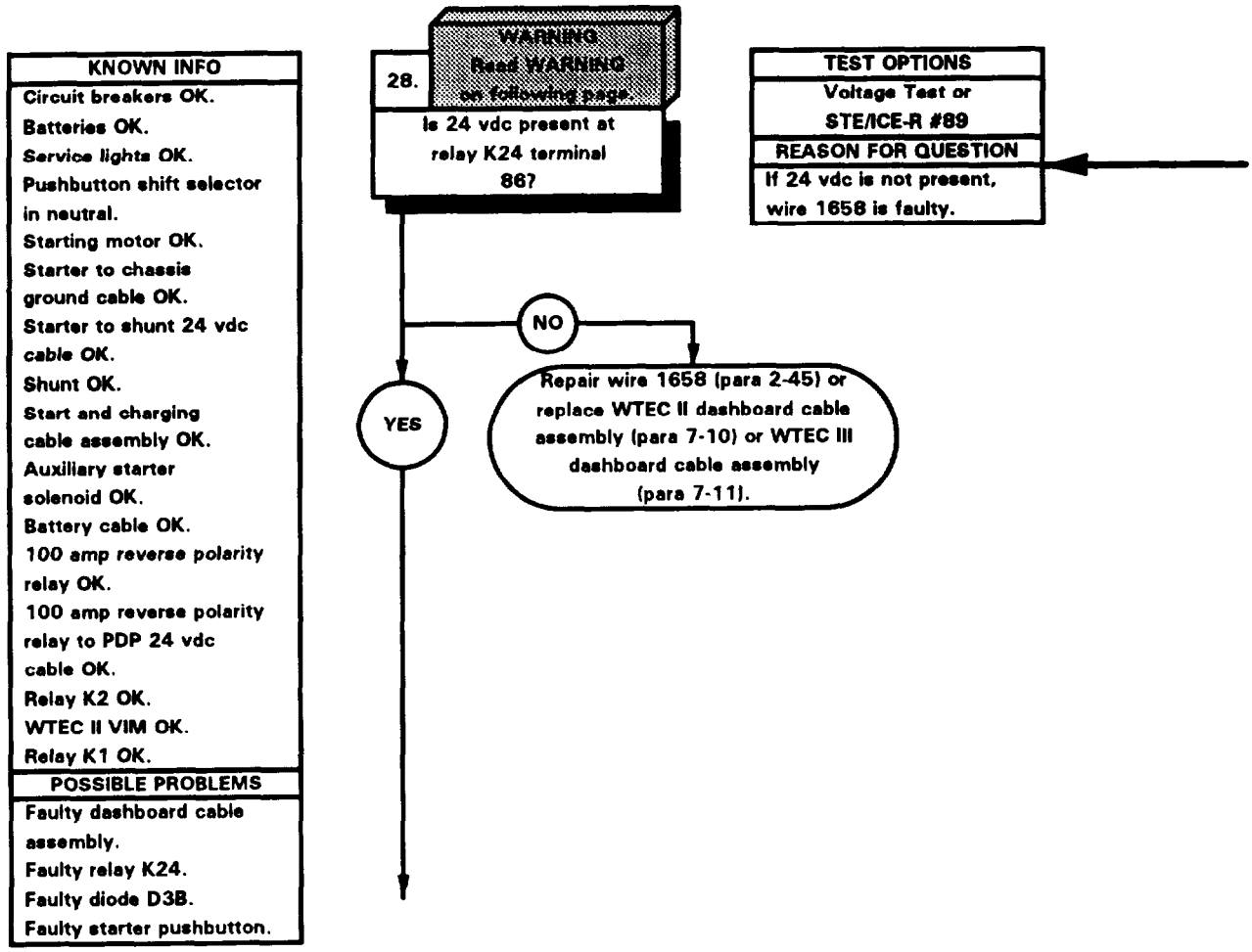
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to back of PDP terminal 30 of relay K11.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1658 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position master power switch to off (TM 9-2320-366-10-1).



RELAY K11 CAVITY

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

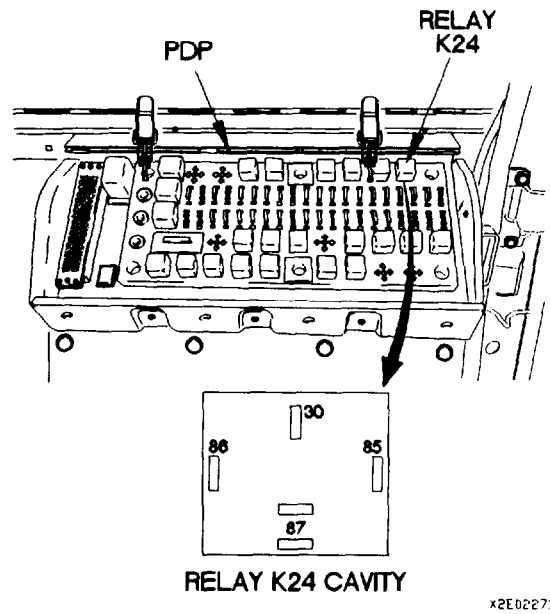


WARNING

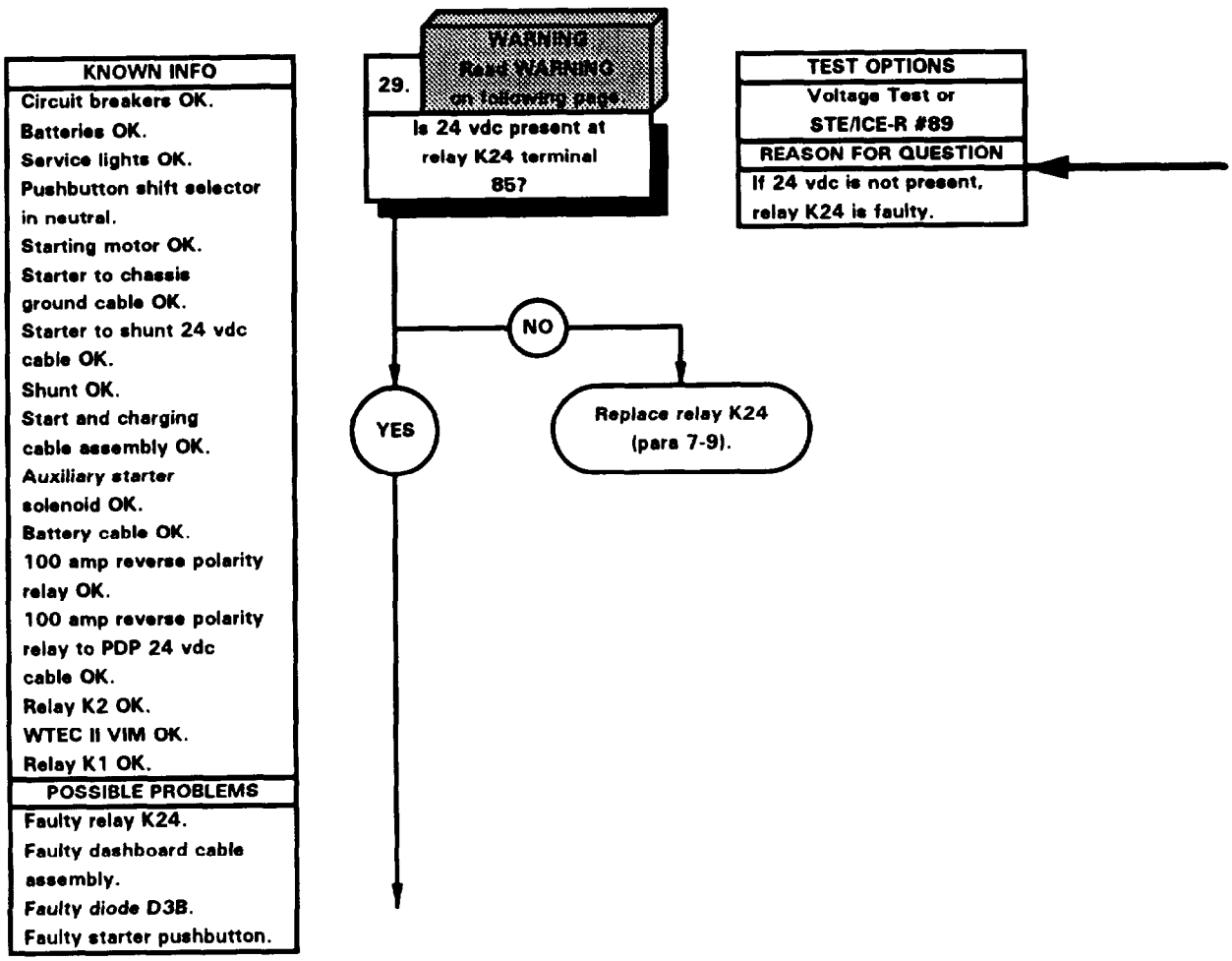
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove relay K24 from PDP.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal 86 of PDP, where relay K24 was removed.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, repair wire 1658 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position master power switch to off (TM 9-2320-366-10-1).
(8) Install relay K24 in PDP.



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

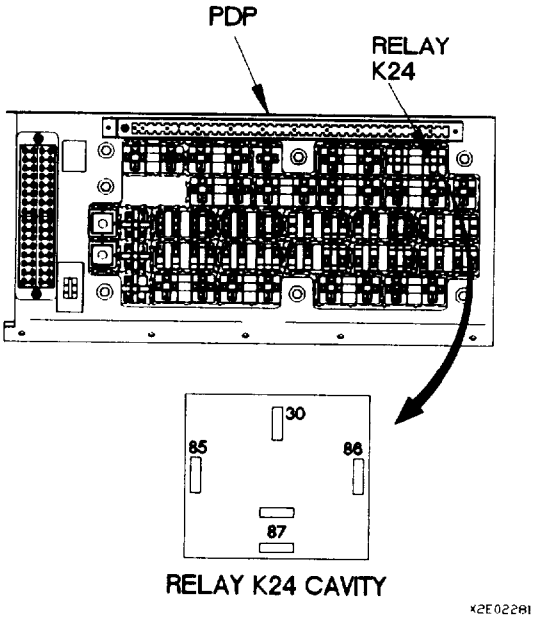


WARNING

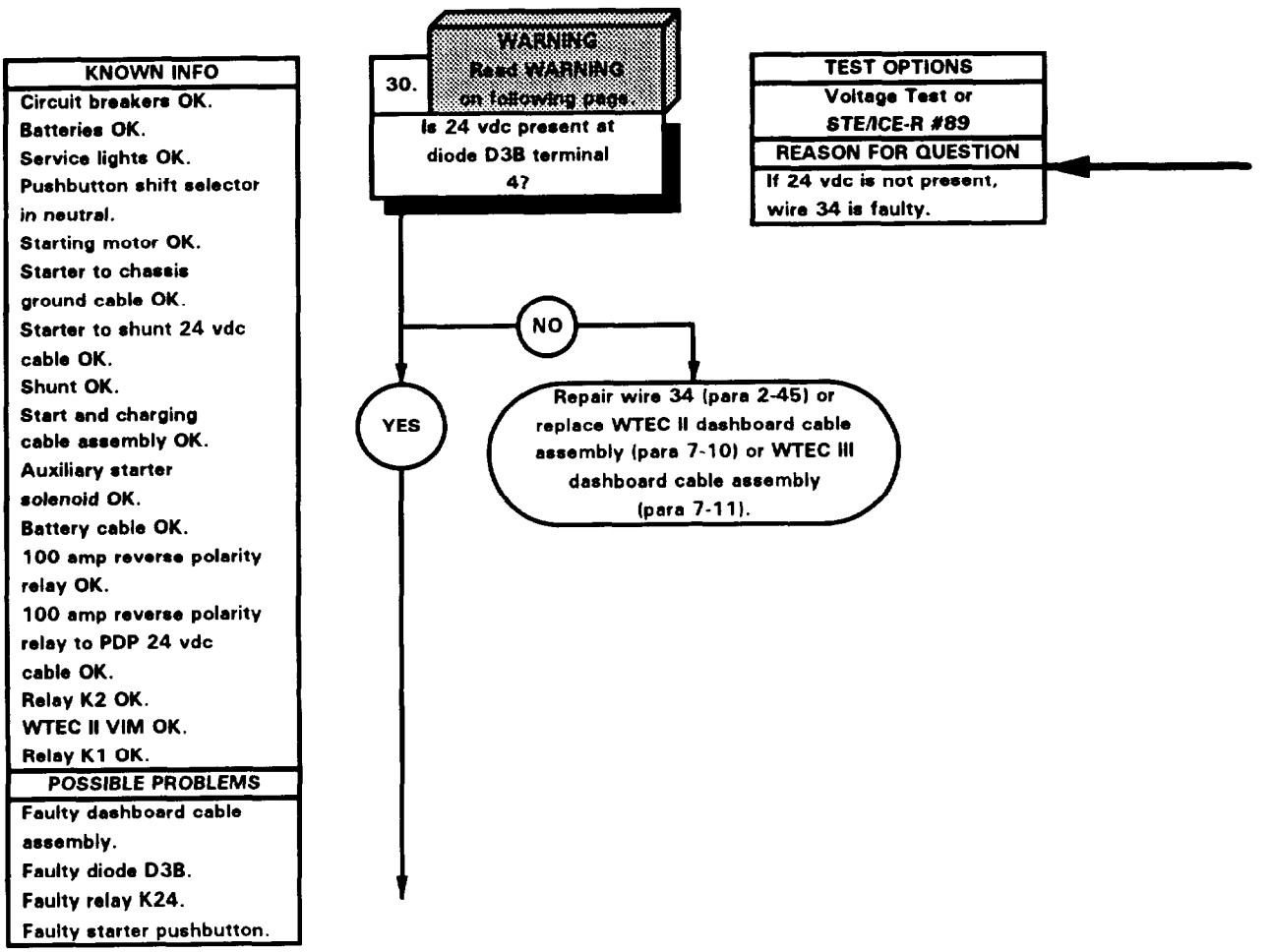
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to back of PDP terminal 85 of relay K24.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, replace relay K24 (para 7-9).
(6) Position master power switch to off (TM 9-2320-366-10-1).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

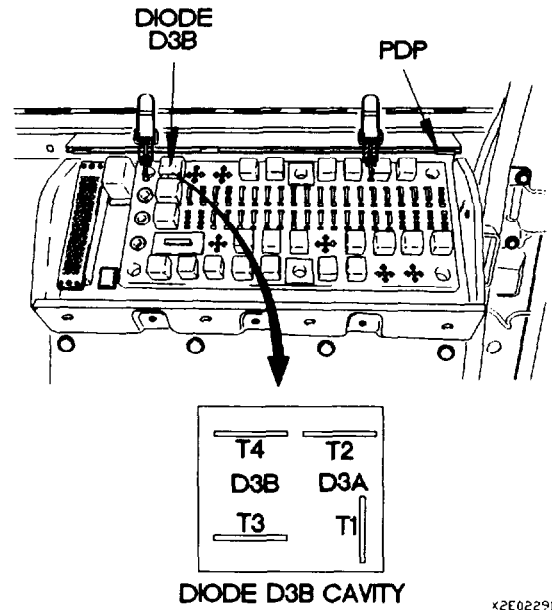


WARNING

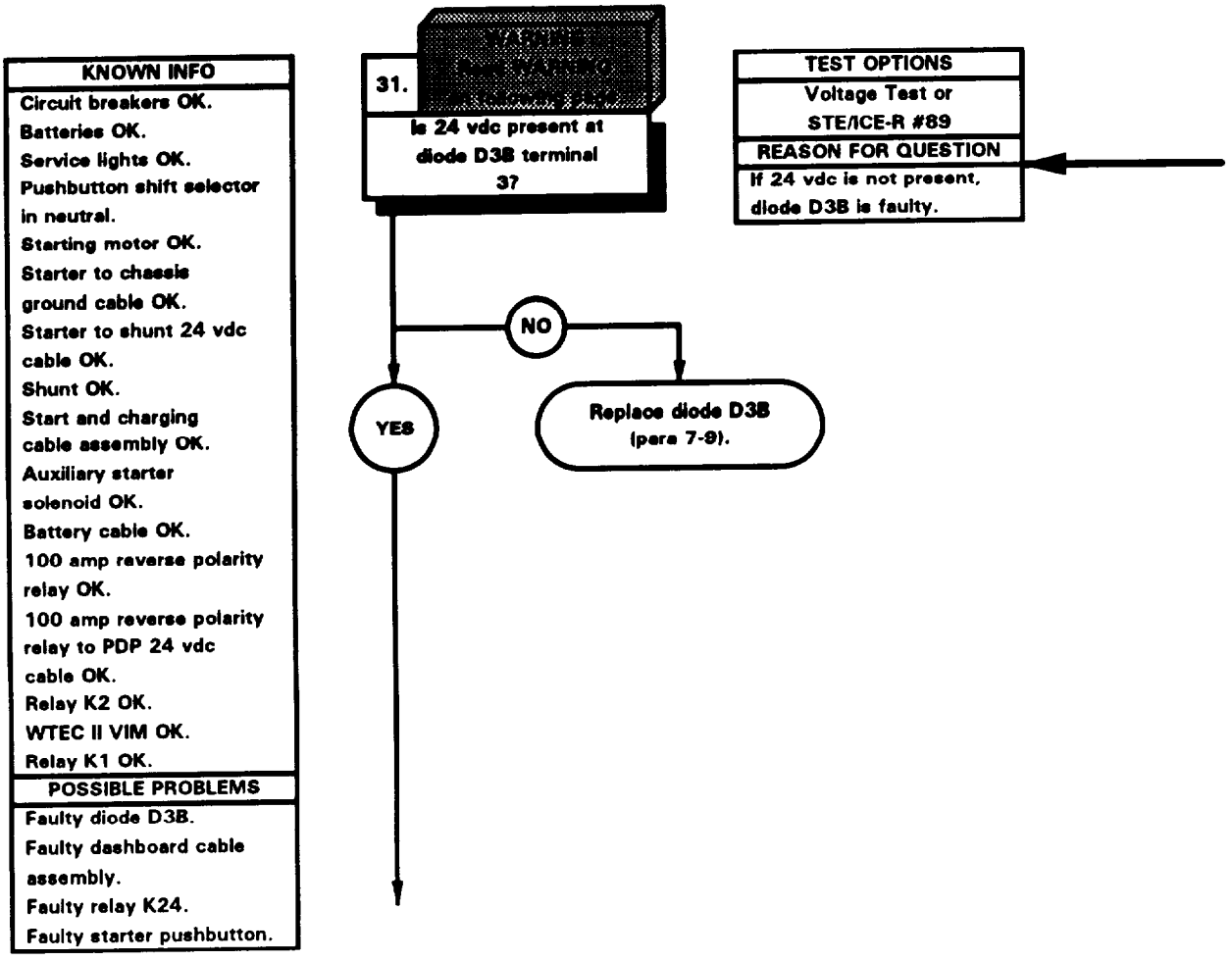
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove diode D3B from PDP.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to PDP terminal 4, where diode D3B was removed.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, repair wire 34 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position master power switch to off (TM 9-2320-366-10-1).
(8) Install diode D3B in PDP.



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

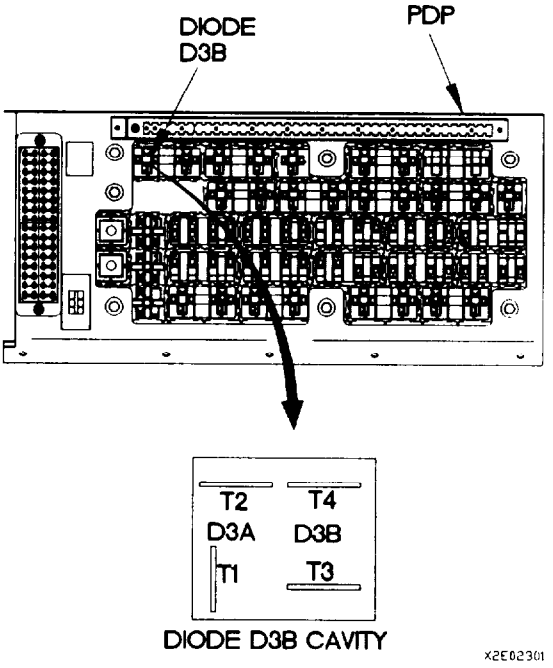


WARNING

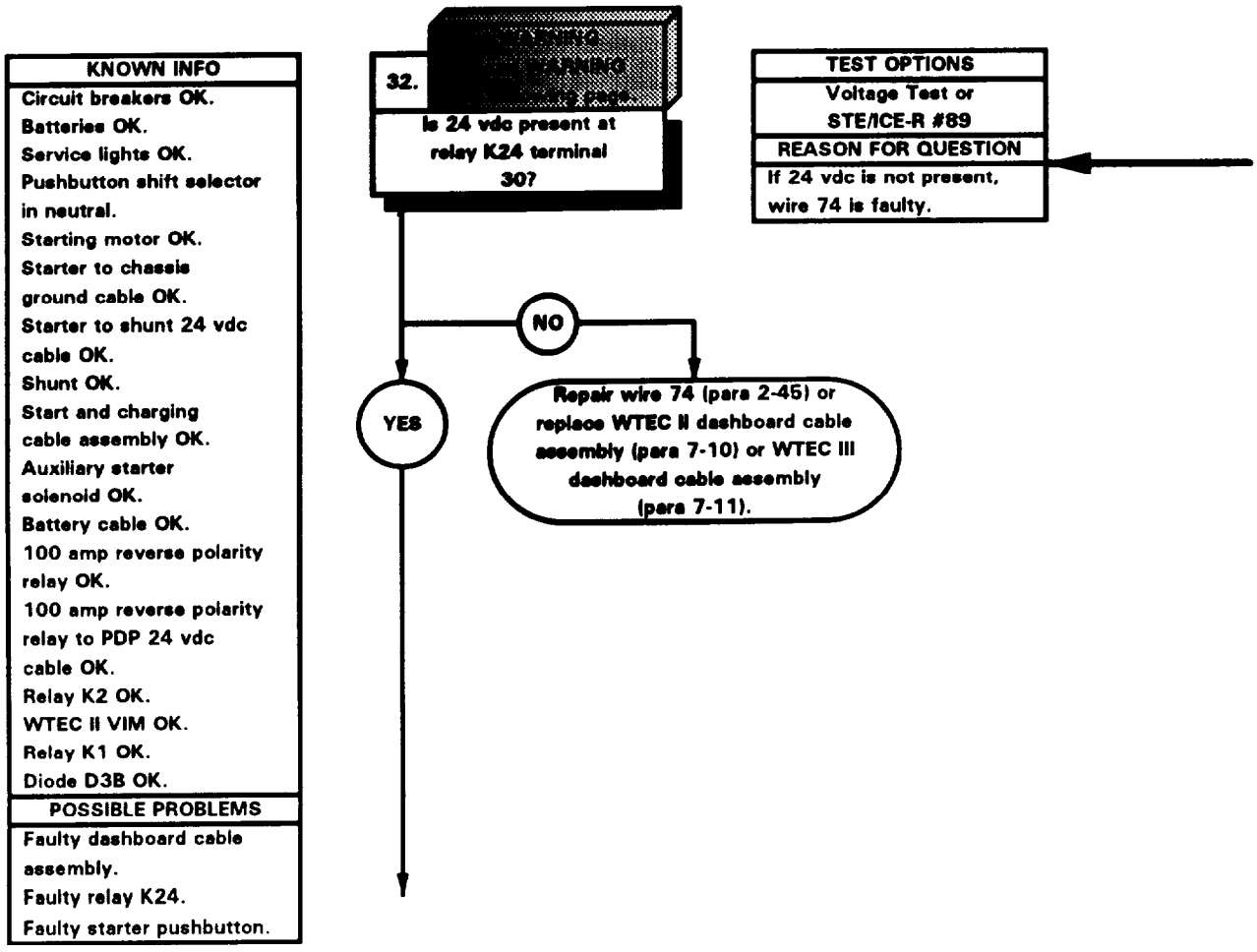
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to back of PDP terminal 3 of diode D3B.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, replace diode D3B (para 7-9).
(6) Position master power switch to off (TM 9-2320-366-10-1).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

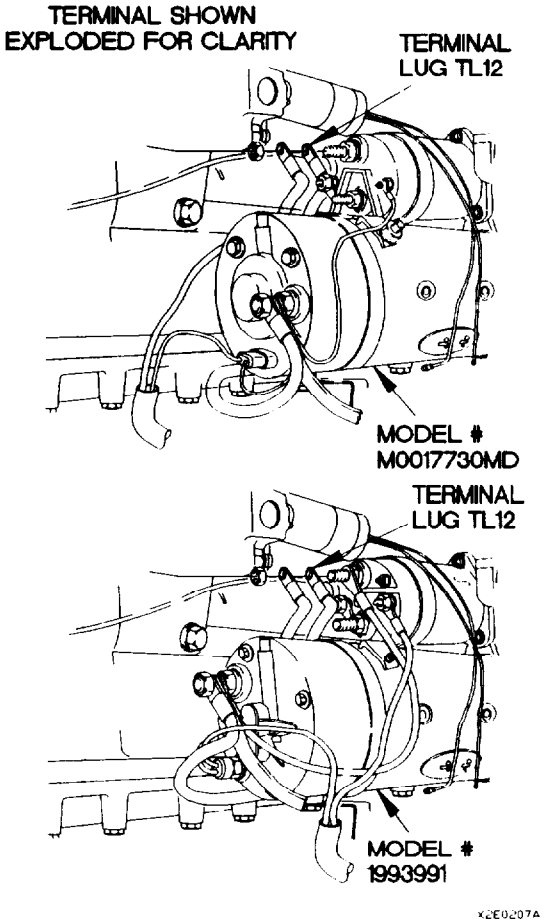


WARNING

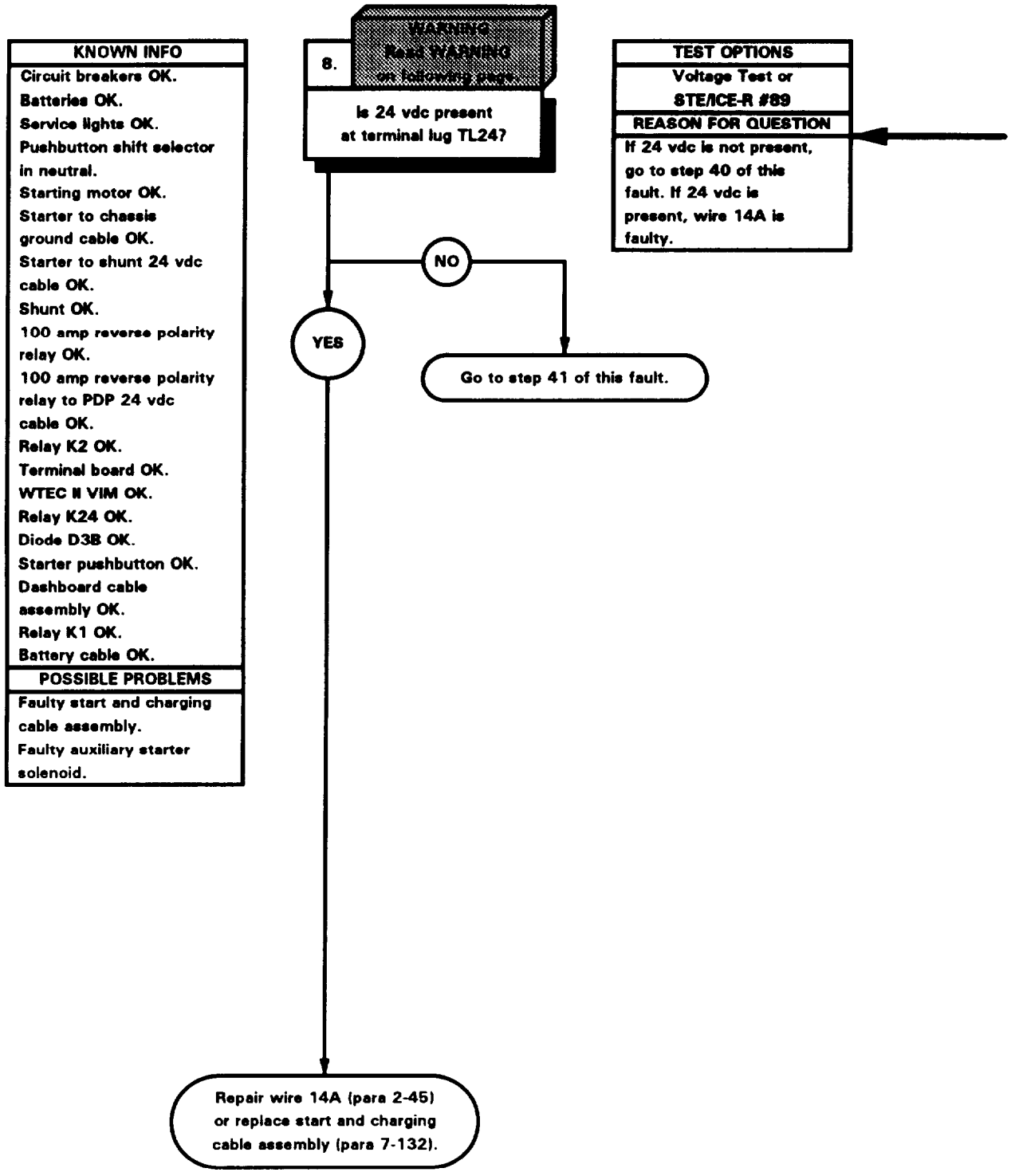
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Raise cab (TM 9-2320-366-10-1).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal lug TL12.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, replace battery cable (para 7-55).
(7) Position master power switch to off (TM 9-2320-366-10-1).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

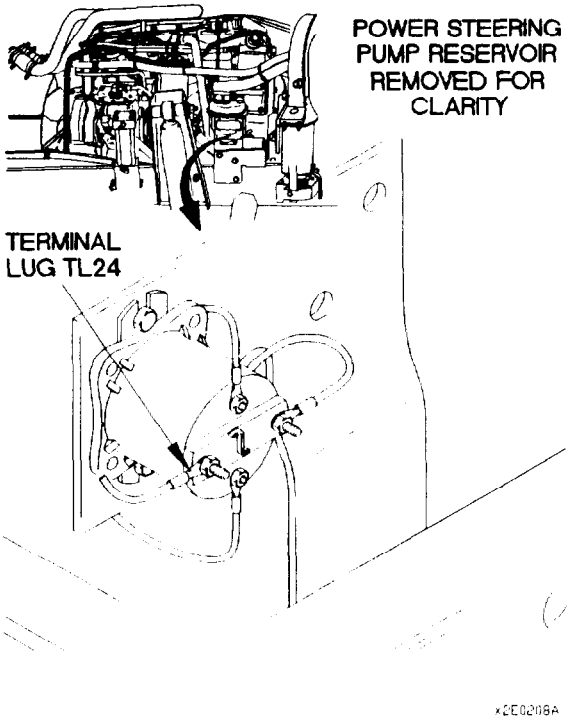


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

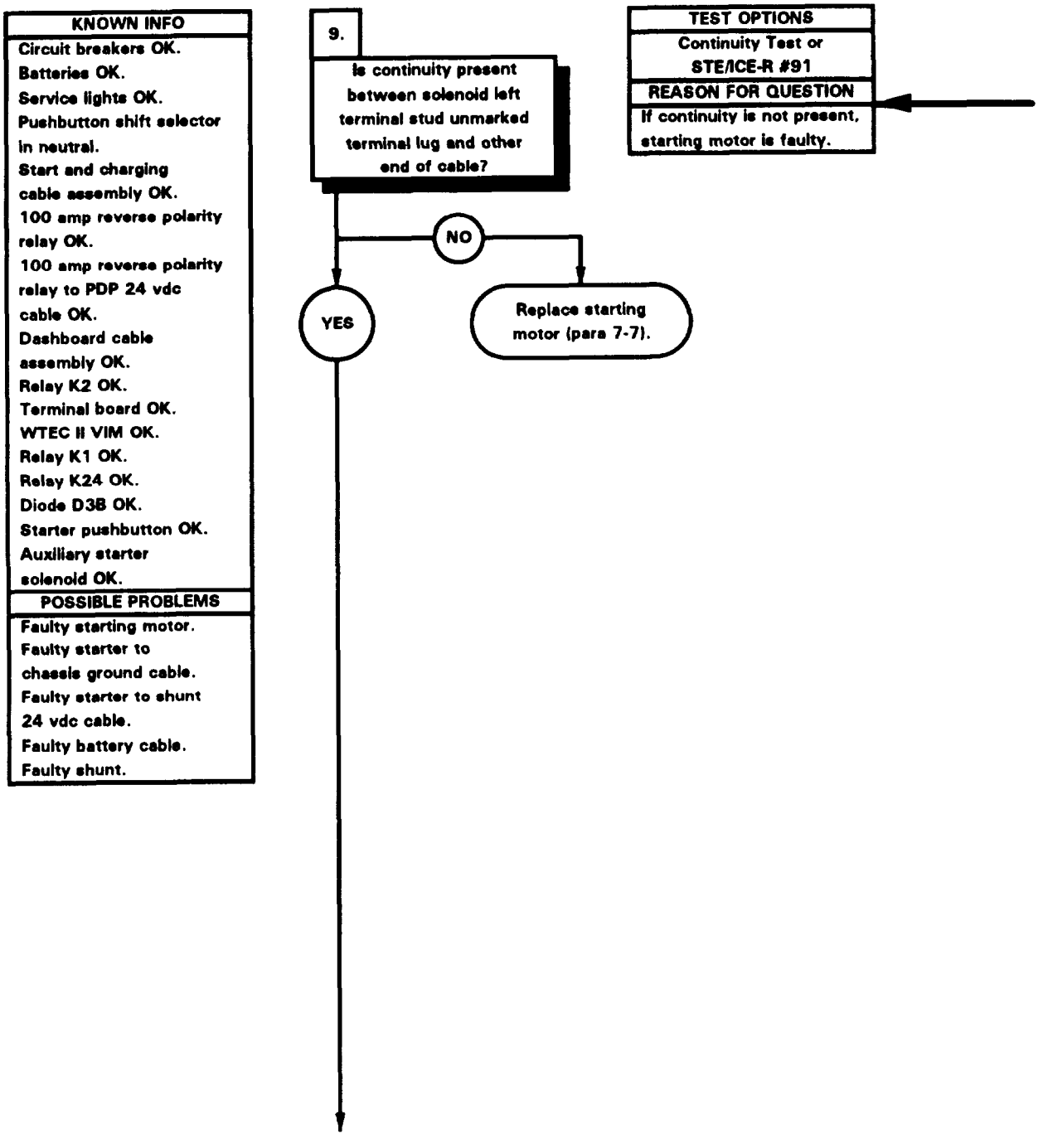
CONTINUITY TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal lug TL24.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1).
(5) Press starter pushbutton (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, go to step 41 of this fault.
(7) If 24 vdc is present, repair wire 14A (para 2-45) or replace start and charging cable assembly (para 7-132).
(8) Position master power switch to off (TM 9-2320-366-10-1).
(9) Lower cab (TM 9-2320-366-10-1).
(10) Install PDP cover (para 16-2).



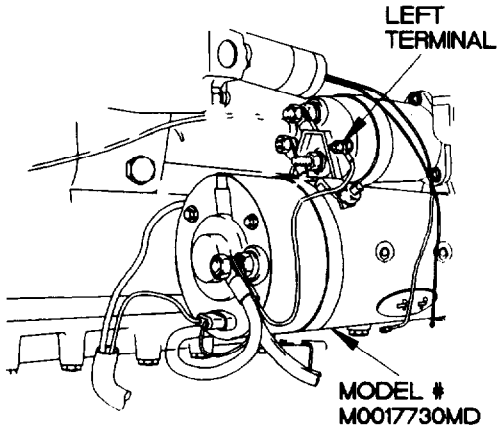
xCE0208A

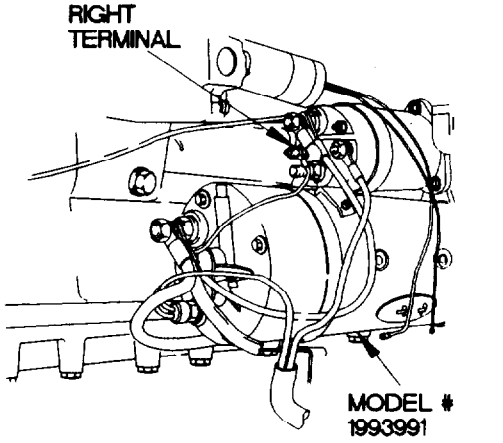
e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



CONTINUITY TEST

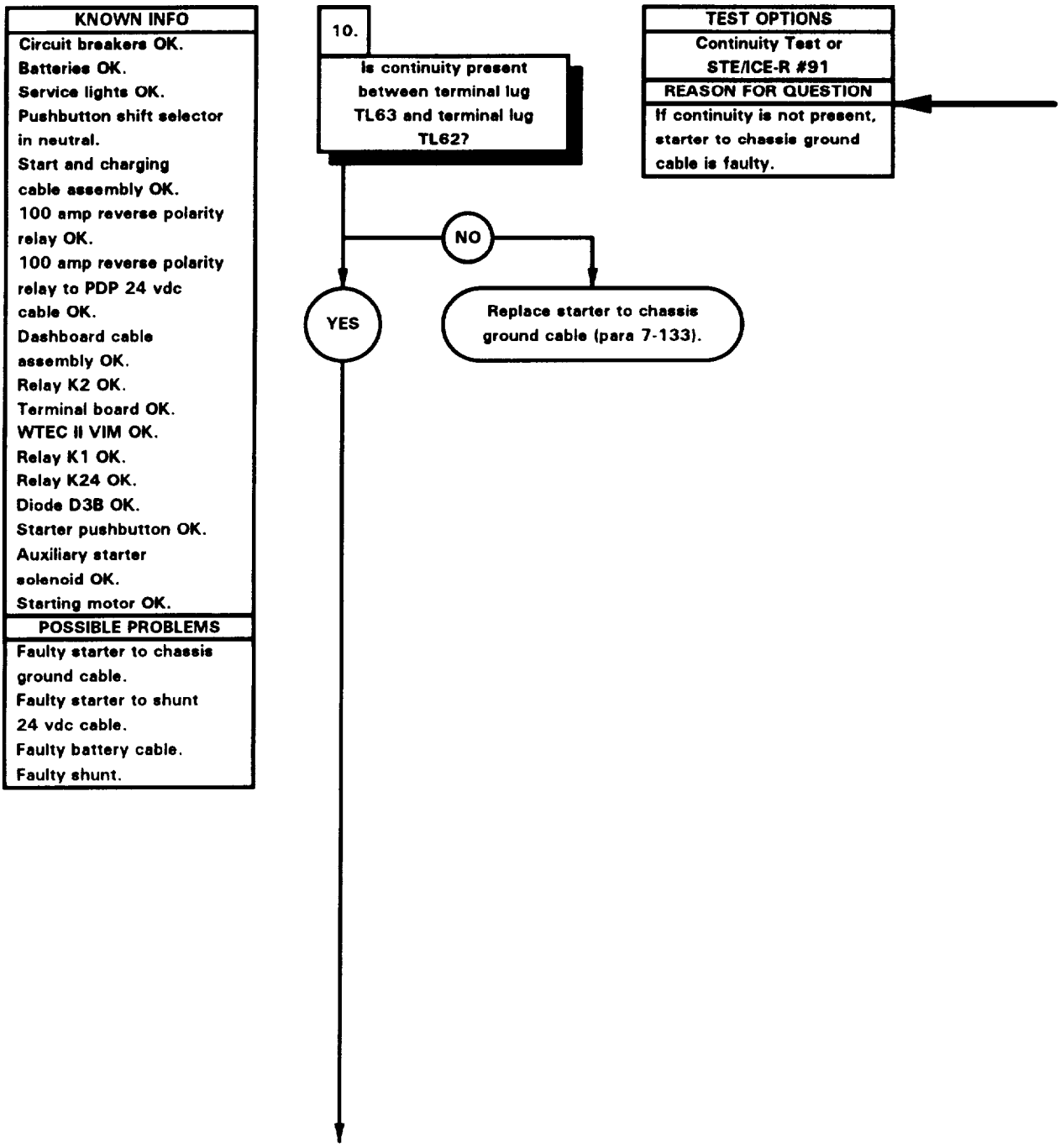
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to solenoid left (starting motor M0017730MD) or solenoid right (starting motor 1993991) terminal stud unmarked terminal lug.
(3) Connect negative (-) probe of multimeter to other end of cable and note reading on multimeter.
(4) If continuity is not present, replace starting motor (para 7-7).





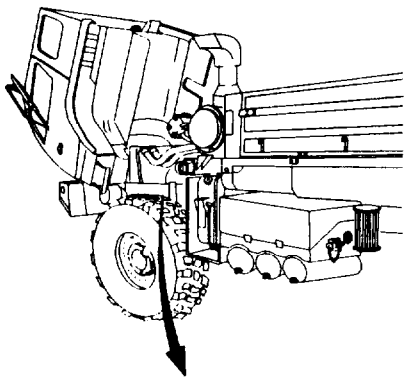
X2E0209A

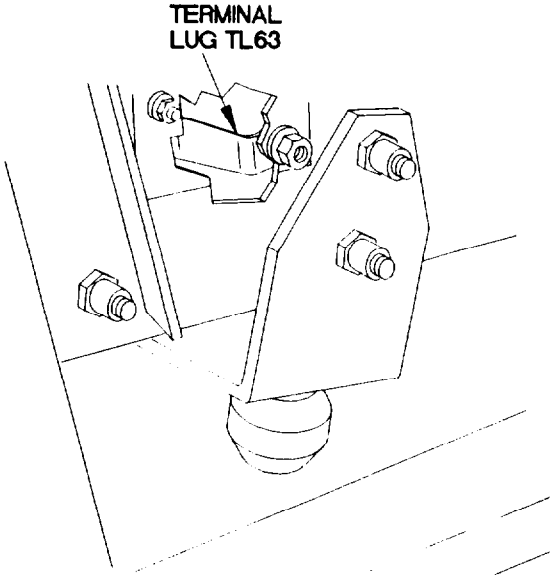
e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



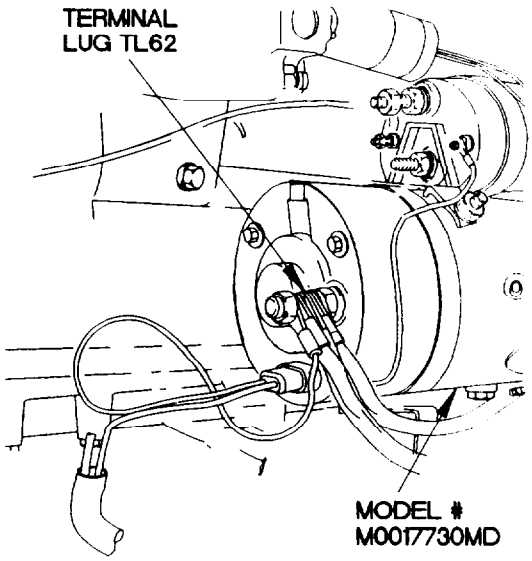
CONTINUITY TEST

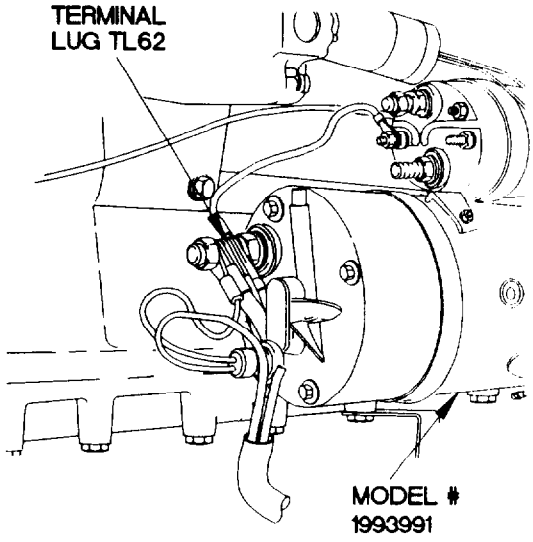
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to terminal lug TL63.
(3) Connect negative (-) probe of multimeter to terminal lug TL62 and note reading on multimeter.
(4) If continuity is not present, replace starter to chassis ground cable (para 7-133).





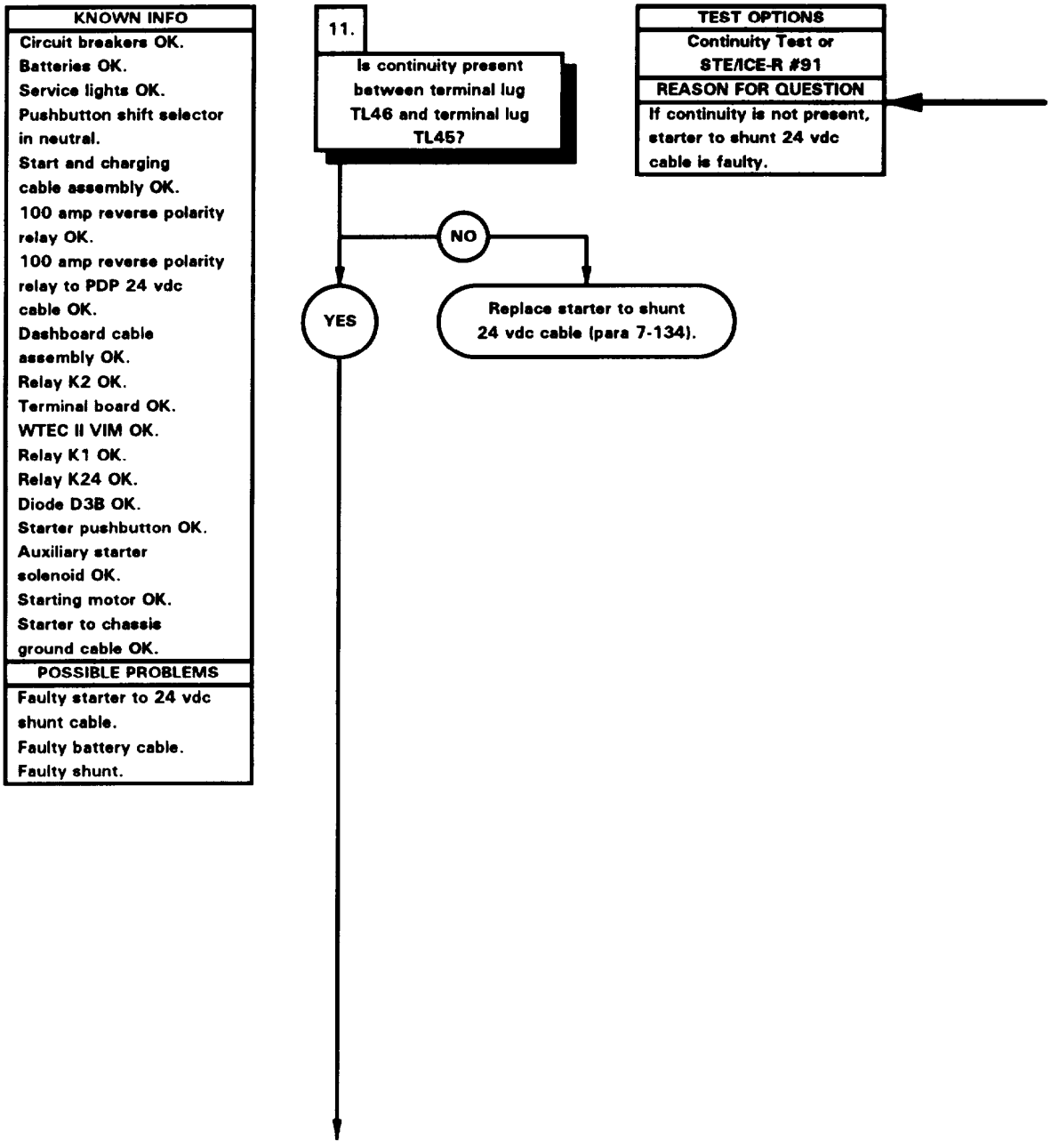
X2E0246A



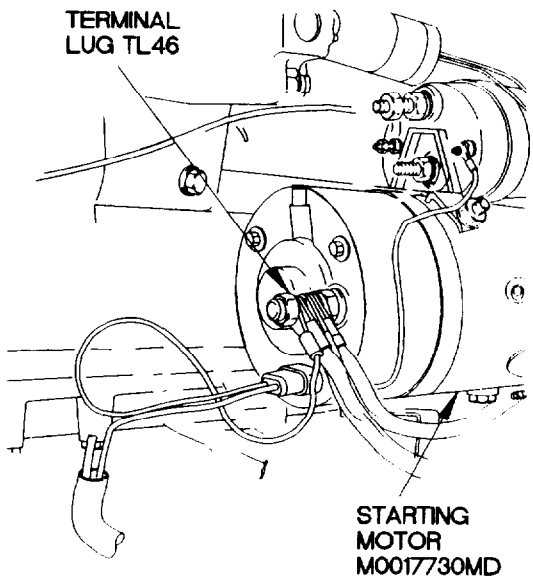


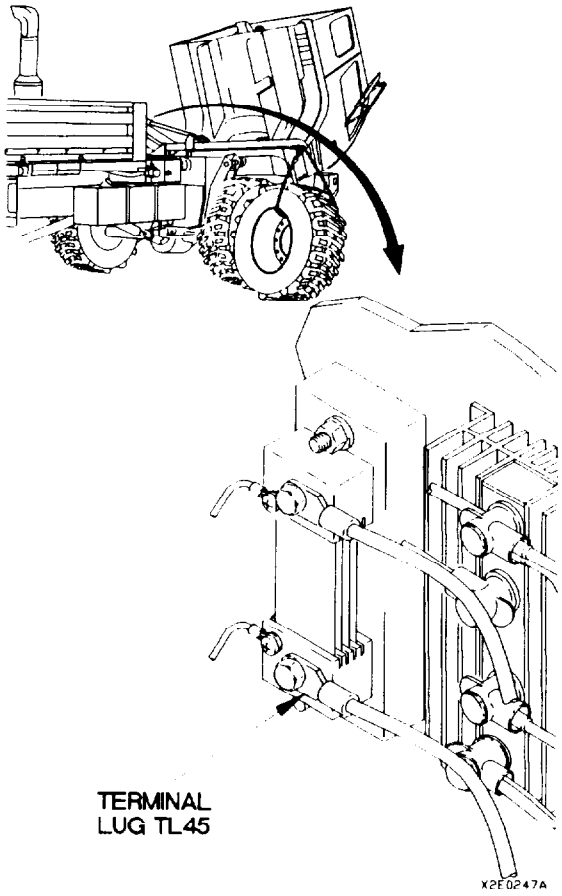
X2E0210A

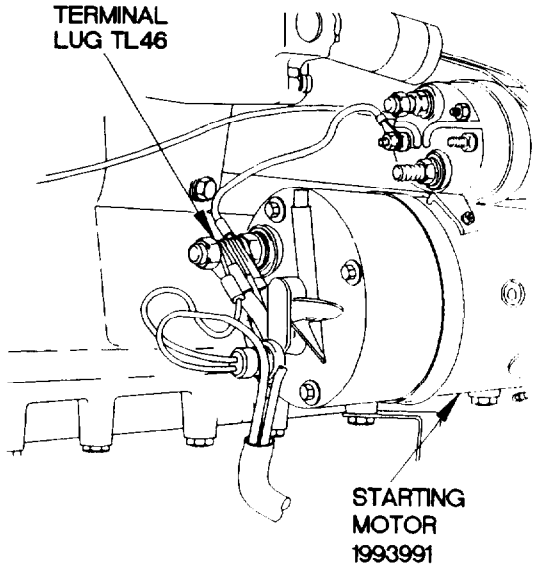
e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



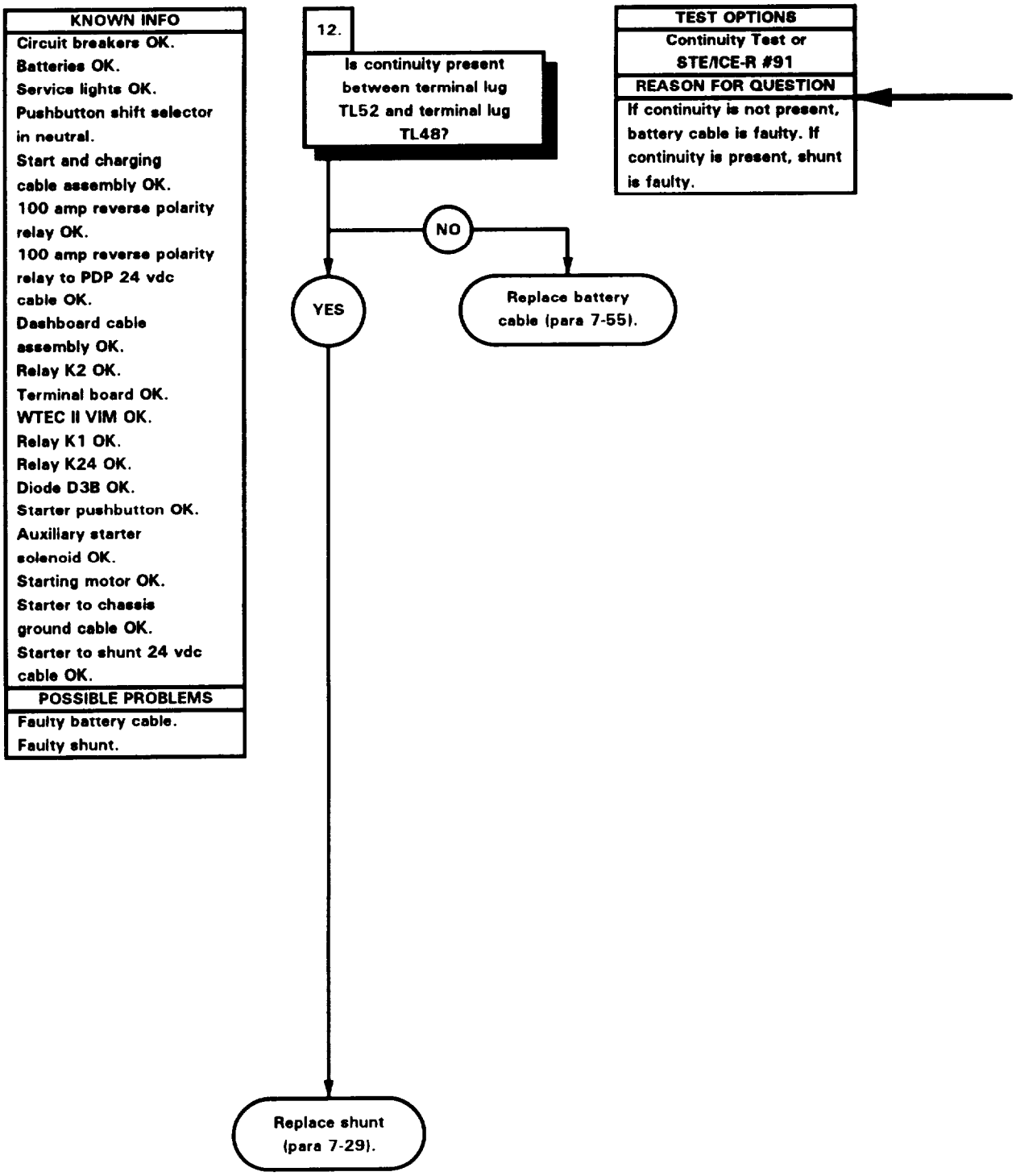
CONTINUITY TEST
(1) Lower spare tire (TM 9-2320-366-10-1).
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to terminal lug TL46.
(4) Connect negative (-) probe of multimeter to terminal lug TL45 and note reading on multimeter.
(5) If continuity is not present, replace starter to shunt 24 vdc cable (para 7-134).





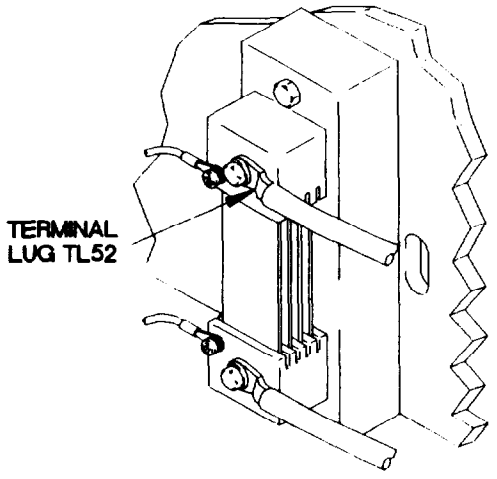


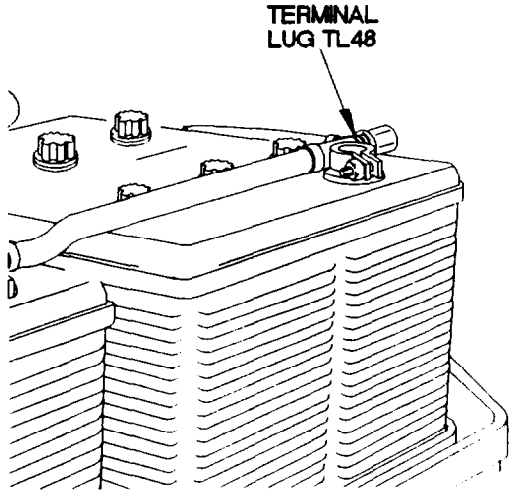
e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



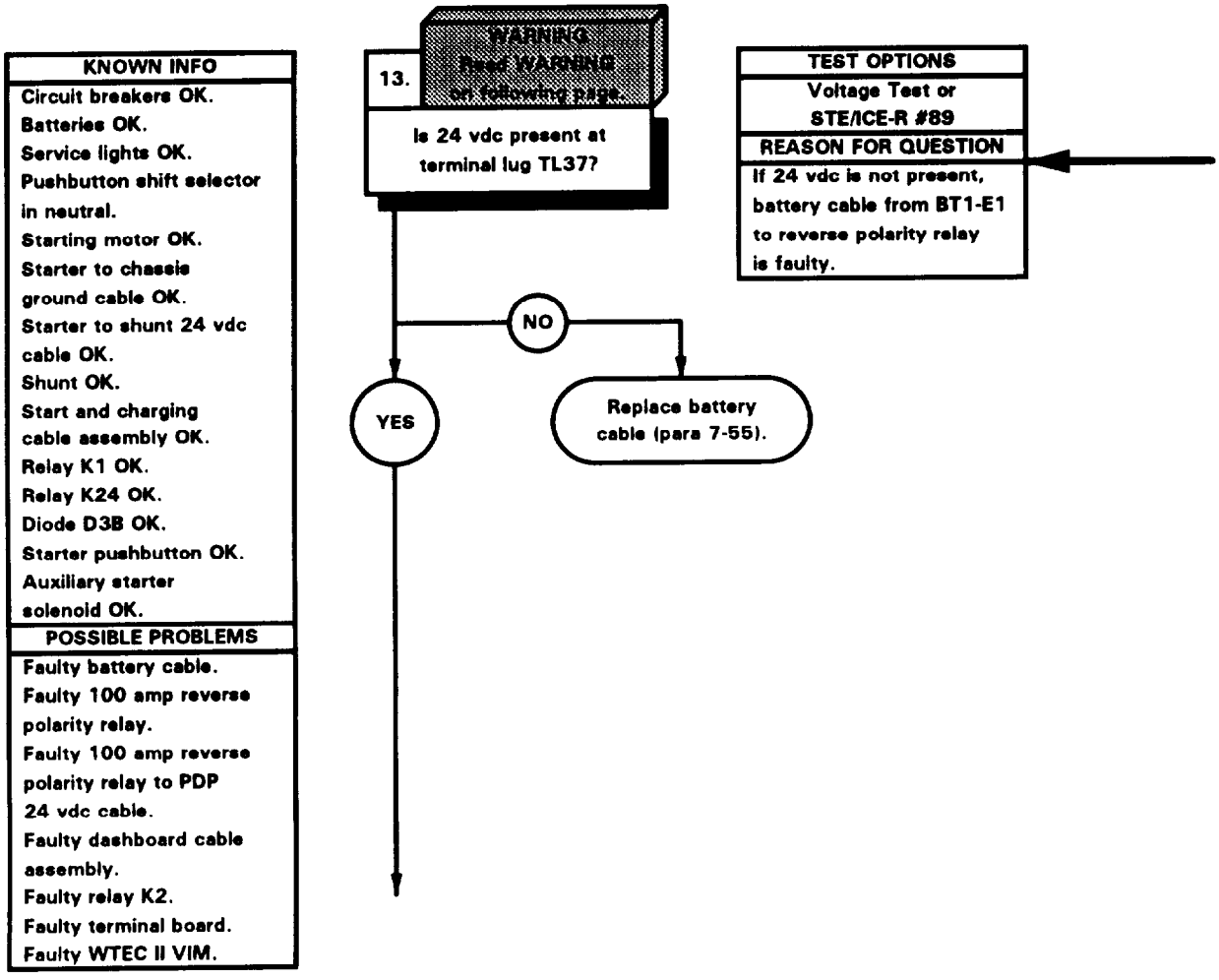
CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to terminal lug TL52.
(3) Connect negative (-) probe of multimeter to terminal lug TL48 and note reading on multimeter.
(4) If continuity is not present, replace battery cable (para 7-55).
(5) If continuity is present, replace shunt (para 7-29).
(6) Connect batteries (para 7-57).





e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

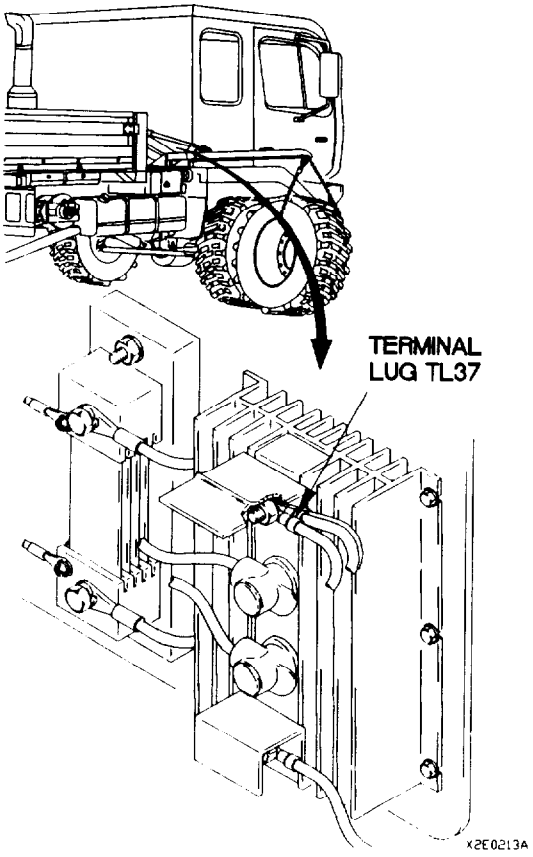


WARNING

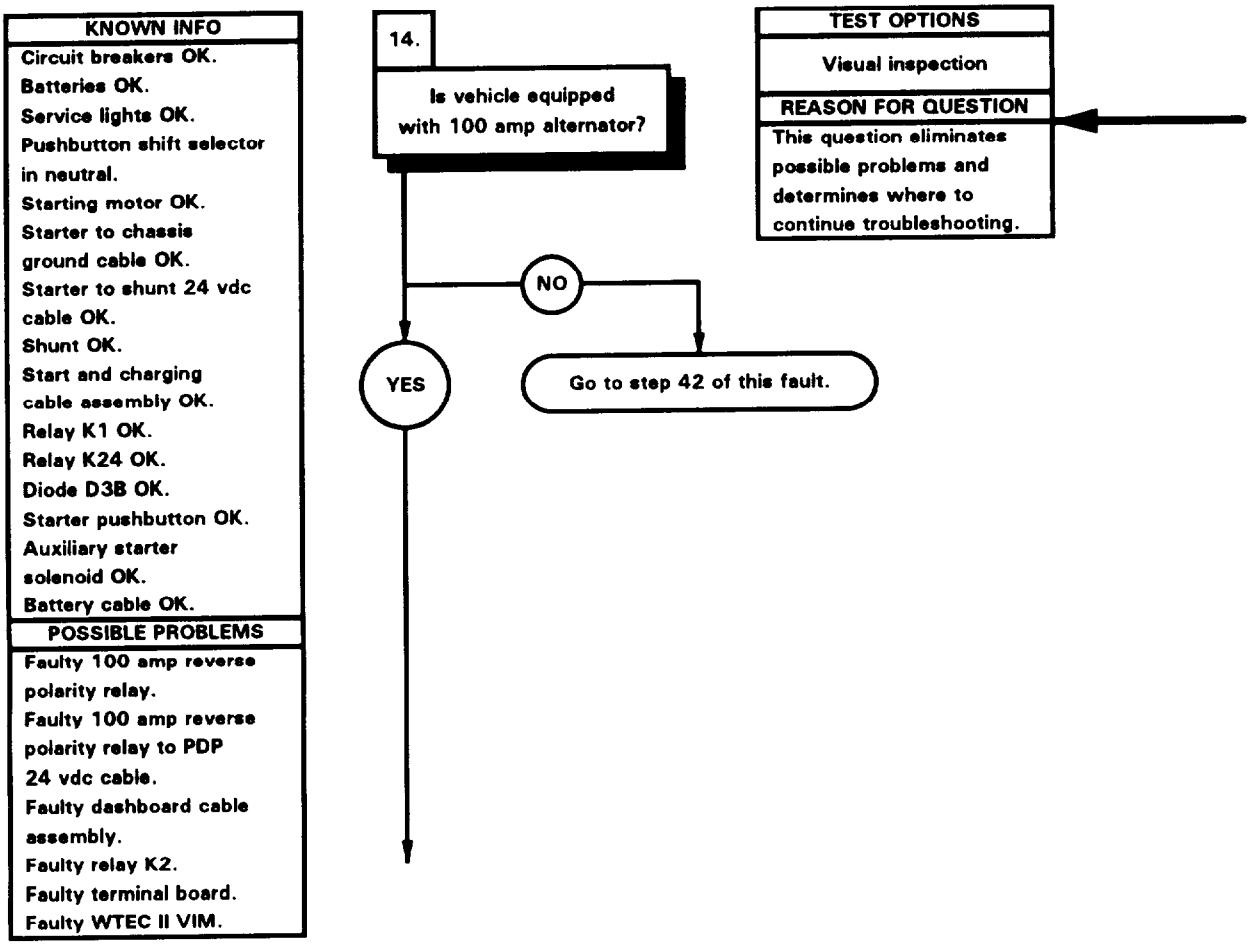
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Lower spare tire (TM 9-2320-366-10-1).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal lug TL37.
(4) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(5) If 24 vdc is not present, replace battery cable (para 7-55).

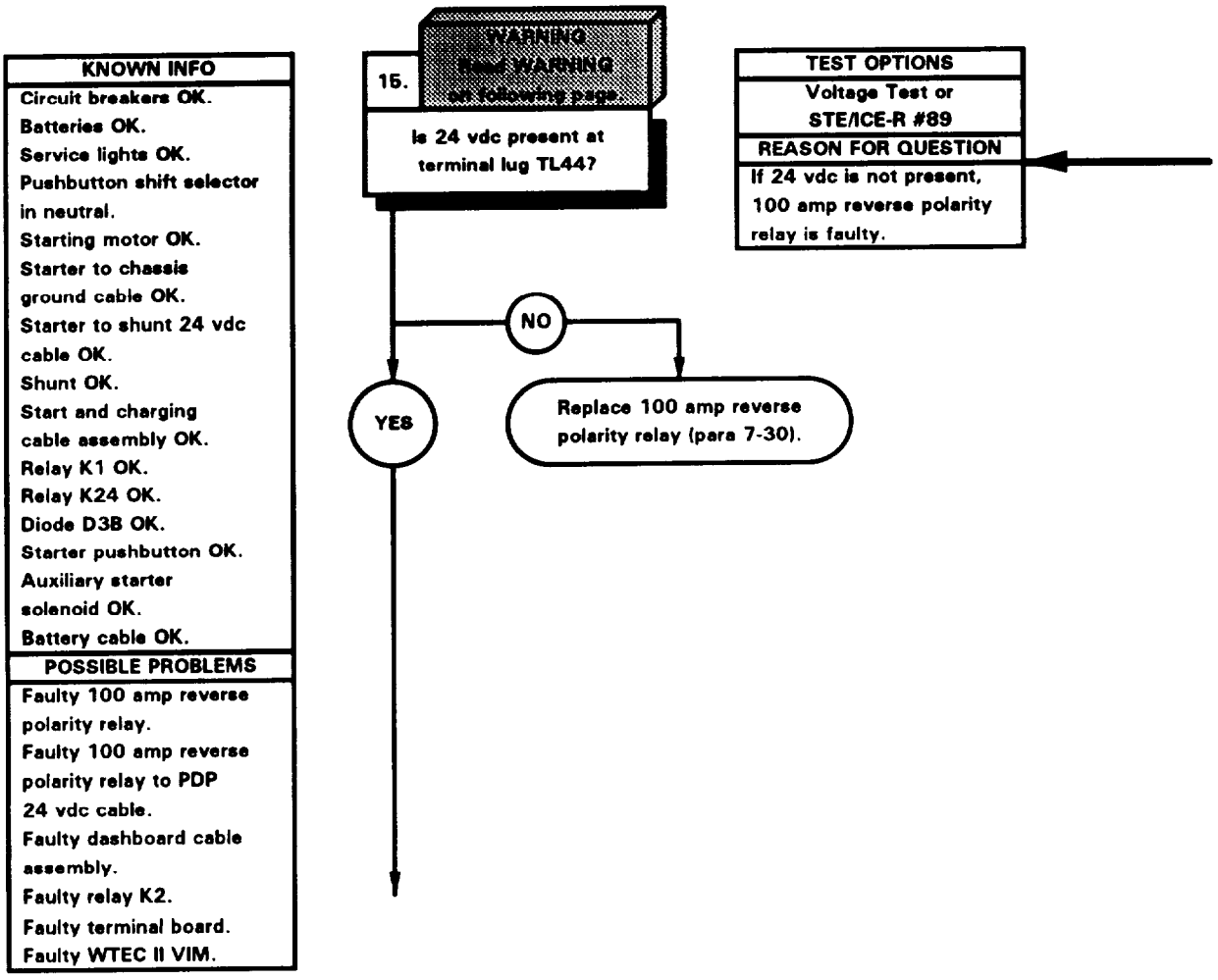


e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



(1) Raise cab (TM 9-2320-366-10-1).
(2) Check if vehicle is equipped with 100 or 200 amp alternator kit.
(3) If vehicle is equipped with 200 amp alternator kit, go to step 42 of this fault.

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

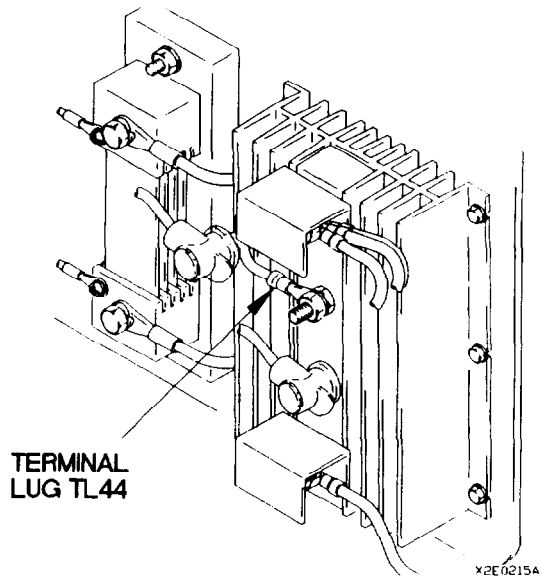


WARNING

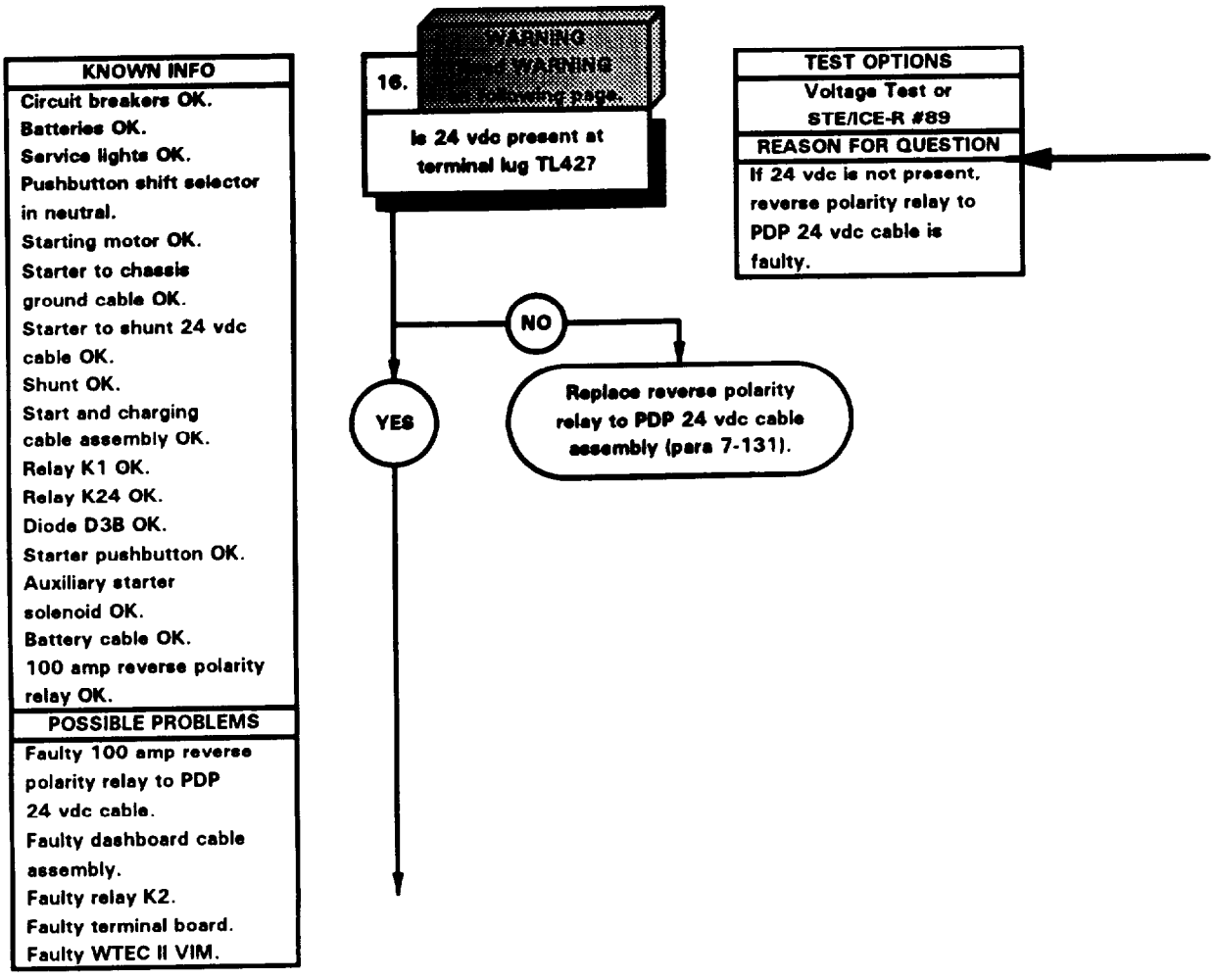
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal lug TL44.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 24 vdc is not present, replace 100 amp reverse polarity relay (para 7-30).
(5) Lower cab (TM 9-2320-366-10-1).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

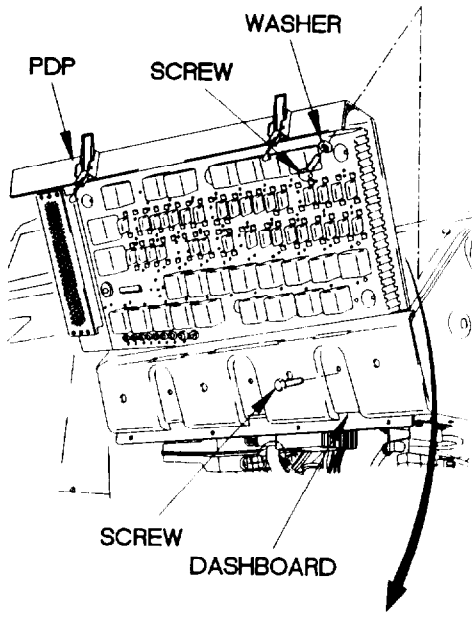


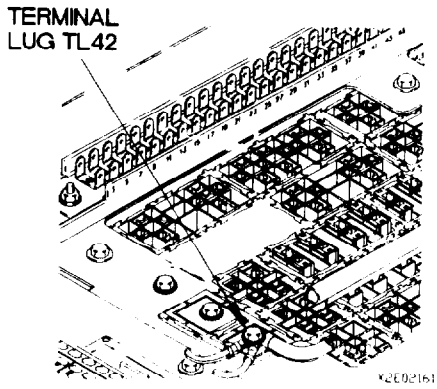
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

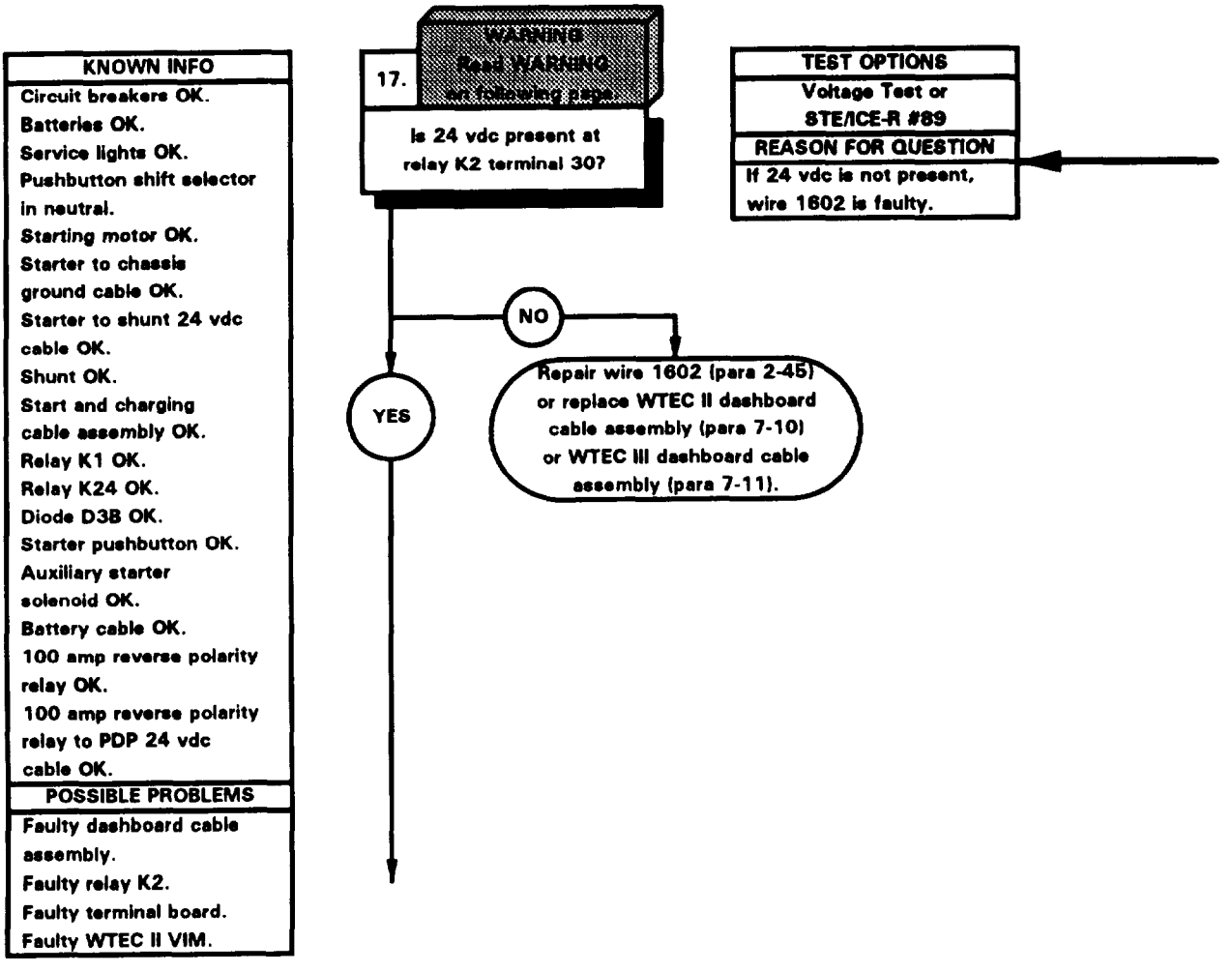
VOLTAGE TEST

(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to terminal lug TL42.
(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(7) If 24 vdc is not present, replace reverse polarity relay to PDP 24 vdc cable (para 7-131).





e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

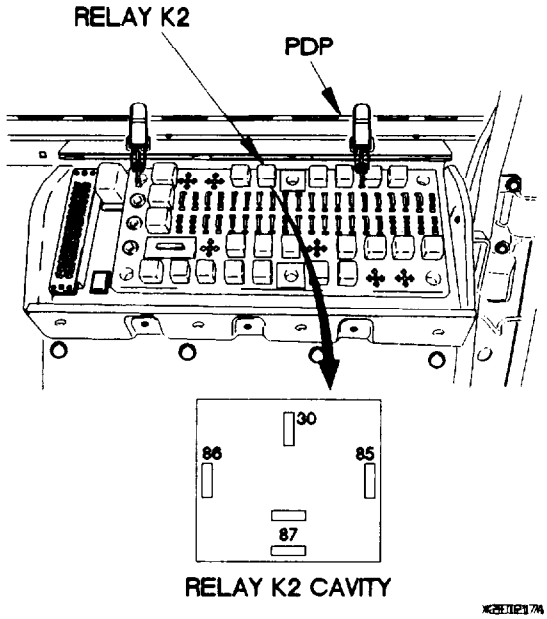


WARNING

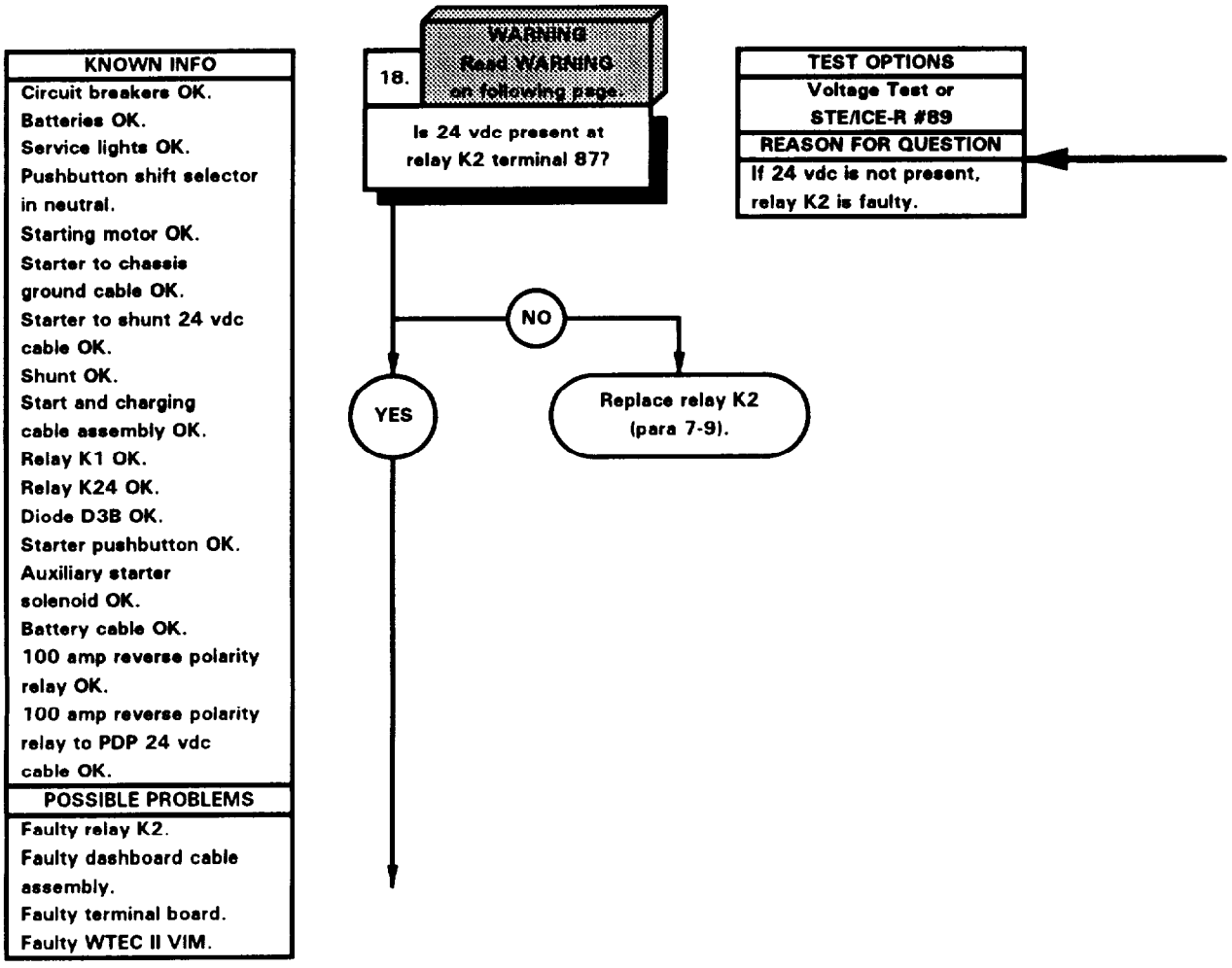
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove relay K2 from PDP.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to PDP terminal 30, where relay K2 was removed.
(4) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1602 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Install relay K2 in PDP.



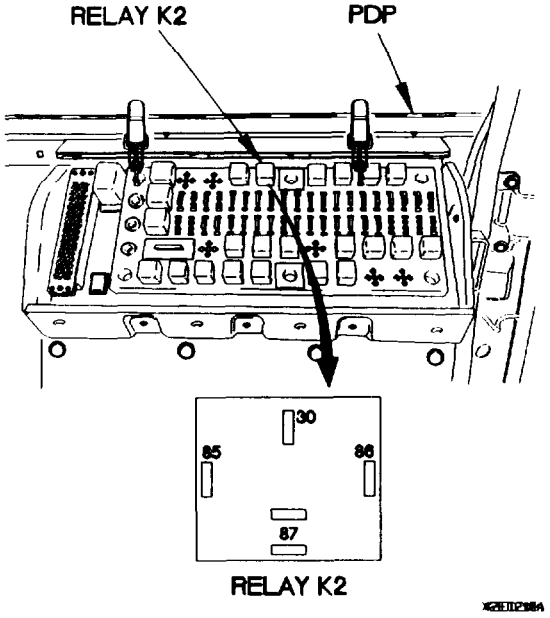
e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



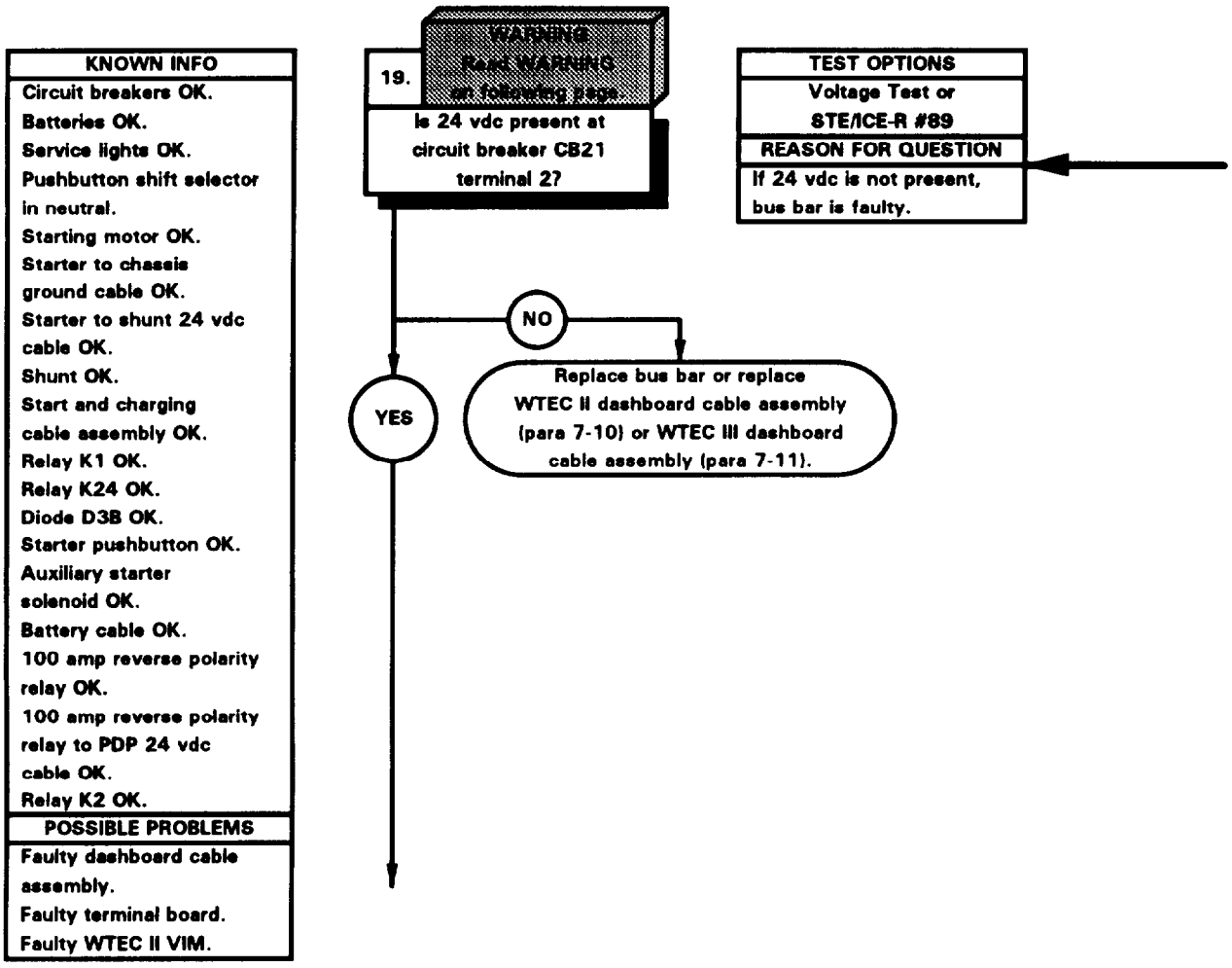
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to back of PDP terminal 87 of relay K2.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, replace relay K2 (para 7-9).
(6) Position master power switch to off (TM 9-2320-366-10-1).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

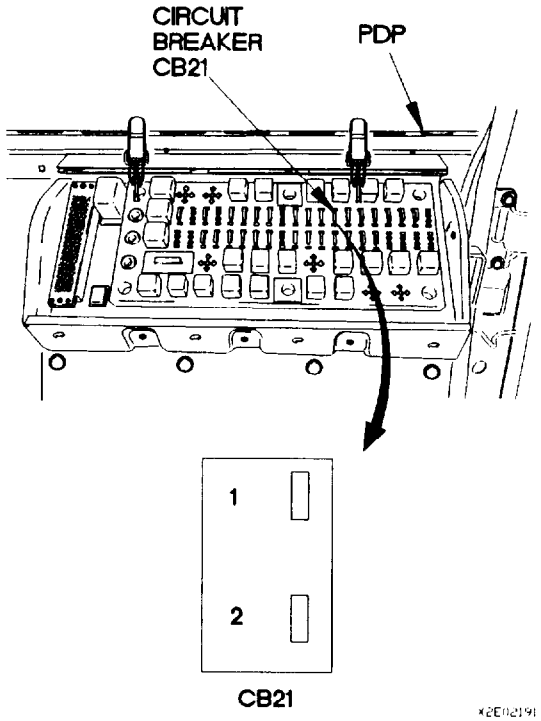


WARNING

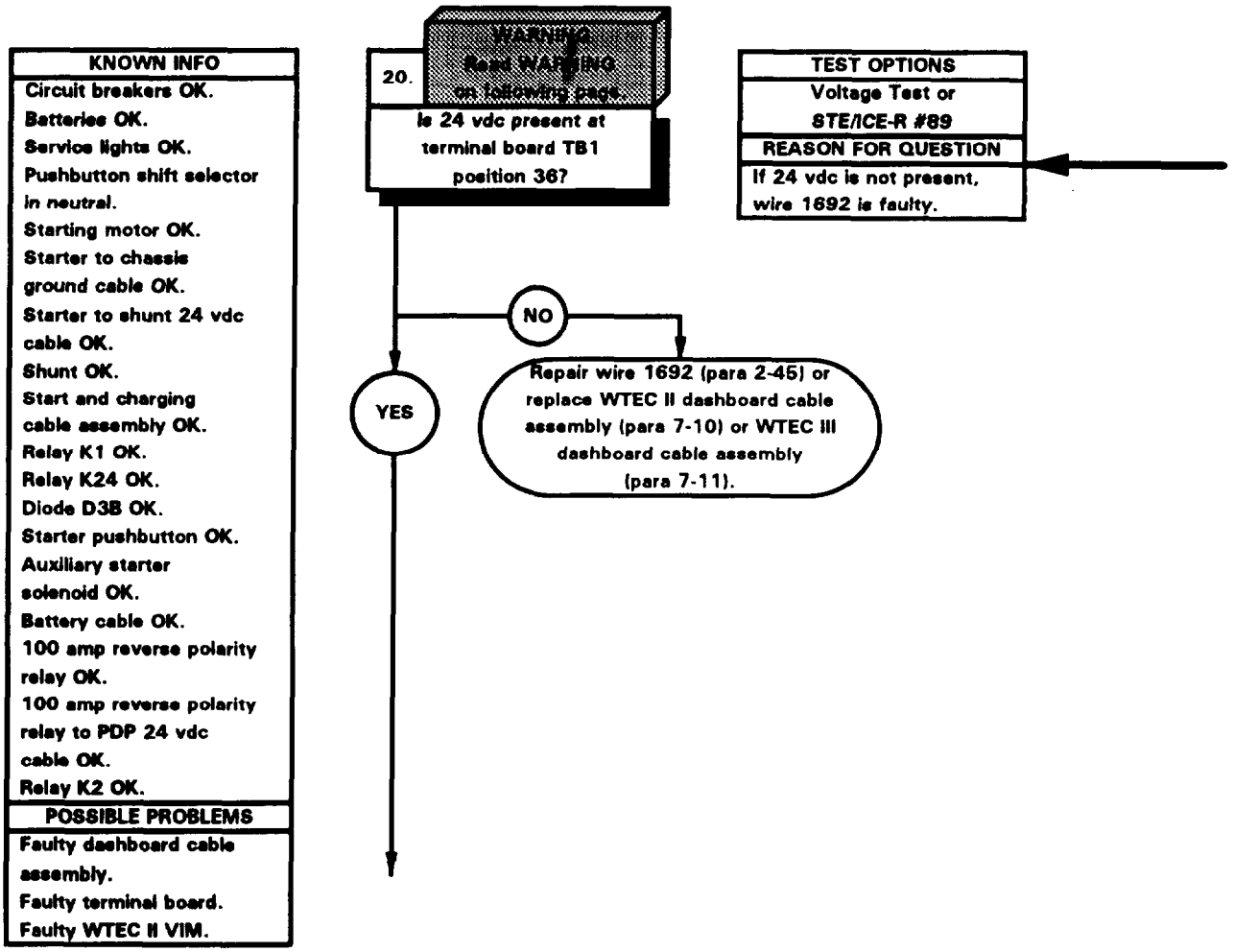
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove circuit breaker CB21 from PDP.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal 2 of PDP, where circuit breaker CB21 was removed.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, replace bus bar or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position master power switch to off (TM 9-2320-366-10-1).
(8) Install circuit breaker CB21 in PDP.



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

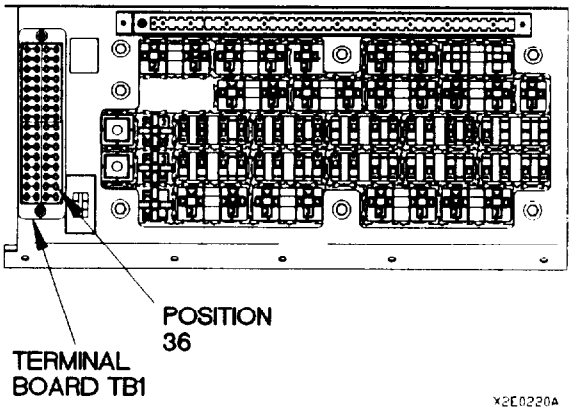


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

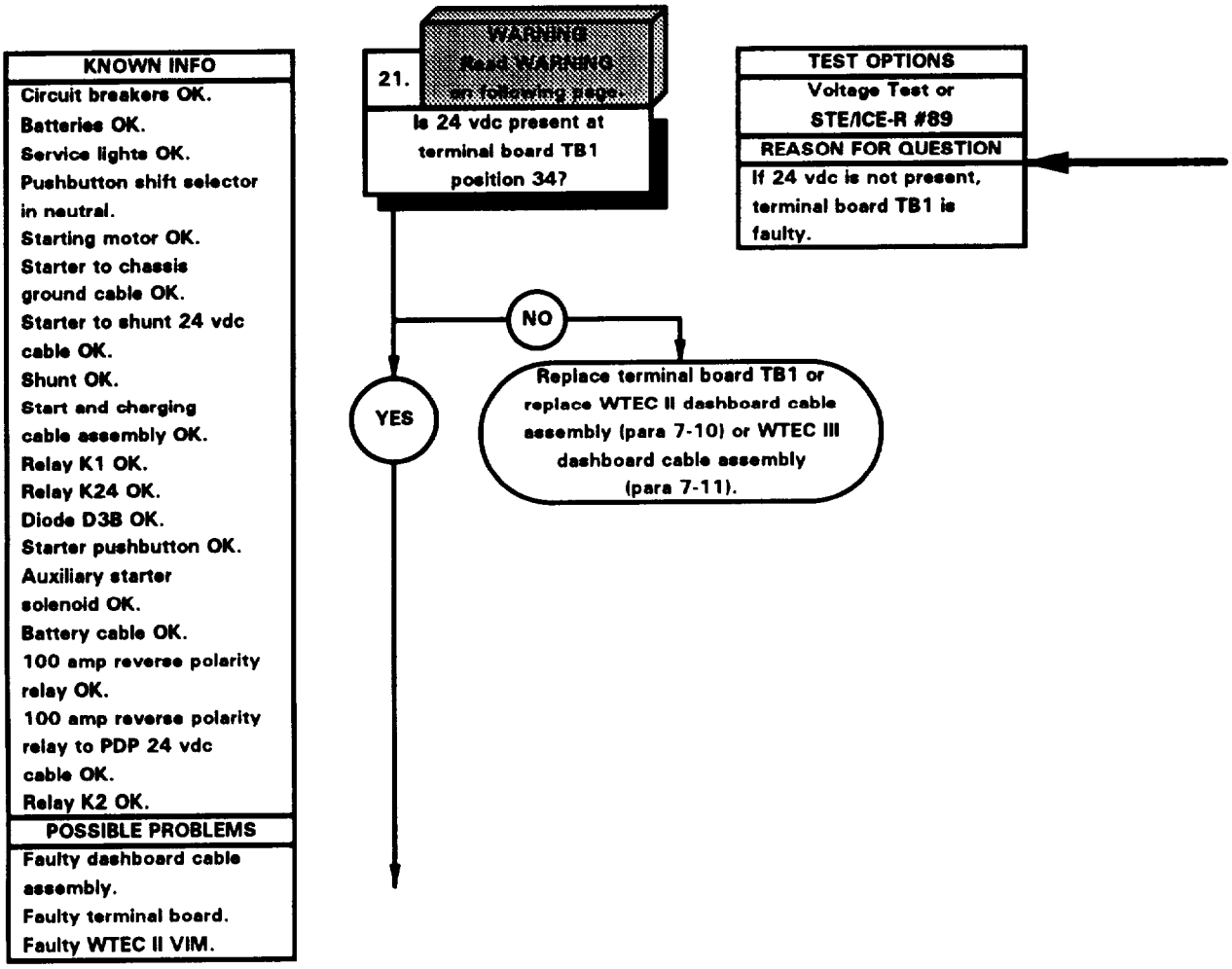
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal board TB1 position 36.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1692 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-11) or WTEC III dashboard cable assembly (para 7-11).
(6) Position master power switch to off (TM 9-2320-366-10-1).



X2E0220A

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

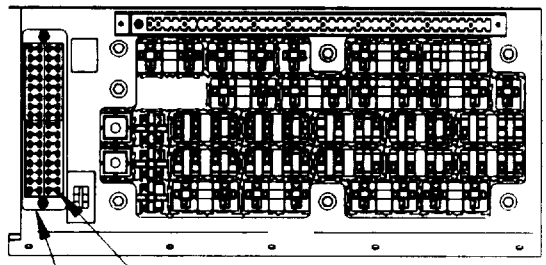


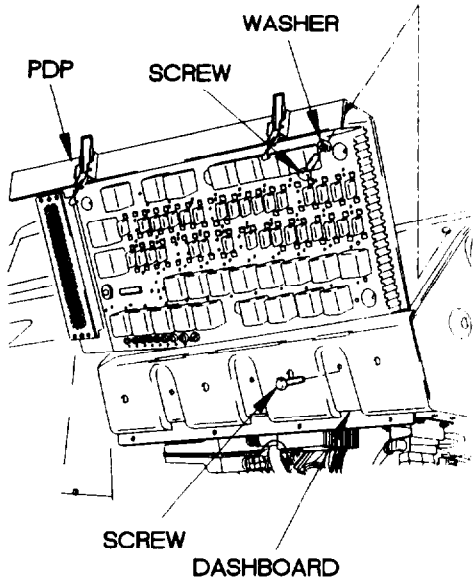
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

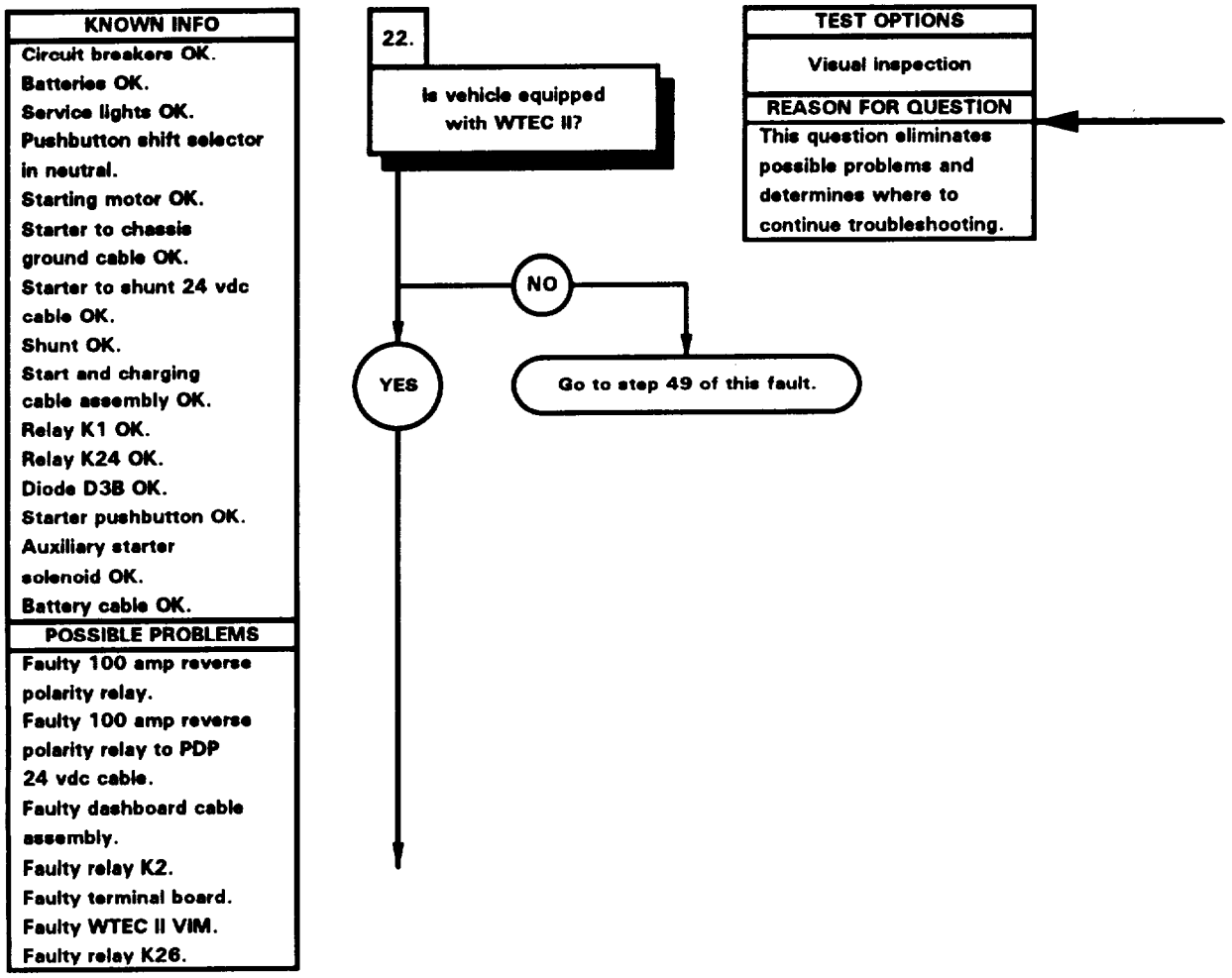
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal board TB1 position 34.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, replace terminal board TB1 or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position master power switch to off (TM 9-2320-366-10-1).
(7) Install PDP in dashboard with three screws.
(8) Install three washers and screws in PDP.



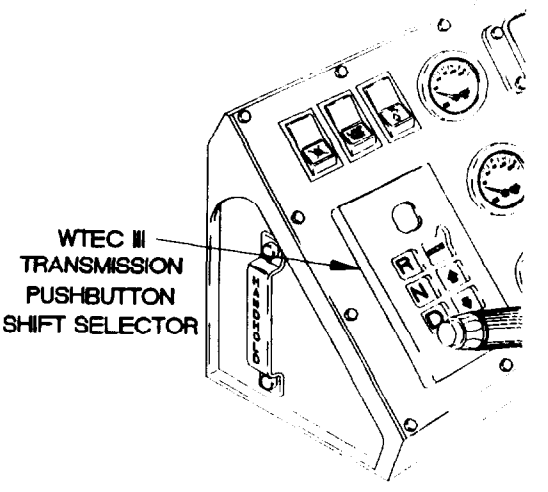


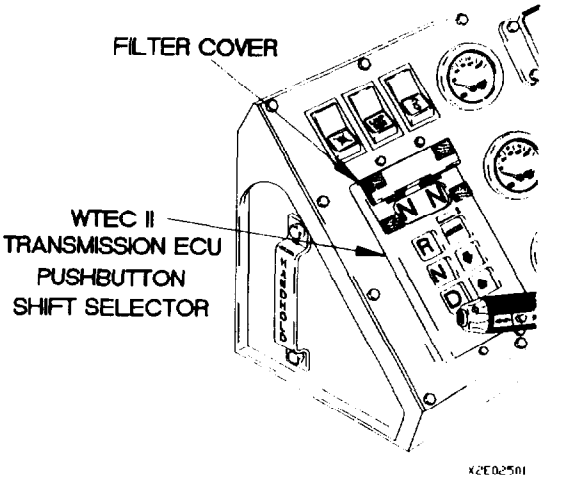
X2E02211

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



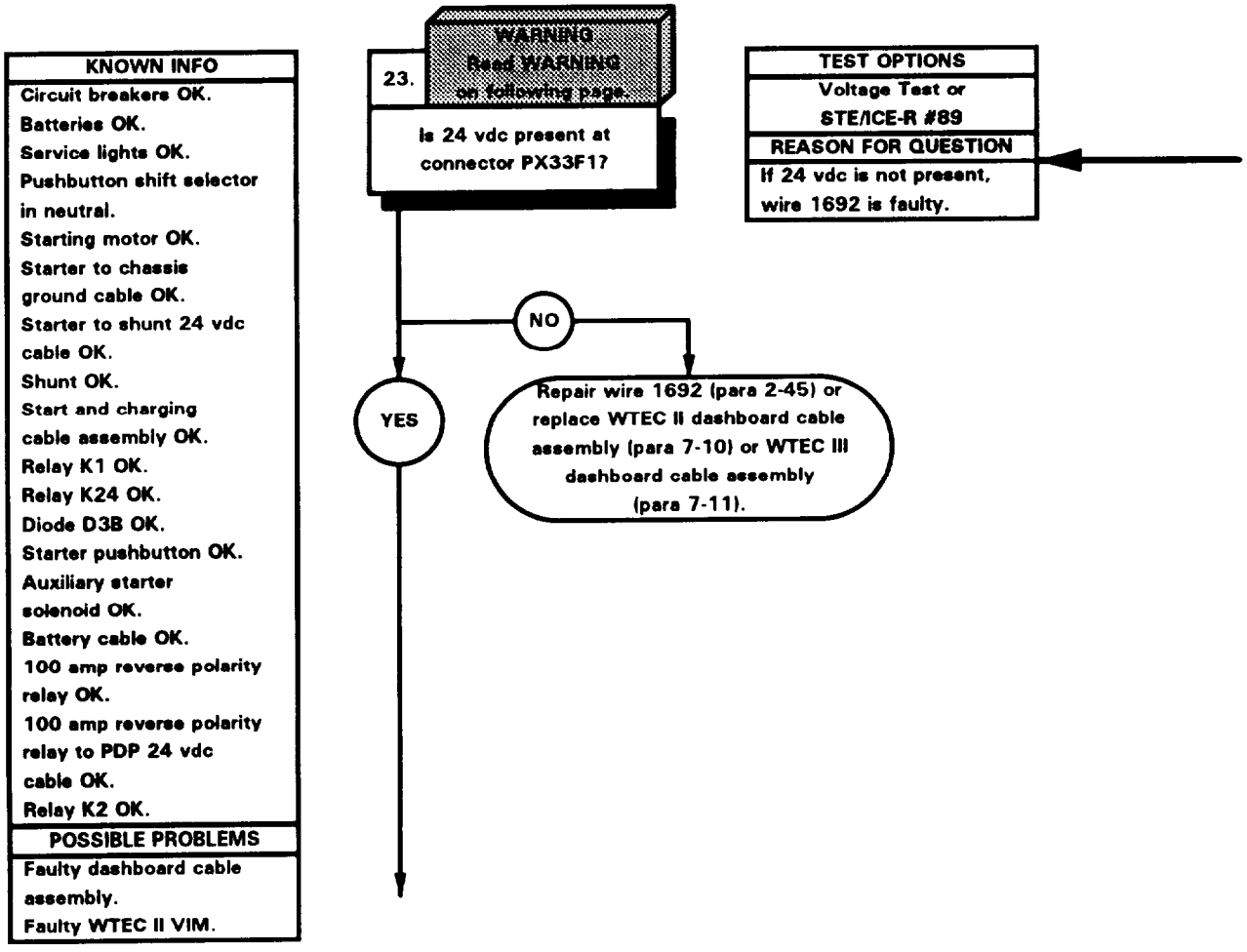
(1) **Check if vehicle is equipped with WTEC II Transmission ECU Pushbutton Shift Selector (TEPSS).**
(2) **If TEPSS is mounted with four screws and has a filter cover, go to step 49 of this fault.**





X2E02501

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

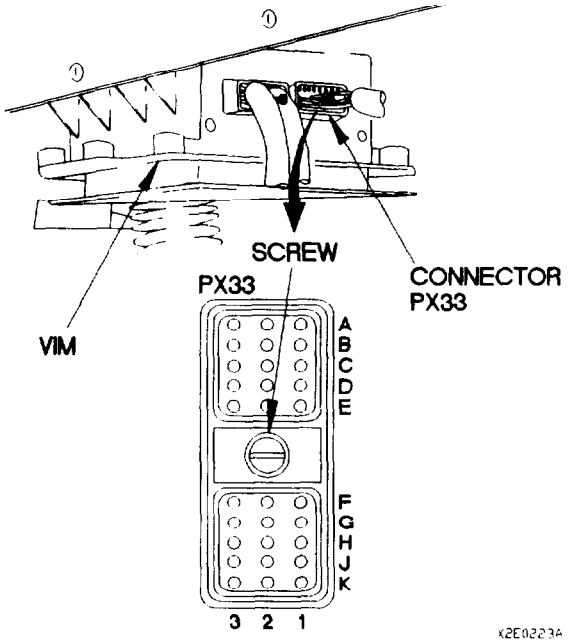


WARNING

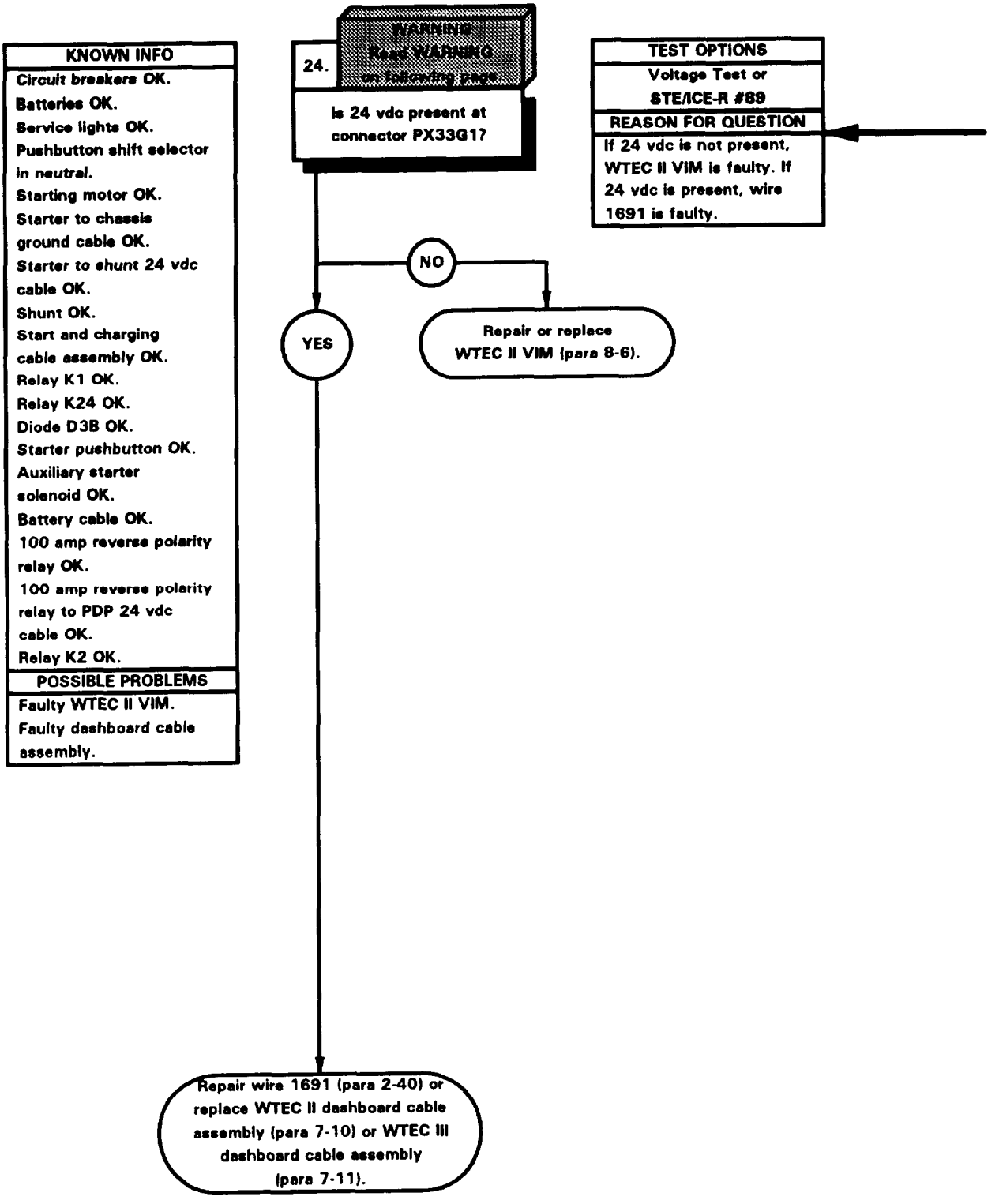
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove kick panel (para 16-3).
(2) Loosen screw in connector PX33.
(3) Disconnect connector PX33 from WTEC II VIM.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector PX33F1.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, repair wire 1692 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position master power switch to off (TM 9-2320-366-10-1).
(10) Connector connector PX33 to WTEC II VIM.
(11) Tighten screw on connector PX33.



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

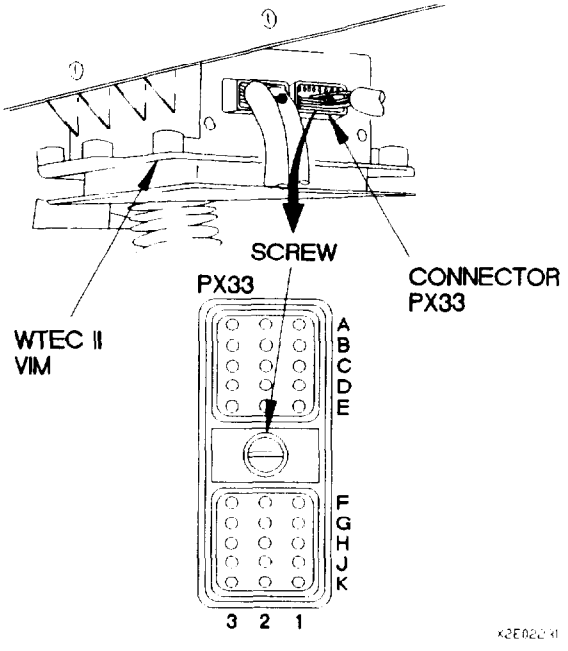


WARNING

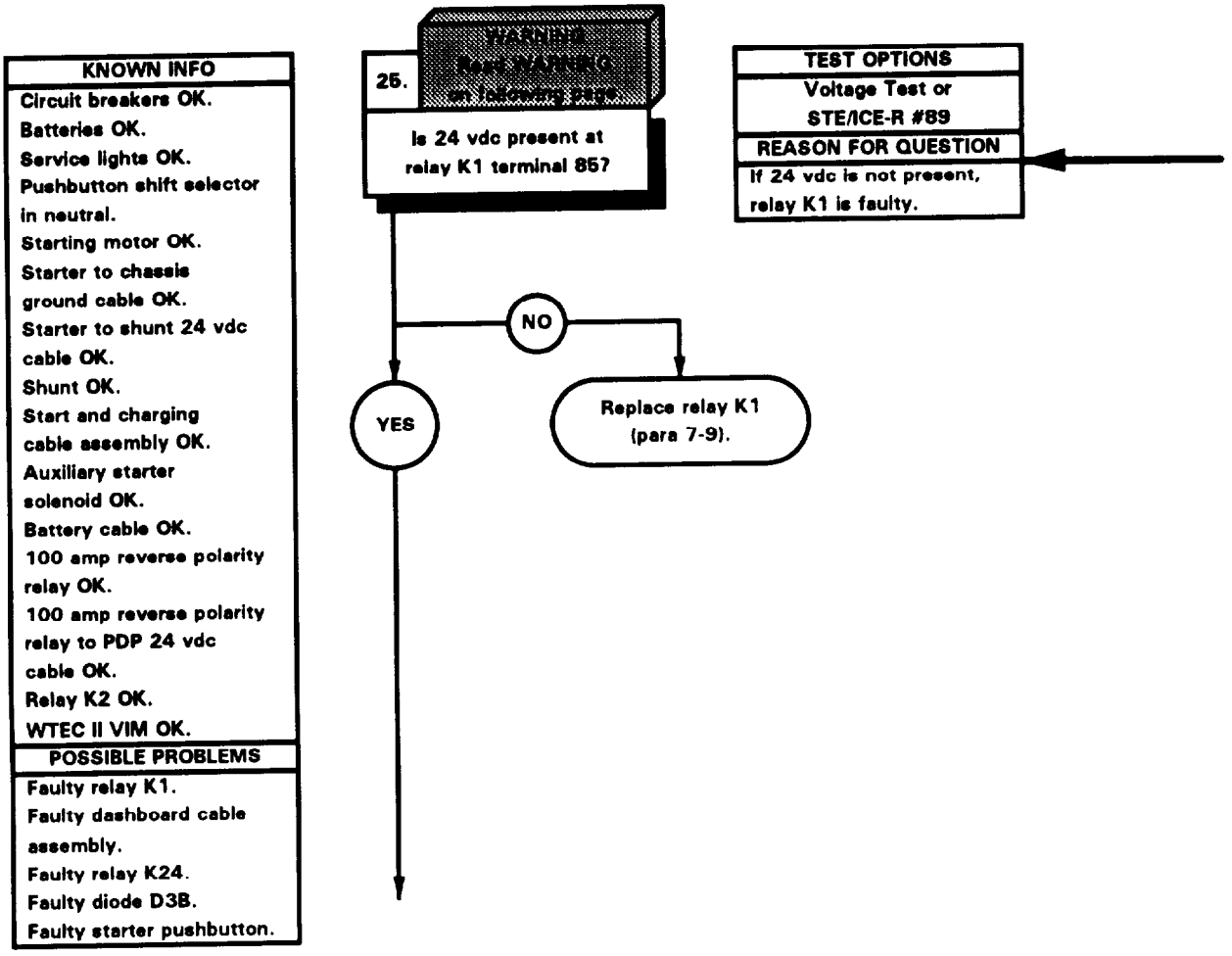
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to connector PX33G1.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, replace NS relay or WTEC II VIM (para 8-6).
(6) If 24 vdc is present, repair wire 1691 (para 2-40) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position master power switch to off (TM 9-2320-366-10-1).
(8) Install kick panel (para 16-3).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

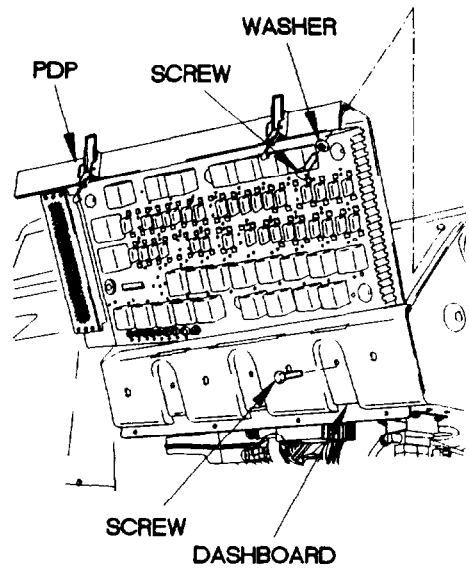


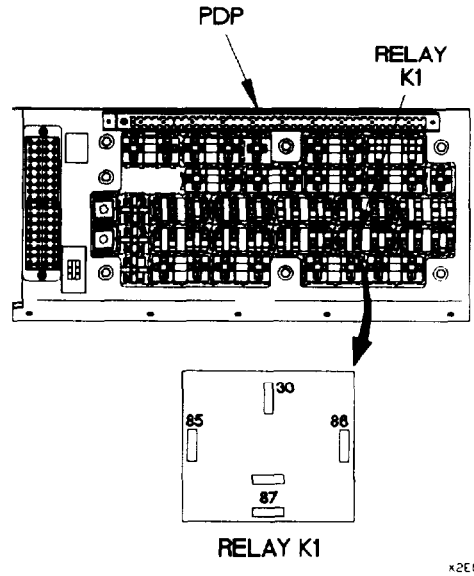
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

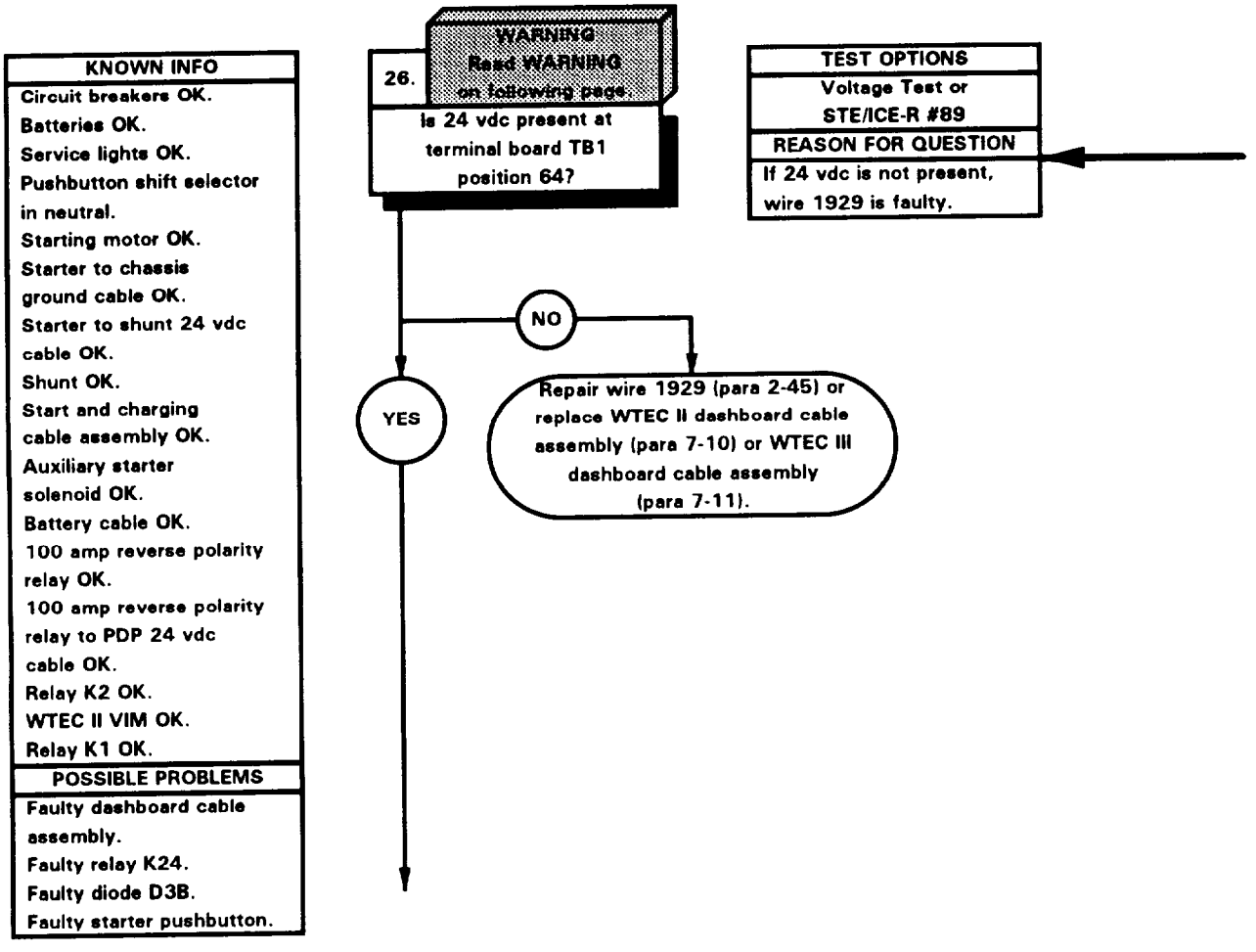
(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to back of PDP terminal 85 of relay K1.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, replace relay K1 (para 7-9).
(9) Position master power switch to off (TM 9-2320-366-10-1).





K2E02241

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

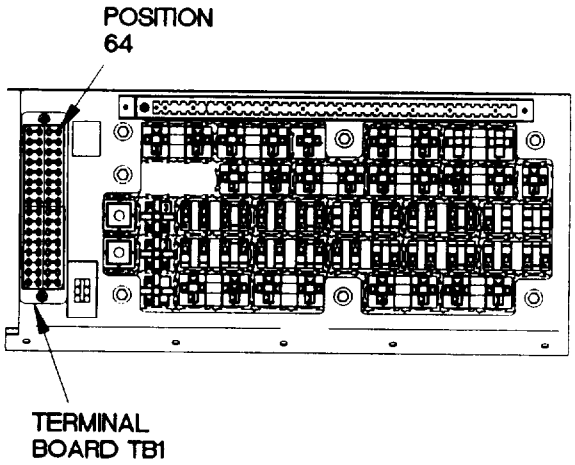


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

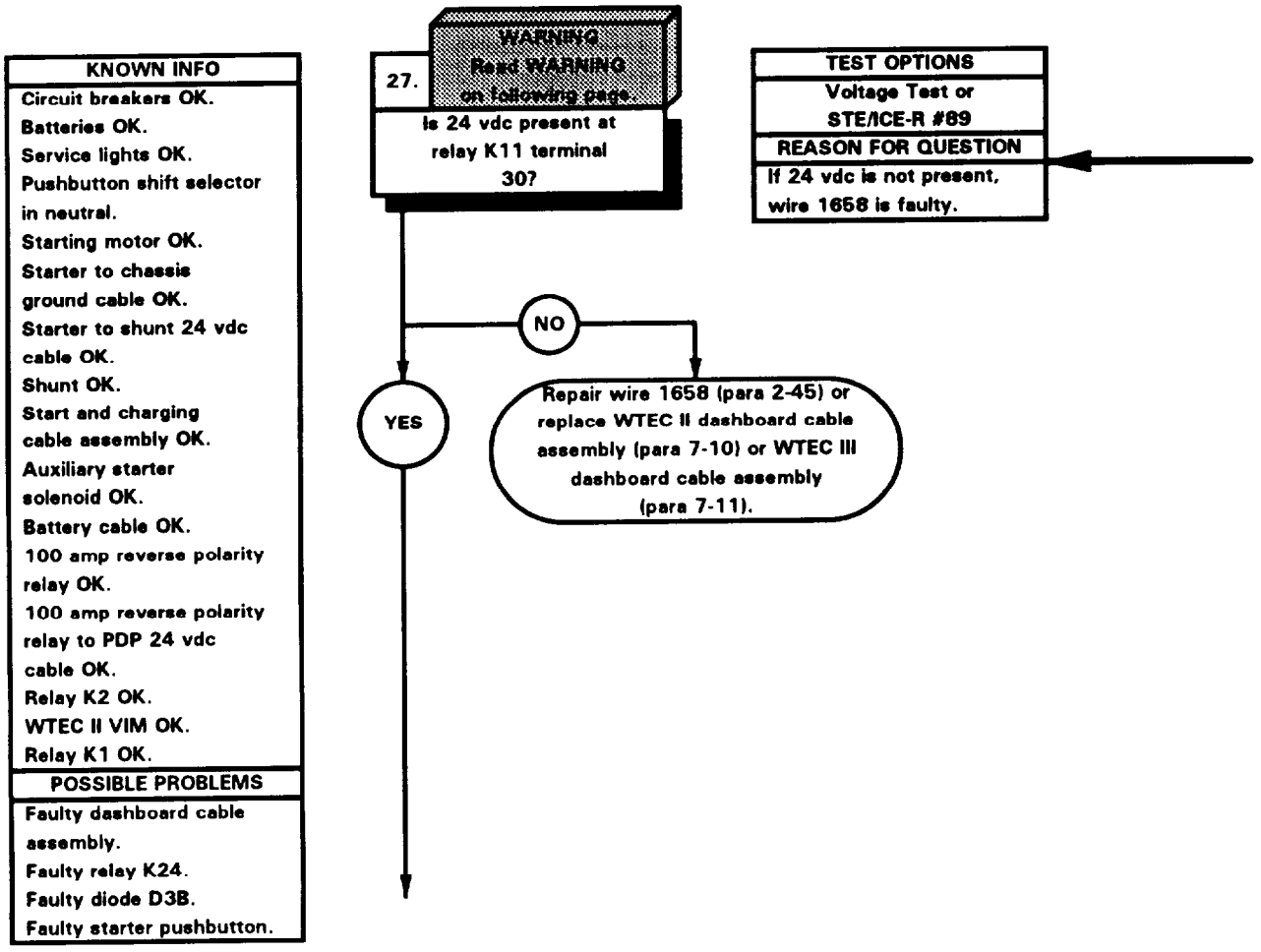
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal board TB1 position 64.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1929 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position master power switch to off (TM 9-2320-366-10-1).



X2E0225A

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

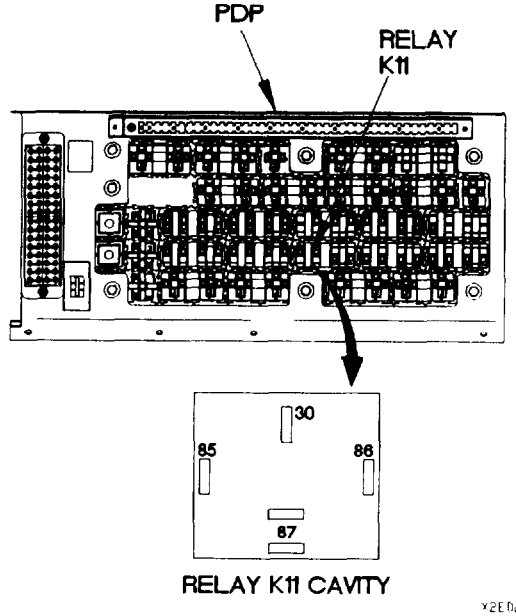


WARNING

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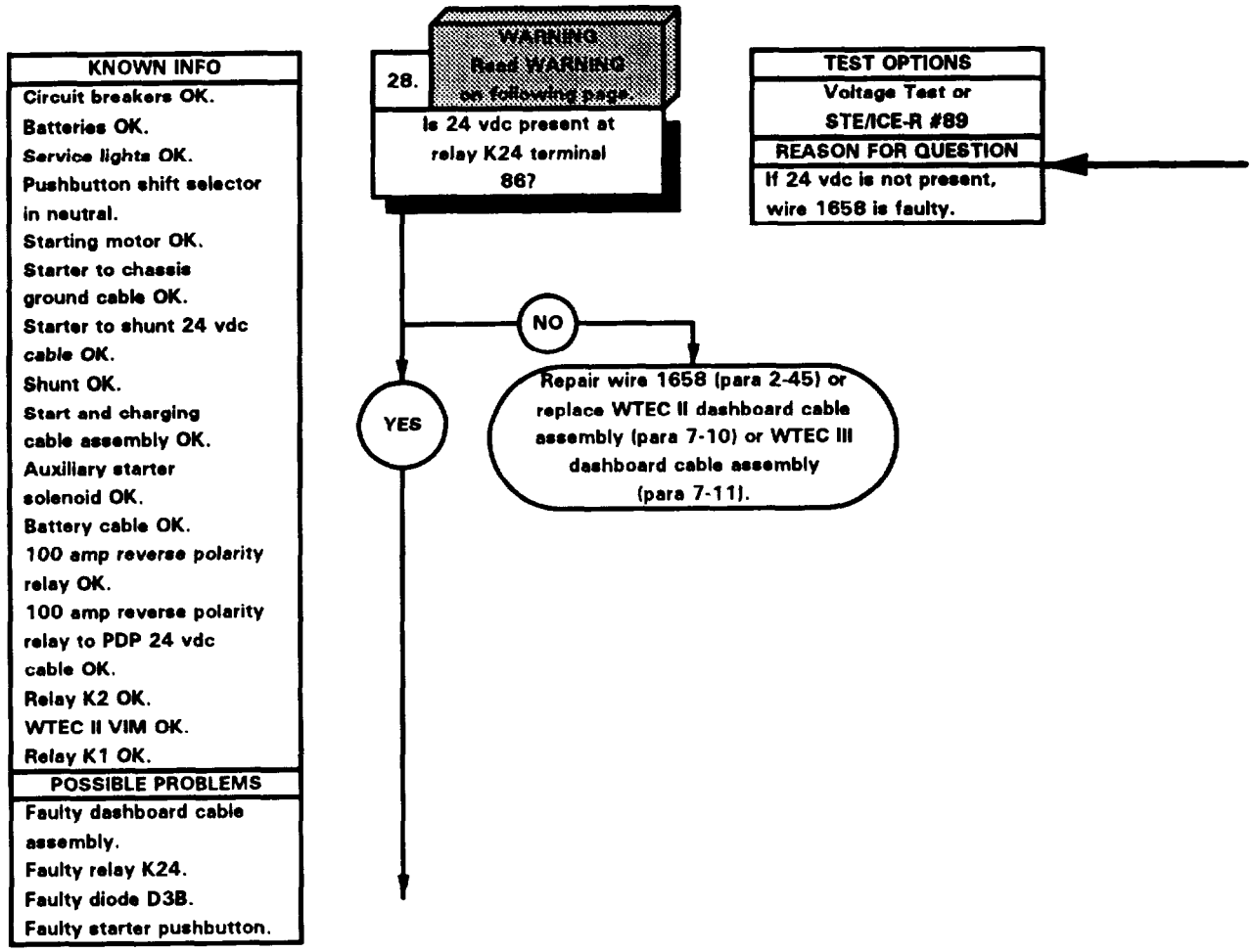
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to back of PDP terminal 30 of relay K11.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1658 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position master power switch to off (TM 9-2320-366-10-1).



RELAY K11 CAVITY

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

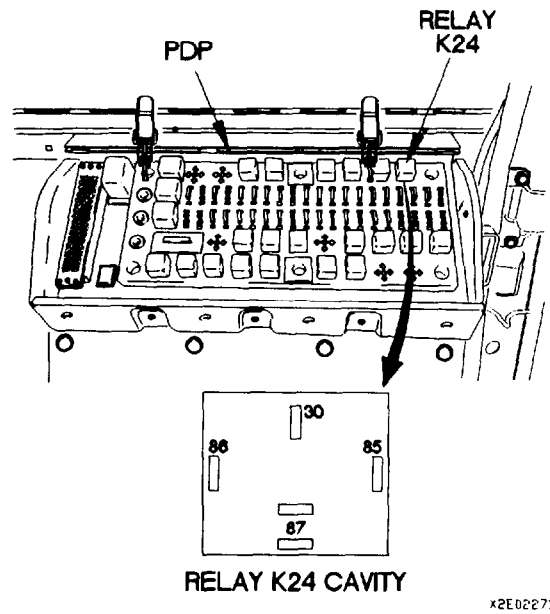


WARNING

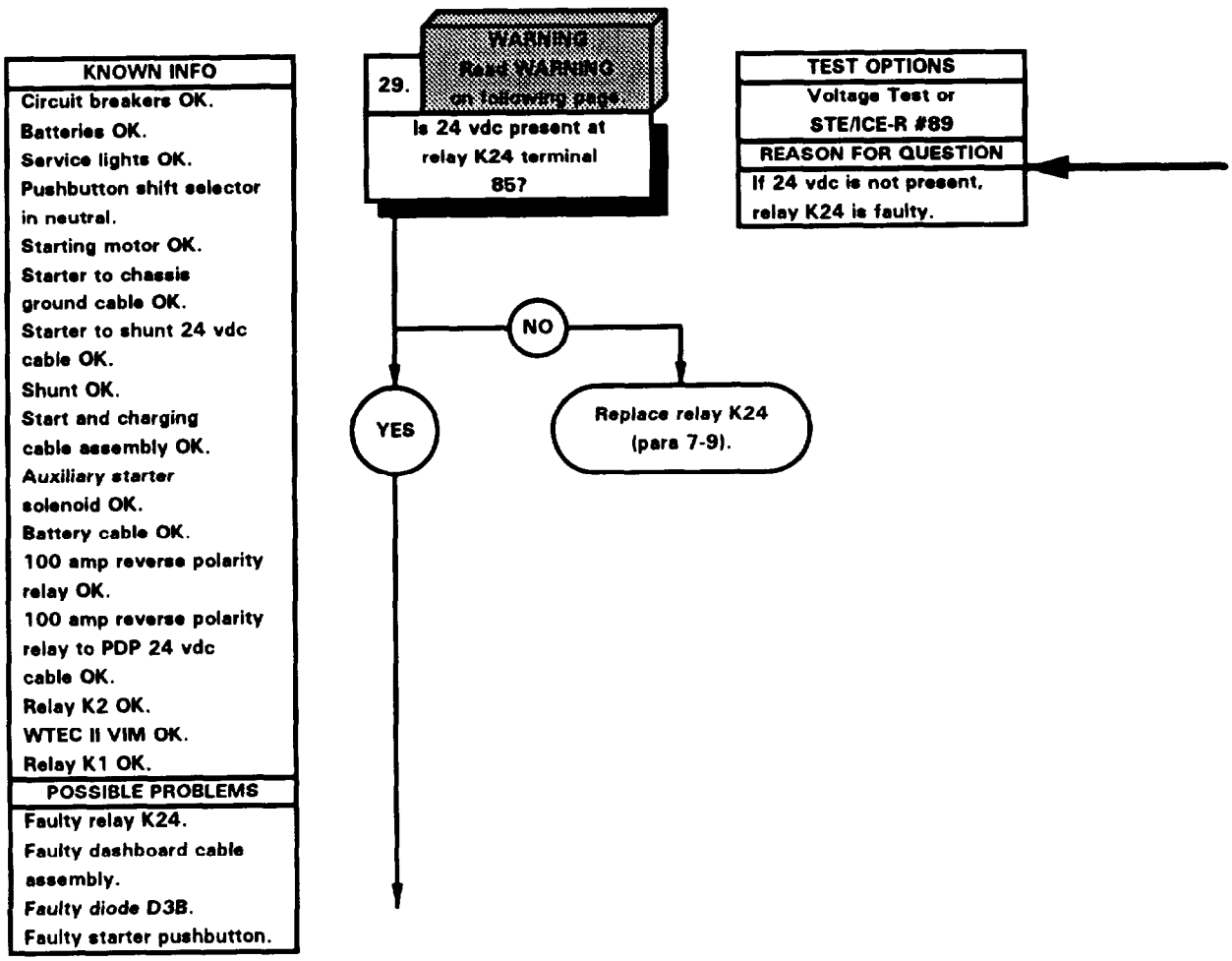
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove relay K24 from PDP.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal 86 of PDP, where relay K24 was removed.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, repair wire 1658 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position master power switch to off (TM 9-2320-366-10-1).
(8) Install relay K24 in PDP.



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

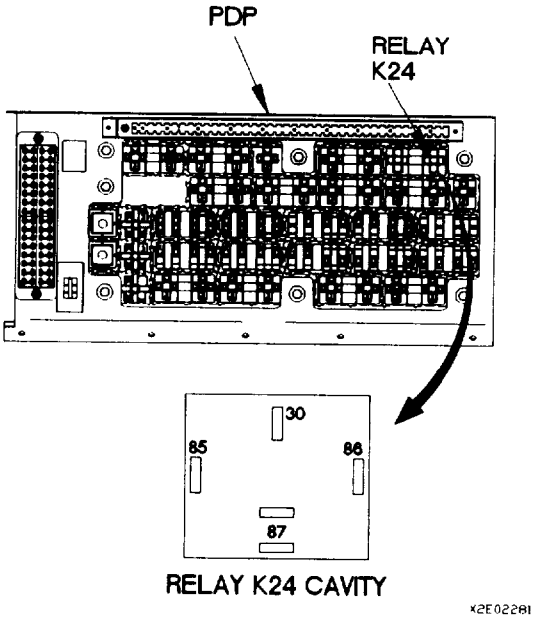


WARNING

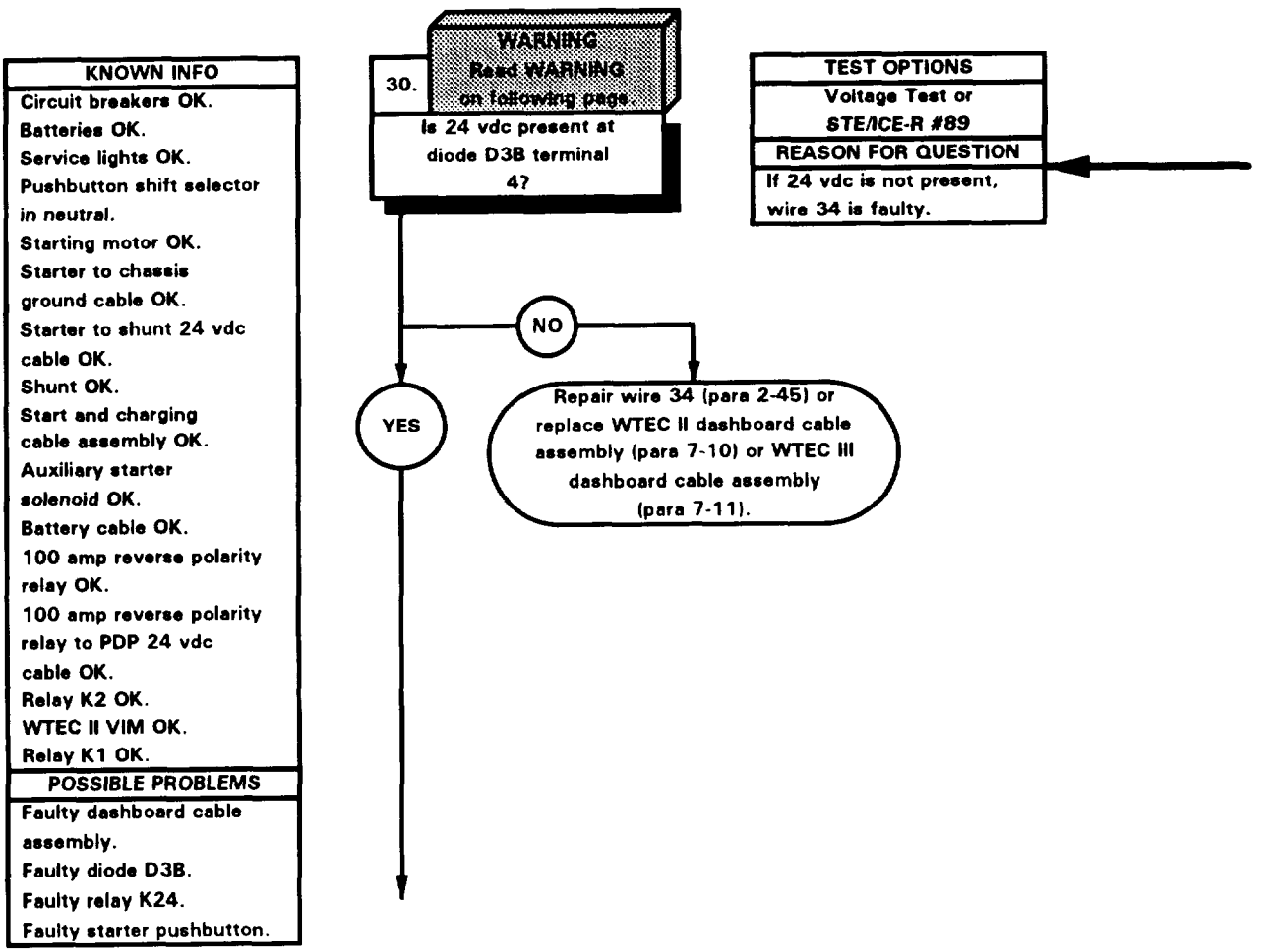
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to back of PDP terminal 85 of relay K24.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, replace relay K24 (para 7-9).
(6) Position master power switch to off (TM 9-2320-366-10-1).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

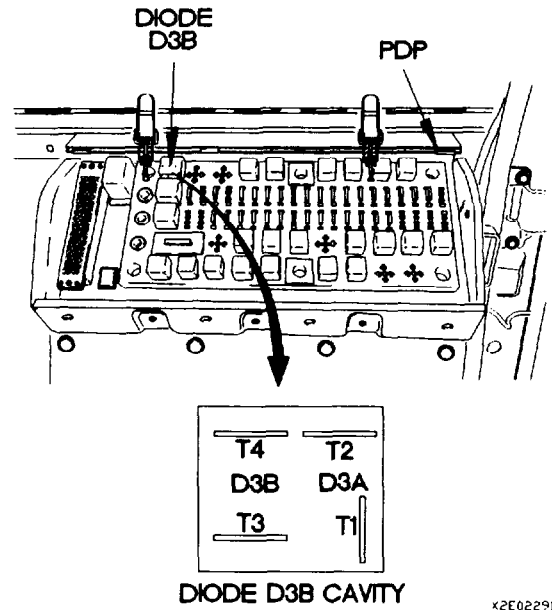


WARNING

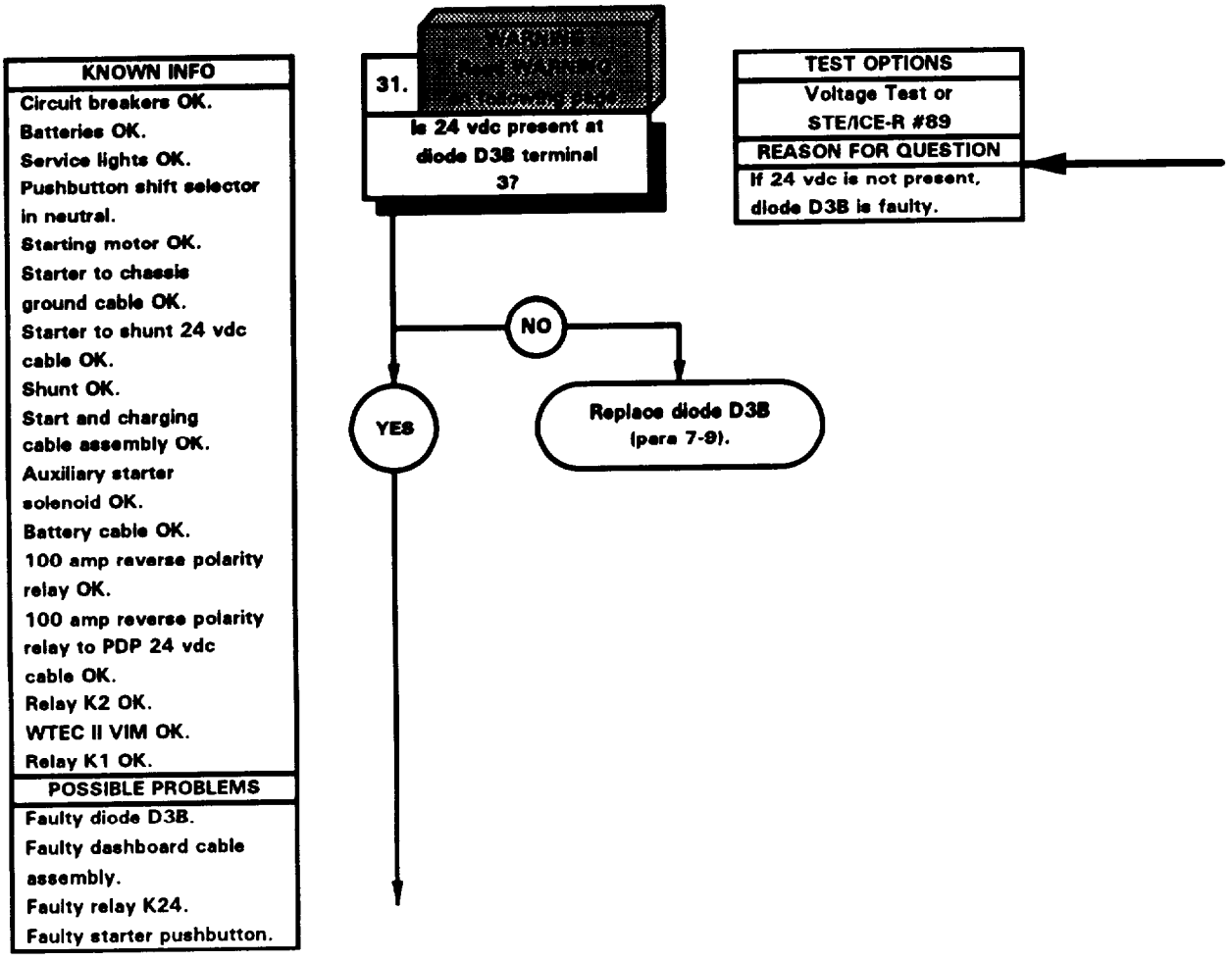
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove diode D3B from PDP.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to PDP terminal 4, where diode D3B was removed.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, repair wire 34 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position master power switch to off (TM 9-2320-366-10-1).
(8) Install diode D3B in PDP.



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

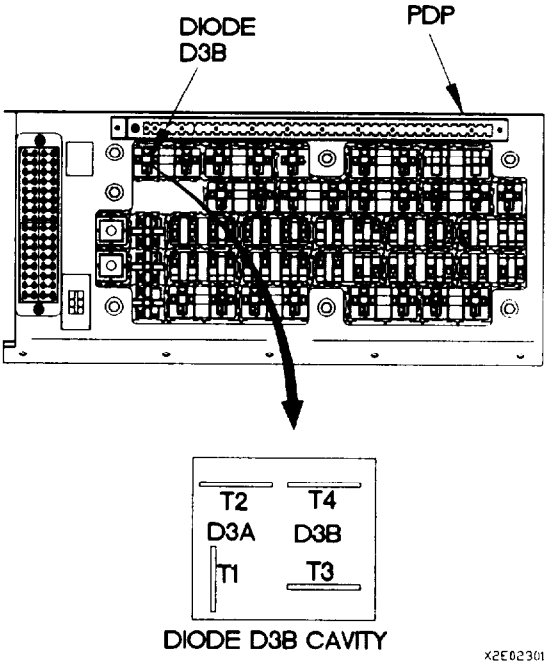


WARNING

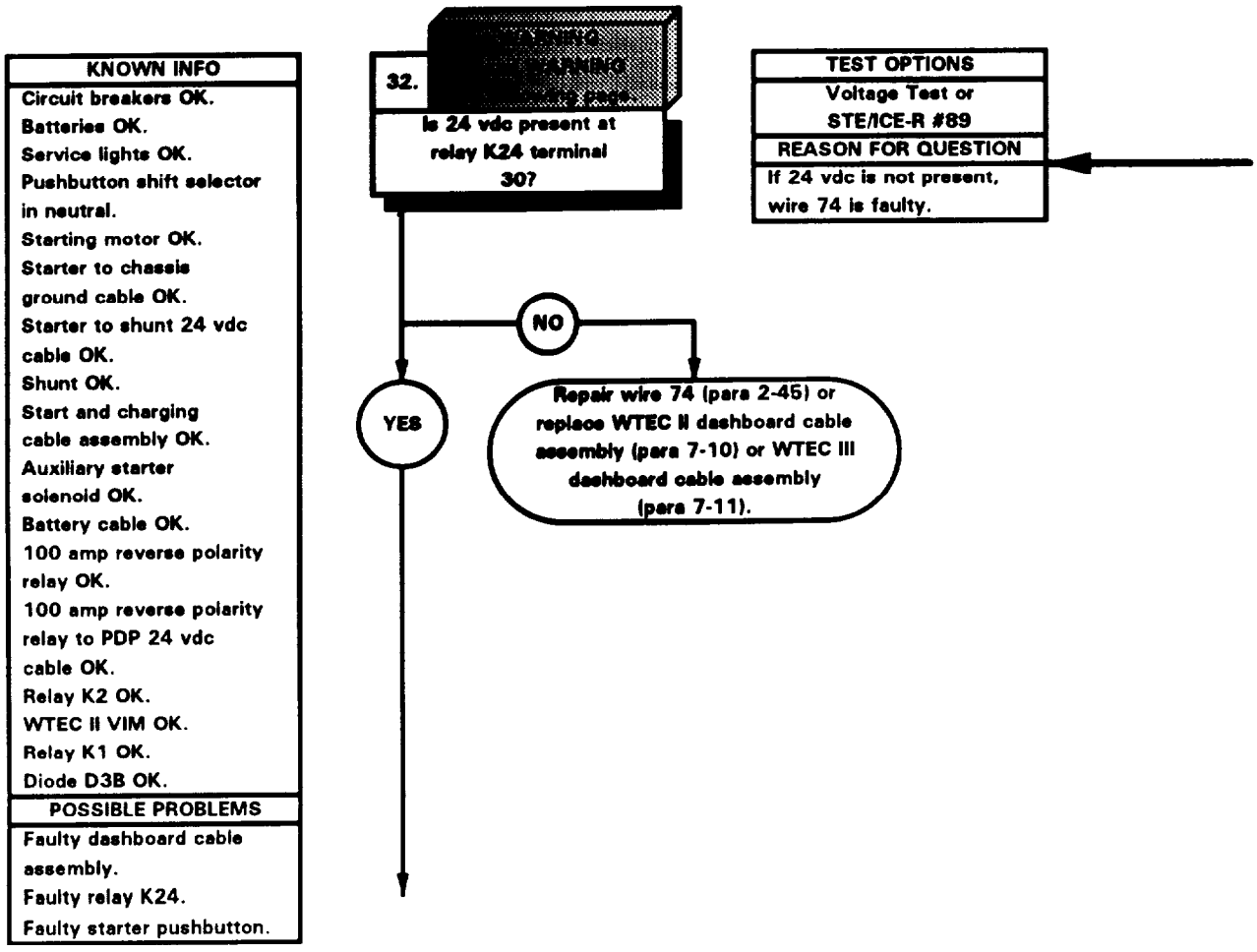
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to back of PDP terminal 3 of diode D3B.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, replace diode D3B (para 7-9).
(6) Position master power switch to off (TM 9-2320-366-10-1).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

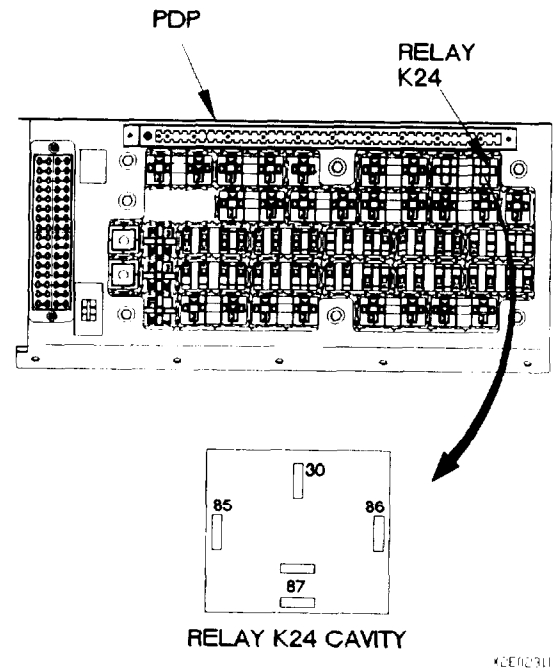


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

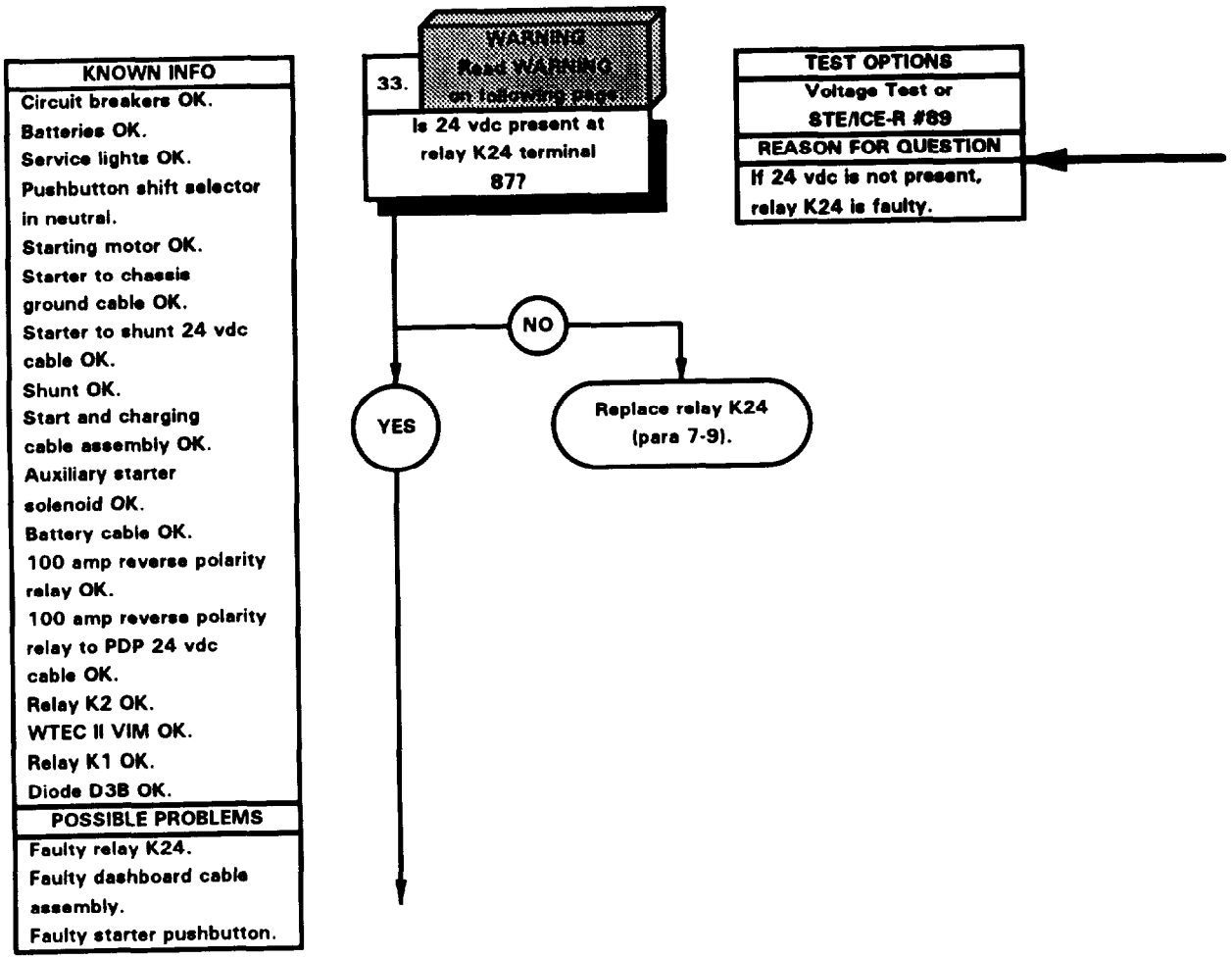
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to back of PDP terminal 30 of relay K24.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 74 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position master power switch to off (TM 9-2320-366-10-1).



RELAY K24 CAVITY

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

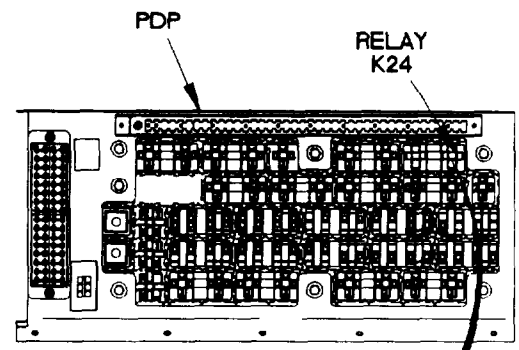


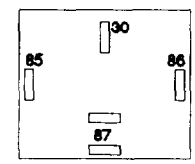
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

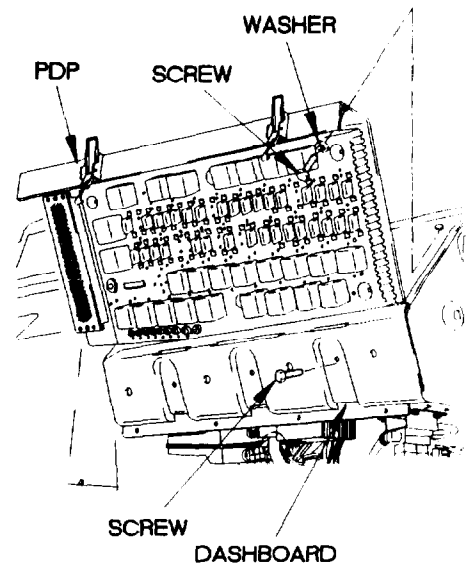
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to back of PDP terminal 87 of relay K24.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, replace relay K24 (para 7-9).
(6) Position master power switch to off (TM 9-2320-366-10-1).
(7) Install PDP in dashboard with three screws.
(8) Install three washers and screws in PDP.
(9) Install PDP cover (para 16-2).

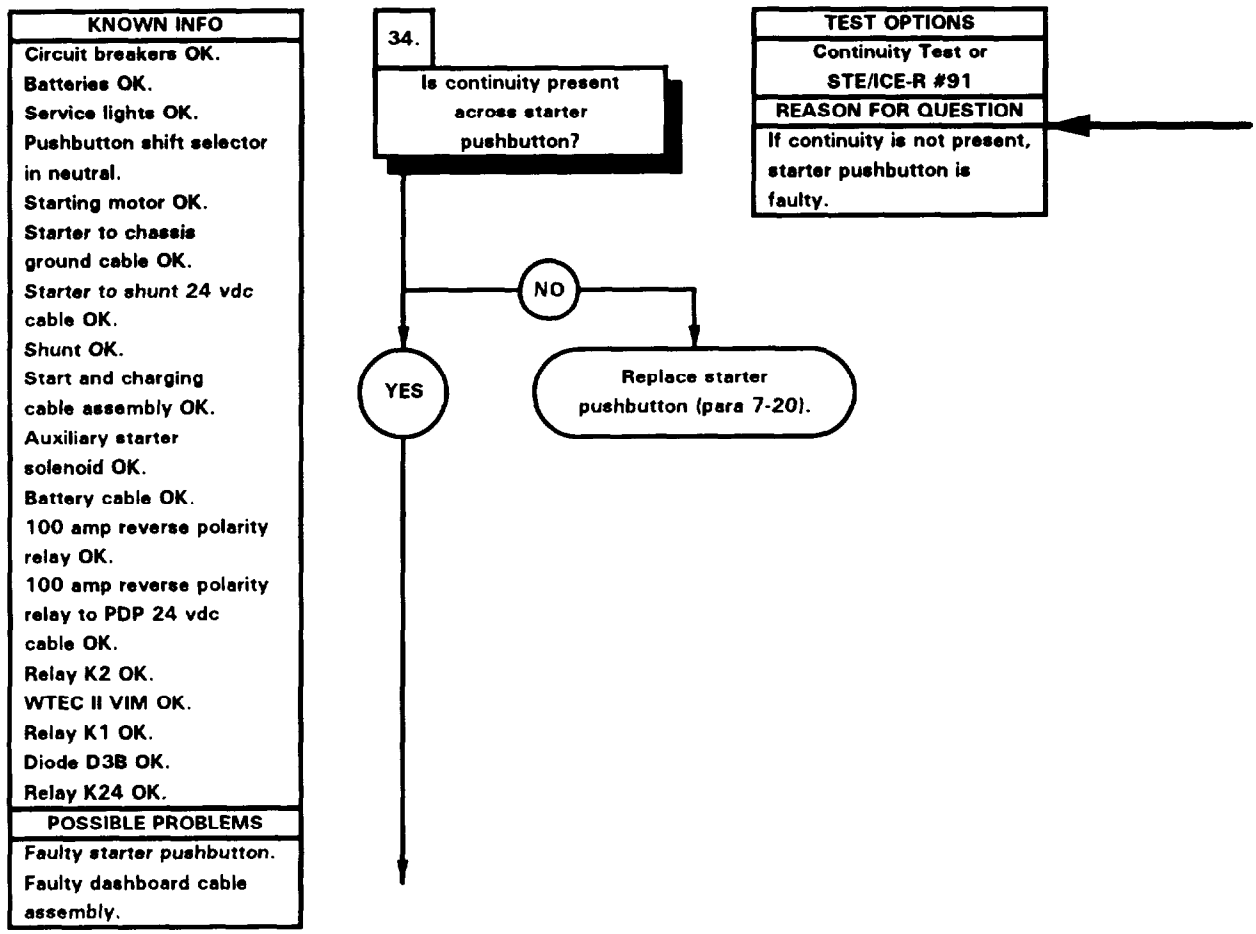




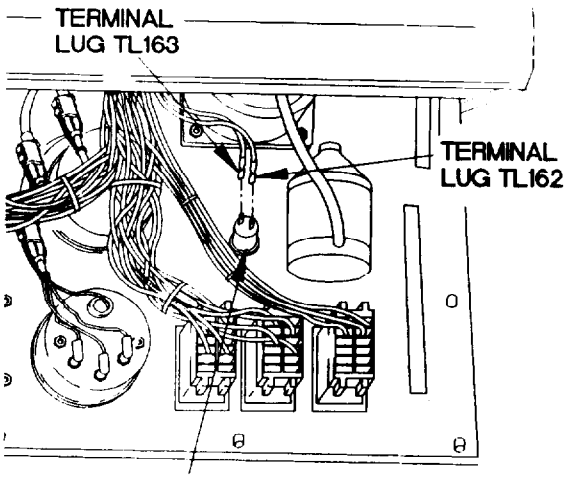
RELAY K24 CAVITY



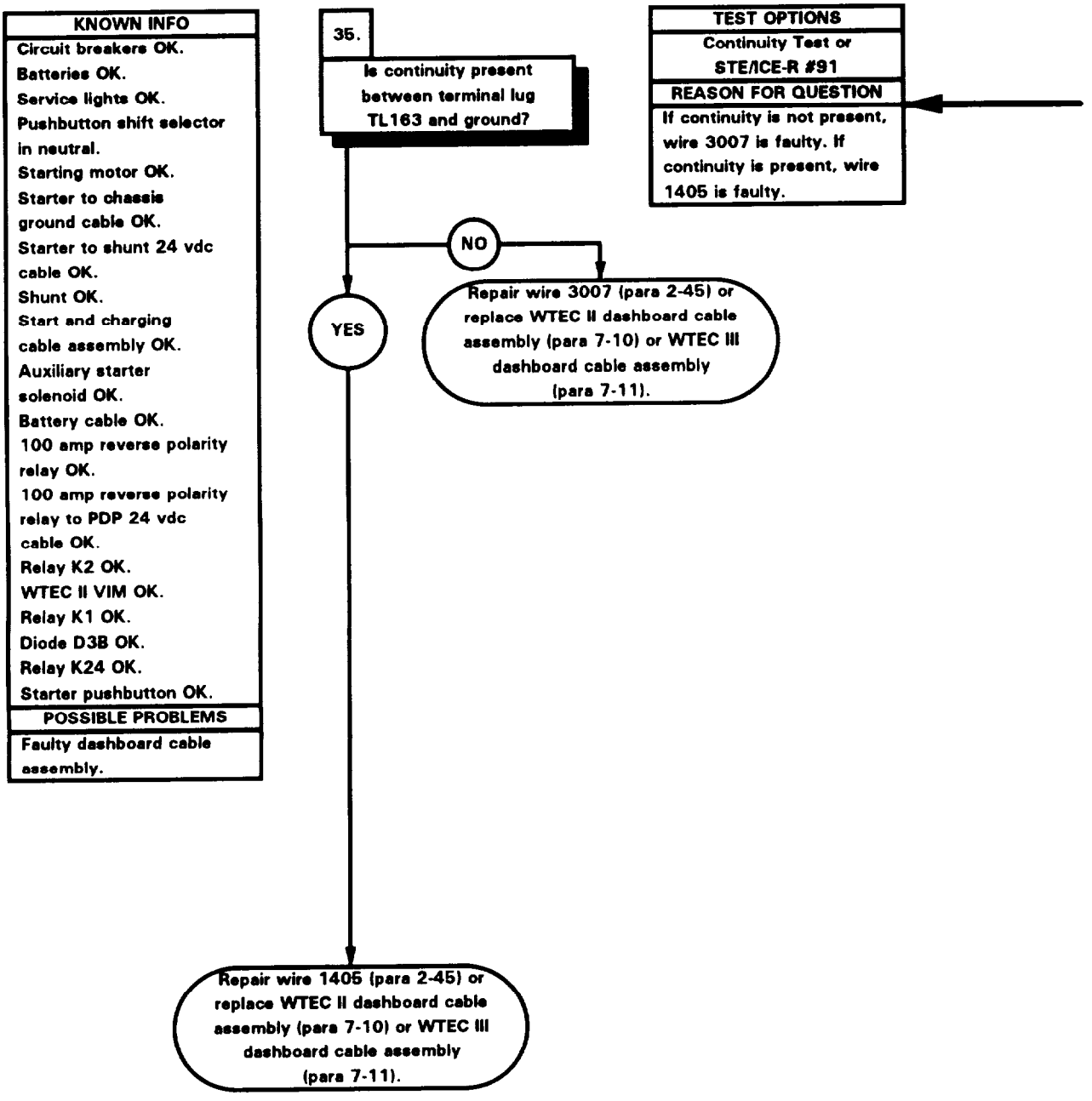
e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



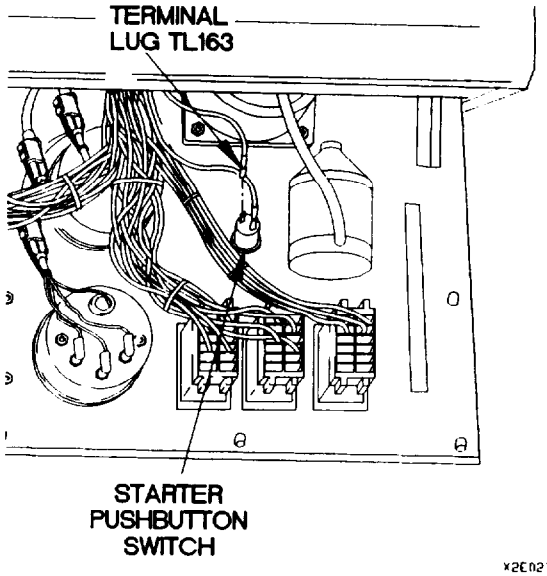
CONTINUITY TEST
(1) Disconnect terminal lugs TL162 and TL163 from starter pushbutton.
(2) Set multimeter to ohms.
(3) Connect probes of multimeter across starter pushbutton.
(4) Press starter pushbutton and note reading on multimeter.
(5) If continuity is not present, replace starter pushbutton (para 7-20).
(6) Connect terminal lug TL162 to starter pushbutton.



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

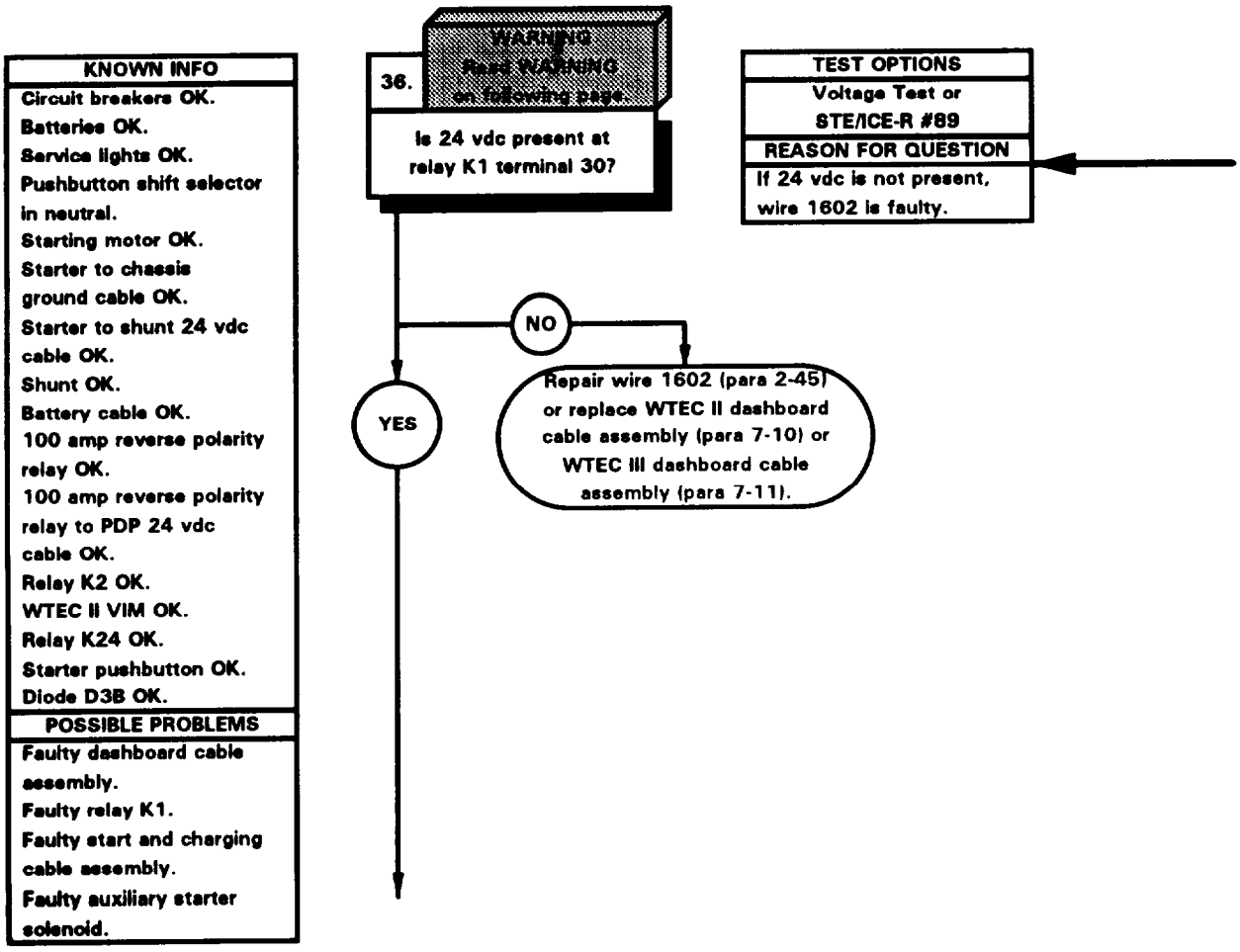


CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to terminal lug TL163.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3007 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-14) or WTEC III dashboard cable assembly (para 7-14A).
(5) If continuity is present, repair wire 1405 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Connect terminal lug TL163 to starter pushbutton.
(7) Install instrument panel assembly (para 7-15).



X2E02344

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

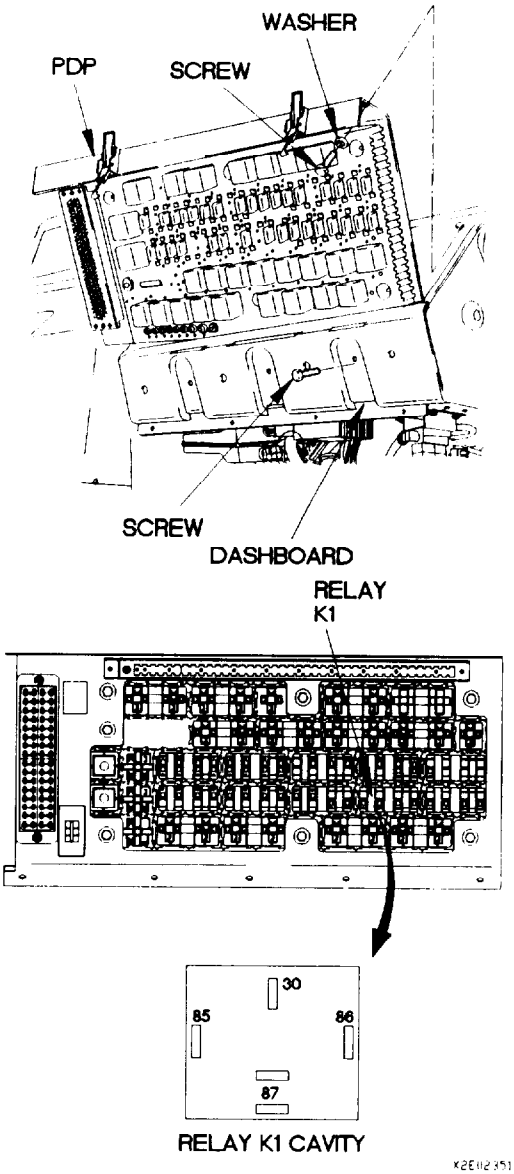


WARNING

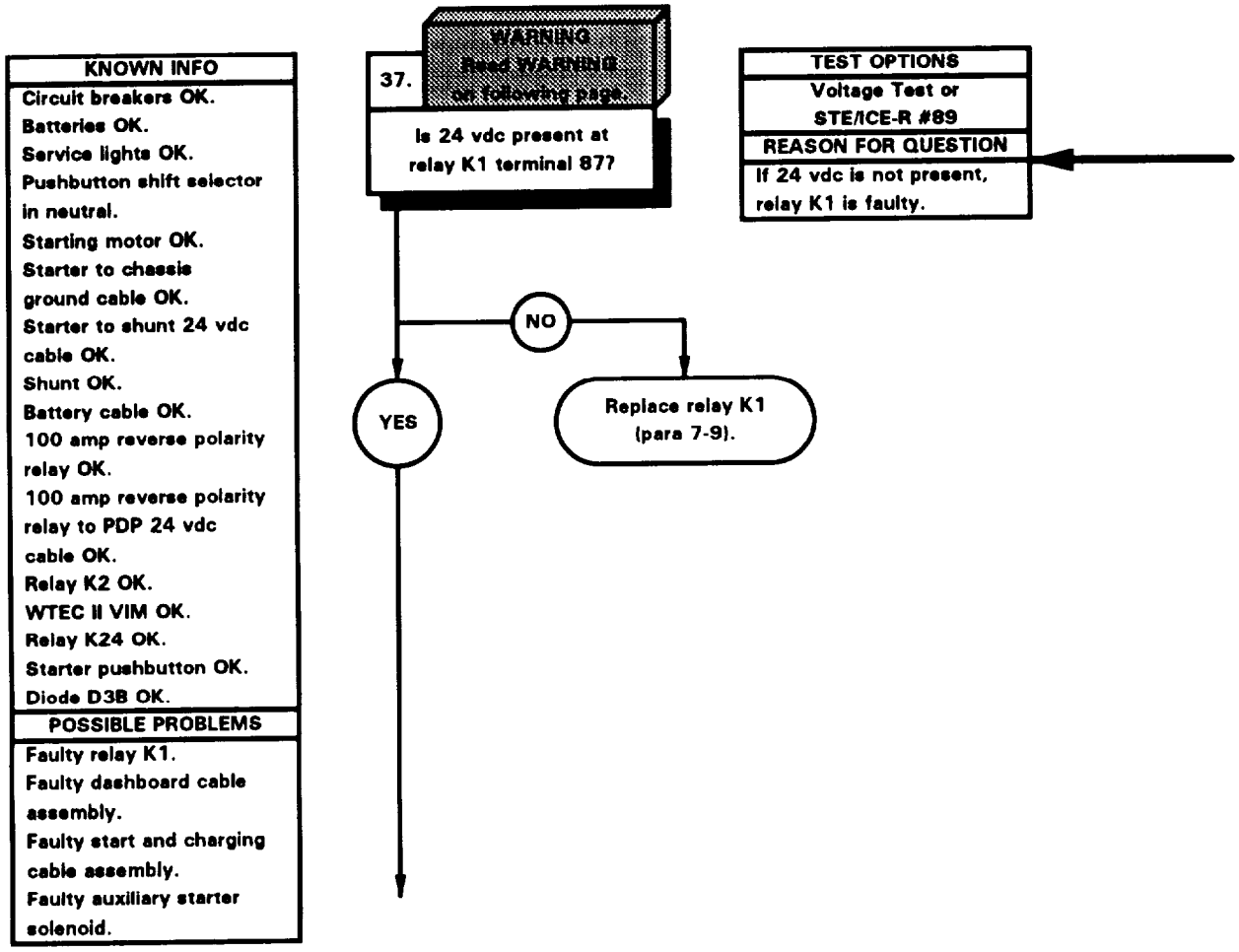
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to back of PDP terminal 30 of relay K1.
(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(7) If 24 vdc is not present, repair wire 1602 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

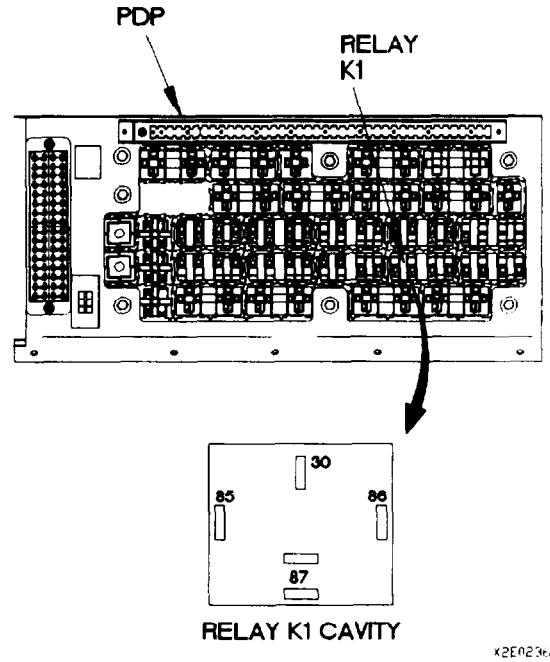


WARNING

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VOLTAGE TEST

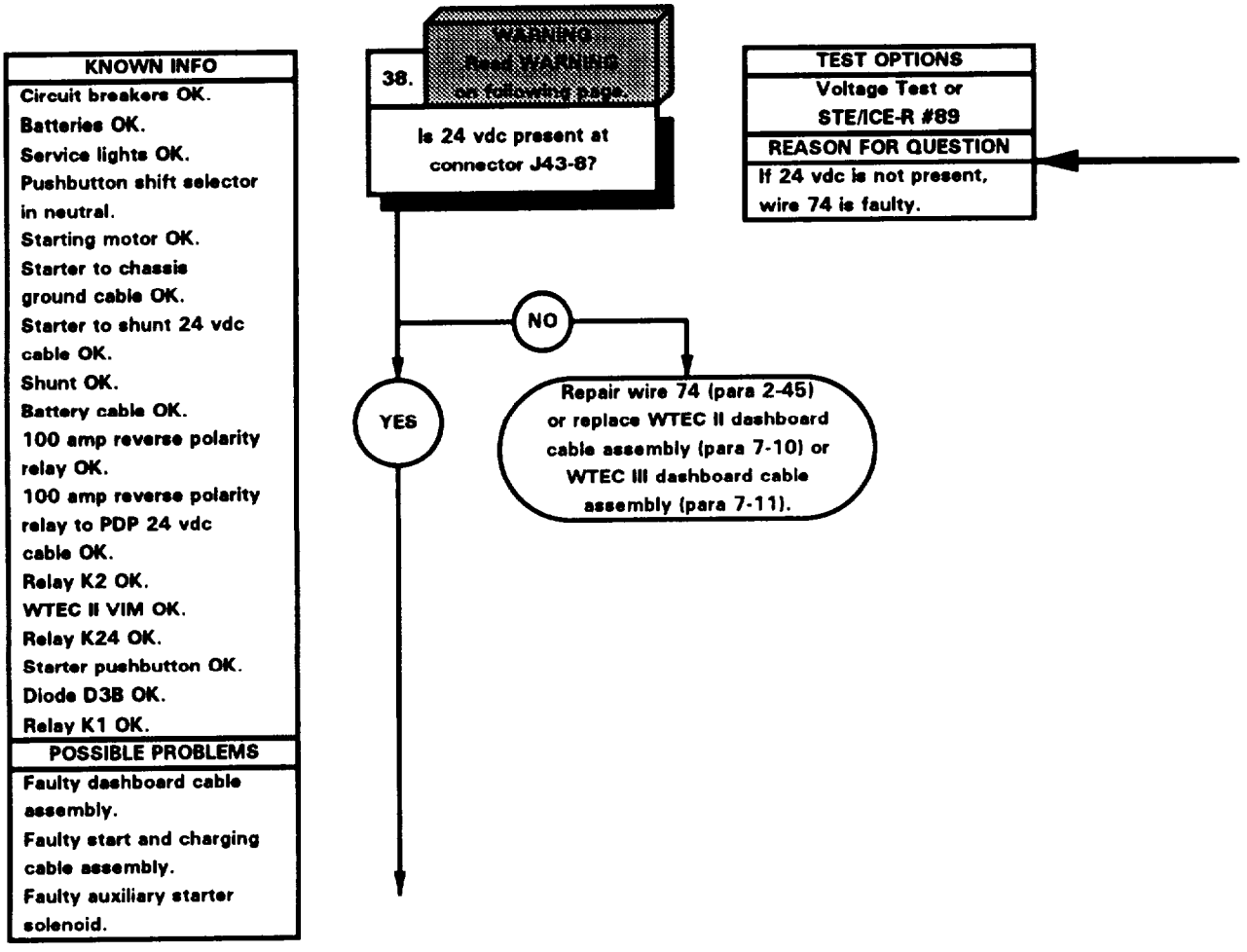
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to back of PDP terminal 87 of relay K1.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1).
(5) Press starter pushbutton (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, replace relay K1 (para 7-9).
(7) Position master power switch to off (TM 9-2320-366-10-1).



RELAY K1 CAVITY

K2E023b1

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

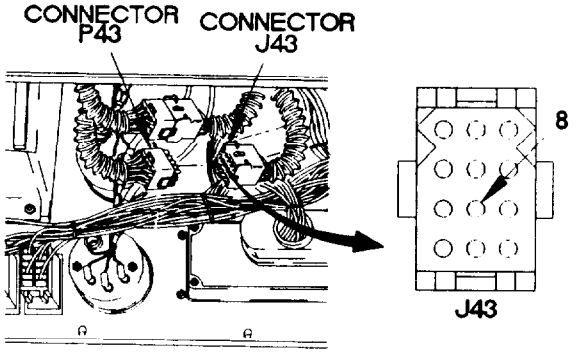


WARNING

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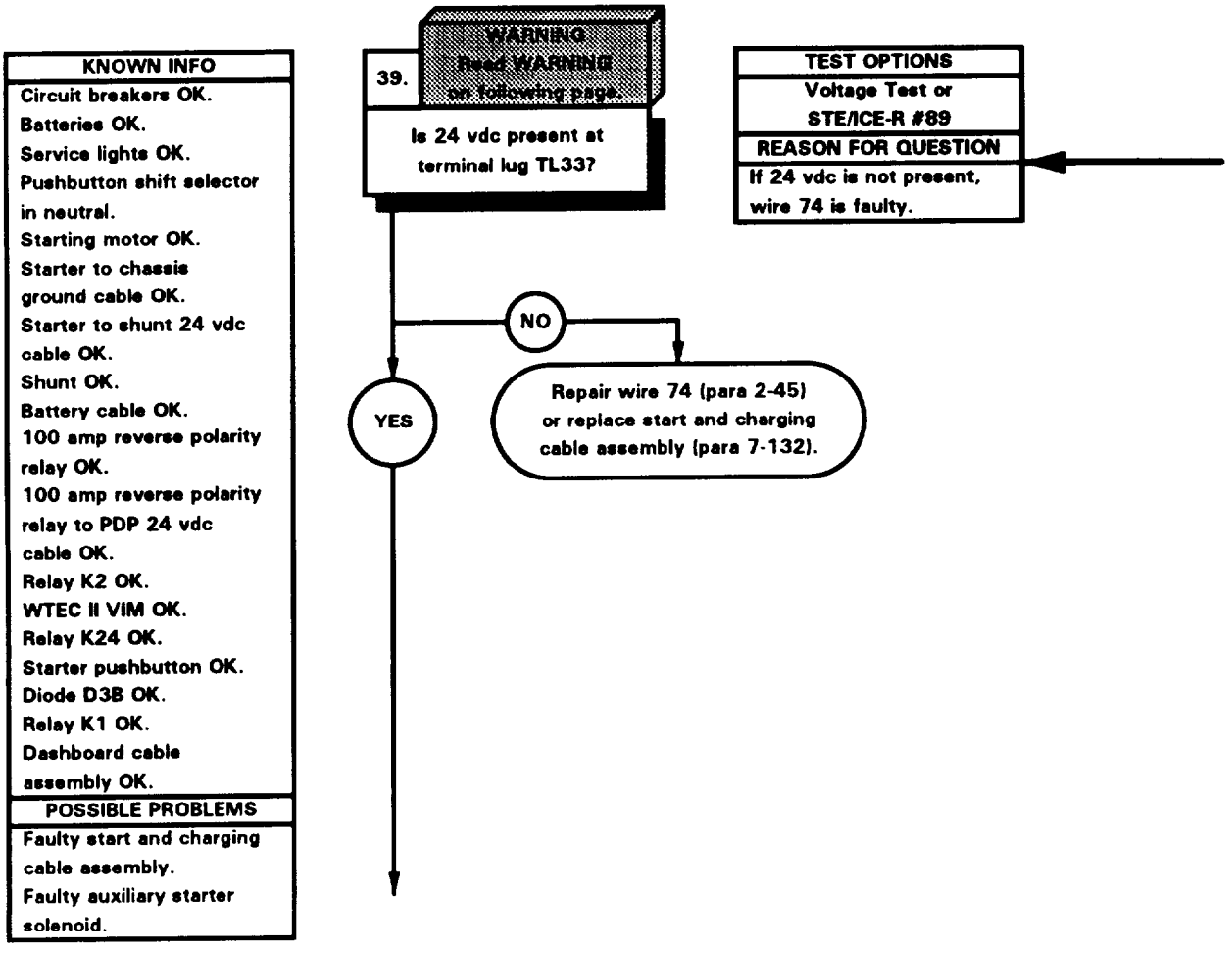
VOLTAGE TEST

(1) Disconnect connector J43 from connector P43.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J43-8.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Press starter pushbutton (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, repair wire 74 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position master power switch to off (TM 9-2320-366-10-1).
(9) Connect connector J43 to connector P43.
(10) Install instrument panel assembly (para 7-15).



X2E0237A

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

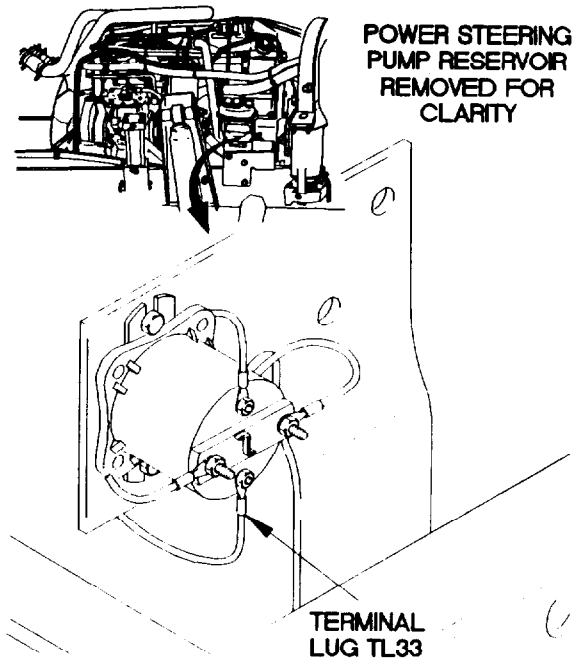


WARNING

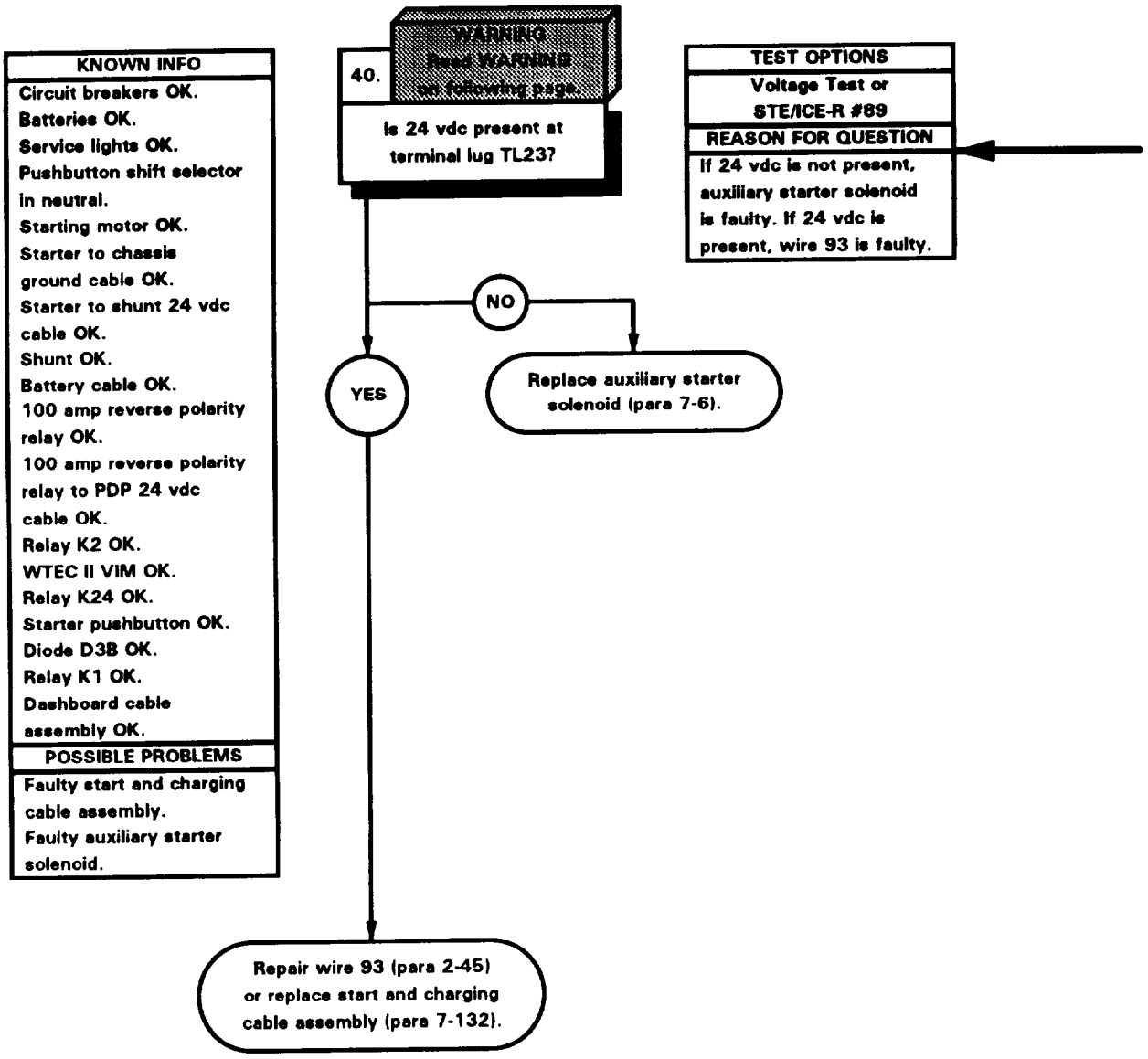
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Raise cab (TM 9-2320-366-10-1).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal lug TL33.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Press starter pushbutton (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, repair wire 74 (para 2-45) or replace start and charging cable assembly (para 7-132).
(8) Position master power switch to off (TM 9-2320-366-10-1).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

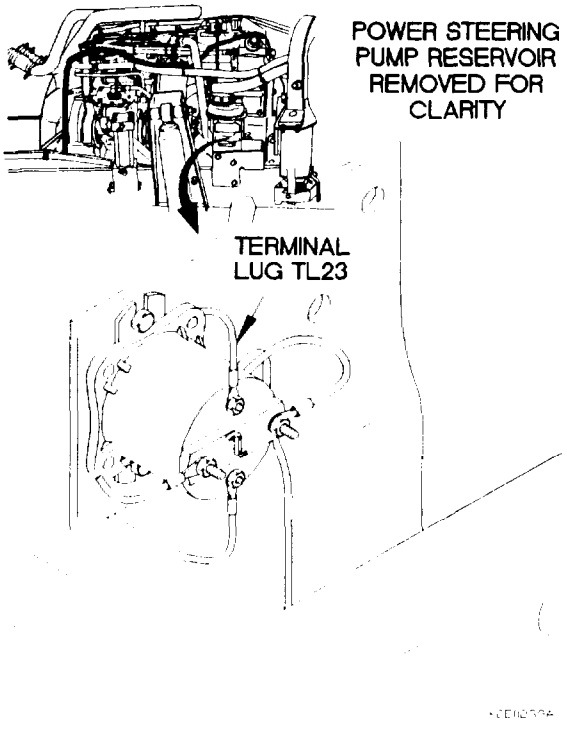


WARNING

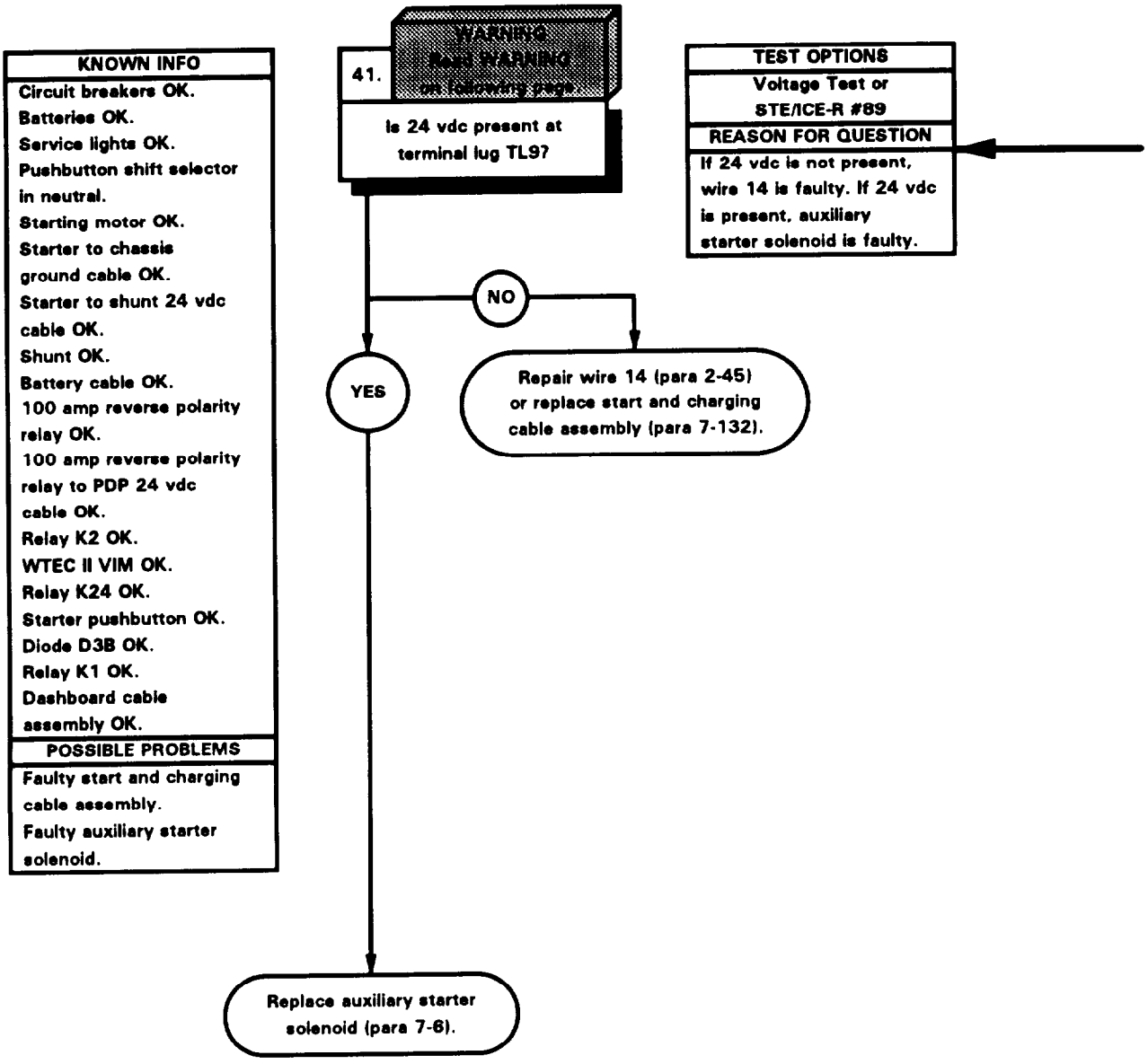
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal lug TL23.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1).
(5) Press starter pushbutton (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, replace auxiliary starter solenoid (para 7-6).
(7) If 24 vdc is present, repair wire 93 (para 2-45) or replace start and charging cable assembly (para 7-132).
(8) Position master power switch to off (TM 9-2320-366-10-1).
(9) Lower cab (TM 9-2320-366-10-1).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

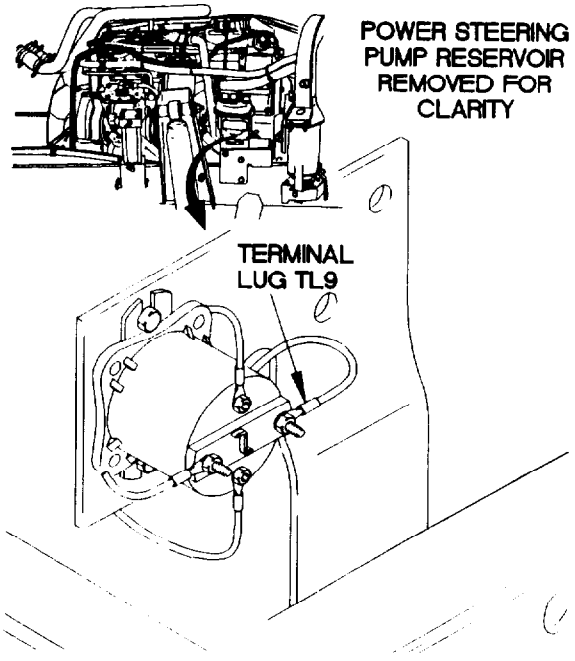


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

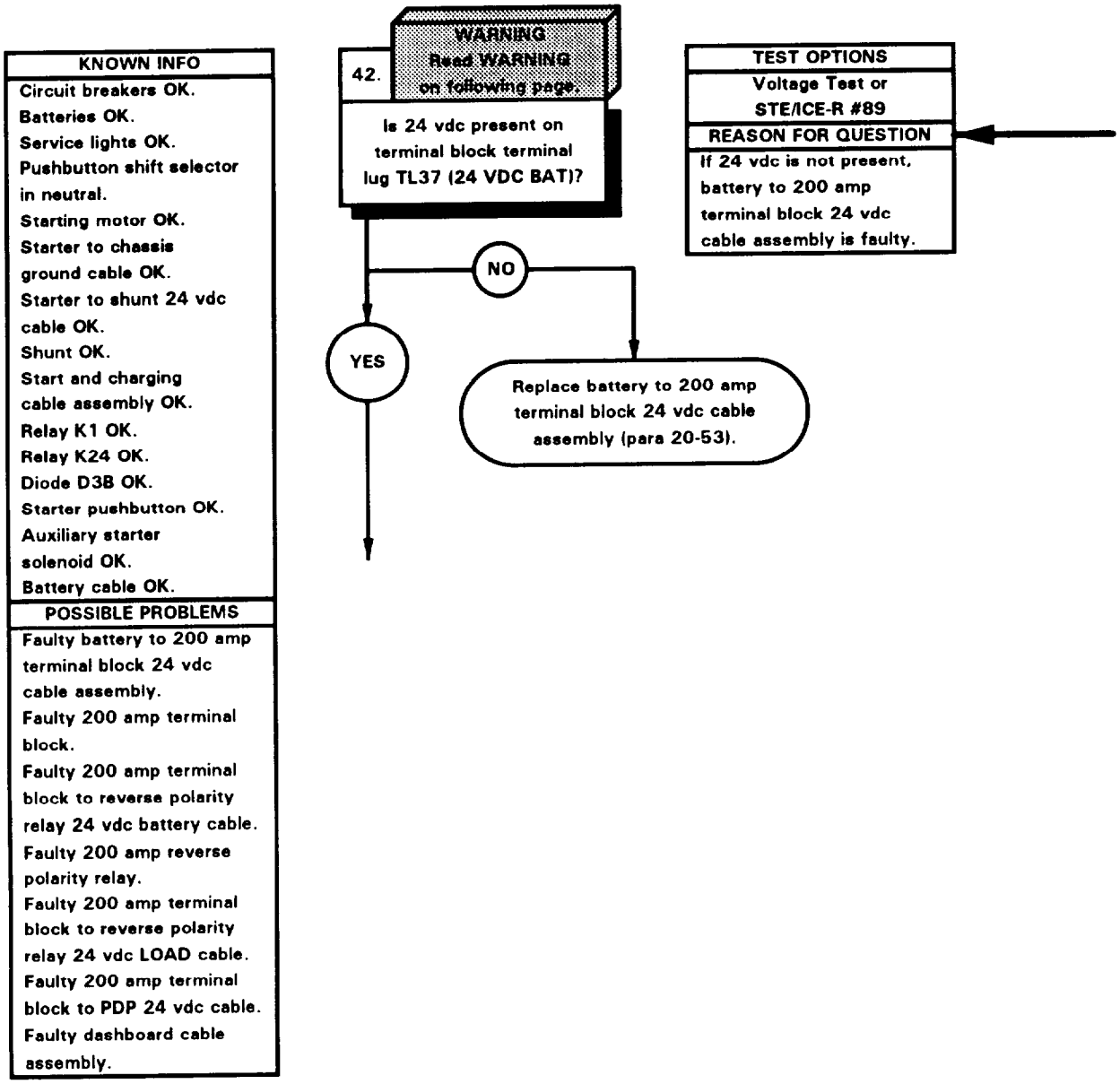
VOLTAGE TEST

(1) Raise cab (TM 9-2320-366-10-1).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal lug TL9.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Press starter pushbutton (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, repair wire 14 (para 2-45) or replace start and charging cable assembly (para 7-132).
(8) If 24 vdc is present, replace auxiliary starter solenoid (para 7-6).
(9) Position master power switch to off (TM 9-2320-366-10-1).
(10) Lower cab (TM 9-2320-366-10-1).



X2E0240A

e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

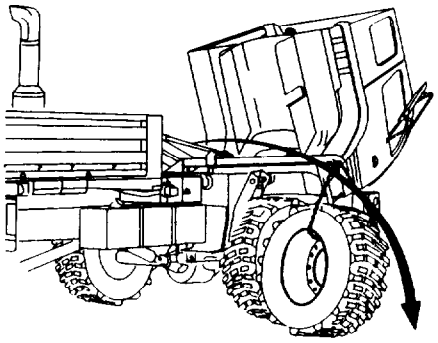


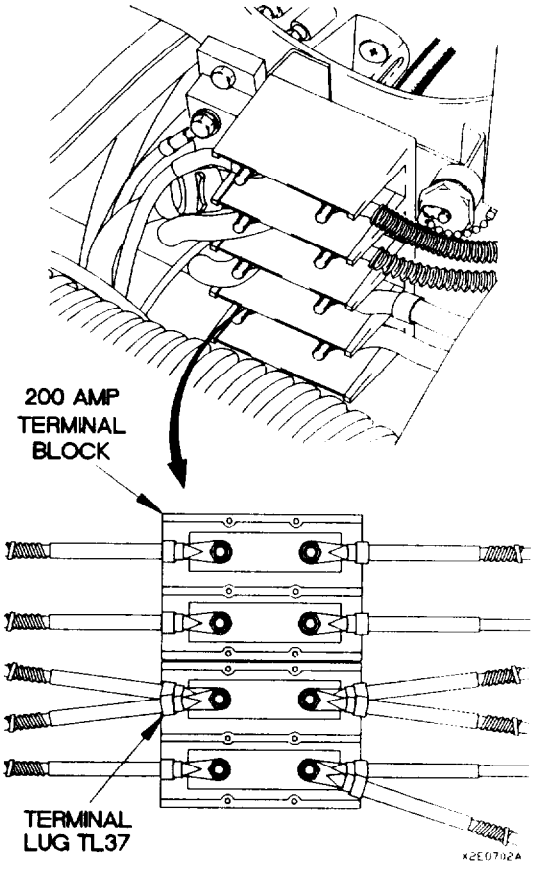
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock. Batteries can explode from a spark. Battery acid is harmful to skin and eyes. Always wear eye protection when working with batteries.

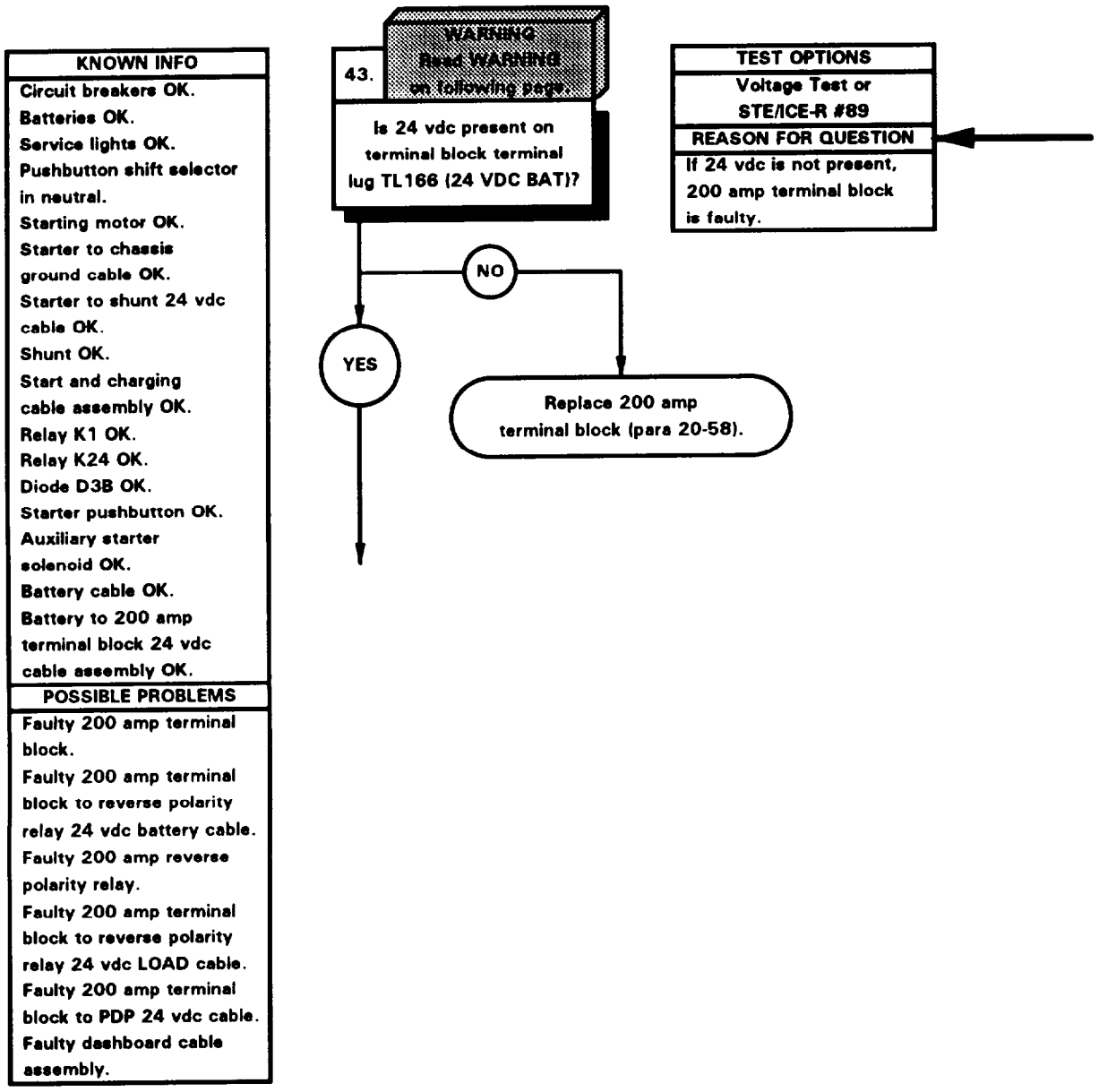
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal block terminal lug TL37 (24V BAT).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 24 vdc is not present, replace battery to 200 amp terminal block 24 vdc cable assembly (para 20-53).





e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

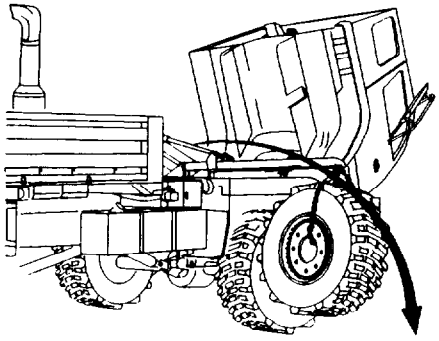


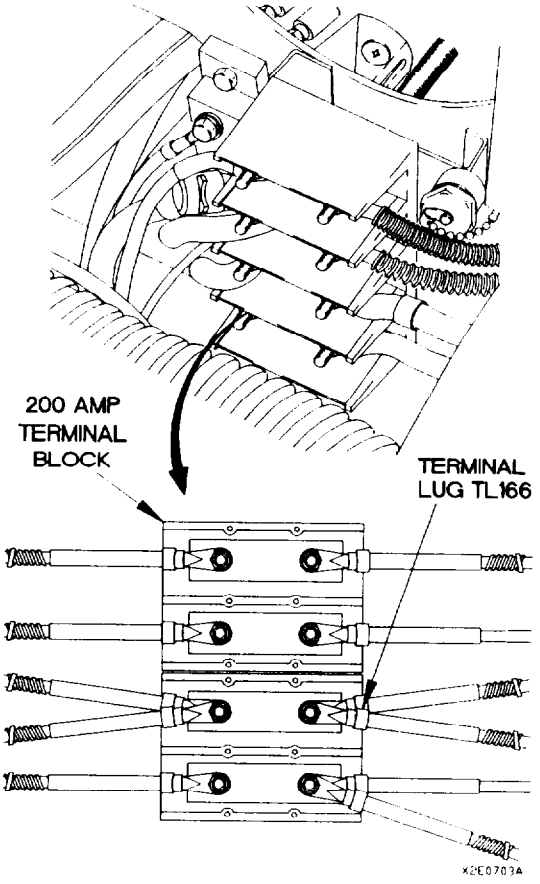
WARNING

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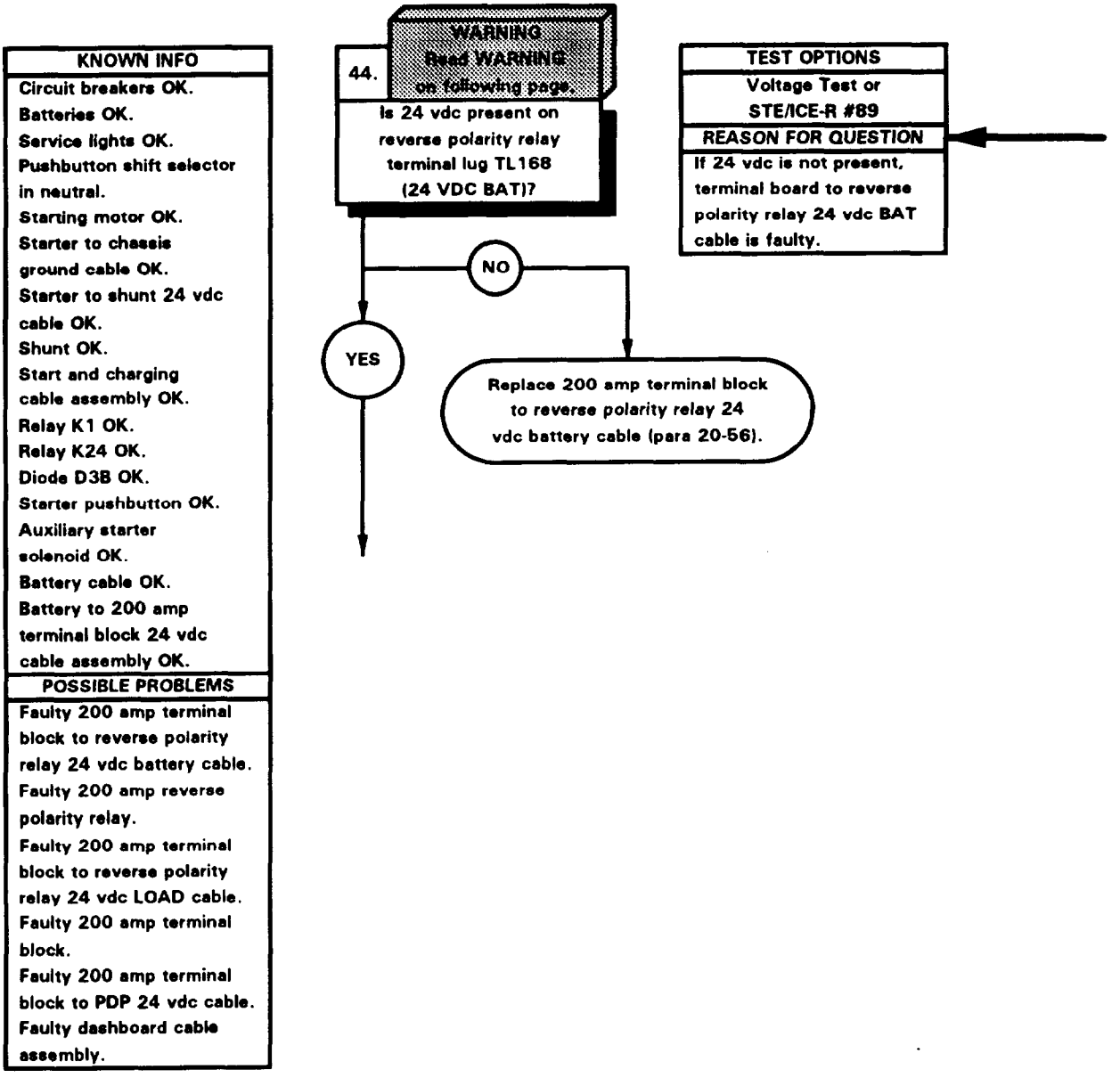
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to 200 amp terminal block terminal lug TL166 (24V BAT).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 24 vdc is not present, replace 200 amp terminal block (para 20-58).





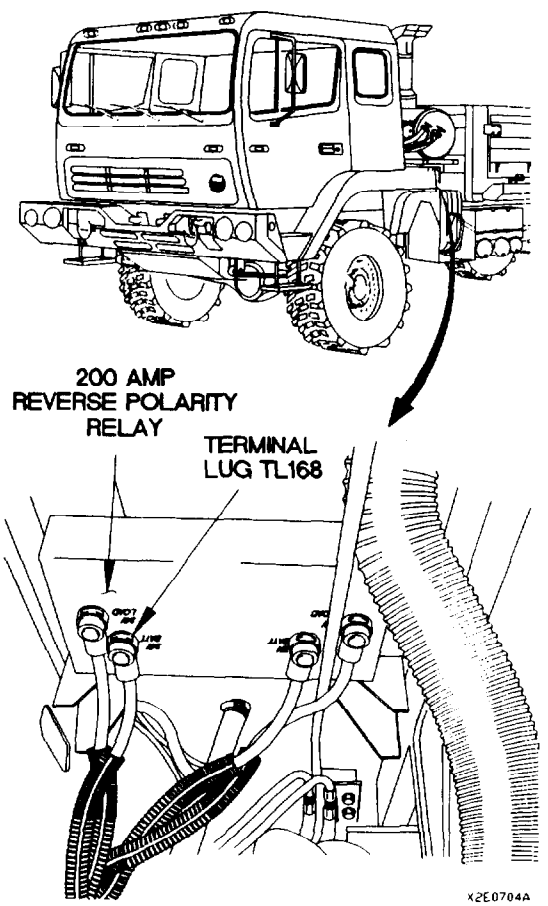
e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)



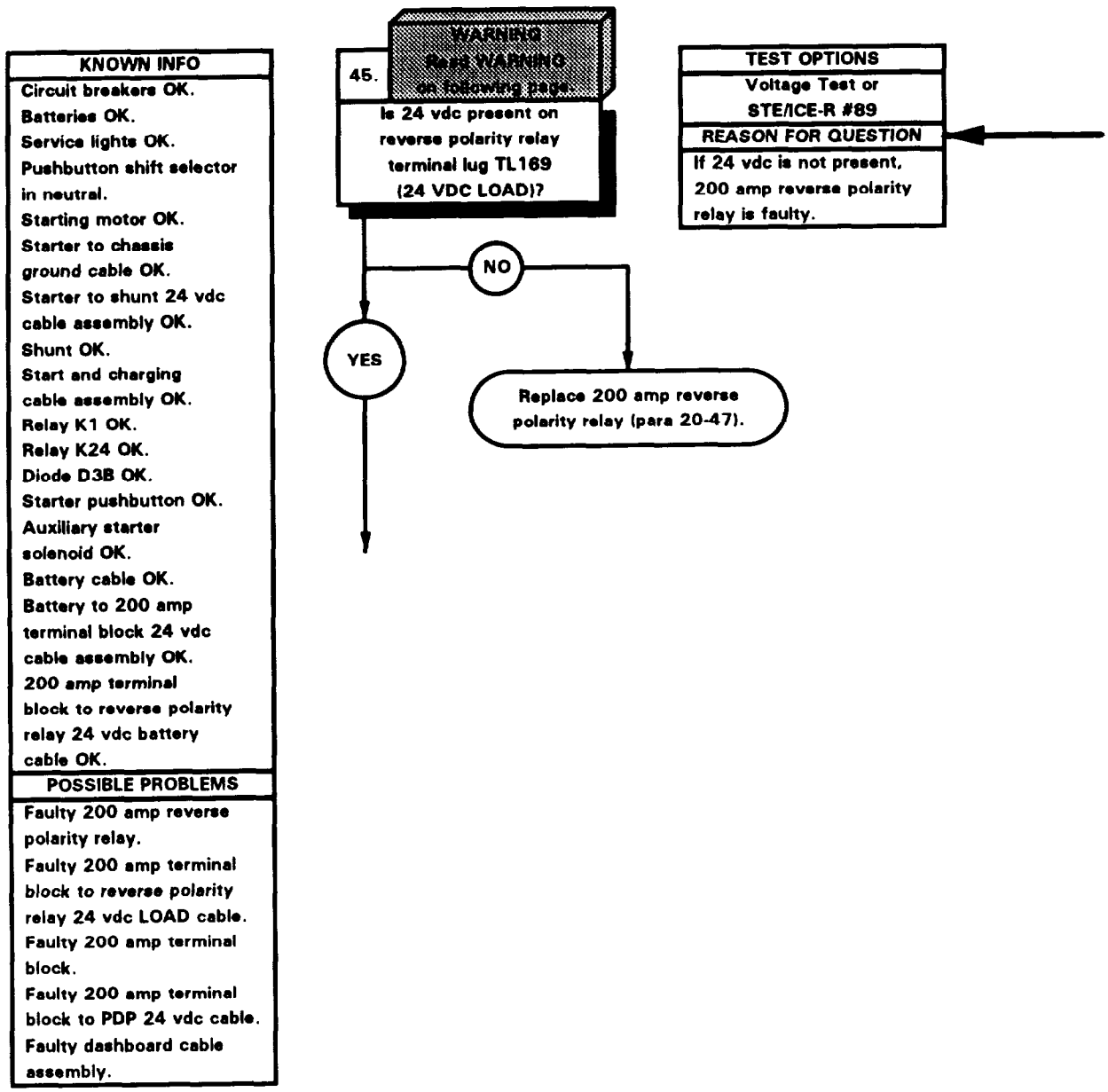
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock. Batteries can explode from a spark. Battery acid is harmful to skin and eyes. Always wear eye protection when working with batteries.

VOLTAGE TEST
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to reverse polarity relay terminal lug TL168 (24V BAT).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 24 vdc is not present, replace 200 amp terminal block to reverse polarity relay 24 vdc battery cable (para 20-56).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

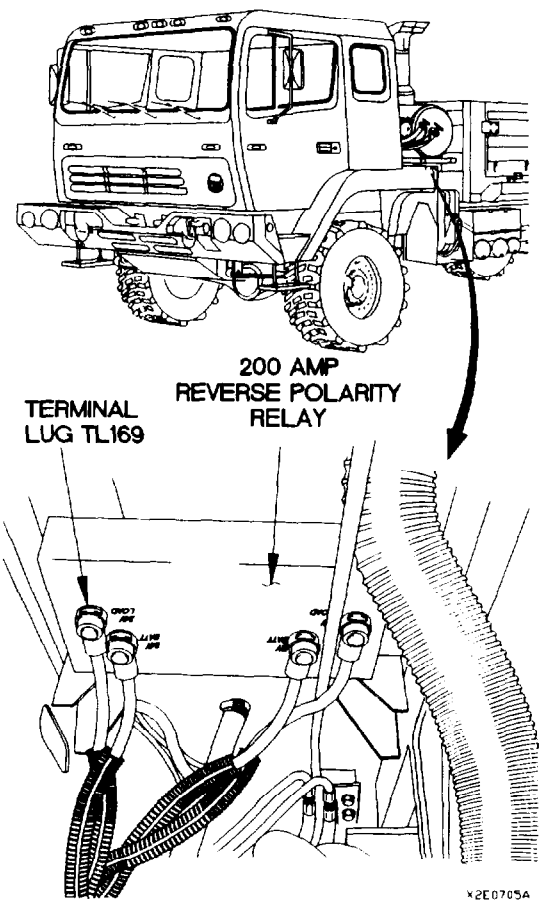


WARNING

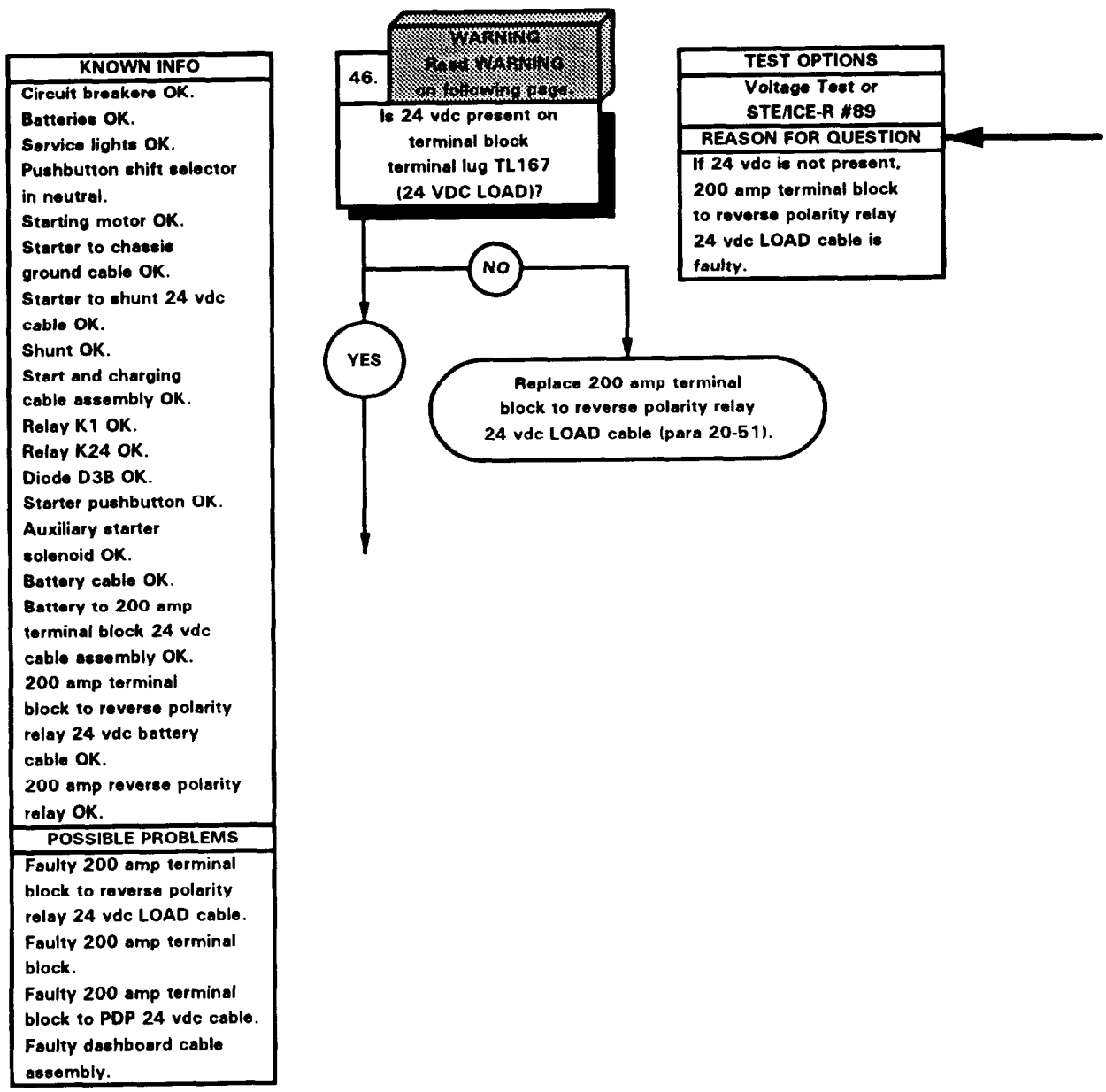
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock. Batteries can explode from a spark. Battery acid is harmful to skin and eyes. Always wear eye protection when working with batteries.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to reverse polarity relay terminal lug TL169 (24V LOAD).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 24 vdc is not present, replace 200 amp reverse polarity relay (para 20-47).



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

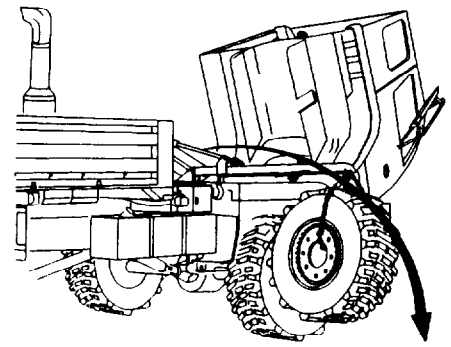


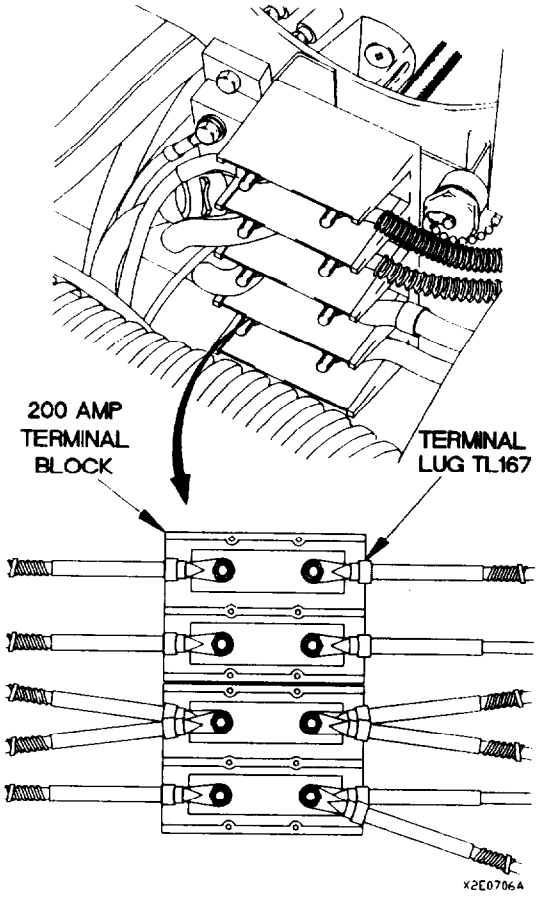
WARNING

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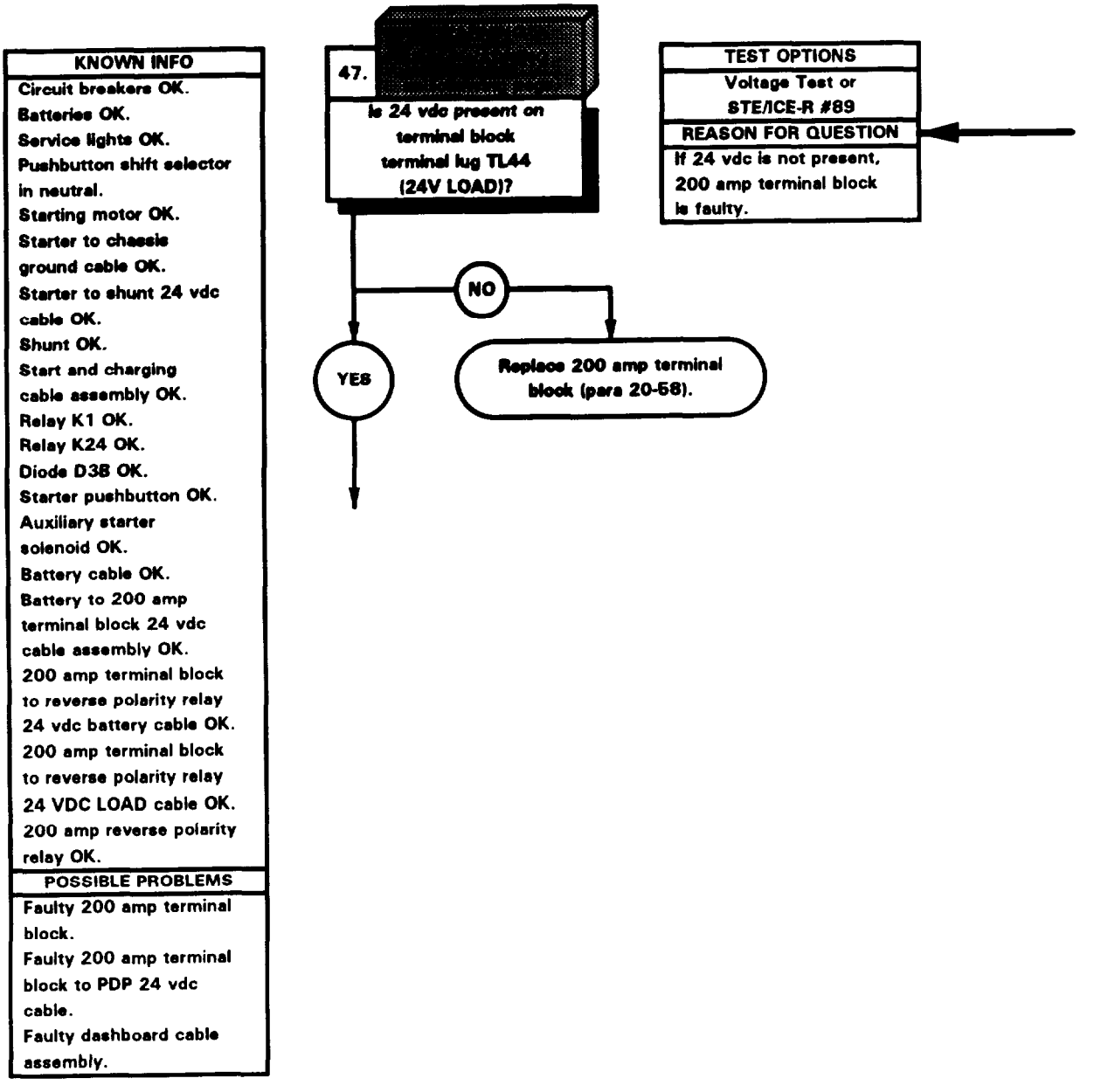
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal block terminal lug TL167 (24V LOAD).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 24 vdc is not present, replace 200 amp terminal block to reverse polarity relay 24 vdc LOAD cable (para 20-51).





e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

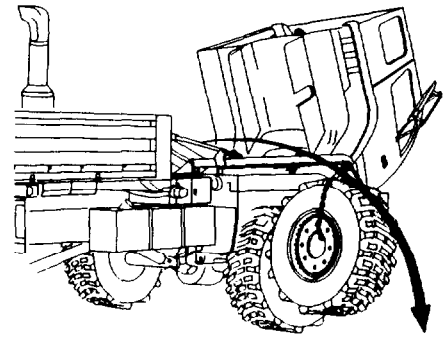


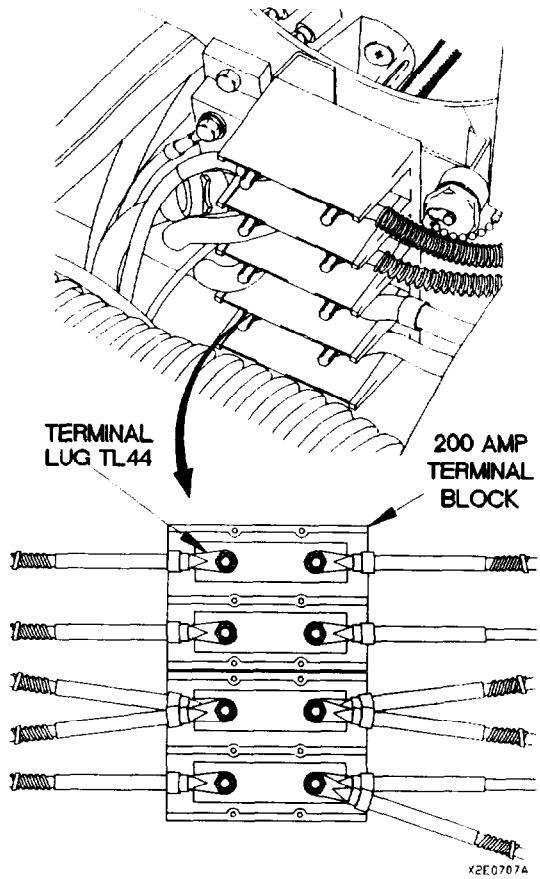
WARNING

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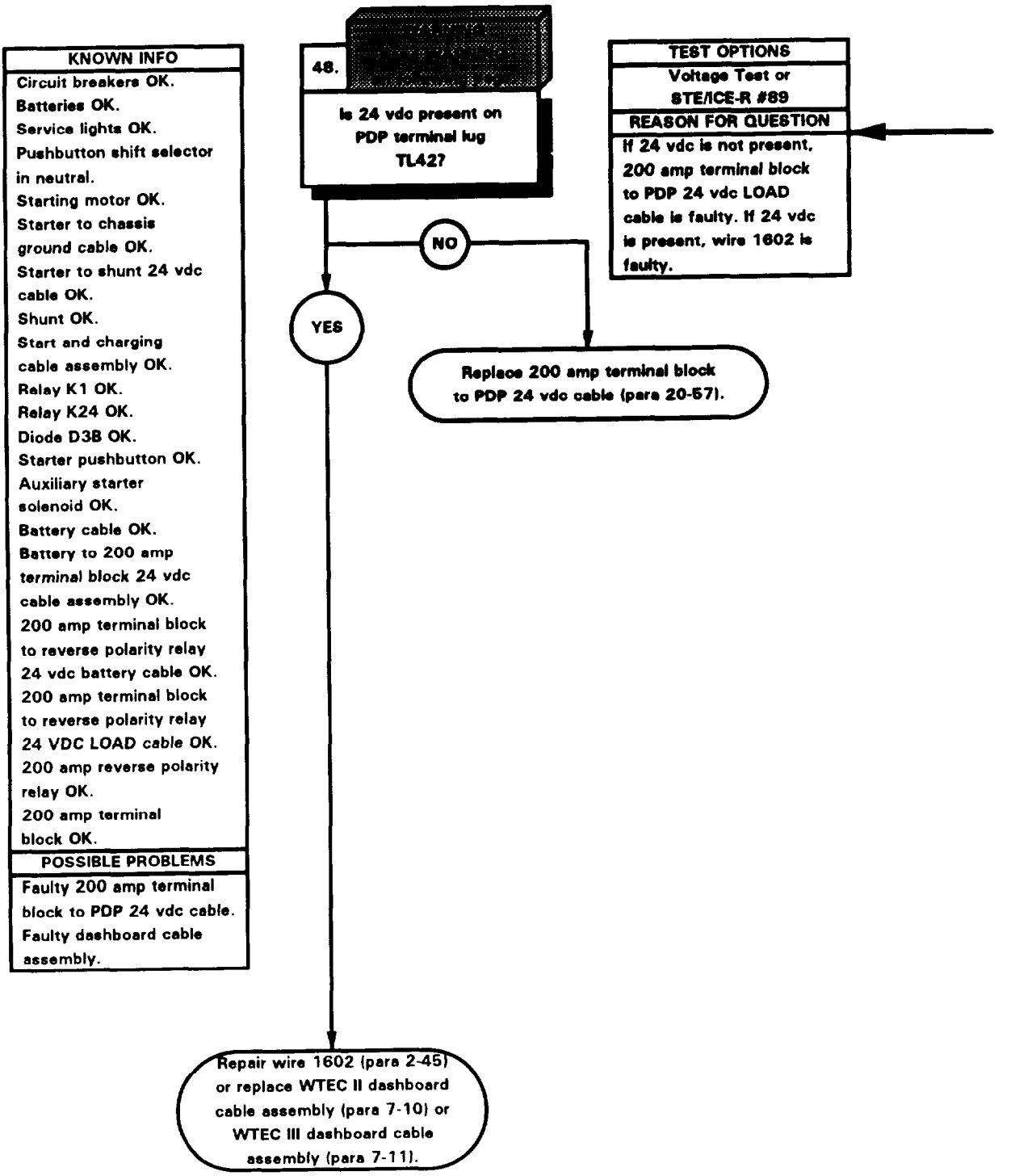
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal block terminal lug TL44 (24V LOAD).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 24 vdc is not present, replace 200 amp terminal block (para 20-58).





e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

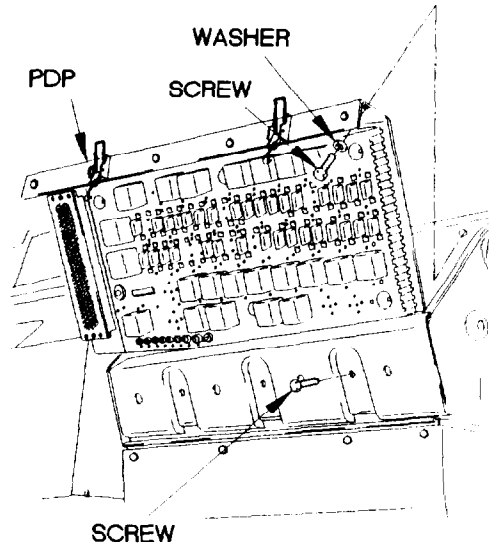


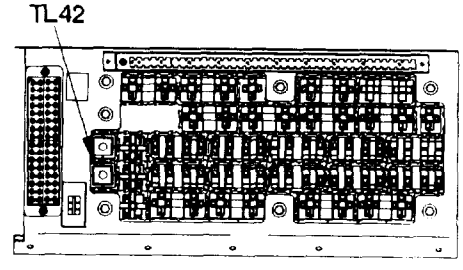
WARNING

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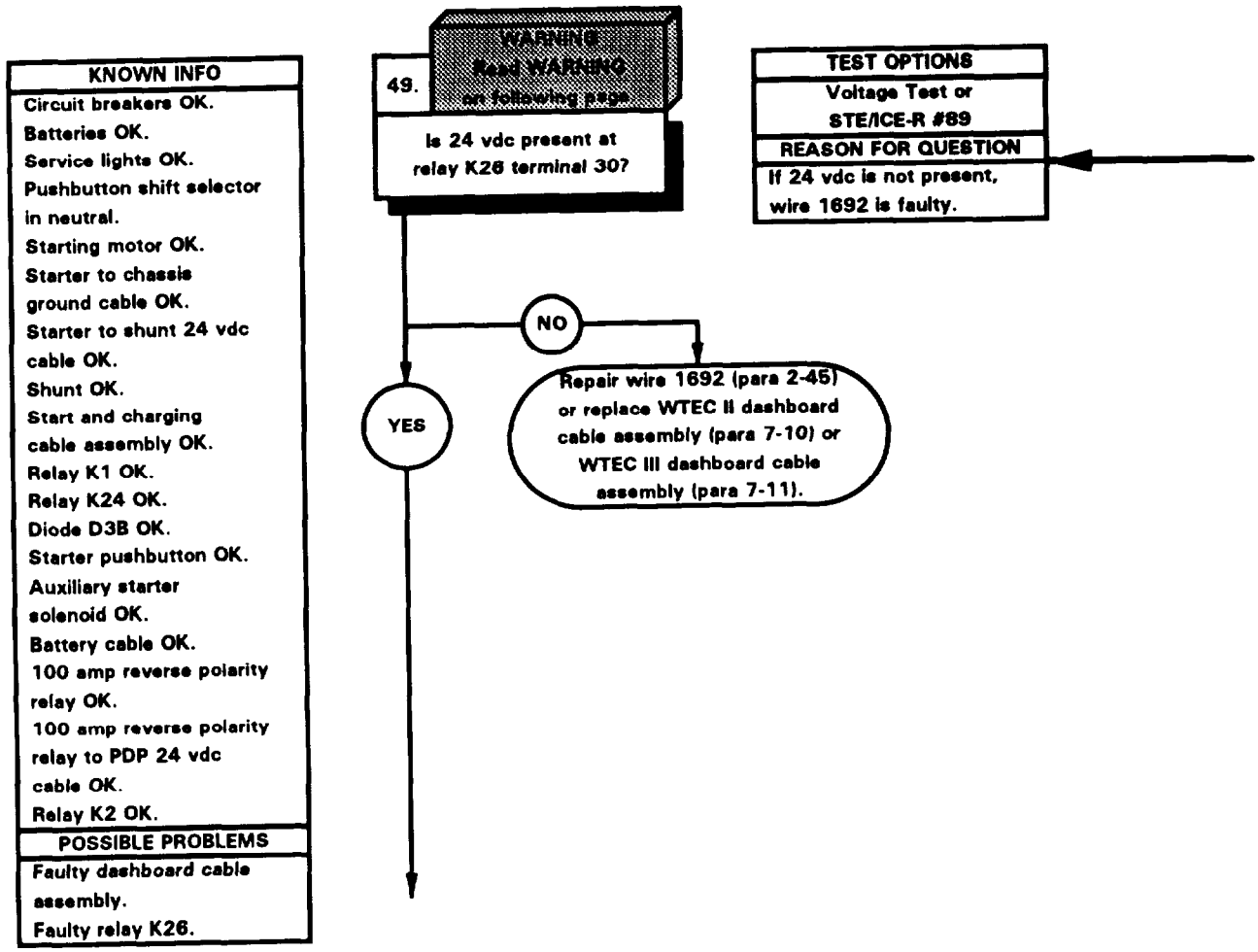
VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Set multimeter to volts dc.
(6) Connect positive (+) probe of multimeter to PDP terminal lug TL42.
(7) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(8) If 24 vdc is not present, replace terminal board to PDO 24 vdc cable (TL42) (para 20-57).
(9) If 24 vdc is present, repair wire 1602 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(10) Install PDP on dashboard with three screws.
(11) Install three washers and screws in PDP.
(12) Install PDP cover (para 16-2).





e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

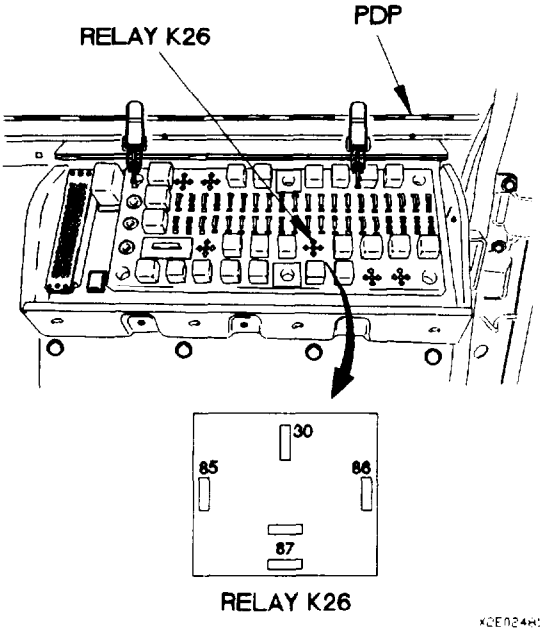


WARNING

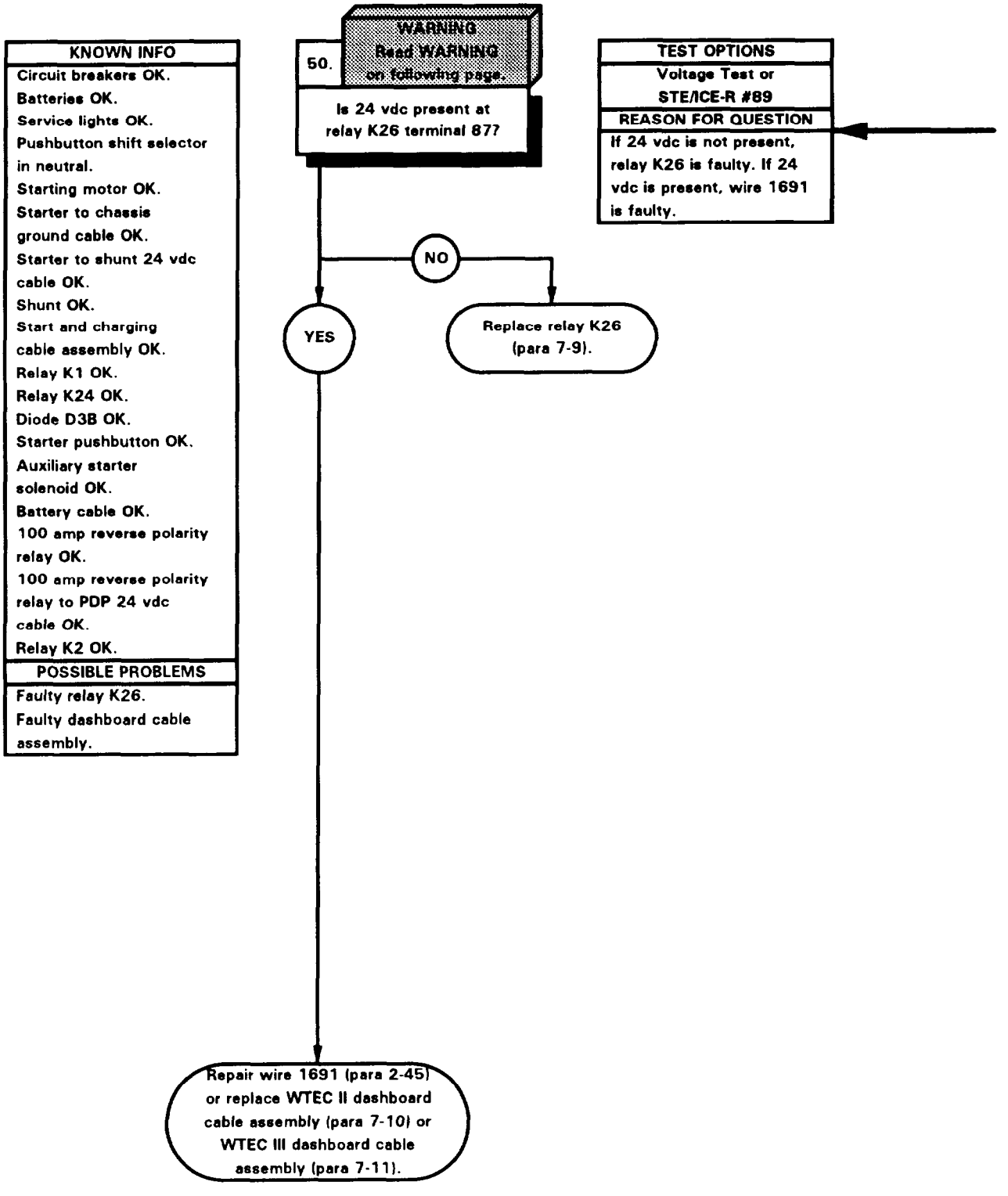
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove relay K26 from PDP.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to PDP terminal 30, where relay K26 was removed.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, repair wire 1692 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position master power switch to off (TM 9-2320-366-10-1).
(8) Install relay K26 in PDP.



e2. ENGINE DOES NOT CRANK/24 VDC CIRCUITS DO NOT OPERATE (CONT)

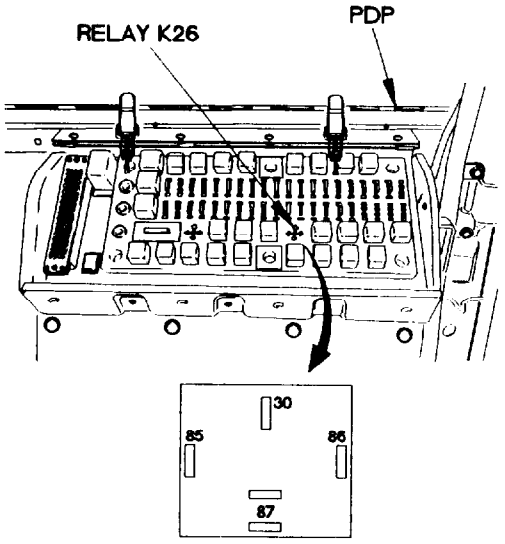


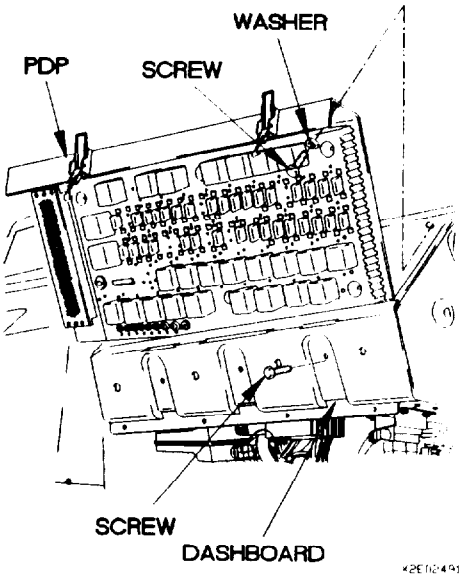
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to back of PDP terminal 87 of relay K26.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, replace relay K26 (para 7-9).
(6) If 24 vdc is present, repair wire 1691 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position master power switch to off (TM 9-2320-366-10-1).
(8) Install PDP in dashboard with three screws.
(9) Install three washers and screws in PDP.
(10) Install kick panel (para 16-3).





e3. 12 VDC AND 24 VDC CIRCUITS DO NOT OPERATE

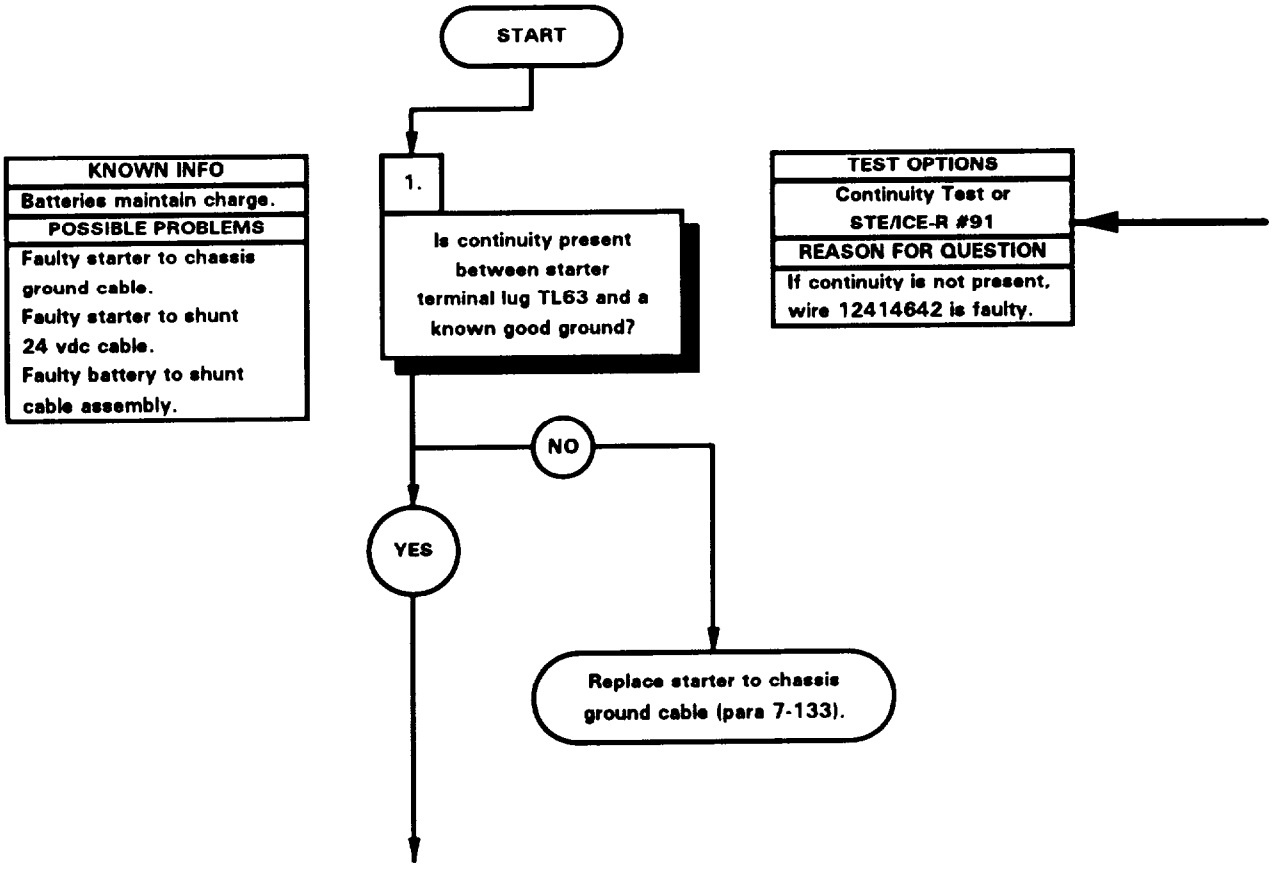
INITIAL SETUP

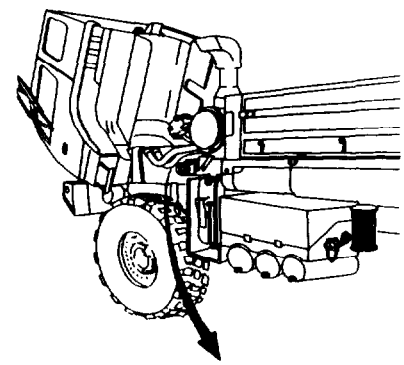
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

Personnel Required
(2)

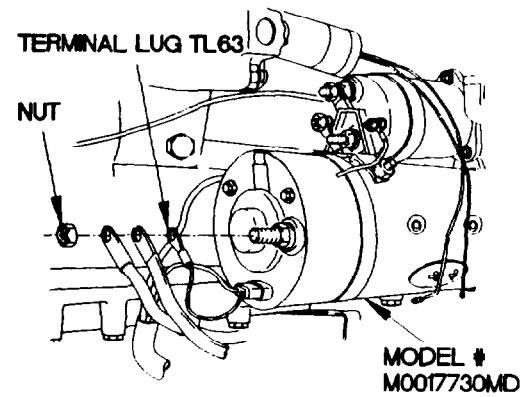
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

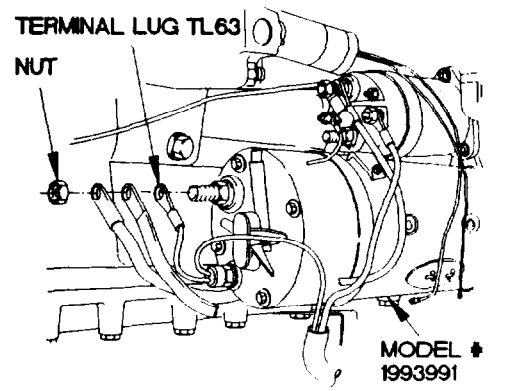
References
TM 9-4910-571-12&P





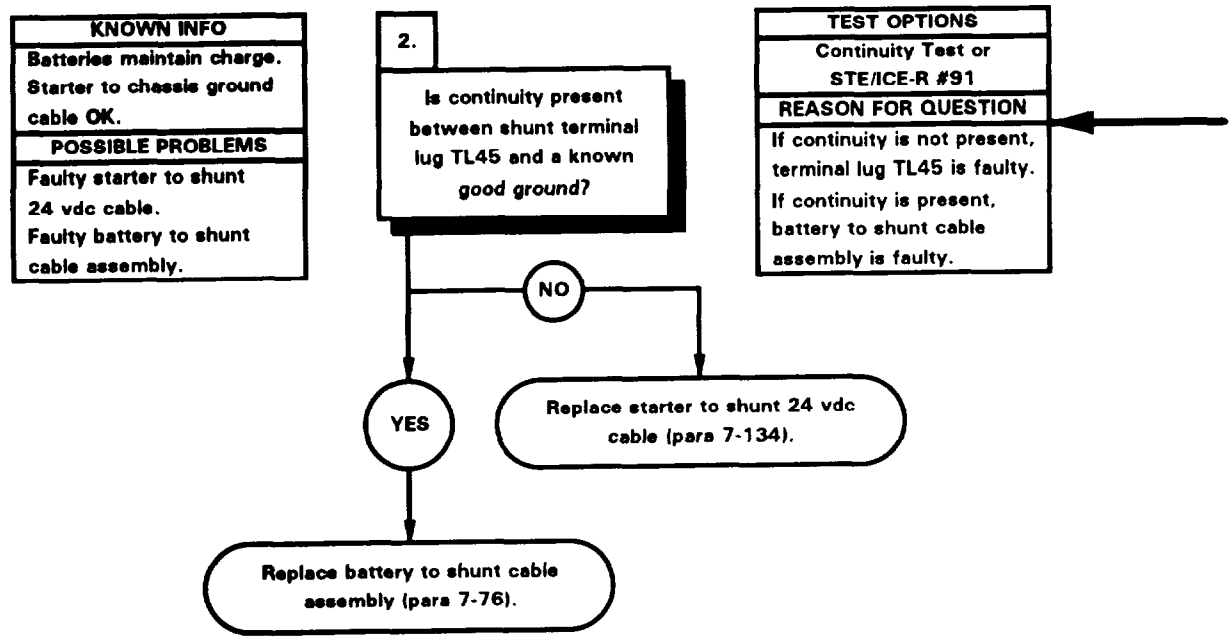
CONTINUITY TEST
(1) Raise cab (TM 9-2320-366-10-1).
(2) Disconnect terminal lug TL63 from starting motor.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to terminal lug TL63.
(5) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(6) If continuity is not present, replace starter to chassis ground cable (para 7-133).
(7) Connect terminal lug TL63 to starting motor.



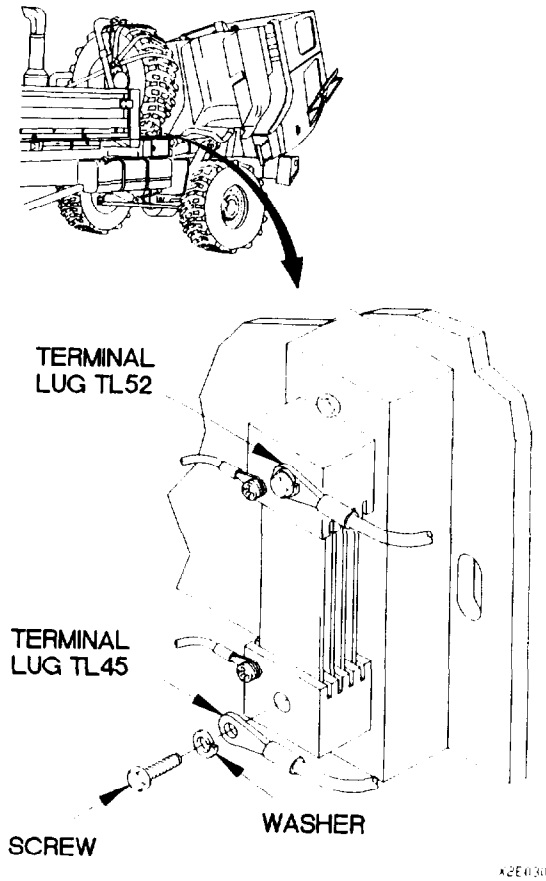


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e3. 12 VDC AND 24 VDC CIRCUITS DO NOT OPERATE (CONT)



CONTINUITY TEST
(1) Disconnect terminal lug TL45 from shunt.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to terminal lug TL45.
(4) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(5) If continuity is not present, replace starter to shunt 24 vdc cable (para 7-134).
(6) If continuity is present, replace battery to shunt cable assembly (para 7-76).
(7) Connect terminal lug TL45 to shunt.
(8) Lower cab (TM 9-2320-366-10-1).
(9) Connect batteries (para 7-57).



e4. 12 VDC CIRCUITS DO NOT OPERATE (100 AMP ALTERNATOR)

INITIAL SETUP

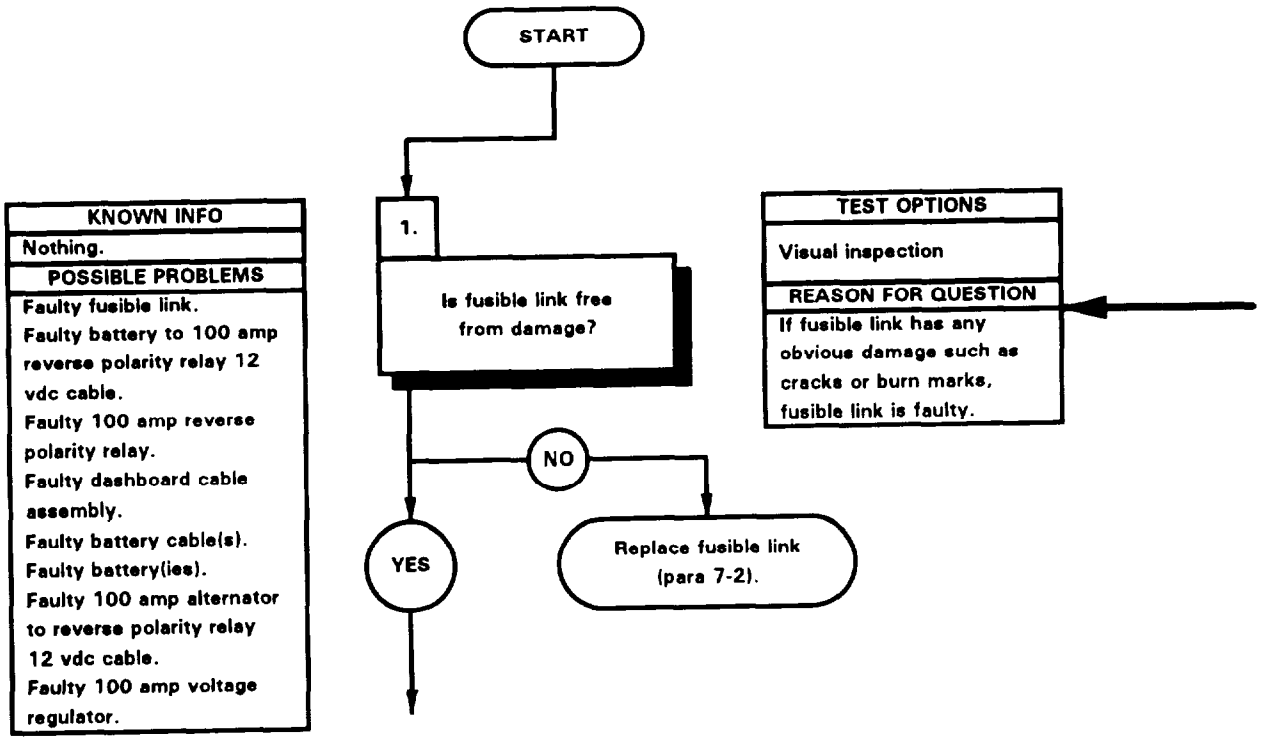
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Wire, Elect, 50 ft (Item 71, Appendix D)

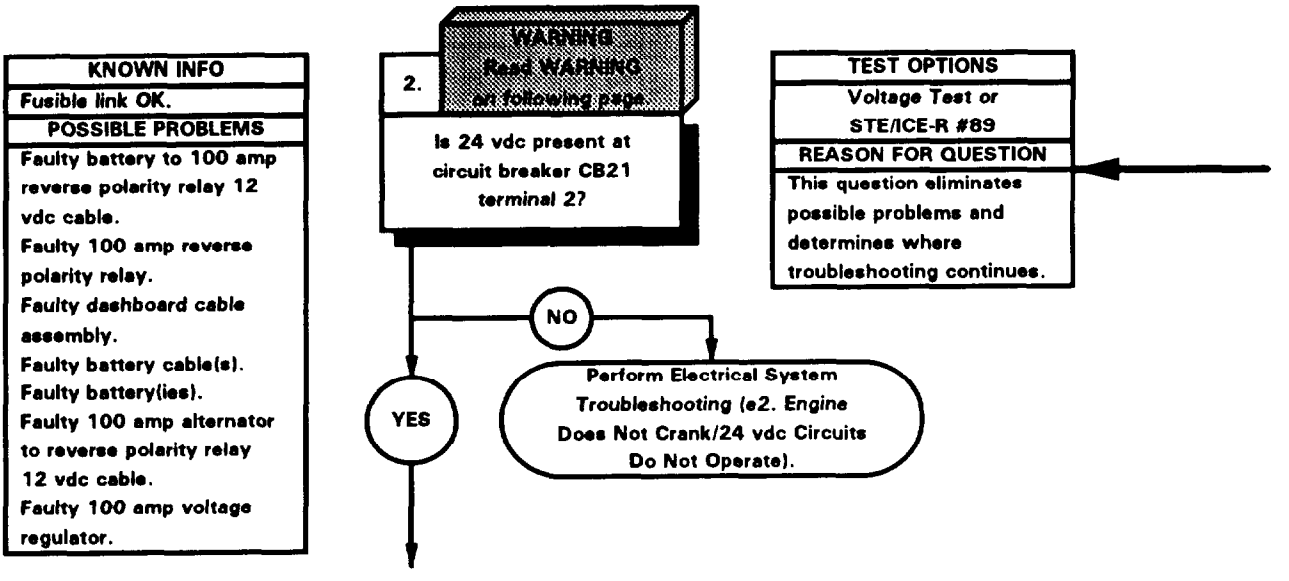
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Tester, Antifreeze and Battery (Item 42, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

References
TM 9-4910-571-12&P



(1) Remove fusible link (para 7-2).
(2) Check fusible link for obvious signs of cracks and burn marks.
(3) If cracks or burn marks are found, replace fusible link (para 7-2).
(4) Install fusible link (para 7-2).

e4. 12 VDC CIRCUITS DO NOT OPERATE (100 AMP ALTERNATOR) (CONT)

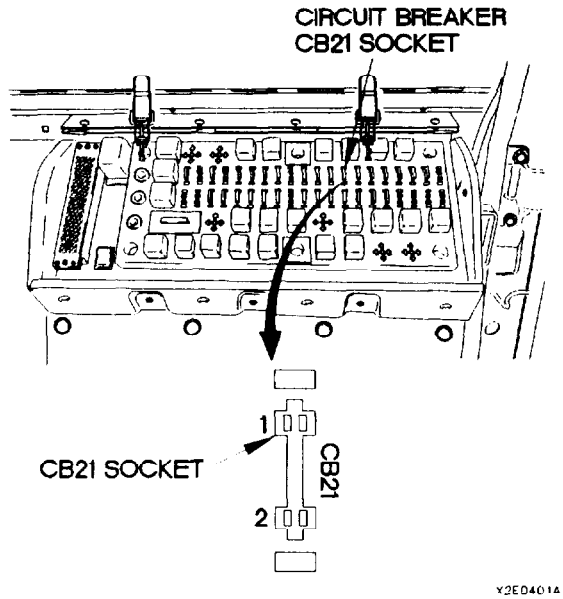


WARNING

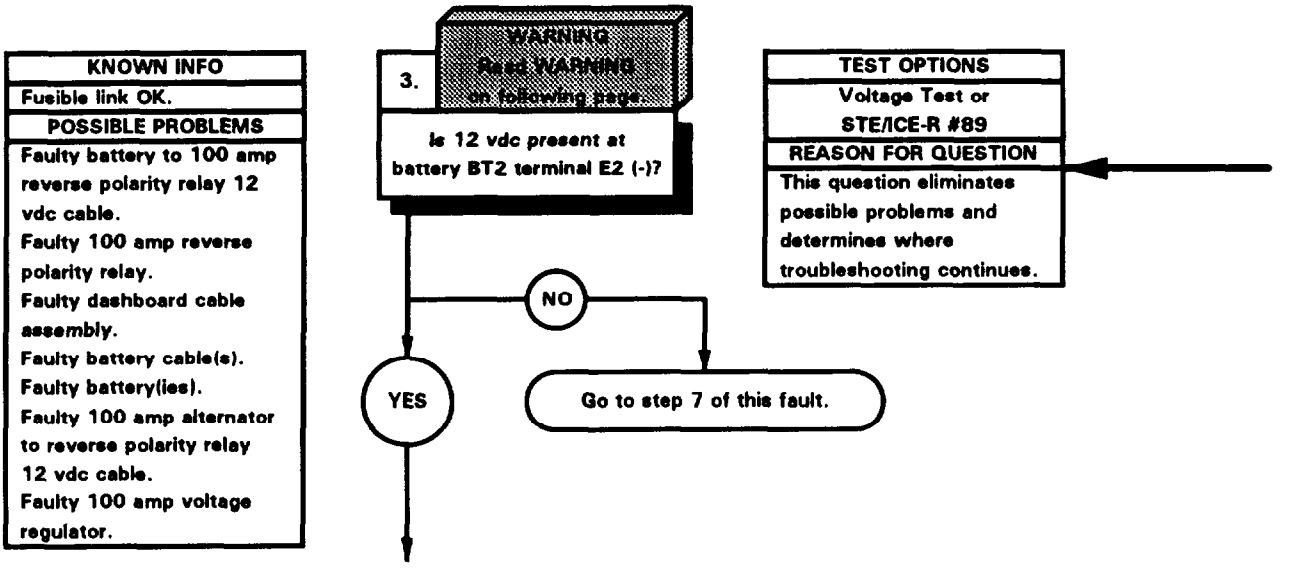
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove circuit breaker CB21 from PDP.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to PDP, socket 2, where circuit breaker CB21 was removed.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, perform Electrical System Troubleshooting (e2. Engine Does Not Crank/24 vdc Circuits Do Not Operate).
(8) Position master power switch to off (TM 9-2320-366-10-1).
(9) Install circuit breaker CB21 in PDP.



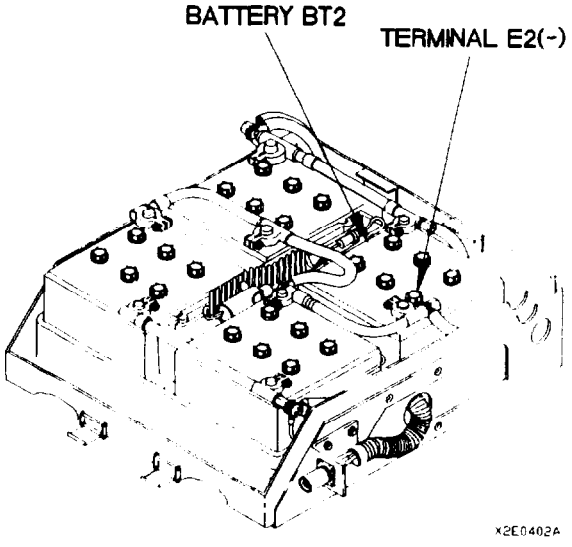
e4. 12 VDC CIRCUITS DO NOT OPERATE (100 AMP ALTERNATOR) (CONT)



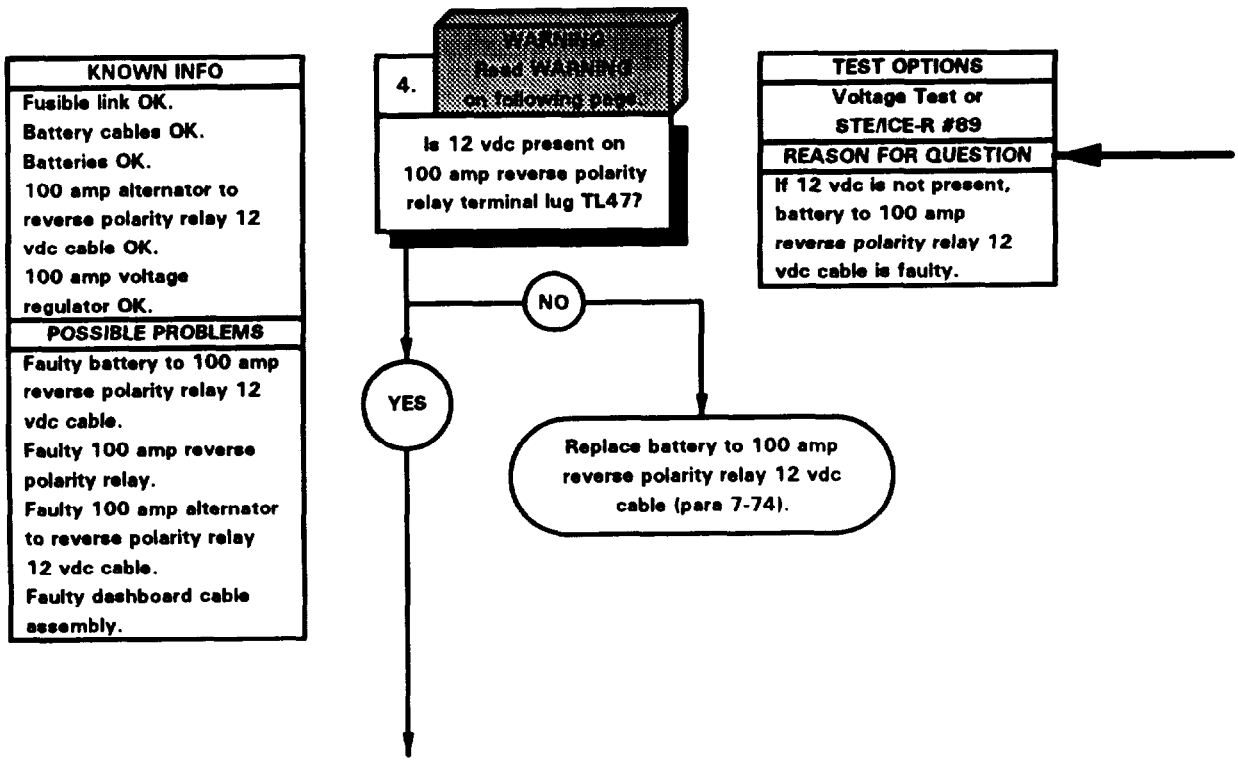
WARNING

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VOLTAGE TEST
(1) Remove battery box cover from battery box (TM 9-2320-366-10-2).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to battery BT2 terminal E2 (-).
(4) Connect negative (-) multimeter to ground and note reading on multimeter.
(5) If 12 vdc is not present, go to step 7 of this fault.



e4. 12 VDC CIRCUITS DO NOT OPERATE (100 AMP ALTERNATOR) (CONT)

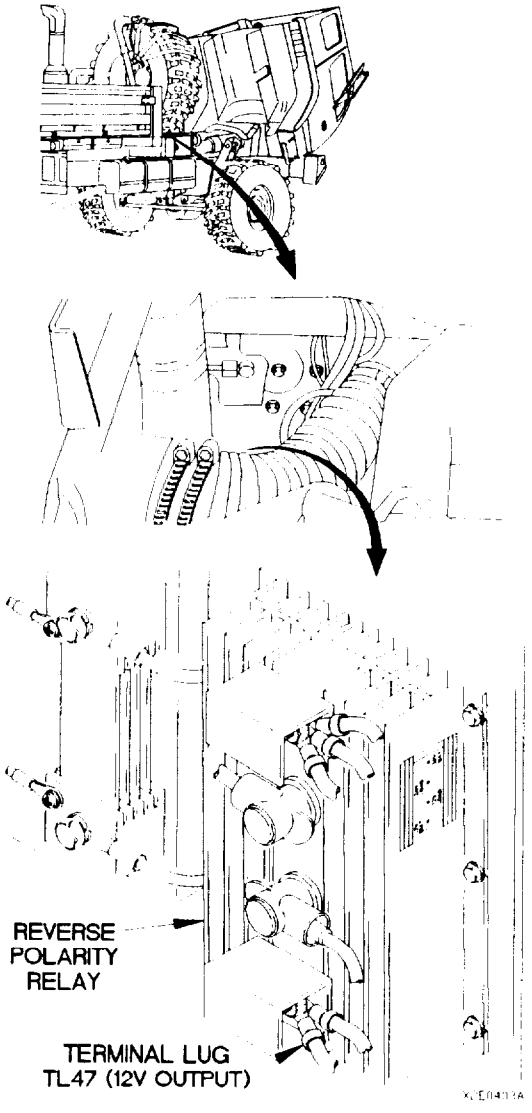


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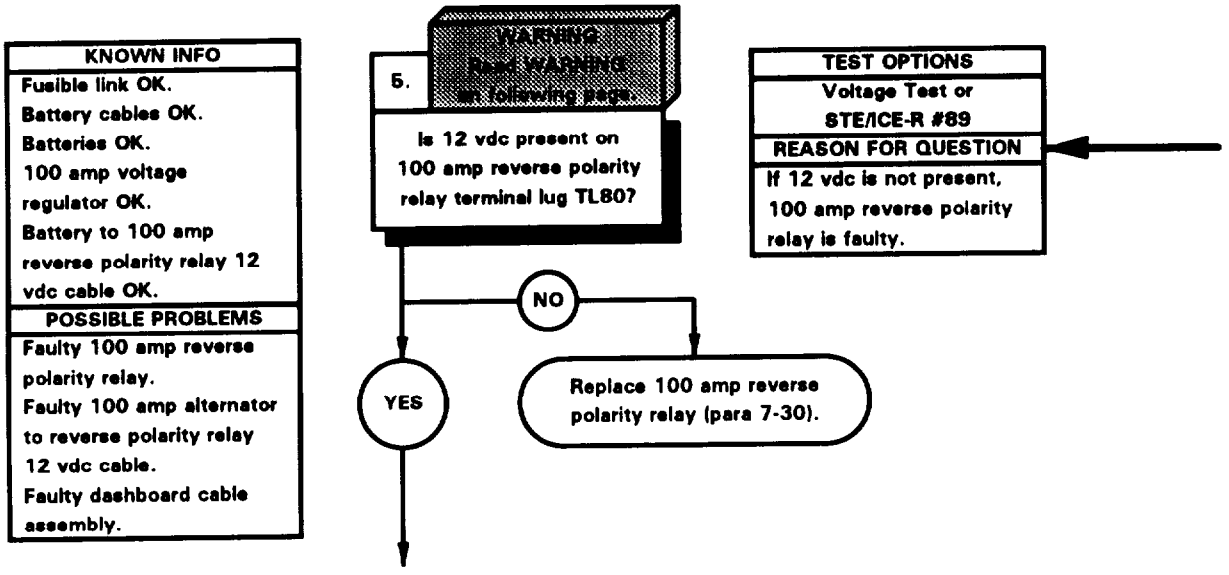
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Install battery box cover on battery box (TM 9-2320-366-10-2).
(2) Raise cab (TM 9-2320-366-10-1).
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to reverse polarity relay terminal lug TL47 (12V BAT).
(5) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(6) If 12 vdc is not present, replace battery to 100 amp reverse polarity relay 12 vdc cable (para 7-74).



e4. 12 VDC CIRCUITS DO NOT OPERATE (100 AMP ALTERNATOR) (CONT)

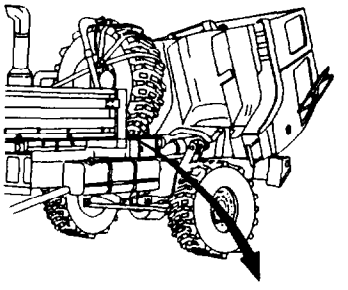


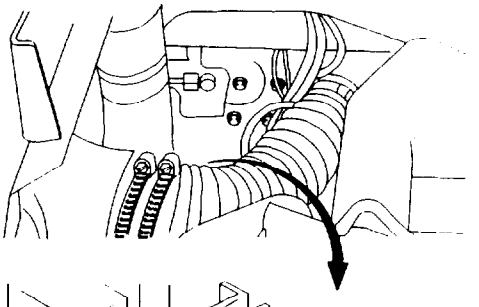
WARNING

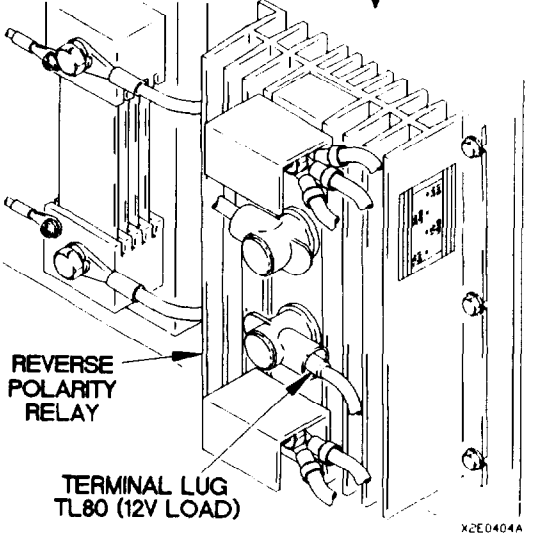
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

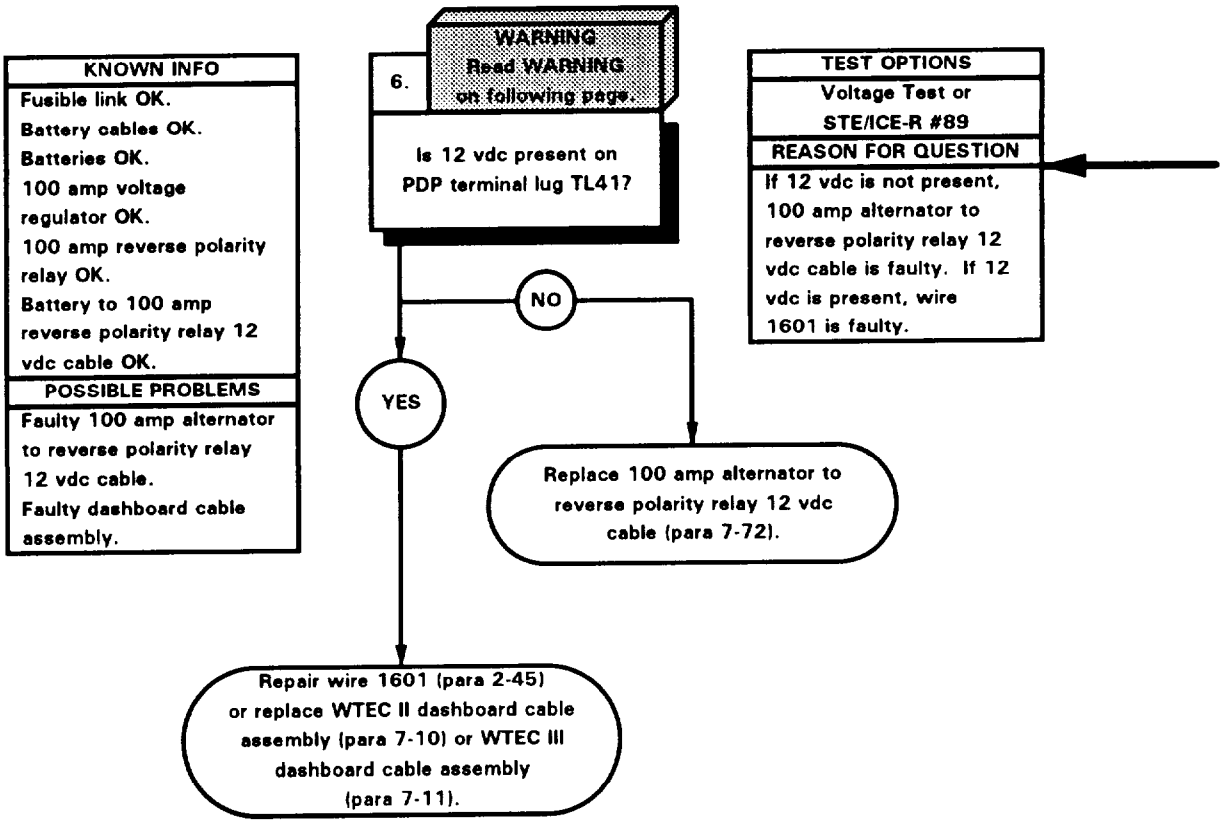
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to reverse polarity relay terminal lug TL80 (12V load).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 12 vdc is not present, replace 100 amp reverse polarity relay (para 7-30).
(5) Lower cab (TM 9-2320-366-10-1).







e4. 12 VDC CIRCUITS DO NOT OPERATE (100 AMP ALTERNATOR) (CONT)

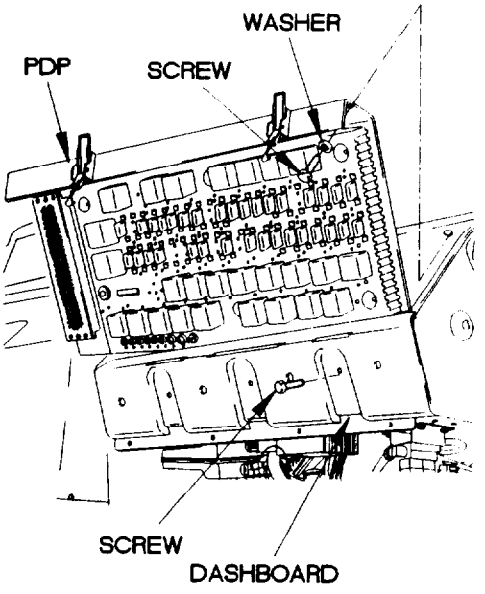


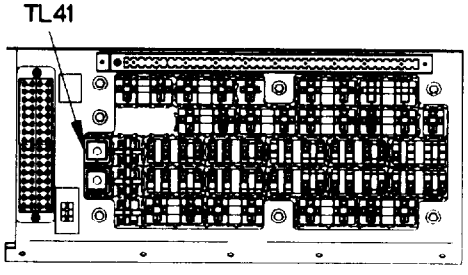
WARNING

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VOLTAGE TEST

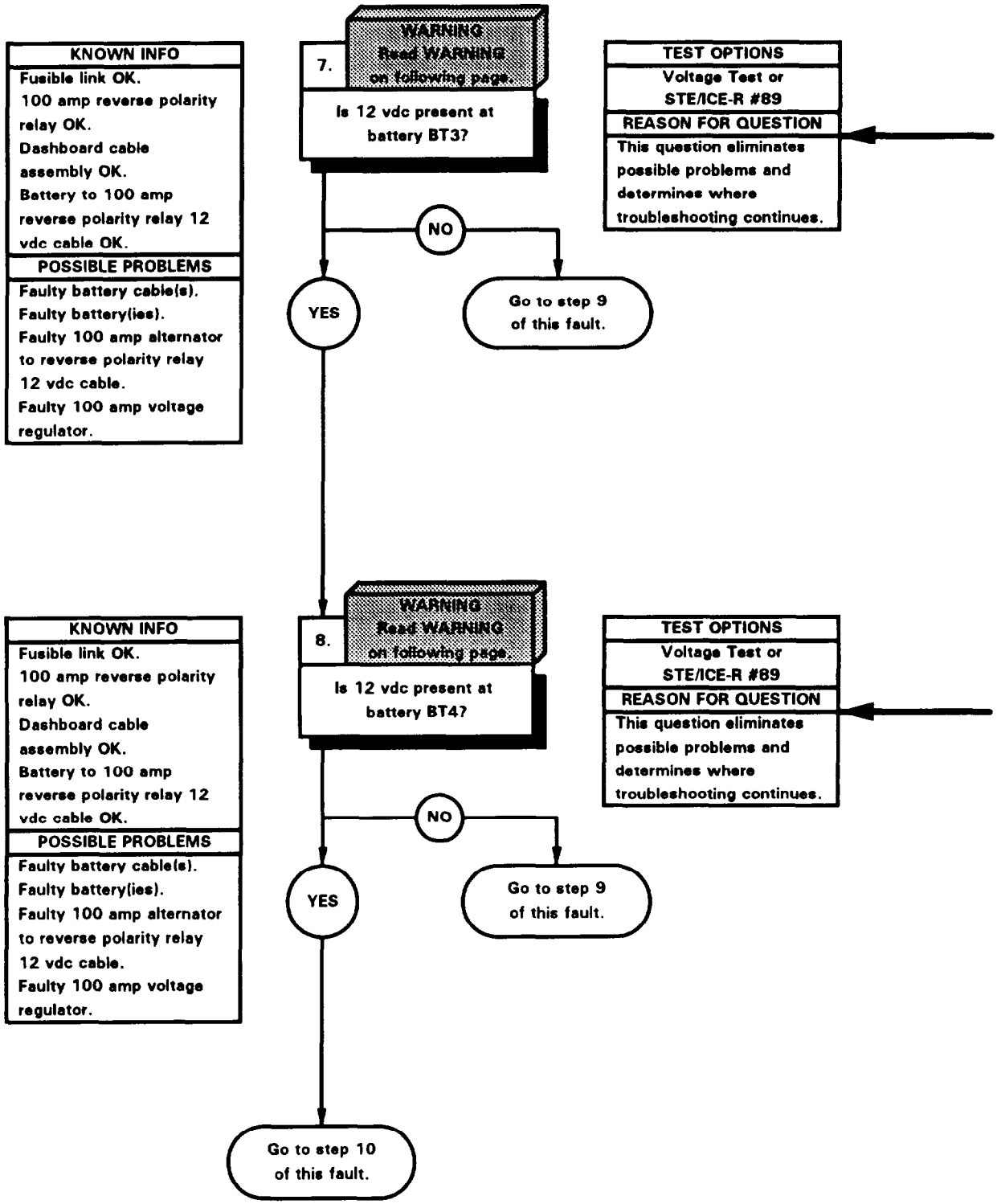
(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to PDP, terminal lug TL41.
(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(7) If 12 vdc is not present, replace 100 amp alternator to reverse polarity relay 12 vdc cable (para 7-72).
(8) If 12 vdc is present, repair wire 1601 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Install PDP on dashboard with three screws.
(10) Install three screws and washers in PDP.
(11) Install PDP cover (para 16-2).





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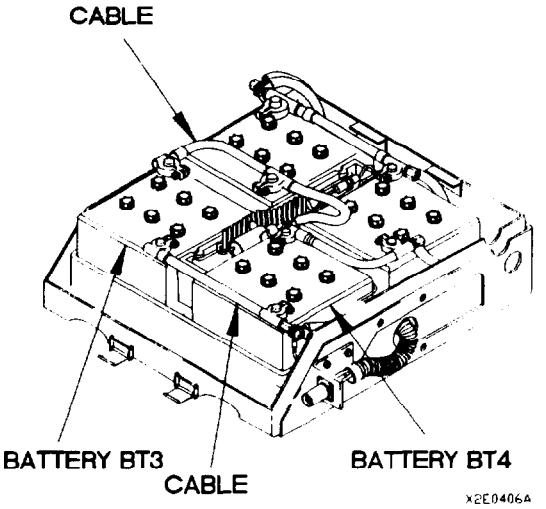
e4. 12 VDC CIRCUITS DO NOT OPERATE (100 AMP ALTERNATOR) (CONT)



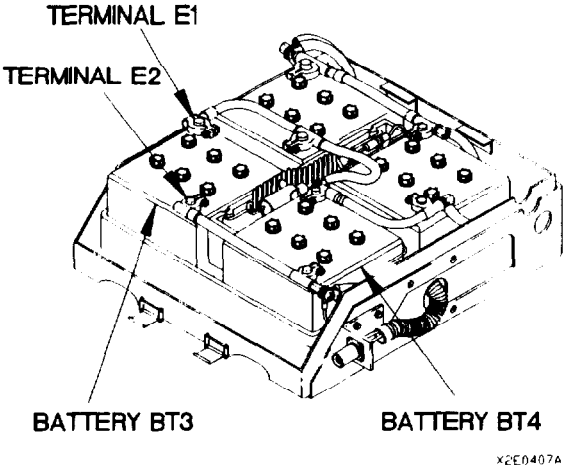
WARNING

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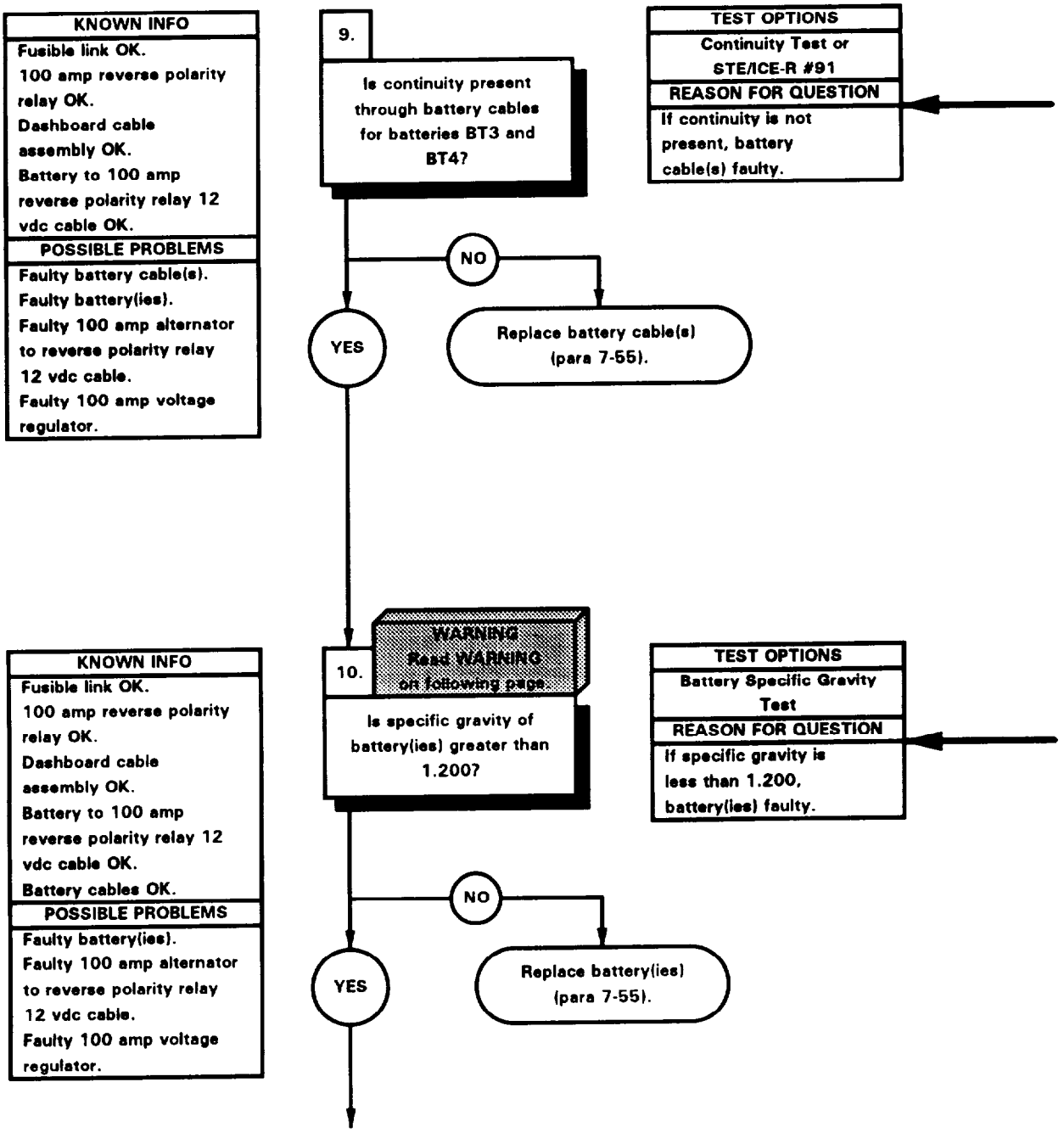
VOLTAGE TEST
(1) Disconnect batteries (para 7-57).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal E1(+) of battery BT3.
(4) Connect negative (-) probe of multimeter to terminal E2(-) of battery BT3 and note reading on multimeter.
(5) If 12 vdc is not present, go to step 9 of this fault.



VOLTAGE TEST
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal E1(+) of battery BT4.
(3) Connect negative (-) probe of multimeter to terminal E2 (-) of battery BT4 and note reading on multimeter.
(4) If 12 vdc is not present, go to step 9 of this fault.
(5) If 12 vdc is present, go to step 10 of this fault.

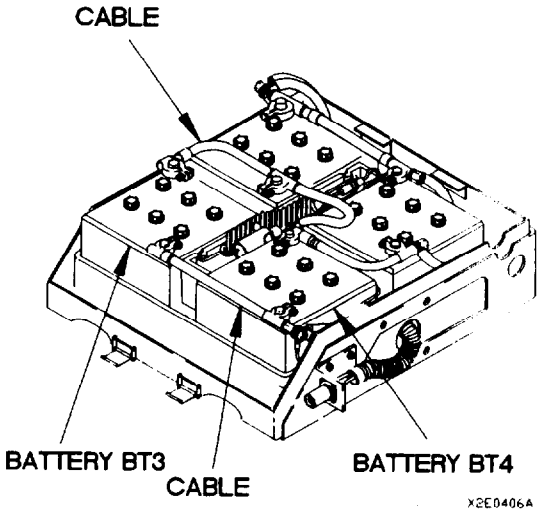


e4. 12 VDC CIRCUITS DO NOT OPERATE (100 AMP ALTERNATOR) (CONT)



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to end of battery cable, one cable at a time.
(3) Connect negative (-) probe of multimeter to remaining end of same cable and note reading on multimeter.
(4) If continuity is not present, replace battery cable (para 7-55).
(5) Connect batteries (para 7-57).

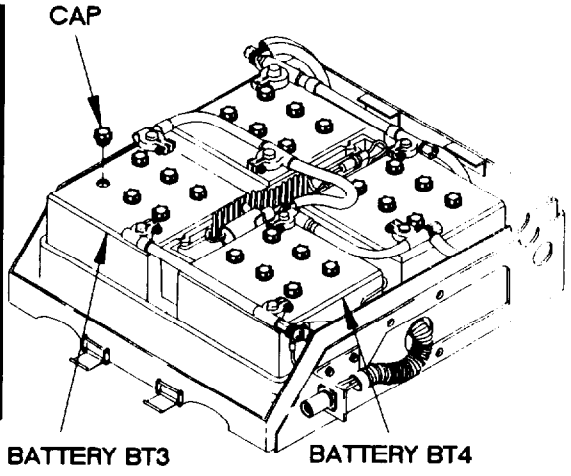


WARNING

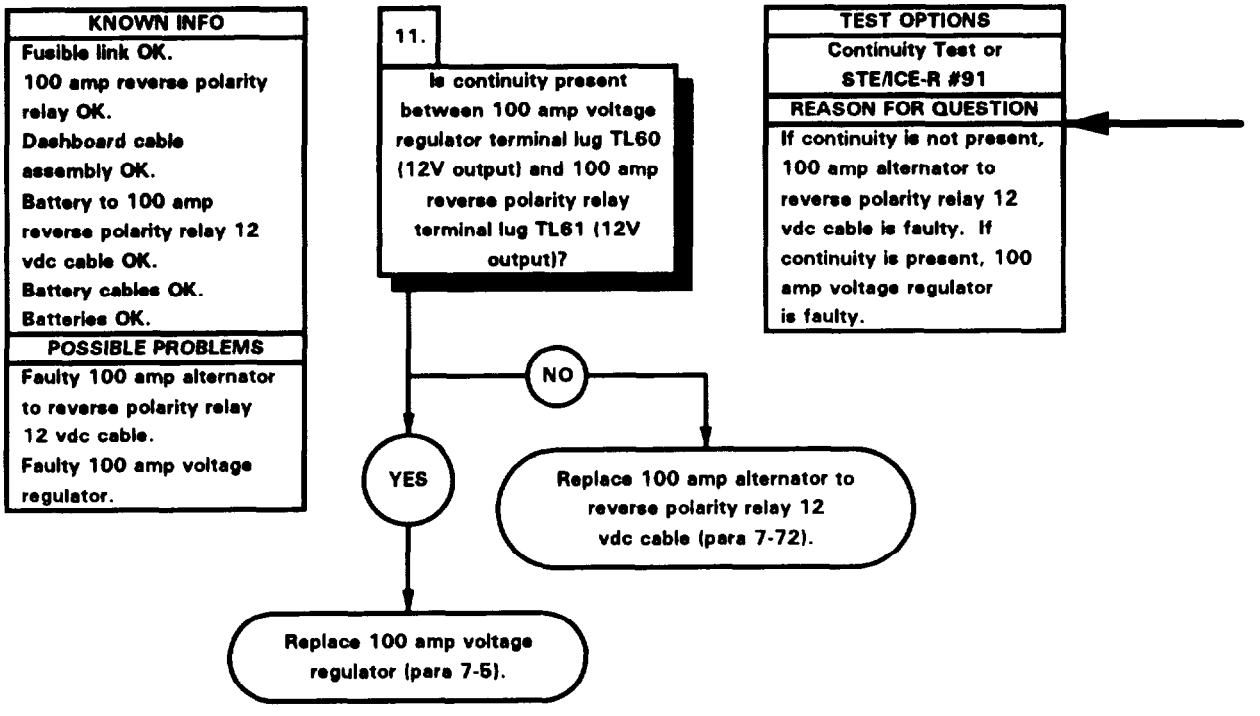
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BATTERY SPECIFIC GRAVITY TEST

(1) Remove one cap from battery BT3 and one cap from battery BT4, one battery at a time.
(2) Remove a few sample drops of electrolyte from each battery.
(3) Place a few drops of electrolyte on exposed portion of measuring window of electrolyte tester.
(4) Point tester toward light source and note reading.
(5) If specific gravity reading is less than 1.200, replace battery(ies) (para 7-55).
(6) Install caps on batteries.
(7) Charge battery(ies) (TM 9-6140-200-14).
(8) Install battery box cover on battery box (TM 9-2320-366-10-2).

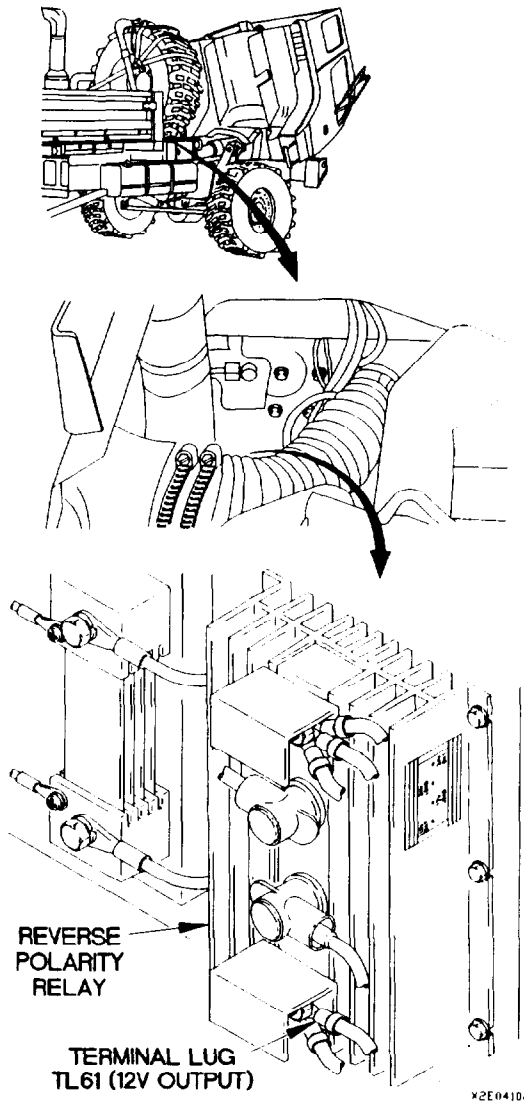


e4. 12 VDC CIRCUITS DO NOT OPERATE (100 AMP ALTERNATOR) (CONT)

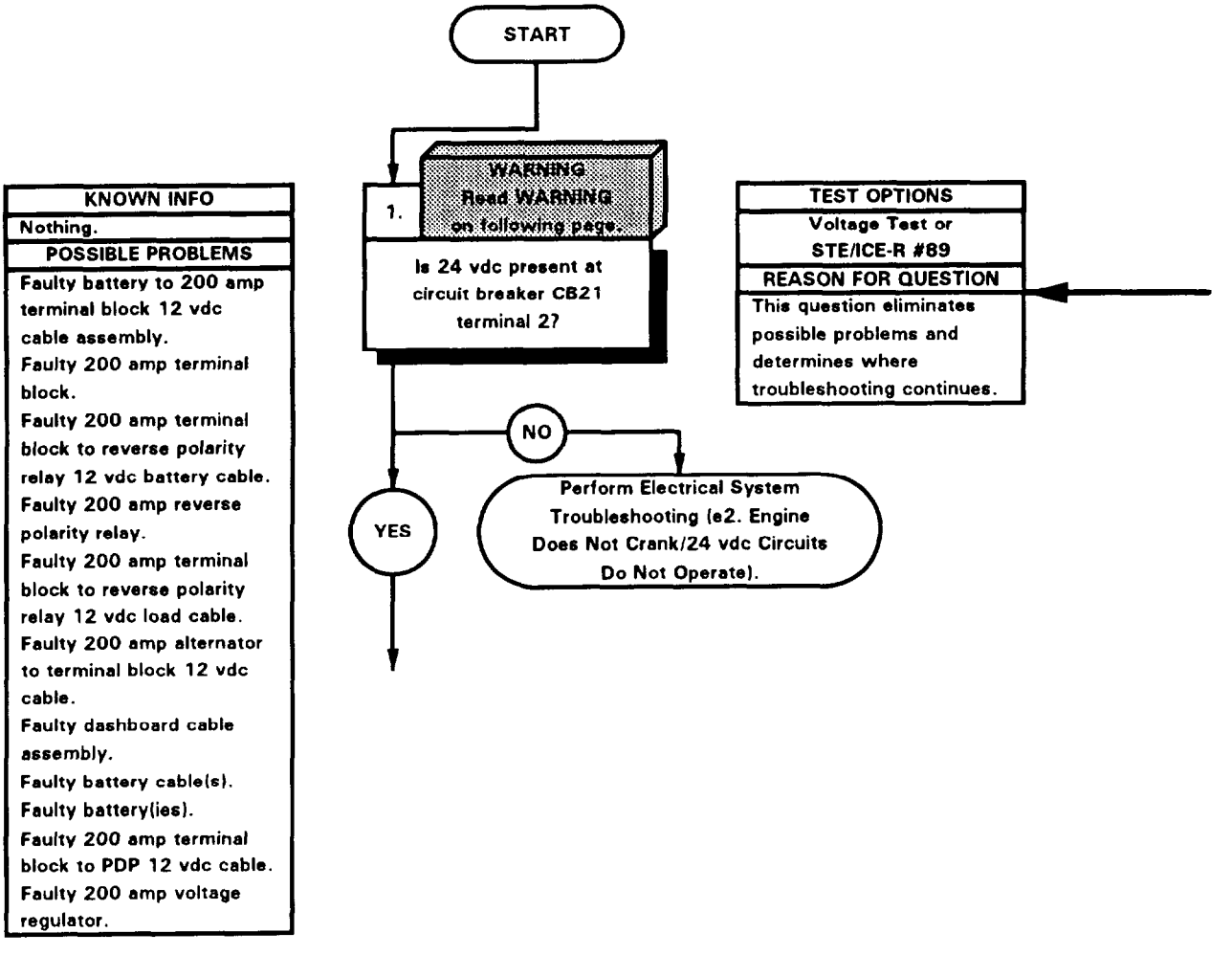


CONTINUITY TEST

(1) Raise cab (TM 9-2320-366-10-1).
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to 100 amp reverse polarity relay terminal lug TL61 (12V output).
(4) Connect negative (-) probe of multimeter to 100 amp voltage regulator terminal lug TL60 (12V output) and note reading on multimeter.
(5) If continuity is not present, replace 100 amp alternator to reverse polarity relay 12 vdc cable (para 7-72).
(6) If continuity is present, replace 100 amp voltage regulator (para 7-5).
(7) Lower cab (TM 9-2320-366-10-1).



e5. 12 VDC CIRCUITS DO NOT OPERATE (200 AMP ALTERNATOR)	
INITIAL SETUP	
Equipment Conditions *Engine shut down (TM 9-2320-366-10-1).*	**Tools and Special Tools** Tool Kit, Genl Mech (Item 46, Appendix C) STE/ICE-R (Item 41, Appendix C) Multimeter, Digital (Item 22, Appendix C) *Tester, Antifreeze and Battery (Item 42, Appendix C)* Goggles, Industrial (Item 15, Appendix C)
Personnel Required (2)	
Materials/Parts Wire, Elect, 50 ft (Item 71, Appendix D)	**References** TM 9-4910-571-12&P

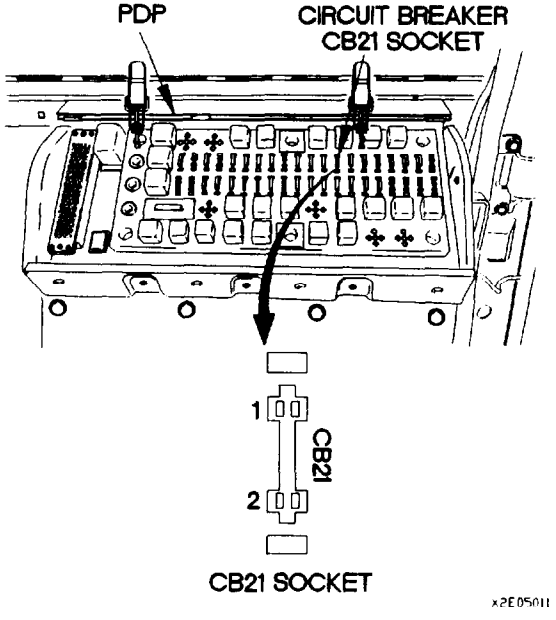


WARNING

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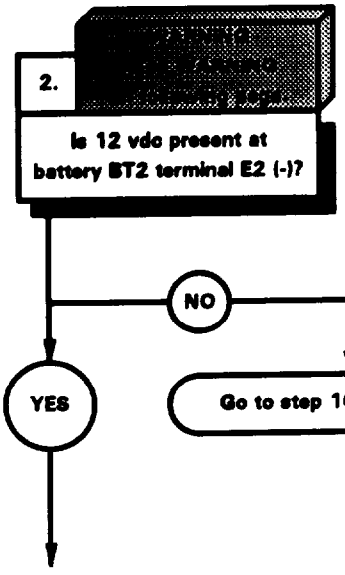
VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove circuit breaker CB21 from PDP.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to PDP, socket 2, where circuit breaker CB21 was removed.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, perform Electrical System Troubleshooting (e2. Engine Does Not Crank/24 vdc Circuits Do Not Operate).
(8) Position master power switch to off (TM 9-2320-366-10-1).
(9) Install circuit breaker CB21 in PDP.



e5. 12 VDC CIRCUITS DO NOT OPERATE (200 AMP ALTERNATOR) (CONT)

KNOWN INFO
Nothing.
POSSIBLE PROBLEMS
Faulty battery to 200 amp terminal block 12 vdc cable assembly.
Faulty 200 amp terminal block.
Faulty 200 amp terminal block to reverse polarity relay 12 vdc battery cable.
Faulty 200 amp reverse polarity relay.
Faulty 200 amp terminal block to reverse polarity relay 12 vdc load cable.
Faulty 200 amp alternator to terminal block 12 vdc cable.
Faulty dashboard cable assembly.
Faulty battery cable(s).
Faulty battery(ies).
Faulty 200 amp terminal block to PDP 12 vdc cable.
Faulty 200 amp voltage regulator.



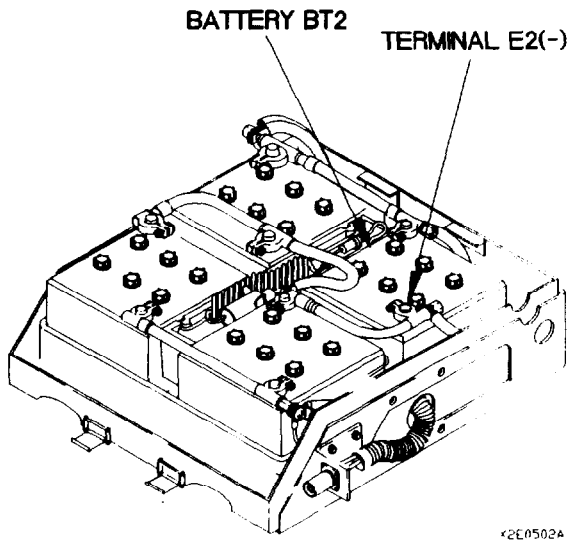
TEST OPTIONS
Voltage Test or STE/ICE-R #89
REASON FOR QUESTION
This question eliminates possible problems and determines where troubleshooting continues.

WARNING

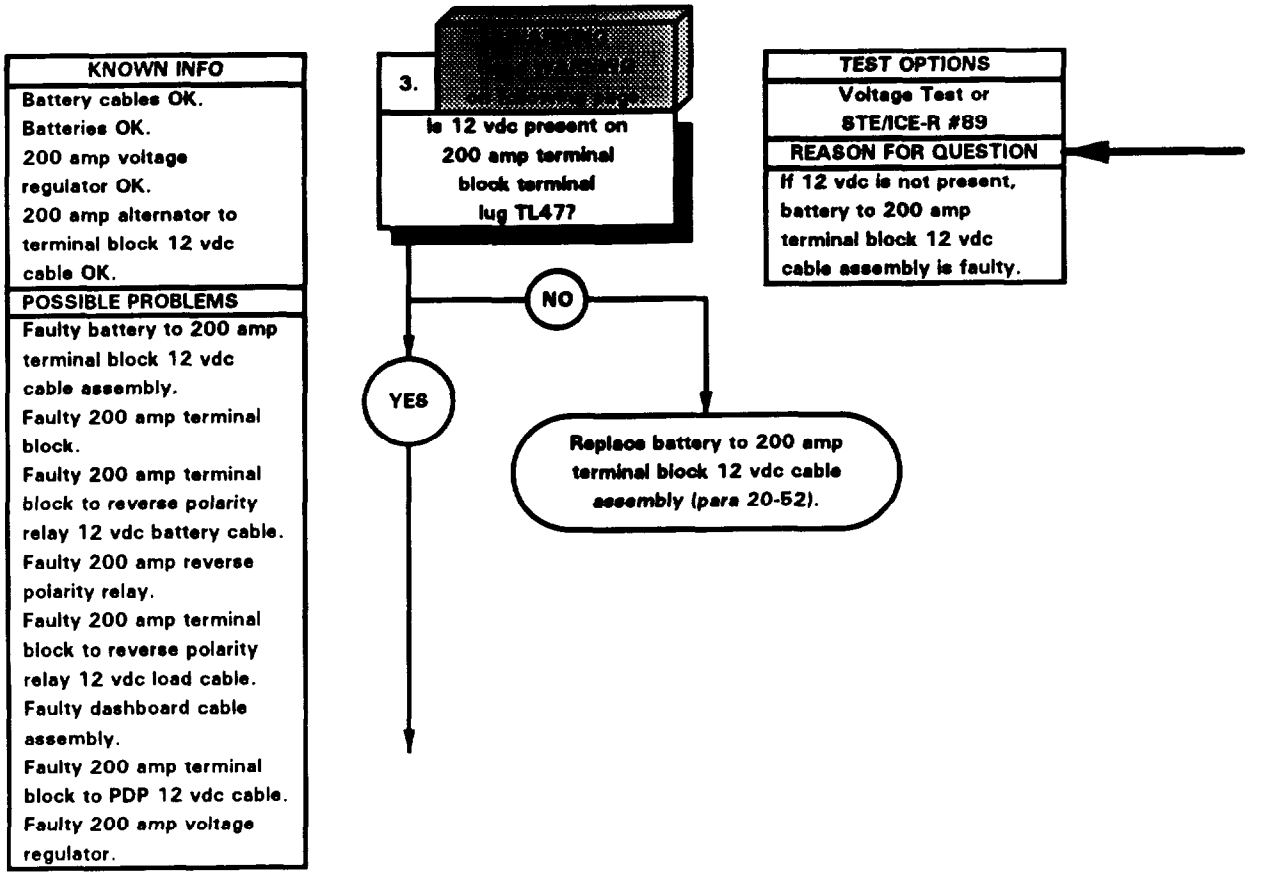
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VOLTAGE TEST

(1) Remove battery box cover from battery box (TM 9-2320-366-10-2).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to battery BT2 terminal E2 (-).
(4) Connect negative (-) multimeter to ground and note reading on multimeter.
(5) If 12 vdc is not present, go to step 10 of this fault.



e5. 12 VDC CIRCUITS DO NOT OPERATE (200 AMP ALTERNATOR) (CONT)

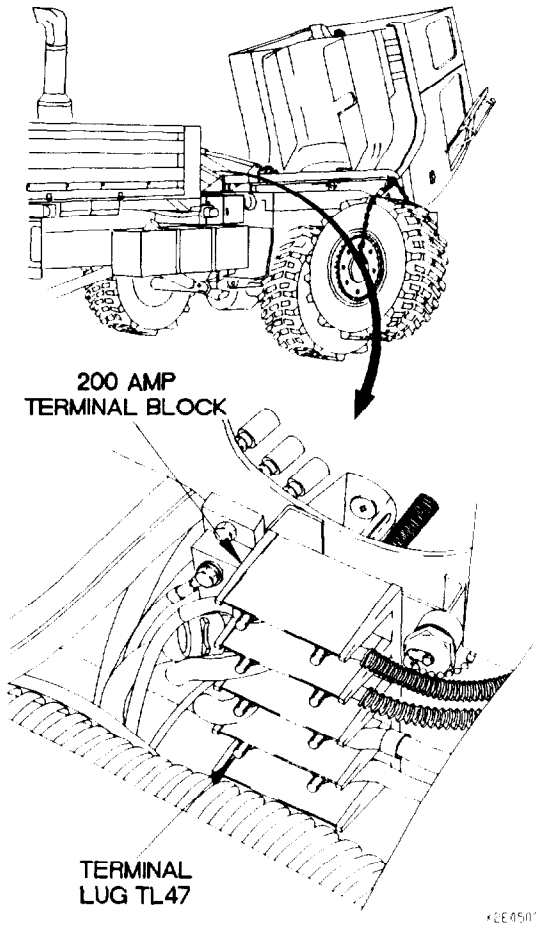


WARNING

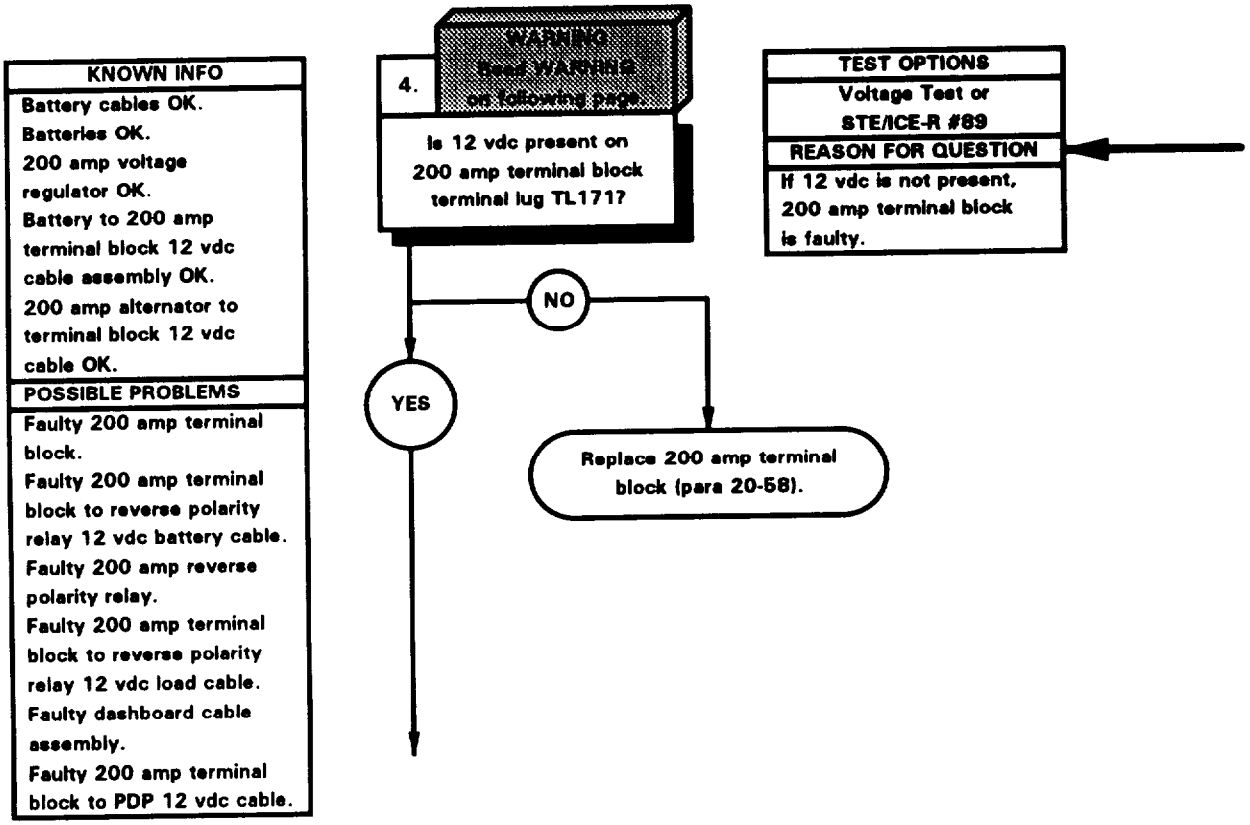
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VOLTAGE TEST

(1) Install battery box cover on battery box (TM 9-2320-366-10-2).
(2) Raise cab (TM 9-2320-366-10-1).
(3) Lower spare tire (TM 9-2320-366-10-1).
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to terminal block terminal lug TL47 (12V BAT).
(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(7) If 12 vdc is not present, replace battery to 200 amp terminal block 12 vdc cable assembly (para 20-52).



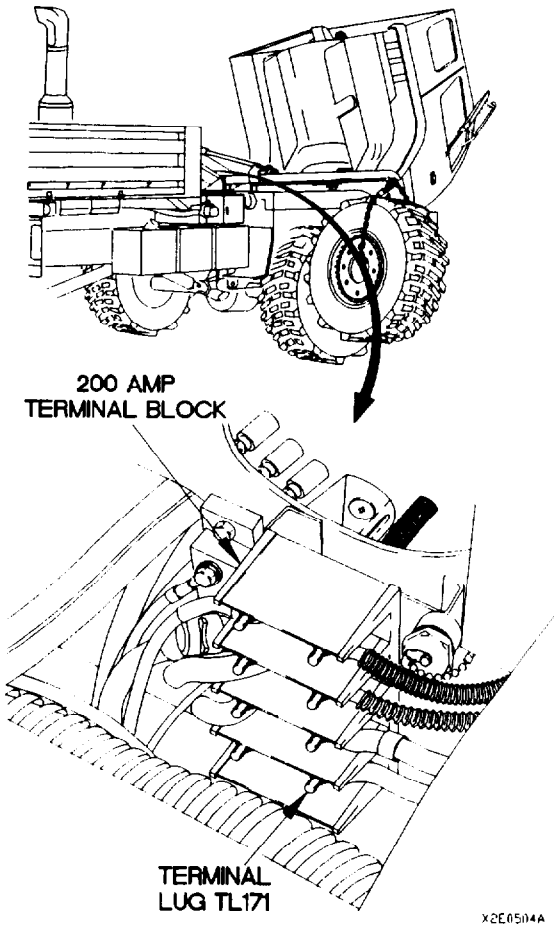
e5. 12 VDC CIRCUITS DO NOT OPERATE (200 AMP ALTERNATOR) (CONT)



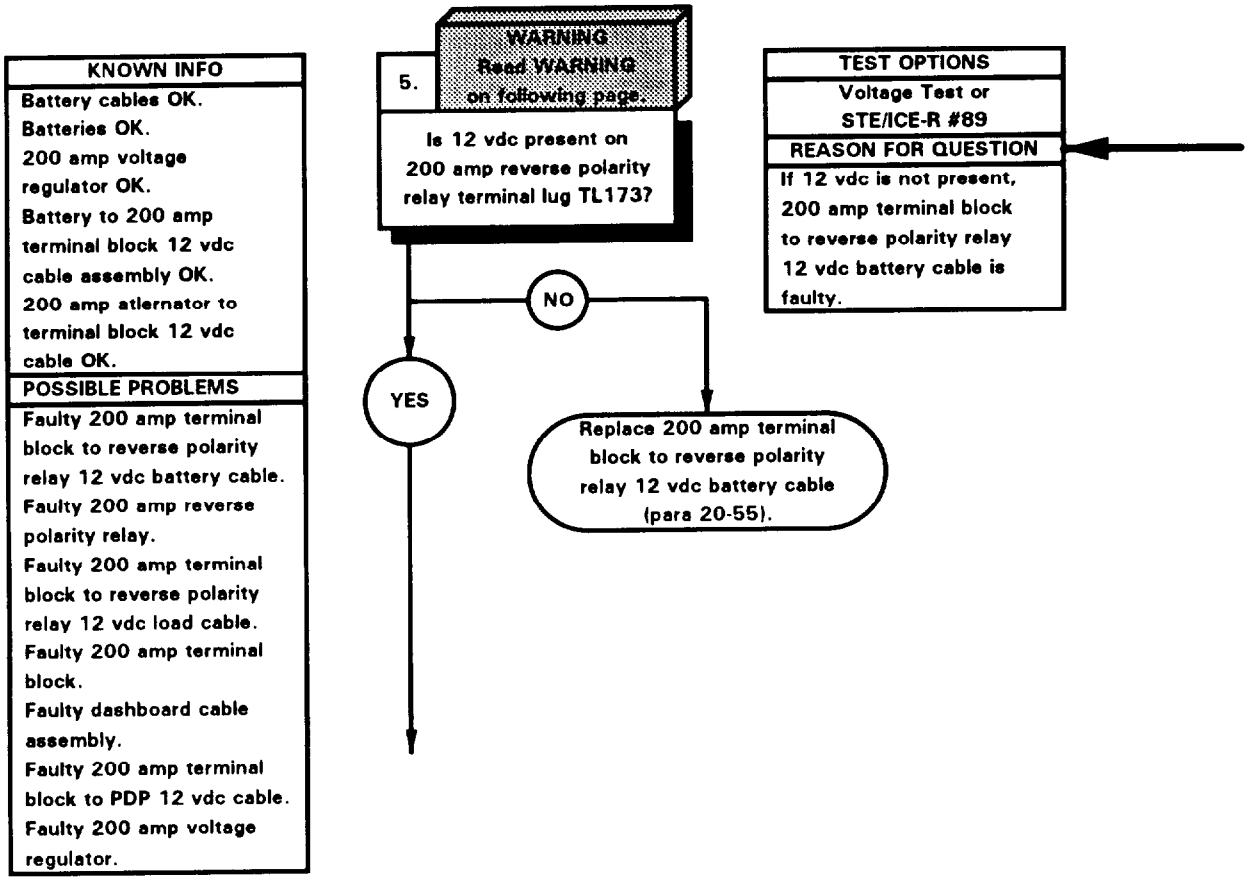
WARNING

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VOLTAGE TEST
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal block terminal lug TL171 (12V BAT).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 12 vdc is not present, replace 200 amp terminal block (para 20-58).



e5. 12 VDC CIRCUITS DO NOT OPERATE (200 AMP ALTERNATOR) (CONT)

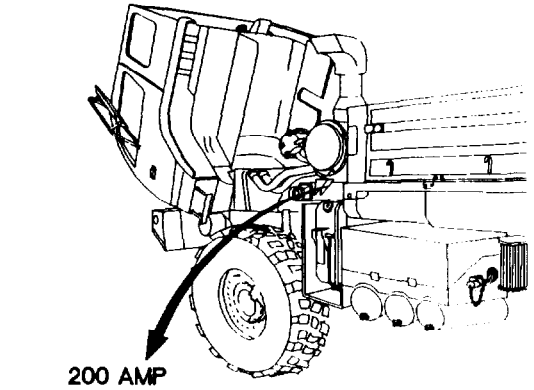


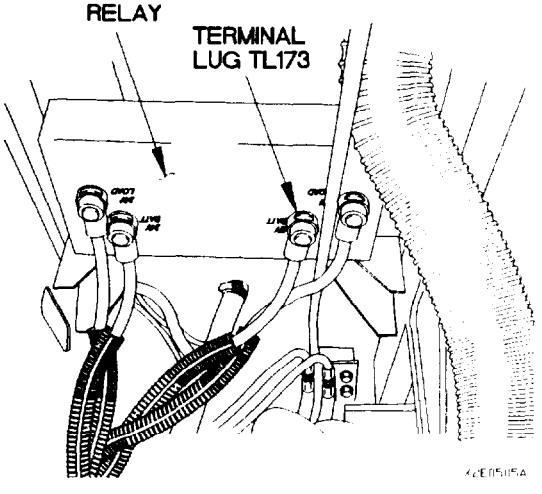
WARNING

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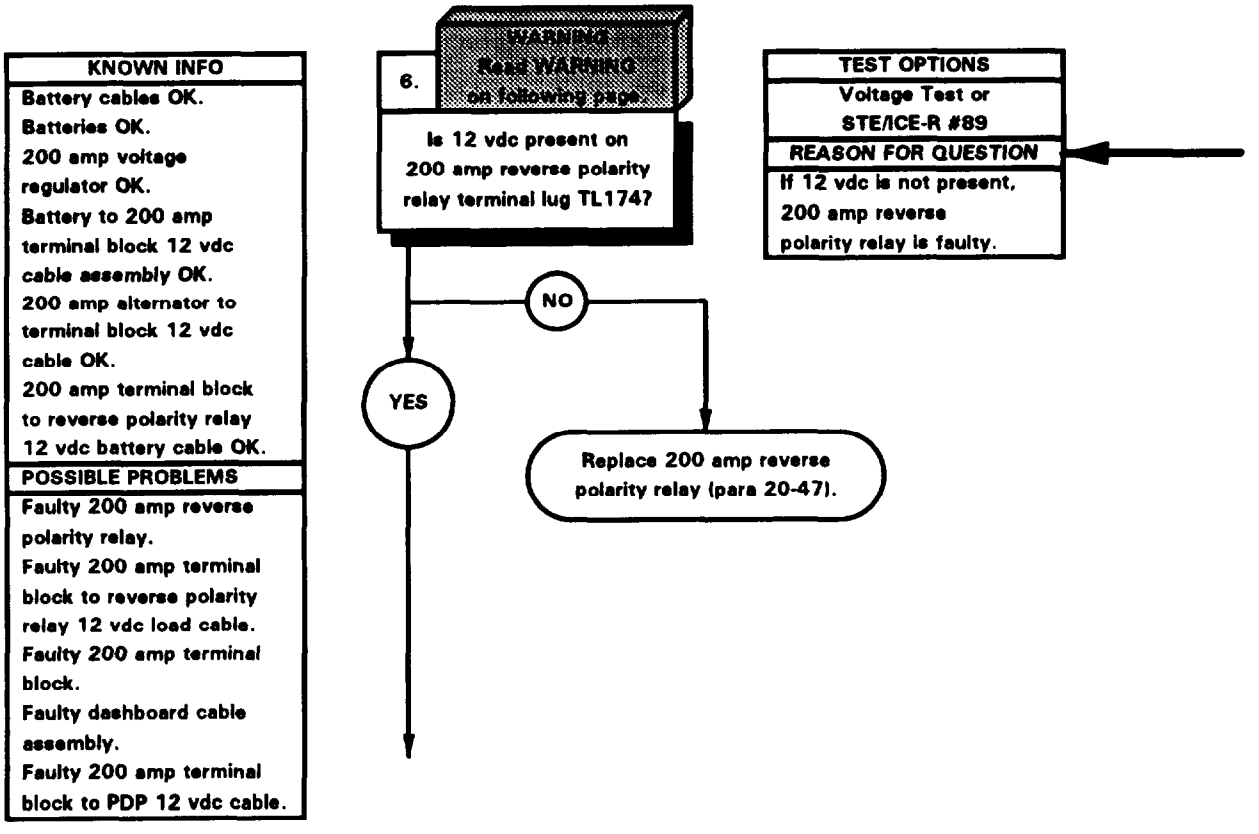
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to 200 amp reverse polarity relay terminal lug TL173 (12V BAT).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 12 vdc is not present, replace 200 amp terminal block to reverse polarity relay 12 vdc battery cable (para 20-55).





e5. 12 VDC CIRCUITS DO NOT OPERATE (200 AMP ALTERNATOR) (CONT)

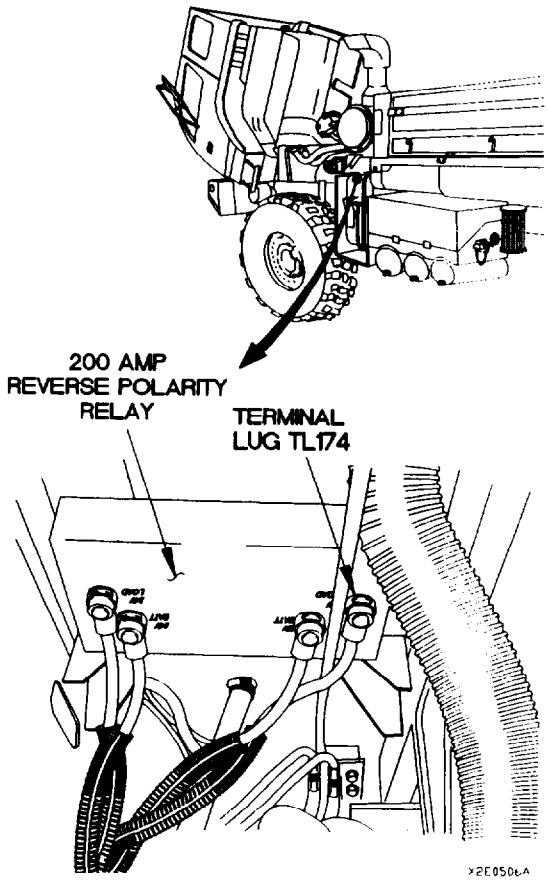


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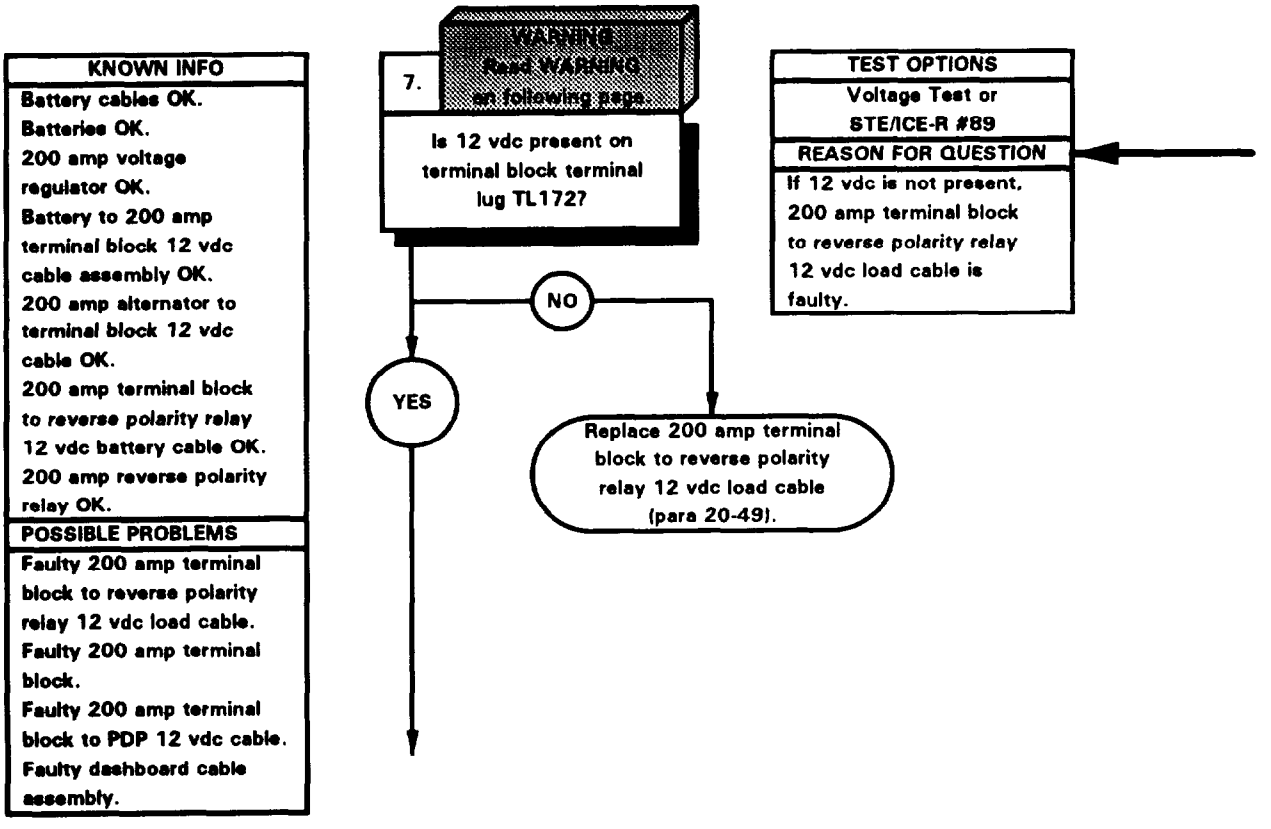
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VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to 200 amp reverse polarity relay terminal lug TL174 (12V LOAD).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 12 vdc is not present, replace 200 amp reverse polarity relay (para 20-47).



e5. 12 VDC CIRCUITS DO NOT OPERATE (200 AMP ALTERNATOR) (CONT)

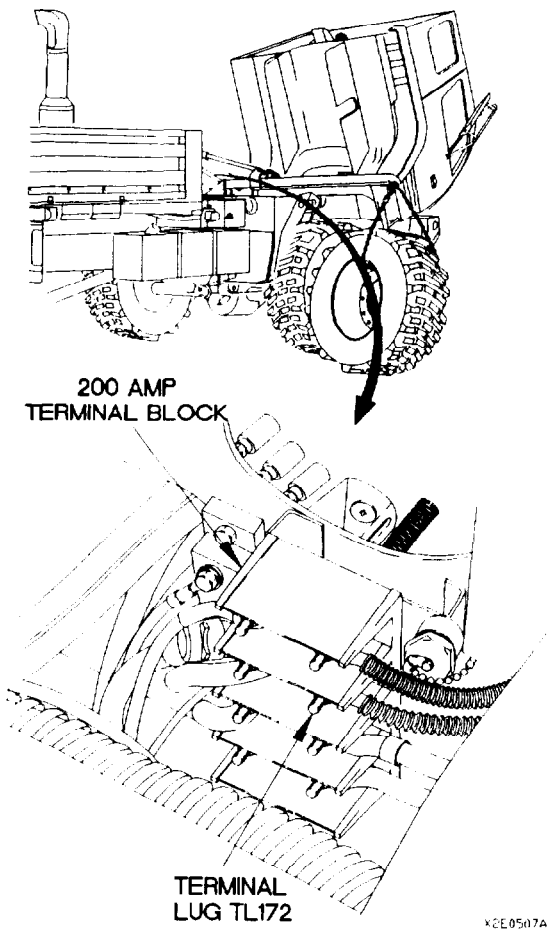


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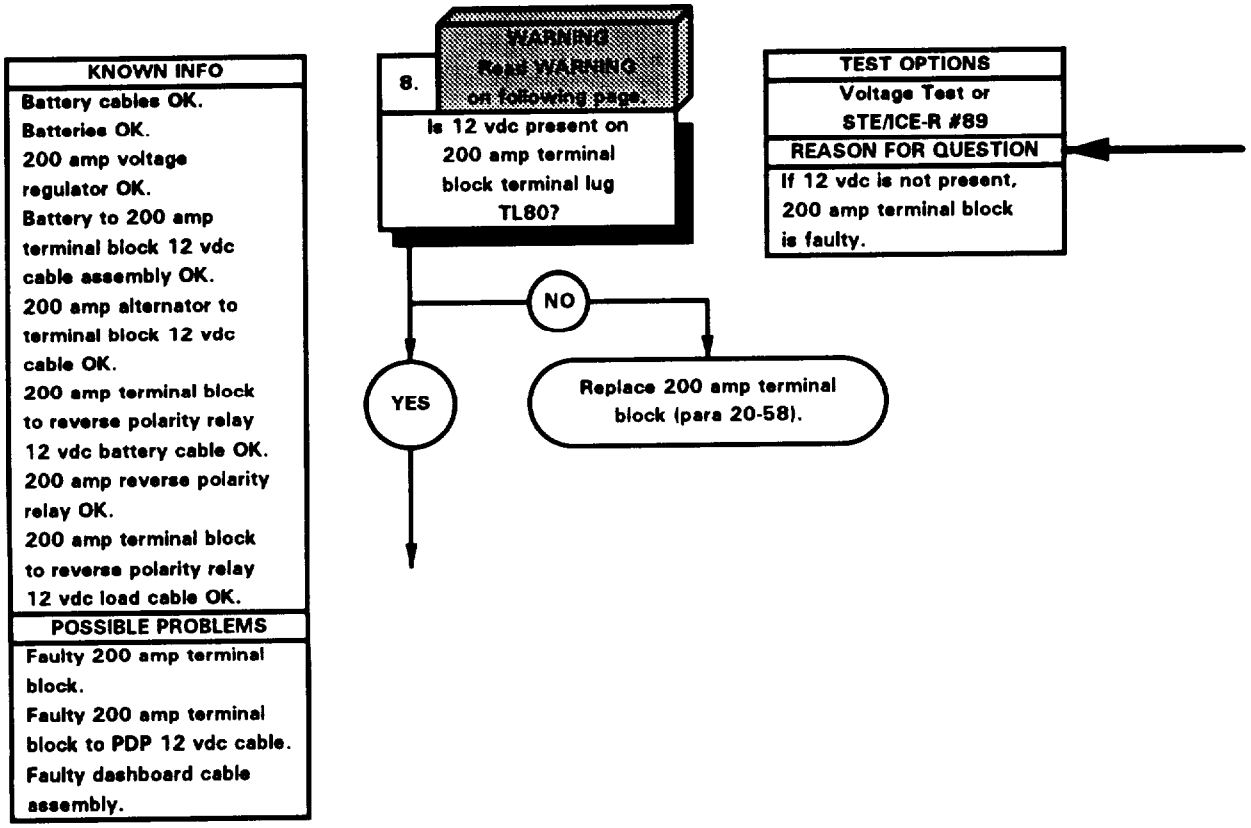
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VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to 200 amp terminal block terminal lug TL172 (12V LOAD).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 12 vdc is not present, replace 200 amp terminal block to reverse polarity relay 12 vdc load cable (para 20-49).



e5. 12 VDC CIRCUITS DO NOT OPERATE (200 AMP ALTERNATOR) (CONT)

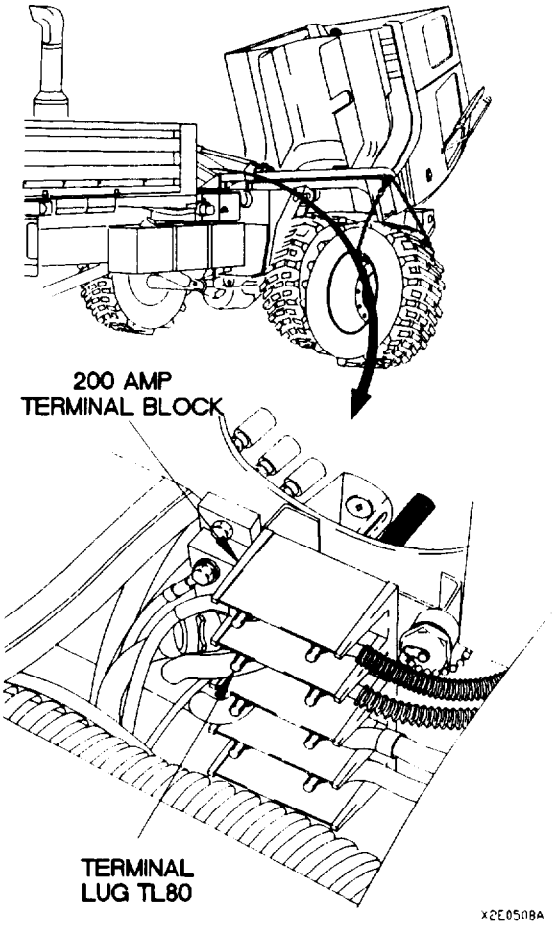


WARNING

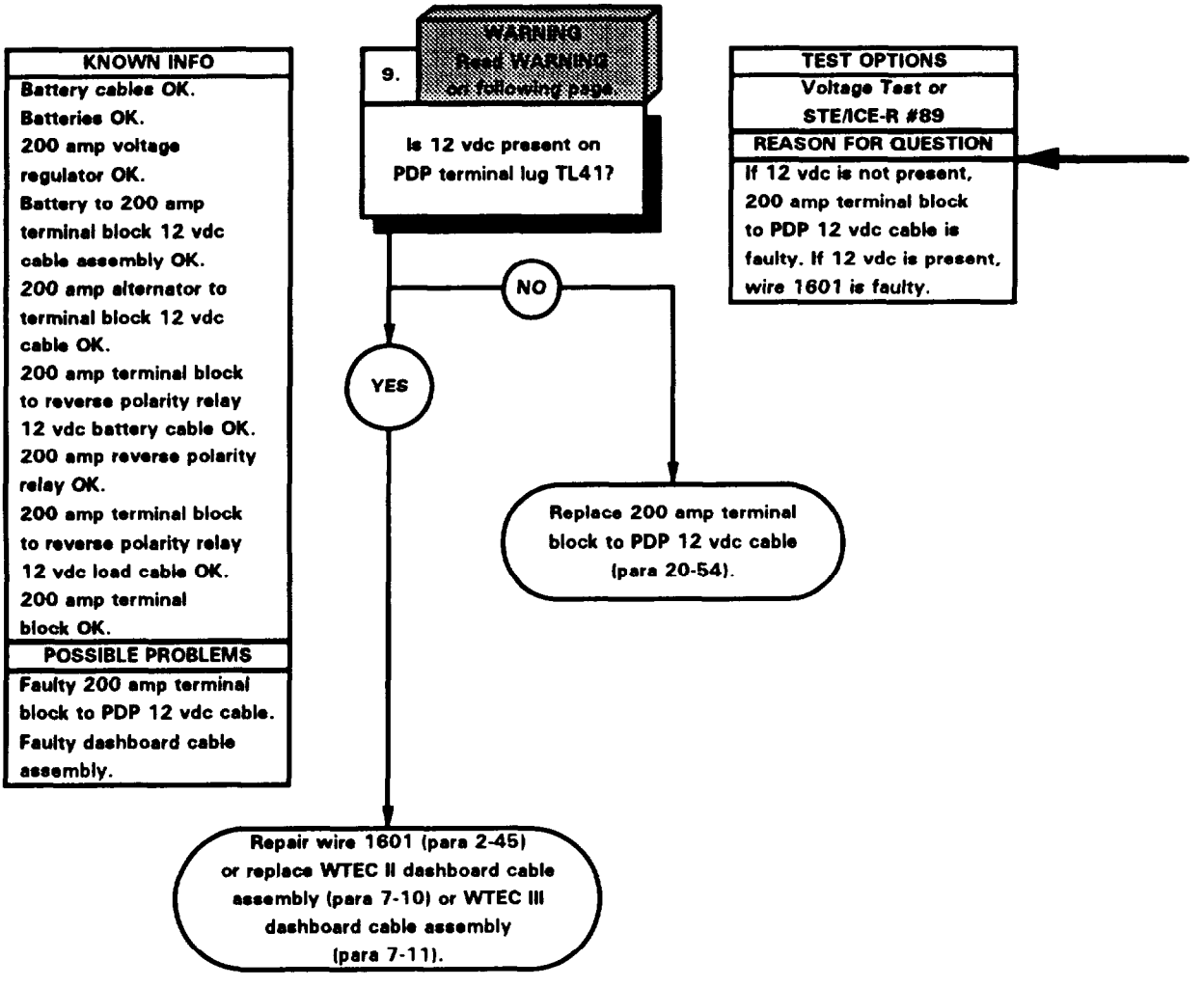
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to 200 amp terminal block terminal lug TL80 (12V LOAD).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 12 vdc is not present, replace 200 amp terminal block (para 20-58).
(5) Raise spare tire (TM 9-2320-366-10-1).
(6) Lower cab (TM 9-2320-366-10-1).



e5. 12 VDC CIRCUITS DO NOT OPERATE (200 AMP ALTERNATOR) (CONT)

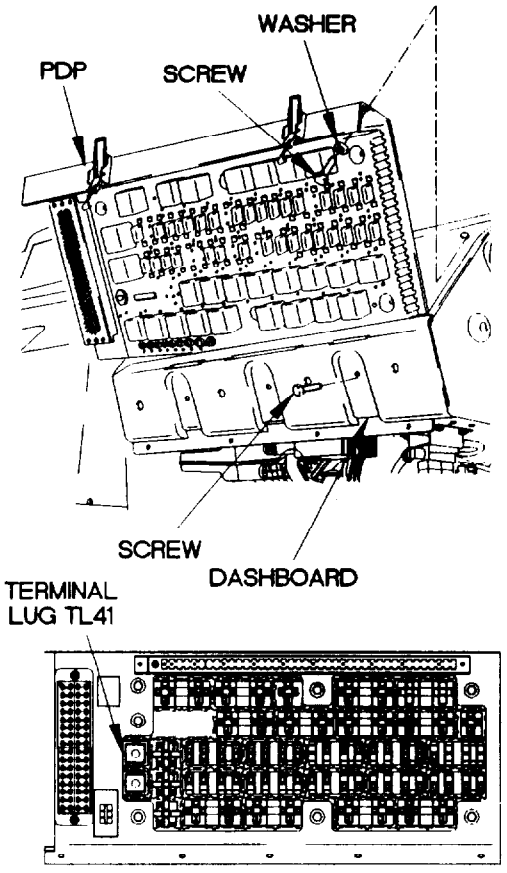


WARNING

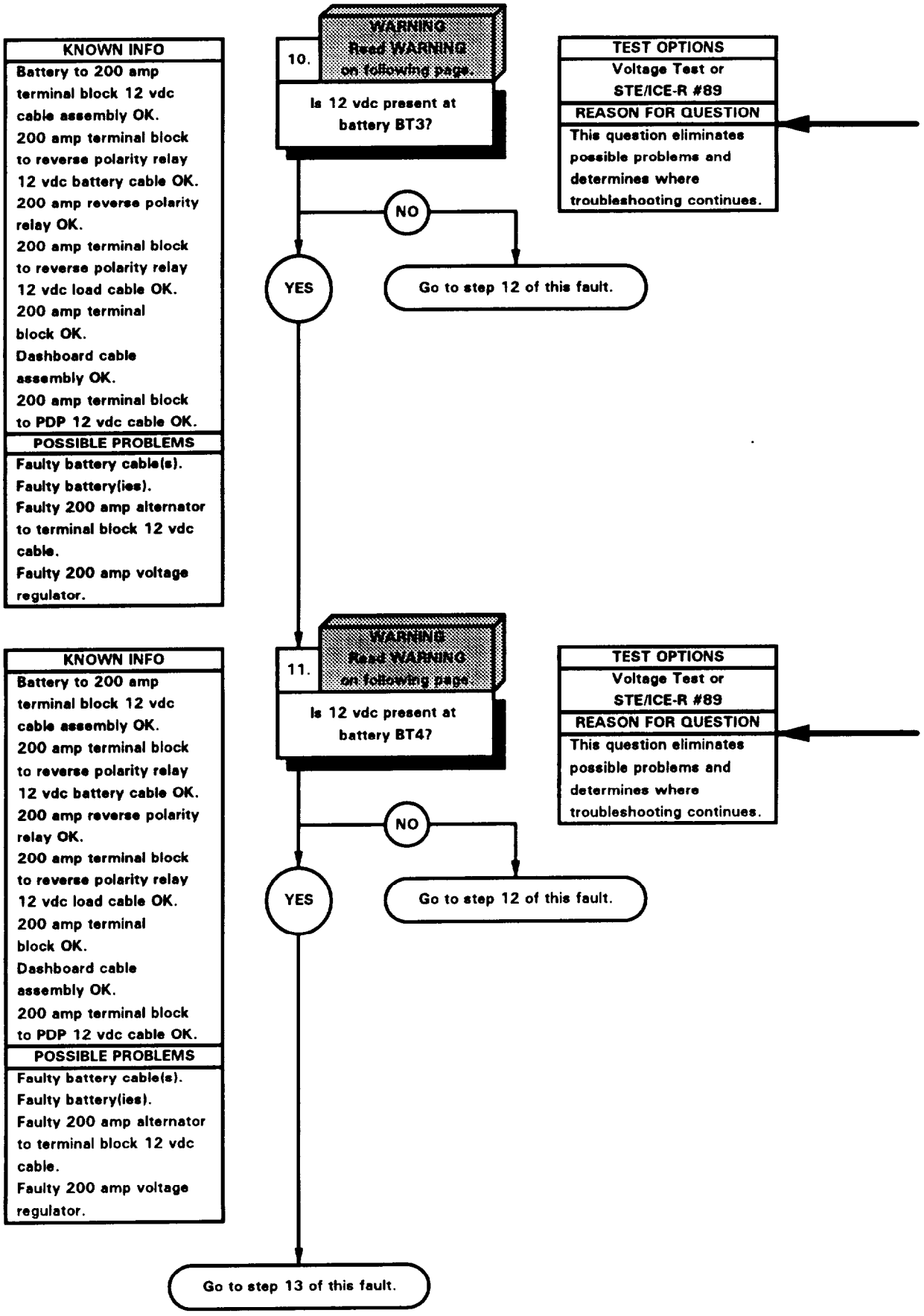
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to PDP, terminal lug TL41.
(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(7) If 12 vdc is not present, replace 200 amp terminal block to PDP 12 vdc cable (para 20-54).
(8) If 12 vdc is present, repair wire 1601 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Install PDP on dashboard with three screws.
(10) Install three washers and screws in PDP.
(11) Install PDP cover (para 16-2).



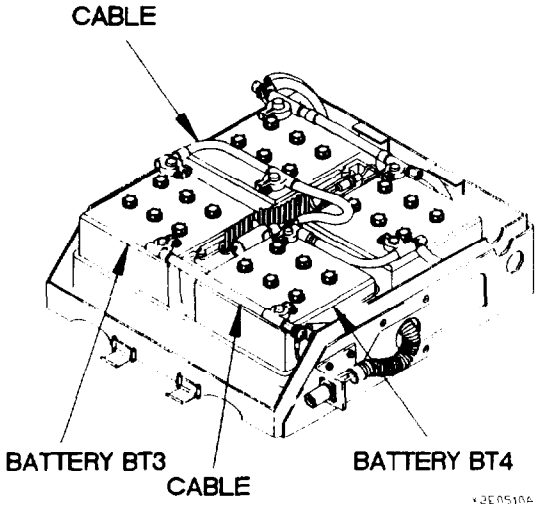
e5. 12 VDC CIRCUITS DO NOT OPERATE (200 AMP ALTERNATOR) (CONT)



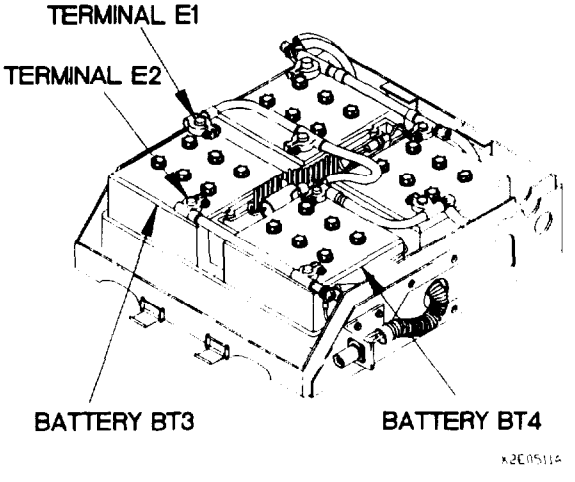
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock. Batteries can explode from a spark. Battery acid is harmful to skin and eyes. Always wear eye protection when working with batteries.

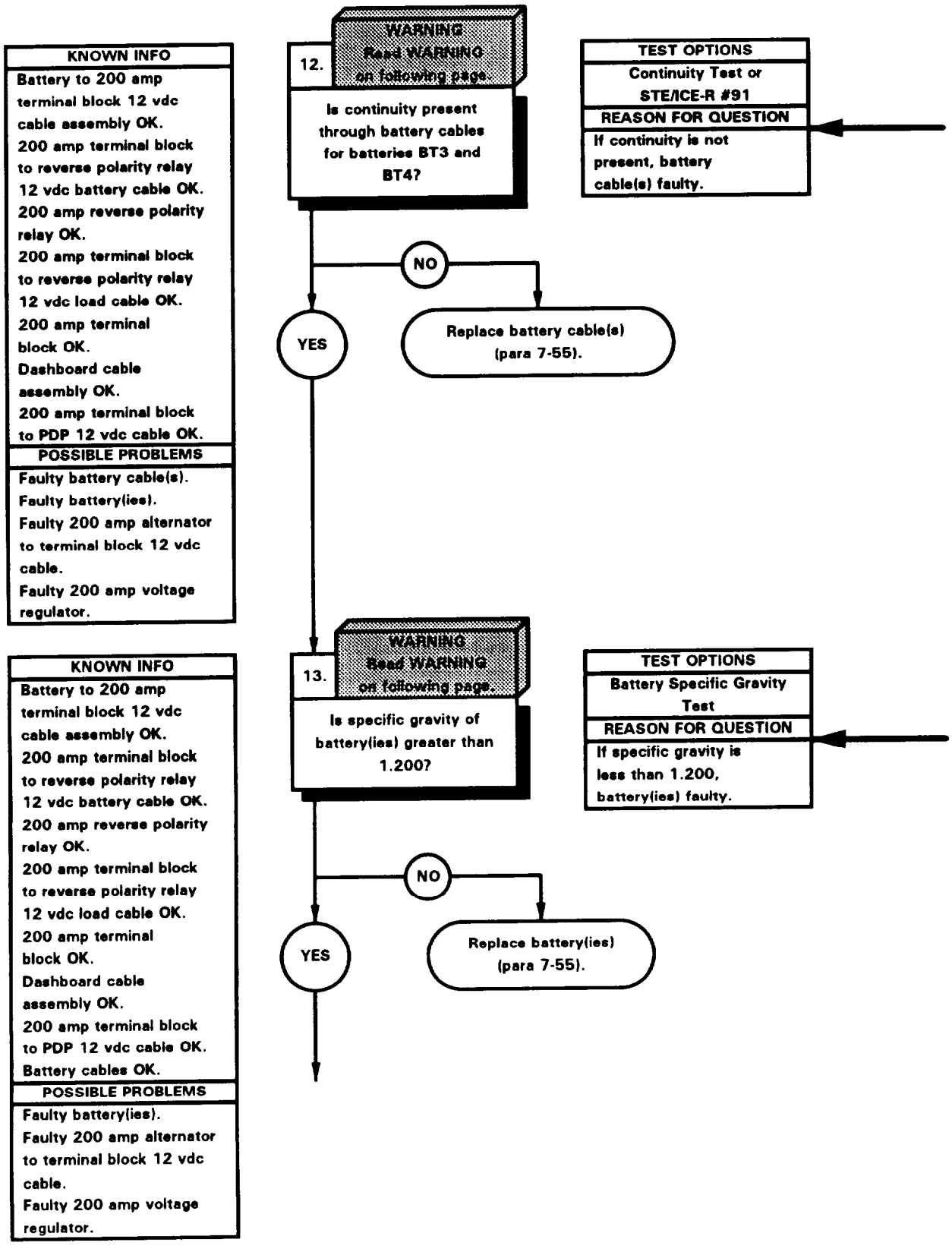
VOLTAGE TEST
(1) Install PDP cover (para 16-2).
(2) Disconnect batteries (para 7-57).
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to terminal E1 (+) of battery BT3.
(5) Connect negative (-) probe of multimeter to terminal E2(-) of battery BT3 and note reading on multimeter.
(6) If 12 vdc is not present, go to step 12 of this fault.



VOLTAGE TEST
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal E1 (+) of battery BT4.
(3) Connect negative (-) probe of multimeter to terminal E2 (-) of battery BT4 and note reading on multimeter.
(4) If 12 vdc is not present, go to step 12 of this fault.
(5) If 12 vdc is present, go to step 13 of this fault.



e5. 12 VDC CIRCUITS DO NOT OPERATE (200 AMP ALTERNATOR) (CONT)

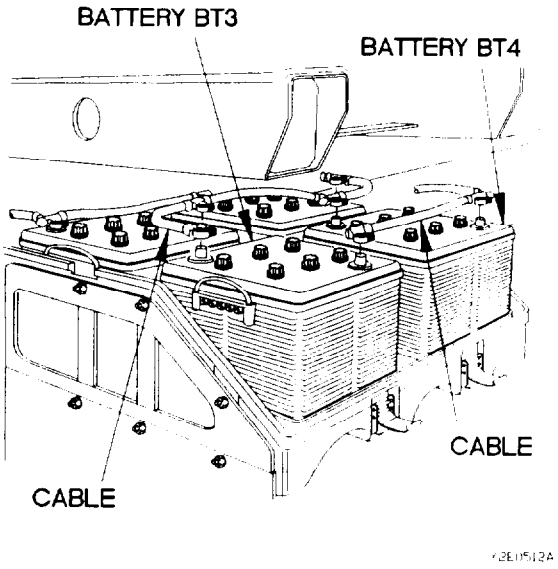


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock. Batteries can explode from a spark. Battery acid is harmful to skin and eyes. Always wear eye protection when working with batteries.

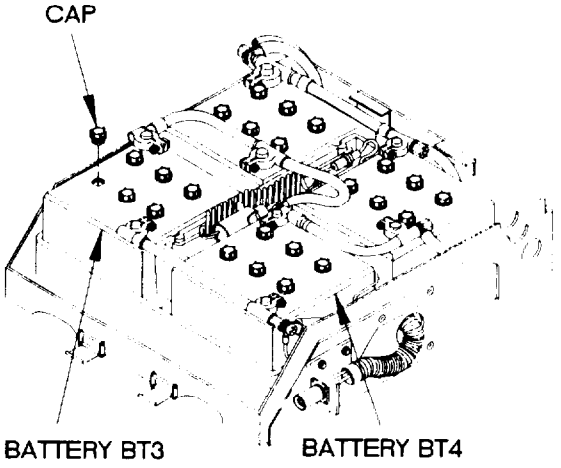
CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to end of battery cable, one cable at a time.
(3) Connect negative (-) probe of multimeter to remaining end of same cable and note reading on multimeter.
(4) If continuity is not present, replace battery cable (para 7-55).
(5) Connect batteries (para 7-57).

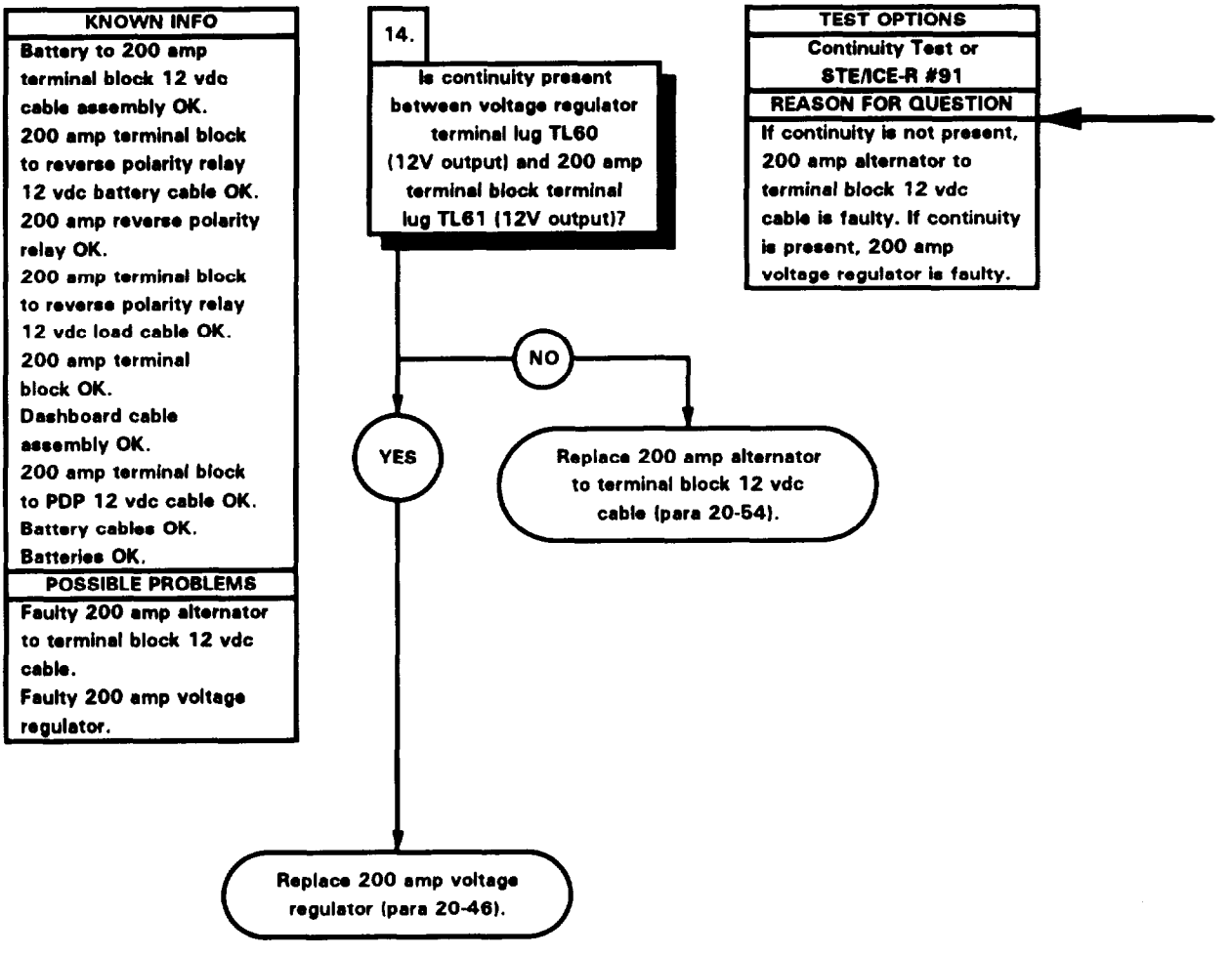


BATTERY SPECIFIC GRAVITY TEST

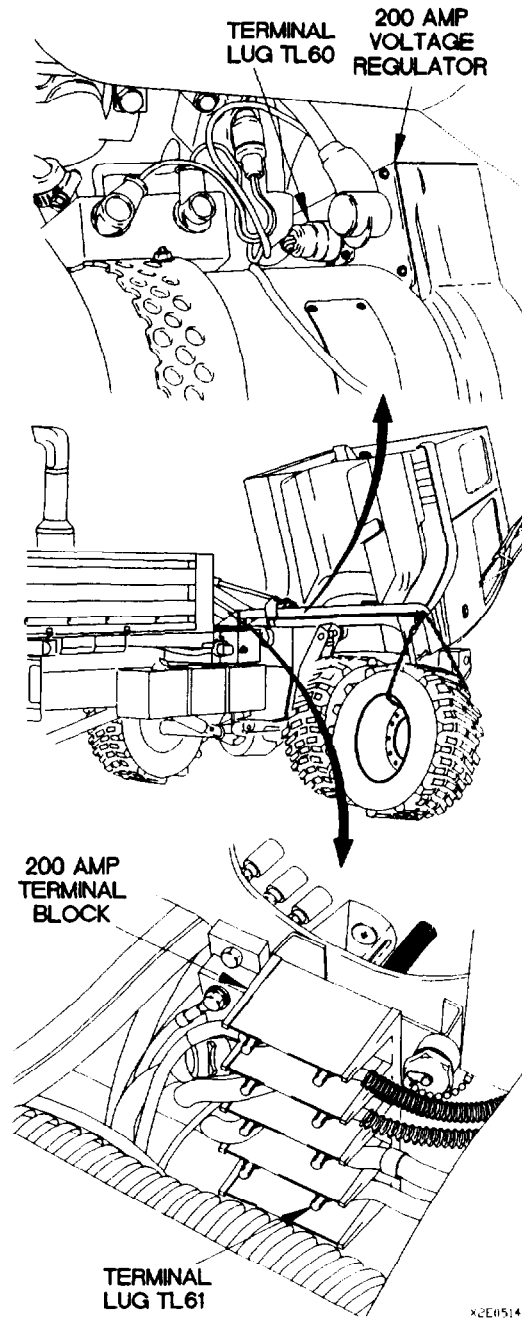
(1) Remove one cap from battery BT3 and one cap from battery BT4, one battery at a time.
(2) Remove a few sample drops of electrolyte from each battery.
(3) Place a few drops of electrolyte on exposed portion of measuring window of electrolyte tester.
(4) Point tester toward light source and note reading.
(5) If specific gravity reading is less than 1.200, replace battery(ies) (para 7-55).
(6) Install caps on batteries.
(7) Charge battery(ies) (TM 9-6140-200-14).
(8) Install battery box cover on battery box (TM 9-2320-366-10-2).



e5. 12 VDC CIRCUITS DO NOT OPERATE (200 AMP ALTERNATOR) (CONT)



CONTINUITY TEST
(1) Raise cab (TM 9-2320-366-10-1).
(2) Lower spare tire (TM 9-2320-366-10-1).
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to 200 amp terminal block terminal lug TL61 (12V output).
(5) Connect negative (-) probe of multimeter to 200 amp voltage regulator terminal lug TL60 (12V output) and note reading on multimeter.
(6) If continuity is not present, replace 200 amp alternator to terminal block 12 vdc cable (para 20-54).
(7) If continuity is present, replace 200 amp voltage regulator (para 20-46).
(8) Raise spare tire (TM 9-2320-366-10-1).
(9) Lower cab (TM 9-2320-366-10-1).



e6. ENGINE CRANKS BUT DOES NOT START

INITIAL SETUP

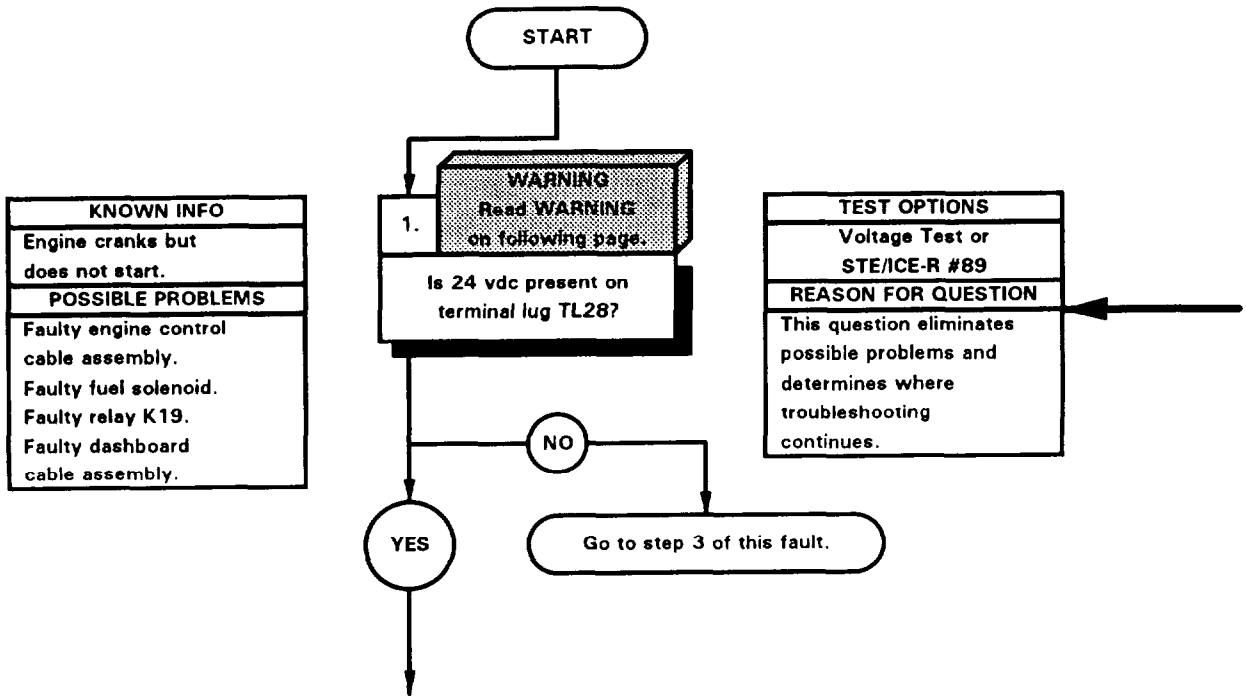
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).
Start inhibit switch off (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Wire, Elect, 50 ft (Item 71, Appendix D)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

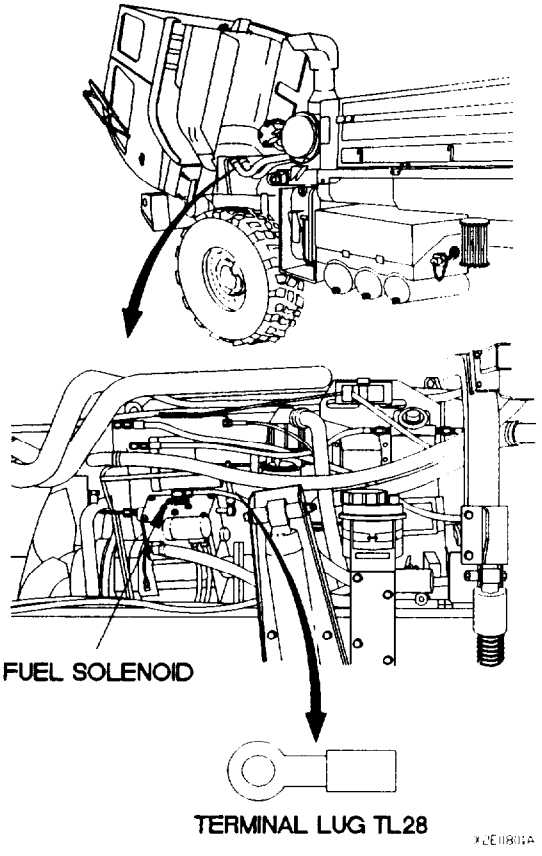
References
TM 9-4910-571-12&P



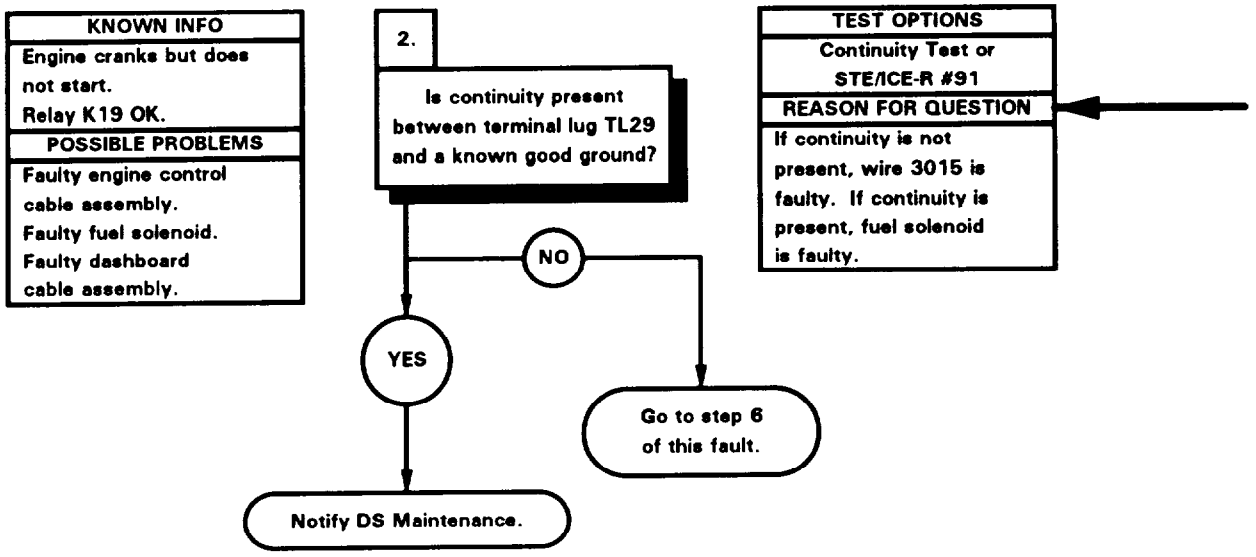
WARNING

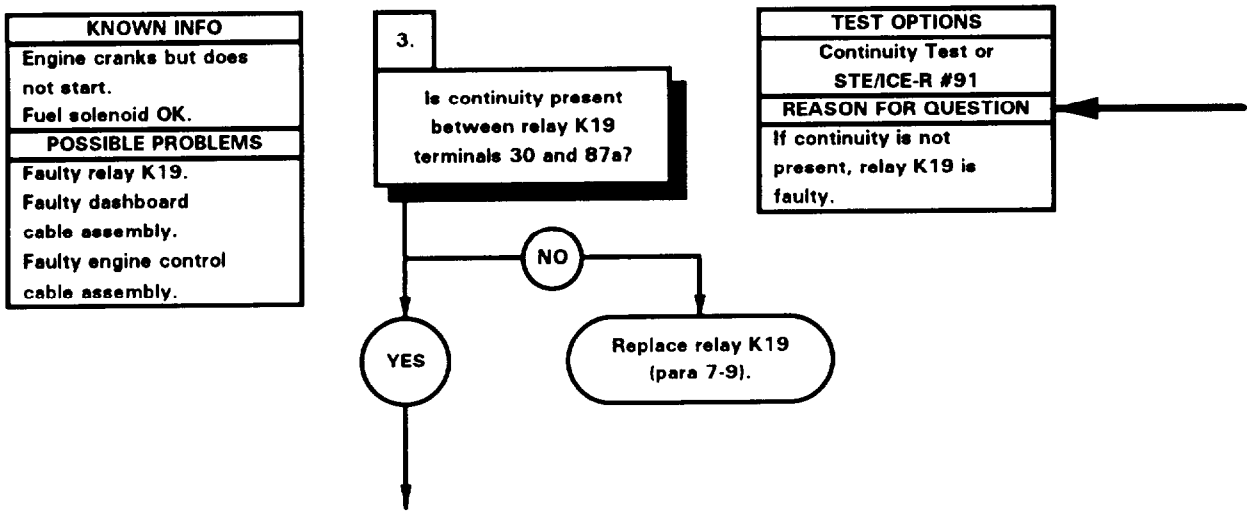
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST
(1) Raise cab (TM 9-2320-366-10-1).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal lug TL28.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, go to step 3 of this fault.
(7) Position master power switch to off (TM 9-2320-366-10-1).



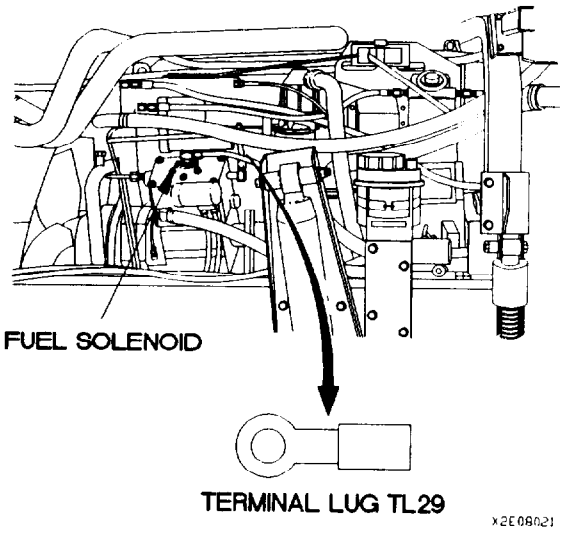
e6. ENGINE CRANKS BUT DOES NOT START (CONT)





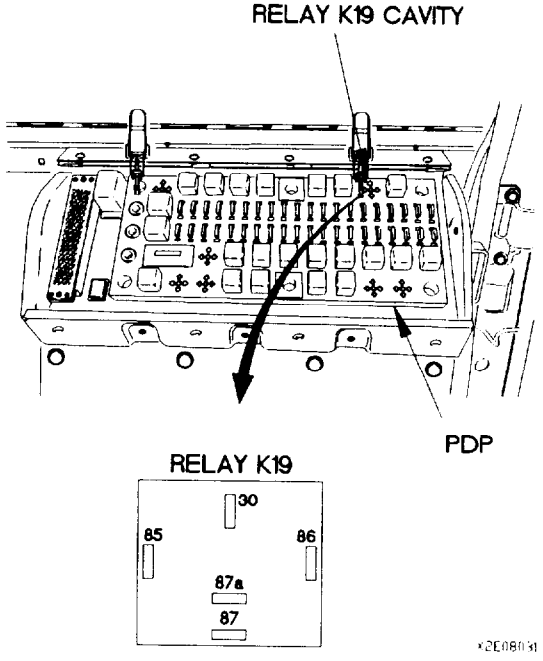
CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to terminal lug TL29.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, go to step 6 of this fault.
(5) If continuity is present, fuel solenoid is faulty. notify DS Maintenance.
(6) Lower cab (TM 9-2320-366-10-1).

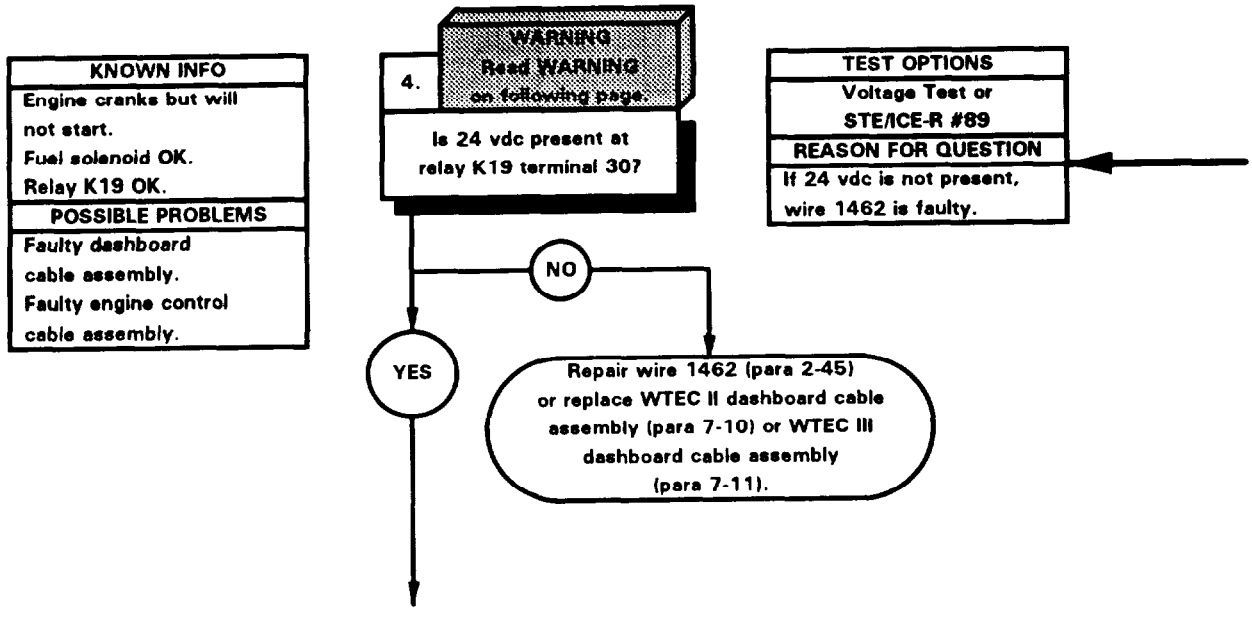


CONTINUITY TEST

(1) Remove PDP cover (para 16-2).
(2) Remove relay K19 from PDP.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to relay K19 terminal 87a.
(5) Connect negative (-) probe of multimeter to relay K19 terminal 30 and note reading on multimeter.
(6) If continuity is not present, replace relay K19 (para 7-9).



e6. ENGINE CRANKS BUT DOES NOT START (CONT)

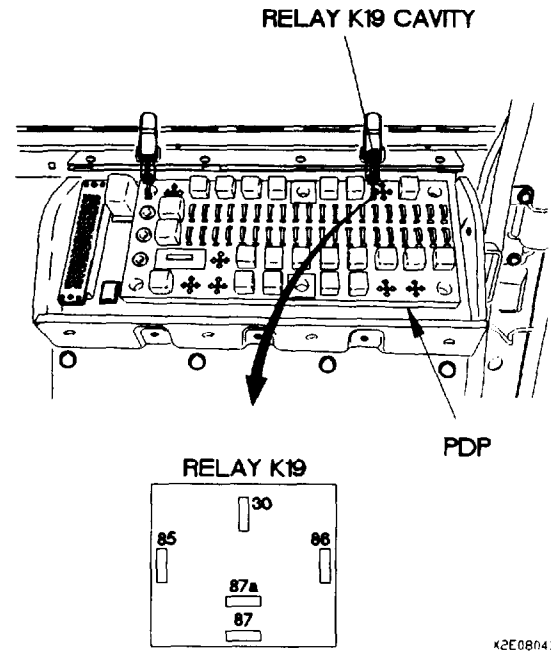


WARNING

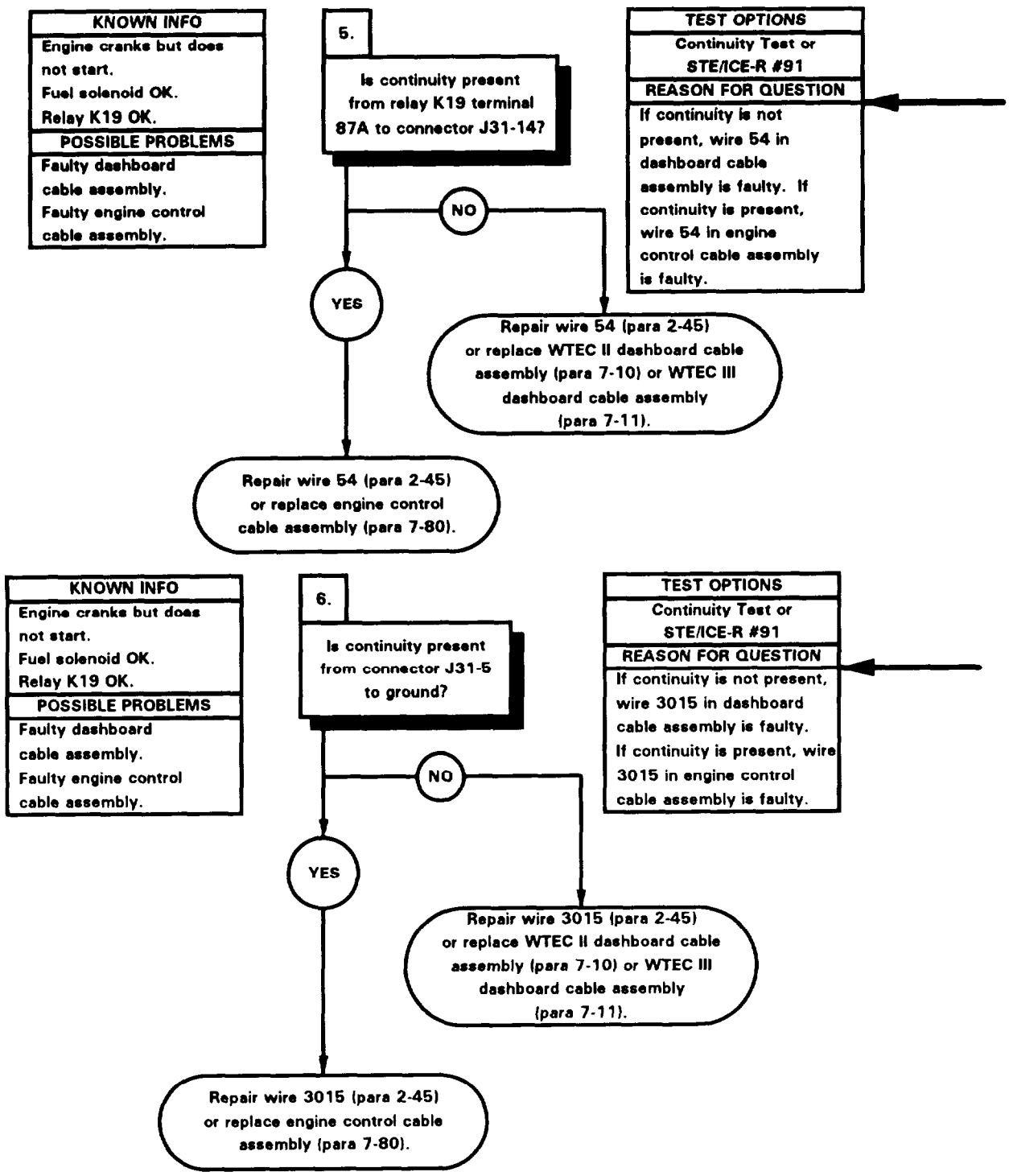
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, terminal 30, where relay K19 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1462 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position master power switch to off (TM 9-2320-366-10-1).

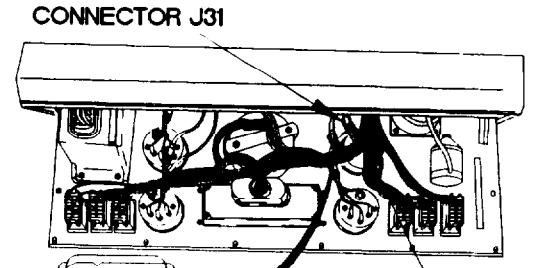


e6. ENGINE CRANKS BUT DOES NOT START (CONT)



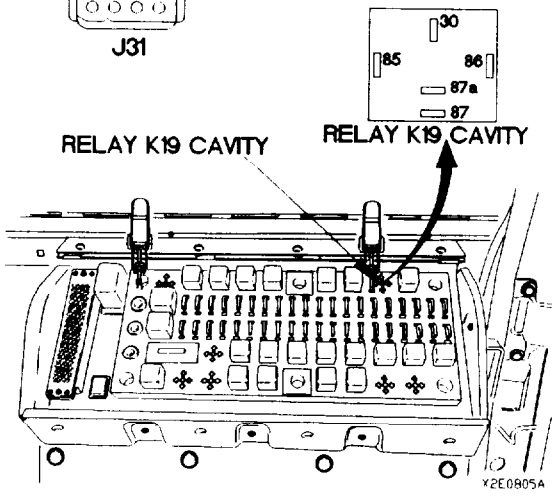
CONTINUITY TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector J31 from connector P31.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to connector J31-14.
(5) Connect negative (-) probe of multimeter to PDP, terminal 87A, where relay K19 was removed and note reading on multimeter.
(6) If continuity is not present, repair wire 54 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) If continuity is present, repair wire 54 (para 2-45) or replace engine control cable assembly (para 7-80).
(8) Connect connector J31 to connector P31.
(9) Install relay K19 in PDP.
(10) Install PDP cover (para 16-2).
(11) Install instrument panel assembly (para 7-15).



CONTINUITY TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector J31 from connector P31.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to connector J31-5.
(5) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(6) If continuity is not present, repair wire 3015 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) If continuity is present, repair wire 3015 (para 2-45) or replace engine control cable assembly (para 7-80).
(8) Connect connector J31 to connector P31.
(9) Install instrument panel assembly (para 7-15).



e7. FUEL GAGE DOES NOT OPERATE OR IS INACCURATE

INITIAL SETUP

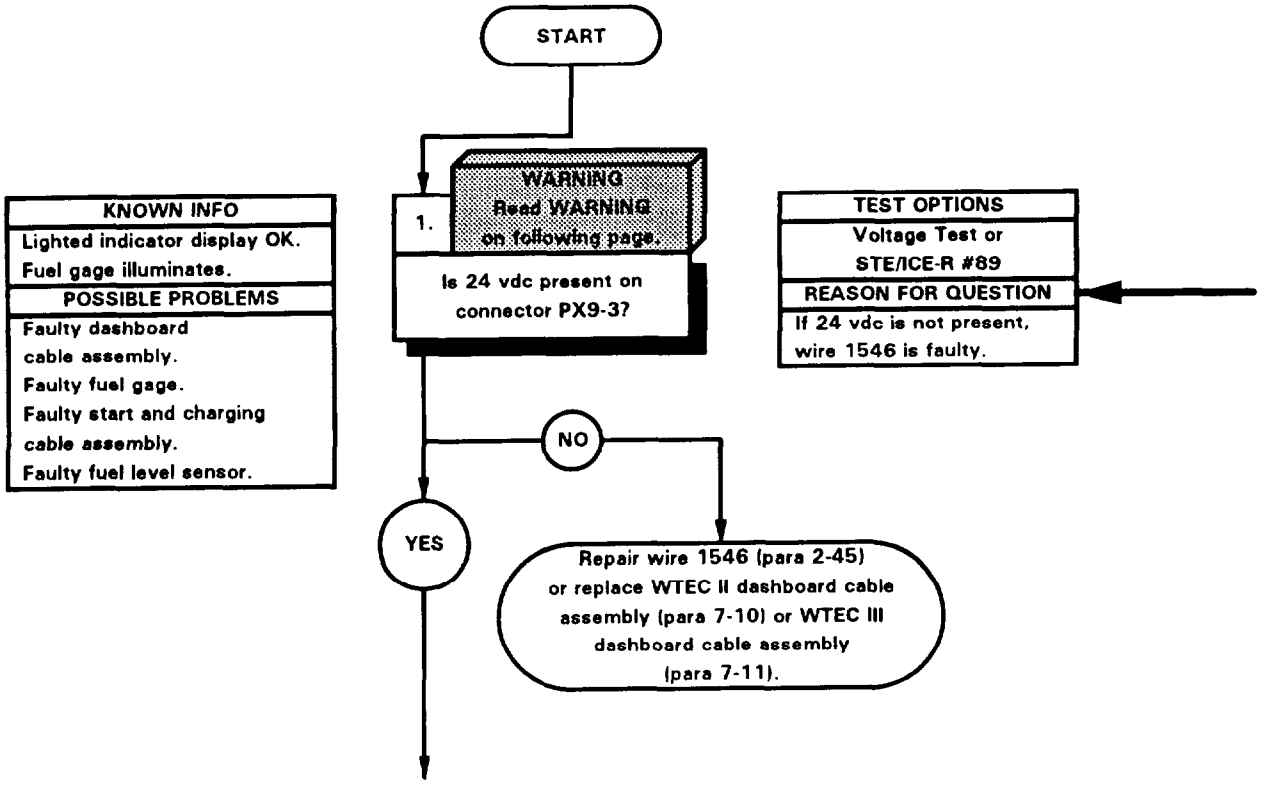
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

Materials/Parts
Wire, Elect, 50 ft (Item 71, Appendix D)

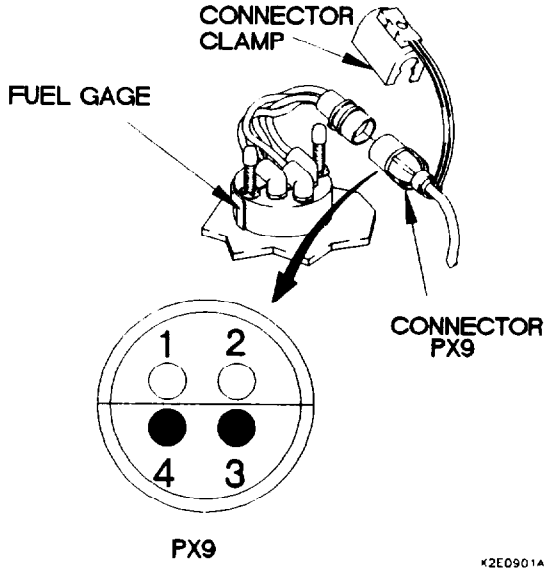


WARNING

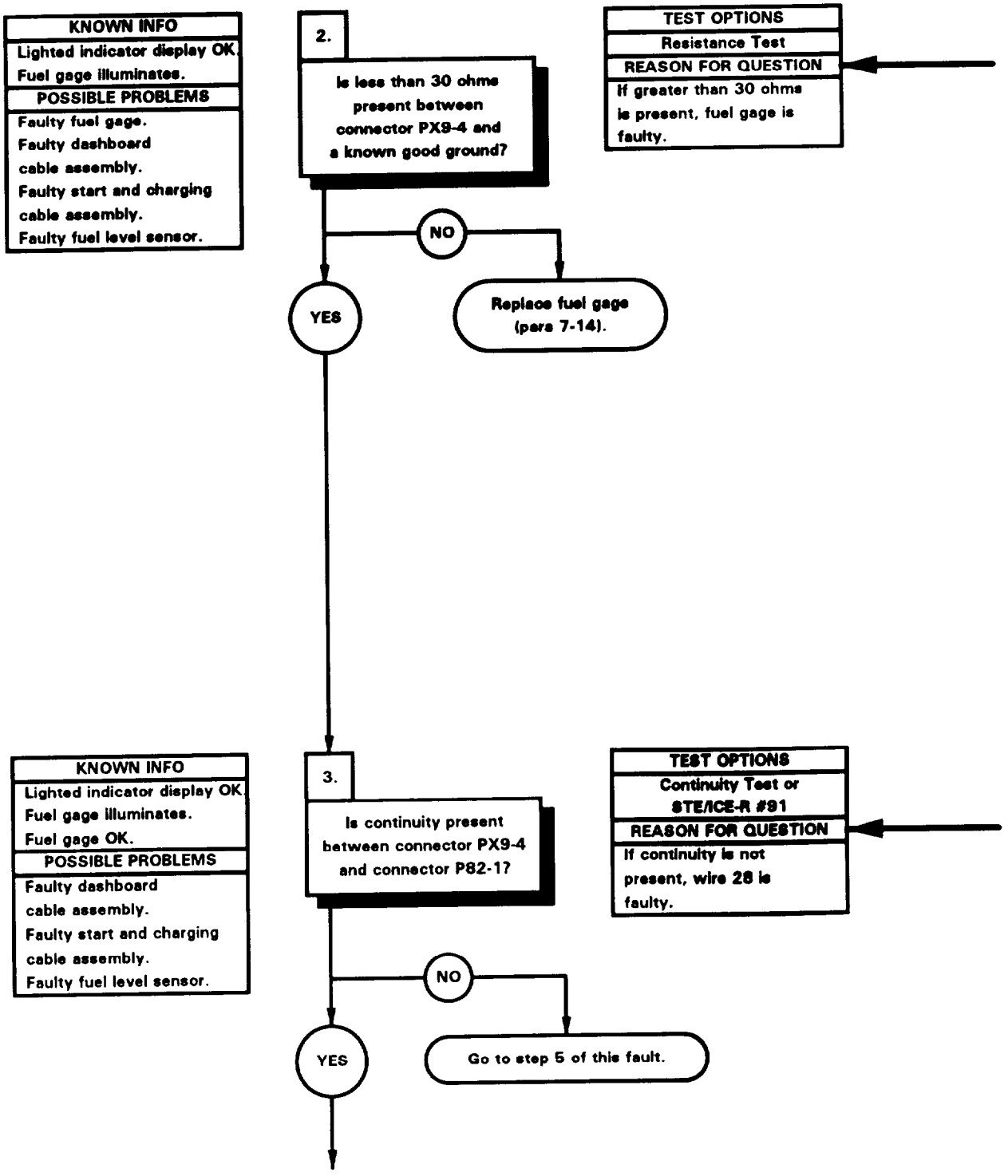
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

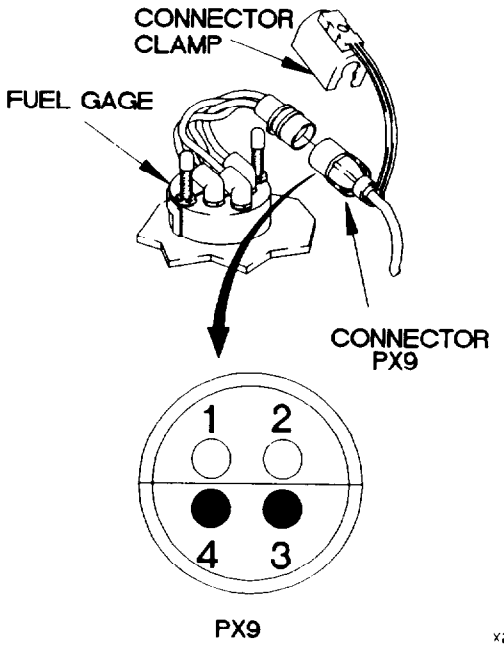
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector clamp from fuel gage connector.
(3) Disconnect connector PX9 from fuel gage connector.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector PX9-3.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, repair wire 1546 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position master power switch to off (TM 9-2320-366-10-1).



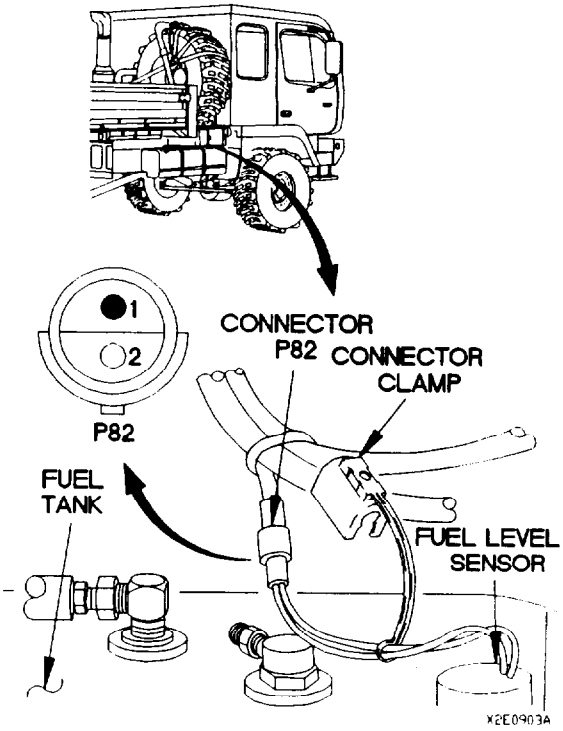
e7. FUEL GAGE DOES NOT OPERATE OR IS INACCURATE (CONT)



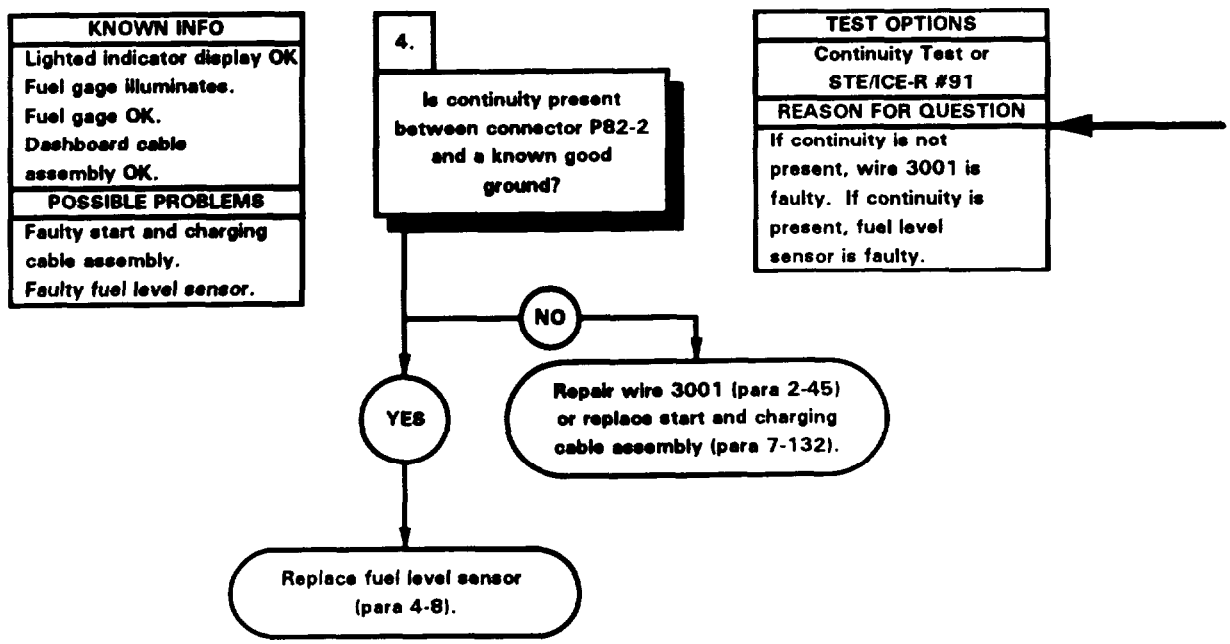
RESISTANCE TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX9-4.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If greater than 30 ohms is present, replace fuel gage (para 7-14).

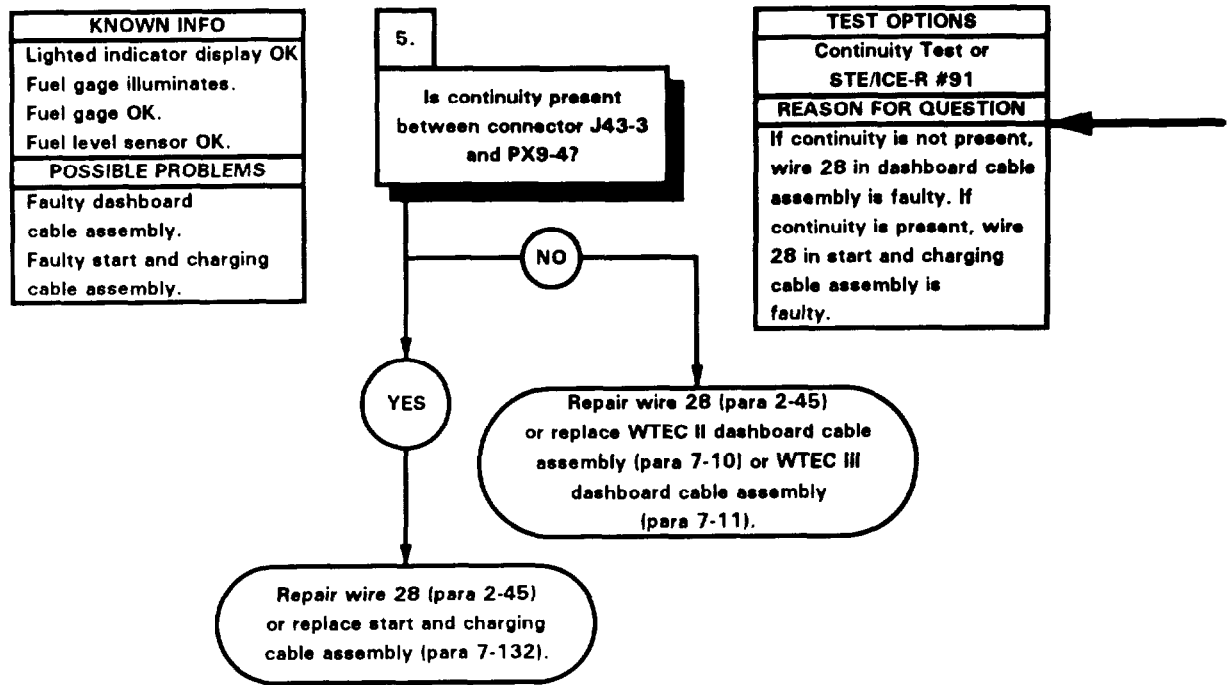


CONTINUITY TEST
(1) Disconnect connector clamp from fuel level sensor.
(2) Disconnect connector P82 from fuel level sensor.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to connector PX9-4.
(5) Connect negative (-) probe of multimeter to connector P82-1 and note reading on multimeter.
(6) If continuity is not present, go to step 5 of this fault.



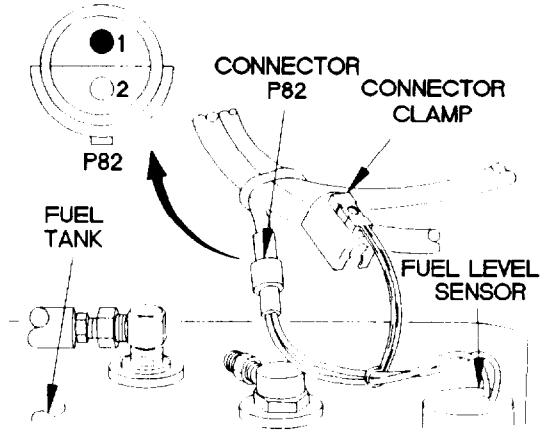
e7. FUEL GAGE DOES NOT OPERATE OR IS INACCURATE (CONT)





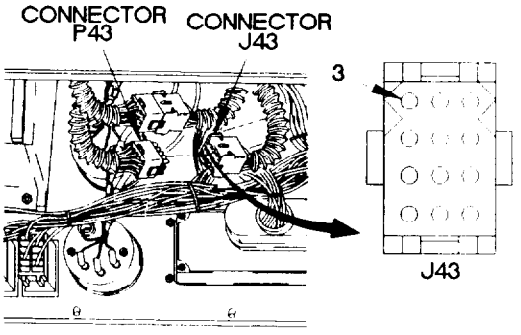
CONTINUITY TEST

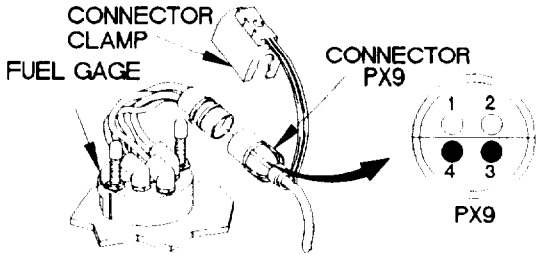
(1) Connect connector PX9 to fuel gage connector.
(2) Connect connector clamp on fuel gage connector.
(3) Install instrument panel assembly (para 7-15).
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector P82-2.
(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(7) If continuity is not present, repair wire 3001 (para 2-45) or replace start and charging cable assembly (para 7-132).
(8) If continuity is present, replace fuel level sensor (para 4-8).
(9) Connect connector P82 to fuel level sensor.
(10) Connect connector clamp on fuel level sensor.



CONTINUITY TEST

(1) Connect connector P82 to fuel level sensor.
(2) Connect connector clamp on fuel level sensor.
(3) Disconnect connector J43 from connector P43.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector J43-3.
(6) Connect negative (-) probe of multimeter to PX9-4 and note reading on multimeter.
(7) If continuity is not present, repair wire 28 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) If continuity is present, repair wire 28 (para 2-45) or replace start and charging cable assembly (para 7-132).
(9) Connect connector J43 to connector P43.
(10) Connect connector PX9 to fuel gage connector.
(11) Connect connector clamp on fuel gage connector.
(12) Install instrument panel assembly (para 7-15).





X2E09005A

e8. WATER TEMPERATURE GAGE DOES NOT OPERATE OR IS INACCURATE

INITIAL SETUP

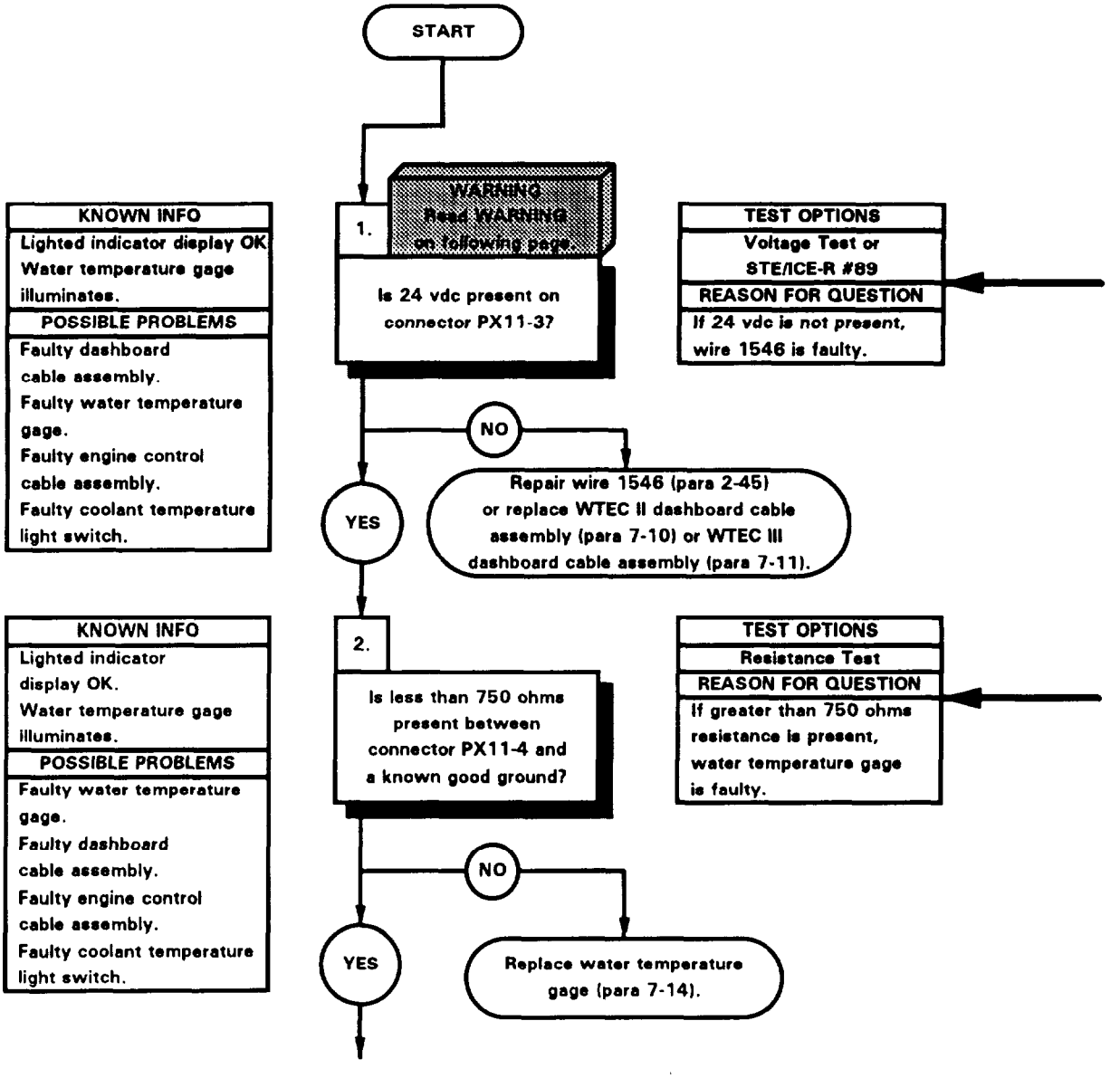
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

Materials/Parts
Wire, Elect, 50 ft (Item 71, Appendix D)

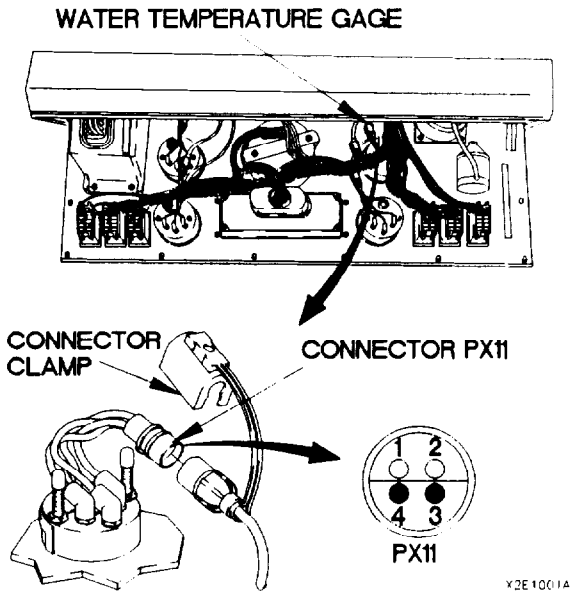


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

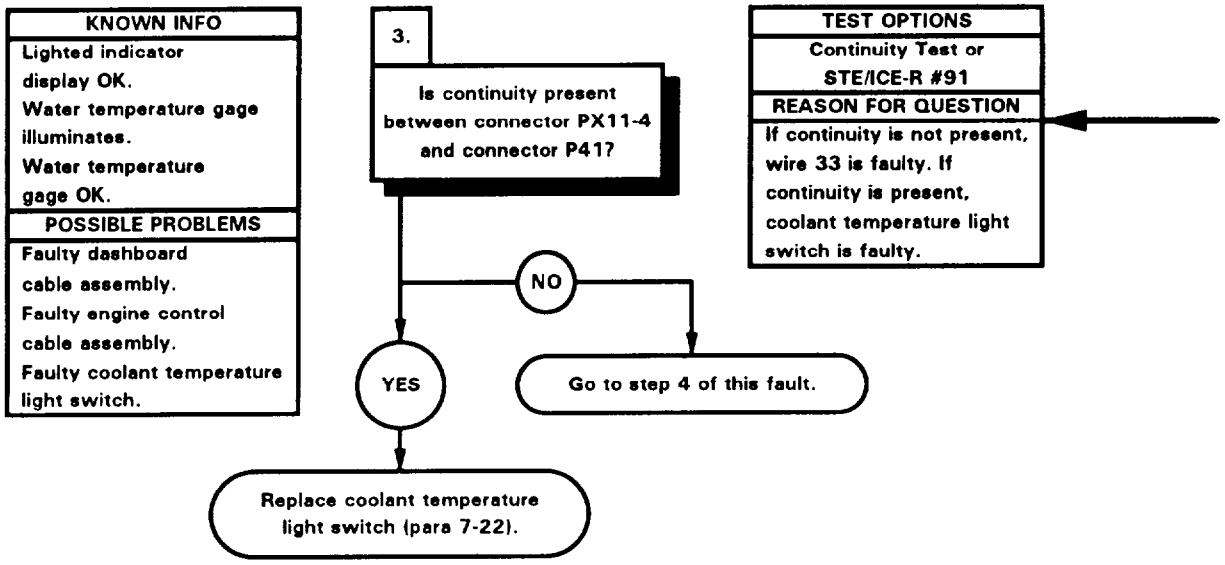
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector clamp from water temperature gage connector.
(3) Disconnect connector PX11 from water temperature gage connector.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector PX11-3.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, repair wire 1546 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position master power switch to off (TM 9-2320-366-10-1).

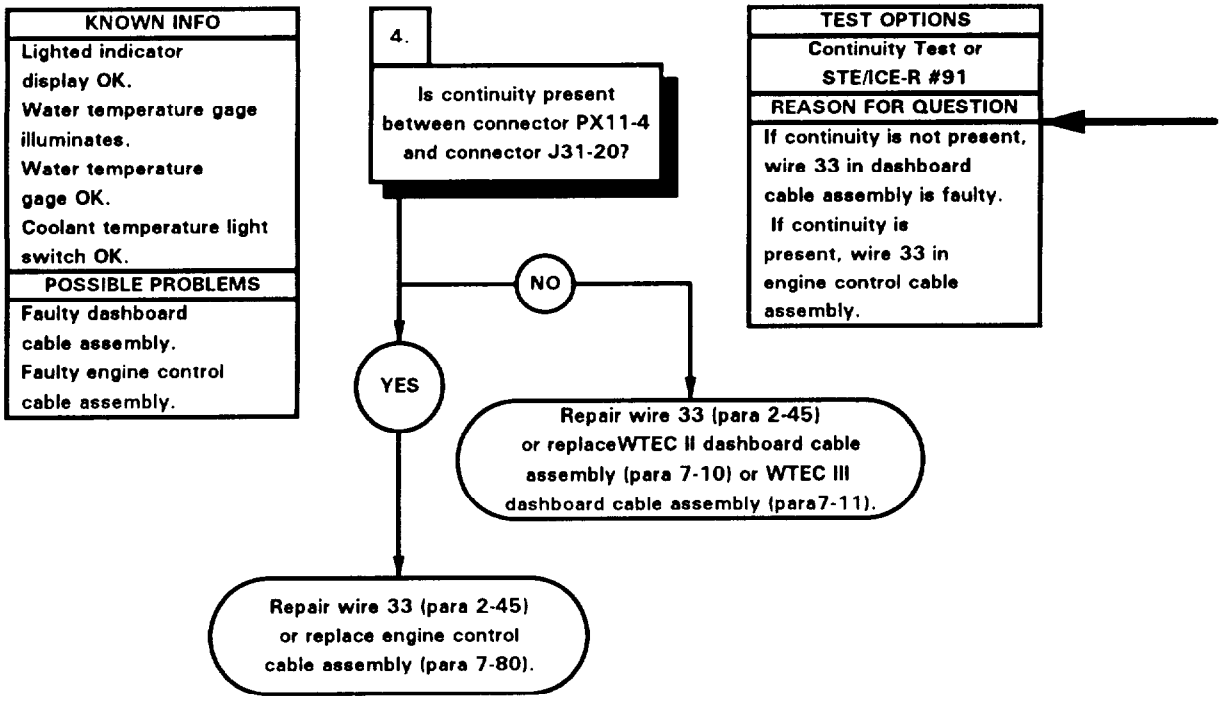


RESISTANCE TEST

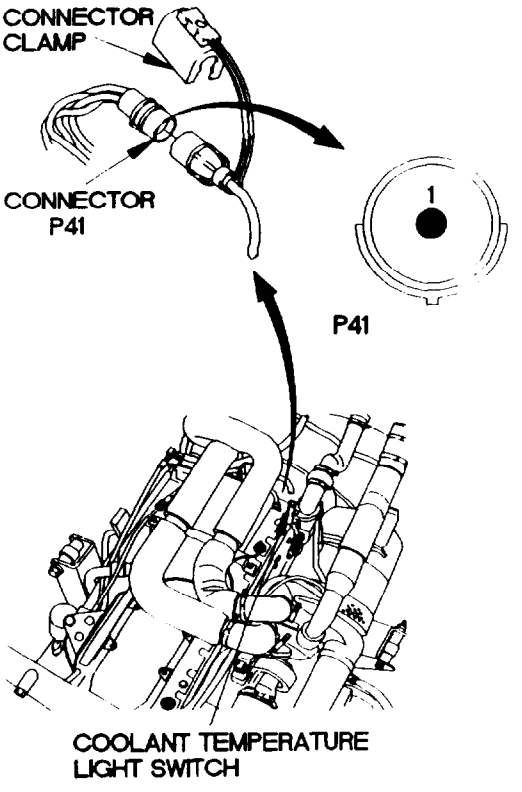
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX11-4.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If less than 750 ohms is present, go to step 3 of this fault.
(5) If greater than 750 ohms is present, replace water temperature gage (para 7-14).

e8. WATER TEMPERATURE GAGE DOES NOT OPERATE OR IS INACCURATE (CONT)

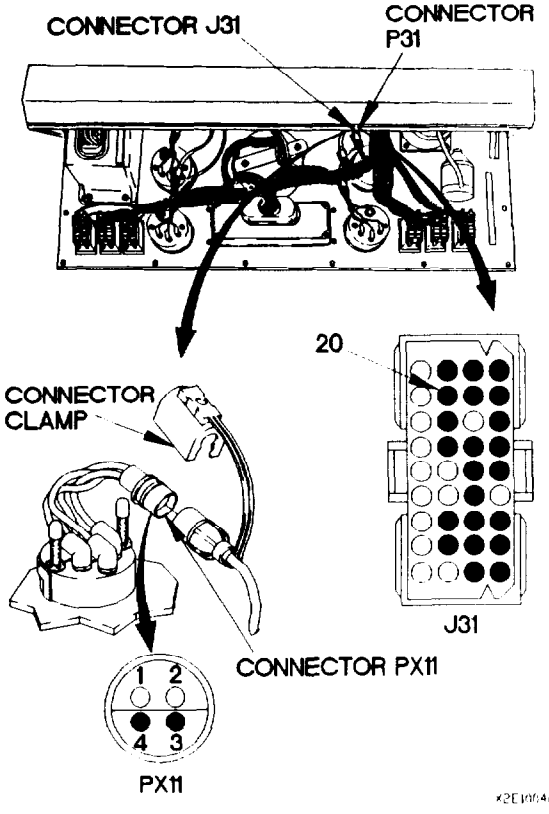




CONTINUITY TEST
(1) Raise cab (TM 9-2320-366-10-1).
(2) Disconnect connector clamp from coolant temperature light switch connector.
(3) Disconnect connector P41 from coolant temperature light switch connector.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector PX11-4.
(6) Connect negative (-) probe of multimeter to connector P41 and note reading on multimeter.
(7) If continuity is not present, go to step 4 of this fault.
(8) If continuity is present, replace coolant temperature light switch (para 7-22).
(9) Connect connector P41 to coolant temperature light switch connector.
(10) Connect connector clamp to coolant temperature light switch connector.
(11) Lower cab (TM 9-2320-366-10-1).



CONTINUITY TEST
(1) Disconnect connector J31 from connector P31.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector PX11-4.
(4) Connect negative (-) probe of multimeter to connector J31-20 and note reading on multimeter.
(5) If continuity is not present, repair wire 33 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) If continuity is present, repair wire 33 (para 2-45) or replace engine control cable assembly (para 7-80).
(7) Connect connector J31 to connector P31.
(8) Connect connector PX11 to water temperature gage connector.
(9) Connect connector clamp on water temperature gage connector.
(10) Install instrument panel assembly (para 7-15).



e9. REAR BRAKE AIR PRESSURE GAGE DOES NOT OPERATE OR IS INACCURATE

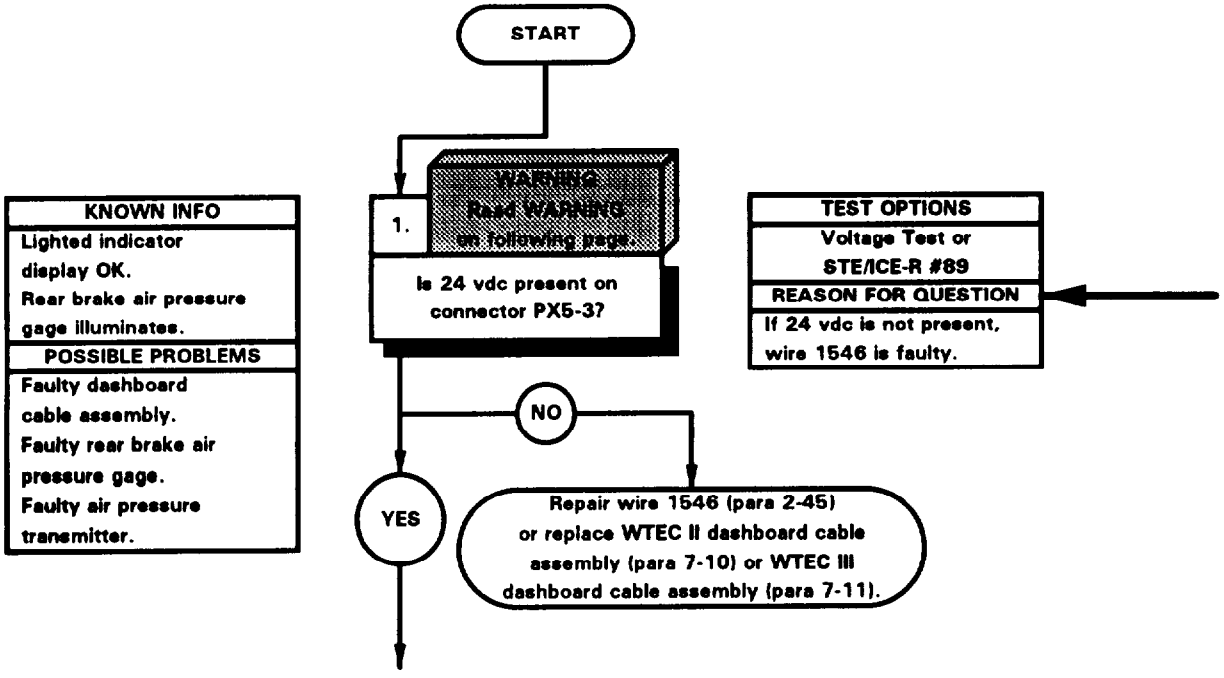
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

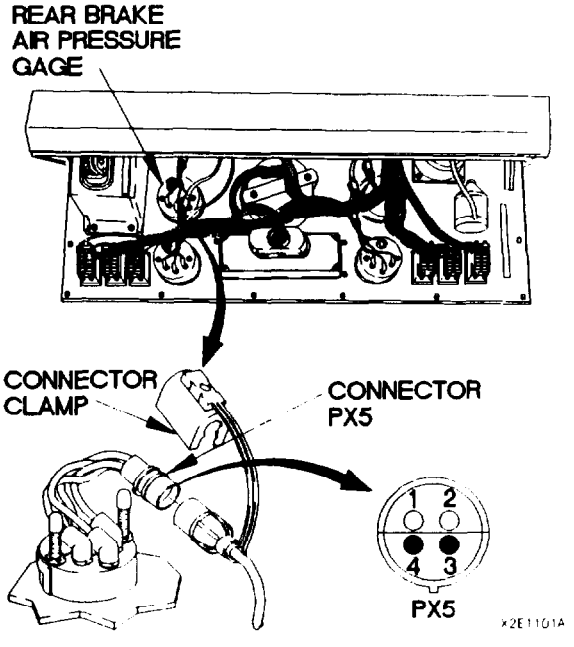


WARNING

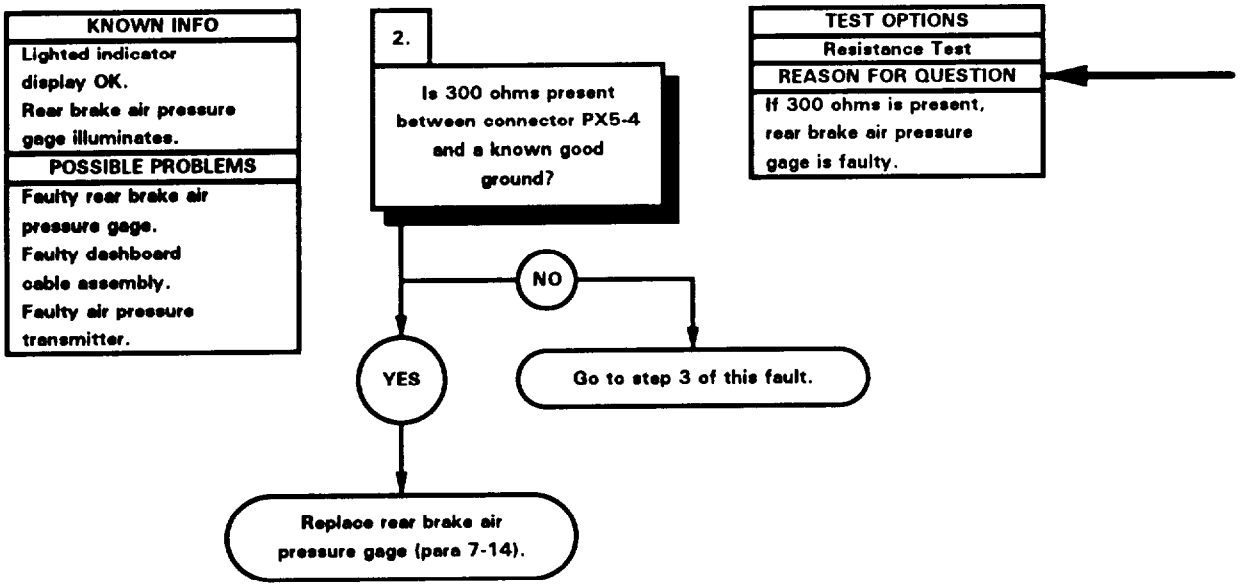
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

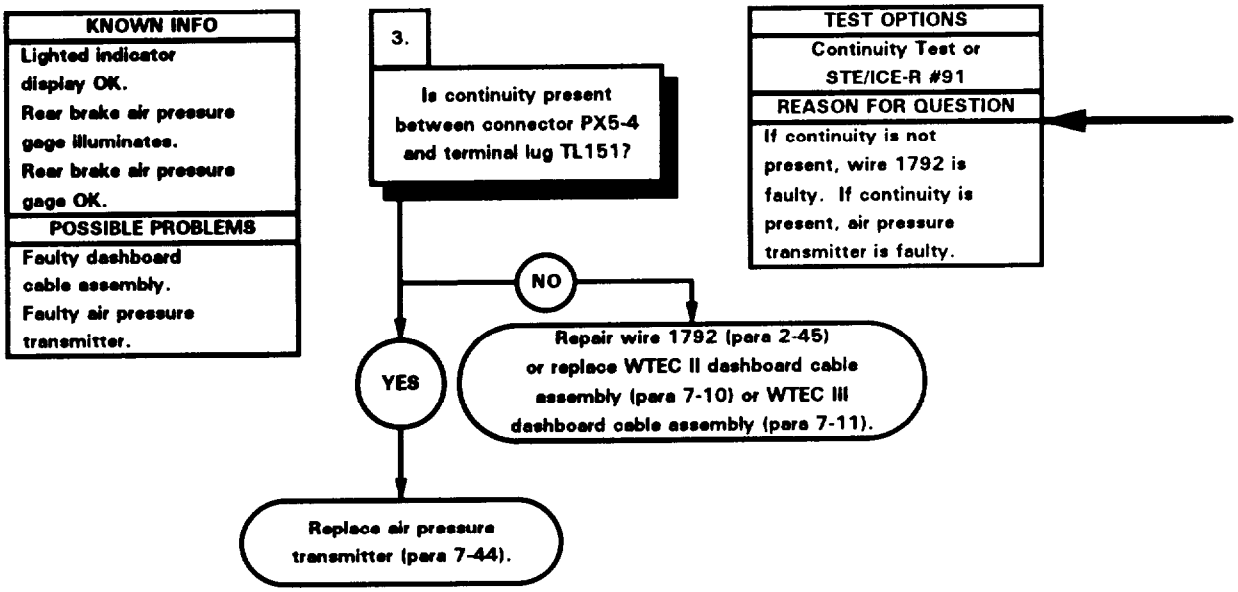
VOLTAGE TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector clamp from rear brake air pressure gage connector.
(3) Disconnect connector PX5 from rear brake air pressure gage connector.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector PX5-3.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, repair wire 1546 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position master power switch to off (TM 9-2320-366-10-1).

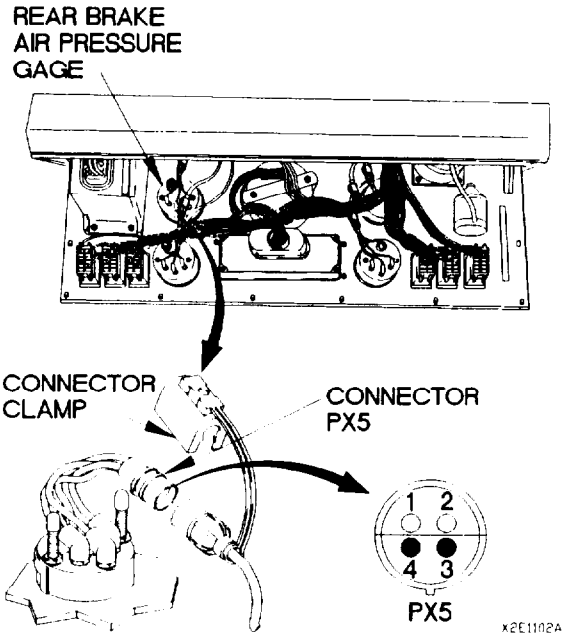


e9. REAR BRAKE AIR PRESSURE GAGE DOES NOT OPERATE OR IS INACCURATE (CONT)

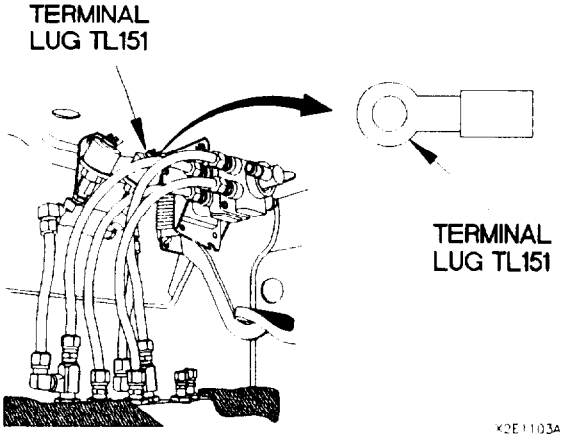




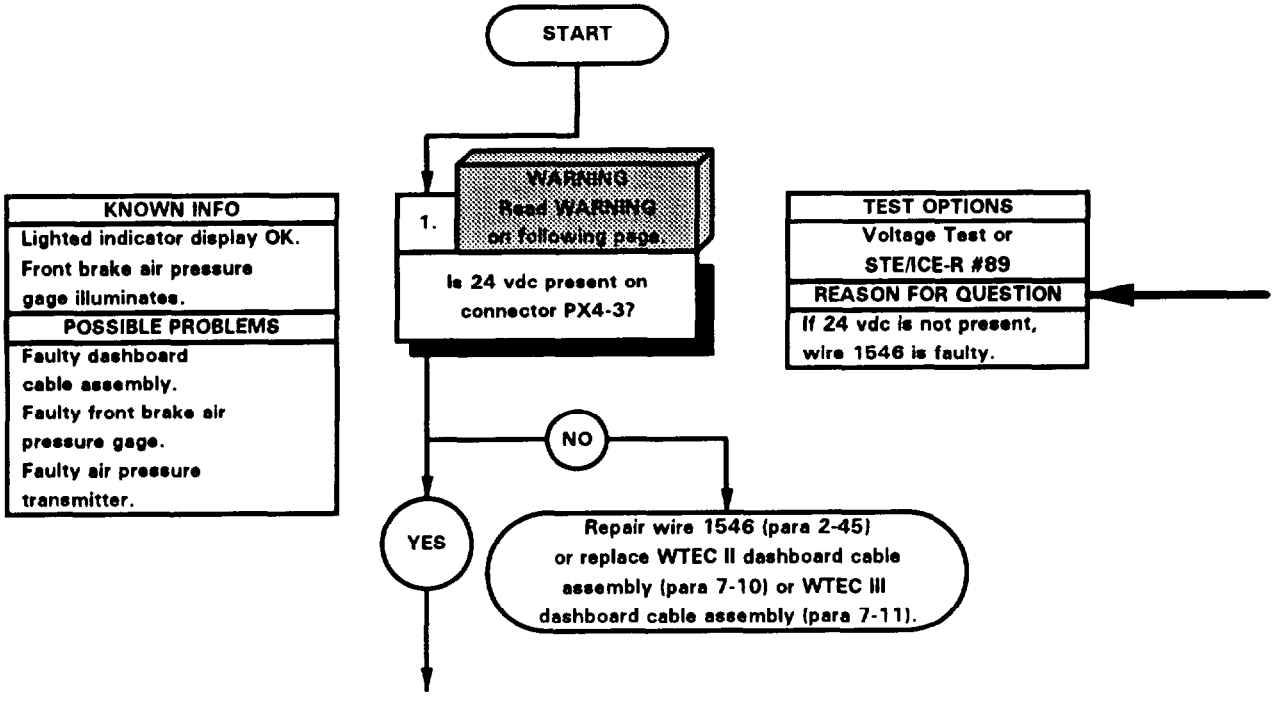
RESISTANCE TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX5-4.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 300 ohms is not present, go to step 3 of this fault.
(5) If 300 ohms is present, replace rear brake air pressure gage (para 7-14).



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX5-4.
(3) Connect negative (-) probe of multimeter to terminal lug TL151 and note reading on multimeter.
(4) If continuity is not present, repair wire 1792 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If continuity is present, replace air pressure transmitter (para 7-44).
(6) Connect connector PX5 to rear brake air pressure gage connector.
(7) Connect connector clamp to rear brake air pressure gage connector.
(8) Install instrument panel assembly (para 7-15).



e10. FRONT BRAKE AIR PRESSURE GAGE DOES NOT OPERATE OR IS INACCURATE	
INITIAL SETUP	
Equipment Condition Engine shut down (TM 9-2320-366-10-1).	**Tools and Special Tools** Tool Kit, Genl Mech (Item 46, Appendix C) STE/ICE-R (Item 41, Appendix C) Multimeter, Digital (Item 22, Appendix C)
Personnel Required (2)	**References** TM 9-4910-571-12&P

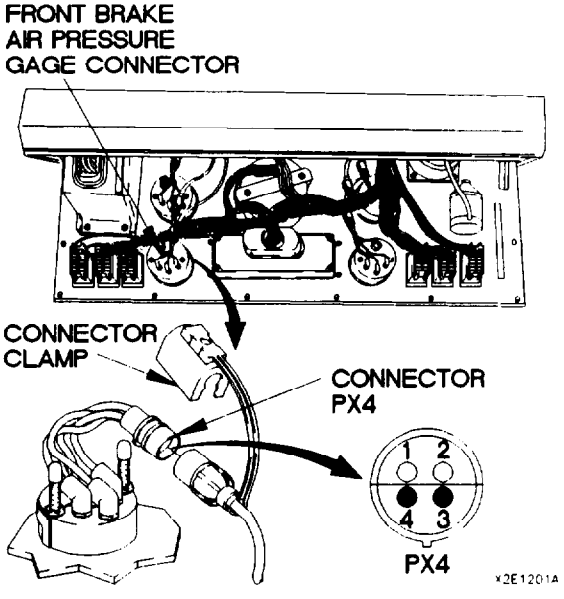


WARNING

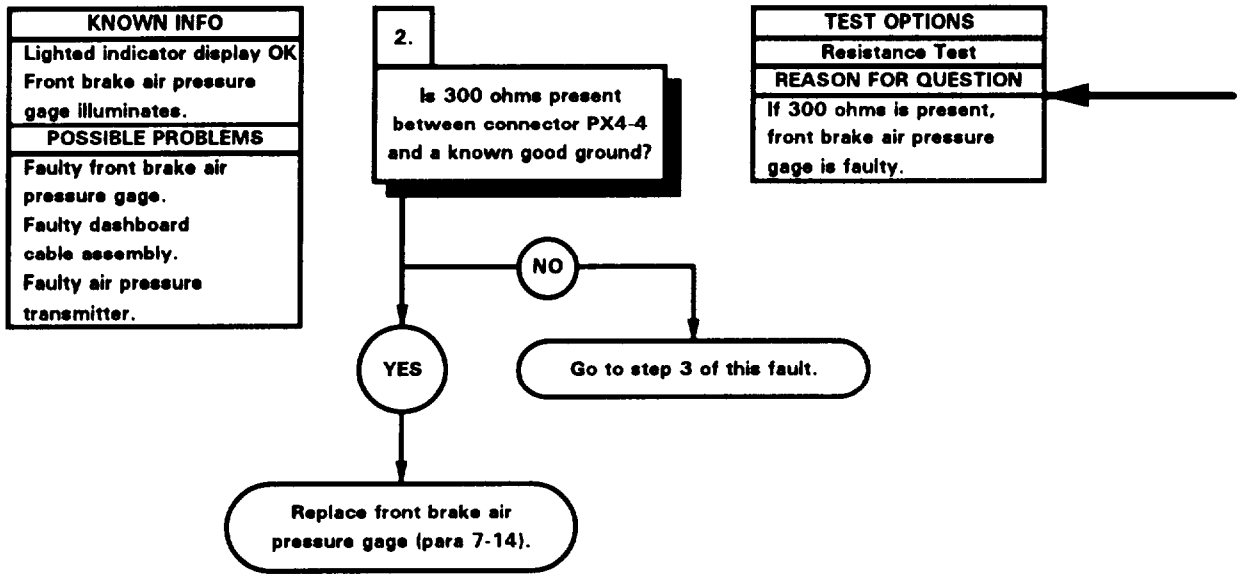
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

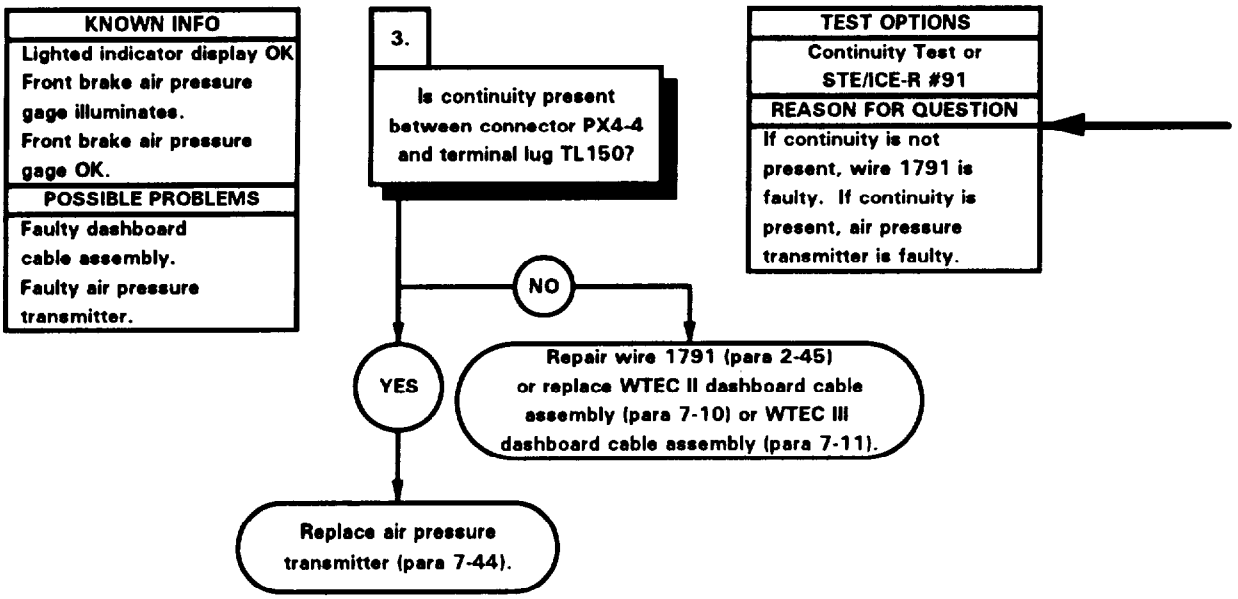
VOLTAGE TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector clamp from front brake air pressure gage connector.
(3) Disconnect connector PX4 from front brake air pressure gage connector.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector PX4-3.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, repair wire 1546 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position master power switch to off (TM 9-2320-366-10-1).

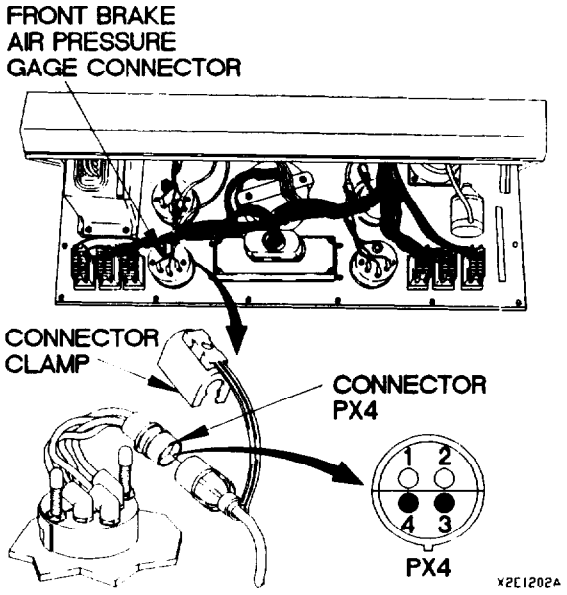


e10. FRONT BRAKE AIR PRESSURE GAGE DOES NOT OPERATE OR IS INACCURATE (CONT)

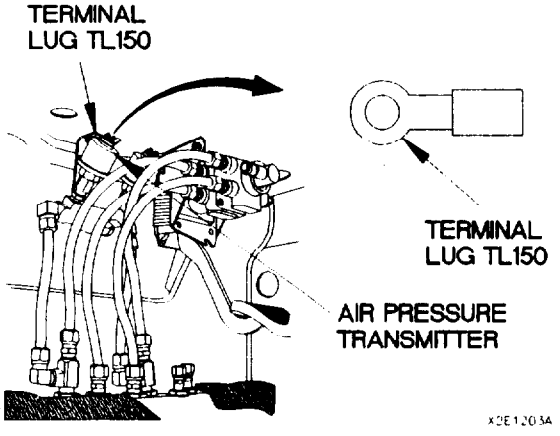




RESISTANCE TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX4-4.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 300 ohms is not present, go to step 3 of this fault.
(5) If 300 ohms is present, replace front brake air pressure gage (para 7-14).



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX4-4.
(3) Connect negative (-) probe of multimeter to terminal lug TL150 and note reading on multimeter.
(4) If continuity is not present, repair wire 1791 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If continuity is present, replace air pressure transmitter (para 7-44).
(6) Connect connector PX4 to front brake air pressure gage connector.
(7) Connect connector clamp on front brake air pressure gage connector.
(8) Install instrument panel assembly (para 7-15).



e11. ENGINE OIL PRESSURE GAGE DOES NOT OPERATE OR IS INACCURATE

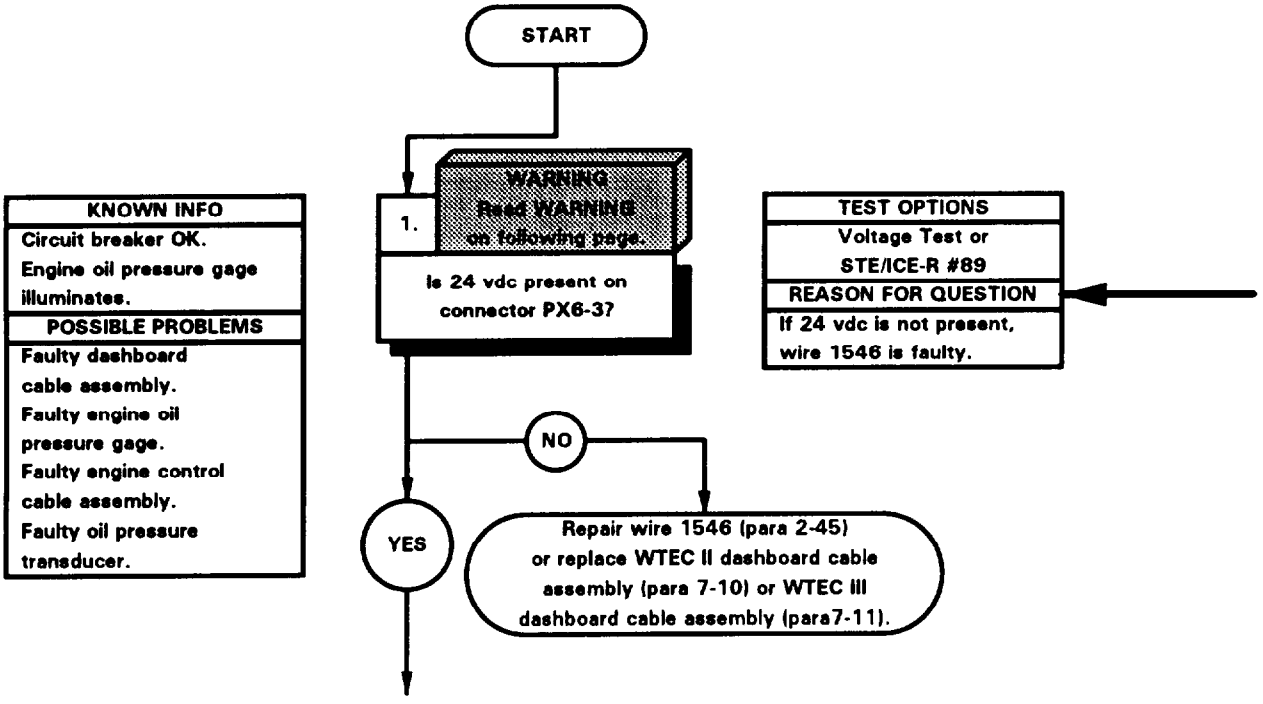
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

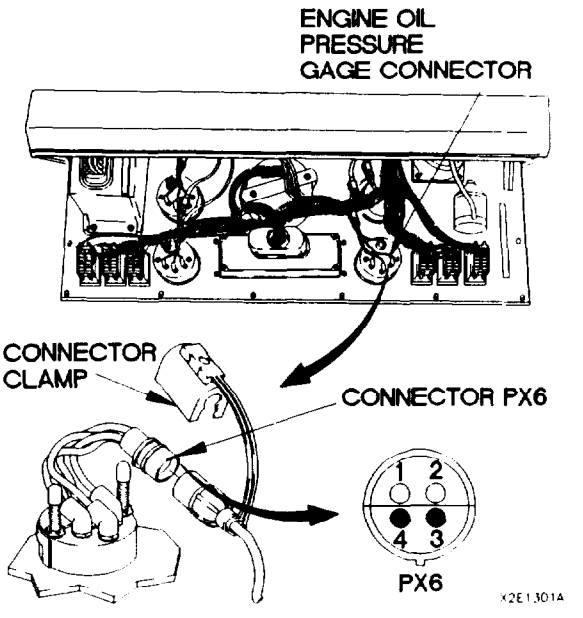


WARNING

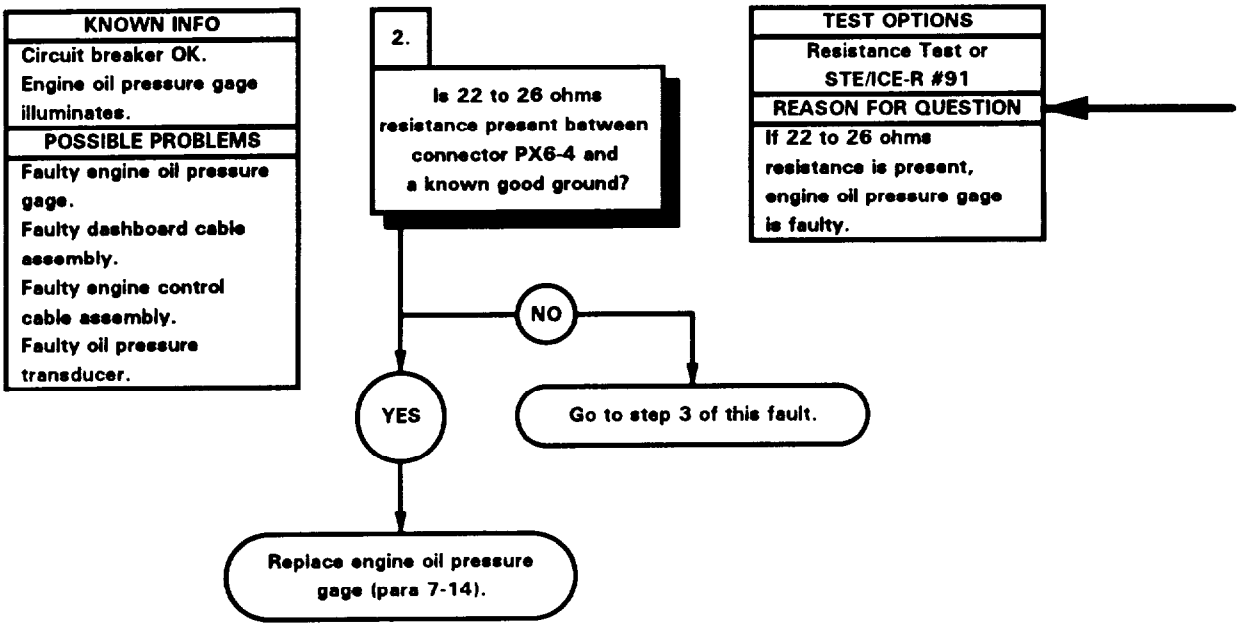
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

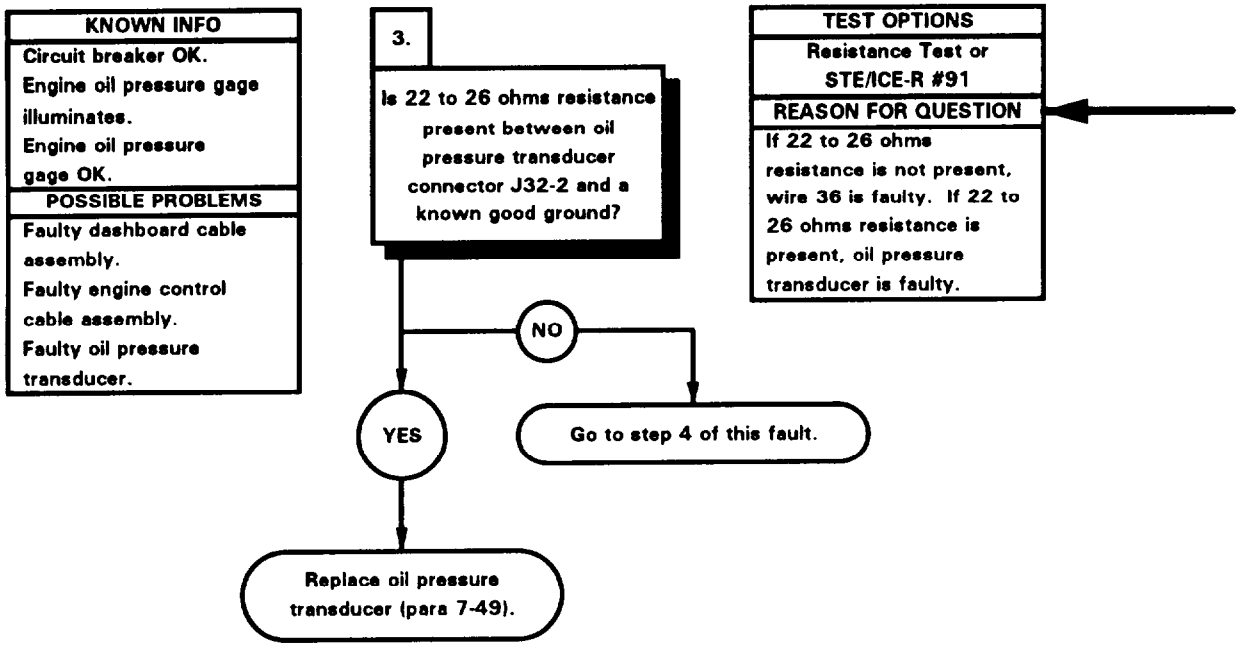
VOLTAGE TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector clamp from engine oil pressure gage connector.
(3) Disconnect connector PX6 from engine oil pressure gage connector.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector PX6-3.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, repair wire 1546 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position master power switch to off (TM 9-2320-366-10-1).

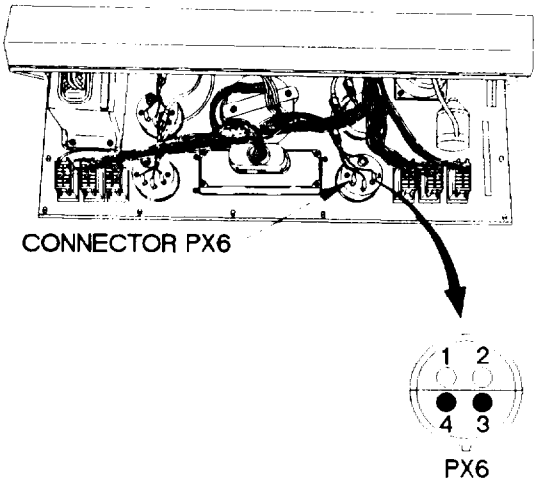


e11. ENGINE OIL PRESSURE GAGE DOES NOT OPERATE OR IS INACCURATE (CONT)

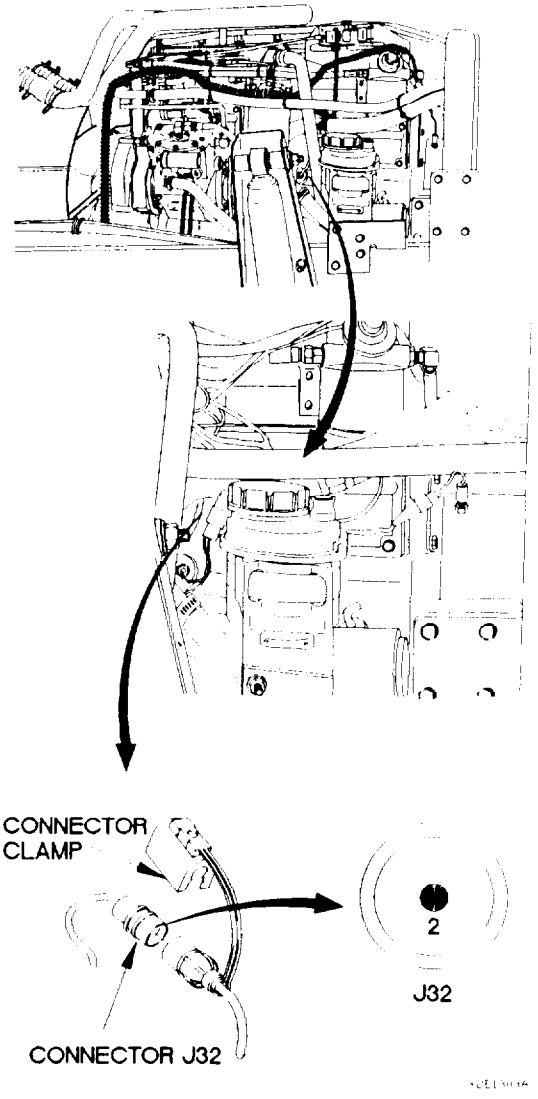




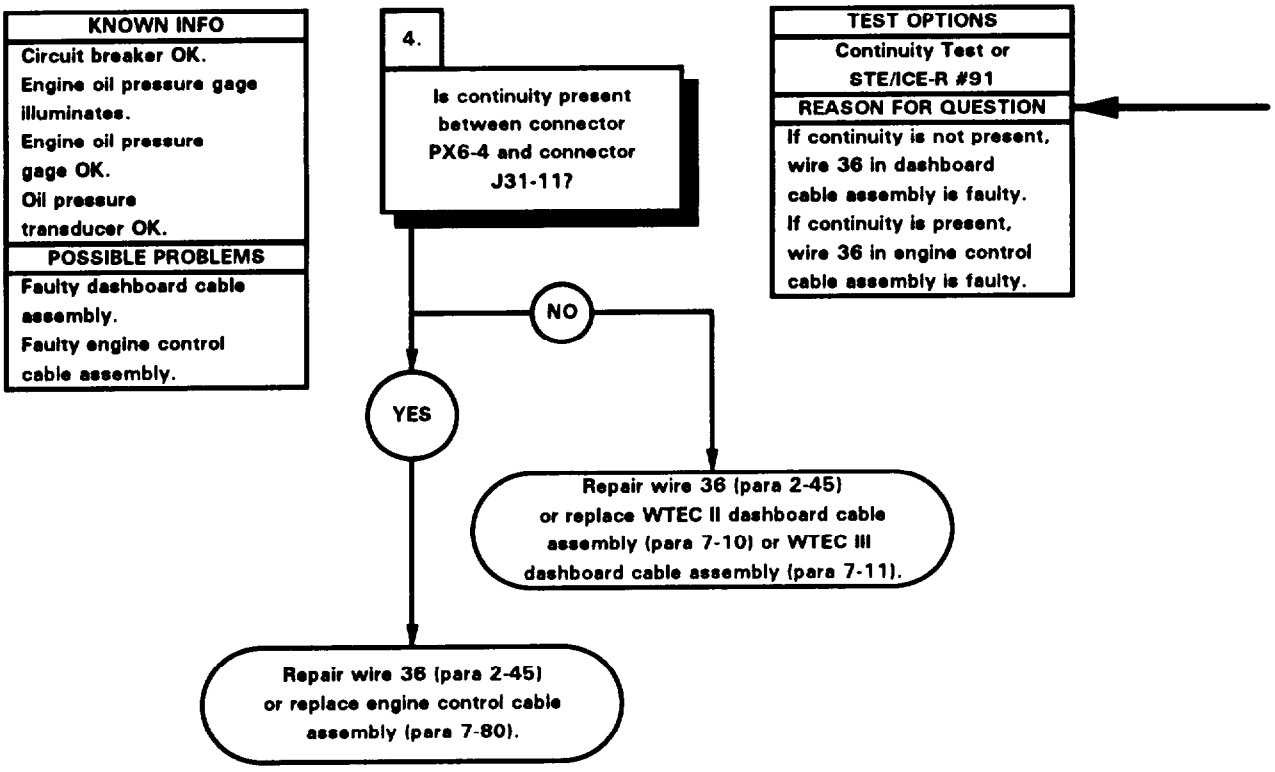
RESISTANCE TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX6-4.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If 22 to 26 ohms resistance is not present, go to step 3 of this fault.
(5) If 22 to 26 ohms resistance is present, replace engine oil pressure gage (para 7-14).



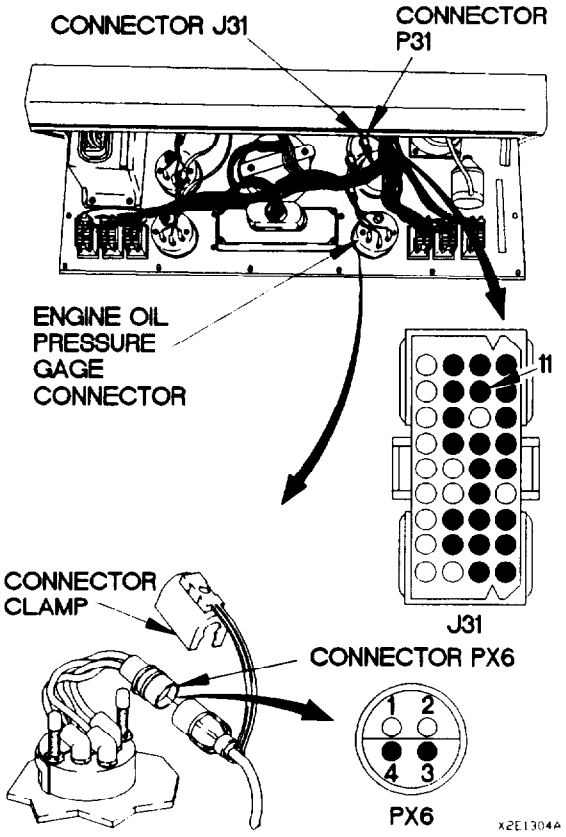
RESISTANCE TEST
(1) Raise cab (TM 9-2320-366-10-1).
(2) Disconnect connector clamp from connector J32.
(3) Disconnect connector P32 from connector J32.
(4) Connect positive (+) probe of multimeter to connector J32-2.
(5) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(6) If 22 to 26 ohms resistance is not present, go to step 4 of this fault.
(7) If 22 to 26 ohms resistance is present, replace oil pressure transducer (para 7-49).
(8) Connect connector P32 to connector J32.
(9) Connect connector clamp on connector J32.
(10) Lower cab (TM 9-2320-366-10-1).



e11. ENGINE OIL PRESSURE GAGE DOES NOT OPERATE OR IS INACCURATE (CONT)



CONTINUITY TEST
(1) Disconnect connector J31 from connector P31.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector PX6-4.
(4) Connect negative (-) probe of multimeter to connector J31-11 and note reading on multimeter.
(5) If continuity is not present, repair wire 36 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) If continuity is present, repair wire 36 (para 2-45) or replace engine control cable assembly (para 7-80).
(7) Connect connector J31 to connector P31.
(8) Connect connector PX6 to engine oil pressure gage connector.
(9) Connect connector clamp on engine oil pressure gage connector.
(10) Install instrument panel assembly (para 7-15).



e12. SPEEDOMETER DOES NOT OPERATE OR IS INACCURATE

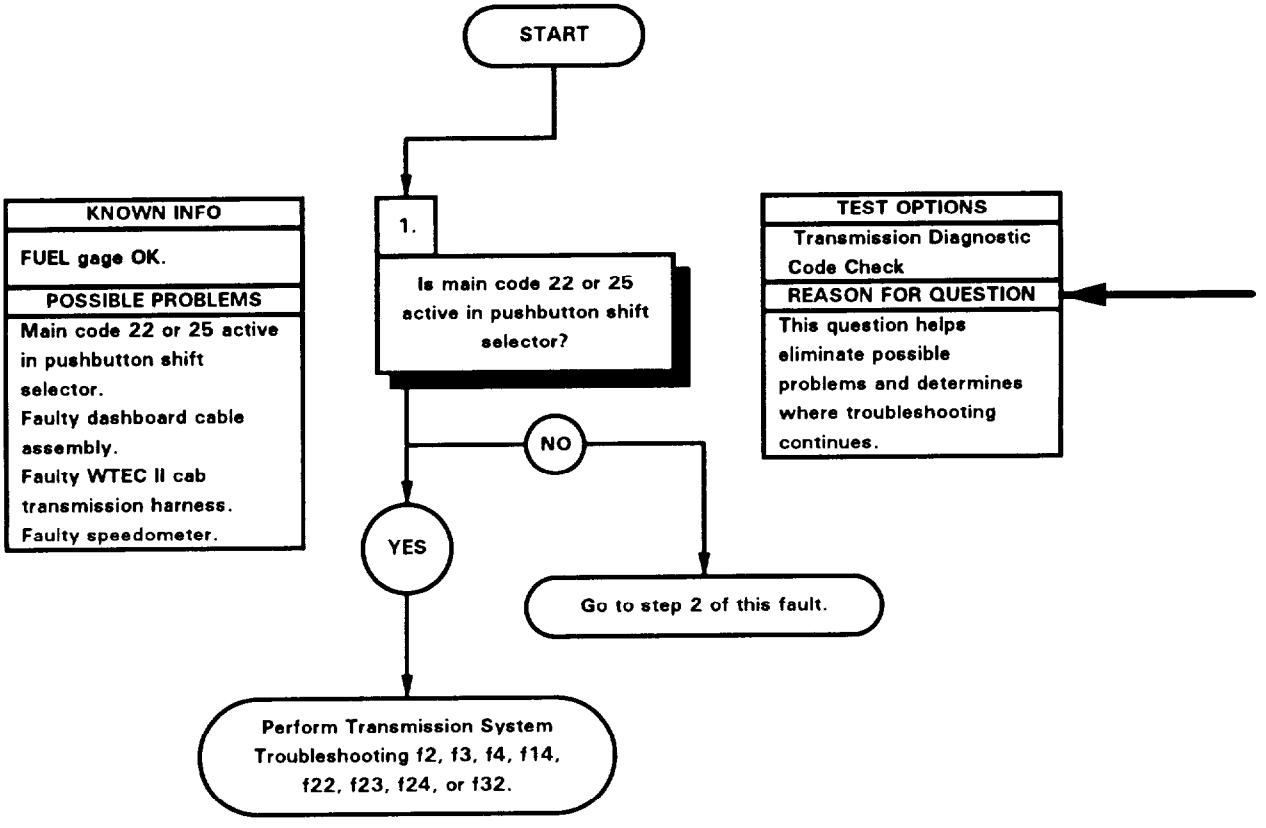
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

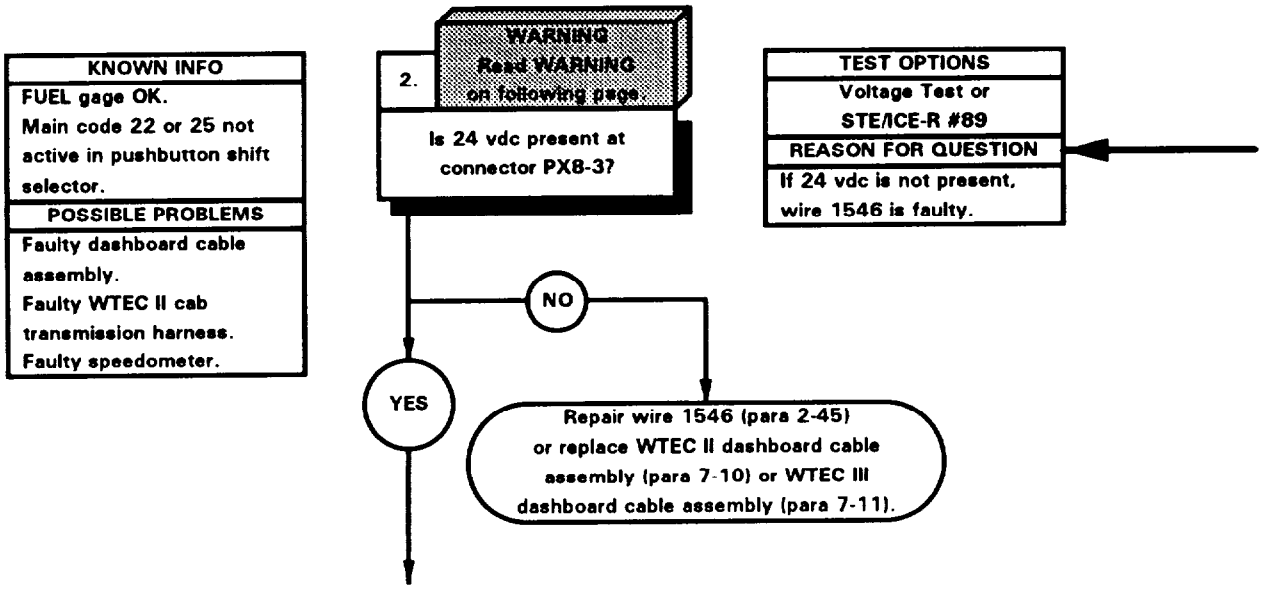
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P



(1) Check for active transmission diagnostic codes (para 8-4 or 8-5).
(2) If main code 22 or 25 is active in pushbutton shift selector, perform Transmission System Troubleshooting f2, f3, f4, f14, f22, f23, f24, or f32.

e12. SPEEDOMETER DOES NOT OPERATE OR IS INACCURATE (CONT)

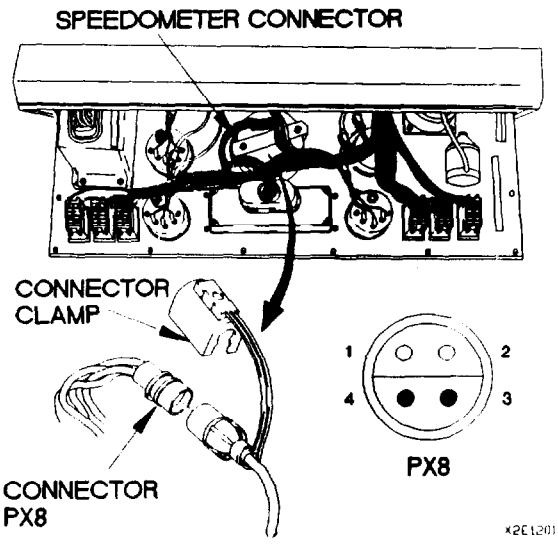


WARNING

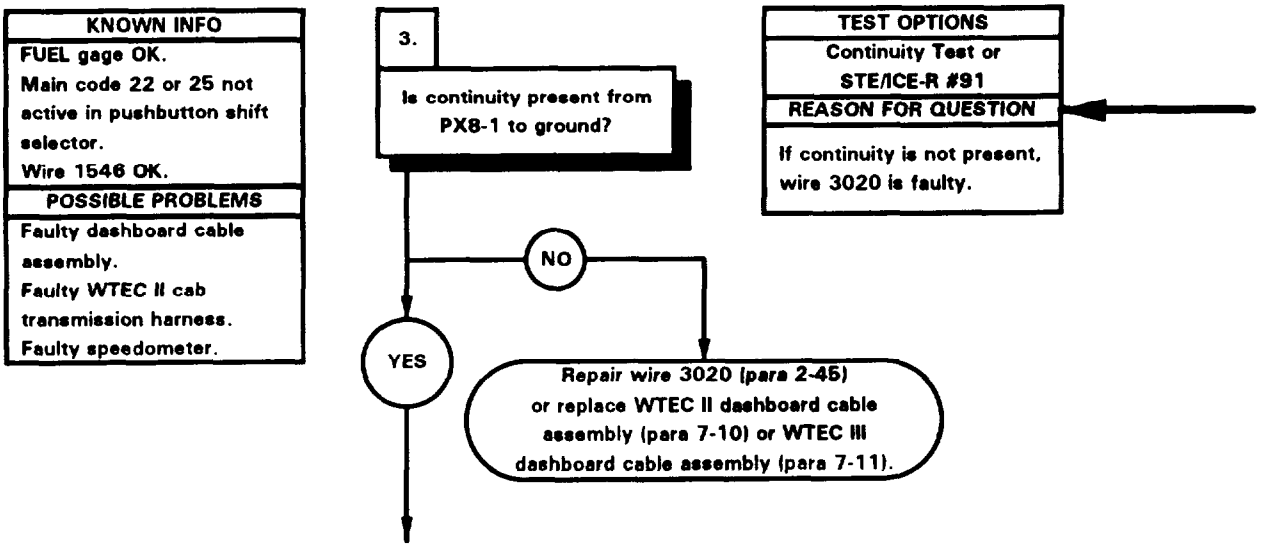
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

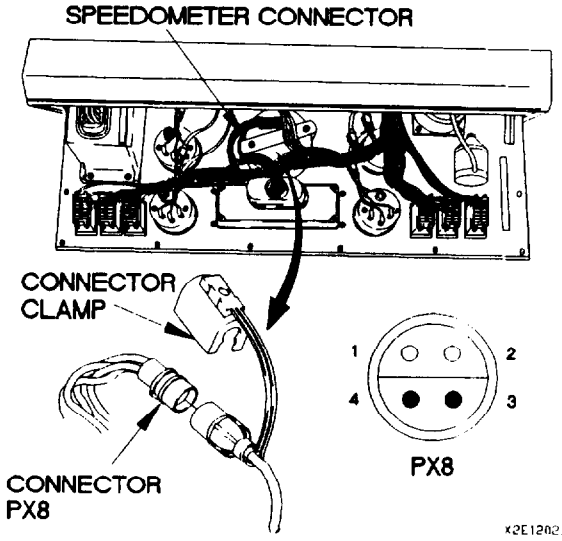
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector clamp from speedometer connector.
(3) Disconnect connector PX8 from speedometer connector.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector PX8-3.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, repair wire 1546 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position master power switch to off (TM 9-2320-366-10-1).



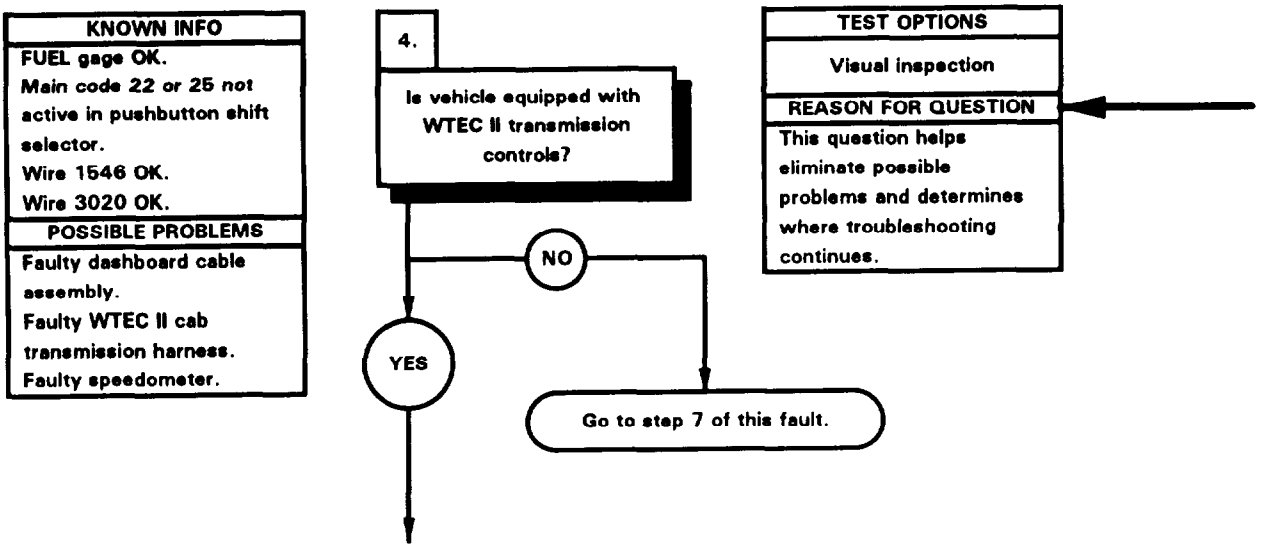
e12. SPEEDOMETER DOES NOT OPERATE OR IS INACCURATE (CONT)



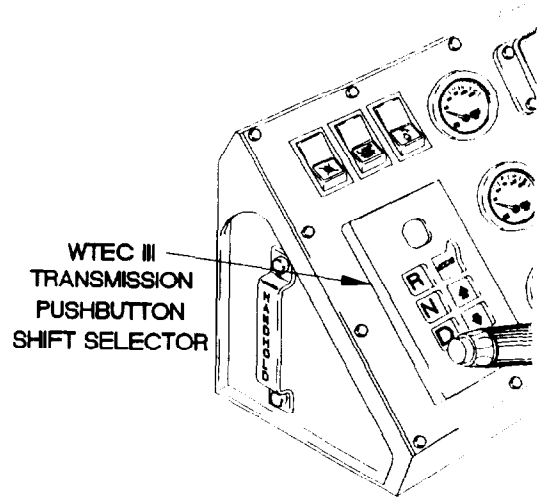
CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX8-1.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3020 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).

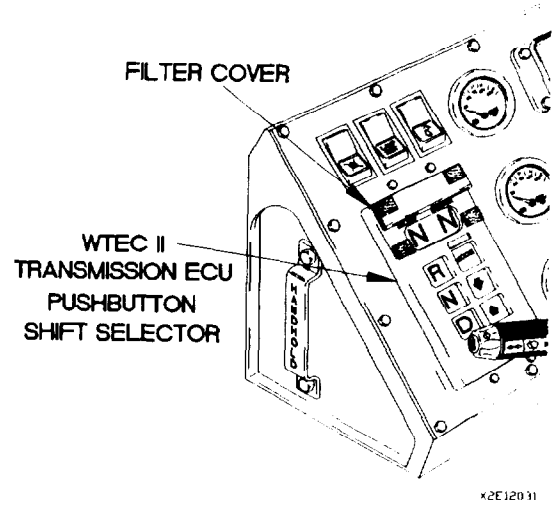


e12. SPEEDOMETER DOES NOT OPERATE OR IS INACCURATE (CONT)



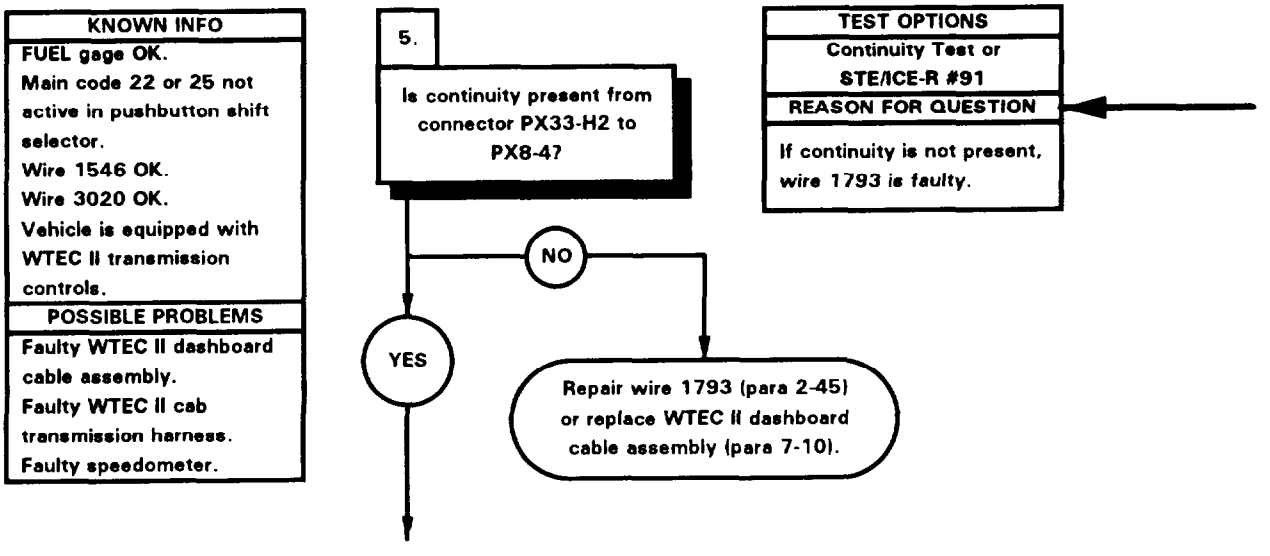
(1) Check if vehicle is equipped with WTEC II transmission ECU pushbutton shift selector (TEPSS).
(2) If transmission pushbutton shift selector is not mounted with four screws and does not have a filter cover, go to step 7 of this fault.





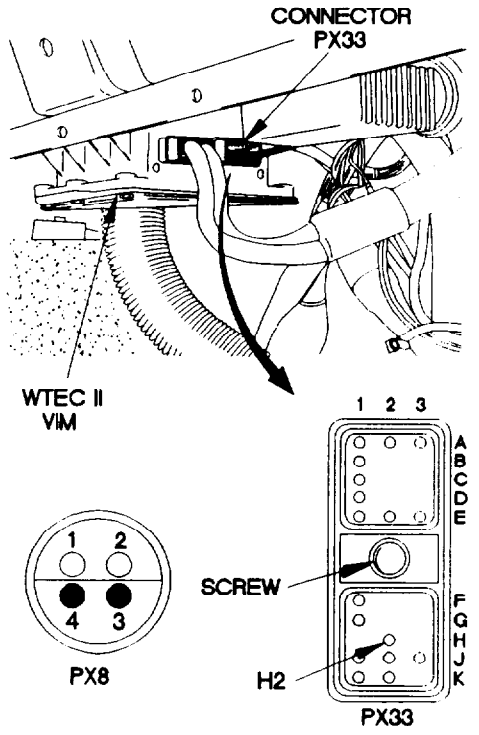
x2E12031

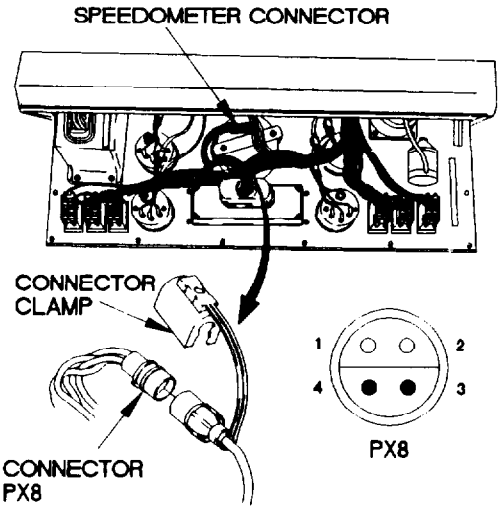
e12. SPEEDOMETER DOES NOT OPERATE OR IS INACCURATE (CONT)



CONTINUITY TEST

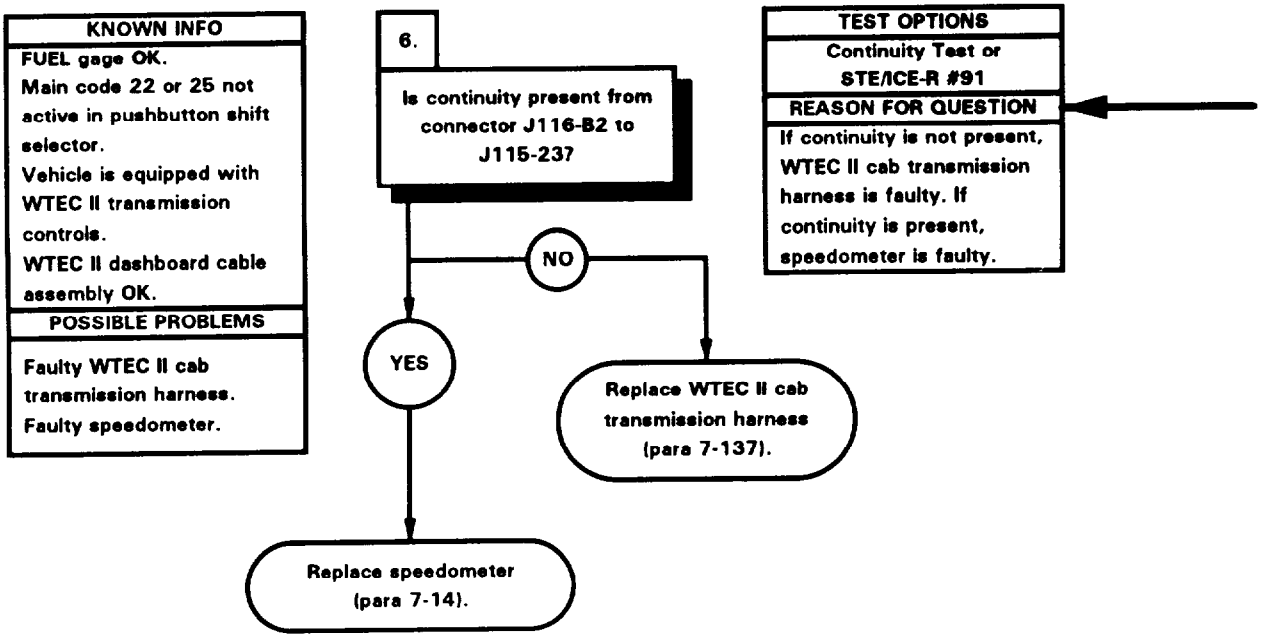
(1) Remove kick panel (para 16-3).
(2) Loosen screw in connector PX33.
(3) Disconnect connector PX33 from WTEC II VIM.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector PX33-H2.
(6) Connect negative (-) probe of multimeter to connector PX8-4 and note reading on multimeter.
(7) If continuity is not present, repair wire 1793 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10).
(8) Connect connector PX33 to WTEC II VIM.
(9) Tighten screw in connector PX33.
(10) Connect connector PX8 to speedometer connector.
(11) Connect connector clamp on speedometer connector.





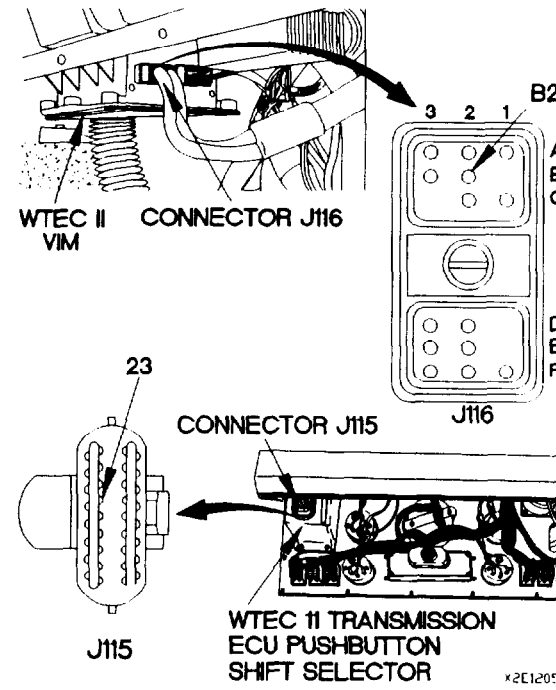
X2E12041

e12. SPEEDOMETER DOES NOT OPERATE OR IS INACCURATE (CONT

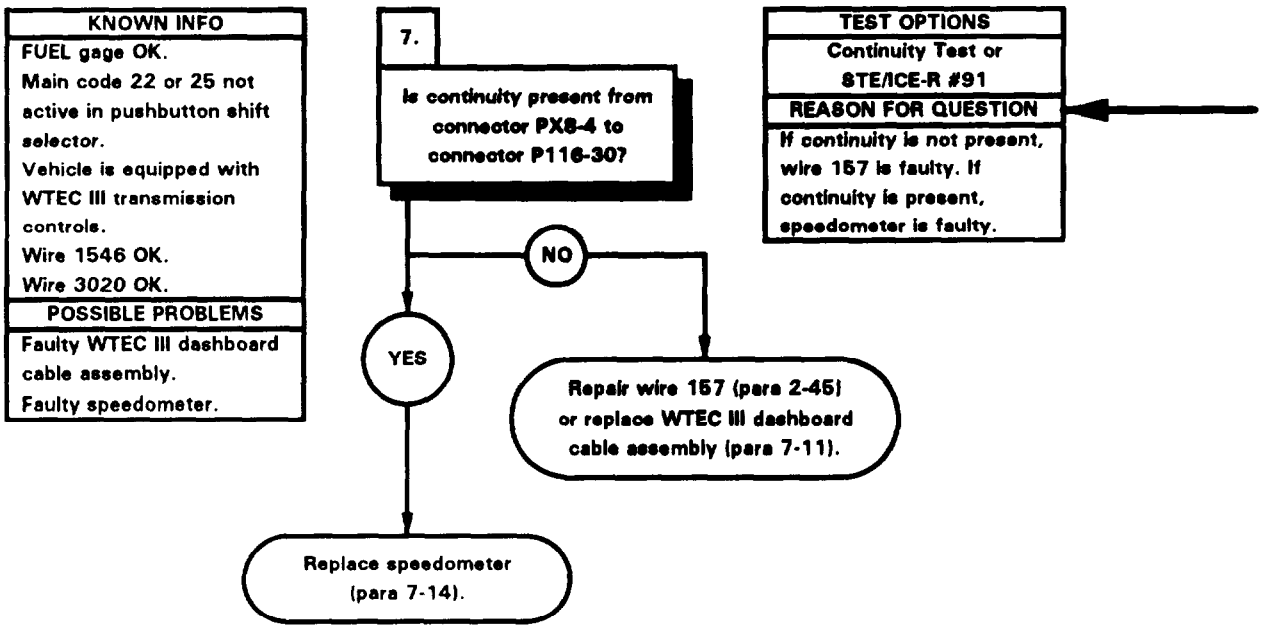


CONTINUITY TEST

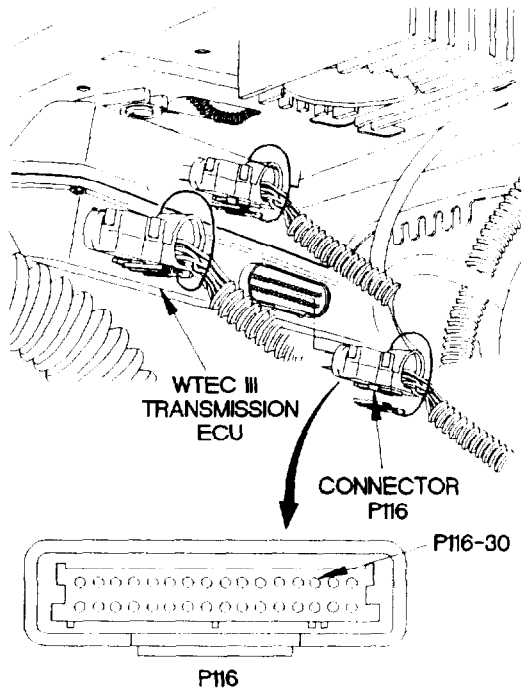
(1) Disconnect connector J115 from WTEC II TEPSS.
(2) Loosen screw in connector J116.
(3) Disconnect connector J116 from WTEC II VIM.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector J116-B2.
(6) Connect negative (-) probe of multimeter to connector J115-23 and note reading on multimeter.
(7) If continuity is not present, replace WTEC II cab transmission harness (para 7-137).
(8) If continuity is present, replace speedometer (para 7-14).
(9) Connect connector J116 to WTEC II VIM.
(10) Tighten screw in connector J116.
(11) Install kick panel (para 16-3).
(12) Connect connector J115 to WTEC II TEPSS.
(13) Install instrument panel assembly (para 7-15).

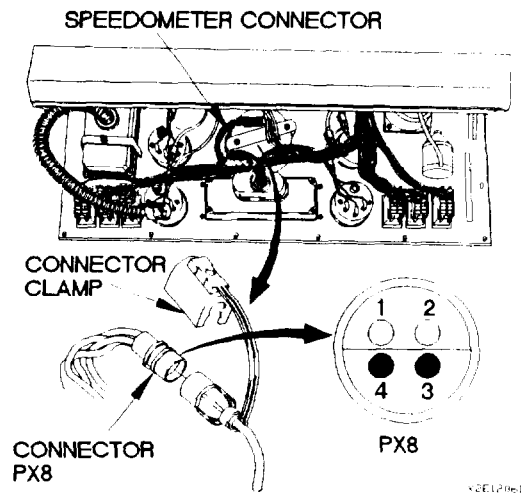


e12. SPEEDOMETER DOES NOT OPERATE OR IS INACCURATE (CONT



CONTINUITY TEST
(1) Remove kick panel (para 16-3).
(2) Disconnect connector clamp from connector P116.
(3) Disconnect connector P116 from WTEC III transmission ECU.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector P116-30.
(6) Connect negative (-) probe of multimeter to connector PX8-4 and note reading on multimeter.
(7) If continuity is not present, repair wire 157 (para 2-45) or replace WTEC III dashboard cable assembly (para 7-11).
(8) If continuity is present, replace speedometer (para 7-14).
(9) Connect connector P116 to WTEC III transmission ECU.
(10) Connect connector clamp on connector P116.
(11) Install kick panel (para 16-3).
(12) Connect connector PX8 to speedometer connector.
(13) Connect connector clamp on speedometer connector.
(14) Install instrument panel assembly (para 7-15).





e13. VOLTS GAGE DOES NOT OPERATE OR IS INACCURATE

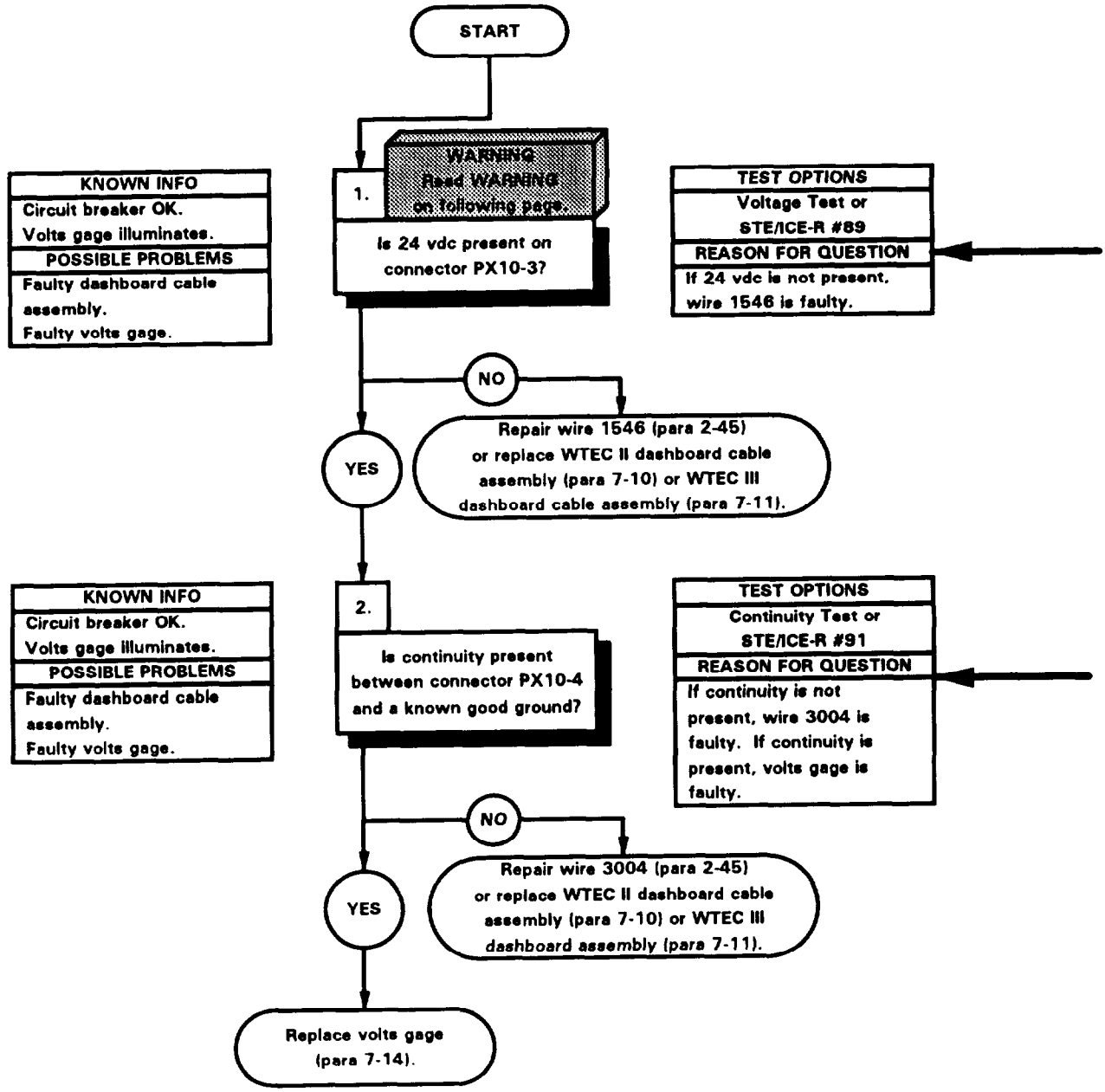
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

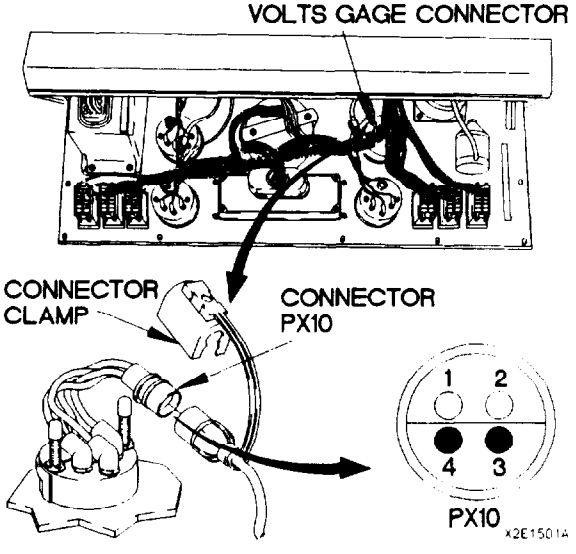


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector clamp from volts gage connector.
(3) Disconnect connector PX10 from volts gage connector.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector PX10-3.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, repair wire 1546 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position master power switch to off (TM 9-2320-366-10-1).



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX10-4.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3004 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If continuity is present, replace volts gage (para 7-14).
(6) Connect connector PX10 to volts gage connector.
(7) Connect connector clamp on volts gage connector.
(8) Install instrument panel assembly (para 7-15).

e14. TACHOMETER DOES NOT OPERATE OR IS INACCURATE

INITIAL SETUP

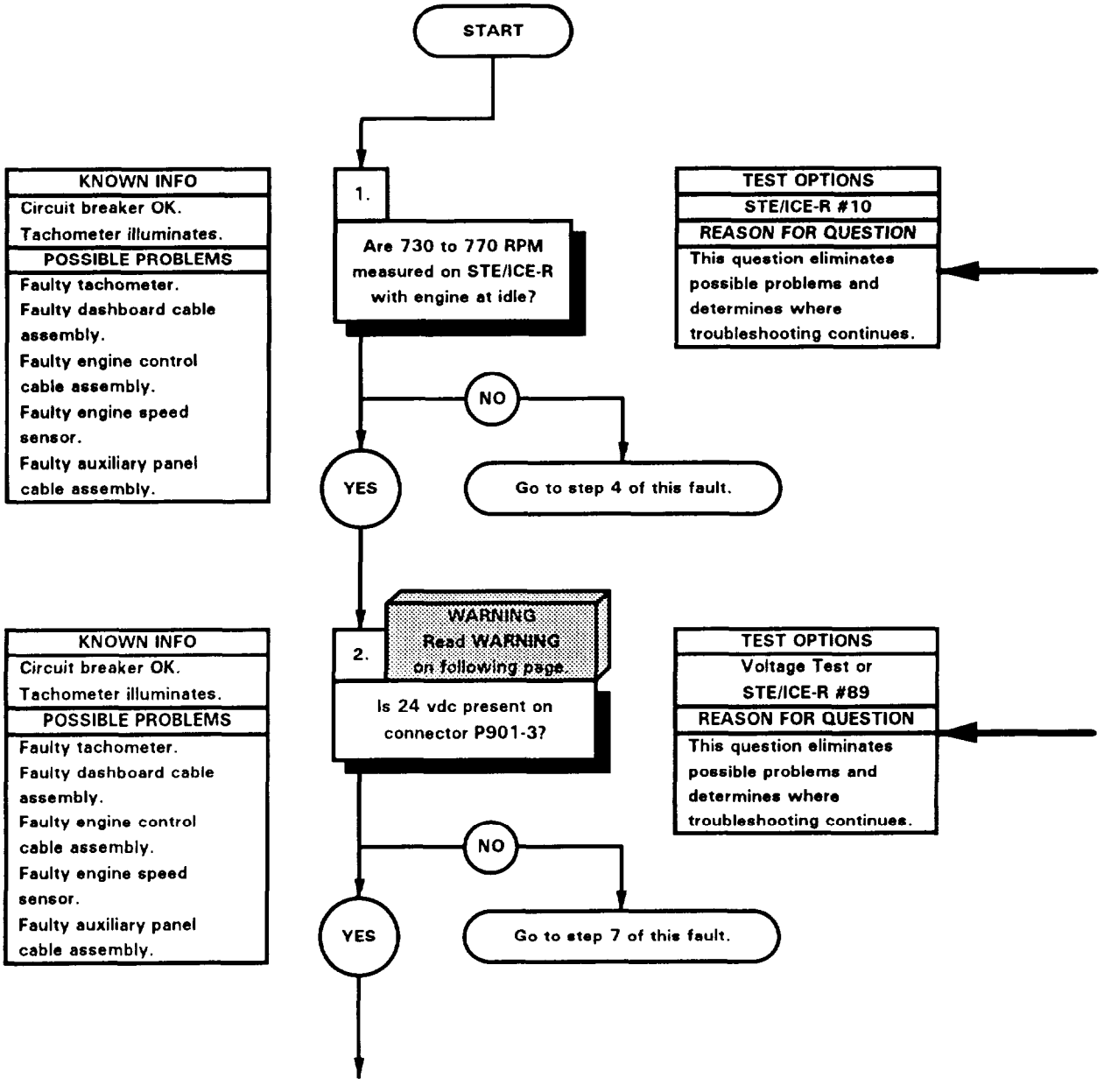
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

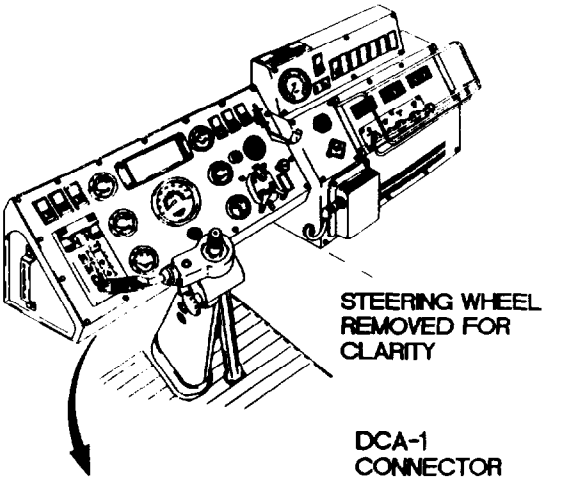
Personnel Required
(2)

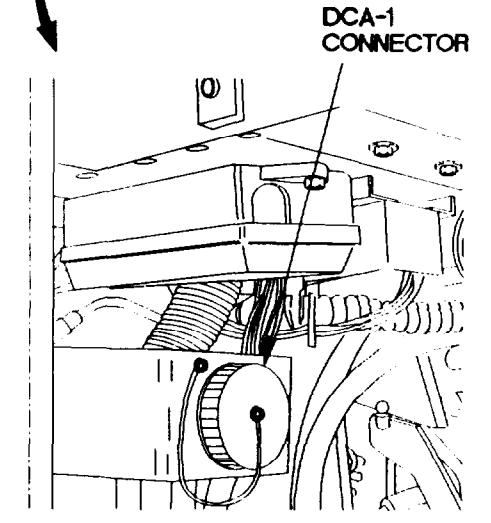
References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)

Materials/Parts
Wire, Elect, 50 ft (Item 71, Appendix D)







X2E1601A

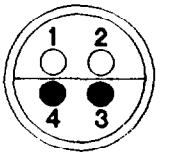
(1) Perform STE/ICE-R test #10.
(2) If engine rpm is not 730 to 770 at idle, go to step 4 of this fault.

WARNING

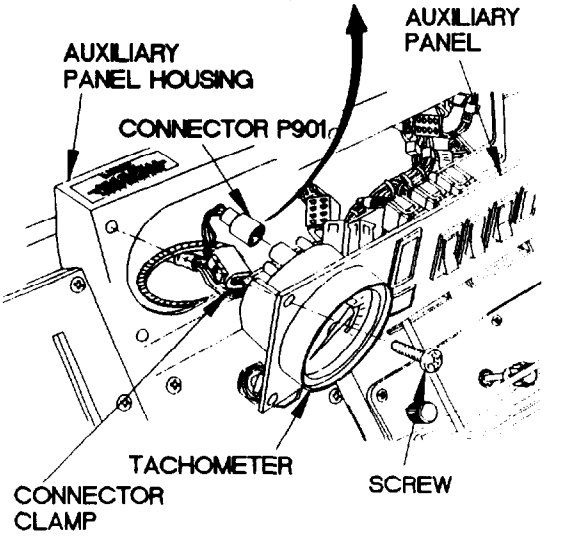
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove six screws from auxiliary panel.
(2) Lift auxiliary panel from auxiliary panel housing to gain access.
(3) Disconnect connector clamp from tachometer.
(4) Disconnect connector P901 from tachometer.
(5) Set multimeter to volts dc.
(6) Connect positive (+) probe of multimeter to connector P901-3.
(7) Connect negative (-) probe of multimeter to ground.
(8) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(9) If 24 vdc is not present, go to step 7 of this fault.
(10) Position master power switch to off (TM 9-2320-366-10-1).

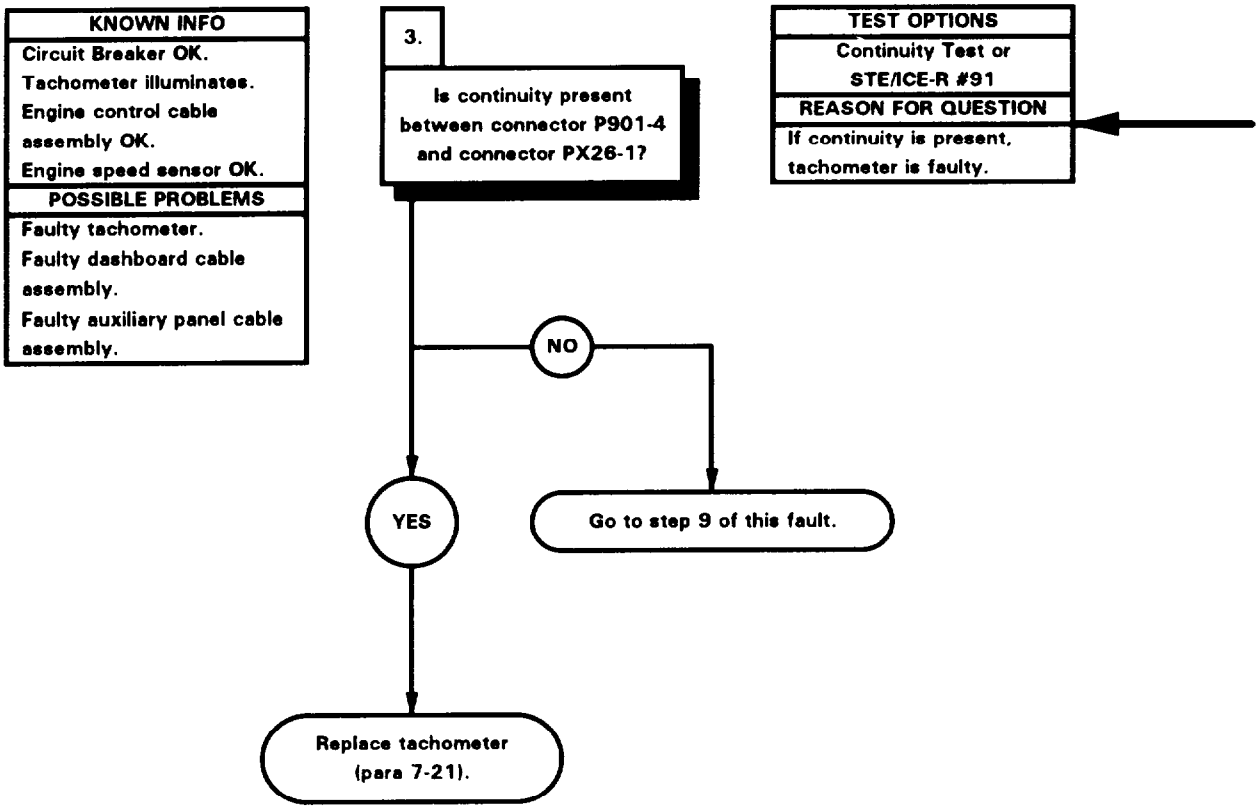


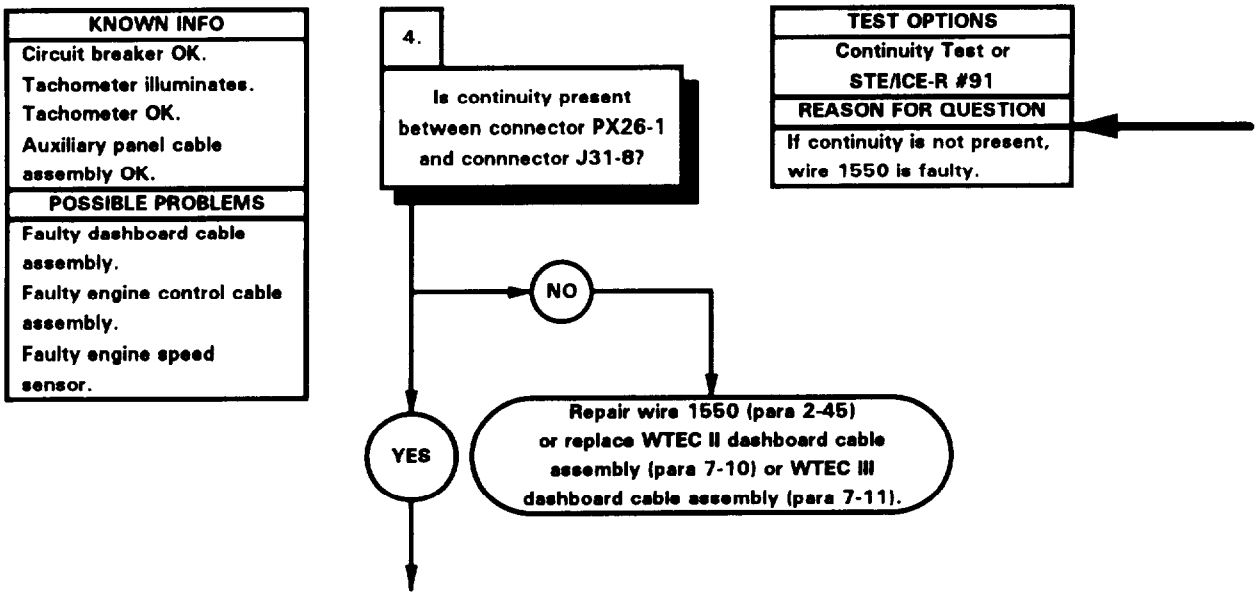
P901



X2E1602A

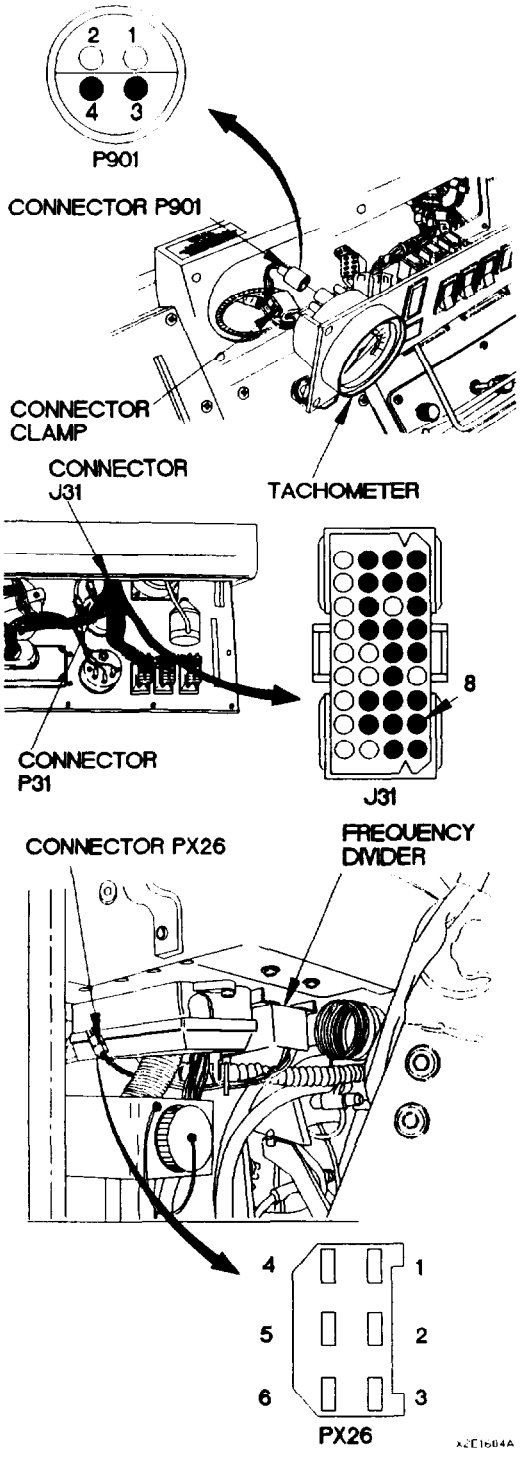
e14. TACHOMETER DOES NOT OPERATE OR IS INACCURATE (CONT)



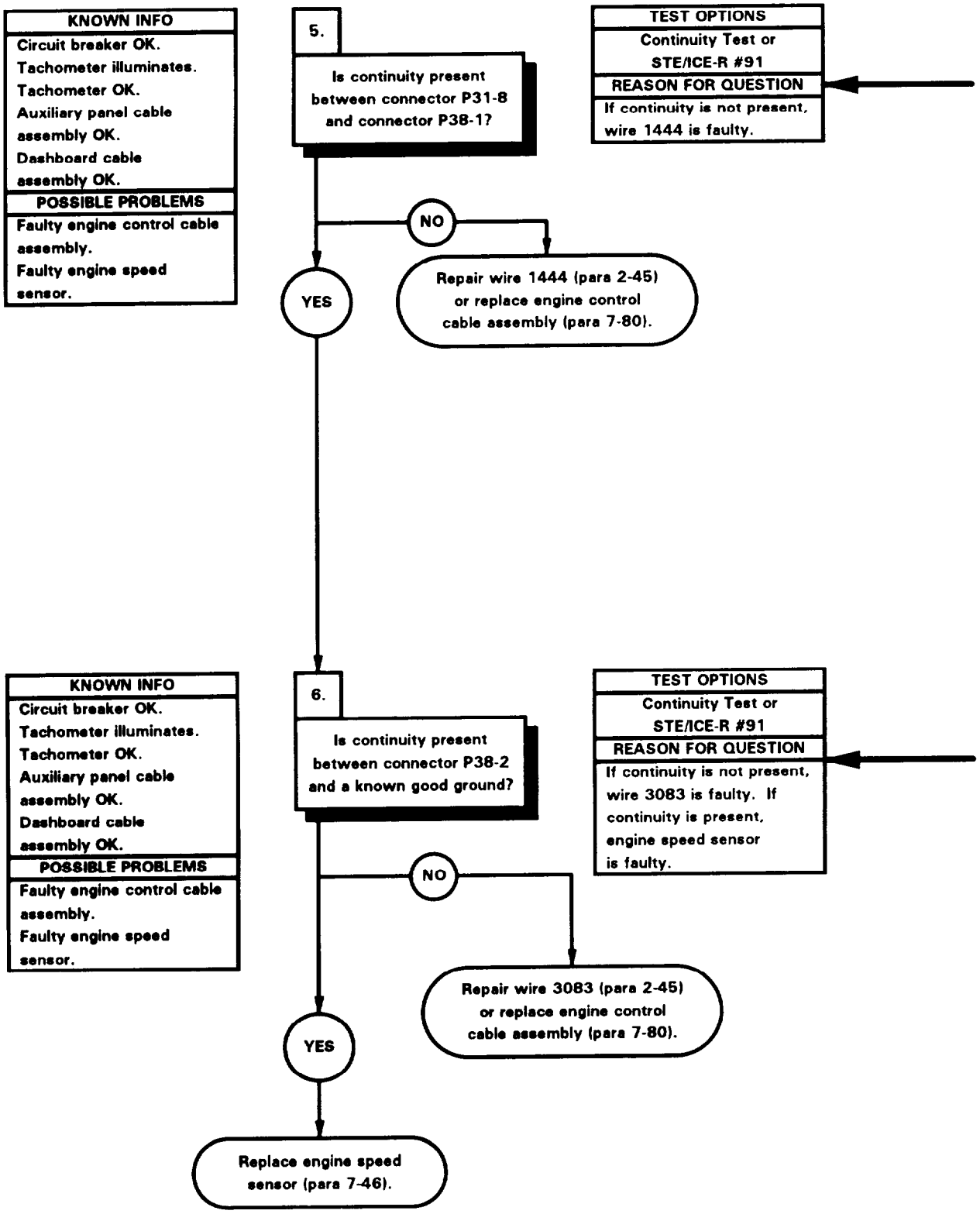


CONTINUITY TEST
(1) Disconnect connector PX26 from frequency divider.
(2) Connect positive (+) probe of multimeter to connector P901-4.
(3) Connect negative (-) probe of multimeter to connector PX26-1 and note reading on multimeter.
(4) If continuity is not present, go to step 9 of this fault.
(5) If continuity is present, replace tachometer (para 7-21).
(6) Connect connector PX26 to frequency divider.
(7) Connect connector P901 to tachometer.
(8) Connect connector clamp on tachometer.

CONTINUITY TEST
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX26 from frequency divider.
(3) Connect connector PX26-1 to ground.
(4) Disconnect connector P31 from connector J31.
(5) Connect positive (+) probe of multimeter to connector J31-8.
(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(7) If continuity is not present, repair wire 1550 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Connect connector PX26 to frequency divider.

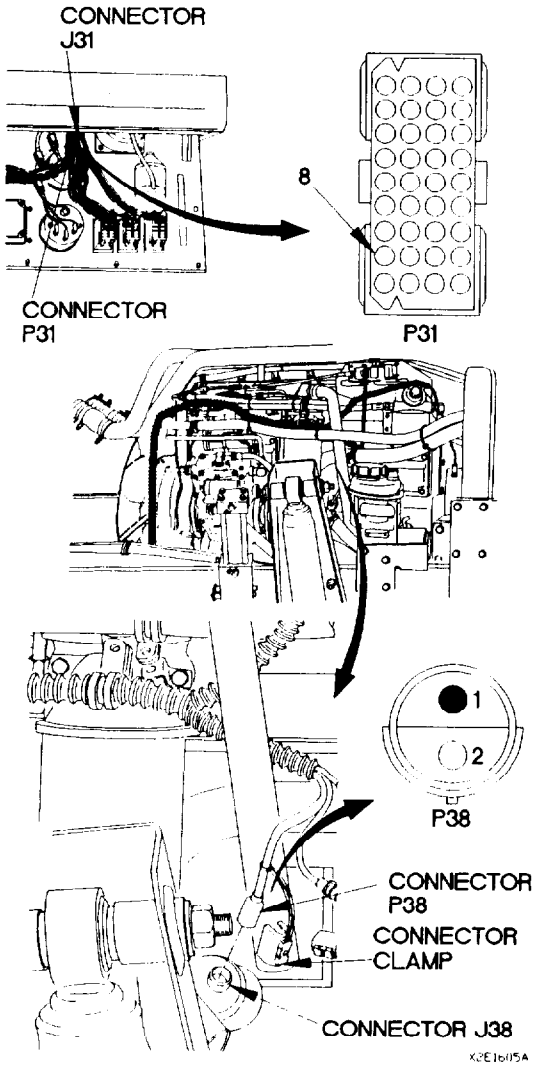


e14. TACHOMETER DOES NOT OPERATE OR IS INACCURATE (CONT)



CONTINUITY TEST

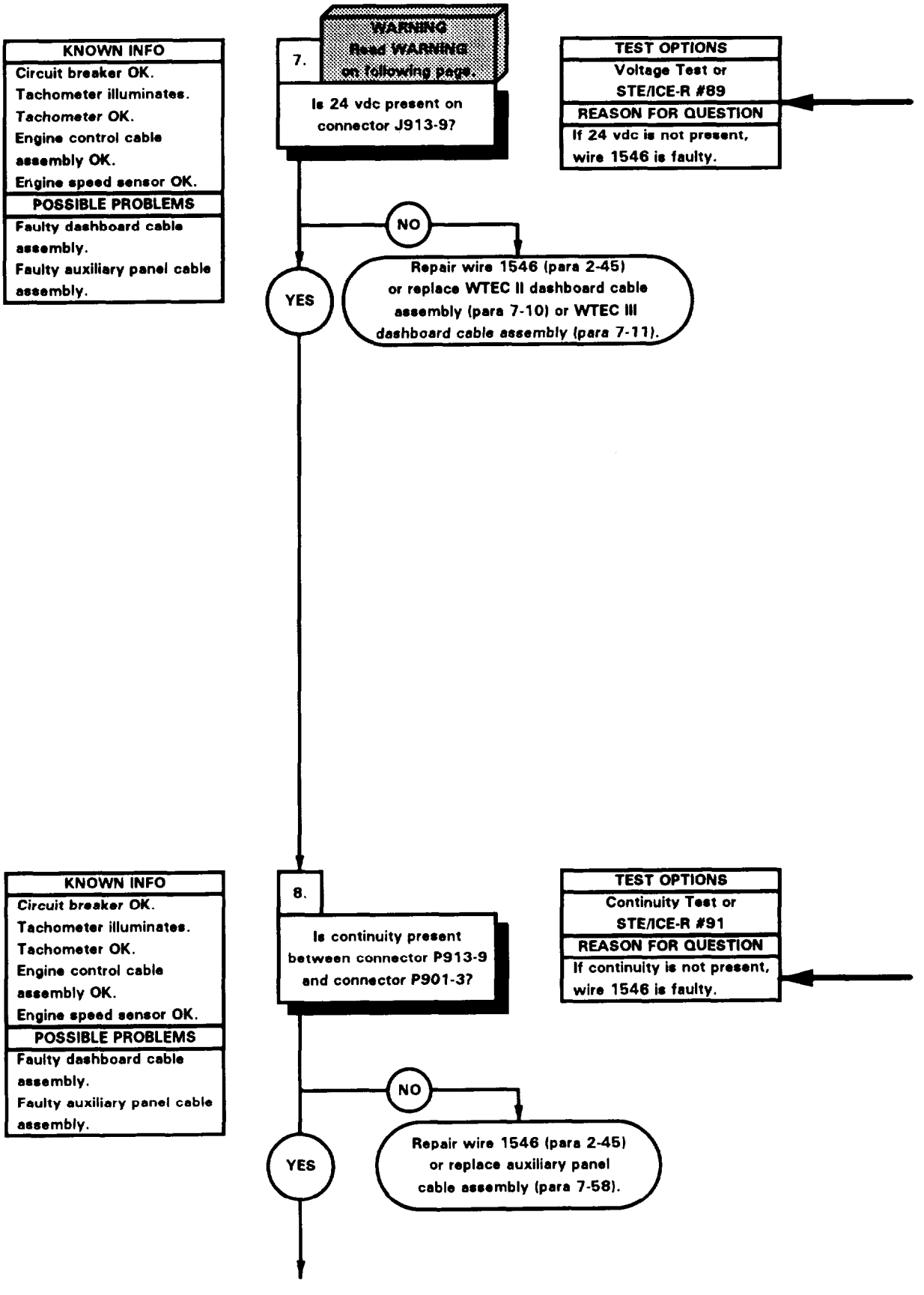
(1) Raise cab (TM 9-2320-366-10-1).
(2) Disconnect connector clamp from connector J38.
(3) Disconnect connector P38 from connector J38.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector P31-8.
(6) Connect negative (-) probe of multimeter to connector P38-1 and note reading on multimeter.
(7) If continuity is not present, repair wire 1444 (para 2-45) or replace engine control cable assembly (para 7-80).
(8) Lower cab (TM 9-2320-366-10-1).
(9) Connect connector P31 to connector J31.
(10) Install instrument panel assembly (para 7-15).



CONTINUITY TEST

(1) Raise cab (TM 9-2320-366-10-1).
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector P38-2.
(4) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(5) If continuity is not present, repair wire 3083 (para 2-45) or replace engine control cable assembly (para 7-80).
(6) If continuity is present, replace engine speed sensor (para 7-46).
(7) Connect connector P38 to connector J38.
(8) Connect connector clamp on connector J38.
(9) Lower cab (TM 9-2320-366-10-1).

e14. TACHOMETER DOES NOT OPERATE OR IS INACCURATE (CONT)

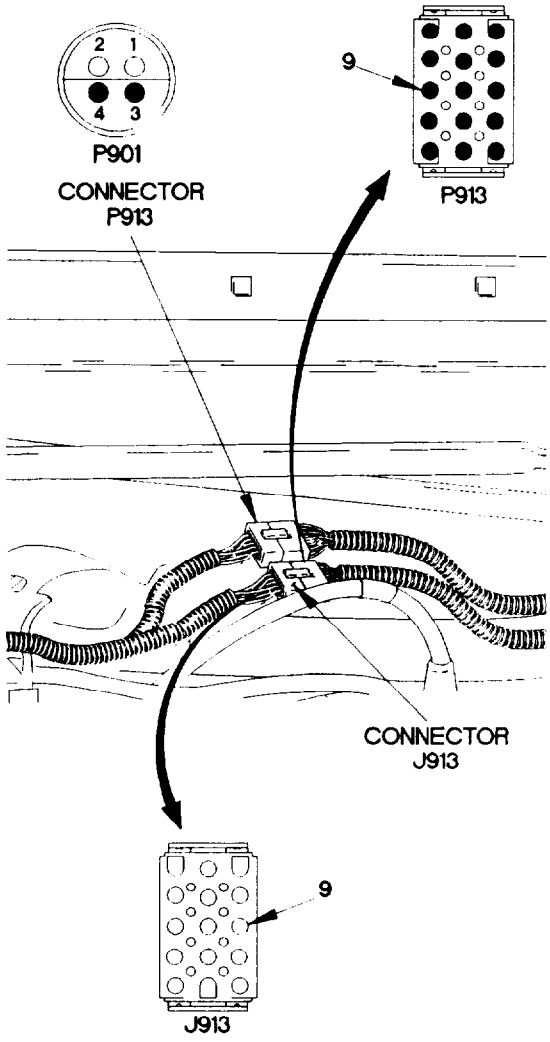


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

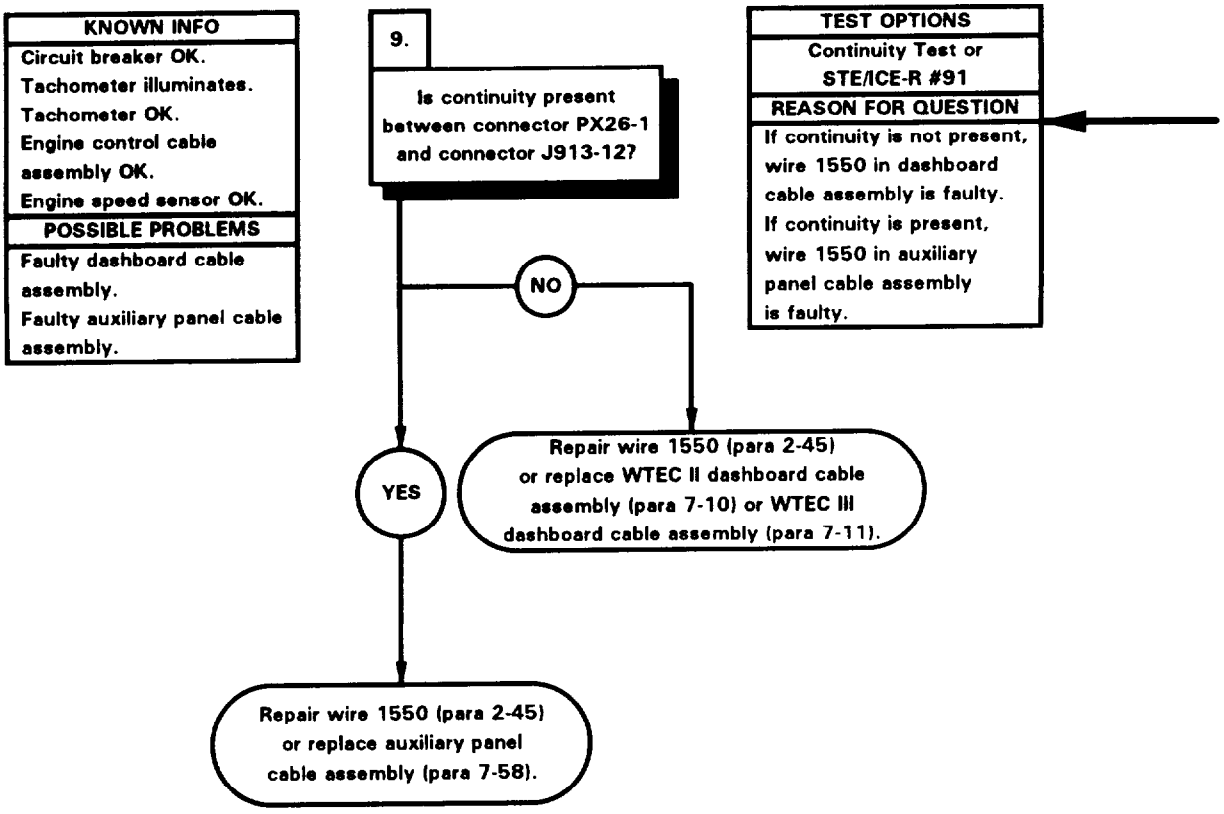
(1) Remove personnel heater for access (para 18-9).
(2) Disconnect connector P913 from connector J913.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector J913-9.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, repair wire 1546 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position master power switch to off (TM 9-2320-366-10-1).



CONTINUITY TEST

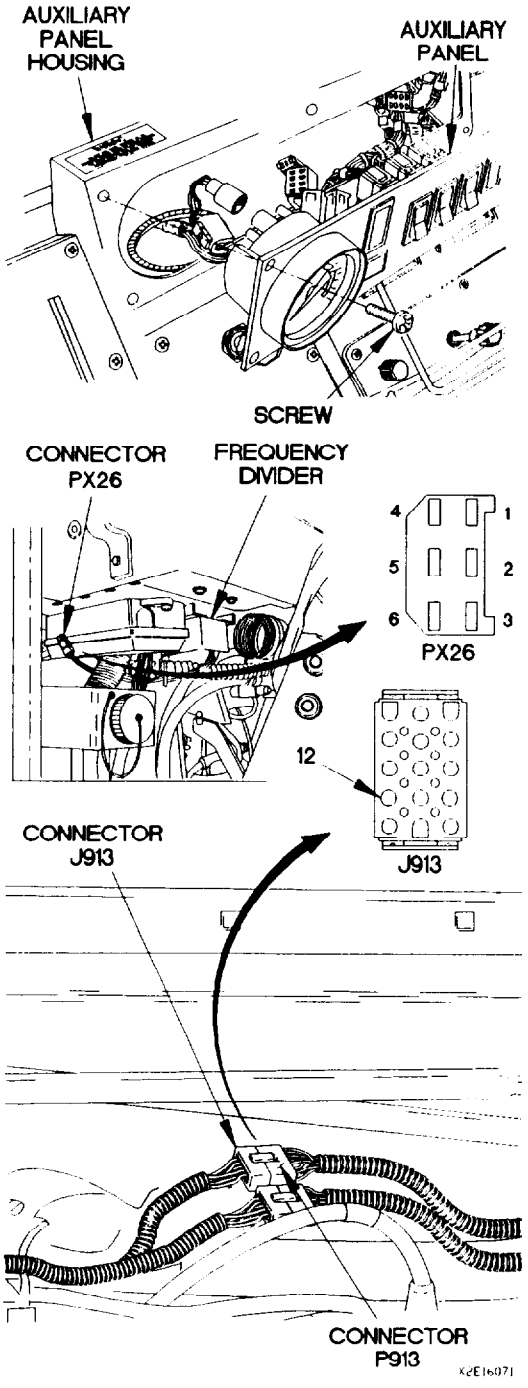
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector P913-9.
(3) Connect negative (-) probe of multimeter to connector P901-3 and note reading on multimeter.
(4) If continuity is not present, repair wire 1546 (para 2-45) or replace auxiliary panel cable assembly (para 7-58).

e14. TACHOMETER DOES NOT OPERATE OR IS INACCURATE (CONT)



CONTINUITY TEST

(1) Disconnect connector PX26 from frequency divider.
(2) Connect positive (+) probe of multimeter to connector PX26-1.
(3) Connect negative (-) probe of multimeter to connector J913-12 and note reading on multimeter.
(4) If continuity is not present, repair wire 1550 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If continuity is present, repair wire 1550 (para 2-45) or replace auxiliary panel cable assembly (para 7-58).
(6) Connect connector P901 to tachometer.
(7) Connect connector clamp on tachometer.
(8) Connect connector PX26 to frequency divider.
(9) Connect connector P913 to connector J913.
(10) Install personnel heater (para 18-9).
(11) Position auxiliary panel on auxiliary panel housing with six screws.
(12) Tighten six screws to 24 lb-in. (3 N·m).



e15. AUDIBLE ALARM DOES NOT OPERATE (ALL MODELS EXCEPT M1083/M1090/M1093/M1094)

INITIAL SETUP

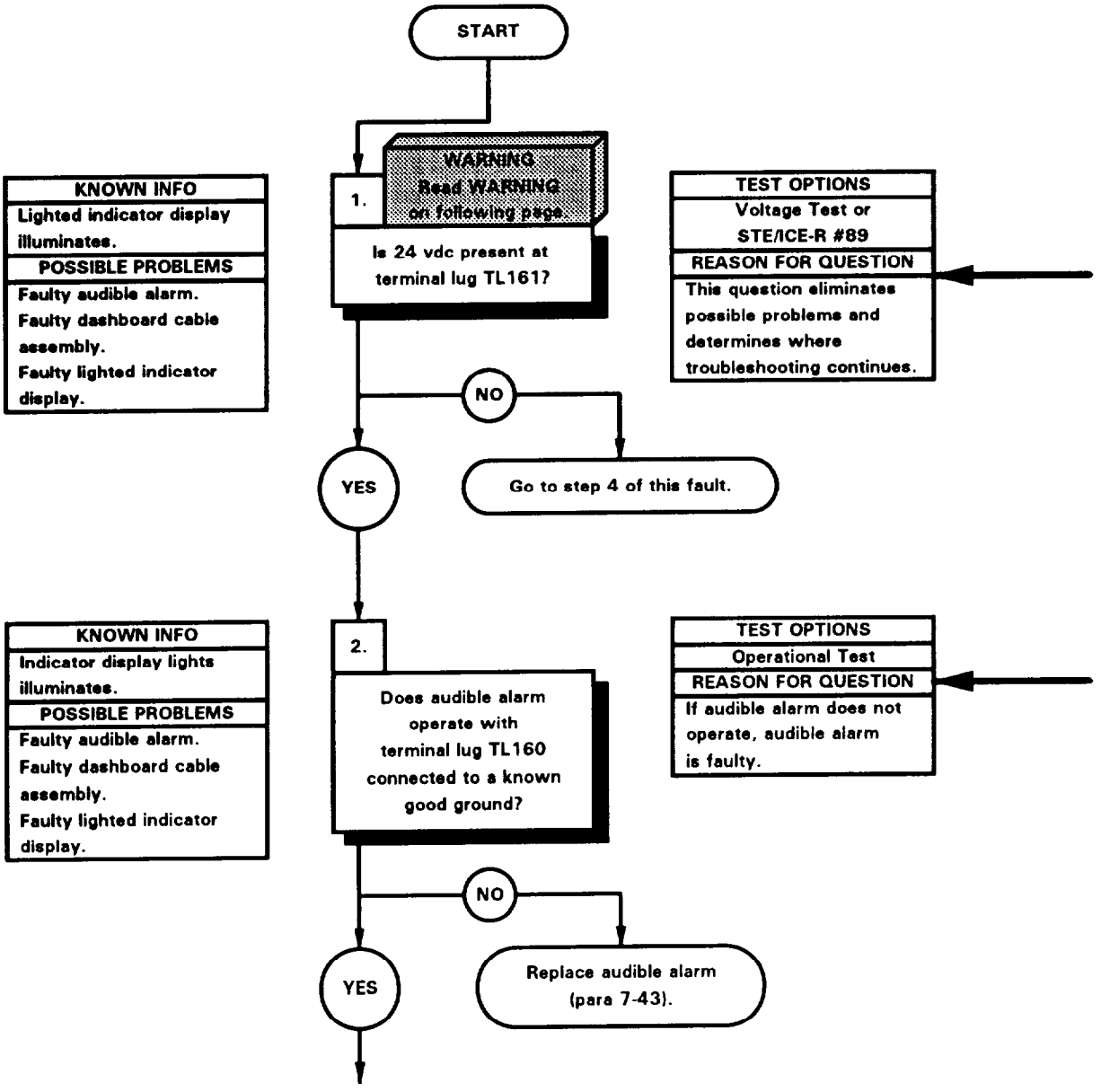
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Wire, Elect, 50 ft (Item 71, Appendix D)



WARNING

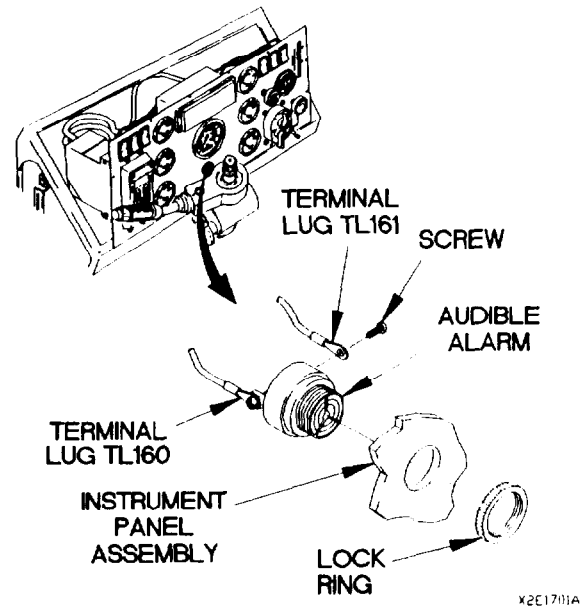
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Remove lock ring from audible alarm.

NOTE
Tag wires and connection points prior to disconnecting.

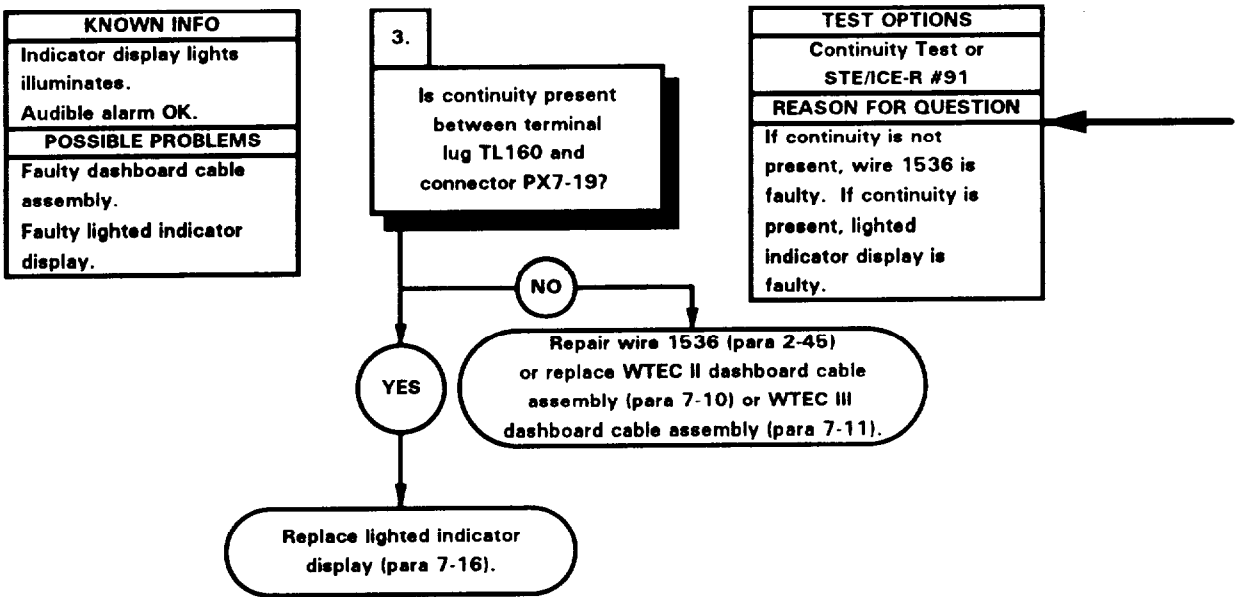
(3) Remove screw and terminal lug TL161 from audible alarm.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to terminal lug TL161.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, go to step 4 of this fault.
(9) Position master power switch to off (TM 9-2320-366-10-1).
(10) Install terminal lug TL161 on audible alarm with screw.

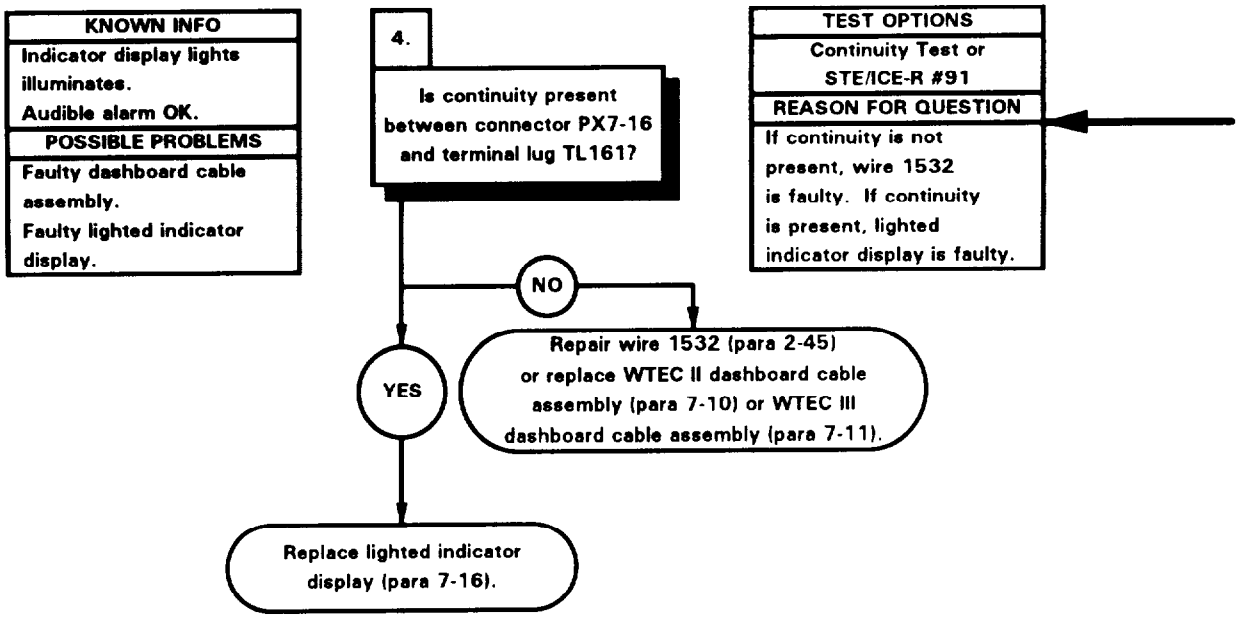


OPERATIONAL TEST

(1) Connect terminal lug TL160 to ground.
(2) Position master power switch to on (TM 9-2320-366-10-1).
(3) If audible alarm does not operate, replace audible alarm (para 7-43).
(4) Position master power switch to off (TM 9-2320-366-10-1).

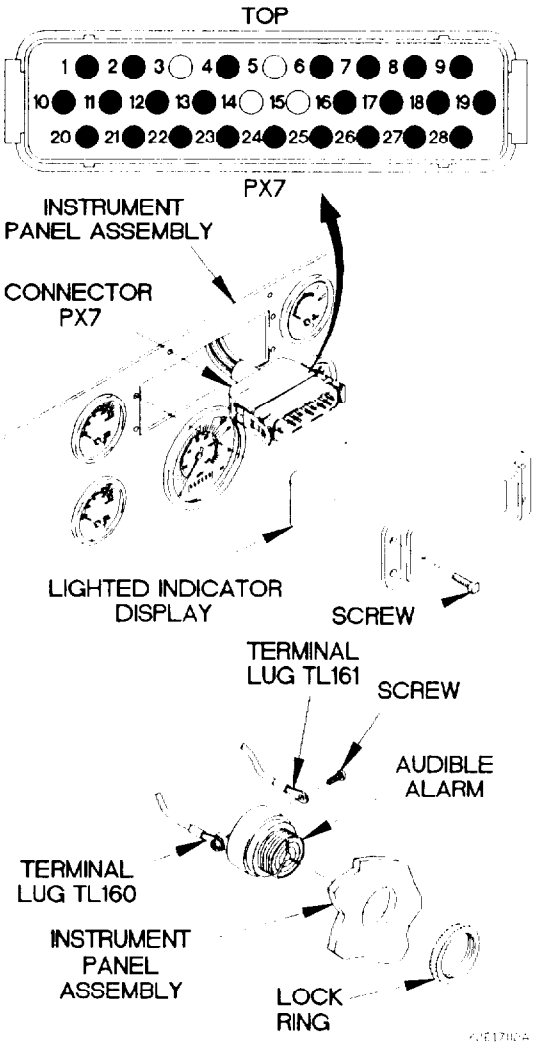
e15. AUDIBLE ALARM DOES NOT OPERATE (ALL MODELS EXCEPT M1083/M1090/M1093/M1094) (CONT)





CONTINUITY TEST
(1) Disconnect connector PX7 from lighted indicator display.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to terminal lug TL160.
(4) Connect negative (-) probe of multimeter to connector PX7-19 and note reading on multimeter.
(5) If continuity is not present, repair wire 1536 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) If continuity is present, replace lighted indicator display (para 7-16).
(7) Install audible alarm in instrument panel assembly with lock ring.
(8) Install instrument panel assembly (para 7-15).

CONTINUITY TEST
(1) Disconnect connector PX7 from lighted indicator display.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to terminal lug TL161.
(4) Connect negative (-) probe of multimeter to connector PX7-16 and note reading on multimeter.
(5) If continuity is not present, repair wire 1532 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) If continuity is present, replace lighted indicator display (para 7-16).
(7) Install audible alarm in instrument panel assembly with lock ring.
(8) Install instrument panel assembly (para 7-15).



•16. AUDIBLE ALARM DOES NOT OPERATE (MODELS M1083/M1090/M1093/M1094 ONLY)

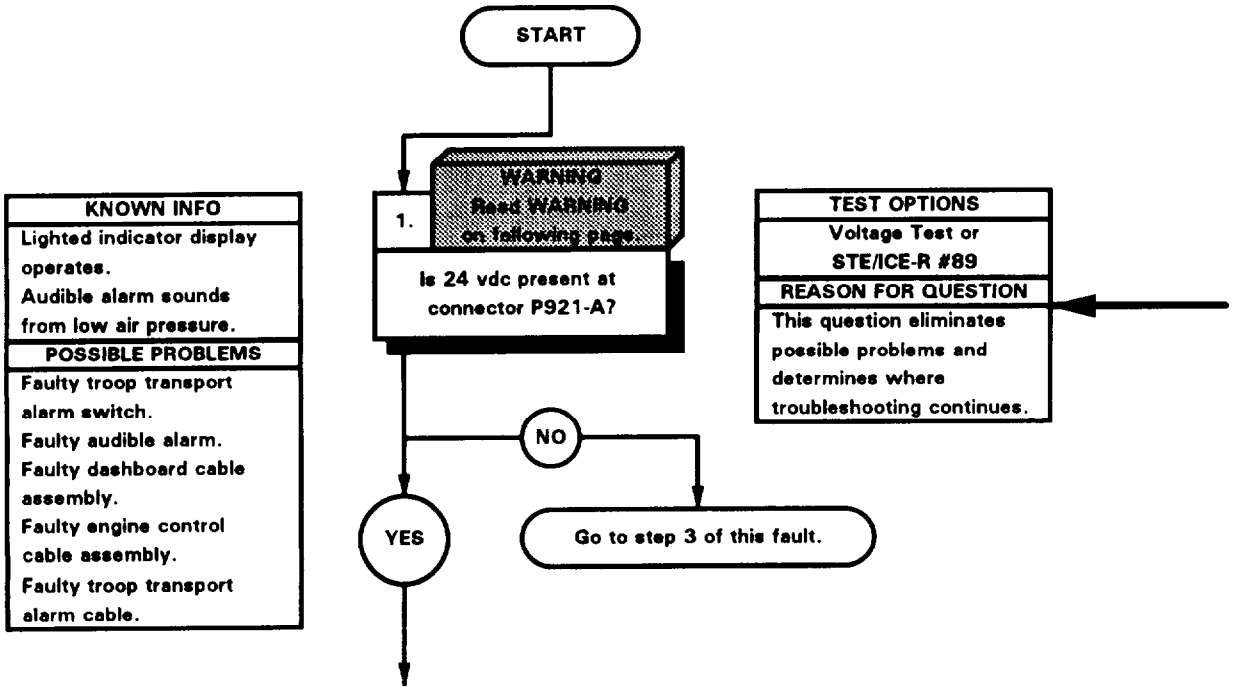
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 79, Appendix C)
STE/ICE-R (Item 75, Appendix C)
Multimeter, Digital (Item 37, Appendix C)
Wrench, Torque, 0-40 lb-in. (Item 95, Appendix C)

References
TM 9-4910-571-12&P



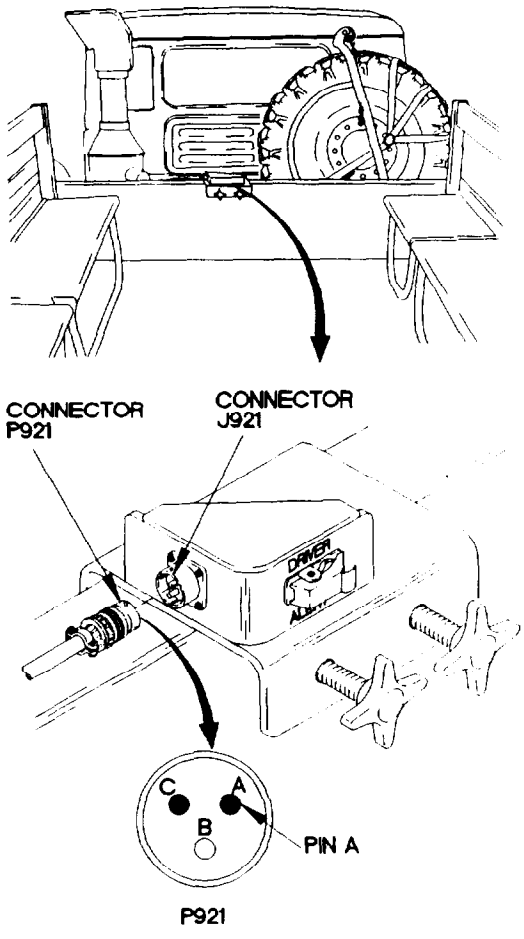
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

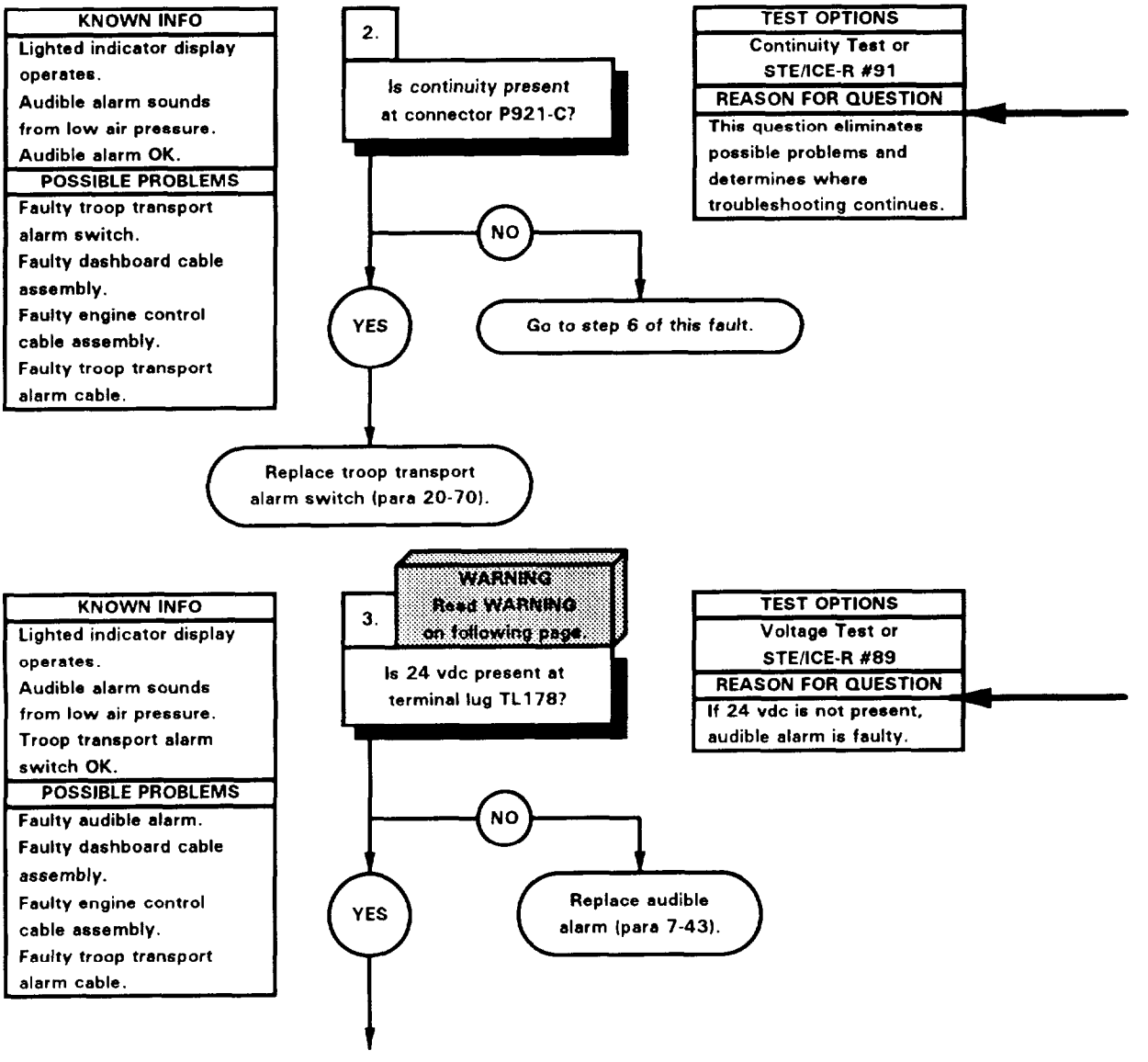
NOTE

In order to perform this trouble shooting task air pressure 75-120 psi must be present on vehicle.

VOLTAGE TEST
(1) Disconnect connector P921 from J921.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector P921-A.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, go to step 3 of this fault.
(7) Position master power switch to off (TM 9-2320-366-10-1).

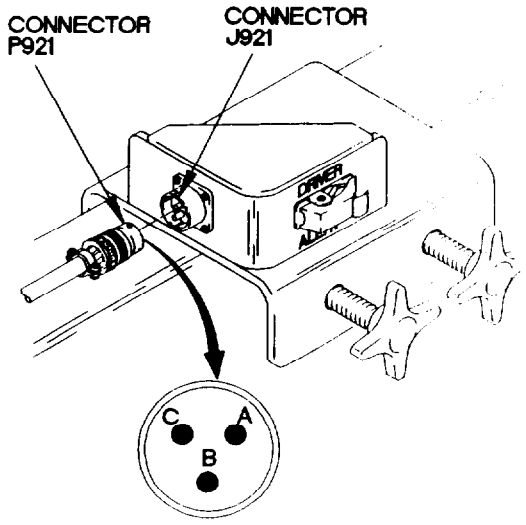


e16. AUDIBLE ALARM DOES NOT OPERATE (MODELS M1083/M1090/M1093/M1094 ONLY (CONT)



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector P921-C.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, go to step 6 of this fault.
(5) Connect connector P921 to connector J921.

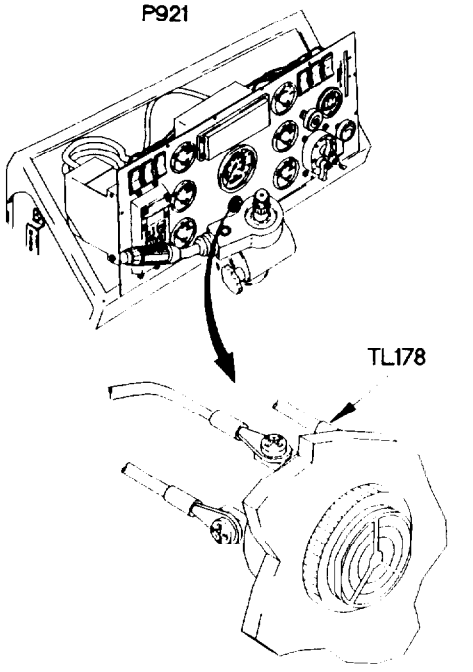


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

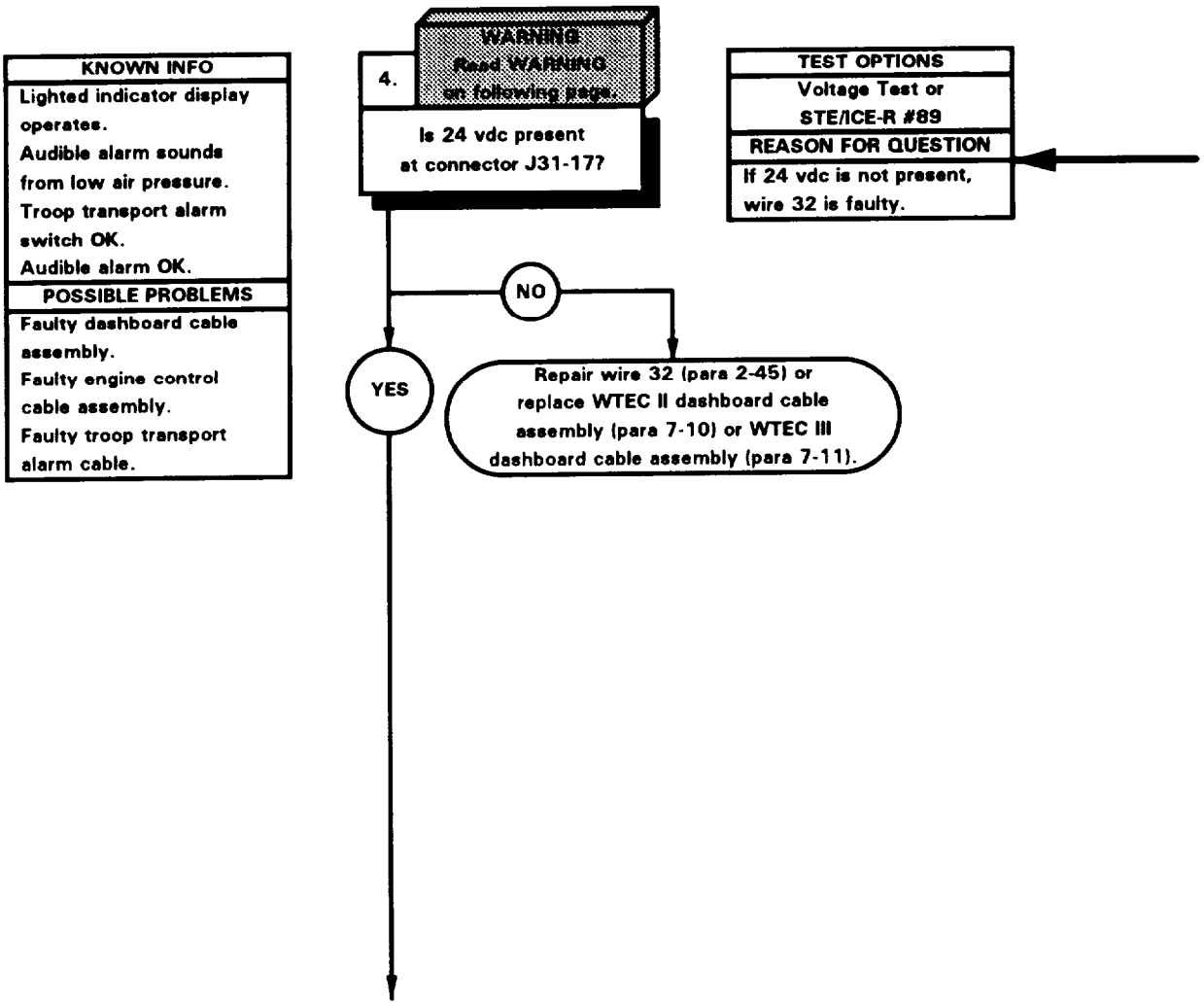
VOLTAGE TEST

(1) Remove steering wheel (para 13-2).
(2) Remove instrument panel assembly for access (para 7-15).
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to terminal lug TL178.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, replace audible alarm (para 7-43).
(8) Position master power switch to off (TM 9-2320-366-10-1).



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e16. AUDIBLE ALARM DOES NOT OPERATE (MODELS M1083/M1090/M1093/M1094 ONLY (CONT)

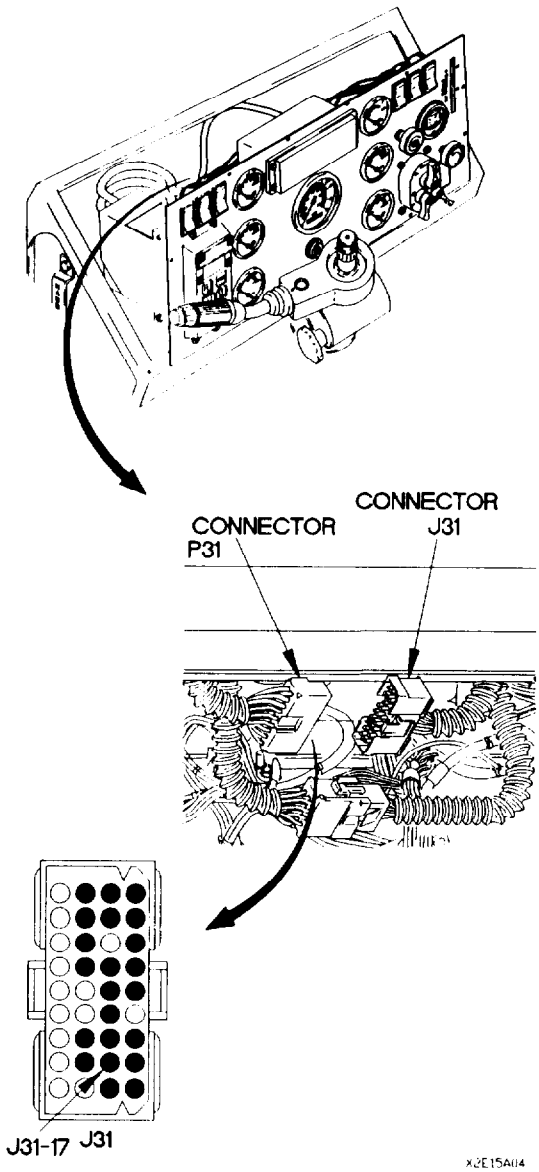


WARNING

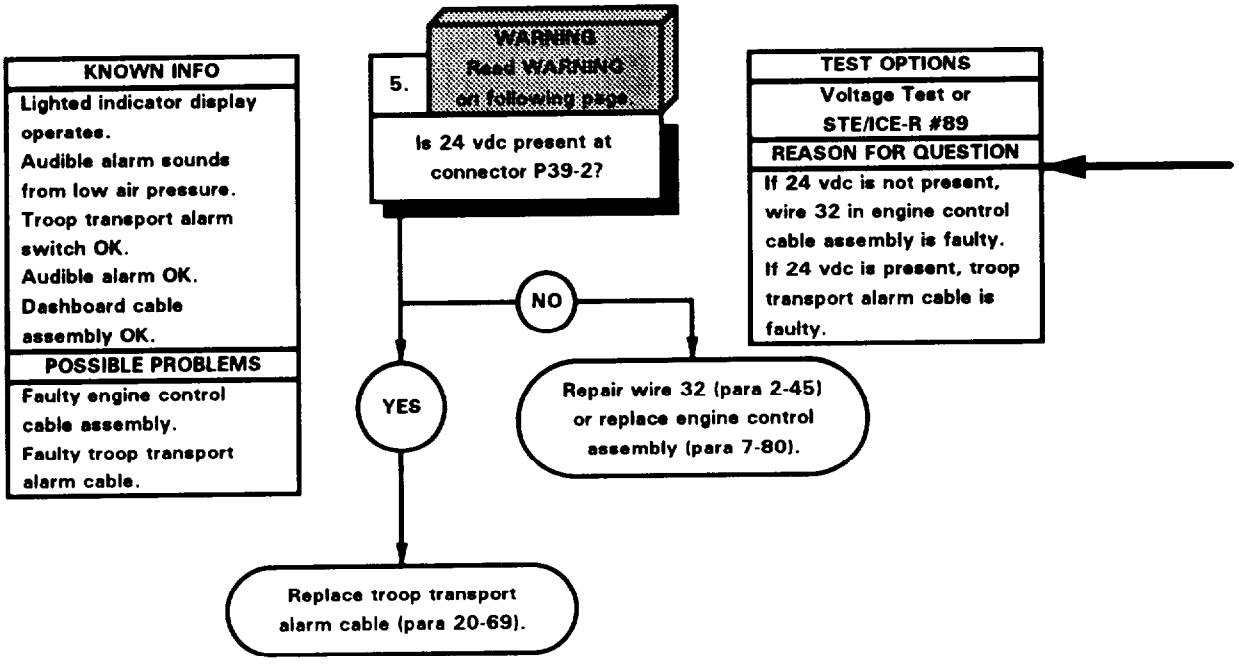
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Disconnect connector J31 from connector P31.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J31-17.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, repair wire 32 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position master power switch to off (TM 9-2320-366-10-1).
(8) Connect connector J31 to connector P31.
(9) Install instrument panel assembly (para 7-15).



e16. AUDIBLE ALARM DOES NOT OPERATE (MODELS M1083/M1090/M1093/M1094 ONLY (CONT)

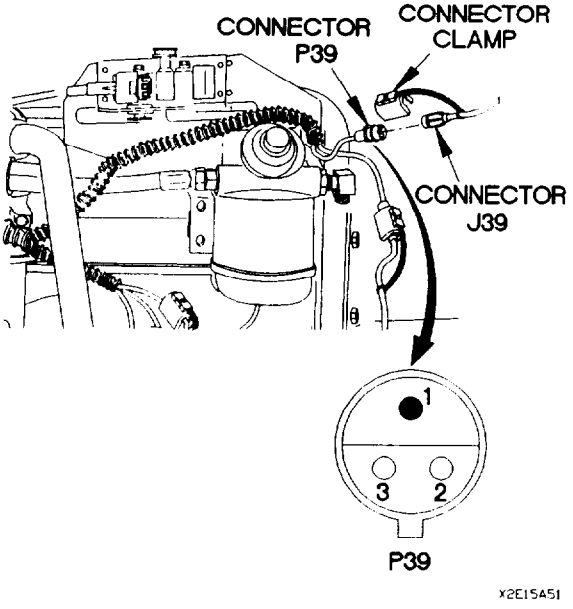


WARNING

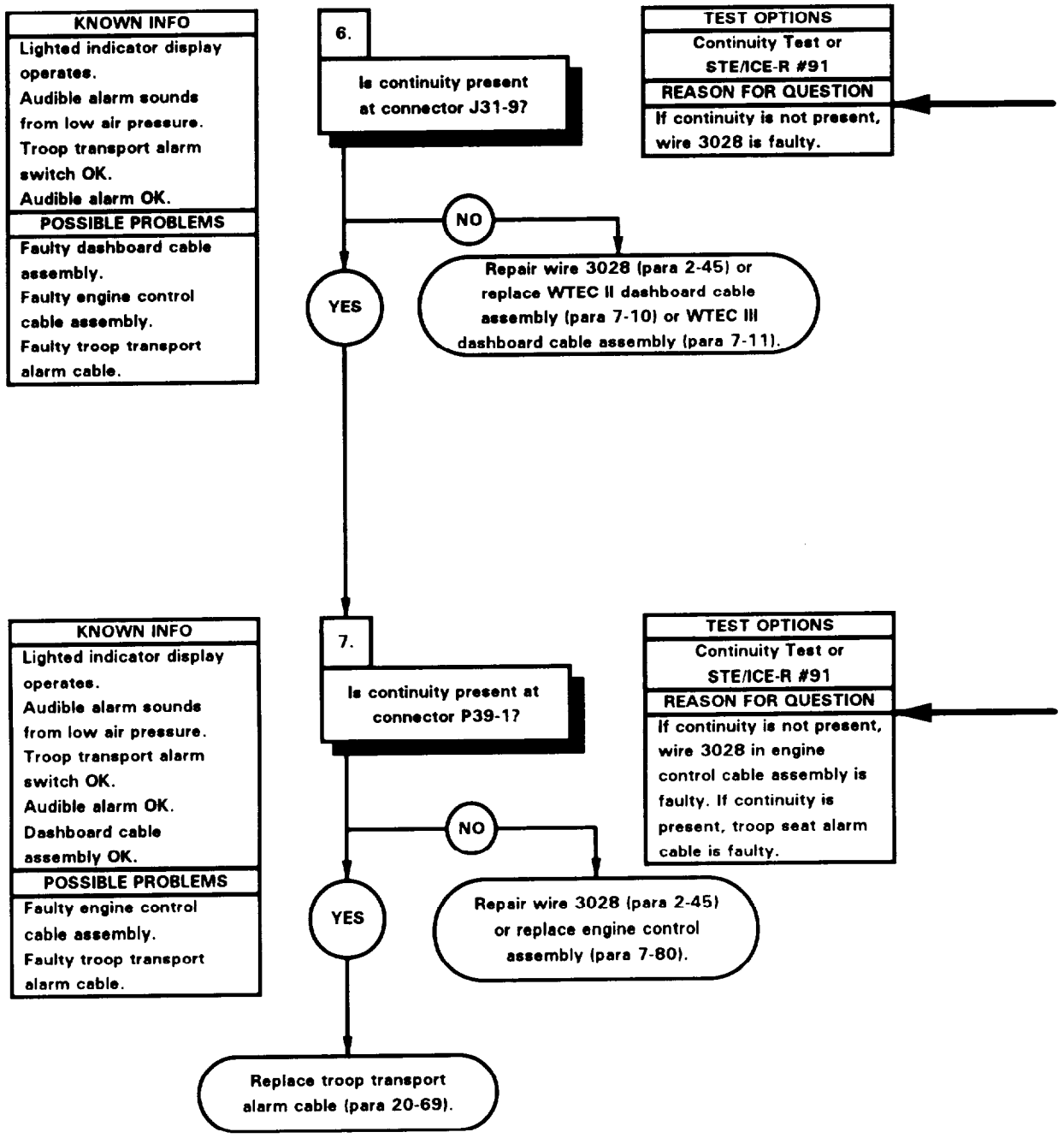
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Raise cab (TM 9-2320-366-10-1).
(2) Disconnect connector clamp from connector P39.
(3) Disconnect connector P39 from connector P39.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector P39-2.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, repair wire 32 (para 2-45) or replace engine control cable assembly (para 7-80).
(9) If 24 vdc is present, replace troop transport alarm cable (para 20-69).
(10) Position master power switch to off (TM 9-2320-366-10-1).
(11) Connect connector P39 to connector J39.
(12) Connect connector clamp on connector P39.
(13) Lower cab (TM 9-2320-366-10-1).



e16. AUDIBLE ALARM DOES NOT OPERATE (MODELS M1083/M1090/M1093/M1094 ONLY (CONT)

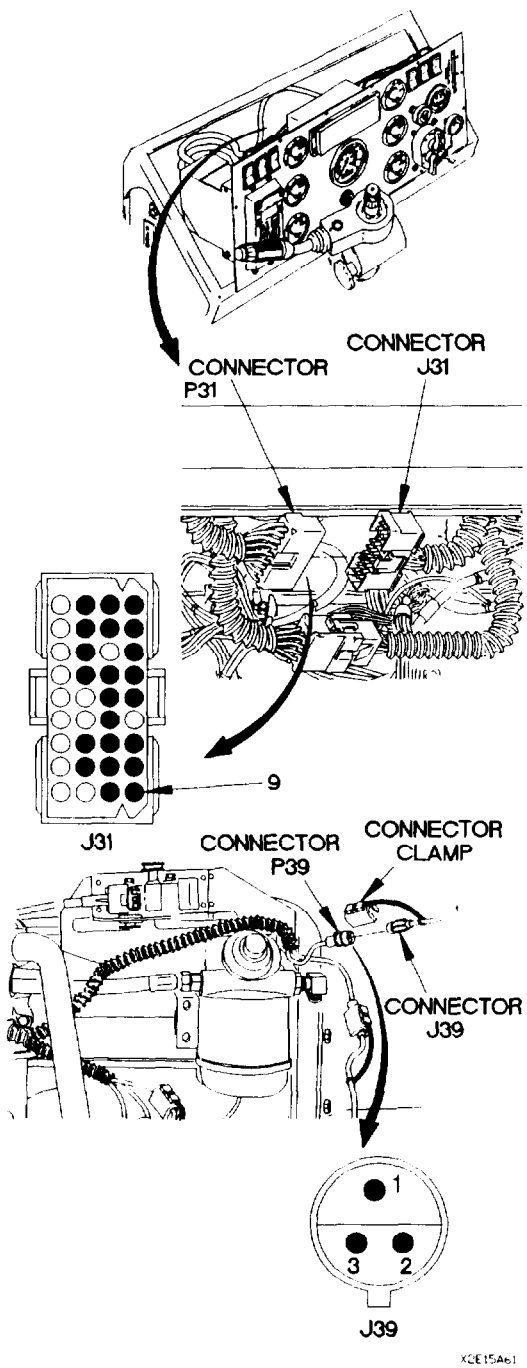


CONTINUITY TEST

(1) Remove steering wheel (para 13-2).
(2) Remove instrument panel assembly access (para 7-15).
(3) Disconnect connector J31 from connector P31.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector J31-9.
(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(7) If continuity is not present, repair wire 3028 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Connect connector J31 to connector P31.
(9) Install instrument panel assembly (para 7-15).
(10) Install steering wheel (para 13-2).

VOLTAGE TEST

(1) Raise cab (TM 9-2320-366-10-1).
(2) Disconnect connector clamp from connector P39.
(3) Disconnect connector P39 from connector J39.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector J39-1.
(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(7) If continuity is not present, repair wire 3028 (para 2-45) or replace engine control cable assembly (para 7-80).
(8) If continuity is present, replace troop transport alarm cable (para 20-69).
(9) Connect connector P39 to connector J39.
(10) Connect connector clamp on connector P39.
(11) Lower cab (TM 9-2320-366-10-1).



e17. LAMP TEST SWITCH DOES NOT ILLUMINATE

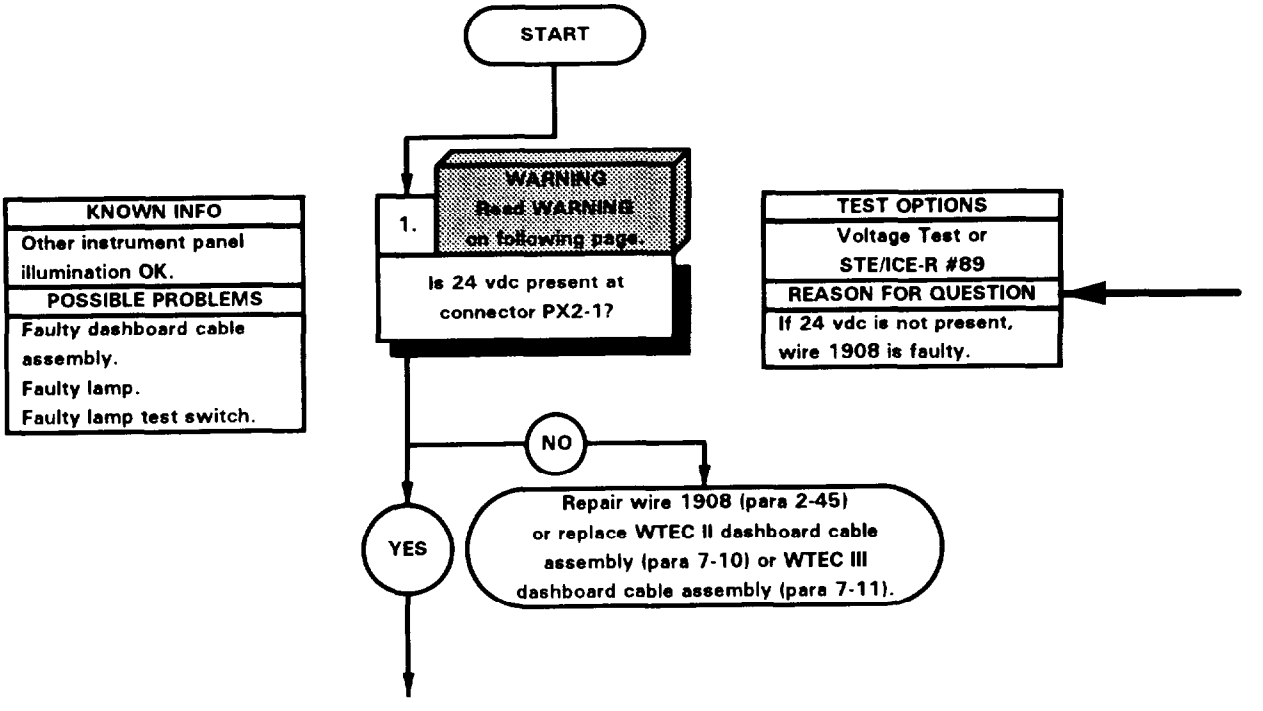
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)

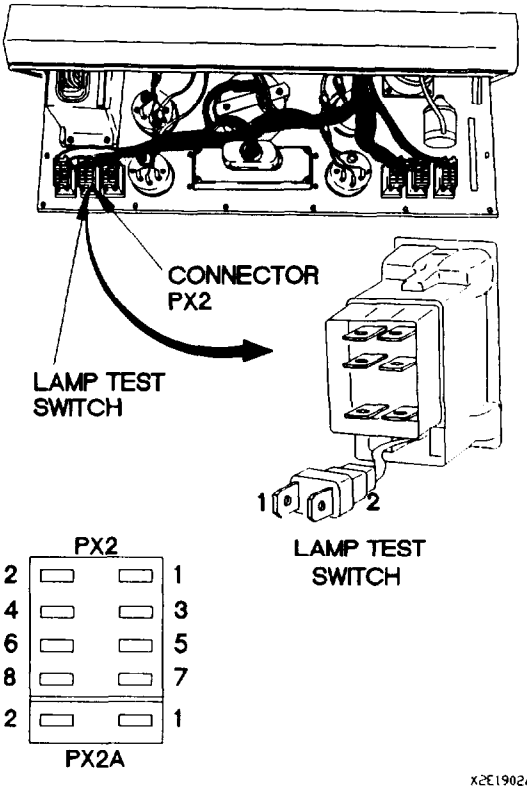


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

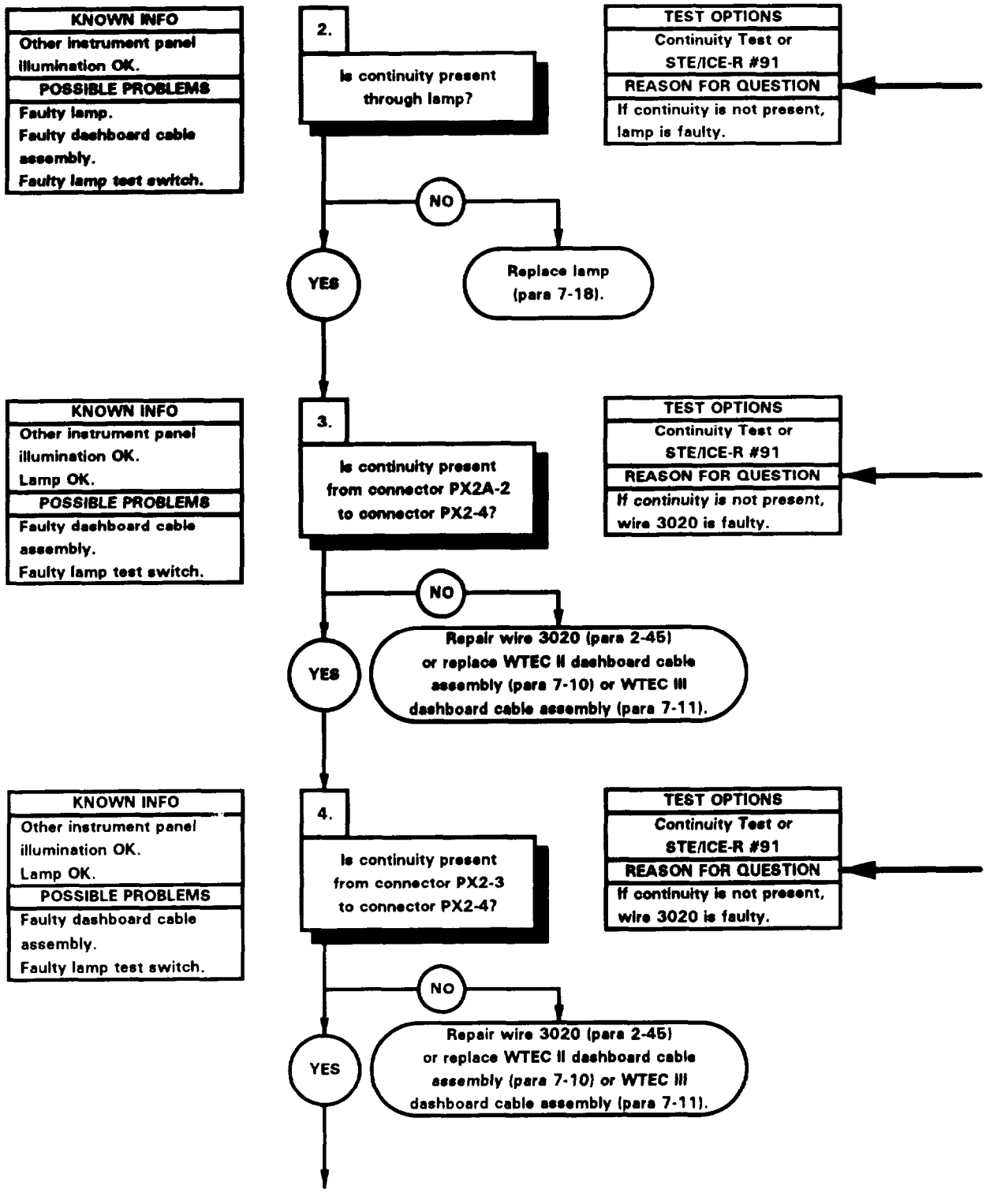
VOLTAGE TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX2 from lamp test switch.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector PX2-1.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1) note reading on multimeter.
(7) If 24 vdc is not present, repair wire 1908 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position master power switch to off (TM 9-2320-366-10-1).



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e17. LAMP TEST SWITCH DOES NOT ILLUMINATE (CONT)



CONTINUITY TEST

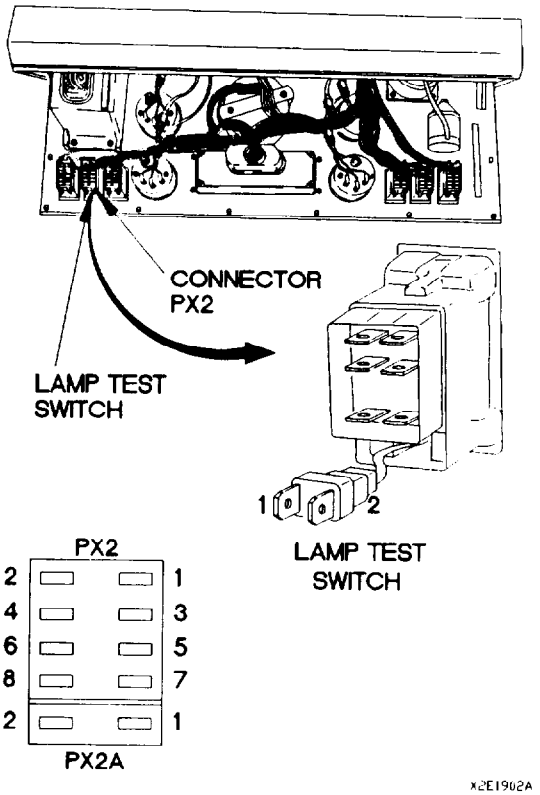
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to lamp test switch lamp terminal 1.
(3) Connect negative (-) probe of multimeter to lamp test switch lamp terminal 2 and note reading on multimeter.
(4) If continuity is not present, replace lamp (para 7-18).

CONTINUITY TEST

(1) Disconnect connector PX2 from lamp test switch.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector PX2A-2.
(4) Connect negative (-) probe of multimeter to connector PX2-4 and note reading on multimeter.
(5) If continuity is not present, repair wire 3020 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).

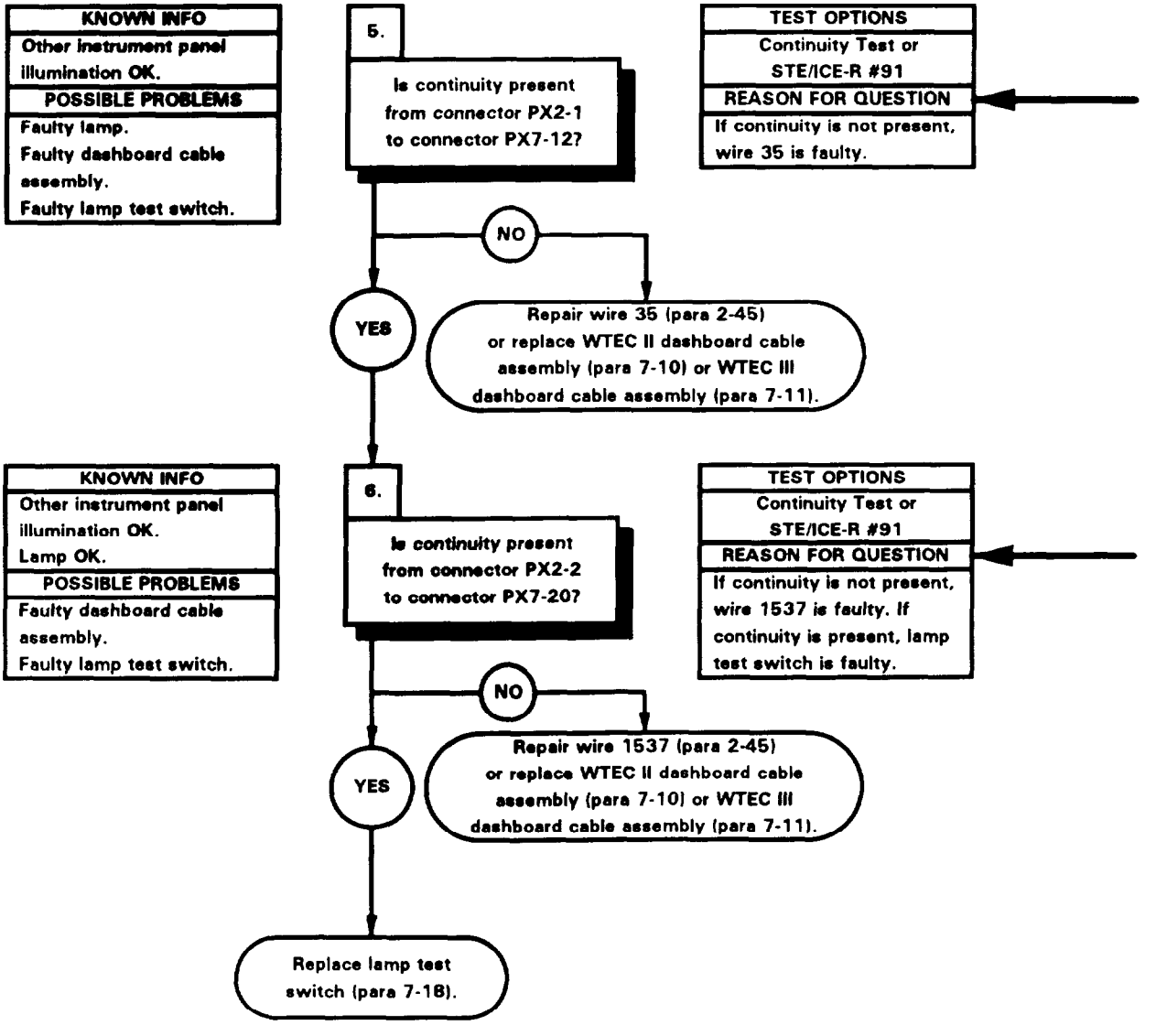
CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX2-3.
(3) Connect negative (-) probe of multimeter to connector PX2-4 and note reading on multimeter.
(4) If continuity is not present, repair wire 3020 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



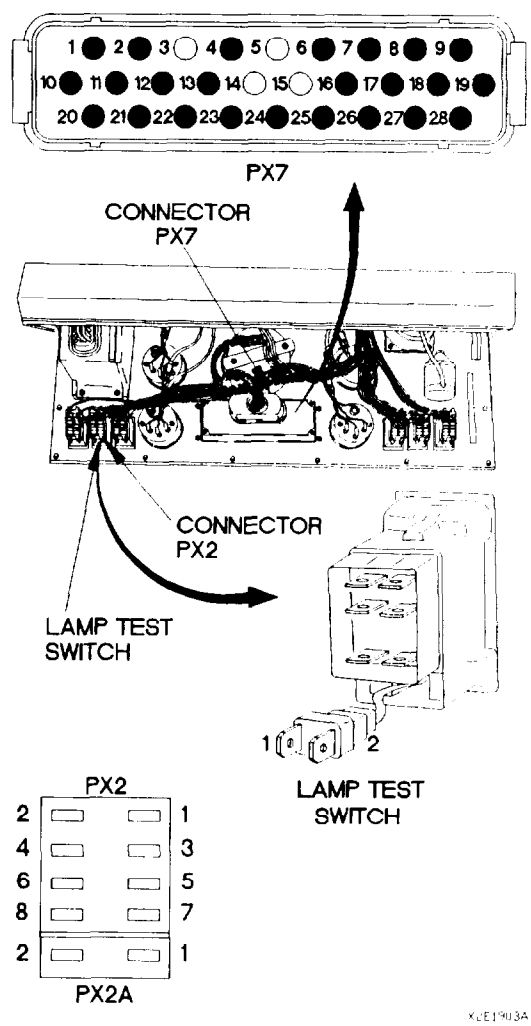
X2E1902A

e17. LAMP TEST SWITCH DOES NOT ILLUMINATE (CONT)

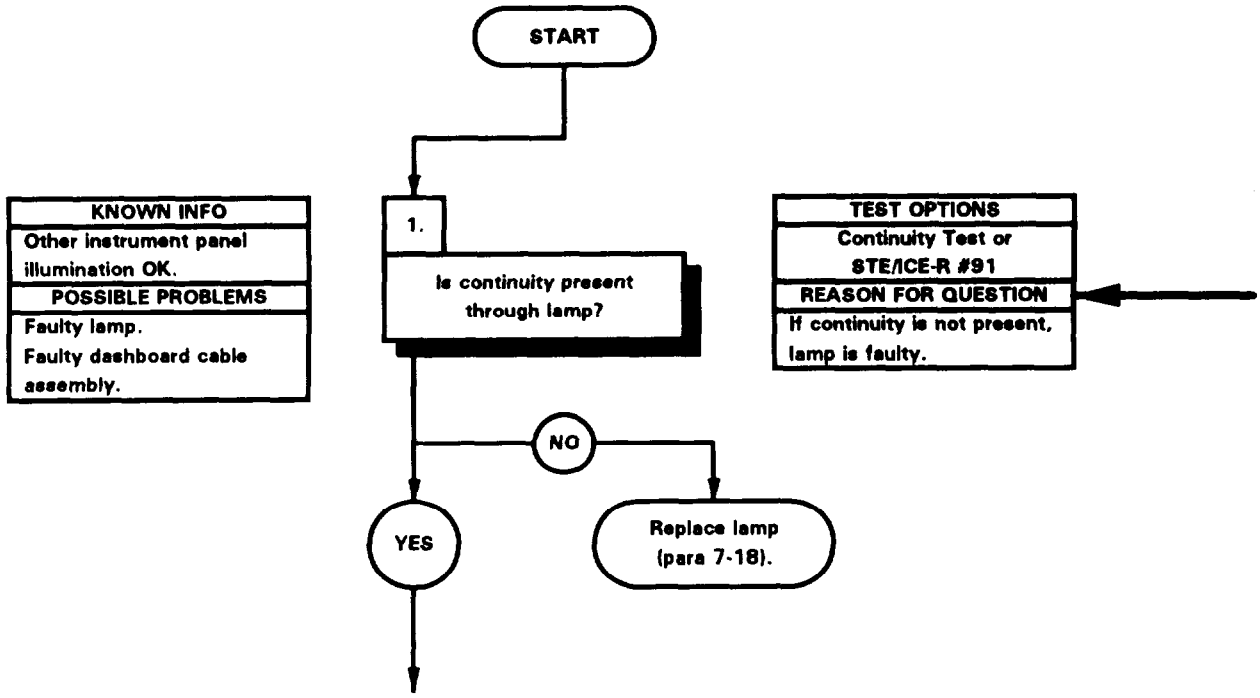


CONTINUITY TEST
(1) Disconnect connector PX7 from lighted indicator display.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector PX2-1.
(4) Connect negative (-) probe of multimeter to connector PX7-12 and note reading on multimeter.
(5) If continuity is not present, repair wire 35 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).

CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX2-2.
(3) Connect negative (-) probe of multimeter to connector PX7-20 and note reading on multimeter.
(4) If continuity is not present, repair wire 1537 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If continuity is present, replace lamp test switch (para 7-18).
(6) Connect connector PX7 to lighted indicator display.
(7) Connect connector PX2 to lamp test switch.
(8) Install instrument panel assembly (para 7-15).



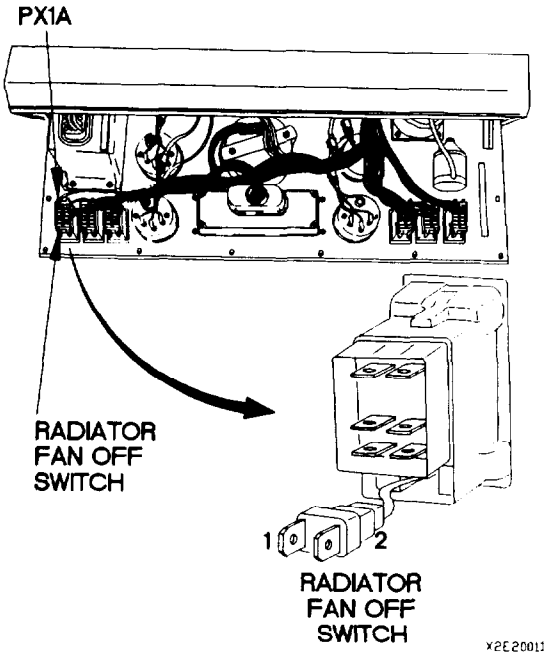
e18. INSTRUMENT PANEL SWITCH DOES NOT ILLUMINATE	
INITIAL SETUP	
Equipment Condition Engine shut down (TM 9-2320-366-10-1). **Personnel Required** (2)	**Tools and Special Tools** Tool Kit, Genl Mech (Item 46, Appendix C) STE/ICE-R (Item 41, Appendix C) Multimeter, Digital (Item 22, Appendix C) **References** TM 9-4910-571-12&P



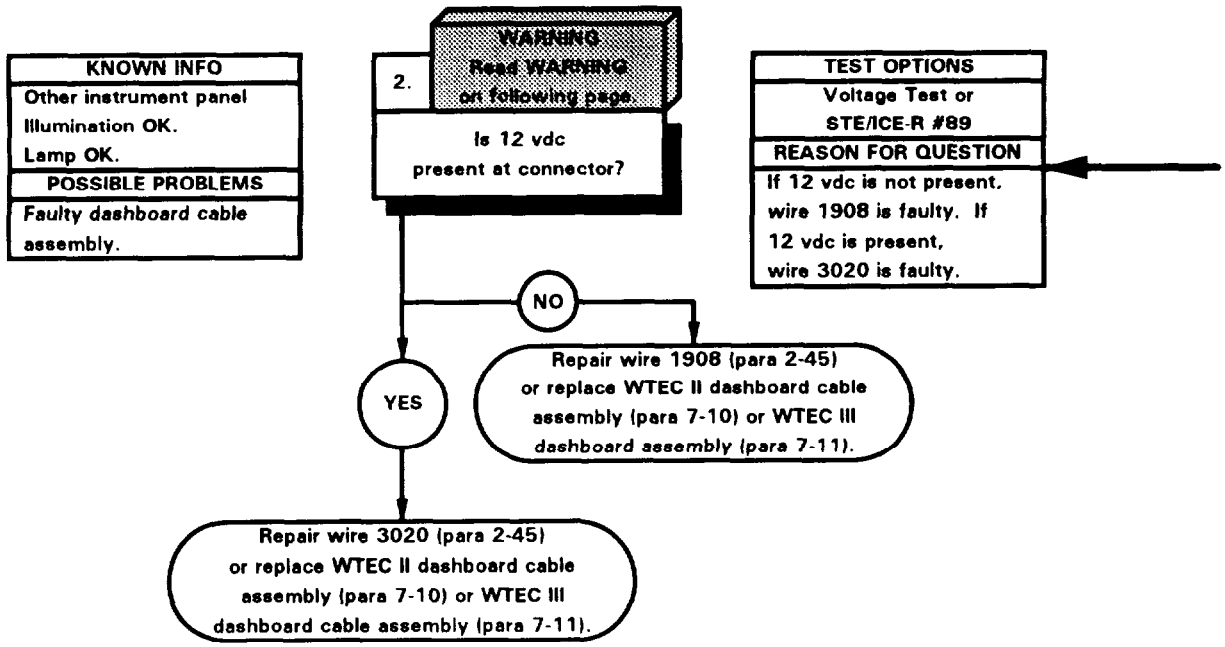
NOTE

All instrument panel switch illumination faults are traced the same way. Radiator fan off switch shown.

CONTINUITY TEST
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX1A from radiator fan off switch.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to radiator fan off switch lamp terminal 1.
(5) Connect negative (-) probe of multimeter to radiator fan off switch lamp terminal 2 and note reading on multimeter.
(6) If continuity is not present, replace lamp (para 7-18).



e18. INSTRUMENT PANEL SWITCH DOES NOT ILLUMINATE (CONT)

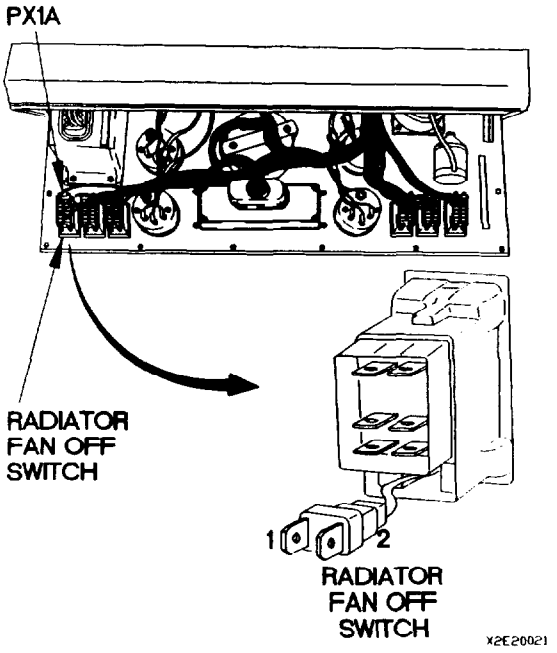


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal 2 of connector PX1A or refer to Reference Table 2-9.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to PANEL BRT (TM 9-2320-366-10-1).
(5) Position dimmer switch to maximum brightness (TM 9-2320-366-10-1).
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 1908 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) If 12 vdc is present, repair wire 3020 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).
(10) Connect radiator fan off switch connector to radiator fan off switch.
(11) Install instrument panel assembly (para 7-15).

REFERENCE TABLE 2-9	
SWITCH DESCRIPTION	LAMP
RADIATOR FAN OFF	PX1A-2
WARNING LIGHT	PX12A-2
ETHER START	PX13A-2
HAZARD LIGHTS	PX14A-2
MASTER POWER	PX17A-2
LAMP TEST	PX2A-2



•19. INSTRUMENT PANEL GAGE DOES NOT ILLUMINATE

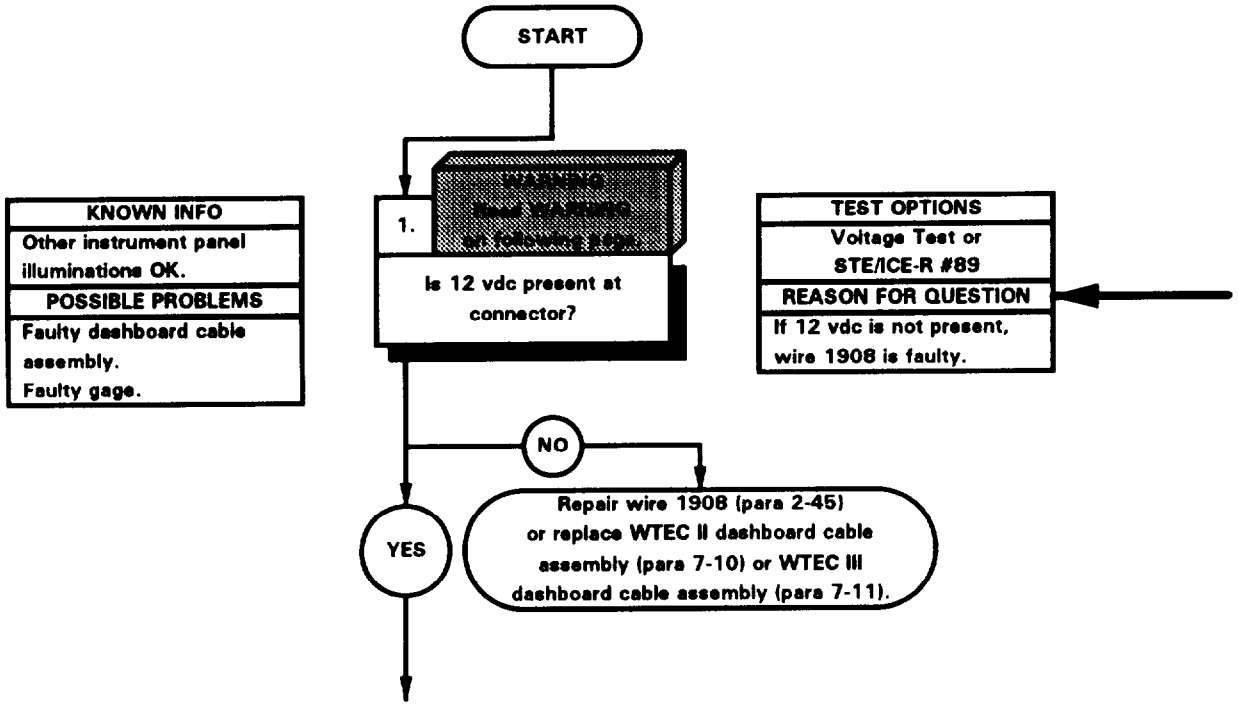
INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)



WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

NOTE

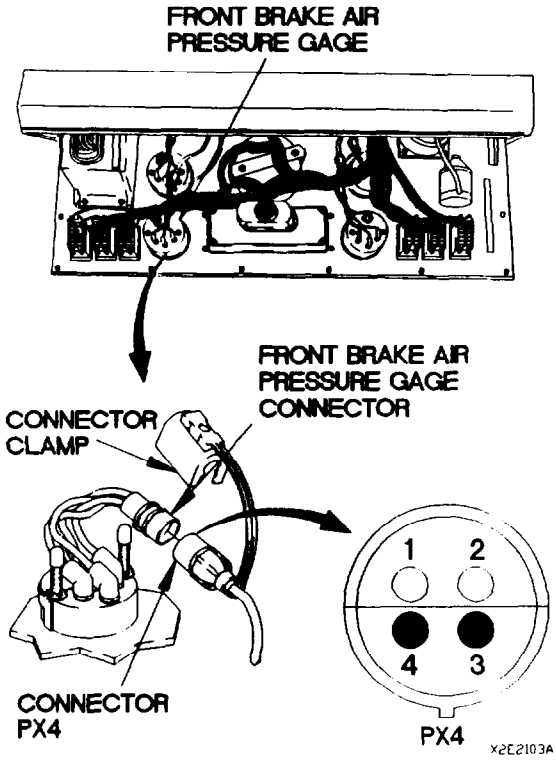
All gage illumination faults are traced the same way. Front brake air pressure gage shown.

VOLTAGE TEST

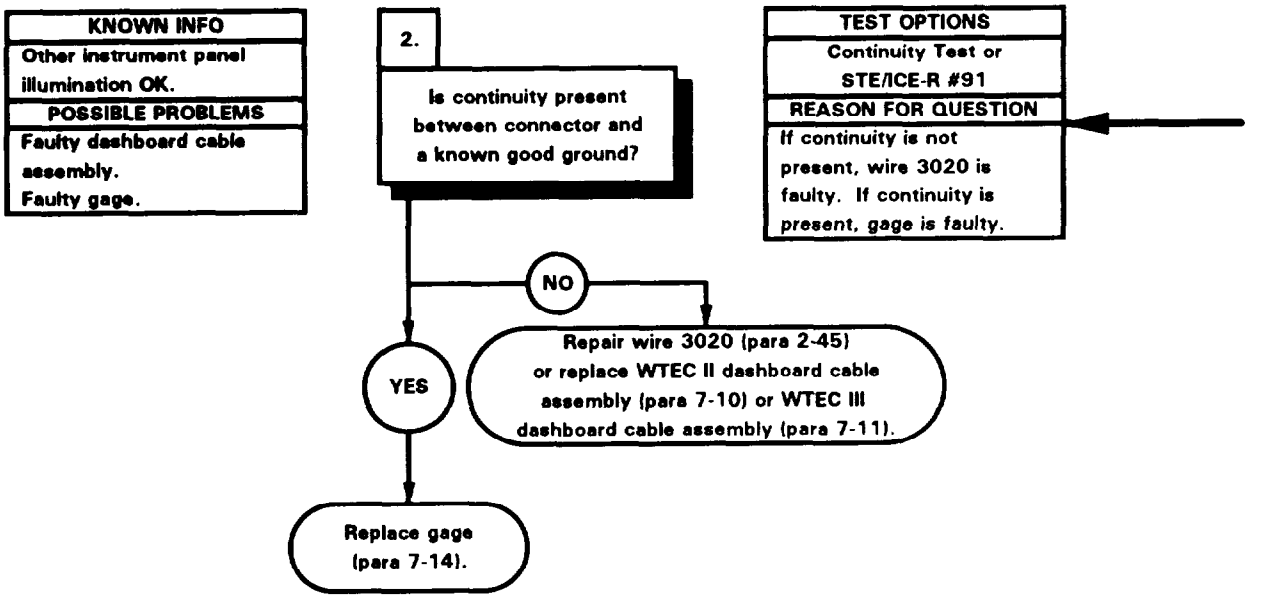
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector clamp from front brake air pressure gage connector.
(3) Disconnect connector PX4 from front brake air pressure gage connector.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to terminal 2 of connector PX4 or refer to Reference Table 2-10.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position main light switch to PANEL BRT (TM 9-2320-366-10-1).
(8) Position dimmer switch to maximum brightness (TM 9-2320-366-10-1).
(9) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(10) If 12 vdc is not present, repair wire 1908 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(11) Position main light switch to OFF (TM 9-2320-366-10-1).

REFERENCE TABLE 2-10

GAGE DESCRIPTION	CONNECTOR
FUEL	PX9-2
WATER TEMP	PX11-2
FRONT BRAKE AIR PRESSURE	PX4-2
REAR BRAKE AIR PRESSURE	PX5-2
OIL PRESS	PX6-2
SPEEDOMETER	PX8-2
ODOMETER	PX8-2
VOLTS	PX10-2

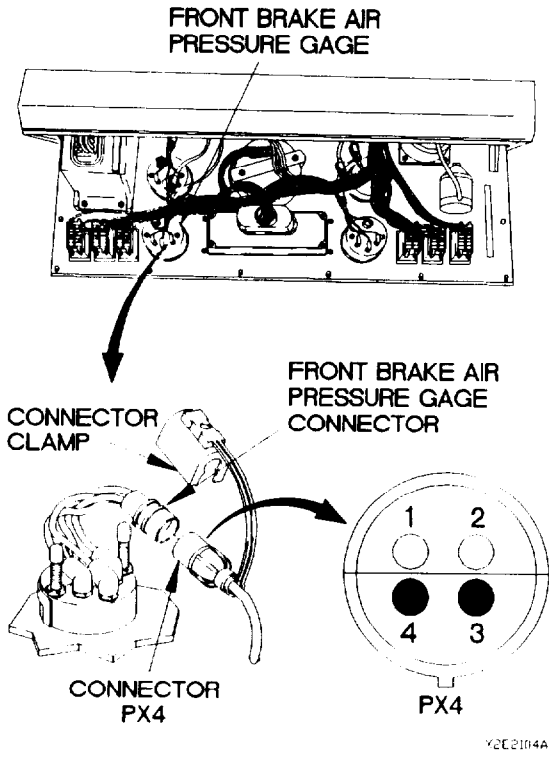


e19. INSTRUMENT PANEL GAGE DOES NOT ILLUMINATE (CONT)



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to terminal 1 of connector PX4 or refer to Reference Table 2-11.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3020 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If continuity is present, replace gage (para 7-14).
(6) Connect connector PX4 to front brake air pressure gage connector.
(7) Connect connector clamp on front brake air pressure gage connector.
(8) Install instrument panel assembly (para 7-15).

REFERENCE TABLE 2-11	
GAGE DESCRIPTION	CONNECTOR
FUEL	PX9-1
WATER TEMP	PX11-1
FRONT BRAKE AIR PRESSURE	PX4-1
REAR BRAKE AIR PRESSURE	PX5-1
OIL PRESS	PX6-1
SPEEDOMETER	PX8-1
ODOMETER	PX8-1
VOLTS	PX10-1



•20. AUXILIARY PANEL, PERSONNEL HEATER, AND INSTRUMENT PANEL DO NOT ILLUMINATE

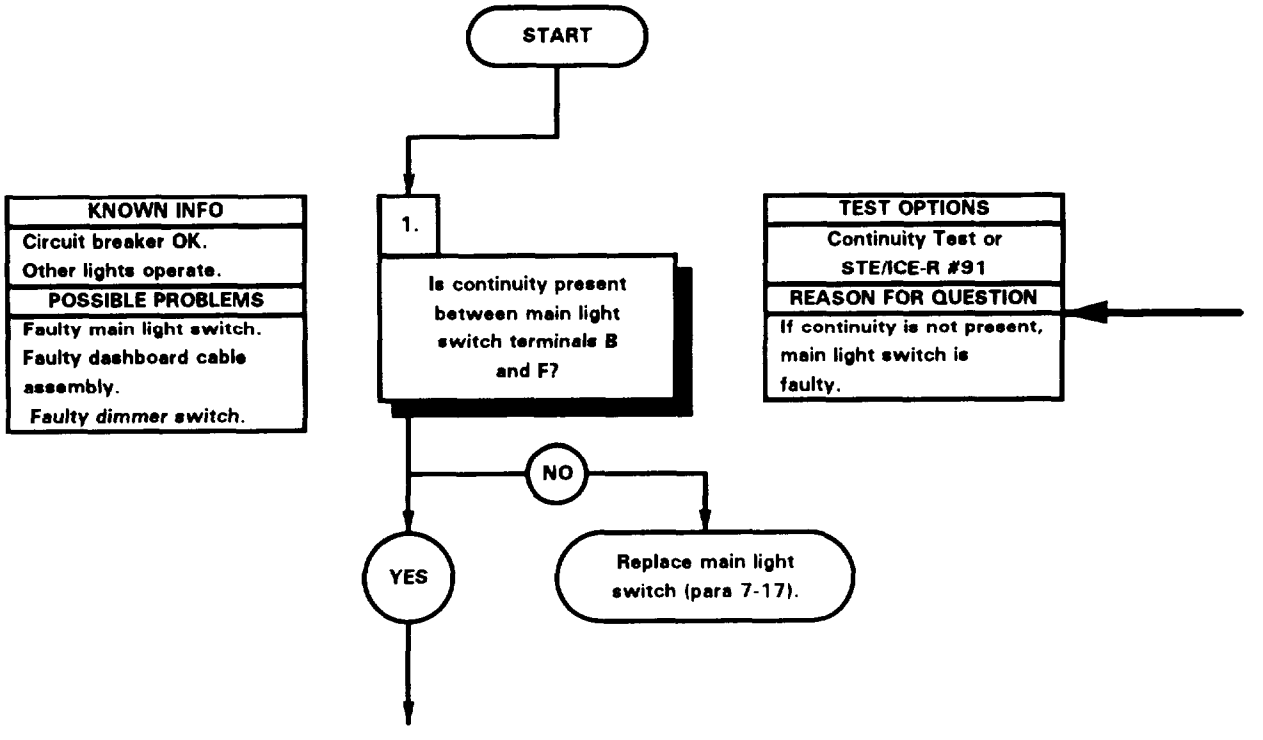
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

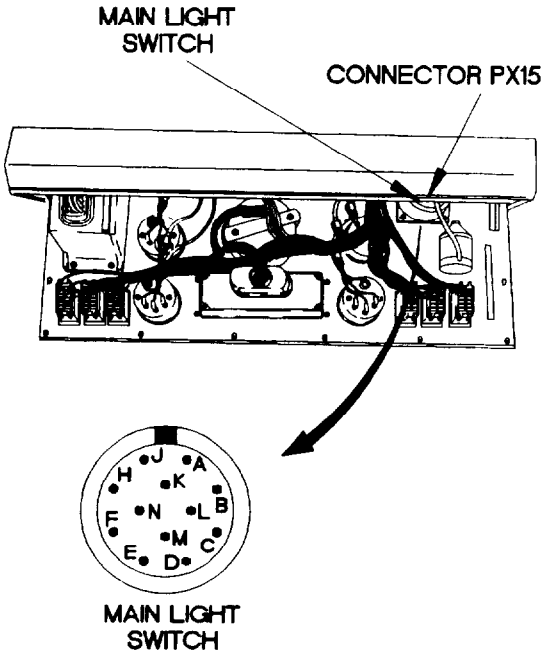
Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

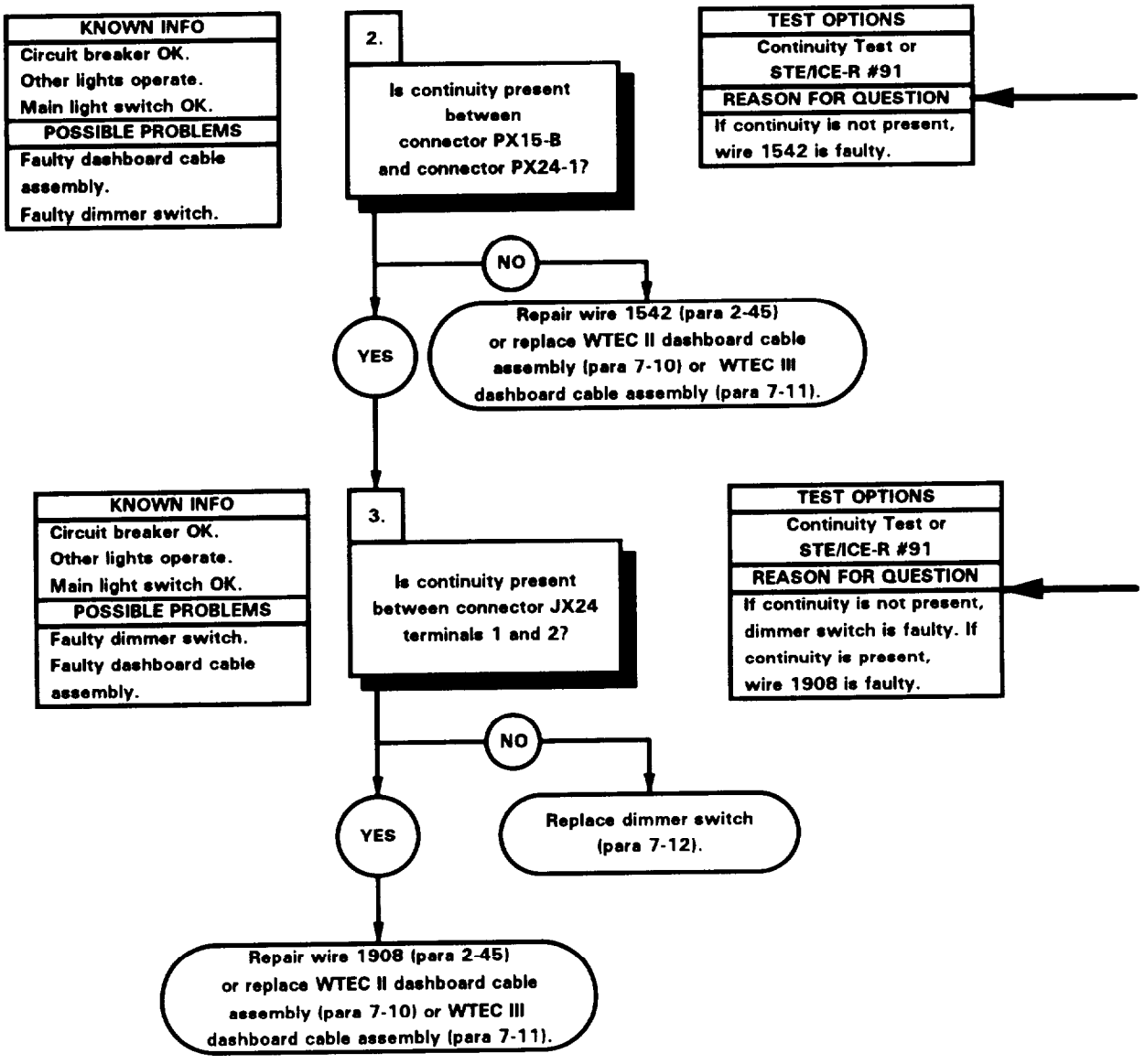
References
TM 9-4910-571-12&P



CONTINUITY TEST
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX15 from main light switch.
(3) Set multimeter to ohms.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(5) Position main light switch auxiliary lever to PANEL BRT (TM 9-2320-366-10-1).
(6) Connect positive (+) probe of multimeter to main light switch terminal F.
(7) Connect negative (-) probe of multimeter to main light switch terminal B and note reading on multimeter.
(8) If continuity is not present, replace main light switch (para 7-17).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).

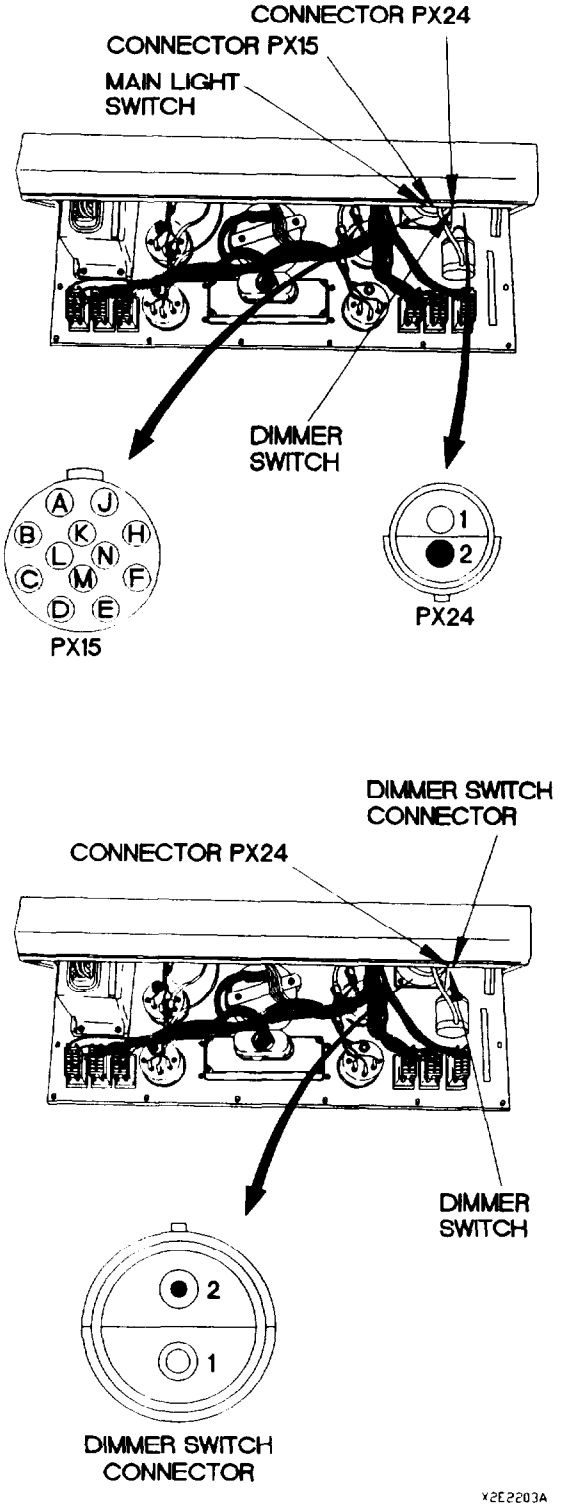


e20. AUXILIARY PANEL, PERSONNEL HEATER, AND INSTRUMENT PANEL DO NOT ILLUMINATE (CONT)



CONTINUITY TEST
(1) Disconnect connector PX24 from dimmer switch.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector PX15-B.
(4) Connect negative (-) probe of multimeter to connector PX24-1 and note reading on multimeter.
(5) If continuity is not present, repair wire 1542 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Connect connector PX15 to main light switch.

CONTINUITY TEST
(1) Position dimmer switch to maximum illumination (TM 9-2320-366-10-1).
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to dimmer switch connector terminal 1.
(4) Connect negative (-) probe of multimeter to dimmer switch connector terminal 2 and note reading on multimeter.
(5) If continuity is not present, replace dimmer switch (para 7-12).
(6) If continuity is present, repair wire 1908 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Connect connector PX24 to dimmer switch.
(8) Install instrument panel assembly (para 7-15).



e21. TACHOMETER DOES NOT ILLUMINATE

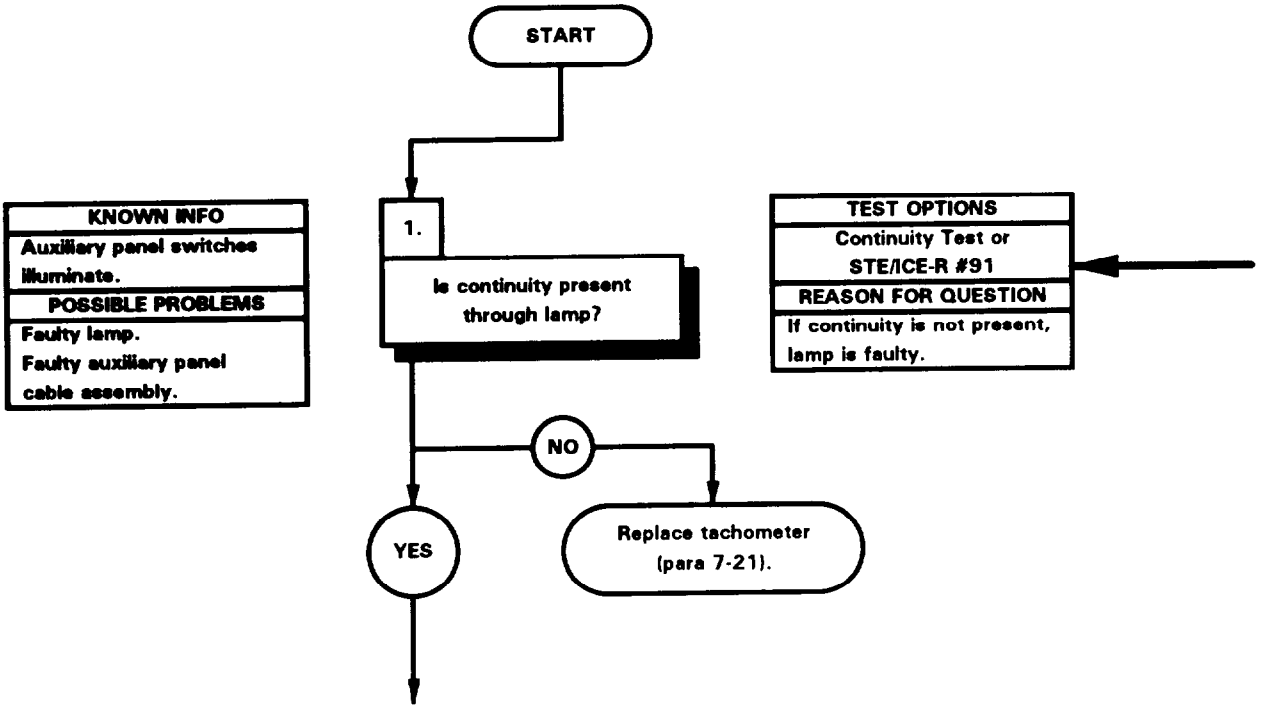
INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

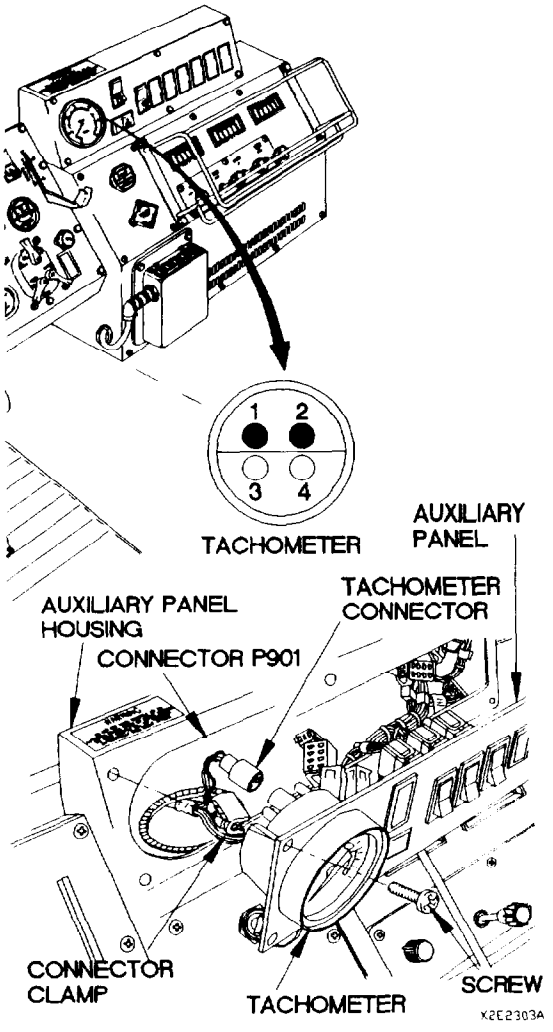
References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)

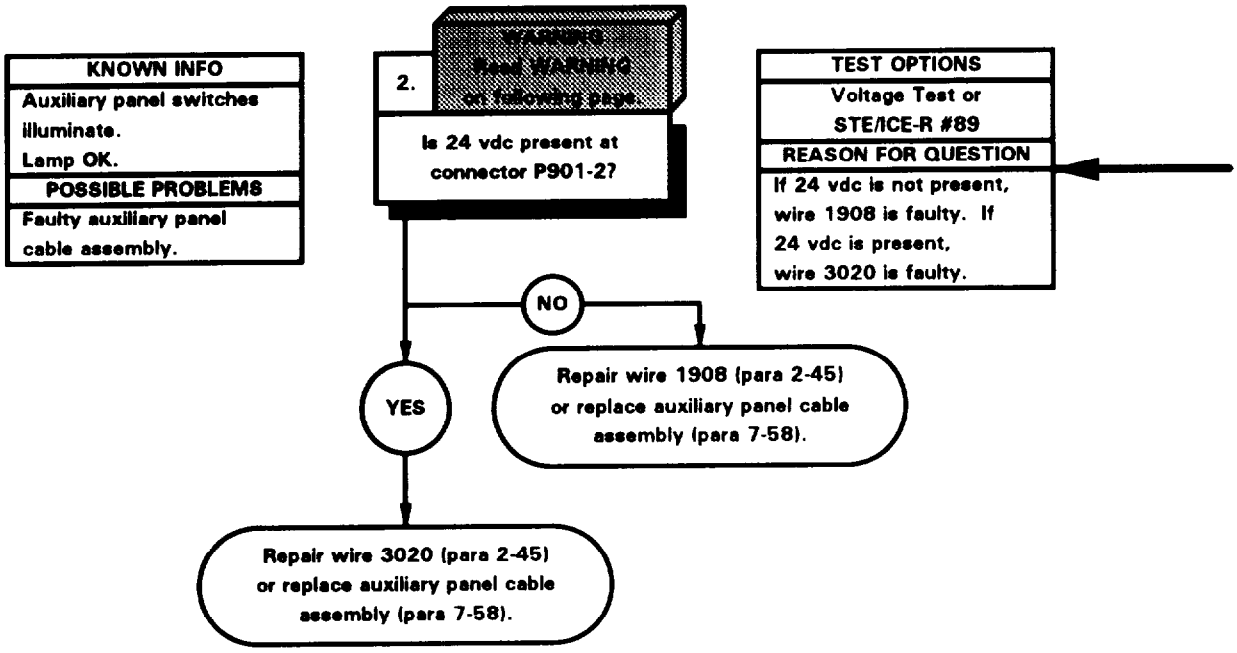


CONTINUITY TEST

(1) Remove six screws from auxiliary panel.
(2) Lift auxiliary instrument panel from auxiliary panel housing to gain access.
(3) Disconnect connector clamp from tachometer connector.
(4) Disconnect connector P901 from tachometer connector.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to terminal 2 of tachometer connector.
(7) Connect negative (-) probe of multimeter to terminal 1 of tachometer connector and note reading on multimeter.
(8) Reverse multimeter leads and note reading on multimeter.
(9) If multimeter shows the same in step (7) and (8), replace tachometer (para 7-21).



e21. TACHOMETER DOES NOT ILLUMINATE (CONT)

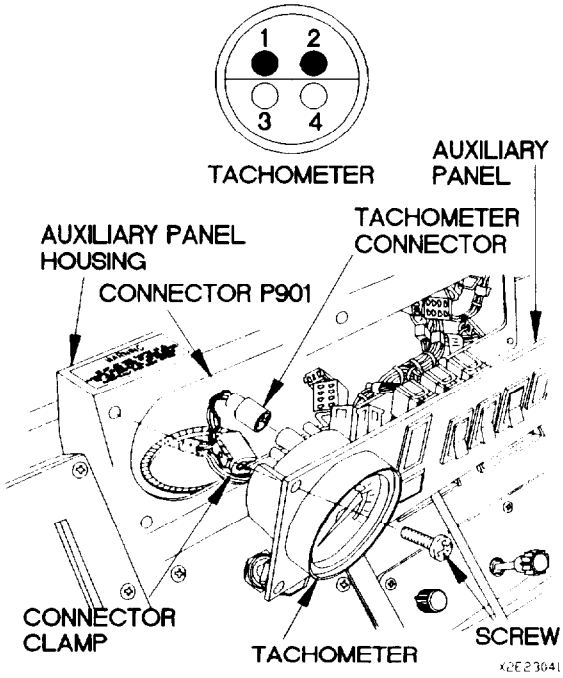


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to connector P901-2.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1908 (para 2-45) or replace auxiliary panel cable assembly (para 7-58).
(6) If 24 vdc is present, repair wire 3020 (para 2-45) or replace auxiliary panel cable assembly (para 7-58).
(7) Position master power switch to off (TM 9-2320-366-10-1).
(8) Connect connector P901 to tachometer connector.
(9) Connect connector clamp on tachometer connector.
(10) Position auxiliary panel on auxiliary panel housing with six screws.
(11) Tighten six screws to 24 lb-in. (3 N·m).



e22. AUXILIARY PANEL SWITCH DOES NOT ILLUMINATE

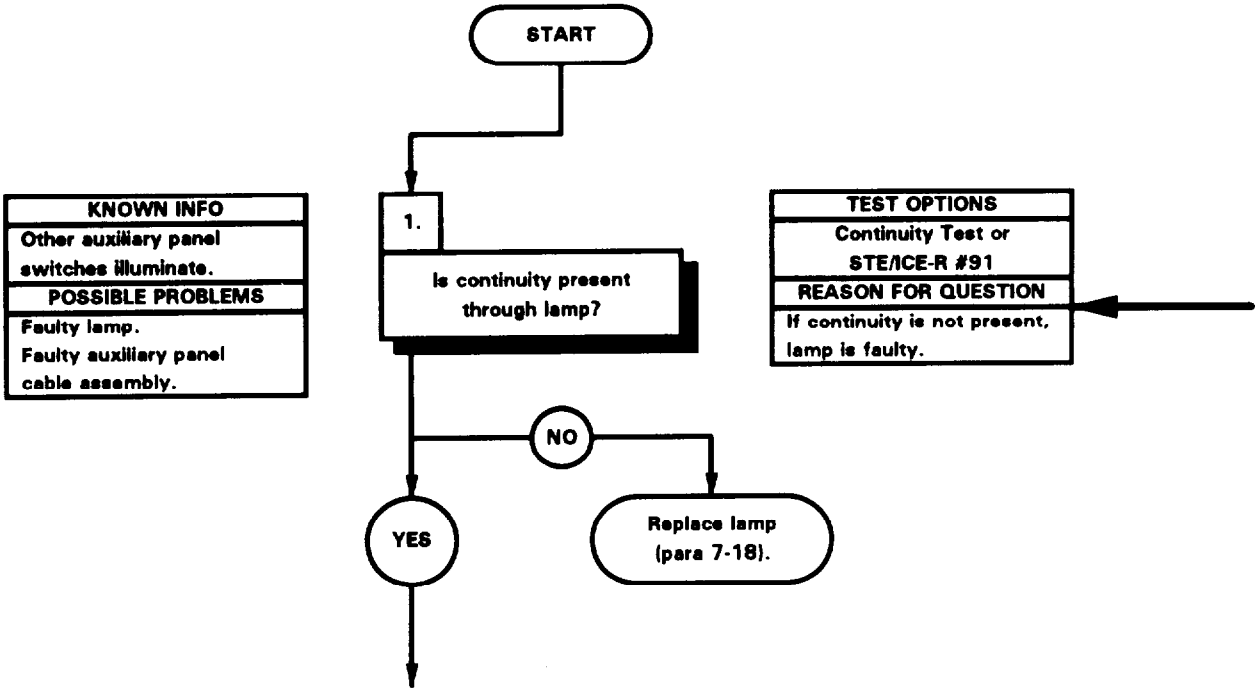
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)



NOTE

All auxiliary panel switch illumination faults are traced the same way. Power Take-Off (PTO) switch shown.

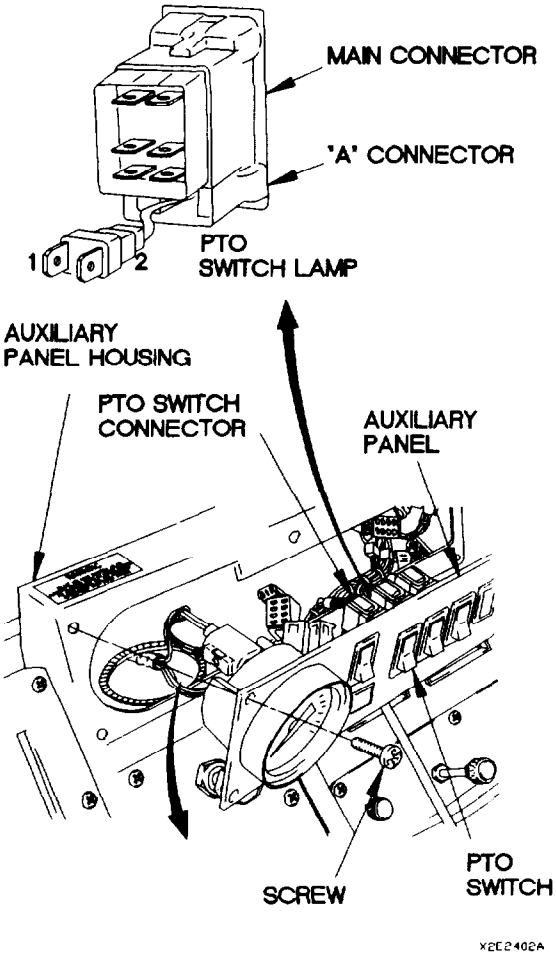
CONTINUITY TEST

(1) Remove six screws from auxiliary panel.
(2) Lift auxiliary panel from auxiliary panel housing to gain access.

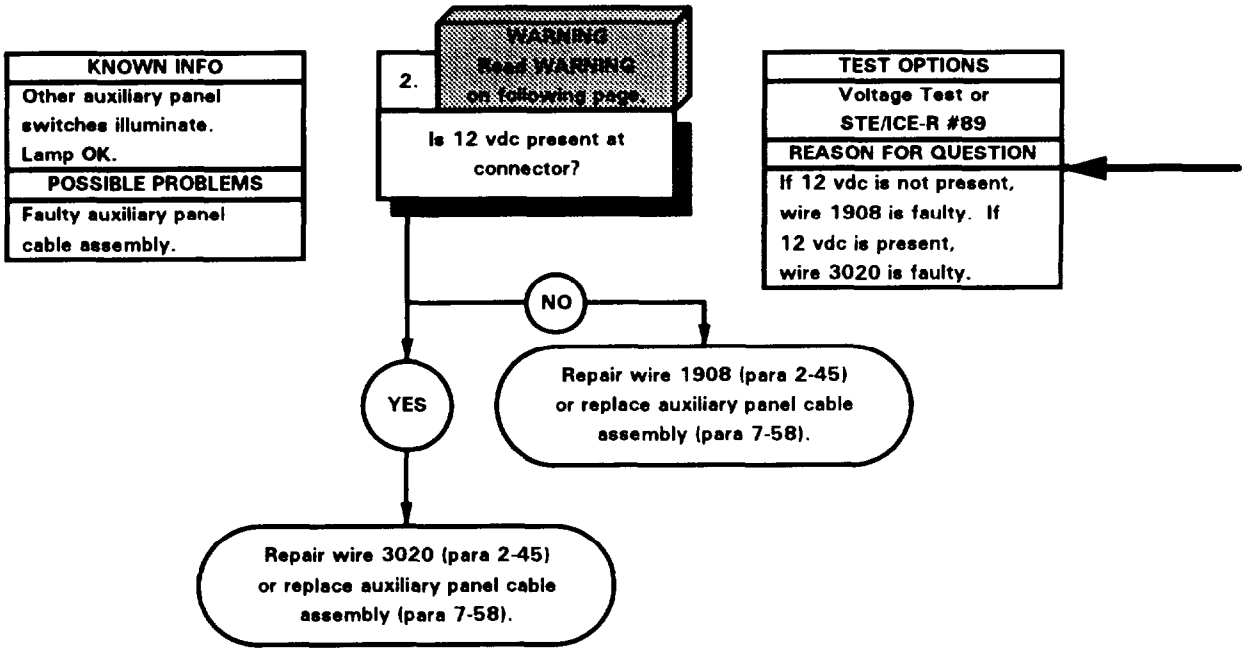
NOTE

Main connector and "A" connector will come off as a unit.

(3) Disconnect PTO switch connector from PTO switch.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to PTO switch lamp terminal 1.
(6) Connect negative (-) probe of multimeter to PTO switch lamp terminal 2 and note reading on multimeter.
(7) If continuity is not present, replace lamp (para 7-18).



e22. AUXILIARY PANEL SWITCH DOES NOT ILLUMINATE (CONT)

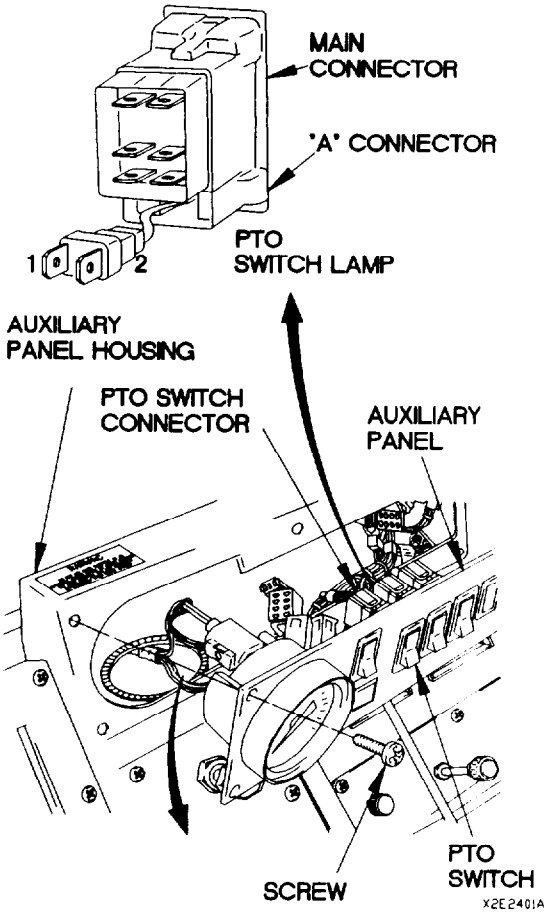


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to "A" switch connector terminal 1.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch auxiliary lever to PANEL BRT (TM 9-2320-366-10-1).
(5) Position dimmer switch to maximum brightness (TM 9-2320-366-10-1).
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 1908 (para 2-45) or replace auxiliary panel cable assembly (para 7-58).
(8) If 12 vdc is present, repair wire 3020 (para 2-45) or replace auxiliary panel cable assembly (para 7-58).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).
(10) Connect PTO switch connector to PTO switch.
(11) Position auxiliary panel on auxiliary panel housing with six screws.
(12) Tighten six screws to 24 lb-in. (3 N·m).



e23. AUXILIARY PANEL DOES NOT ILLUMINATE

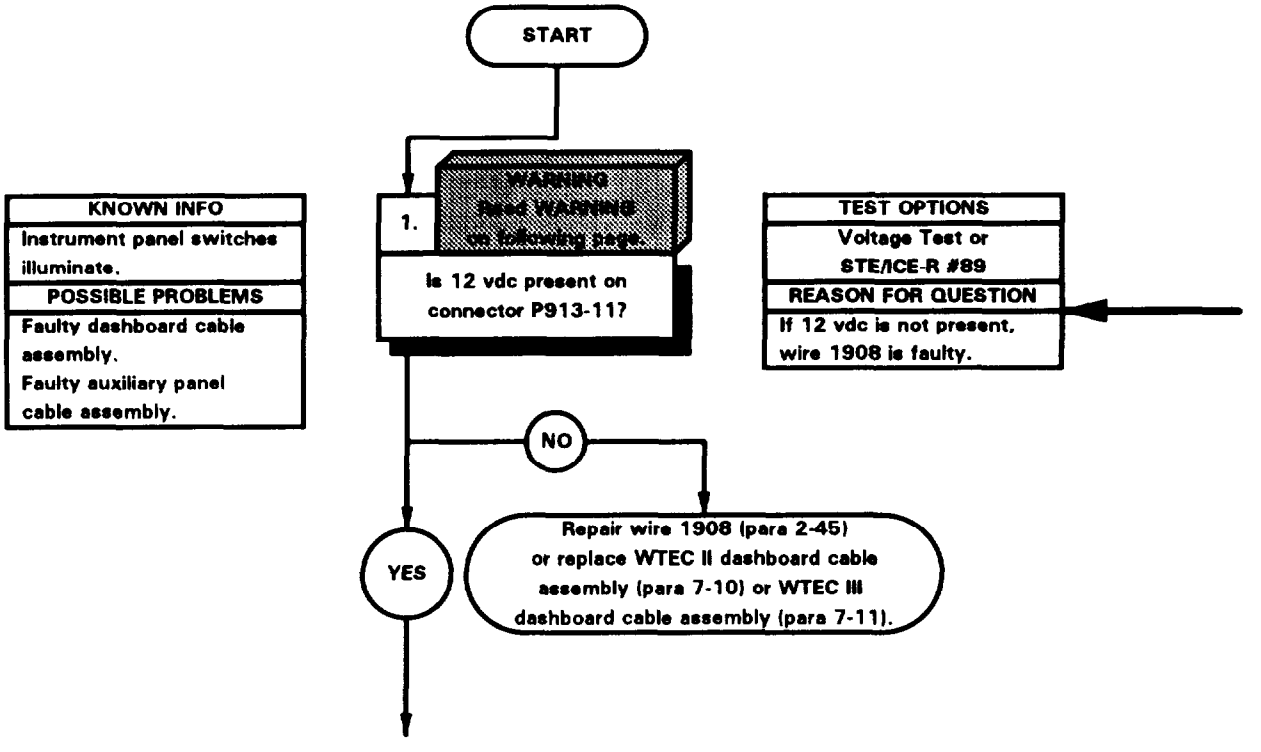
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)

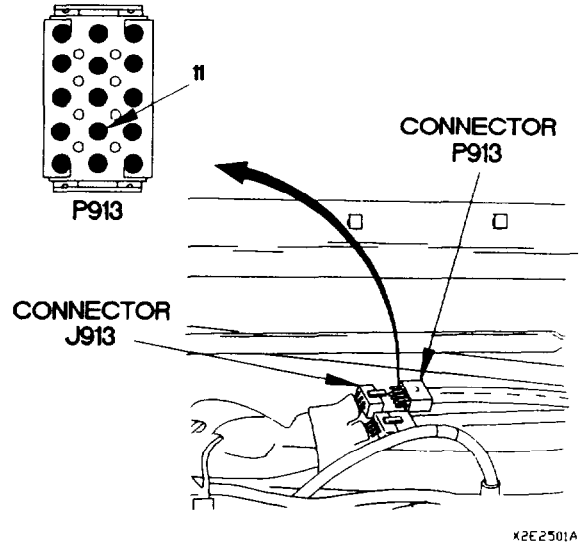


WARNING

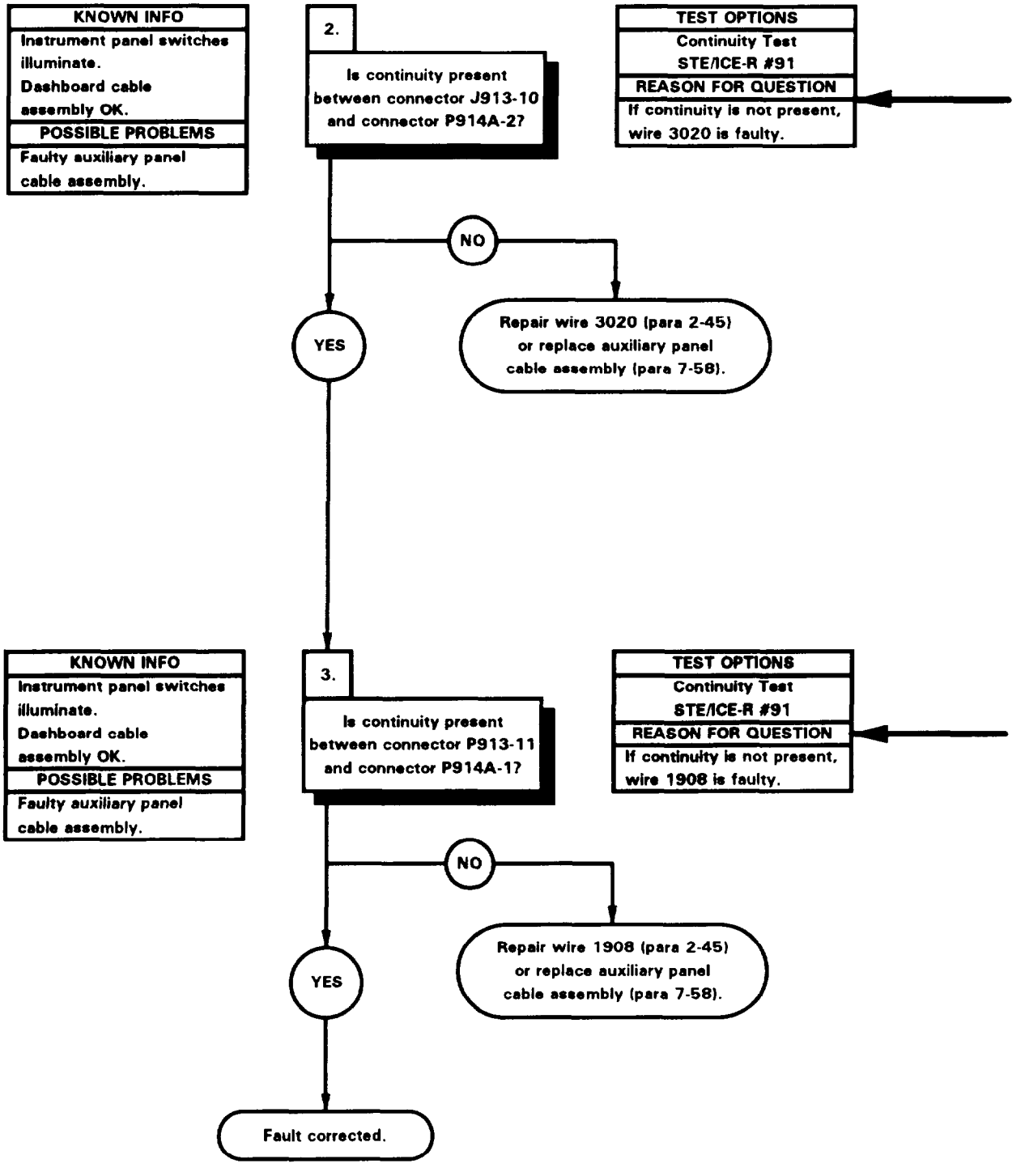
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove personnel heater for access (para 18-9).
(2) Disconnect connector J913 from connector P913.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector P913-11.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to STOP LIGHT and PANEL BRIGHT (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 1908 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).



e23. AUXILIARY PANEL DOES NOT ILLUMINATE (CONT)

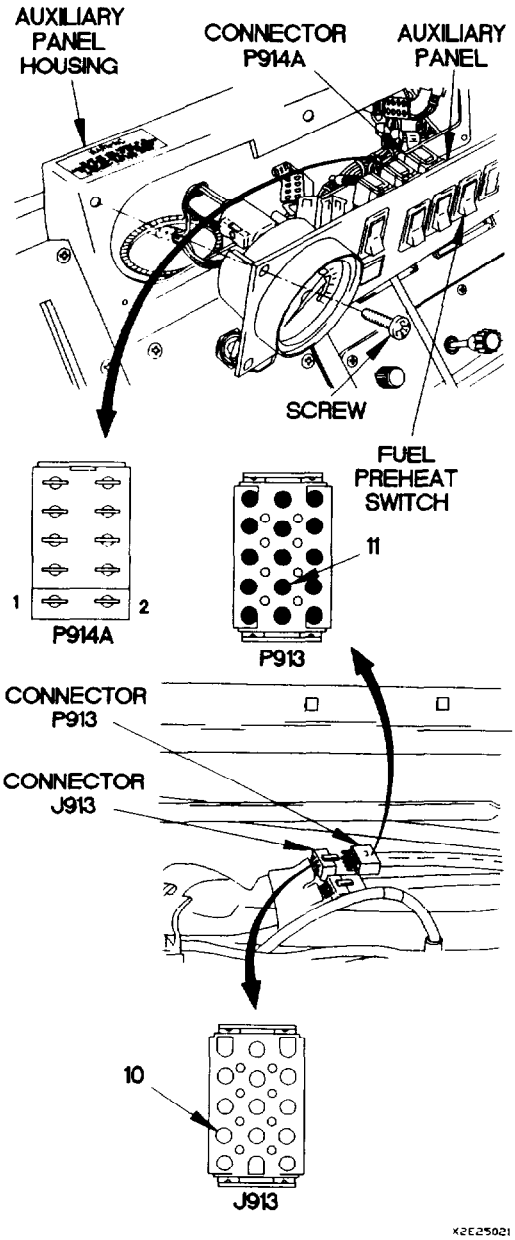


CONTINUITY TEST

(1) Remove six screws from auxiliary panel.
(2) Lift auxiliary panel from auxiliary panel housing to gain access.
(3) Disconnect connector P914A from fuel preheat switch, if equipped.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector J913-10.
(6) Connect negative (-) probe of multimeter to connector P914A-2 and note reading on multimeter.
(7) If continuity is not present, repair wire 3020 (para 2-45) or replace auxiliary panel cable assembly (para 7-58).

CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector P913-11.
(3) Connect negative (-) probe of multimeter to connector P914A-1 and note reading on multimeter.
(4) If continuity is not present, repair wire 1908 (para 2-45) or replace auxiliary panel cable assembly (para 7-58).
(5) Connect connector P914A to fuel preheat switch, if equipped.
(6) Position auxiliary panel housing on auxiliary panel with six screws.
(7) Tighten six screws to 24 lb-in. (3 N·m).
(8) Connect connector P913 to connector J913.
(9) Install personnel heater (para 18-9).



•24. HIGH ENGINE TEMPERATURE INDICATOR DOES NOT OPERATE

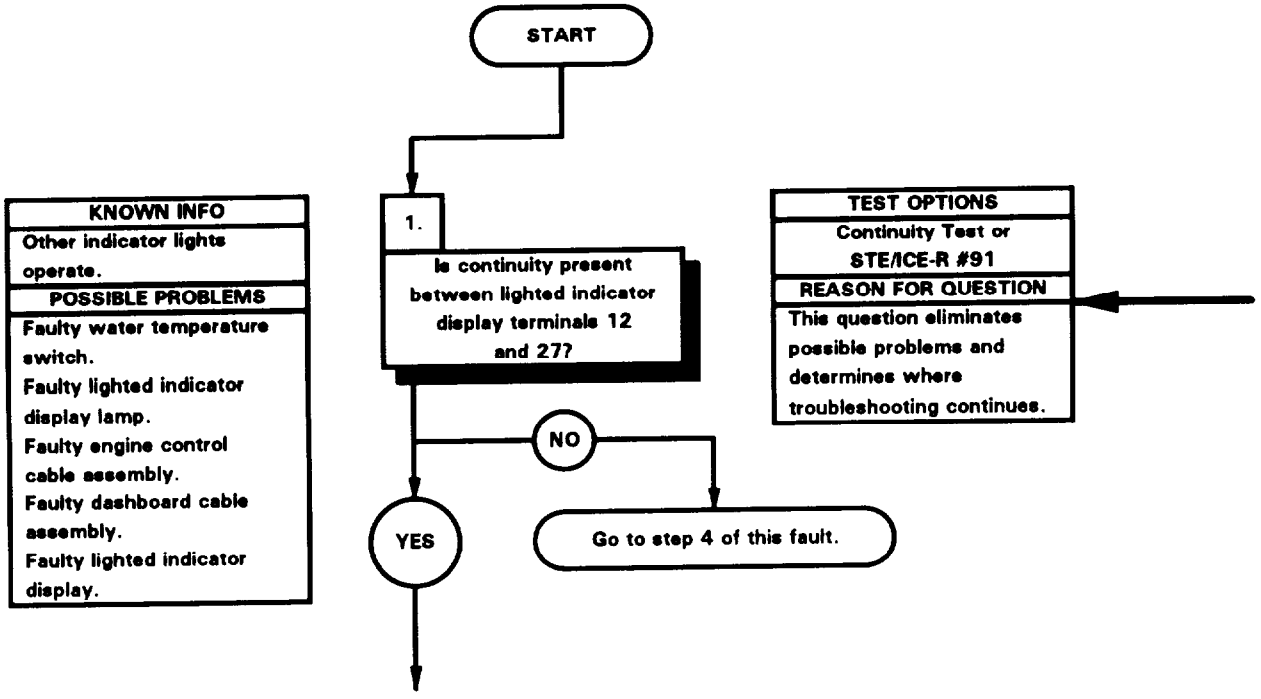
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

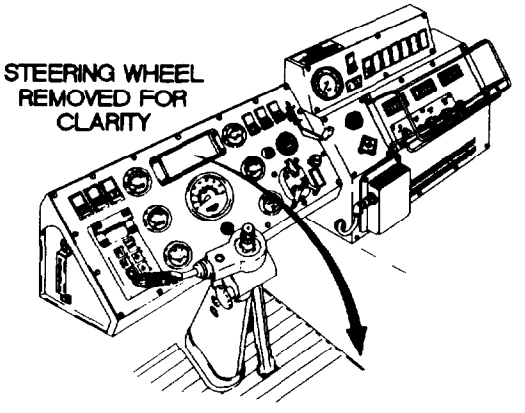
Personnel Required
(2)

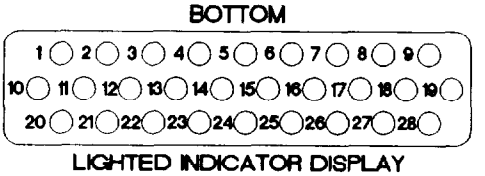
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 60, Appendix B)

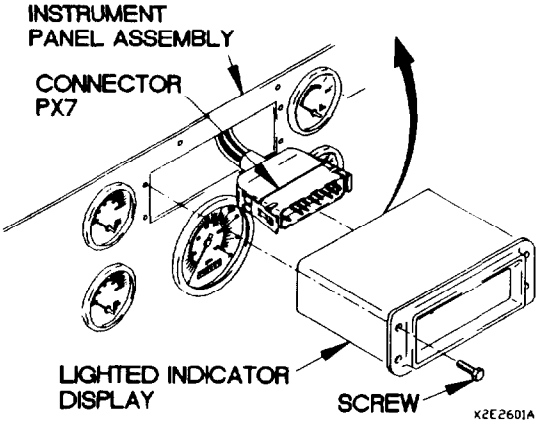
References
TM 9-4910-571-12&P



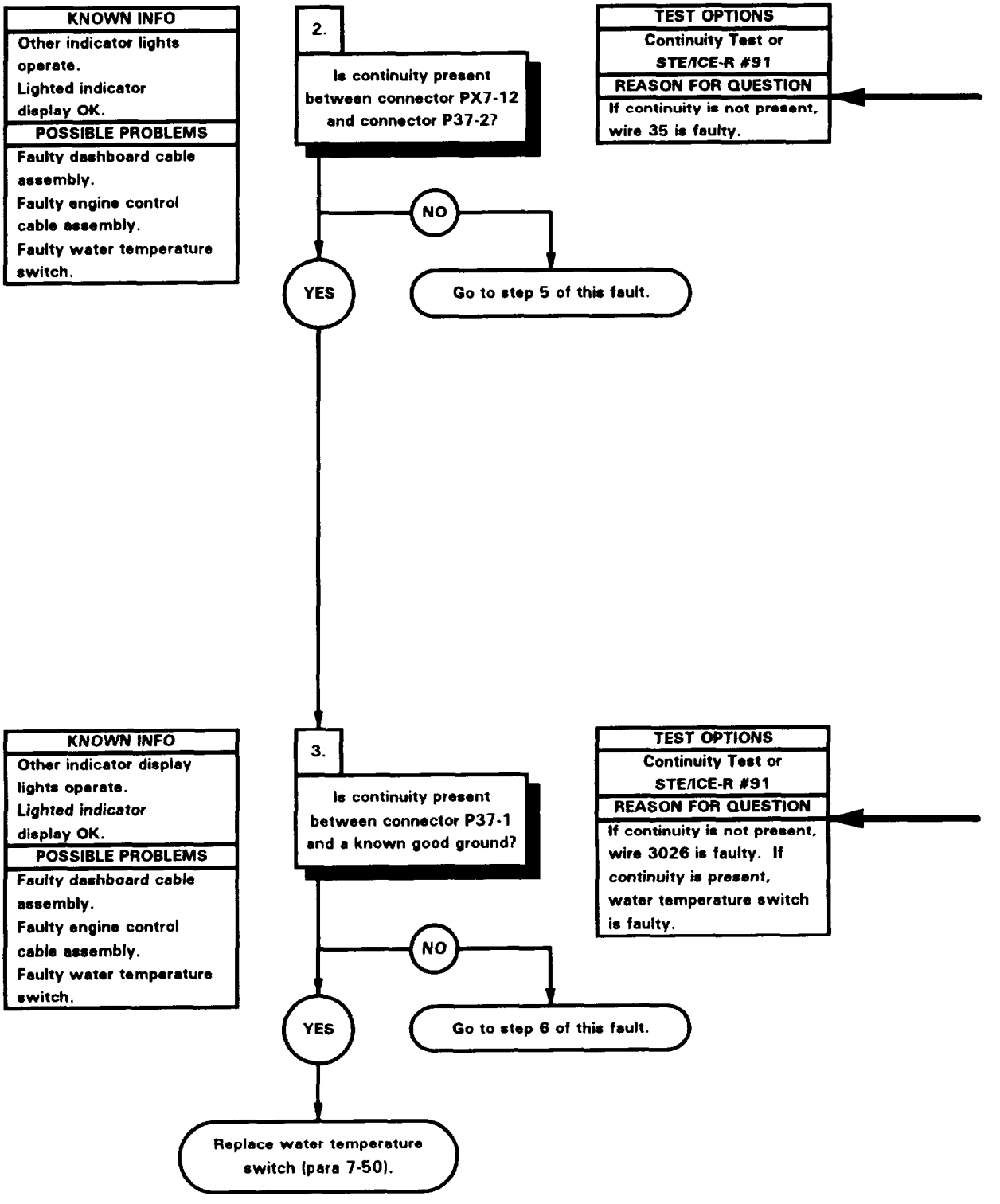
CONTINUITY TEST
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to lighted indicator display terminal 27.
(6) Connect negative (-) probe of multimeter to lighted indicator display terminal 12 and note reading on multimeter.
(7) If continuity is not present, go to step 4 of this fault.



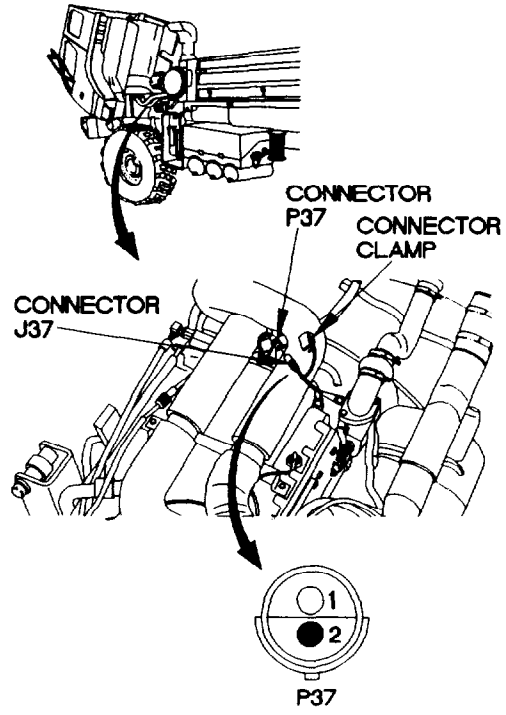




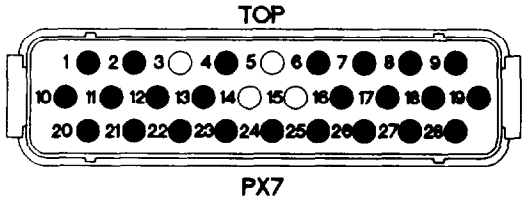
e24. HIGH ENGINE TEMPERATURE INDICATOR DOES NOT OPERATE (CONT)



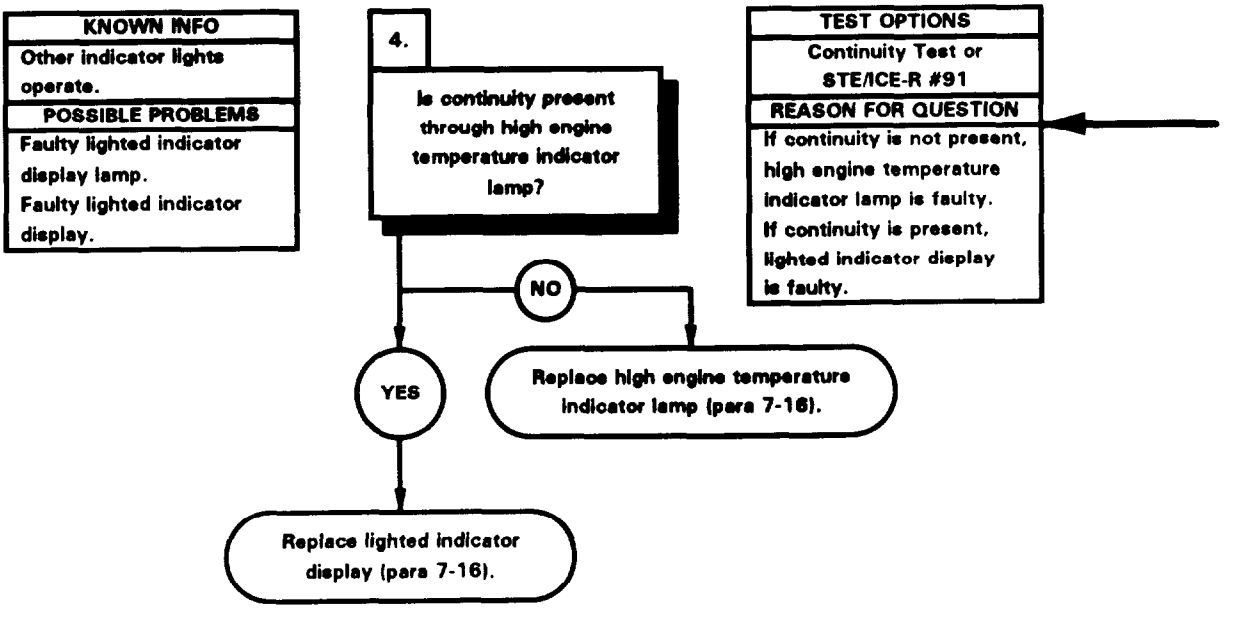
CONTINUITY TEST
(1) Raise cab (TM 9-2320-366-10-1).
(2) Set multimeter to ohms.
(3) Disconnect connector clamp from connector J37.
(4) Disconnect connector P37 from connector J37.
(5) Connect positive (+) probe of multimeter to connector P37-2.
(6) Connect negative (-) probe of multimeter to connector PX7-12 and note reading on multimeter.
(7) If continuity is not present, go to step 5 of this fault.



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector P37-1.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, go to step 6 of this fault.
(5) If continuity is present, replace water temperature switch (para 7-50).
(6) Connect connector P37 to connector J37.
(7) Connect connector clamp on connector J37.
(8) Lower cab (TM 9-2320-366-10-1).

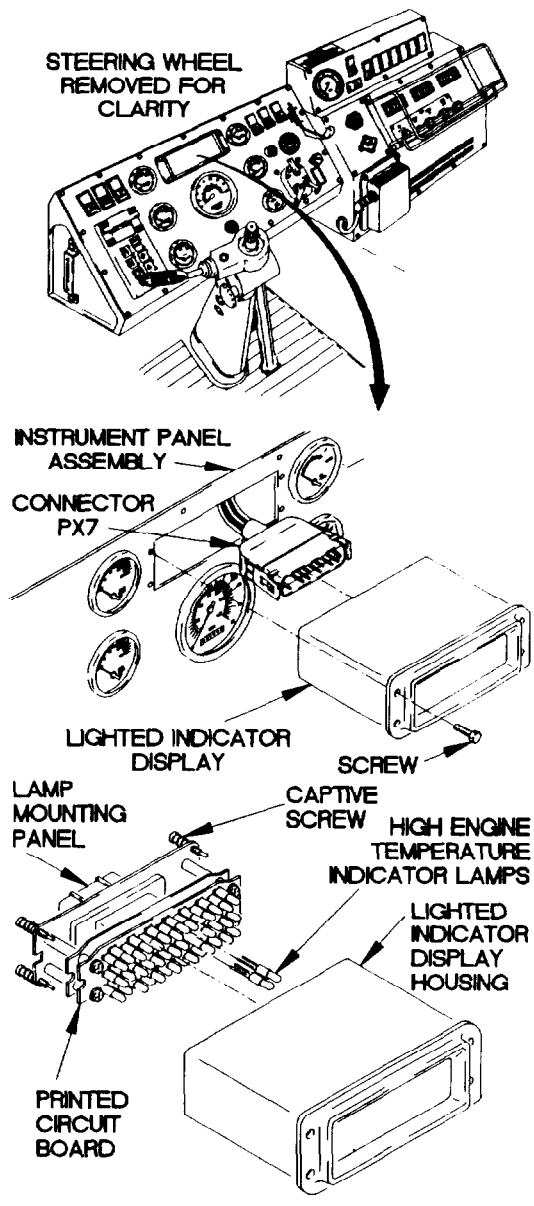


e24. HIGH ENGINE TEMPERATURE INDICATOR DOES NOT OPERATE (CONT)

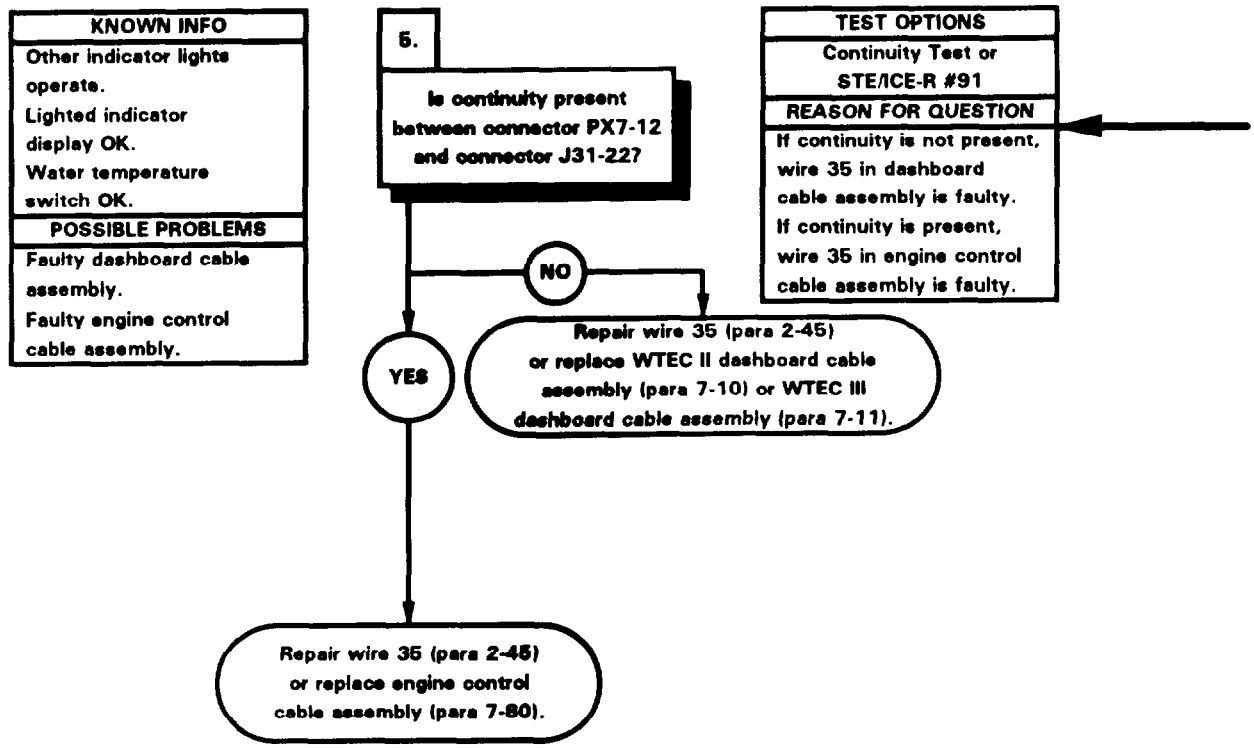


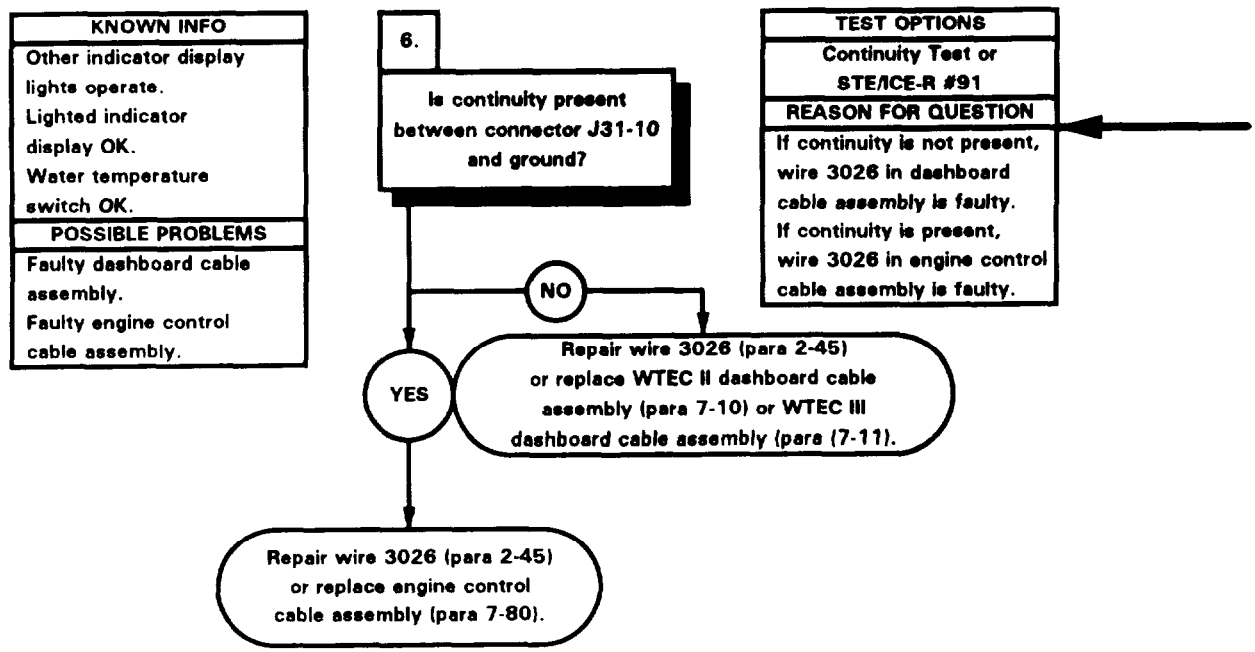
CONTINUITY TEST

(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove high engine temperature lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each high engine temperature indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace lamp (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install high engine temperature lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Connect lighted indicator display to connector PX7.
(12) Position lighted indicator display in instrument panel assembly with four screws.
(13) Tighten four screws to 6-10 lb-in. (1 N·m).
(14) Connect batteries (para 7-57).

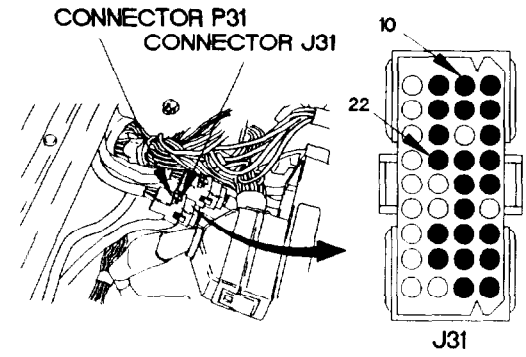


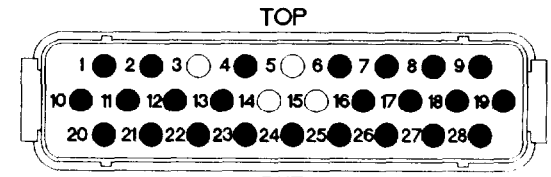
e24. HIGH ENGINE TEMPERATURE INDICATOR DOES NOT OPERATE (CONT)

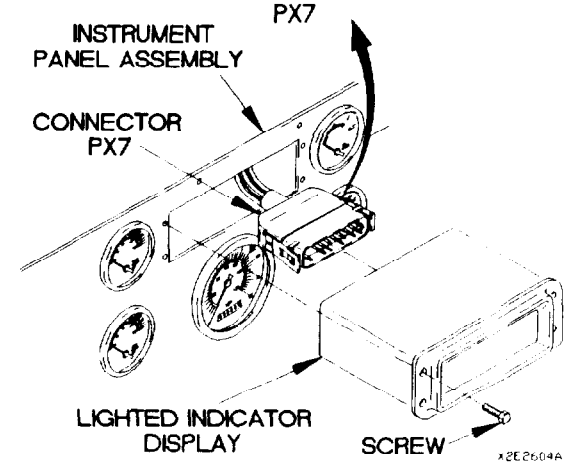




CONTINUITY TEST
(1) Remove instrument panel assembly for access (para 7-15).
(2) Set multimeter to ohms.
(3) Disconnect connector J31 from connector P31.
(4) Connect positive (+) probe of multimeter to connector PX7-12.
(5) Connect negative (-) probe of multimeter to connector J31-22 and note reading on multimeter.
(6) If continuity is not present, repair wire 35 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) If continuity is present, repair wire 35 (para 2-45) or replace engine control cable assembly (para 7-80).
(8) Connect connector J31 to connector P31.
(9) Install instrument panel assembly (para 7-15).
(10) Connect lighted indicator display to connector PX7.
(11) Position lighted indicator display in instrument panel assembly with four screws.
(12) Tighten four screws to 6-10 lb-in. (1 N·m).
(13) Connect batteries (para 7-57).







CONTINUITY TEST
(1) Remove instrument panel assembly for access (para 7-15).
(2) Set multimeter to ohms.
(3) Disconnect connector J31 from connector P31.
(4) Connect positive (+) probe of multimeter to connector J31-10.
(5) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(6) If continuity is not present, repair wire 3026 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) If continuity is present, repair wire 3026 (para 2-45) or replace engine control cable assembly (para 7-80).
(8) Connect connector J31 to connector P31.
(9) Install instrument panel assembly (para 7-15).
(10) Connect lighted indicator display to connector PX7.
(11) Position lighted indicator display in instrument panel assembly with four screws.
(12) Tighten four screws to 6-10 lb-in. (1 N·m).
(13) Connect batteries (para 7-57).

e25. CENTRAL TIRE INFLATION SYSTEM (CTIS) OVERSPEED INDICATOR DOES NOT OPERATE

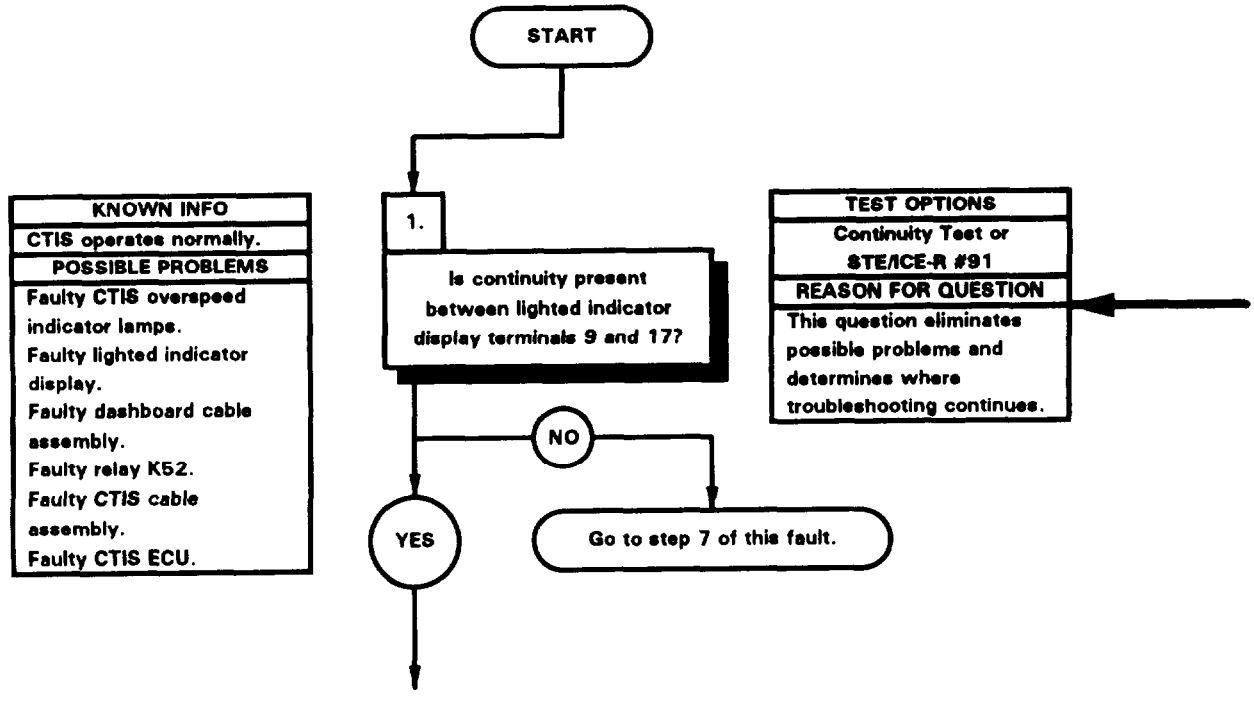
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

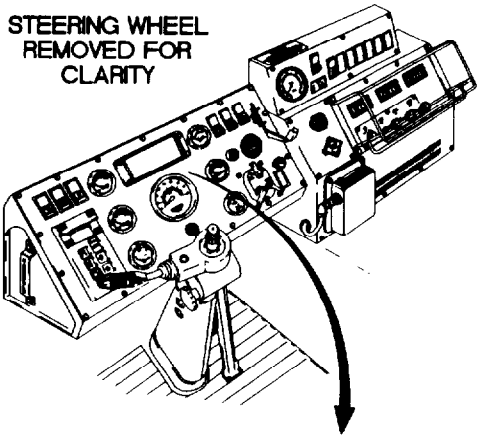
Personnel Required
(2)

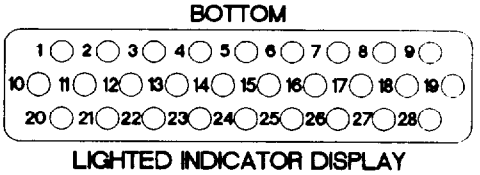
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

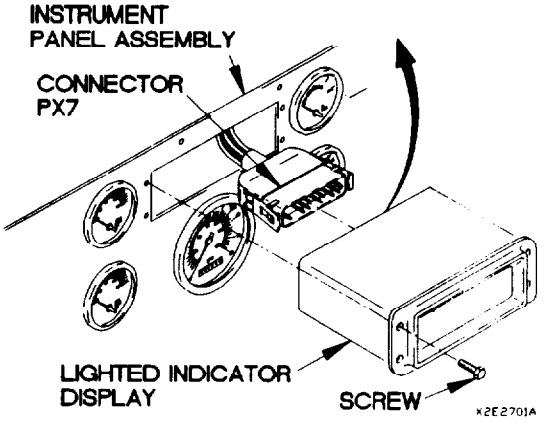
References
TM 9-4910-571-12&P



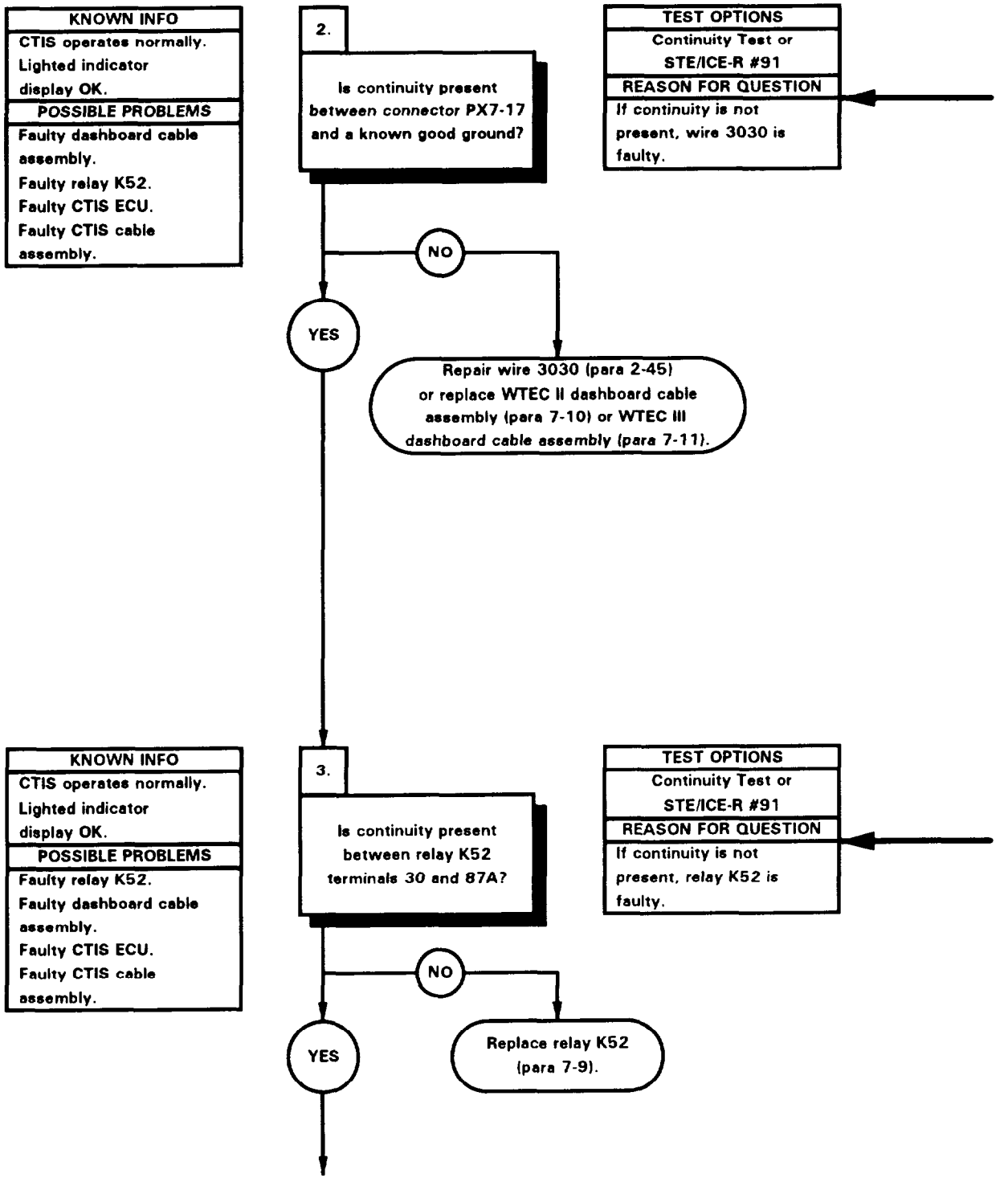
CONTINUITY TEST
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to lighted indicator display terminal 9.
(6) Connect negative (-) probe of multimeter to lighted indicator display terminal 17 and note reading on multimeter.
(7) If continuity is not present, go to step 7 of this fault.



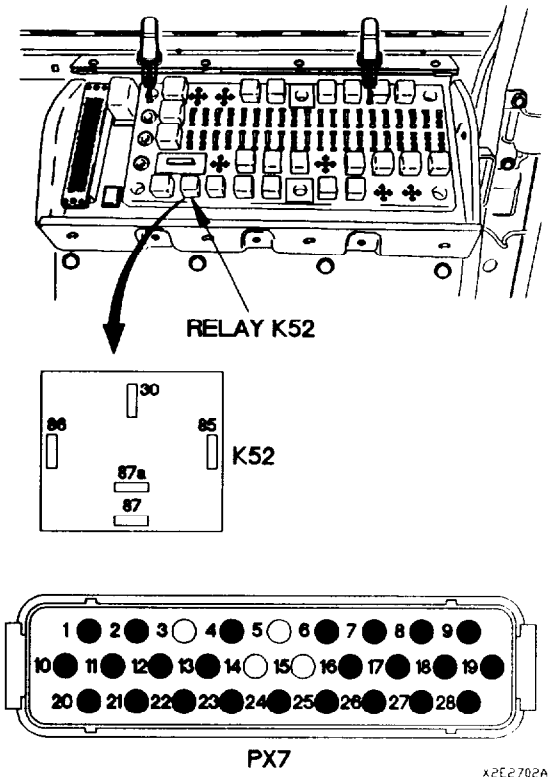




e25. CENTRAL TIRE INFLATION SYSTEM (CTIS) OVERSPEED INDICATOR DOES NOT OPERATE (CONT)

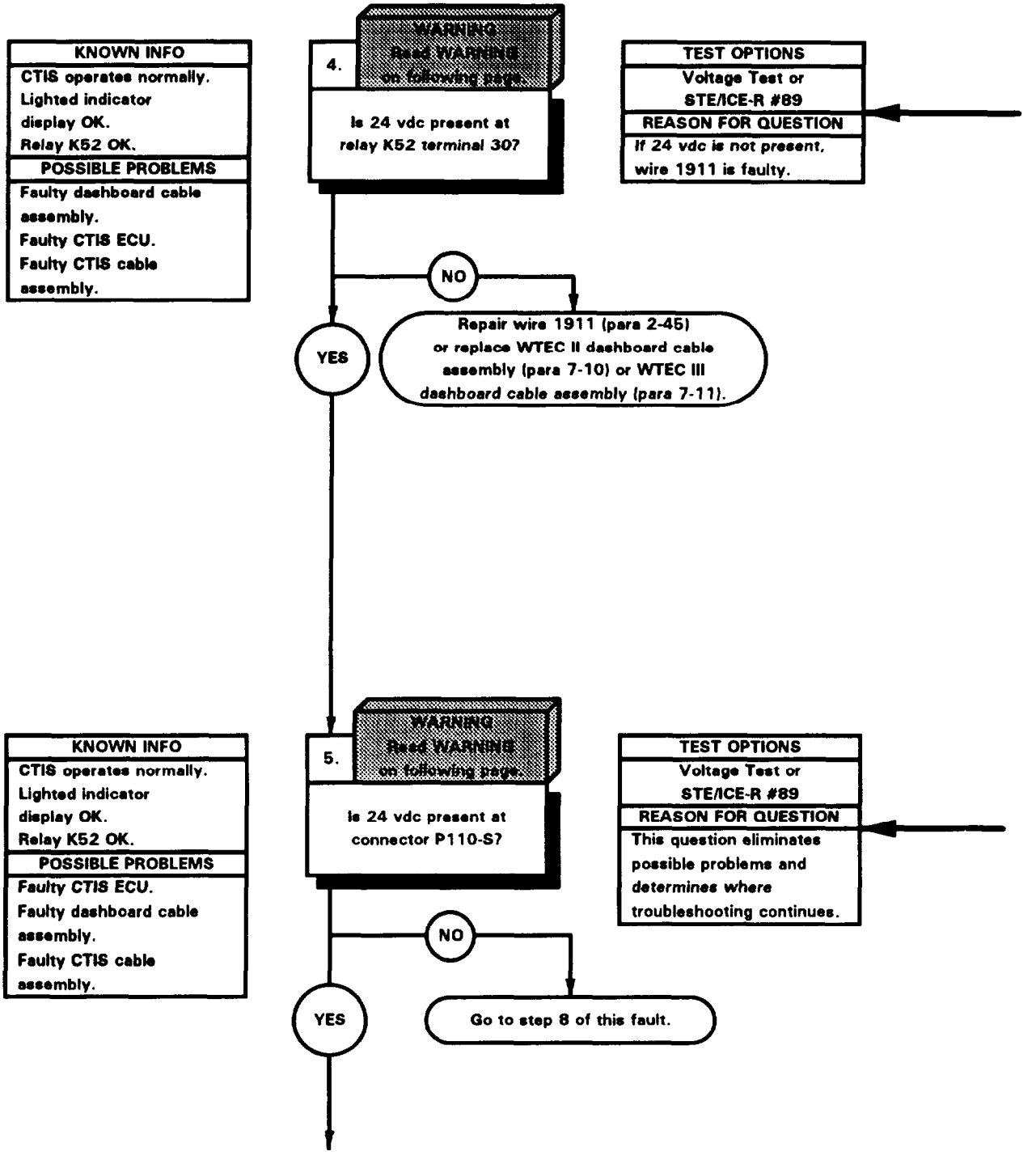


CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX7-17.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3030 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



CONTINUITY TEST
(1) Remove PDP cover (para 16-2).
(2) Remove relay K52 from PDP.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to relay K52 terminal 30.
(5) Connect negative (-) probe of multimeter to relay K52 terminal 87A and note reading on multimeter.
(6) If continuity is not present, replace relay K52 (para 7-9).

e25. CENTRAL TIRE INFLATION SYSTEM (CTIS) OVERSPEED INDICATOR DOES NOT OPERATE (CONT)

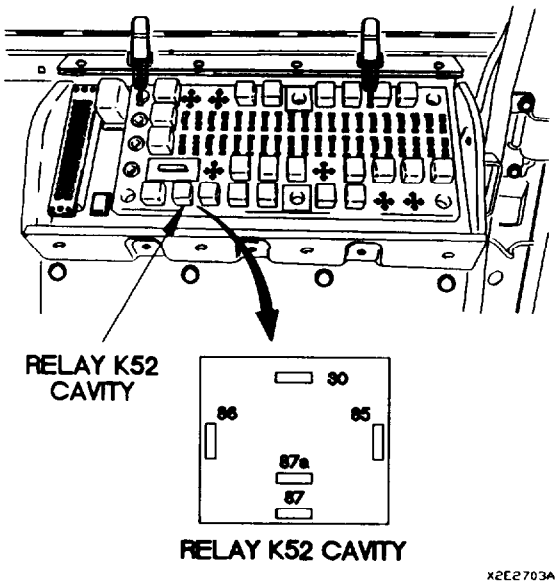


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Connect batteries (para 7-57).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to PDP, terminal 30, where relay K52 was removed.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, repair wire 1911 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position master power switch to off (TM 9-2320-366-10-1).
(8) Install relay K52 in PDP.
(9) Install PDP cover (para 16-2).

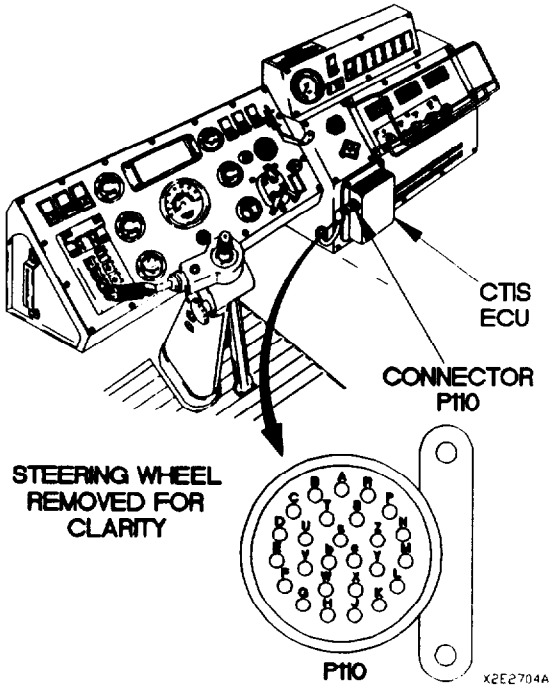


WARNING

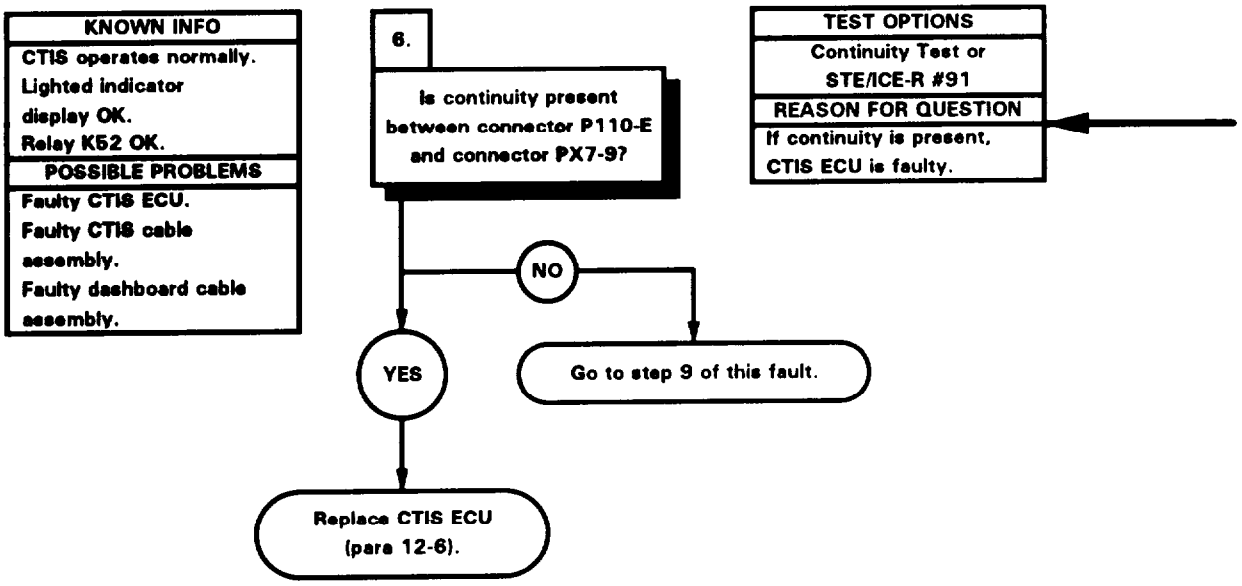
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

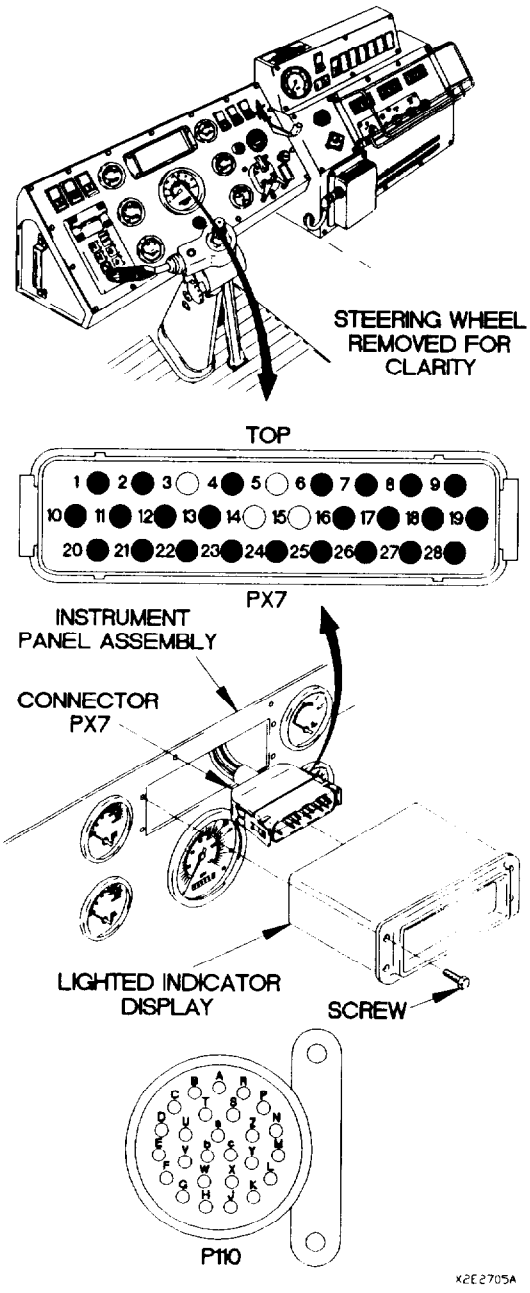
(1) Disconnect connector P110 from CTIS ECU.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector P110-S.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, go to step 8 of this fault.
(7) Position master power switch to off (TM 9-2320-366-10-1).



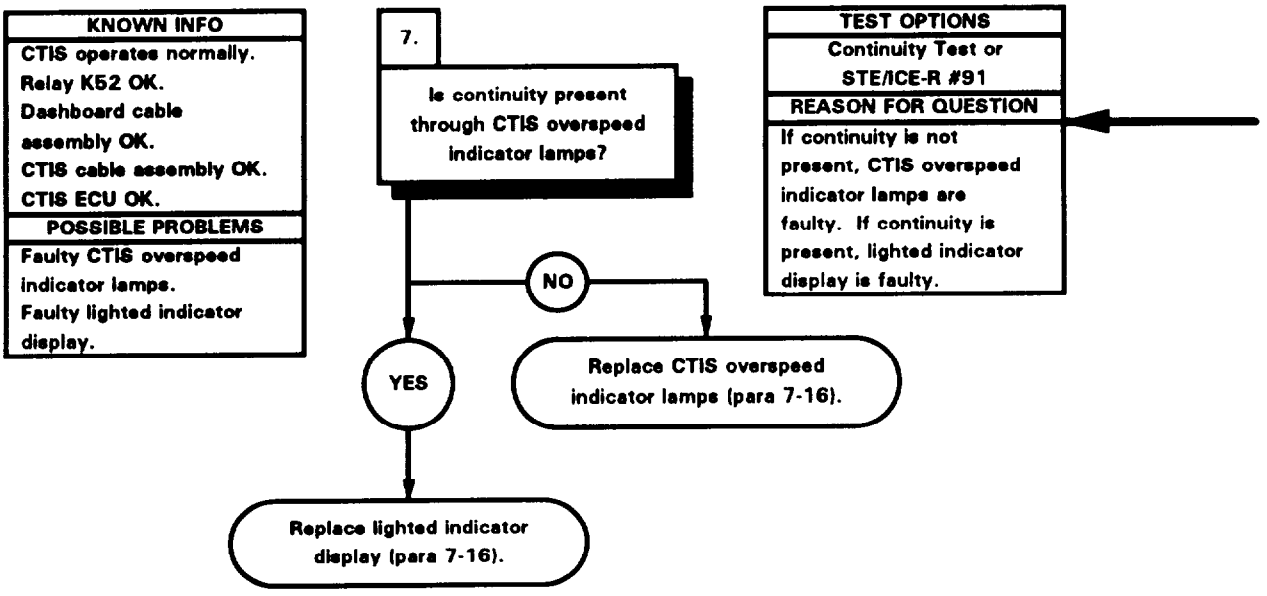
e25. CENTRAL TIRE INFLATION SYSTEM (CTIS) OVERSPEED INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector P110-E.
(3) Connect negative (-) probe of multimeter to connector PX7-9 and note reading on multimeter.
(4) If continuity is not present, go to step 9 of this fault.
(5) If continuity is present, replace CTIS ECU (para 12-6).
(6) Connect lighted indicator display to connector PX7.
(7) Position lighted indicator display in instrument panel assembly with four screws.
(8) Tighten four screws to 6-10 lb-in. (1 N·m).
(9) Connect batteries (para 7-57).

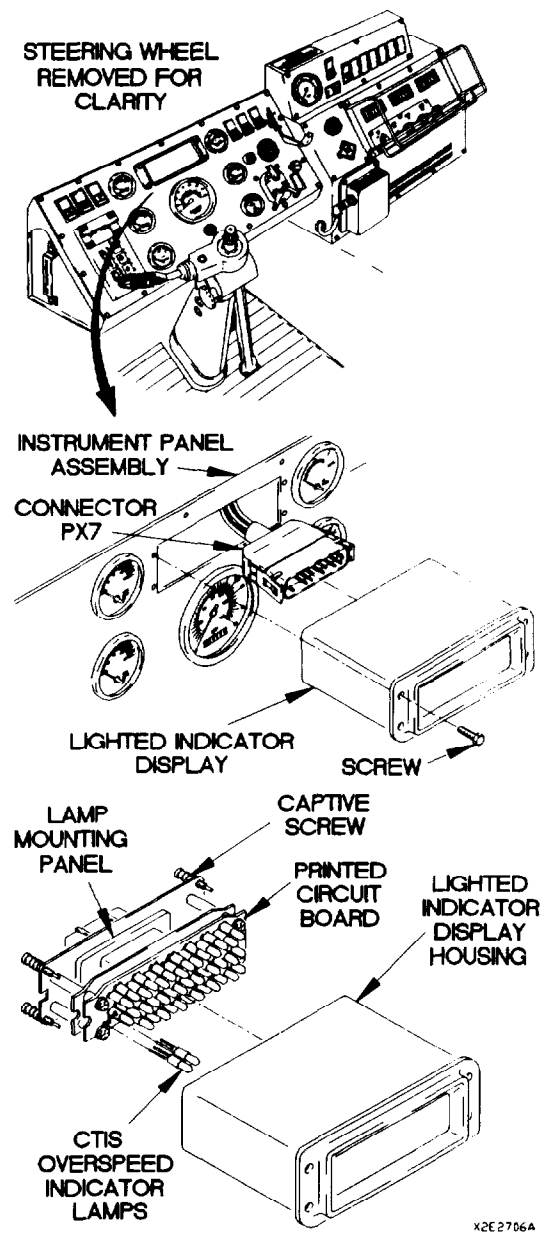


e25. CENTRAL TIRE INFLATION SYSTEM (CTIS) OVERSPEED INDICATOR DOES NOT OPERATE (CONT)

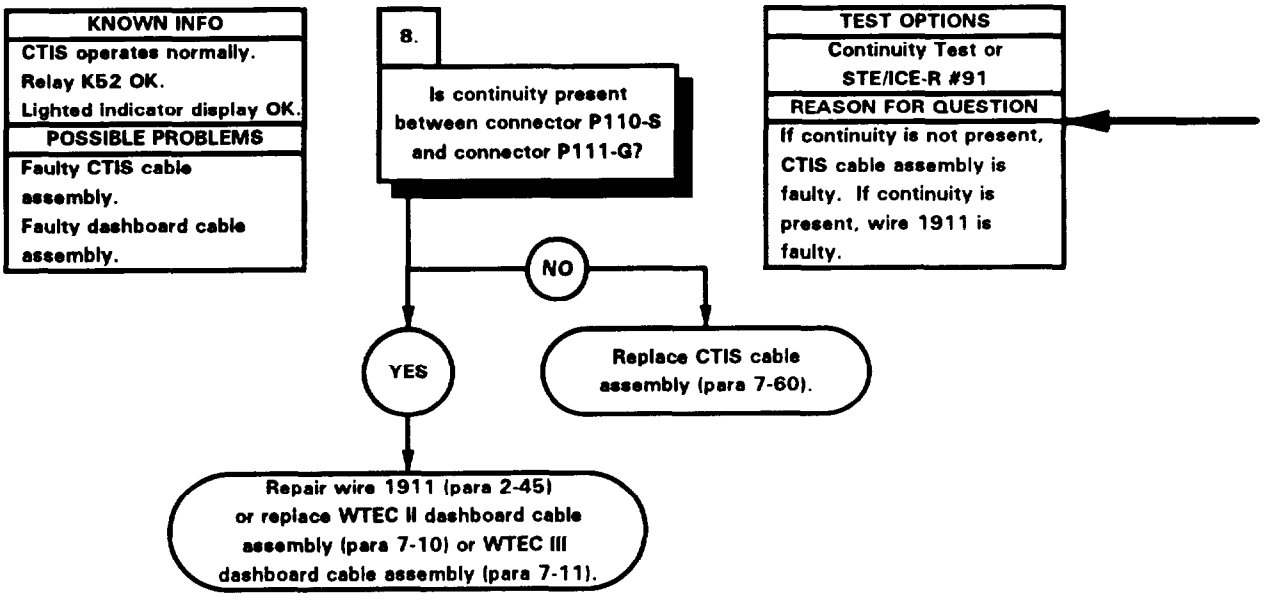


CONTINUITY TEST

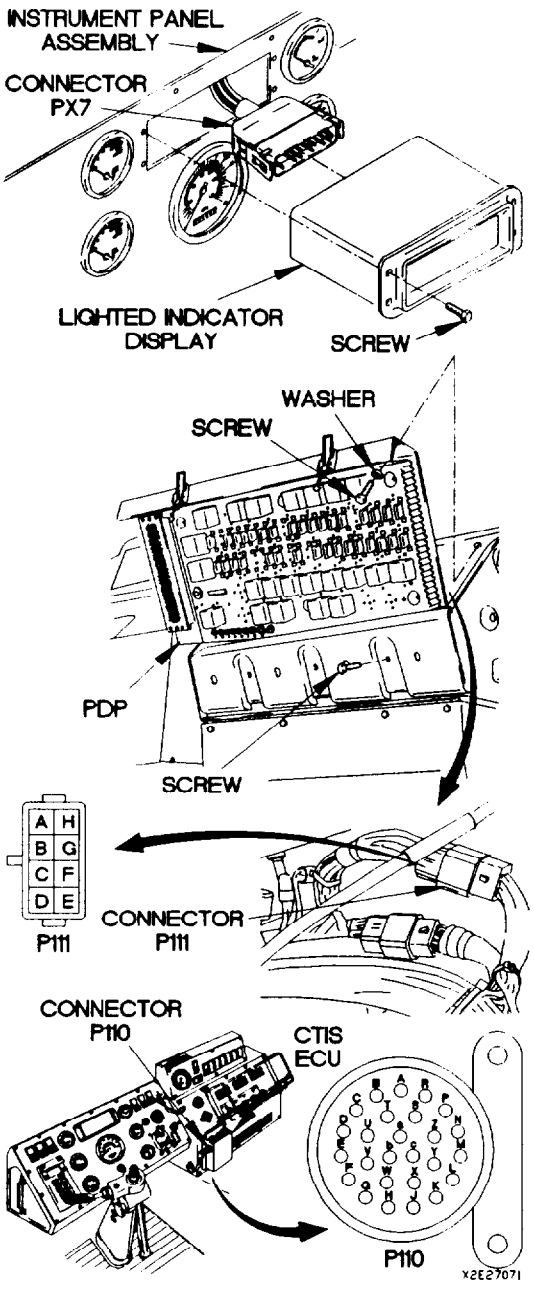
(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove CTIS overspeed indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each CTIS overspeed indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install CTIS overspeed indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Connect lighted indicator display to connector PX7.
(12) Position lighted indicator display in instrument panel assembly with four screws.
(13) Tighten four screws to 6-10 lb-in. (1 N·m).
(14) Connect batteries (para 7-57).



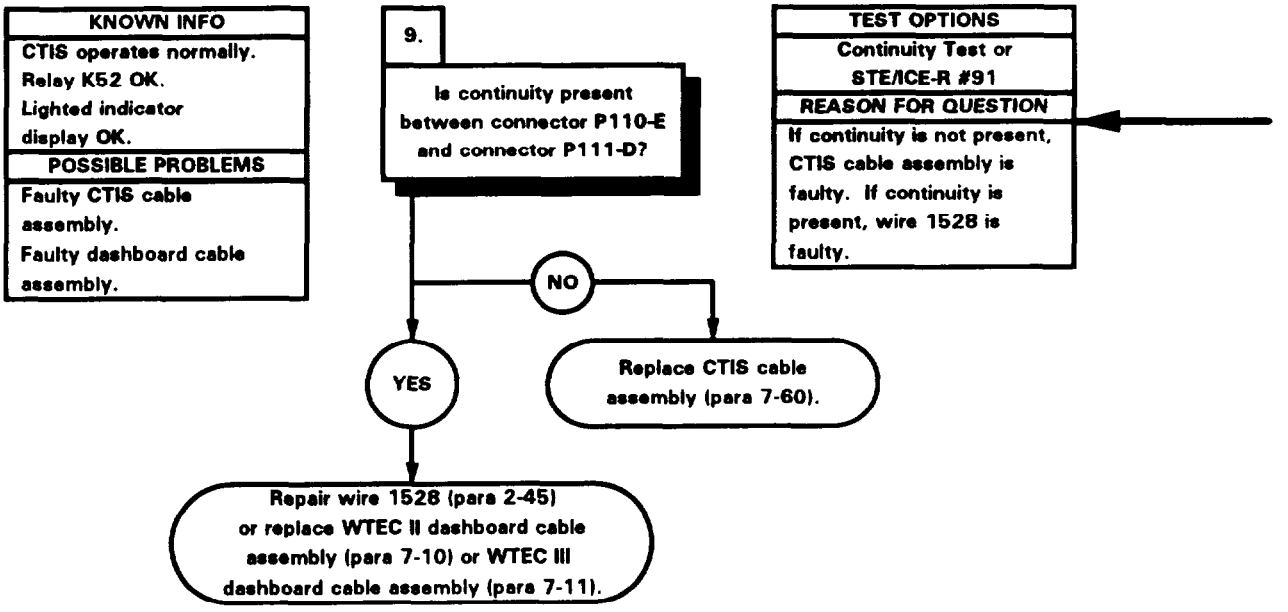
e25. CENTRAL TIRE INFLATION SYSTEM (CTIS) OVERSPEED INDICATOR DOES NOT OPERATE (CONT)



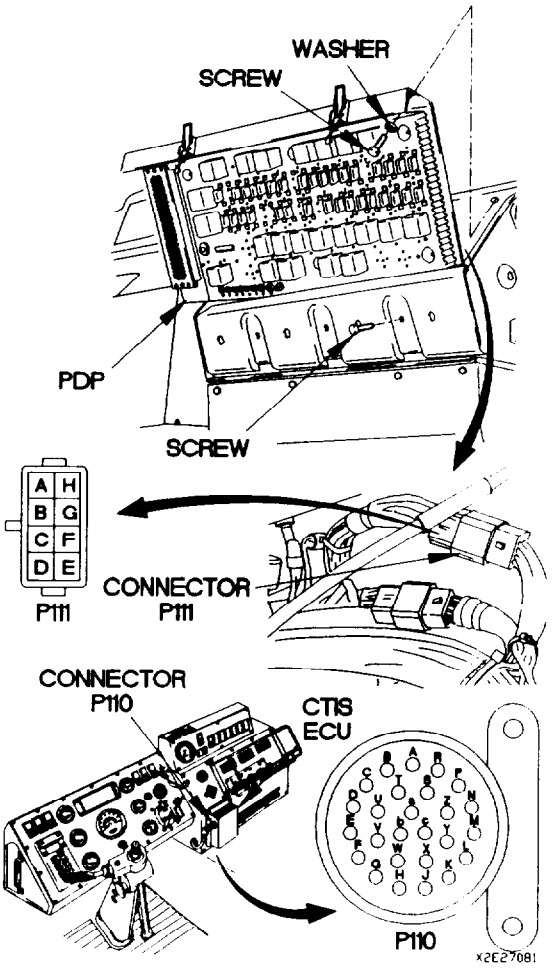
CONTINUITY TEST
(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector P111 from connector J111.
(6) Set multimeter to ohms.
(7) Connect positive (+) probe of multimeter to connector P110-S.
(8) Connect negative (-) probe of multimeter to connector P111-G and note reading on multimeter.
(9) If continuity is not present, replace CTIS cable assembly (para 7-60).
(10) If continuity is present, repair wire 1911 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(11) Connect connector P111 to connector J111.
(12) Install PDP on dashboard with three screws.
(13) Install three washers and screws in PDP.
(14) Install PDP cover (para 16-2).
(15) Connect lighted indicator display to connector PX7.
(16) Position lighted indicator display in instrument panel assembly with four screws.
(17) Tighten four screws to 6-10 lb-in. (1 N·m).



e25. CENTRAL TIRE INFLATION SYSTEM (CTIS) OVERSPEED INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector P111 from connector J111.
(6) Set multimeter to ohms.
(7) Connect positive (+) probe of multimeter to connector P110-E.
(8) Connect negative (-) probe of multimeter to connector P111-D and note reading on multimeter.
(9) If continuity is not present, replace CTIS cable assembly (para 7-60).
(10) If continuity is present, repair wire 1528 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(11) Connect connector P111 to connector J111.
(12) Install PDP on dashboard with three screws.
(13) Install three washers and screws in PDP.
(14) Install PDP cover (para 16-2).
(15) Connect connector P110 to CTIS ECU.



e26. CHEMICAL DETECTOR INDICATOR DOES NOT OPERATE

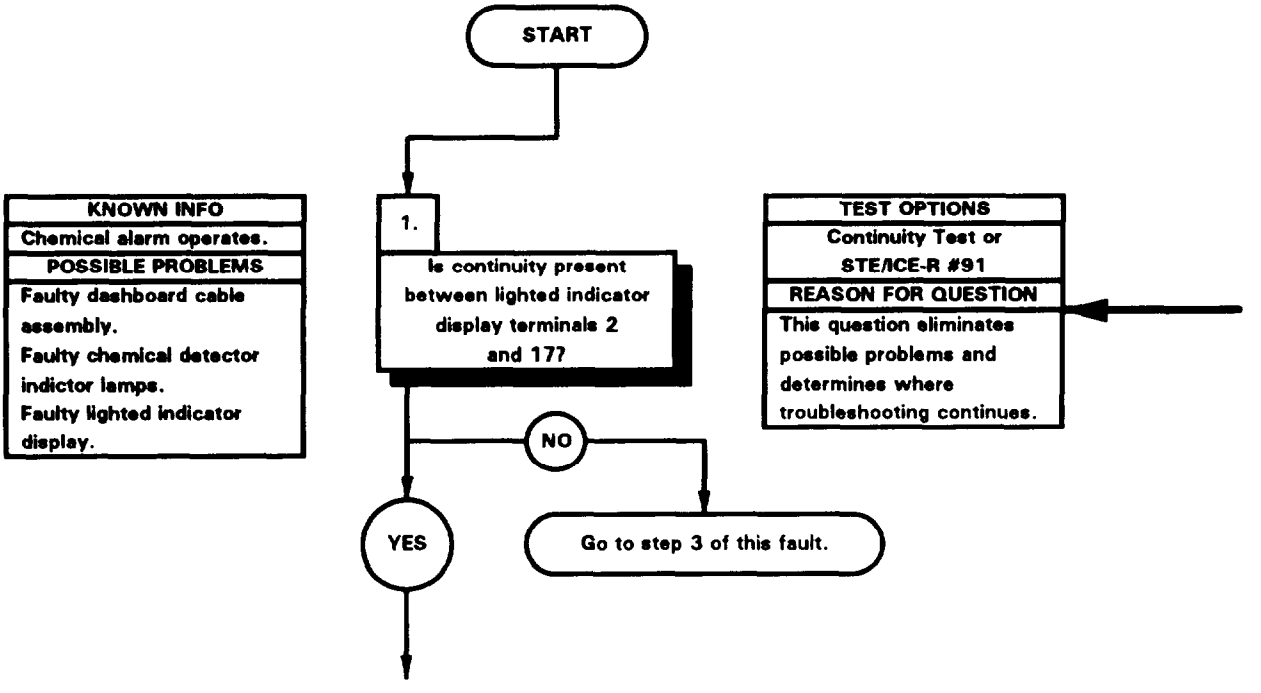
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

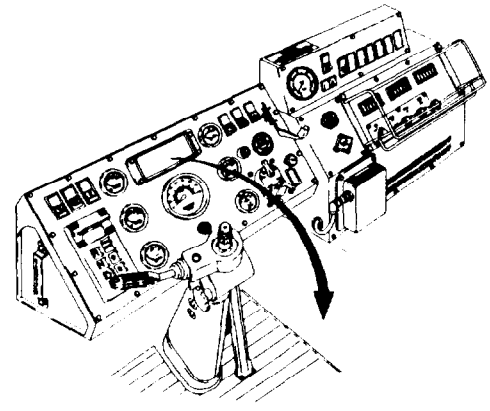
Personnel Required
(2)

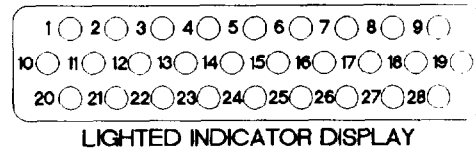
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

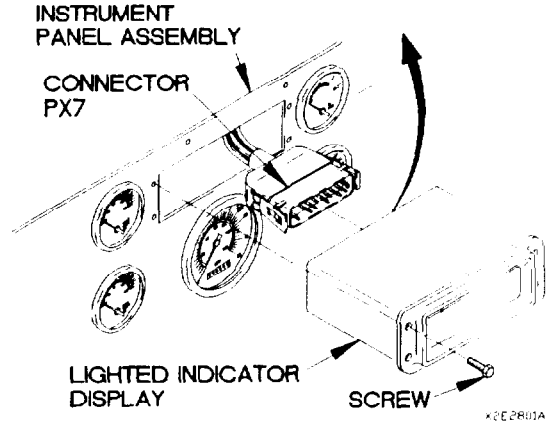
References
TM 9-4910-571-12&P



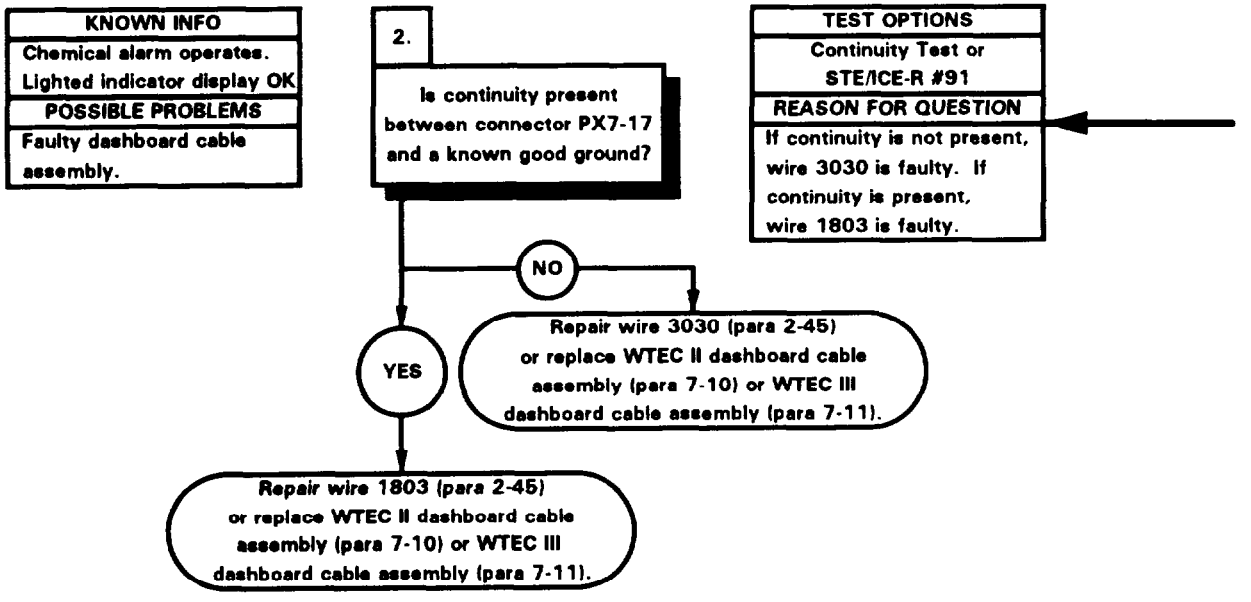
CONTINUITY TEST
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to lighted indicator display terminal 2.
(6) Connect negative (-) probe of multimeter to lighted indicator display terminal 17 and note reading on multimeter.
(7) If continuity is not present, go to step 3 of this fault.

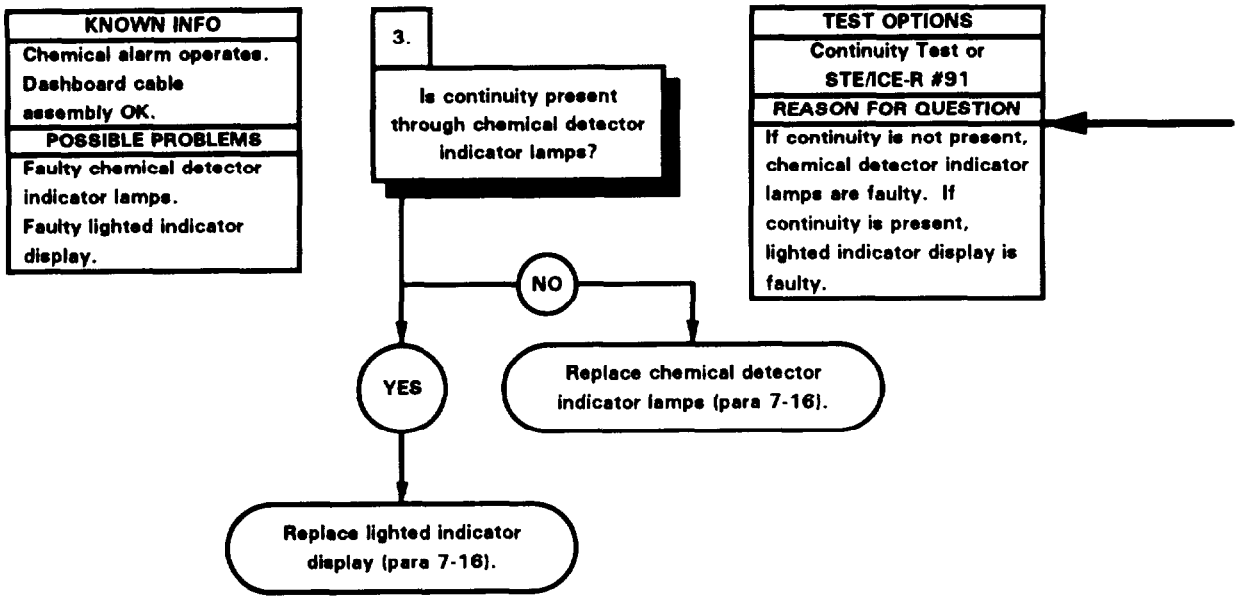






e26. CHEMICAL DETECTOR INDICATOR DOES NOT OPERATE (CONT)



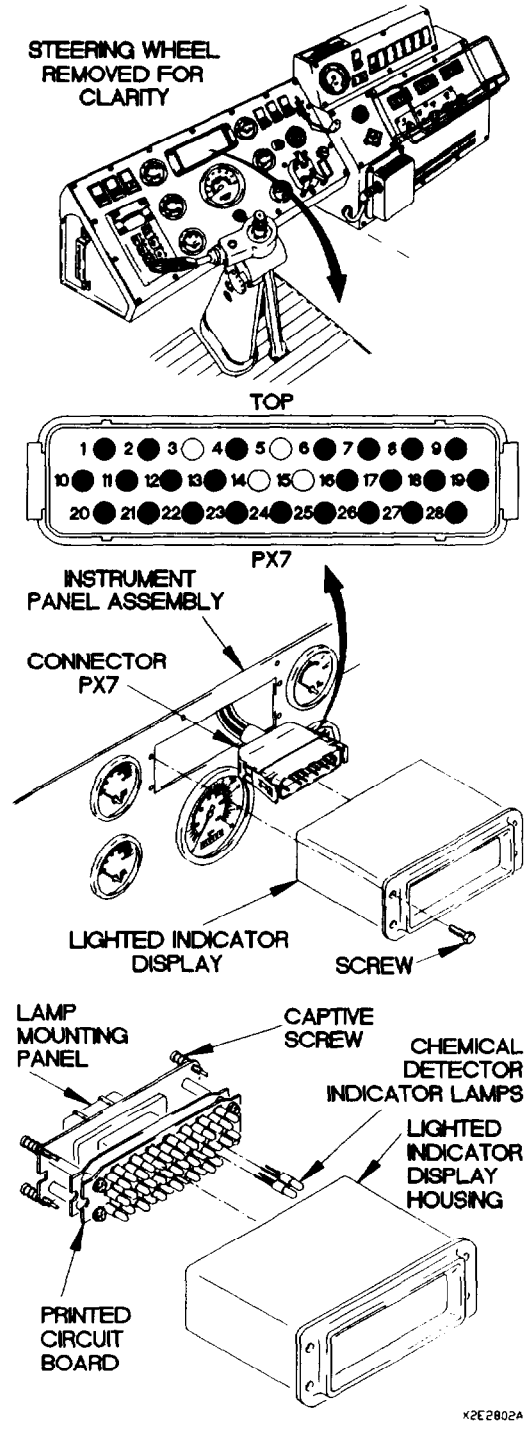


CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX7-17.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3030 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If continuity is present, repair wire 1803 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Connect lighted indicator display to connector PX7.
(7) Position lighted indicator display in instrument panel assembly with four screws.
(8) Tighten four screws to 6-10 lb-in. (1 N·m).
(9) Connect batteries (para 7-57).

CONTINUITY TEST

(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove chemical detector indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each chemical detector indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install chemical detector indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Connect lighted indicator display to connector PX7.
(12) Position lighted indicator display in instrument panel assembly with four screws.
(13) Tighten four screws to 6-10 lb-in. (1 N·m).
(14) Connect batteries (para 7-57).



•27. LEFT TURN SIGNAL INDICATOR DOES NOT OPERATE

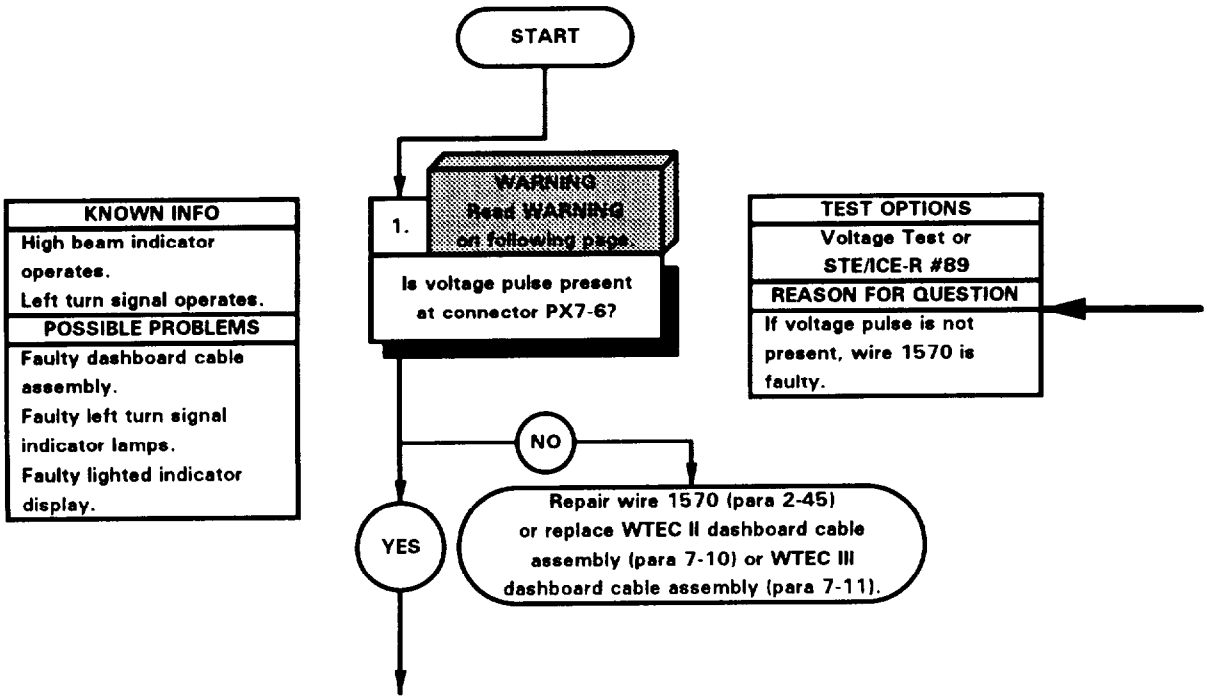
INITIAL SETUP

Equipment Condition
- Engine shut down (TM 9-2320-366-10-1).
- Batteries disconnected (para 7-57).

Personnel Required
- (2)

Tools and Special Tools
- Tool Kit, Genl Mech (Item 46, Appendix C)
- STE/ICE-R (Item 41, Appendix C)
- Multimeter, Digital (Item 22, Appendix C)
- Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

References
- TM 9-4910-571-12&P

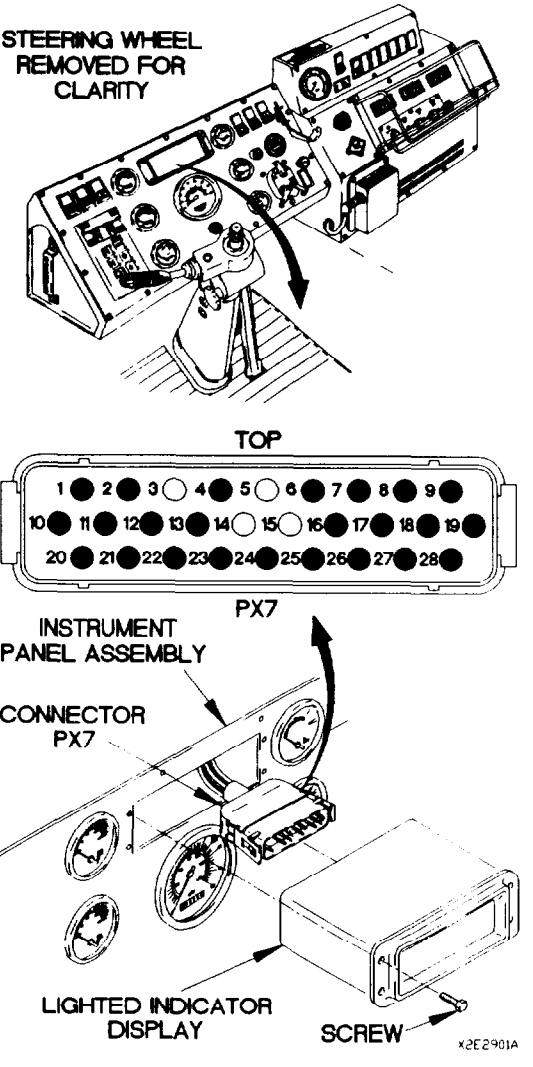


WARNING

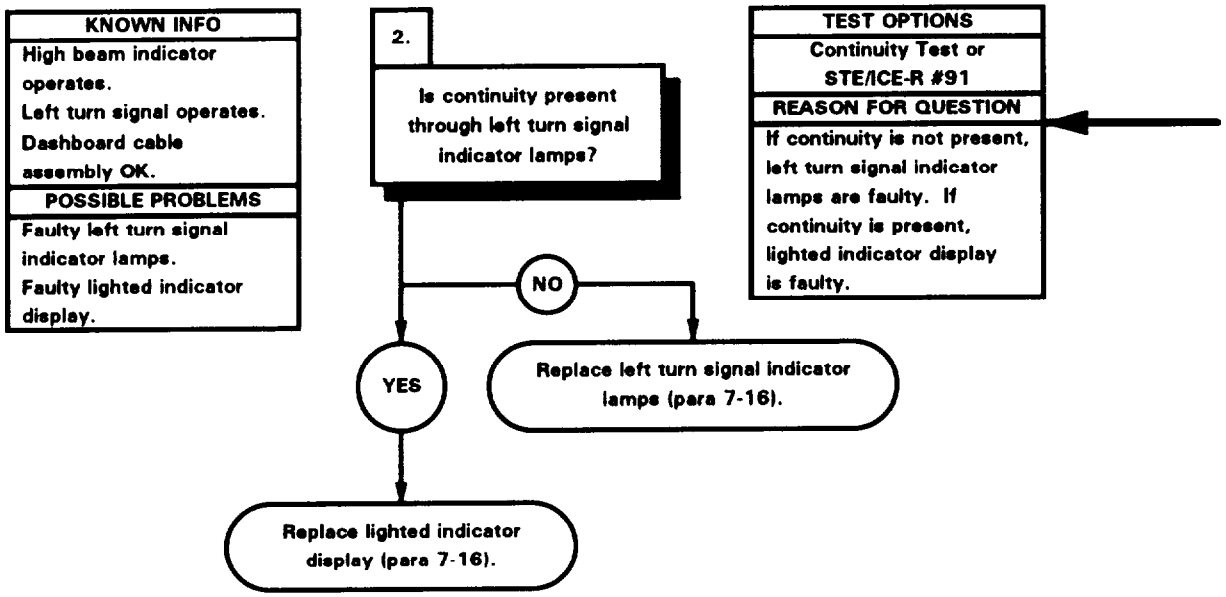
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Connect batteries (para 7-57).
(5) Set multimeter to volts dc.
(6) Connect positive (+) probe of multimeter to connector PX7-6.
(7) Connect negative (-) probe of multimeter to ground.
(8) Position master power switch to on (TM 9-2320-366-10-1).
(9) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(10) Position turn signal to left turn signal position (TM 9-2320-366-10-1) and note reading on multimeter.
(11) If voltage pulse is not present, repair wire 1570 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(12) Position master power switch to off (TM 9-2320-366-10-1).
(13) Position main light switch to OFF (TM 9-2320-366-10-1).
(14) Position turn signal switch to middle position (TM 9-2320-366-10-1).

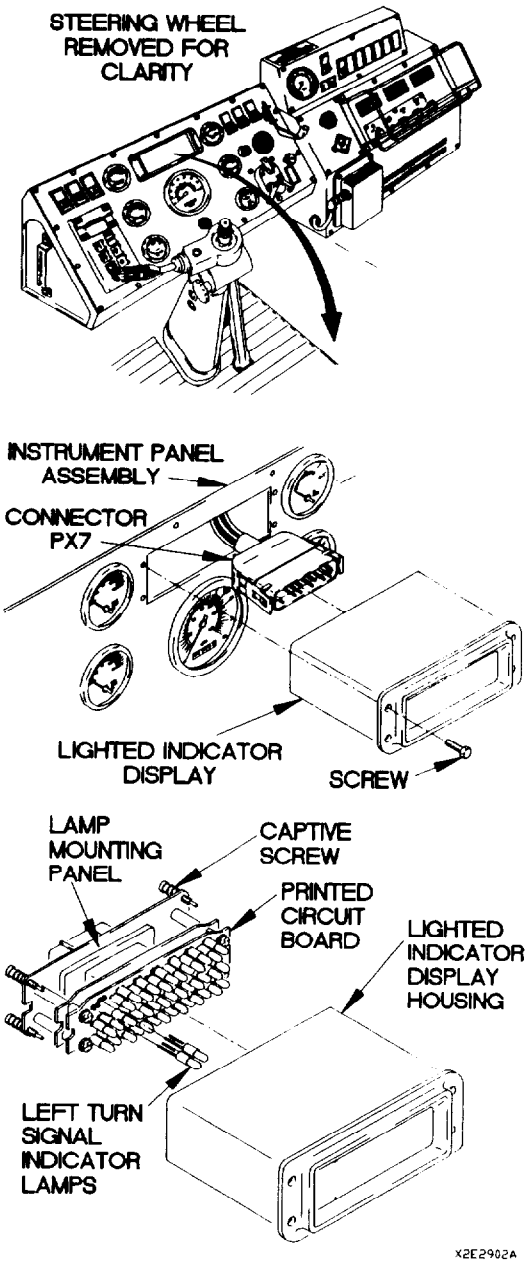


e27. LEFT TURN SIGNAL INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST

(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove left turn signal indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each left turn signal indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install left turn signal indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Disconnect batteries (para 7-57).
(12) Connect lighted indicator display to connector PX7.
(13) Position lighted indicator display in instrument panel assembly with four screws.
(14) Tighten four screws to 6-10 lb-in. (1 N·m).



•28. RIGHT TURN SIGNAL INDICATOR DOES NOT OPERATE

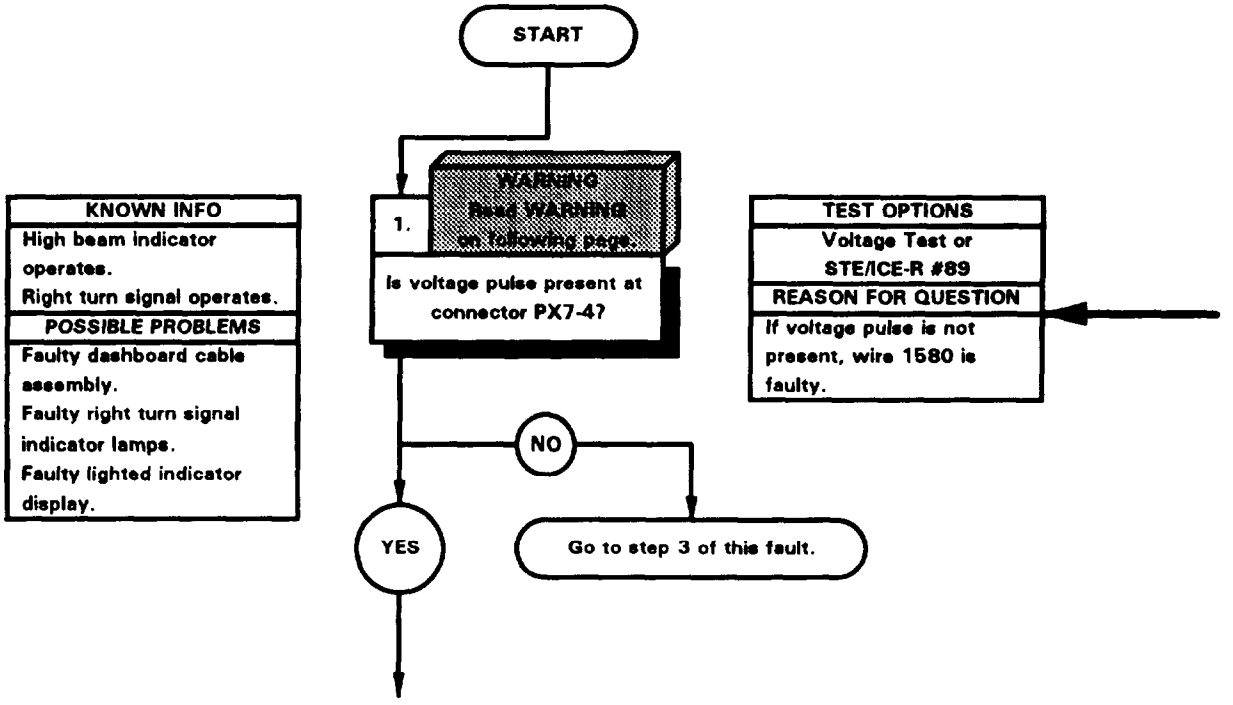
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

References
TM 9-4910-571-12&P

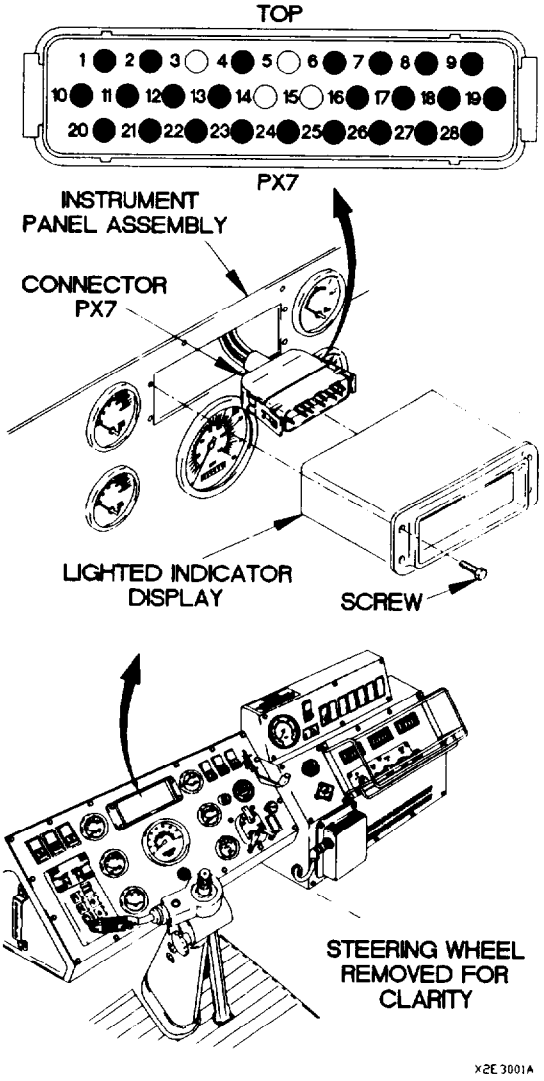


WARNING

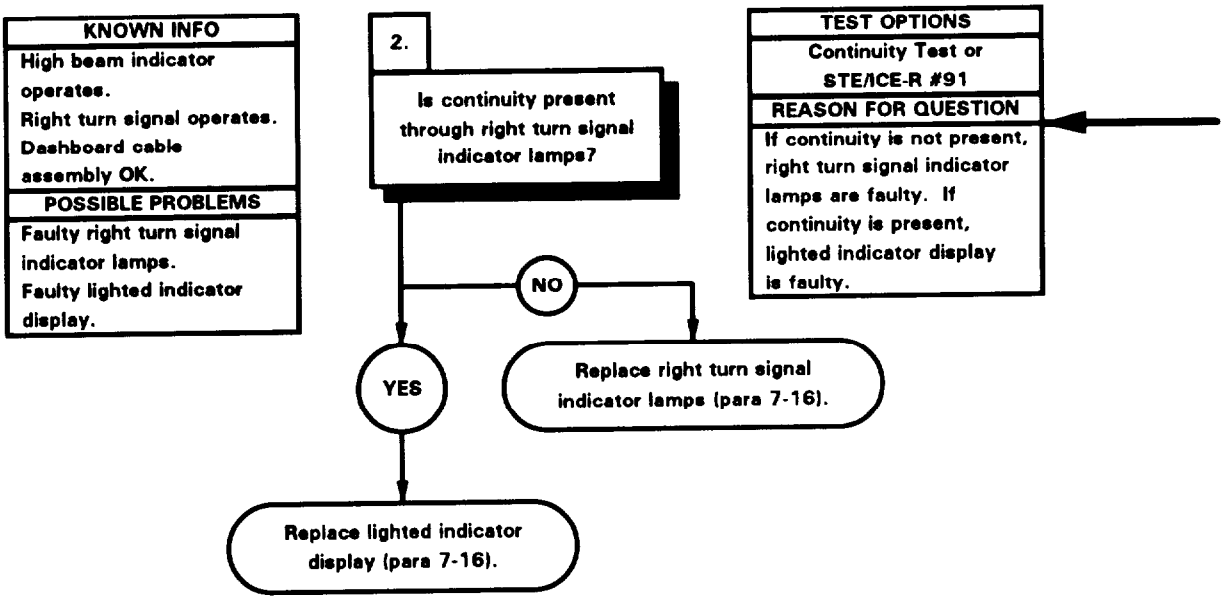
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

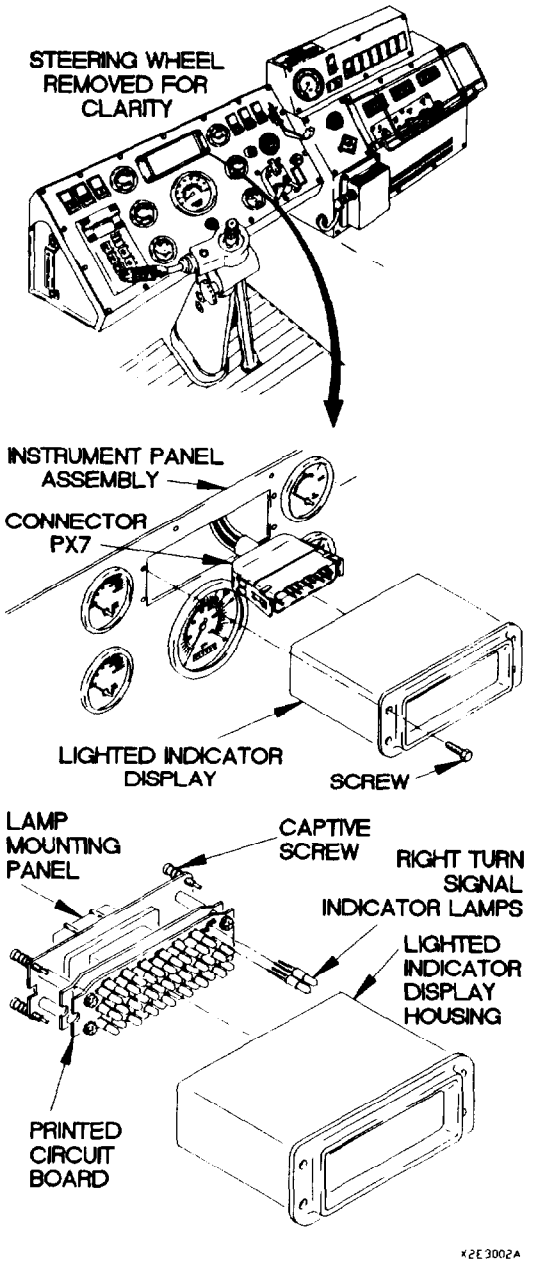
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Connect batteries (para 7-57).
(5) Set multimeter to volts dc.
(6) Connect positive (+) probe of multimeter to connector PX7-4.
(7) Connect negative (-) probe of multimeter to ground.
(8) Position master power switch to on (TM 9-2320-366-10-1).
(9) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(10) Position right signal to right turn signal position (TM 9-2320-366-10-1) and note reading on multimeter.
(11) If voltage pulse is not present, go to step 3 of this fault.
(12) Position master power switch to off (TM 9-2320-366-10-1).
(13) Position main light switch to OFF (TM 9-2320-366-10-1).
(14) Position turn signal control to middle position (TM 9-2320-366-10-1).



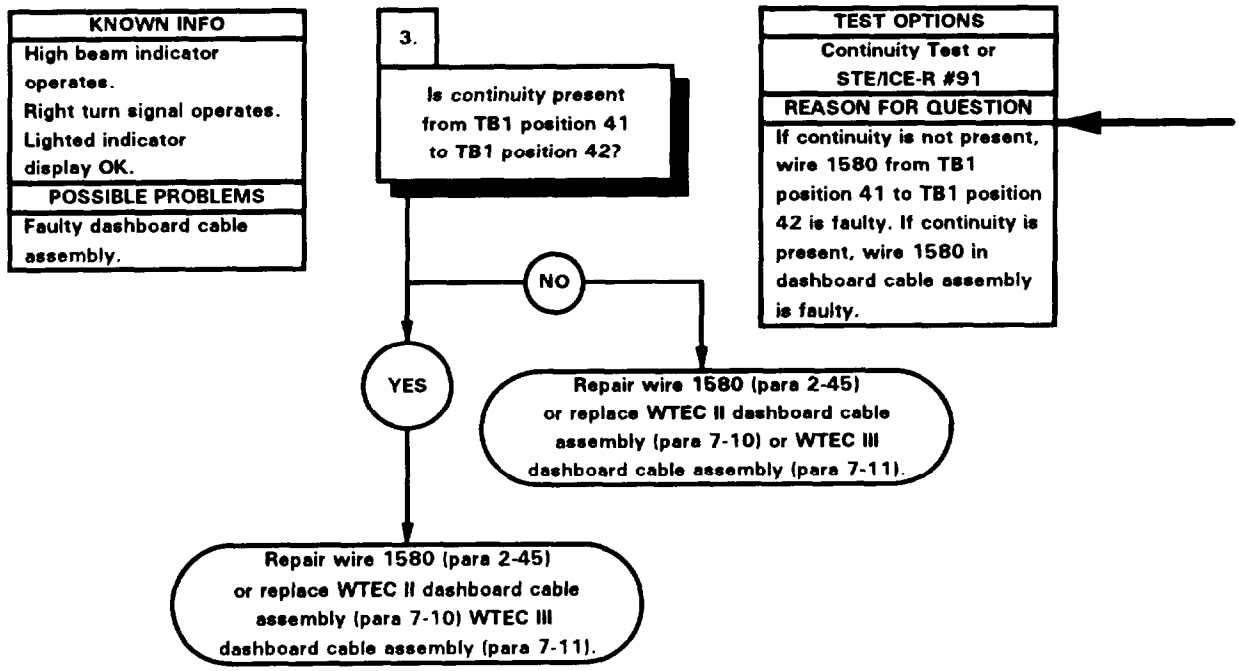
e28. RIGHT TURN SIGNAL INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove right turn signal indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each right turn signal indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install right turn signal indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Disconnect batteries (para 7-57).
(12) Connect lighted indicator display to connector PX7.
(13) Position lighted indicator display in instrument panel assembly with four screws.
(14) Tighten four screws to 6-10 lb-in. (1 N·m).
(15) Connect batteries (para 7-57).

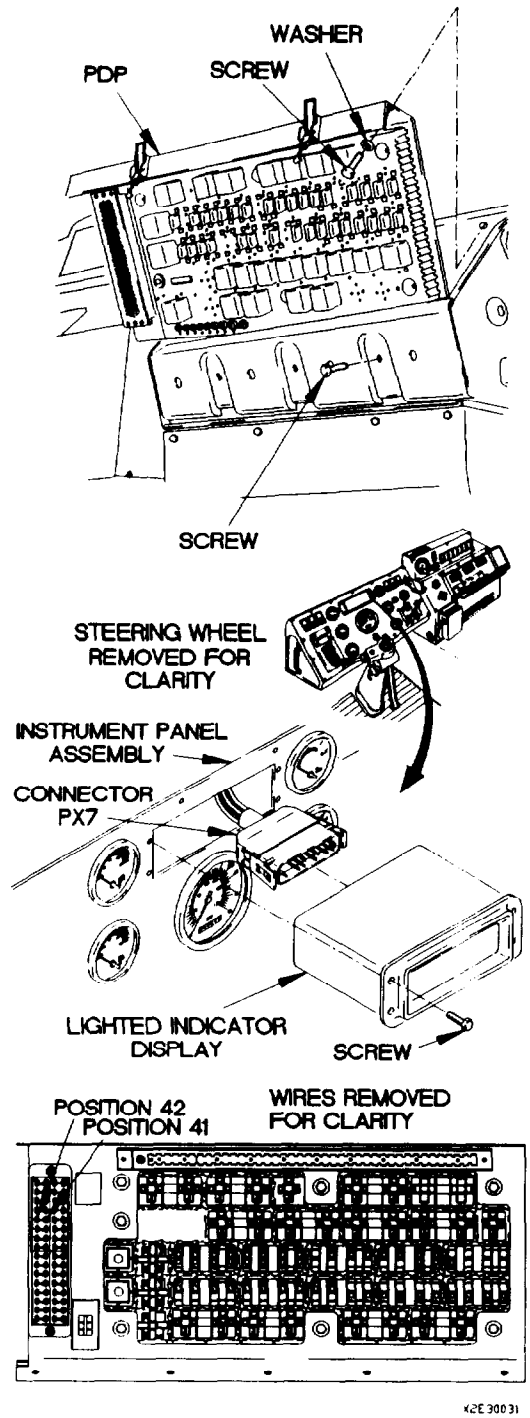


e28. RIGHT TURN SIGNAL INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST

(1) Disconnect batteries (para 7-57).
(2) Remove PDP cover (para 16-2).
(3) Remove three screws and washers from PDP.
(4) Remove three screws from PDP.
(5) Lift PDP outward to gain access.
(6) Connect positive (+) probe of multimeter to terminal board TB1, position 41.
(7) Connect negative (-) probe of multimeter to terminal board TB1, position 42 and note reading on multimeter.
(8) If continuity is not present, repair wire 1580 from terminal board TB1, position 41 to terminal TB1, position 42 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) If continuity is present, repair wire 1580 in dashboard cable assembly (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(10) Install PDP on dashboard with three screws.
(11) Install three washers and screws in PDP.
(12) Install PDP cover (para 16-2).
(13) Connect lighted indicator display to connector PX7.
(14) Position lighted indicator display in instrument panel assembly with four screws.
(15) Tighten four screws to 6-10 lb-in. (1 N·m).
(16) Connect batteries (para 7-57).



e29. TURN SIGNAL INDICATORS AND HIGH BEAMS ON INDICATOR DO NOT OPERATE

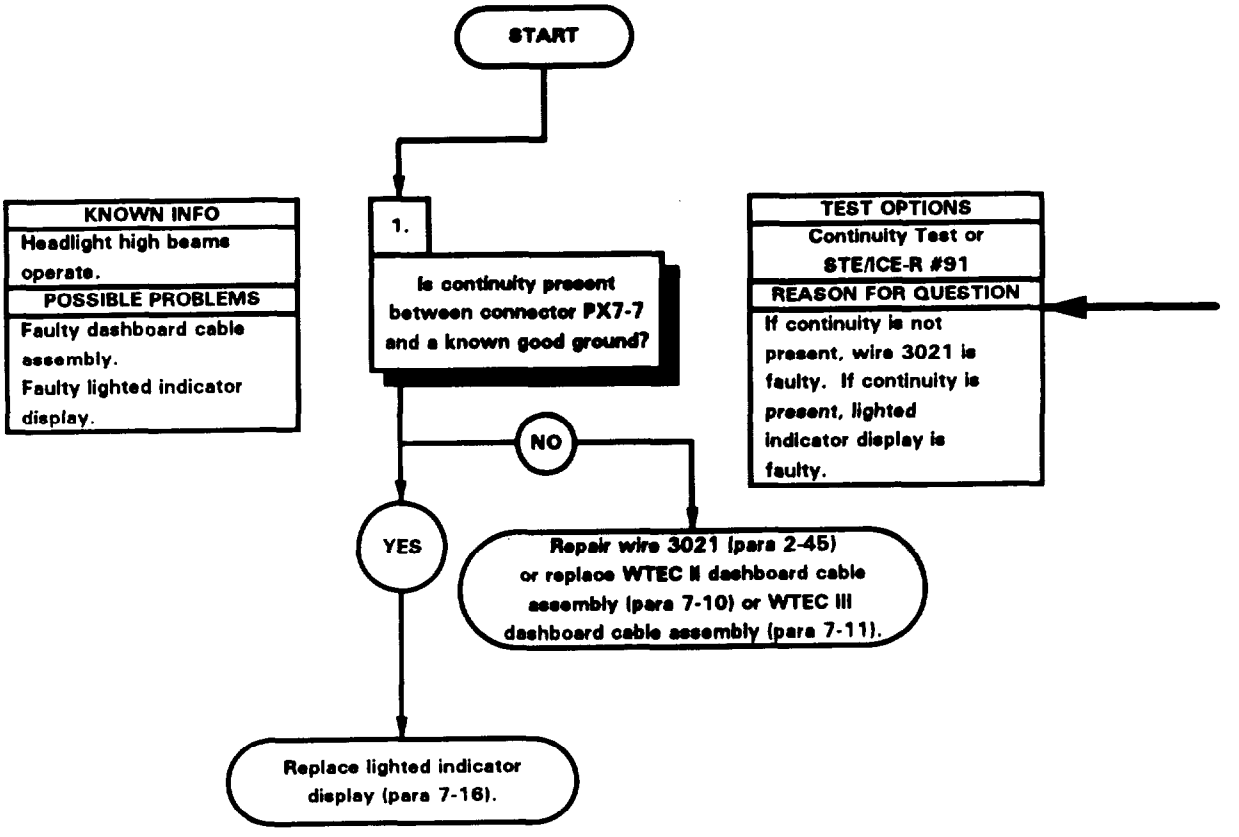
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

Personnel Required
(2)

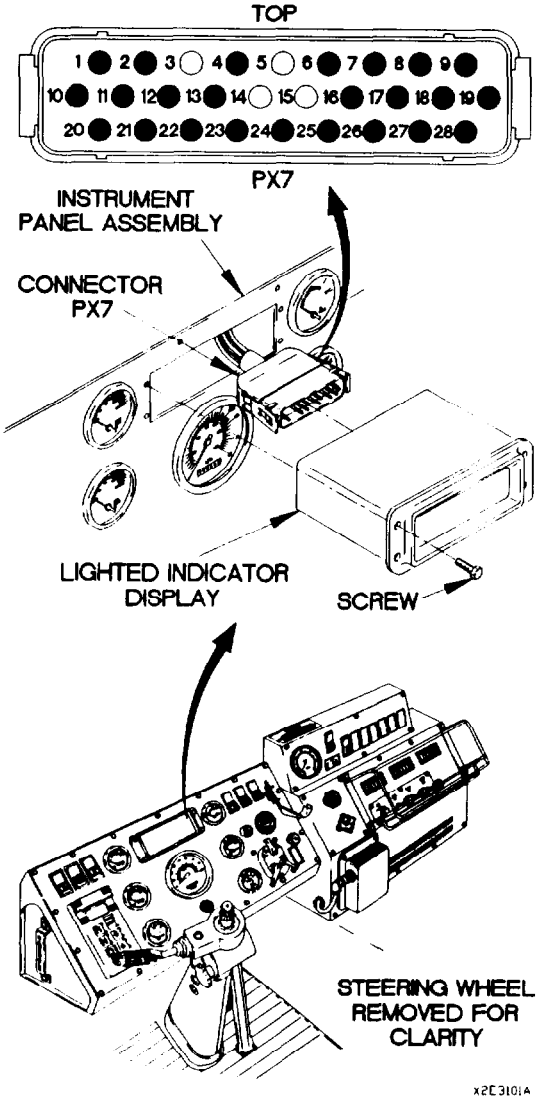
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

References
TM 9-4910-571-12&P



CONTINUITY TEST

(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector PX7-7.
(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(7) If continuity is not present, repair wire 3021 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) If continuity is present, replace lighted indicator display (para 7-16).
(9) Connect lighted indicator display to connector PX7.
(10) Position lighted indicator display in instrument panel assembly with four screws.
(11) Tighten four screws to 6-10 lb-in. (1 N·m).
(12) Connect batteries (para 7-57).



e30. HIGH BEAMS ON INDICATOR DOES NOT OPERATE

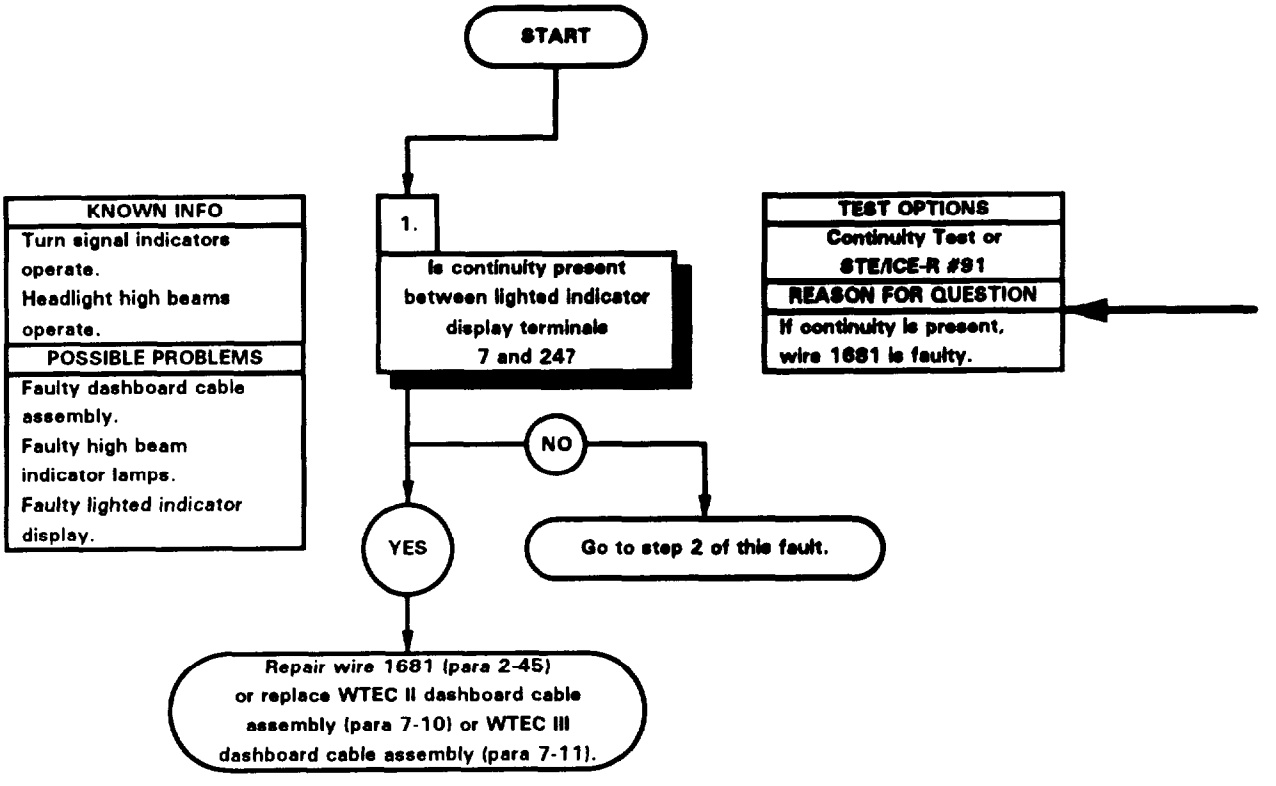
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

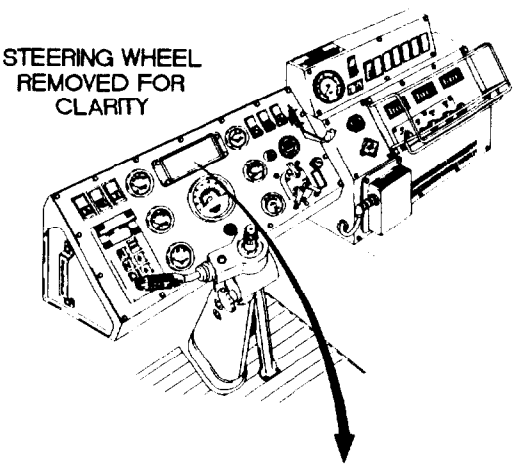
Personnel Required
(2)

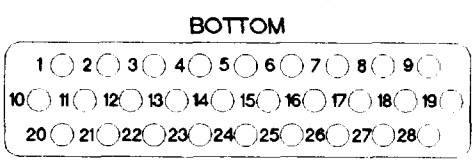
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

References
TM 9-4910-571-12&P

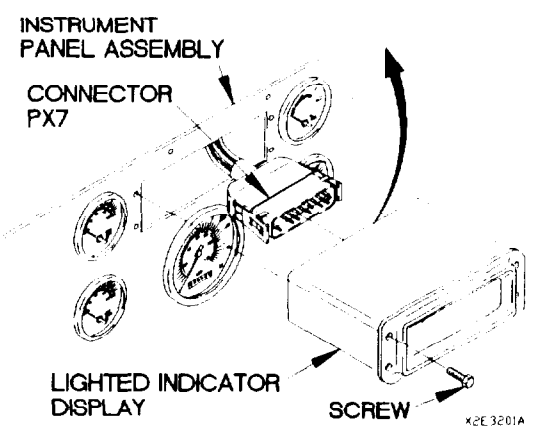


CONTINUITY TEST
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to lighted indicator display terminal 7.
(6) Connect negative (-) probe of multimeter to lighted indicator display terminal 24 and note reading on multimeter.
(7) If continuity is present, repair wire 1681 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).

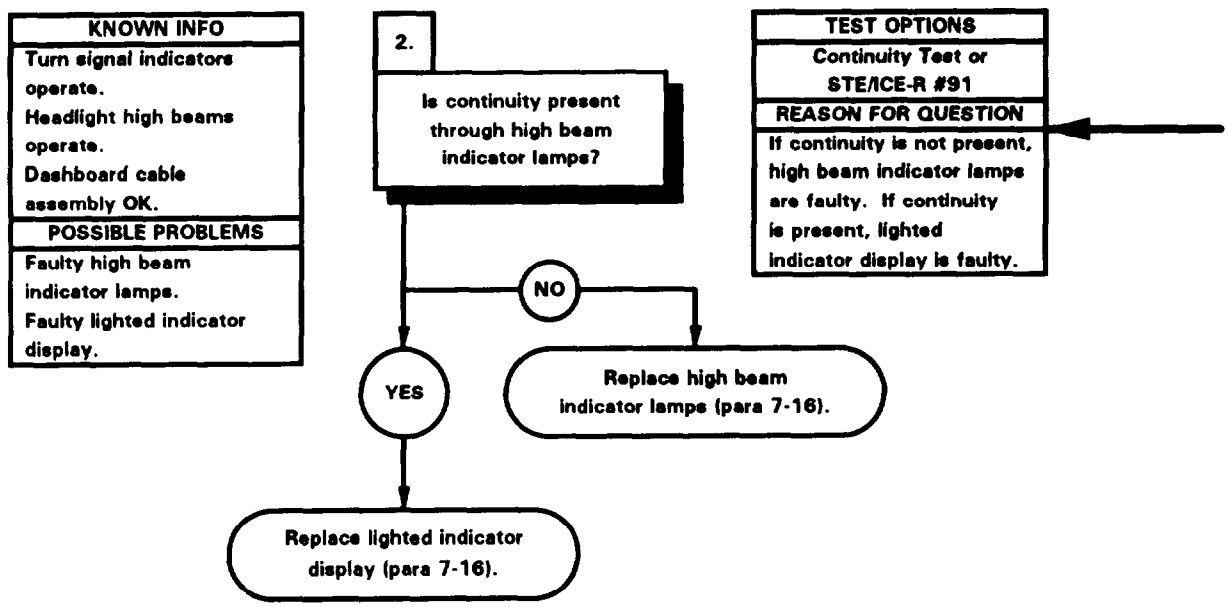




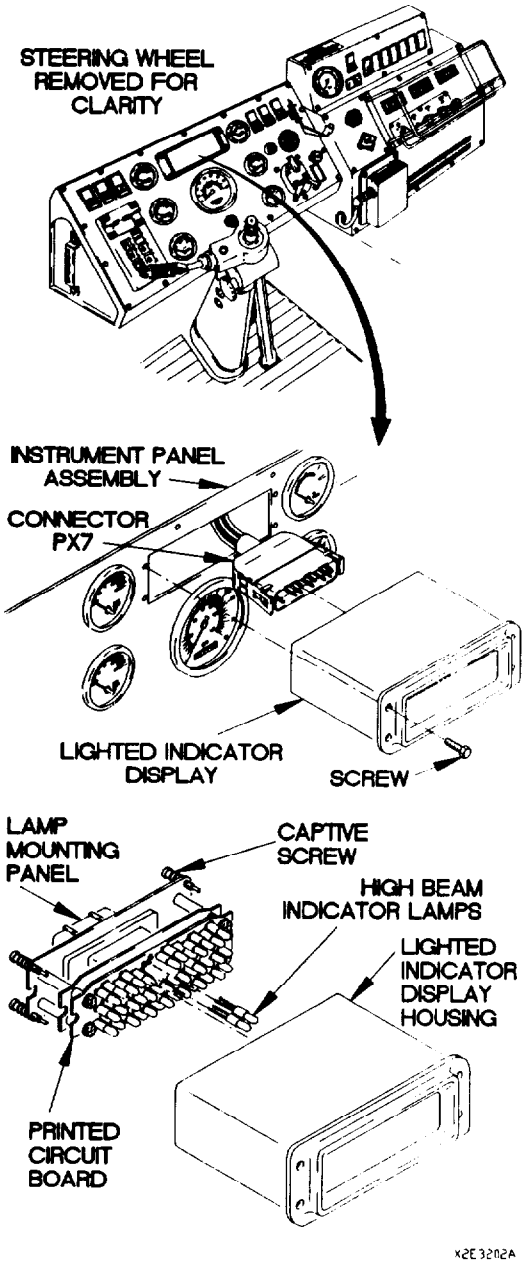
LIGHTED INDICATOR DISPLAY



e30. HIGH BEAMS ON INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove high beam indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each high beam indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install high beam indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Connect lighted indicator display to connector PX7.
(12) Position lighted indicator display in instrument panel assembly with four screws.
(13) Tighten four screws to 6-10 lb-in. (1 N·m).
(14) Connect batteries (para 7-57).



e31. PARKING BRAKE INDICATOR AND/OR EMERGENCY BRAKE INDICATOR DOES NOT OPERATE

INITIAL SETUP

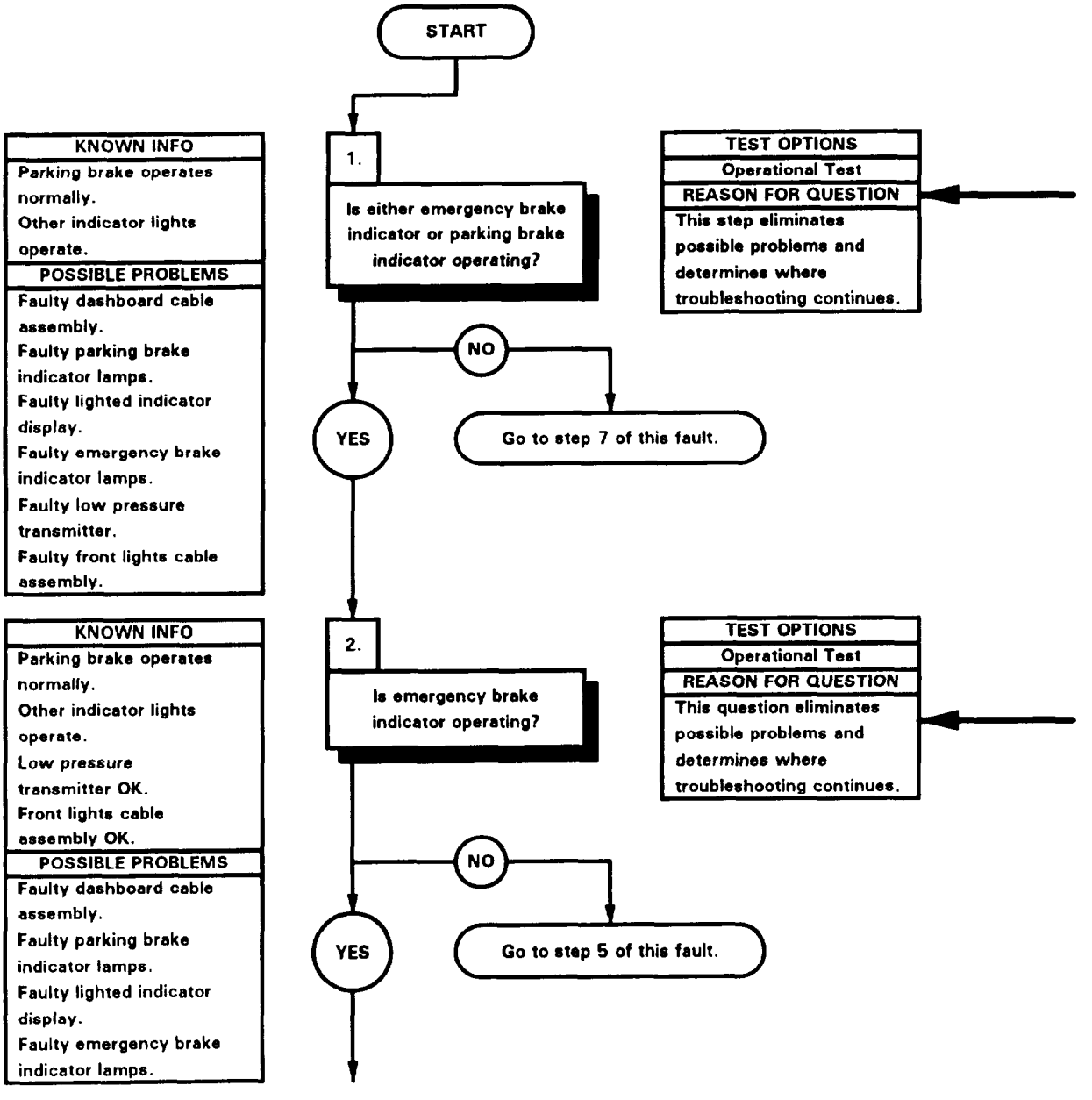
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

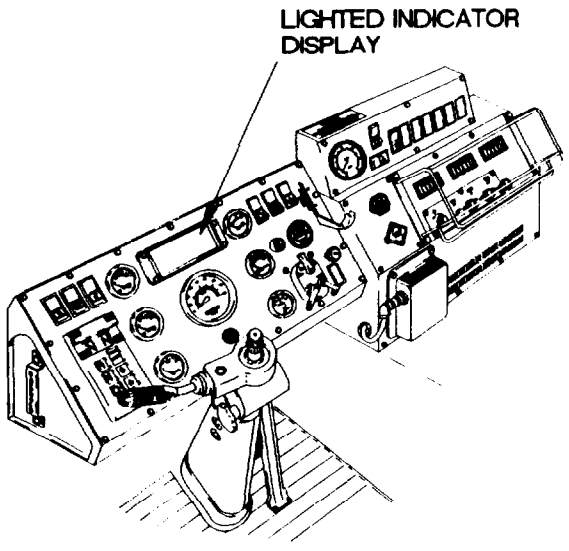
References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

Materials/Parts
Wire, Elect, 50 ft (Item 71, Appendix D)



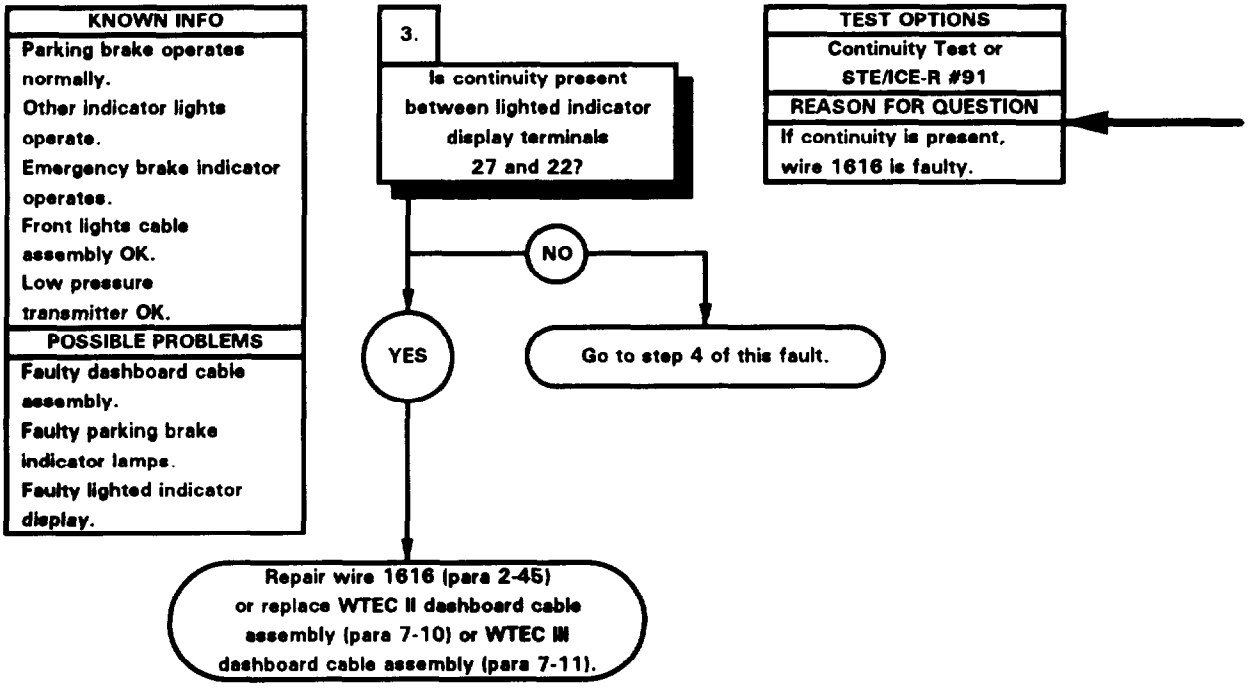
OPERATIONAL TEST
(1) Start engine (TM 9-2320-366-10-1).
(2) Visually check lighted indicator display.
(3) If emergency brake and parking brake indicator lights do not operate, go to step 7 of this fault.



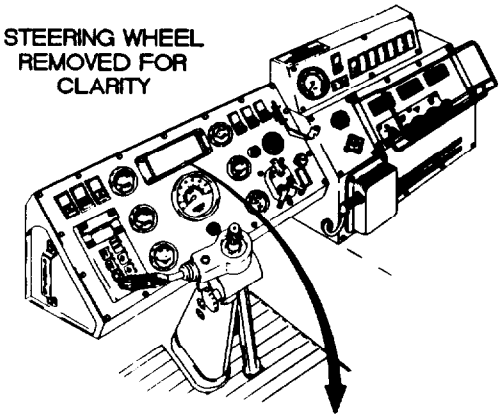
X2E330IA

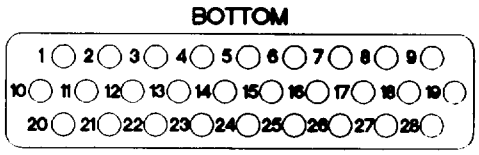
OPERATIONAL TEST
(1) Visually check lighted indicator display.
(2) If parking brake indicator operates and emergency brake indicator does not, go to step 5 of this fault.
(3) Shut down engine (TM 9-2320-366-10-1).

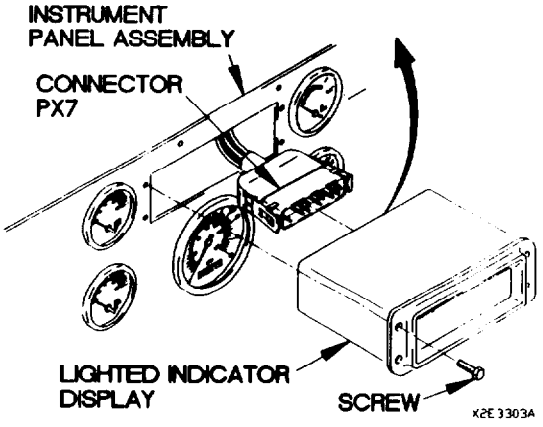
e31. PARKING BRAKE INDICATOR AND/OR EMERGENCY BRAKE INDICATOR DOES NOT OPERATE (CONT)



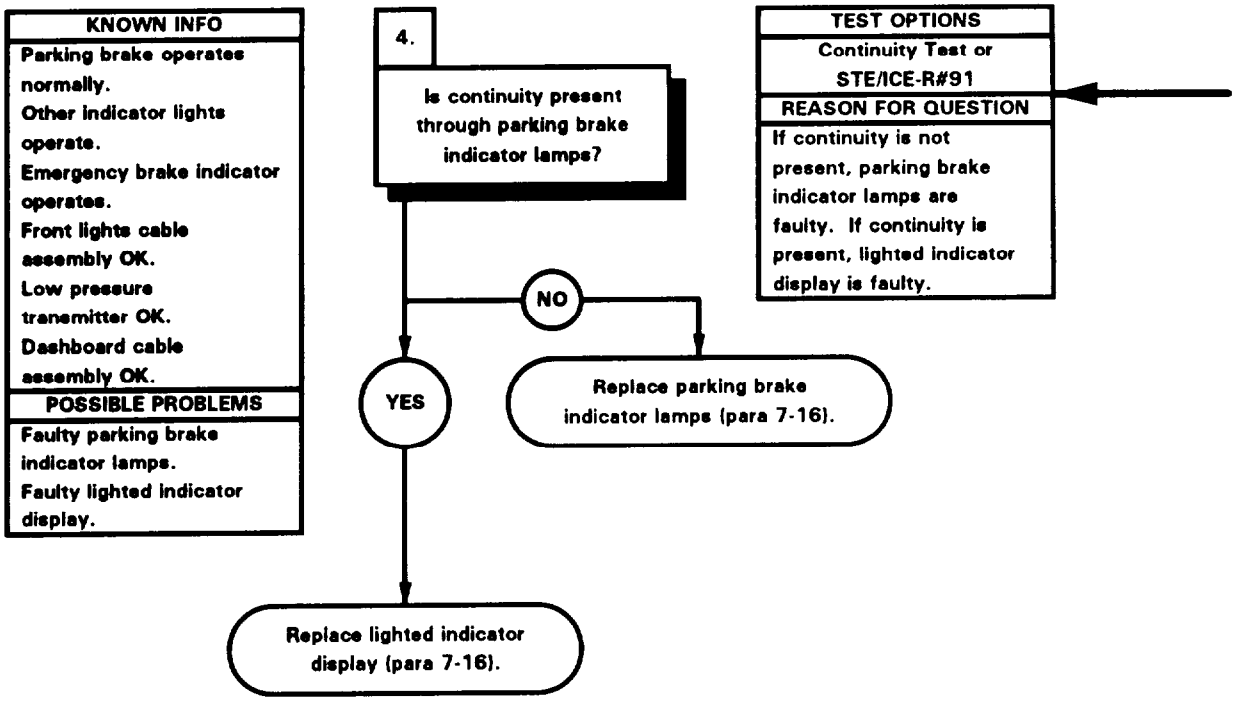
CONTINUITY TEST
(1) Disconnect batteries (para 7-57).
(2) Remove four screws from lighted indicator display.
(3) Remove lighted indicator display from instrument panel assembly.
(4) Disconnect connector PX7 from lighted indicator display.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to lighted indicator display terminal 27.
(7) Connect negative (-) probe of multimeter to lighted indicator display terminal 22 and note reading on multimeter.
(8) If continuity is not present, go to step 4 of this fault.
(9) If continuity is present, repair wire 1616 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



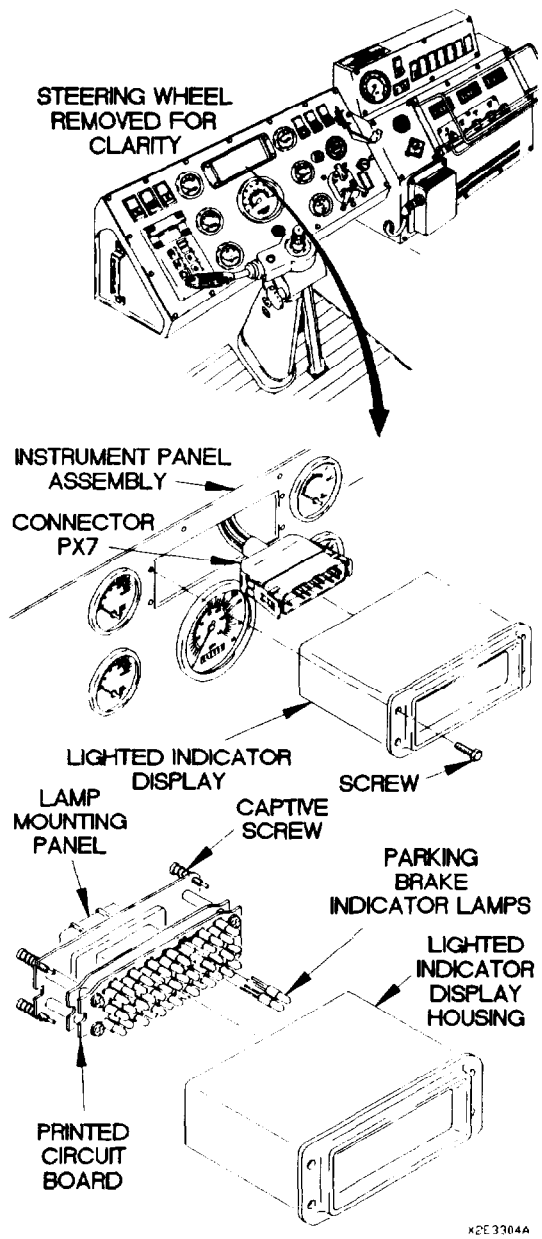




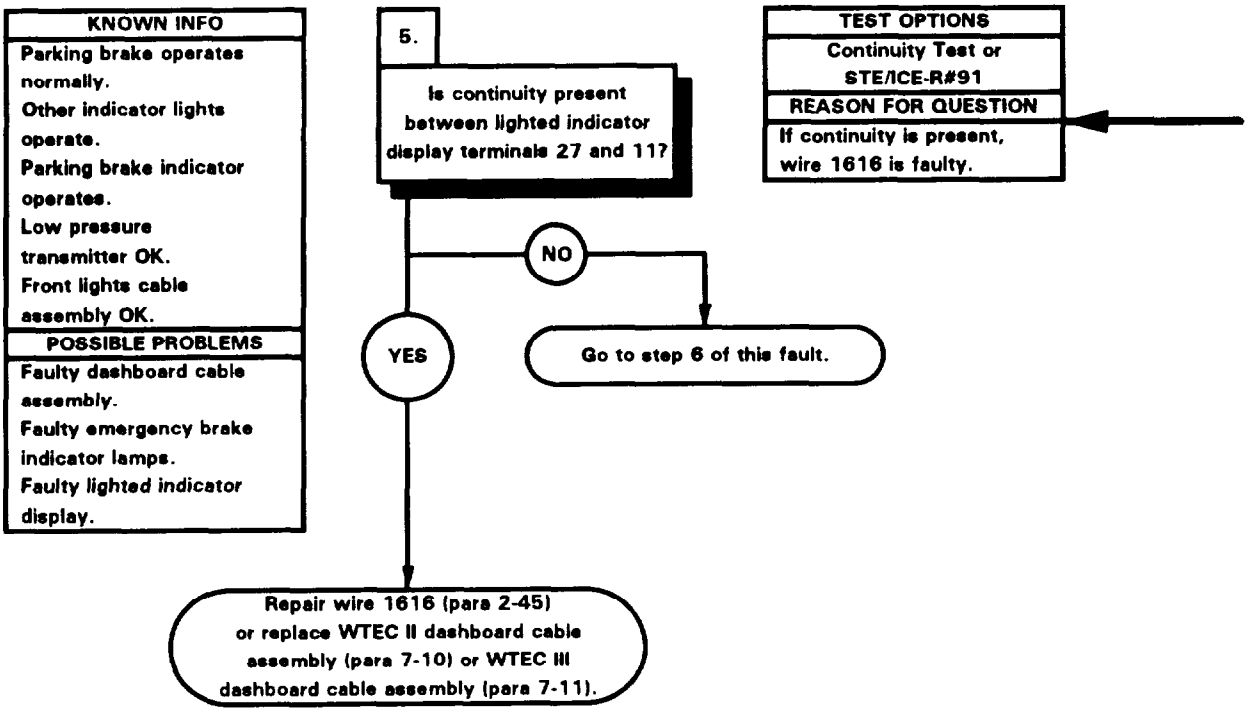
e31. PARKING BRAKE INDICATOR AND/OR EMERGENCY BRAKE INDICATOR DOES NOT OPERATE (CONT)



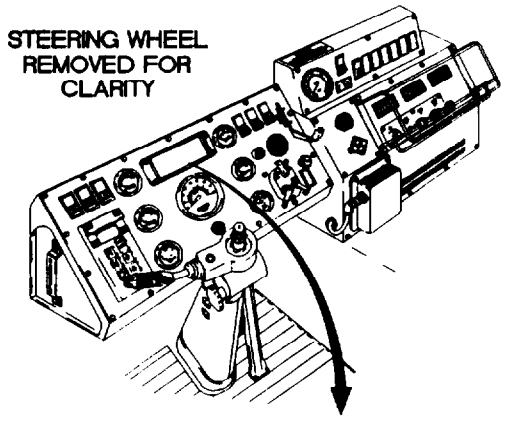
CONTINUITY TEST
(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove parking brake indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each parking brake indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install parking brake indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Connect lighted indicator display to connector PX7.
(12) Position lighted indicator display in instrument panel assembly with four screws.
(13) Tighten four screws to 6-10 lb-in. (1 N·m).
(14) Connect batteries (para 7-57).

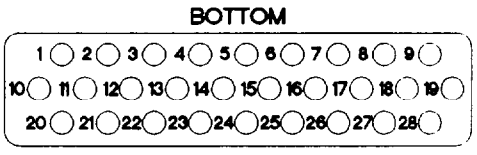


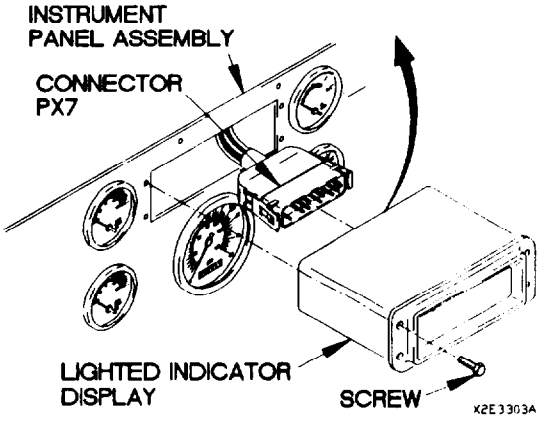
e31. PARKING BRAKE INDICATOR AND/OR EMERGENCY BRAKE INDICATOR DOES NOT OPERATE (CONT)



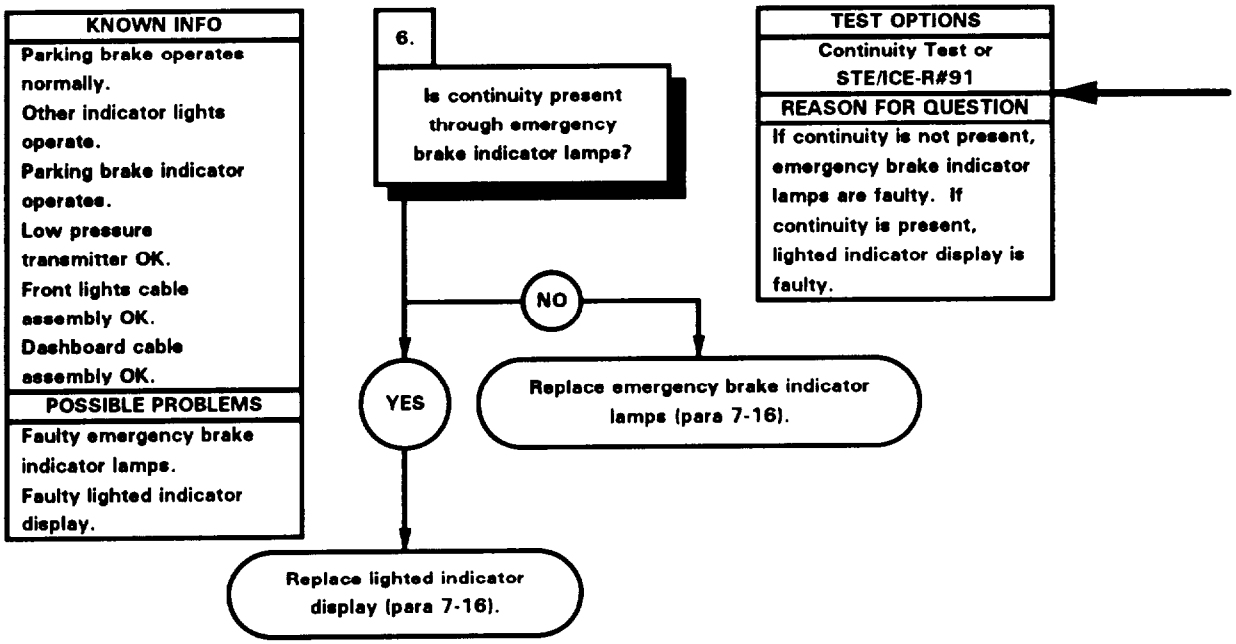
CONTINUITY TEST
(1) Disconnect batteries (para 7-57).
(2) Remove four screws from lighted indicator display.
(3) Remove lighted indicator display from instrument panel assembly.
(4) Disconnect connector PX7 from lighted indicator display.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to lighted indicator display terminal 11.
(7) Connect negative (-) probe of multimeter to lighted indicator display terminal 22 and note reading on multimeter.
(8) If continuity is not present, go to step 6 of this fault.
(9) If continuity is present, repair wire 1616 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).

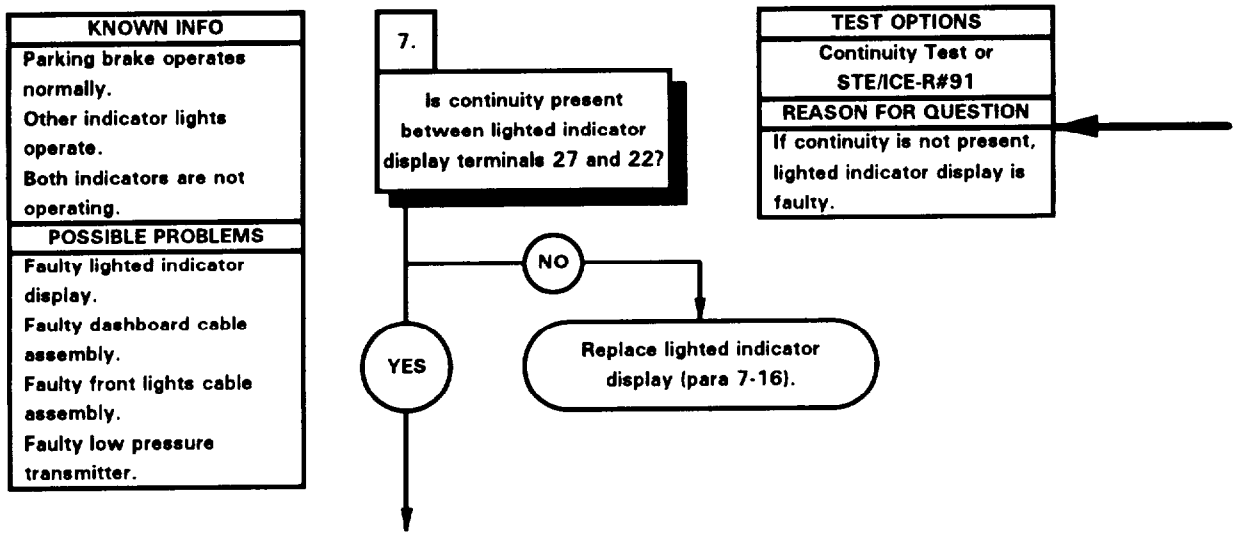






e31. PARKING BRAKE INDICATOR AND/OR EMERGENCY BRAKE INDICATOR DOES NOT OPERATE (CONT)



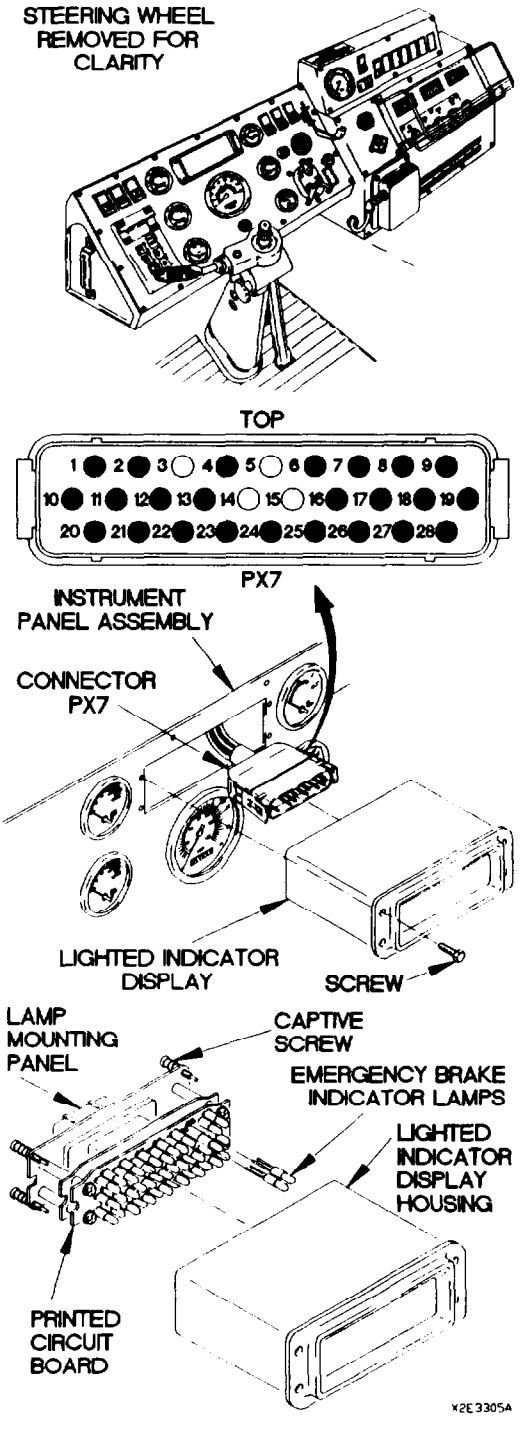


CONTINUITY TEST

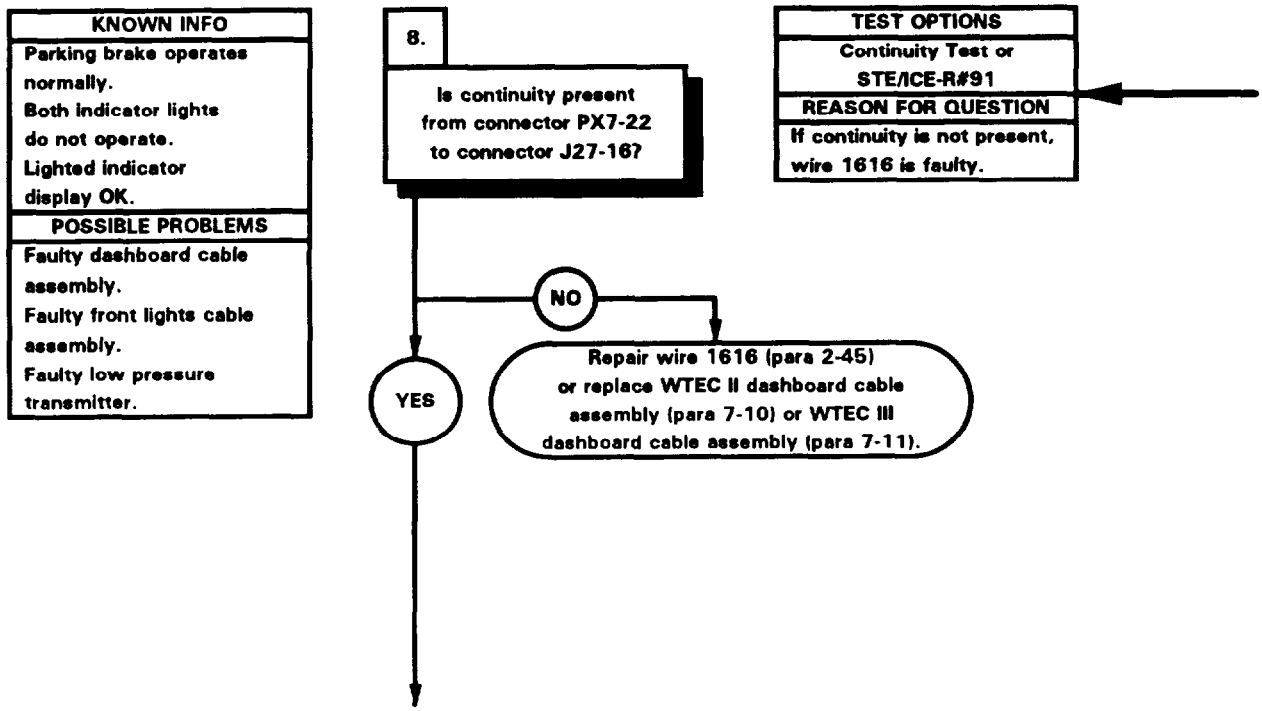
(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove emergency brake indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each emergency brake indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install emergency brake indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Connect lighted indicator display to connector PX7.
(12) Position lighted indicator display in instrument panel assembly with four screws.
(13) Tighten four screws to 6-10 lb-in. (1 N·m).
(14) Connect batteries (para 7-57).

CONTINUITY TEST

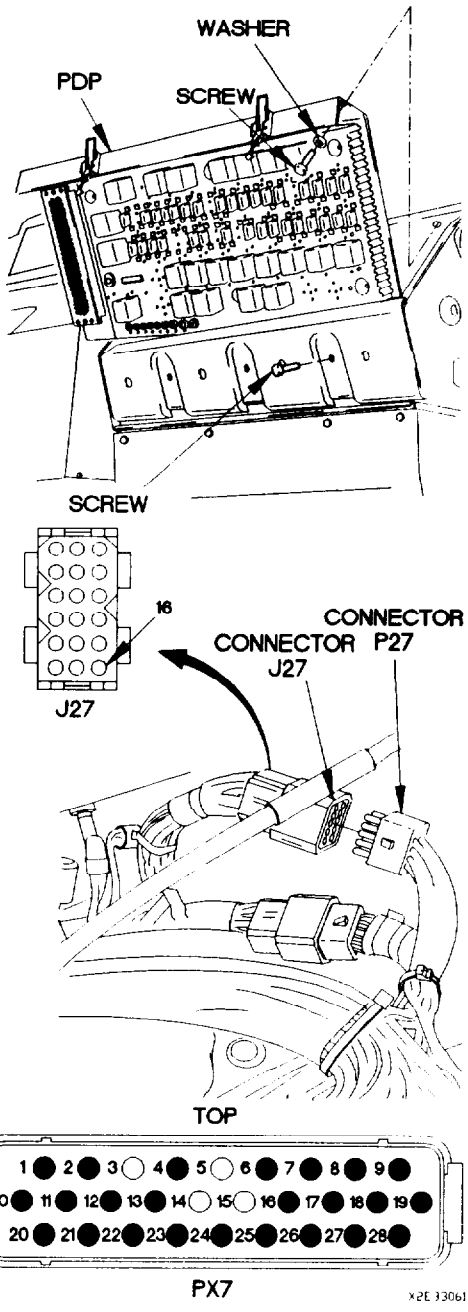
(1) Shut down engine (TM 9-2320-366-10-1).
(2) Disconnect batteries (para 7-57).
(3) Remove four screws from lighted indicator display.
(4) Remove lighted indicator display from instrument panel assembly.
(5) Disconnect connector PX7 from lighted indicator display.
(6) Set multimeter to ohms.
(7) Connect positive (+) probe of multimeter to lighted indicator display terminal 27.
(8) Connect negative (-) probe of multimeter to lighted indicator display terminal 22 and note reading on multimeter.
(9) If continuity is not present, replace lighted indicator display (para 7-16).



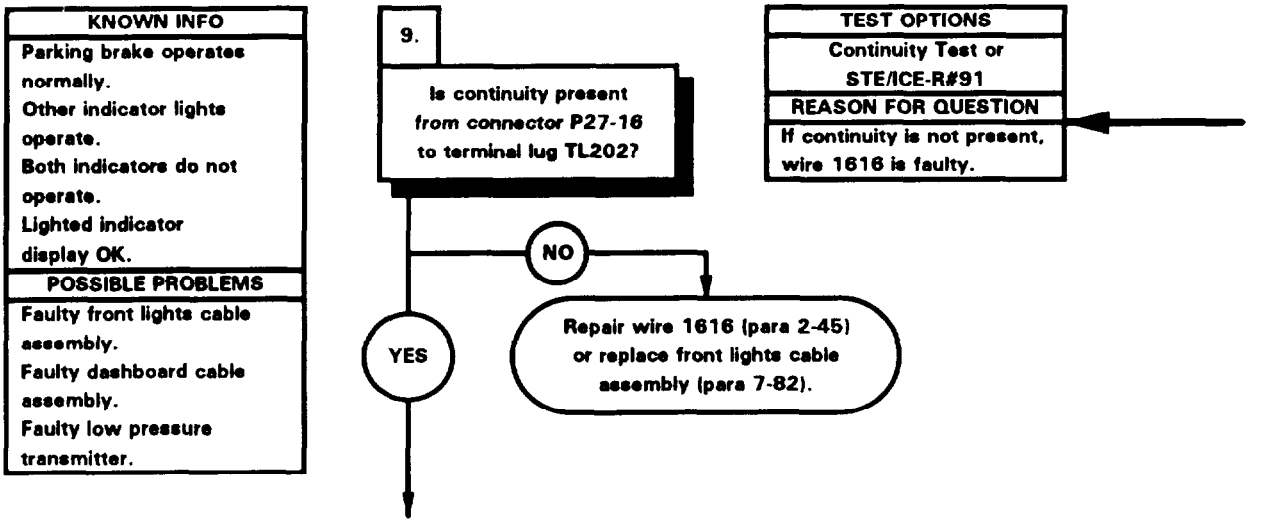
e31. PARKING BRAKE INDICATOR AND/OR EMERGENCY BRAKE INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector J27 from connector P27.
(6) Set multimeter to ohms.
(7) Connect positive (+) probe of multimeter to connector PX7-22.
(8) Connect negative (-) probe of multimeter to connector J27-16 and note reading on multimeter.
(9) If continuity is not present, repair wire 1616 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).

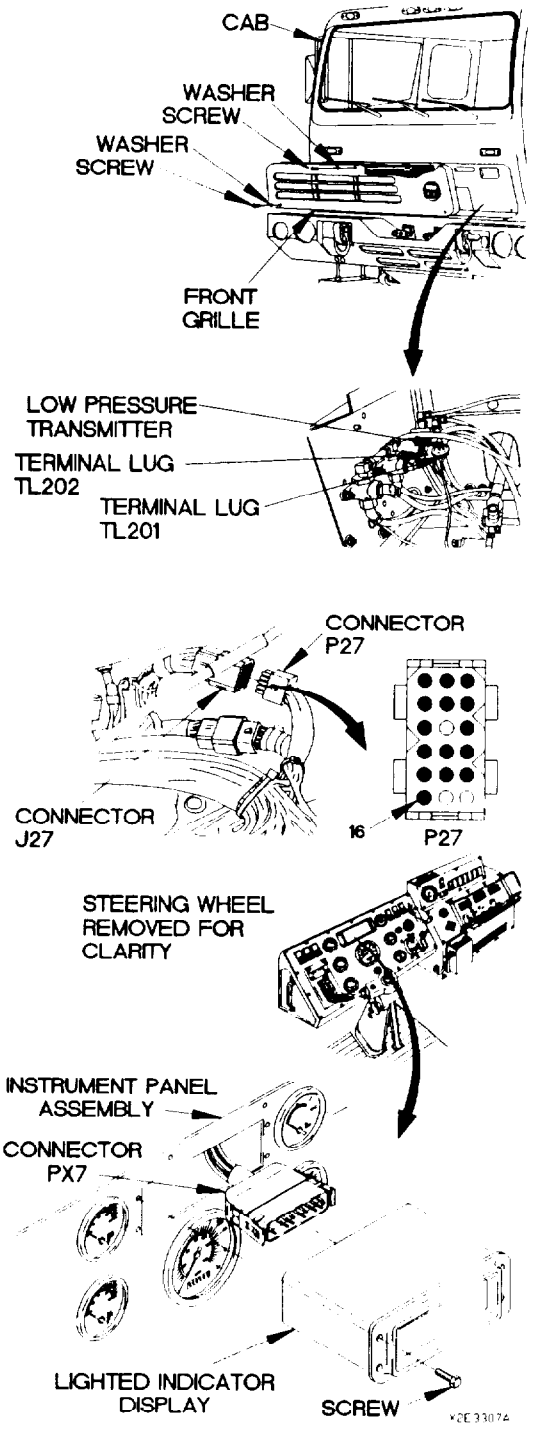


e31. PARKING BRAKE INDICATOR AND/OR EMERGENCY BRAKE INDICATOR DOES NOT OPERATE (CONT)

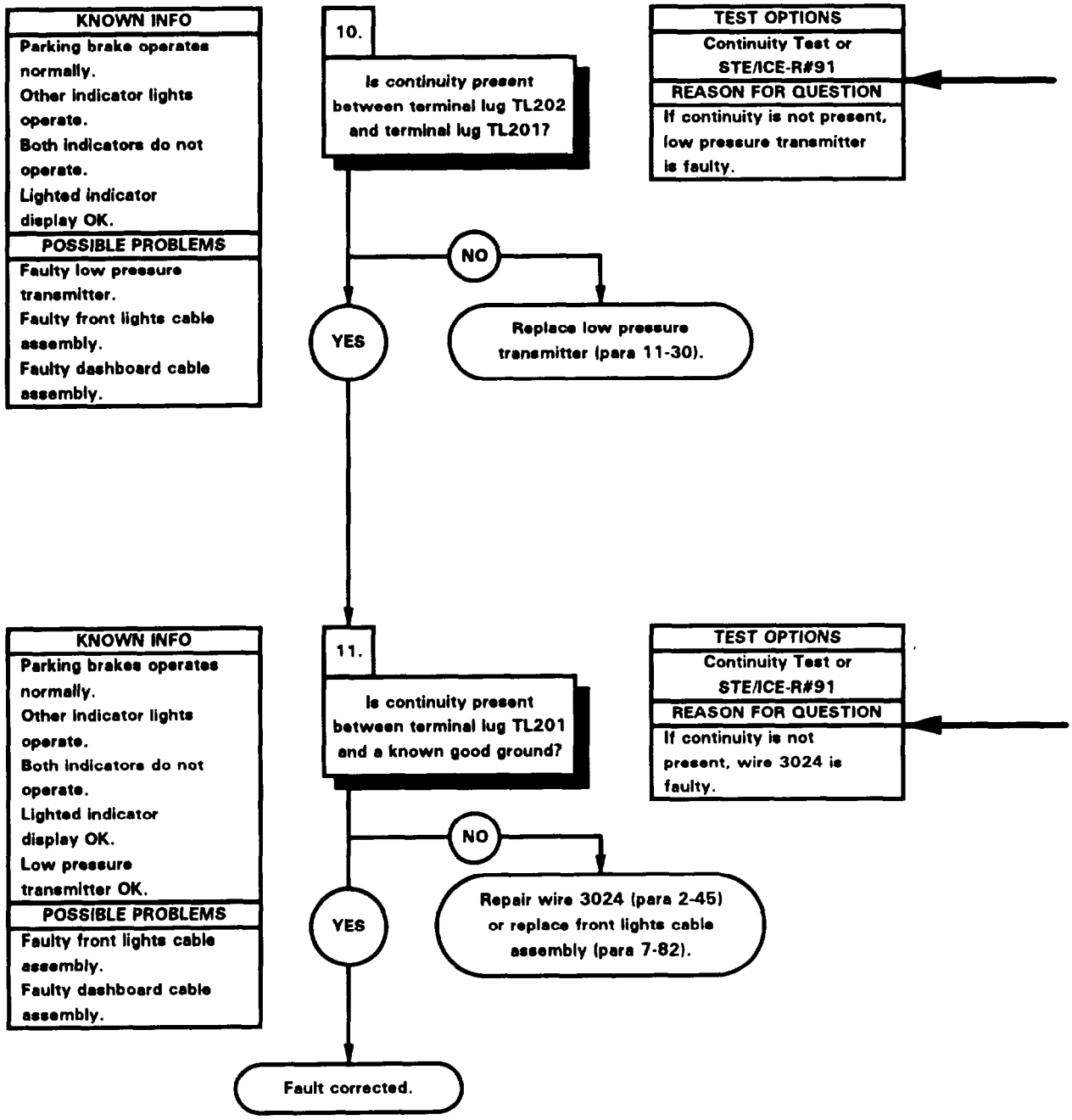


CONTINUITY TEST

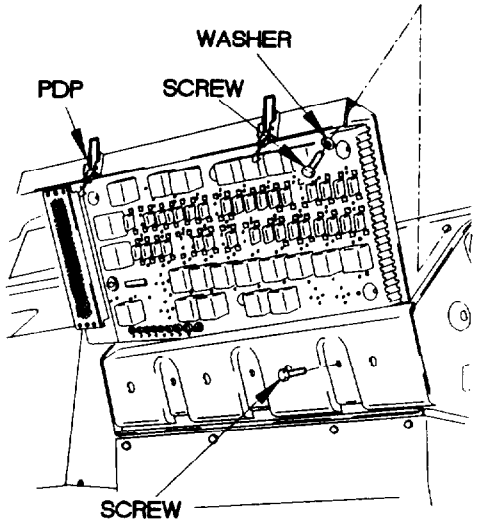
(1) Remove two screws and washers from front grille.
(2) Remove screw and washer from front grille.
(3) Remove front grille from cab.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector P27-16.
(6) Connect negative (-) probe of multimeter to terminal lug TL202 and note reading on multimeter.
(7) If continuity is not present, repair wire 1616 (para 2-45) or replace front lights cable assembly (para 7-82).
(8) Connect connector P27 to connector J27.
(9) Connect lighted indicator display to connector PX7.
(10) Position lighted indicator display in instrument panel assembly with four screws.
(11) Tighten four screws to 6-10 lb-in. (1 N·m).
(12) Connect batteries (para 7-57).



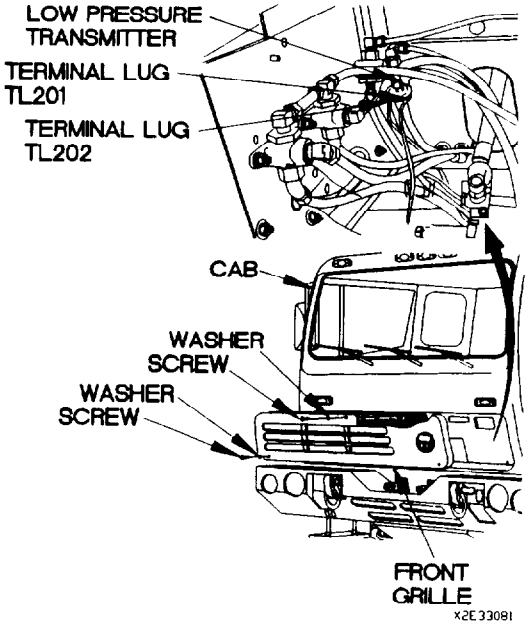
e31. PARKING BRAKE INDICATOR AND/OR EMERGENCY BRAKE INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Set multimeter to ohms position.
(2) Connect positive (+) probe of multimeter to terminal lug TL202.
(3) Connect negative (-) probe of multimeter to terminal lug TL201 and note reading on multimeter.
(4) If continuity is not present, replace low pressure transmitter (para 11-30).



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to terminal lug TL201.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3024 (para 2-45) or replace front lights cable assembly (para 7-82).
(5) Install PDP in dashboard with three screws.
(6) Install three washers and screws in PDP.
(7) Install PDP cover (para 16-2).
(8) Position front grille on cab with washer and screw.
(9) Position two washers and screws in front grille.
(10) Tighten screw to 48-60 lb-in. (5-7 N·m).
(11) Tighten two screws to 24 lb-in. (3 N·m).



e32. POWER TAKE-OFF (PTO) INDICATOR DOES NOT OPERATE

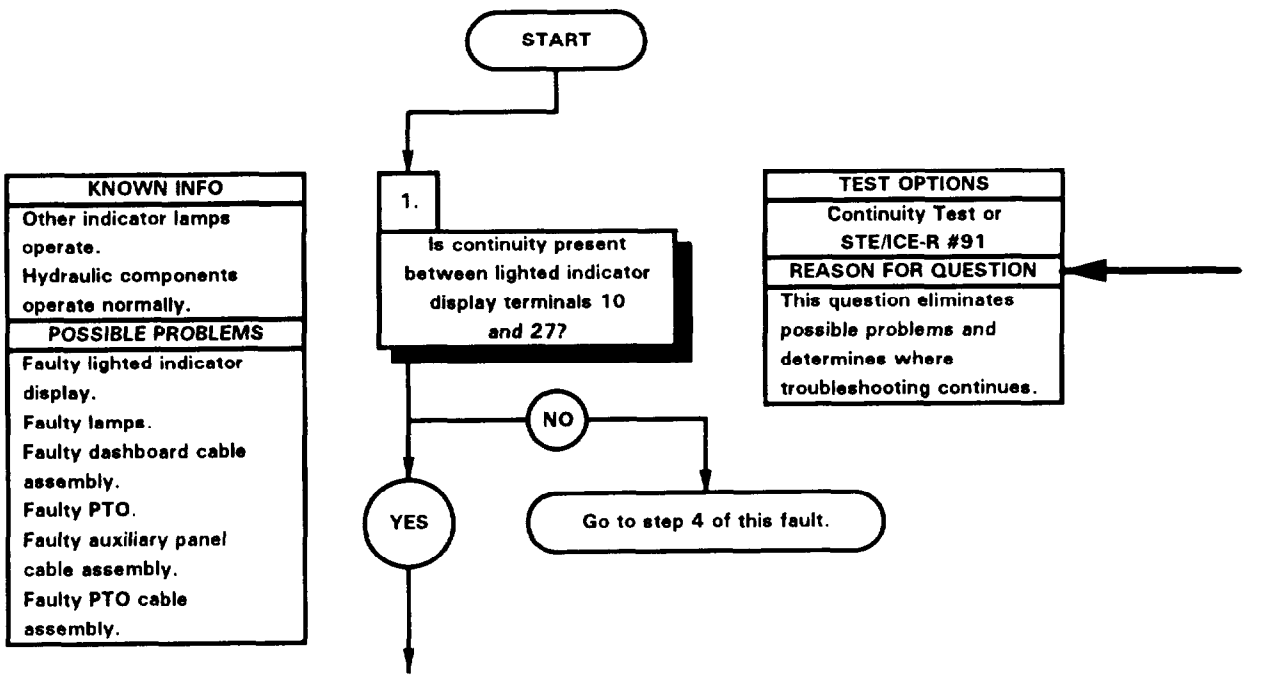
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

Personnel Required
(2)

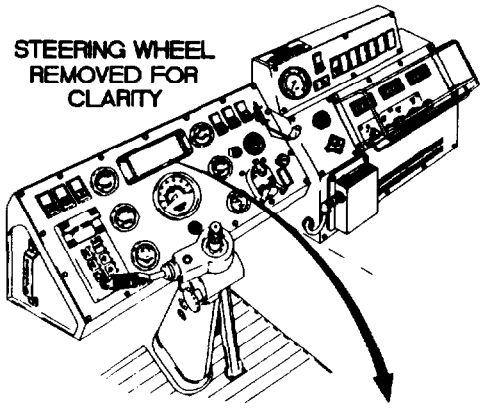
References
TM 9-4910-571-12&P

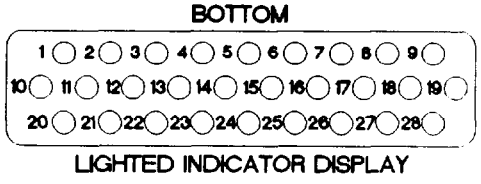
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

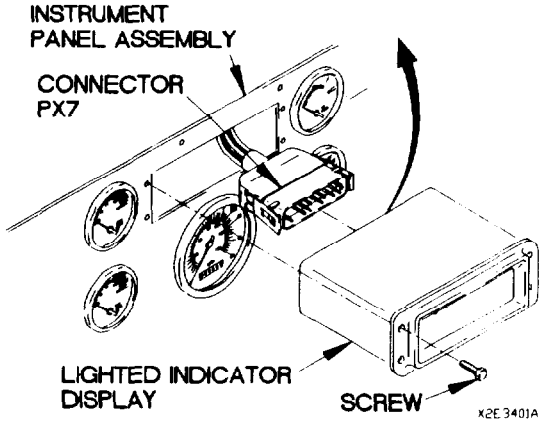


CONTINUITY TEST

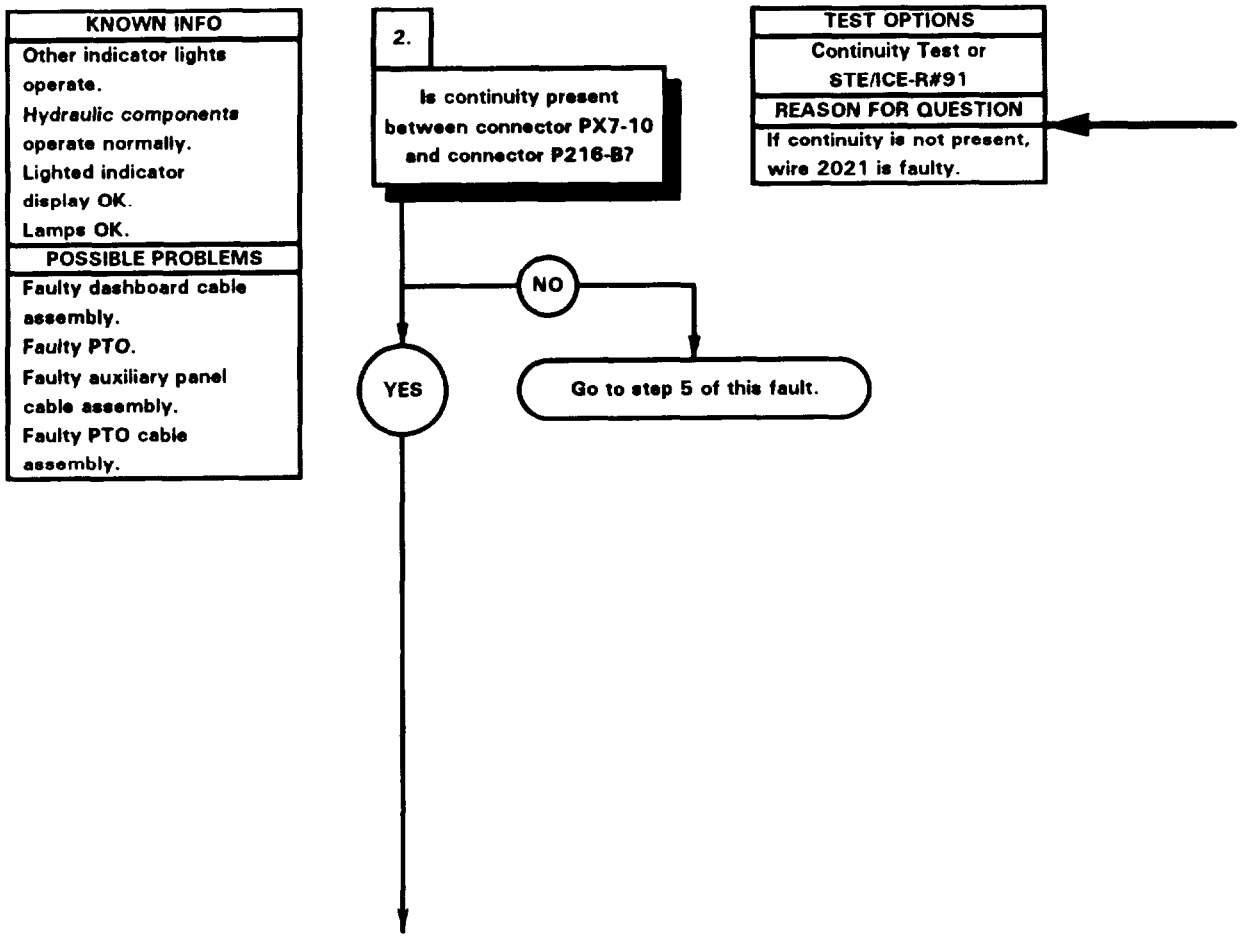
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to lighted indicator display terminal 27.
(6) Connect negative (-) probe of multimeter to lighted indicator display terminal 10 and note reading on multimeter.
(7) If continuity is not present, go to step 4 of this fault.



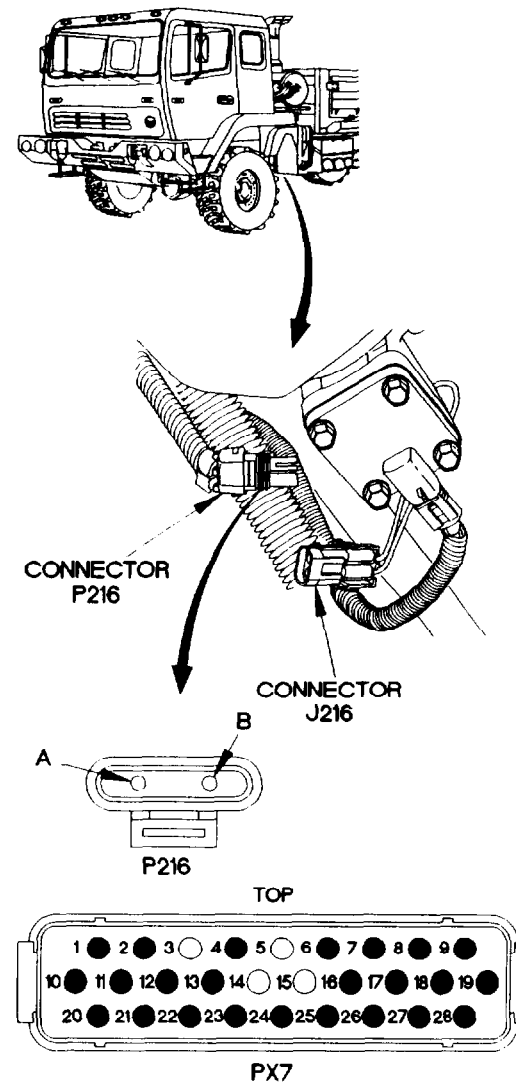




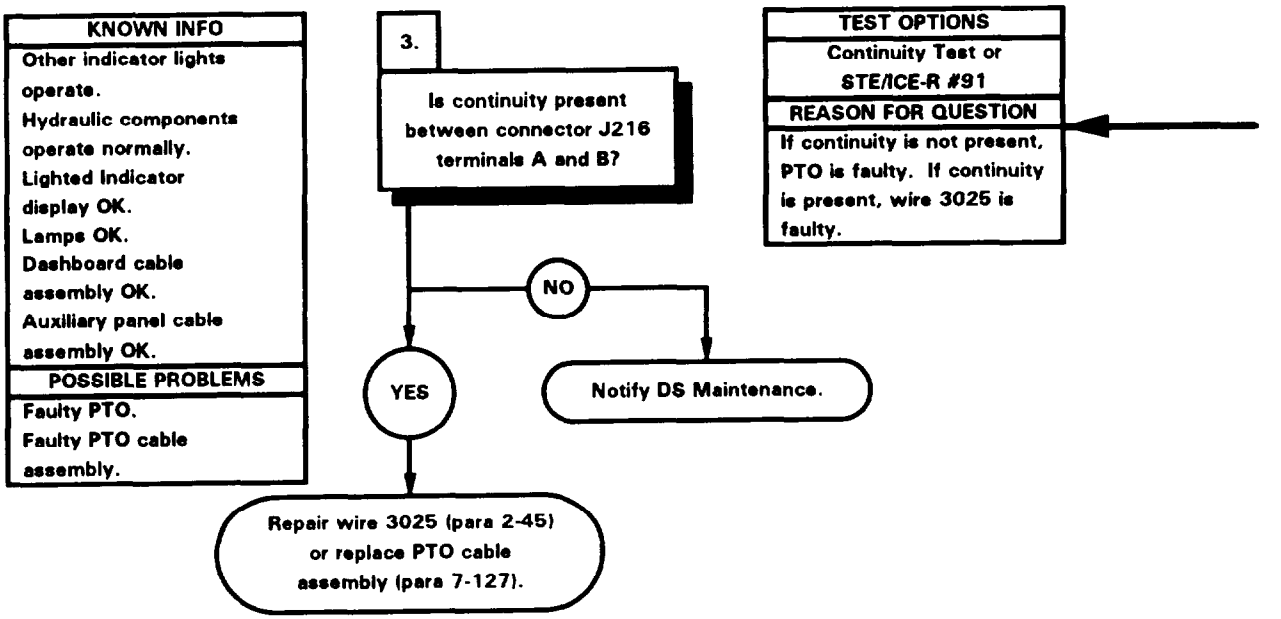
e32. POWER TAKE-OFF (PTO) INDICATOR DOES NOT OPERATE (CONT)



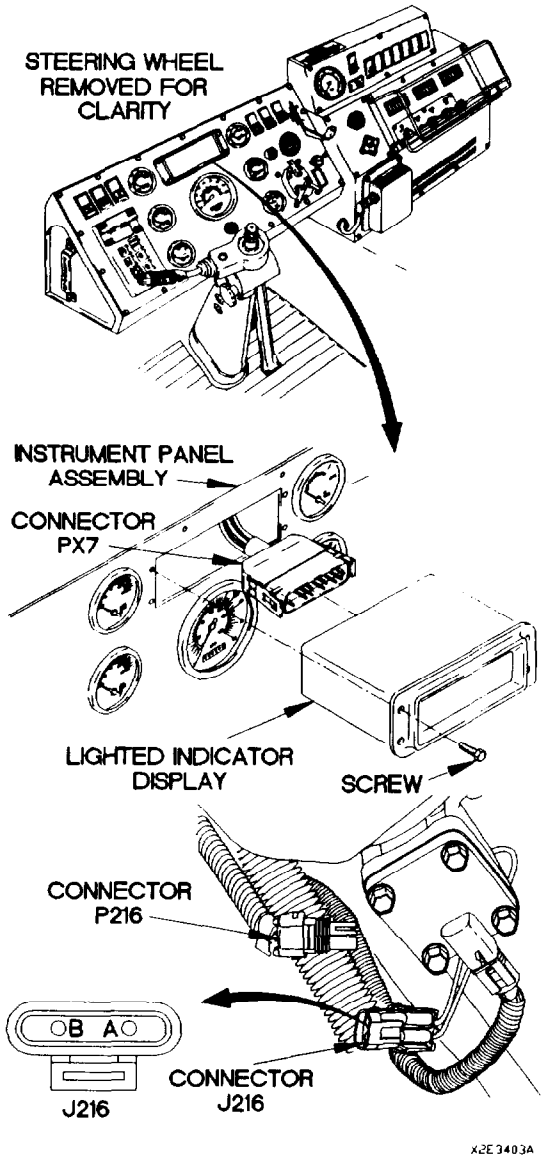
CONTINUITY TEST
(1) Disconnect connector P216 from connector J216.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector PX7-10.
(4) Connect negative (-) probe of multimeter to connector P216-B and note reading on multimeter.
(5) If continuity is not present, go to step 5 of this fault.



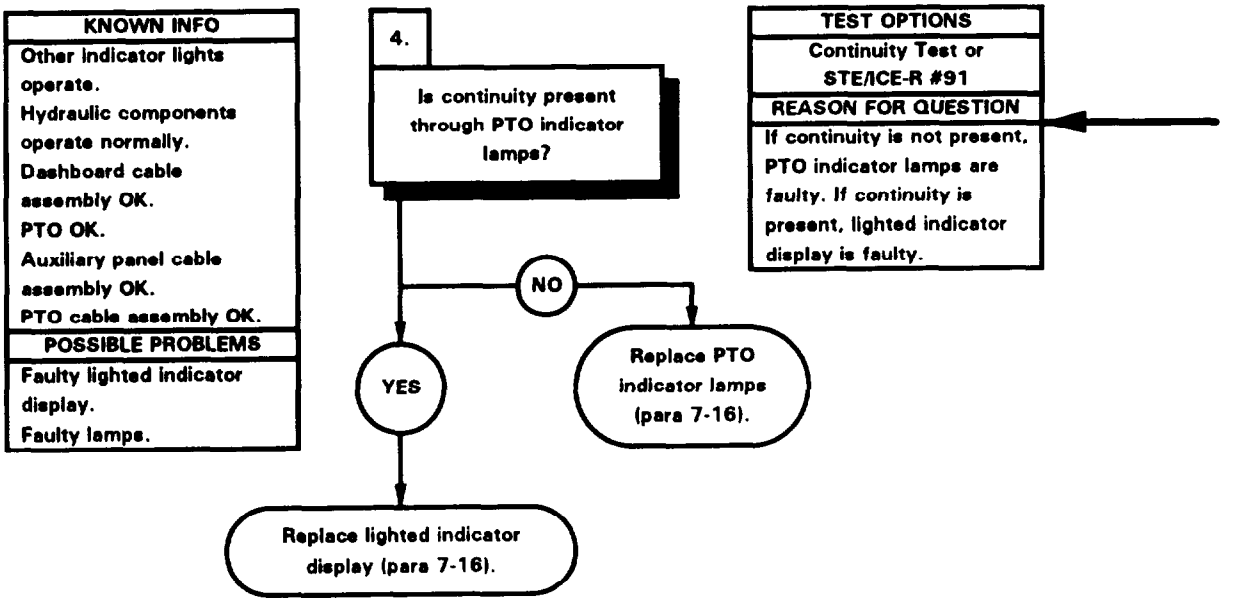
e32. POWER TAKE-OFF (PTO) INDICATOR DOES NOT OPERATE (CONT)e



CONTINUITY TEST
(1) Connect lighted indicator display to connector PX7.
(2) Position lighted indicator display in instrument panel assembly with four screws.
(3) Tighten four screws to 6-10 lb-in. (1 N·m).
(4) Connect batteries (para 7-57).
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to connector J216-B.
(7) Connect negative (-) probe of multimeter to connector J216-A.
(8) Start engine (TM 9-2320-366-10-1).
(9) Position PTO switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(10) If continuity is not present, notify DS Maintenance.
(11) If continuity is present, repair wire 3025 (para 2-45) or replace PTO cable assembly (para 7-127).
(12) Position PTO switch to off (TM 9-2320-366-10-1).
(13) Shut down engine (TM 9-2320-366-10-1).
(14) Connect connector P216 to connector J216.

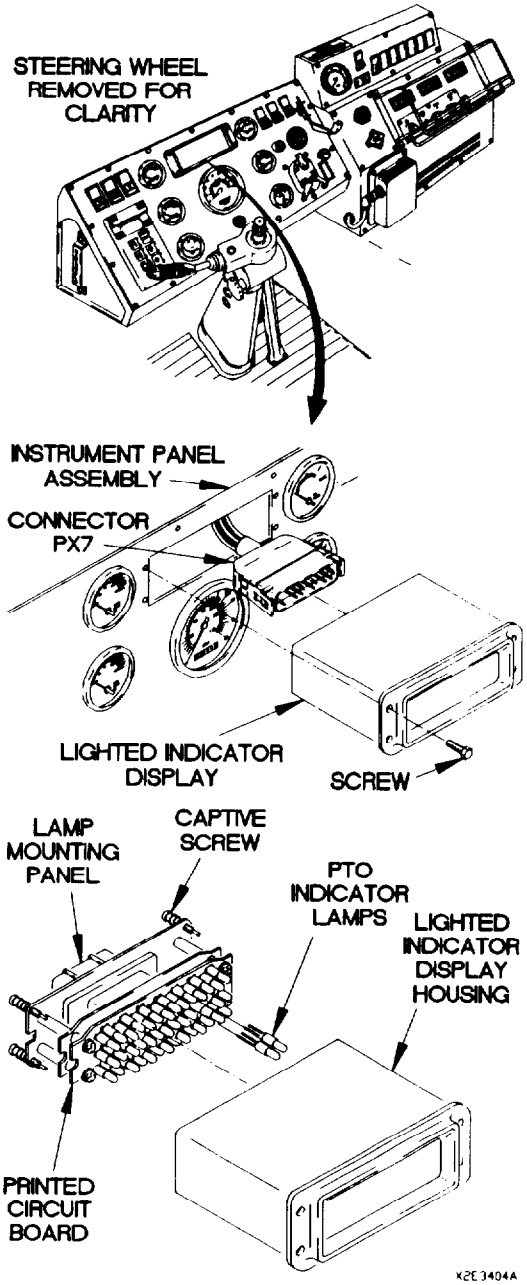


e32. POWER TAKE-OFF (PTO) INDICATOR DOES NOT OPERATE (CONT)

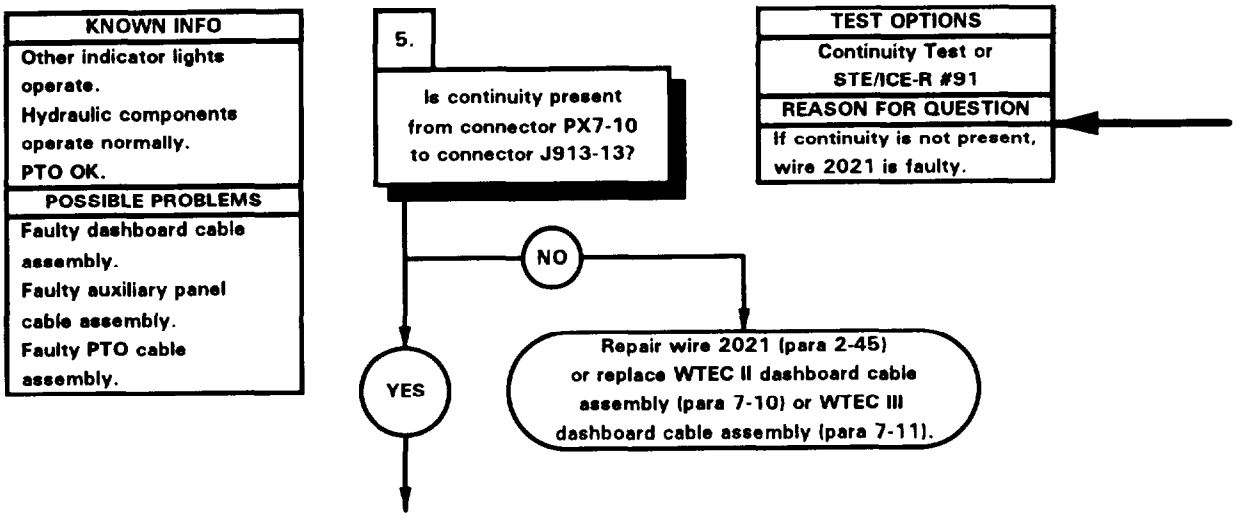


CONTINUITY TEST

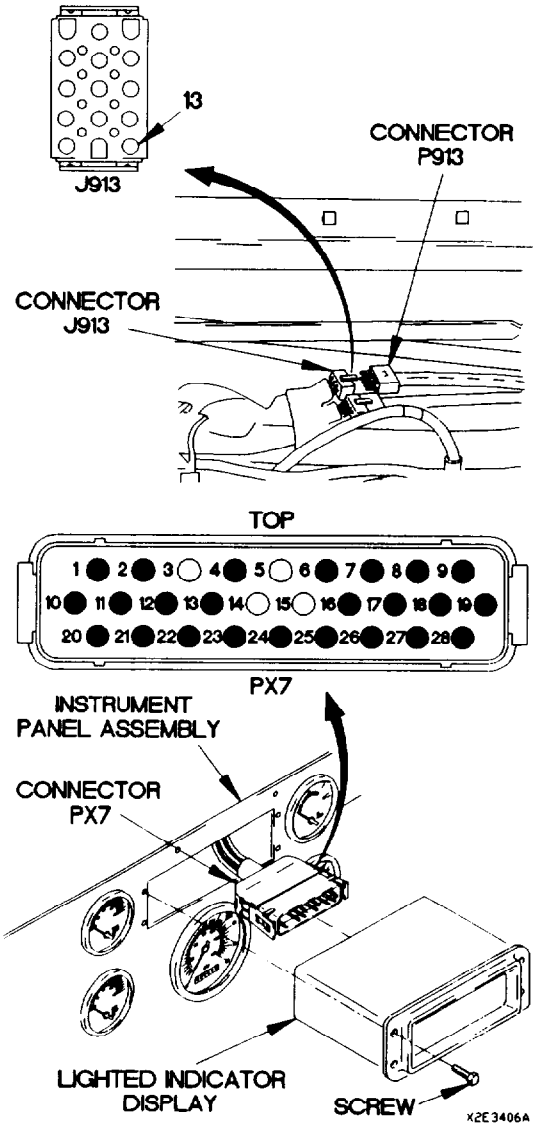
(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove PTO indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace PTO indicator lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install PTO indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Connect lighted indicator display to connector PX7.
(12) Position lighted indicator display in instrument panel assembly with four screws.
(13) Tighten four screws to 6-10 lb-in. (1 N·m).
(14) Connect batteries (para 7-57).



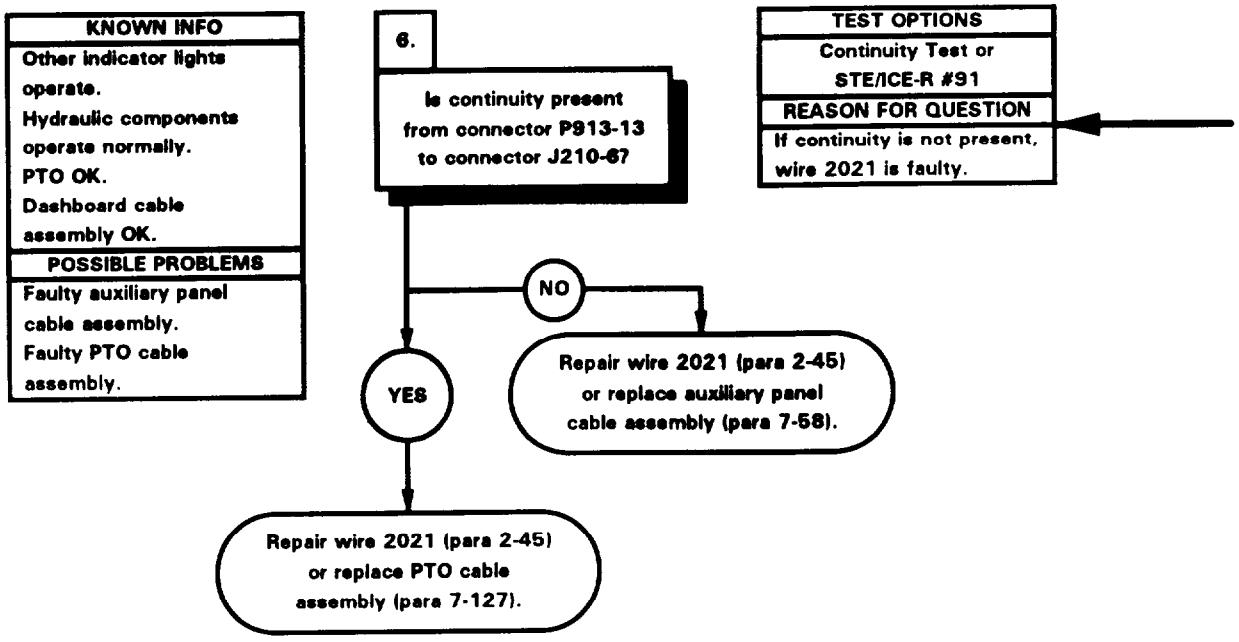
e32. POWER TAKE-OFF (PTO) INDICATOR DOES NOT OPERATE (CONT)



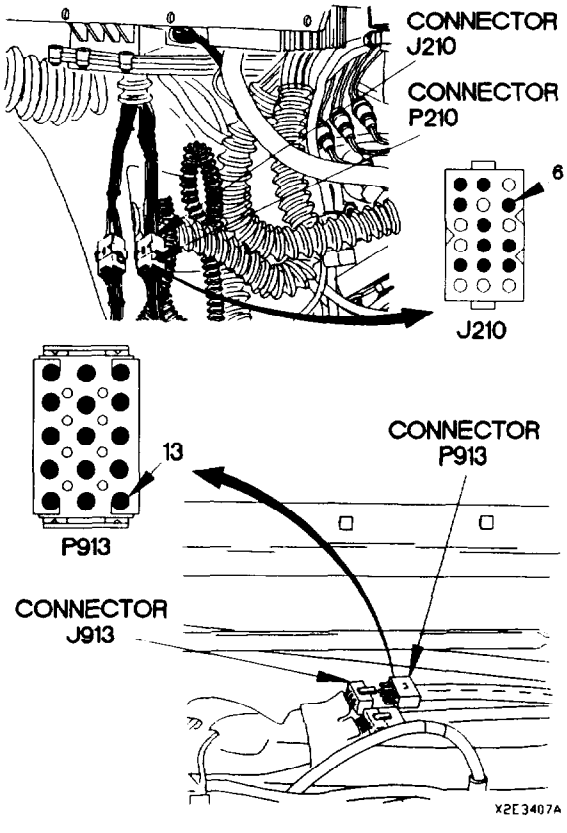
CONTINUITY TEST
(1) Remove personnel heater for access (para 18-9).
(2) Disconnect connector P913 from connector J913.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to PX7-10.
(5) Connect negative (-) probe of multimeter to J913-13 and note reading on multimeter.
(6) If continuity is not present, repair wire 2021 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Connect lighted indicator display to connector PX7.
(8) Position lighted indicator display in instrument panel assembly with four screws.
(9) Tighten four screws to 6-10 lb-in. (1 N·m).
(10) Connect batteries (para 7-57).



e32. POWER TAKE-OFF (PTO) INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Disconnect connector P210 from connector J210.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to J210-6.
(4) Connect negative (-) probe of multimeter to P913-13 and note reading on multimeter.
(5) If continuity is not present, repair wire 2021 (para 2-45) or replace auxiliary panel cable assembly (para 7-58).
(6) If continuity is present, repair wire 2021 (para 2-45) or replace PTO cable assembly (para 7-127).
(7) Connect connector J210 to connector P210.
(8) Connect connector P913 to connector J913.
(9) Install personnel heater (para 18-9).



e33. FAN OFF INDICATOR DOES NOT OPERATE

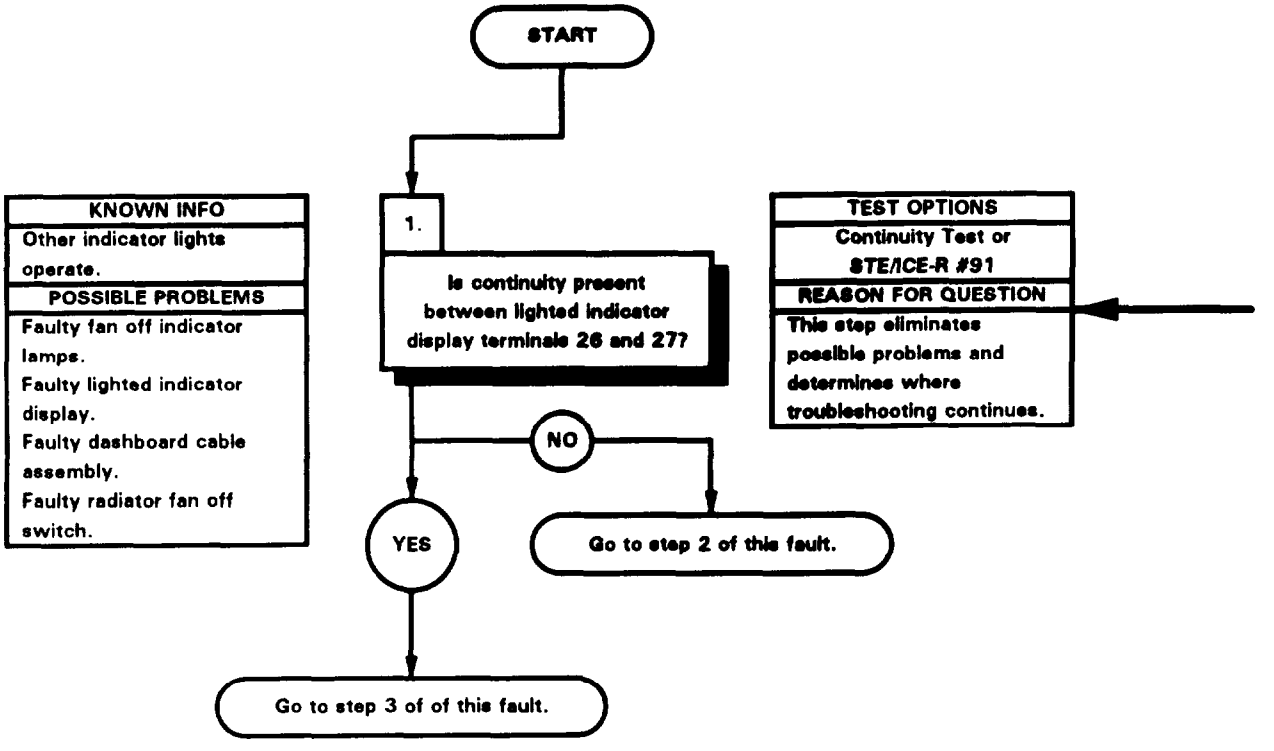
INITIAL SETUP

Equipment Condition
- Engine shut down (TM 9-2320-366-10-1).
- Batteries disconnected (para 7-57).

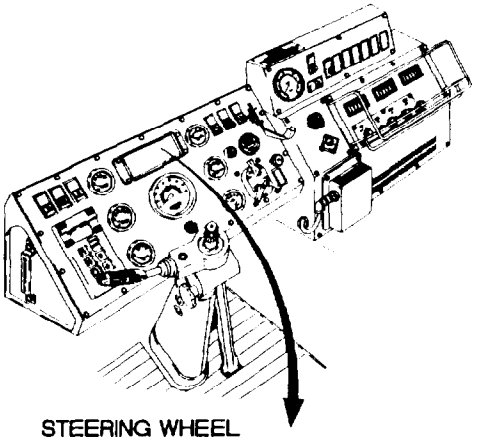
Personnel Required
(2)

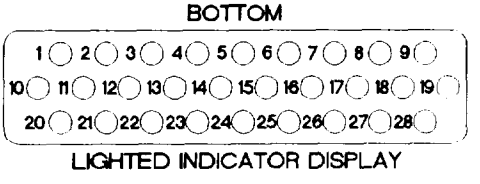
Tools and Special Tools
- Tool Kit, Genl Mech (Item 46, Appendix C)
- STE/ICE-R (Item 41, Appendix C)
- Multimeter, Digital (Item 22, Appendix C)
- Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

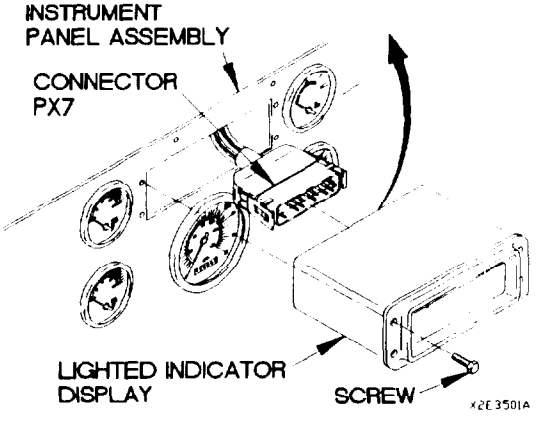
References
- TM 9-4910-571-12&P



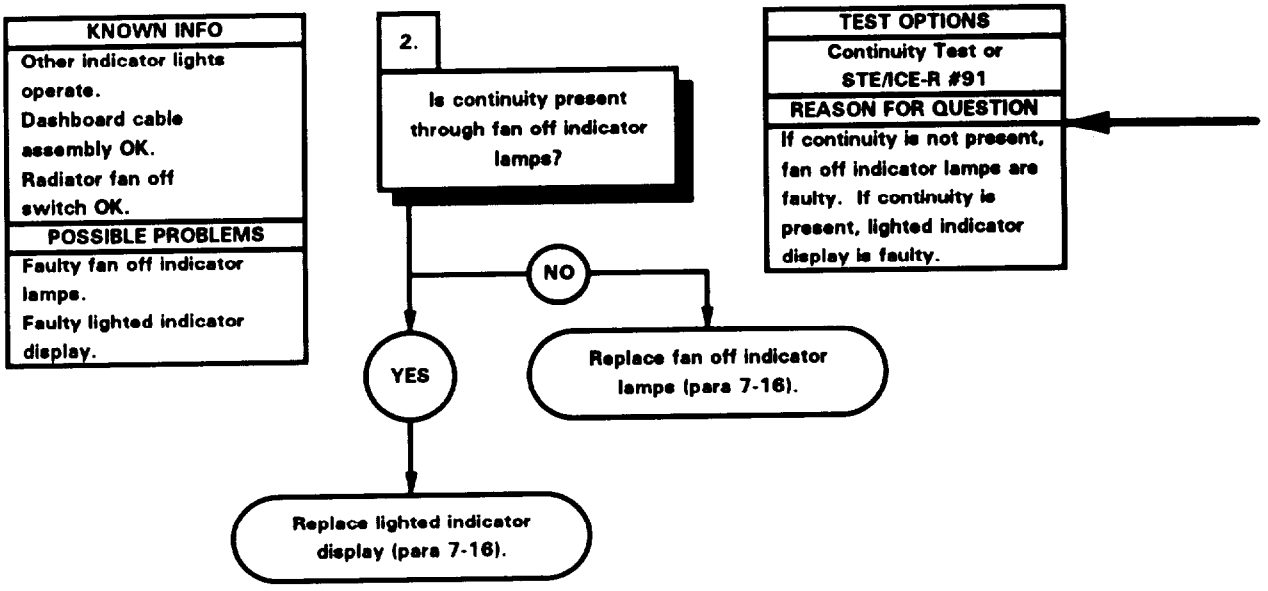
CONTINUITY TEST
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to lighted indicator display terminal 27.
(6) Connect negative (-) probe of multimeter to lighted indicator display terminal 26 and note reading on multimeter.
(7) If continuity is not present, go to step 2 of this fault.
(8) If continuity is present, go to step 3 of this fault.



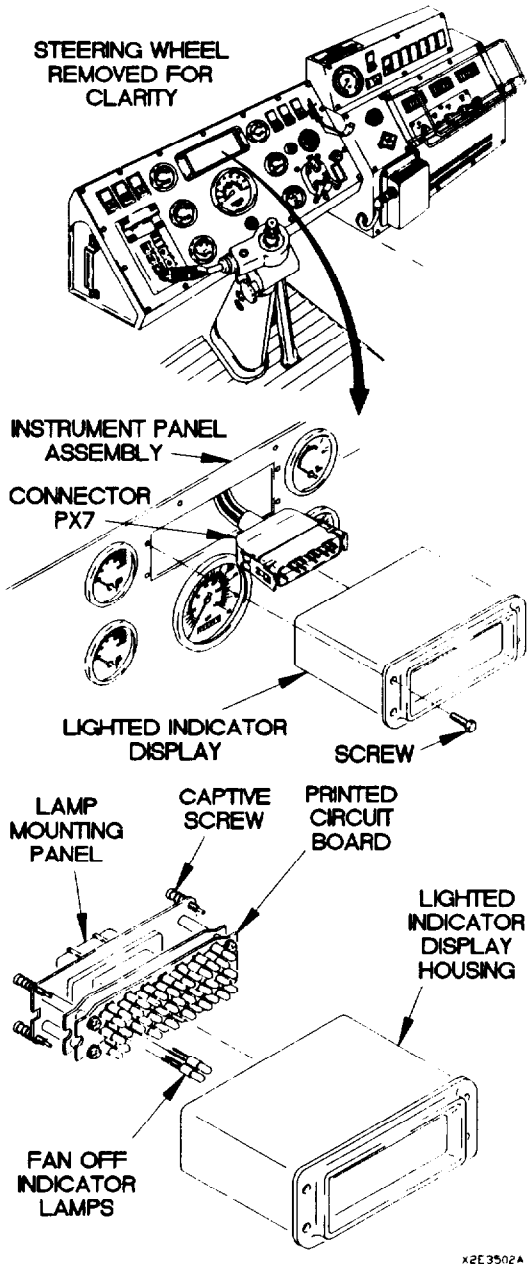




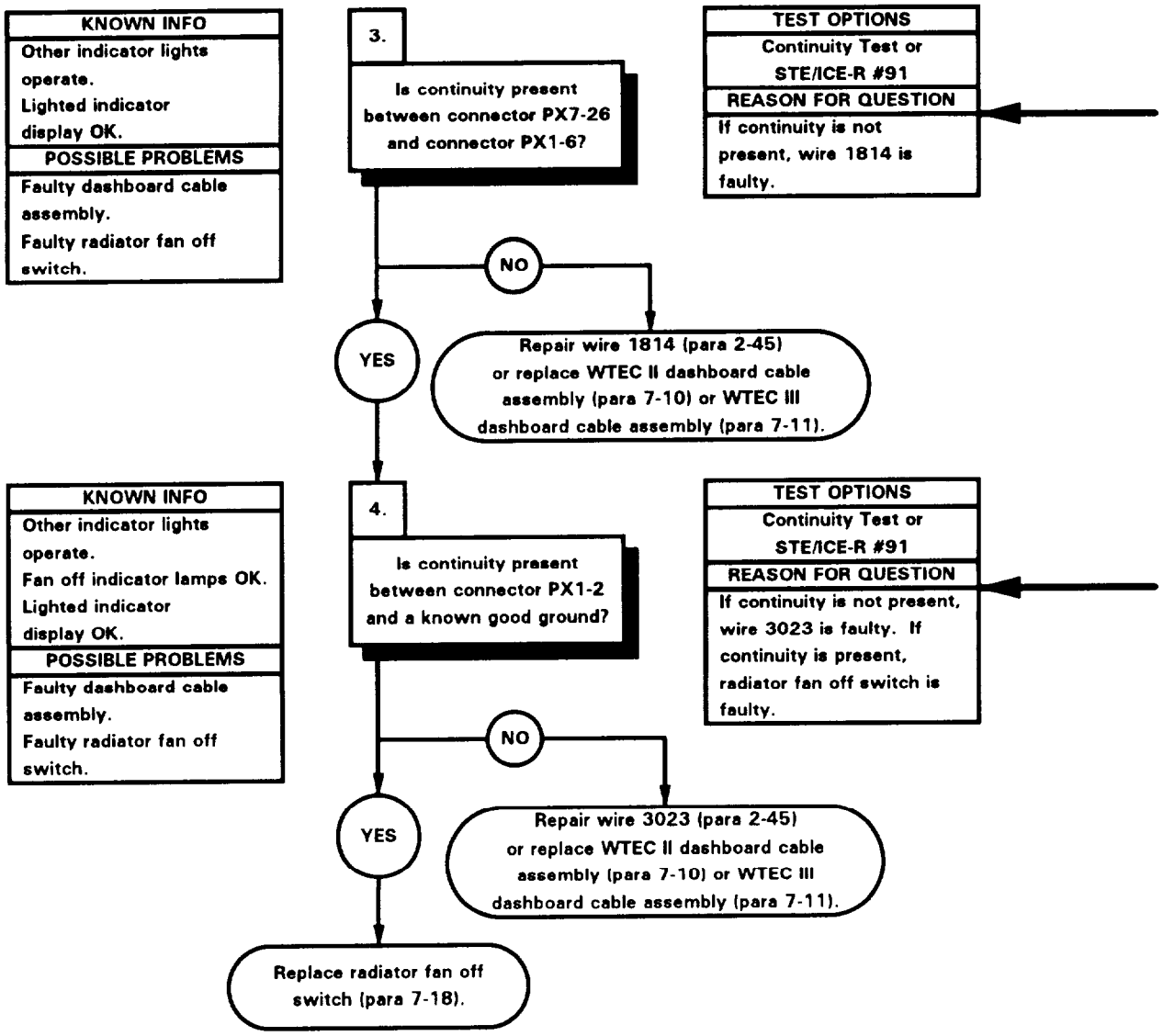
e33. FAN OFF INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove fan off indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each fan off indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace fan off indicator lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install fan off indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Connect lighted indicator display to connector PX7.
(12) Position lighted indicator display in instrument panel assembly with four screws.
(13) Tighten four screws to 6-10 lb-in. (1 N·m).
(14) Connect batteries (para 7-57).

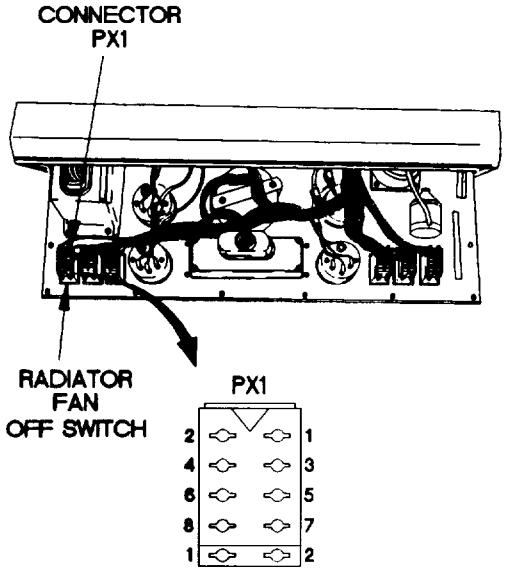


e33. FAN OFF INDICATOR DOES NOT OPERATE (CONT)



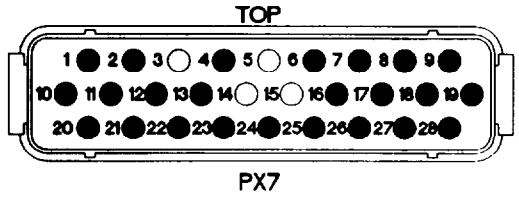
CONTINUITY TEST

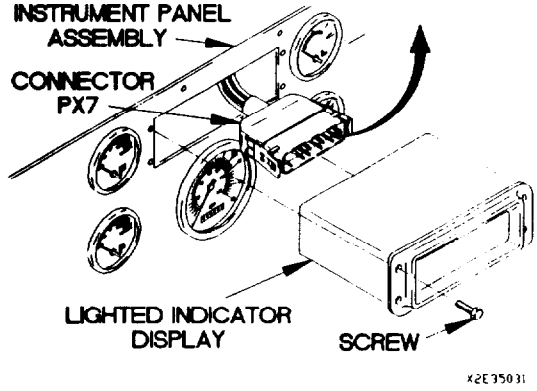
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX1 from radiator fan off switch.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to connector PX7-26.
(5) Connect negative (-) probe of multimeter to connector PX1-6 and note reading on multimeter.
(6) If continuity is not present, repair wire 1814 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX1-2.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3023 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If continuity is present, replace radiator fan off switch (para 7-18).
(6) Connect connector PX1 to radiator fan off switch.
(7) Install instrument panel assembly (para 7-15).
(8) Connect lighted indicator display to connector PX7.
(9) Position lighted indicator display in instrument panel assembly with four screws.
(10) Tighten four screws to 6-10 lb-in. (1 N-m).
(11) Connect batteries (para 7-57).





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e34. DUMP UP INDICATOR DOES NOT OPERATE

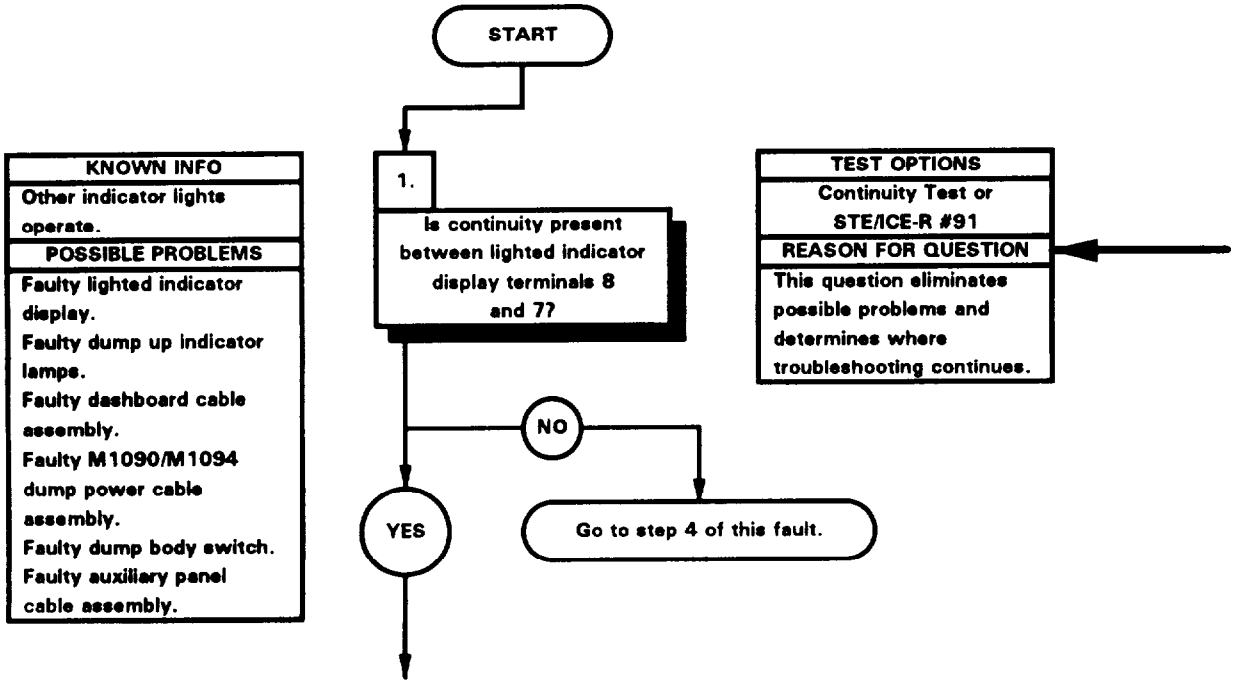
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

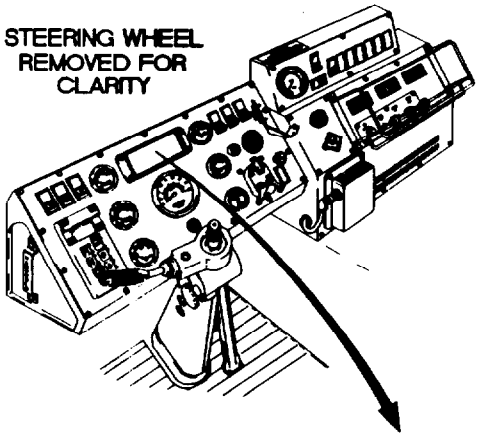
Personnel Required
(2)

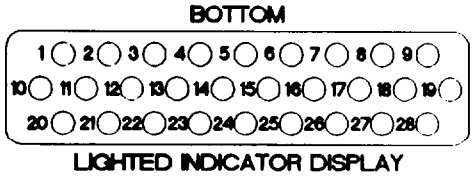
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

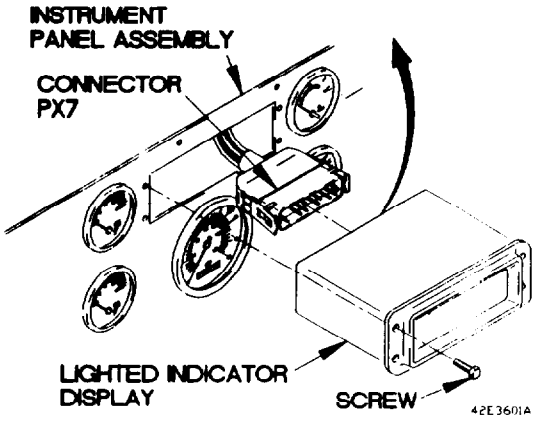
References
TM 9-4910-571-12&P



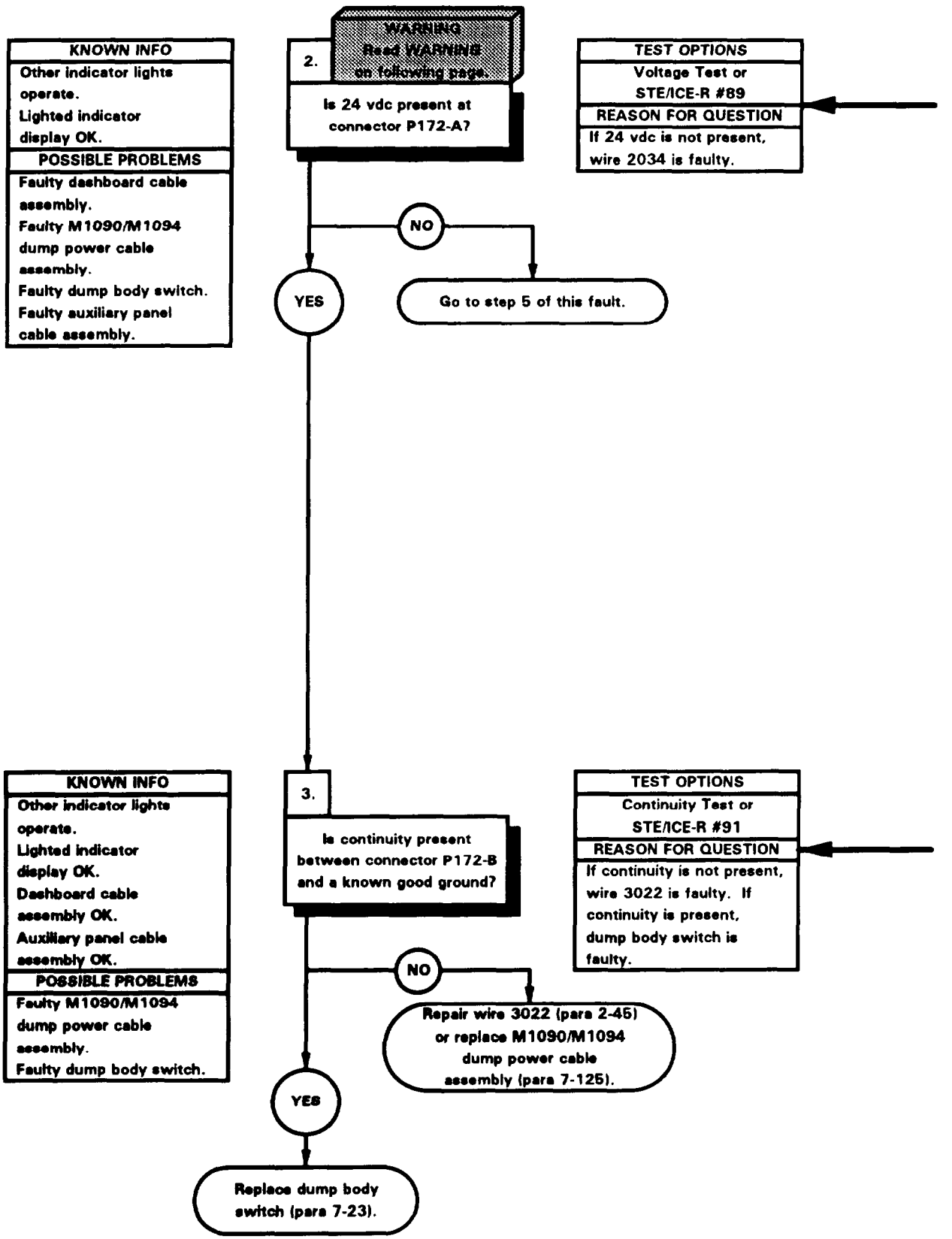
CONTINUITY TEST
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to lighted indicator display terminal 8.
(6) Connect negative (-) probe of multimeter to lighted indicator display terminal 7 and note reading on multimeter.
(7) If continuity is not present, go to step 4 of this fault.







e34. DUMP UP INDICATOR DOES NOT OPERATE (CONT)

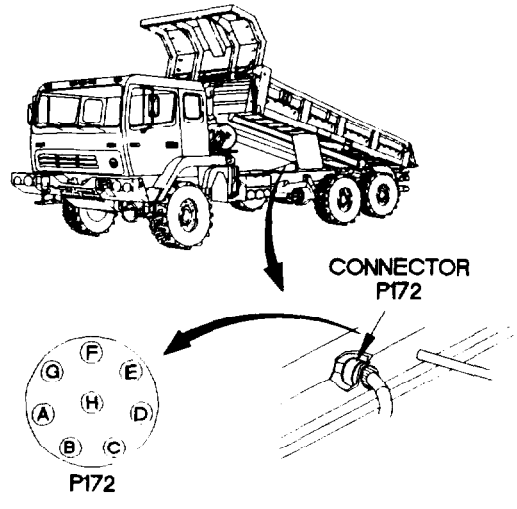


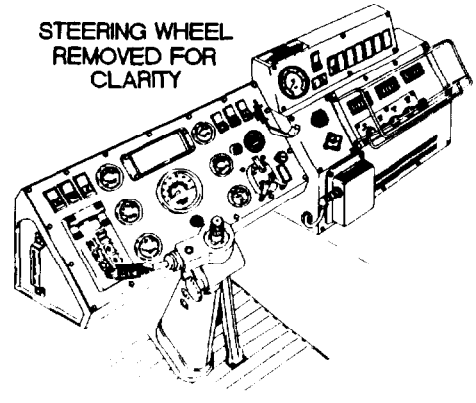
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

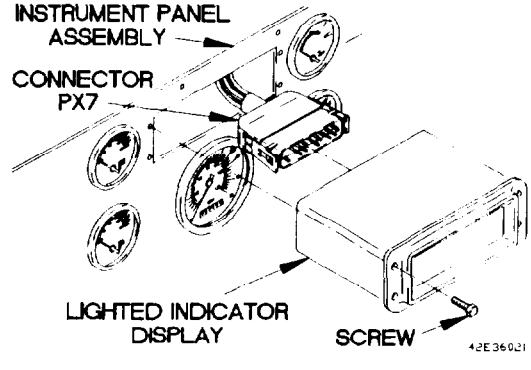
(1) Connect batteries (para 7-57).
(2) Raise dump bed (TM 9-2320-366-10-1).
(3) Disconnect connector P172 from connector J172.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector P172-B.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, go to step 5 of this fault.
(9) Position master power switch to off (TM 9-2320-366-10-1).



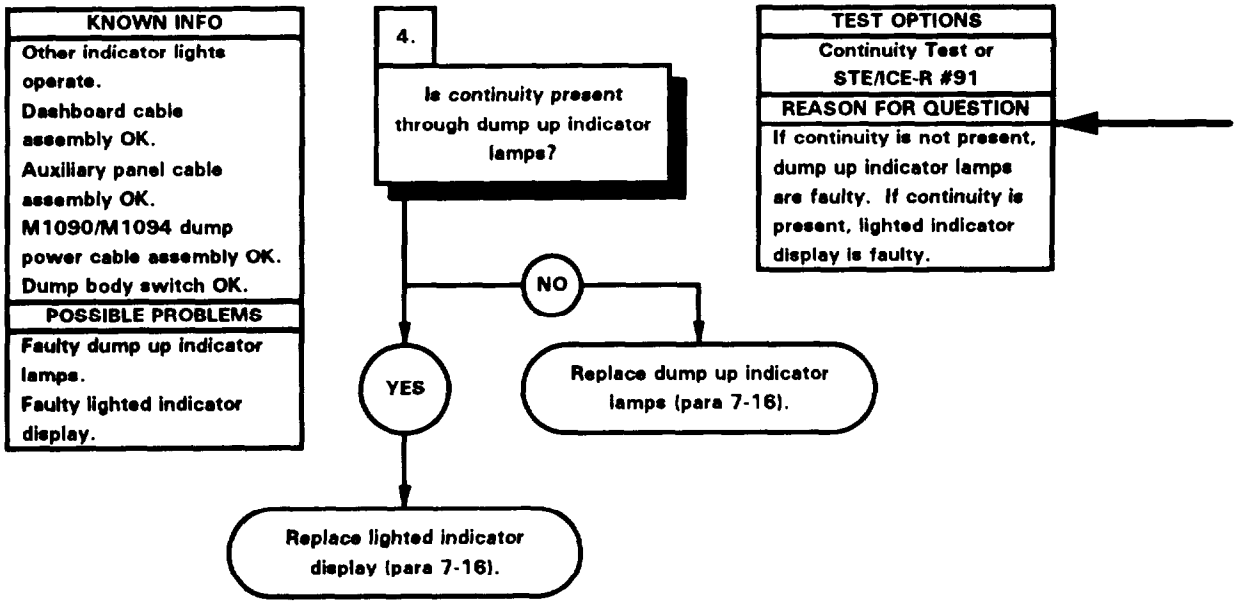


CONTINUITY TEST

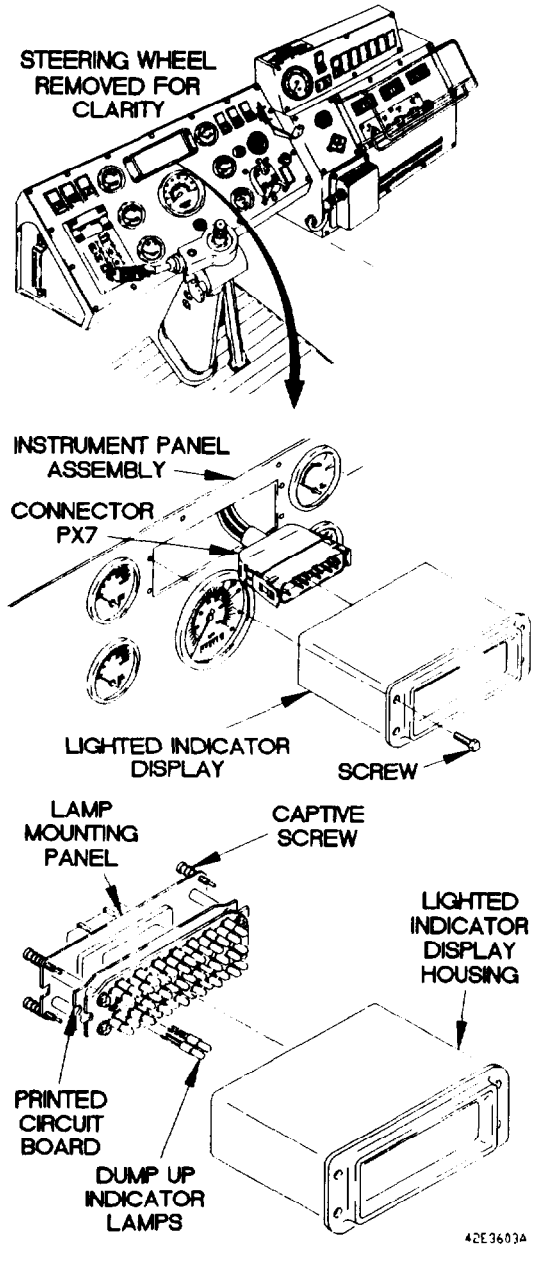
(1) Disconnect batteries (para 7-57).
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector P172-B.
(4) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(5) If continuity is not present, repair wire 3022 (para 2-45) or replace M1090/M1094 dump power cable assembly (para 7-125).
(6) If continuity is present, replace M1090/M1094 dump body switch (para 7-23).
(7) Connect connector P172 to connector J172.
(8) Lower dump bed (TM 9-2320-366-10-1).
(9) Connect lighted indicator display to connector PX7.
(10) Position lighted indicator display in instrument panel assembly with four screws.
(11) Tighten four screws to 6-10 lb-in. (1 N·m).
(12) Connect batteries (para 7-57).



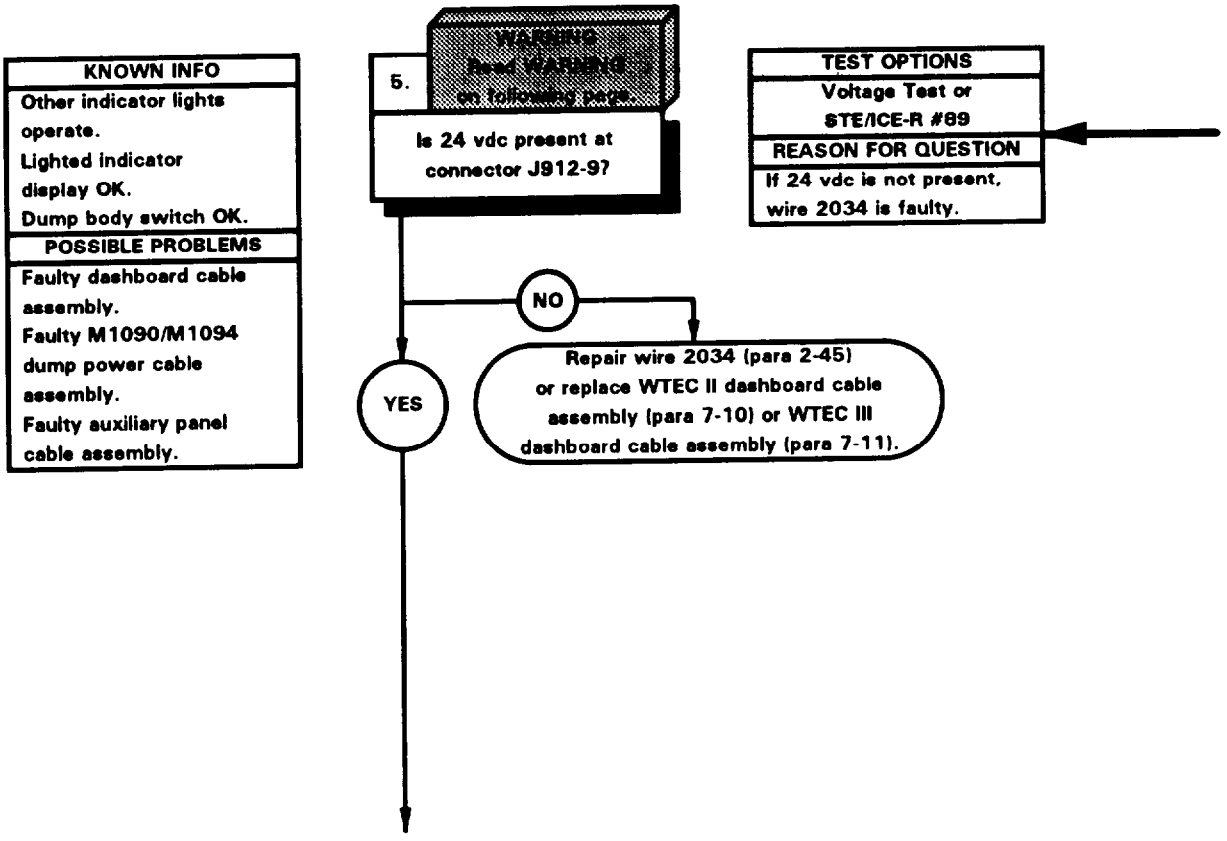
e34. DUMP UP INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove dump up indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each dump up indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace dump up indicator lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install dump up indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Connect lighted indicator display to connector PX7.
(12) Position lighted indicator display in instrument panel assembly with four screws.
(13) Tighten four screws to 6-10 lb-in. (1 N·m).
(14) Connect batteries (para 7-57).



e34. DUMP UP INDICATOR DOES NOT OPERATE (CONT)

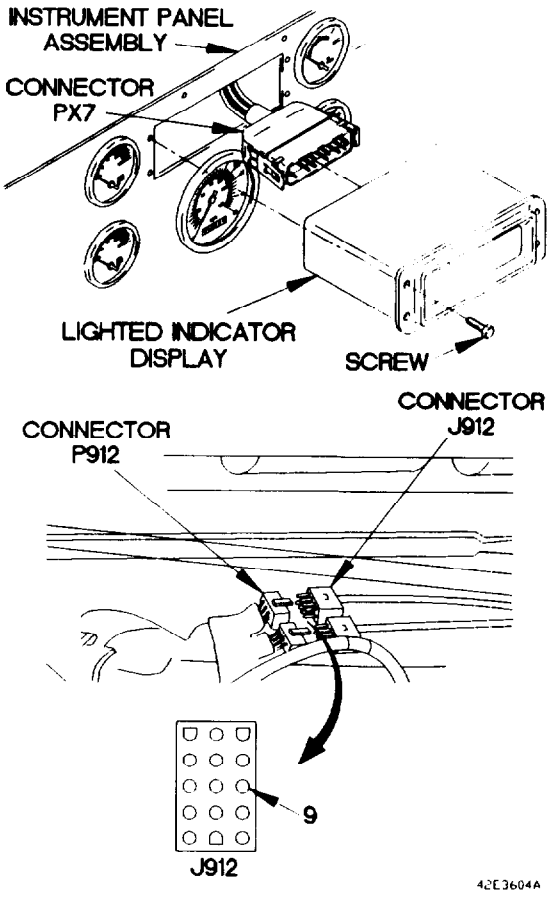


WARNING

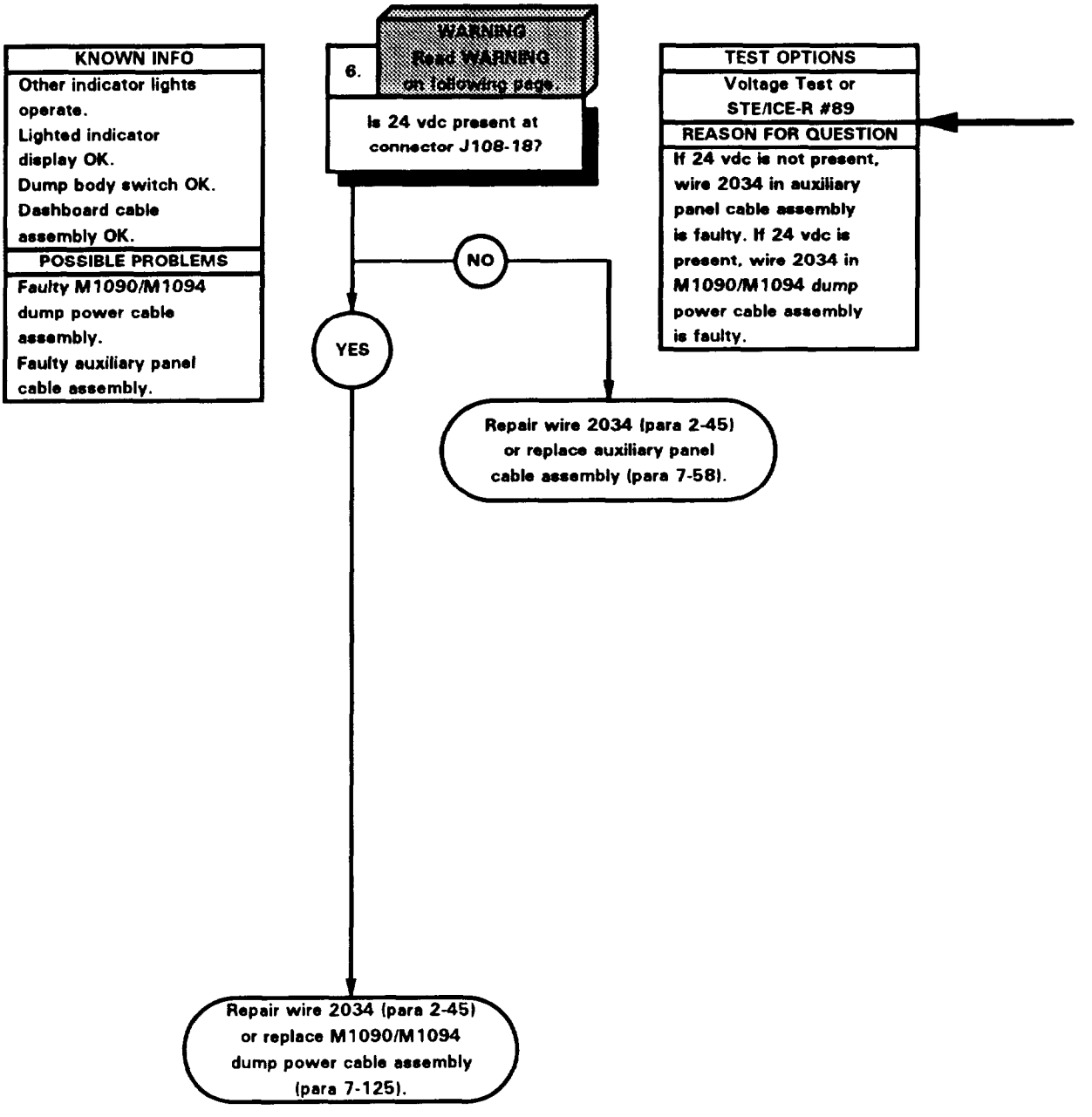
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Connect lighted indicator display to connector PX7.
(2) Position lighted indicator display in instrument panel assembly with four screws.
(3) Tighten four screws to 6-10 lb-in. (1 N·m).
(4) Connect batteries (para 7-57).
(5) Remove personnel heater for access (para 18-9).
(6) Disconnect connector J912 from connector P912.
(7) Set multimeter to volts dc.
(8) Connect positive (+) probe of multimeter to connector J912-9.
(9) Connect negative (-) probe of multimeter to ground.
(10) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(11) If 24 vdc is not present, repair wire 2034 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(12) Position master power switch to off (TM 9-2320-366-10-1).
(13) Connect connector P912 to connector J912.



e34. DUMP UP INDICATOR DOES NOT OPERATE (CONT)

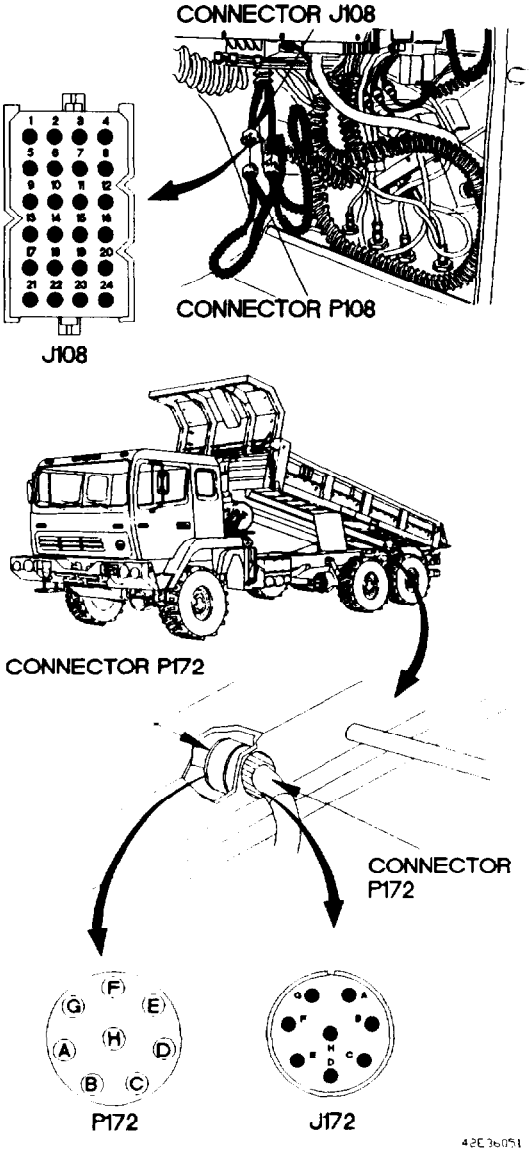


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Disconnect connector J108 from connector P108.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J108-18.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, repair wire 2034 (para 2-45) or replace auxiliary panel cable assembly (para 7-58).
(7) If 24 vdc is present, repair wire 2034 (para 2-45) or replace M1090/M1094 dump power cable assembly (para 7-125).
(8) Position master power switch to off (TM 9-2320-366-10-1).
(9) Connect connector P108 to connector J108.
(10) Connect connector P172 to connector J172.
(11) Lower dump bed (TM 9-2320-366-10-1).
(12) Install personnel heater (para 18-9).



e35. WTEC II TRANSMISSION TEMPERATURE INDICATOR DOES NOT OPERATE

INITIAL SETUP

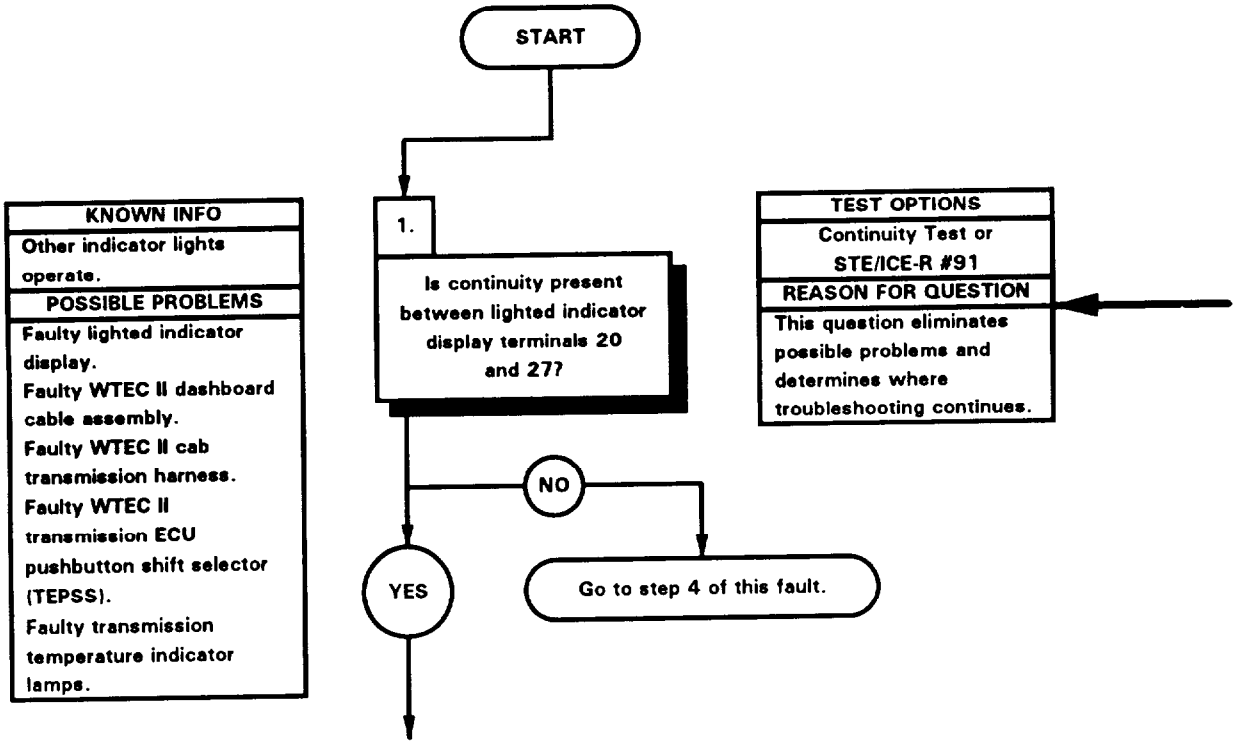
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

Personnel Required
(2)

Materials/Parts
Wire, Elect, 50 ft (Item 71, Appendix D)

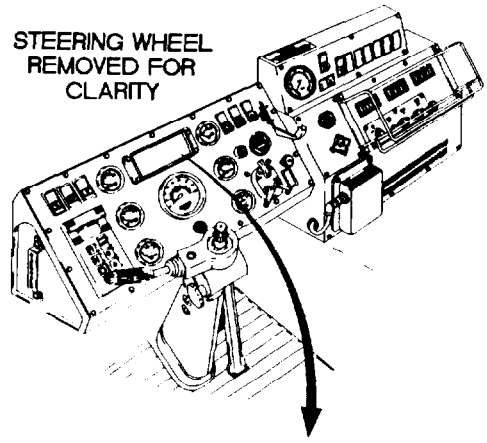
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

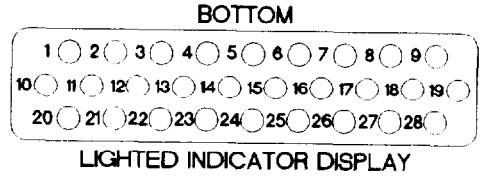
References
TM 9-4910-571-12&P

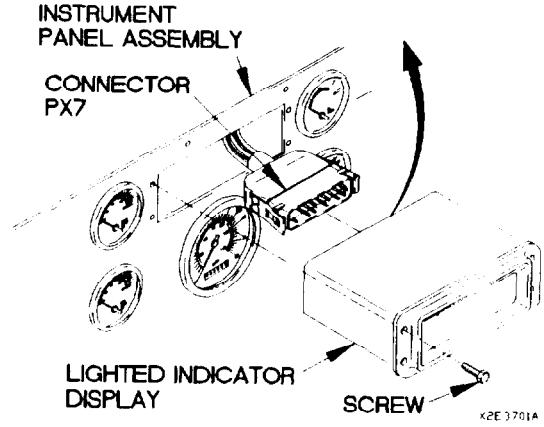


CONTINUITY TEST

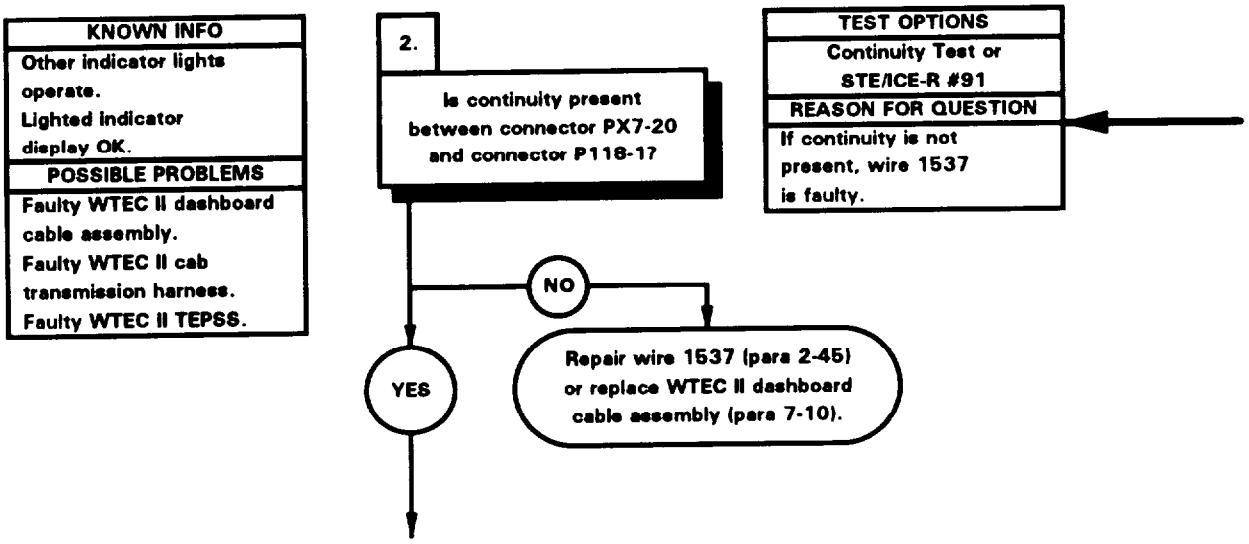
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to lighted indicator display terminal 27.
(6) Connect negative (-) probe of multimeter to lighted indicator display terminal 20 and note reading on multimeter.
(7) If continuity is not present, go to step 4 of this fault.





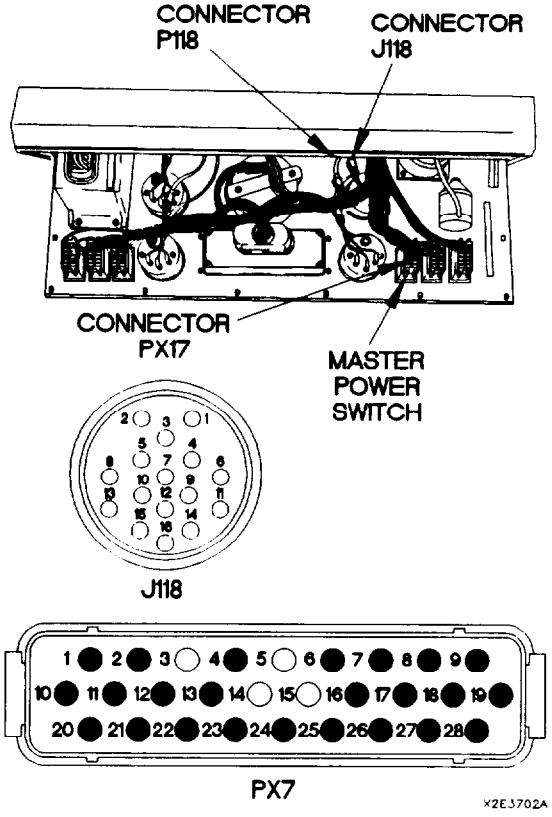


e35. WTEC II TRANSMISSION TEMPERATURE INDICATOR DOES NOT OPERATE (CONT)

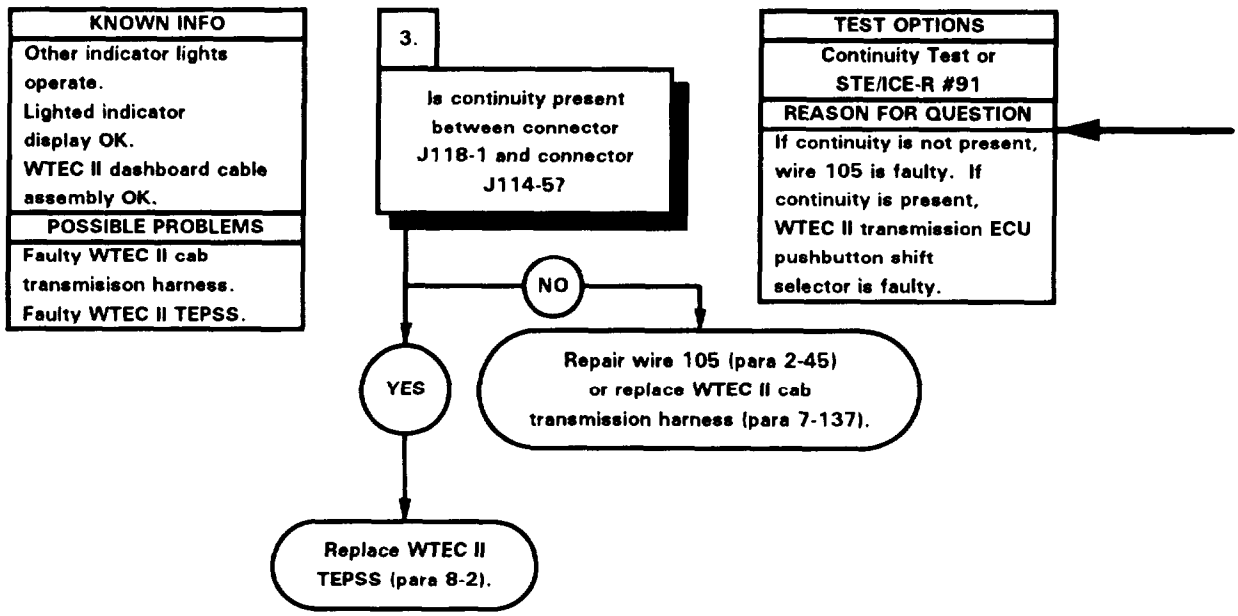


CONTINUITY TEST

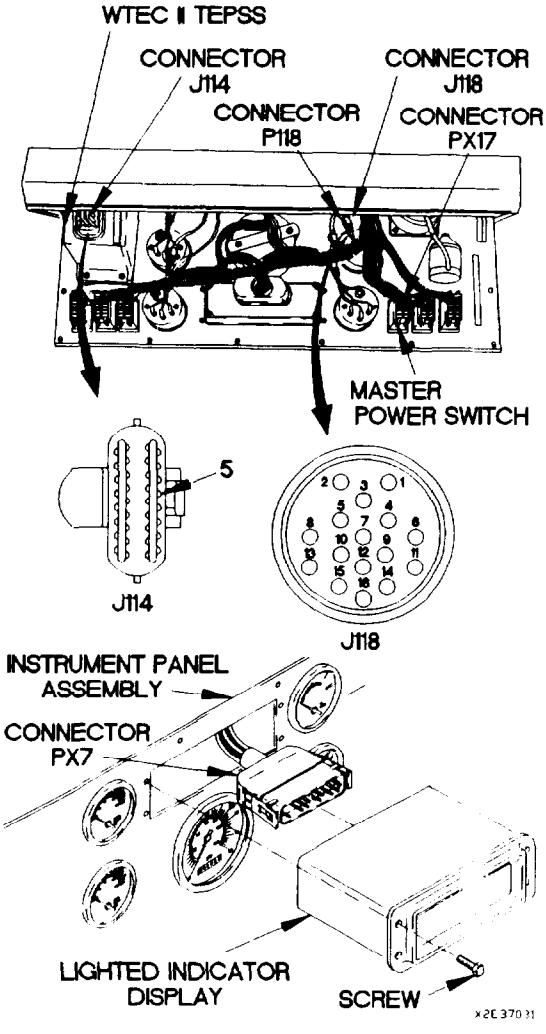
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX17 from master power switch.
(3) Disconnect connector J118 from connector P118.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector PX7-20.
(6) Connect negative (-) probe of multimeter to connector P118-1 and note reading on multimeter.
(7) If continuity is not present, repair wire 1537 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10).



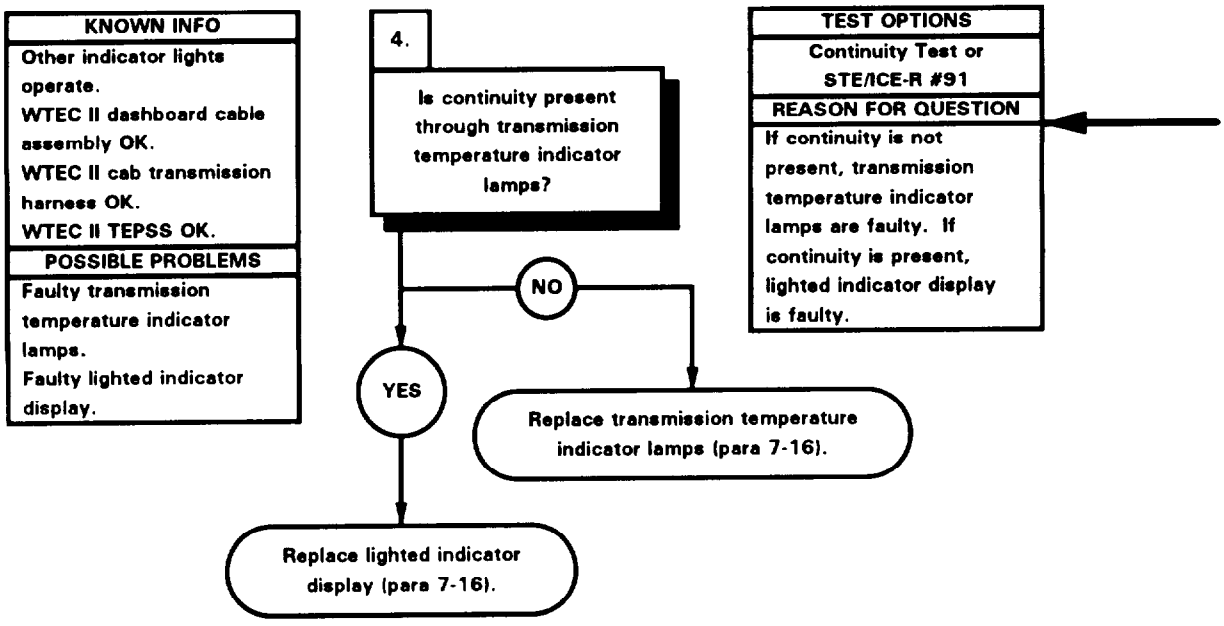
e35. WTEC II TRANSMISSION TEMPERATURE INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Disconnect connector J114 (bottom connector) from WTEC II TEPSS.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector J114-5.
(4) Connect negative (-) probe of multimeter to connector J118-1 and note reading on multimeter.
(5) If continuity is not present, repair wire 105 (para 2-45) or replace WTEC II cab transmission harness (para 7-137).
(6) If continuity is present, replace WTEC II TEPSS (para 8-2).
(7) Connect connector J114 to WTEC II TEPSS.
(8) Connect connector J118 to connector P118.
(9) Install instrument panel assembly (para 7-15).
(10) Connect lighted indicator display to connector PX7.
(11) Position lighted indicator display in instrument panel assembly with four screws.
(12) Tighten four screws to 6-10 lb-in. (1 N·m).
(13) Connect batteries (para 7-57).

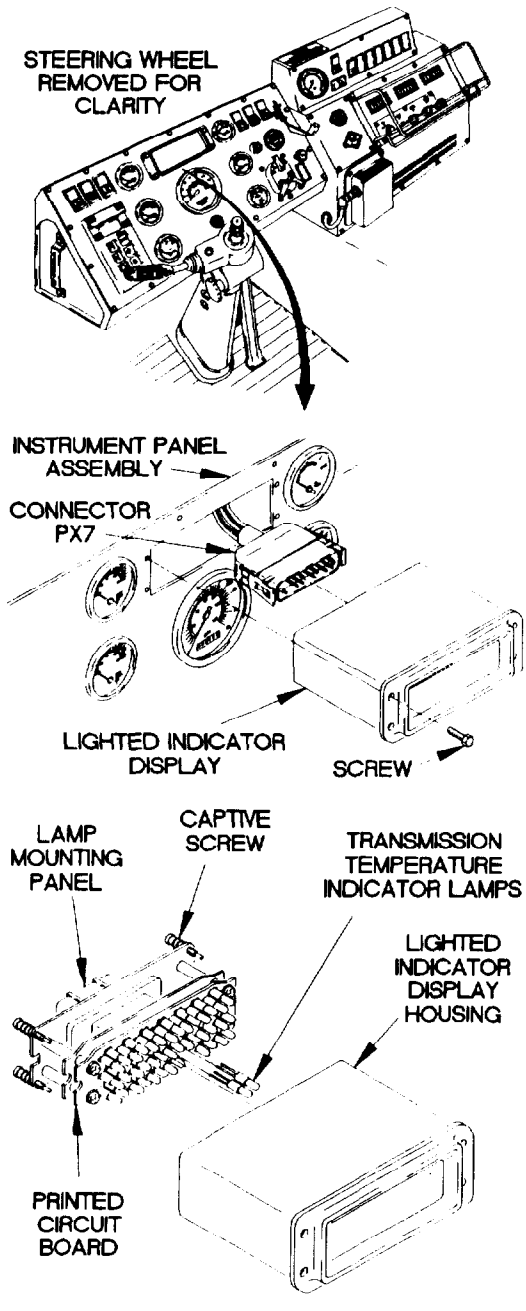


e35. WTEC II TRANSMISSION TEMPERATURE INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST

(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove transmission temperature indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each transmission temperature indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace transmission temperature indicator lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install transmission temperature indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Connect lighted indicator display to connector PX7.
(12) Position lighted indicator display in instrument panel assembly with four screws.
(13) Tighten four screws to 6-10 lb-in. (1 N·m).
(14) Connect batteries (para 7-57).



e36. WTEC III TRANSMISSION TEMPERATURE INDICATOR DOES NOT OPERATE

INITIAL SETUP

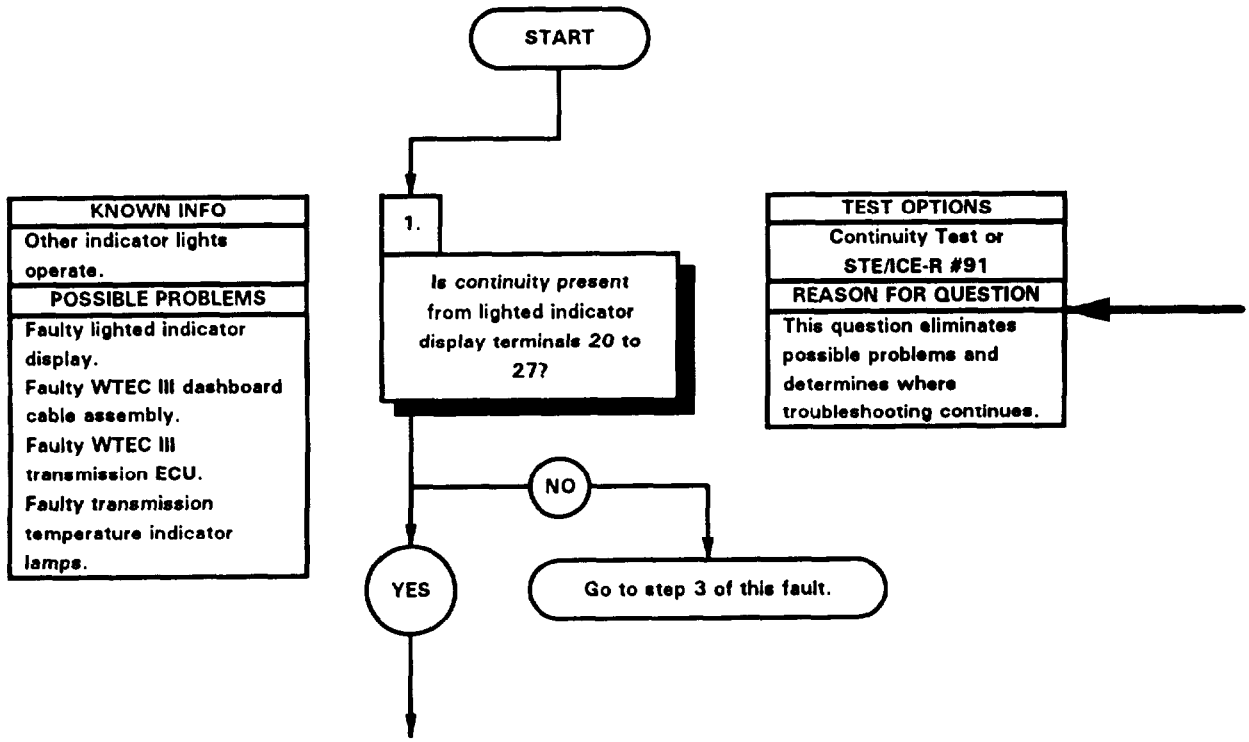
Equipment Condition
- Engine shut down (TM 9-2320-366-10-1).
- Batteries disconnected (para 7-57).

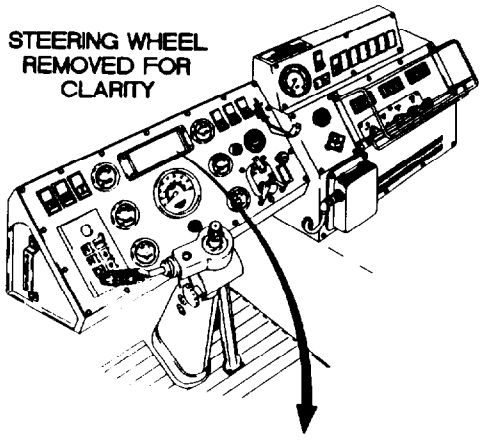
Personnel Required
- (2)

Materials/Parts
- Wire, Elect, 50 ft (Item 71, Appendix D)

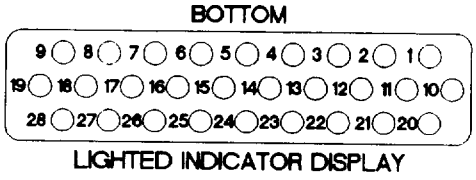
Tools and Special Tools
- Tool Kit, Genl Mech (Item 46, Appendix C)
- STE/ICE-R (Item 41, Appendix C)
- Multimeter, Digital (Item 22, Appendix C)
- Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

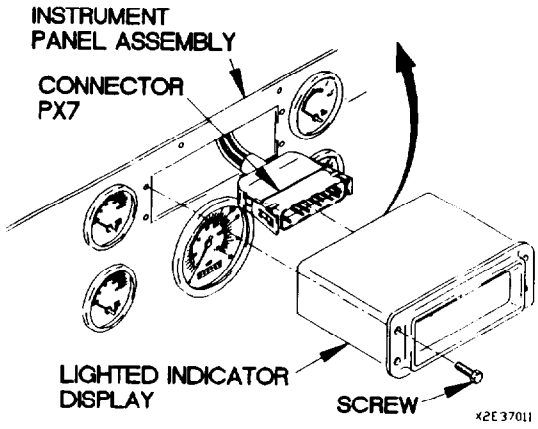
References
- TM 9-4910-571-12&P



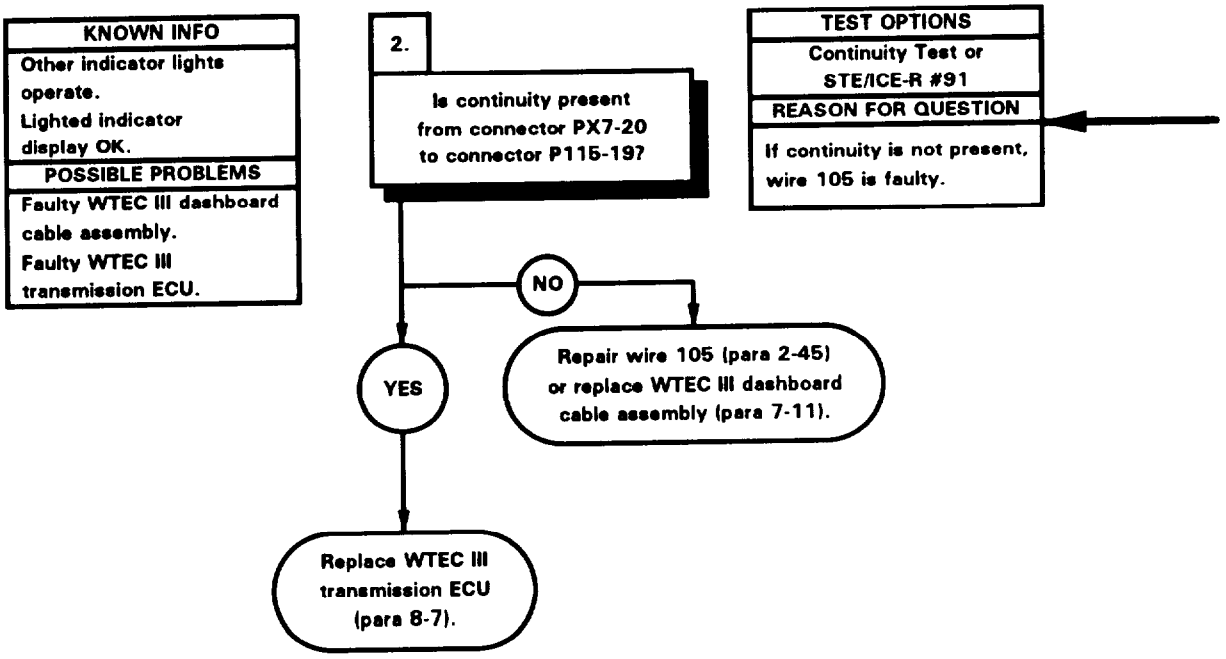


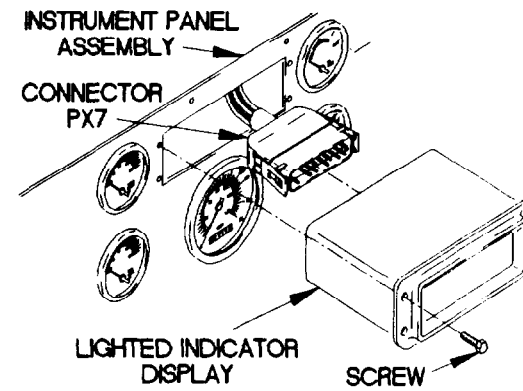
CONTINUITY TEST
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to lighted indicator display terminal 27.
(6) Connect negative (-) probe of multimeter to lighted indicator display terminal 20 and note reading on multimeter.
(7) If continuity is not present, go to step 3 of this fault.



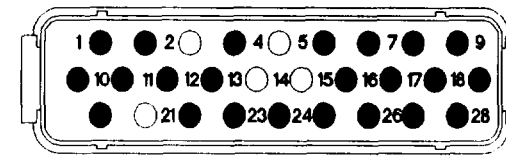


e36. WTEC III TRANSMISSION TEMPERATURE INDICATOR DOES NOT OPERATE (CONT)

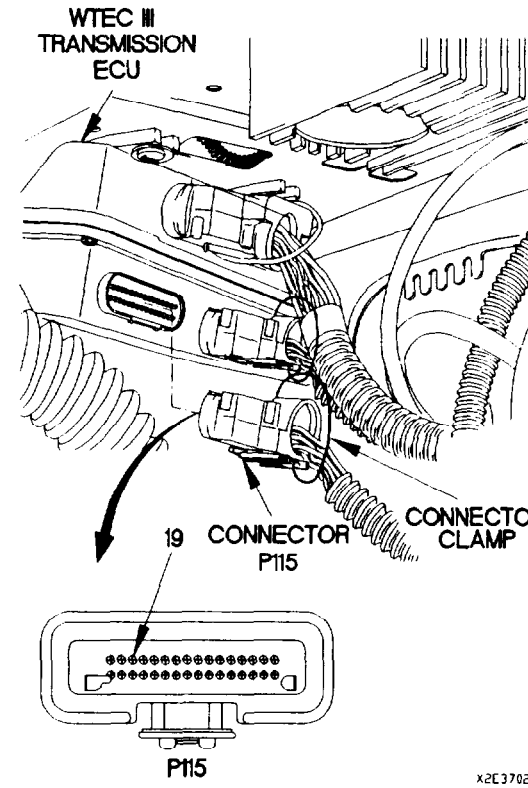




CONTINUITY TEST
(1) Remove kick panel (para 16-3).
(2) Disconnect connector clamp from connector P115.
(3) Disconnect connector P115 from WTEC III transmission ECU.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector PX7-20.
(6) Connect negative (-) probe of multimeter to connector P115-19 and note reading on multimeter.
(7) If continuity is not present, repair wire 105 (para 2-45) or replace WTEC III dashboard cable assembly (para 7-11).
(8) If continuity is present, replace WTEC III transmission ECU (para 8-7).
(9) Connect connector P115 to WTEC III transmission ECU.
(10) Connect connector clamp to connector P115.
(11) Install kick panel (para 16-3).
(12) Connect lighted indicator display to connector PX7.
(13) Position lighted indicator display in instrument panel assembly with four screws.
(14) Tighten four screws to 6-10 lb-in. (1 N·m).
(15) Connect batteries (para 7-57).

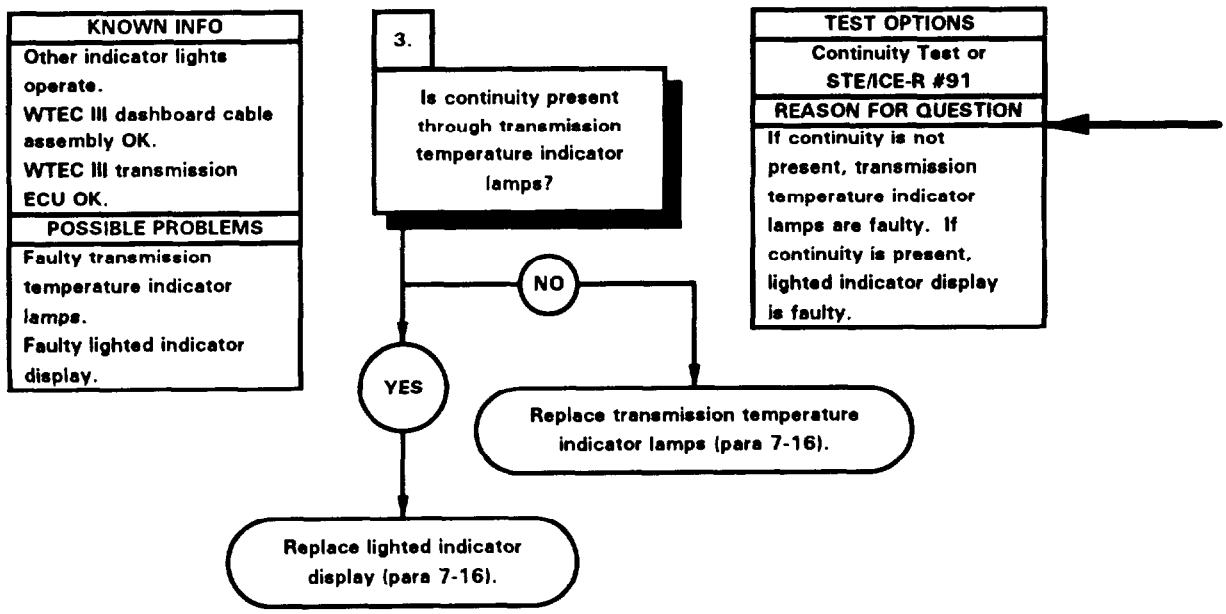


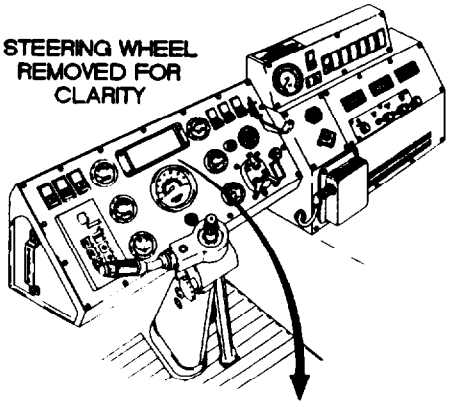
PX7



X2E37021

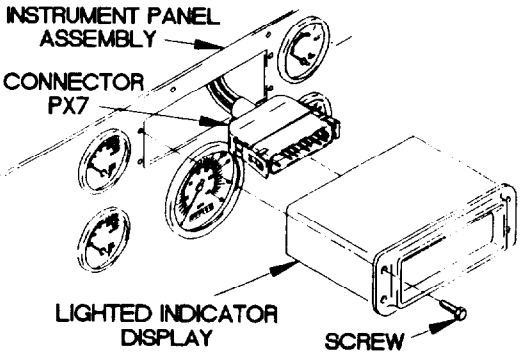
e36. WTEC III TRANSMISSION TEMPERATURE INDICATOR DOES NOT OPERATE (CONT)

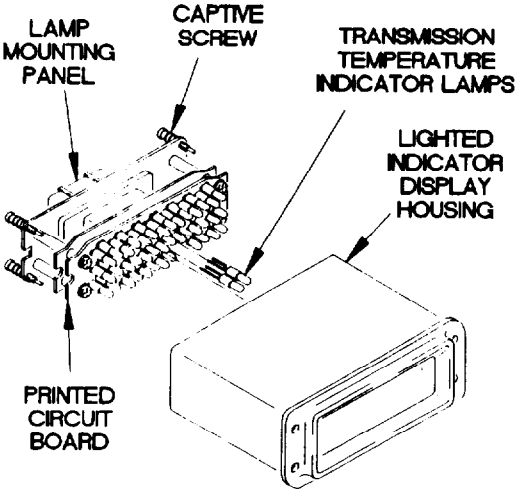




CONTINUITY TEST

(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Loosen four captive screws in lamp mounting panel.
(5) Remove lamp mounting panel from lighted indicator display housing.
(6) Remove transmission temperature indicator lamps from printed circuit board.
(7) Set multimeter to ohms.
(8) Check continuity through each transmission temperature indicator lamp and note reading on multimeter.
(9) If continuity is not present, replace transmission temperature indicator lamps (para 7-16).
(10) If continuity is present, replace lighted indicator display (para 7-16).
(11) Install transmission temperature indicator lamps in printed circuit board.
(12) Install lamp mounting panel in lighted indicator display housing.
(13) Tighten four captive screws in lamp mounting panel.
(14) Connect lighted indicator display to connector PX7.
(15) Position lighted indicator display in instrument panel assembly with four screws.
(16) Tighten four screws to 6-10 lb-in. (1 N·m).
(17) Connect batteries (para 7-57).





X2E37041

e37. FRONT BRAKE AIR INDICATOR DOES NOT OPERATE

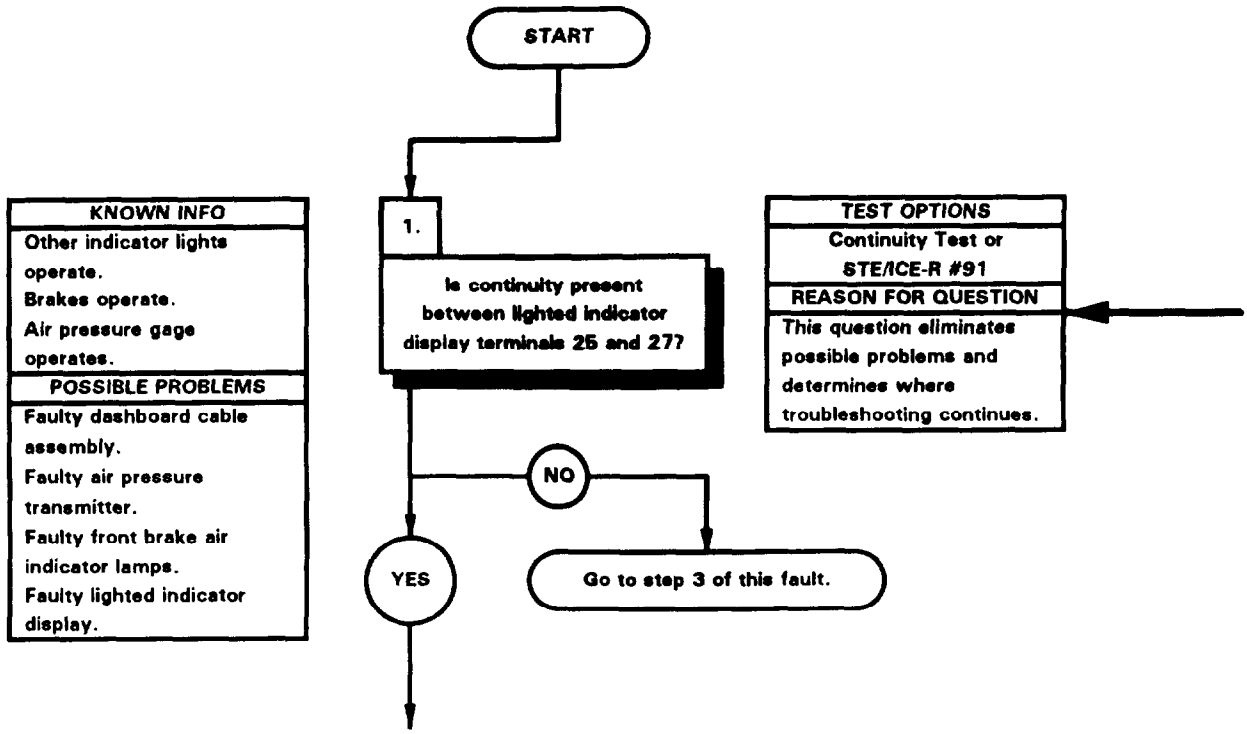
INITIAL SETUP

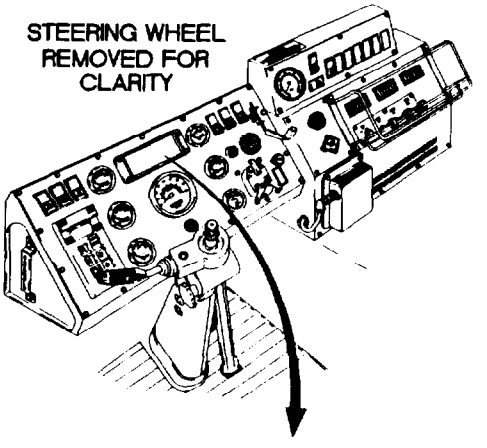
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

Personnel Required
(2)

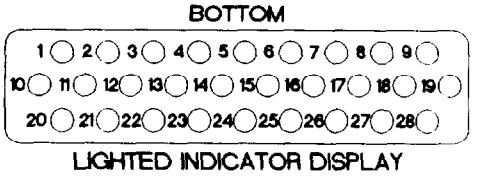
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

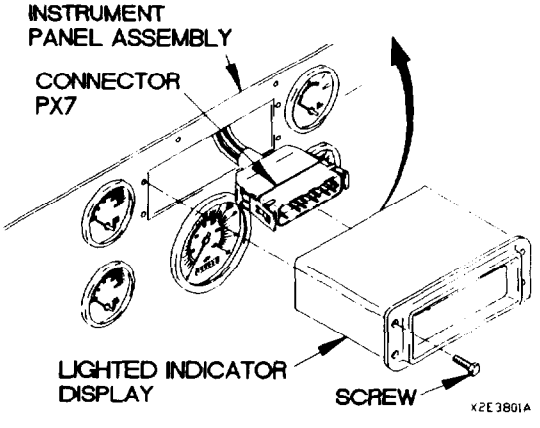
References
TM 9-4910-571-12&P



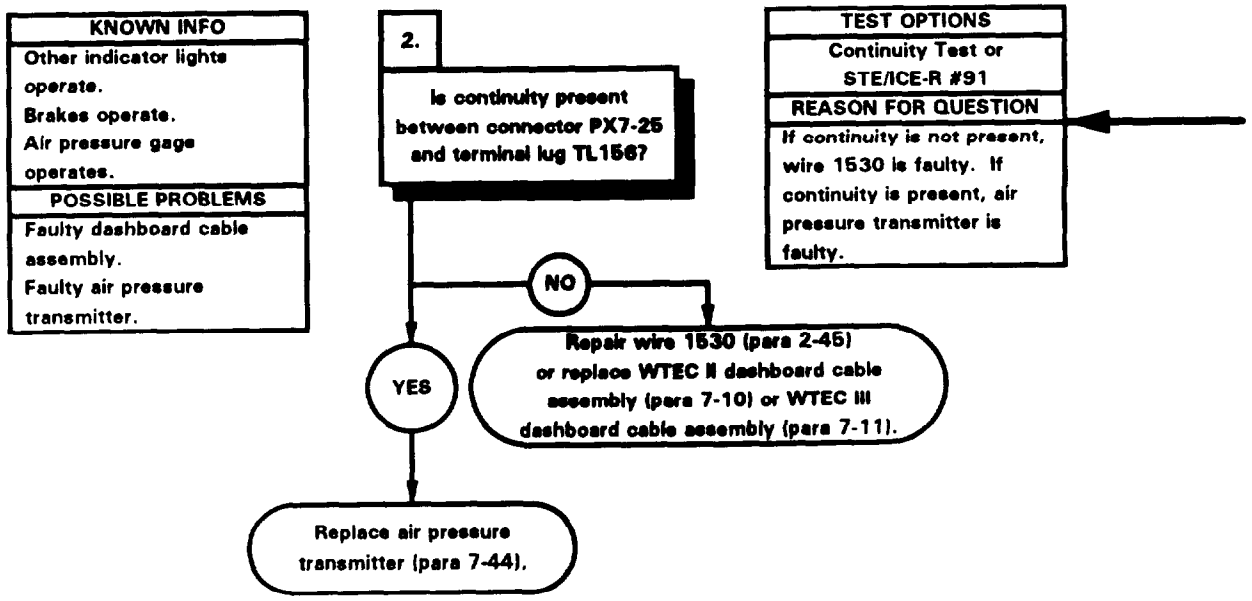


CONTINUITY TEST
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to lighted indicator display terminal 27.
(6) Connect negative (-) probe of multimeter to lighted indicator display terminal 25 and note reading on multimeter.
(7) If continuity is not present, go to step 3 of this fault.

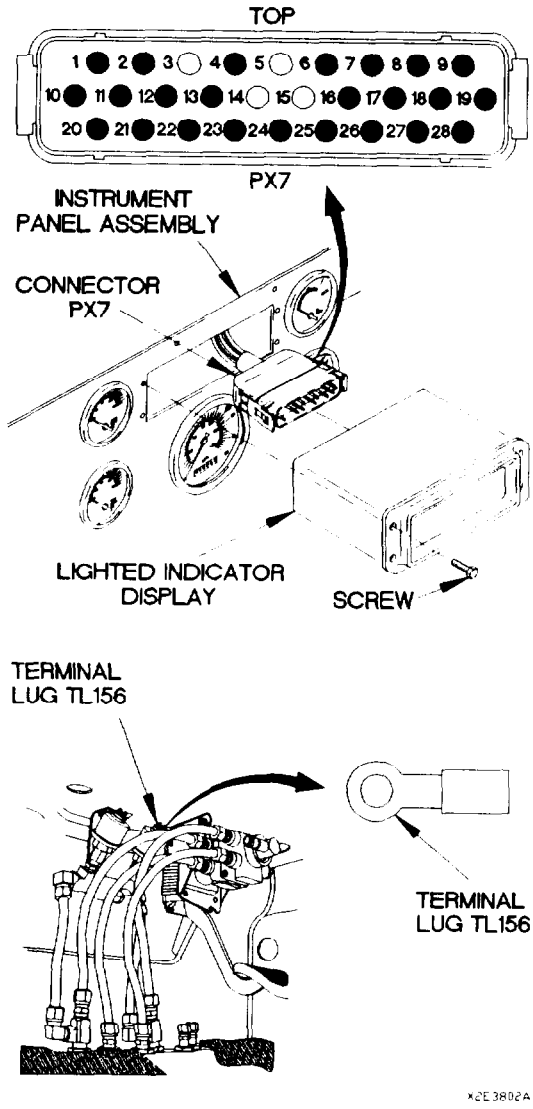




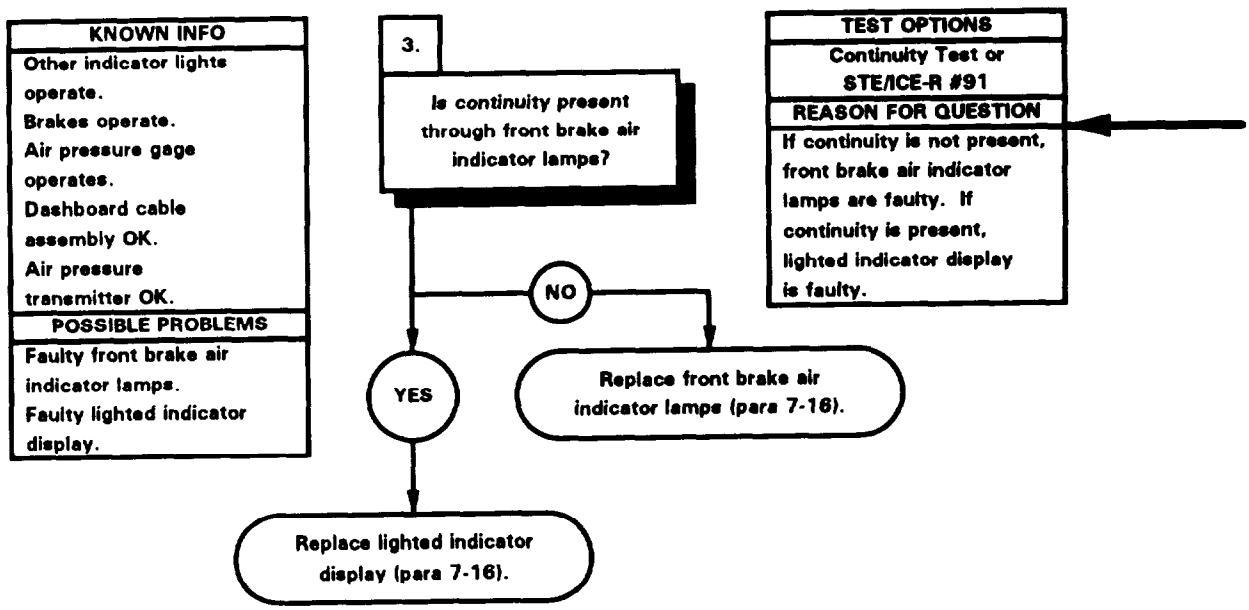
e37. FRONT BRAKE AIR INDICATOR DOES NOT OPERATE (CONT)



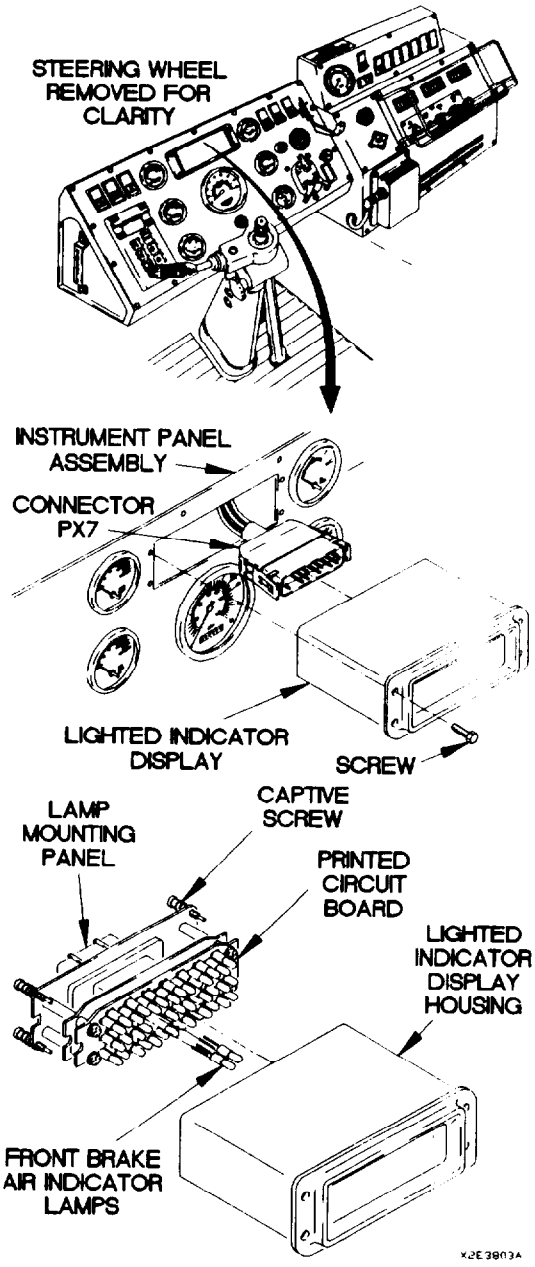
CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX7-25.
(3) Connect negative (-) probe of multimeter to terminal lug TL156 and note reading on multimeter.
(4) If continuity is not present, repair wire 1530 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If continuity is present, replace air pressure transmitter (para 7-44).
(6) Connect lighted indicator display to connector PX7.
(7) Position lighted indicator display in instrument panel assembly with four screws.
(8) Tighten four screws to 6-10 lb-in. (1 N·m).
(9) Connect batteries (para 7-57).



e37. FRONT BRAKE AIR INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove front brake air indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each front brake air indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace front brake air indicator lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install front brake air indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Connect lighted indicator display to connector PX7.
(12) Position lighted indicator display in instrument panel assembly with four screws.
(13) Tighten four screws to 6-10 lb-in. (1 N·m).
(14) Connect batteries (para 7-57).



e38. REAR BRAKE AIR INDICATOR DOES NOT OPERATE

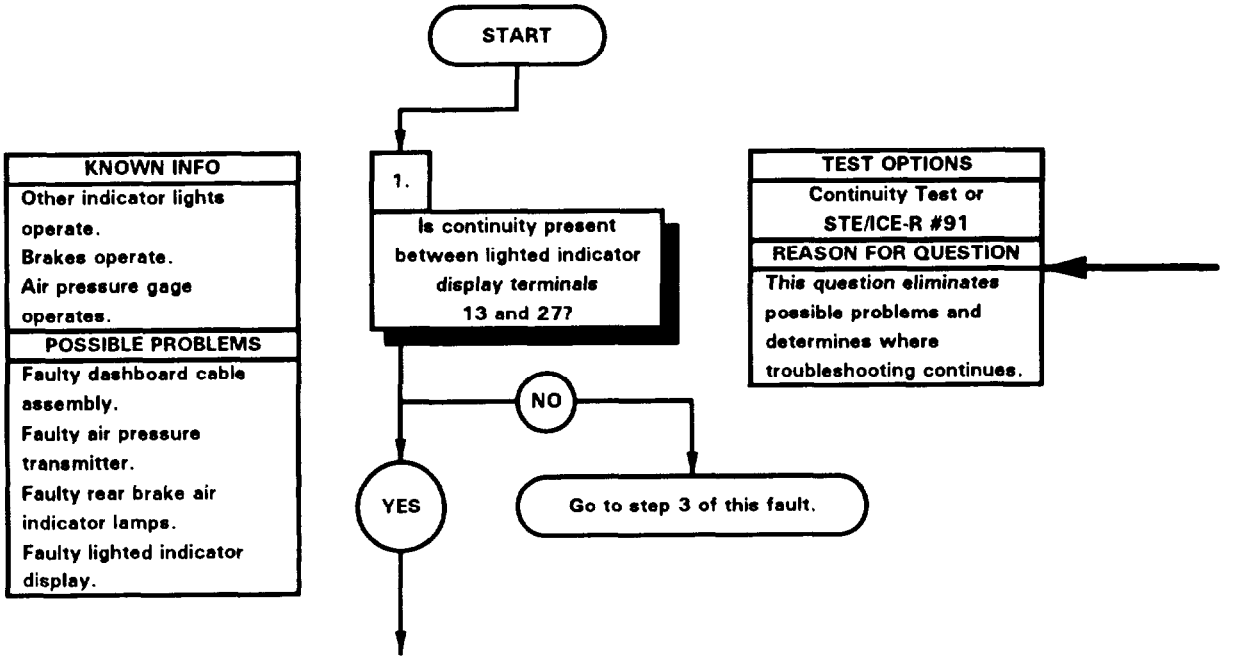
INITIAL SETUP

Equipment Condition
- Engine shut down (TM 9-2320-366-10-1).
- Batteries disconnected (para 7-57).

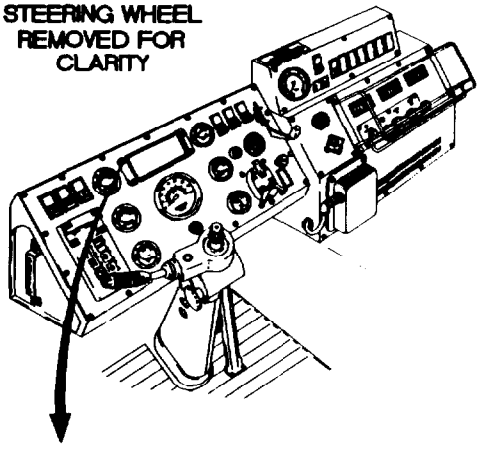
Personnel Required
- (2)

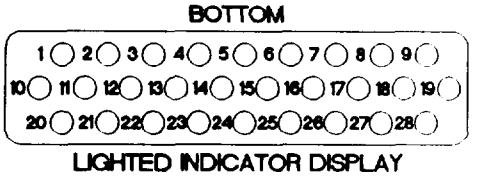
Tools and Special Tools
- Tool Kit, Genl Mech (Item 46, Appendix C)
- STE/ICE-R (Item 41, Appendix C)
- Multimeter, Digital (Item 22, Appendix C)
- Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

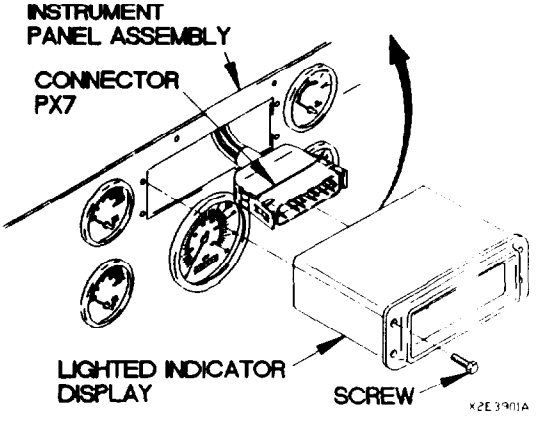
References
- TM 9-4910-571-12&P



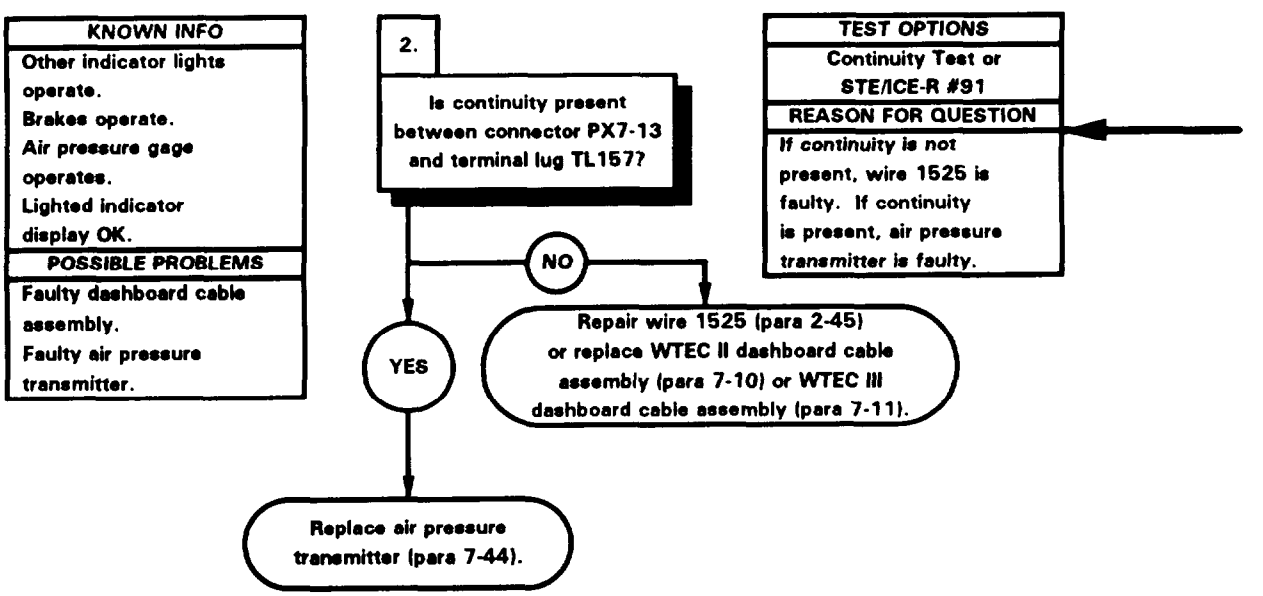
CONTINUITY TEST
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to lighted indicator display terminal 27.
(6) Connect negative (-) probe of multimeter to lighted indicator display terminal 13 and note reading on multimeter.
(7) If continuity is not present, go to step 3 of this fault.



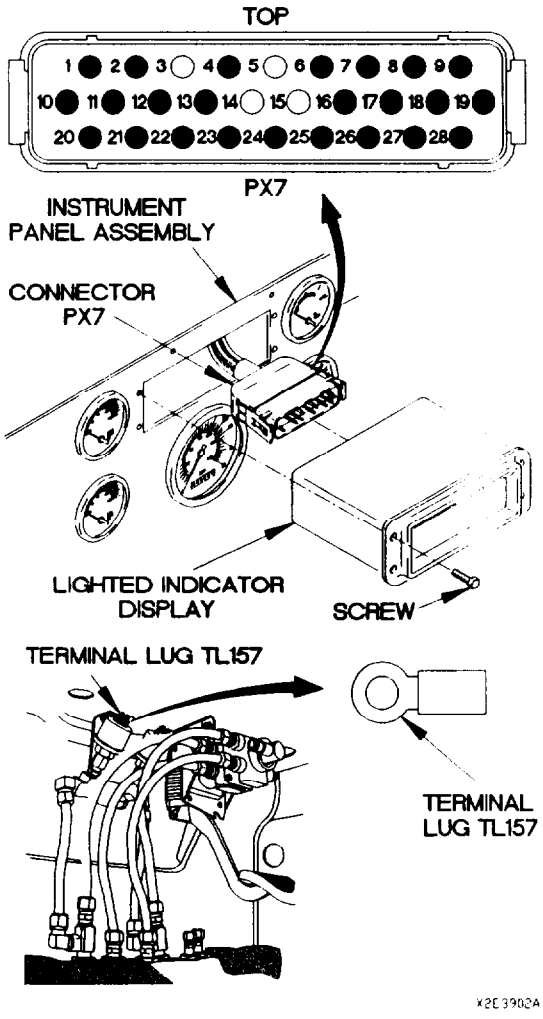




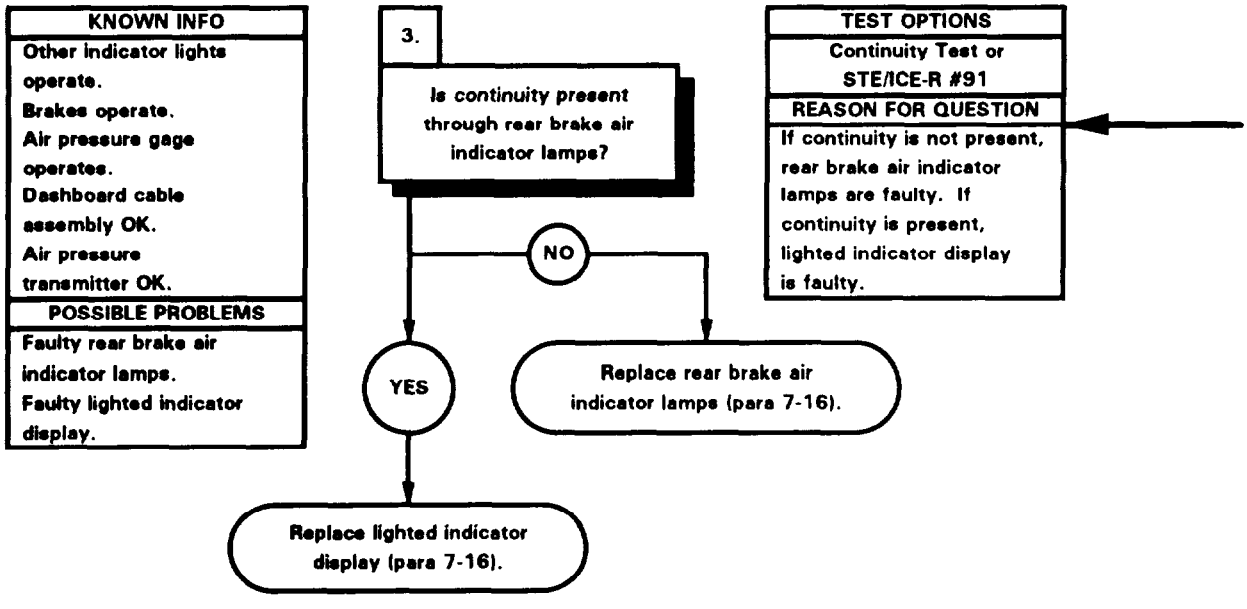
e38. REAR BRAKE AIR INDICATOR DOES NOT OPERATE (CONT)



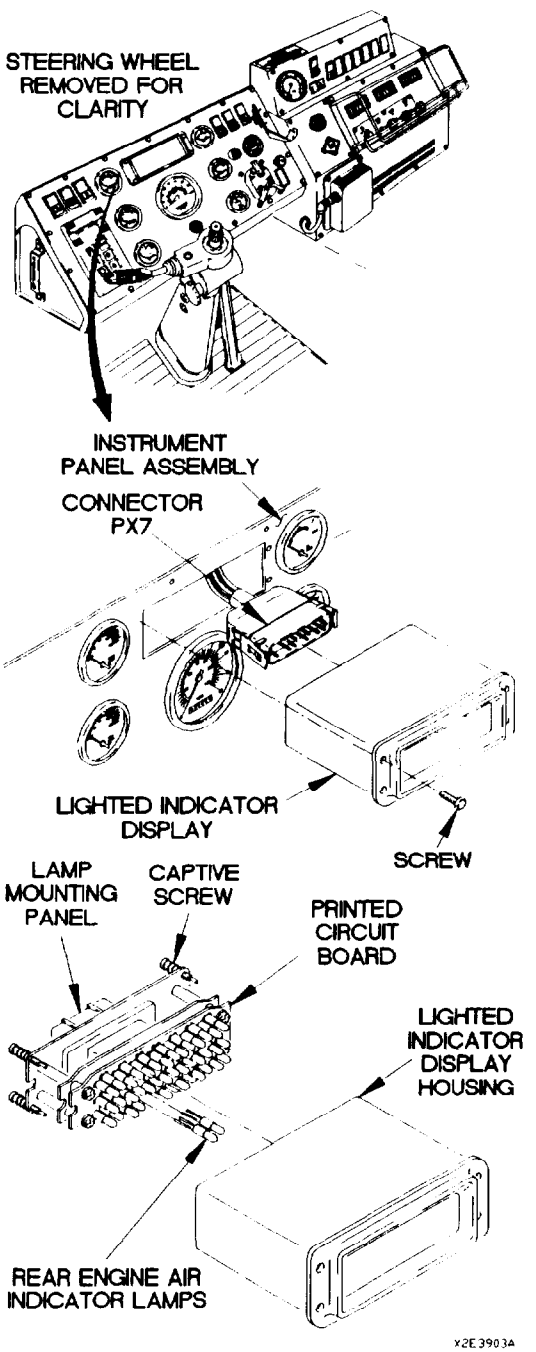
CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX7-13.
(3) Connect negative (-) probe of multimeter to terminal lug TL157 and note reading on multimeter.
(4) If continuity is not present, repair wire 1525 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If continuity is present, replace air pressure transmitter (para 7-44).
(6) Connect lighted indicator display to connector PX7.
(7) Position lighted indicator display in instrument panel assembly with four screws.
(8) Tighten four screws to 6-10 lb-in. (1 N·m).
(9) Connect batteries (para 7-57).



e38. REAR BRAKE AIR INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove rear brake air indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each rear brake air indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace rear brake air indicator lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install rear brake air indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Connect lighted indicator display to connector PX7.
(12) Position lighted indicator display in instrument panel assembly with four screws.
(13) Tighten four screws to 6-10 lb-in. (1 N·m).
(14) Connect batteries (para 7-57).



e39. ENGINE OIL PRESSURE INDICATOR DOES NOT OPERATE

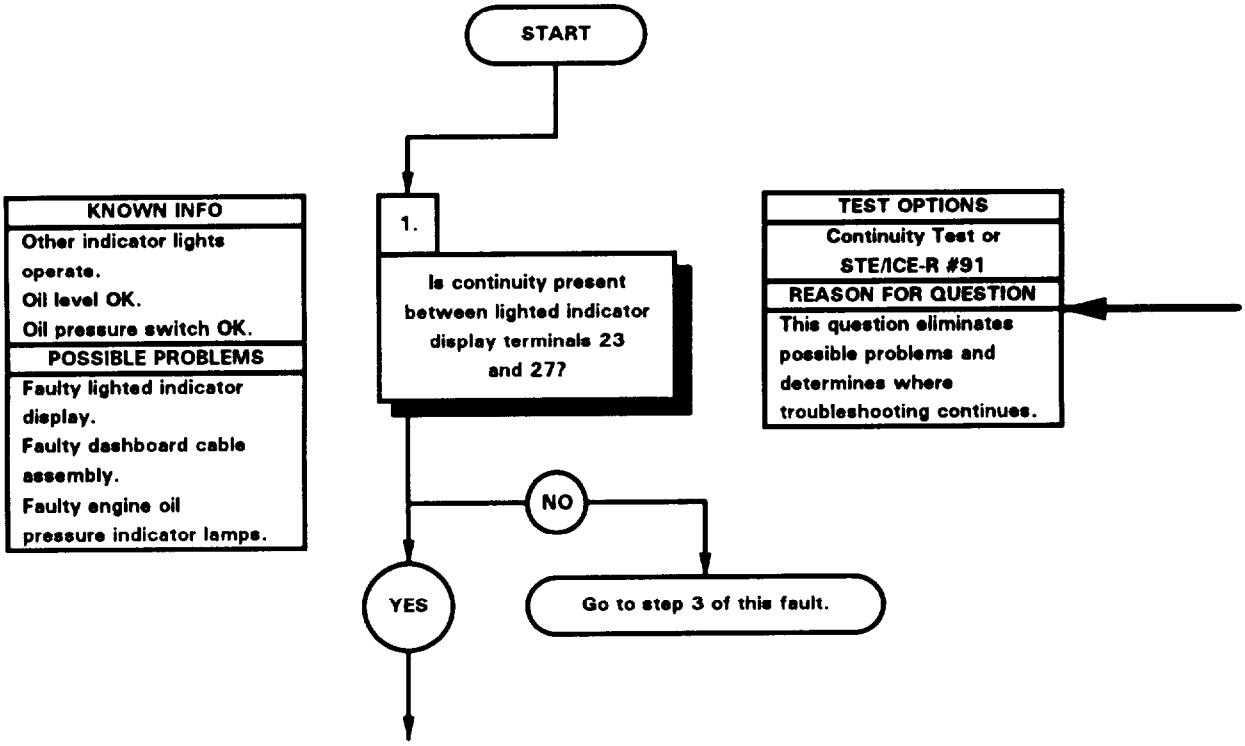
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

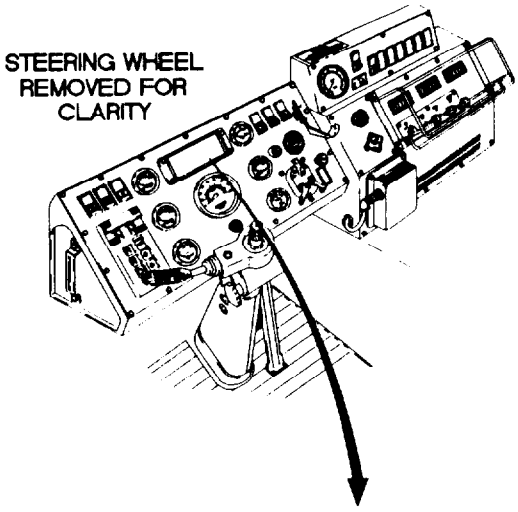
Personnel Required
(2)

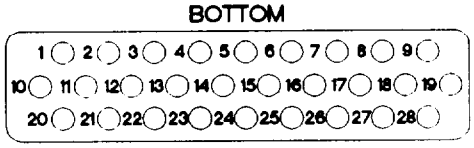
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

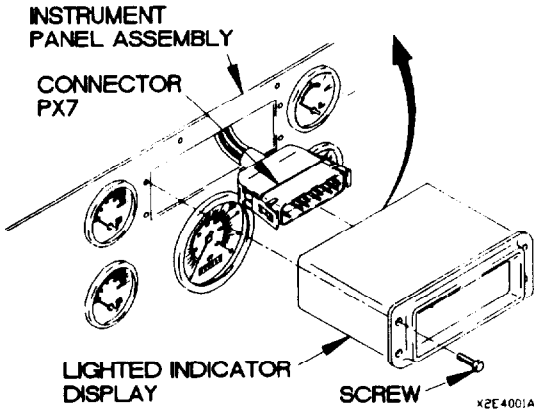
References
TM 9-4910-571-12&P



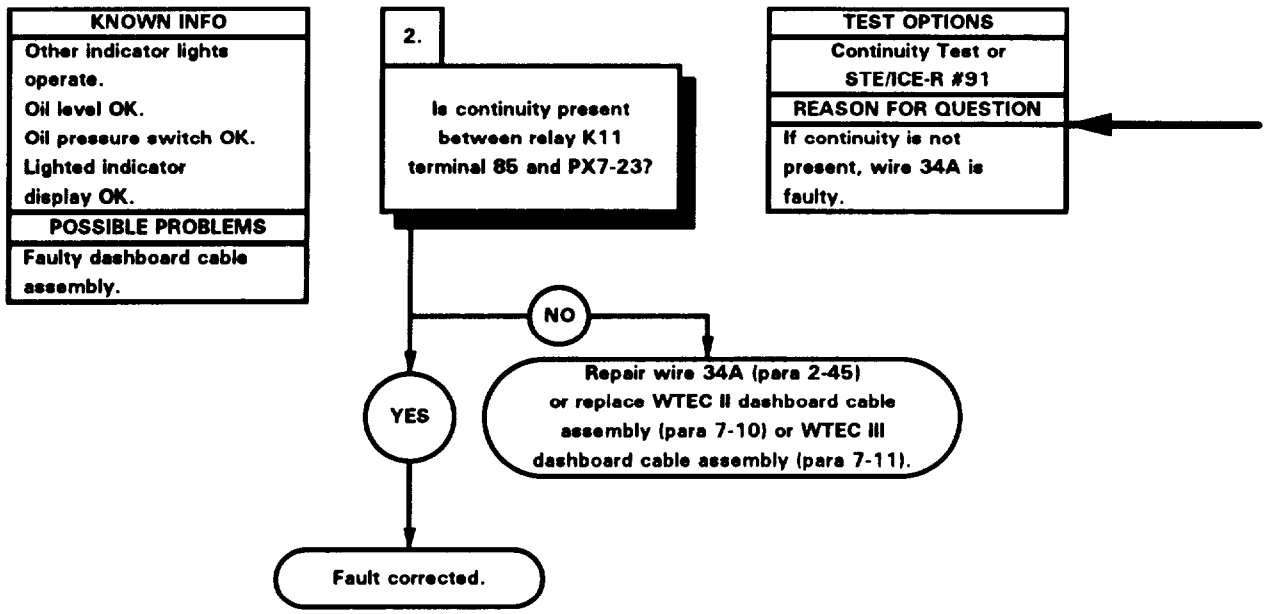
CONTINUITY TEST
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to lighted indicator display terminal 27.
(6) Connect negative (-) probe of multimeter to lighted indicator display terminal 23 and note reading on multimeter.
(7) If continuity is not present, go to step 3 of this fault.



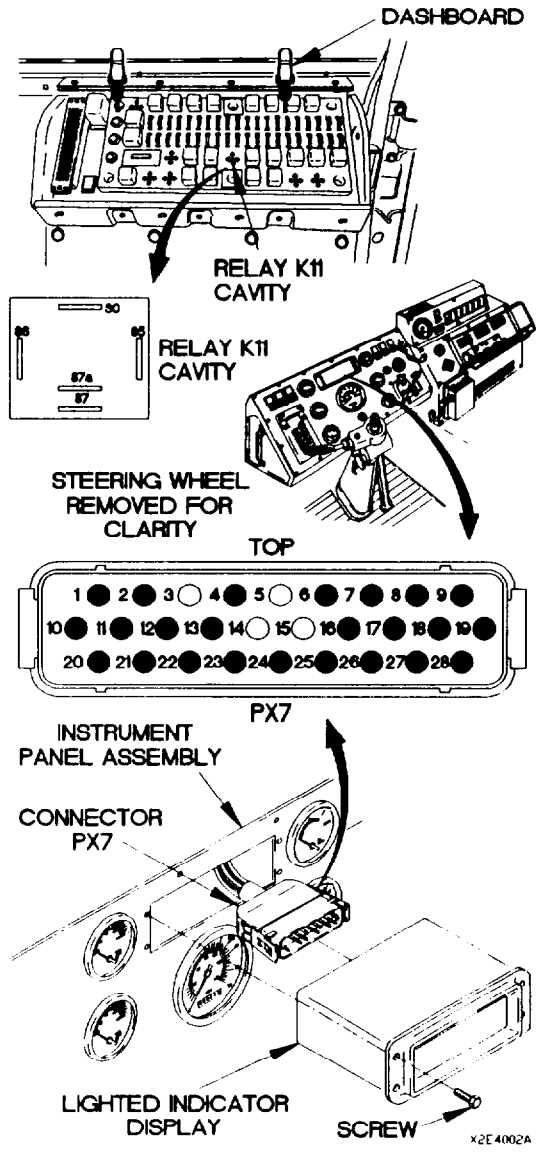




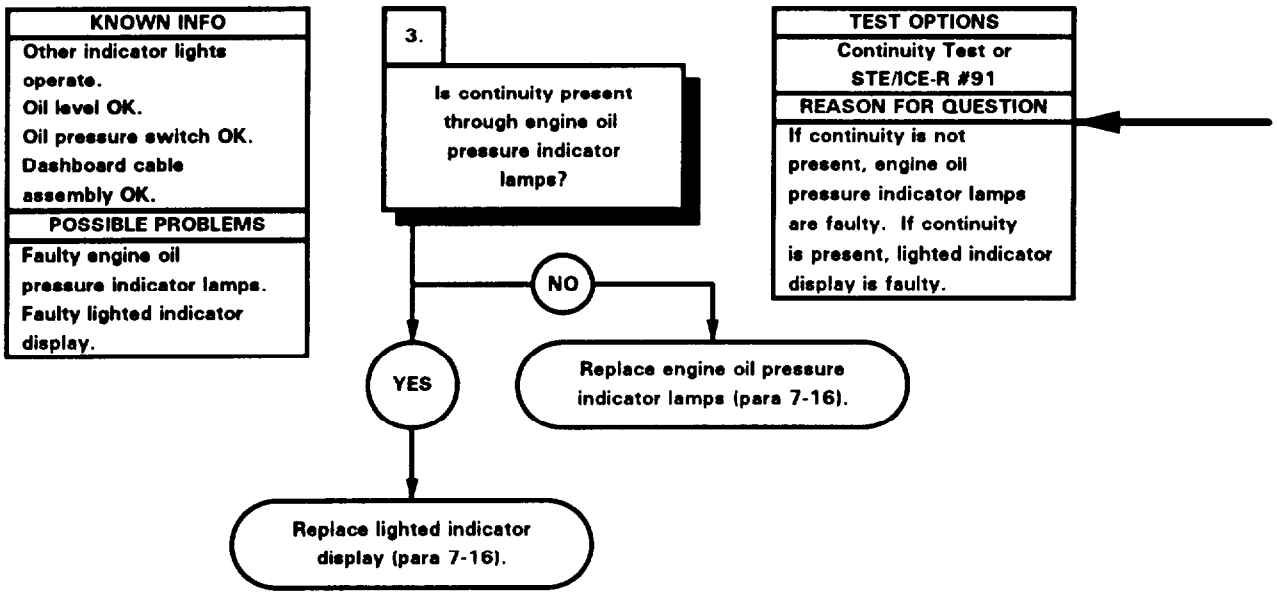
e39. ENGINE OIL PRESSURE INDICATOR DOES NOT OPERATE (CONT)



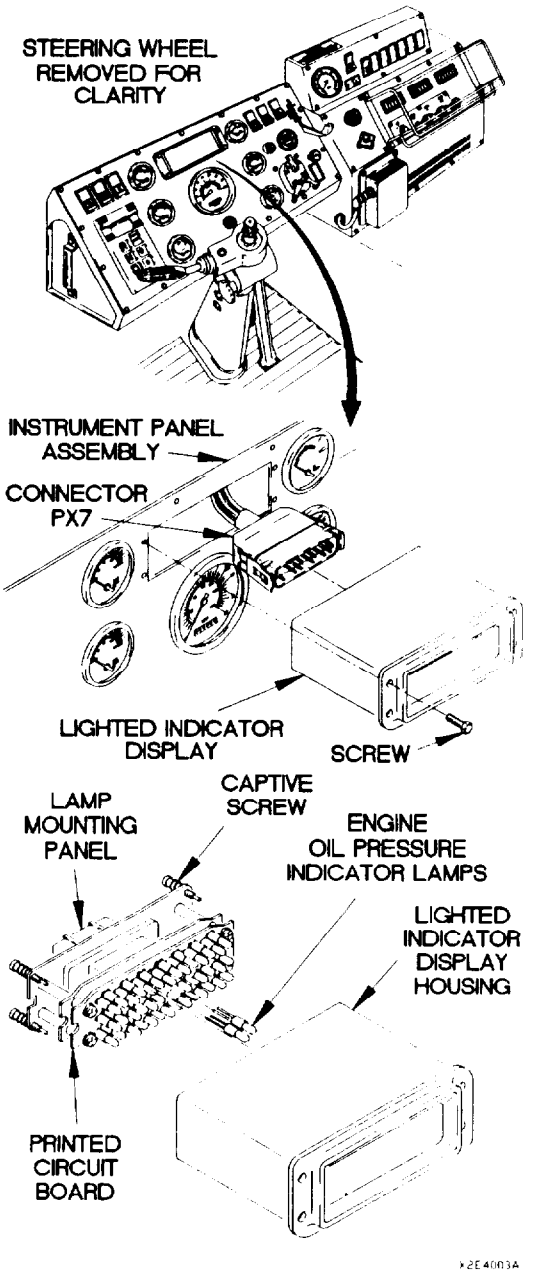
CONTINUITY TEST
(1) Remove PDP cover (para 16-2).
(2) Remove relay K11 from PDP.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to PDP, terminal 85, where relay K11 was removed.
(5) Connect negative (-) probe of multimeter to PX7-23 and note reading on multimeter.
(6) If continuity is not present, repair wire 34A (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Install relay K11 in PDP.
(8) Install PDP cover (para 16-2).
(9) Connect lighted indicator display to connector PX7.
(10) Position lighted indicator display in instrument panel assembly with four screws.
(11) Tighten four screws to 6-10 lb-in. (1 N·m).
(12) Connect batteries (para 7-57).



e39. ENGINE OIL PRESSURE INDICATOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Loosen four captive screws in lamp mounting panel.
(2) Remove lamp mounting panel from lighted indicator display housing.
(3) Remove engine oil pressure indicator lamps from printed circuit board.
(4) Set multimeter to ohms.
(5) Check continuity through each engine oil pressure indicator lamp and note reading on multimeter.
(6) If continuity is not present, replace engine oil pressure indicator lamps (para 7-16).
(7) If continuity is present, replace lighted indicator display (para 7-16).
(8) Install engine oil pressure indicator lamps in printed circuit board.
(9) Install lamp mounting panel in lighted indicator display housing.
(10) Tighten four captive screws in lamp mounting panel.
(11) Connect lighted indicator display to connector PX7.
(12) Position lighted indicator display in instrument panel assembly with four screws.
(13) Tighten four screws to 6-10 lb-in. (1 N·m).
(14) Connect batteries (para 7-57).



e40. MASTER STOP INDICATOR DOES NOT OPERATE

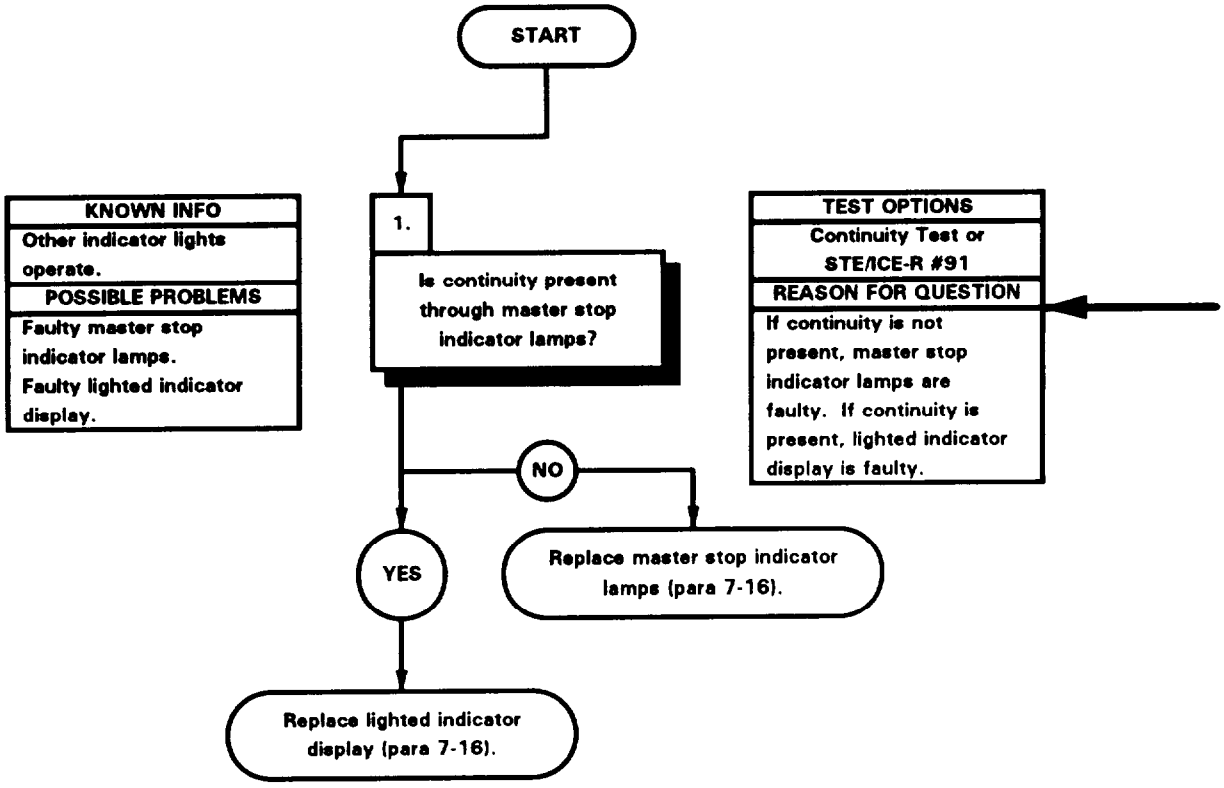
INITIAL SETUP

Equipment Condition
- Engine shut down (TM 9-2320-366-10-1).
- Batteries disconnected (para 7-57).

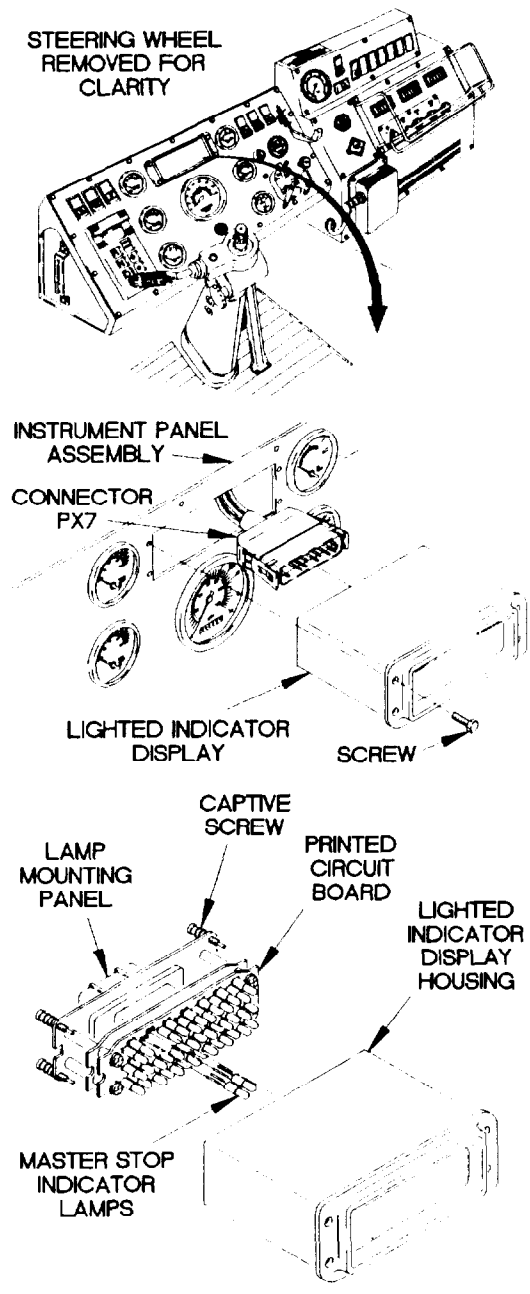
Personnel Required
(2)

Tools and Special Tools
- Tool Kit, Genl Mech (Item 46, Appendix C)
- STE/ICE-R (Item 41, Appendix C)
- Multimeter, Digital (Item 22, Appendix C)
- Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

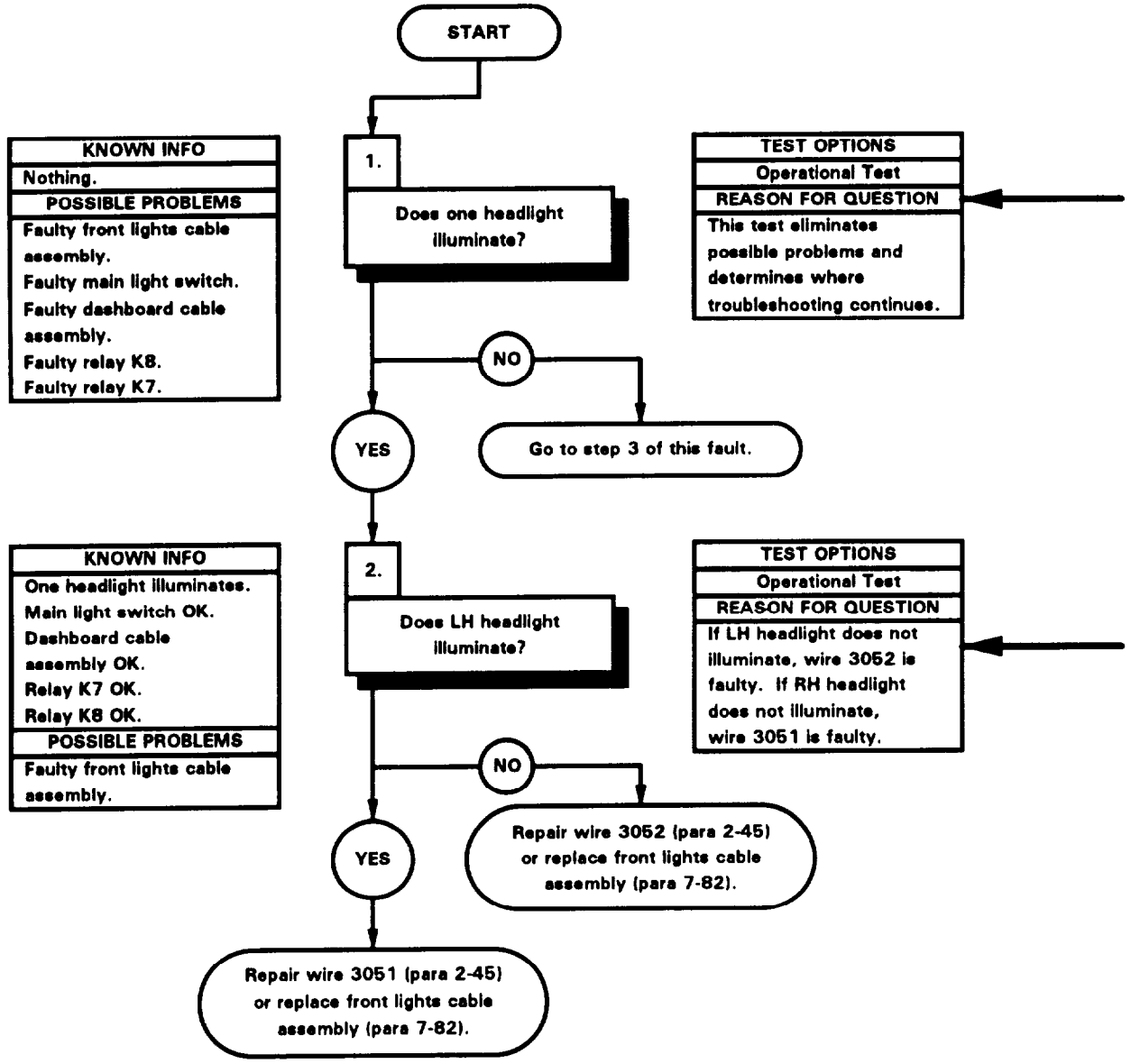
References
- TM 9-4910-571-12&P



CONTINUITY TEST
(1) Remove four screws from lighted indicator display.
(2) Remove lighted indicator display from instrument panel assembly.
(3) Disconnect connector PX7 from lighted indicator display.
(4) Loosen four captive screws in lamp mounting panel.
(5) Remove lamp mounting panel from lighted indicator display housing.
(6) Remove master stop indicator lamps from printed circuit board.
(7) Set multimeter to ohms.
(8) Check continuity through each master stop indicator lamp and note reading on multimeter.
(9) If continuity is not present, replace master stop indicator lamps (para 7-16).
(10) If continuity is present, replace lighted indicator display (para 7-16).
(11) Install master stop indicator lamps in printed circuit board.
(12) Install lamp mounting panel in lighted indicator display housing.
(13) Tighten four captive screws in lamp mounting panel.
(14) Connect lighted indicator display to connector PX7.
(15) Position lighted indicator display in instrument panel assembly with four screws.
(16) Tighten four screws to 6-10 lb-in. (1 N·m).
(17) Connect batteries (para 7-57).



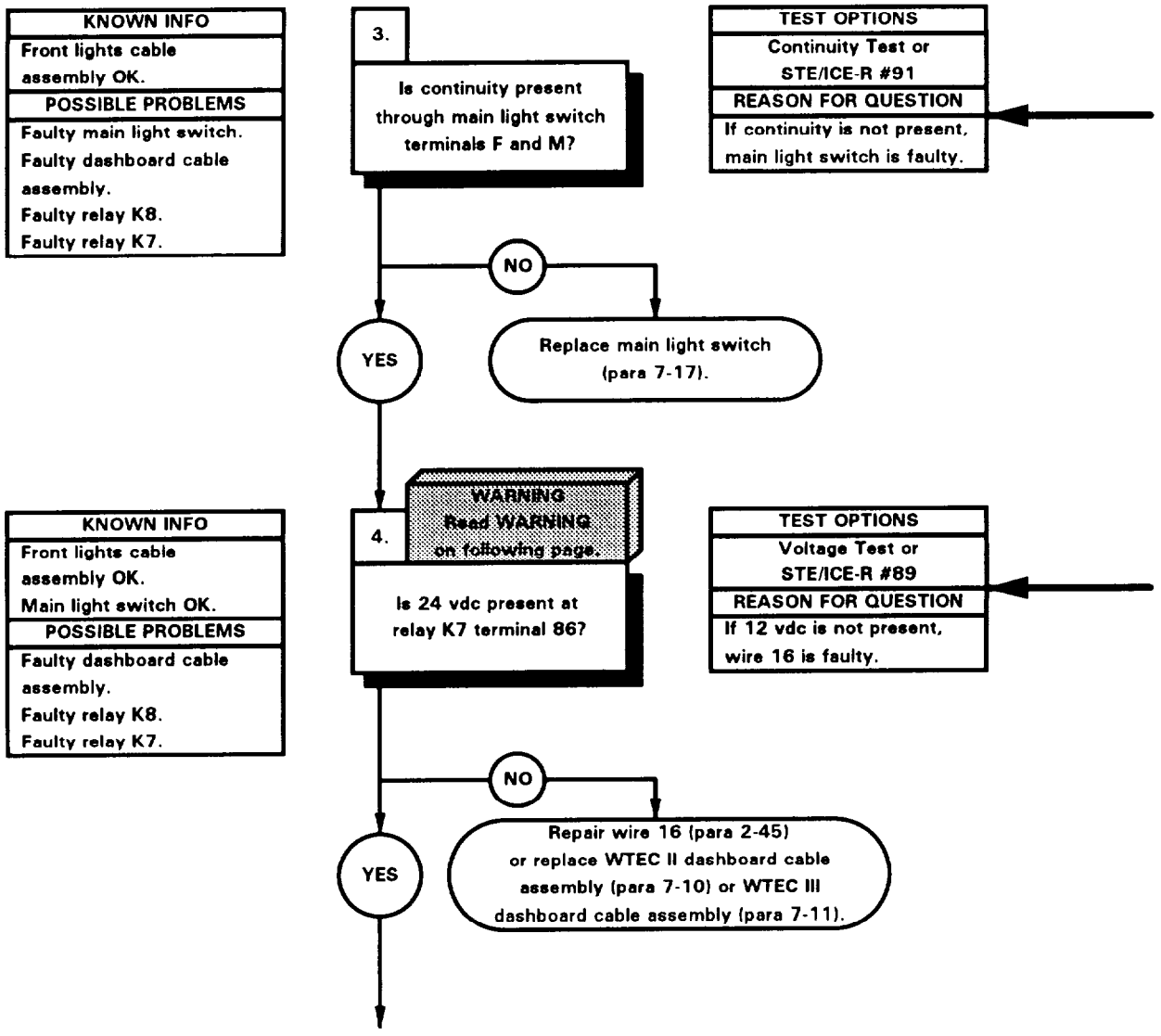
e41. ONE OR BOTH HEADLIGHTS (HIGH AND LOW BEAM) DO NOT ILLUMINATE	
INITIAL SETUP	
Equipment Condition Engine shut down (TM 9-2320-366-10-1). **Personnel Required** (2)	**Tools and Special Tools** Tool Kit, Genl Mech (Item 46, Appendix C) STE/ICE-R (Item 41, Appendix C) Multimeter, Digital (Item 22, Appendix C) **References** TM 9-4910-571-12&P



OPERATIONAL TEST
(1) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(2) If both headlights do not operate, go to step 3 of this fault.
(3) Position main light switch to OFF (TM 9-2320-366-10-1).

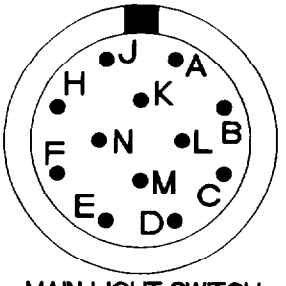
OPERATIONAL TEST
(1) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(2) Observe which headlight illuminates.
(3) If LH headlight illuminates, repair wire 3051 (para 2-45) or replace front lights cable assembly (para 7-82).
(4) If RH headlight illuminates, repair wire 3052 (para 2-45) or replace front lights cable assembly (para 7-82).
(5) Position main light switch to OFF (TM 9-2320-366-10-1).

e41. ONE OR BOTH HEADLIGHTS (HIGH AND LOW BEAM) DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove main light switch (para 7-17).
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to light switch terminal M.
(4) Connect negative (-) probe of multimeter to main light switch terminal F and note reading on multimeter.
(5) If continuity is not present, replace main light switch (para 7-17).
(6) Install main light switch (para 7-17).



MAIN LIGHT SWITCH

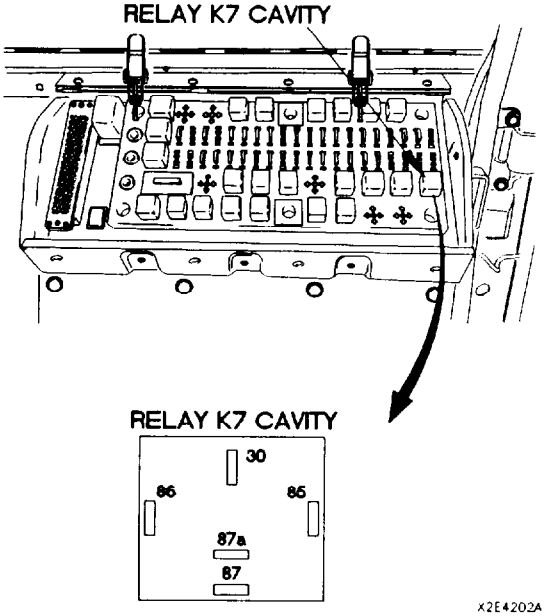
X2E4201A

WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

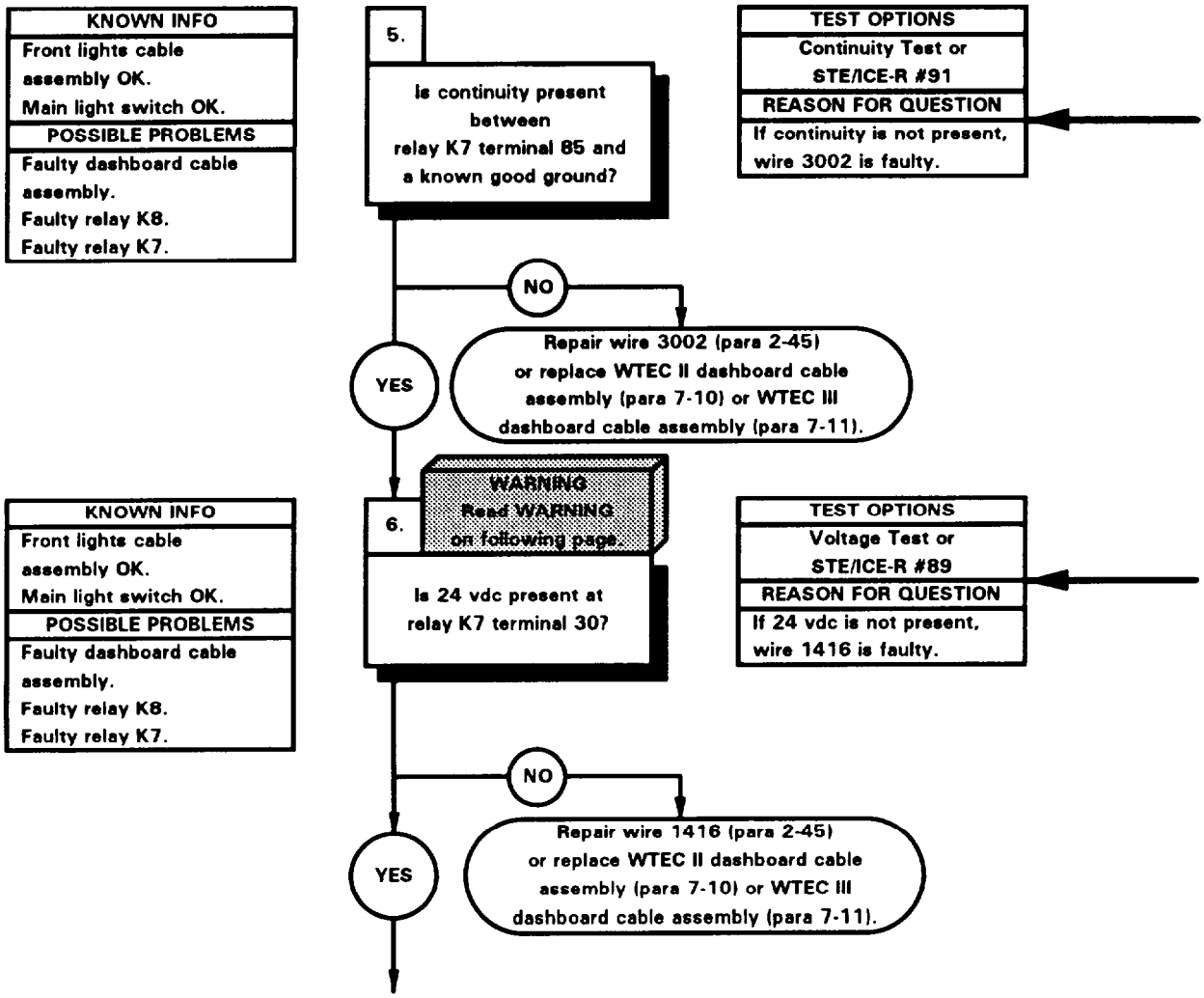
VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove relay K7 from PDP.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to PDP, terminal 86, where relay K7 was removed.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 16 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).



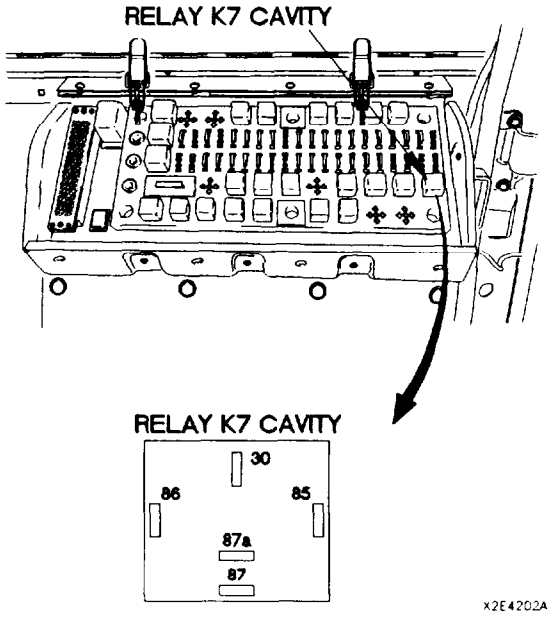
X2E4202A

e41. ONE OR BOTH HEADLIGHTS (HIGH AND LOW BEAM) DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, terminal 85, where relay K7 was removed.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3002 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



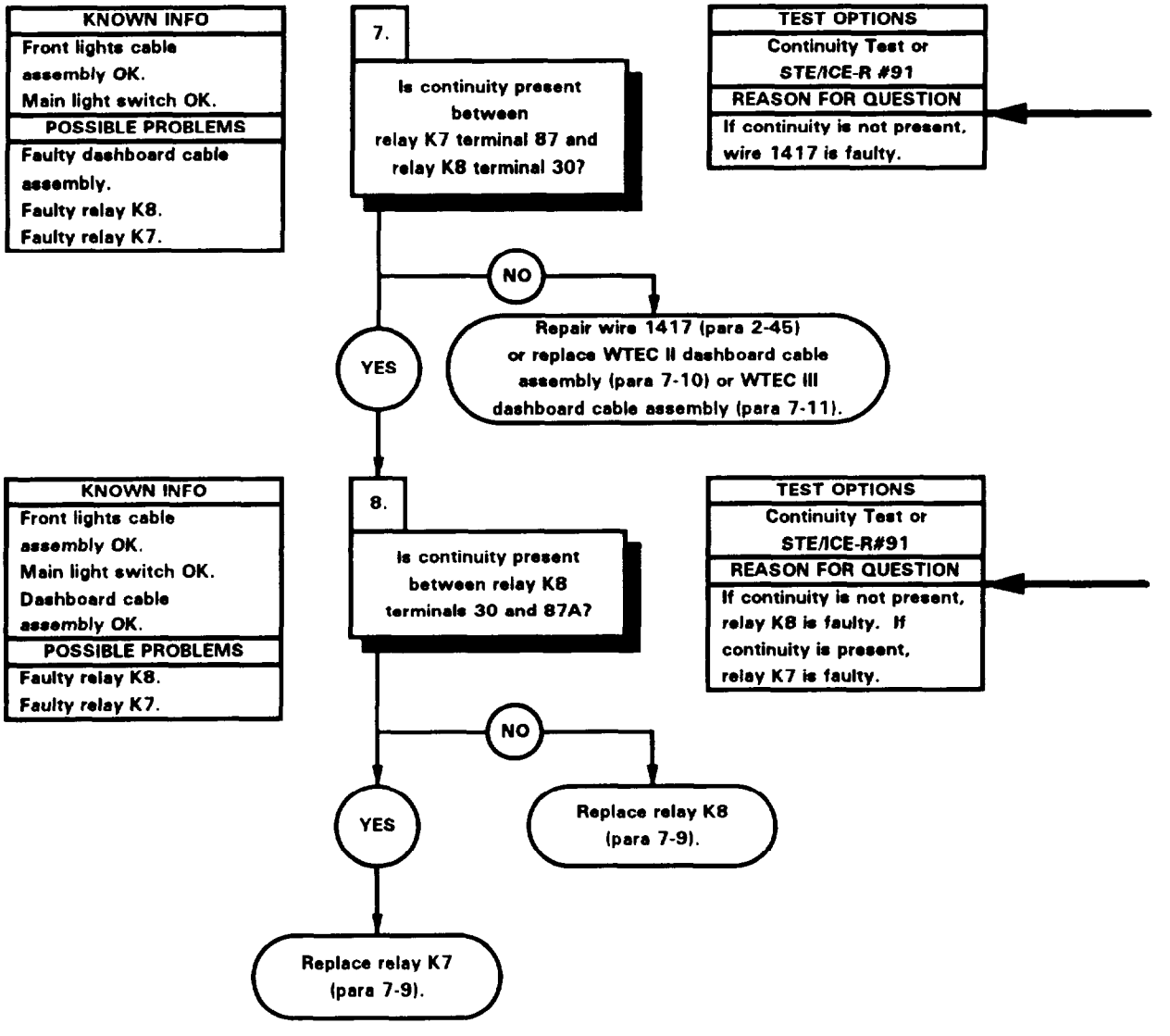
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

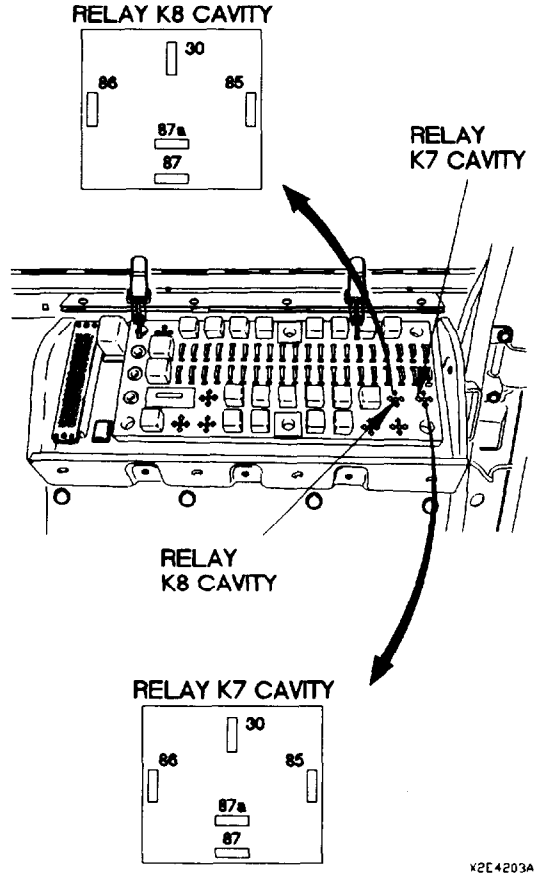
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, terminal 30, where relay K7 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 12 vdc is not present, repair wire 1416 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).

e41. ONE OR BOTH HEADLIGHTS (HIGH AND LOW BEAM) DO NOT ILLUMINATE (CONT)



CONTINUITY TEST
(1) Remove relay K8 from PDP.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to PDP, terminal 87, where relay K7 was removed.
(4) Connect negative (-) probe of multimeter to PDP, terminal 30, where relay K8 was removed and note reading on multimeter.
(5) If continuity is not present, repair wire 1417 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Install relay K7 in PDP.

CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to relay K8 terminal 87A.
(3) Connect negative (-) probe of multimeter to relay K8 terminal 30 and note reading on multimeter.
(4) If continuity is not present, replace relay K8 (para 7-9).
(5) If continuity is present, replace relay K7 (para 7-9).
(6) Install relay K8 in PDP.
(7) Install PDP cover (para 16-2).



e42. ONE OR BOTH HEADLIGHT LOW BEAMS DO NOT ILLUMINATE

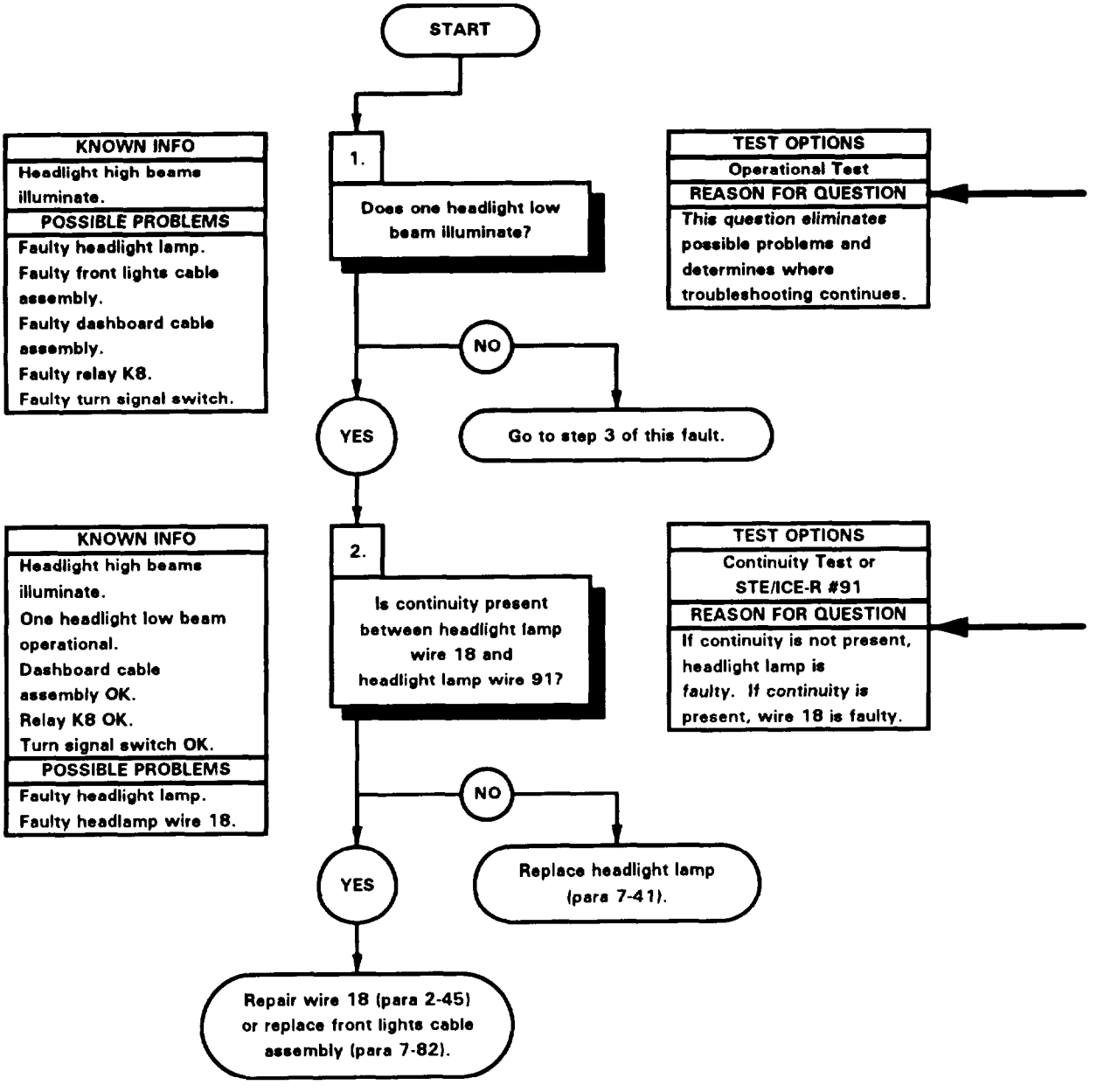
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

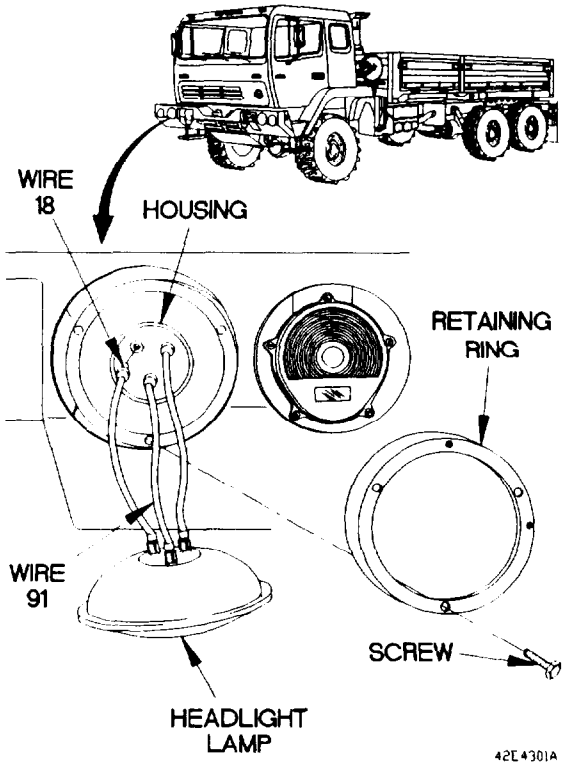
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

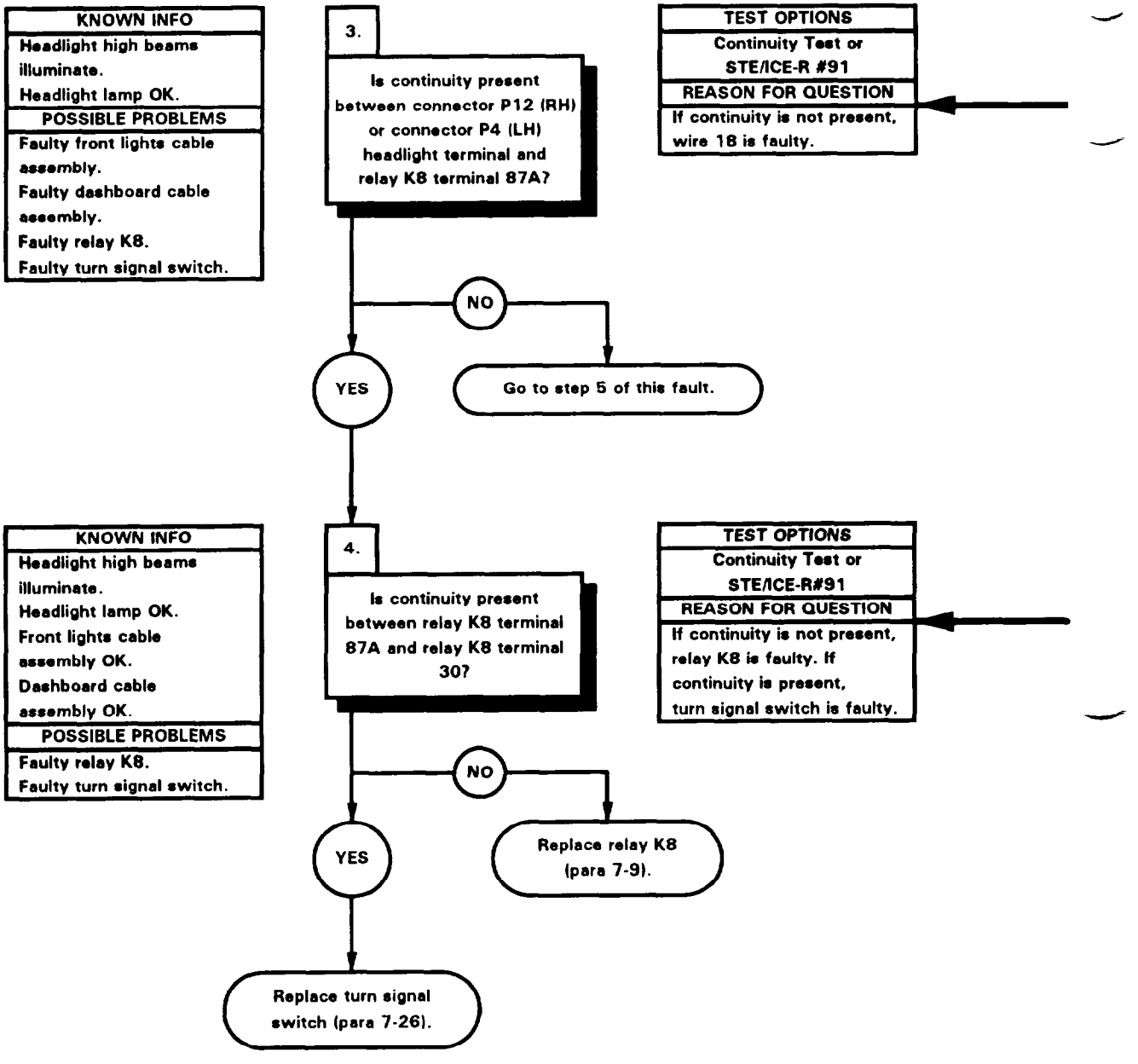


OPERATIONAL TEST
(1) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(2) Position headlight low beams to on (TM 9-2320-366-10-1).
(3) If both headlight low beams do not illuminate, go to step 3 of this fault.
(4) Position main light switch to OFF (TM 9-2320-366-10-1).

CONTINUITY TEST
(1) Remove three screws and retaining ring from housing.
(2) Remove lamp from housing.
(3) Disconnect headlight lamp wire 18 from housing.
(4) Disconnect headlight lamp wire 91 from housing.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to headlight lamp wire 18.
(7) Connect negative (-) probe of multimeter to headlight lamp wire 91 and note reading on multimeter.
(8) If continuity is not present, replace headlight lamp (para 7-41).
(9) If continuity is present, repair wire 18 (para 2-45) or replace front lights cable assembly (para 7-82).
(10) Connect headlight lamp wire 18 to housing.
(11) Connect headlight lamp wire 91 to housing.
(12) Install lamp in housing.
(13) Install retaining ring on housing with three screws.

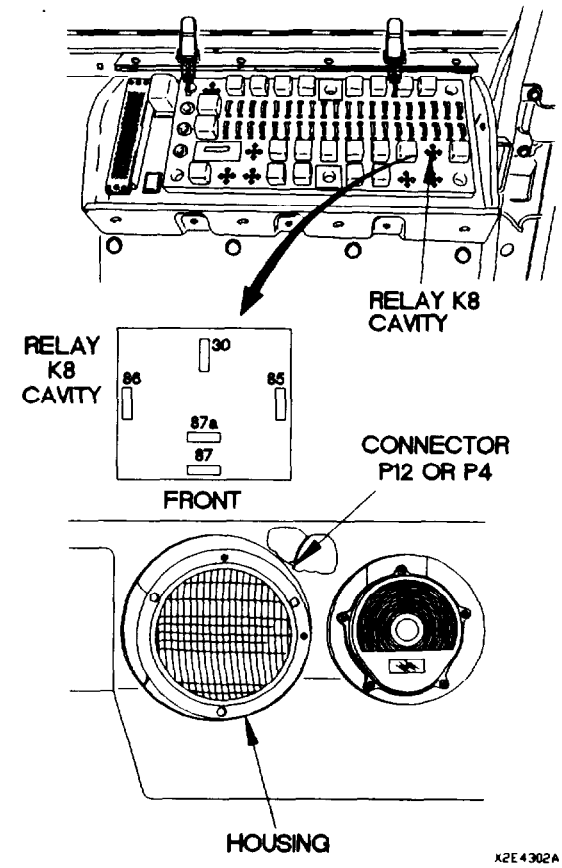


e42. ONE OR BOTH HEADLIGHT LOW BEAMS DO NOT ILLUMINATE (CONT)

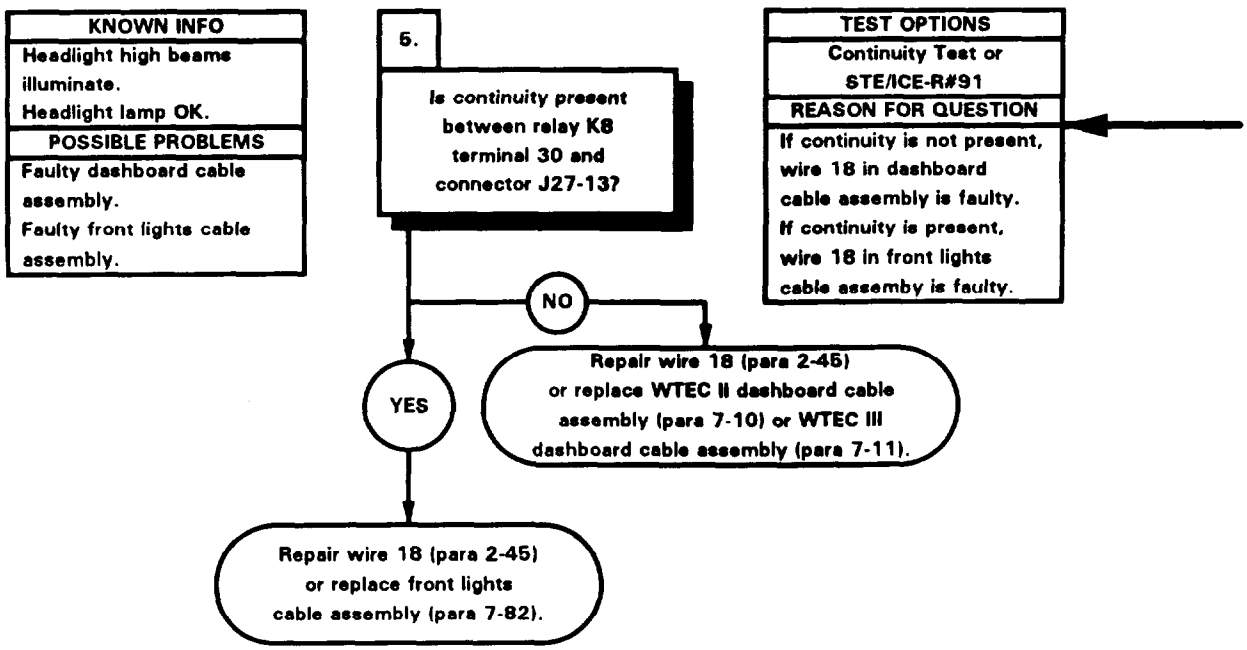


CONTINUITY TEST
(1) Remove PDP cover (para 16-2).
(2) Remove relay K8 from PDP.
(3) Disconnect connector P12 (RH) or connector P4 (LH) from housing.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector P12 (RH) or connector P4 (LH).
(6) Connect negative (-) probe of multimeter to PDP, terminal 87A, where relay K8 was removed and note reading on multimeter.
(7) If continuity is not present, go to step 5 of this fault.
(8) Connect connector P12 (RH) or connector P5 (LH) to housing.

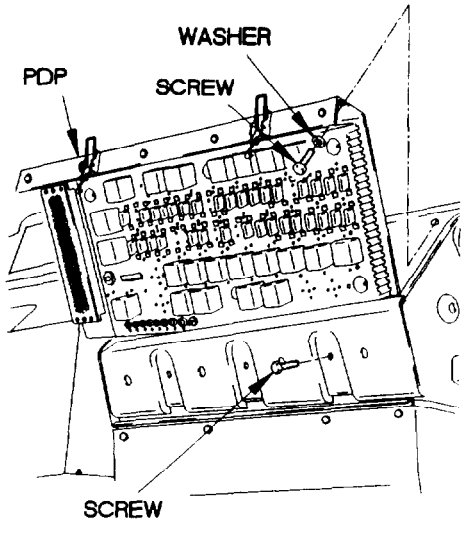
CONTINUITY TEST
(1) Set multimeter to ohms
(2) Connect positive (+) probe of multimeter to relay K8 terminal 87A.
(3) Connect negative (-) probe of multimeter to relay K8 terminal 30 and note reading on multimeter.
(4) If continuity is not present, replace relay K8 (para 7-9).
(5) If continuity is present, replace turn signal switch (para 7-26).
(6) Install relay K8 in PDP.
(7) Install PDP cover (para 16-2).

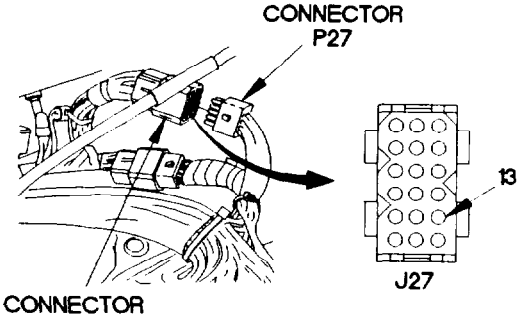


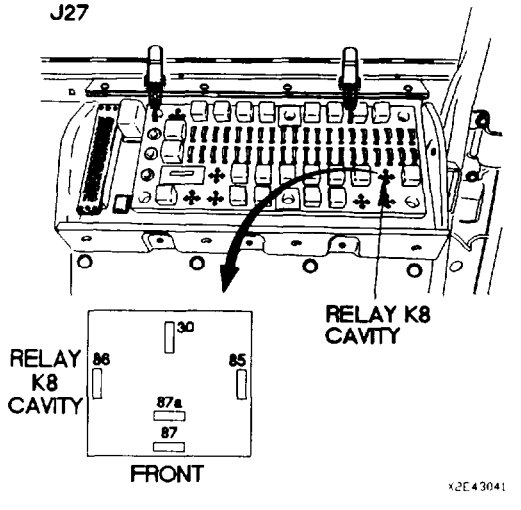
e42. ONE OR BOTH HEADLIGHT LOW BEAMS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST
(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Disconnect connector J27 from connector P27.
(5) Set multimeter to ohms
(6) Connect positive (+) probe of multimeter to PDP, relay K8 terminal 87A, where relay K8 was removed.
(7) Connect negative (-) probe of multimeter to connector J27-13 and note reading on multimeter.
(8) If continuity is not present, repair wire 18 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) If continuity is present, repair wire 18 (para 2-45) or replace front lights cable assembly (para 7-82).
(10) Connect connector P27 to connector J27.
(11) Install PDP in dashboard with three screws.
(12) Install three washers and screws in PDP.
(13) Install relay K8 in PDP.
(14) Install PDP cover (para 16-2).







e43. ONE OR BOTH HEADLIGHT HIGH BEAMS DO NOT ILLUMINATE

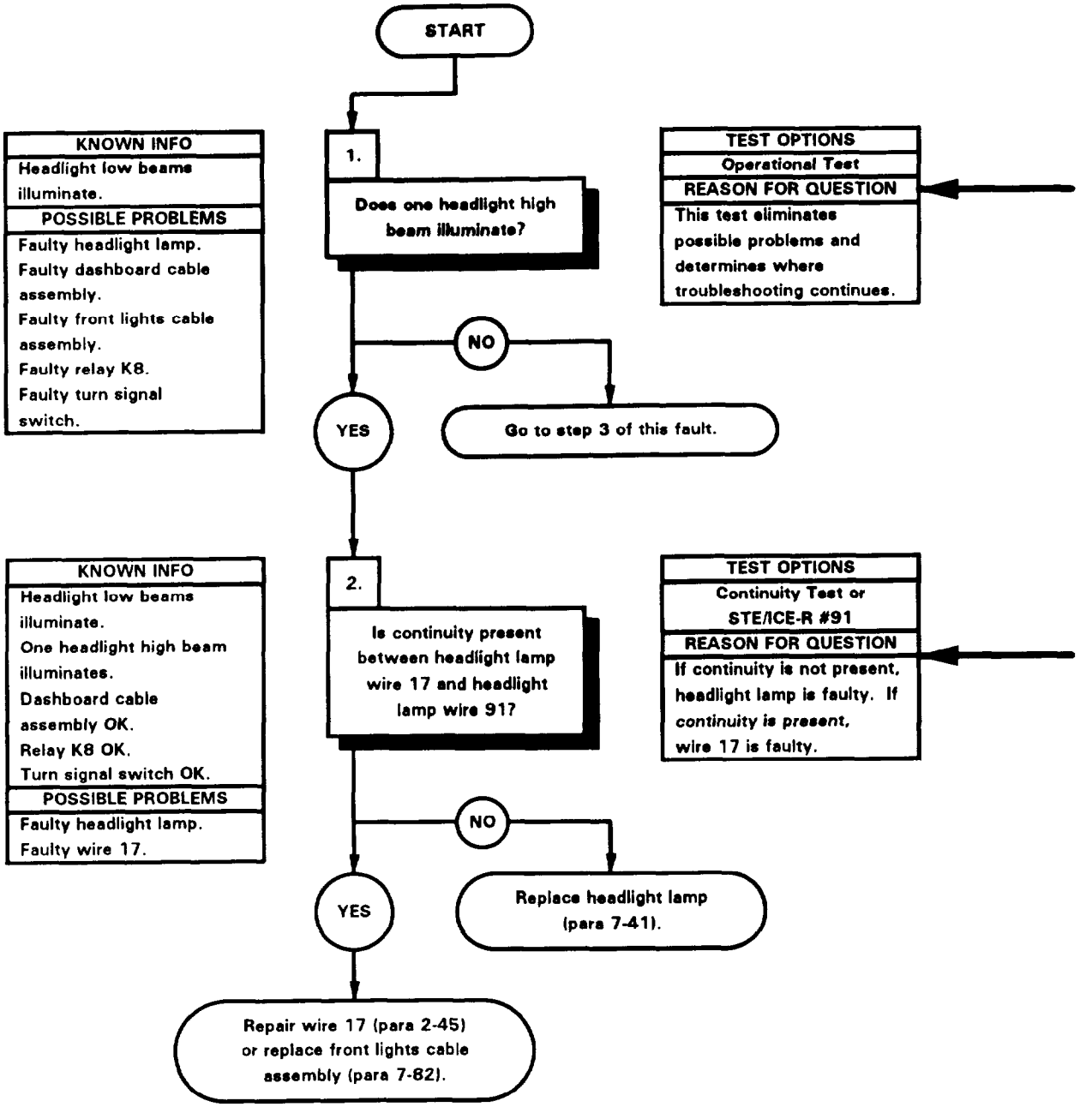
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

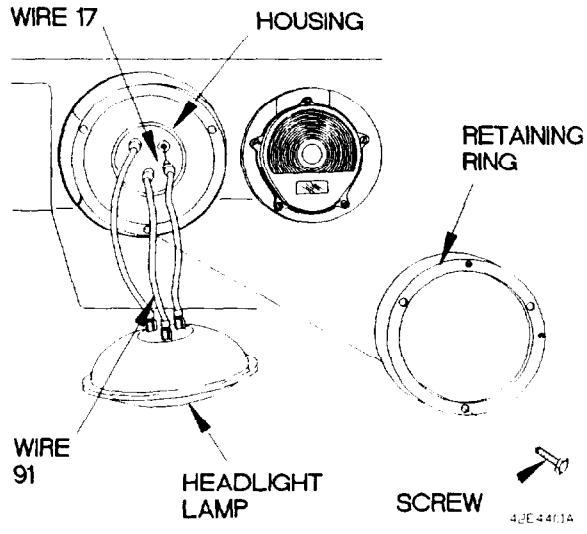
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

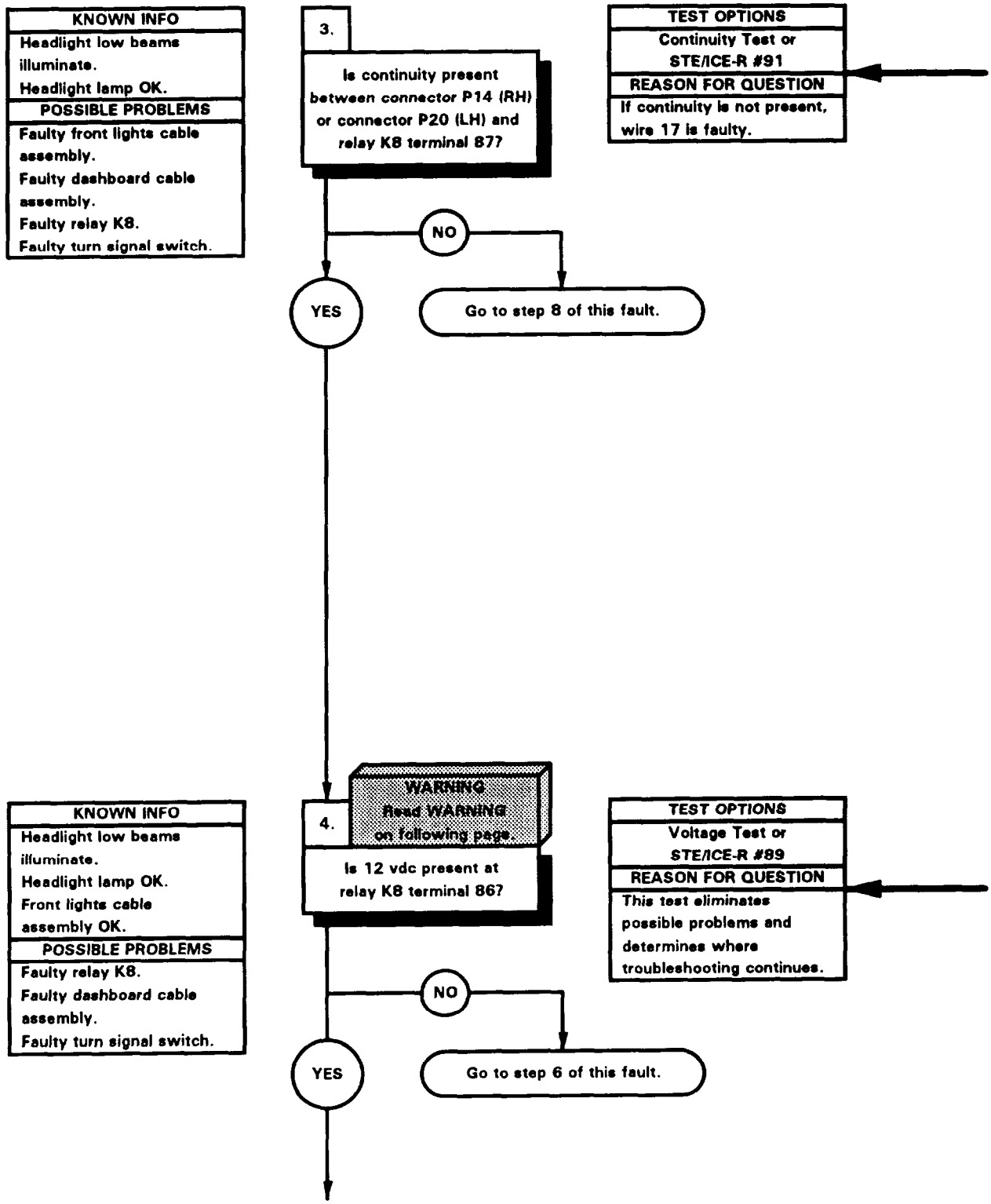


OPERATIONAL TEST
(1) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(2) Position headlight high beams on (TM 9-2320-366-10-1).
(3) If both headlights high beams do not illuminate, and go to step 3 of this fault.
(4) Position main light switch to OFF (TM 9-2320-366-10-1).

CONTINUITY TEST
(1) Remove three screws and retaining ring from housing.
(2) Remove headlight lamp from housing.
(3) Disconnect headlight lamp wire 17 from housing.
(4) Disconnect headlight lamp wire 91 from housing.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to headlight lamp wire 17.
(7) Connect negative (-) probe of multimeter to headlight lamp wire 91 and note reading on multimeter.
(8) If continuity is not present, replace headlight lamp (para 7-41).
(9) If continuity is present, repair wire 17 (para 2-45) or replace front lights cable assembly (para 7-82).
(10) Connect headlight lamp wire 17 to housing.
(11) Connect headlight lamp wire 91 to housing.
(12) Install headlight lamp in housing.
(13) Install retaining ring on housing with three screws.

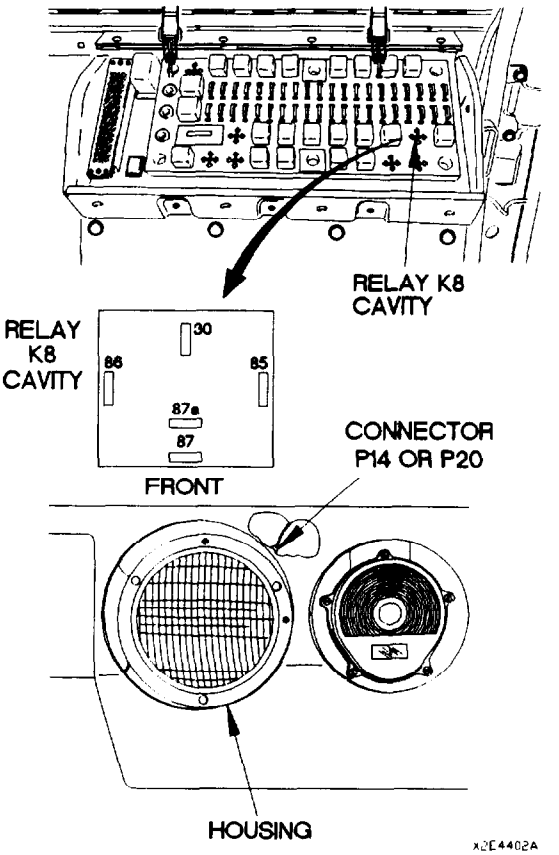


e43. ONE OR BOTH HEADLIGHT HIGH BEAMS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove PDP cover (para para 16-2).
(2) Remove relay K8 from PDP.
(3) Disconnect connector P14 (RH) or connector P20 (LH) from housing.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to PDP, terminal 87A, where relay K8 was removed.
(6) Connect negative (-) probe of multimeter to connector P14 (RH) or connector P20 (LH) and note reading on multimeter.
(7) If continuity is not present, go to step 8 of this fault.
(8) Connect connector P14 (RH) or connector P20 (LH) to housing.



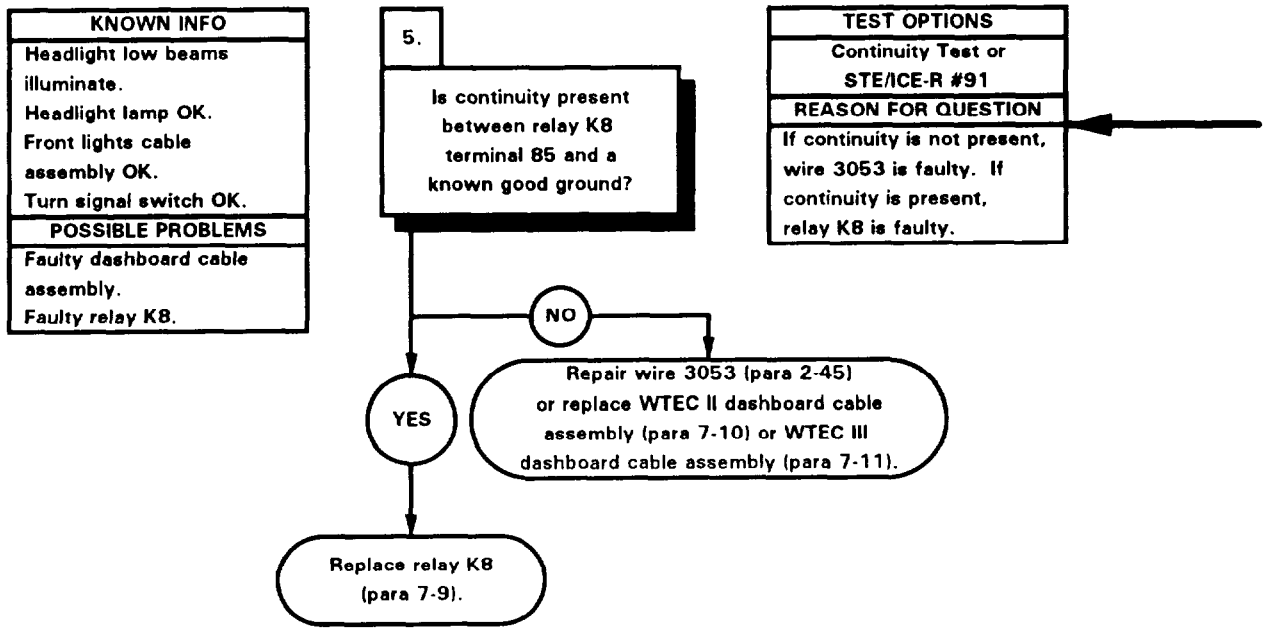
WARNING

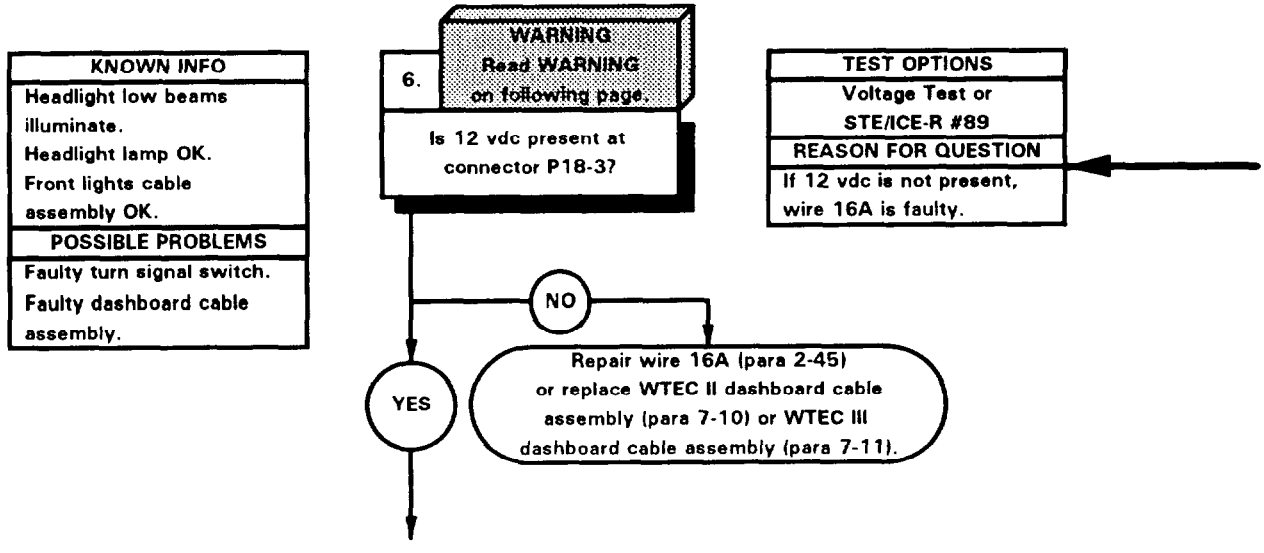
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, terminal 86, where relay K8 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(5) Position headlight high beams to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 12 vdc is not present, go to step 6 of this fault.
(7) Position main light switch to OFF (TM 9-2320-366-10-1).

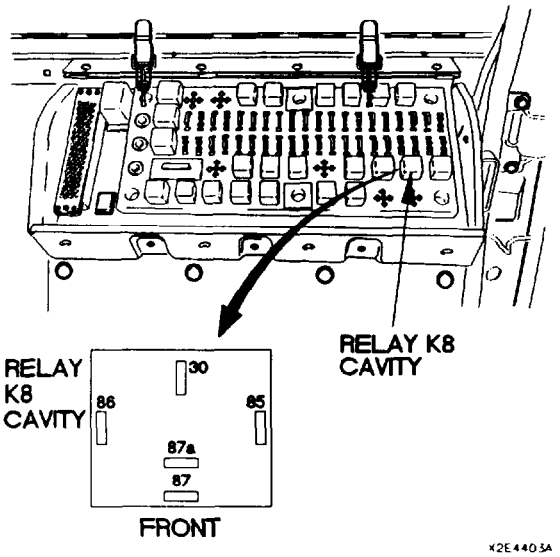
e43. ONE OR BOTH HEADLIGHT HIGH BEAMS DO NOT ILLUMINATE (CONT)





CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, terminal 85, where relay K8 was removed.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3053 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If continuity is present, replace relay K8 (para 7-9).
(6) Install relay K8 in PDP.
(7) Install PDP cover (para 16-2).



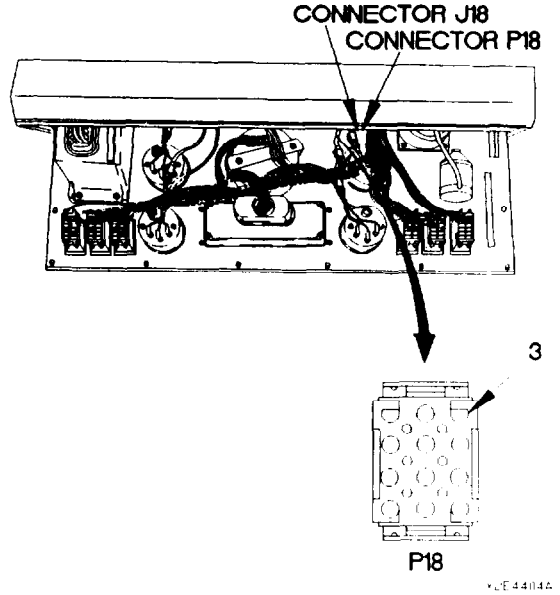
X2E44035A

WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

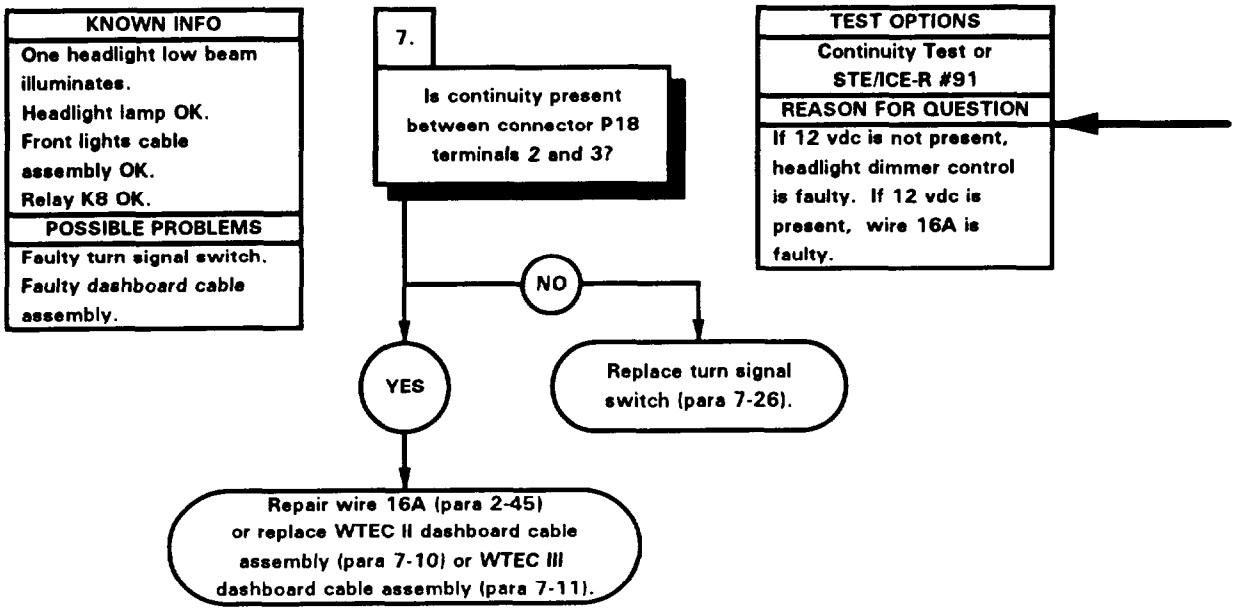
VOLTAGE TEST

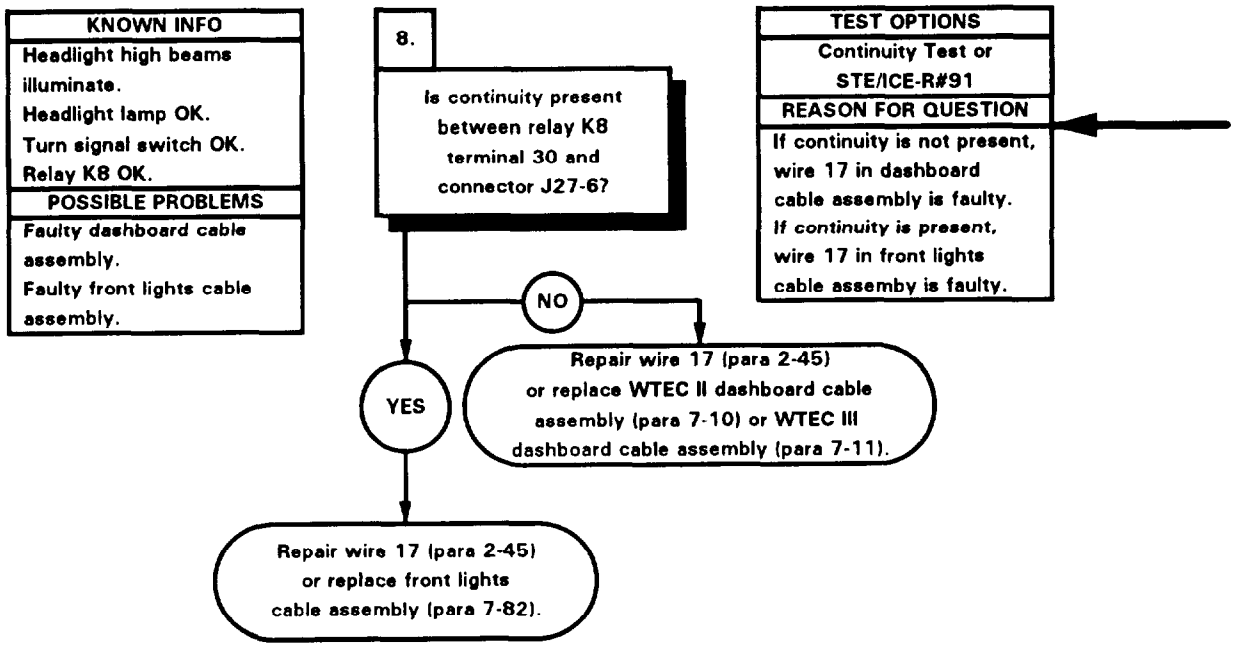
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector P18 from connector J18.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector P18-3.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 16A (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).



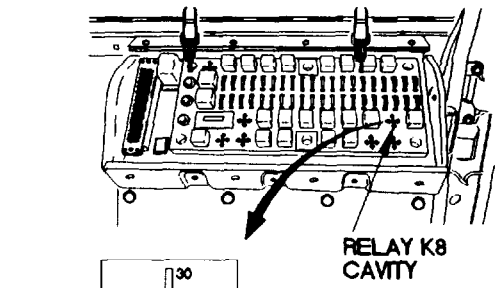
X2E44104A

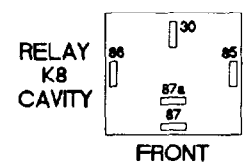
e43. ONE OR BOTH HEADLIGHT HIGH BEAMS DO NOT ILLUMINATE (CONT)



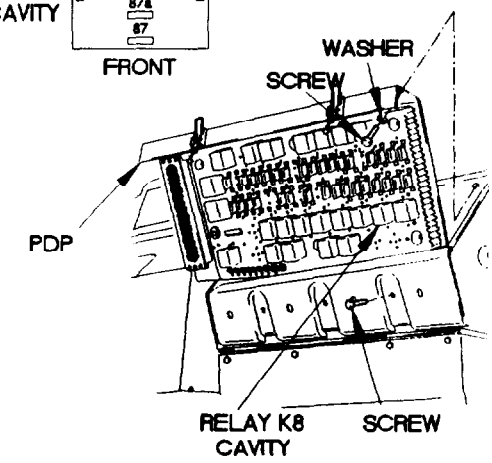


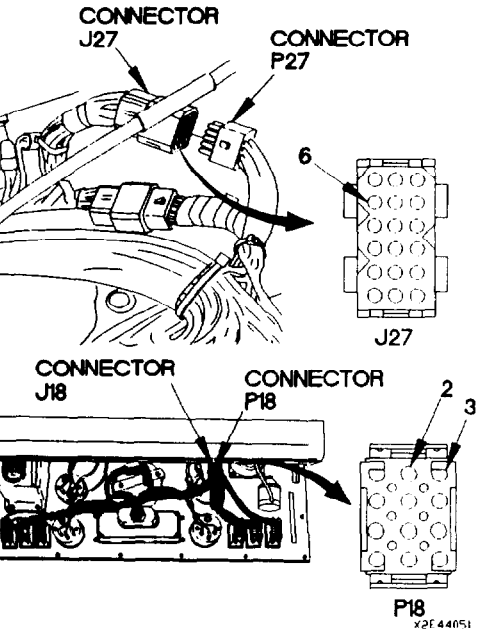
CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector P18-3.
(3) Connect negative (-) probe of multimeter to connector P18-2.
(4) If continuity is not present, replace turn signal switch (para 7-26).
(5) If continuity is present, repair wire 16A (para 2-45) or replace WETC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Connect connector P18 to connector J18.
(7) Install instrument panel assembly (para 7-15).
(8) Install relay K8 in PDP.
(9) Install PDP cover (para 16-2).





CONTINUITY TEST
(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Disconnect connector J27 from connector P27.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to PDP, relay K8 terminal 30, where relay K8 was removed.
(7) Connect negative (-) probe of multimeter to connector J27-6 and note reading on multimeter.
(8) If continuity is not present, repair wire 17 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) If continuity is present, repair wire 17 (para 2-45) or replace front lights cable assembly (para 7-82).
(10) Connect connector P27 to connector J27.
(11) Install PDP in dashboard with three screws.
(12) Install three washers and screws in PDP.
(13) Install relay K8 in PDP.
(14) Install PDP cover (para 16-2).





e44. PARKING LIGHTS DO NOT ILLUMINATE

INITIAL SETUP

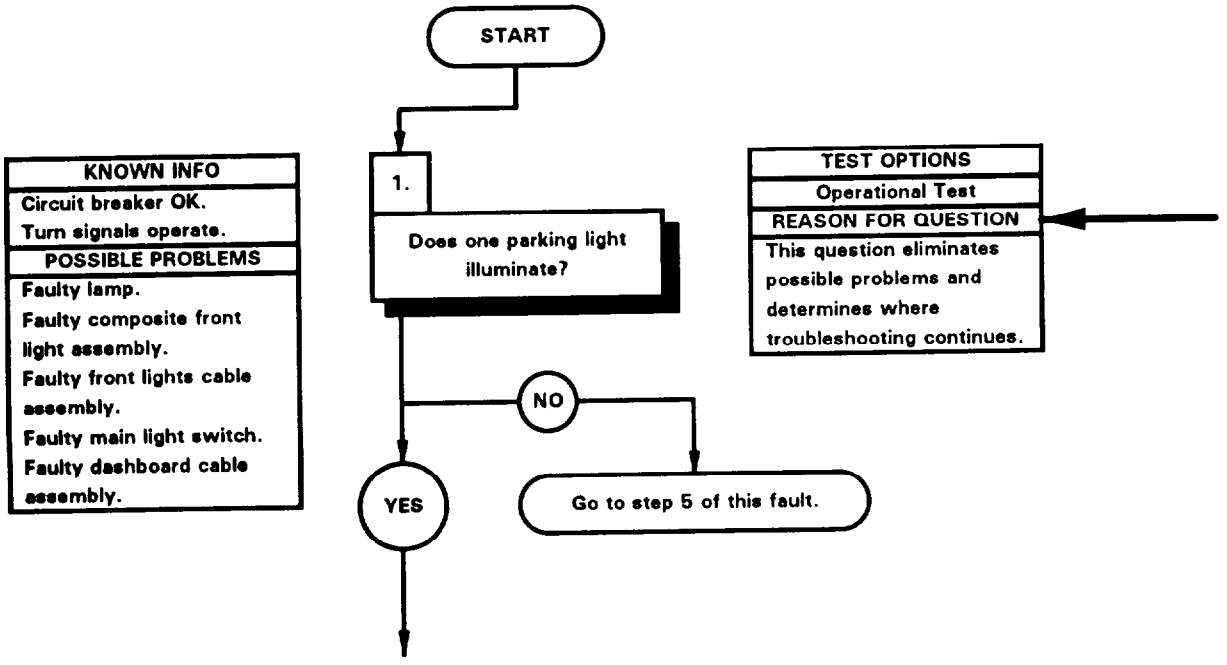
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Packing, Preformed (Item 191, Appendix G)

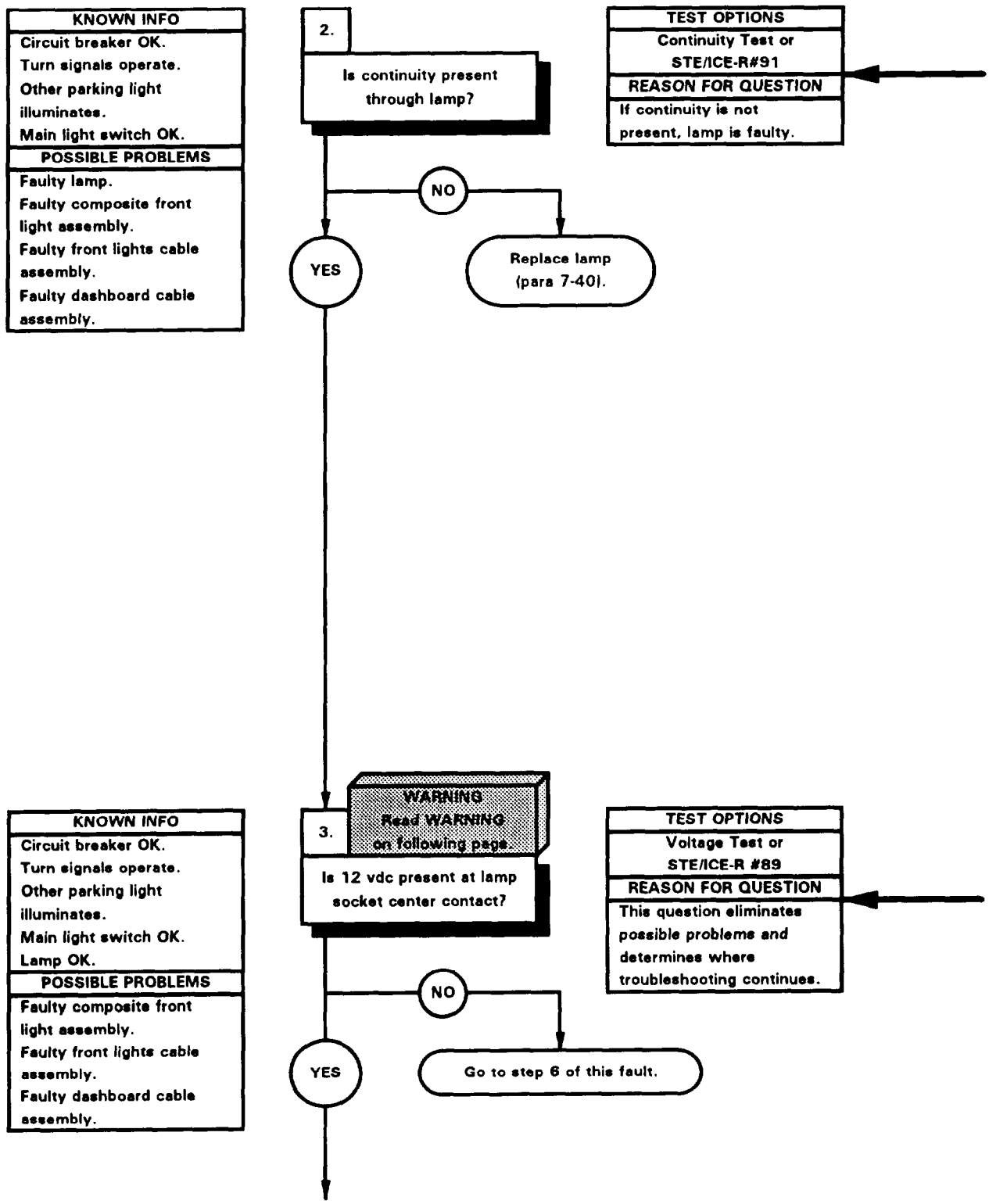
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

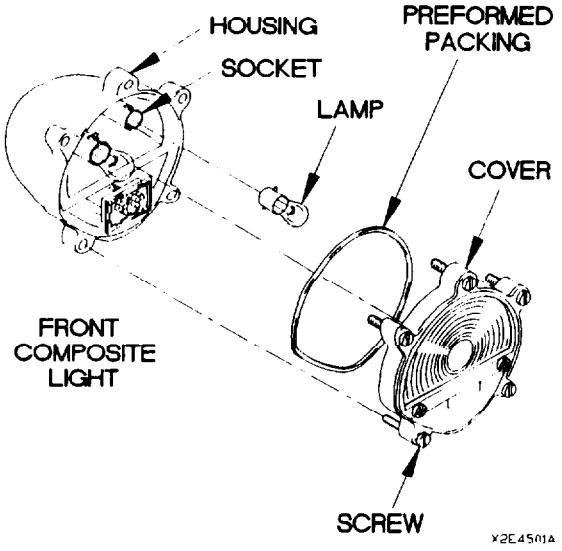


OPERATIONAL TEST
(1) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(2) Position main light switch auxiliary lever to PARK (TM 9-2320-366-10-1).
(3) If no parking lights illuminate, go to step 5 of this fault.
(4) Position main light switch to OFF (TM 9-2320-366-10-1).

e44. PARKING LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST
(1) Loosen five screws on cover.
(2) Remove cover and preformed packing from housing. Discard preformed packing.
(3) Remove lamp from socket.
(4) Set multimeter to ohms.
(5) Check continuity through lamp and note reading on multimeter.
(6) If continuity is not present, replace lamp (para 7-40).

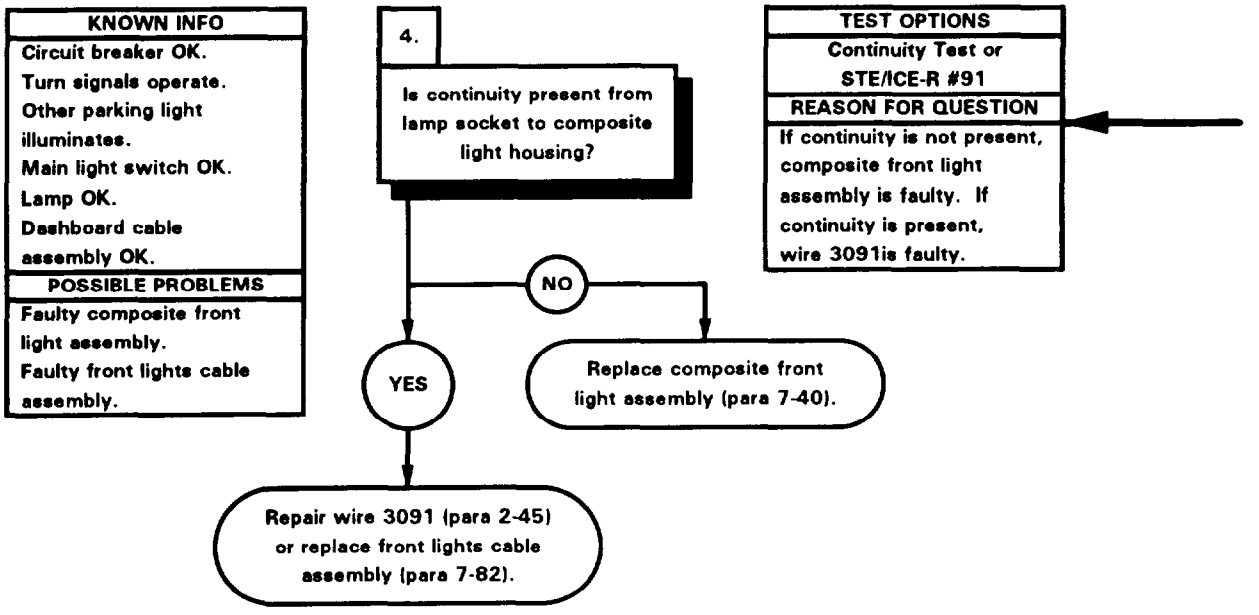


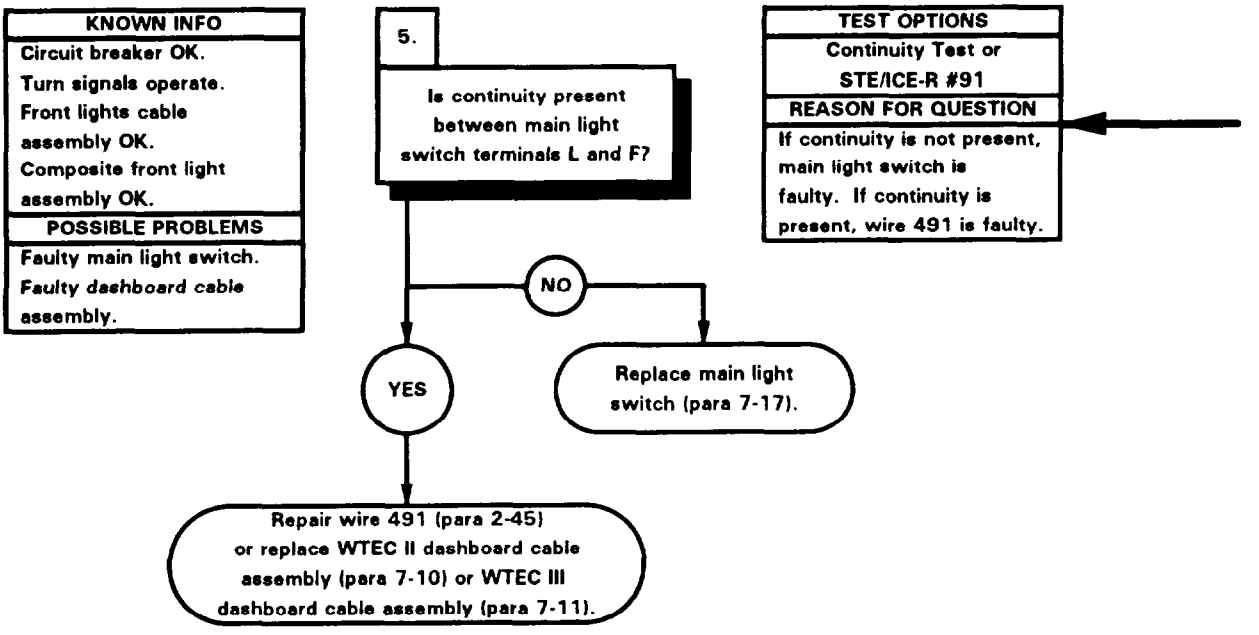
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

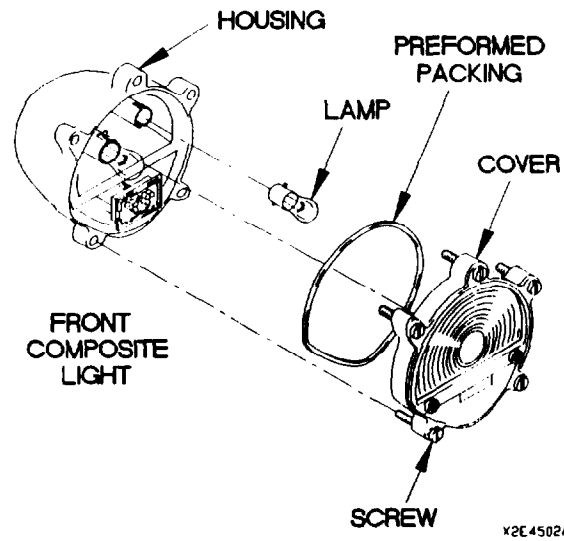
VOLTAGE TEST
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to center contact of lamp socket.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(5) Position main light switch auxiliary lever to PARK (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 12 vdc is not present, go to step 6 of this fault.
(7) Position main light switch to OFF (TM 9-2320-366-10-1).

e44. PARKING LIGHTS DO NOT ILLUMINATE (CONT)

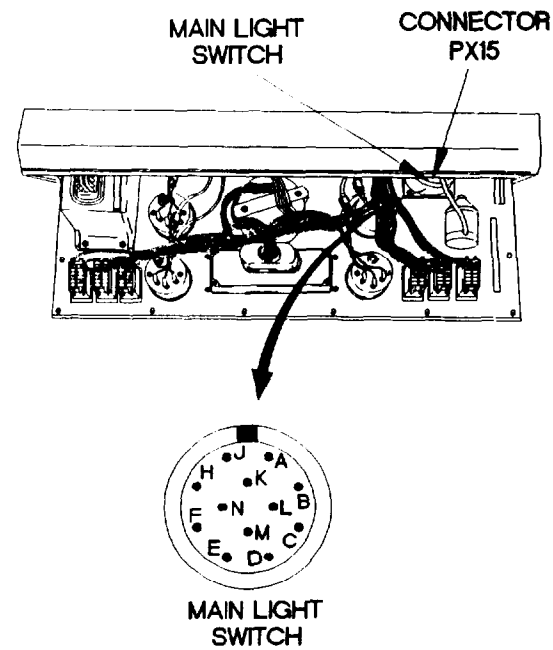




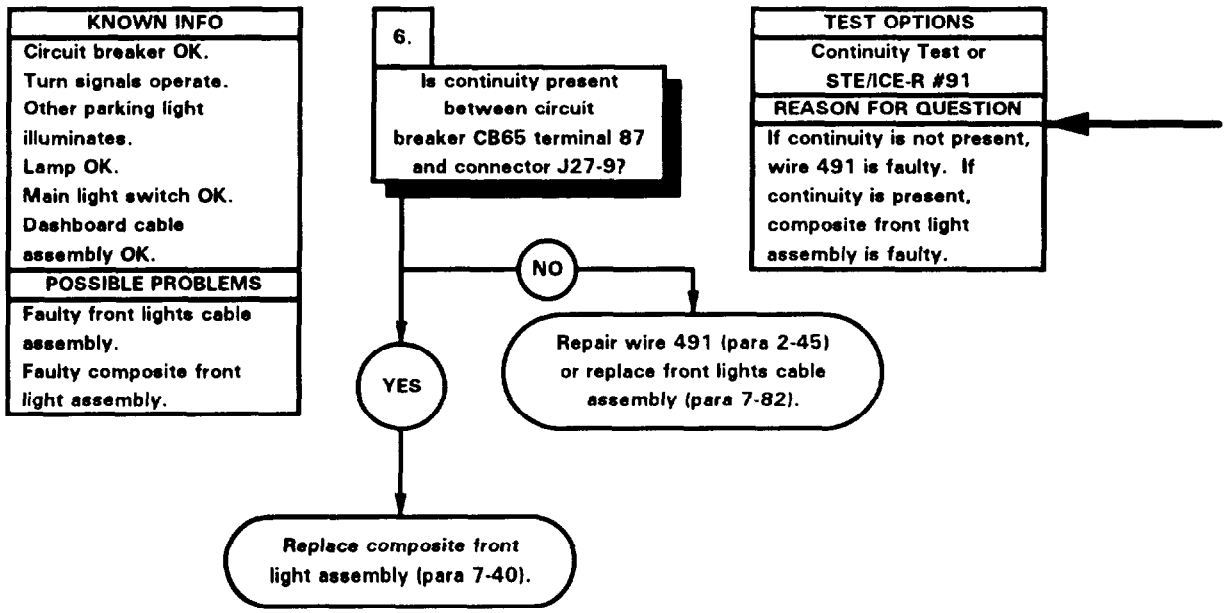
CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to lamp socket.
(3) Connect negative (-) probe of multimeter to composite front light housing and note reading on multimeter.
(4) If continuity is not present, replace composite front light assembly (para 7-40).
(5) If continuity is present, repair wire 3091 (para 2-45) or replace front lights cable assembly (para 7-82).
(6) Install lamp in socket.
(7) Install preformed packing and cover on housing with five screws.



CONTINUITY TEST
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX15 from main light switch.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to main light switch terminal L.
(5) Connect negative (-) probe of multimeter to main light switch terminal F.
(6) Position main light switch auxiliary lever to PARK (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If continuity is not present, replace main light switch (para 7-17).
(8) If continuity is present, repair wire 491 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Connect connector PX15 to main light switch.
(10) Install instrument panel assembly (para 7-15).

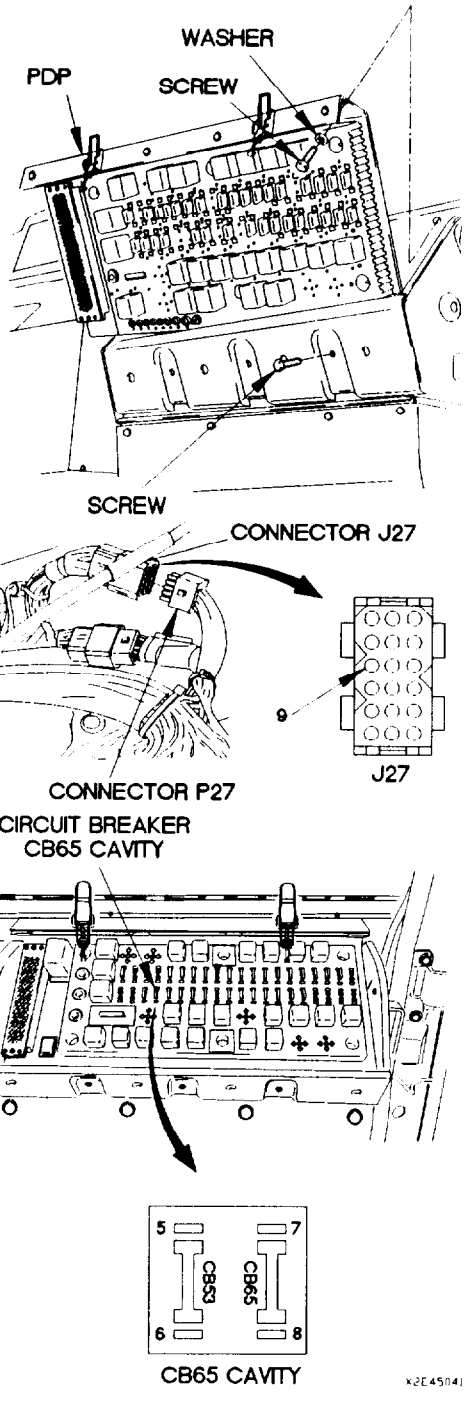


e44. PARKING LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector J27 from connector P27.
(6) Remove circuit breaker CB65 from PDP.
(7) Set multimeter to ohms.
(8) Connect positive (+) probe of multimeter to PDP, terminal 8, where CB65 was removed.
(9) Connect negative (-) probe of multimeter to connector J27-9 and note reading on multimeter.
(10) If continuity is not present, repair wire 491 (para 2-45) or replace front lights cable assembly (para 7-82).
(11) If continuity is present, replace composite front light assembly (para 7-40).
(12) Install lamp in socket.
(13) Install preformed packing and cover on housing with five screws.
(14) Connect connector J27 to connector P27.
(15) Install PDP on dashboard with three screws.
(16) Install three washers and screws in PDP.
(17) Install circuit breaker CB65 in PDP.
(18) Install PDP cover (para 16-2).



e45. LH DOOR AND/OR LH FRONT MARKER LIGHTS DO NOT ILLUMINATE

INITIAL SETUP

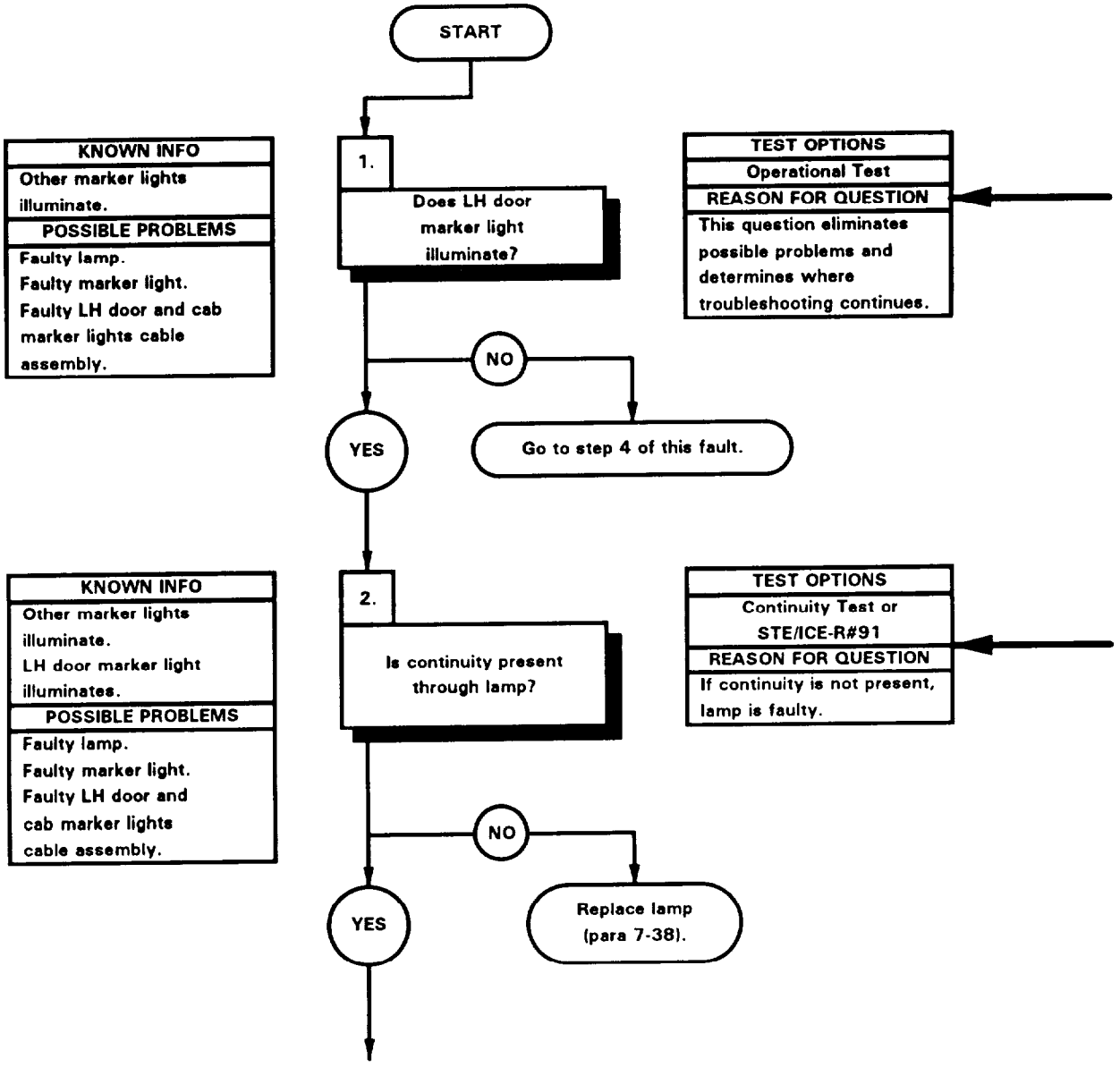
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Lockwasher (2) (Item 82, Appendix G)

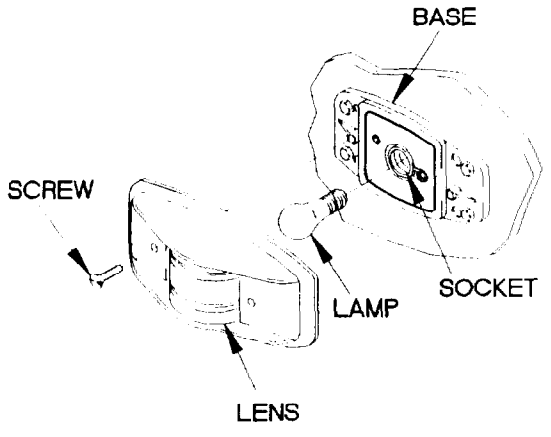
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

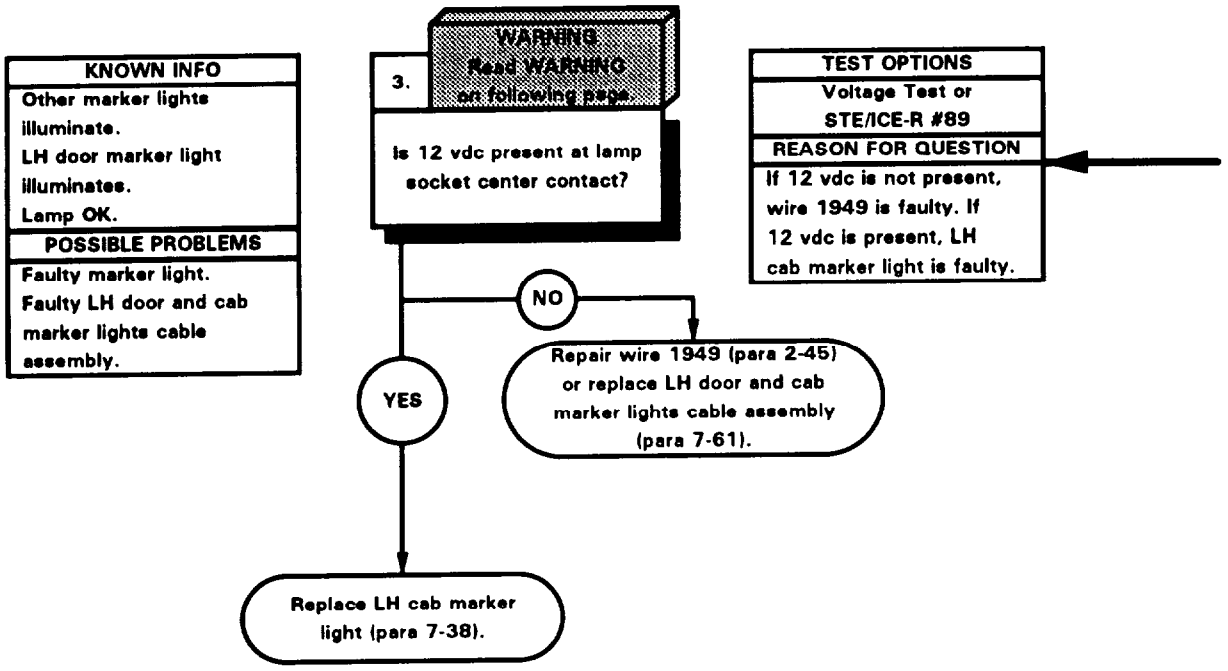


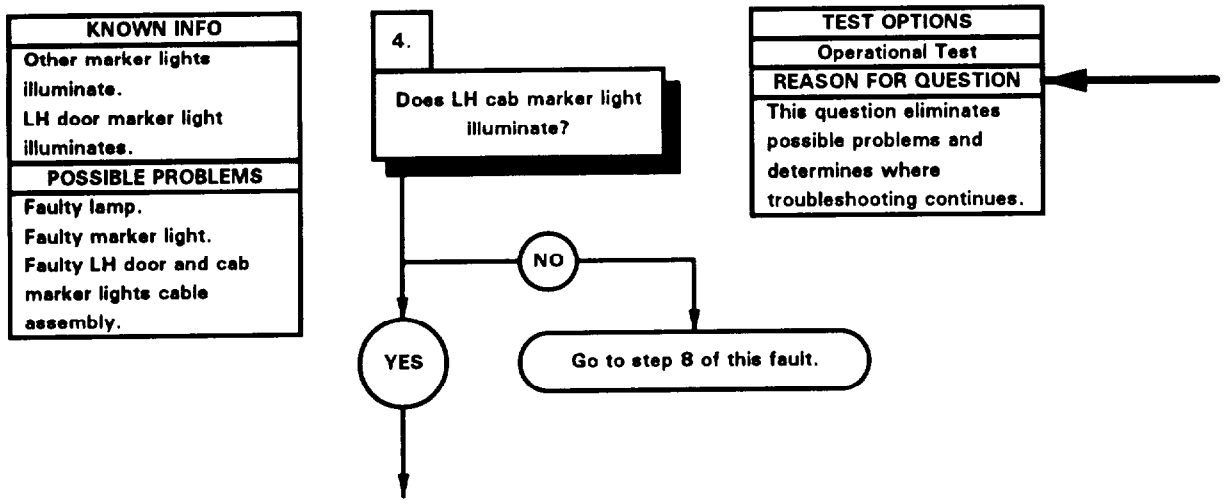
OPERATIONAL TEST
(1) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(2) If LH door marker light does not illuminate, go to step 4 of this fault.
(3) Position main light switch to OFF (TM 9-2320-366-10-1).

CONTINUITY TEST
(1) Remove two screws and lens from base.
(2) Remove lamp from socket.
(3) Set multimeter to ohms.
(4) Check continuity through lamp and note reading on multimeter.
(5) If continuity is not present, replace lamp (para 7-38).



e45. LH DOOR AND/OR LH FRONT MARKER LIGHTS DO NOT ILLUMINATE (CONT)



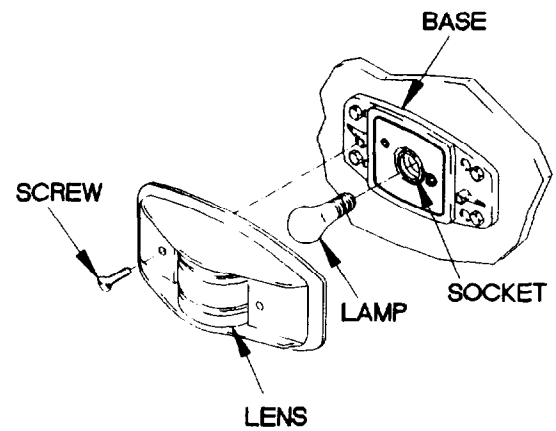


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to marker light socket center contact.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 12 vdc is not present, repair wire 1949 (para 2-45) or replace LH door and cab marker lights cable assembly (para 7-61).
(6) If 12 vdc is present, replace LH cab marker light (para 7-38).
(7) Position main light switch to OFF (TM 9-2320-366-10-1).
(8) Install lamp in socket.
(9) Install lens on base with two screws.

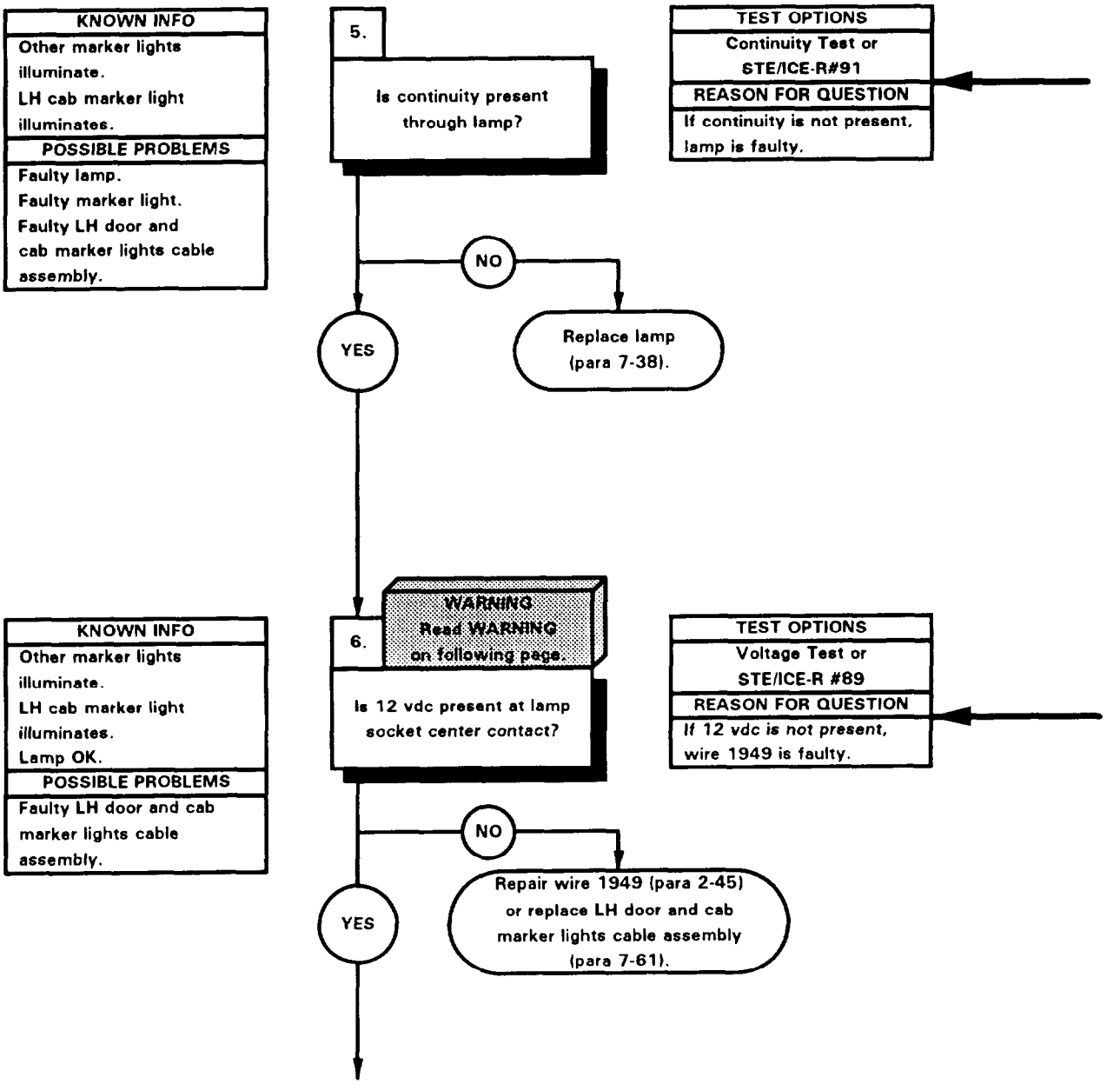


K2E4306-

OPERATIONAL TEST

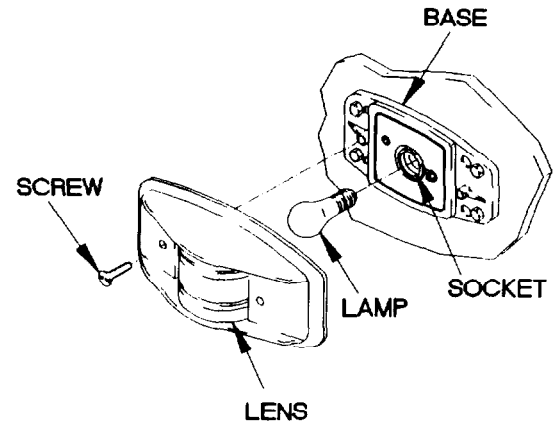
(1) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(2) If LH cab marker light does not illuminate, go to step 8 of this fault.
(3) Position main light switch to OFF (TM 9-2320-366-10-1).

e45. LH DOOR AND/OR LH FRONT MARKER LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove two screws and lens from base.
(2) Remove lamp from socket.
(3) Set multimeter to ohms.
(4) Check continuity through lamp and note reading on multimeter.
(5) If continuity is not present, replace lamp (para 7-38).



K2E4306-

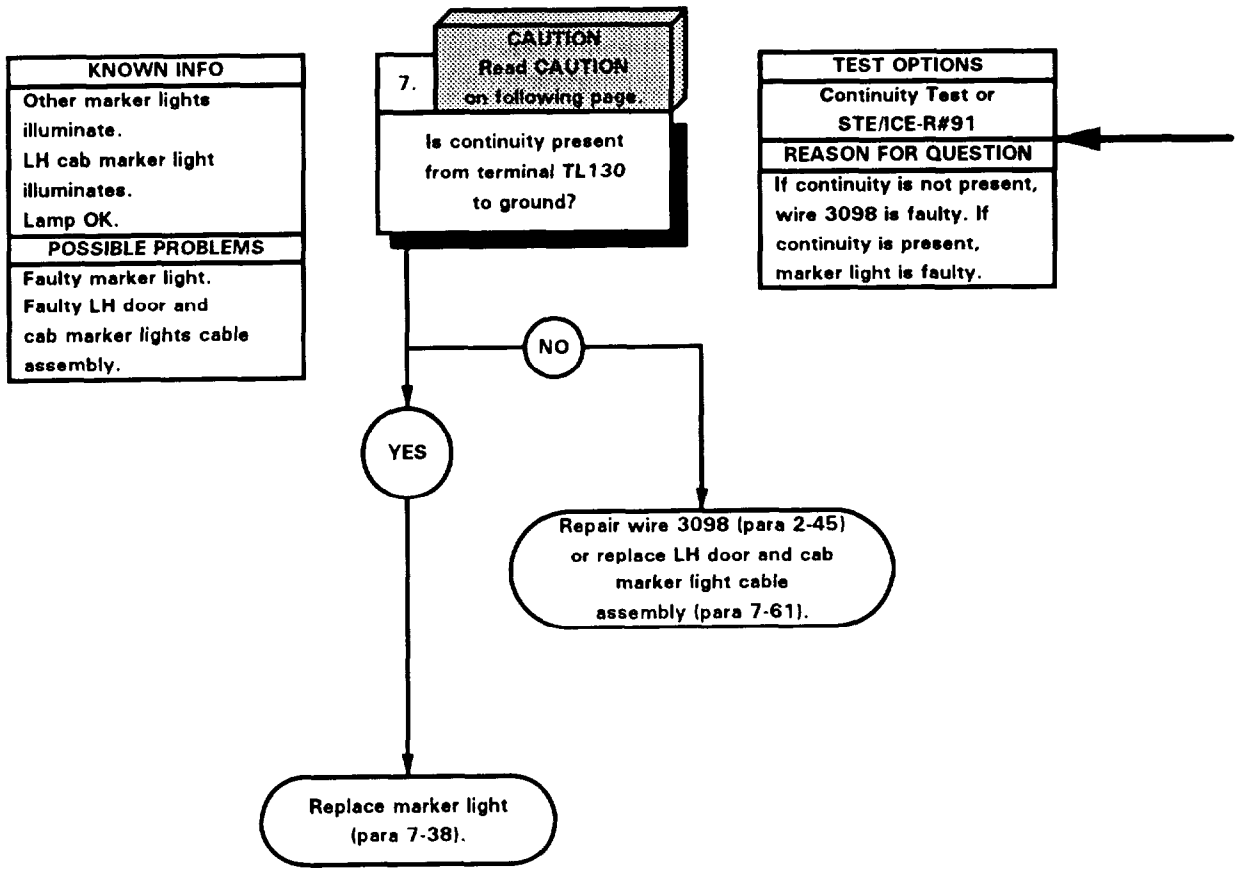
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to lamp socket center contact.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 12 vdc is not present, repair wire 1949 (para 2-45) or replace LH door and cab marker lights cable assembly (para 7-61).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).

e45. LH DOOR AND/OR LH FRONT MARKER LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove four screws and washers from base.

NOTE

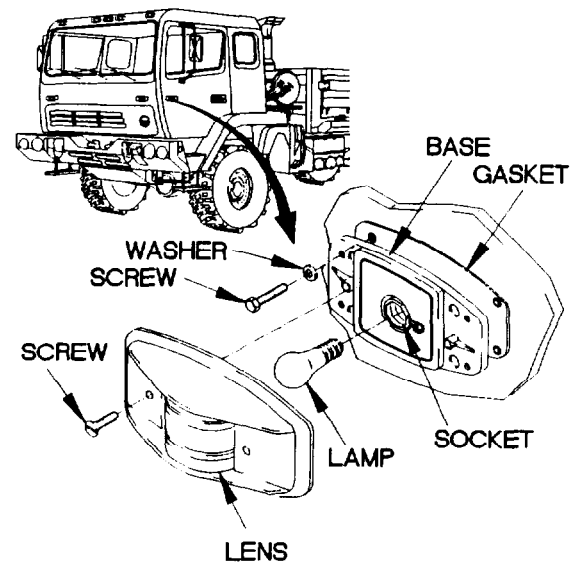
Do not let wires slip through hole and into cab structure. If wires slip into cab structure, vehicle will need further disassembly to retrieve wires.

(2) Extend base and disconnect connector P130 from marker light connector.

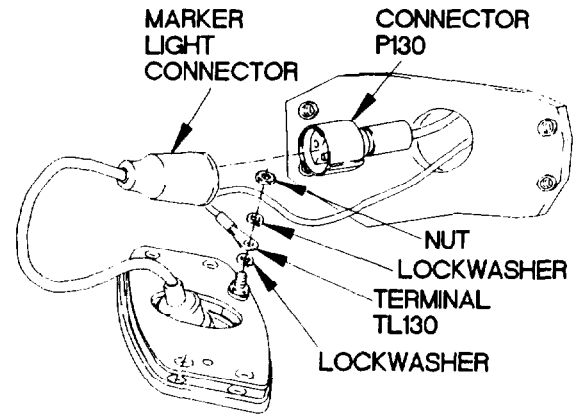
CAUTION

Two nuts are used to keep bottom nut in place. To prevent damage to equipment, use care when removing base.

(3) Remove nut, lockwasher, terminal TL130, lockwasher, base, and gasket from vehicle. Discard lockwashers.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to terminal TL130.
(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(7) If continuity is not present, repair wire 3098 (para 2-45) or replace LH cab and door marker lights cable assembly (para 7-61).
(8) If continuity is present, replace marker light (para 7-38).
(9) Connect marker light connector to connector P130.
(10) Install lockwasher, terminal TL130, lockwasher, and nut on back of base.
(11) Install base on vehicle with four washers and screws.
(12) Install lamp in base.
(13) Install lens on base with two screws.

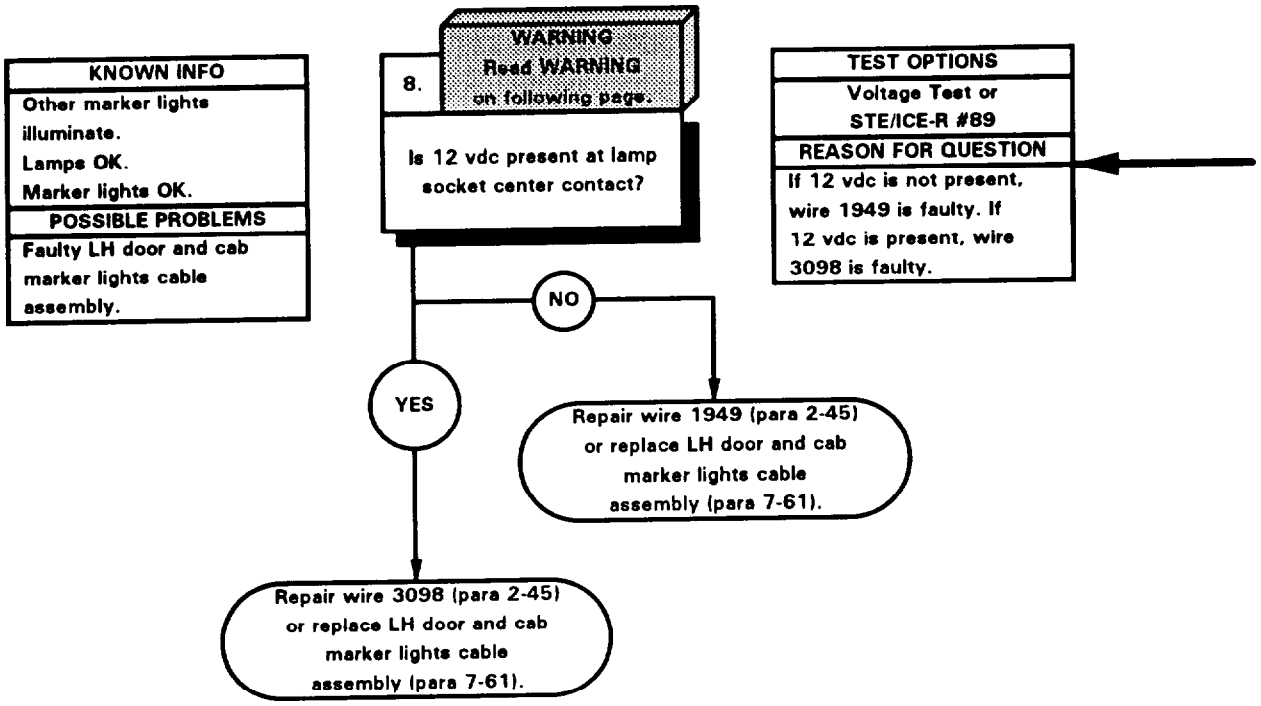


X2E4305-



X2E4304-

e45. LH DOOR AND/OR LH FRONT MARKER LIGHTS DO NOT ILLUMINATE (CONT)

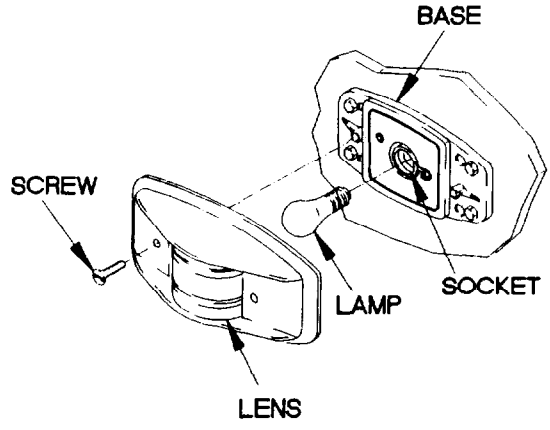


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove two screws and lens from base.
(2) Remove lamp from socket.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to lamp socket center contact.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 1949 (para 2-45) or replace LH door and cab marker lights cable assembly (para 7-61).
(8) If 12 vdc is present, repair wire 3098 (para 2-45) or replace LH door and cab marker light cable assembly (para 7-61).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).
(10) Install lamp in socket.
(11) Install lens on base with two screws.



X2E4306-

e46. RH DOOR AND/OR RH FRONT MARKER LIGHTS DO NOT ILLUMINATE

INITIAL SETUP

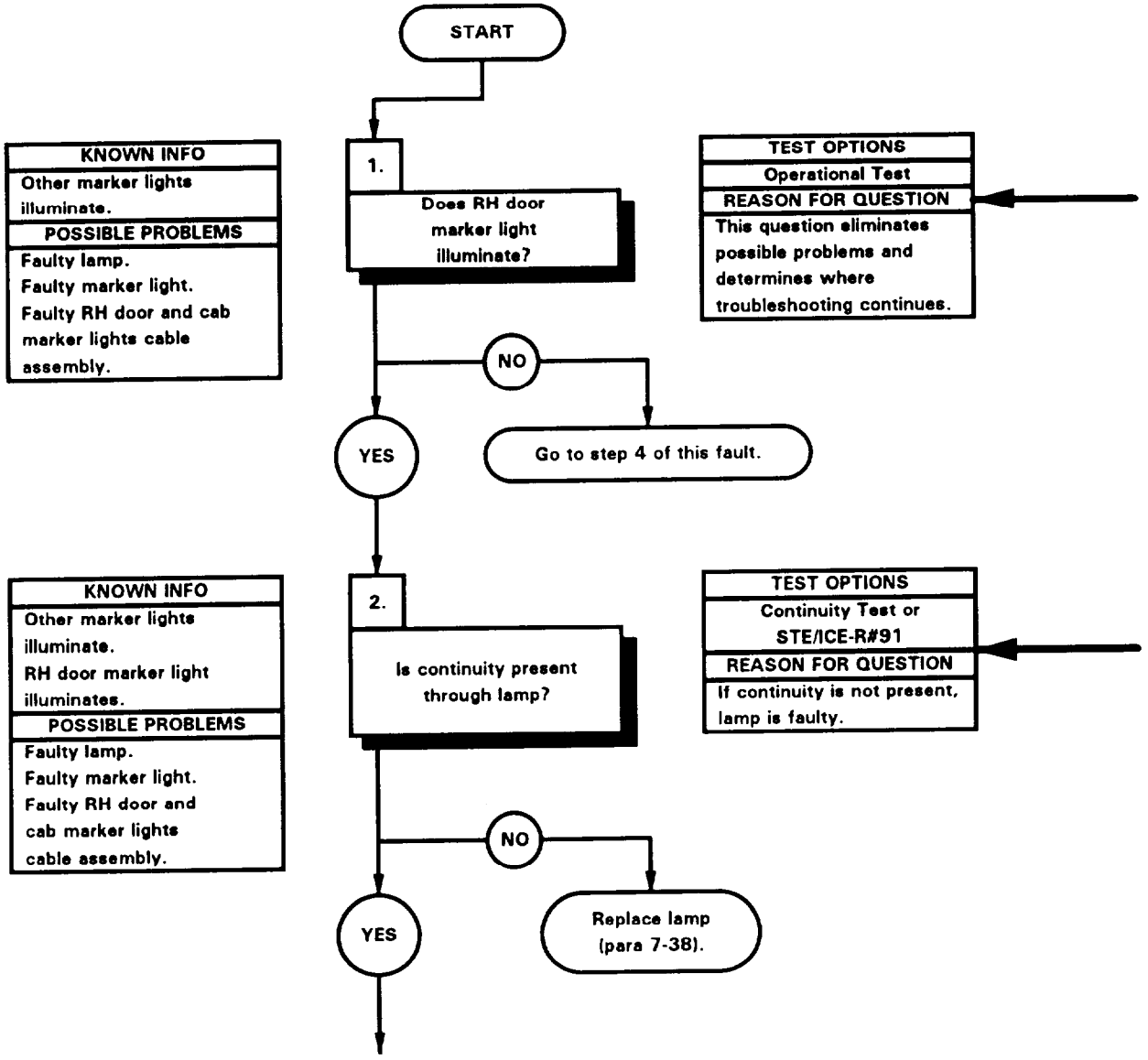
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Lockwasher (2) (Item 82, Appendix G)

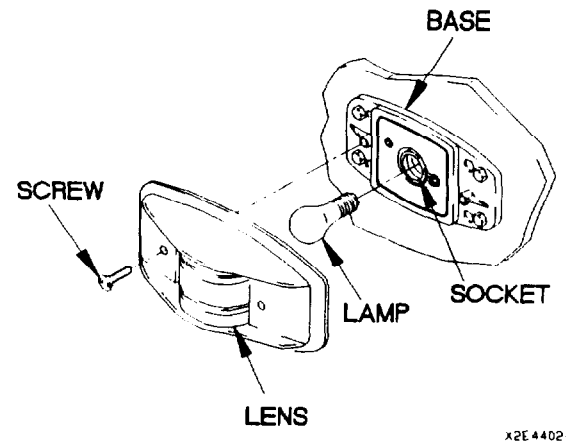
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P



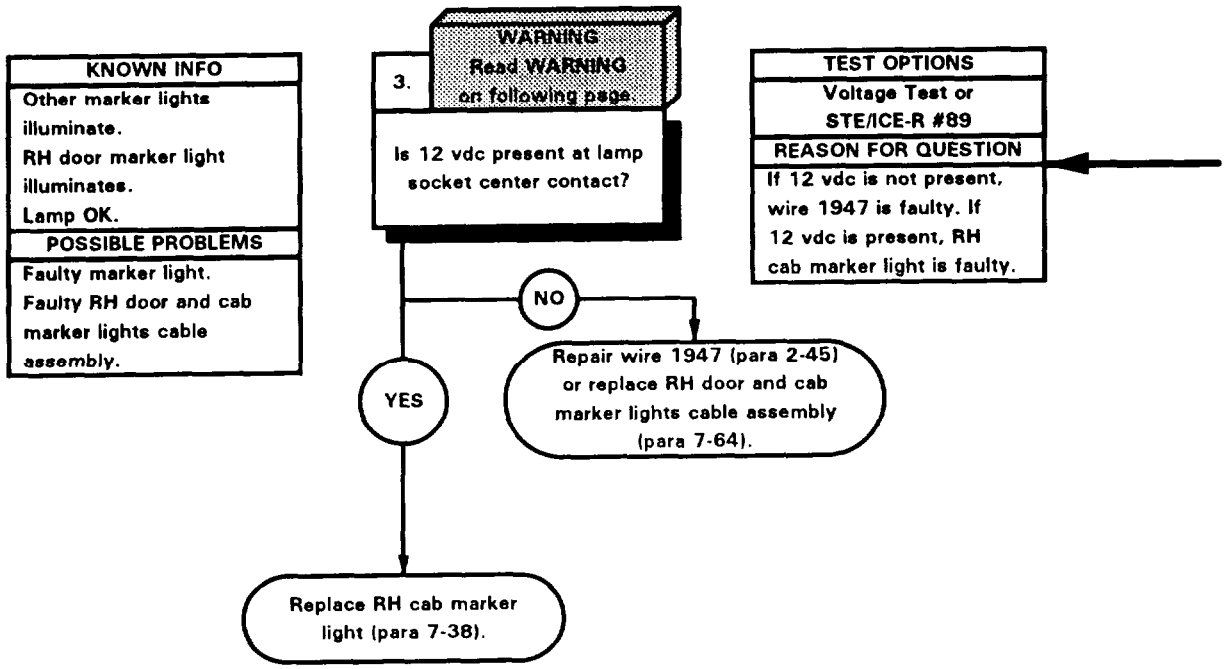
OPERATIONAL TEST
(1) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(2) If RH door marker light does not illuminate, go to step 4 of this fault.
(3) Position main light switch to OFF (TM 9-2320-366-10-1).

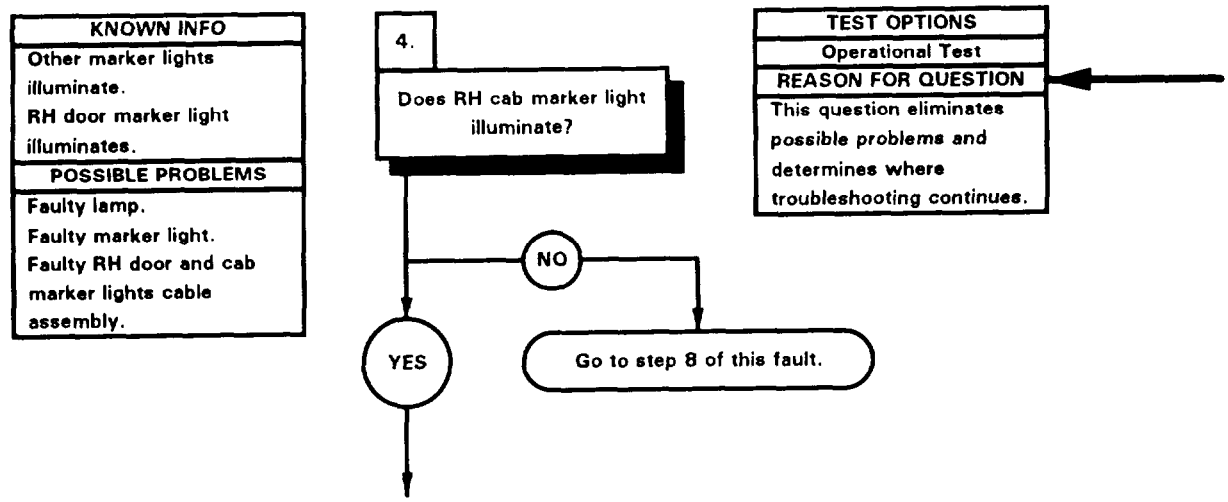
CONTINUITY TEST
(1) Remove two screws and lens from base.
(2) Remove lamp from socket.
(3) Set multimeter to ohms.
(4) Check continuity through lamp and note reading on multimeter.
(5) If continuity is not present, replace lamp (para 7-38).



X2E4402-

e46. RH DOOR AND/OR RH FRONT MARKER LIGHTS DO NOT ILLUMINATE (CONT)

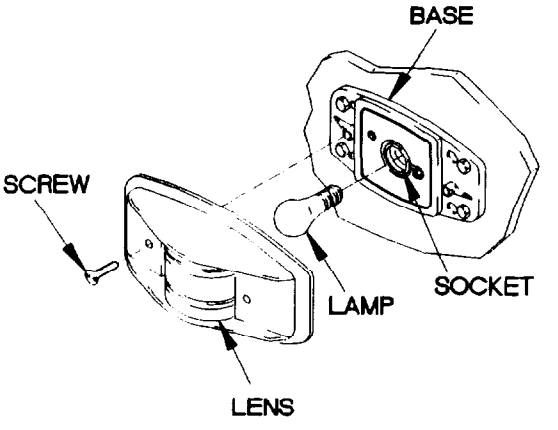




WARNING

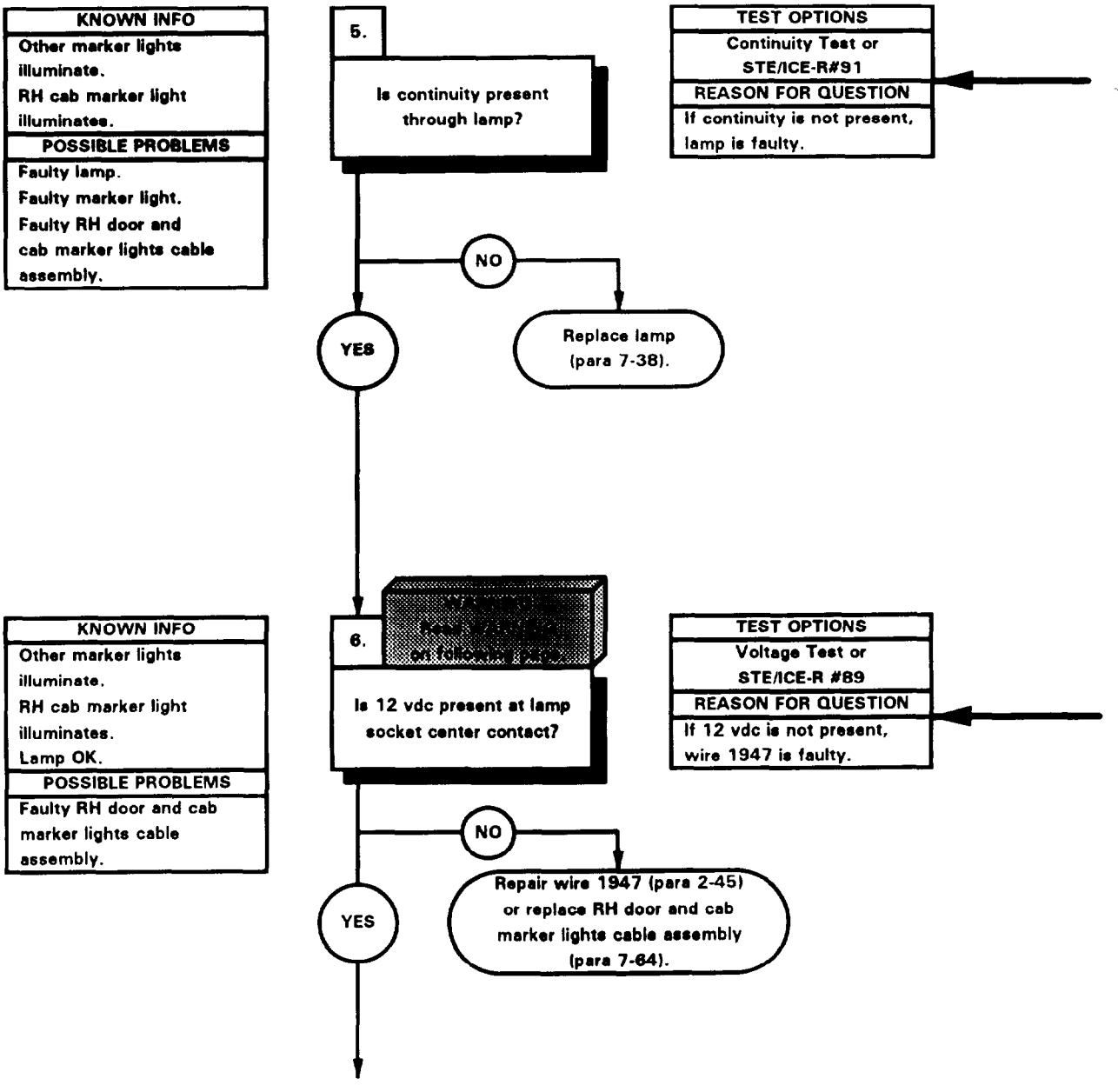
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to marker light socket center contact.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 12 vdc is not present, repair wire 1947 (para 2-45) or replace RH door and cab marker lights cable assembly (para 7-64).
(6) If 12 vdc is present, replace RH cab marker light (para 7-38).
(7) Position main light switch to OFF (TM 9-2320-366-10-1).
(8) Install lamp in socket.
(9) Install lens on base with two screws.



OPERATIONAL TEST
(1) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(2) If RH cab marker light does not illuminate, go to step 8 of this fault.
(3) Position main light switch to OFF (TM 9-2320-366-10-1).

e46. RH DOOR AND/OR RH FRONT MARKER LIGHTS DO NOT ILLUMINATE (CONT)

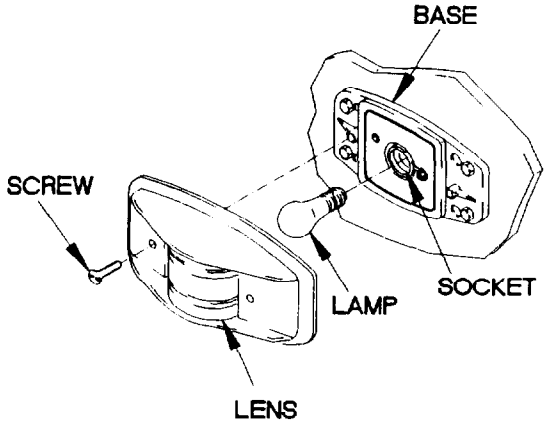


CONTINUITY TEST
(1) Remove two screws and lens from base.
(2) Remove lamp from socket.
(3) Set multimeter to ohms.
(4) Check continuity through lamp and note reading on multimeter.
(5) If continuity is not present, replace lamp (para 7-38).

WARNING

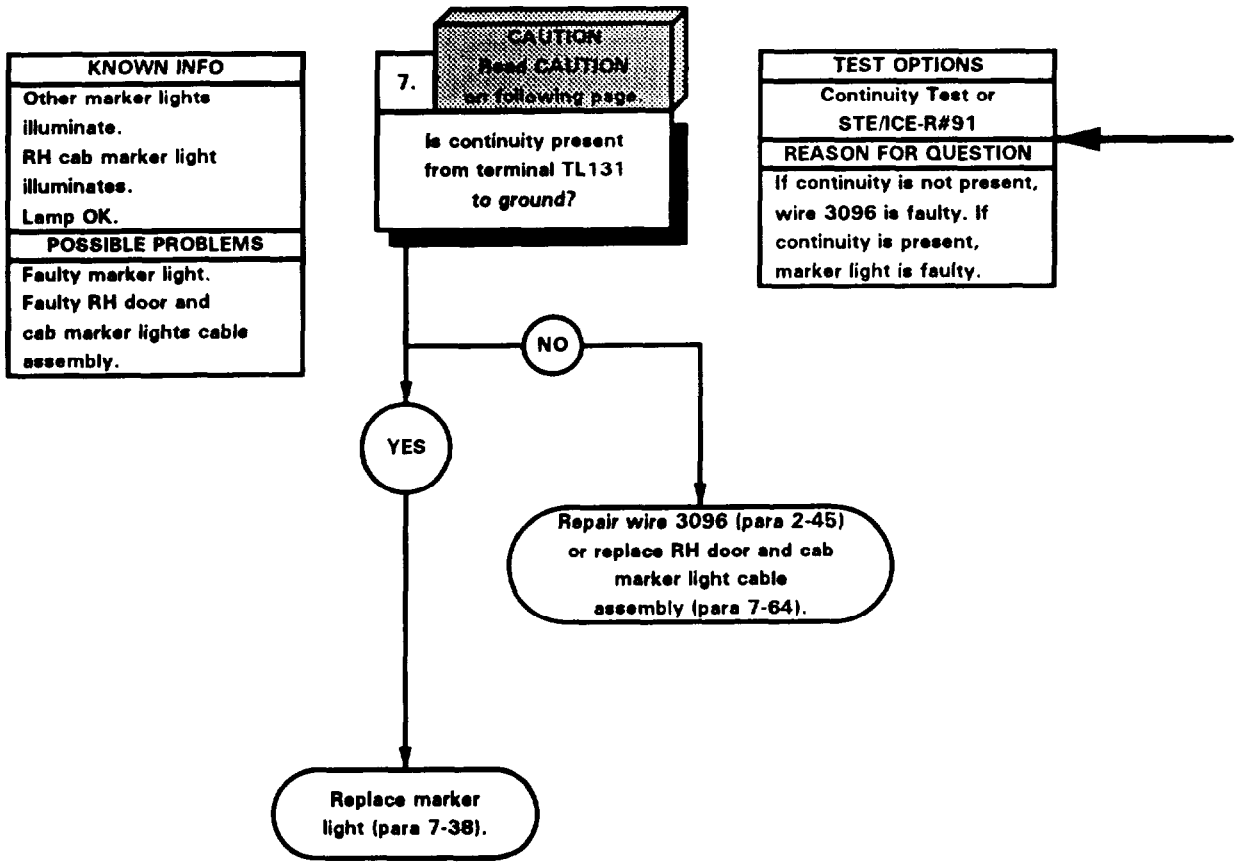
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to lamp socket center contact.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 12 vdc is not present, repair wire 1947 (para 2-45) or replace RH door and cab marker lights cable assembly (para 7-64).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).



X2E4306-

e46. RH DOOR AND/OR RH FRONT MARKER LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove four screws and washers from base.

NOTE

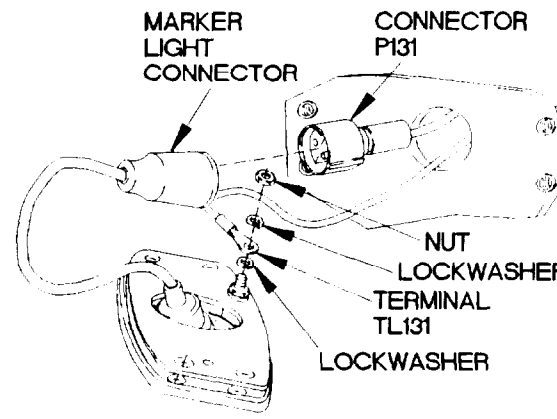
Do not let wires slip through hole and into cab structure. If wires slip into cab structure, vehicle will need further disassembly to retrieve wires.

(2) Extend base and disconnect connector P131 from marker light connector.

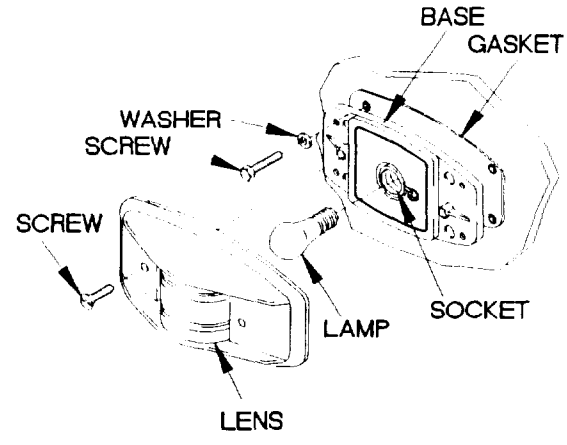
CAUTION

Two nuts are used to keep bottom nut in place. To prevent damage to equipment, use care when removing base.

(3) Remove nut, lockwasher, terminal TL131, lockwasher, base, and gasket from vehicle. Discard lockwashers.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to terminal TL131.
(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(7) If continuity is not present, repair wire 3096 (para 2-45) or replace RH cab and door marker lights cable assembly (para 7-64).
(8) If continuity is present, replace marker light (para 7-38).
(9) Connect marker light connector to connector P131.
(10) Install lockwasher, terminal TL131, lockwasher, and nut on back of base.
(11) Install base on vehicle with four washers and screws.
(12) Install lamp in base.
(13) Install lens on base with two screws.

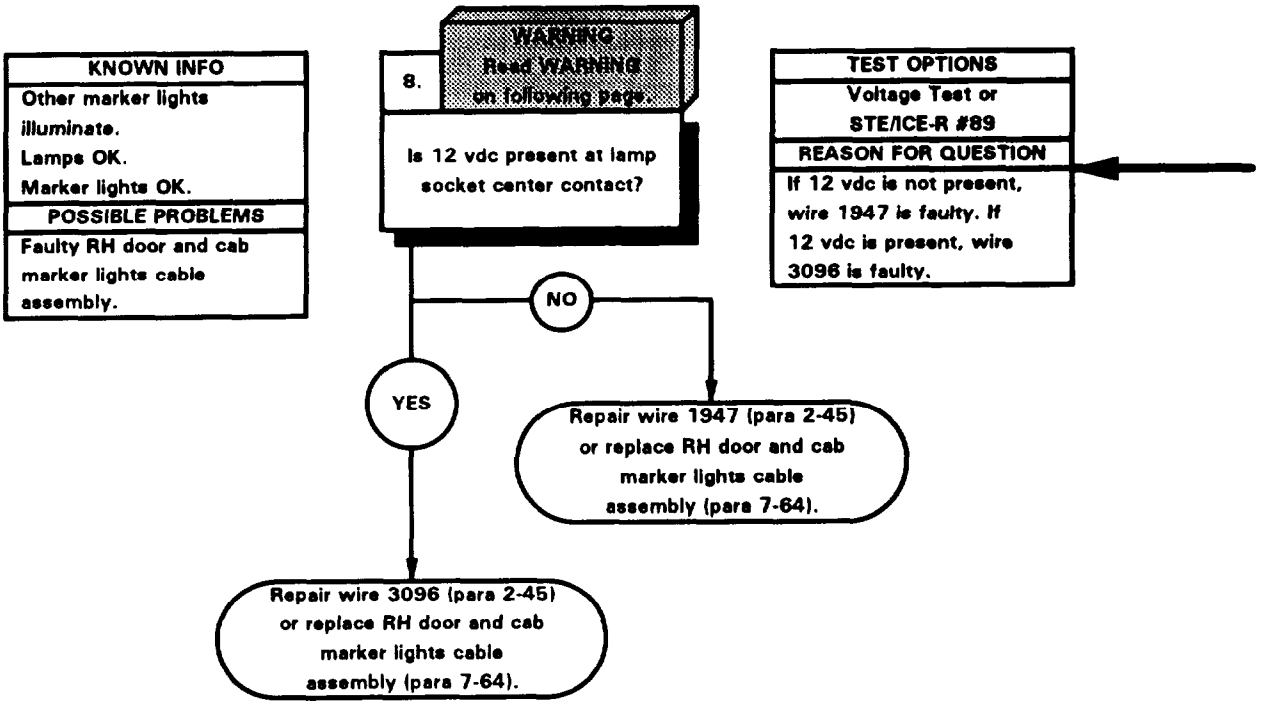


X2E4405-



X2E4404-

e46. RH DOOR AND/OR RH FRONT MARKER LIGHTS DO NOT ILLUMINATE (CONT)

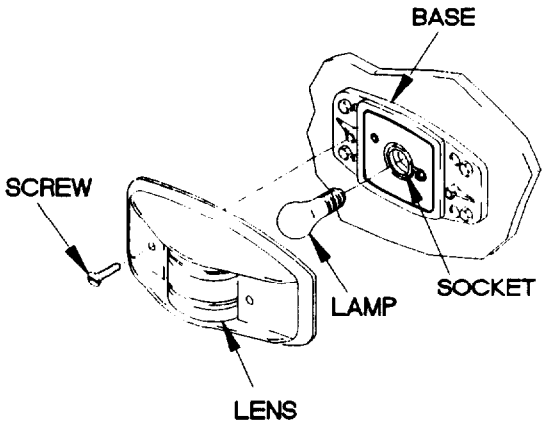


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove two screws and lens from base.
(2) Remove lamp from socket.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to lamp socket center contact.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 1947 (para 2-45) or replace RH door and cab marker lights cable assembly (para 7-64).
(8) If 12 vdc is present, repair wire 3096 (para 2-45) or replace RH door and cab marker light cable assembly (para 7-64).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).
(10) Install lamp in socket.
(11) Install lens on base with two screws.



x2E4306-

e47. ONE OR MORE CAB TOP MARKER LIGHTS DO NOT ILLUMINATE

INITIAL SETUP

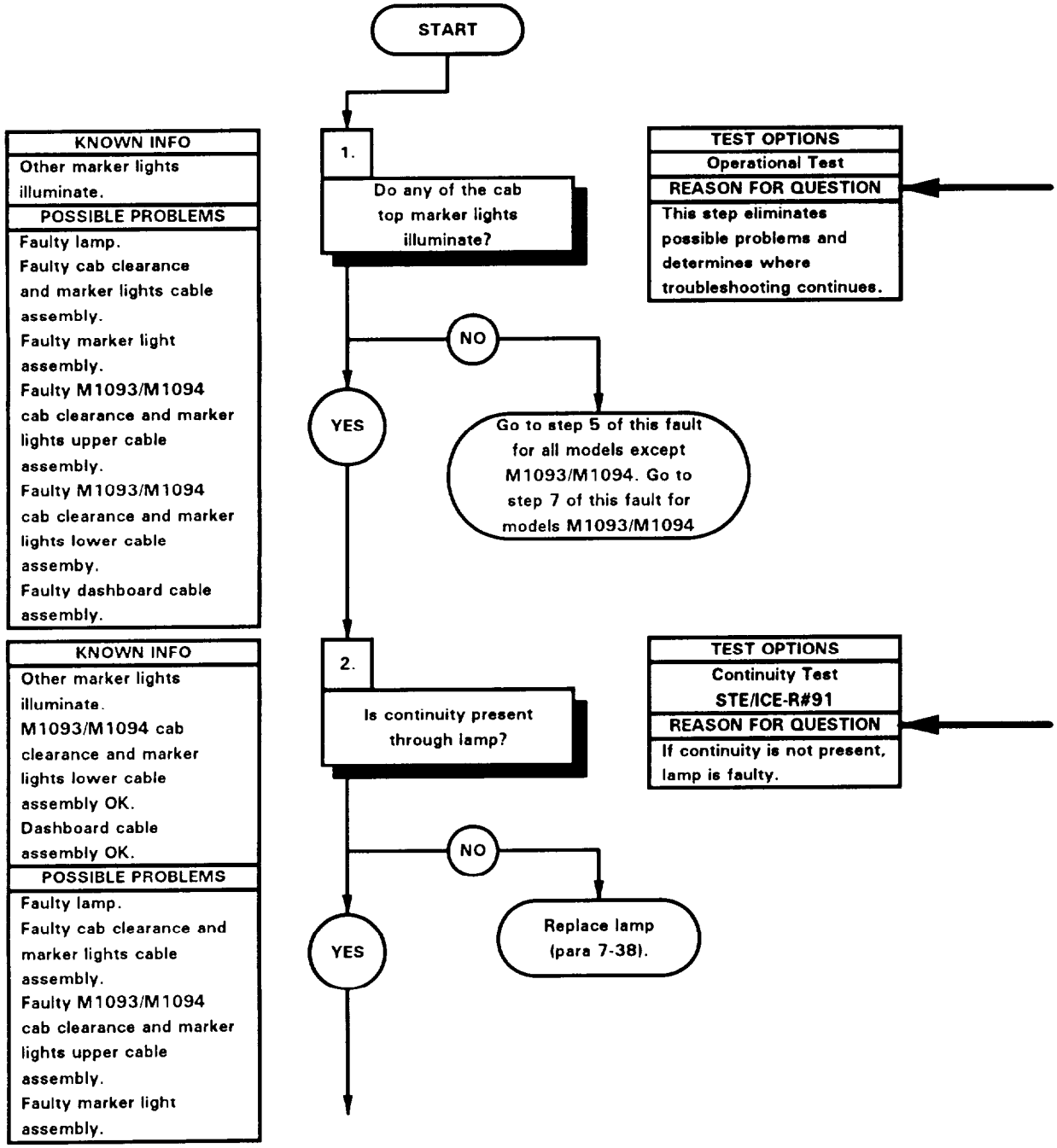
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Lockwasher (2) (Item 82, Appendix G)

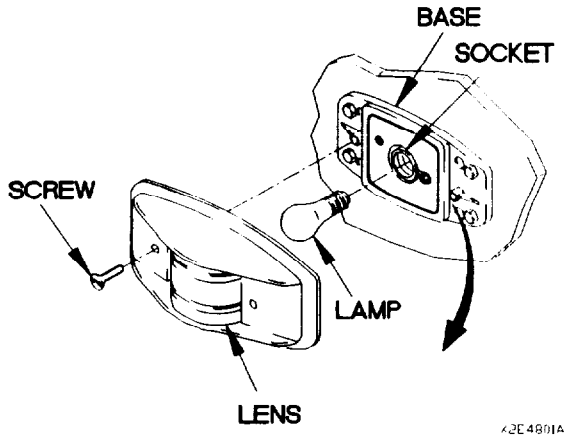
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P



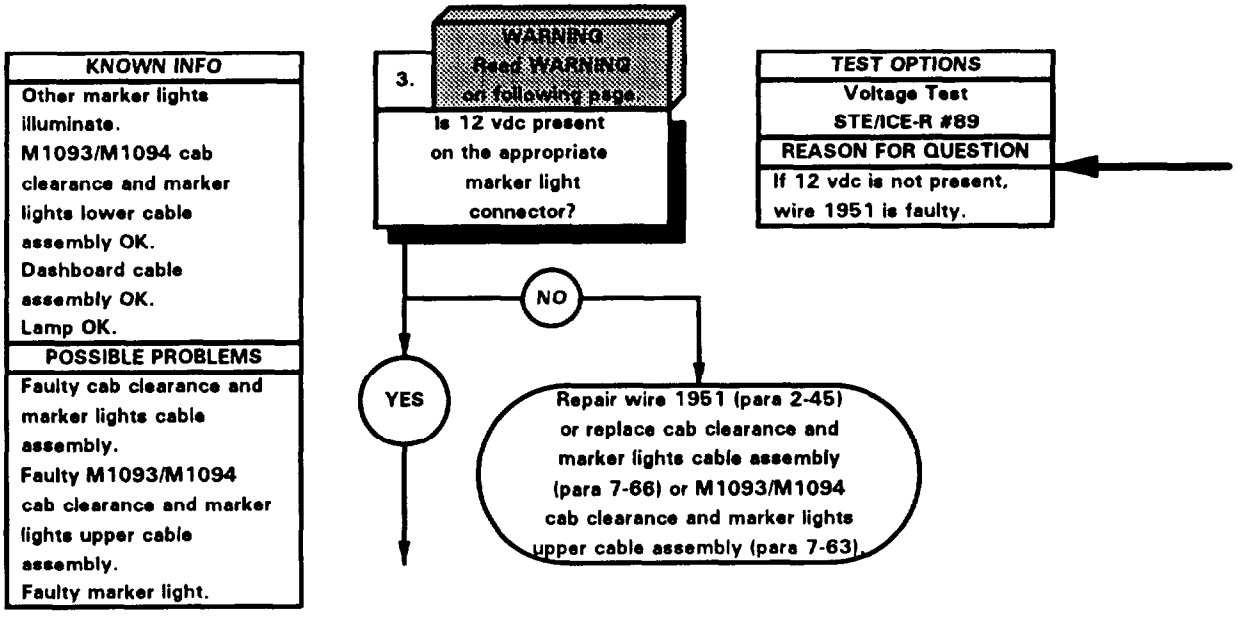
OPERATIONAL TEST
(1) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(2) If no marker lights are illuminating, go to step 5 of this fault for all models except M1093/M1094 or step 7 of this fault for models M1093/M1094.
(3) Position main light switch to OFF (TM 9-2320-366-10-1).

CONTINUITY TEST
(1) Remove two screws and lens from base.
(2) Remove lamp from socket.
(3) Set multimeter to ohms.
(4) Check continuity through lamp and note reading on multimeter.
(5) If continuity is not present, replace lamp (para 7-38).



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e47. ONE OR MORE CAB TOP MARKER LIGHTS DO NOT ILLUMINATE (CONT)



WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove four screws and washers from base.

NOTE

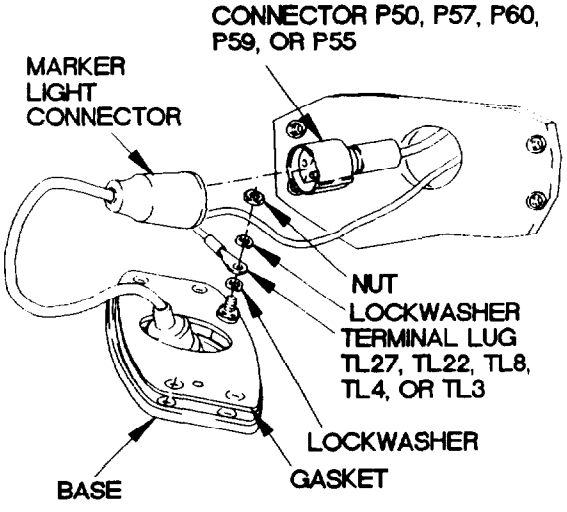
Do not let wires slip through hole and into cab structure. If wires slip into cab structure, vehicle will need further disassembly to retrieve wires.

(2) Extend base and disconnect marker light connector from connector P50, P57, P60, P59, or P55.

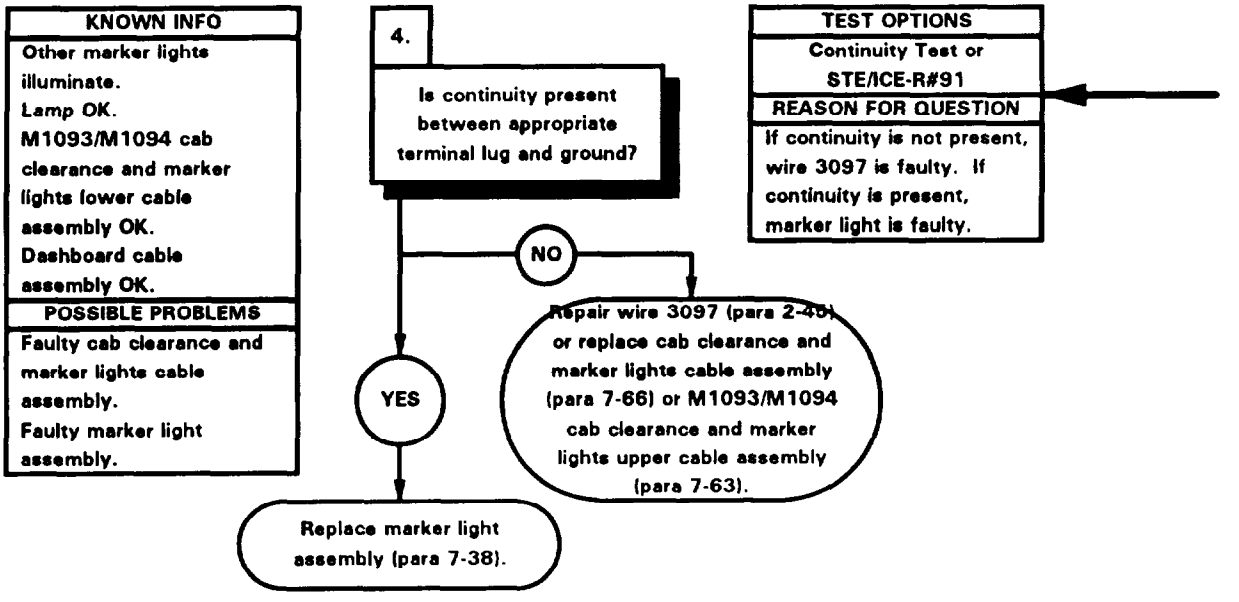
CAUTION

Two nuts are used to keep bottom nut in place. To prevent damage to equipment, use care when removing base.

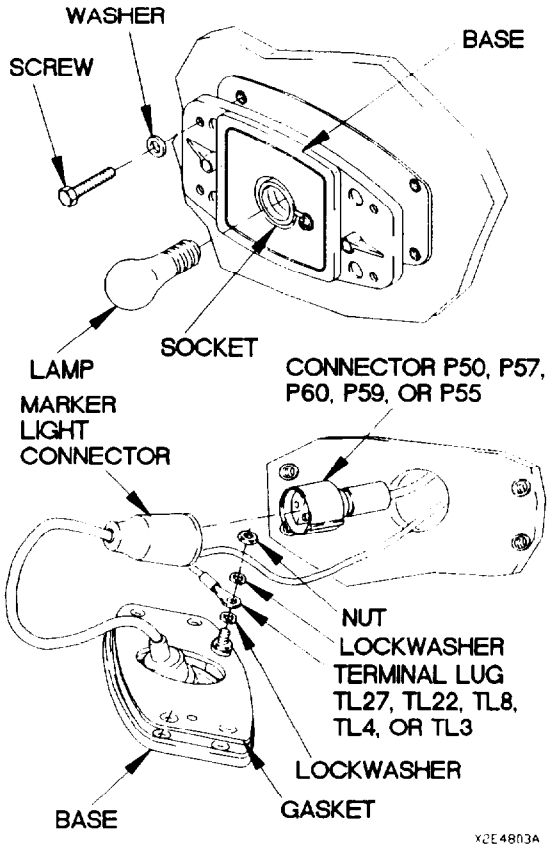
(3) Remove nut, lockwasher, terminal lug TL27, TL22, TL8, TL4, or TL3, lockwasher, base, and gasket from vehicle. Discard lockwashers.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector P50 (top LH marker light), P57 (top LH middle marker light), P60 (top middle marker light), P59 (top RH middle marker light), P55 (top RH marker light).
(6) Connect negative (-) probe of multimeter to ground.
(7) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 12 vdc is not present, repair wire 1951 (para 2-45) or replace cab clearance and marker lights cable assembly (para 7-66) or M1093/M1094 cab clearance and marker lights upper cable assembly (para 7-63).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).



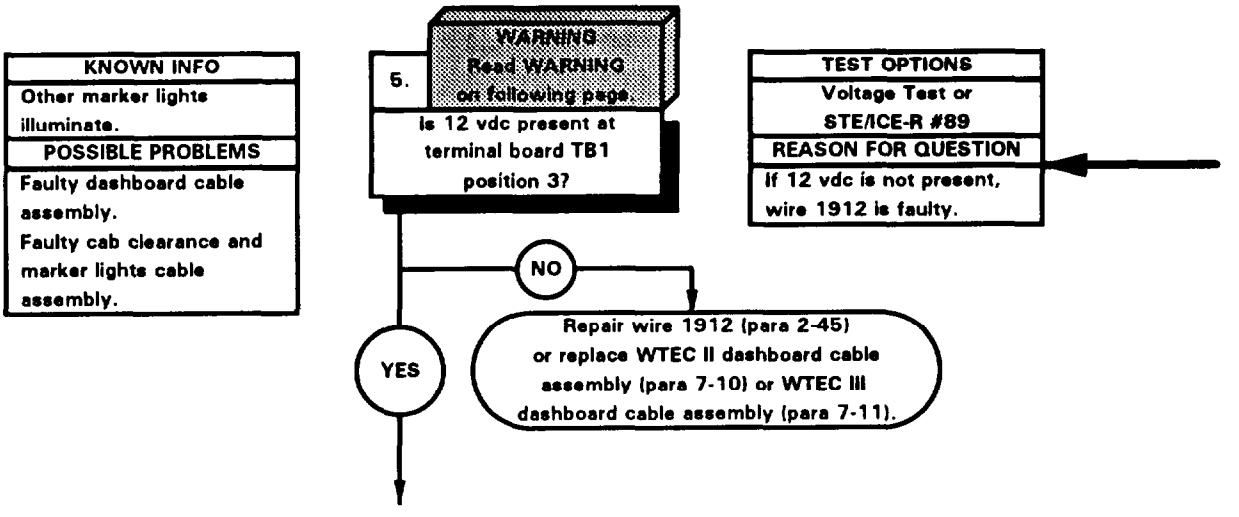
e47. ONE OR MORE CAB TOP MARKER LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to appropriate terminal lug, TL27 (top LH marker light), TL22 (top LH middle marker light), TL8 (top middle marker light), TL4 (top RH middle marker light), or TL3 (top RH marker light).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3097 (para 2-45) or replace cab clearance and marker lights cable assembly (para 7-66) or M1093/ M1094 cab clearance and marker lights upper cable assembly (para 7-63).
(5) If continuity is present, replace marker light assembly (para 7-38).
(6) Connect connector P50, P57, P60, P59, or P55 to marker light connector.
(7) Install lockwasher, terminal lug TL27, TL22, TL8, TL4, or TL3, lockwasher, and nut on back of base.
(8) Install base on vehicle with four washers and screws.
(9) Install lamp in socket.
(10) Install lens on base with two screws.



e47. ONE OR MORE CAB TOP MARKER LIGHTS DO NOT ILLUMINATE (CONT)

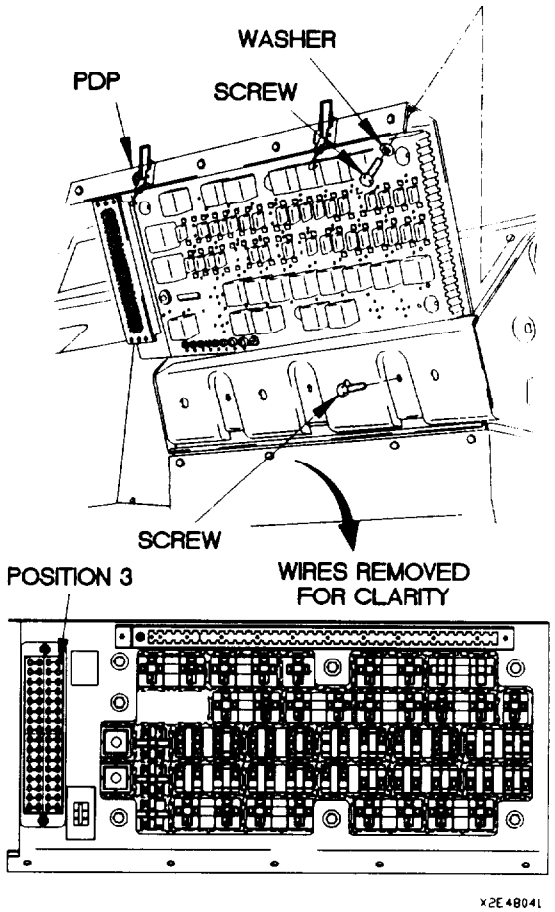


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

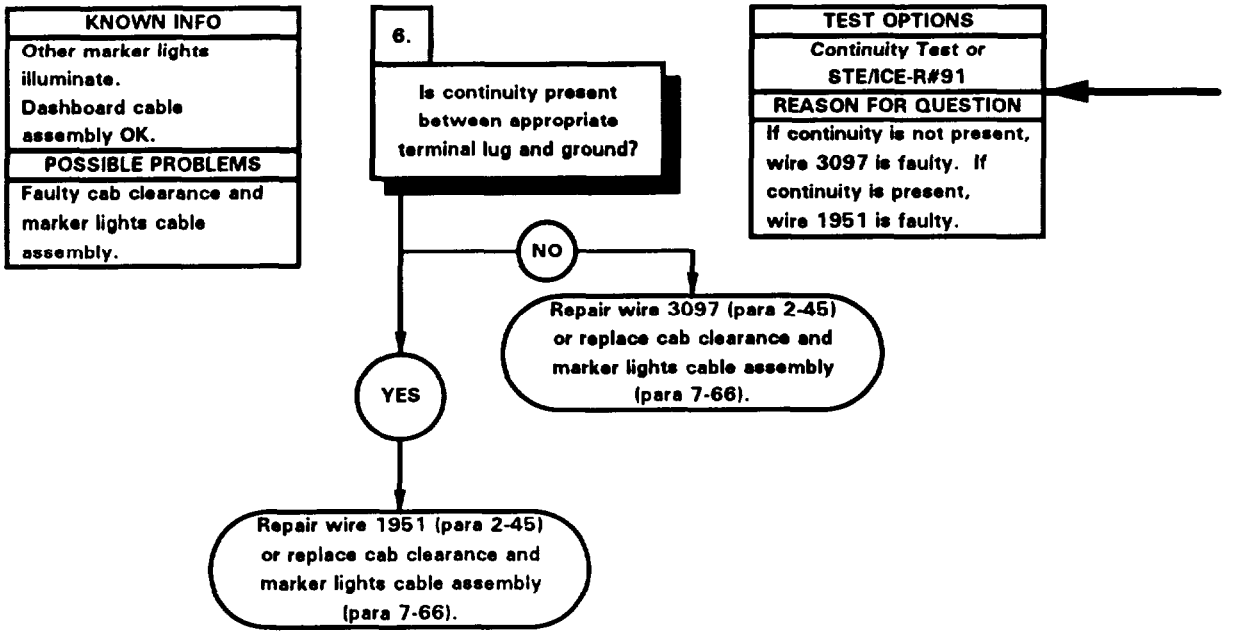
VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Set multimeter to volts dc.
(6) Connect positive (+) probe of multimeter to terminal board TB1 position 3.
(7) Connect negative (-) probe of multimeter to ground.
(8) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(9) If 12 vdc is not present, repair wire 1912 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).



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e47. ONE OR MORE CAB TOP MARKER LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove two screws and lens from base.
(2) Remove lamp from socket.
(3) Remove four screws and washers from base.

NOTE

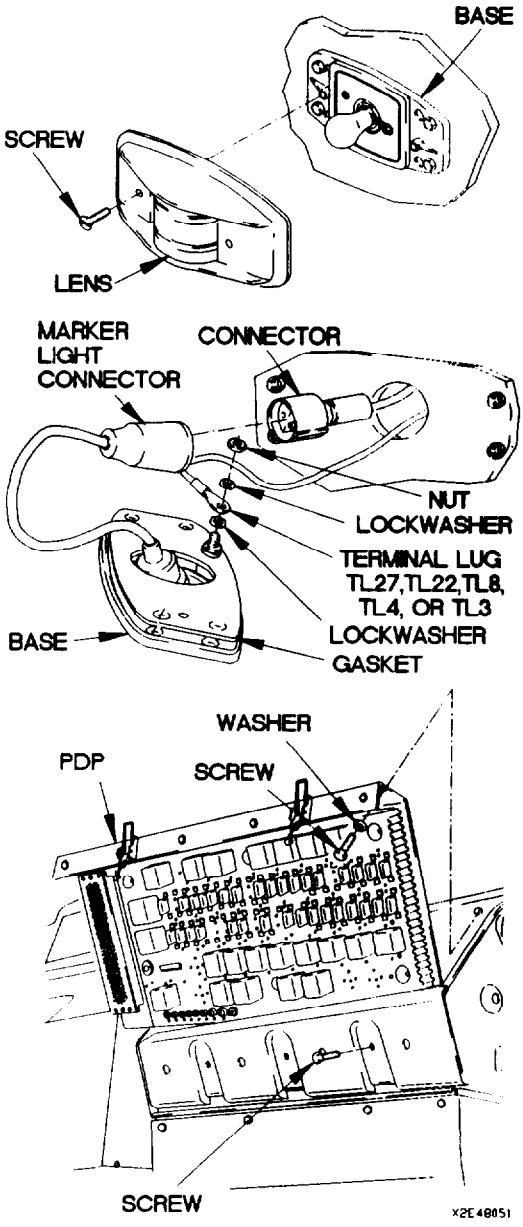
Do not let wires slip through hole and into cab structure. If wires slip into cab structure, vehicle will need further disassembly to retrieve wires.

(4) Extend base and disconnect marker light connector from connector P50, P57, P60, P59, or P55.

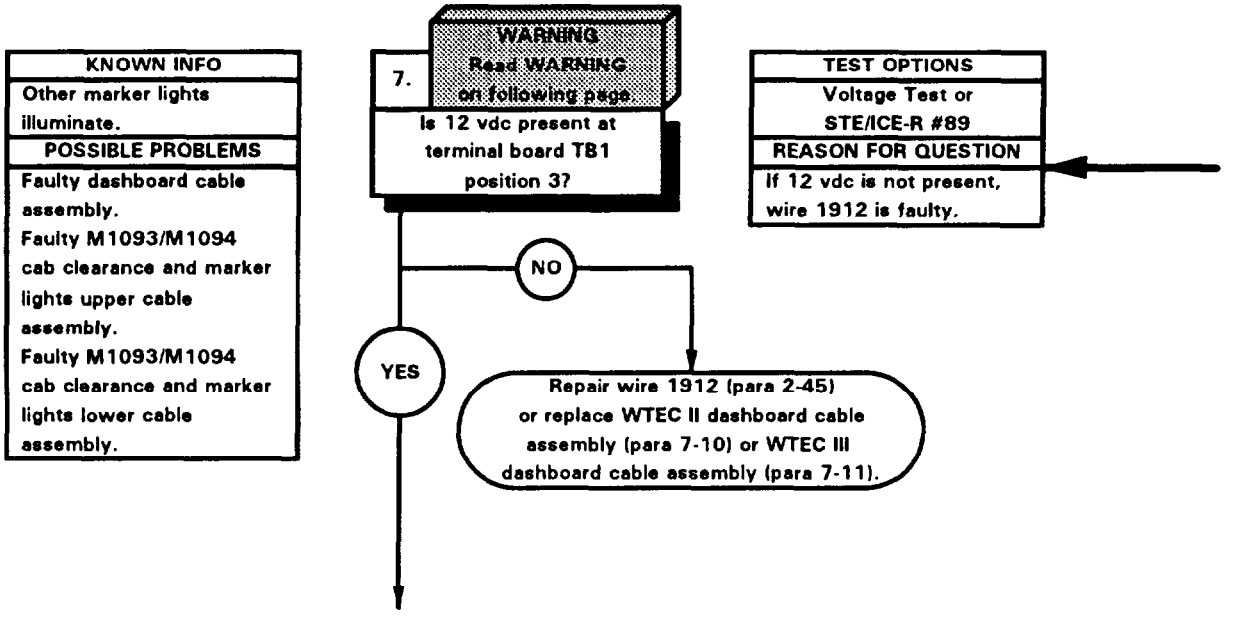
CAUTION

Two nuts are used to keep bottom nut in place. To prevent damage to equipment, use care when removing base.

(5) Remove nut, lockwasher, terminal lug TL27, TL22, TL8, TL4, or TL3, lockwasher, base, and gasket from vehicle. Discard lockwashers.
(6) Set multimeter to ohms.
(7) Connect positive (+) probe of multimeter to appropriate terminal lug, TL27 (top LH marker light), TL22 (top LH middle marker light), TL8 (top middle marker light), TL4 (top RH middle marker light), or TL3 (top RH marker light).
(8) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(9) If continuity is not present, repair wire 3097 (para 2-45) or replace cab clearance and marker lights cable assembly (para 7-66).
(10) If continuity is present, replace repair wire 1951 (para 2-45) or replace cab clearance and marker lights cable assembly (para 7-66).
(11) Connect connector P50, P57, P60, P59, or P55 to marker light connector.
(12) Install lockwasher, terminal lug TL27, TL22, TL8, TL4, or TL3, lockwasher, and nut on back of base.
(13) Install base on vehicle with four washers and screws.
(14) Install lamp in socket.
(15) Install lens on base with two screws.
(16) Install PDP on dashboard with three screws.
(17) Install three washers and screws in PDP.
(18) Install PDP cover (para 16-2).



e47. ONE OR MORE CAB TOP MARKER LIGHTS DO NOT ILLUMINATE (CONT)

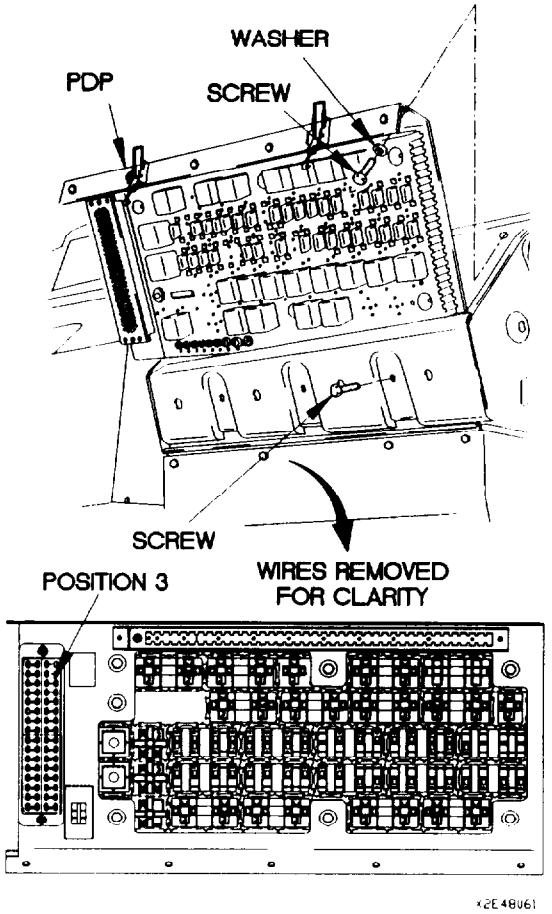


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

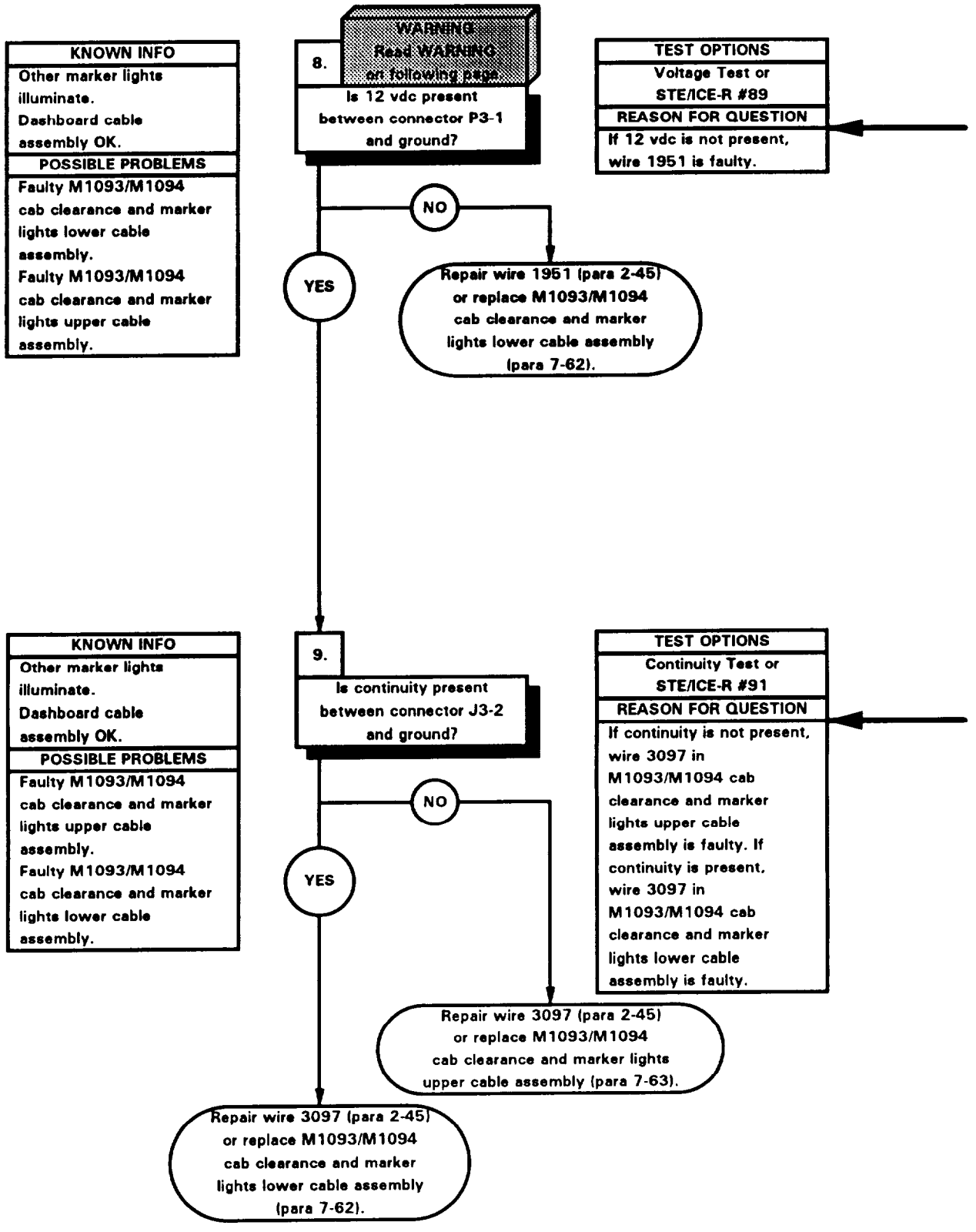
VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Set multimeter to volts dc.
(6) Connect positive (+) probe of multimeter to terminal board TB1 position 3.
(7) Connect negative (-) probe of multimeter to ground.
(8) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(9) If 12 vdc is not present, repair wire 1912 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).
(11) Install PDP on dashboard with three screws.
(12) Install three washers and screws in PDP.



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e47. ONE OR MORE CAB TOP MARKER LIGHTS DO NOT ILLUMINATE (CONT)

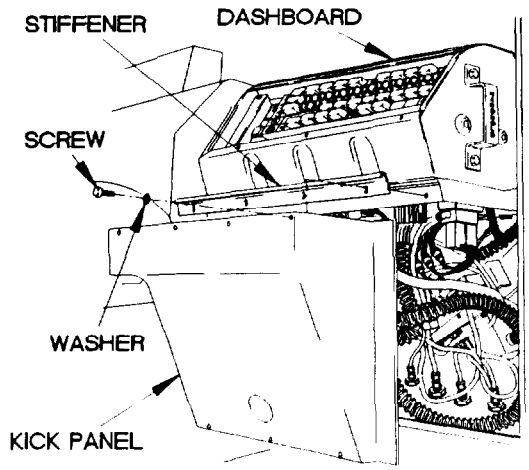


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

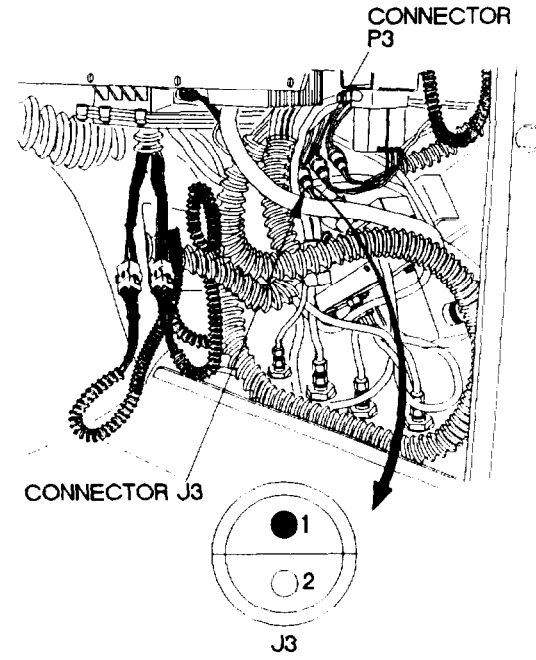
VOLTAGE TEST

(1) Remove seven screws and washers from kick panel.
(2) Remove kick panel and stiffener from dashboard.
(3) Disconnect connector P3 from connector J3.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector P3-1.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 12 vdc is not present, repair wire 1951 (para 2-45) or replace M1093/M1094 cab clearance and marker lights lower cable assembly (para 7-62).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector J3-2.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3097 (para 2-45) or replace M1093/M1094 cab clearance and marker lights upper cable assembly (para 7-63).
(5) If continuity is present, repair wire 3097 (para 2-45) or replace M1093/M1094 cab clearance and marker lights lower cable assembly (para 7-62).
(6) Connect connector P3 to connector J3.
(7) Install kick panel (para 16-3).



e48. SIDE AND/OR REAR MARKER LIGHTS DO NOT ILLUMINATE

INITIAL SETUP

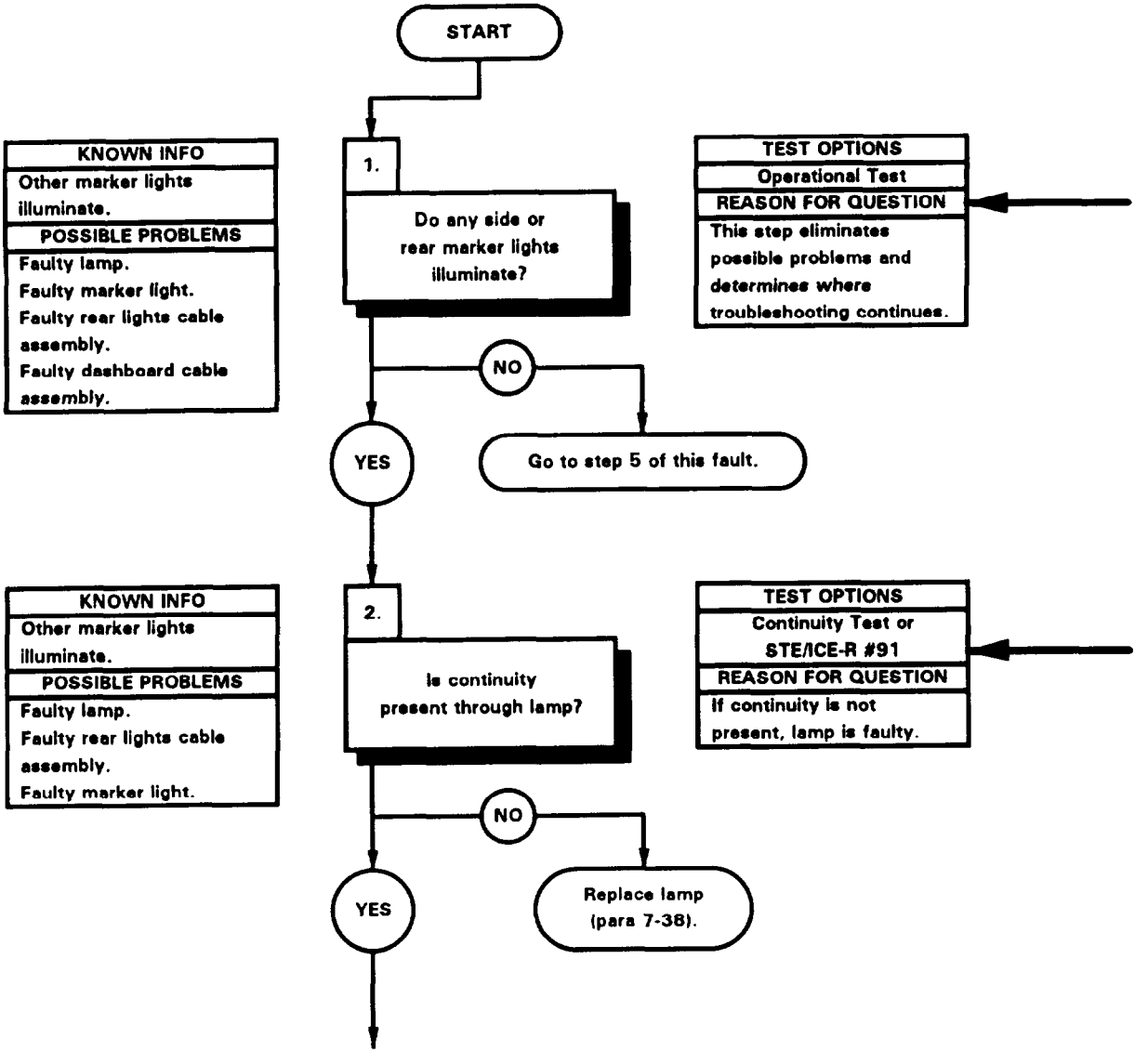
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Lockwasher (2) (Item 82, Appendix G)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)

References
TM 9-4910-571-12&P

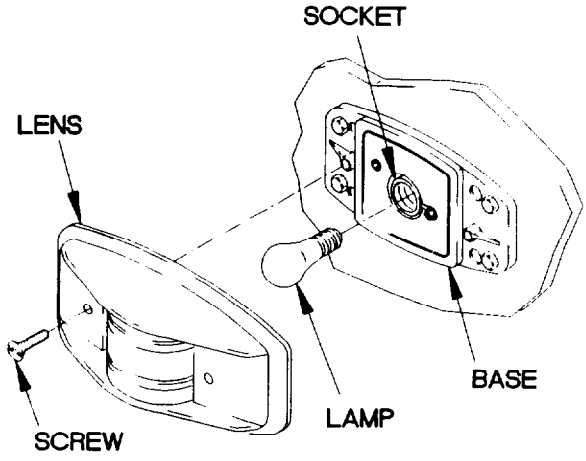


OPERATIONAL TEST

(1) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(2) Observe side and rear marker lights and determine how many lights do not illuminate.
(3) If two or more marker lights do not illuminate, go to step 6 of this fault.
(4) Position main light switch to OFF (TM 9-2320-366-10-1).

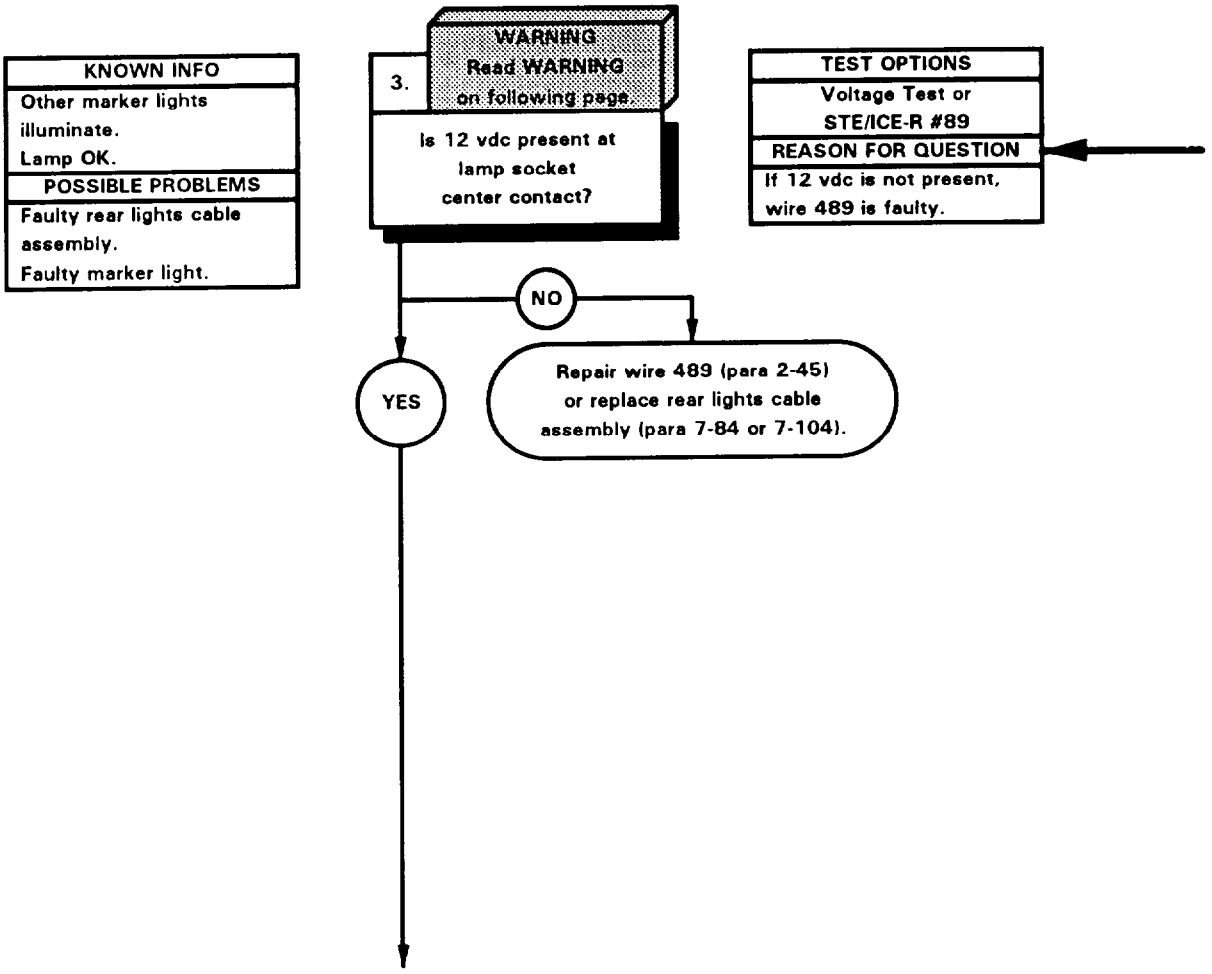
CONTINUITY TEST

(1) Remove two screws and lens from base.
(2) Remove lamp from socket.
(3) Set multimeter to ohms.
(4) Check continuity through lamp and note reading on multimeter.
(5) If continuity is not present, replace lamp (para 7-38).



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e48. SIDE AND/OR REAR MARKER LIGHTS DO NOT ILLUMINATE (CONT)

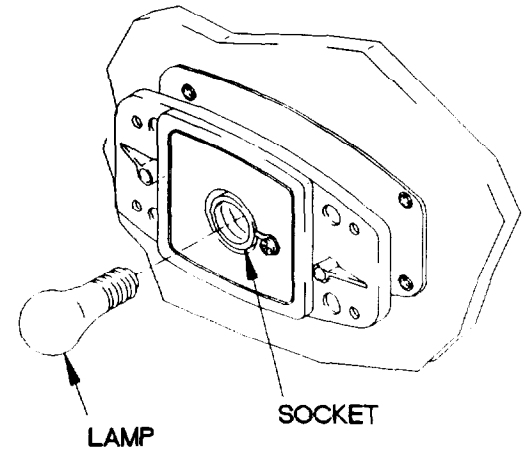


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

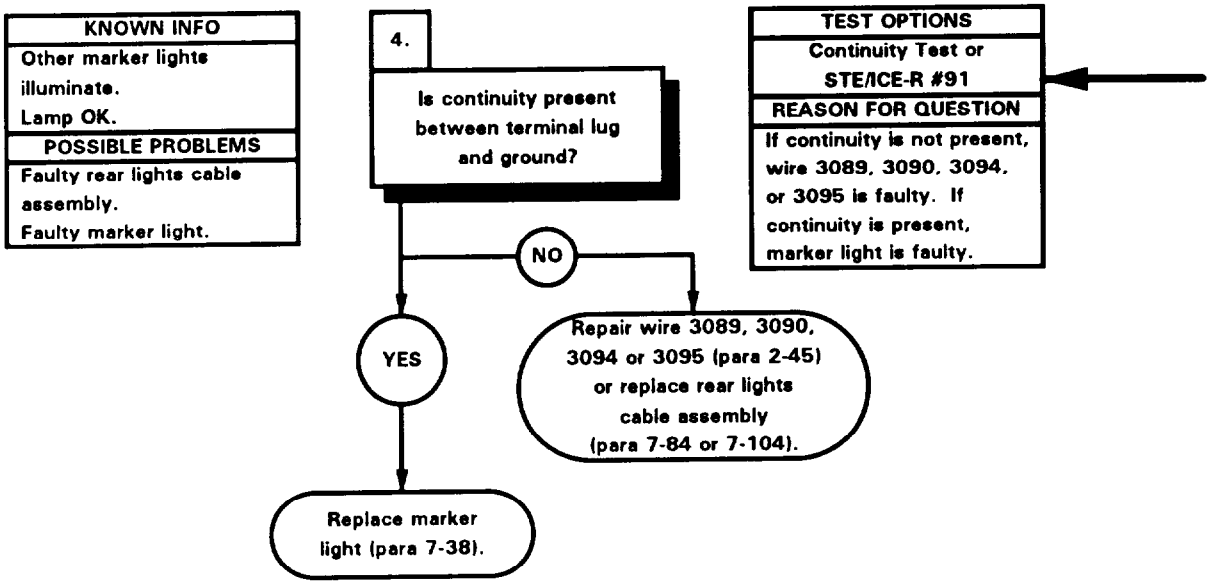
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to lamp socket center contact.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 12 vdc is not present, repair wire 489 (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).



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e48. SIDE AND/OR REAR MARKER LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove four screws and washers from base.

NOTE

Do not let wires slip through hole and into cab structure. If wires slip into cab structure, vehicle will need further disassembly to retrieve wires.

(2) Extend base and disconnect marker light connector from connector P85, P86, P88, P89, P54, P56, P58, P95, or P94.

CAUTION

Two nuts are used to keep bottom nut in place. To prevent damage to equipment, use care when removing base.

(3) Remove nut, lockwasher, terminal lug TL15, TL16, TL19, TL20, TL30, TL31, TL32, TL88, or TL89, lockwasher, base, and gasket from vehicle. Discard lockwashers.

(4) Set multimeter to ohms.

(5) Connect positive (+) probe of multimeter to appropriate connector, P85 (left rear side), P86 (left rear rear), P88 (right rear side), P89 (right rear rear), P54 (LH rear center), P56 (rear middle), P58 (RH rear center), P95 (RH side M1085/M1086/M1096 only), P94 (LH side M1085/M1086/M1096 only).

(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.

(7) If continuity is not present, repair wire 3089, 3090, 3094, or 3095 (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).

(8) If continuity is present, replace marker light (para 7-38).

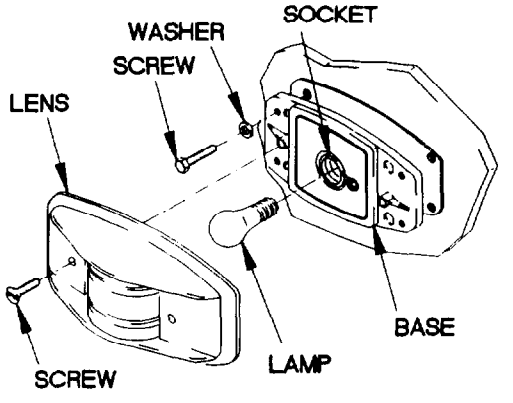
(9) Connect marker light connector to connector P85, P86, P88, P89, P54, P56, P58, P95, or P94.

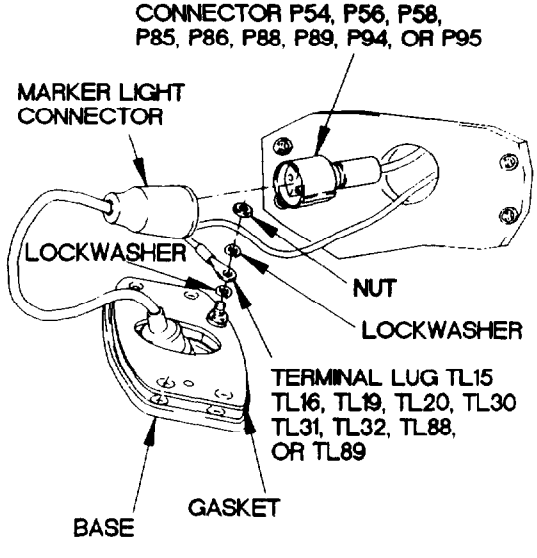
(10) Install lockwasher, terminal lug TL15, TL16, TL19, TL20, TL30, TL31, TL32, TL88, or TL89, lockwasher, and nut on back of base.

(11) Install base on vehicle with four washers and screws.

(12) Install lamp in socket.

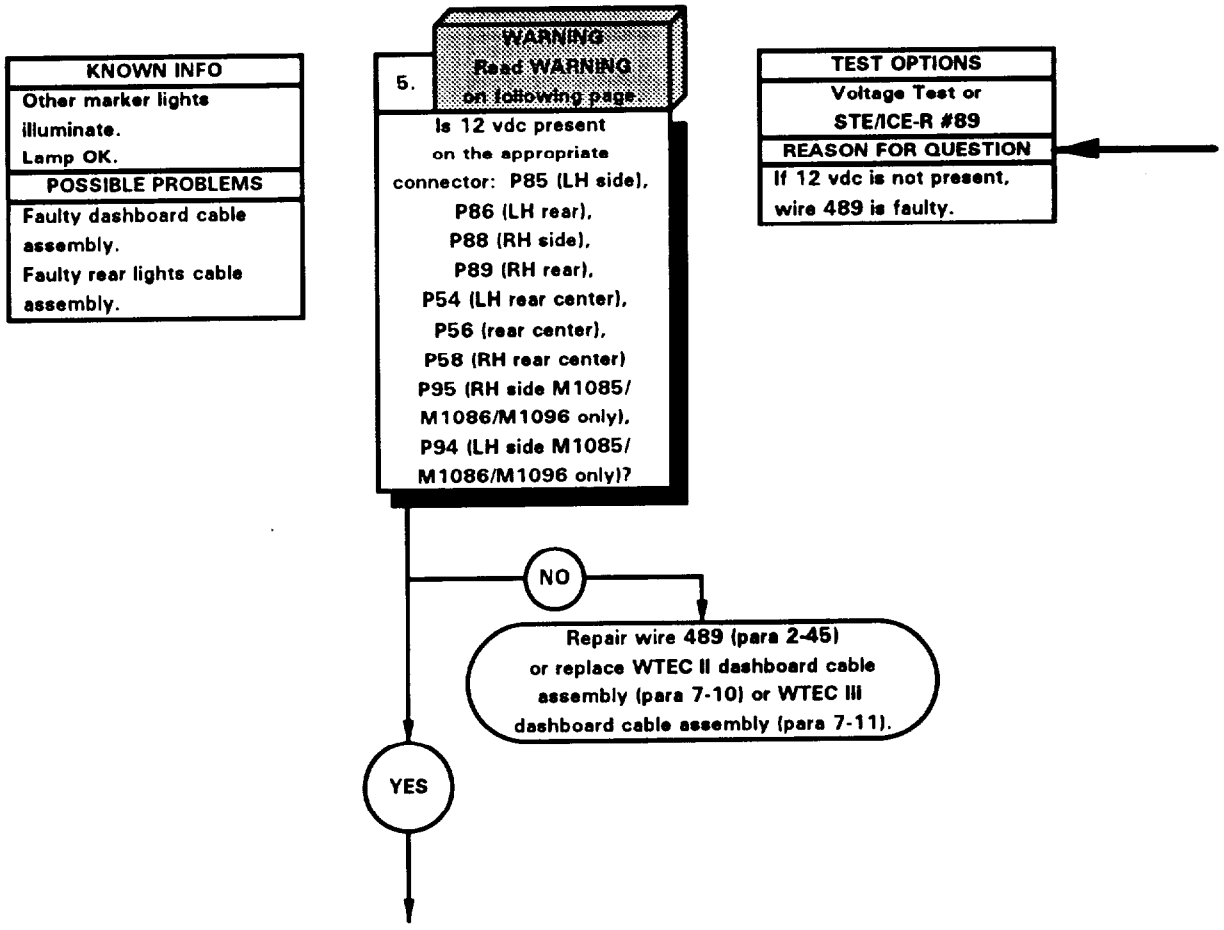
(13) Install lens on base with two screws.





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e48. SIDE AND/OR REAR MARKER LIGHTS DO NOT ILLUMINATE (CONT)

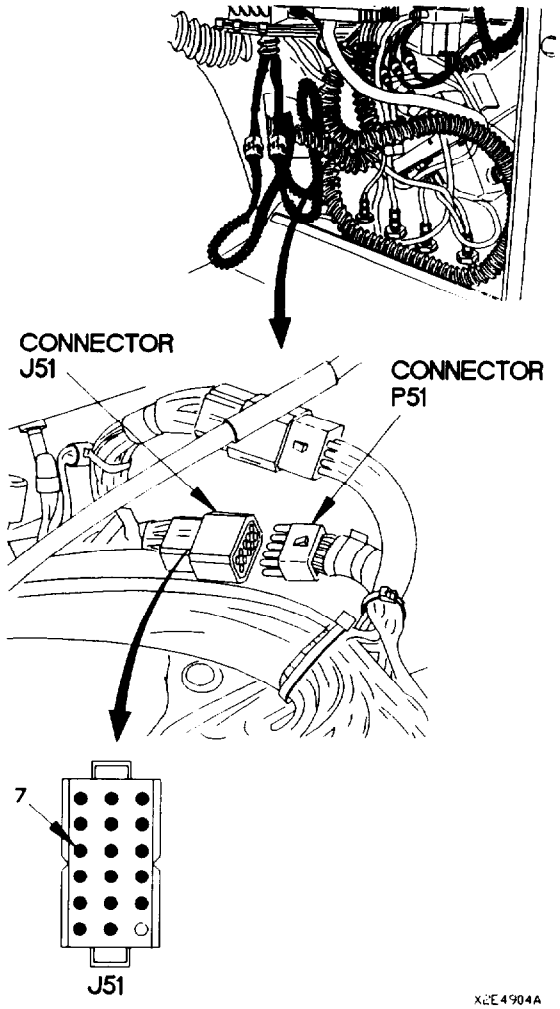


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

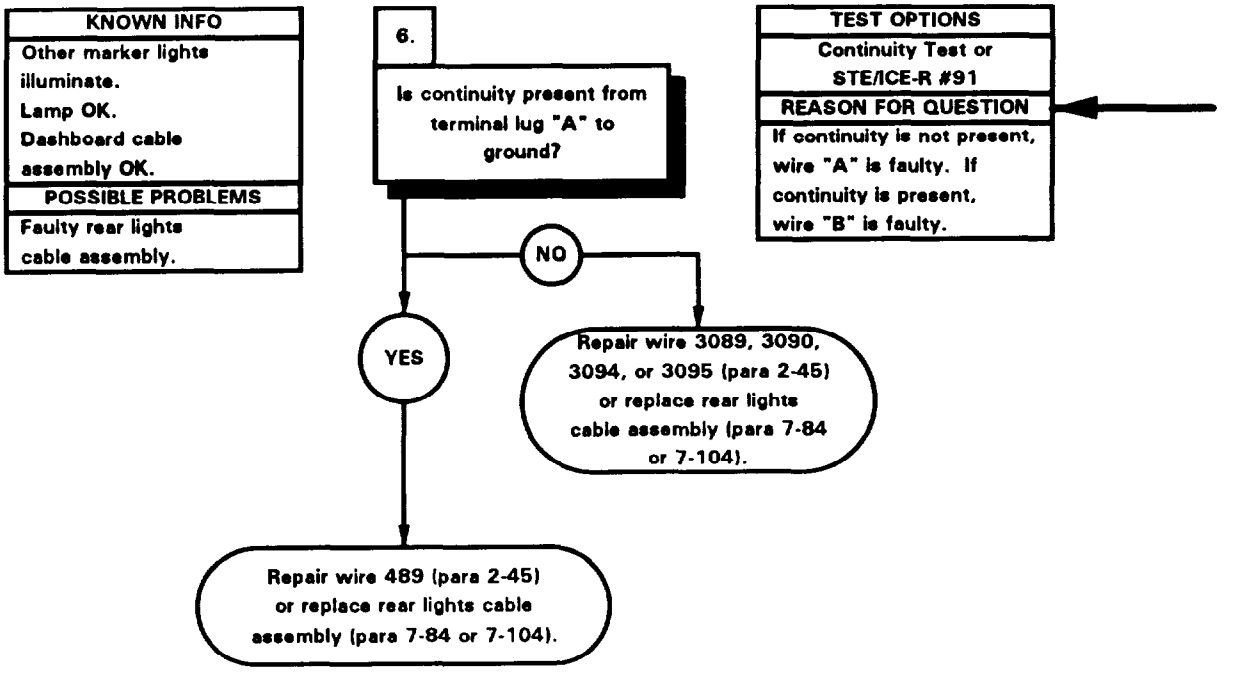
VOLTAGE TEST

(1) Remove kick panel (para 16-3).
(2) Disconnect connector P51 from connector J51.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector J51-7.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 489 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).
(9) Connect connector J51 to connector P51.
(10) Install kick panel (para 16-3).



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e48. SIDE AND/OR REAR MARKER LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove four screws and washers from base.

NOTE

Do not let wires slip through hole and into cab structure. If wires slip into cab structure, vehicle will need further disassembly to retrieve wires.

(2) Extend base and disconnect marker light connector from connector P85, P86, P88, P89, P54, P56, P58, P95, or P94.

CAUTION

Two nuts are used to keep bottom nut in place. To prevent damage to equipment, use care when removing base.

(3) Remove nut, lockwasher, terminal lug TL15, TL16, TL19, TL20, TL30, TL31, TL32, TL88, or TL89, lockwasher, base, and gasket from vehicle. Discard lockwashers.

(4) Set multimeter to ohms.

(5) Connect positive (+) probe of multimeter to terminal lug "A".

(6) Connect negative (-) probe of multimeter to ground and note reading on multimeter.

(7) If continuity is not present, repair wire "A" (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).

(8) If continuity is present, repair wire "B" (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).

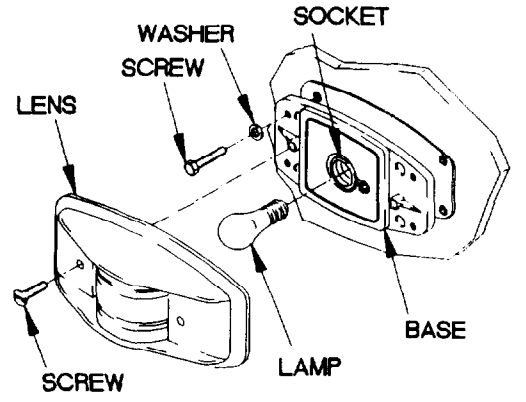
(9) Connect marker light connector to connector P85, P86, P88, P89, P54, P56, P58, P95, or P94.

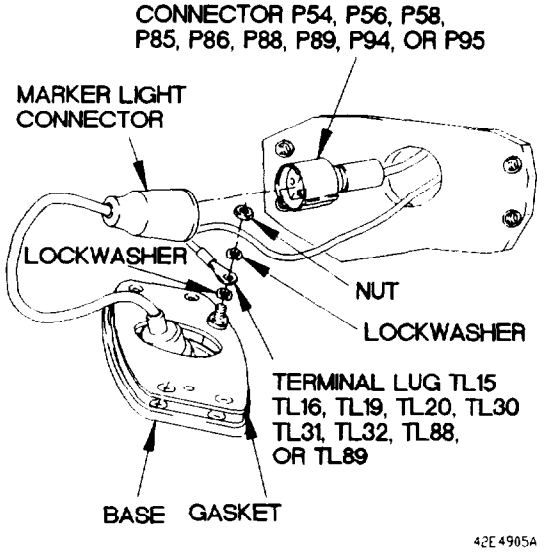
(10) Install lockwasher, terminal lug TL15, TL16, TL19, TL20, TL30, TL31, TL32, TL88, or TL89, lockwasher, and nut on back of base.

(11) Install base on vehicle with four washers and screws.

(12) Install lamp in socket.

(13) Install lens on base with two screws.



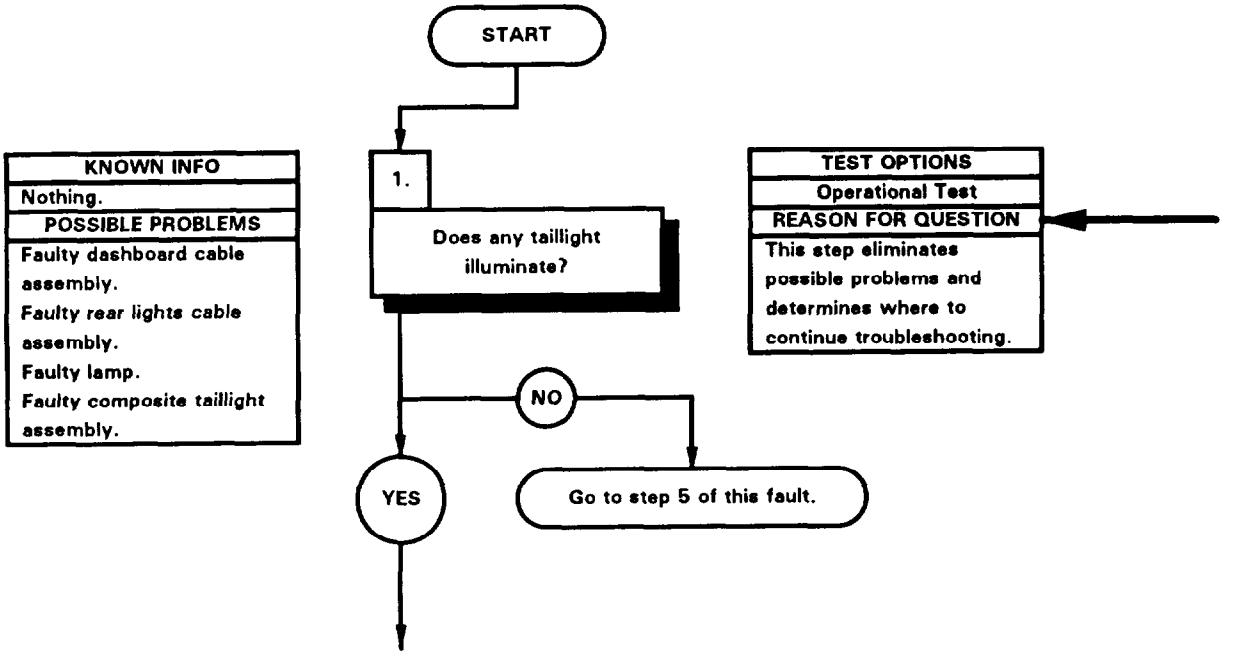


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TABLE 2-12 TERMINAL LUG IDENTIFICATION

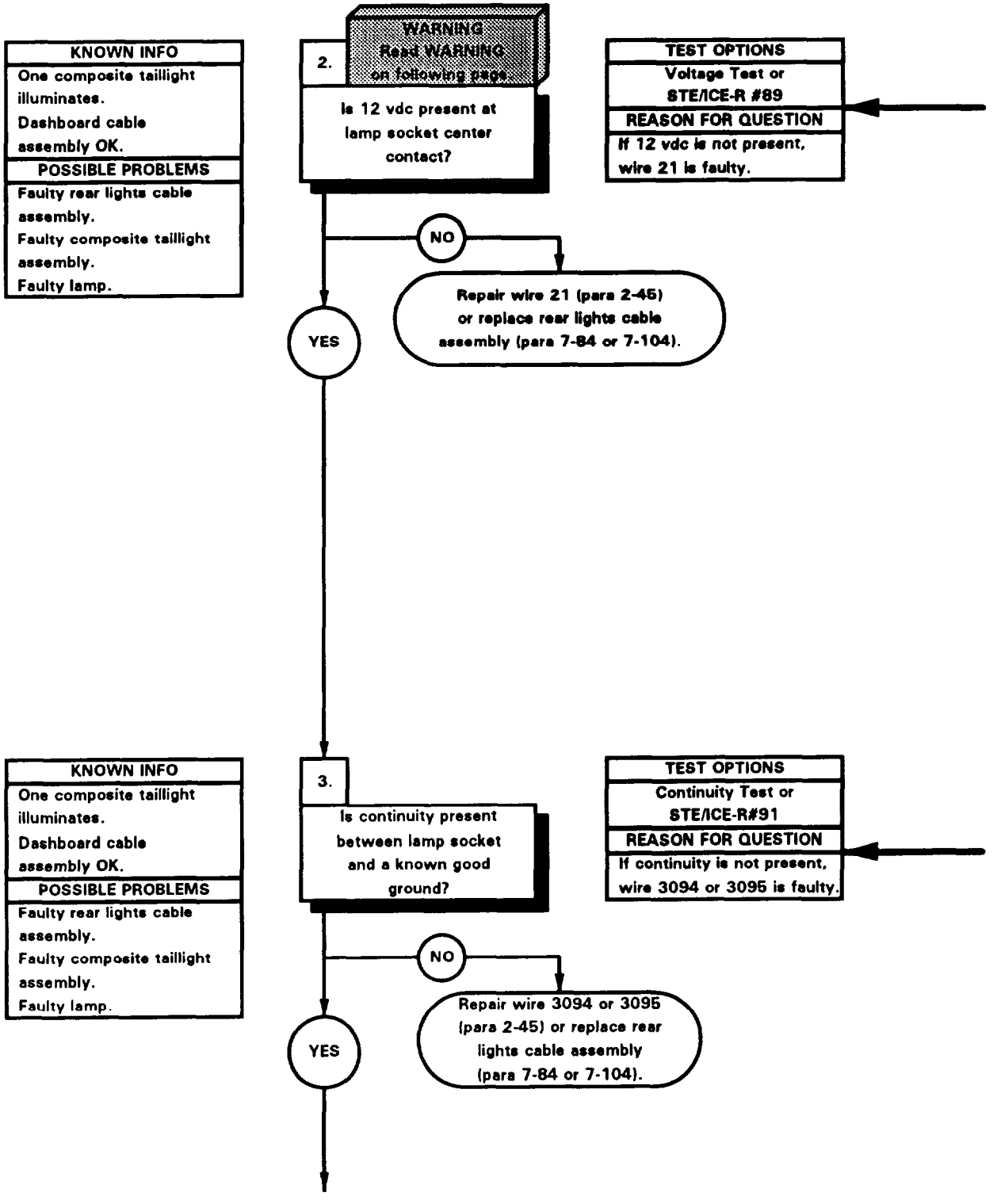
TERMINAL LUG "A"	WIRE "A"	WIRE "B"
TL15 (LH side marker light)	3094	489
TL16 (LH rear marker light)	3094	489
TL19 (RH side marker light)	3095	489
TL20 (RH rear marker light)	3095	489
TL30 (LH rear center marker light)	3095	489
TL31 (rear center marker light)	3095	489
TL32 (RH rear center marker light)	3095	489
TL89 (side marker light M1085/ M1086/M1096 only)	3090	489
TL88 (side marker light M1085/ M1086/M1096 only)	3089	489

e49. ONE OR BOTH COMPOSITE TAILLIGHTS DO NOT ILLUMINATE	
INITIAL SETUP	
Equipment Condition Engine shut down (TM 9-2320-366-10-1).	**Tools and Special Tools** Tool Kit, Genl Mech (Item 46, Appendix C) STE/ICE-R (Item 41, Appendix C) Multimeter, Digital (Item 22, Appendix C)
Personnel Required (2)	**References** TM 9-4910-571-12&P
Materials/Parts Packing, Preformed (Item 191, Appendix G)	



OPERATIONAL TEST
(1) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(2) Position main light switch auxiliary lever to PARK (TM 9-2320-366-10-1).
(3) If neither composite taillight illuminates, go to step 5 of this fault.
(4) Position main light switch to OFF (TM 9-2320-366-10-1).

e49. ONE OR BOTH COMPOSITE TAILLIGHTS DO NOT ILLUMINATE (CONT)

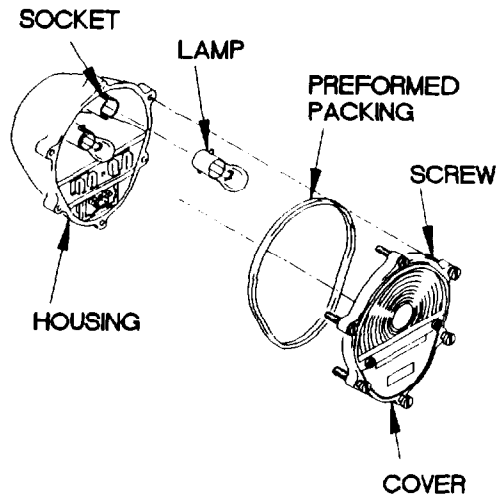


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Loosen six screws and remove cover and preformed packing from housing. Discard preformed packing.
(2) Remove lamp from socket.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to lamp socket center contact.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 21 (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).

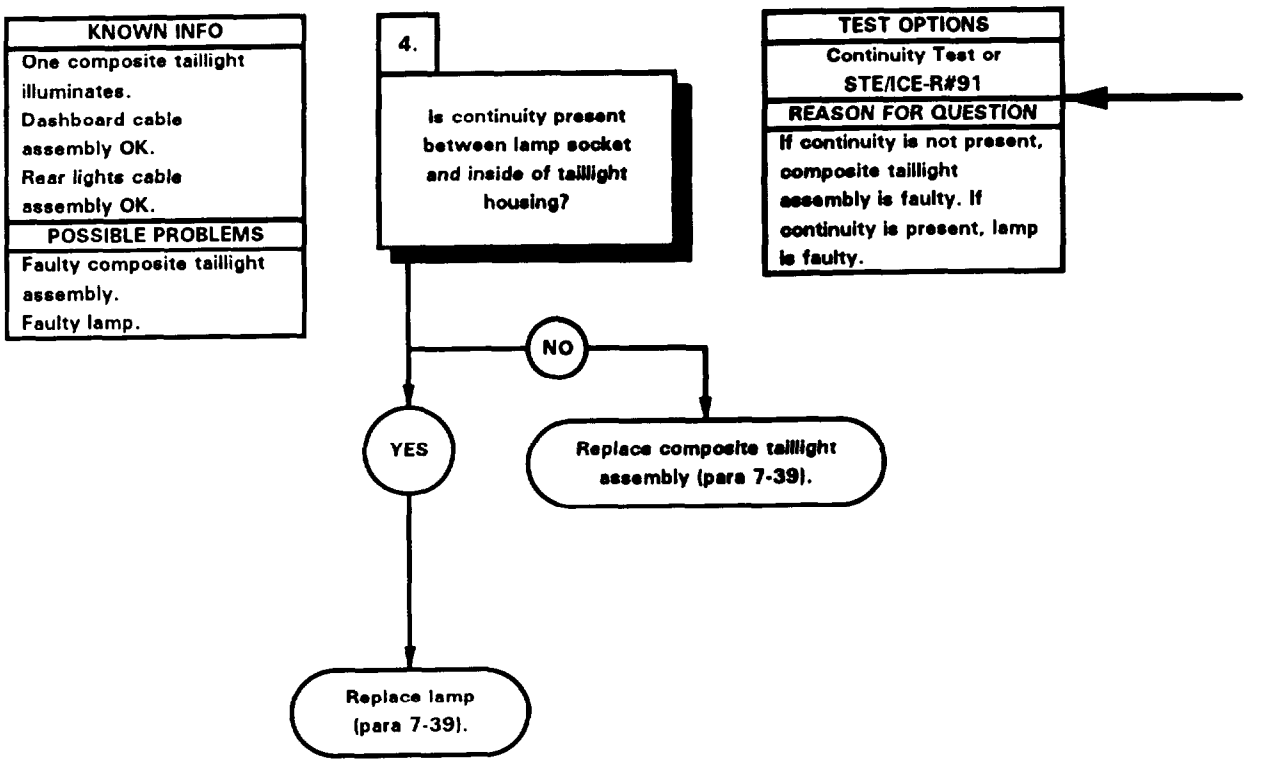


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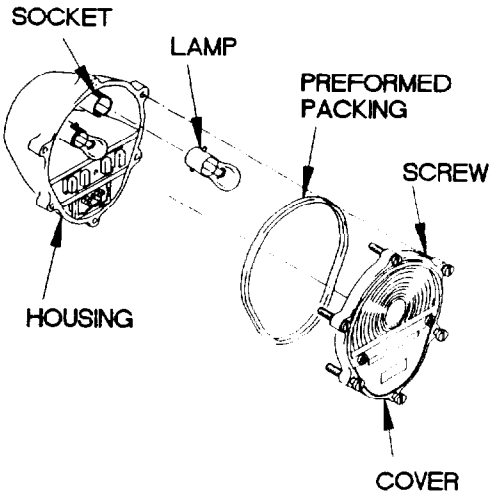
CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to lamp socket.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3094 or 3095 (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).

e49. ONE OR BOTH COMPOSITE TAILLIGHTS DO NOT ILLUMINATE (CONT)

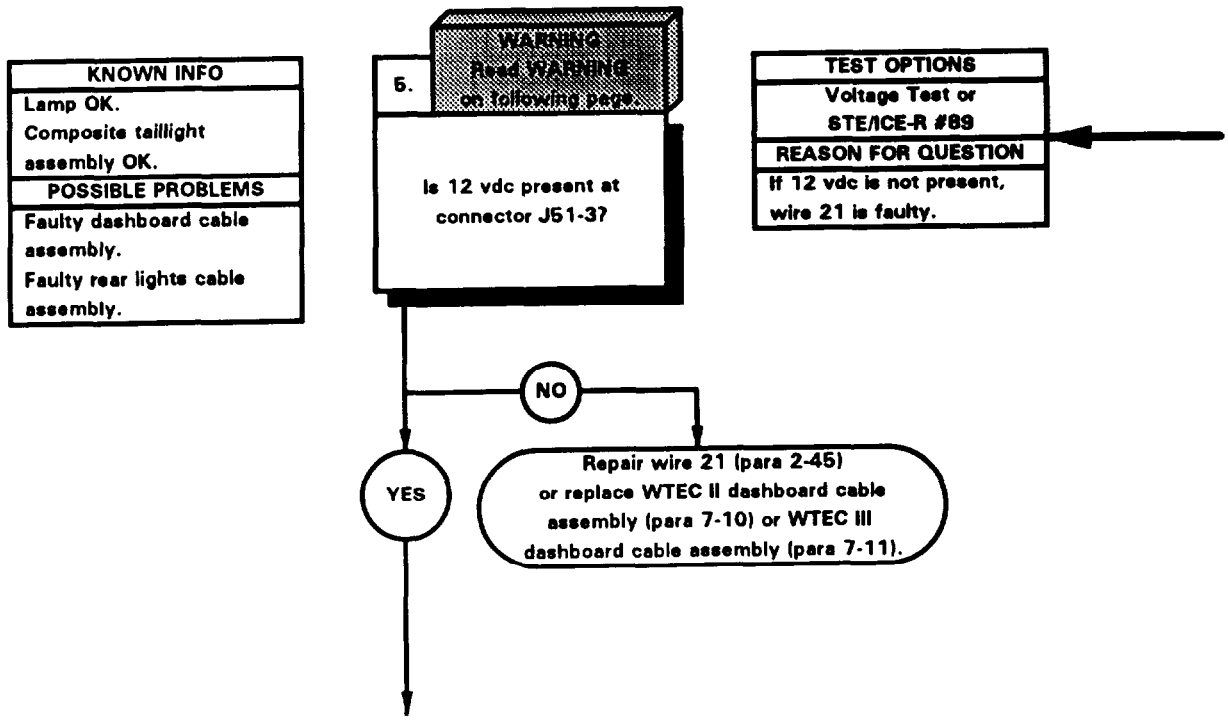


CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to lamp socket.
(4) Connect negative (-) probe of multimeter to inside of composite taillight housing and note reading on multimeter.
(5) If continuity is not present, replace composite taillight assembly (para 7-39).
(6) If continuity is present, replace lamp (para 7-39).
(7) Install lamp in socket.
(8) Install preformed packing and cover on housing with six screws.



X2E5002A

e49. ONE OR BOTH COMPOSITE TAILLIGHTS DO NOT ILLUMINATE (CONT)

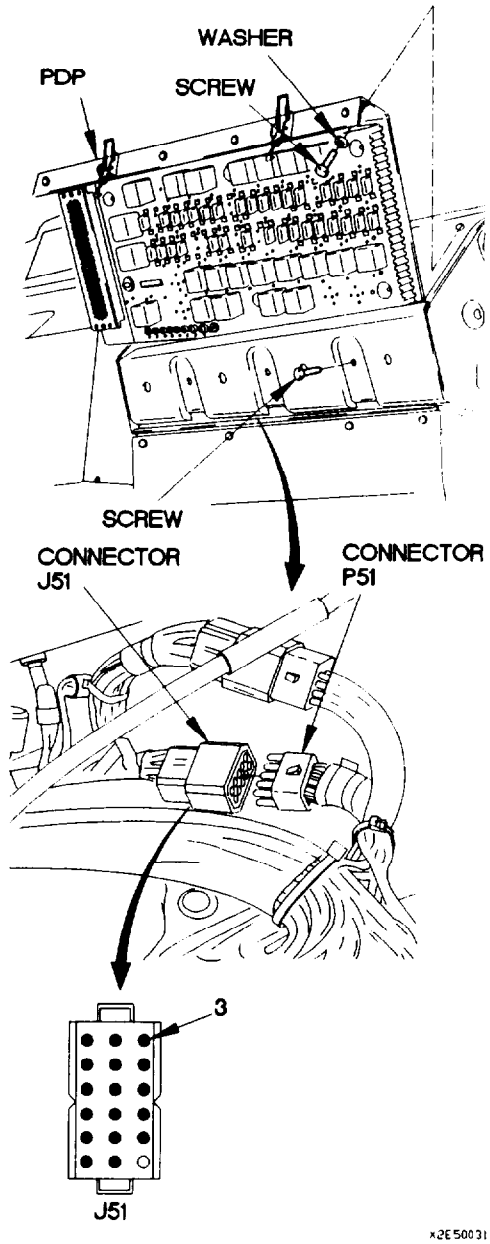


WARNING

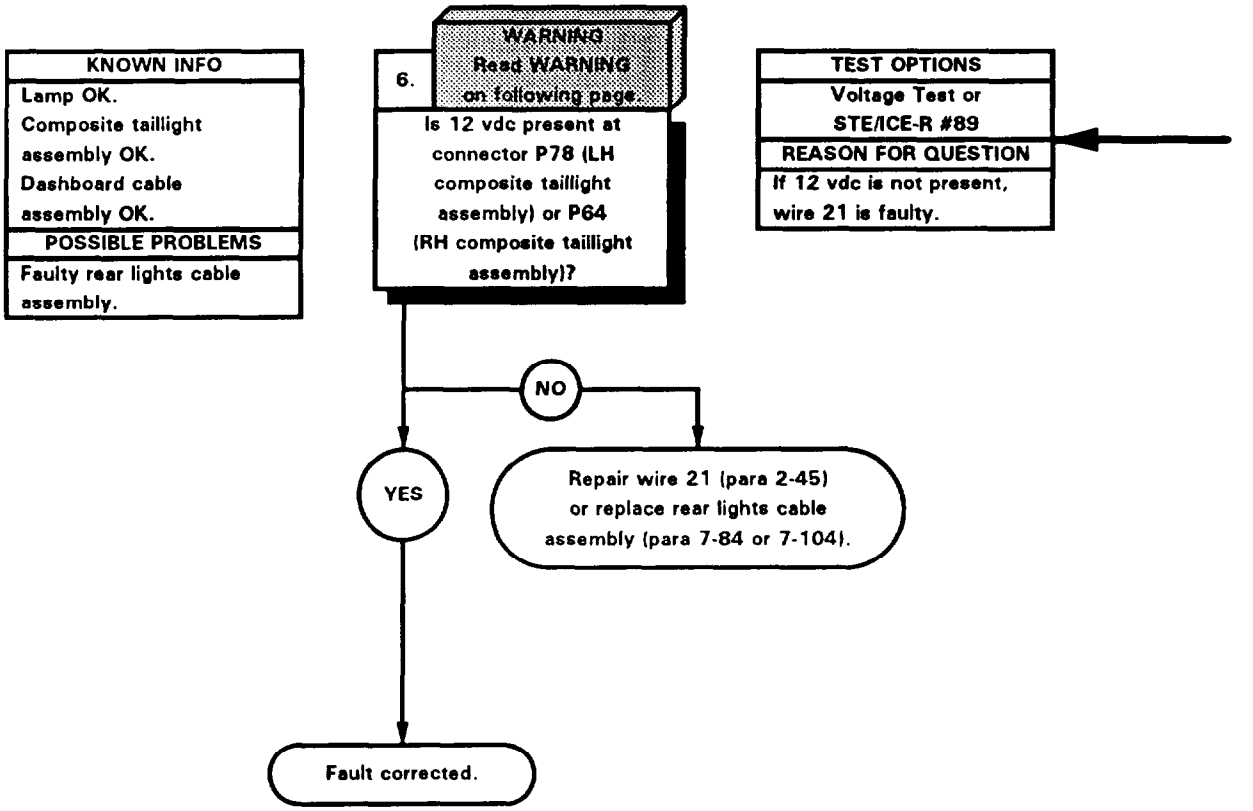
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector J51 from connector P51.
(6) Set multimeter to ohms.
(7) Connect positive (+) probe of multimeter to J51-3.
(8) Connect negative (-) probe of multimeter to ground.
(9) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(10) If 12 vdc is not present, repair wire 21 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(11) Position main light switch to OFF (TM 9-2320-366-10-1).
(12) Connect connector J51 to connector P51.
(13) Install PDP on dashboard with three screws.
(14) Install three washers and screws in PDP.
(15) Install PDP cover (para 16-2).



e49. ONE OR BOTH COMPOSITE TAILLIGHTS DO NOT ILLUMINATE (CONT)

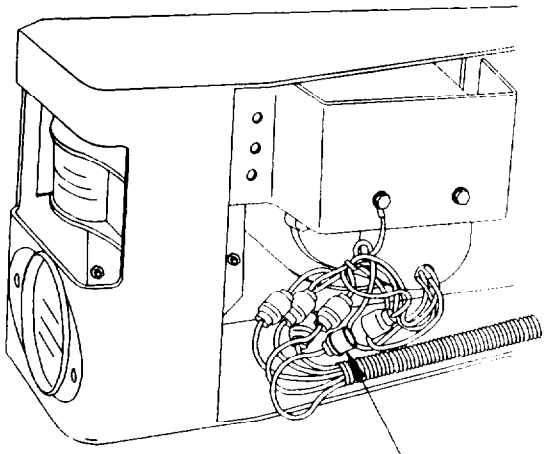


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Disconnect connector P78 (LH composite taillight assembly) or connector P64 (RH composite taillllight assembly) from taillight connector.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector P78 or connector P64.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Position main light switch auxiliary lever to PARK (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 21 (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).
(9) Connect connector P78 or connector P64 to taillight connector.



CONNECTOR P64 (RH) OR P78 (LH)

e50. ONE OR BOTH FRONT BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE

INITIAL SETUP

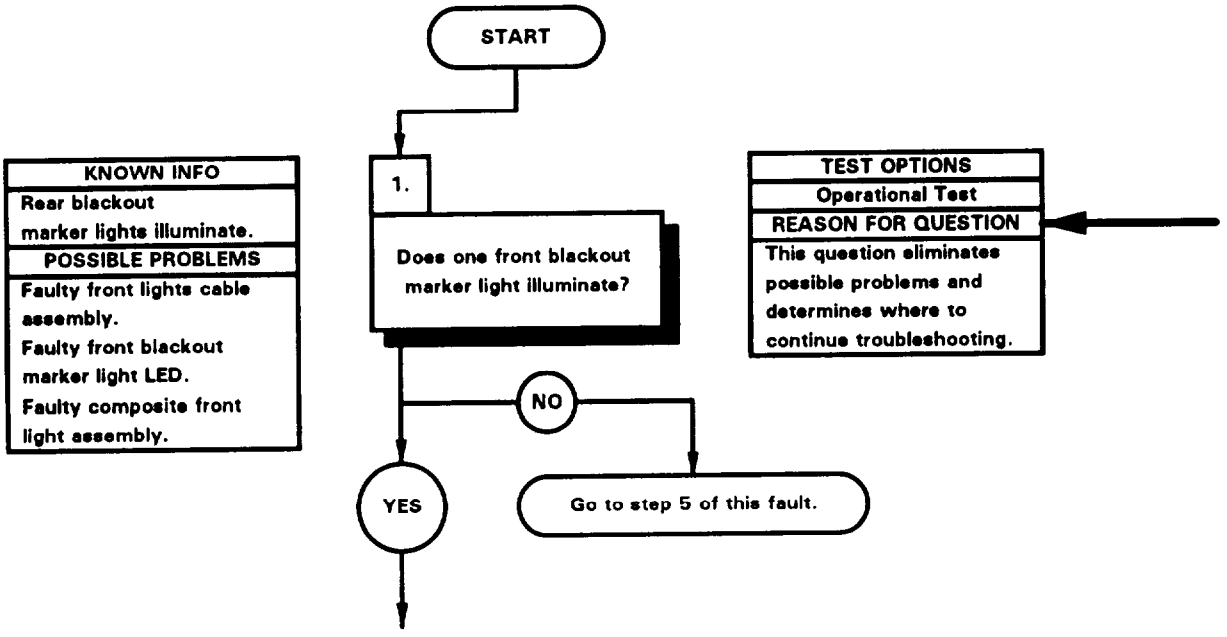
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Packing, Preformed (Item 191, Appendix G)

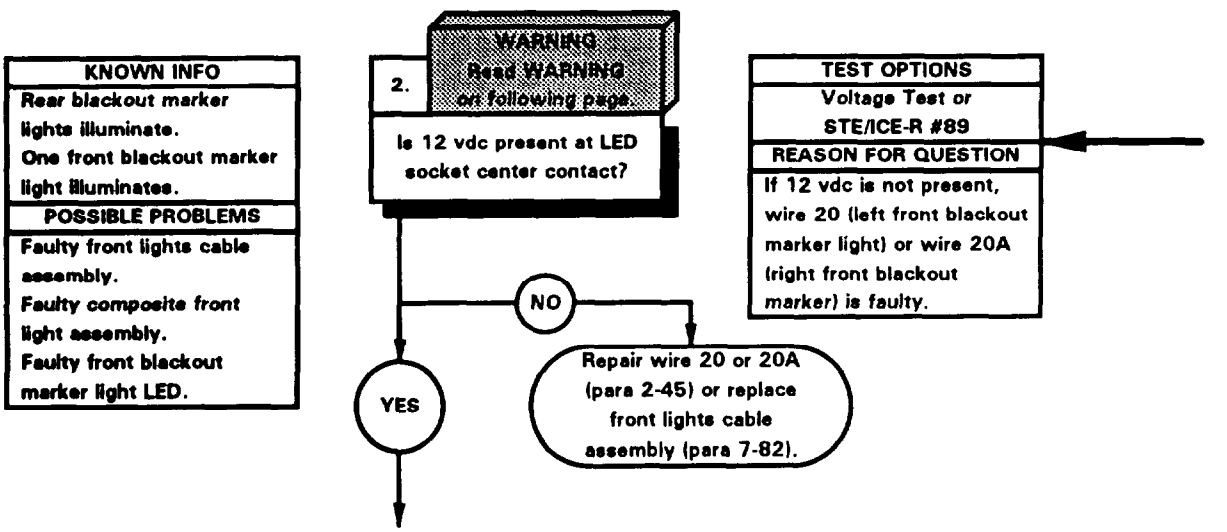
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P



OPERATIONAL TEST
(1) Position main light switch to BO MARKER (TM 9-2320-366-10-1).
(2) Observe front blackout marker lights and determine how many lights do not illuminate.
(3) If both marker lights do not illuminate, go to step 5 of this fault.
(4) Position main light switch to OFF (TM 9-2320-366-10-1).

e50. ONE OR BOTH FRONT BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE (CONT)

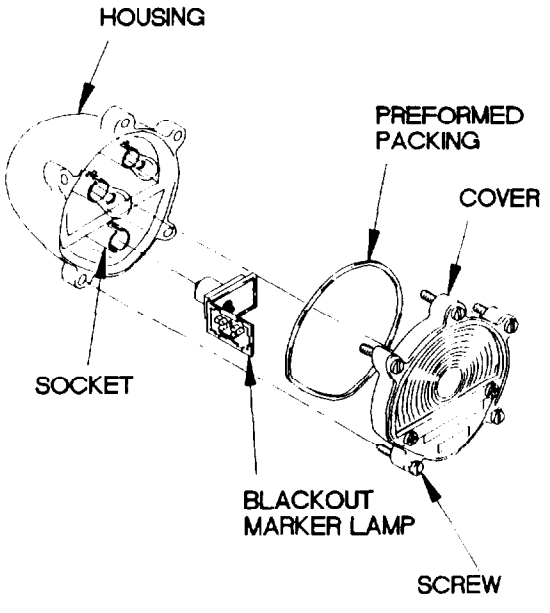


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

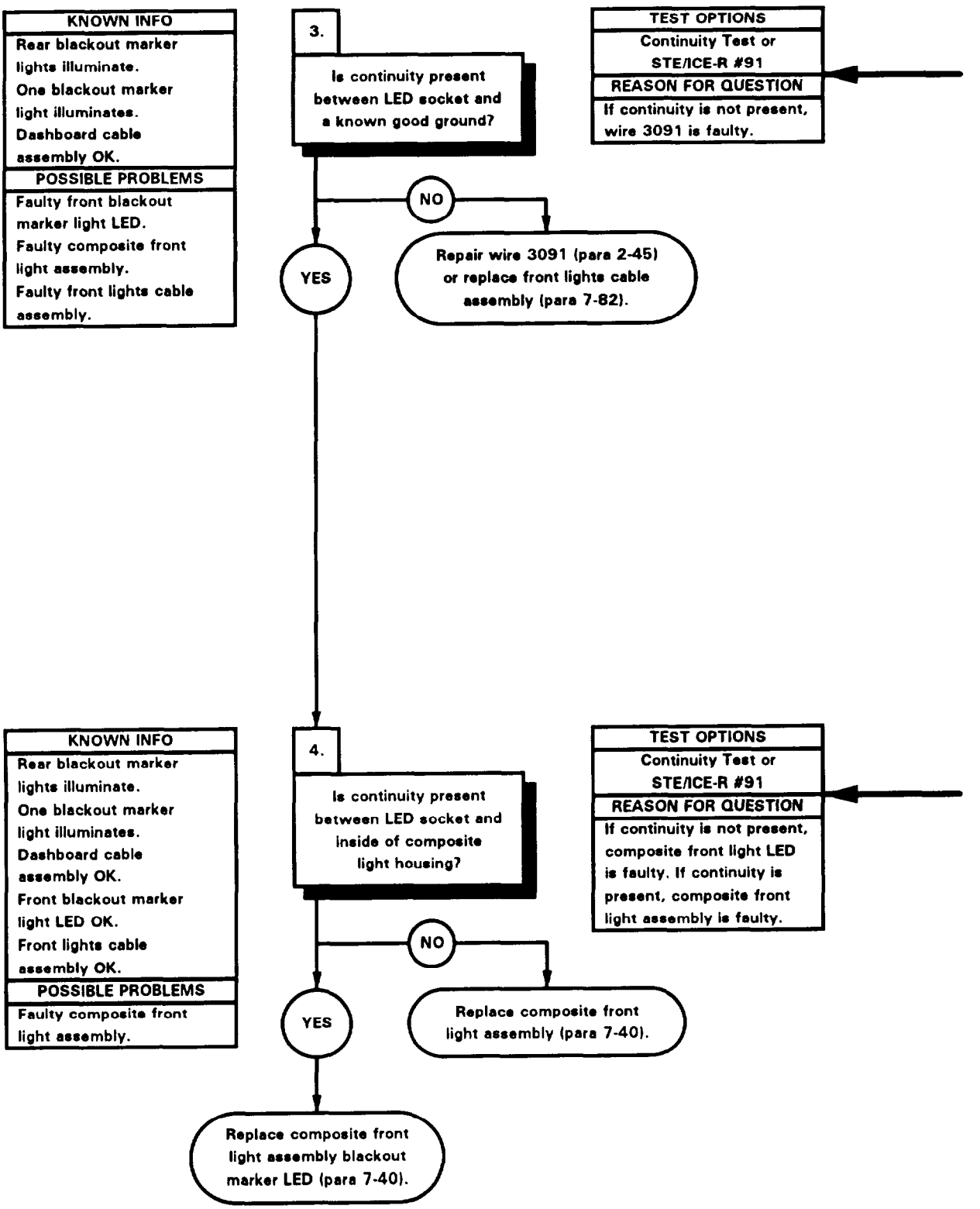
VOLTAGE TEST

(1) Loosen five screws on cover.
(2) Remove cover and preformed packing from housing. Discard preformed packing.
(3) Open blackout marker lamp.
(4) Remove blackout marker lamp from socket.
(5) Set multimeter to volts dc.
(6) Connect positive (+) probe of multimeter to LED socket center contact.
(7) Connect negative (-) probe of multimeter to ground.
(8) Position main light switch BO MARKER (TM 9-2320-366-10-1) and note reading on multimeter.
(9) If 12 vdc is not present, repair wire 20 (left front blackout marker) or wire 20A (right front blackout marker) (para 2-45) or replace front lights cable assembly (para 7-82).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).

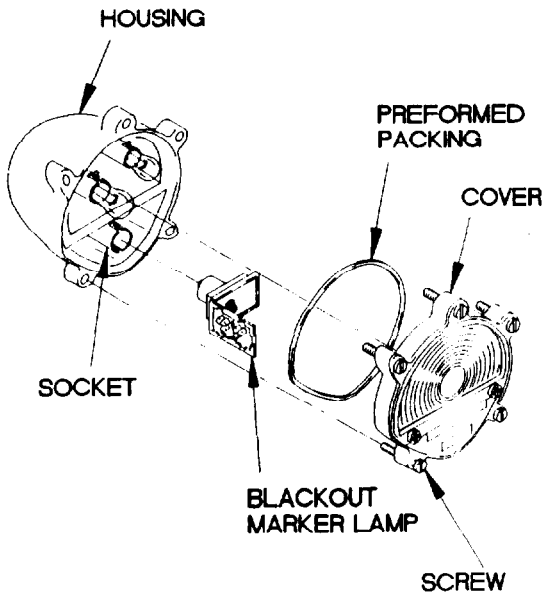


X2E4802-

e50. ONE OR BOTH FRONT BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE (CONT)



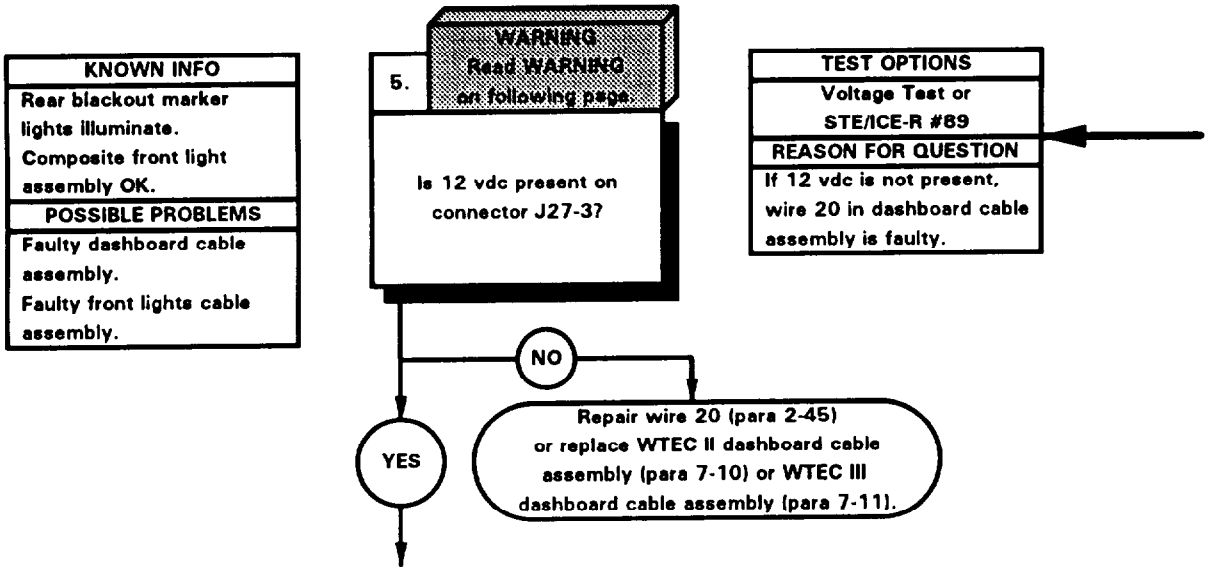
CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to LED socket.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3091 (para 2-45) or replace front lights cable assembly (para 7-82).



KDE4803

CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to inside of housing.
(3) Connect negative (-) probe of multimeter to socket and note reading on multimeter.
(4) If continuity is not present, replace composite front light assembly blackout marker LED (para 7-40).
(5) If continuity is present, replace composite front light assembly (para 7-40).
(6) Open blackout marker lamp.
(7) Install blackout marker lamp in socket.
(8) Install preformed packing and cover on housing with five screws.

e50. ONE OR BOTH FRONT BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE (CONT)

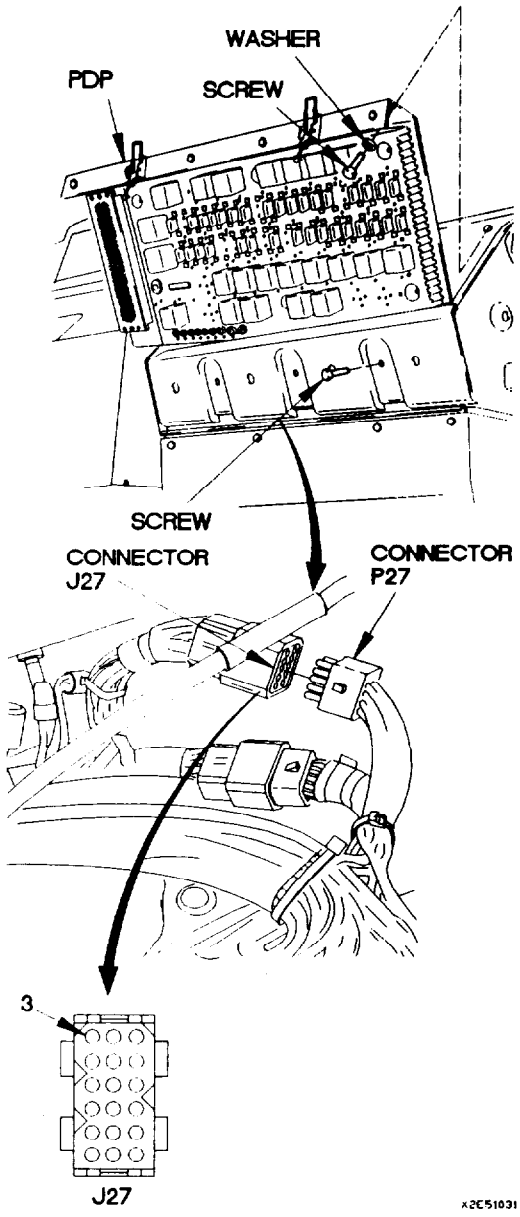


WARNING

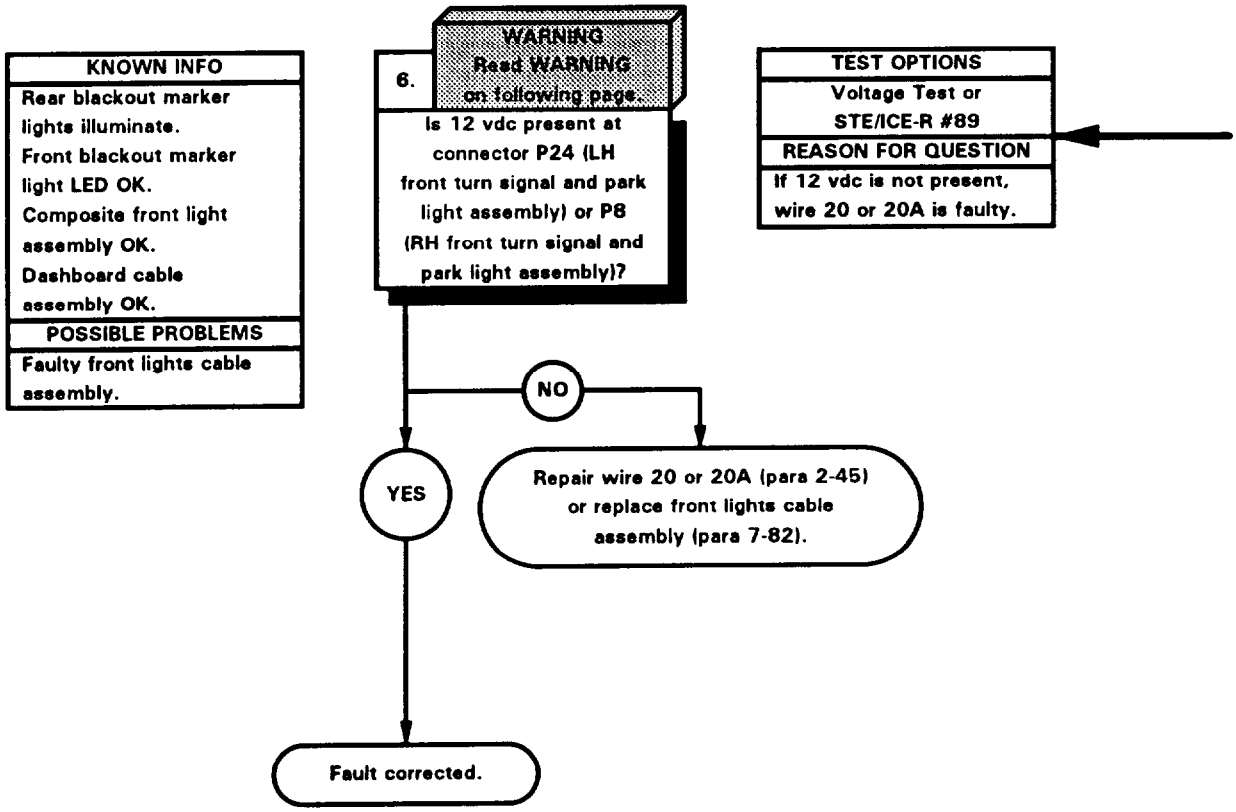
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector J27 from connector P27.
(6) Set multimeter to ohms.
(7) Connect positive (+) probe of multimeter to J27-3.
(8) Connect negative (-) probe of multimeter to ground.
(9) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(10) If 12 vdc is not present, repair wire 20 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(11) Position main light switch to OFF (TM 9-2320-366-10-1).
(12) Connect connector J27 to connector P27.
(13) Install PDP on dashboard with three screws.
(14) Install three washers and screws in PDP.
(15) Install PDP cover (para 16-2).



e50. ONE OR BOTH FRONT BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE (CONT)

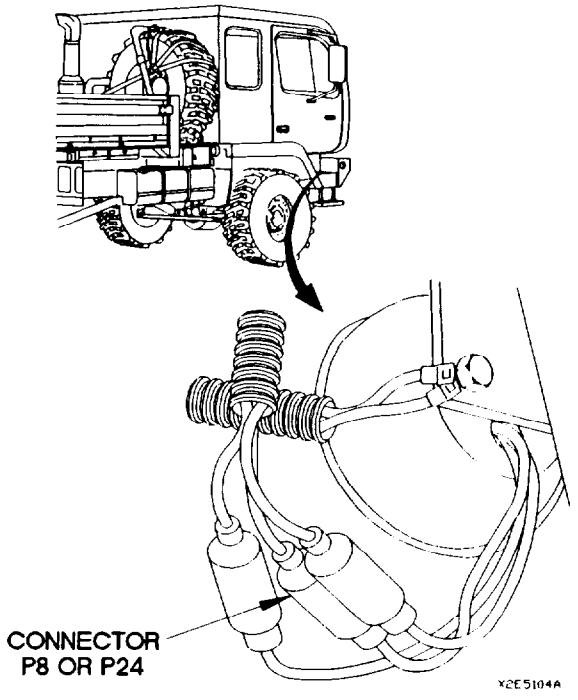


WARNING

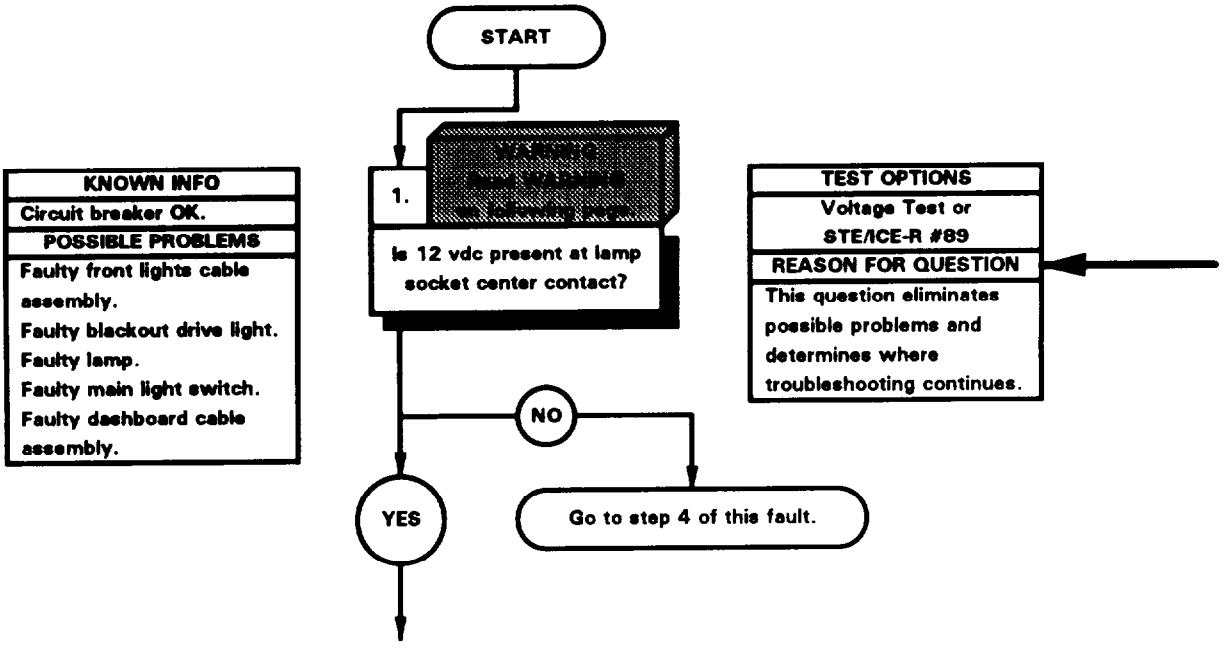
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

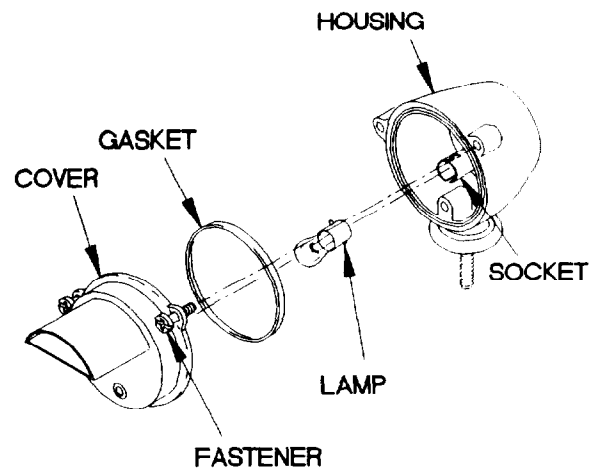
VOLTAGE TEST

(1) Disconnect connector P24 (LH composite front light assembly) or connector P8 (RH composite front assembly) from composite front assembly connector.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector P24 or connector P8.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to BO MARKER (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 12 vdc is not present, repair wire 20 or 20A (para 2-45) or replace front lights cable assembly (para 7-82).
(7) Position main light switch to OFF (TM 9-2320-366-10-1).
(8) Connect connector P24 or connector P8 to composite front light assembly connector.



e51. BLACKOUT DRIVE LIGHT DOES NOT ILLUMINATE	
INITIAL SETUP	
Equipment Condition Engine shut down (TM 9-2320-366-10-1).	**Tools and Special Tools** Tool Kit, Genl Mech (Item 46, Appendix C) STE/ICE-R (Item 41, Appendix C) Multimeter, Digital (Item 22, Appendix C)
Personnel Required (2)	**References** TM 9-4910-571-12&P
Materials/Parts Packing, Preformed (Item 189, Appendix G)	



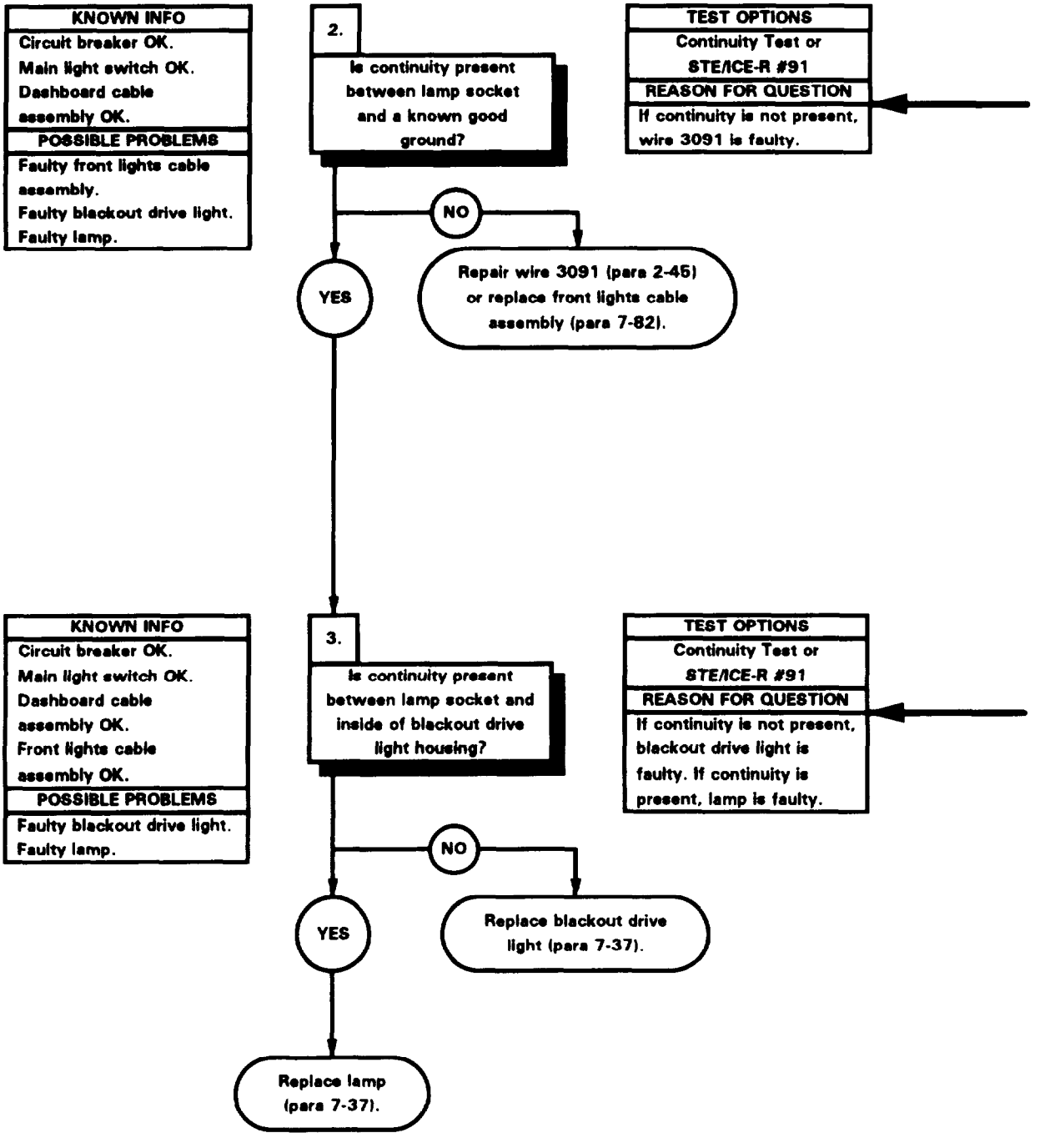


WARNING

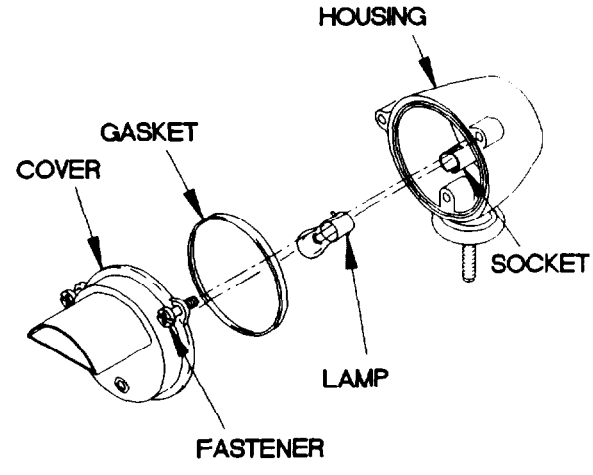
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST
(1) Loosen three screws on cover.
(2) Remove cover and gasket from housing. Discard gasket.
(3) Remove lamp from socket.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to lamp socket center contact.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position main light switch to BO DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 12 vdc is not present, go to step 4 of this fault.
(9) Position main light switch to OFF (TM 9-2320-366-10-1).

e51. BLACKOUT DRIVE LIGHT DOES NOT ILLUMINATE (CONT)



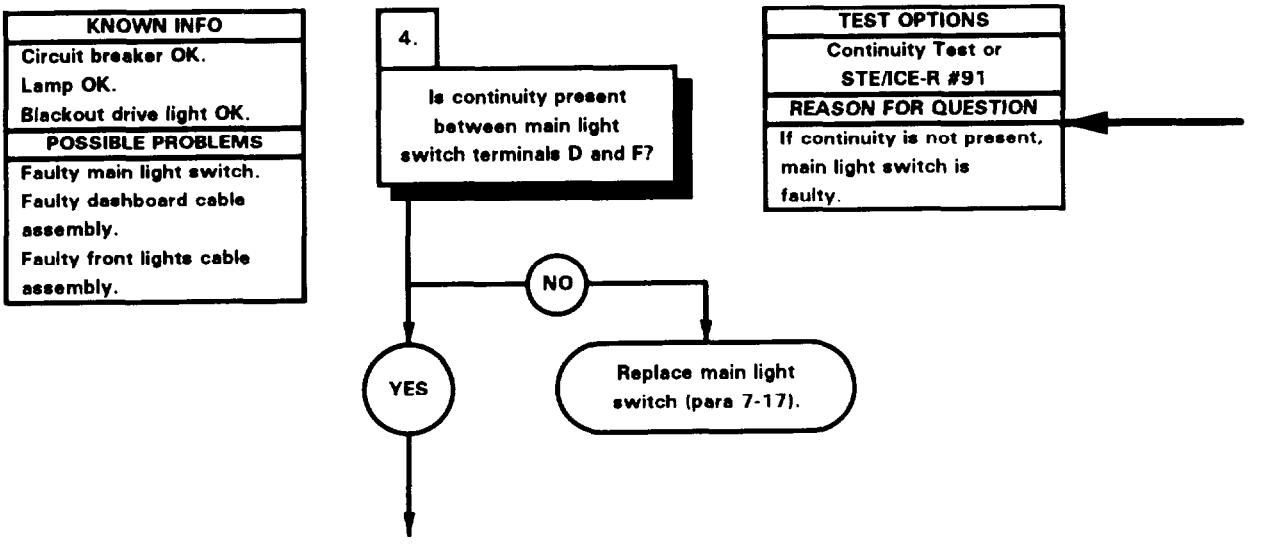
CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to lamp socket.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3091 (para 2-45) or replace front lights cable assembly (para 7-82).



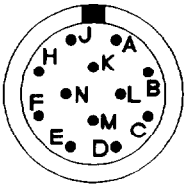
X2E4902-

CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to inside of blackout drive light housing.
(3) Connect negative (-) probe of multimeter to lamp socket and note reading on multimeter.
(4) If continuity is not present, replace blackout drive light (para 7-37).
(5) If continuity is present, replace lamp (para 7-37).
(6) Install lamp in socket.
(7) Install gasket and cover on housing with three screws.

e51. BLACKOUT DRIVE LIGHT DOES NOT ILLUMINATE (CONT)



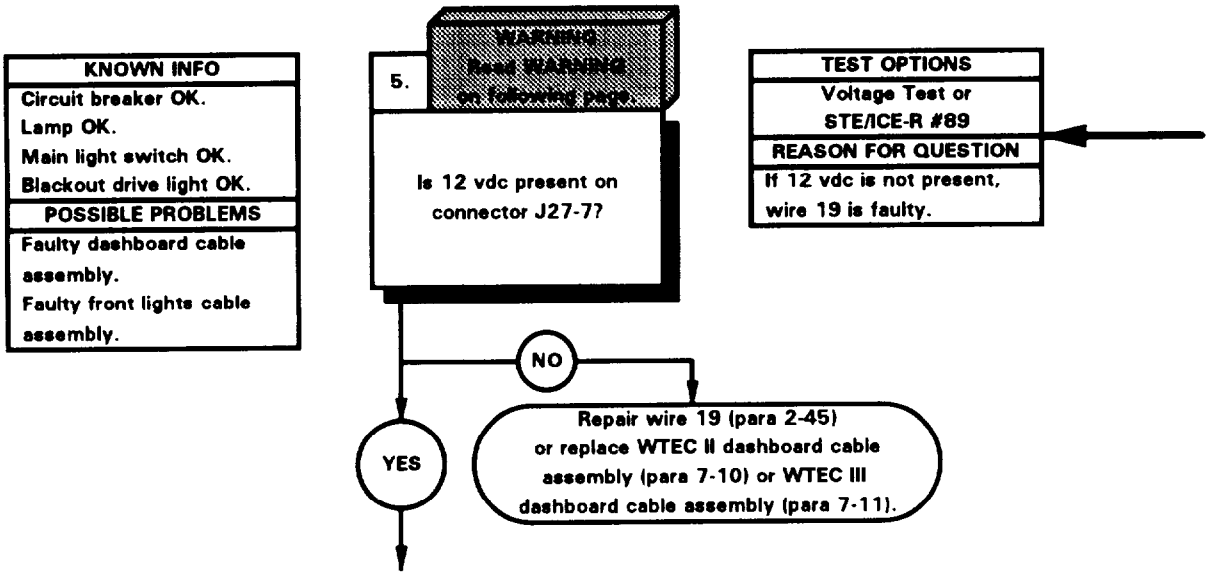
CONTINUITY TEST
(1) Remove main light switch (para 7-17).
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to main light switch terminal F.
(4) Connect negative (-) probe of multimeter to main light switch terminal D.
(5) Position main light switch to BO DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If continuity is not present, replace main light switch (para 7-17).
(7) Position main light switch to OFF (TM 9-2320-366-10-1).
(8) Install main light switch (para 7-17).



MAIN LIGHT SWITCH

X2E5203A

e51. BLACKOUT DRIVE LIGHT DOES NOT ILLUMINATE (CONT)

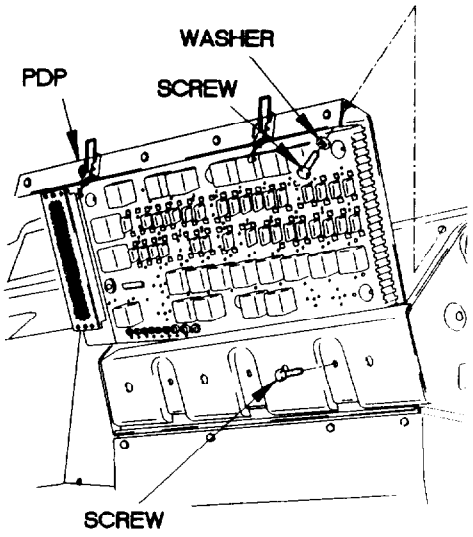


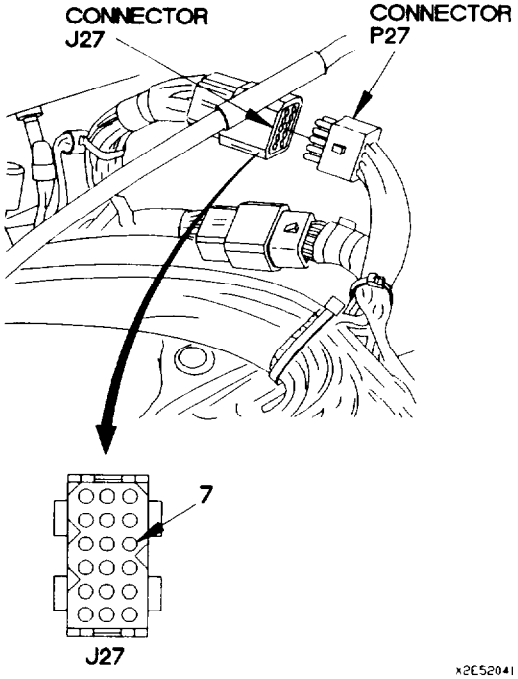
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

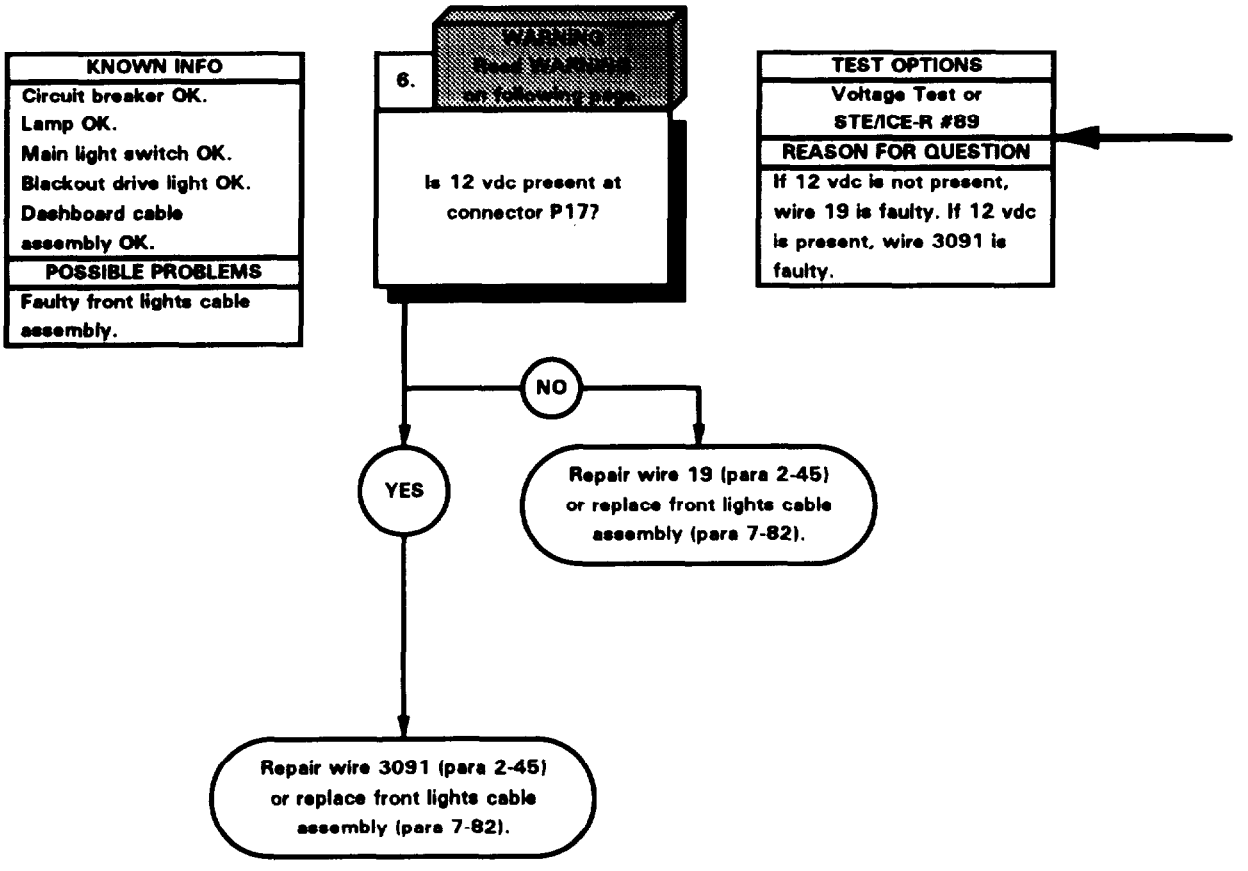
(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector J27 from connector P27.
(6) Set multimeter to volts dc.
(7) Connect positive (+) probe of multimeter to J27-7.
(8) Connect negative (-) probe of multimeter to ground.
(9) Position main light switch to BO DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(10) If 12 vdc is not present, repair wire 19 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(11) Position main light switch to OFF (TM 9-2320-366-10-1).
(12) Connect connector J27 to connector P27.
(13) Install PDP on dashboard with three screws.
(14) Install three washers and screws in PDP.
(15) Install PDP cover (para 16-2).





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e51. BLACKOUT DRIVE LIGHT DOES NOT ILLUMINATE (CONT)

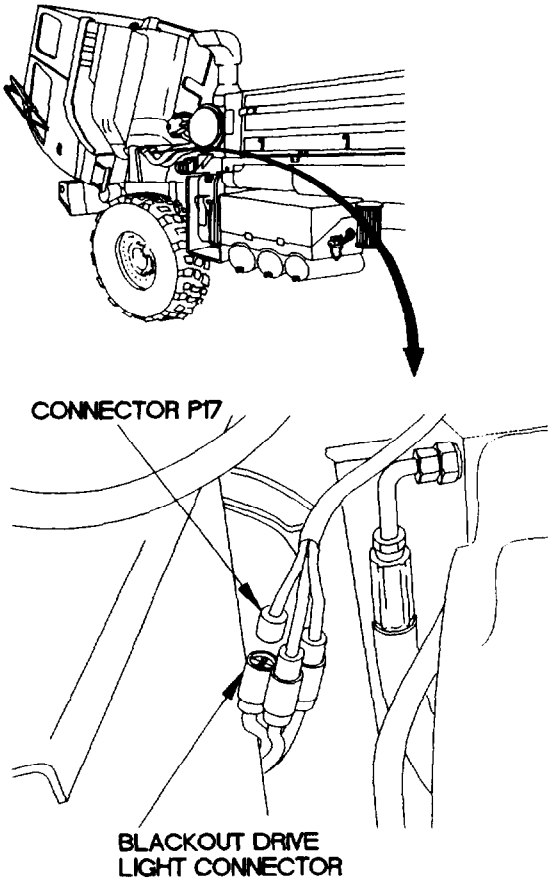


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Disconnect connector P17 from blackout drive light connector.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector P17.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to BO DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 12 vdc is not present, repair wire 19 (para 2-45) or replace front lights cable assembly (para 7-82).
(7) If 12 vdc is present, repair wire 3091 (para 2-45) or replace front lights cable assembly (para 7-82).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).
(9) Connect connector P17 to blackout drive light connector.



X2E5205A

e52. ONE OR BOTH REAR BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE

INITIAL SETUP

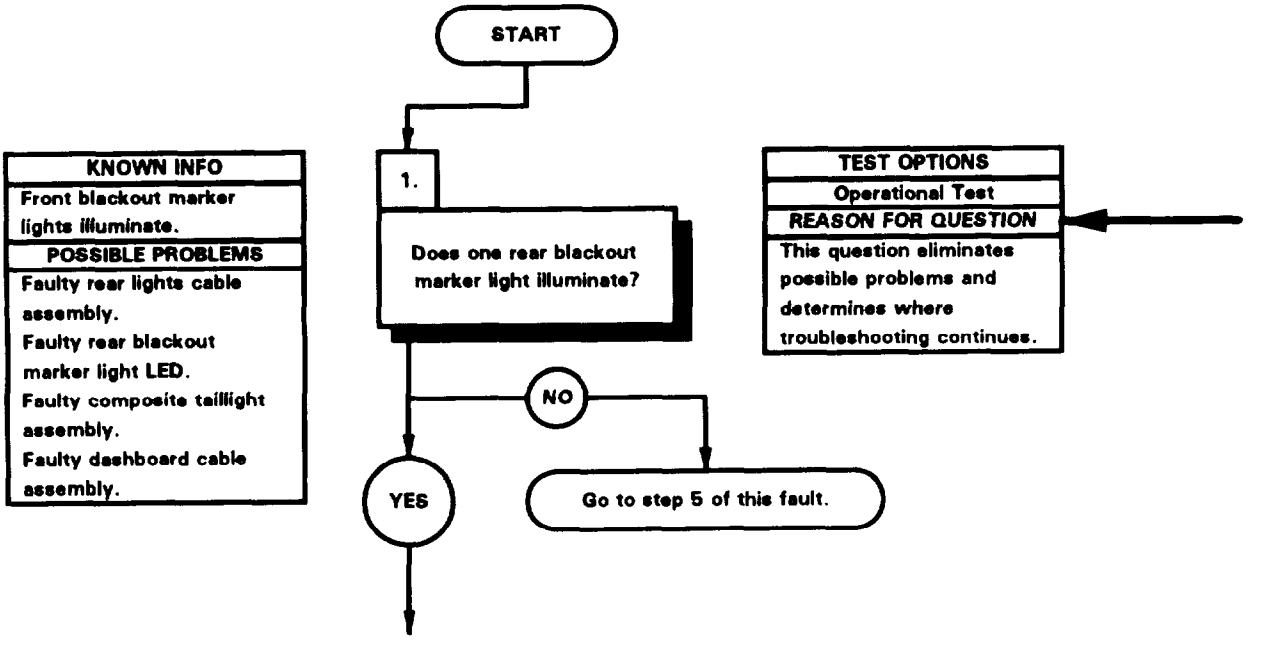
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Packing, Preformed (Item 191, Appendix G)
Nut, Self-Locking (Item 128, Appendix G)

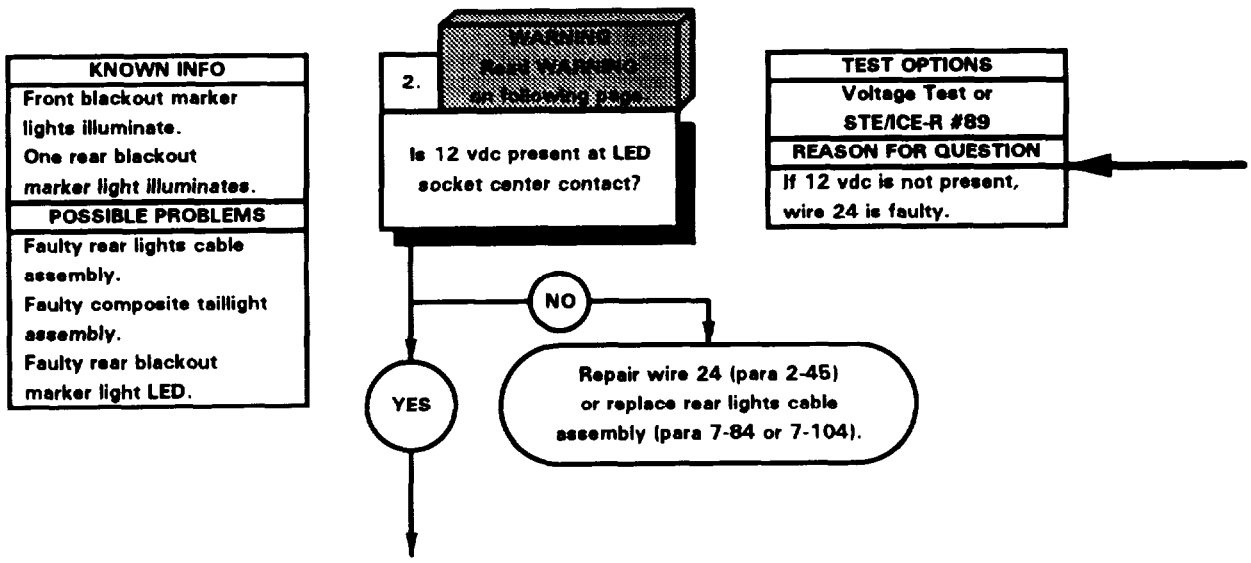
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P



OPERATIONAL TEST
(1) Position main light switch to BO MARKER (TM 9-2320-366-10-1).
(2) Observe operation of blackout marker lights at rear of vehicle.
(3) If neither rear blackout marker light illuminates, go to step 5 of this fault.
(4) Position main light switch to OFF (TM 9-2320-366-10-1).

e52. ONE OR BOTH REAR BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE (CONT)

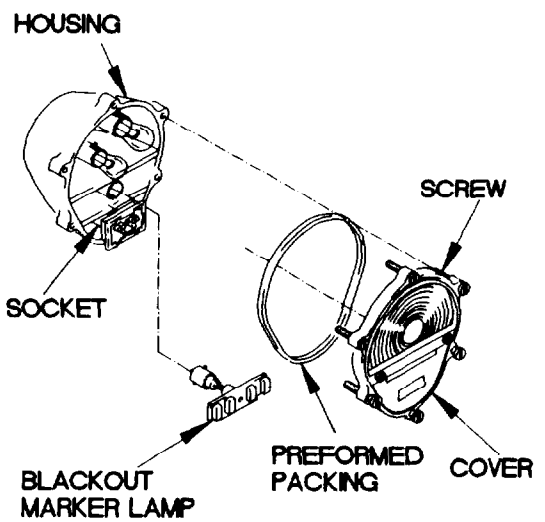


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

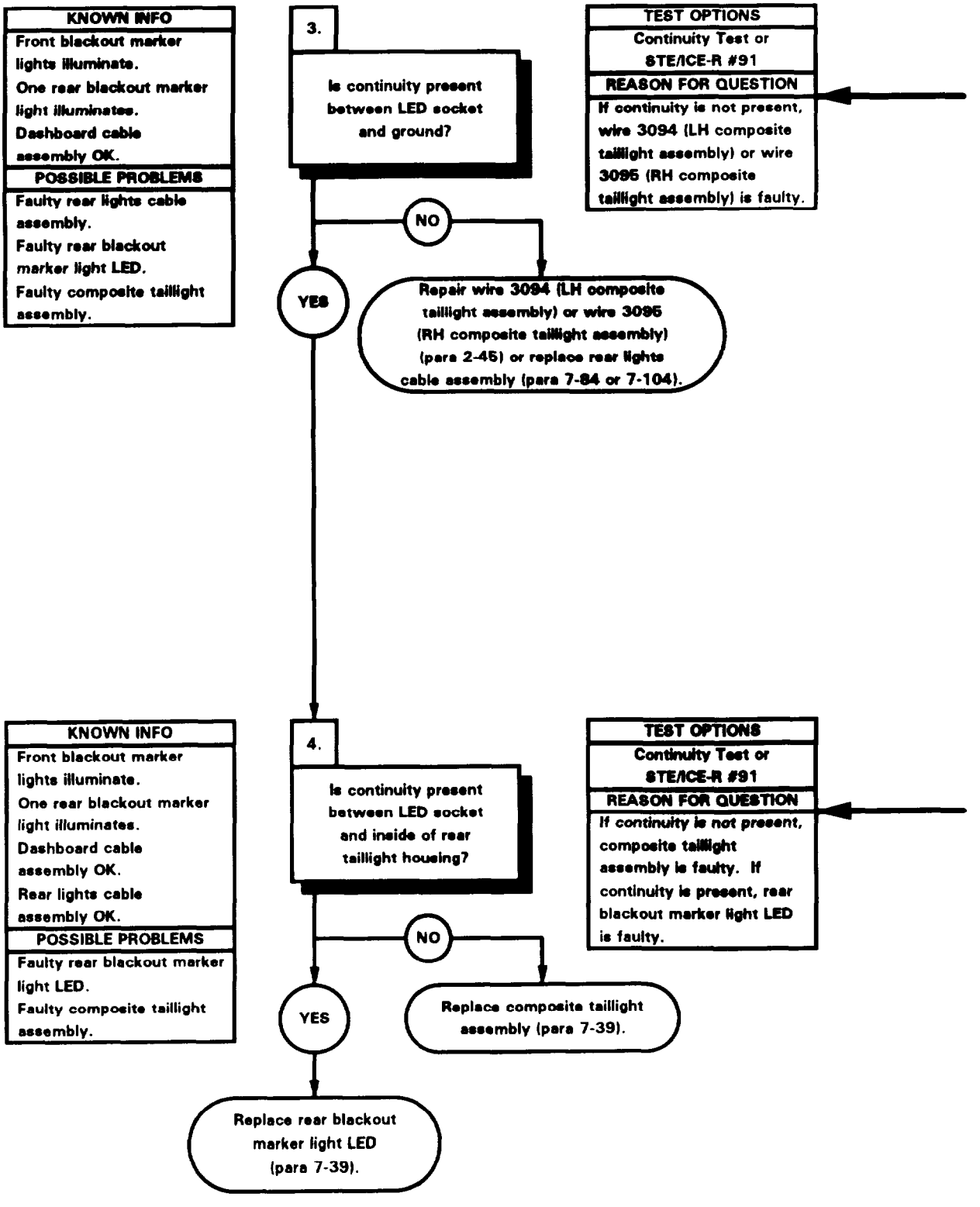
VOLTAGE TEST

(1) Loosen six screws and remove cover and preformed packing from housing. Discard preformed packing.
(2) Open blackout marker lamp.
(3) Remove blackout marker lamp from socket.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to LED socket center contact.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position main light switch to BO MARKER (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 12 vdc is not present, repair wire 24 (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).

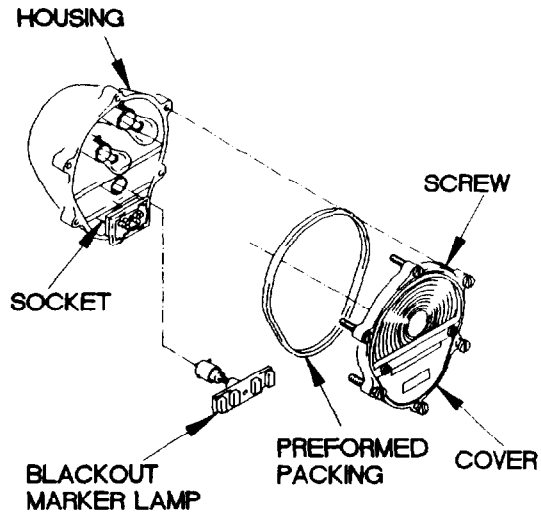


x2E5002A

e52. ONE OR BOTH REAR BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE (CONT)



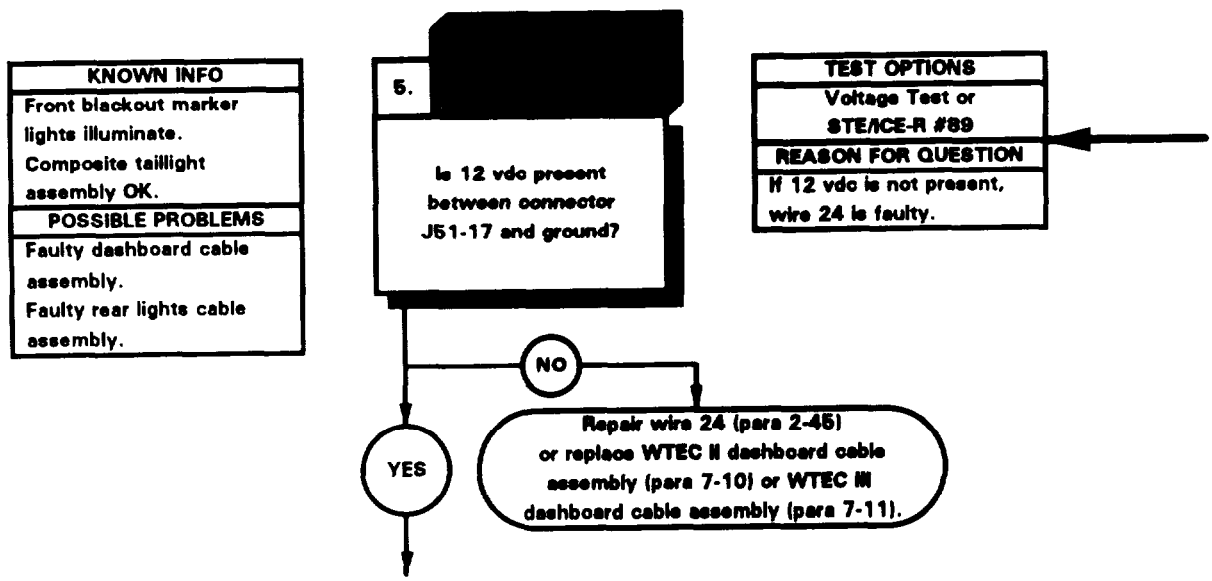
CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to LED socket.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3094 (LH composite taillight assembly) or wire 3095 (RH composite taillight assembly) (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).



X2E5002A

CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to inside of housing.
(3) Connect negative (-) probe of multimeter to LED socket and note reading on multimeter.
(4) If continuity is not present, replace composite taillight assembly (para 7-39).
(5) If continuity is present, replace rear blackout marker light LED (para 7-39).
(6) Open blackout marker lamp.
(7) Install blackout marker lamp in socket.
(8) Install preformed packing and cover on housing with six screws.

e52. ONE OR BOTH REAR BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE (CONT)

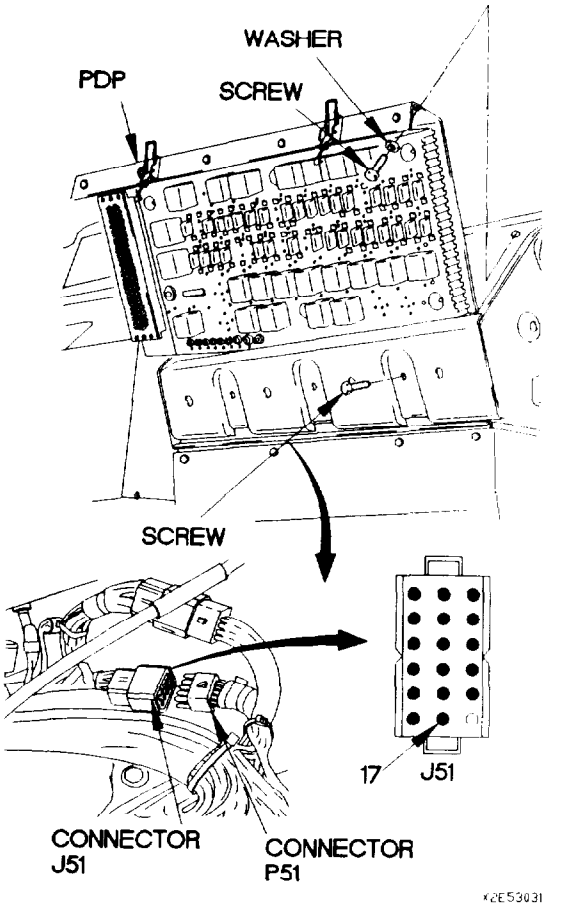


WARNING

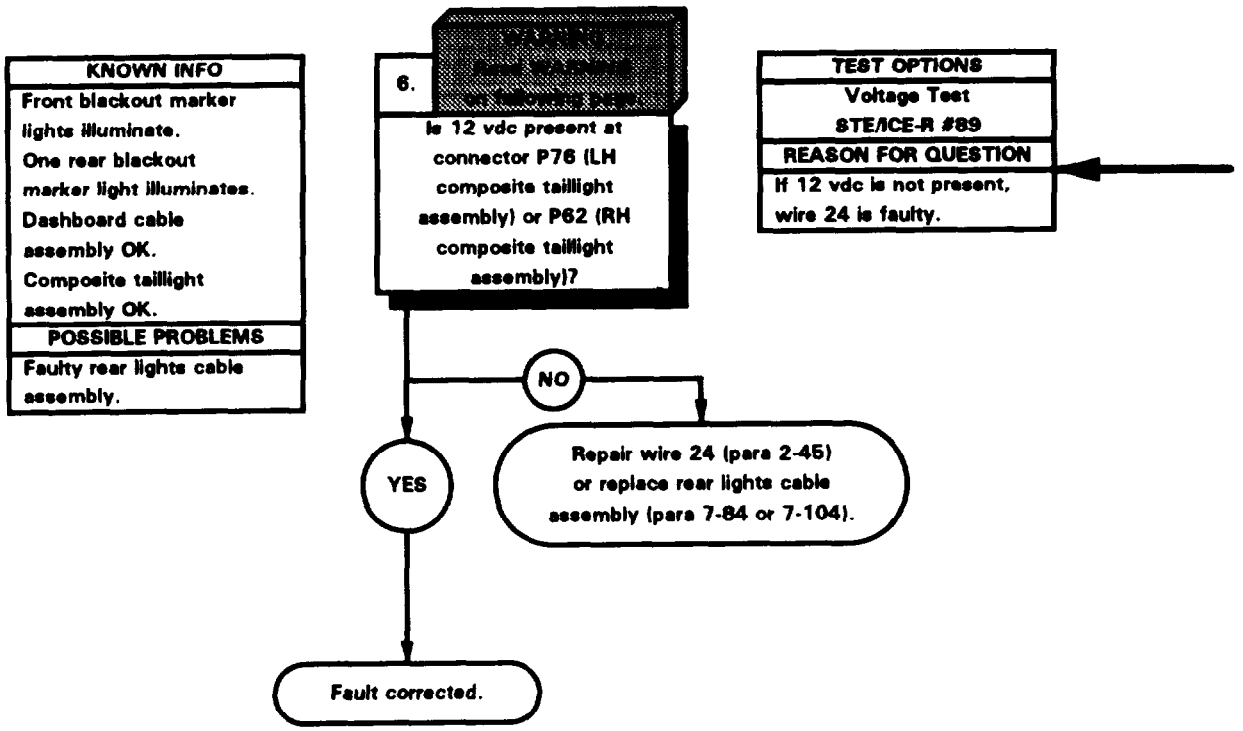
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector J51 from connector P51.
(6) Set multimeter to volts dc.
(7) Connect positive (+) probe of multimeter to J51-17.
(8) Connect negative (-) probe of multimeter to ground.
(9) Position main light switch to BO MARKER (TM 9-2320-366-10-1) and note reading on multimeter.
(10) If 12 vdc is not present, repair wire 24 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(11) Position main light switch to OFF (TM 9-2320-366-10-1).
(12) Connect connector J51 to connector P51.
(13) Install PDP on dashboard with three screws.
(14) Install three washers and screws in PDP.
(15) Install PDP cover (para 16-2).



e52. ONE OR BOTH REAR BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE (CONT)

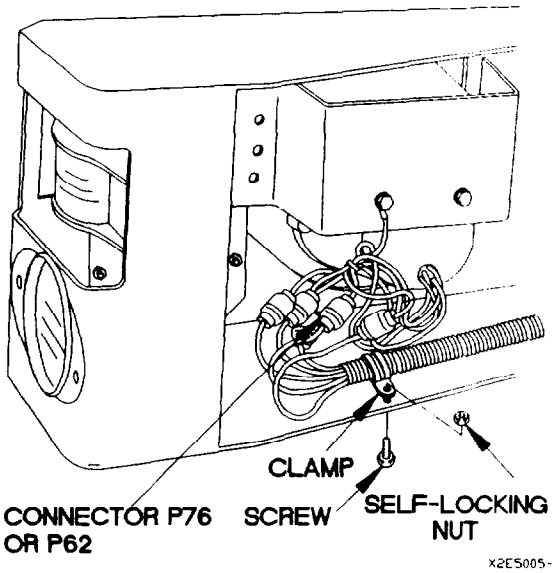


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove self-locking nut, screw, and clamp from vehicle. Discard self-locking nut.
(2) Disconnect connector P76 (LH composite taillight assembly) or connector P62 (RH composite taillight assembly) from composite taillight assembly.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector P76 (LH composite taillight assembly) or connector P62 (RH composite taillight assembly).
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to BO MARKER (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 24 (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).
(9) Connect connector P76 (LH composite taillight assembly) or connector P62 (RH composite taillight assembly) to composite taillight assembly.
(10) Install clamp on vehicle with screw and self-locking nut.



e53. AMBER WARNING LIGHT DOES NOT ILLUMINATE (ALL MODELS EXCEPT M1089)

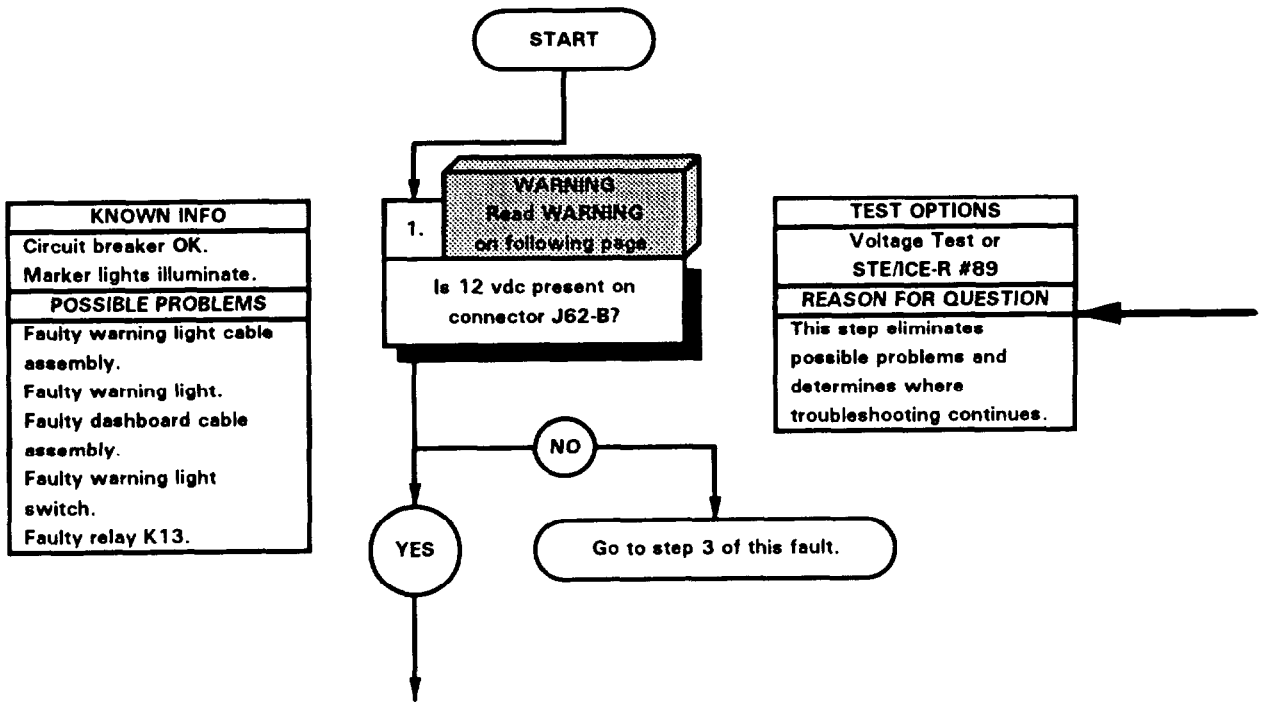
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

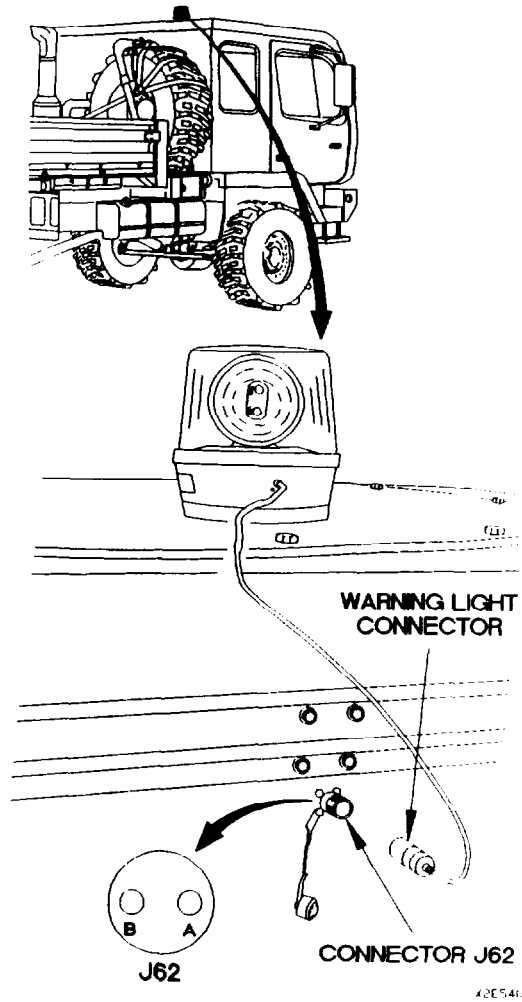


WARNING

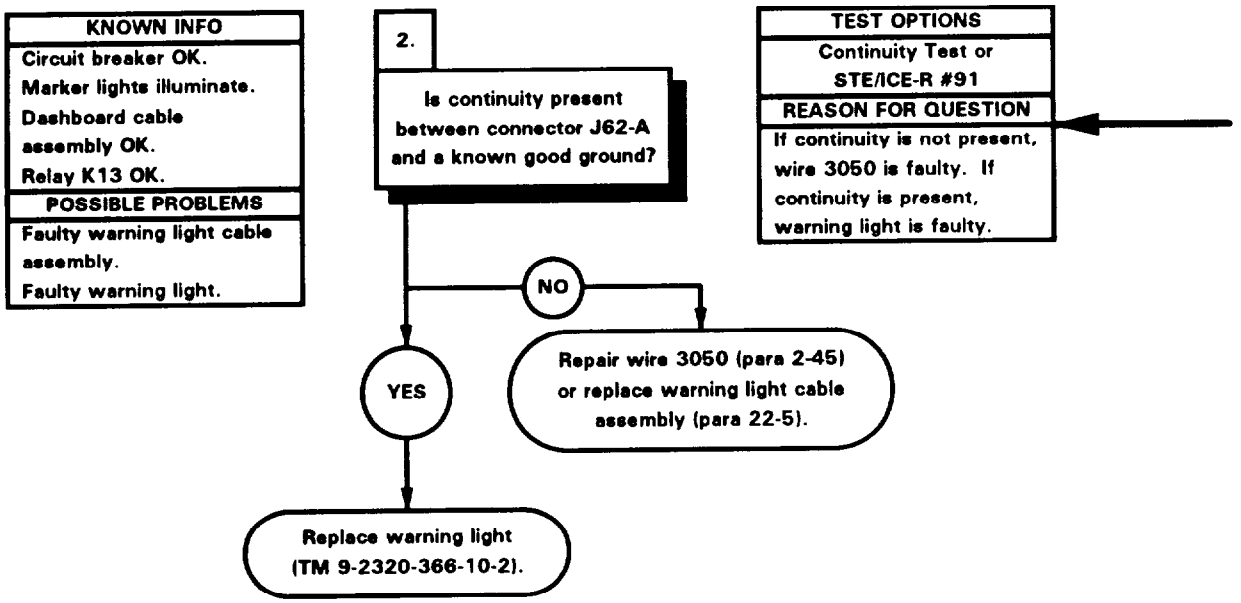
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

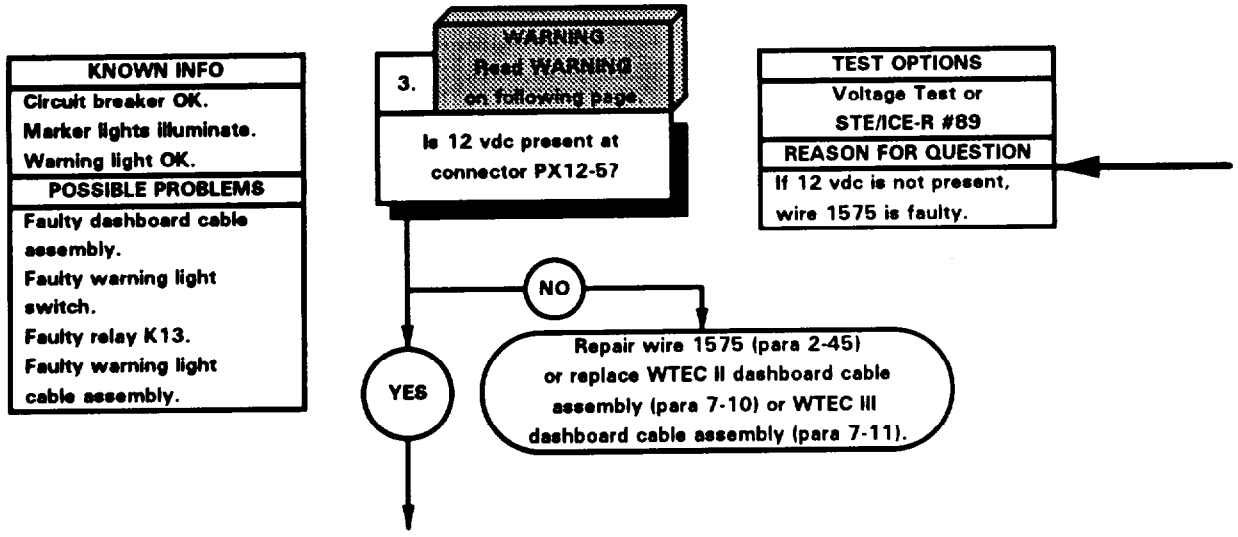
VOLTAGE TEST

(1) Disconnect warning light connector from connector J62.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J62-B.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Position warning light switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, go to step 3 of this fault.
(8) Position warning light switch to off (TM 9-2320-366-10-1).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).



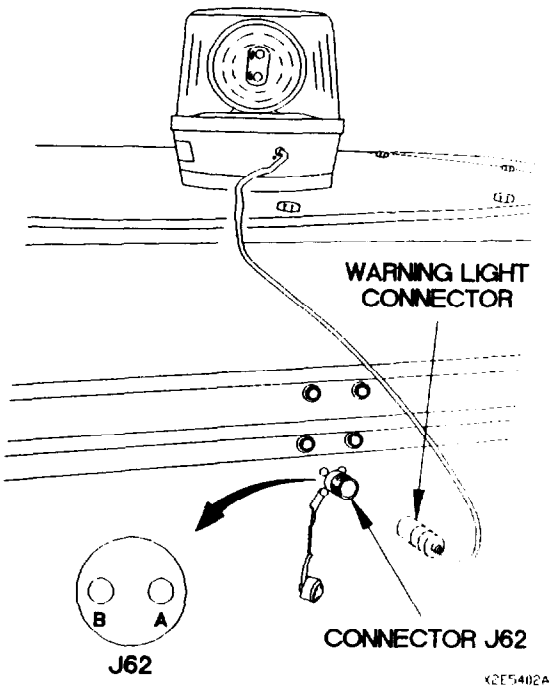
e53. AMBER WARNING LIGHT DOES NOT ILLUMINATE (ALL MODELS EXCEPT M1089) (CONT)





CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector J62-A.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3050 (para 2-45) or replace warning light cable assembly (para 22-5).
(5) If continuity is present, replace warning light (TM 9-2320-366-10-2).

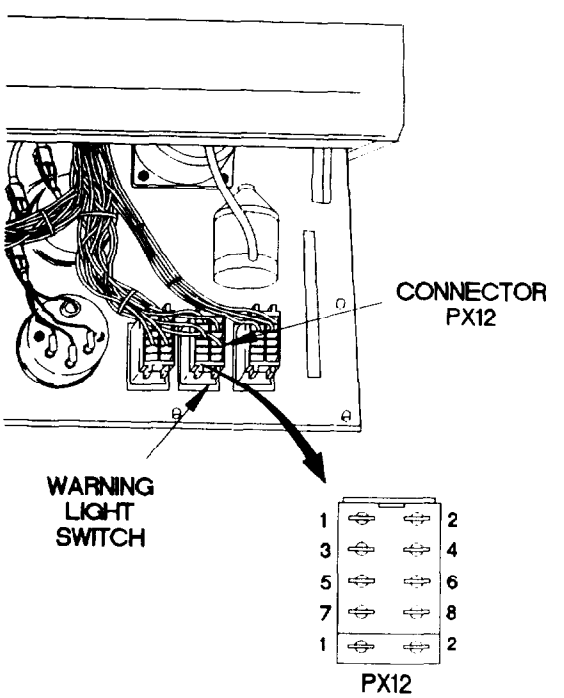


WARNING

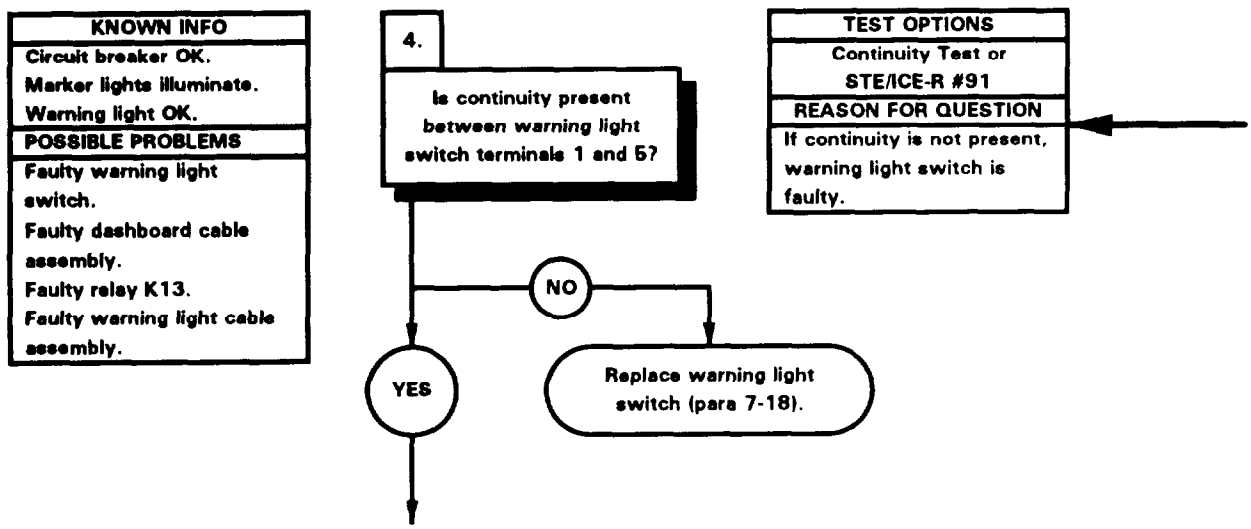
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Set multimeter to volts dc.
(3) Disconnect connector PX12 from warning light switch.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(5) Connect positive (+) probe of multimeter to connector PX12-5.
(6) Connect negative (-) probe of multimeter to ground.
(7) If 12 vdc is not present, repair wire 1575 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).

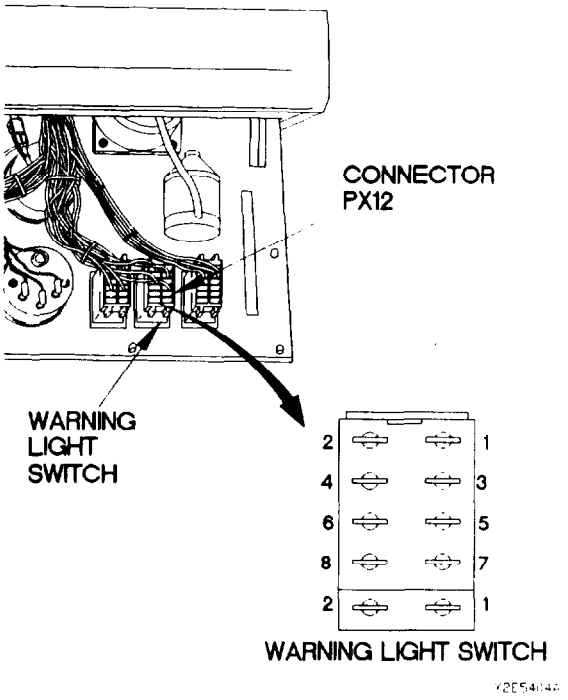


e53. AMBER WARNING LIGHT DOES NOT ILLUMINATE (ALL MODELS EXCEPT M1089) (CONT)

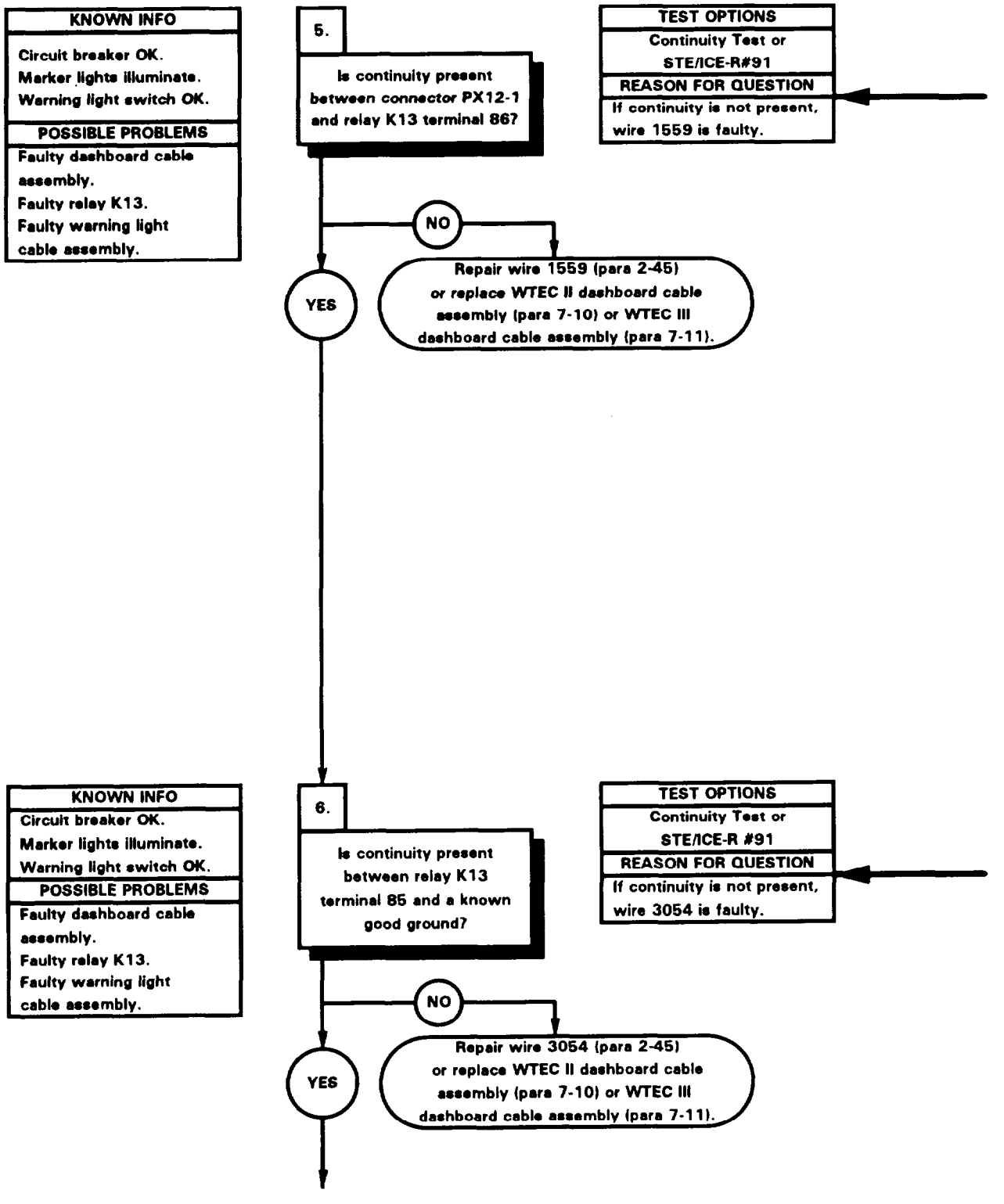


CONTINUITY TEST

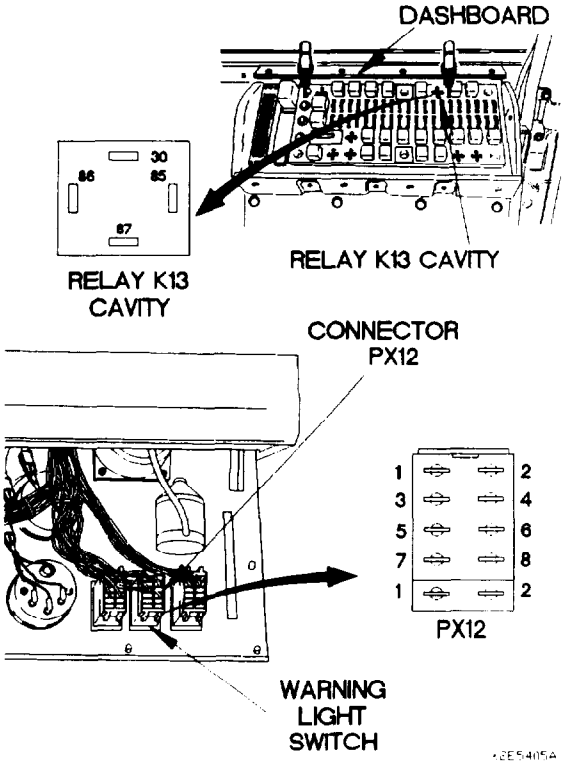
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to warning light switch terminal 1.
(3) Connect negative (-) probe of multimeter to warning light switch terminal 5.
(4) Position warning light switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If continuity is not present, replace warning light switch (para 7-18).



e53. AMBER WARNING LIGHT DOES NOT ILLUMINATE (ALL MODELS EXCEPT M1089) (CONT)

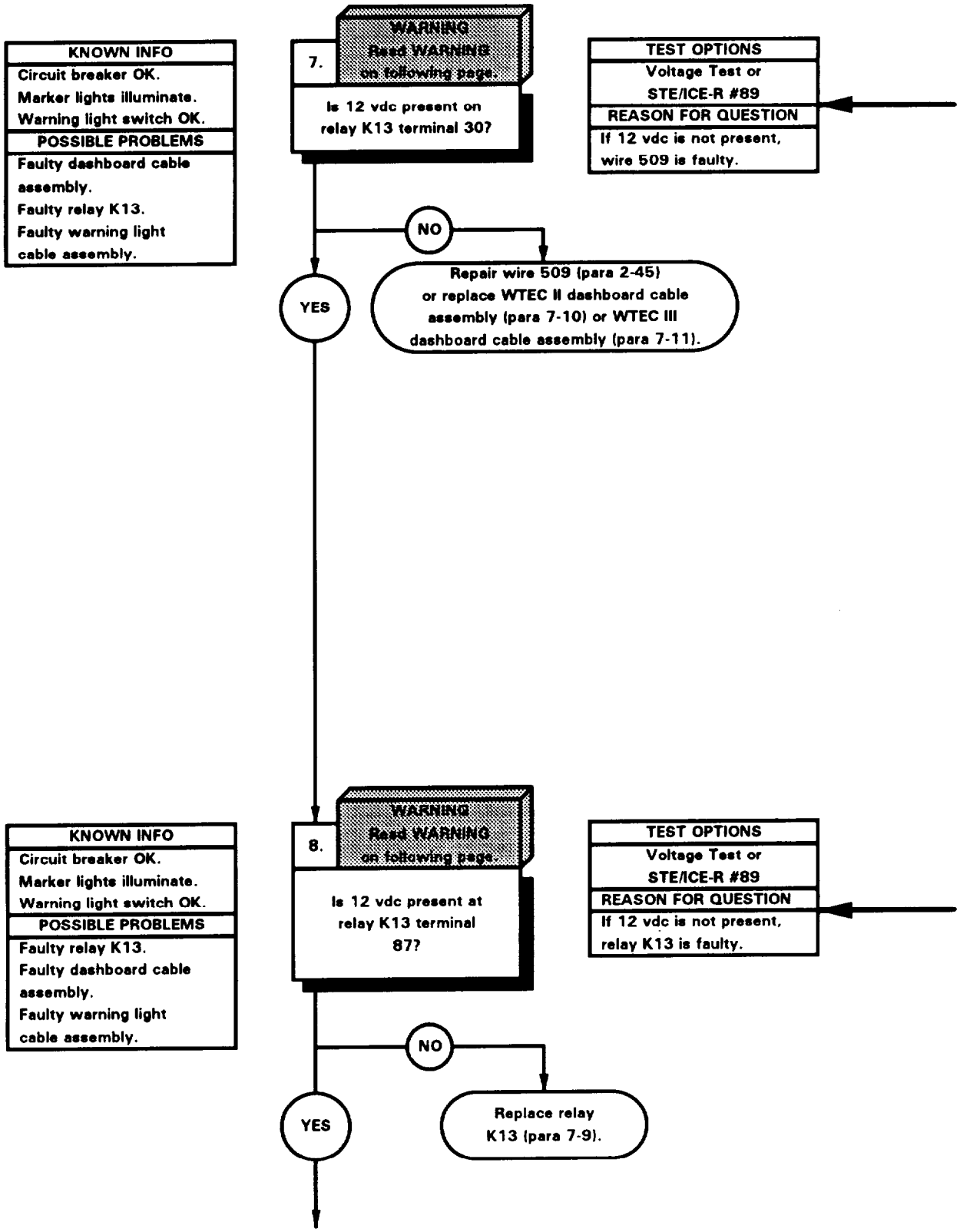


CONTINUITY TEST
(1) Remove PDP cover (para 16-2).
(2) Remove relay K13 from PDP.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to PDP, socket 86, where relay K13 was removed.
(5) Connect negative (-) probe of multimeter to connector PX12-1 and note reading on multimeter.
(6) If continuity is not present, repair wire 1559 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Connect connector PX12 to warning light switch.
(8) Install instrument panel assembly (para 7-15).



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, socket 85, where relay K13 was removed.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3054 (para 2-45)or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).

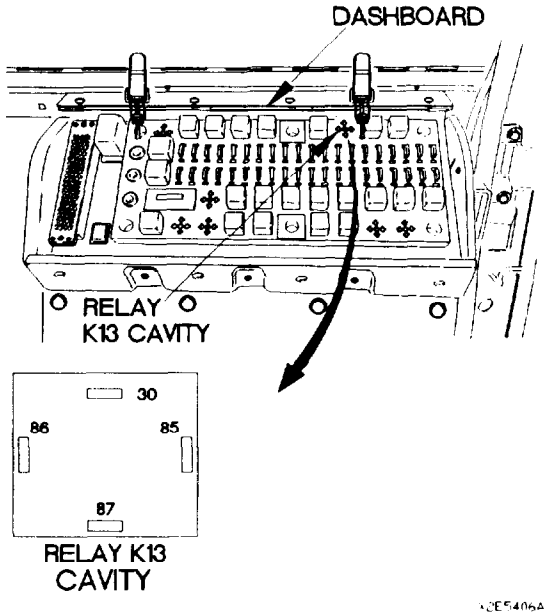
e53. AMBER WARNING LIGHT DOES NOT ILLUMINATE (ALL MODELS EXCEPT M1089) (CONT)



WARNING

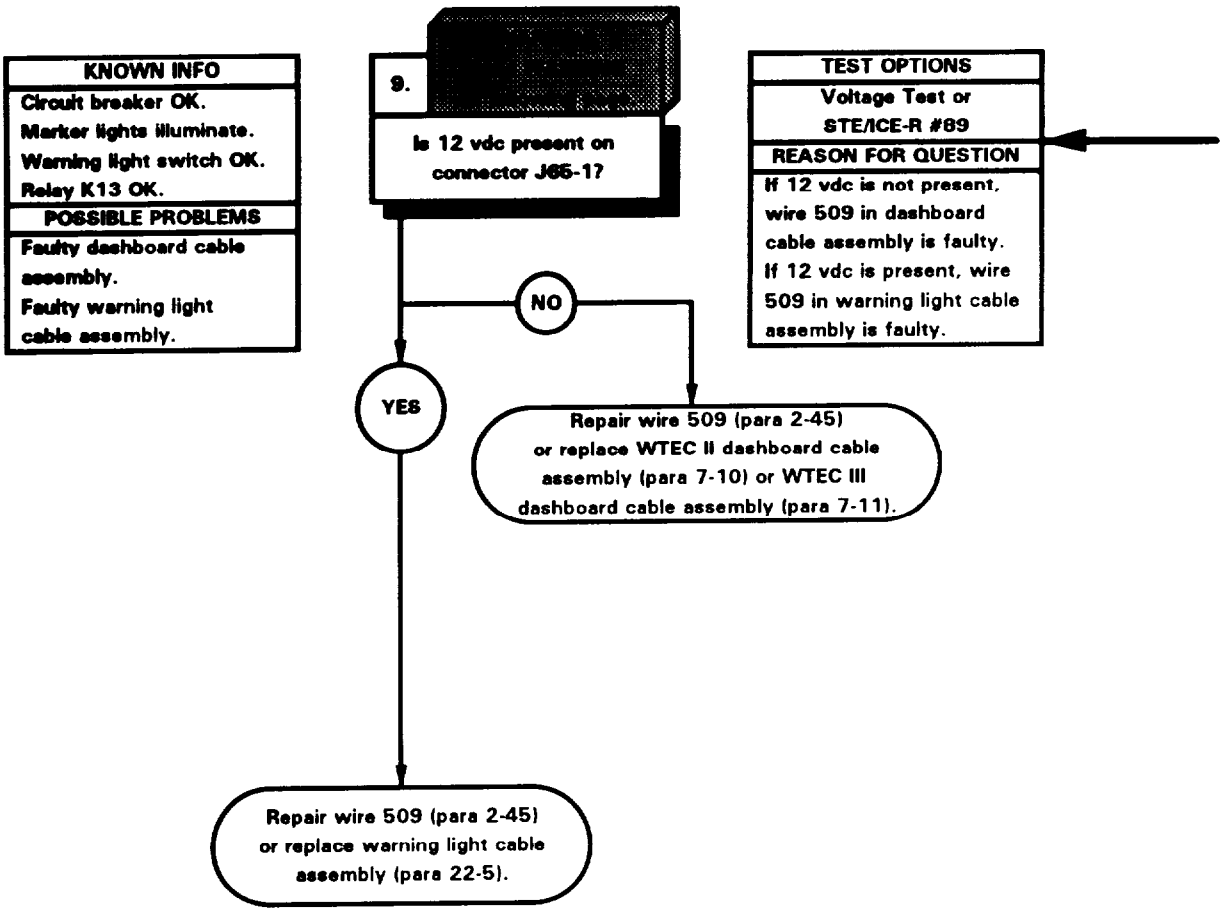
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, socket 30, where relay K13 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(5) Position warning light switch to on (TM 9-2320-366-10-1).
(6) If 12 vdc is not present, repair wire 509 (para 2-45)or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position warning light switch to off (TM 9-2320-366-10-1).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).



VOLTAGE TEST
(1) Install relay K13 in PDP.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to relay K13 terminal 87.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Position warning light switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, replace relay K13 (para 7-9).
(8) Position warning light switch to off (TM 9-2320-366-10-1).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).

e53. AMBER WARNING LIGHT DOES NOT ILLUMINATE (ALL MODELS EXCEPT M1089) (CONT)

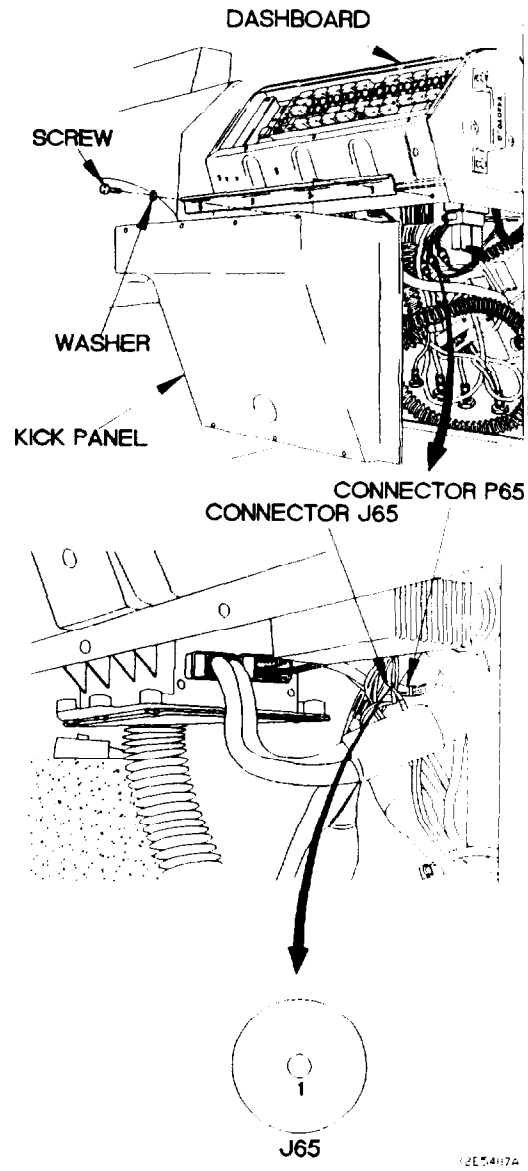


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove seven screws and washers from kick panel.
(2) Remove kick panel and stiffener from dashboard.
(3) Disconnect connector P65 from connector J65.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector J65-1.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(8) Position warning light switch to on (TM 9-2320-366-10-1).
(9) If 12 vdc is not present, repair wire 509 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(10) If 12 vdc is present, repair wire 509 (para 2-45) or replace warning light cable assembly (para 22-5).
(11) Position warning light switch to off (TM 9-2320-366-10-1).
(12) Position main light switch to OFF (TM 9-2320-366-10-1).
(13) Connect connector P65 to connector J65.
(14) Install kick panel (para 16-3).



e54. M1089 AMBER WARNING LIGHT DOES NOT ILLUMINATE

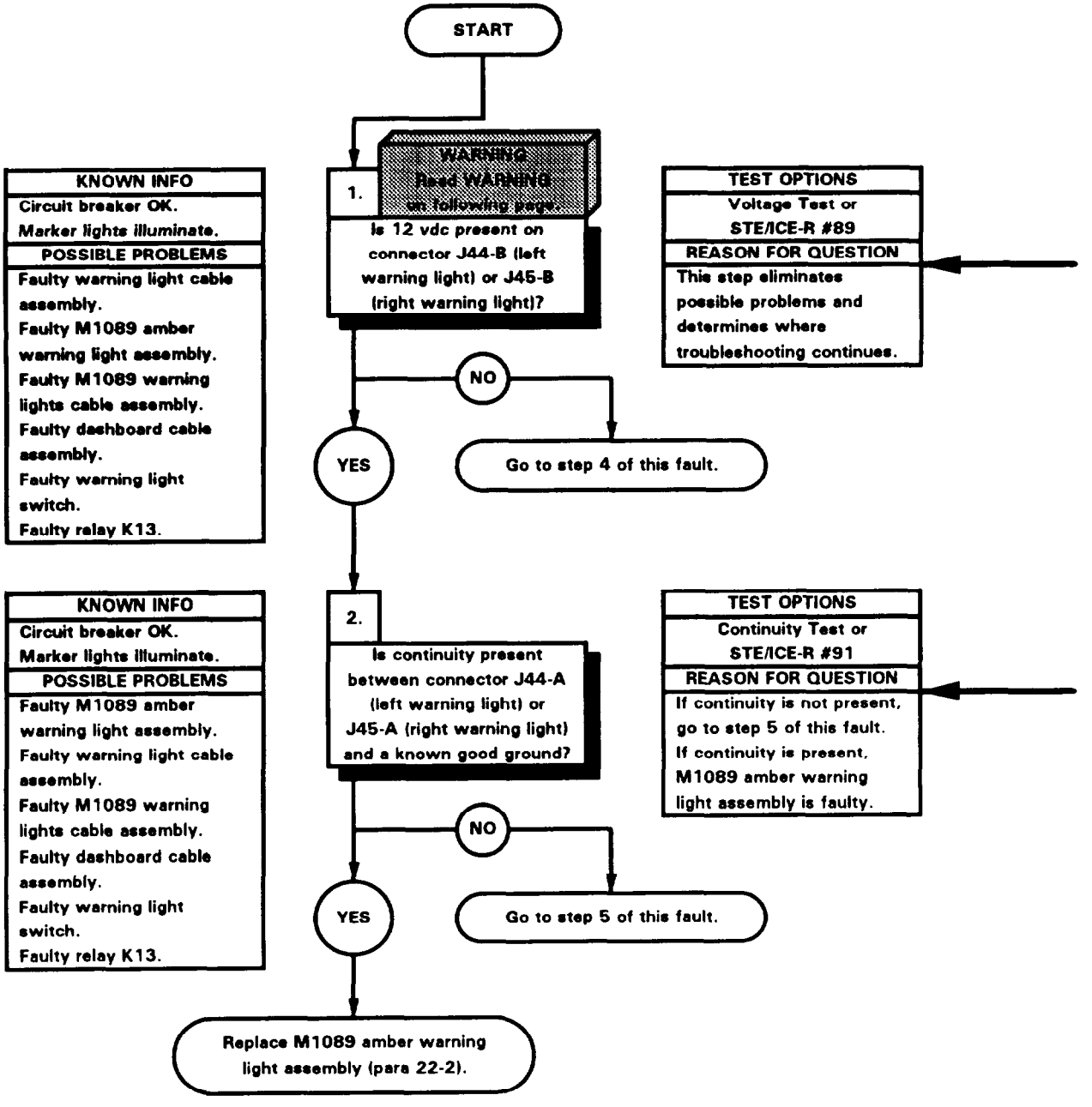
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P



WARNING

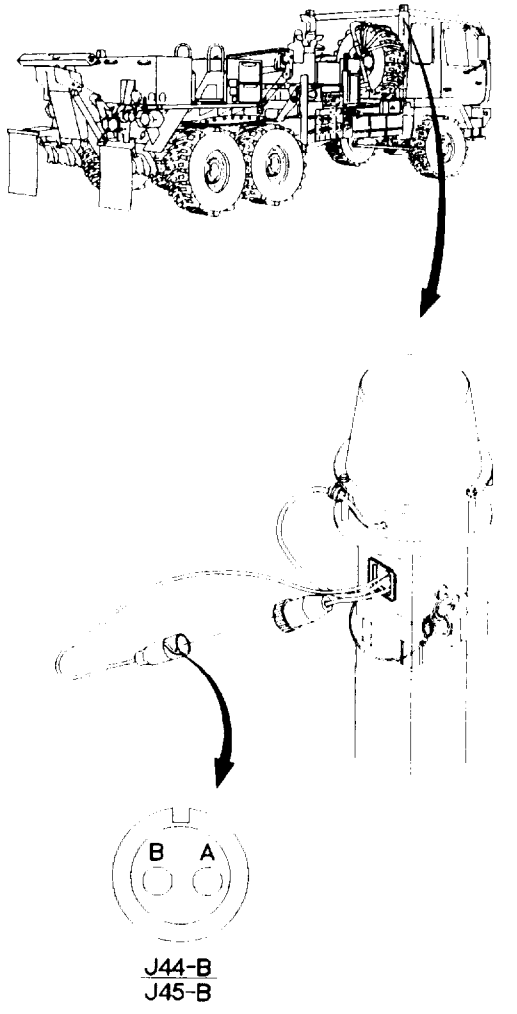
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

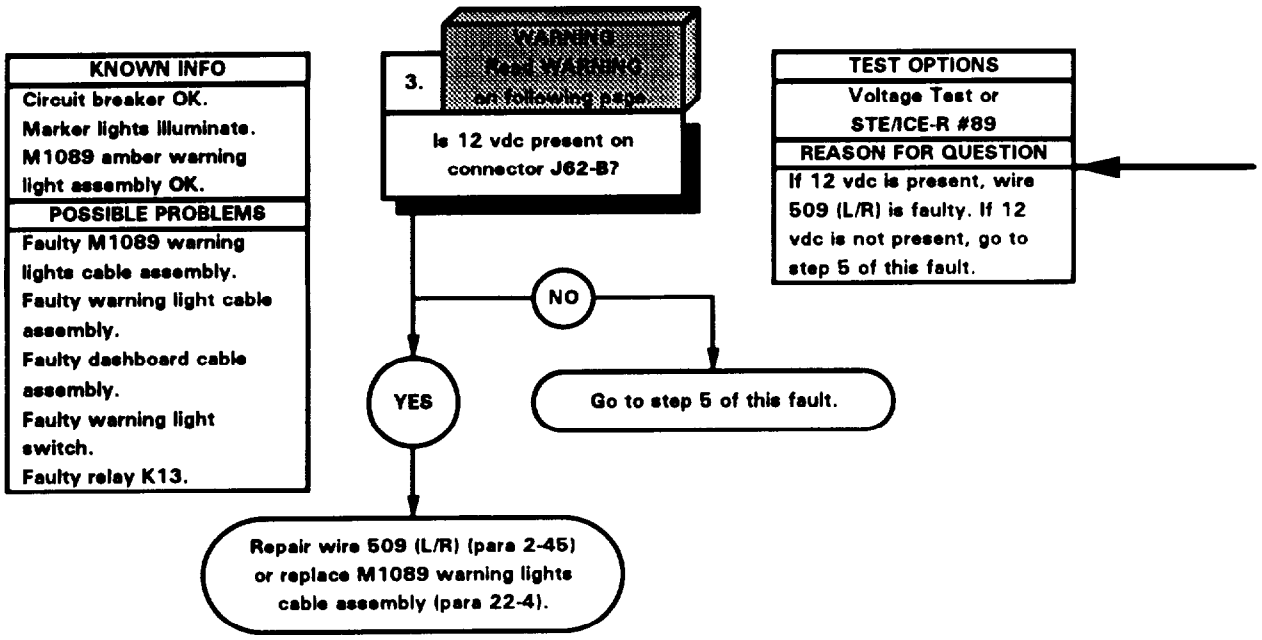
(1) Disconnect warning light connector from connector J44 (left) or J45 (right).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J44-B (left) or J45-B (right).
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Position warning light switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, go to step 4 of this fault.
(8) Position warning light switch to off (TM 9-2320-366-10-1).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).

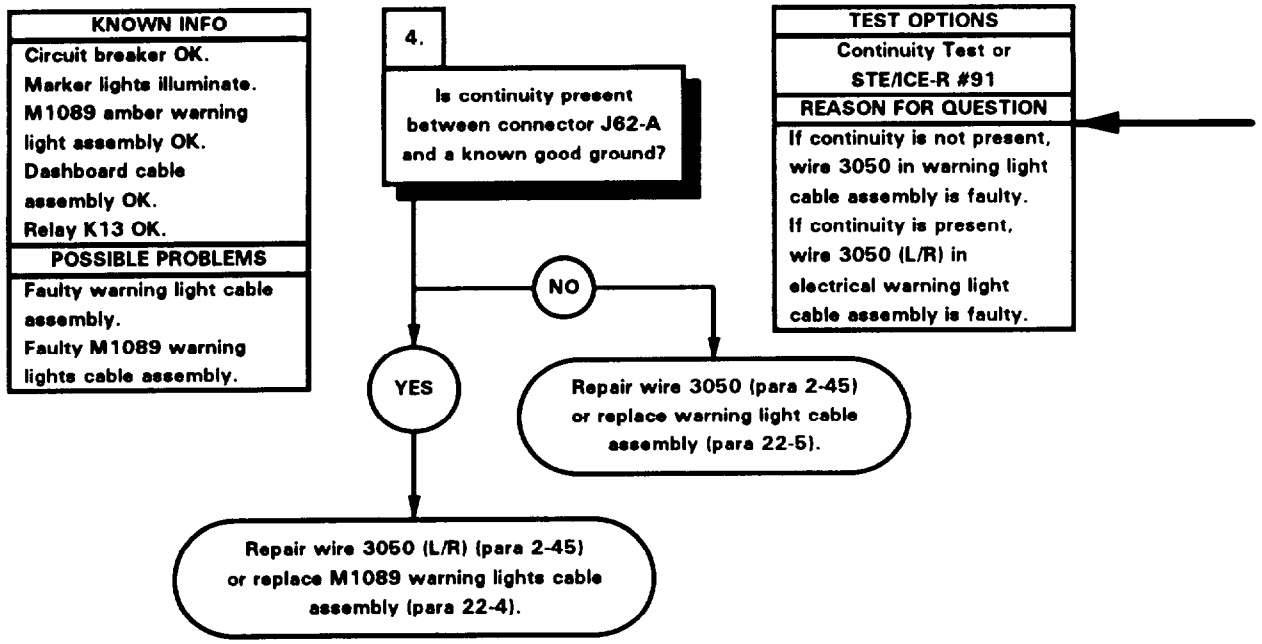
CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector J44-A (left) or J45-A (right).
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, go to step 5 of this fault.
(5) If continuity is present, replace M1089 amber warning light assembly (para 22-2).
(6) Connect connector J44 (left) or J45 (right) to warning light connector.



e54. M1089 AMBER WARNING LIGHT DOES NOT ILLUMINATE (CONT)



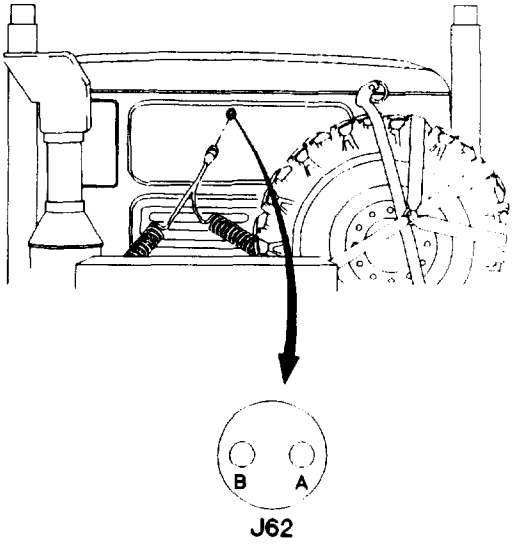


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Disconnect connector P62A from connector J62.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J62-B.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Position warning light switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, go to step 5 of this fault.
(8) If 12 vdc is present, repair wire 509 (L/R) (para 2-45) or replace M1089 warning lights cable assembly (para 22-4).
(9) Position warning light switch to off (TM 9-2320-366-10-1).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).

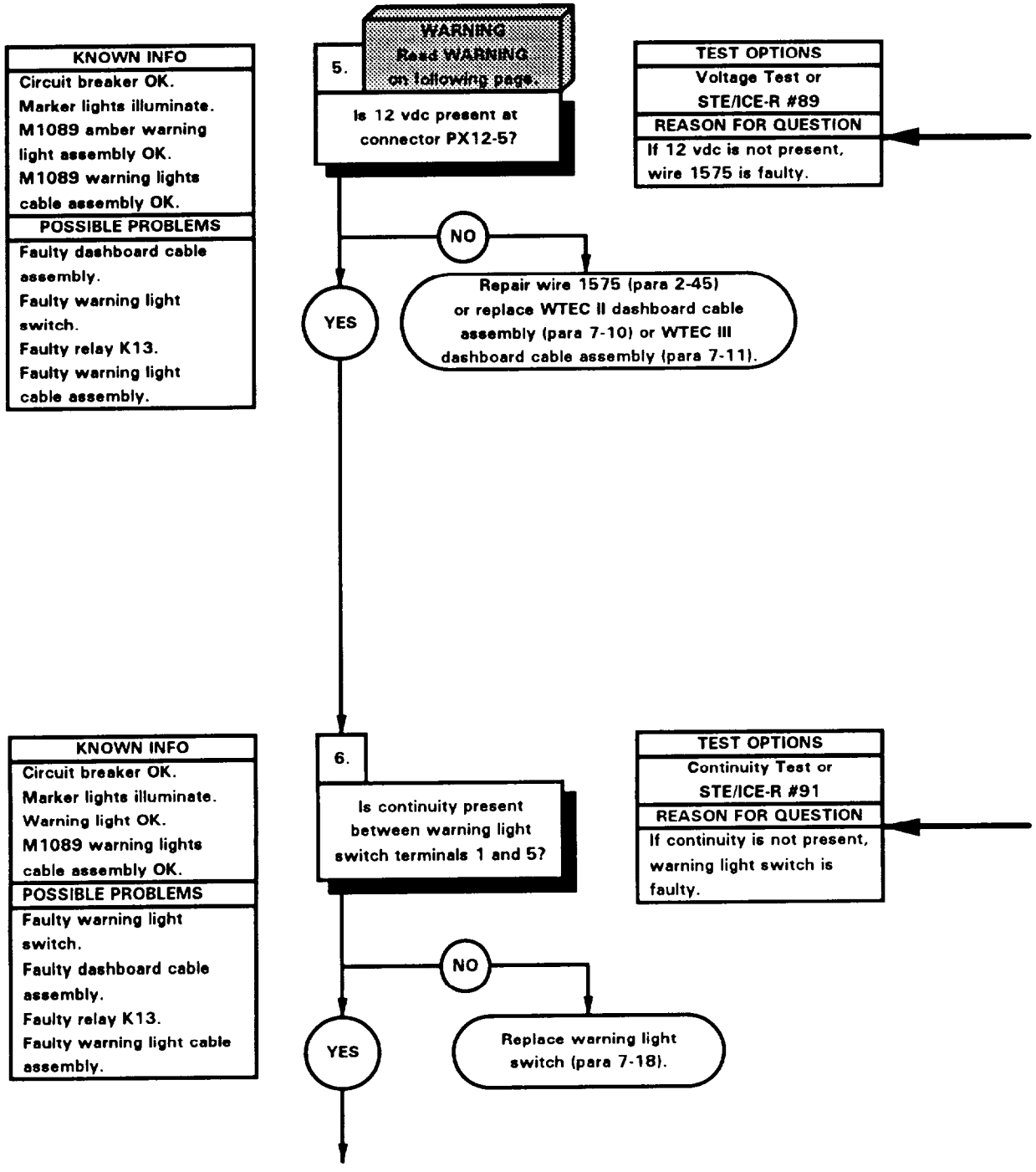


X2E55A3A

CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector J62-A.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3050 (para 2-45) or replace warning light cable assembly (para 22-5).
(5) If continuity is present, repair wire 3050 (L/R) (para 2-45) or replace M1089 warning lights cable assembly (para 22-4).
(6) Connect connector P62A to connector J62.

e54. M1089 AMBER WARNING LIGHT DOES NOT ILLUMINATE (CONT)

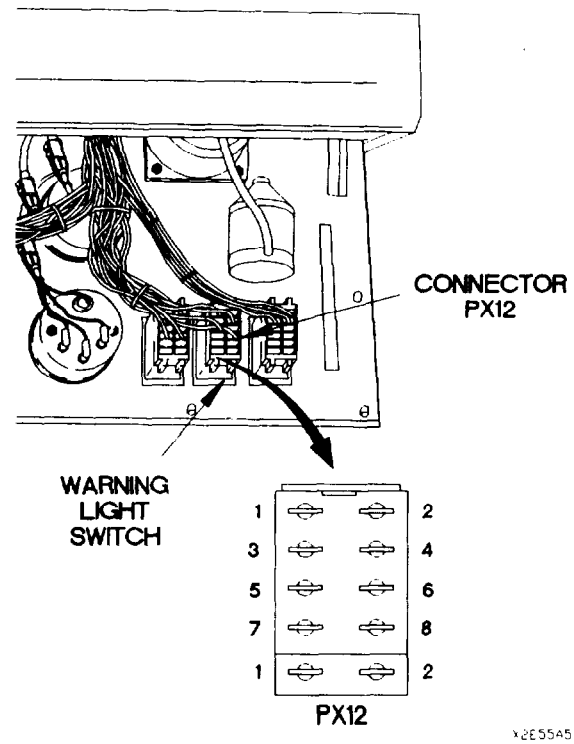


WARNING

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VOLTAGE TEST

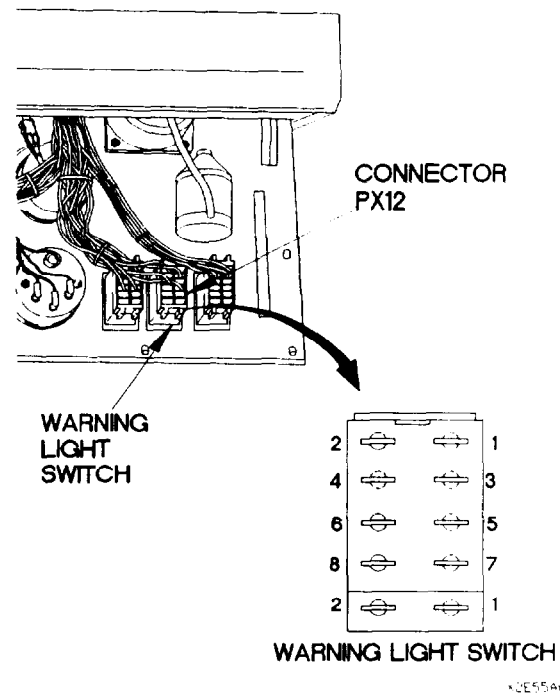
(1) Remove instrument panel assembly for access (para 7-15).
(2) Set multimeter to volts dc.
(3) Disconnect connector PX12 from warning light switch.
(4) Connect positive (+) probe of multimeter to connector PX12-5.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 1575 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).



X2ES5A5A

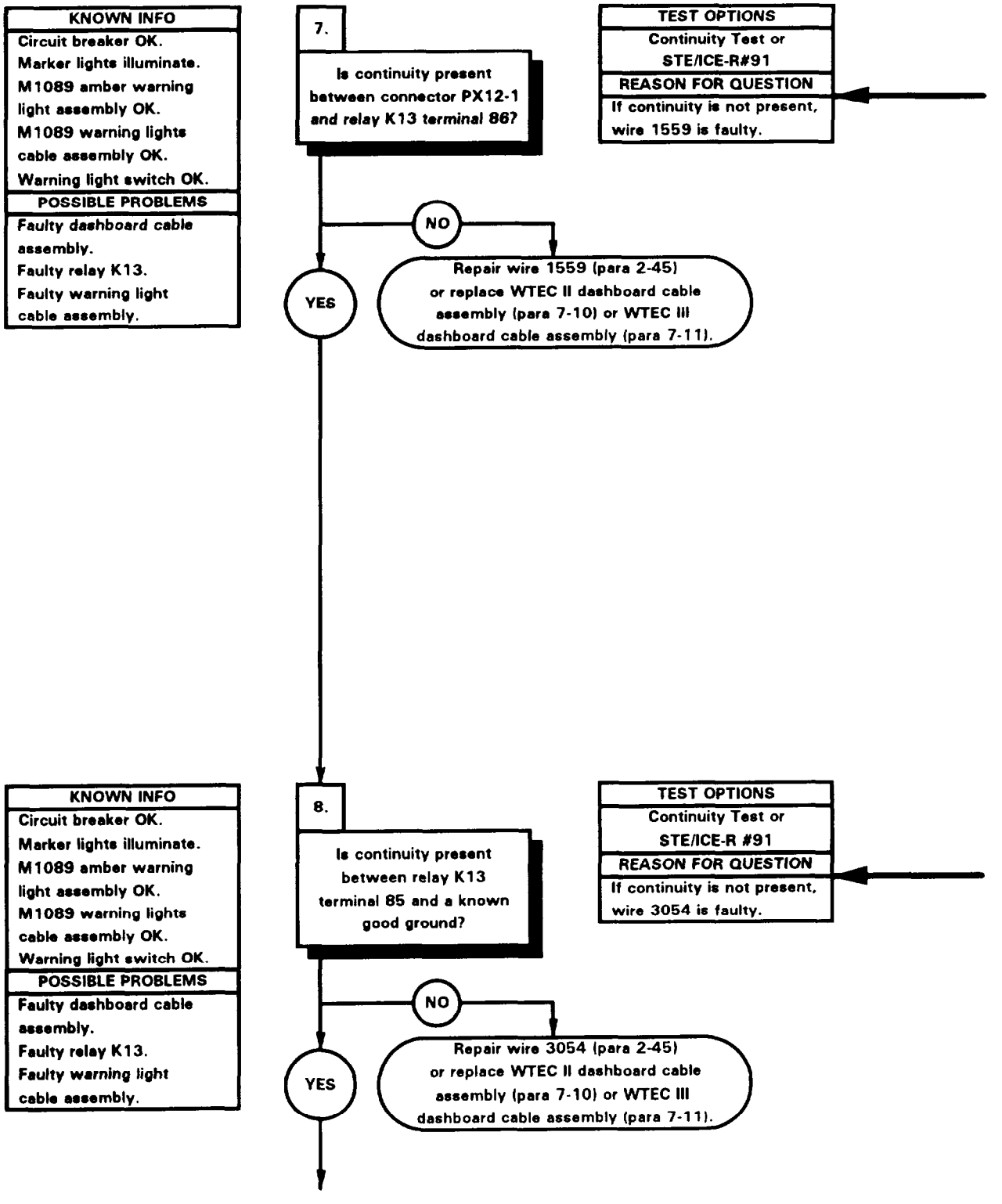
CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to warning light switch terminal 1.
(3) Connect negative (-) probe of multimeter to warning light switch terminal 5.
(4) Position warning light switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If continuity is not present, replace warning light switch (para 7-18).



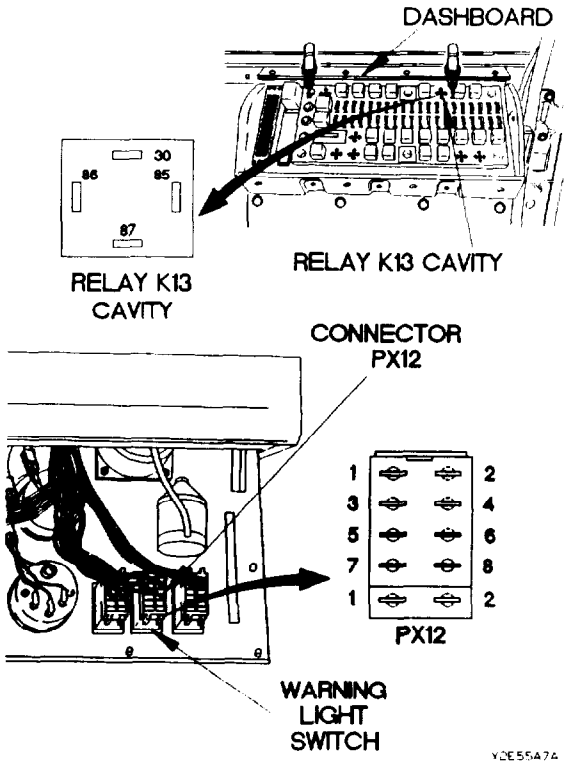
X2ES5A6A

e54. M1089 AMBER WARNING LIGHT DOES NOT ILLUMINATE (CONT)



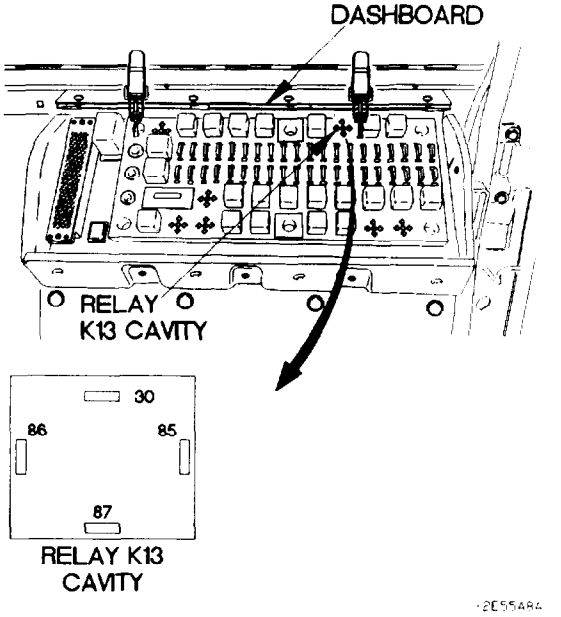
CONTINUITY TEST

(1) Remove PDP cover (para 16-2).
(2) Remove relay K13 from PDP.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to PDP, socket 86, where relay K13 was removed.
(5) Connect negative (-) probe of multimeter to connector PX12-1 and note reading on multimeter.
(6) If continuity is not present, repair wire 1559 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Connect connector PX12 to warning light switch.
(8) Install instrument panel assembly (para 7-15).

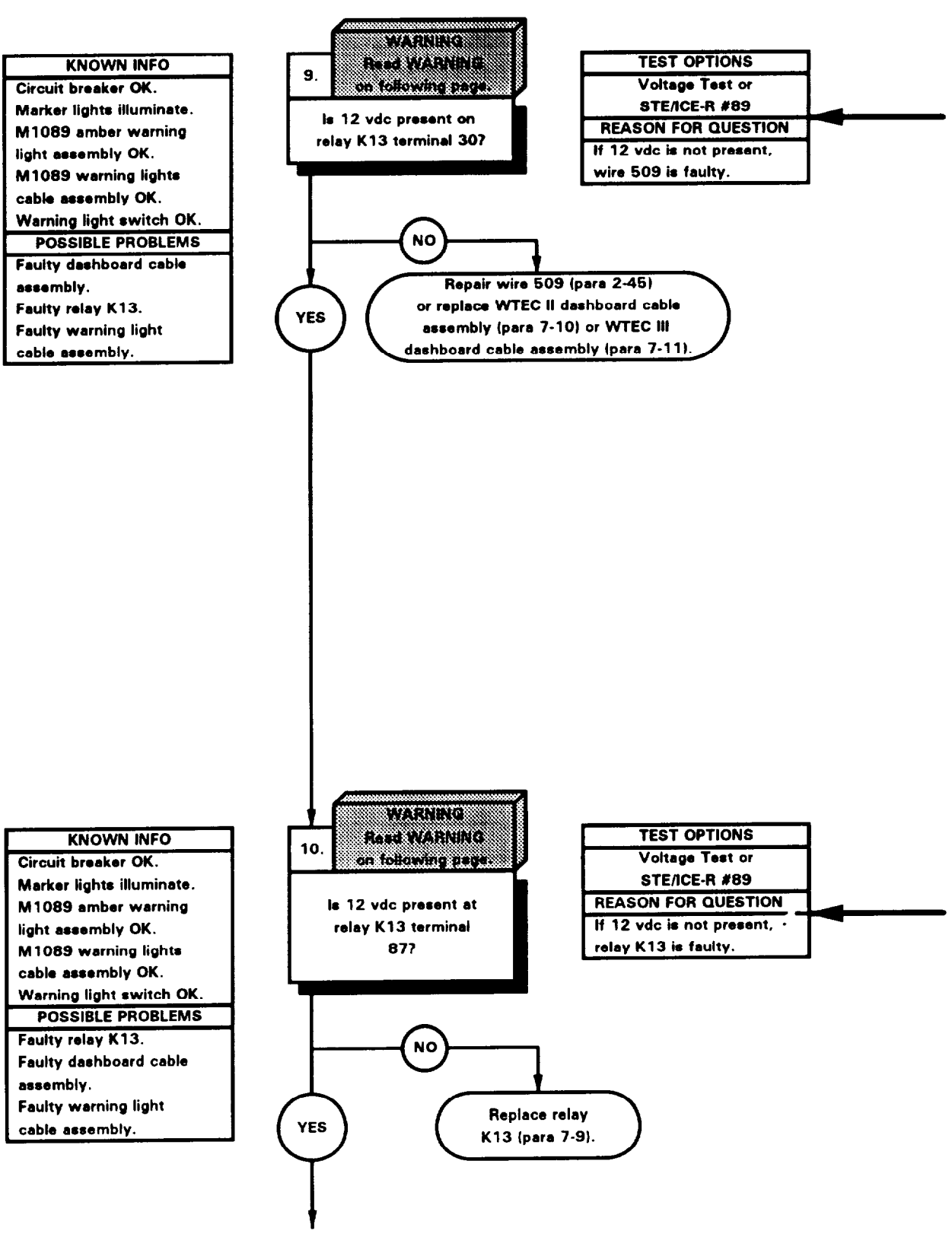


CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, socket 85, where relay K13 was removed.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3054 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



e54. M1089 AMBER WARNING LIGHT DOES NOT ILLUMINATE (CONT)

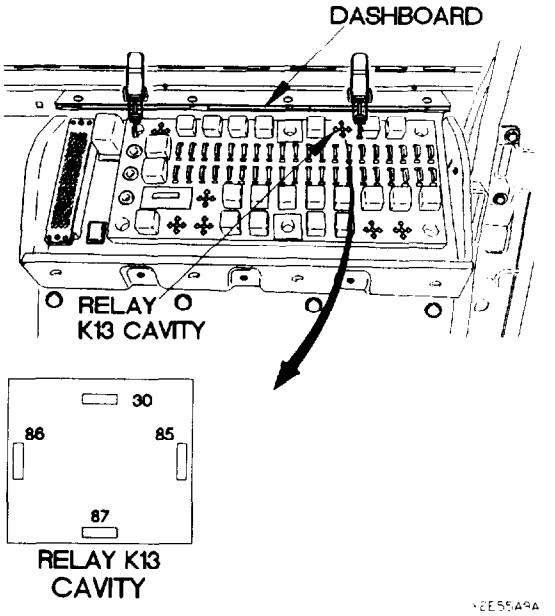


WARNING

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VOLTAGE TEST

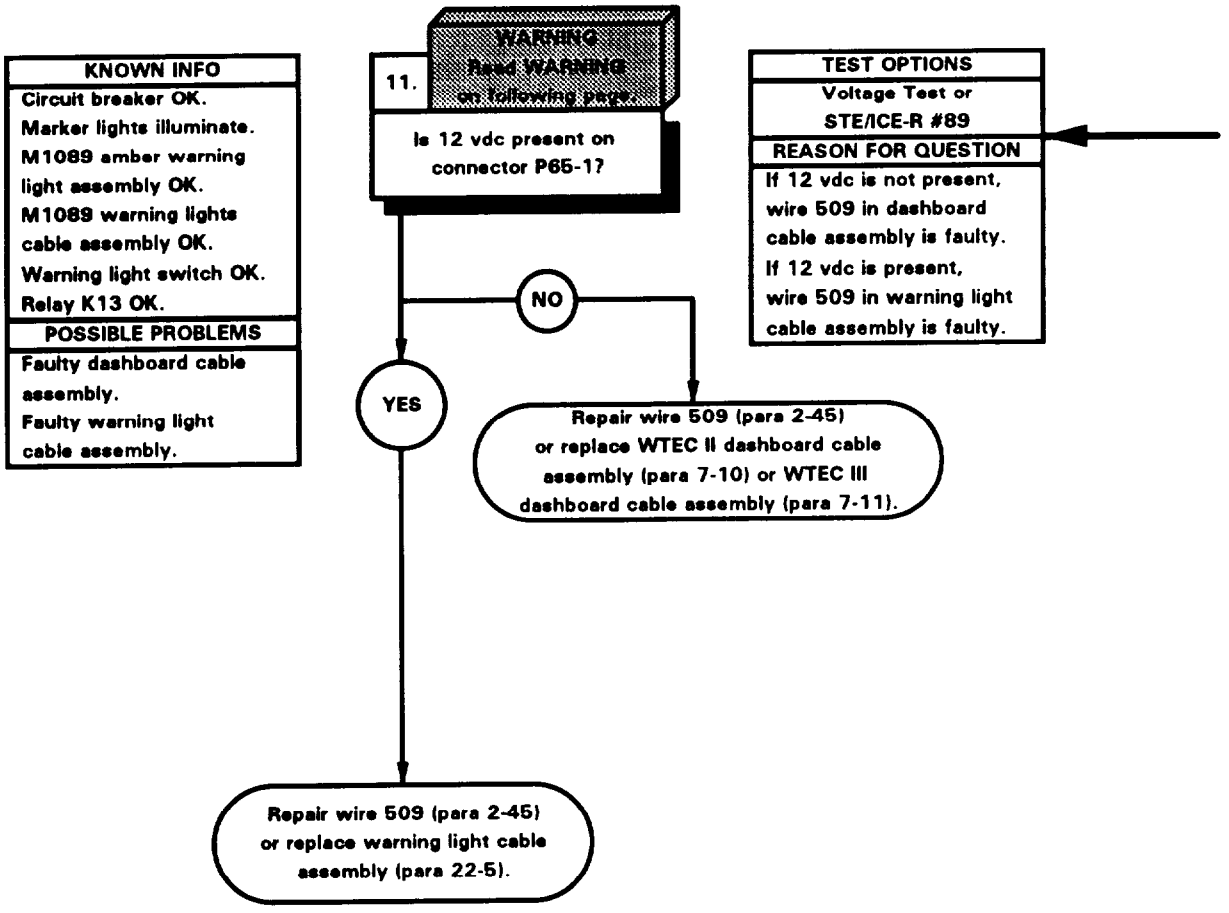
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, socket 30, where relay K13 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) If 12 vdc is not present, repair wire 509 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



VOLTAGE TEST

(1) Install relay K13 in PDP.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to relay K13 terminal 87.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Position warning light switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, replace relay K13 (para 7-9).
(8) Position warning light switch to off (TM 9-2320-366-10-1).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).

e54. M1089 AMBER WARNING LIGHT DOES NOT ILLUMINATE (CONT)

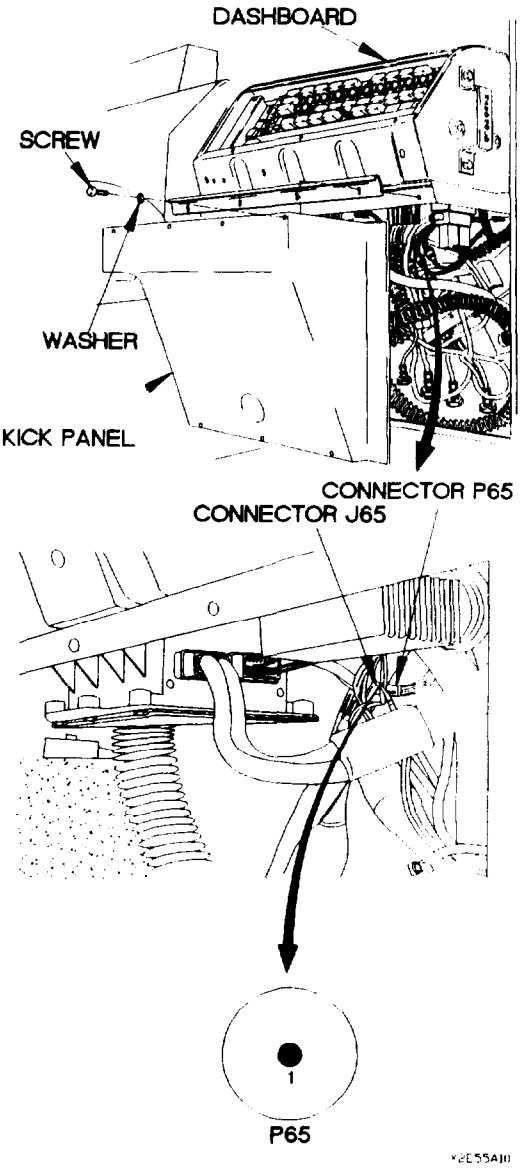


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove seven screws and washers from kick panel.
(2) Remove kick panel and stiffener from dashboard.
(3) Disconnect connector P65 from connector J65.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to connector P65-1.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(8) Position warning light switch to on (TM 9-2320-366-10-1).
(9) If 12 vdc is not present, repair wire 509 (para 2-45)or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(10) If 12 vdc is present, repair wire 509 (para 2-45) or replace warning light cable assembly (para 22-5).
(11) Position warning light switch to off (TM 9-2320-366-10-1).
(12) Position main light switch to OFF (TM 9-2320-366-10-1).
(13) Connect connector P65 to connector J65.
(14) Install kick panel (para 16-3).



e55. BACKUP LIGHT DOES NOT ILLUMINATE

INITIAL SETUP

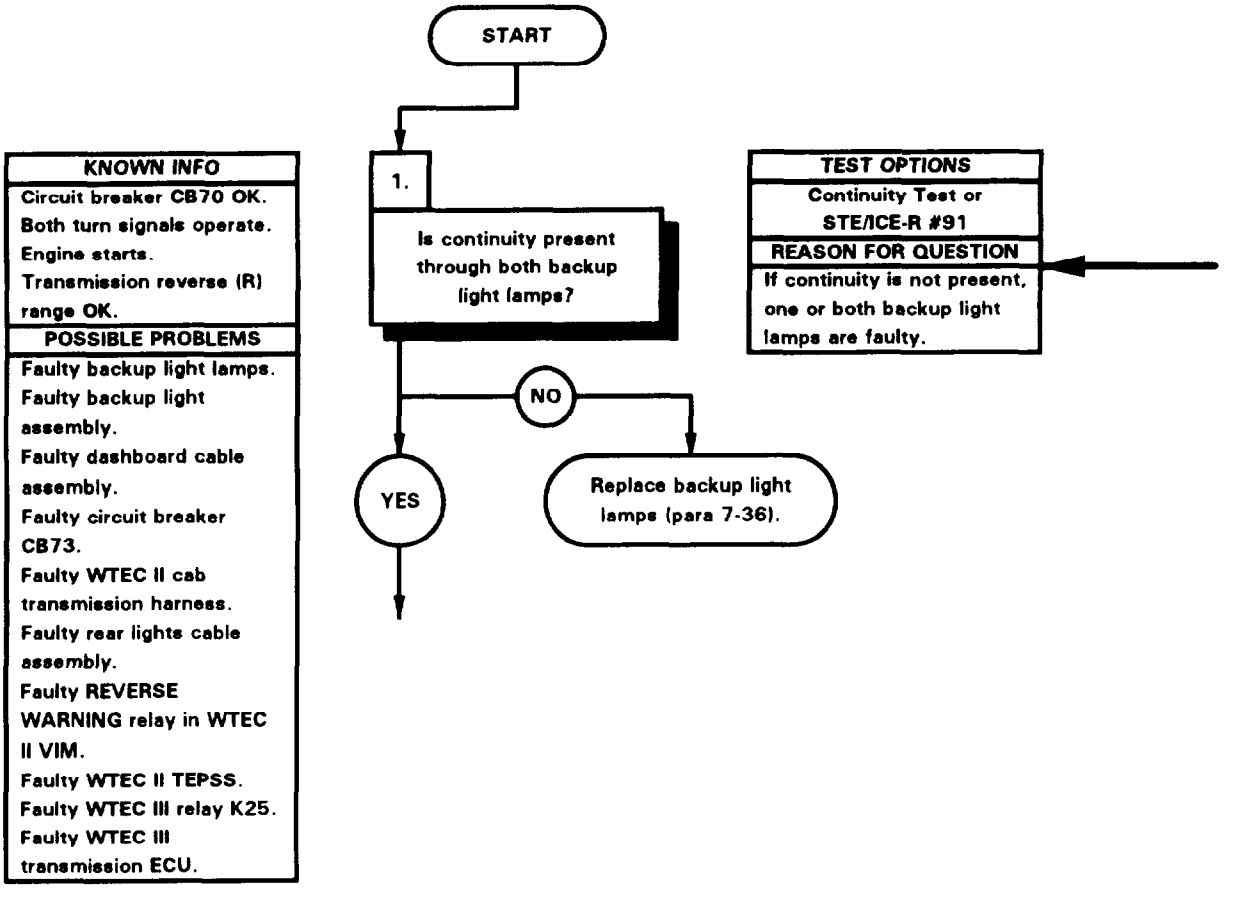
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

Personnel Required
(2)

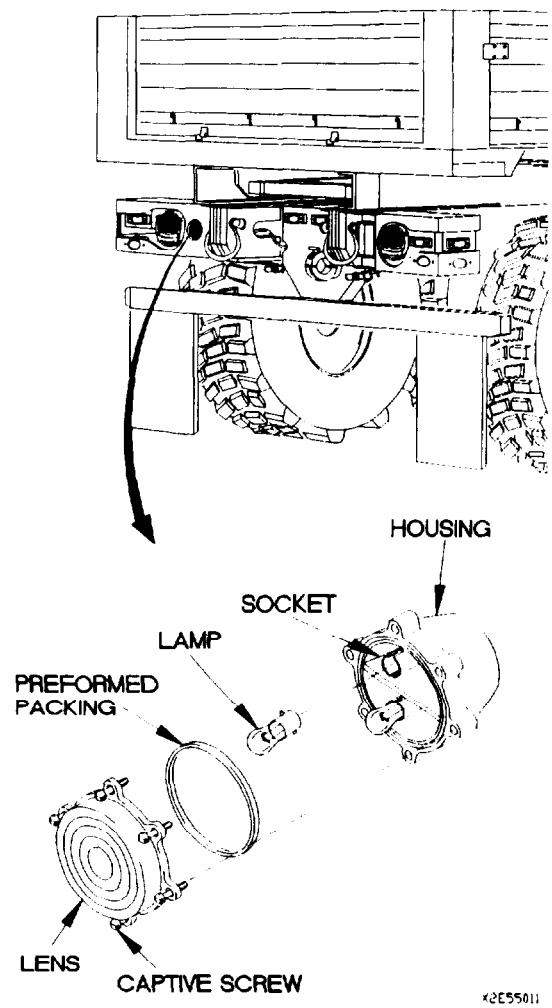
Materials/Parts
Packing, Preformed (Item 209, Appendix G)
Wire, Electrical, 50 ft (Item 71, Appendix D)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

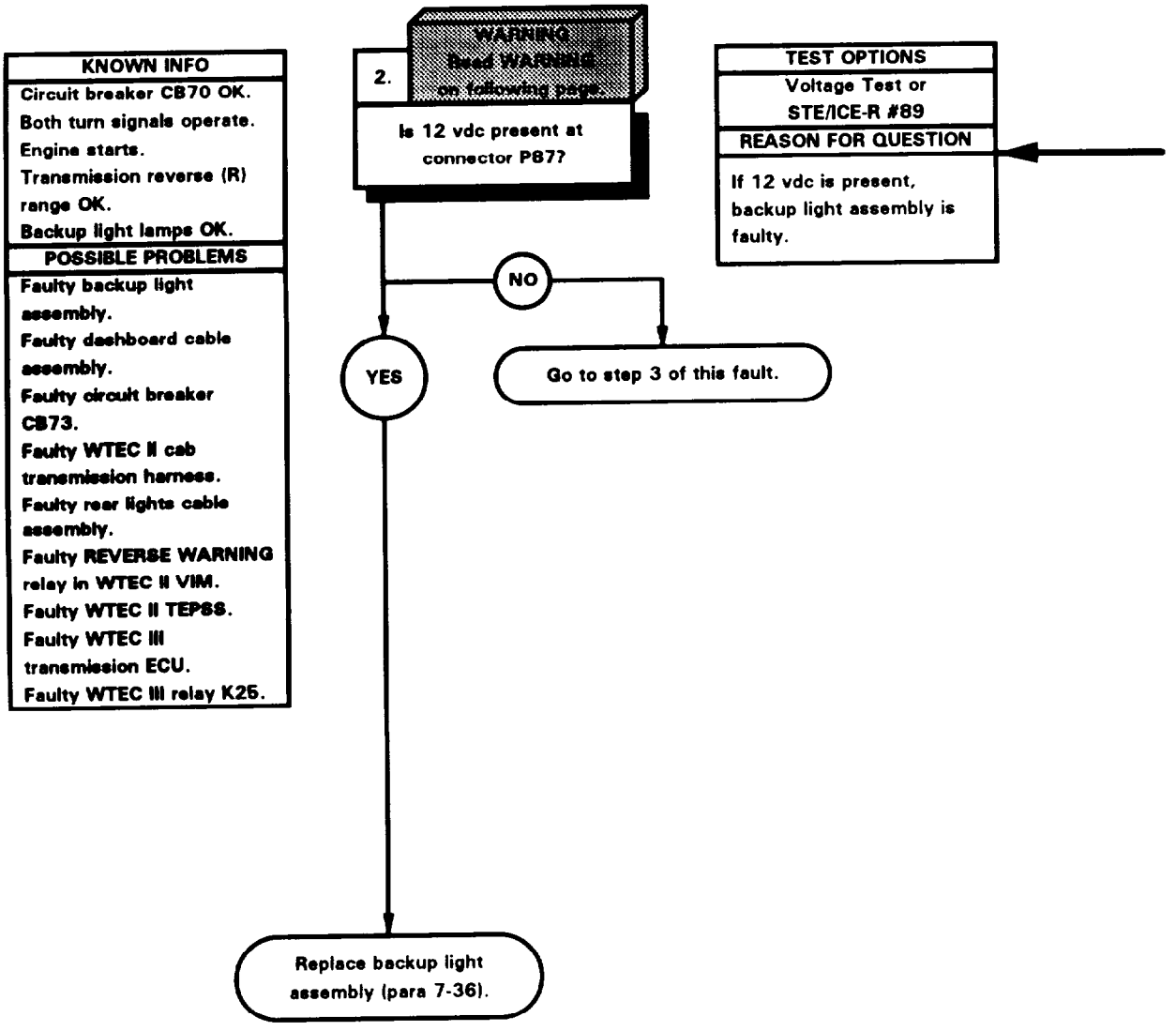
References
TM 9-4910-571-12&P



CONTINUITY TEST
(1) Loosen six captive screws on lens.
(2) Remove lens from housing.
(3) Remove preformed packing from housing. Discard preformed packing.
(4) Remove two lamps from sockets.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to center contact of lamp.
(7) Connect negative (-) probe of multimeter to lamp base and note reading on multimeter.
(8) If continuity is not present, replace one or both lamps (para 7-36).
(9) Install two lamps in sockets.
(10) Install preformed packing and lens on housing with six captive screws.
(11) Connect batteries (para 7-57).



e55. BACKUP LIGHT DOES NOT ILLUMINATE (CONT)

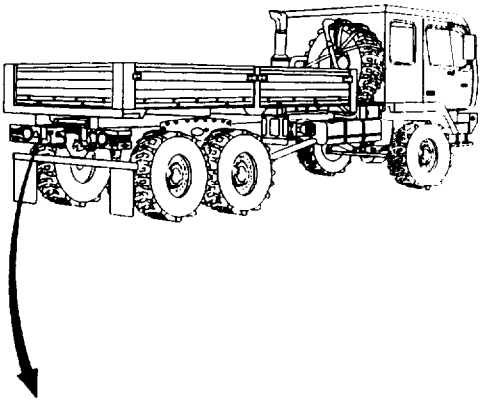


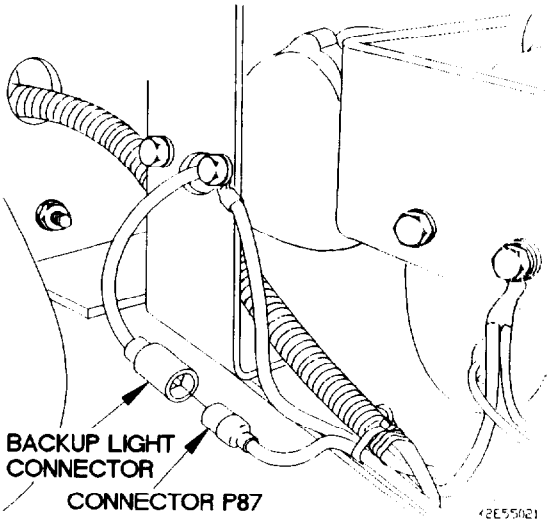
WARNING

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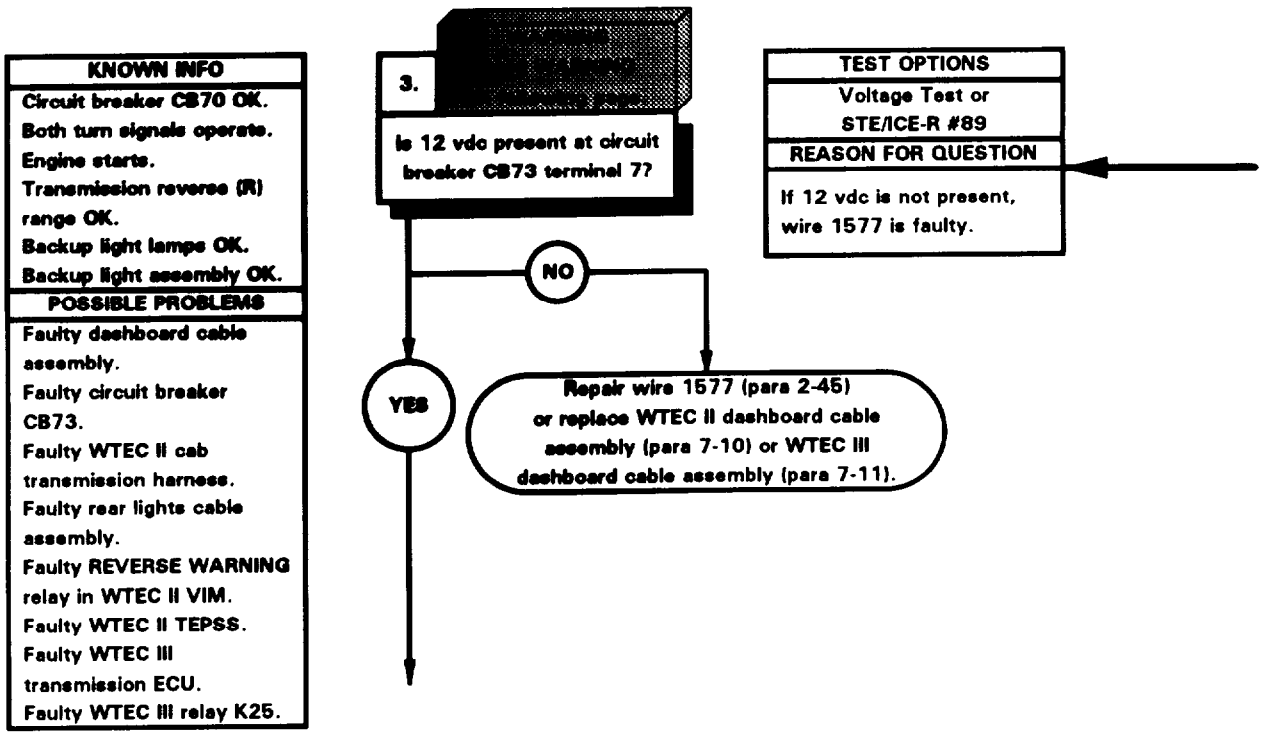
VOLTAGE TEST

(1) Disconnect connector P87 from backup light connector.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector P87.
(4) Connect negative (-) probe of multimeter to ground.
(5) Start engine (TM 9-2320-366-10-1).
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(7) Select R (reverse) on pushbutton shift selector (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 12 vdc is not present, go to step 3 of this fault.
(9) If 12 vdc is present, replace backup light assembly (para 7-36).
(10) Select N (neutral) on pushbutton shift selector (TM 9-2320-366-10-1).
(11) Position main light switch to OFF (TM 9-2320-366-10-1).
(12) Shut down engine (TM 9-2320-366-10-1).
(13) Connect connector P87 to backup light connector.





e55. BACKUP LIGHT DOES NOT ILLUMINATE (CONT)

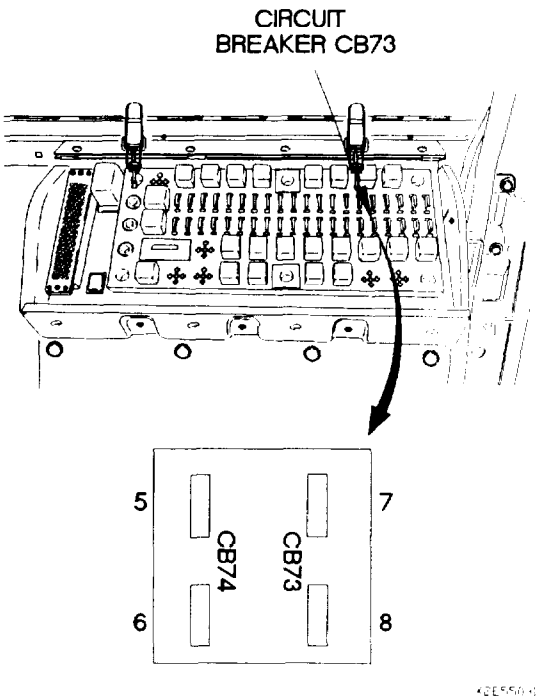


WARNING

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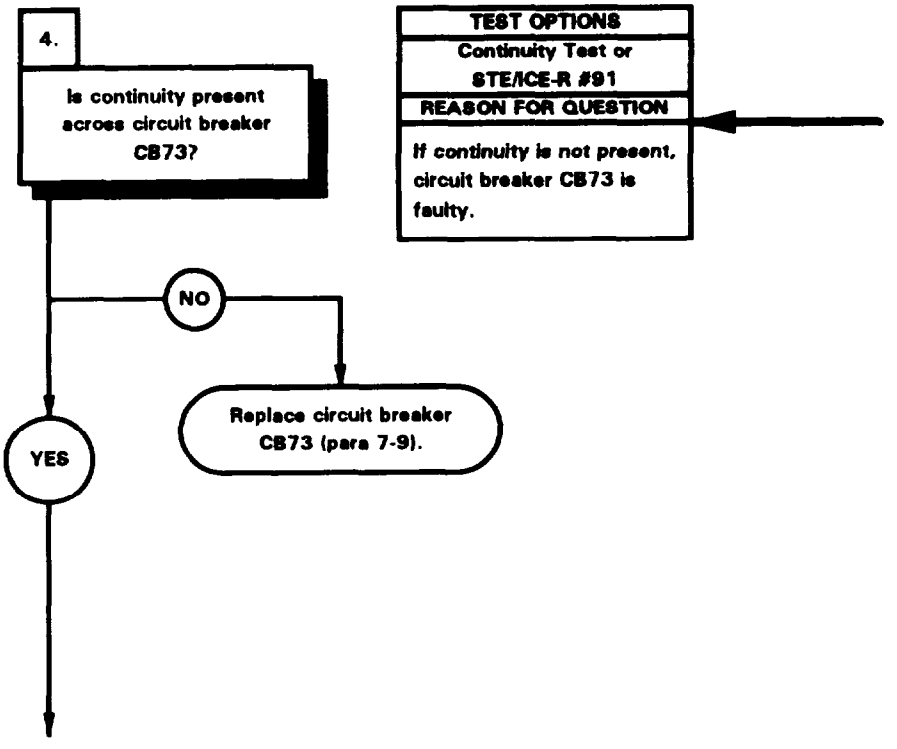
VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove circuit breaker CB73 from PDP.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to PDP, terminal 7, where circuit breaker CB73 was removed.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 1577 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position main light switch of OFF (TM 9-2320-366-10-1).

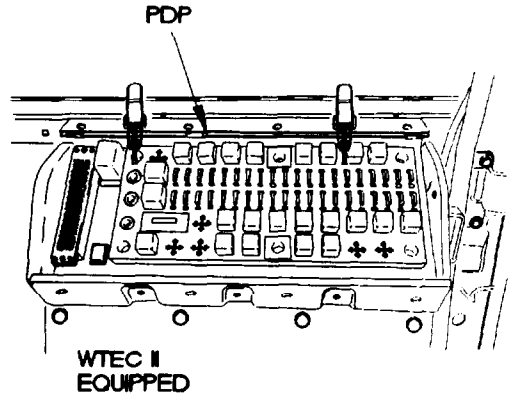


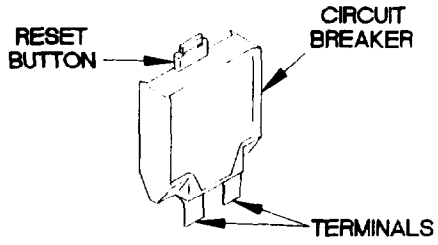
e55. BACKUP LIGHT DOES NOT ILLUMINATE (CONT)

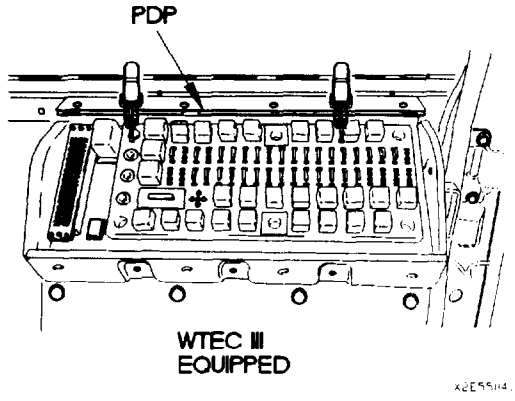
KNOWN INFO
Circuit breaker CB70 OK.
Both turn signals operate.
Engine starts.
Transmission reverse (R) range OK.
Backup light lamps OK.
Backup light assembly OK.
Wire 1577 OK.
POSSIBLE PROBLEMS
Faulty circuit breaker CB73.
Faulty dashboard cable assembly.
Faulty WTEC II cab transmission harness.
Faulty rear lights cable assembly.
Faulty REVERSE WARNING relay in WTEC II VIM.
Faulty WTEC II TEPSS.
Faulty WTEC III transmission ECU.
Faulty WTEC III relay K25.



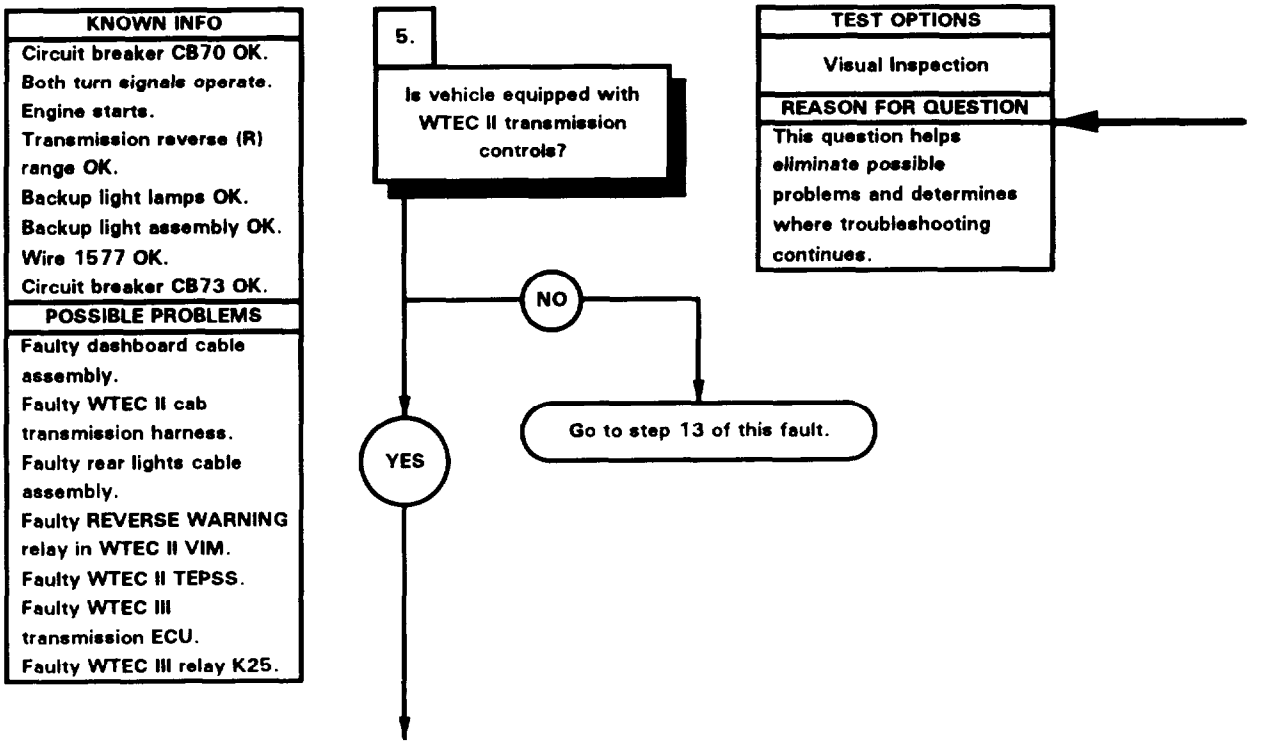
CONTINUITY TEST
(1) Reset circuit breaker CB73 (TM 9-2320-366-10-2).
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to one terminal of circuit breaker CB73.
(4) Connect negative (-) probe of multimeter to other terminal of circuit breaker CB73 and note reading on multimeter.
(5) If continuity is not present, replace circuit breaker CB73 (para 7-9).
(6) Install circuit breaker CB73 in PDP.





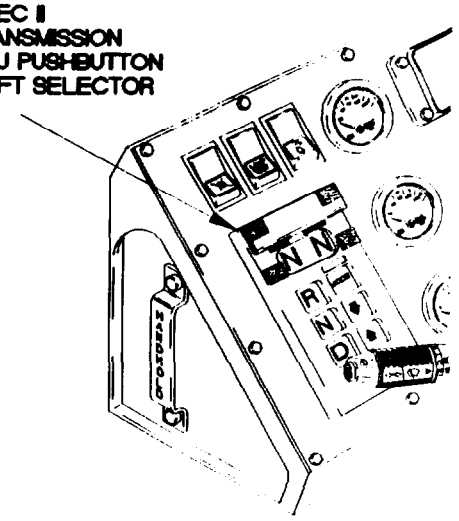


e55. BACKUP LIGHT DOES NOT ILLUMINATE (CONT)

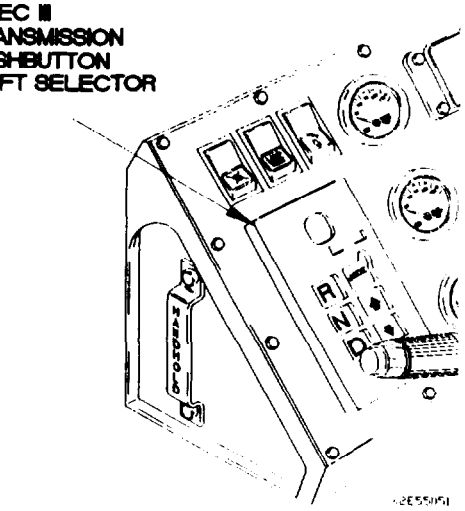


(1) Check if vehicle is equipped with WTEC II TEPSS.
(2) If transmission pushbutton shift selector is not mounted with four screws and does not have a filter cover, go to step 13 of this fault.

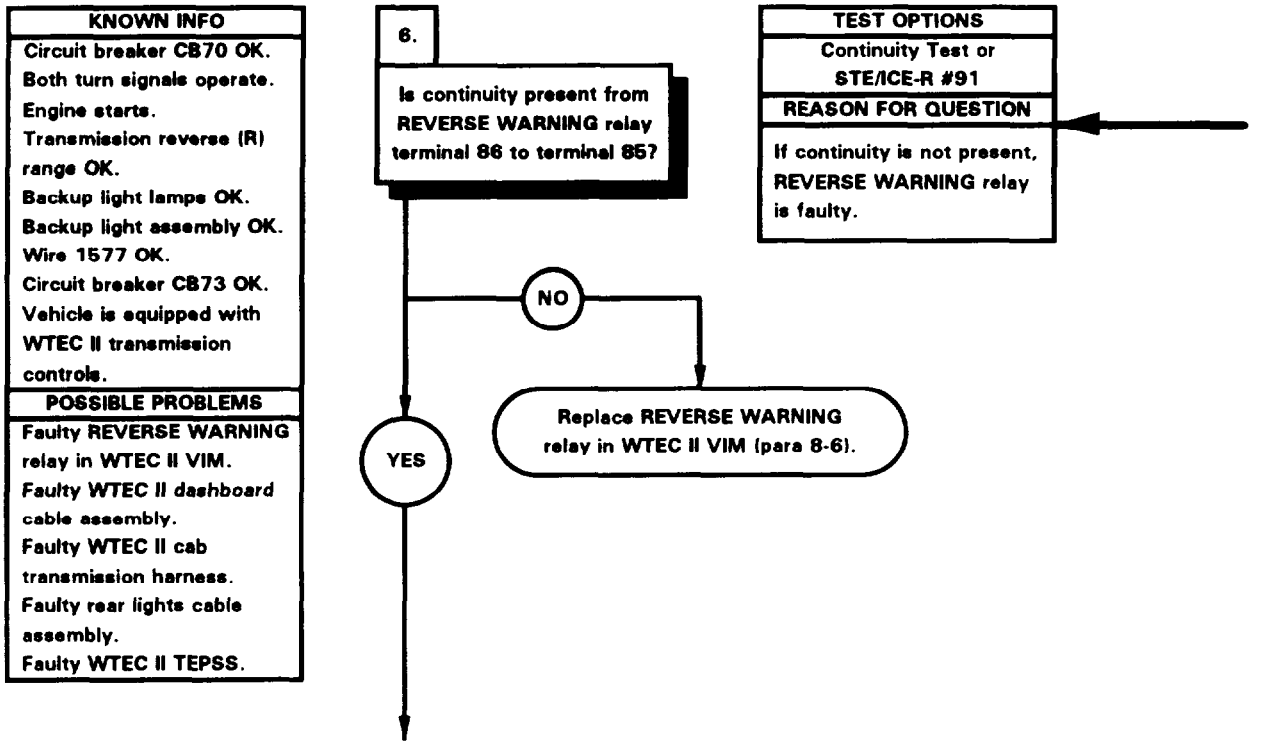
WTEC II
TRANSMISSION
ECU PUSHBUTTON
SHIFT SELECTOR



WTEC III
TRANSMISSION
PUSHBUTTON
SHIFT SELECTOR

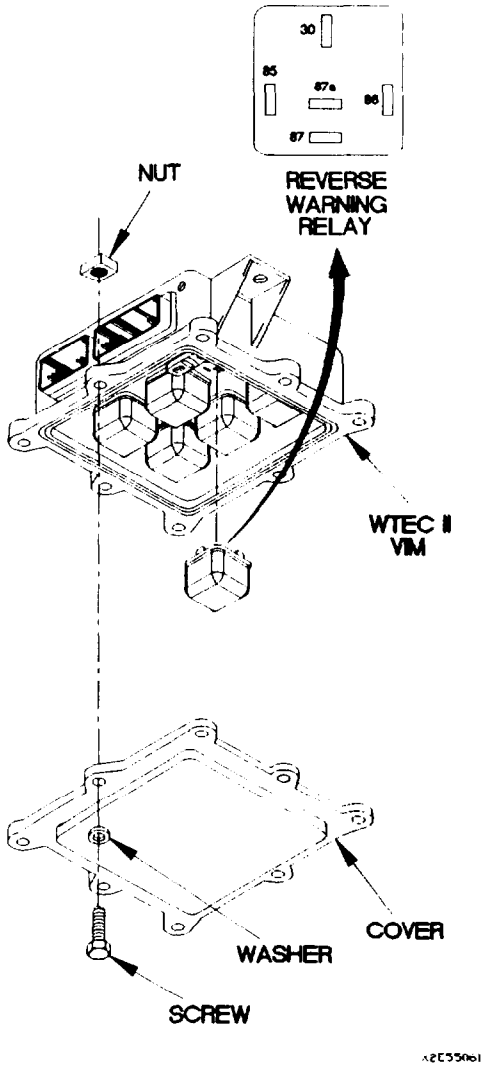


e55. BACKUP LIGHT DOES NOT ILLUMINATE (CONT)

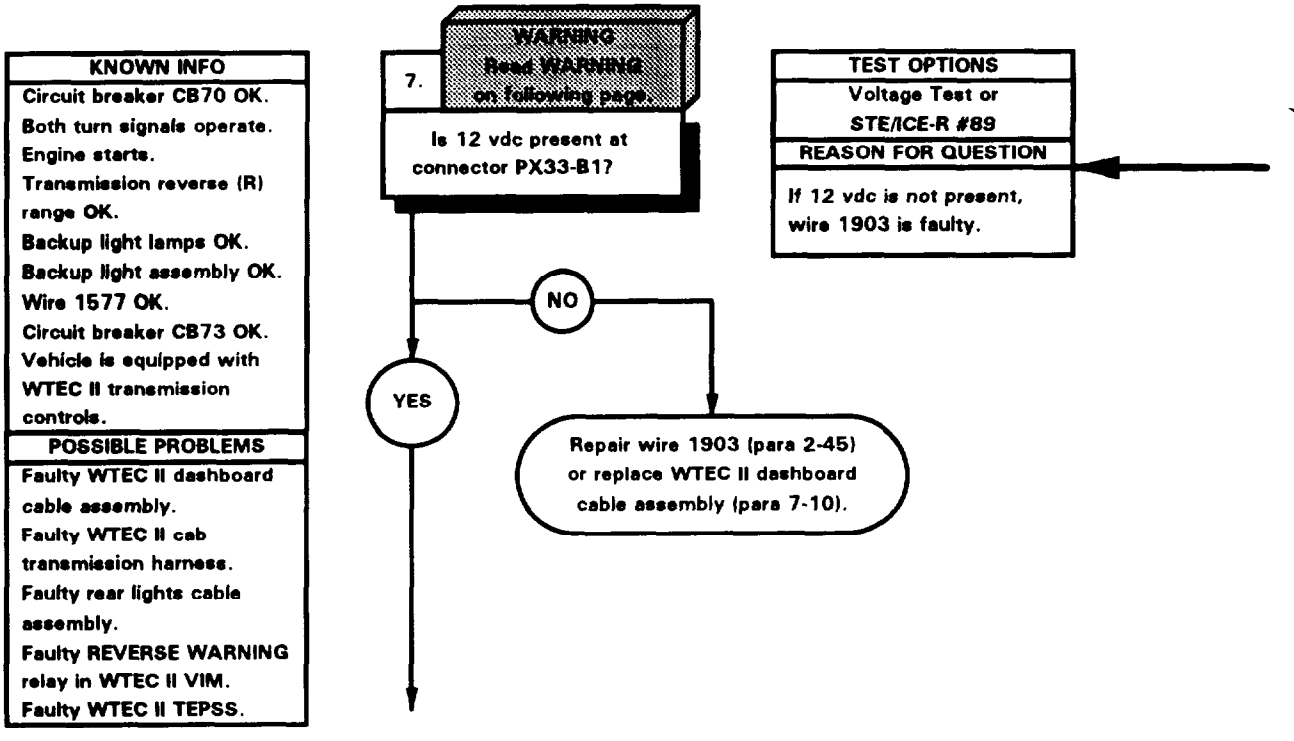


CONTINUITY TEST

(1) Remove kick panel (para 16-3).
(2) Remove seven screws and washers from cover.
(3) Remove screw, washer, cover, and nut from WTEC II VIM.
(4) Remove REVERSE WARNING relay from WTEC II VIM.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to REVERSE WARNING relay terminal 86.
(7) Connect negative (-) probe of multimeter to REVERSE WARNING relay terminal 85 and note reading on multimeter.
(8) If continuity is not present, replace REVERSE WARNING relay in WTEC II VIM (para 8-6).
(9) Install REVERSE WARNING relay in WTEC II VIM.



e55. BACKUP LIGHT DOES NOT ILLUMINATE (CONT)

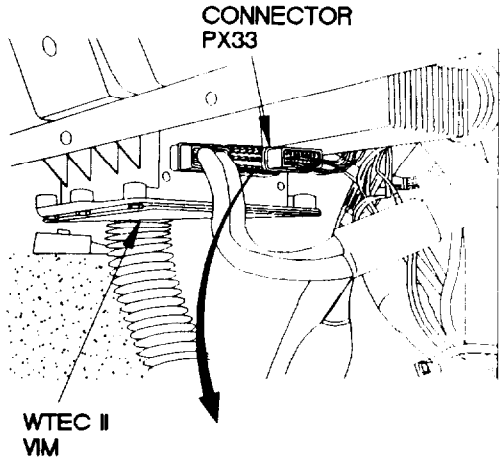


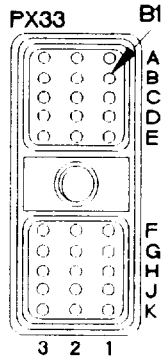
WARNING

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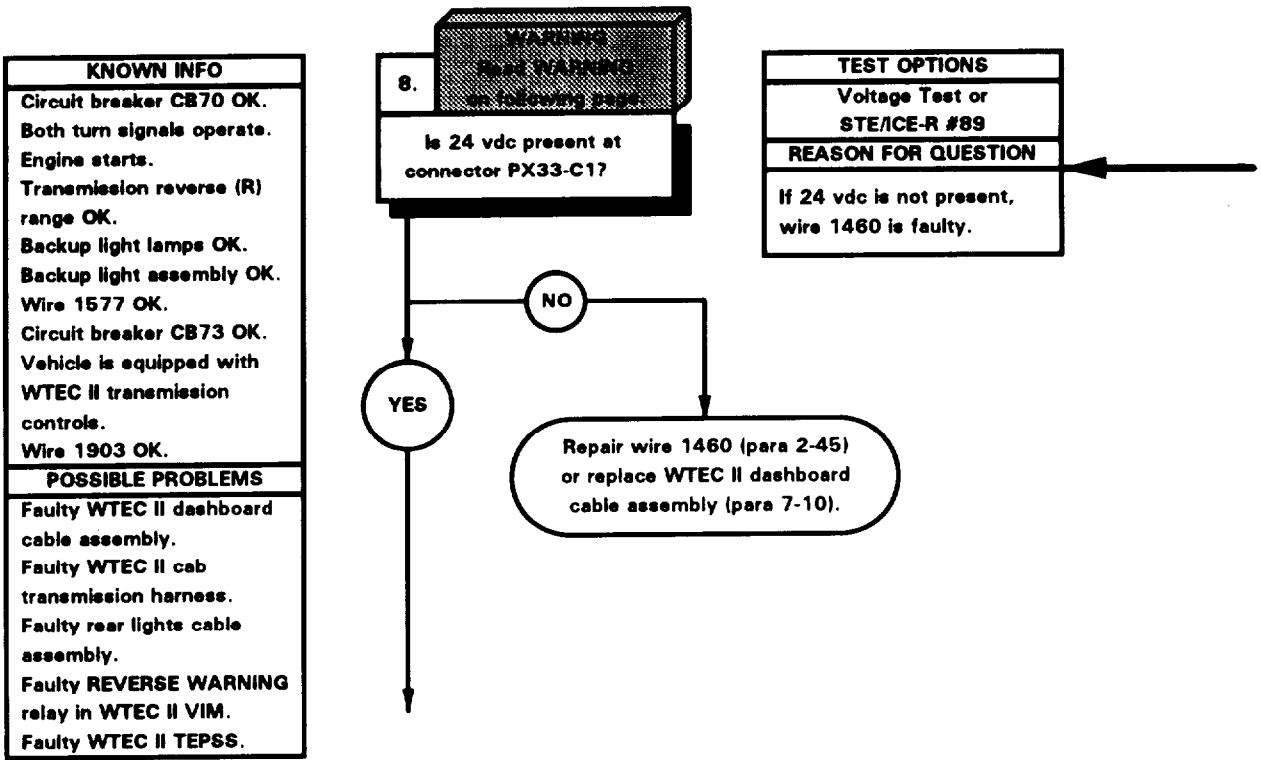
VOLTAGE TEST

(1) Loosen screw in connector PX33.
(2) Disconnect connector PX33 from WTEC II VIM.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector PX33-B1.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 1903 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).





e55. BACKUP LIGHT DOES NOT ILLUMINATE (CONT)

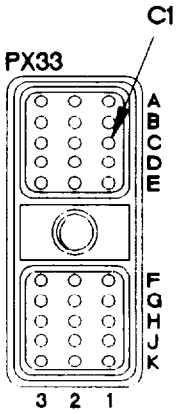


WARNING

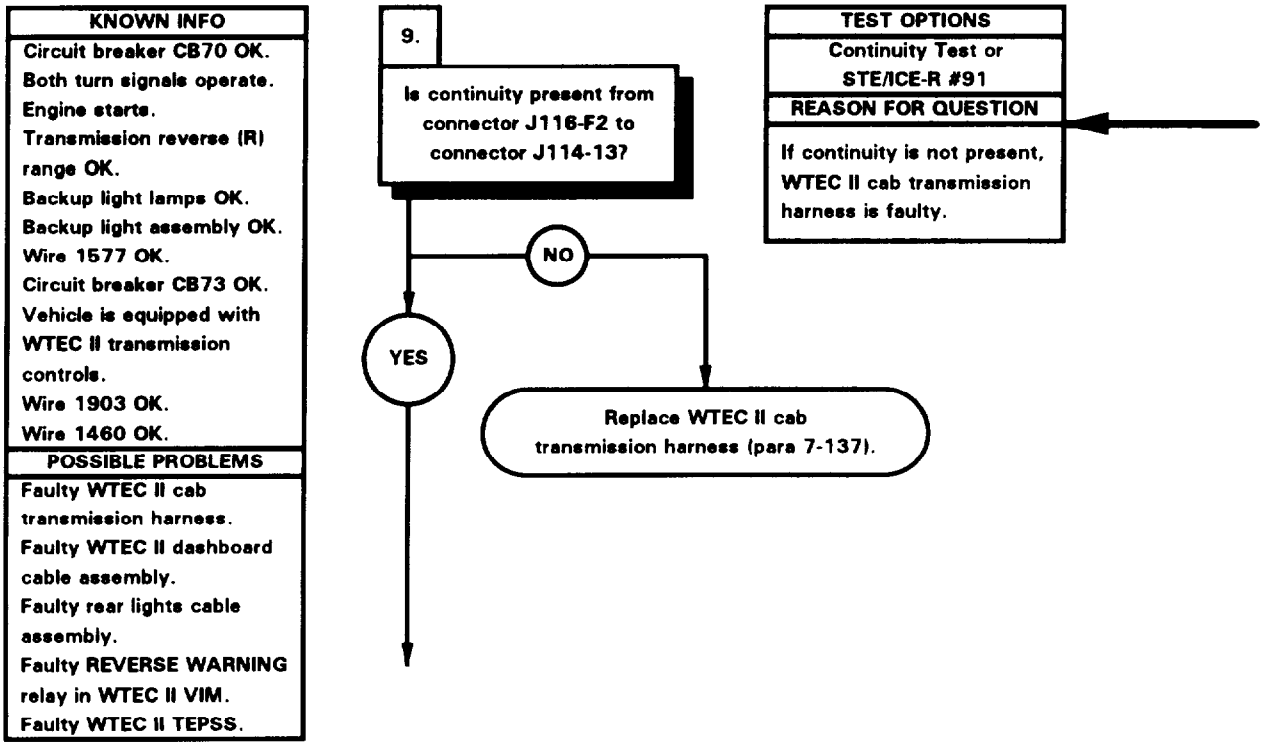
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to connector PX33-C1.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1460 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10).
(6) Position master power switch to off (TM 9-2320-366-10-1).

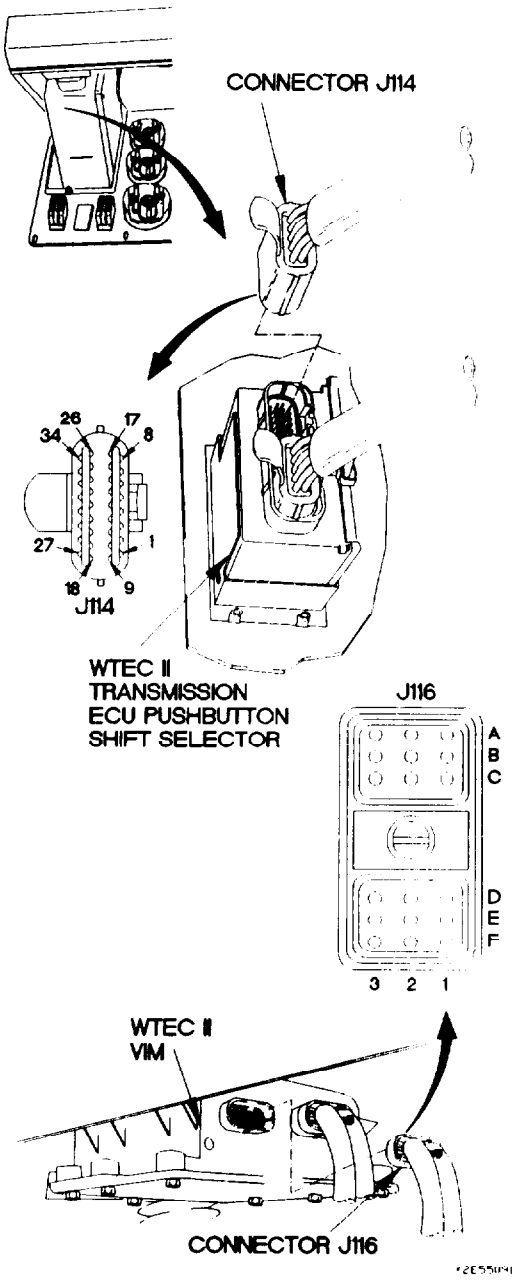


e55. BACKUP LIGHT DOES NOT ILLUMINATE (CONT)

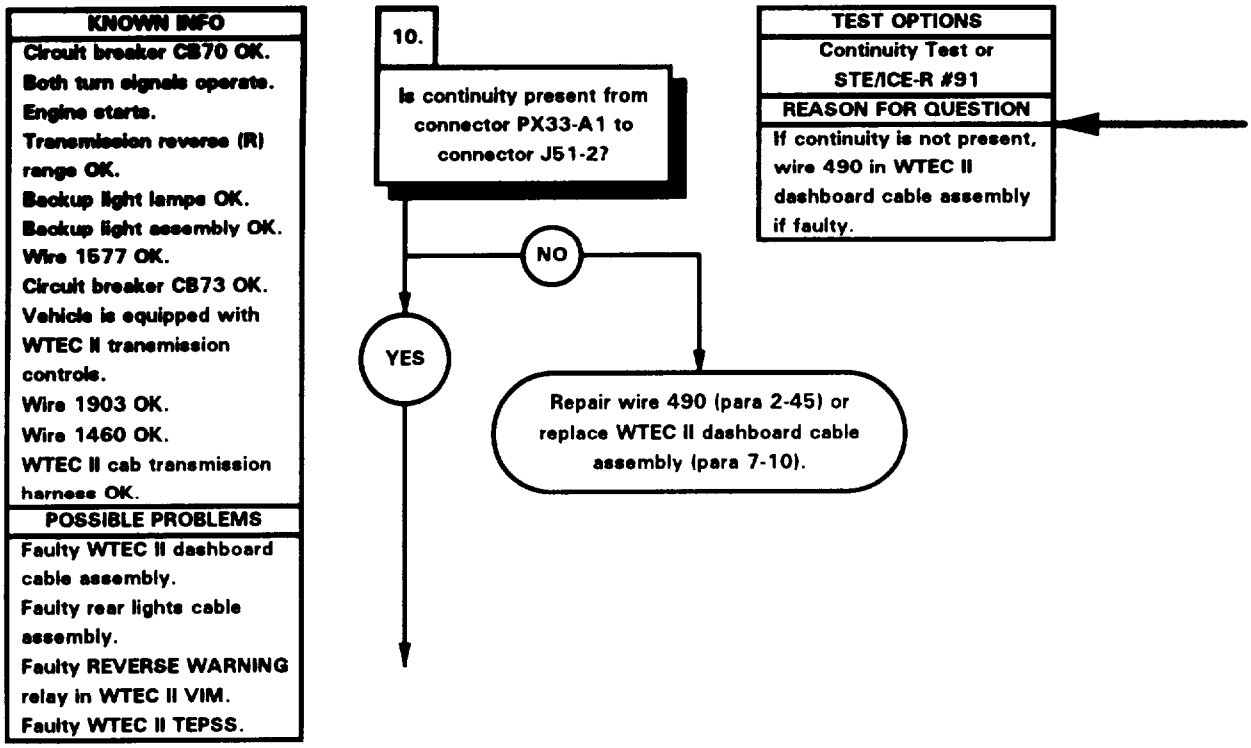


CONTINUITY TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector J114 from WTEC II TEPSS.
(3) Loosen screw in connector J116.
(4) Disconnect connector J116 from WTEC II VIM.
(5) Connect positive (+) probe of multimeter to connector J116-F2.
(6) Connect negative (-) probe of multimeter to connector J114-13 and note reading on multimeter.
(7) If continuity is not present, replace WTEC II cab transmission harness (para 7-137).
(8) Connect connector J114 to WTEC II TEPSS.
(9) Install instrument panel assembly (para 7-15).
(10) Connect connector J116 to WTEC II VIM.
(11) Tighten screw in connector J116.

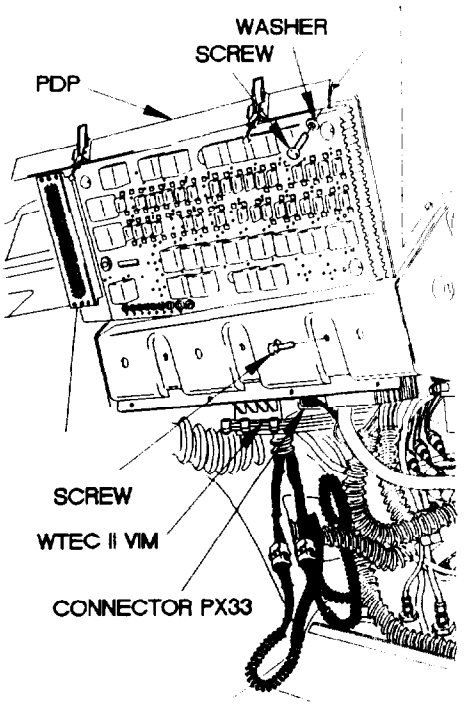


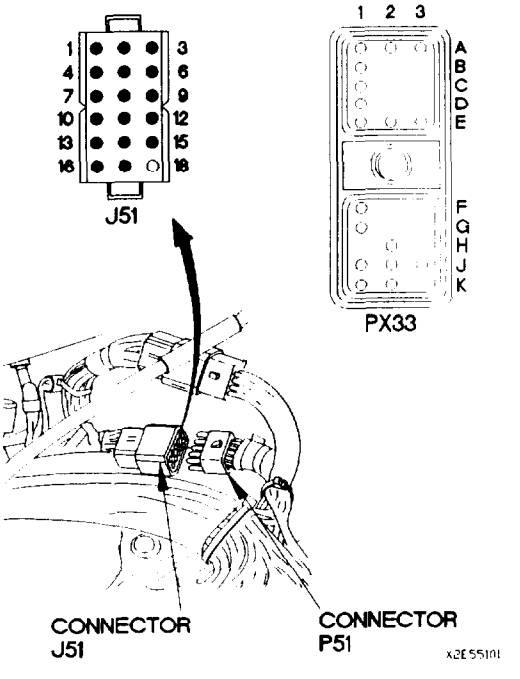
e55. BACKUP LIGHT DOES NOT ILLUMINATE (CONT)



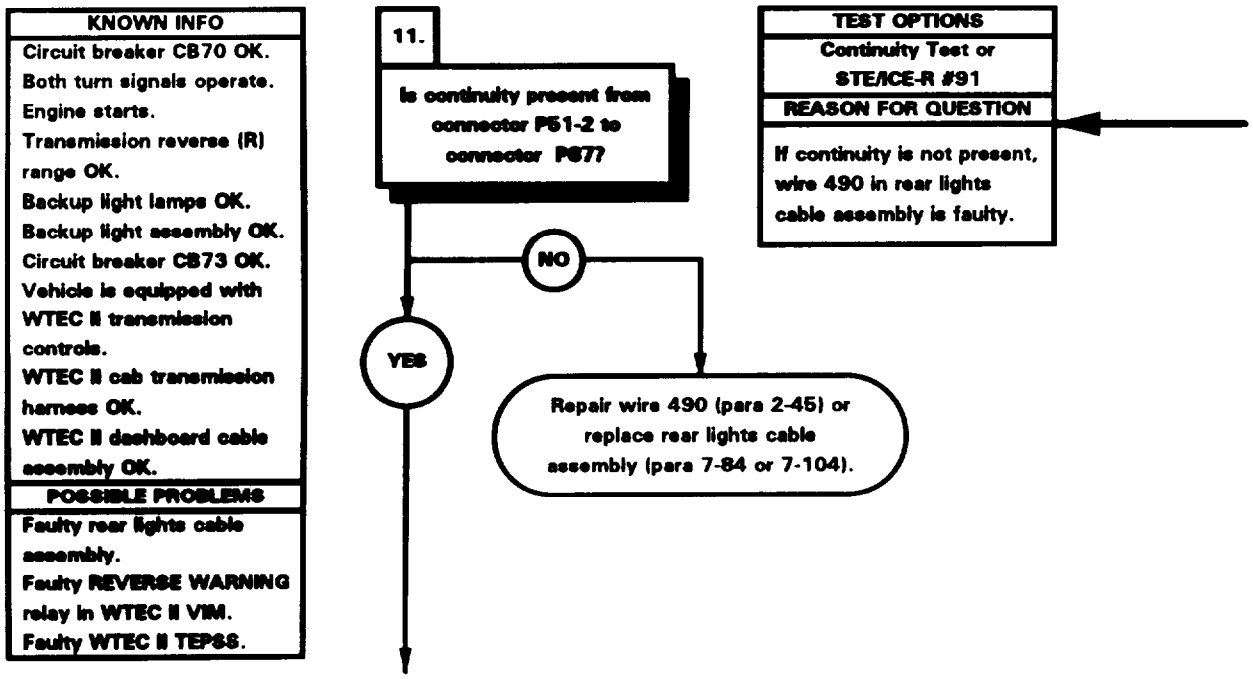
CONTINUITY TEST

(1) Remove three screws from PDP.
(2) Remove three screws and washers from PDP.
(3) Lift PDP outward to gain access.
(4) Disconnect connector P51 from connector J51.
(5) Set multiemter to ohms.
(6) Connect positive (+) probe of multimeter to connector PX33-A1.
(7) Connect negative (-) probe of multimeter to connector J51-2 and note reading on multimeter.
(8) If continuity is not present, repair wire 490 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10).
(9) Connect connector PX33 to WTEC II VIM.
(10) Tighten screw in connector PX33.



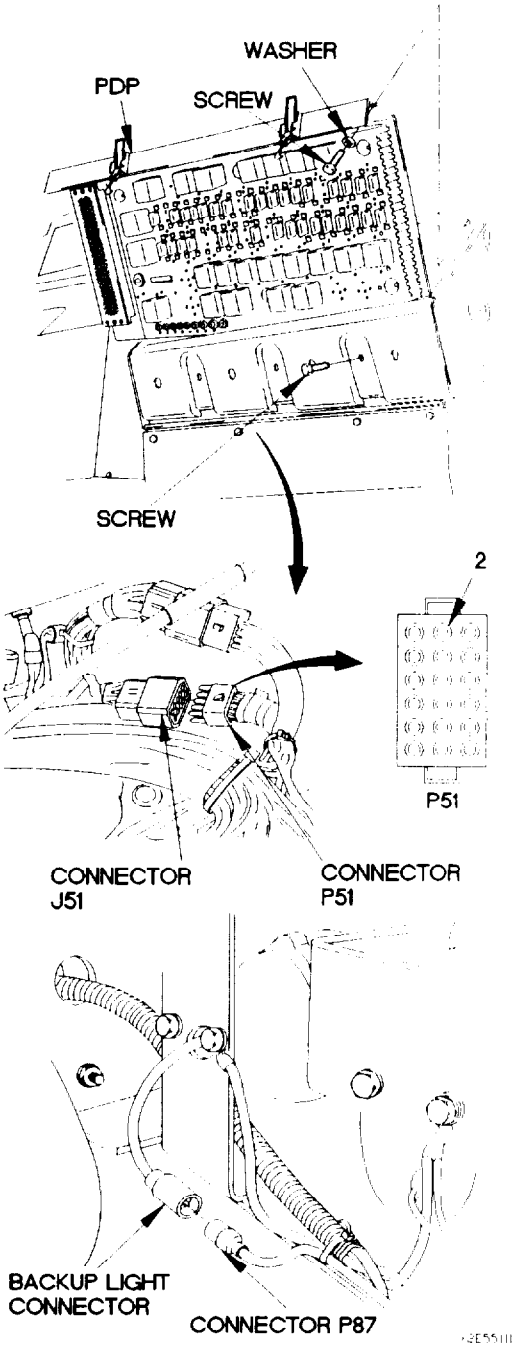


e55. BACKUP LIGHT DOES NOT ILLUMINATE (CONT)

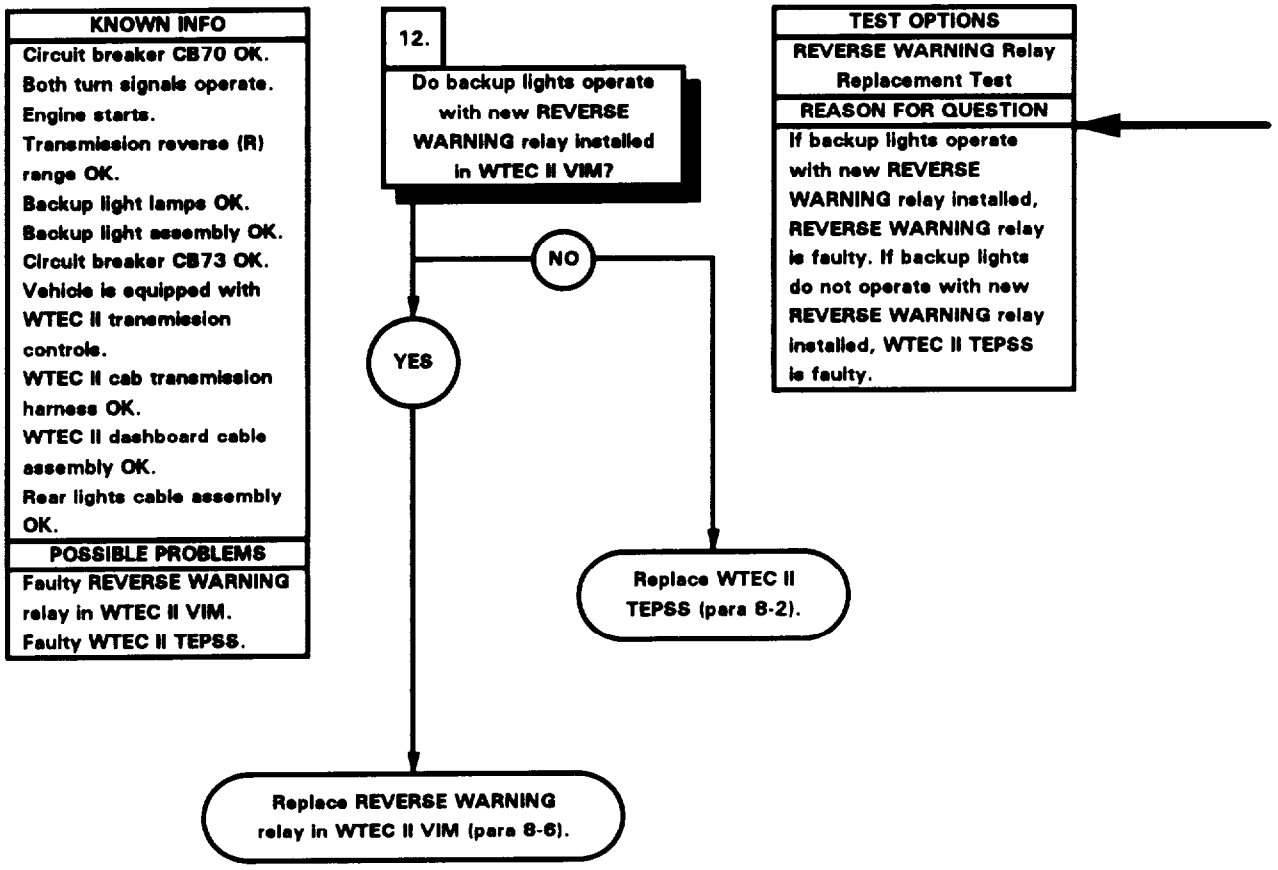


CONTINUITY TEST

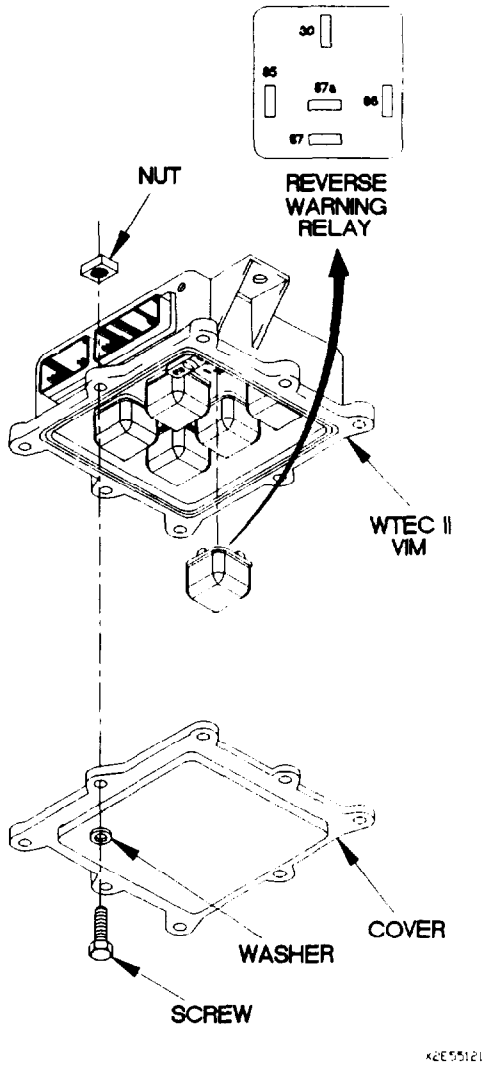
(1) Disconnect connector P87 from backup light connector.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector P51-2.
(4) Connect negative (-) probe of multimeter to connector P87 and note reading on multimeter.
(5) If continuity is not present, repair wire 490 (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(6) Connect connector P87 to backup light connector.
(7) Connect connector P51 to connector J51.
(8) Install PDP on dashboard with three screws.
(9) Install three washers and screws in PDP.



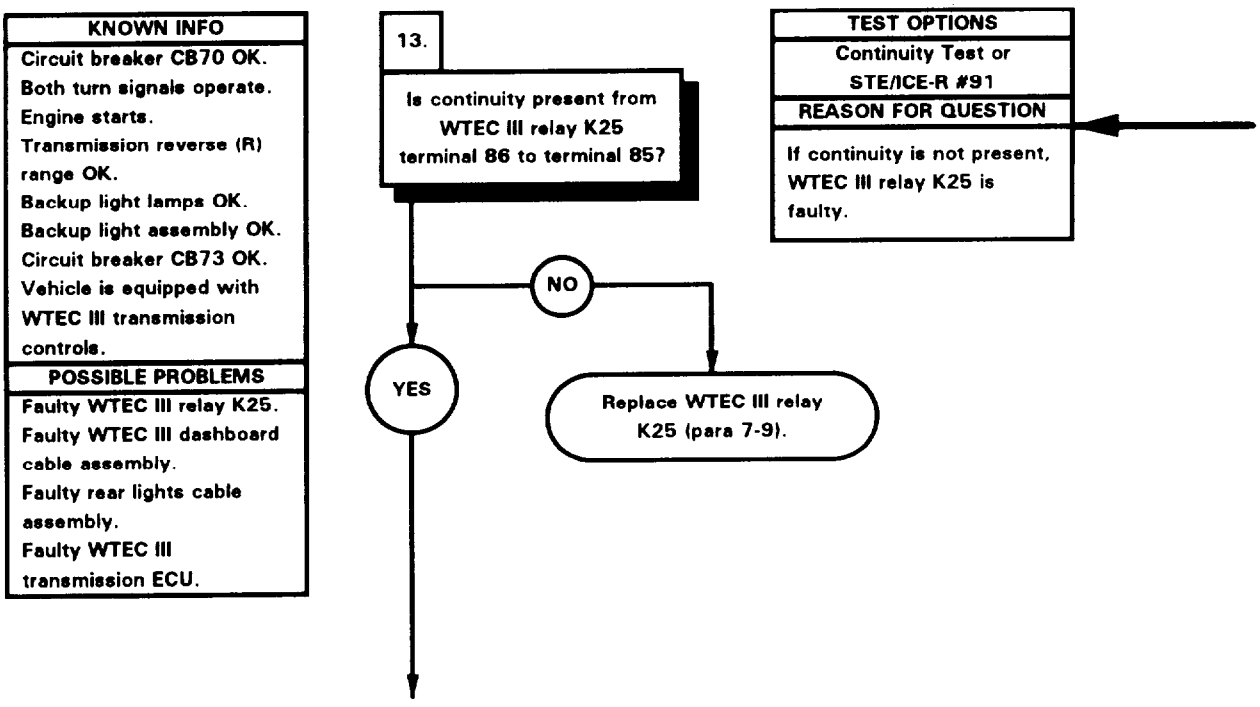
e55. BACKUP LIGHT DOES NOT ILLUMINATE (CONT)



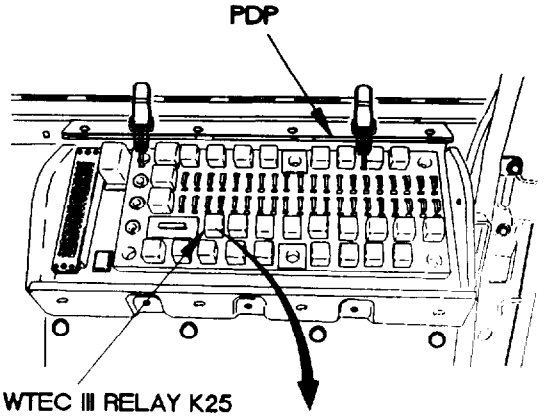
(1) Remove REVERSE WARNING relay from WTEC II VIM.
(2) Install new REVERSE WARNING relay in WTEC II VIM.
(3) Start engine (TM 9-2320-366-10-1).
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(5) Select R (reverse) on WTEC II TEPSS (TM 9-2320-366-10-1).
(6) Check to see if backup lights operate.
(7) If backup lights operate, replace REVERSE WARNING relay in WTEC II VIM (para 8-6).
(8) If backup lights do not operate, replace WTEC II TEPSS (para 8-2).
(9) Select N (neutral) on WTEC II TEPSS (TM 9-2320-366-10-1).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).
(11) Shut down engine (TM 9-2320-366-10-1).
(12) Remove new REVERSE WARNING relay from WTEC II VIM.
(13) Install old REVERSE WARNING relay in WTEC II VIM.
(14) Install cover on WTEC II VIM with nut, washer, and screw.
(15) Install seven washers and screws in cover.
(16) Install kick panel (para 16-3).

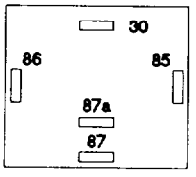


e55. BACKUP LIGHT DOES NOT ILLUMINATE (CONT)



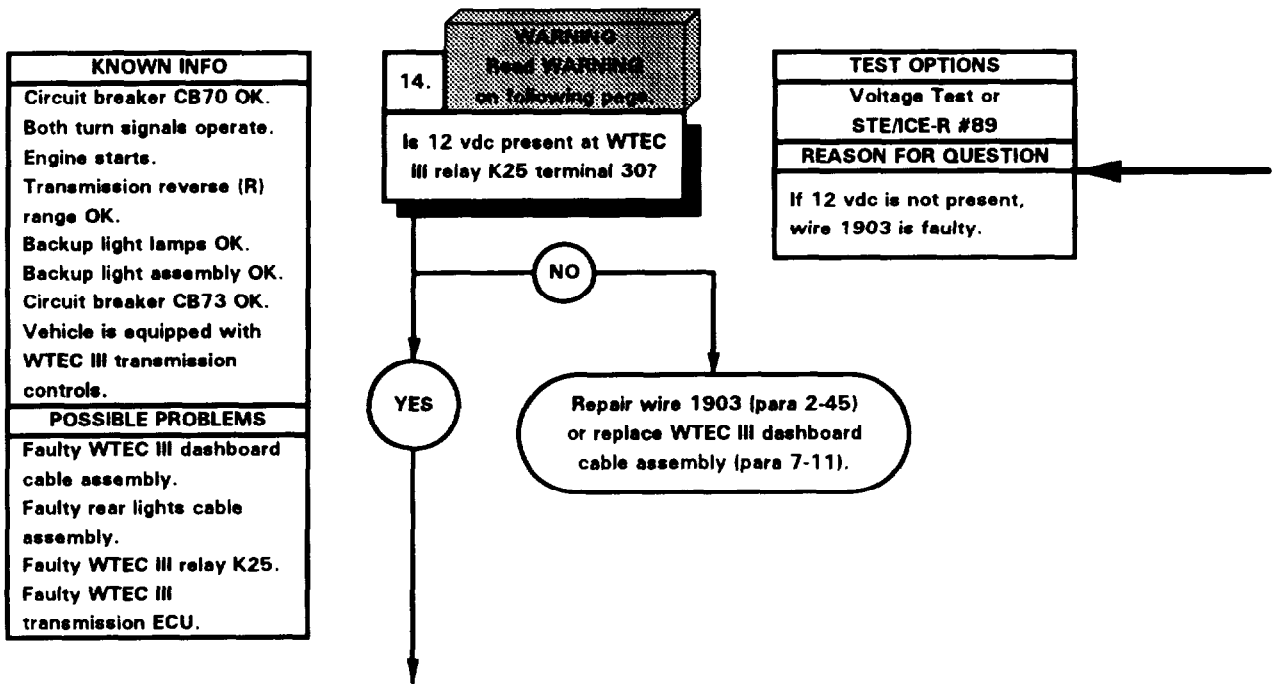
CONTINUITY TEST
(1) Remove WTEC III relay K25 from PDP.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to WTEC III relay K25 terminal 86.
(4) Connect negative (-) probe of multimeter to WTEC III relay K25 terminal 85 and note reading on multimeter.
(5) If continuity is not present, replace WTEC III relay K25 (para 7-9).





WTEC III RELAY K25

e55. BACKUP LIGHT DOES NOT ILLUMINATE

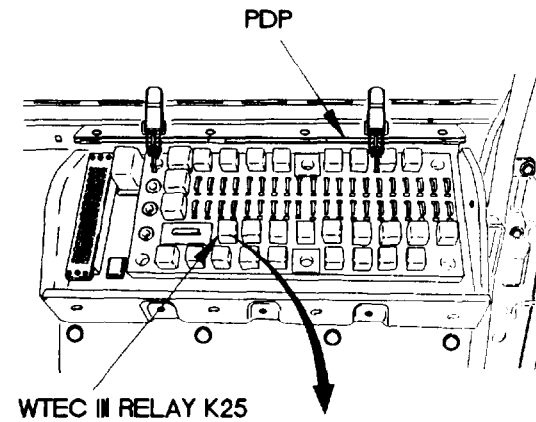


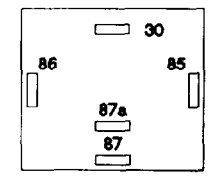
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, where WTEC III relay K25 terminal 30 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 12 vdc is not present, repair wire 1903 (para 2-45) or replace WTEC III dashboard cable assembly (para 7-11).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).

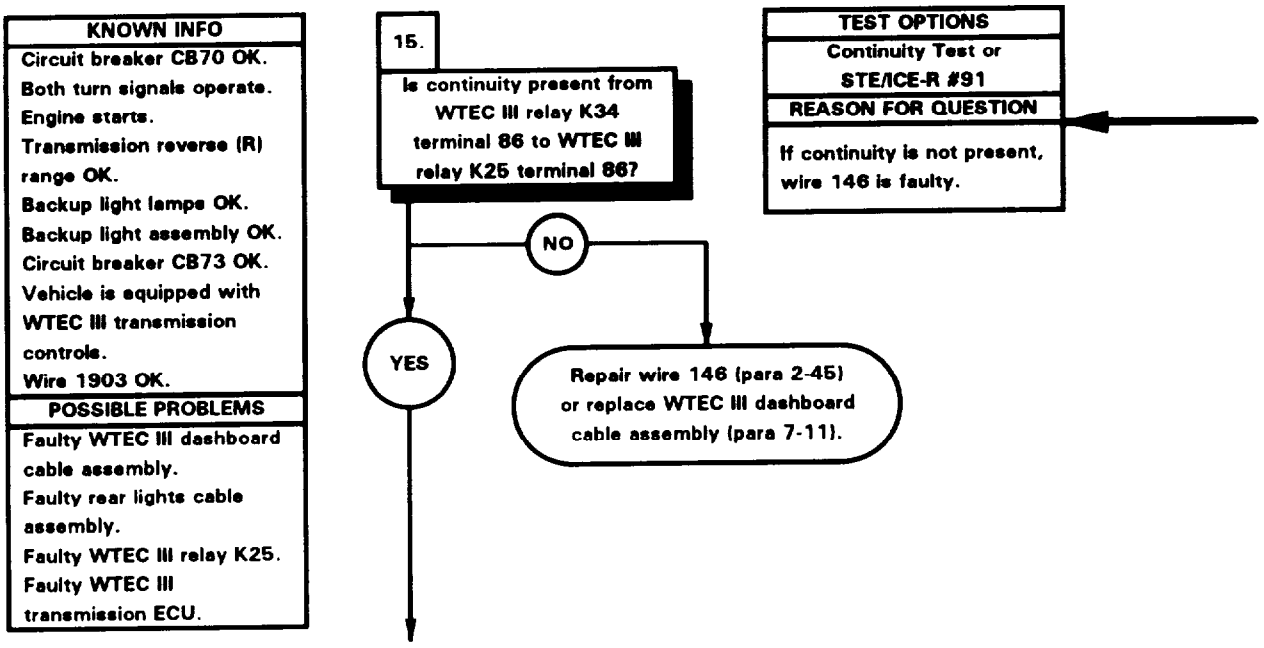




WTEC III RELAY K25

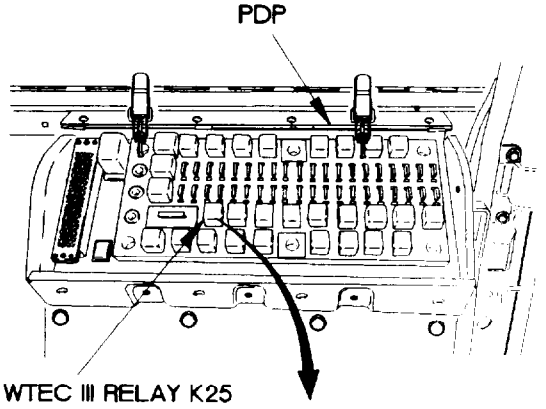
>2E55141

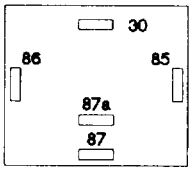
e55. BACKUP LIGHT DOES NOT ILLUMINATE



CONTINUITY TEST

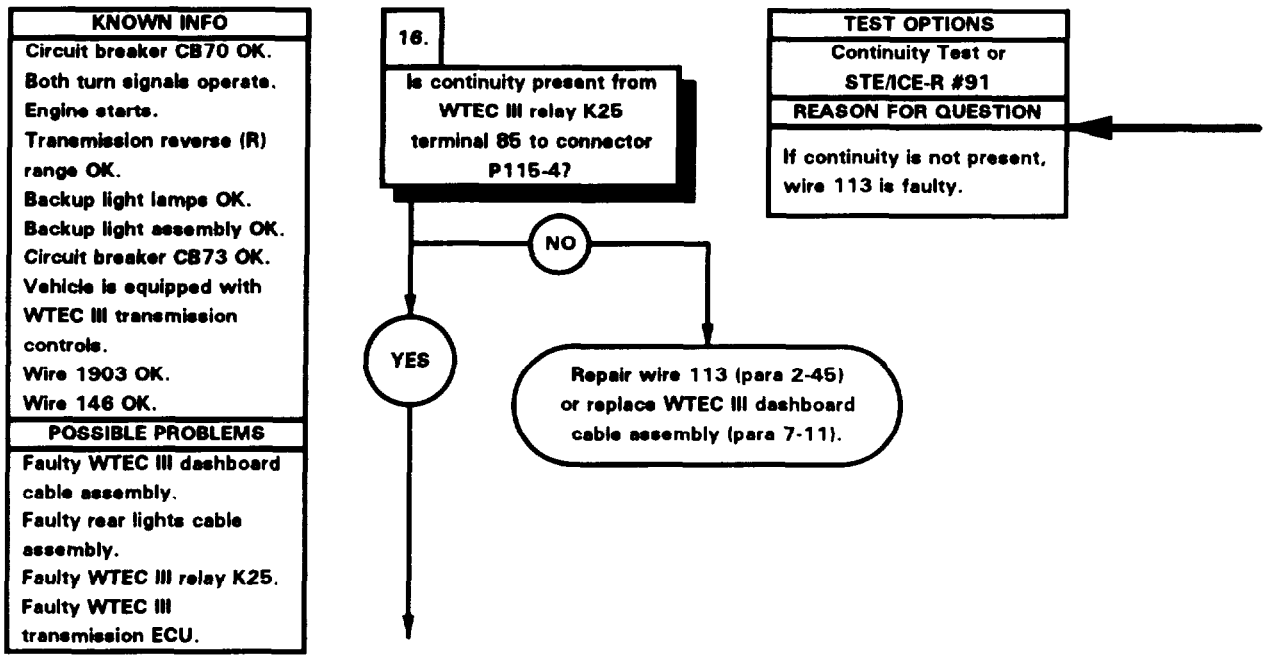
(1) Remove WTEC III relay K34 from PDP.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to PDP, where WTEC III relay K34 terminal 86 was removed.
(4) Connect negative (-) probe of multimeter to PDP, where WTEC III relay K25 terminal 86 was removed, and note reading on multimeter.
(5) If continuity is not present, repair wire 146 (para 2-45) or replace WTEC III dashboard cable assembly (para 7-11).
(6) Install WTEC III relay K34 on PDP.



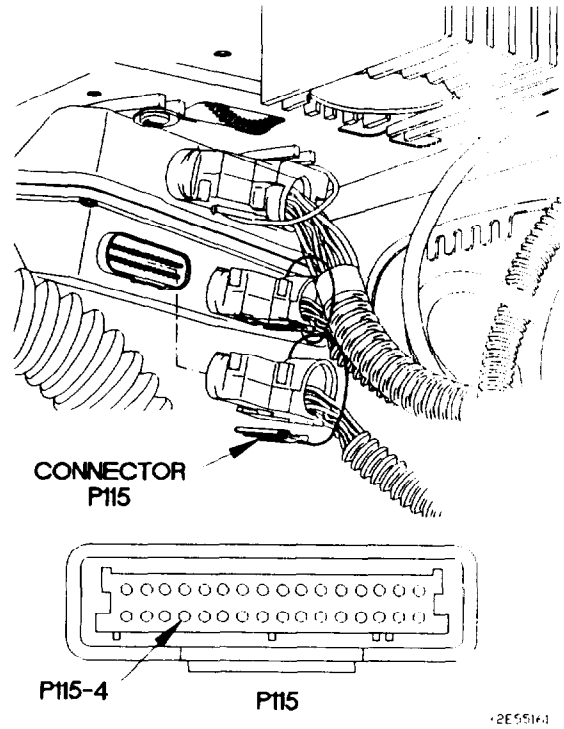


WTEC III RELAY K25

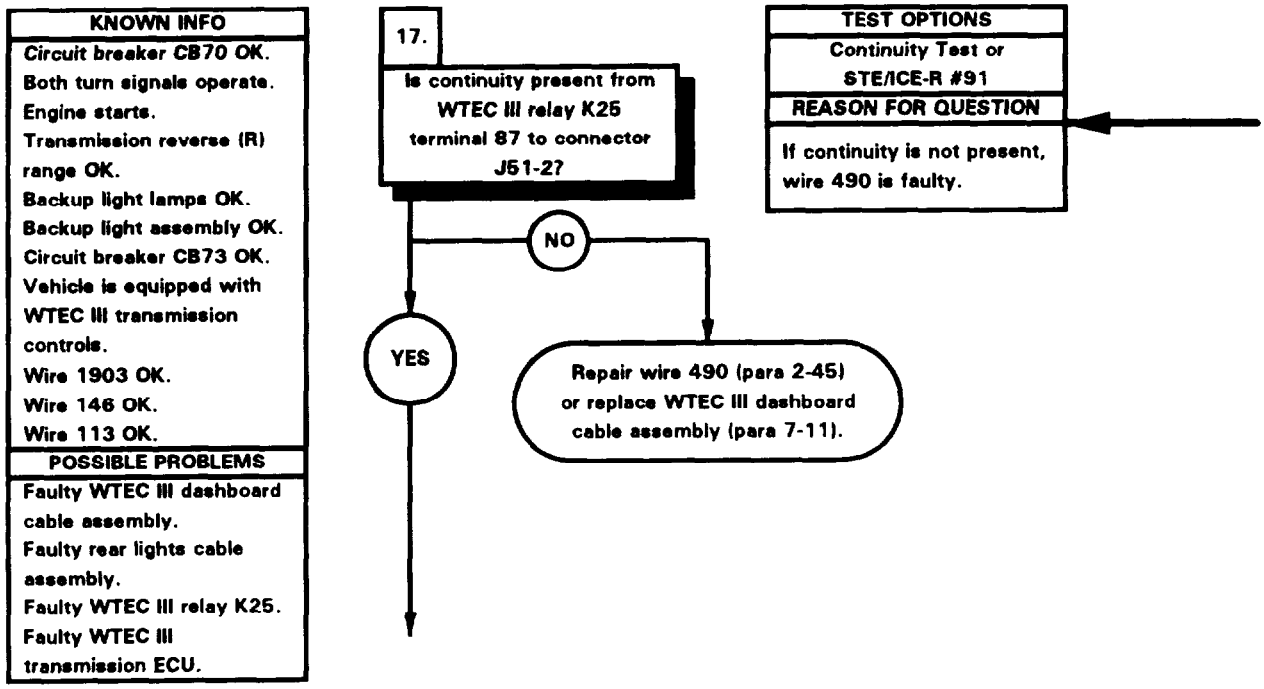
e55. BACKUP LIGHT DOES NOT ILLUMINATE



CONTINUITY TEST
(1) Remove kick panel (para 16-3).
(2) Disconnect connector clamp from connector P115.
(3) Disconnect connector P115 from WTEC III transmission ECU.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to PDP, where WTEC III relay K25 terminal 85 was removed.
(6) Connect negative (-) probe of multimeter to connector P115-4 and note reading on multimeter.
(7) If continuity is not present, repair wire 113 (para 2-45) or replace WTEC III dashboard cable assembly (para 7-11).
(8) Connect connector P115 to WTEC III transmission ECU.
(9) Connect connector clamp to connector P115.

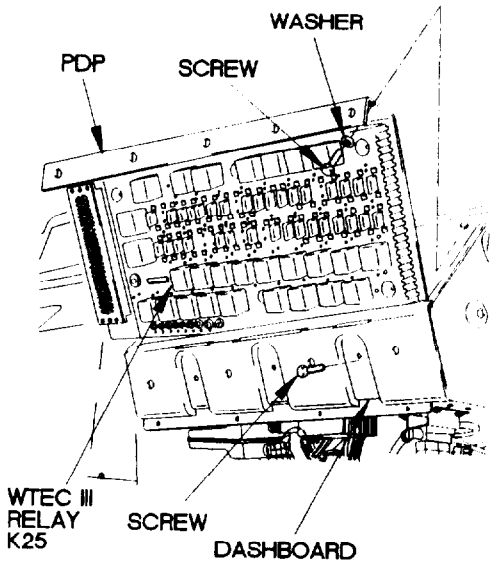


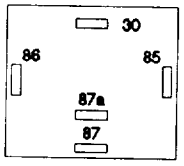
e55. BACKUP LIGHT DOES NOT ILLUMINATE



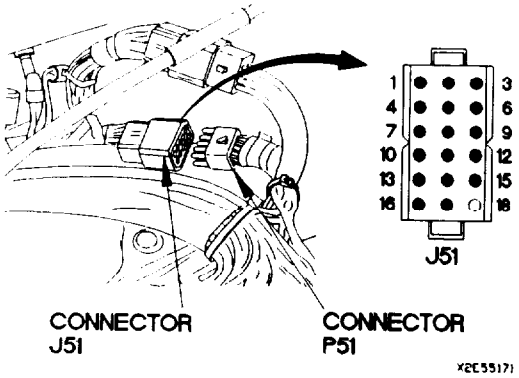
CONTINUITY TEST

(1) Remove three screws from PDP.
(2) Remove three screws and washers from PDP.
(3) Lift PDP outward to gain access.
(4) Disconnect connector P51 from connector J51.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to PDP, where WTEC III relay K25 terminal 87 was removed.
(7) Connect negative (-) probe of multimeter to connector J51-2 and note reading on multimeter.
(8) If continuity is not present, repair wire 490 (para 2-45) or replace WTEC III dashboard cable assembly (para 7-11).

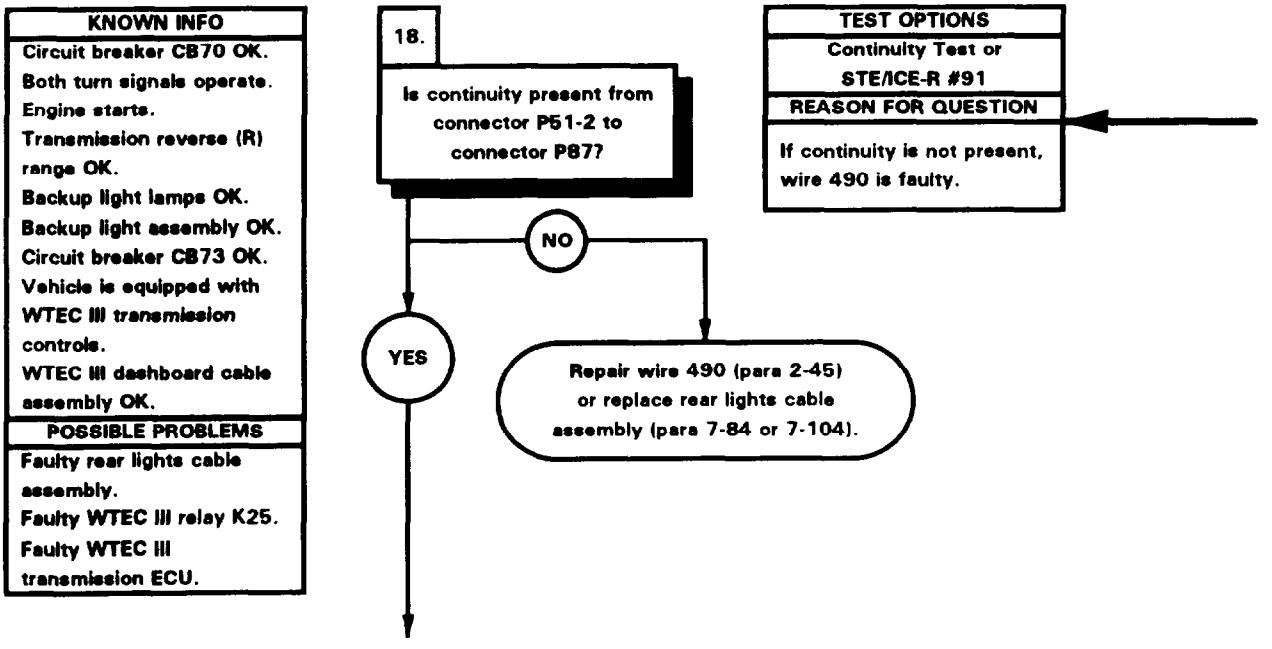




WTEC III
RELAY
K25

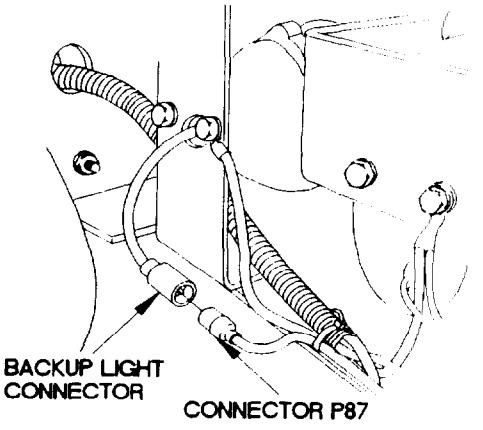


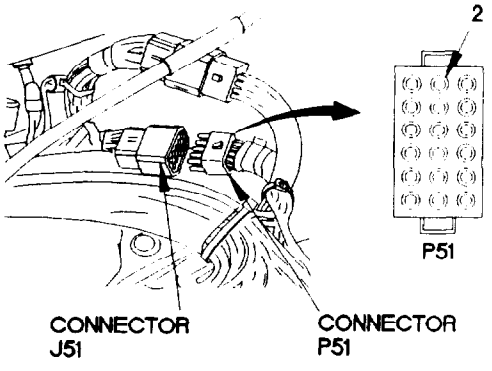
e55. BACKUP LIGHT DOES NOT ILLUMINATE

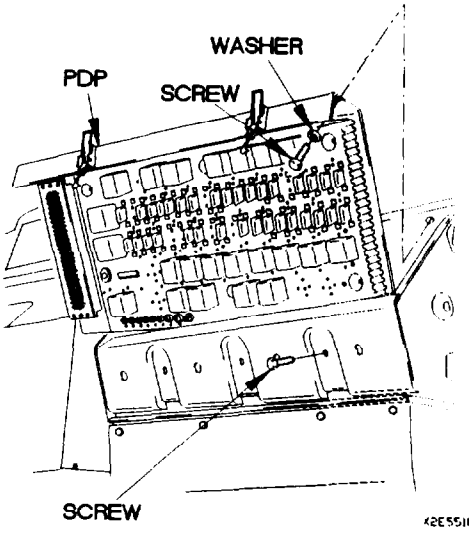


CONTINUITY TEST

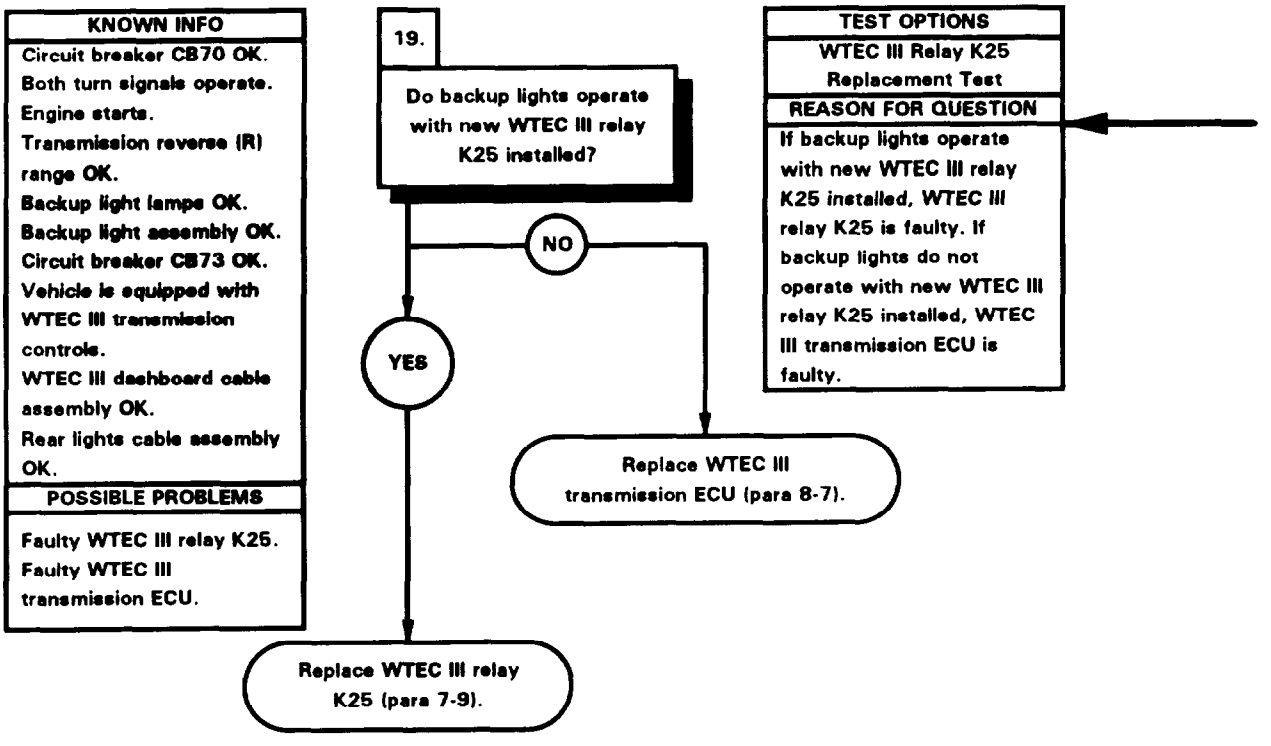
(1) Disconnect connector P87 from backup light connector.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector P51-2.
(4) Connect negative (-) probe of multimeter to connector P87 and note reading on multimeter.
(5) If continuity is not present, repair wire 490 (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(6) Connect connector P87 to backup light connector.
(7) Connect connector P51 to connector J51.
(8) Install PDP on dashboard with three screws.
(9) Install three washers and screws in PDP.



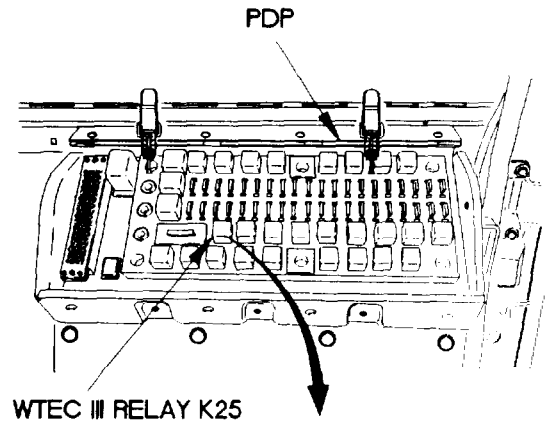


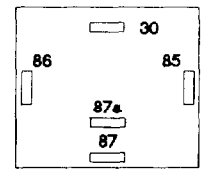


e55. BACKUP LIGHT DOES NOT ILLUMINATE



(1) Install new WTEC III relay K25 on PDP.
(2) Start engine (TM 9-2320-366-10-1).
(3) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(4) Select R (reverse) on WTEC III TPSS (TM 9-2320-366-10-1).
(5) Check to see if backup lights operate.
(6) If backup lights operate, replace WTEC III relay K25 (para 7-9).
(7) If backup lights do not operate, replace WTEC III transmission ECU (para 8-7).
(8) Select N (neutral) on WTEC III TPSS (TM 9-2320-366-10-1).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).
(10) Shut down engine (TM 9-2320-366-10-1).
(11) Remove new WTEC III relay K25 from PDP.
(12) Install old WTEC III relay K25 on PDP.
(13) Install kick panel (para 16-3).





WTEC III RELAY K25

e56. BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE

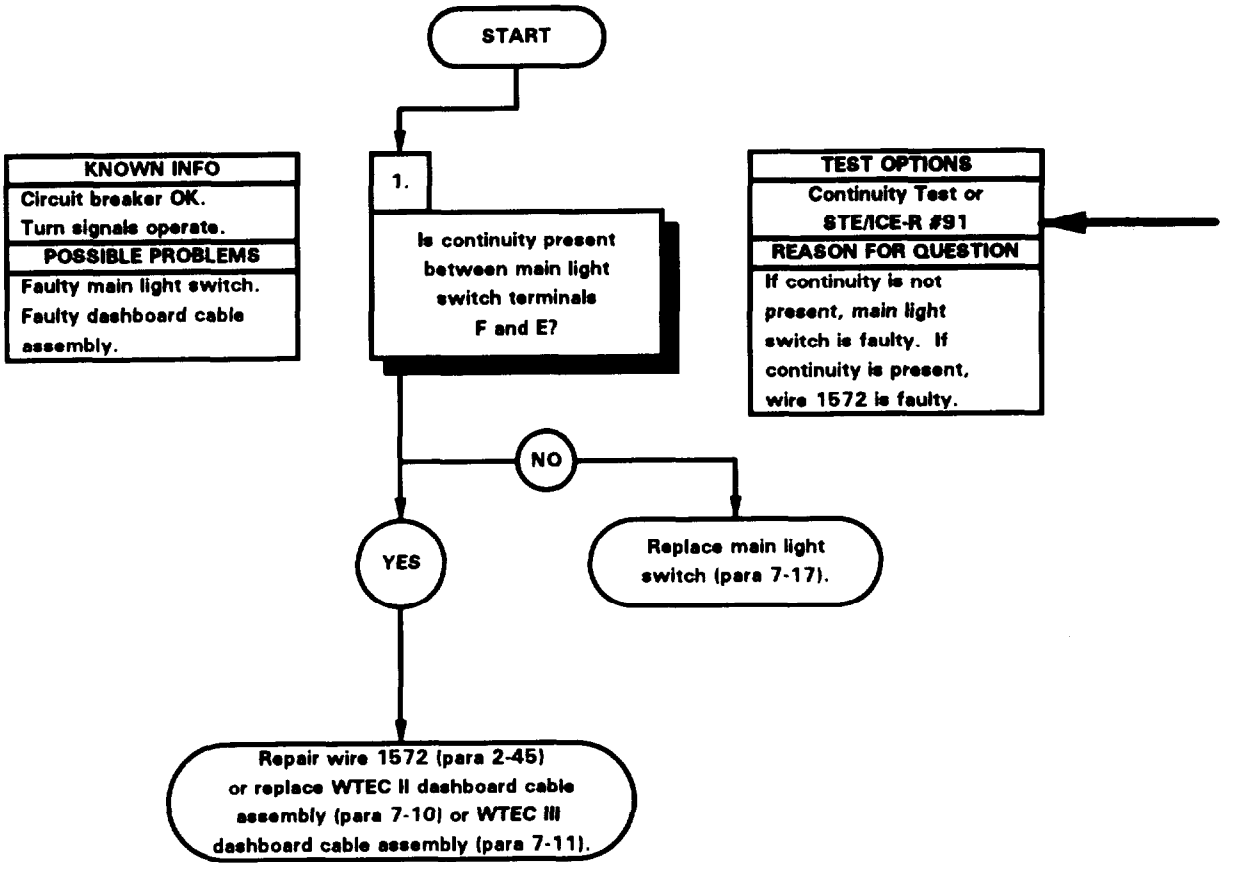
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

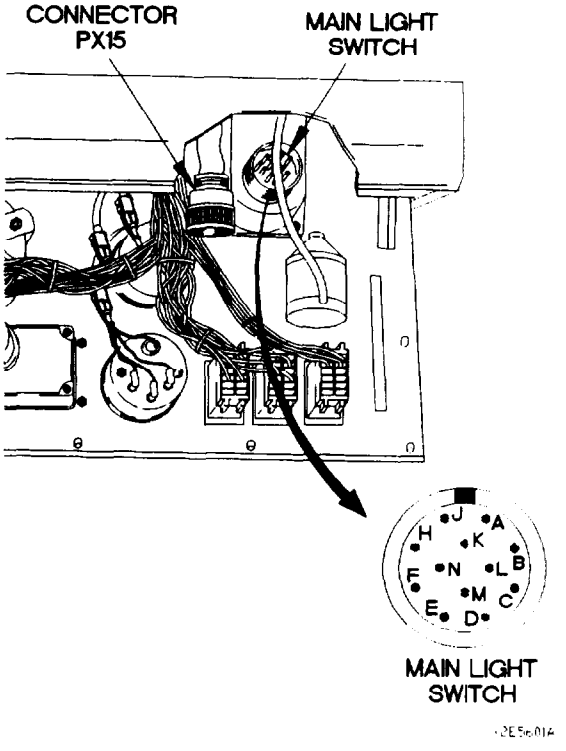
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

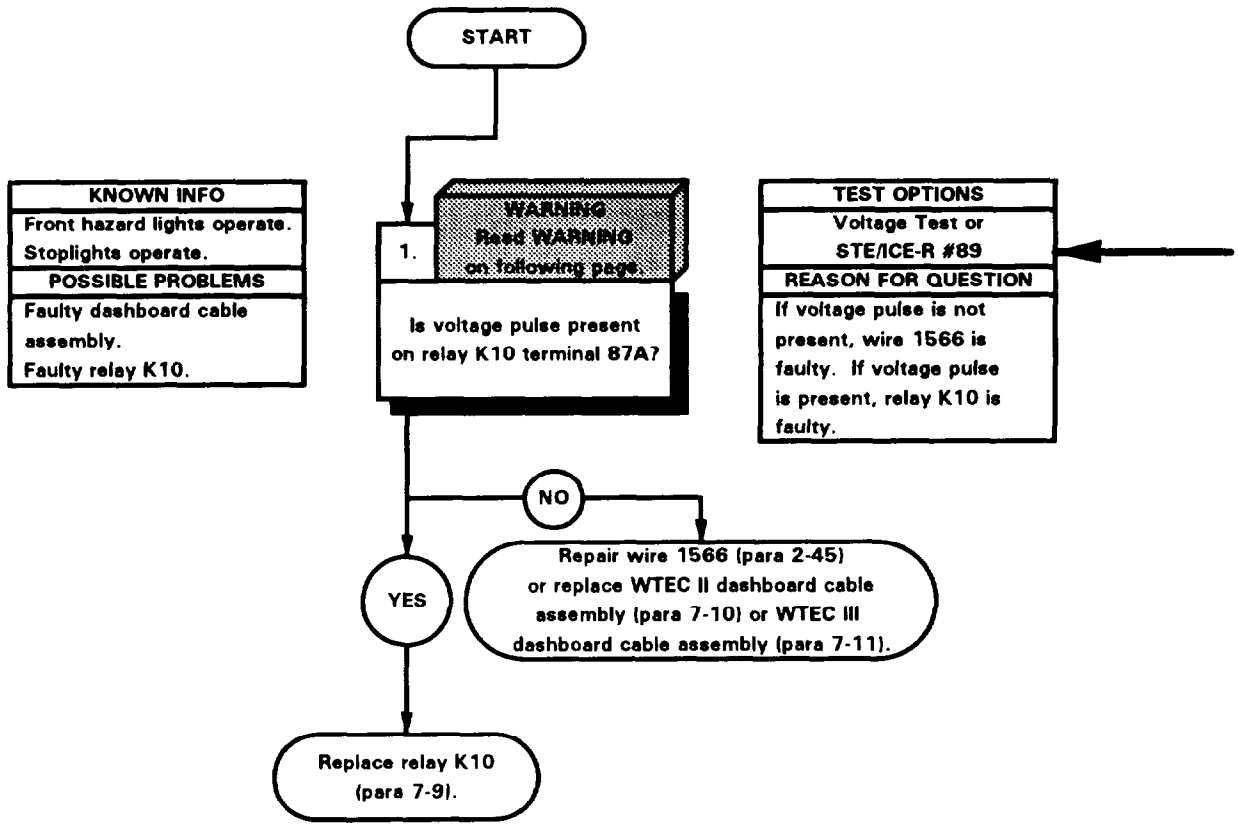


CONTINUITY TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX15 from main light switch.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to main light switch terminal F.
(5) Connect negative (-) probe of multimeter to main light switch terminal E.
(6) Position main light switch to BO MARKER (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If continuity is not present, replace main light switch (para 7-17).
(8) If continuity is present, repair wire 1572 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).
(10) Connect connector PX15 to main light switch.
(11) Install instrument panel assembly (para 7-15).



e57. REAR HAZARD LIGHTS DO NOT OPERATE	
INITIAL SETUP	
Equipment Condition Engine shut down (TM 9-2320-366-10-1). **Personnel Required** (2)	**Tools and Special Tools** Tool Kit, Genl Mech (Item 46, Appendix C) *STE/ICE-R (Item 41, Appendix C)* Multimeter, Digital (Item 22, Appendix C) **References** TM 9-4910-571-12&P

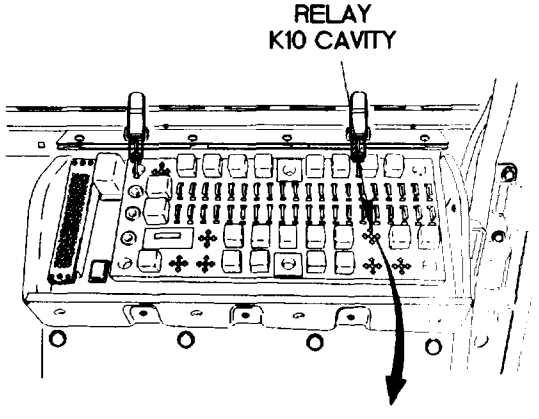


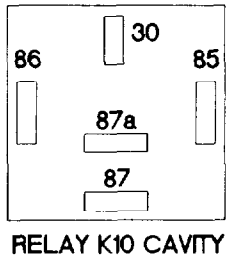
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove relay K10 from PDP.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to PDP, terminal 87A, where relay K10 was removed.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position hazard lights switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If voltage pulse is not present, repair wire 1566 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) If voltage pulse is present, replace relay K10 (para 7-9).
(9) Position hazard lights switch to off (TM 9-2320-366-10-1).
(10) Install relay K10 in PDP.
(11) Install PDP cover (para 16-2).





RELAY K10 CAVITY

e58. FRONT AND REAR HAZARD LIGHTS DO NOT OPERATE

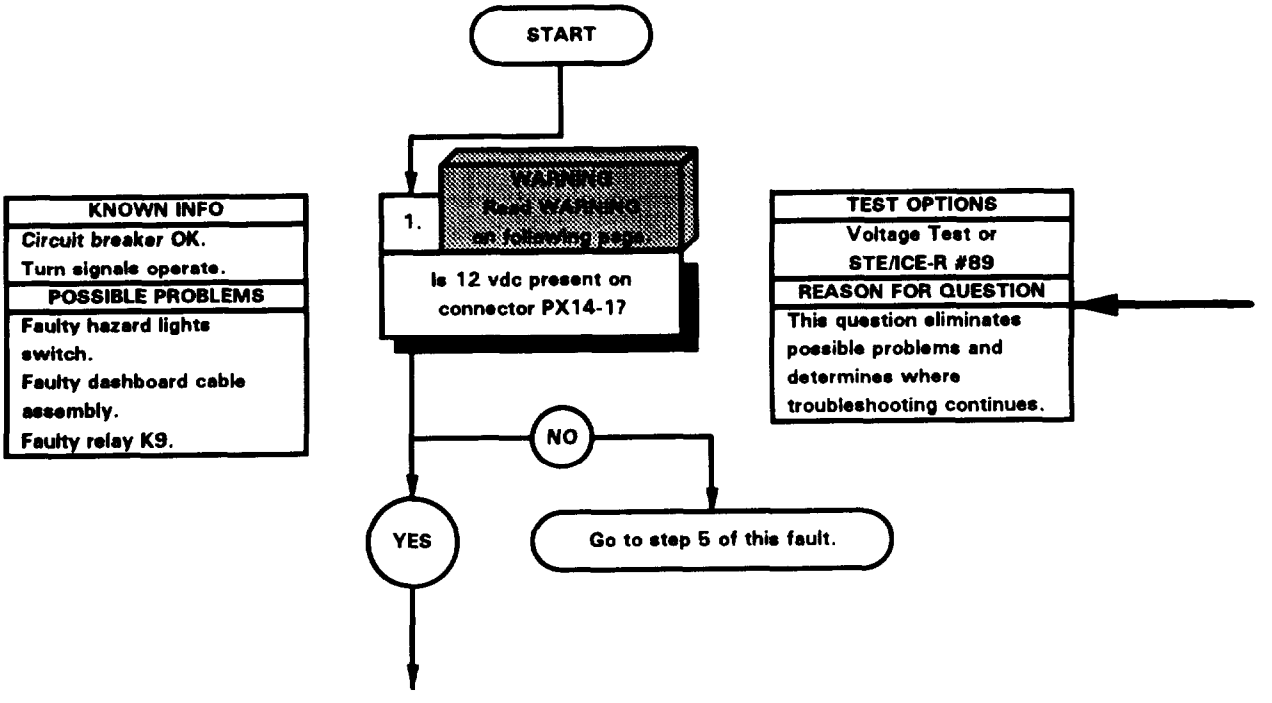
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

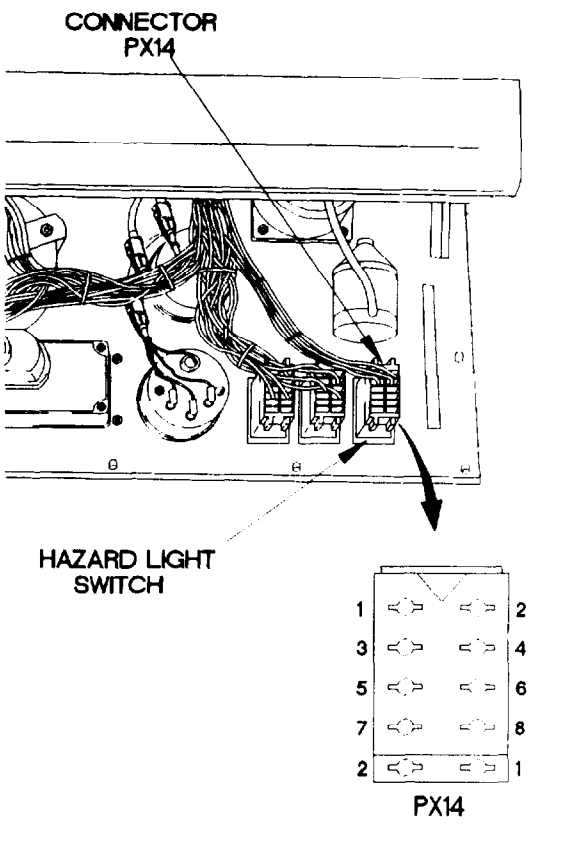


WARNING

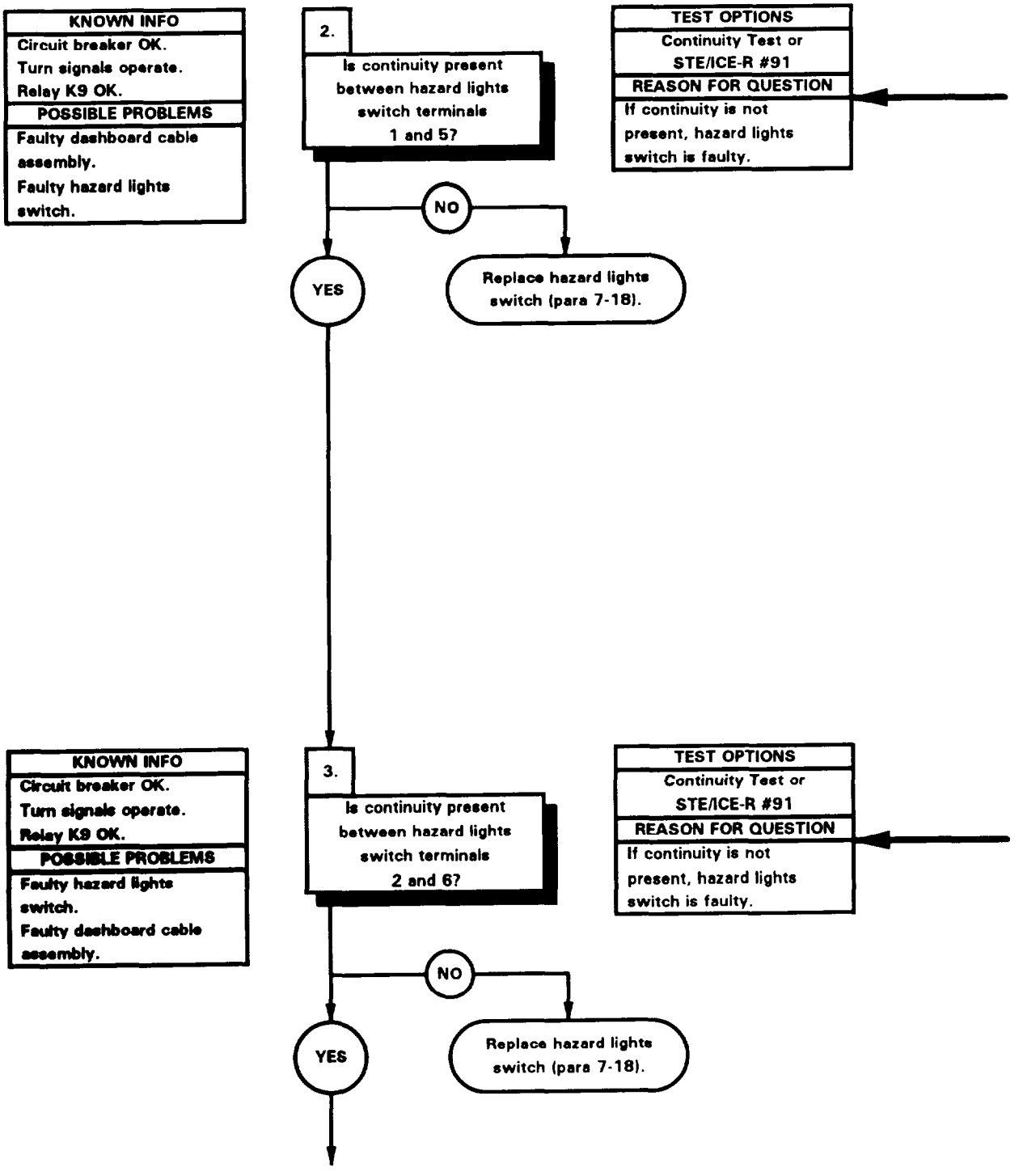
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

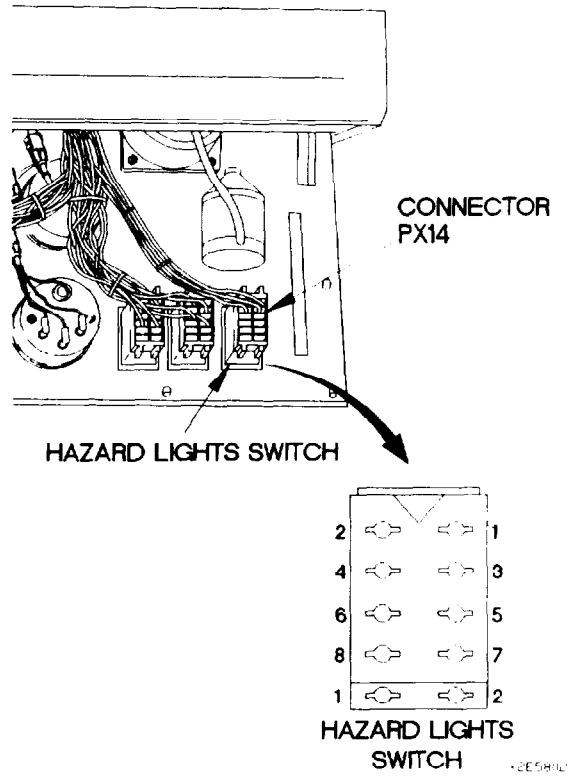
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX14 from hazard lights switch.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector PX14-1.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, go to step 5 of this fault.
(8) Position main light switch to OFF (TM 9-2320-366-10-1).



e58. FRONT AND REAR HAZARD LIGHTS DO NOT OPERATE (CONT)

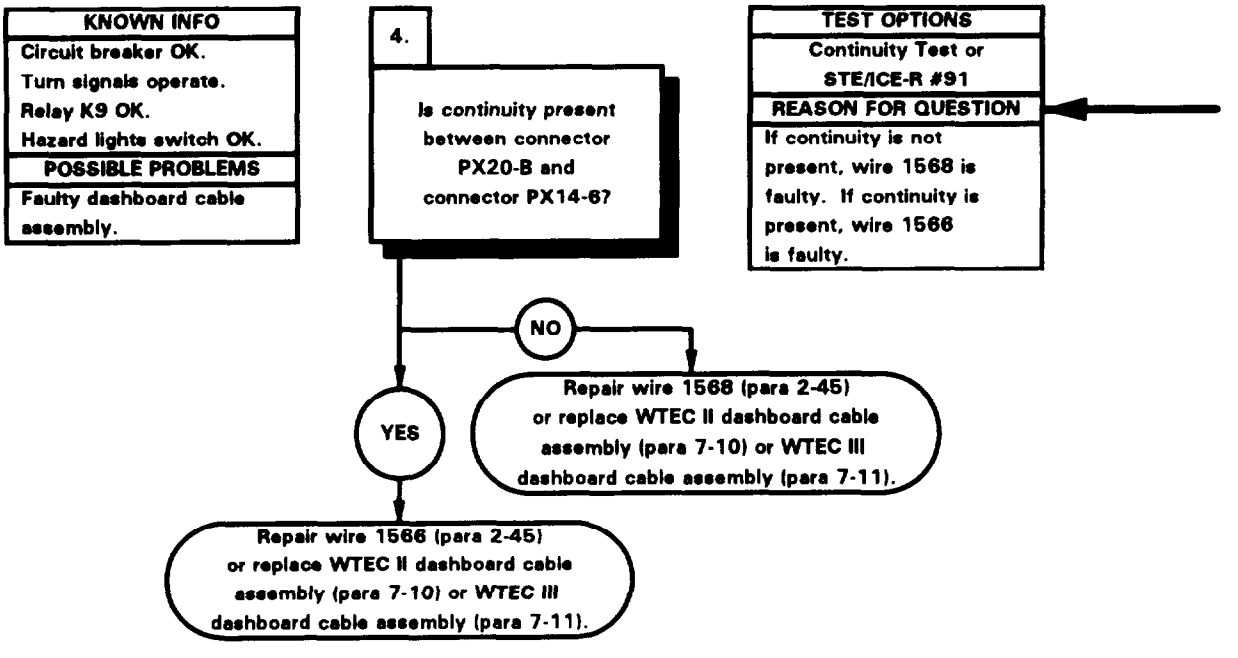


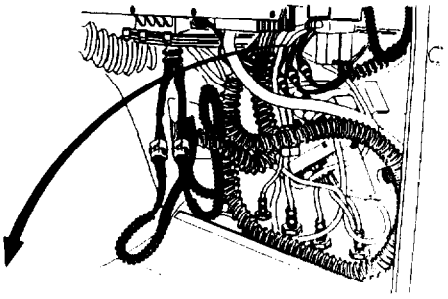
CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to hazard lights switch terminal 1.
(3) Connect negative (-) probe of multimeter to hazard lights switch terminal 5.
(4) Position hazard lights switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If continuity is not present, replace hazard lights switch (para 7-18).

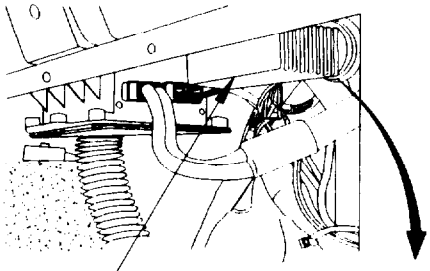


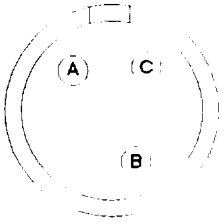
CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to hazard lights switch terminal 2.
(3) Connect negative (-) probe of multimeter to hazard lights switch terminal 6.
(4) Position hazard lights switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If continuity is not present, replace hazard lights switch (para 7-18).

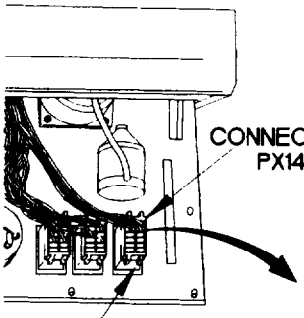
e58. FRONT AND REAR HAZARD LIGHTS DO NOT OPERATE (CONT)

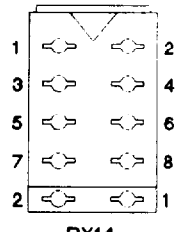












CONNECTOR PX14

PX20

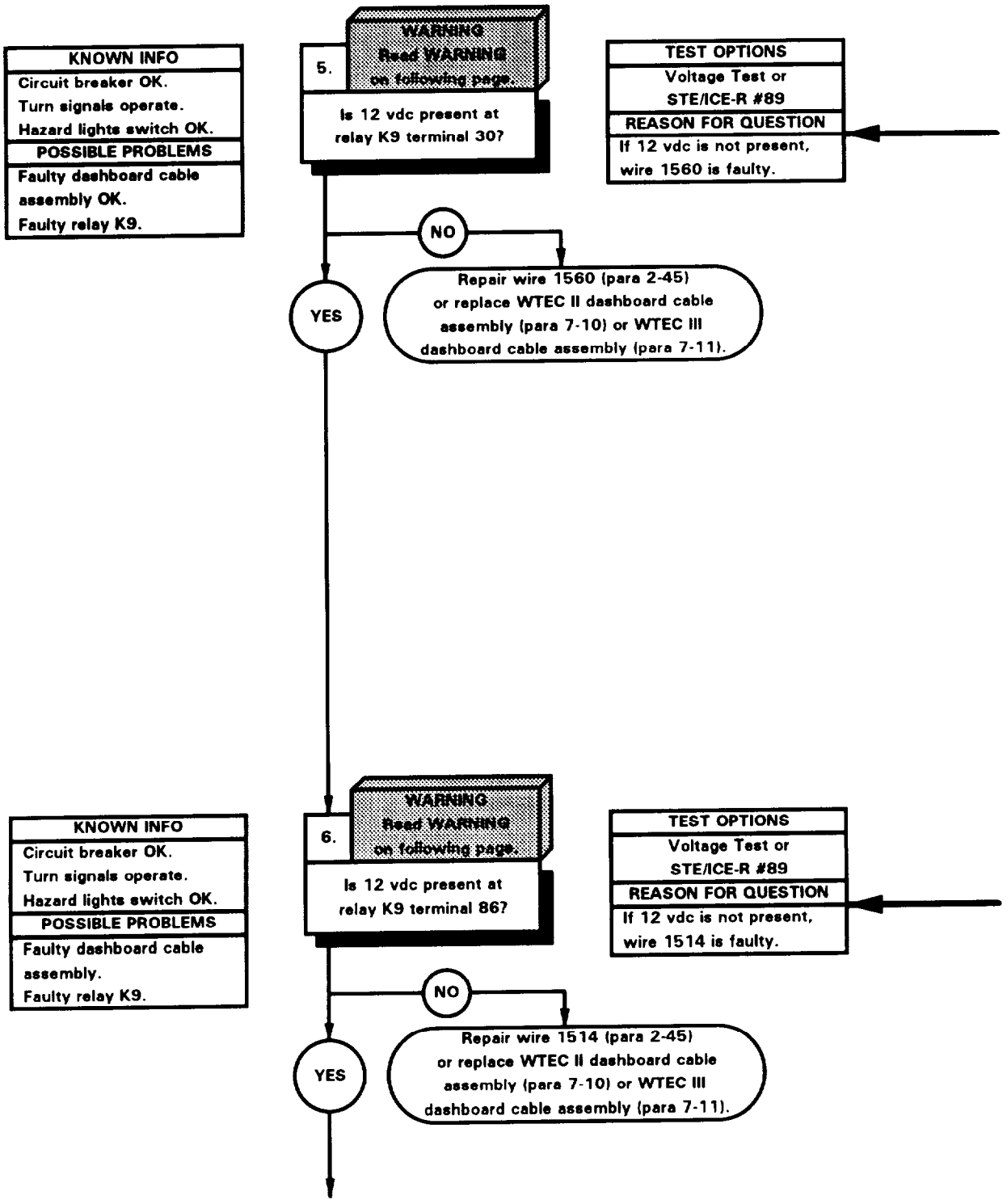
HAZARD LIGHTS SWITCH

PX14

CONTINUITY TEST

(1) Remove kick panel (para 16-3).
(2) Disconnect connector PX20 from flasher unit.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to connector PX14-6.
(5) Connect negative (-) probe of multimeter to connector PX20-A and note reading on multimeter.
(6) If continuity is not present, repair wire 1568 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) If continuity is present, repair wire 1566 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Connect connector PX20 to flasher unit.
(9) Install kick panel (para 16-3).
(10) Connect connector PX14 to hazard lights switch.
(11) Install instrument panel assembly (para 7-15).

e58. FRONT AND REAR HAZARD LIGHTS DO NOT OPERATE (CONT)

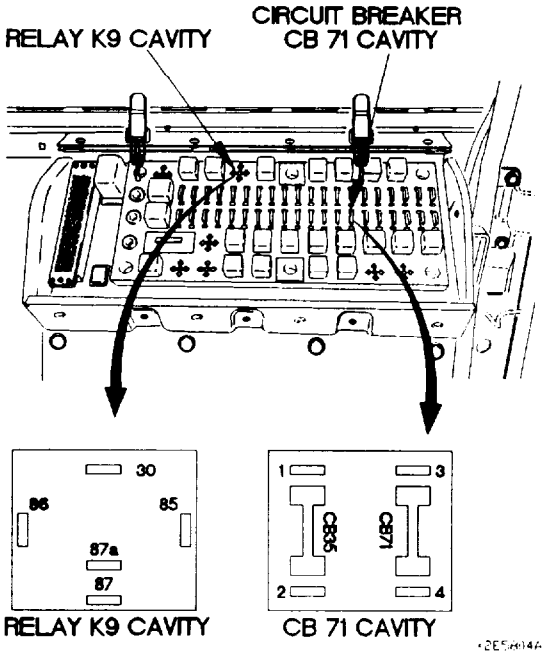


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

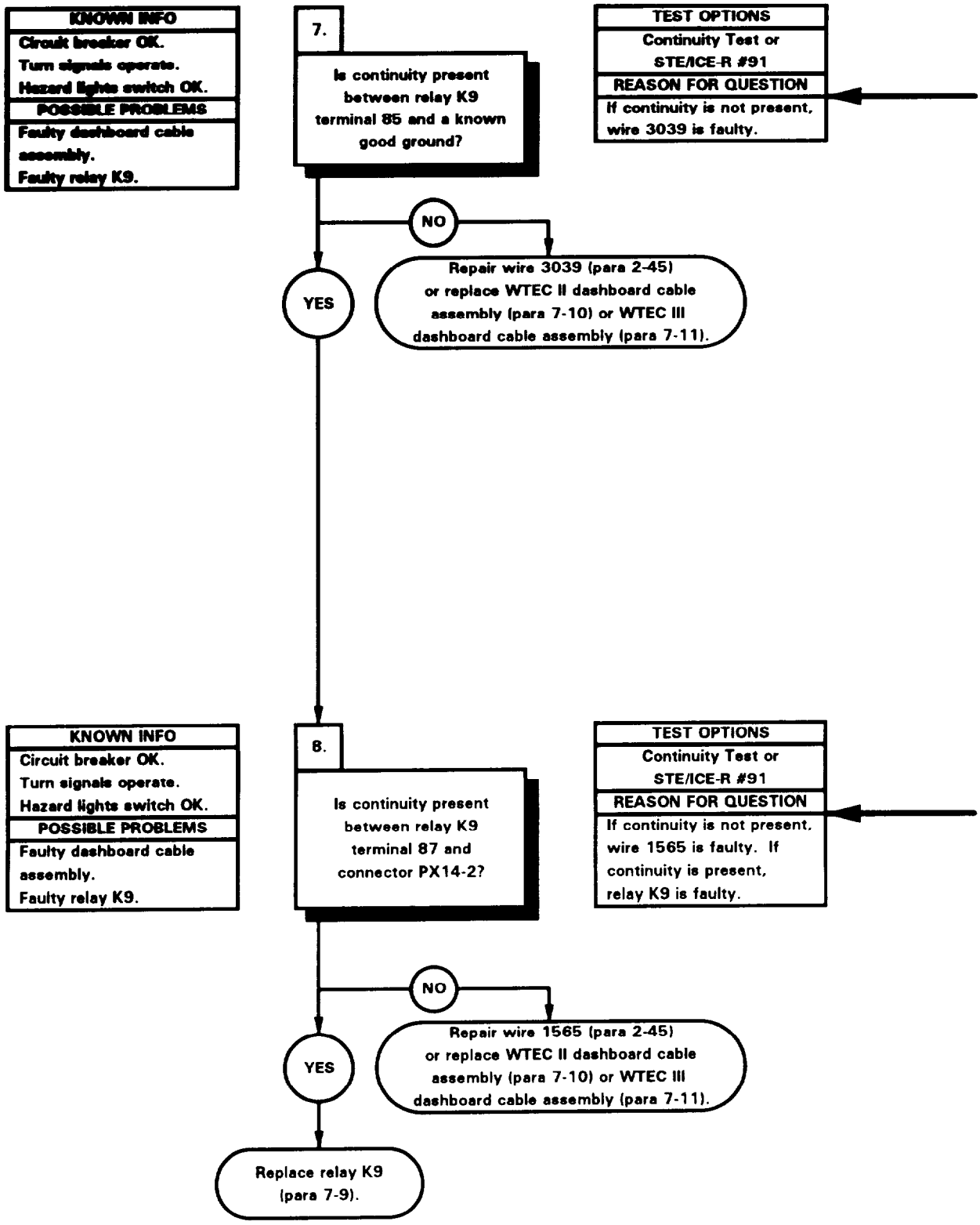
(1) Remove PDP cover (para 16-2).
(2) Remove circuit breaker CB71 from PDP.
(3) Remove relay K9 from PDP.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to PDP, terminal 30, where relay K9 was removed.
(6) Connect negative (-) probe of multimeter to ground.
(7) Install circuit breaker CB71 in PDP and note reading on multimeter.
(8) If 12 vdc is not present, repair wire 1566 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



VOLTAGE TEST

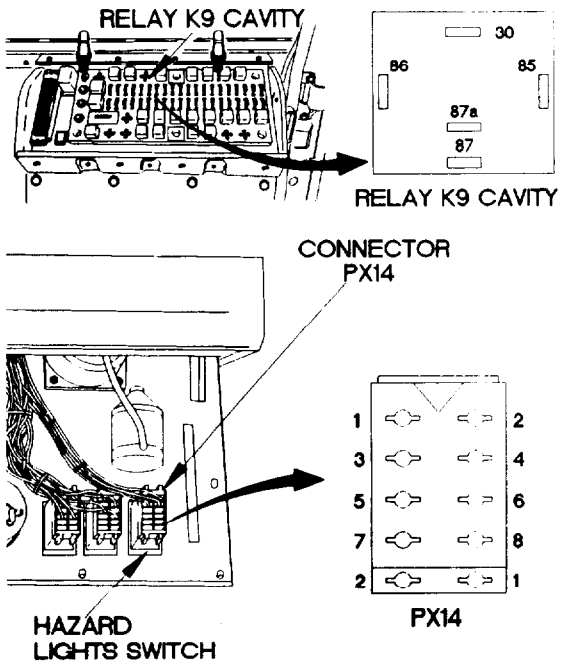
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, terminal 86, where relay K9 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 12 vdc is not present, repair wire 1514 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).

e58. FRONT AND REAR HAZARD LIGHTS DO NOT OPERATE (CONT)



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, terminal 85, where relay K9 was removed.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3039 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



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CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, terminal 87, where relay K9 was removed.
(3) Connect negative (-) probe of multimeter to connector PX14-2 and note reading on multimeter.
(4) If continuity is not present, repair wire 1565 (para 2-45)or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If 12 vdc is present, replace relay K9 (para 7-9).
(6) Connect connector PX14 to hazard lights switch.
(7) Install relay K9 in PDP.
(8) Install PDP cover (para 16-2).
(9) Install instrument panel assembly (para 7-15).

e59. FRONT AND REAR TURN SIGNALS DO NOT OPERATE

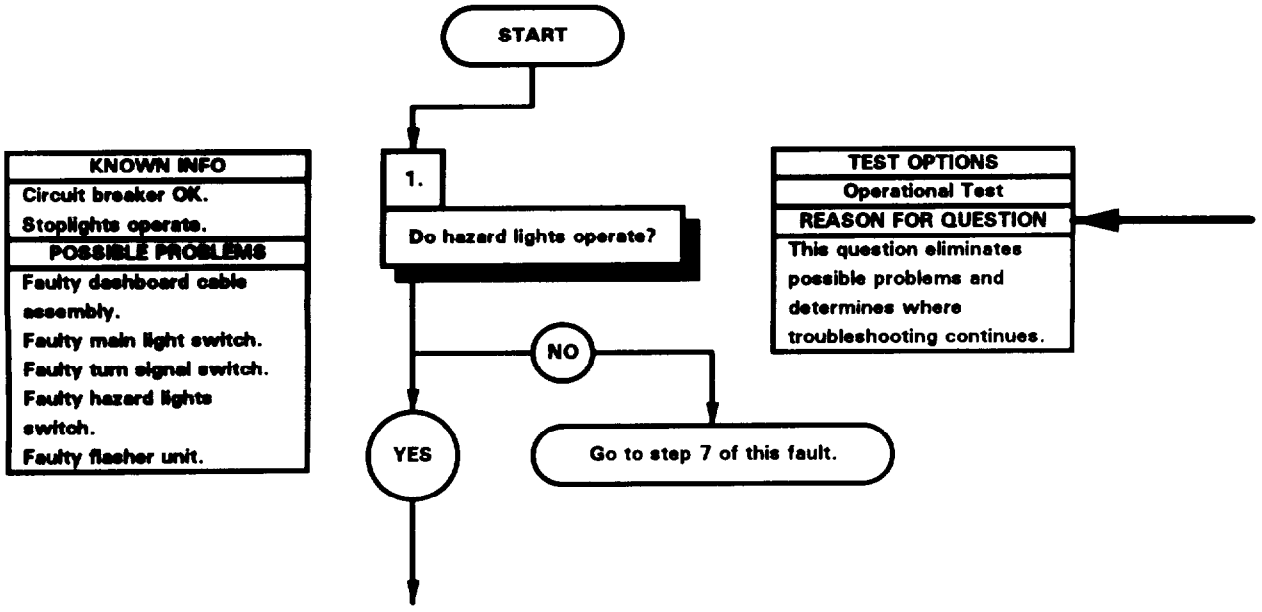
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

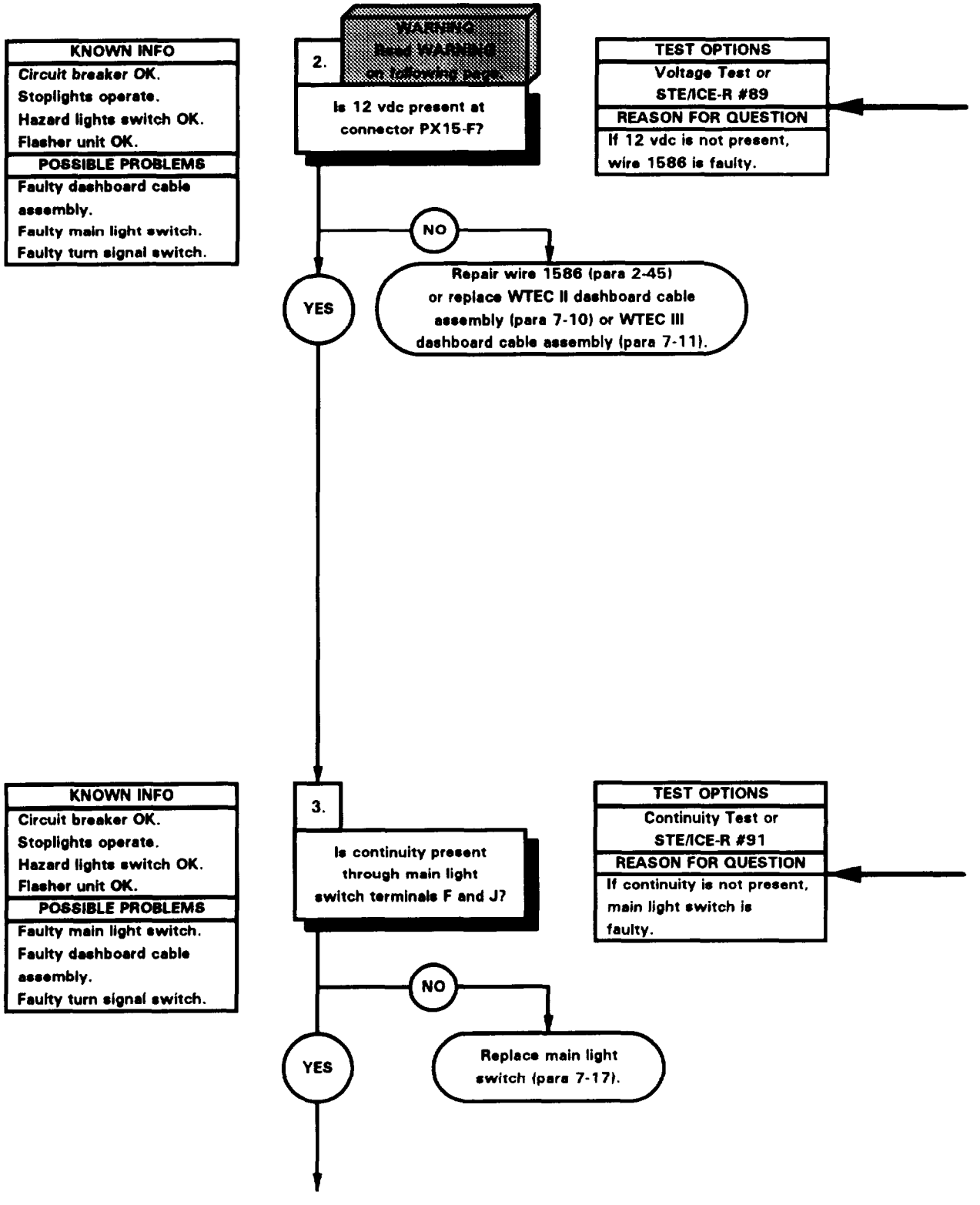
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P



OPERATIONAL TEST
(1) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1).
(2) Position hazard lights switch to on (TM 9-2320-366-10-1).
(3) Observe hazard lights.
(4) If hazard lights do not operate, go to step 7 of this fault.
(5) Position hazard lights switch to off (TM 9-2320-366-10-1).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).

e59. FRONT AND REAR TURN SIGNALS DO NOT OPERATE (CONT)

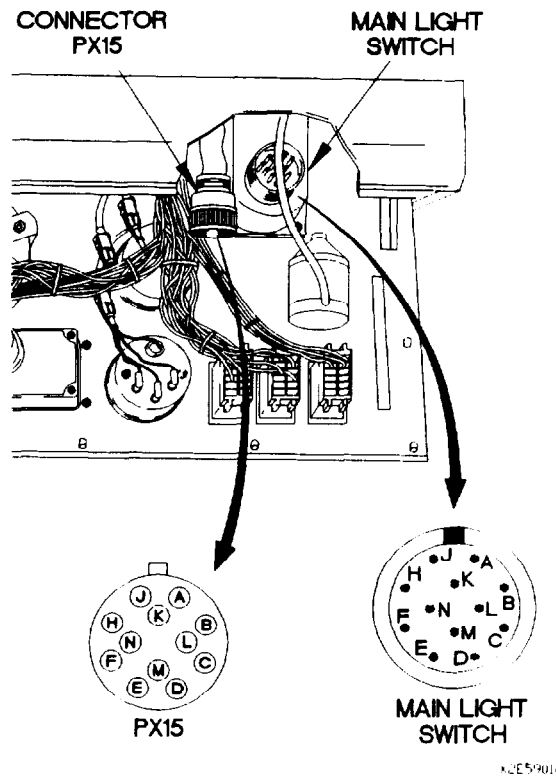


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

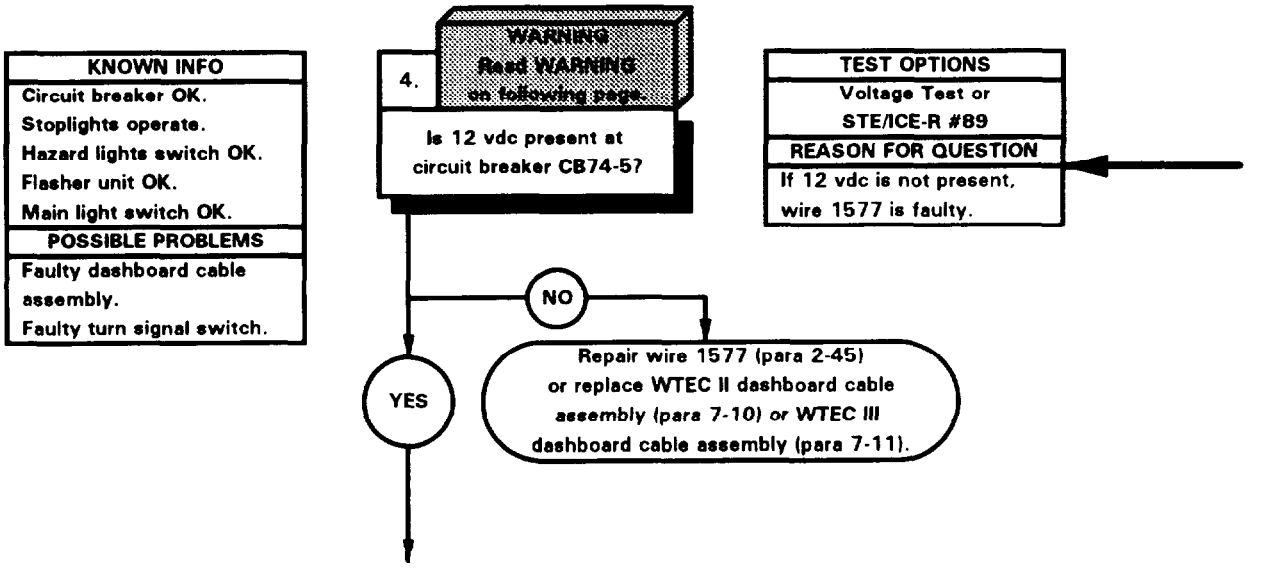
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX15 from main light switch.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector PX15-F.
(5) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(6) If 12 vdc is not present, repair wire 1586 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



CONTINUITY TEST

(1) Remove main light switch (para 7-17).
(2) Set multimeter to ohms.
(3) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1).
(4) Connect positive (+) probe of multimeter to main light switch terminal F.
(5) Connect negative (-) probe of multimeter to main light switch terminal J and note reading on multimeter.
(6) If continuity is not present, replace main light switch (para 7-17).
(7) Install main light switch (para 7-17).

e59. FRONT AND REAR TURN SIGNALS DO NOT OPERATE (CONT)

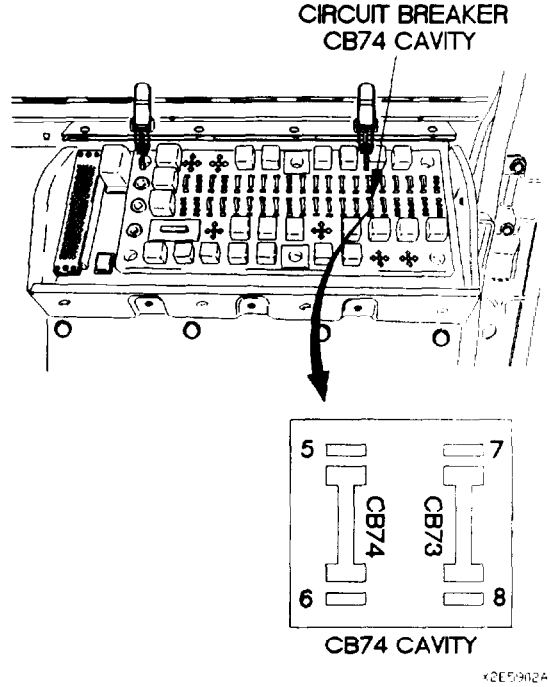


WARNING

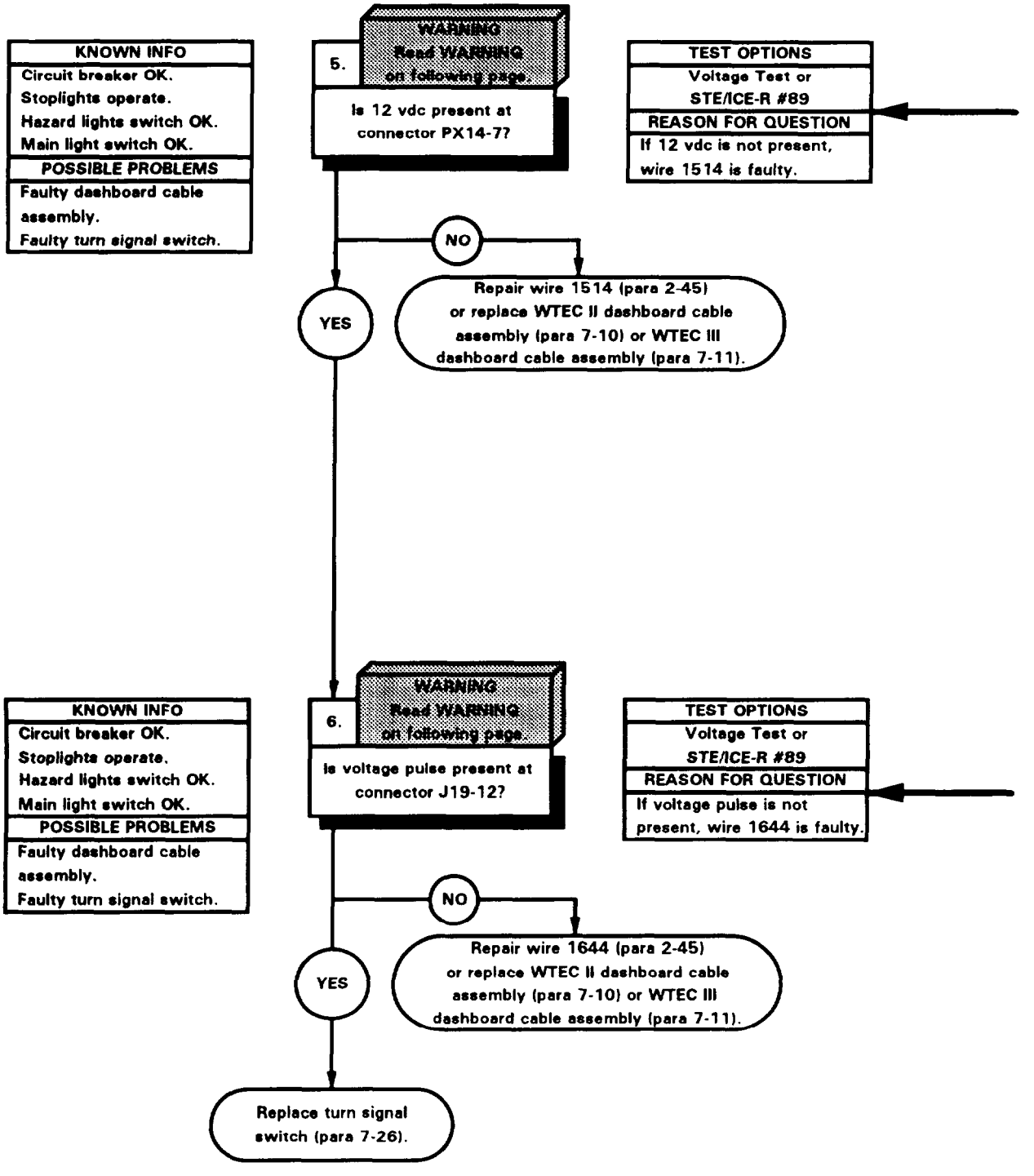
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove circuit breaker CB74 from PDP.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to PDP, terminal 5, where circuit breaker CB74 was removed.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 1577 (para 2-45)or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).
(9) Install circuit breaker CB74 in PDP.
(10) Install PDP cover (para 16-2).



e59. FRONT AND REAR TURN SIGNALS DO NOT OPERATE (CONT)

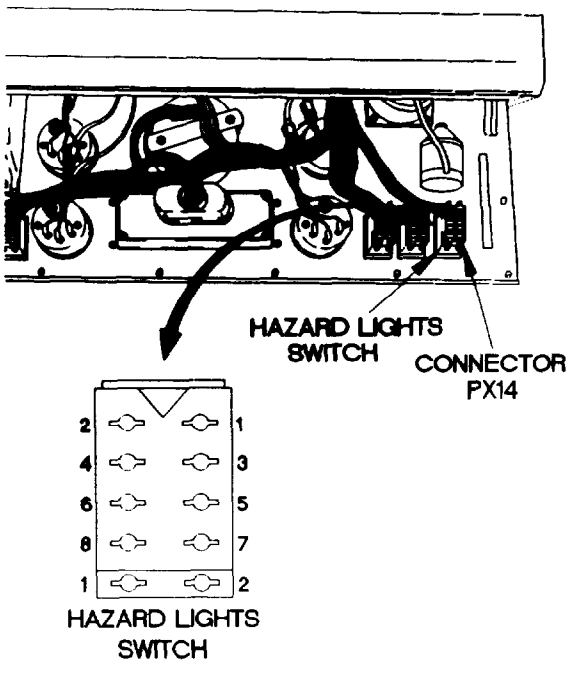


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Disconnect connector PX14 from hazard lights switch.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector PX14-7.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 12 vdc is not present, repair wire 1514 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position main light switch to OFF (TM 9-2320-366-10-1).
(8) Connect connector PX14 to hazard light switch.



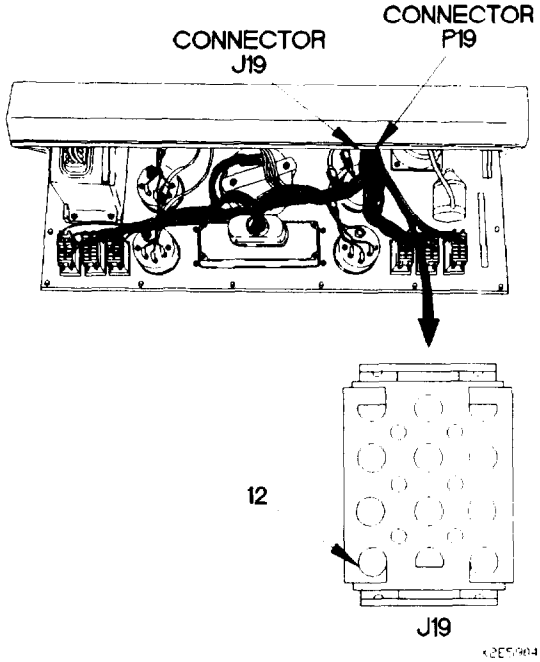
X2E5903A

WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

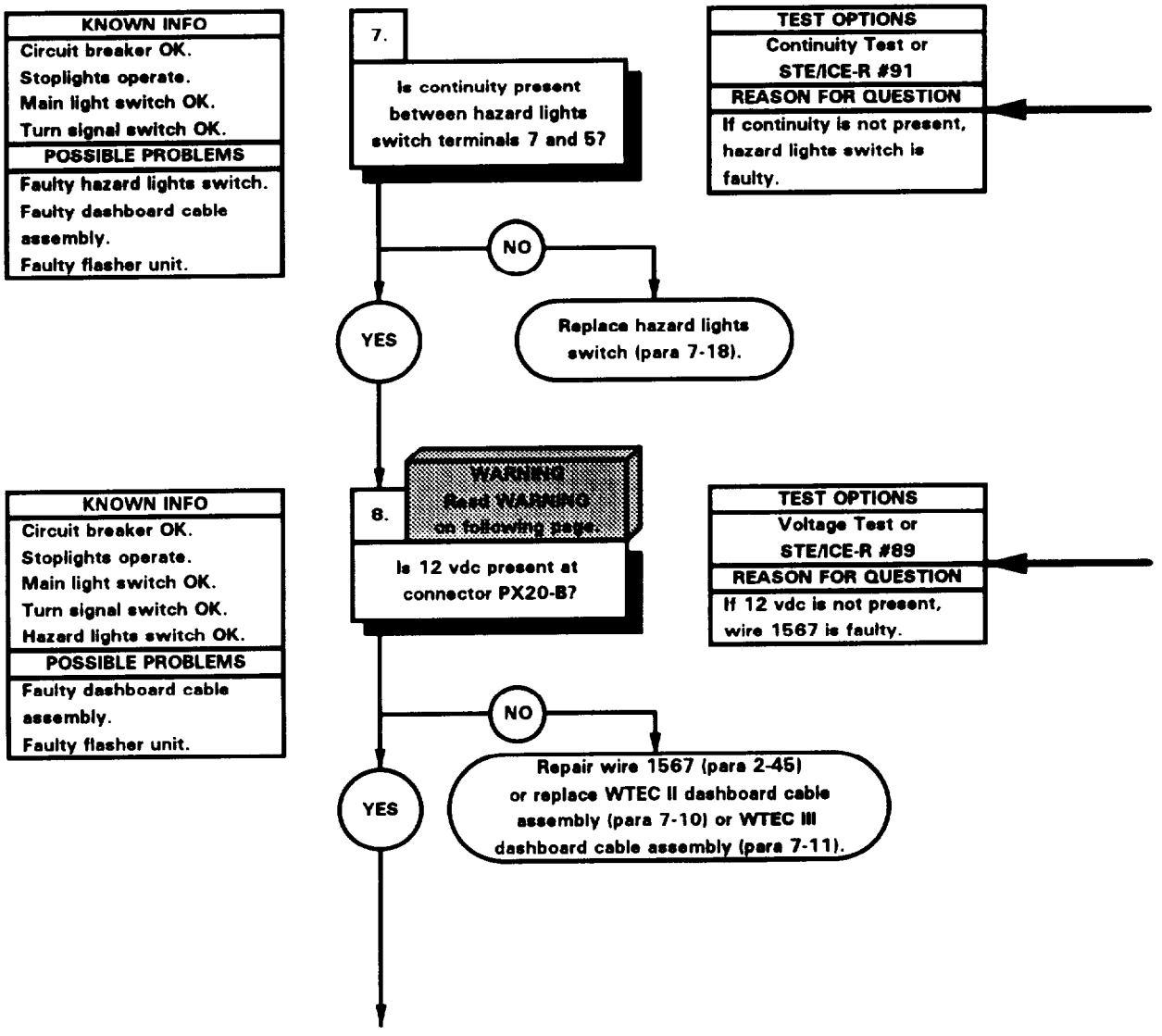
VOLTAGE TEST

(1) Disconnect connector P19 from connector J19.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J19-12.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If voltage pulse is not present, repair wire 1644 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) If voltage pulse is present, replace turn signal switch (para 7-26).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).
(9) Connect connector P19 to connector J19.
(10) Install instrument panel assembly (para 7-15).



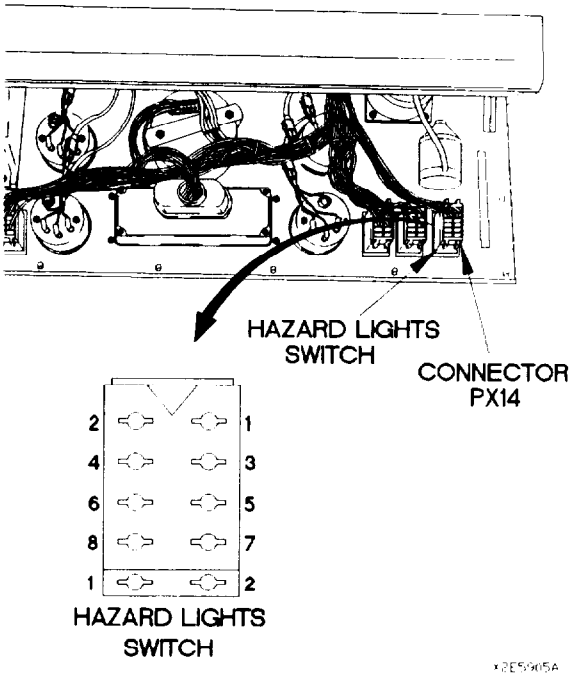
X2E5904A

e59. FRONT AND REAR TURN SIGNALS DO NOT OPERATE (CONT)



CONTINUITY TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX14 from hazard lights switch.
(3) Set multimeter to volts dc.
(4) Position hazard lights switch to on (TM 9-2320-366-10-1).
(5) Connect positive (+) probe of multimeter to hazard lights switch terminal 7.
(6) Connect negative (-) probe of multimeter to hazard lights switch terminal 5 and note reading on multimeter.
(7) If continuity is not present, replace hazard lights switch (para 7-18).
(8) Connect connector PX14 to hazard lights switch.

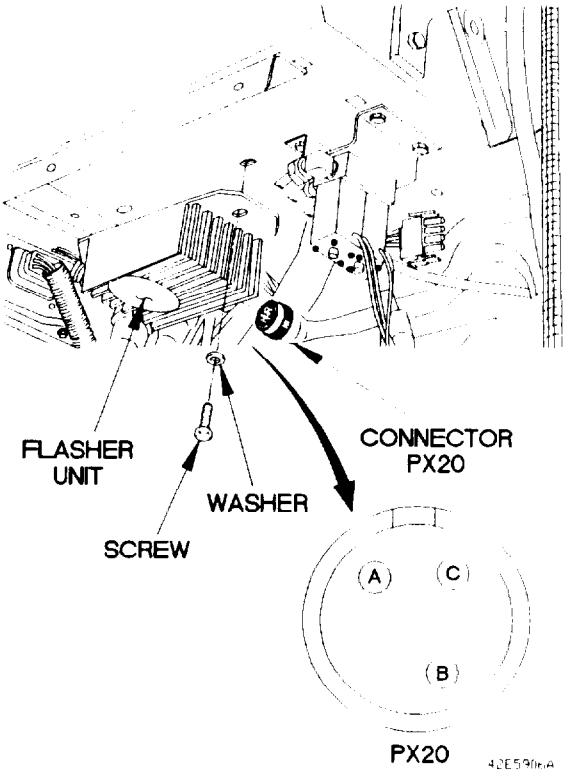


WARNING

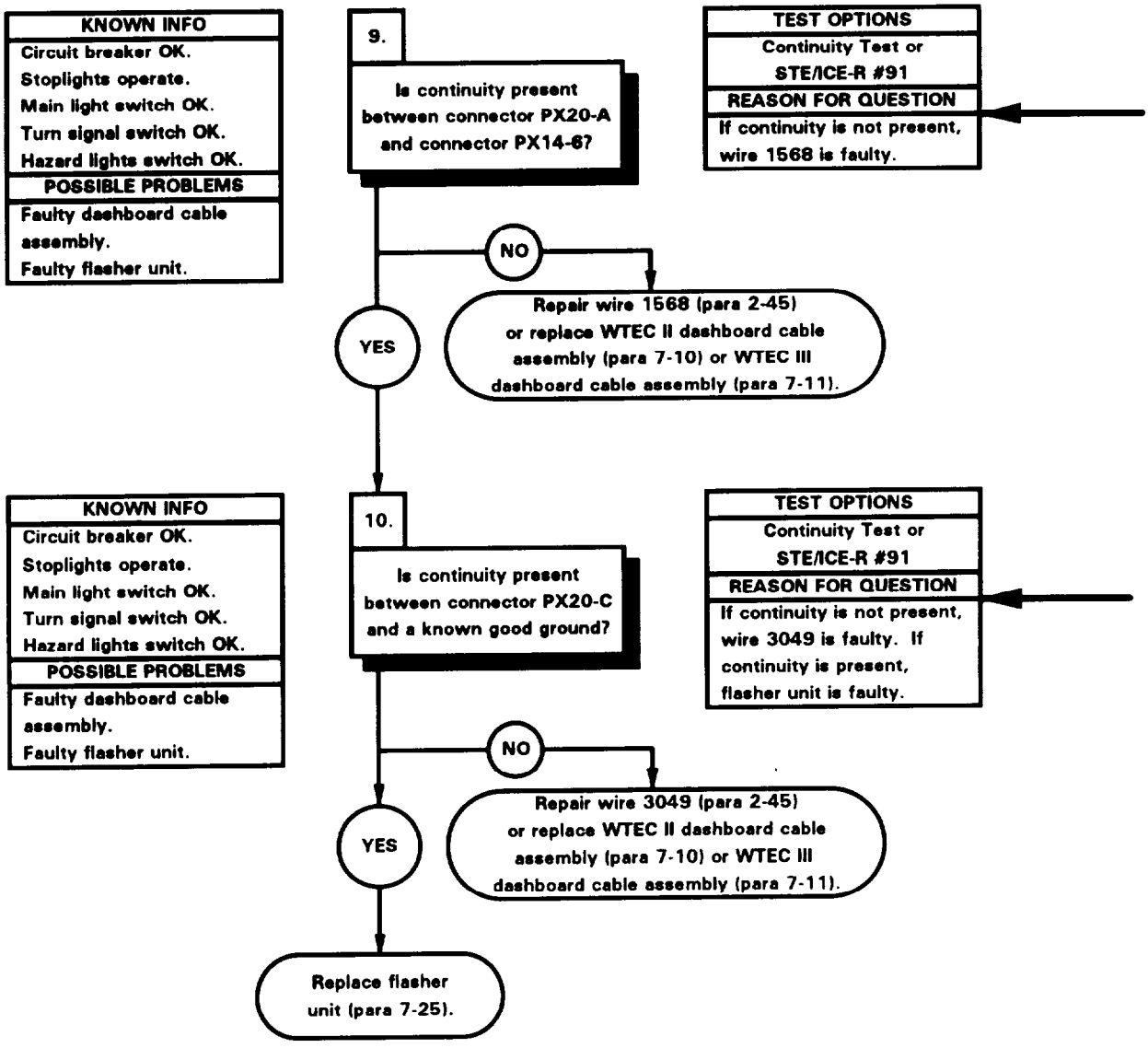
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove kick panel (para 16-3).
(2) Remove two screws, washers, and flasher unit from dashboard.
(3) Disconnect connector PX20 from flasher unit.
(4) Position hazard light switch to off (TM 9-2320-366-10-1).
(5) Set multimeter to volts dc.
(6) Connect positive (+) probe of multimeter to connector PX20-B.
(7) Connect negative (-) probe of multimeter to ground.
(8) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1) and note reading on multimeter.
(9) If 12 vdc is not present, repair wire 1567 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).

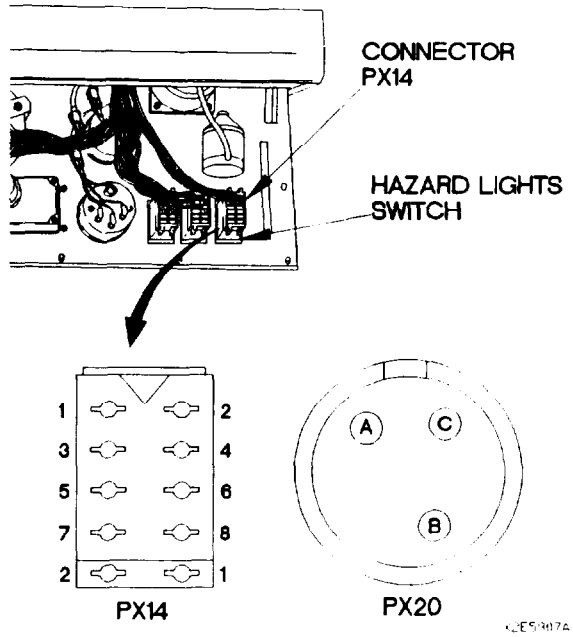


e59. FRONT AND REAR TURN SIGNALS DO NOT OPERATE (CONT)



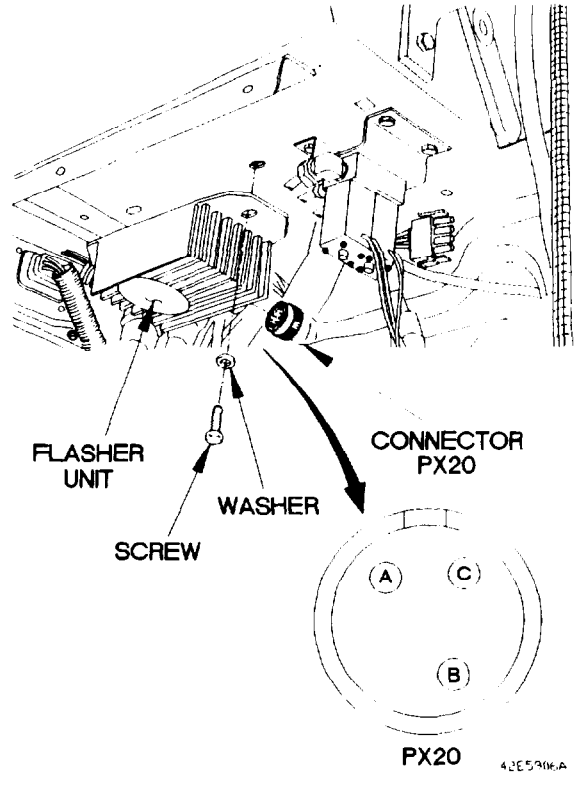
CONTINUITY TEST

(1) Disconnect connector PX14 from hazard lights switch.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector PX20-A.
(4) Connect negative (-) probe of multimeter to connector PX14-6 and note reading on multimeter.
(5) If continuity is not present, repair wire 1568 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Connect connector PX14 to hazard lights switch.
(7) Install instrument panel assembly (para 7-15).



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX20-C.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3049 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If continuity is present, replace flasher unit (para 7-25).
(6) Connect connector PX20 to flasher unit.
(7) Install flasher unit on dashboard with two washers and screws.
(8) Install kick panel (para 16-3).



e60. LEFT OR RIGHT FRONT TURN SIGNAL DOES NOT OPERATE

INITIAL SETUP

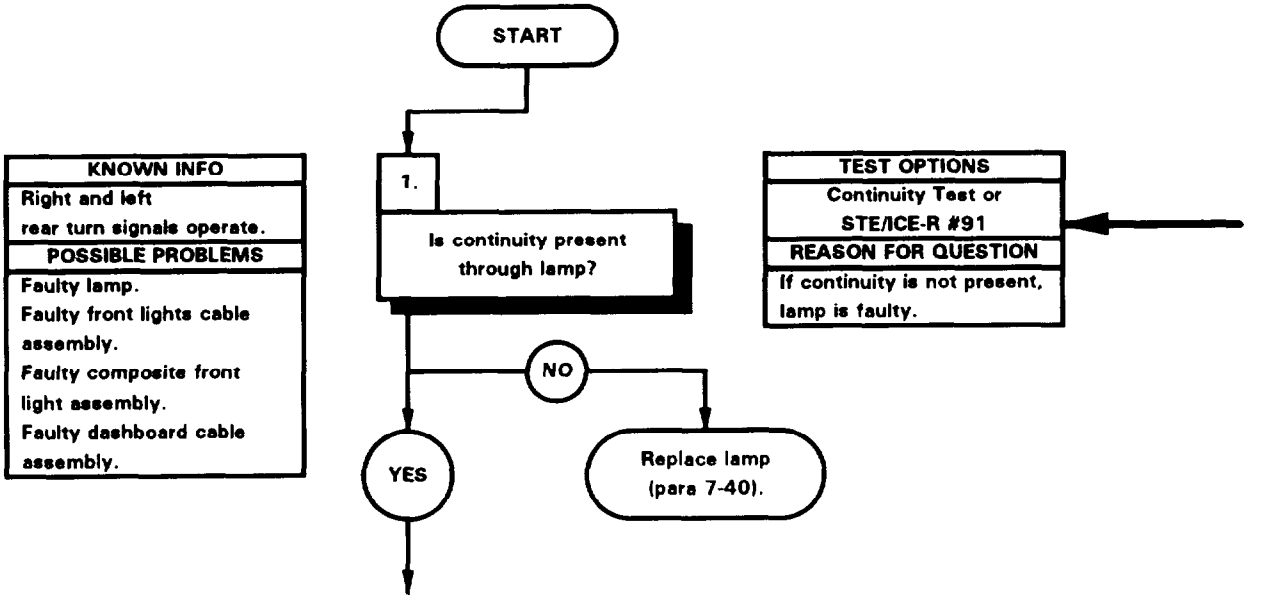
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Packing, Preformed (Item 191, Appendix G)
Lockwasher (Item 96, Appendix G)

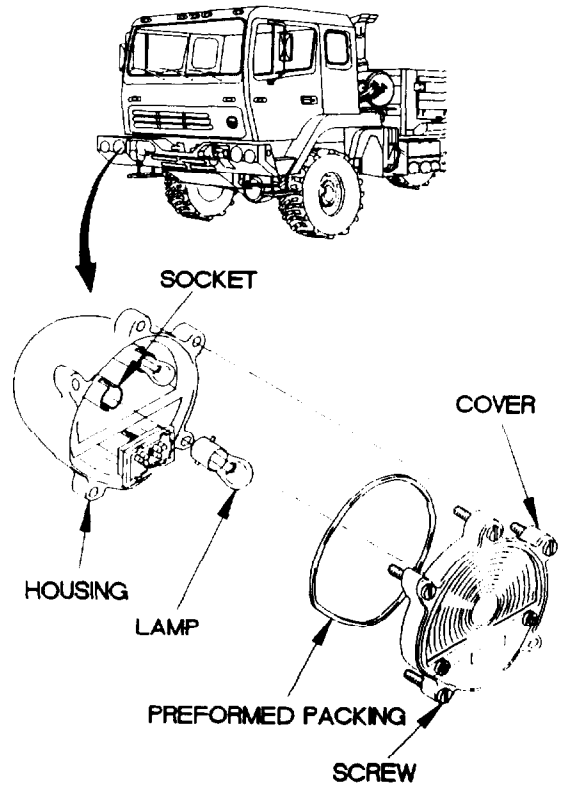
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P



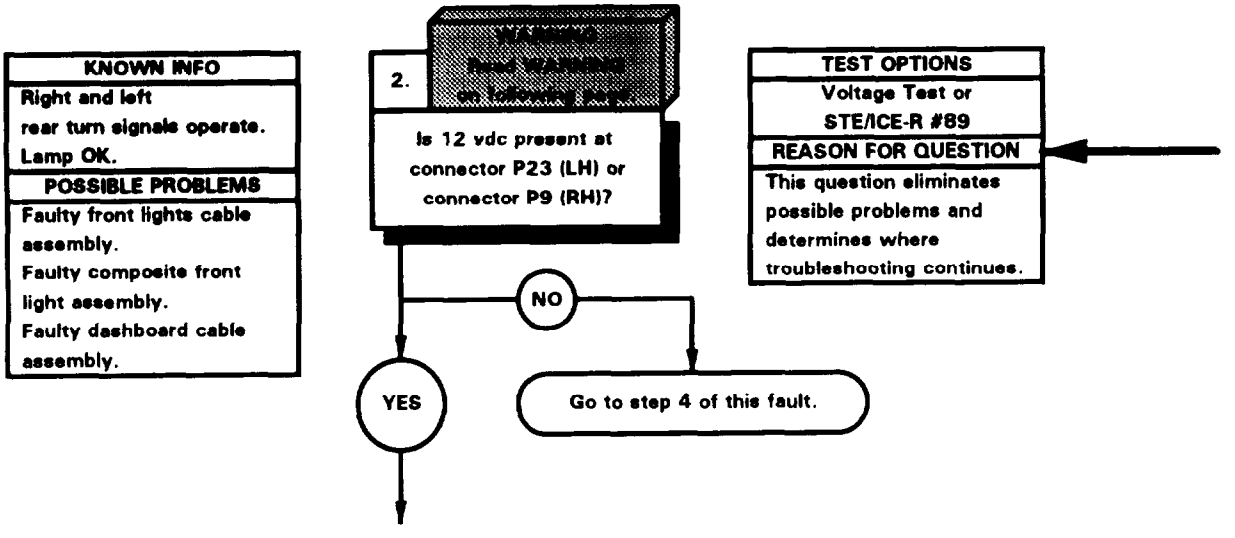
CONTINUITY TEST

(1) Loosen five screws on cover.
(2) Remove cover and preformed packing from housing. Discard preformed packing.
(3) Remove lamp from socket.
(4) Set multimeter to ohms.
(5) Check continuity through lamp and note reading on multimeter.
(6) If continuity is not present, replace lamp (para 7-40).
(7) Install turn signal lamp in socket.
(8) Install preformed packing and cover on housing with five screws.



X2E6001A

e60. LEFT OR RIGHT FRONT TURN SIGNAL DOES NOT OPERATE (CONT)

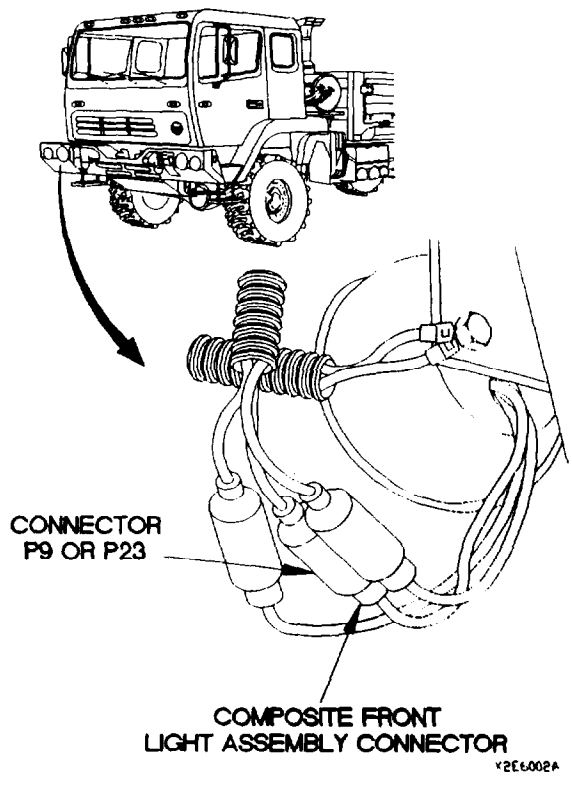


WARNING

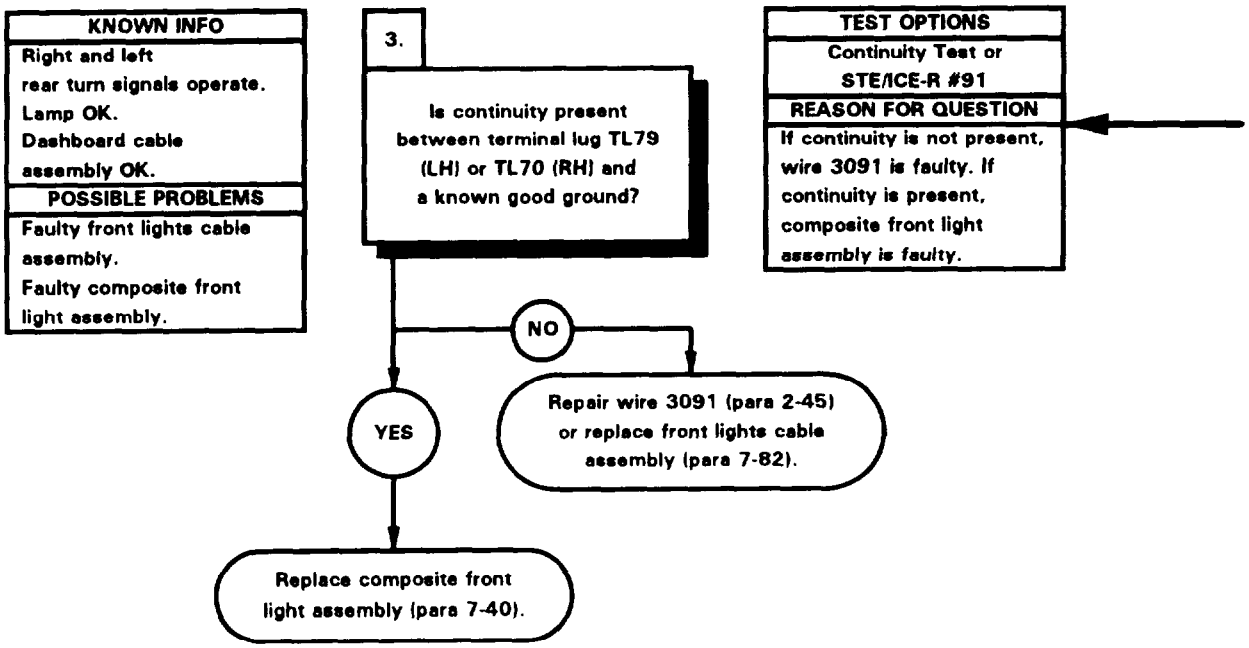
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

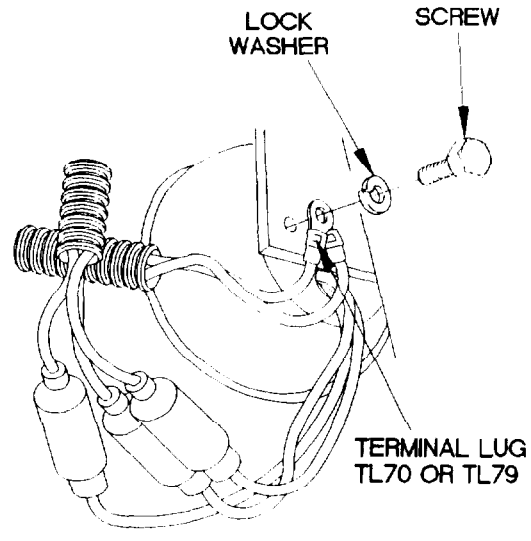
(1) Raise cab (TM 9-2320-366-10-1).
(2) Disconnect connector P23 (LH composite front light assembly) or P9 (RH composite front light assembly) from composite front light assembly connector.
(3) Lower cab (TM 9-2320-366-10-1).
(4) Connect positive (+) probe of multimeter to connector P23 (LH composite front light assembly) or P9 (RH composite front light light assembly).
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1).
(7) Position turn signal switch to left turn or right turn position (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 12 vdc is not present, go to step 4 of this fault.
(9) Position turn signal switch to off (TM 9-2320-366-10-1).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).
(11) Raise cab (TM 9-2320-366-10-1).
(12) Connect connector P23 (LH composite front light assembly) or P9 (RH composite front light assembly) to composite front light assembly connector.



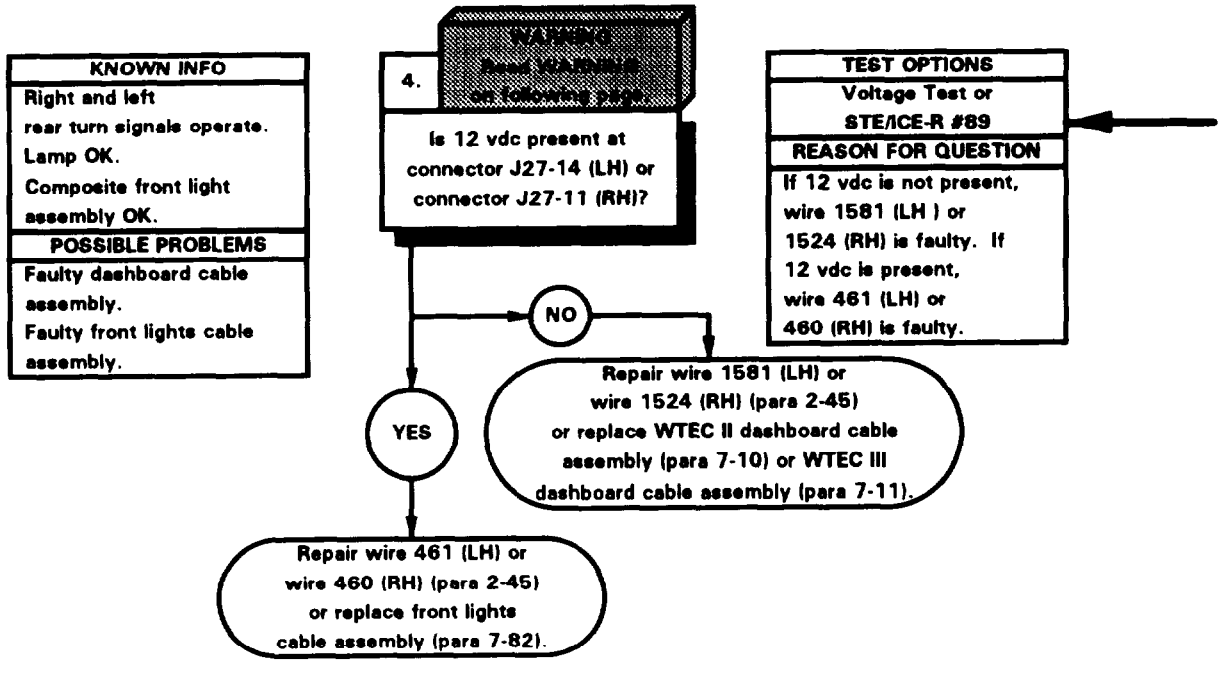
e60. LEFT OR RIGHT FRONT TURN SIGNAL DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Remove screw, lockwasher, and terminal lug TL79 (LH) or TL70 (RH) from composite front light light assembly. Discard lockwasher.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to terminal lug TL79 (LH) or TL90 (RH).
(4) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(5) If continuity is not present, repair wire 3091 (para 2-45) or replace front lights cable assembly (para 7-82).
(6) If continuity is present, replace composite front light assembly (para 7-40).
(7) Install terminal lug TL79 (LH) or TL90 (RH), lockwasher, and screw on composite front light assembly.



e60. LEFT OR RIGHT FRONT TURN SIGNAL DOES NOT OPERATE (CONT)

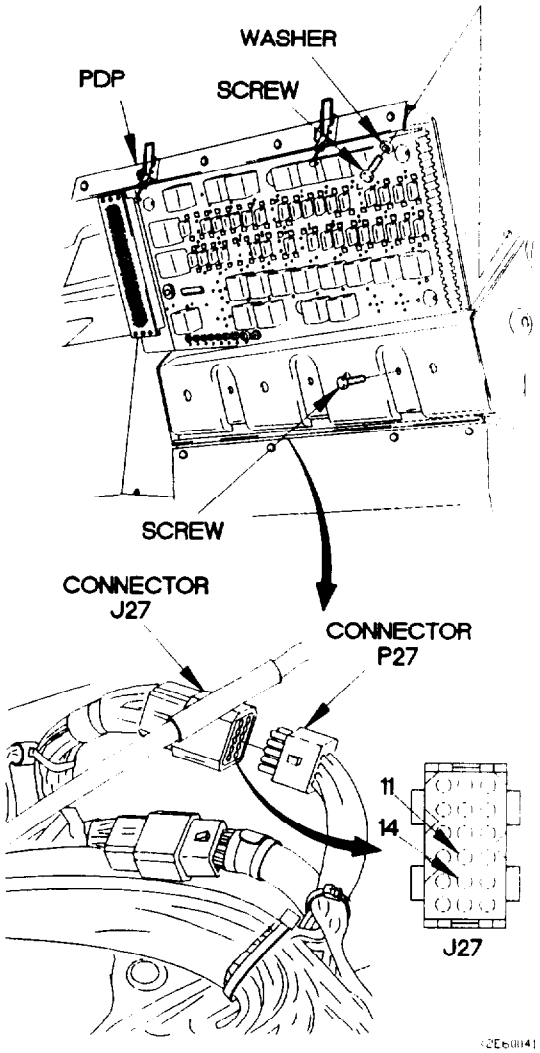


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector J27 from connector P27.
(6) Set multimeter to volts dc.
(7) Connect positive (+) probe of multimeter to connector J27-14 (LH) or J27-11 (RH).
(8) Connect negative (-) probe of multimeter to ground.
(9) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1).
(10) Position turn signal switch to up for right turn signal operation or down for left turn signal operation (TM 9-2320-366-10-1).
(11) If 12 vdc is not present, repair wire 1581 (LH) or wire 1524 (RH) (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(12) If 12 vdc is present, repair wire 461 (LH) or wire 460 (RH) (para 2-45) or replace front lights cable assembly (para 7-82).
(13) Position main light switch to OFF (TM 9-2320-366-10-1).
(14) Position turn signal switch to middle (off) (TM 9-2320-366-10-1).
(15) Connect connector P27 to connector J27.
(16) Install PDP on dashboard with three screws.
(17) Install three washers and screws in PDP.
(18) Install PDP cover (para 16-2).



e61. ONE OR BOTH STOPLIGHTS DO NOT OPERATE

INITIAL SETUP

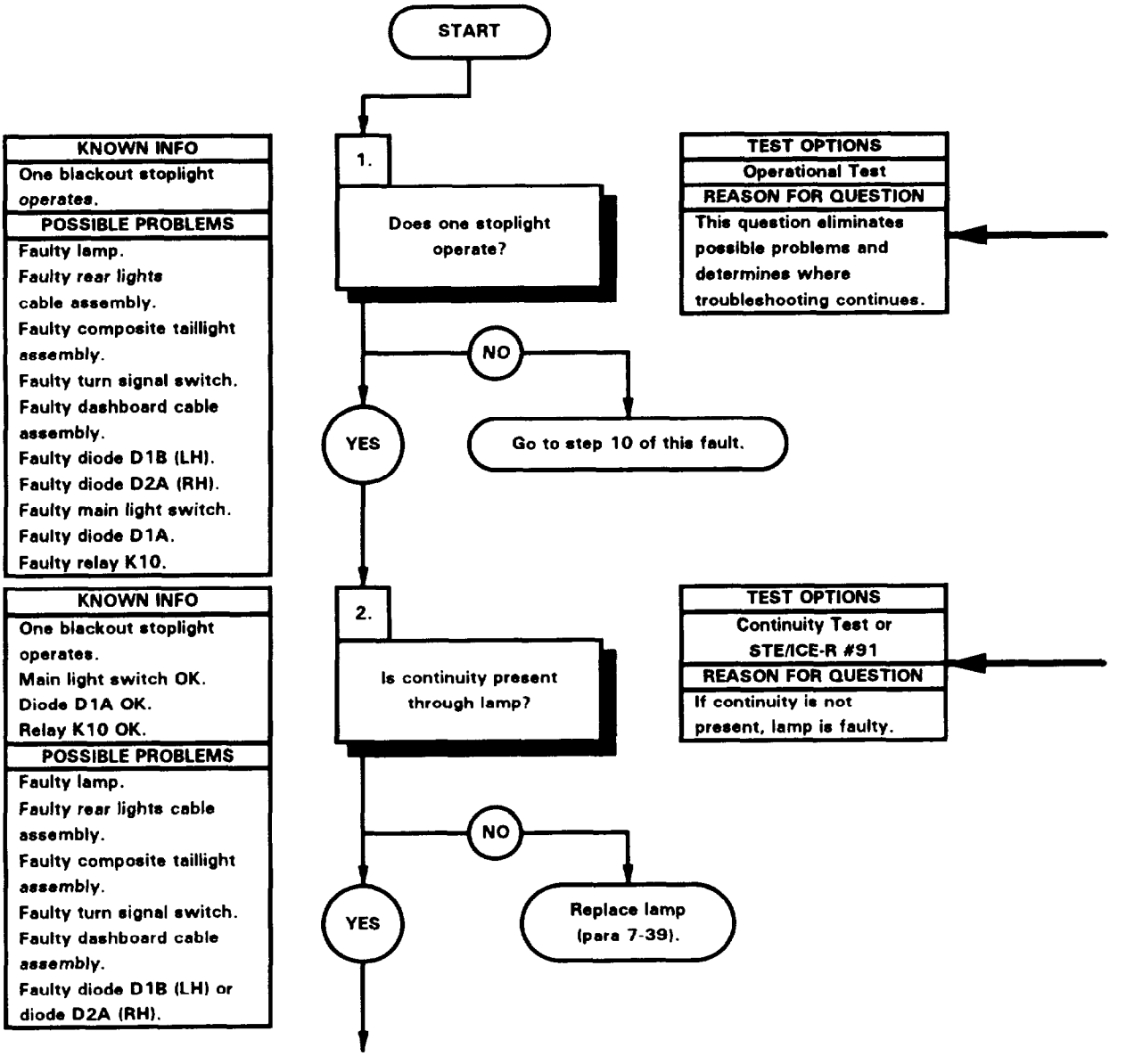
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Packing, Preformed (Item 191, Appendix G

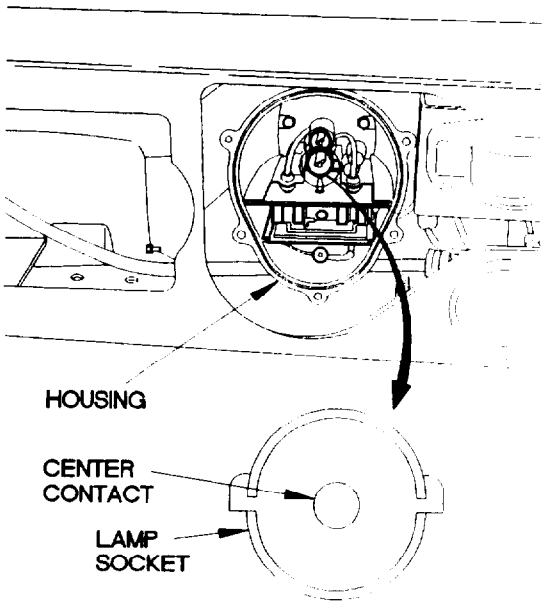
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

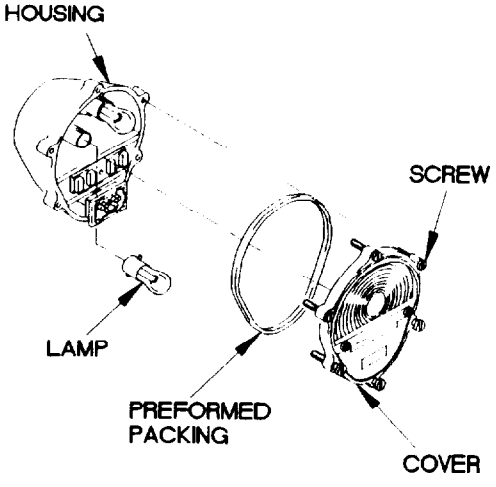
References
TM 9-4910-571-12&P



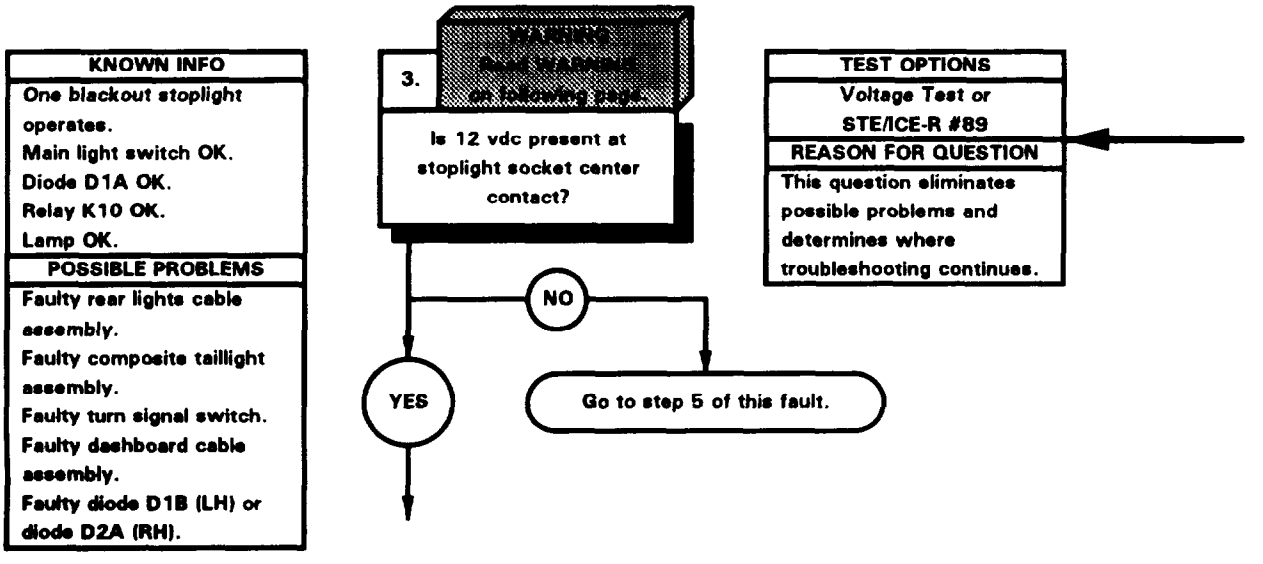
OPERATIONAL TEST
(1) Position master power switch to on (TM 9-2320-366-10-1).
(2) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1).
(3) Depress brake pedal.
(4) If both stoplights do not illuminate, go to step 10 of this fault.
(5) Position master power switch to off (TM 9-2320-366-10-1).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).

CONTINUITY TEST
(1) Loosen six screws on cover.
(2) Remove cover and preformed packing from housing. Discard preformed packing.
(3) Remove lamp from socket.
(4) Set multimeter to ohms.
(5) Check continuity through lamp.
(6) If continuity is not present, replace lamp (para 7-39).





e61. ONE OR BOTH STOPLIGHTS DO NOT OPERATE (CONT)

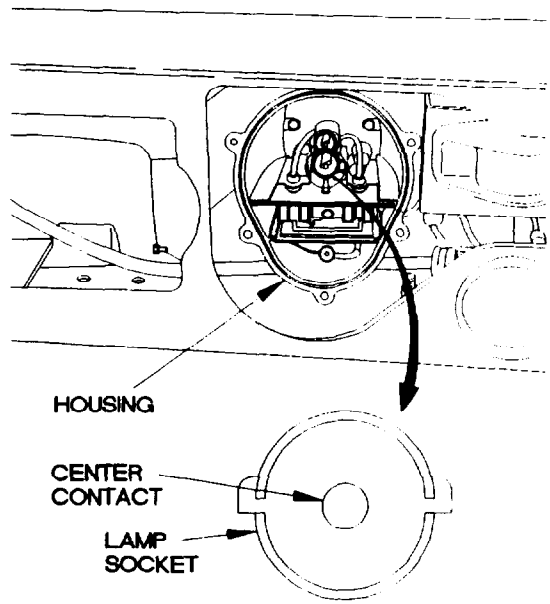


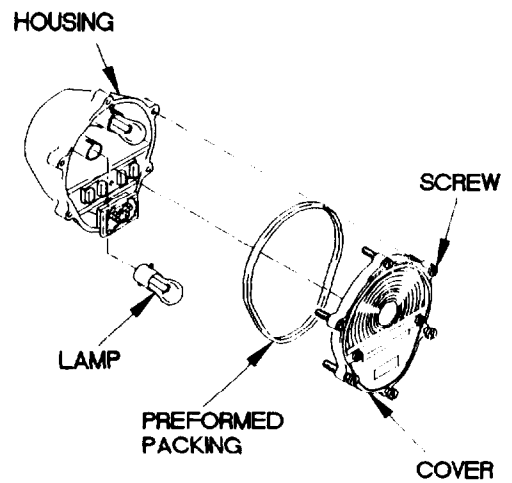
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

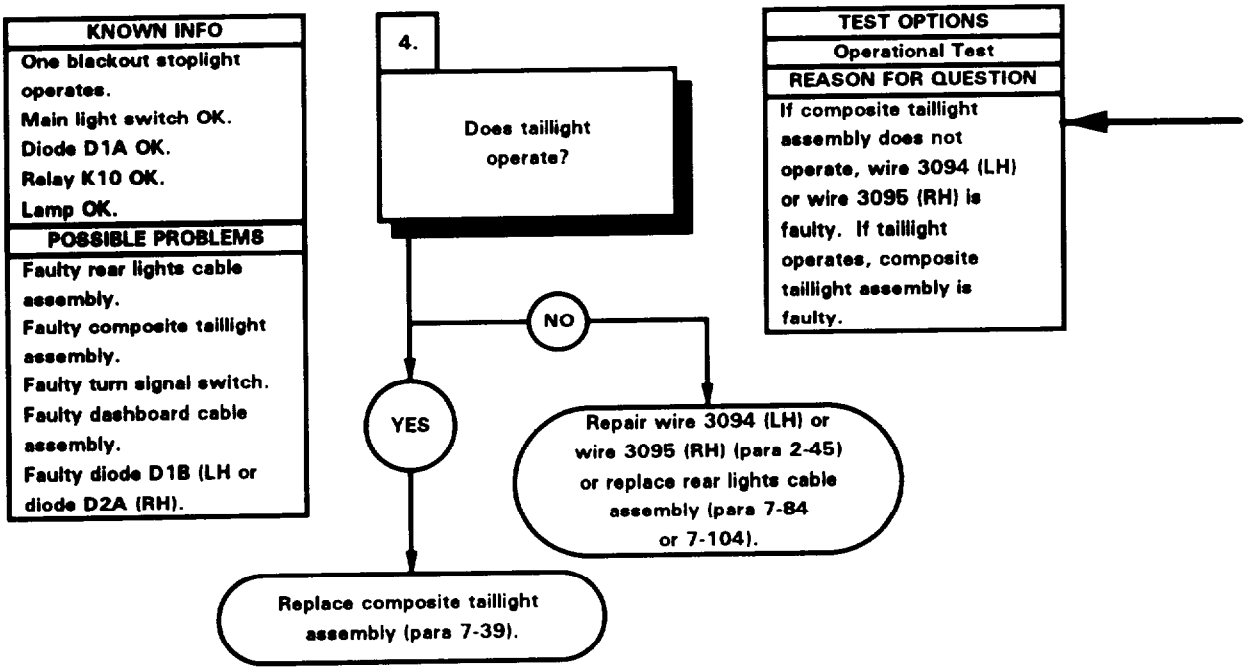
VOLTAGE TEST

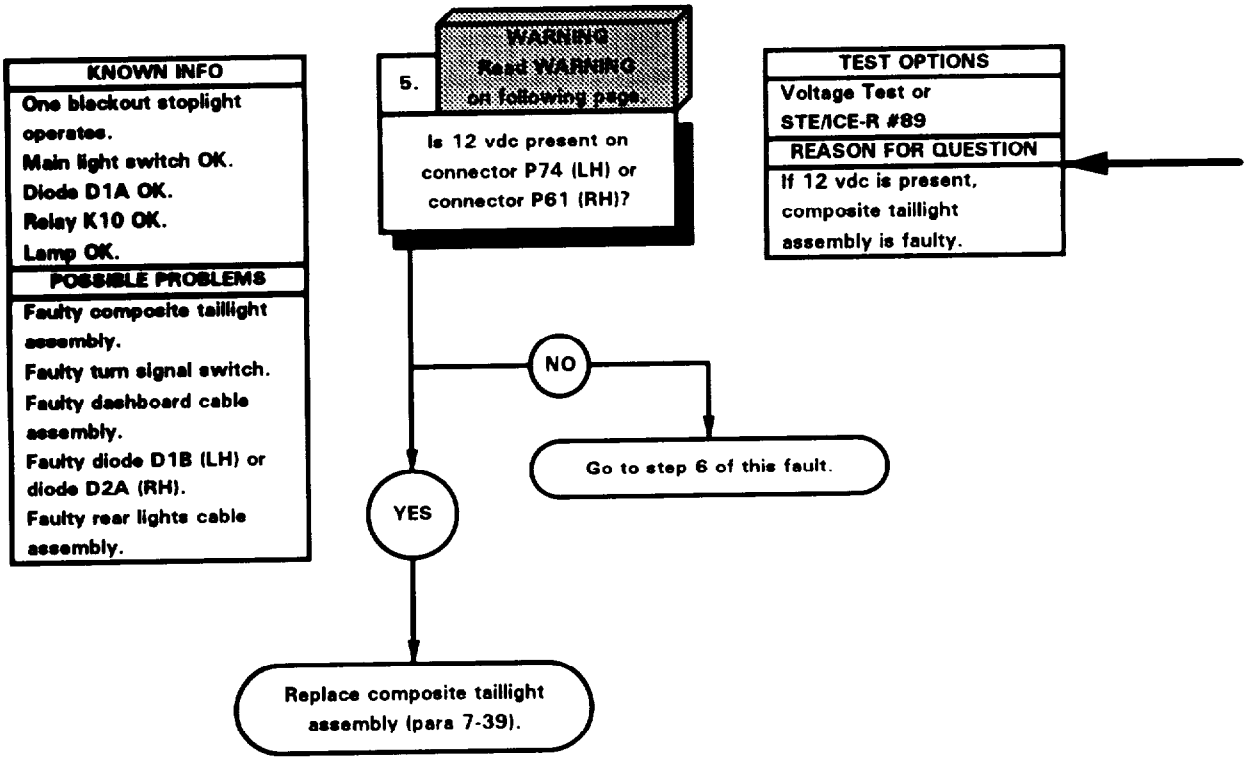
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to stoplight lamp socket center contact.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1).
(5) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1).
(6) Depress brake pedal.
(7) If 12 vdc is not present, go to step 5 of this fault.
(8) Position master power switch to off (TM 9-2320-366-10-1).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).
(10) Install lamp in socket.
(11) Install preformed packing and cover on housing with six screws.





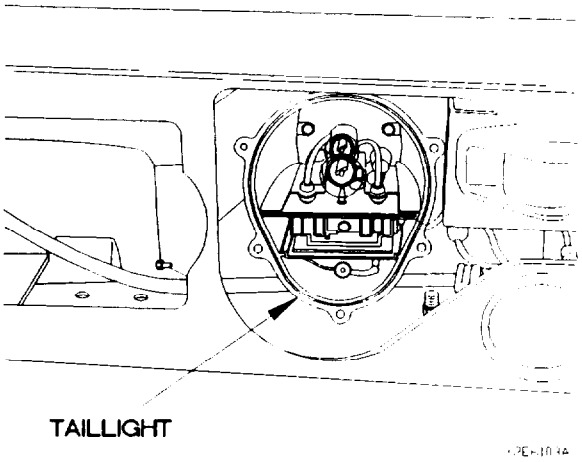
e61. ONE OR BOTH STOPLIGHTS DO NOT OPERATE (CONT)





OPERATIONAL TEST

(1) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(2) Observe taillight in housing with non-operating stoplight.
(3) If taillight does not operate, repair wire 3094 (LH) or wire 3095 (RH) (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(4) If taillight operates, replace composite taillight assembly (para 7-39).
(5) Position main light switch to OFF (TM 9-2320-366-10-1).

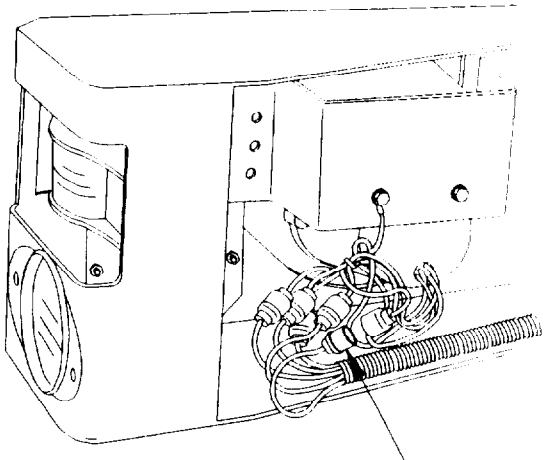


WARNING

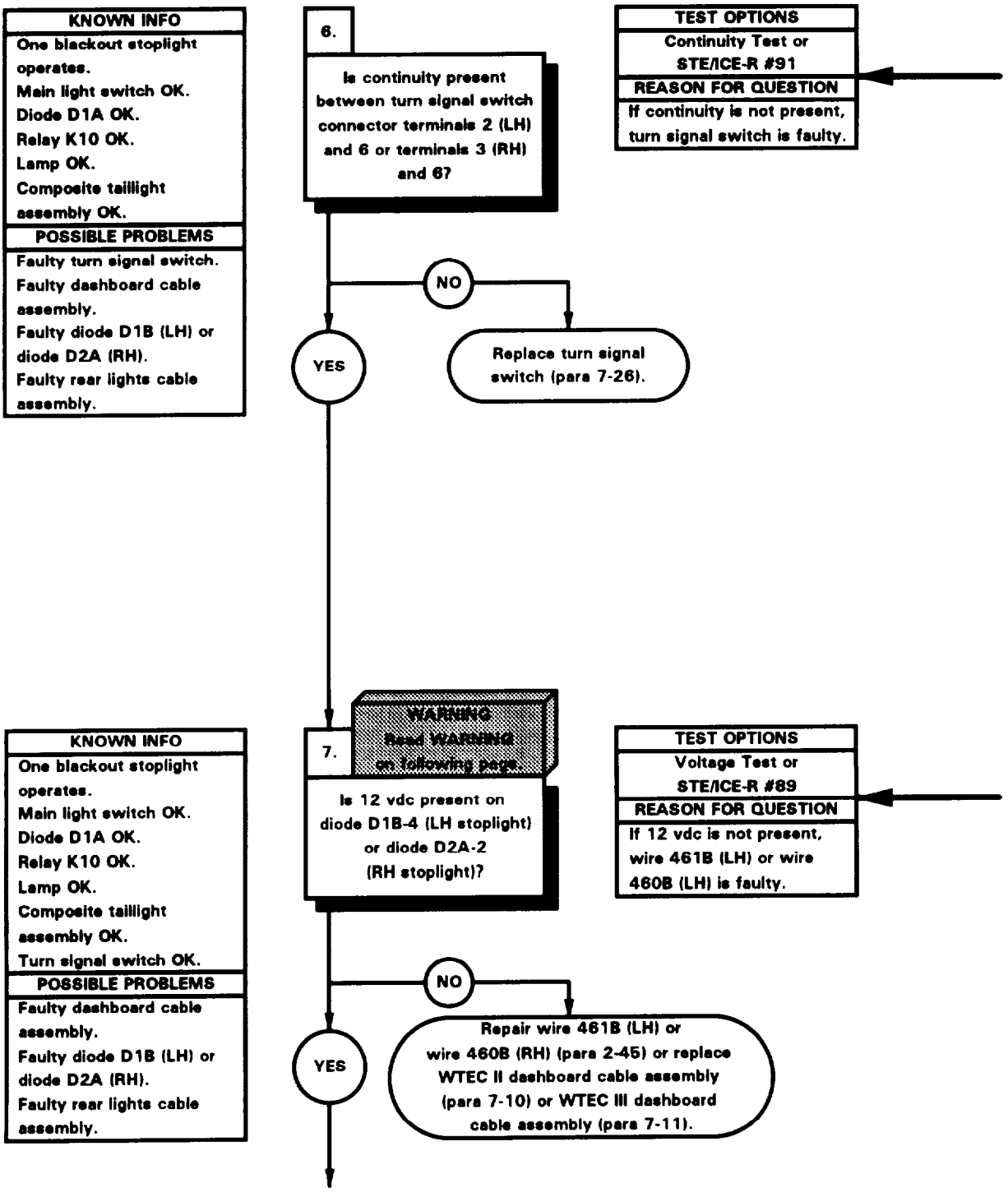
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Disconnect connector P74 (LH) or connector P61 (RH) from stoplight connector.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector P74 (LH) or connector P61 (RH).
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1).
(7) Depress brake pedal.
(8) If 12 vdc is not present, go to step 6 of this fault.
(9) If 12 vdc is present, replace composite taillight assembly (para 7-39).
(10) Position master power switch to off (TM 9-2320-366-10-1).
(11) Position main light switch to OFF (TM 9-2320-366-10-1).
(12) Connect connector P74 (LH) or connector P61 (RH) to stoplight connector.

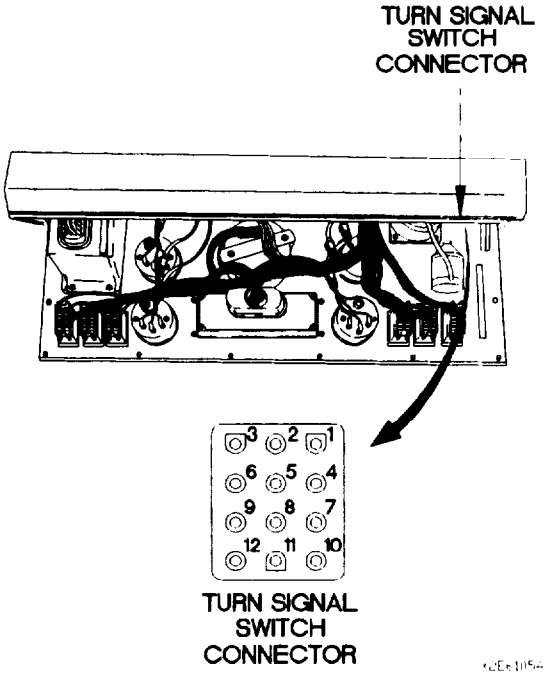


e61. ONE OR BOTH STOPLIGHTS DO NOT OPERATE (CONT)



CONTINUITY TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect turn signal switch connector from connector J19.
(3) Position turn signal switch to center position (TM 9-2320-366-10-1).
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to turn signal switch connector terminal 6.
(6) Connect negative (-) probe of multimeter to turn signal switch connector terminal 2 (LH) or turn signal switch connector terminal 3 (RH) and note reading on multimeter.
(7) If continuity is not present, replace turn signal switch (para 7-26).
(8) Connect connector J19 to turn signal switch connector.
(9) Install instrument panel assembly (para 7-15).

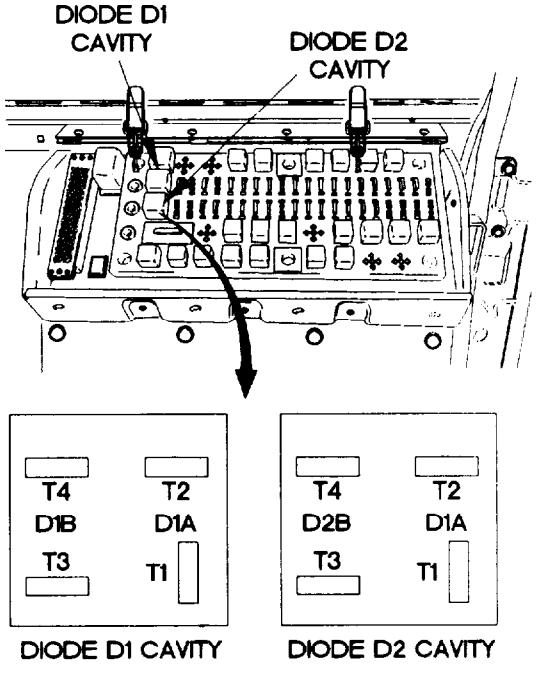


WARNING

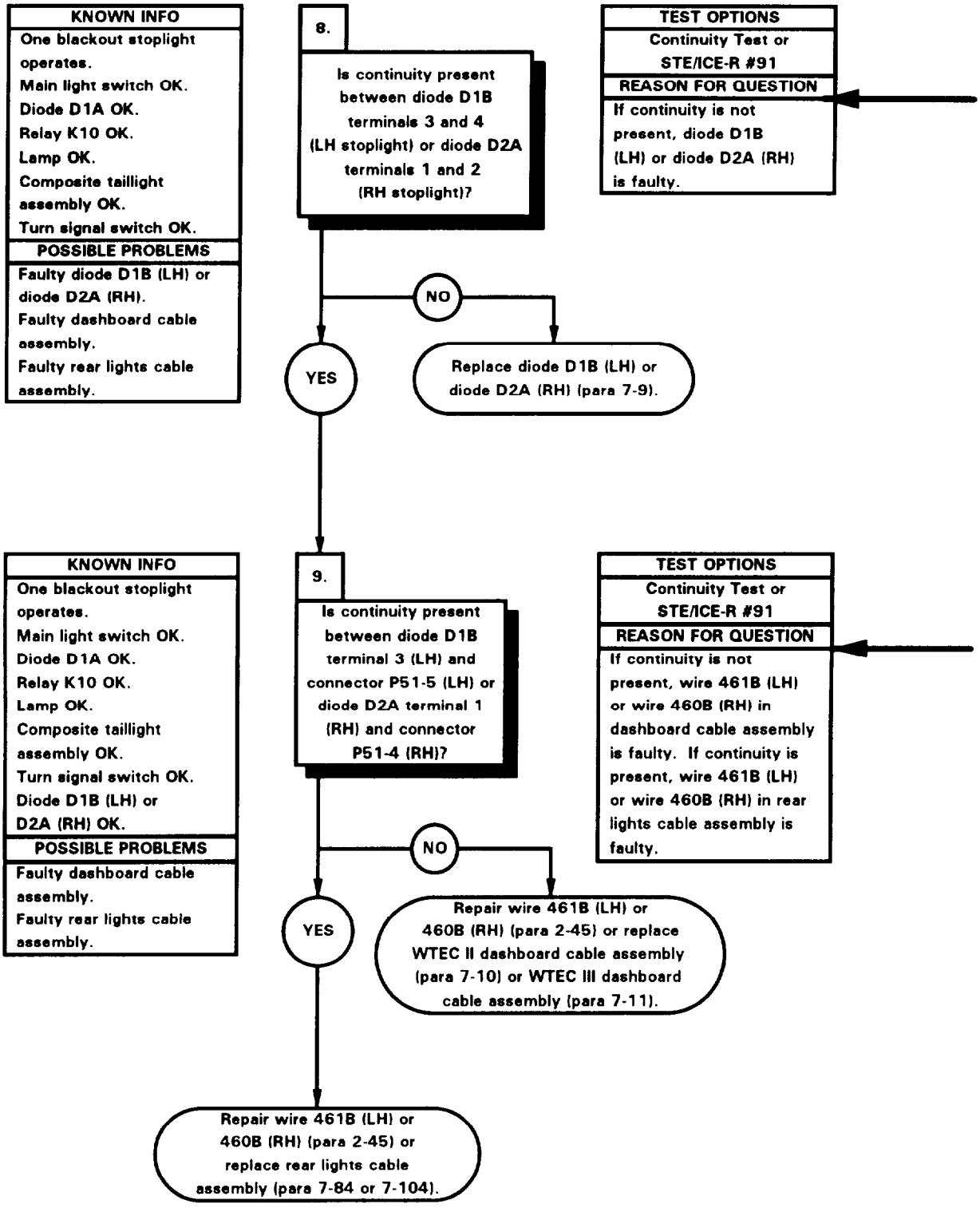
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

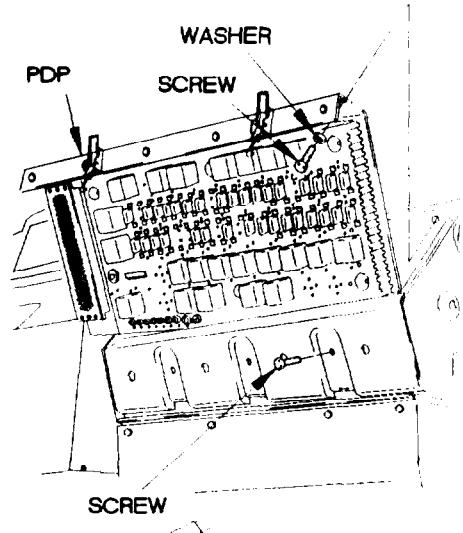
(1) Remove PDP cover (para 16-2).
(2) Remove diode D1B (LH) or diode D2A (RH) from PDP.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to PDP, terminal 4 (LH) or terminal 2 (RH), where diode D1B (LH) or D2A (RH) was removed.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1).
(7) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1).
(8) Depress brake pedal and note reading on multimeter.
(9) If 12 vdc is not present, repair wire 461B (LH) or wire 460B (RH) (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(10) Position master power switch to off (TM 9-2320-366-10-1).
(11) Position main light switch to OFF (TM 9-2320-366-10-1).



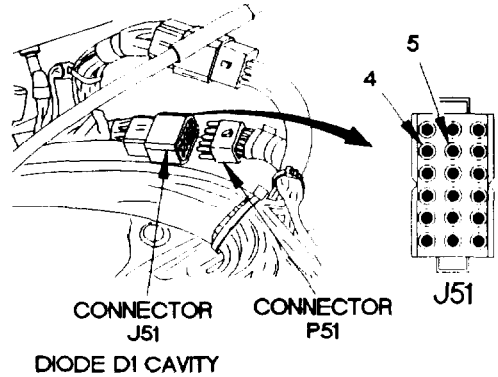
e61. ONE OR BOTH STOPLIGHTS DO NOT OPERATE (CONT)

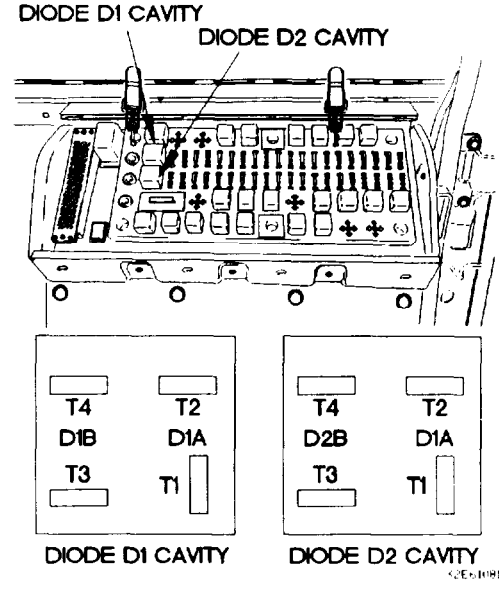


CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to diode D1B terminal 4 (LH) or diode D2A terminal 2 (RH).
(3) Connect negative (-) probe of multimeter to diode D1B terminal 3 (LH) or diode D2A terminal 1 (RH) and note reading on multimeter.
(4) If continuity is not present, replace diode D1B (LH) or diode D2A (RH) (para 7-9).
(5) Install instrument panel assembly (para 7-15).

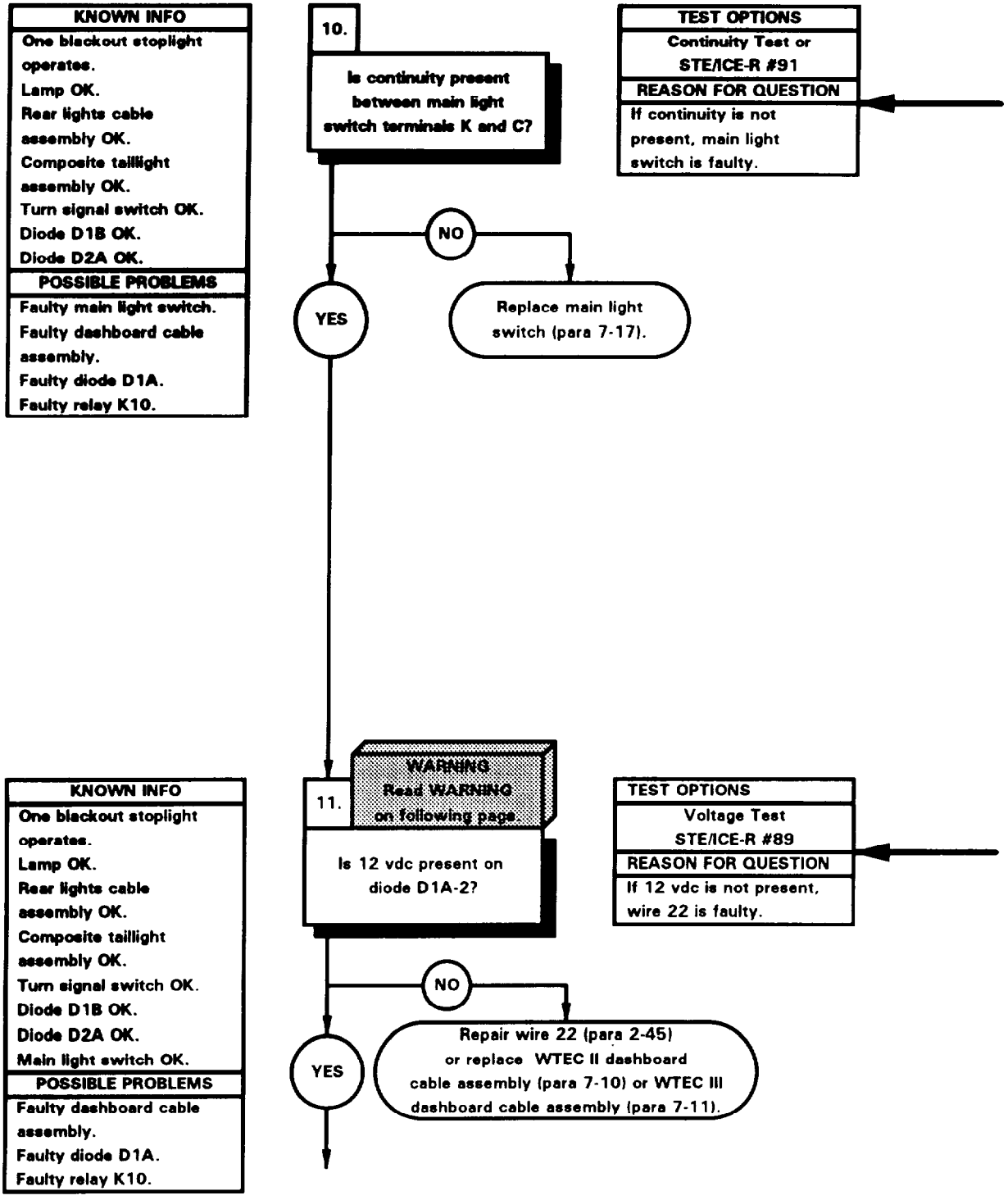


CONTINUITY TEST
(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Disconnect connector P51 from connector J51.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to PDP, terminal 3 (LH) or terminal 1 (RH) where diode D1B (LH) or D2A (RH) was removed.
(7) Connect negative (-) probe of multimeter to connector J51-5 (LH) or J51-4 (RH) and note reading on multimeter.
(8) If continuity is not present, repair wire 461B (LH) or 460B (RH) (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) If continuity is present, repair wire 461B (LH) or 460B (RH) (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(10) Connect connector P51 to connector J51.
(11) Install PDP on dashboard with three screws.
(12) Install three washers and screws in PDP.
(13) Install PDP cover (para 16-2).



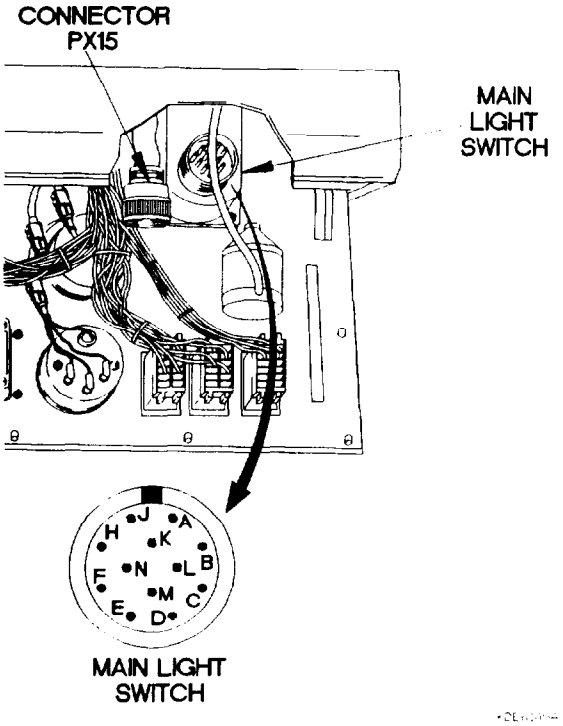


e61. ONE OR BOTH STOPLIGHTS DO NOT OPERATE (CONT)



CONTINUITY TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX15 from main light switch.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to main light switch terminal K.
(5) Connect negative (-) probe of multimeter to main light switch terminal C.
(6) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If continuity is not present, replace main light switch (para 7-17).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).
(9) Connect connector PX15 to main light switch.

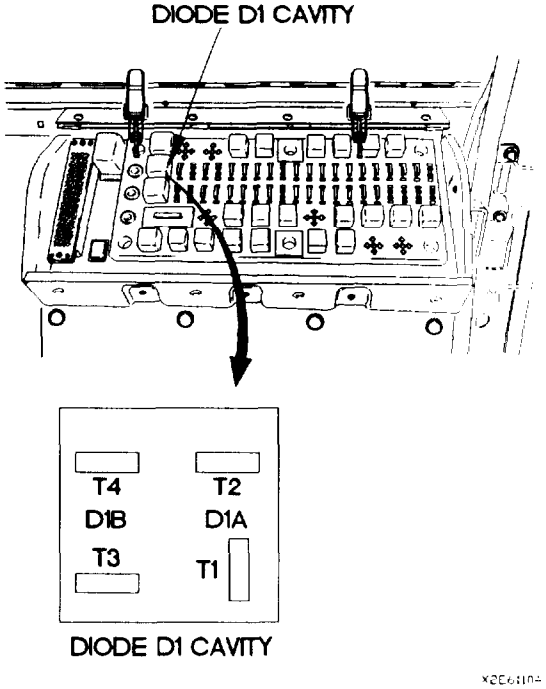


WARNING

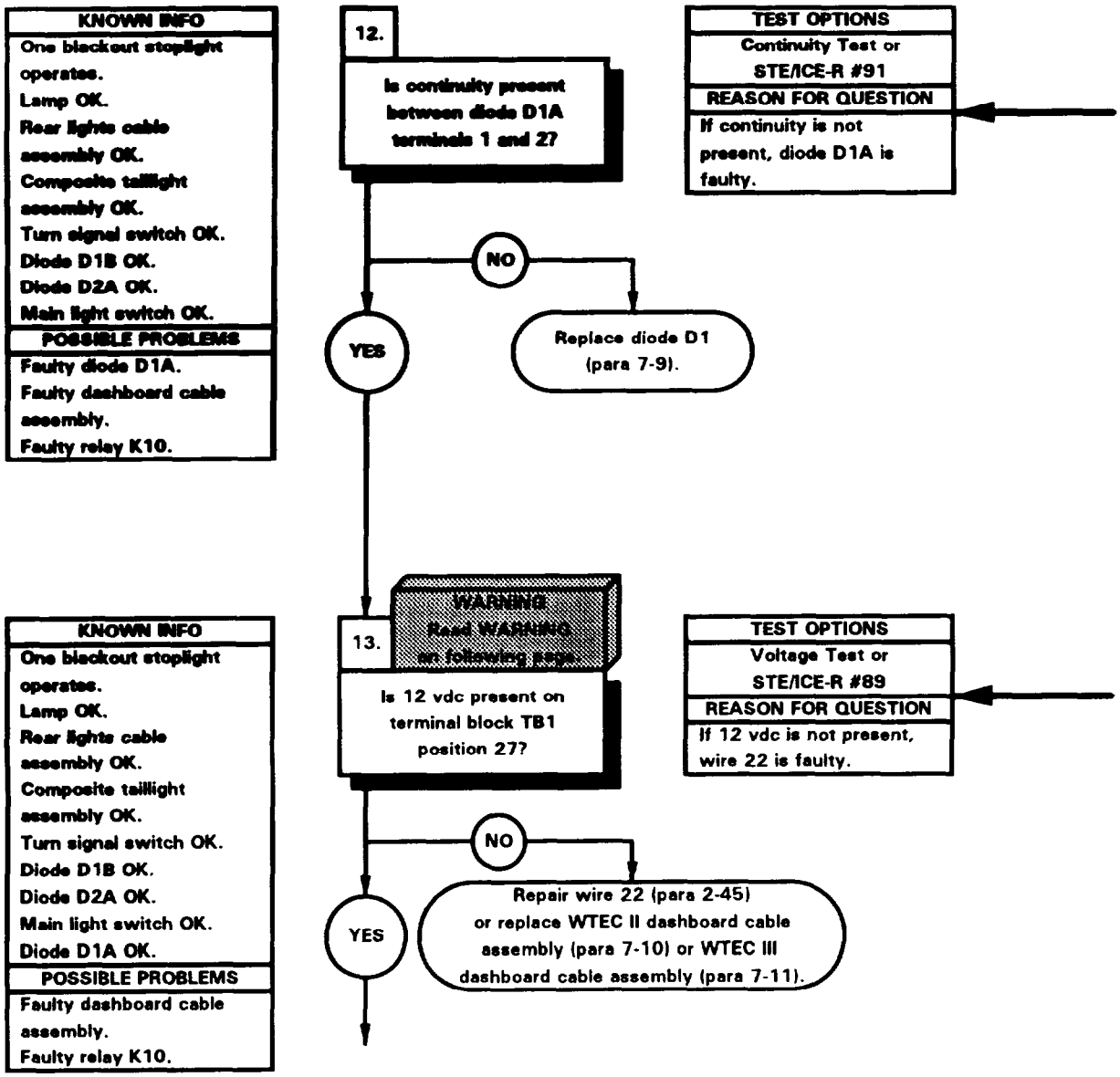
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove diode D1A from PDP.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to PDP, terminal 2, where diode D1A was removed.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1).
(7) Position main light switch to STOP LIGHT (TM 9-2320-366-10-1).
(8) Depress brake pedal.
(9) If 12 vdc is not present, repair wire 22 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(10) Position master power switch to off (TM 9-2320-366-10-1).
(11) Position main light switch to OFF (TM 9-2320-366-10-1).

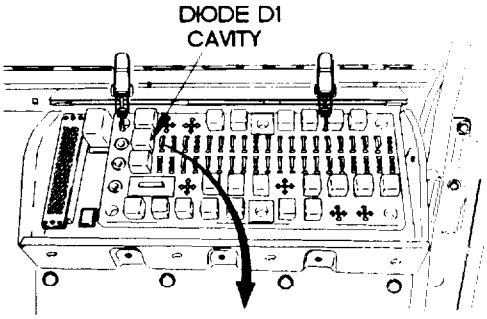


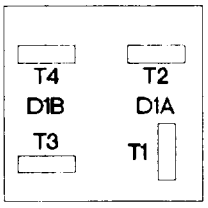
e61. ONE OR BOTH STOPLIGHTS DO NOT OPERATE (CONT)



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to diode D1A-1.
(3) Connect negative (-) probe of multimeter to diode D1A-2 and note reading on multimeter.
(4) If continuity is not present, replace diode D1 (para 7-9).





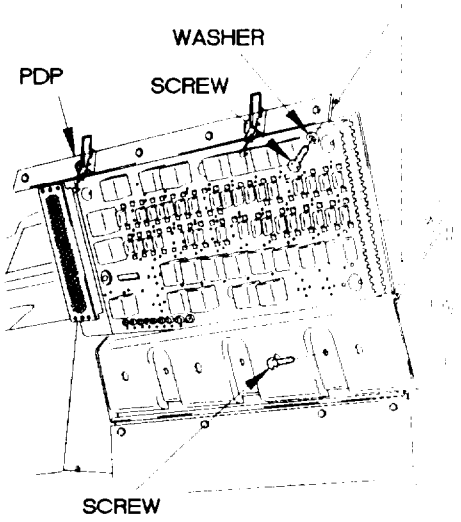
DIODE D1

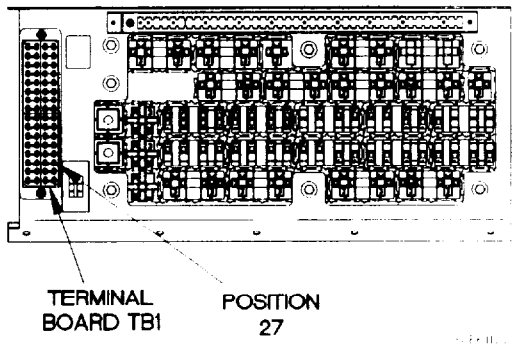
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

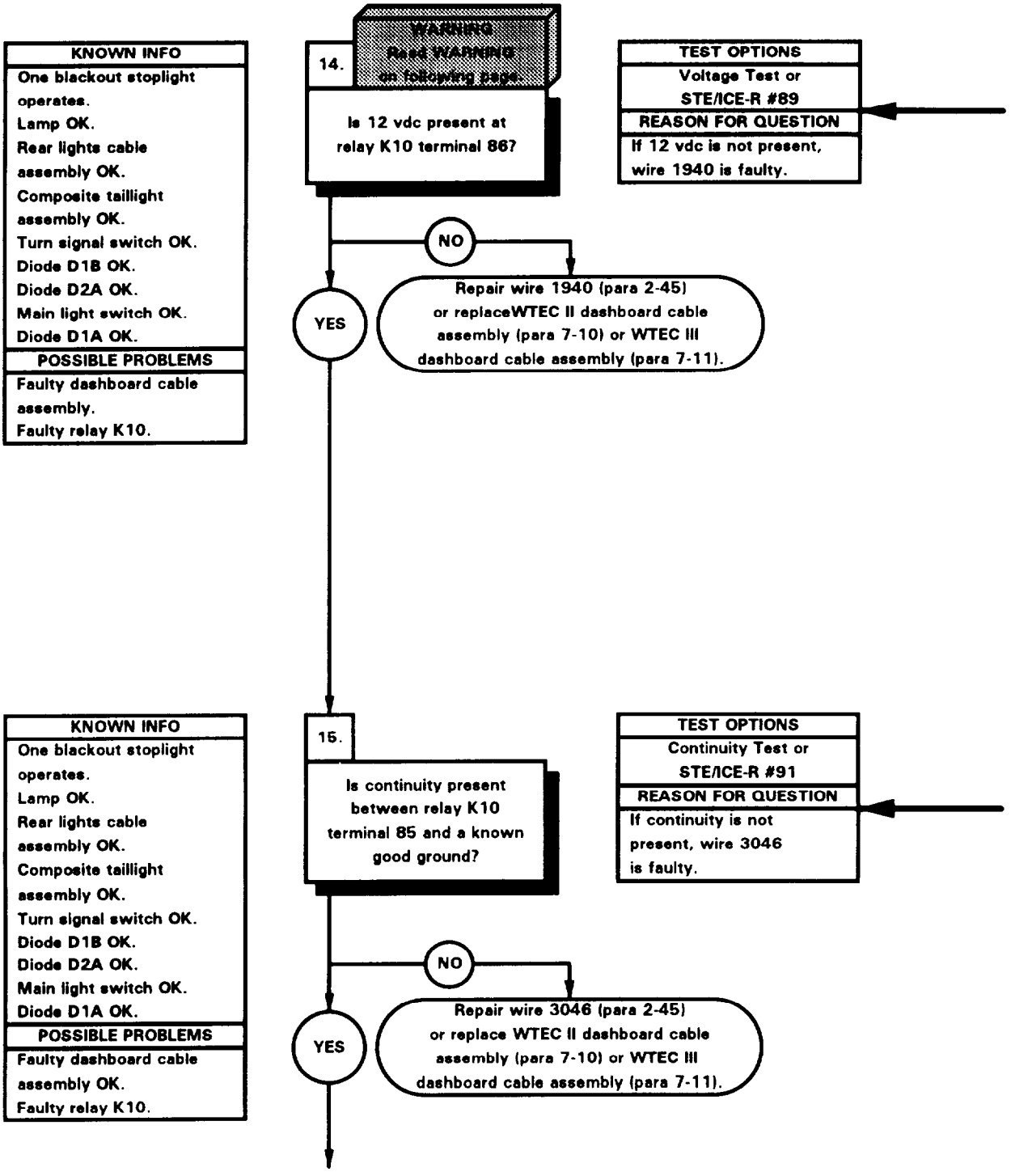
VOLTAGE TEST

(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Set multimeter to volts dc.
(5) Connect positive (+) probe of multimeter to terminal block TB1 position 27.
(6) Connect negative (-) probe of multimeter to ground.
(7) Position master power switch to ON (TM 9-2320-366-10-1).
(8) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1).
(9) Depress brake pedal and note reading on multimeter.
(10) If 12 vdc is not present, repair wire 22 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(11) Position master power switch to off (TM 9-2320-366-10-1).
(12) Position main light switch to OFF (TM 9-2320-366-10-1).
(13) Install PDP on dashboard with three screws.
(14) Install three washers and screws in PDP.





e61. ONE OR BOTH STOPLIGHTS DO NOT OPERATE (CONT)

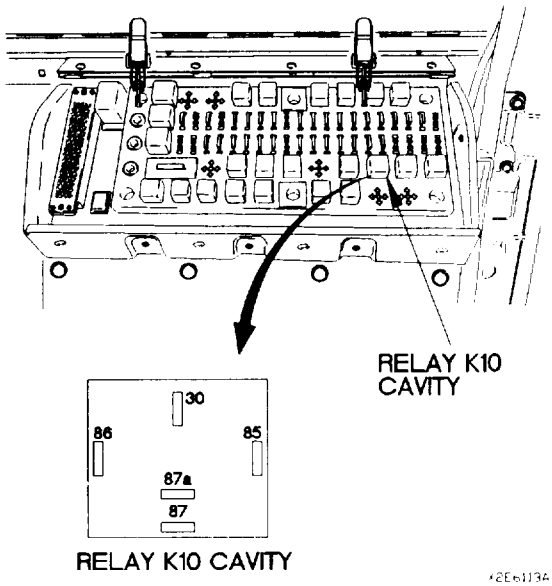


WARNING

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VOLTAGE TEST

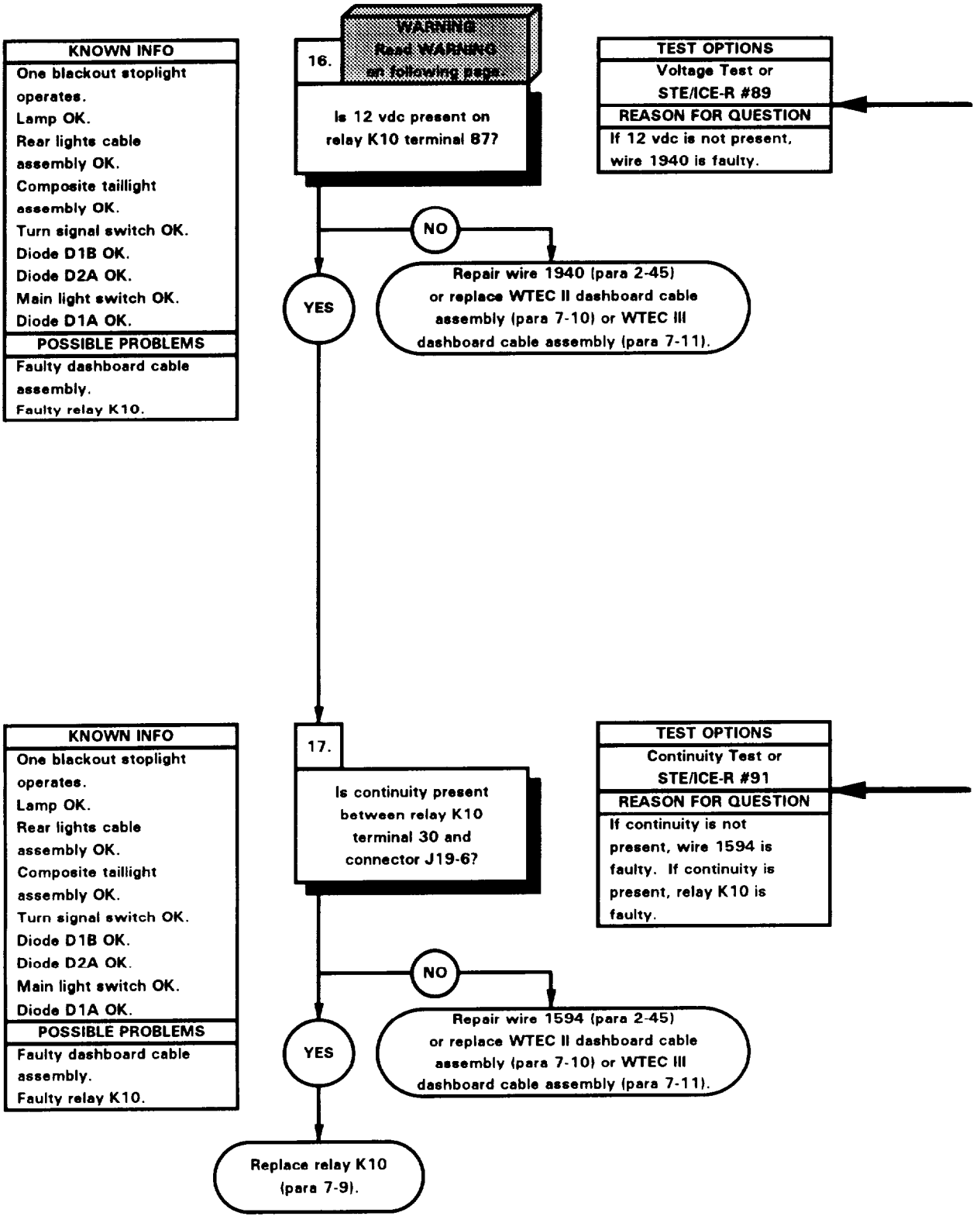
(1) Remove relay K10 from PDP.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to PDP, terminal 86, where relay K10 terminal 86 was removed.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1).
(7) Depress brake pedal and note reading on multimeter.
(8) If 12 vdc is not present, repair wire 1940 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position master power switch to off (TM 9-2320-366-10-1).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, terminal 85, where relay K10 was removed.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3046 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).

e61. ONE OR BOTH STOPLIGHTS DO NOT OPERATE (CONT)

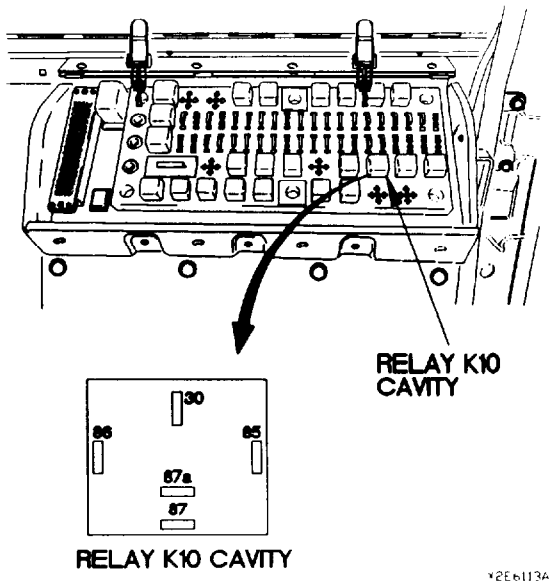


WARNING

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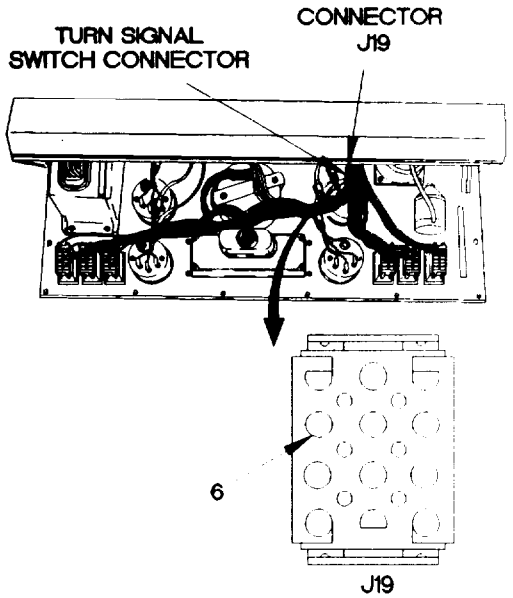
VOLTAGE TEST

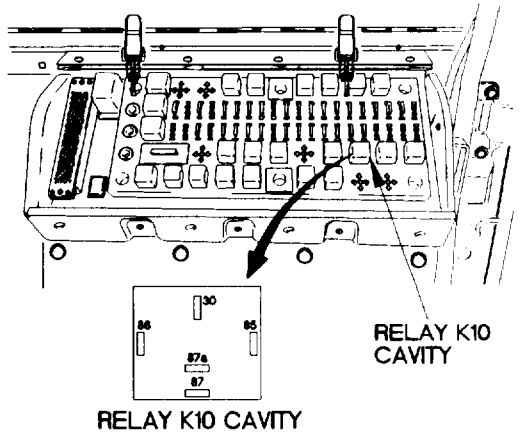
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, terminal 87, where relay K10 terminal 87 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1).
(5) Position main light switch to STOPLIGHT (TM 9-2320-366-10-1).
(6) Depress brake pedal and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 1940 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position master power switch to off (TM 9-2320-366-10-1).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).



CONTINUITY TEST

(1) Disconnect turn signal switch connector from connector J19.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to PDP, terminal 30, where relay K10 terminal 30 was removed.
(4) Connect negative (-) probe of multimeter to connector J19-6.
(5) If continuity is not present, repair wire 1594 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) If continuity is present, replace relay K10 (para 7-9).
(7) Install relay K10 in PDP.
(8) Connect connector J19 to turn signal switch connector.
(9) Install instrument panel assembly (para 7-15).
(10) Install PDP cover (para 16-2).





•62. ONE OR BOTH BLACKOUT STOPLIGHTS DO NOT OPERATE

INITIAL SETUP

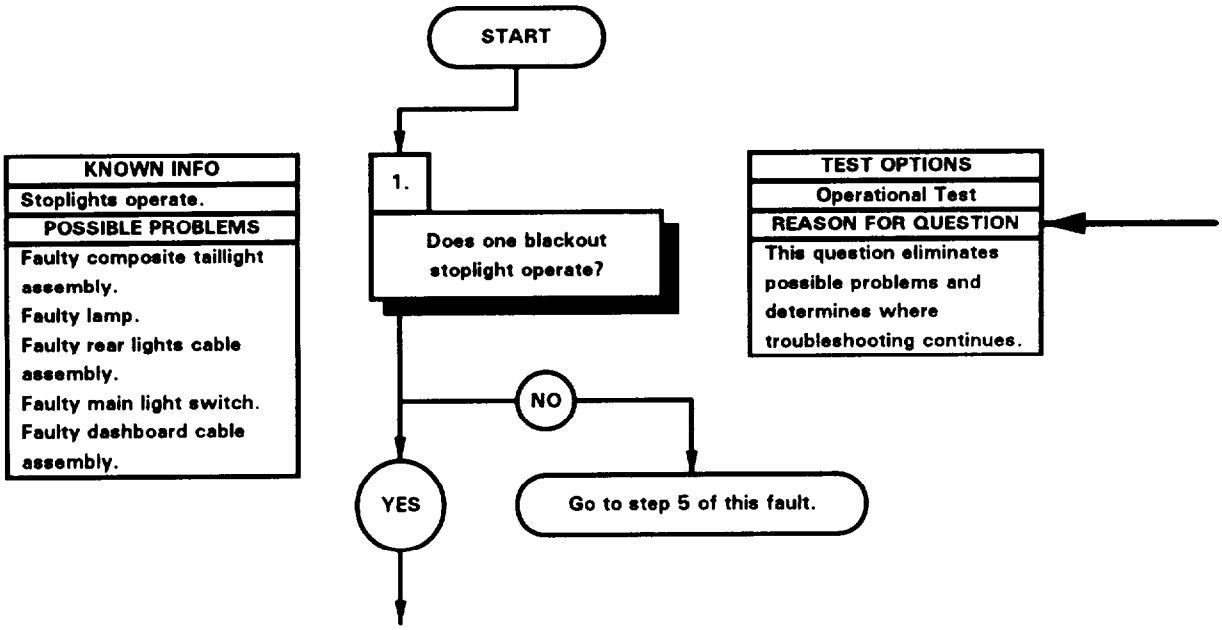
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Packing, Preformed (Item 191, Appendix G)

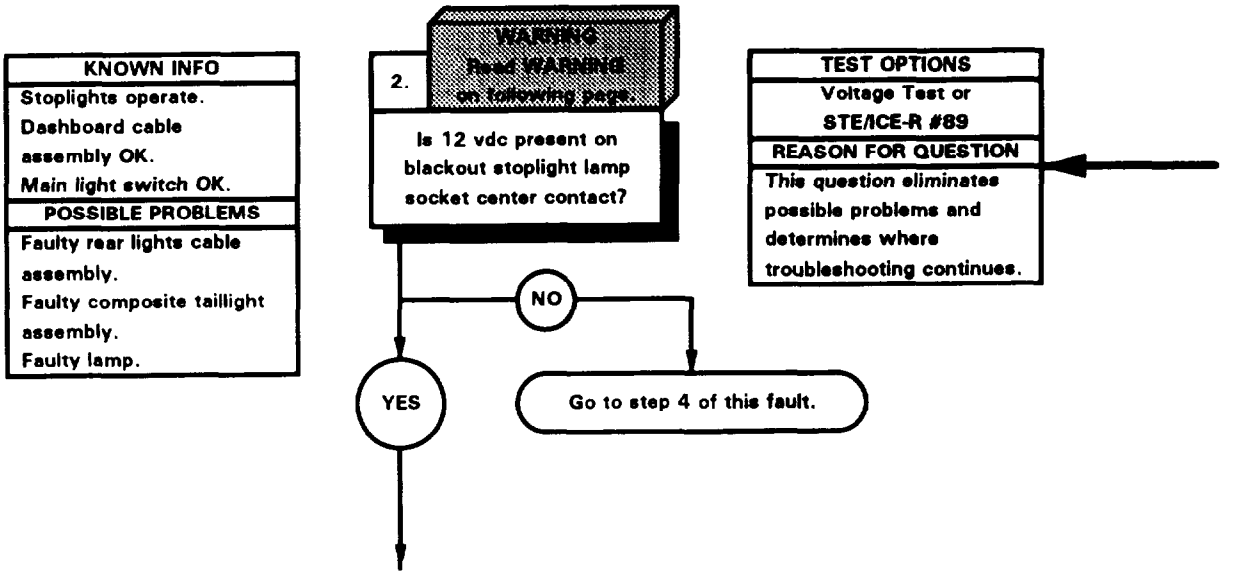
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P



OPERATIONAL TEST
(1) Position master power switch to on (TM 9-2320-366-10-1).
(2) Position main light switch to BO DRIVE (TM 9-2320-366-10-1).
(3) Depress brake pedal and observe blackout stoplight operation.
(4) If both blackout stoplights do not illuminate, go to step 5 of this fault.
(5) Position master power switch to off (TM 9-2320-366-10-1).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).

e62. ONE OR BOTH BLACKOUT STOPLIGHTS DO NOT OPERATE (CONT)

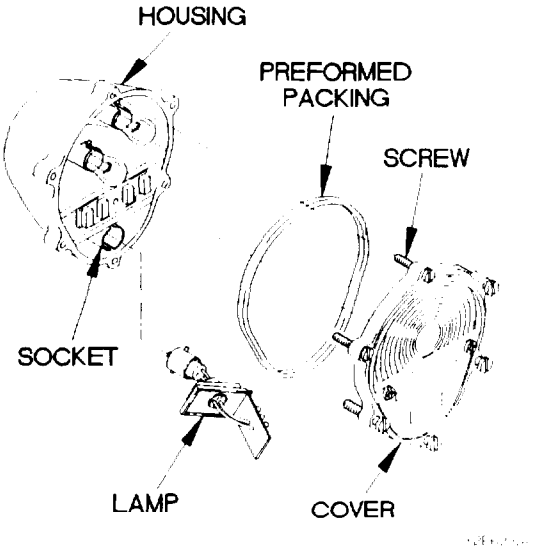


WARNING

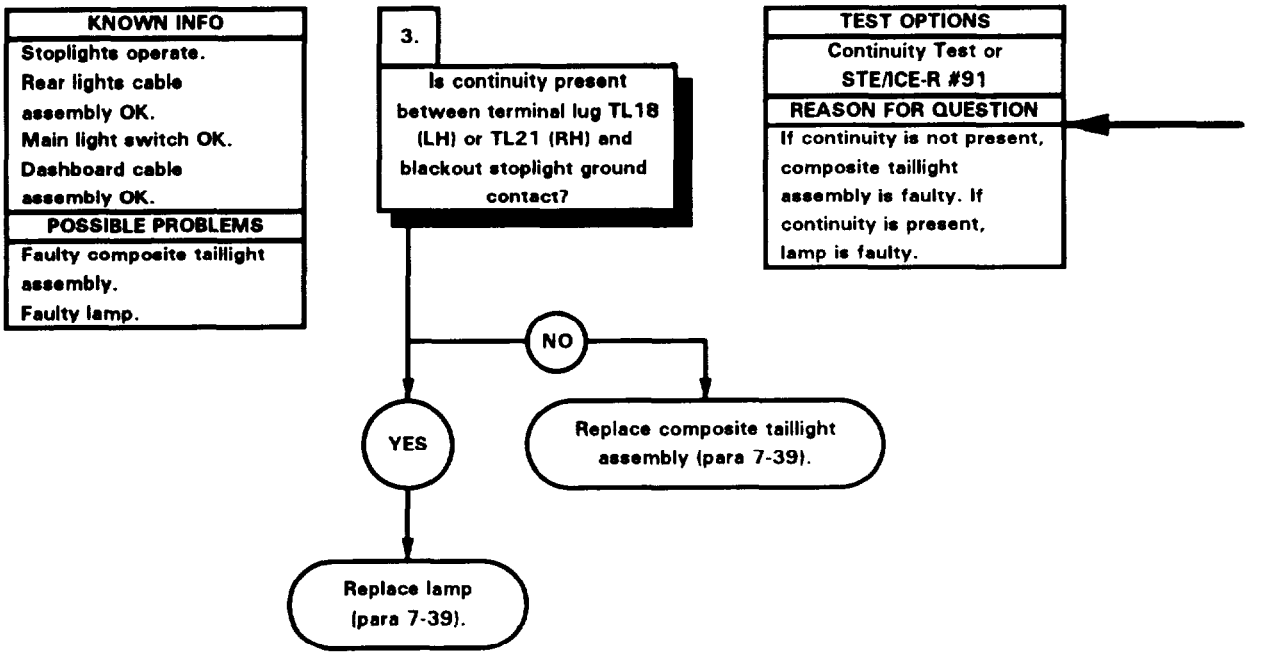
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

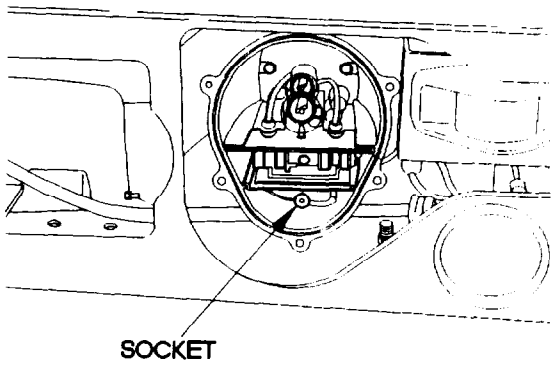
VOLTAGE TEST

(1) Loosen six screws and remove cover and preformed packing from housing. Discard preformed packing.
(2) Remove lamp from socket.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to blackout stoplight lamp socket center contact.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1).
(7) Position main light switch to BO DRIVE (TM 9-2320-366-10-1).
(8) Depress brake pedal and note reading on multimeter.
(9) If 12 vdc is not present, go to step 4 of this fault.
(10) Position master power switch to off (TM 9-2320-366-10-1).
(11) Position main light switch to OFF (TM 9-2320-366-10-1).



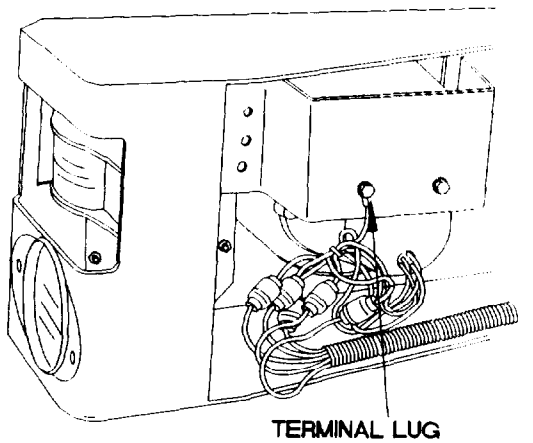
e62. ONE OR BOTH BLACKOUT STOPLIGHTS DO NOT OPERATE (CONT)



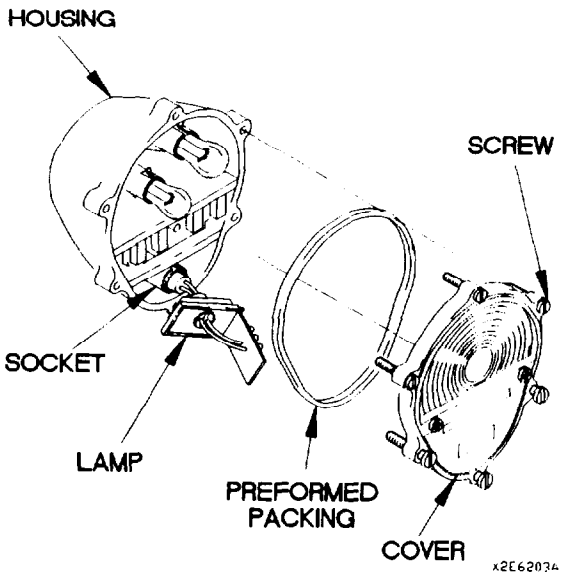


CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to terminal lug TL18 (LH) or TL21 (RH).
(3) Connect negative (-) probe of multimeter to blackout stoplight lamp socket and note reading on multimeter.
(4) If continuity is not present, replace composite taillight assembly (para 7-39).
(5) If continuity is present, replace lamp (para 7-39).
(6) Install lamp in socket.
(7) Install preformed packing and cover on housing with six screws.

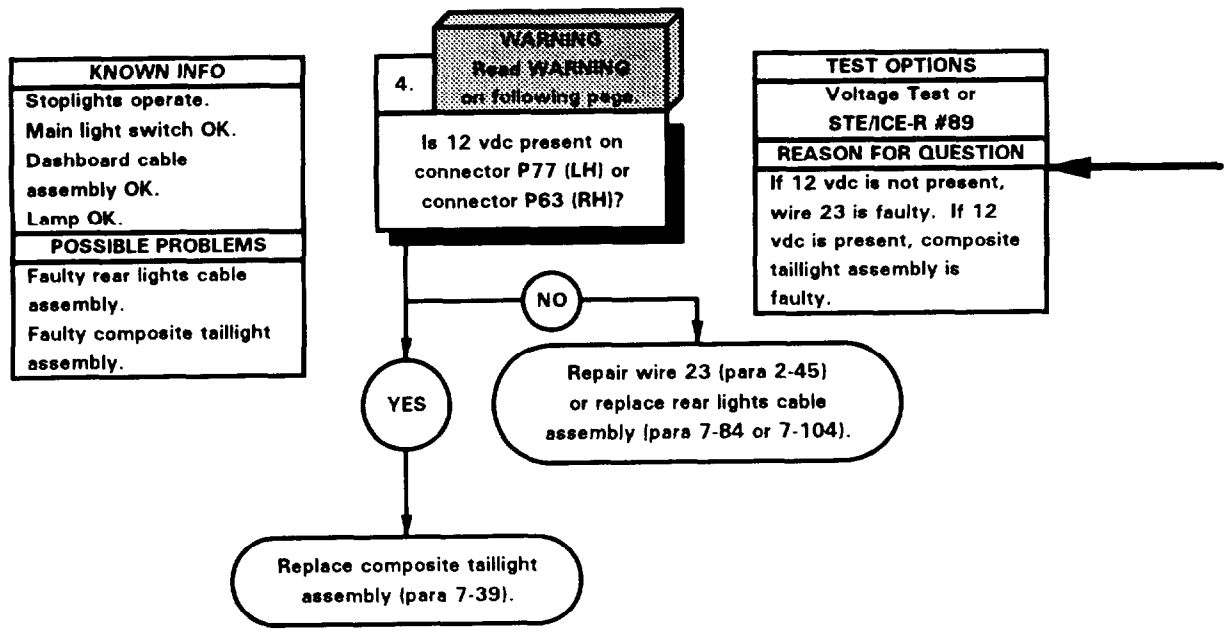


X2E62020A



X2E62034

e62. ONE OR BOTH BLACKOUT STOPLIGHTS DO NOT OPERATE (CONT)

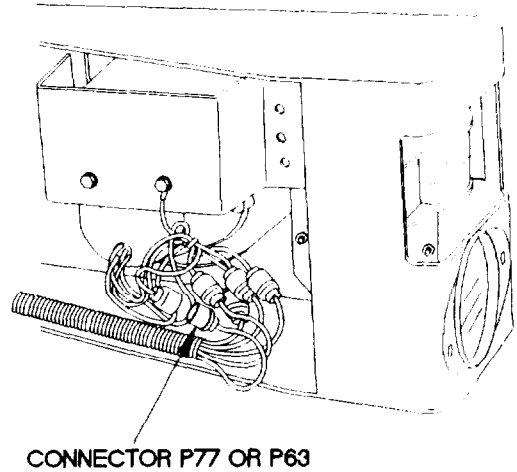


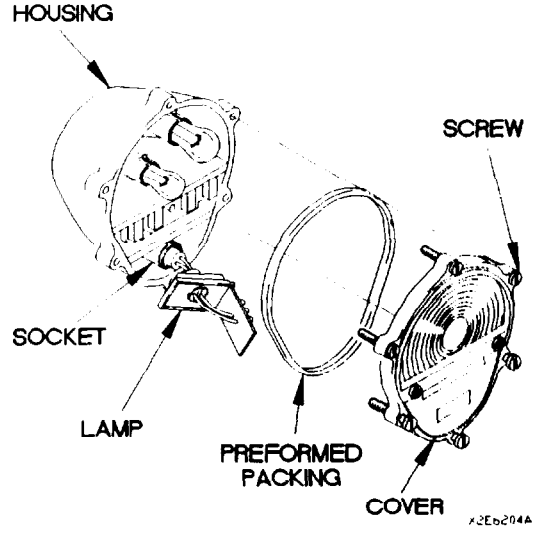
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

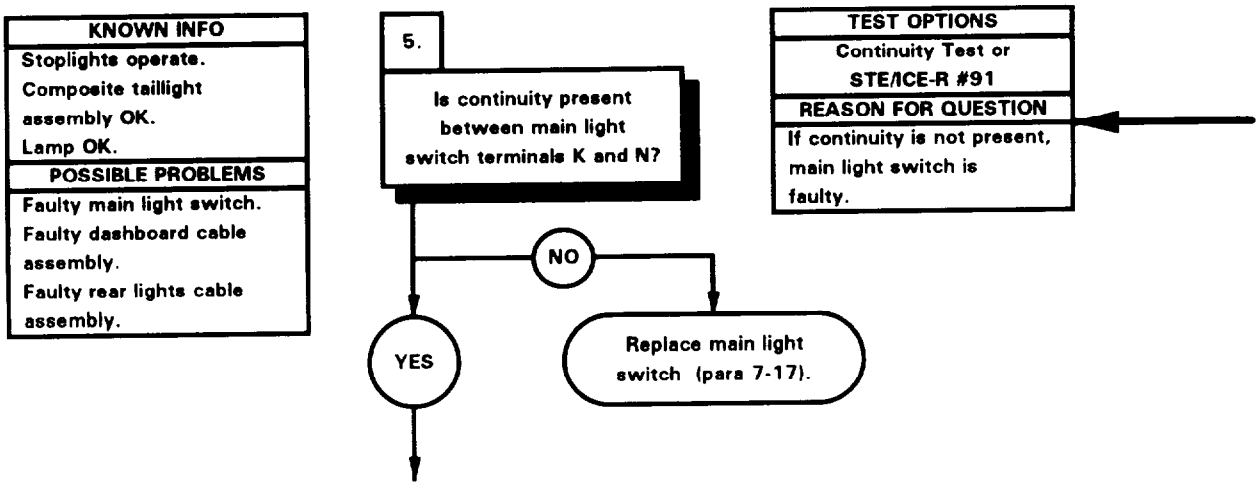
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Disconnect connector P77 (LH) or connector P63 (RH) from blackout stoplight connector.
(3) Connect positive (+) probe of multimeter to connector P77 (LH) or connector P63 (RH).
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Position main light switch to BO DRIVE (TM 9-2320-366-10-1).
(7) Depress brake pedal and note reading on multimeter.
(8) If 12 vdc is not present, repair wire 23 (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(9) If 12 vdc is present, replace composite taillight assembly (para 7-39).
(10) Position master power switch to off (TM 9-2320-366-10-1).
(11) Position main light switch to OFF (TM 9-2320-366-10-1).
(12) Install lamp in socket.
(13) Install preformed packing and cover on housing with six screws.

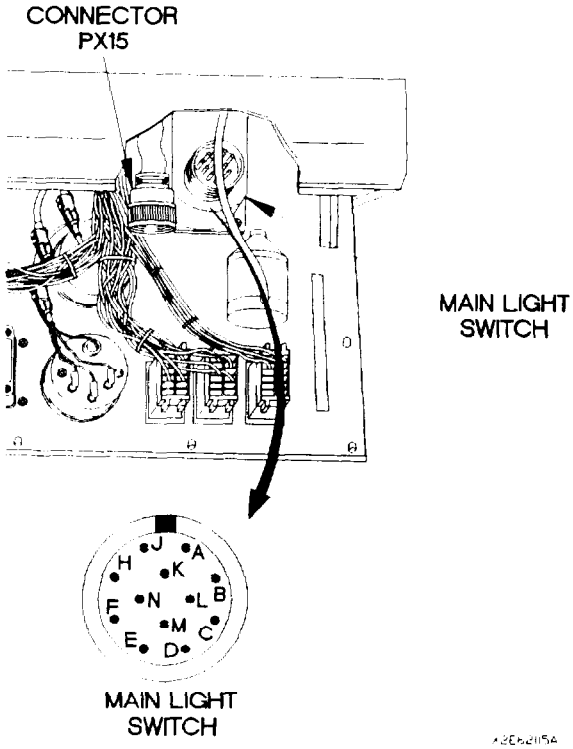




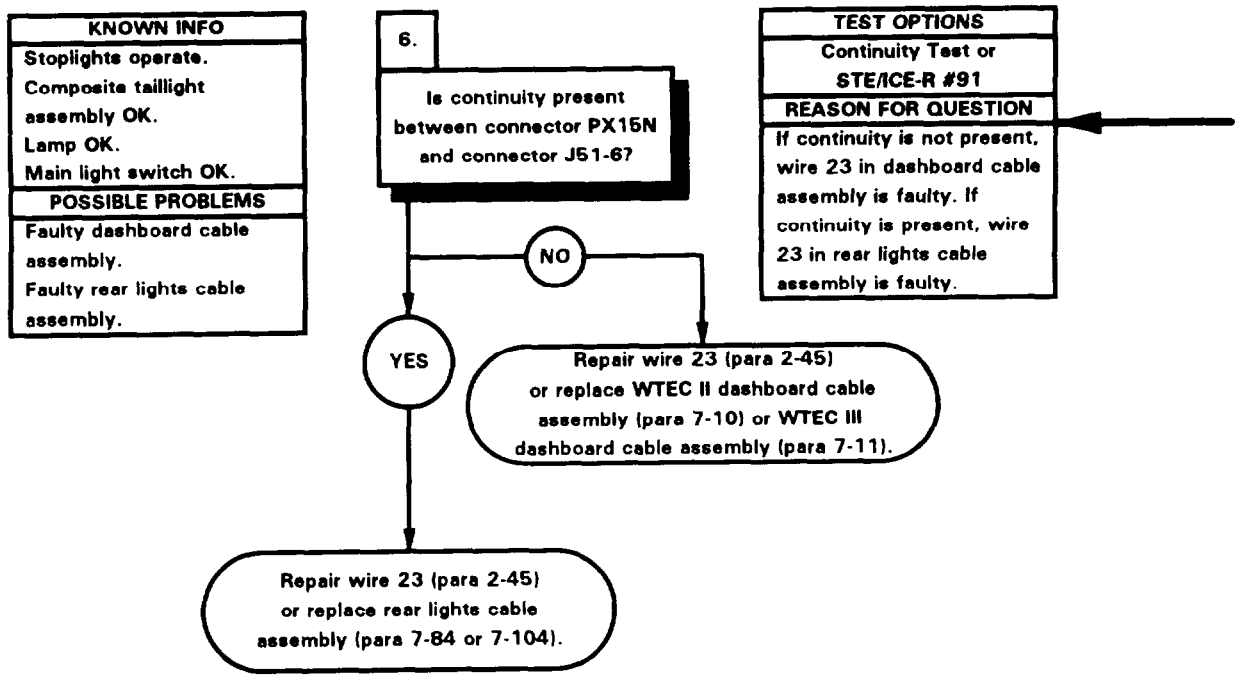
e62. ONE OR BOTH BLACKOUT STOPLIGHTS DO NOT OPERATE (CONT)



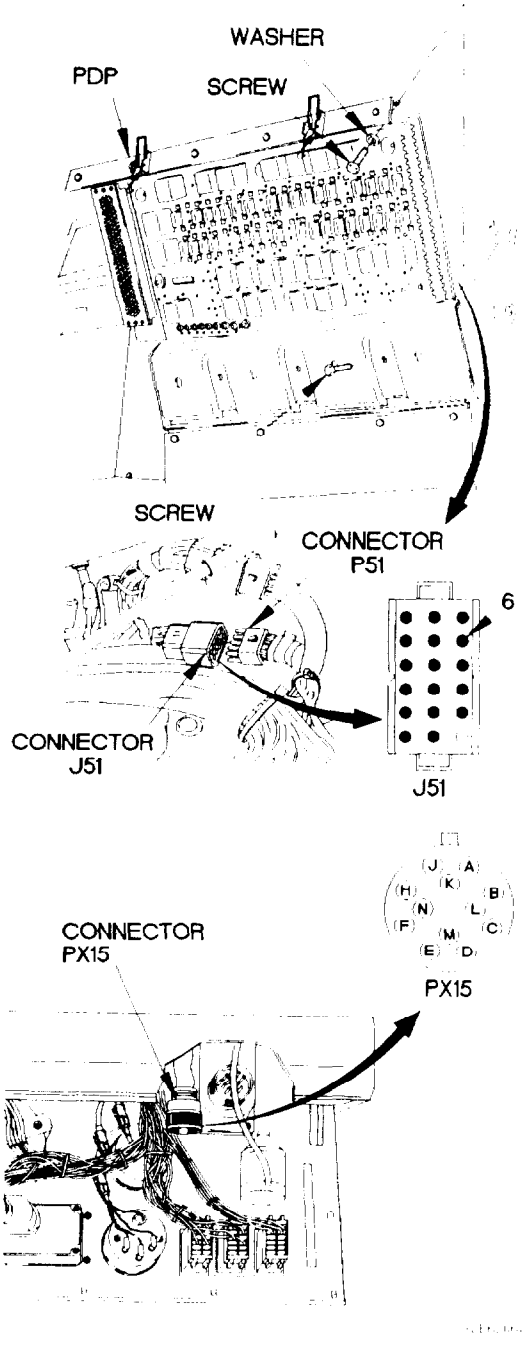
CONTINUITY TEST
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX15 from main light switch.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to main light switch terminal K.
(5) Connect negative (-) probe of multimeter to main light switch terminal N.
(6) Position main light switch to BO DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If continuity is not present, replace main light switch (para 7-17).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).



e62. ONE OR BOTH BLACKOUT STOPLIGHTS DO NOT OPERATE (CONT)



CONTINUITY TEST
(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector J51 from connector P51.
(6) Set multimeter to ohms.
(7) Connect positive (+) probe of multimeter to connector PX15N.
(8) Connect negative (-) probe of multimeter to connector J51-6 and note reading on multimeter.
(9) If continuity is not present, repair wire 23 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(10) If continuity is present, repair wire 23 (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(11) Connect connector PX15 to main light switch.
(12) Install instrument panel assembly (para 7-15).
(13) Connect connector J51 to connector P51.
(14) Install PDP on dashboard with three screws.
(15) Install three washers and screws in PDP.
(16) Install PDP cover (para 16-2).



e63. STOPLIGHTS AND BLACKOUT STOPLIGHTS DO NOT OPERATE

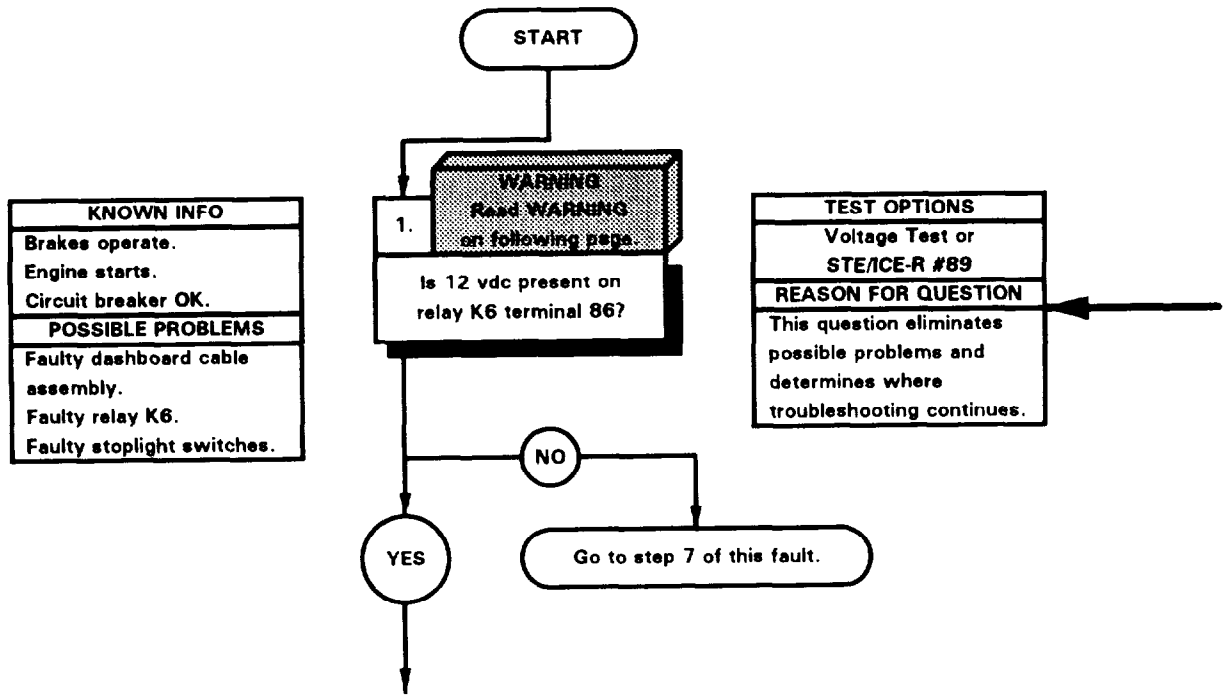
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

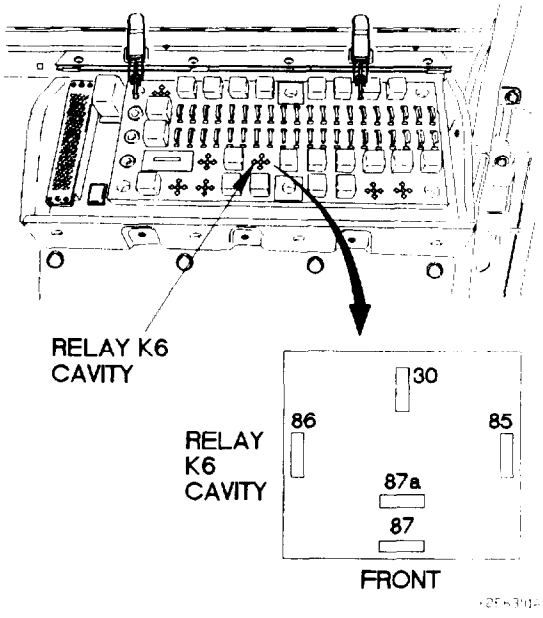
References
TM 9-4910-571-12&P



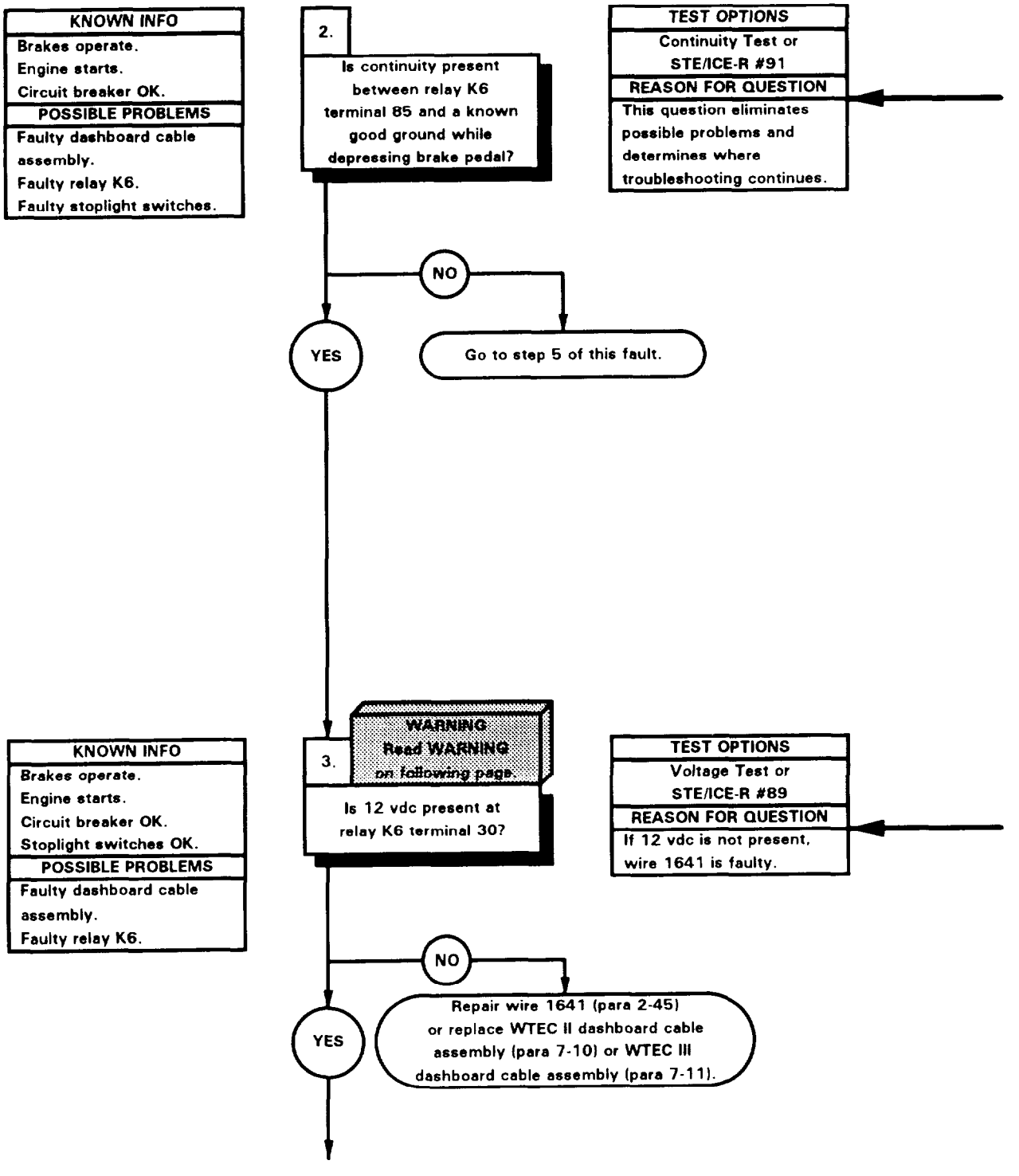
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST
(1) Remove PDP cover (para 16-2).
(2) Remove relay K6 from PDP.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to PDP, terminal 86, where relay K6 was removed.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, go to step 7 of this fault.
(8) Position master power switch to off (TM 9-2320-366-10-1).



e63. STOPLIGHTS AND BLACKOUT STOPLIGHTS DO NOT OPERATE (CONT)



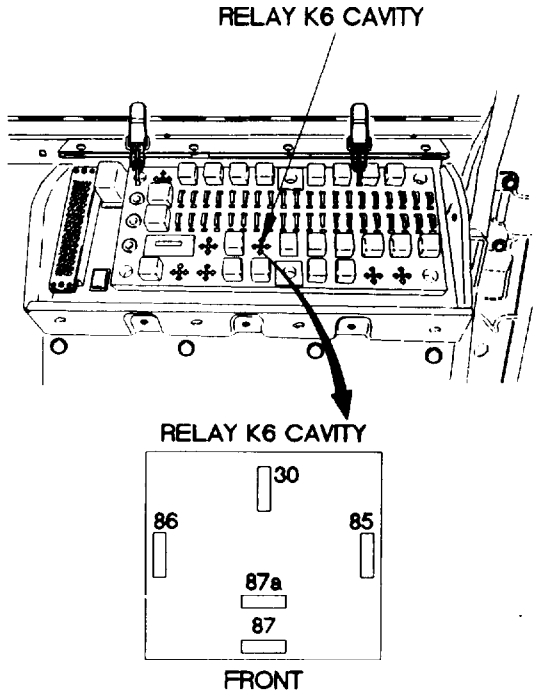
CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, terminal 85, where relay K6 was removed.
(3) Connect negative (-) probe of multimeter to ground.

NOTE

Full system air pressure is required to actuate stoplights.

(4) Apply brakes (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If continuity is not present, go to step 5 of this fault.



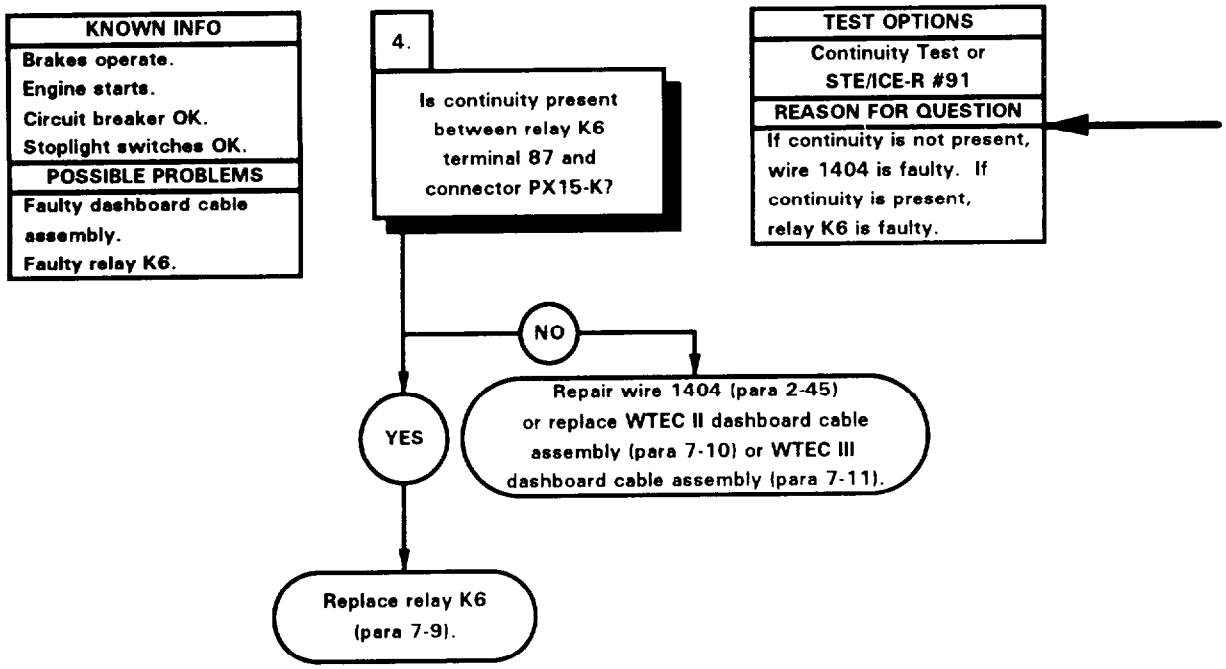
WARNING

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VOLTAGE TEST

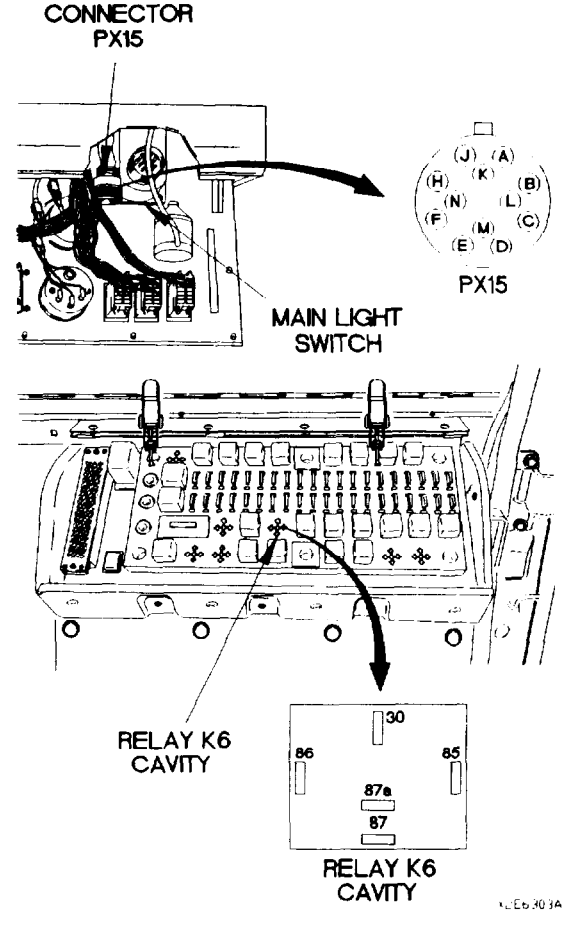
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, terminal 30, where relay K6 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 12 vdc is not present, repair wire 1641 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position master power switch to off (TM 9-2320-366-10-1).

e63. STOPLIGHTS AND BLACKOUT STOPLIGHTS DO NOT OPERATE (CONT)

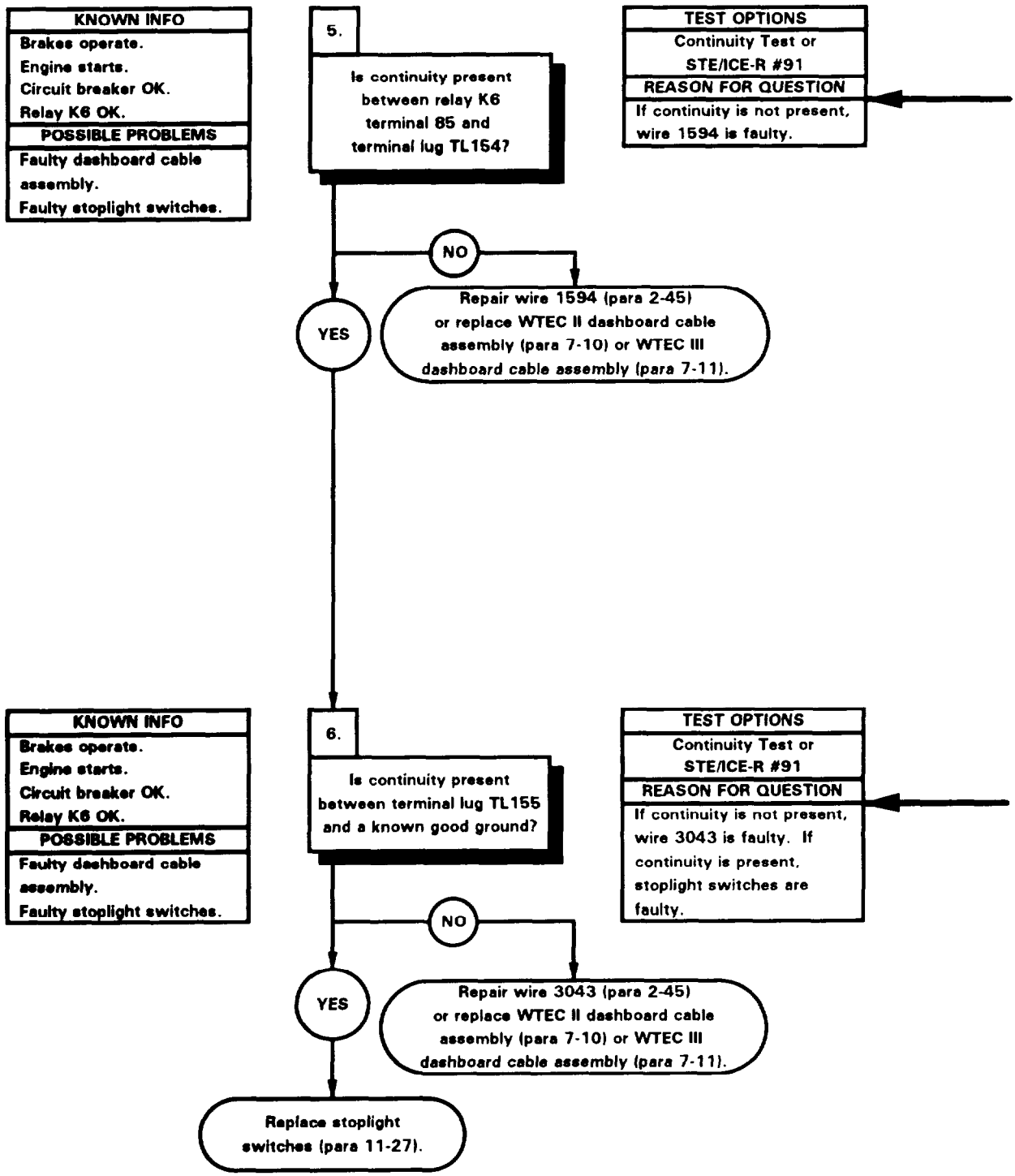


CONTINUITY TEST

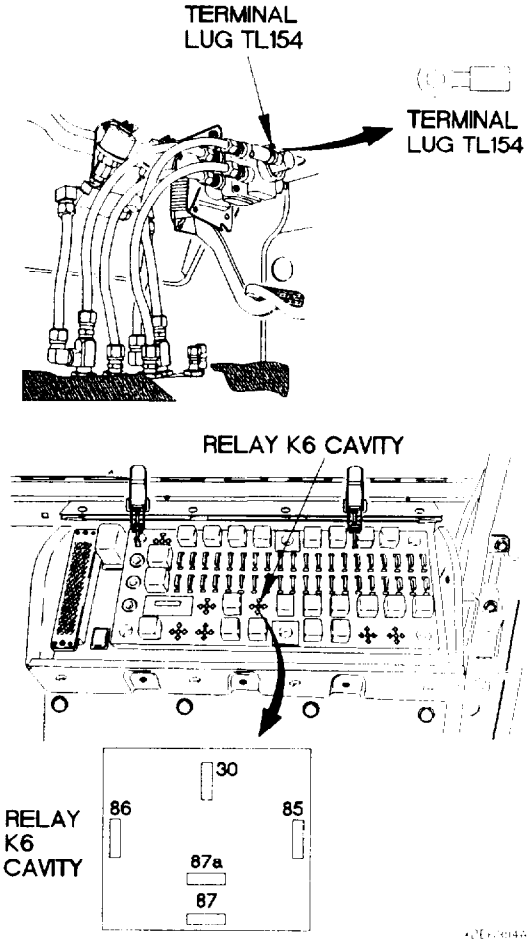
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector PX15 from main light switch.
(3) Connect positive (+) probe of multimeter to connector PX15-K.
(4) Connect negative (-) probe of multimeter to PDP, terminal 87, where relay K6 was removed, and note reading on multimeter.
(5) If continuity is not present, repair wire 1404 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) If continuity is present, replace relay K6 (para 7-9).
(7) Install relay K6 in PDP.
(8) Install PDP cover (para 16-2).
(9) Connect connector PX15 to main light switch.
(10) Install instrument panel assembly (para 7-15).



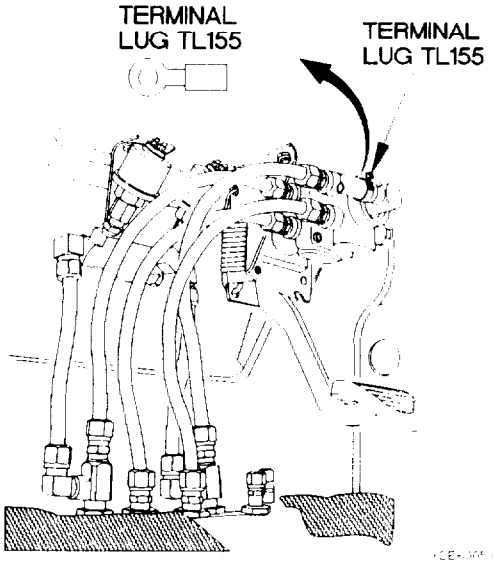
e63. STOPLIGHTS AND BLACKOUT STOPLIGHTS DO NOT OPERATE (CONT)



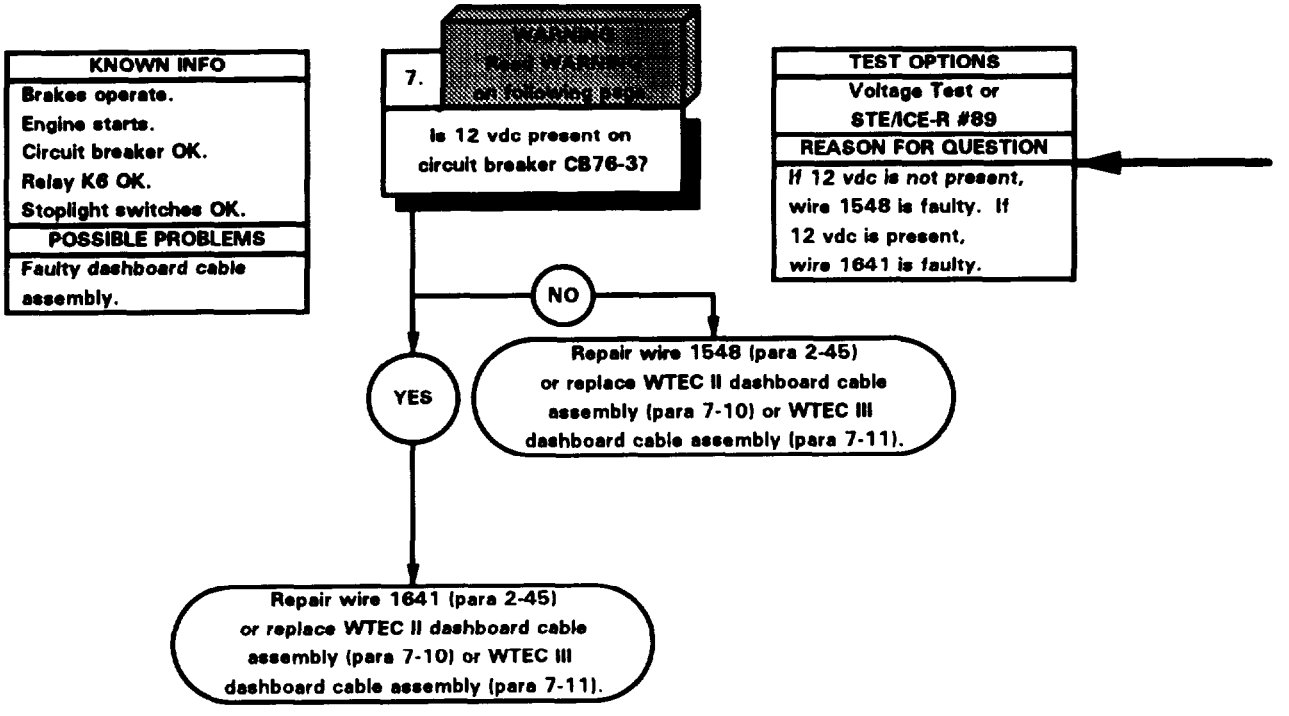
CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to terminal lug TL154.
(3) Connect negative (-) probe of multimeter to PDP, terminal 85, where relay K6 was removed, and note reading on multimeter.
(4) If continuity is not present, repair wire 1594 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) Install relay K6 in PDP.
(6) Install PDP cover (para 16-2).



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to terminal lug TL155.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3043 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If continuity is present, replace both stoplight switches (para 11-27).



e63. STOPLIGHTS AND BLACKOUT STOPLIGHTS DO NOT OPERATE (CONT)

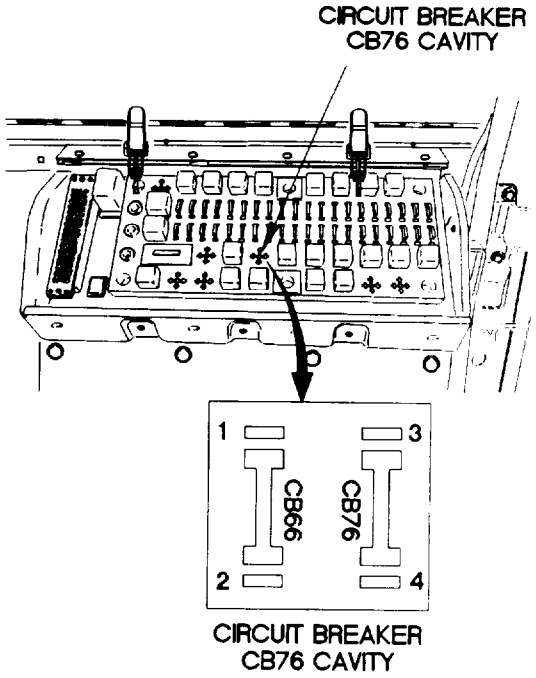


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove circuit breaker CB76 from PDP.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to PDP, terminal 3, where circuit breaker CB76 was removed.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 12 vdc is not present, repair wire 1548 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) If 12 vdc is present, repair wire 1641 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position master power switch to off (TM 9-2320-366-10-1).
(9) Install circuit breaker CB76 in PDP.
(10) Install relay K6 in PDP.
(11) Install PDP cover (para 16-2).



e64. STOPLIGHTS DO NOT OPERATE WHEN M1088 TRAILER BRAKES ARE APPLIED

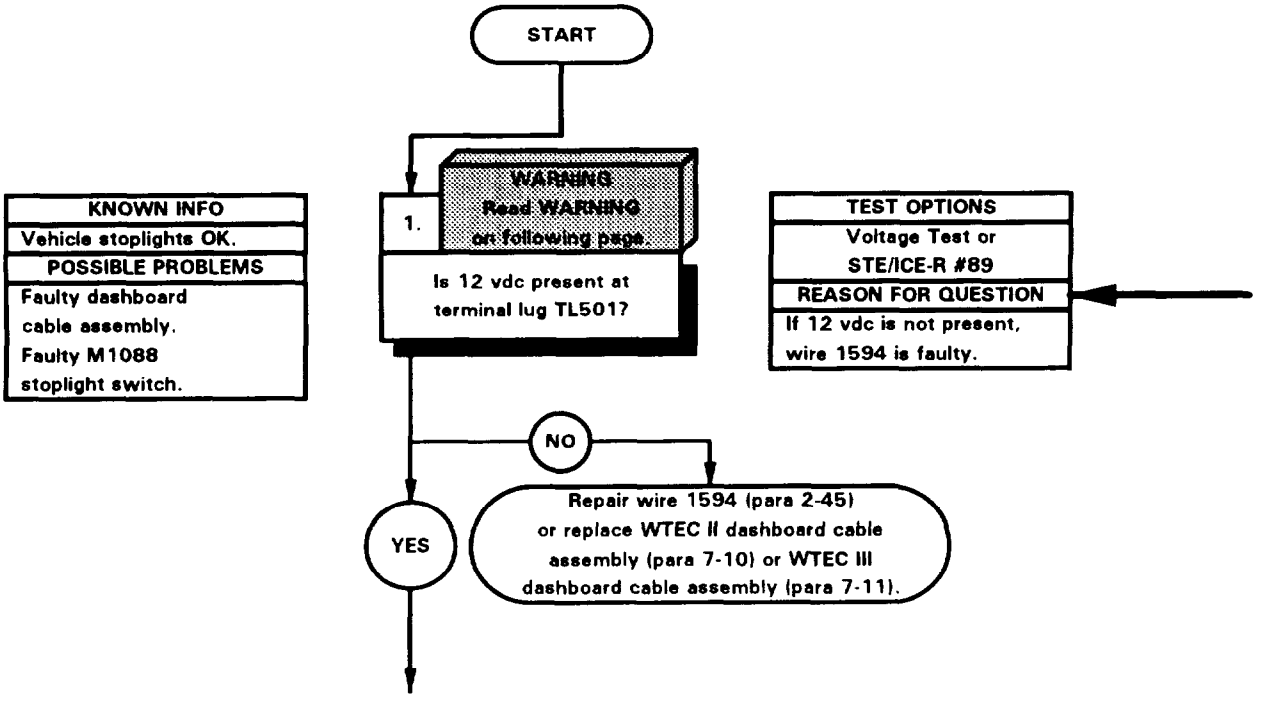
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

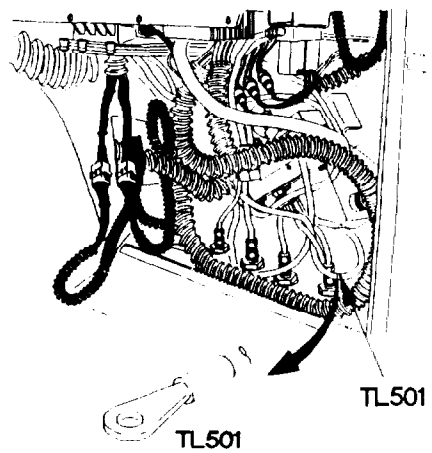


WARNING

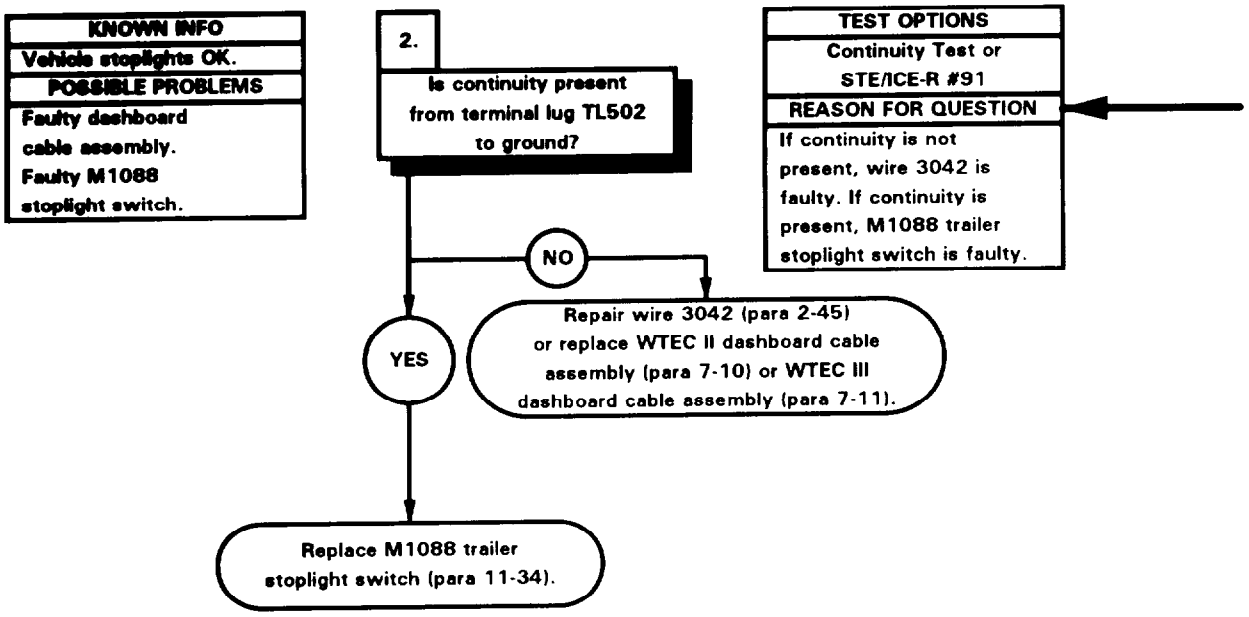
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

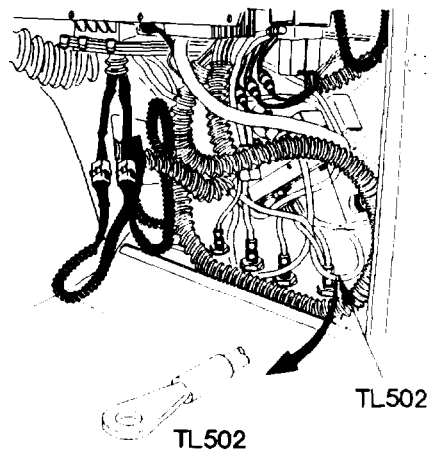
(1) Remove kick panel (para 16-3).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to terminal lug TL501.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Apply trailer brakes (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 1594 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position master power switch to off (TM 9-2320-366-10-1).



e64. STOPLIGHTS DO NOT OPERATE WHEN M1088 TRAILER BRAKES ARE APPLIED (CONT)



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to terminal lug TL502.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3042 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) If contintuity is present, replace M1088 trailer stoplight switch (para 11-34).
(6) Install kick panel (para 16-3).



e65. TRAILER MARKER/TAILLIGHTS DO NOT OPERATE

INITIAL SETUP

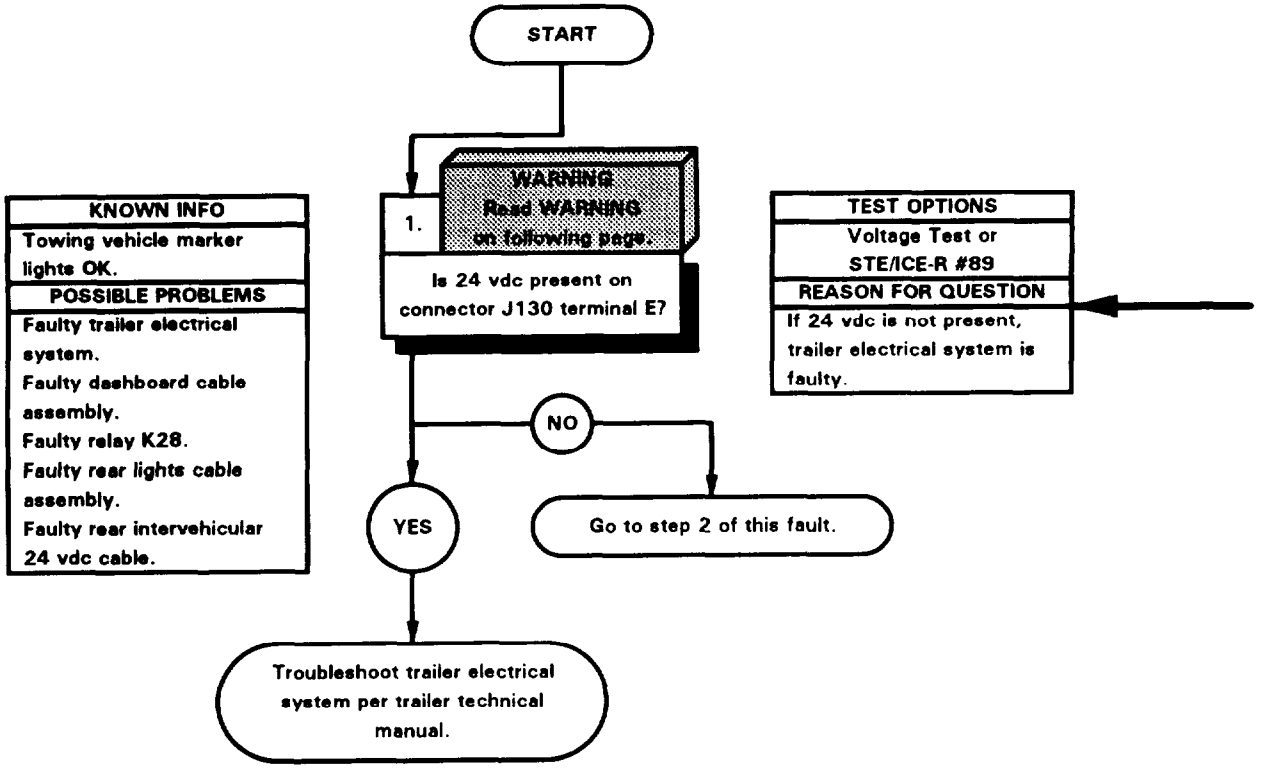
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Wire, Elect, 50 ft (Item 71, Appendix D)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

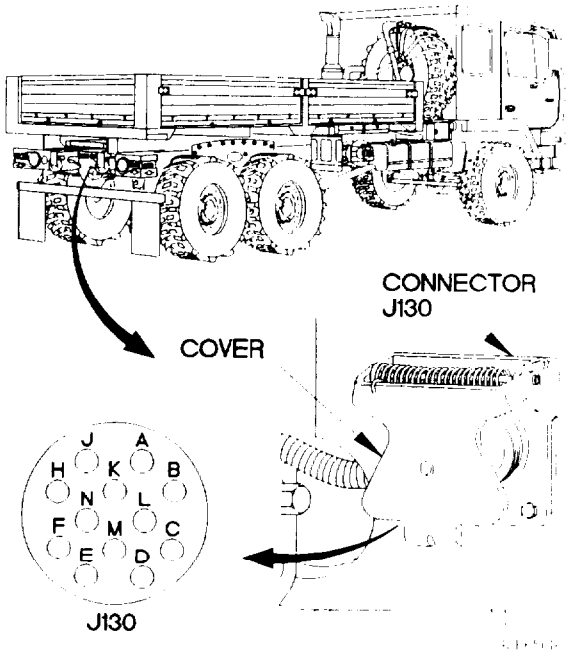


WARNING

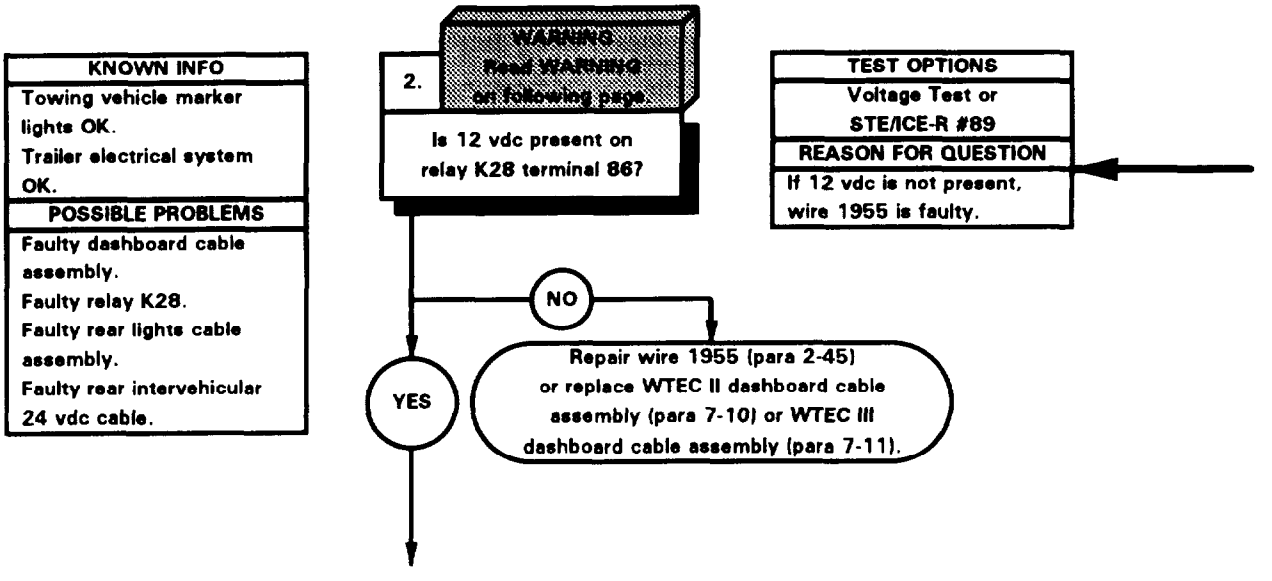
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Lift cover on connector J130 intervehicular 24 vdc connector.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J130 terminal E.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, go to step 2 of this fault.
(7) If 24 vdc is present, troubleshoot trailer electrical system per trailer technical manual.
(8) Position main light switch to OFF (TM 9-2320-366-10-1).
(9) Lower cover on connector J130 intervehicular 24 vdc connector.



e65. TRAILER MARKER/TAILLIGHTS DO NOT ILLUMINATE (CONT)

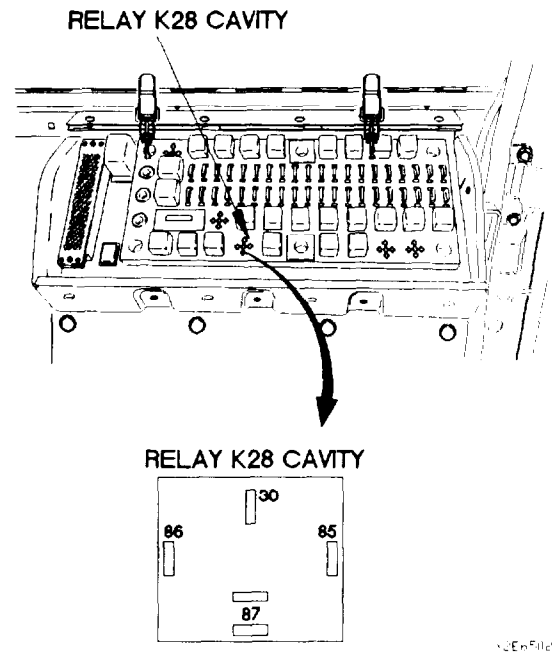


WARNING

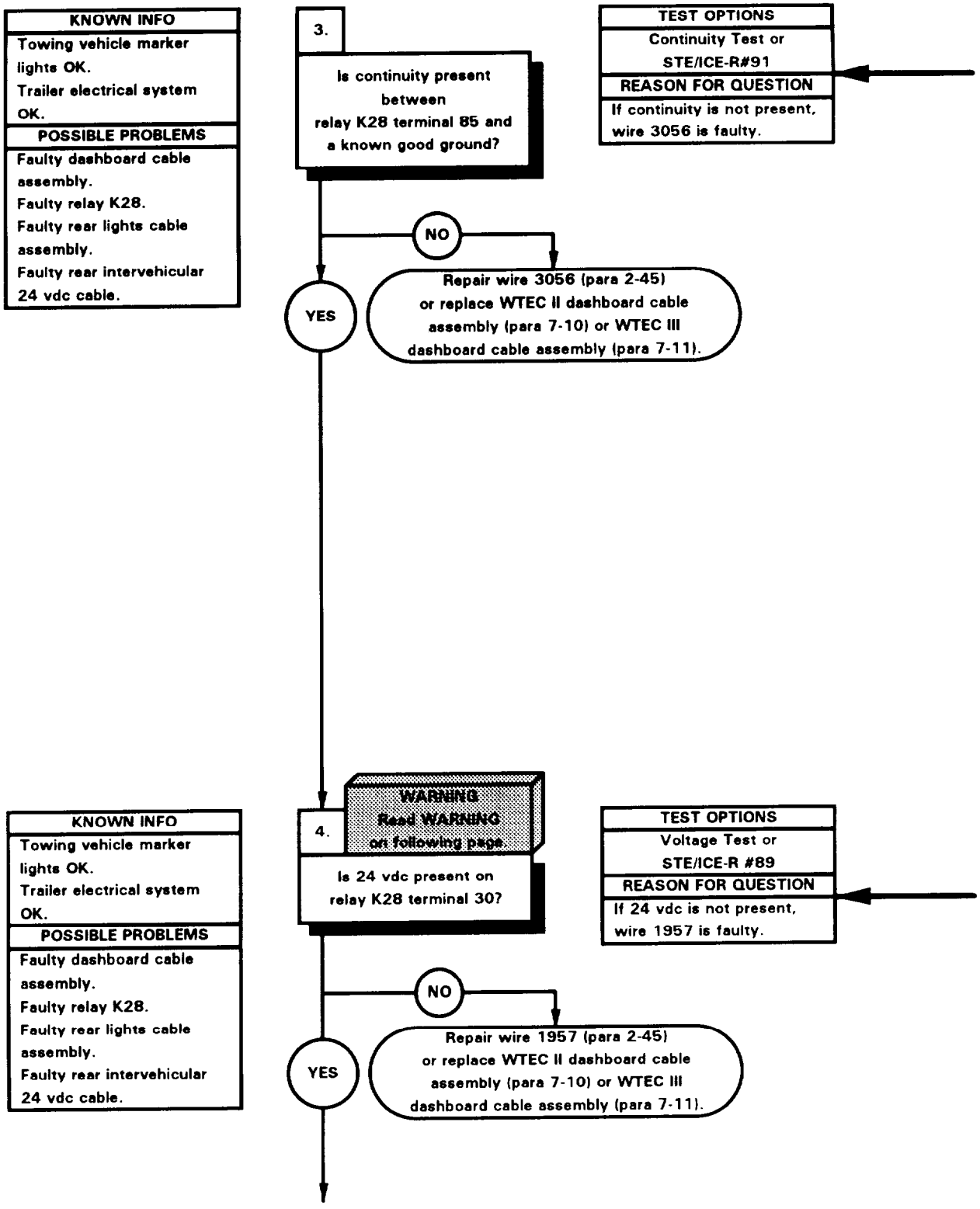
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove relay K28 from PDP.
(3) Connect positive (+) probe of multimeter to PDP, terminal 86, where relay K28 was removed.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 12 vdc is not present, repair wire 1955 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) Position main light switch to OFF (TM 9-2320-366-10-1).

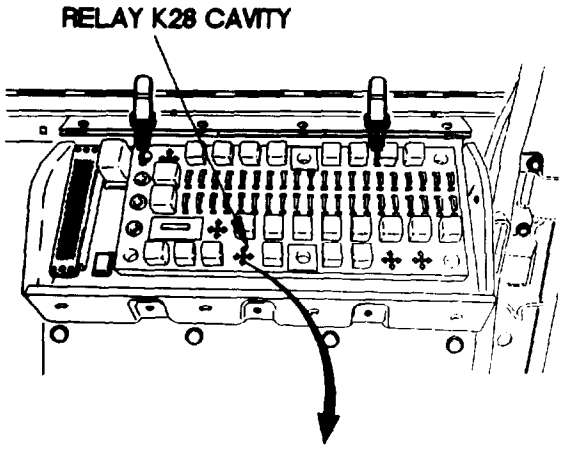


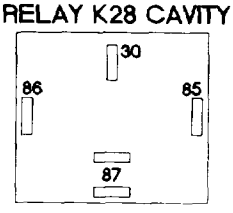
e65. TRAILER MARKER/TAILLIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, terminal 85, where relay K28 was removed.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3056 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).





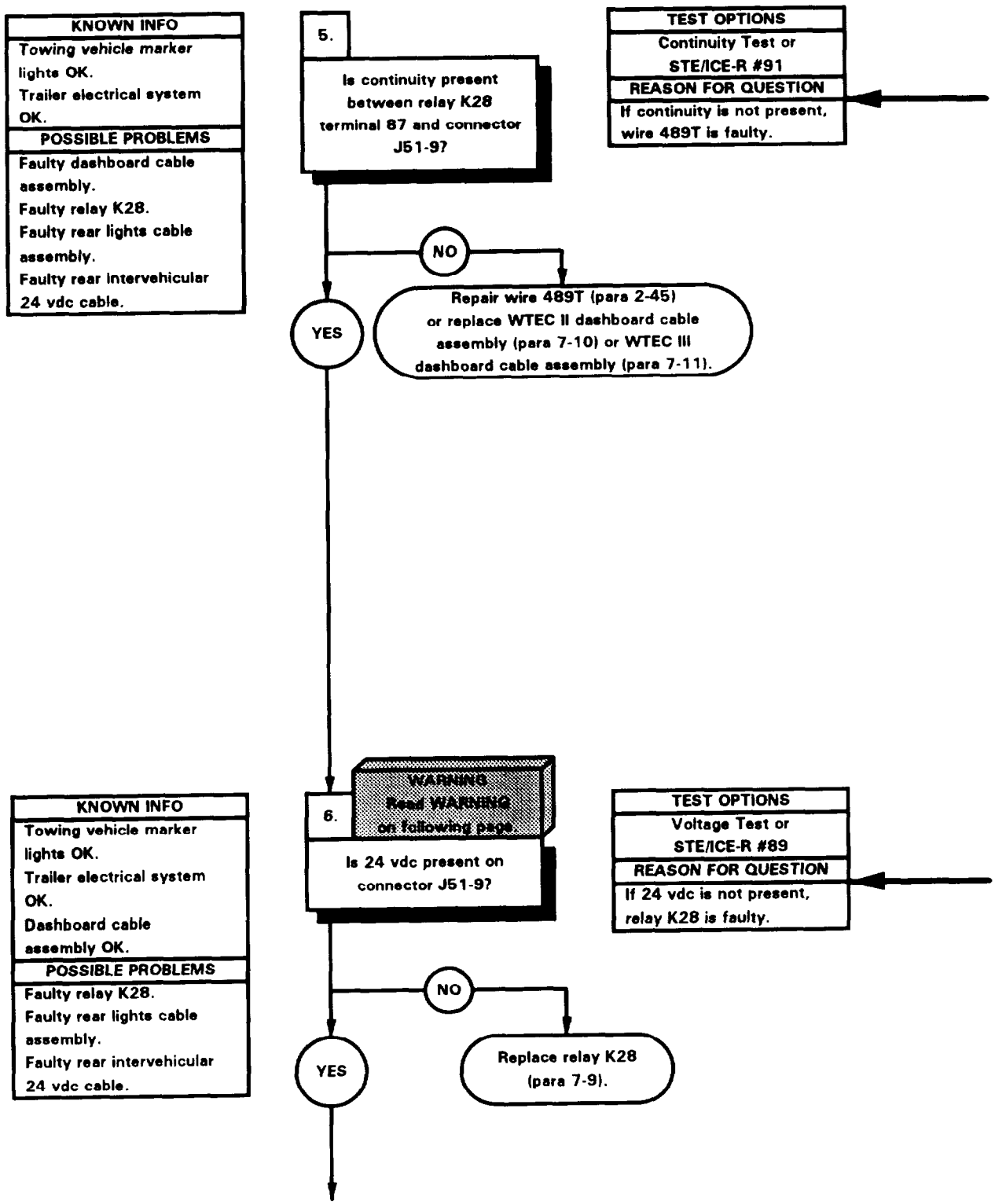
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

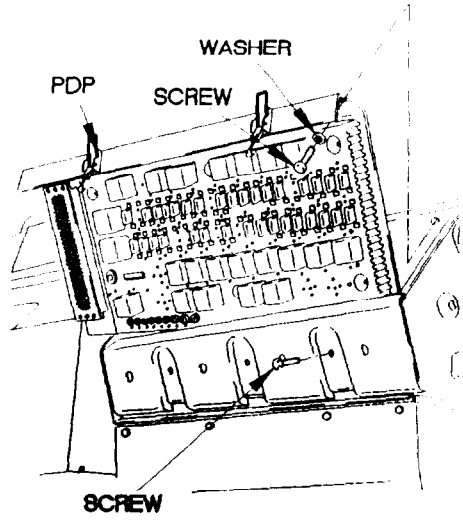
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, where relay K28 terminal 30 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1957 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).

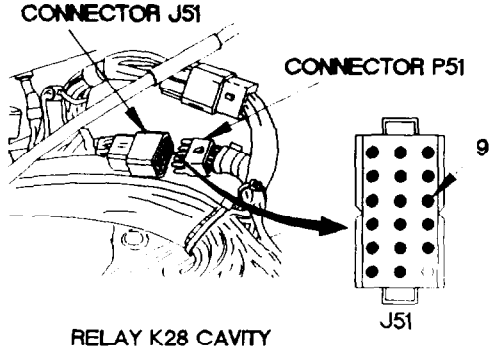
e65. TRAILER MARKER/TAILLIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Disconnect connector J51 from connector P51.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to PDP, terminal 87, where relay K28 was removed.
(7) Connect negative (-) probe of multimeter to connector J51-9 and note reading on multimeter.
(8) If continuity is not present, repair wire 489T (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Install relay K28 in PDP.



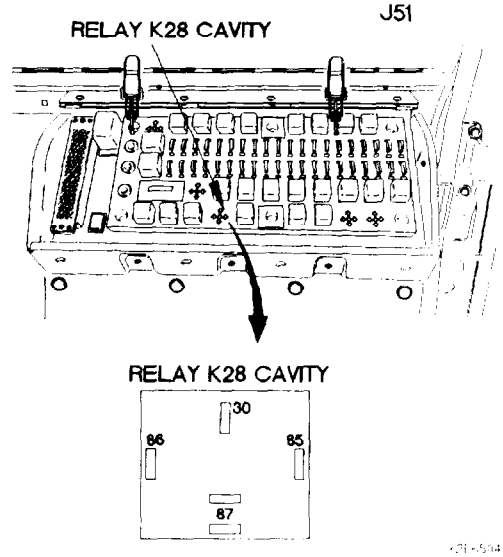


WARNING

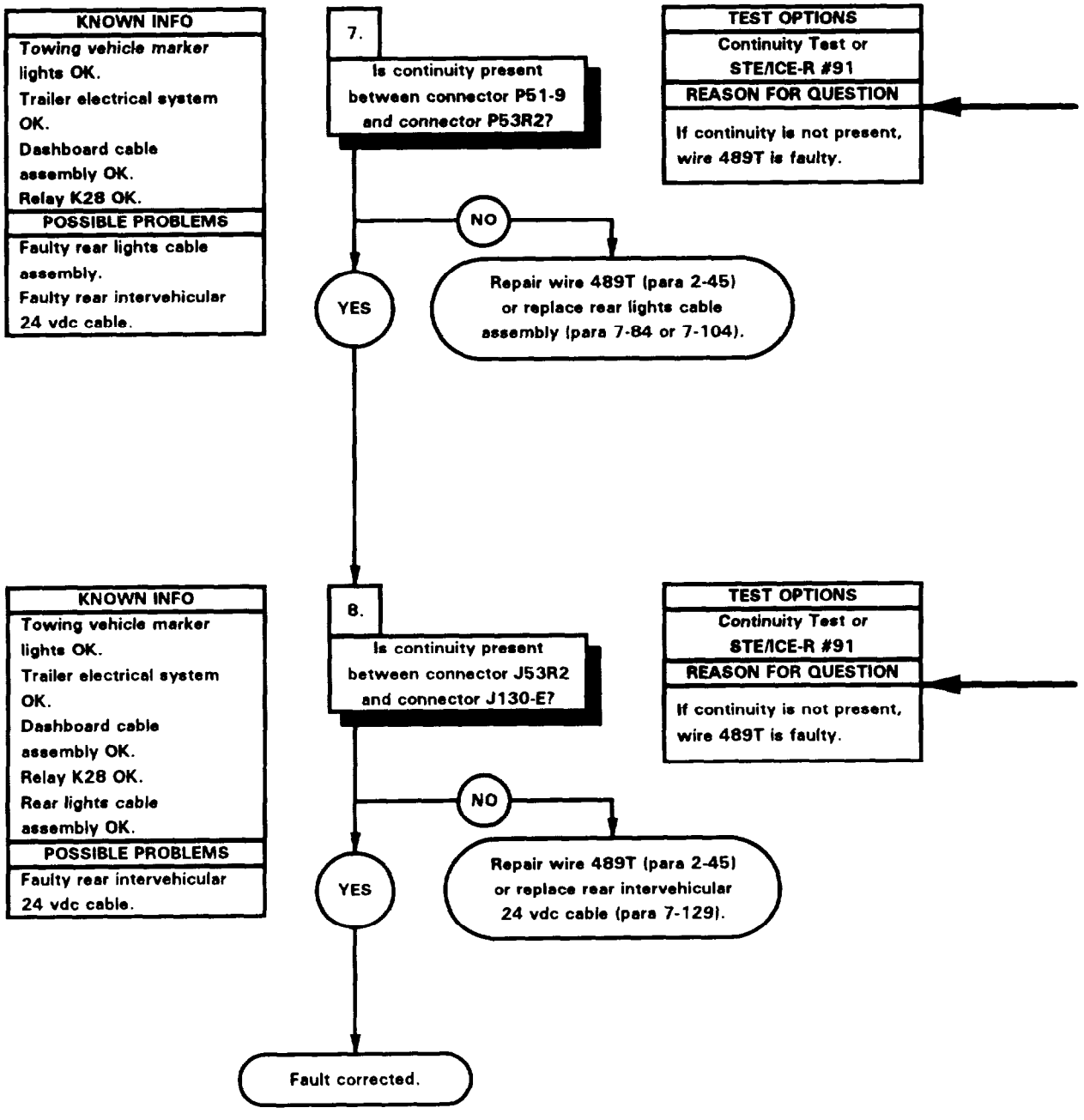
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to connector J51-9.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(5) If 24 vdc is not present, replace relay K28 (para 7-9).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).

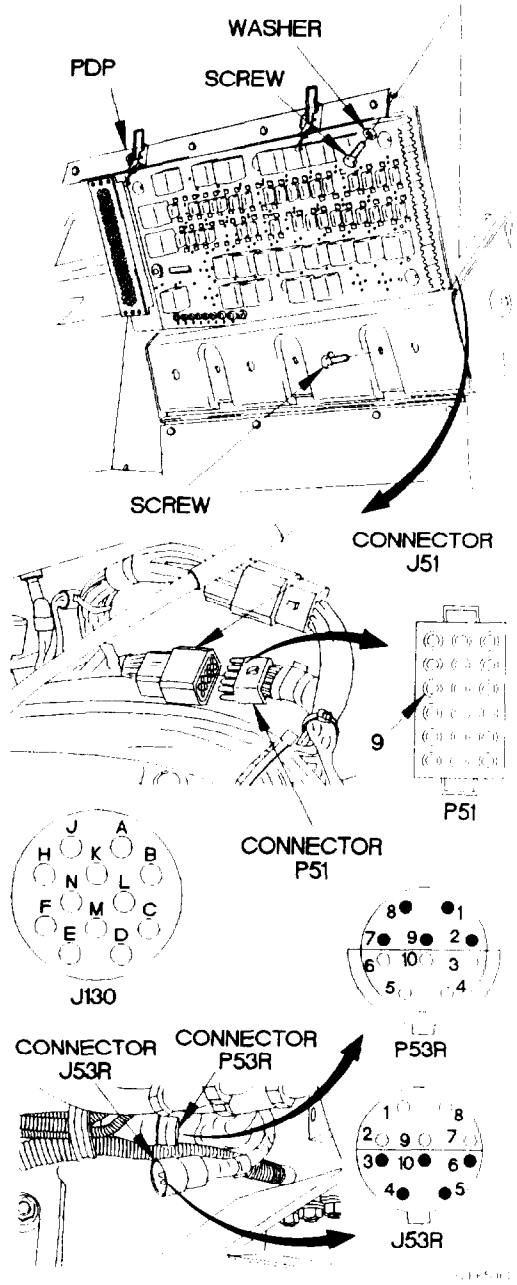


e65. TRAILER MARKER/TAILLIGHTS DO NOT ILLUMINATE (CONT)

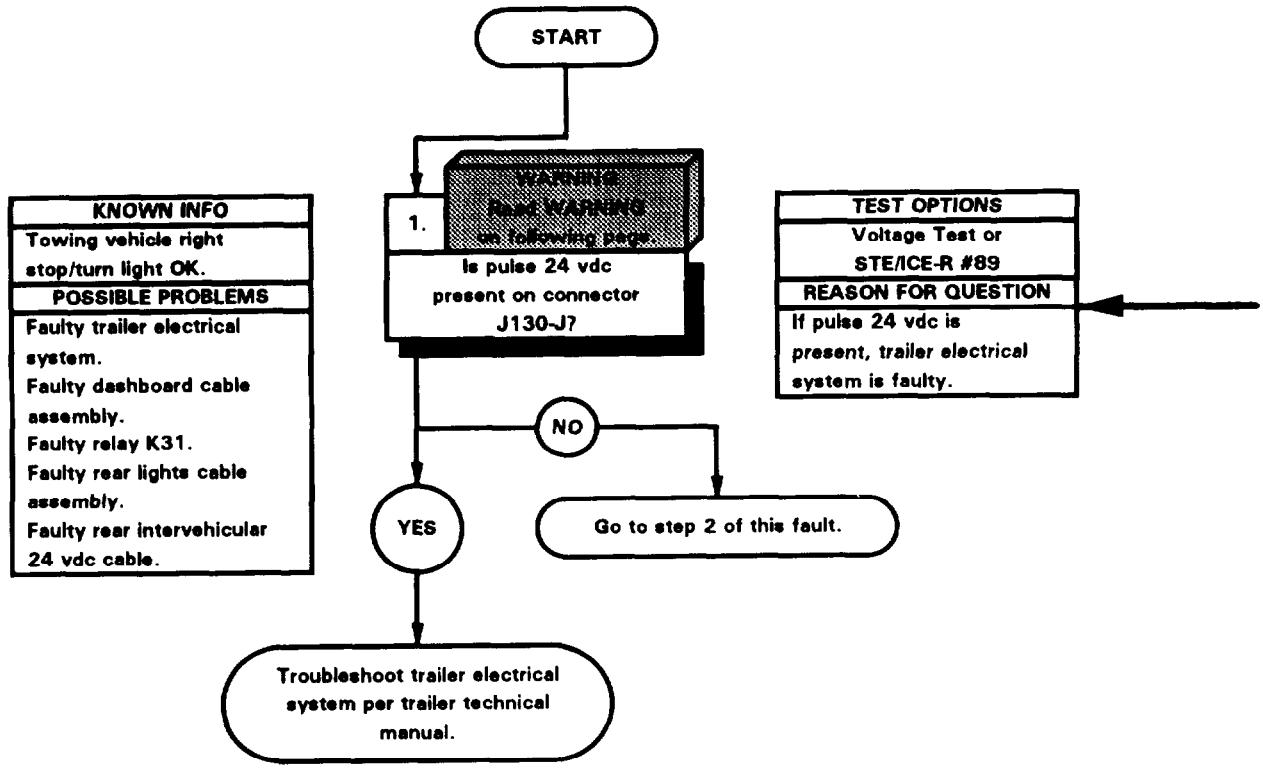


CONTINUITY TEST
(1) Disconnect connector P53R from J53R.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector P51-9.
(4) Connect negative (-) probe of multimeter to connector P53R2 and note reading on multimeter.
(5) If continuity is not present, repair wire 489T (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(6) Connect connector P51 to connector J51.
(7) Install PDP on dashboard with three screws.
(8) Install three washers and screws in PDP.
(9) Install PDP cover (para 16-2).

CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector J53R2.
(3) Connect negative (-) probe of multimeter to connector J130-E and note reading on multimeter.
(4) If continuity is not present, repair wire 489T (para 2-45) or replace rear intervehicular 24 vdc cable (para 7-140).
(5) Connect connector P53 to connector J53.



e66. TRAILER RIGHT STOP/TURN LIGHT DOES NOT OPERATE	
INITIAL SETUP	
Equipment Condition Engine shut down (TM 9-2320-366-10-1).	**Tools and Special Tools** Tool Kit, Genl Mech (Item 46, Appendix C) STE/ICE-R (Item 41, Appendix C) Multimeter, Digital (Item 22, Appendix C)
Personnel Required (2)	**References** TM 9-4910-571-12&P
Materials/Parts Wire, Elect, 50 ft (Item 71, Appendix D)	

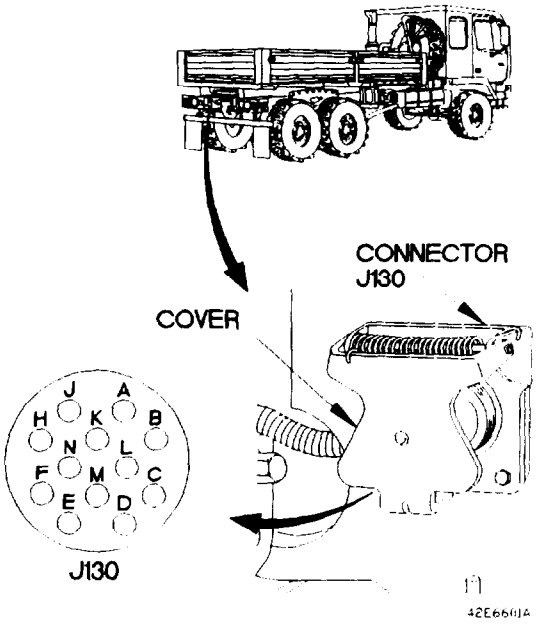


WARNING

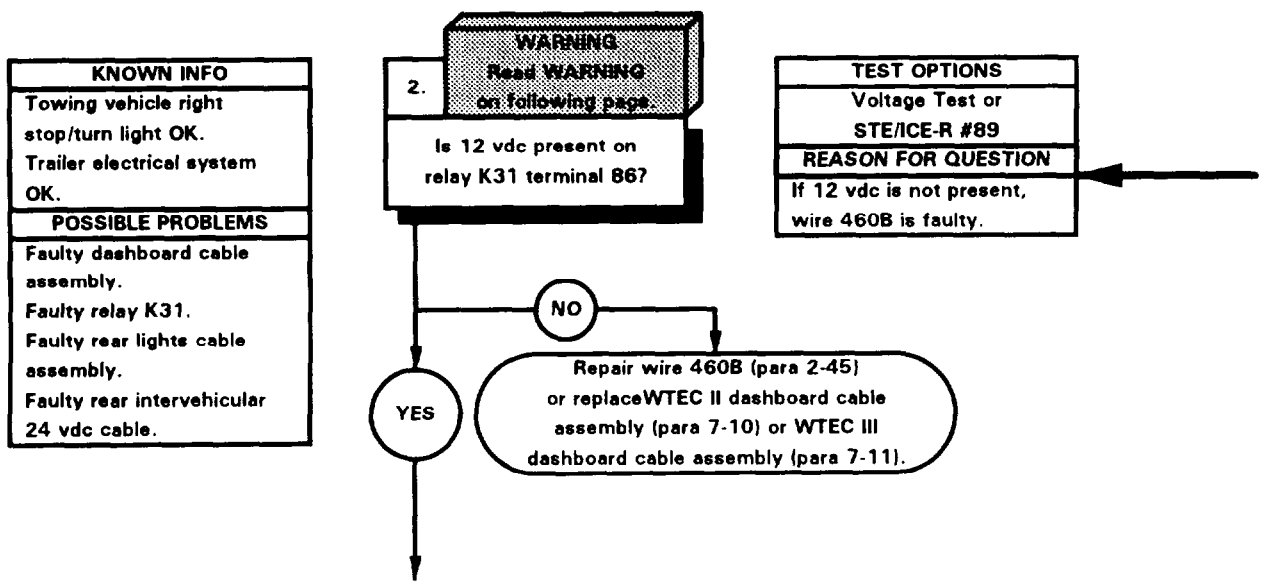
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Lift cover on connector J130 intervehicular 24 vdc connector.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J130-J.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Position turn signal switch to right turn (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc pulse is not present, go to step 2 of this fault.
(8) If 24 vdc pulse is present, troubleshoot trailer electrical system per trailer technical manual.
(9) Position turn signal switch to off (TM 9-2320-366-10-1).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).
(11) Lower cover on connector J130 intervehicular 24 vdc connector.



e66. TRAILER RIGHT STOP/TURN LIGHT DOES NOT ILLUMINATE (CONT)

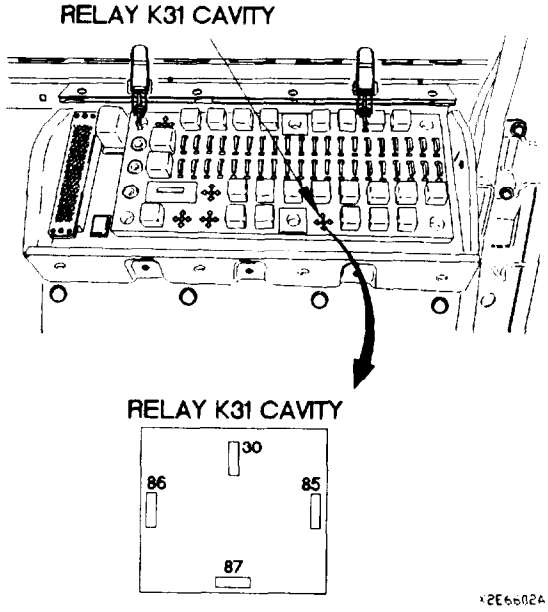


WARNING

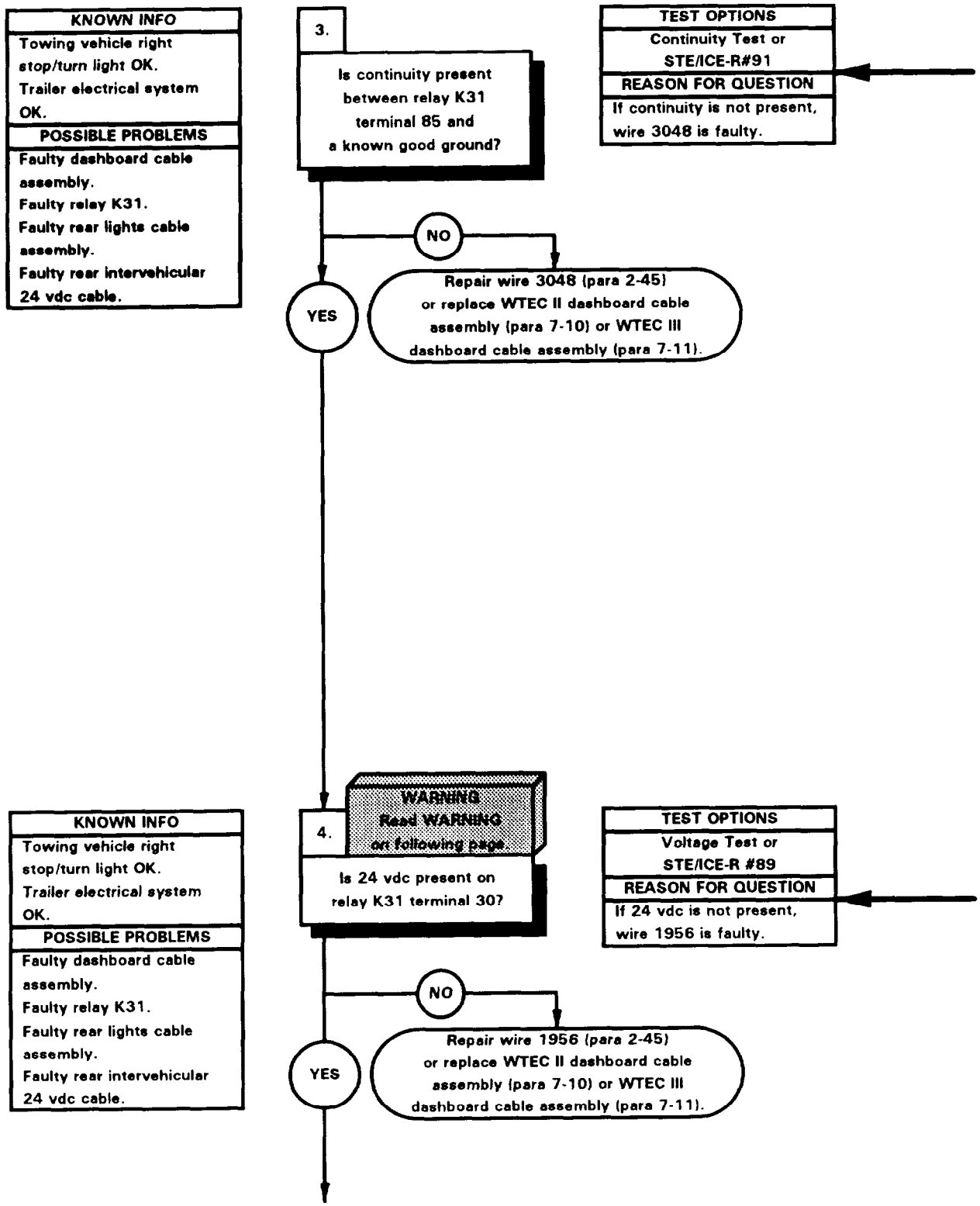
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

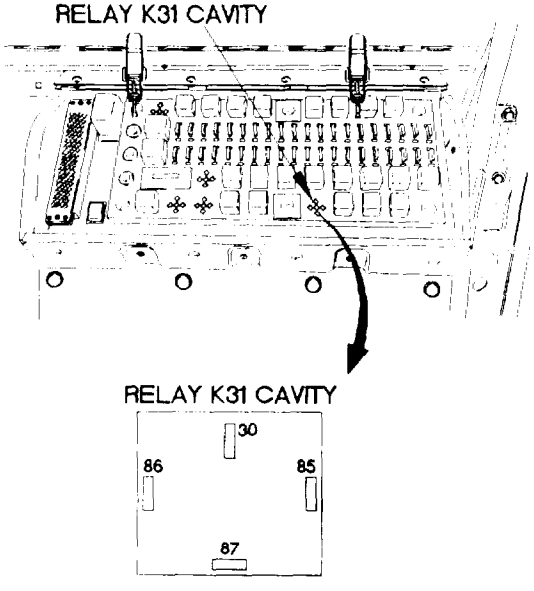
(1) Remove PDP cover (para 16-2).
(2) Remove relay K31 from PDP.
(3) Connect positive (+) probe of multimeter to PDP, terminal 86, where relay K31 was removed.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(7) Apply brakes and note reading on multimeter.
(8) If 12 vdc is not present, repair wire 460B (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).
(10) Position master power switch to off (TM 9-2320-366-10-1).



e66. TRAILER RIGHT STOP/TURN LIGHT DOES NOT ILLUMINATE (CONT)



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, terminal 85, where relay K31 was removed.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3048 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).

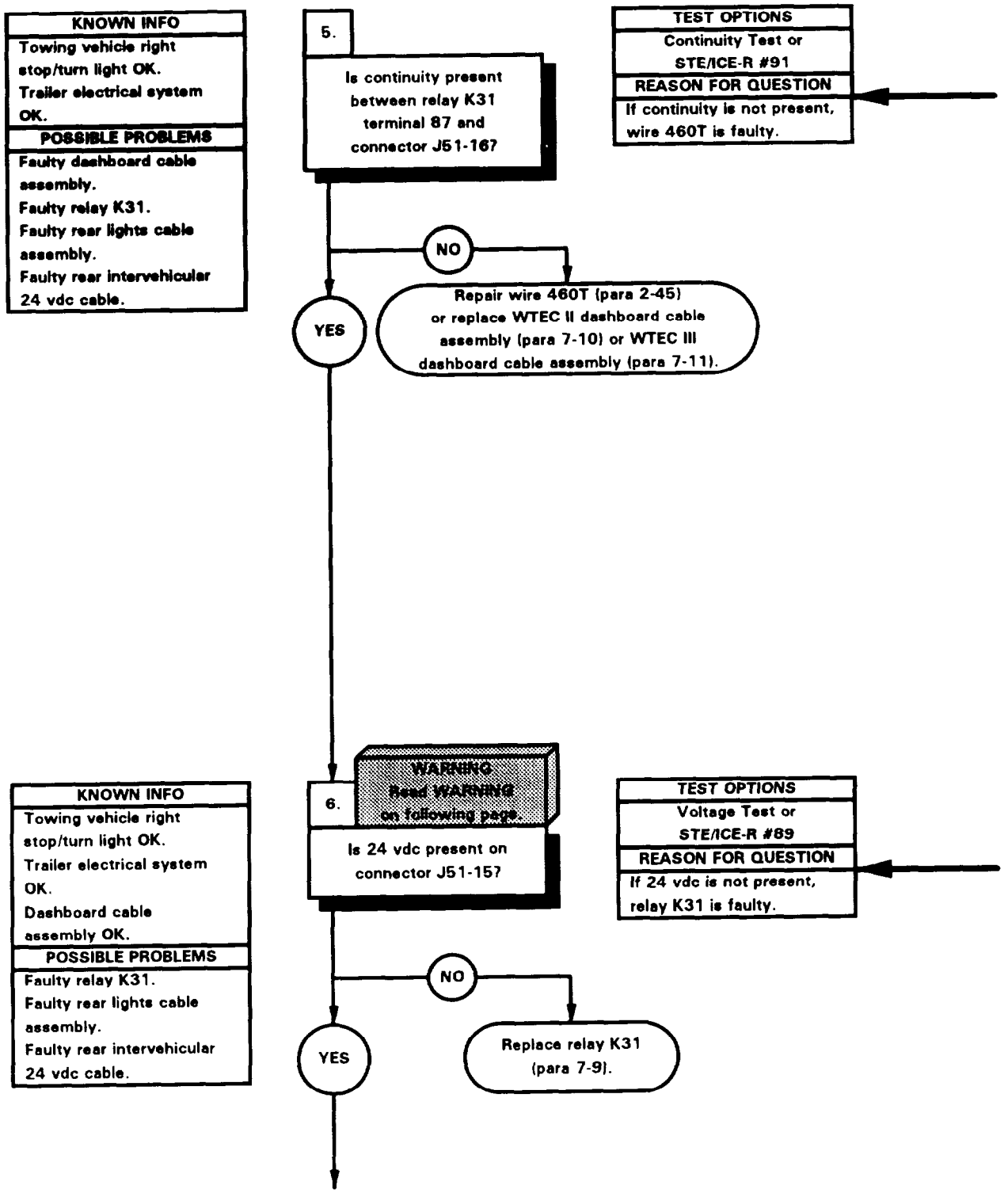


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

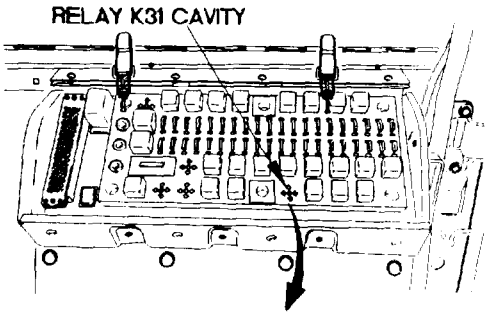
VOLTAGE TEST
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, terminal 30, where relay K31 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1956 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).

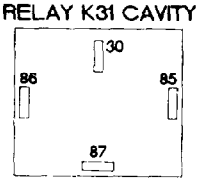
e66. TRAILER RIGHT STOP/TURN LIGHT DOES NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Disconnect connector J51 from connector P51.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to PDP, terminal 87, where relay K31 was removed.
(7) Connect negative (-) probe of multimeter to connector J51-16 and note reading on multimeter.
(8) If continuity is not present, repair wire 460T (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Install relay K31 in PDP.



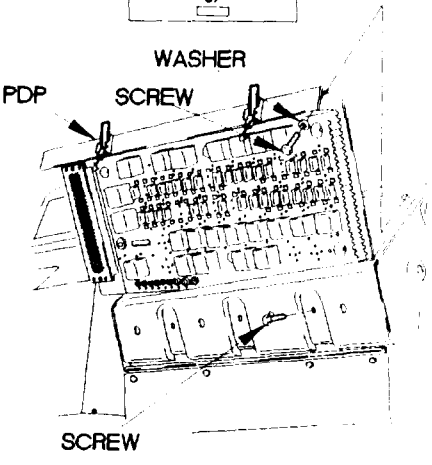


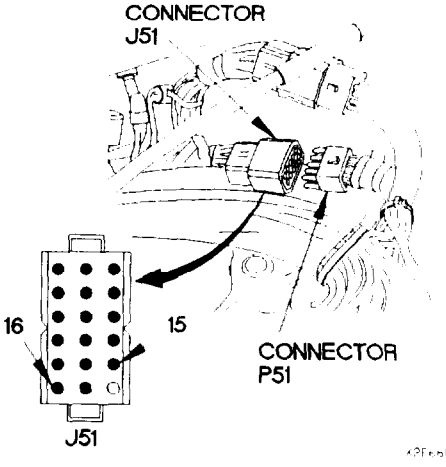
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

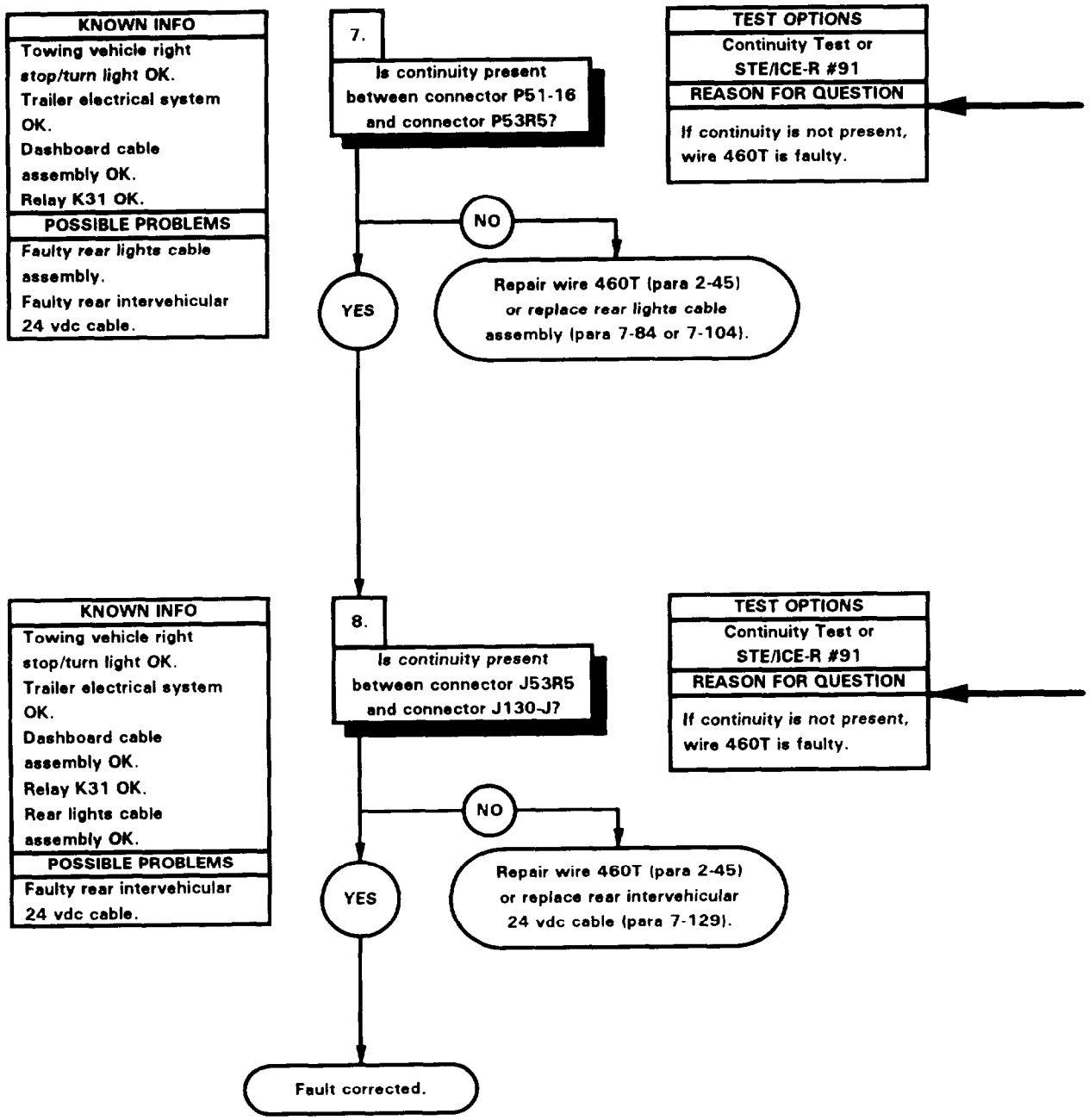
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to connector J51-15.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1).
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Apply brakes and note reading on multimeter.
(7) If 12 vdc is not present, replace relay K31 (para 7-9).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).
(9) Position master power switch to off (TM 9-2320-366-10-1).



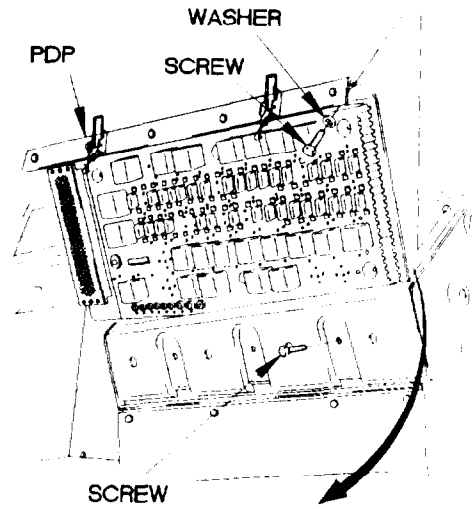


e66. TRAILER RIGHT STOP/TURN LIGHT DOES NOT ILLUMINATE (CONT)



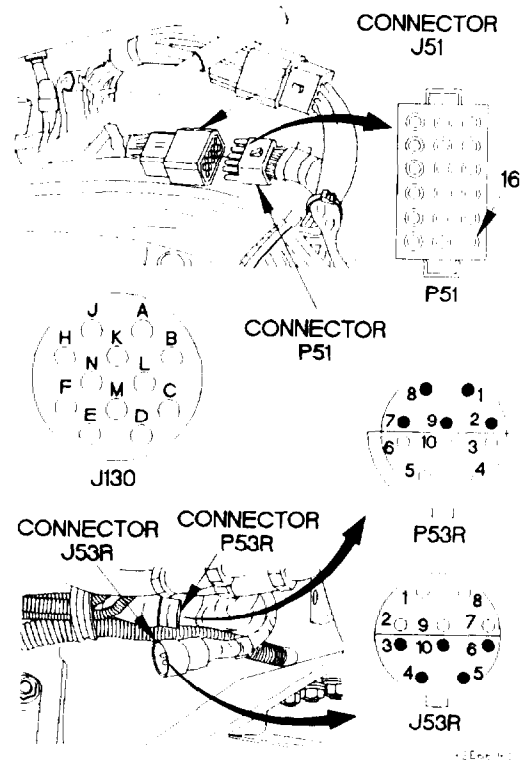
CONTINUITY TEST

(1) Disconnect connector P53R from J53R.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector P51-16.
(4) Connect negative (-) probe of multimeter to connector P53R5 and note reading on multimeter.
(5) If continuity is not present, repair wire 460T (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(6) Connect connector P51 to connector J51.
(7) Install PDP on dashboard with three screws.
(8) Install three washers and screws in PDP.
(9) Install PDP cover (para 16-2).

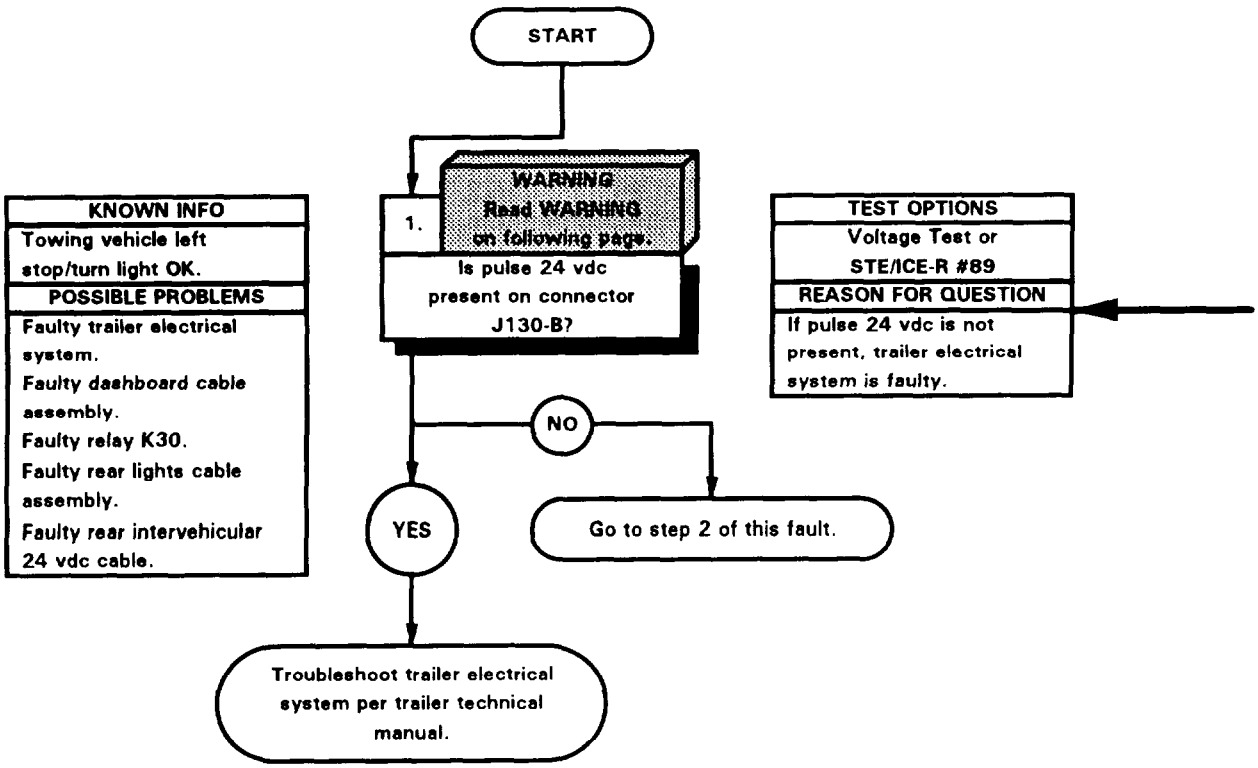


CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector J53R5.
(3) Connect negative (-) probe of multimeter to connector J130-J and note reading on multimeter.
(4) If continuity is not present, repair wire 460T (para 2-45) or replace rear intervehicular 24 vdc cable (para 7-129).
(5) Connect connector P53R to connector J53R.



e67. TRAILER LEFT STOP/TURN LIGHT DOES NOT OPERATE	
INITIAL SETUP	
Equipment Condition Engine shut down (TM 9-2320-366-10-1).	**Tools and Special Tools** Tool Kit, Genl Mech (Item 46, Appendix C) STE/ICE-R (Item 41, Appendix C) Multimeter, Digital (Item 22, Appendix C)
Personnel Required (2)	**References** TM 9-4910-571-12&P
Materials/Parts Wire, Elect, 50 ft (Item 71, Appendix D)	

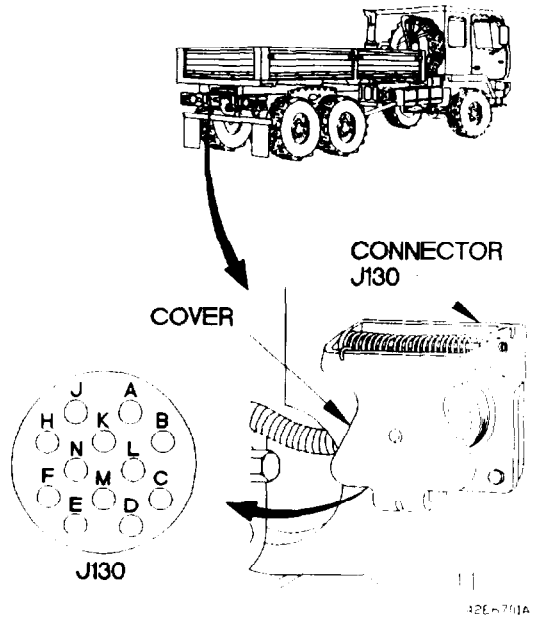


WARNING

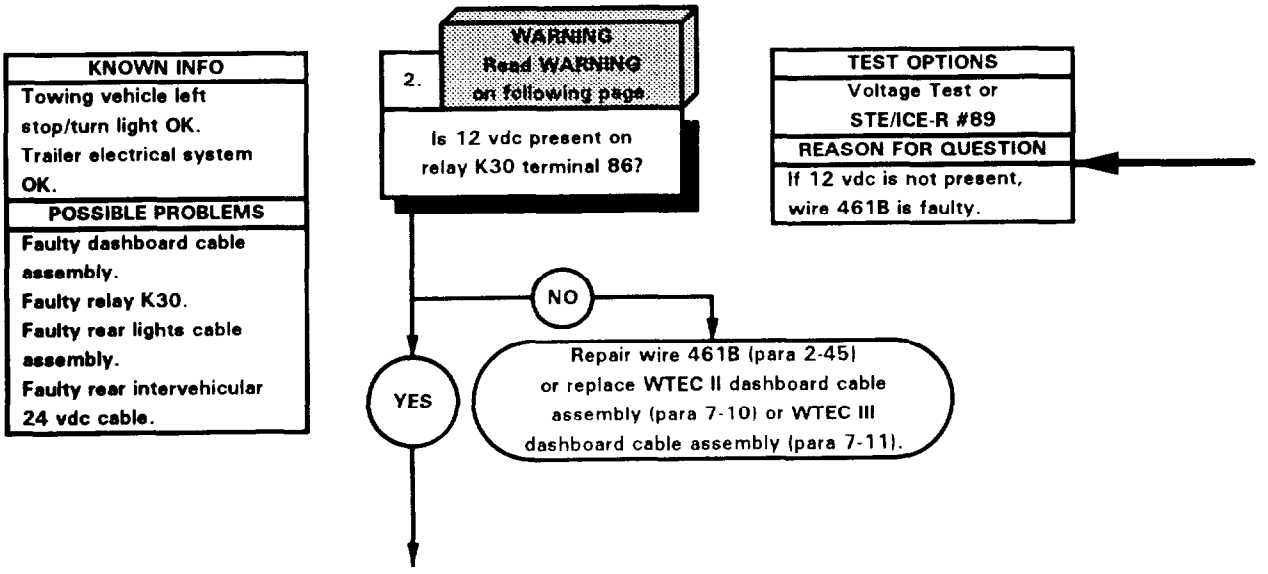
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Lift cover on connector J130 intervehicular 24 vdc connector.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J130-B.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Position turn signal switch to left turn (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc pulse is not present, go to step 2 of this fault.
(8) If 24 vdc pulse is present, troubleshoot trailer electrical system per trailer technical manual.
(9) Position turn signal switch to off (TM 9-2320-366-10-1).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).
(11) Lower cover on connector J130 intervehicular 24 vdc connector.



e67. TRAILER LEFT STOP/TURN LIGHT DOES NOT ILLUMINATE (CONT)

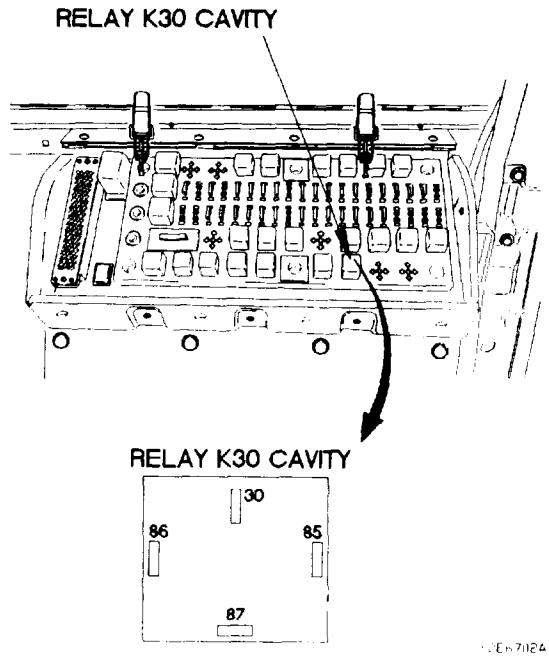


WARNING

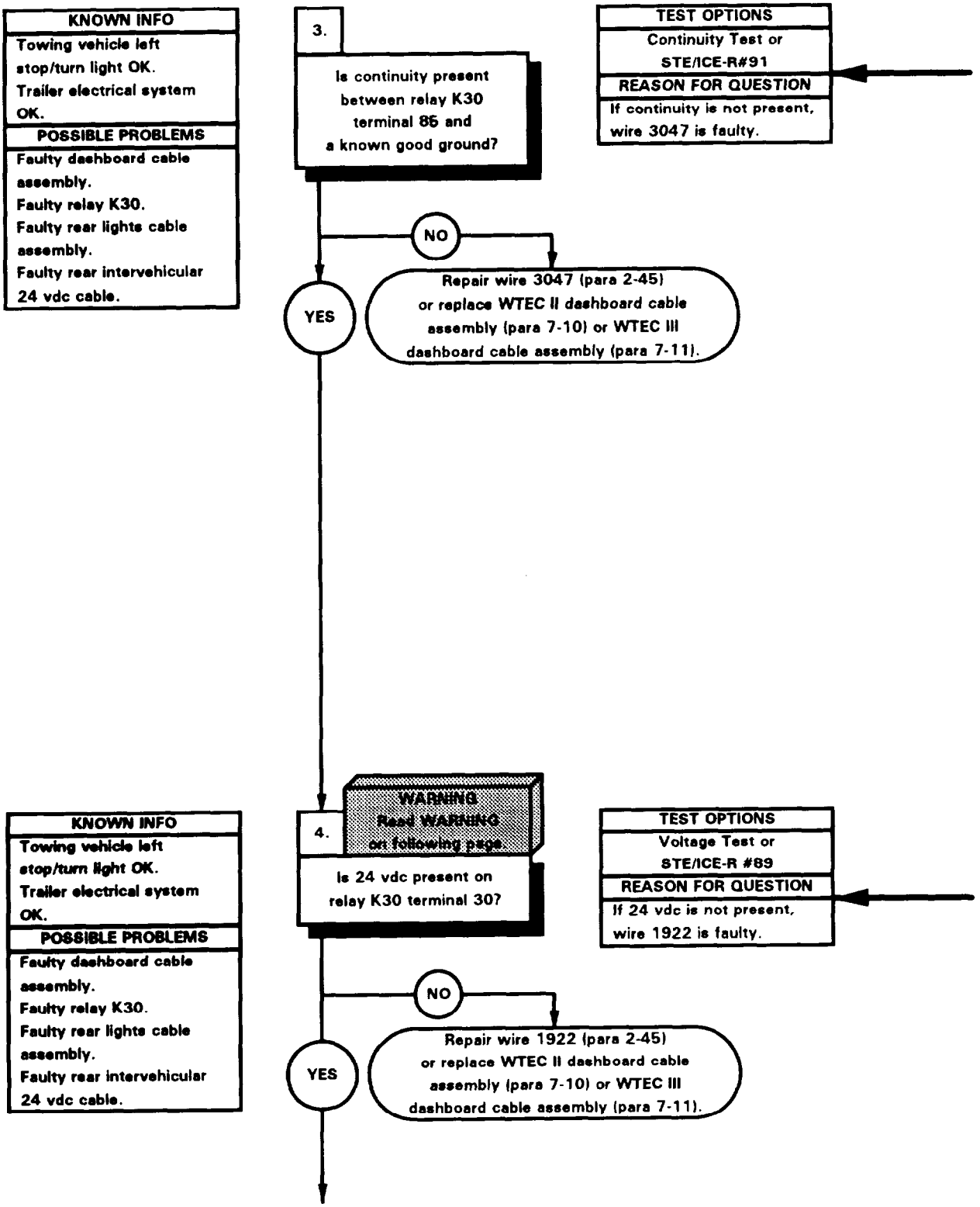
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove relay K30 from PDP.
(3) Connect positive (+) probe of multimeter to PDP, terminal 86, where relay K30 was removed.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(7) Apply brakes and note reading on multimeter.
(8) If 12 vdc is not present, repair wire 461B (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position main light switch to OFF (TM 9-2320-366-10-1).
(10) Position master power switch to off (TM 9-2320-366-10-1).

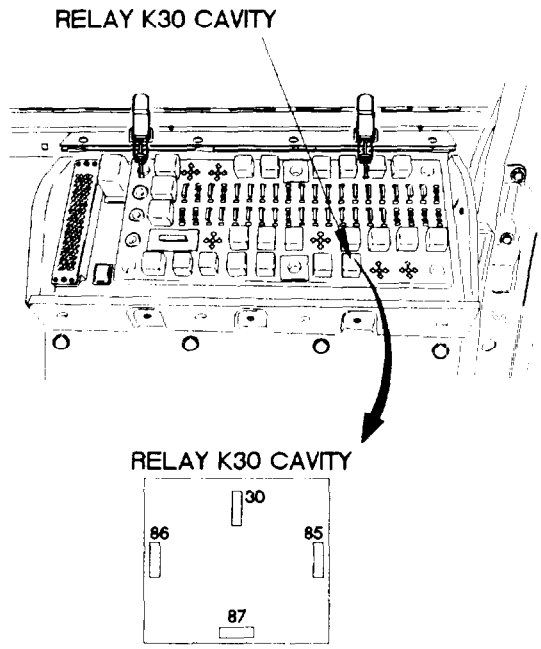


e67. TRAILER LEFT STOP/TURN LIGHT DOES NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, terminal 85, where relay K30 was removed.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3047 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



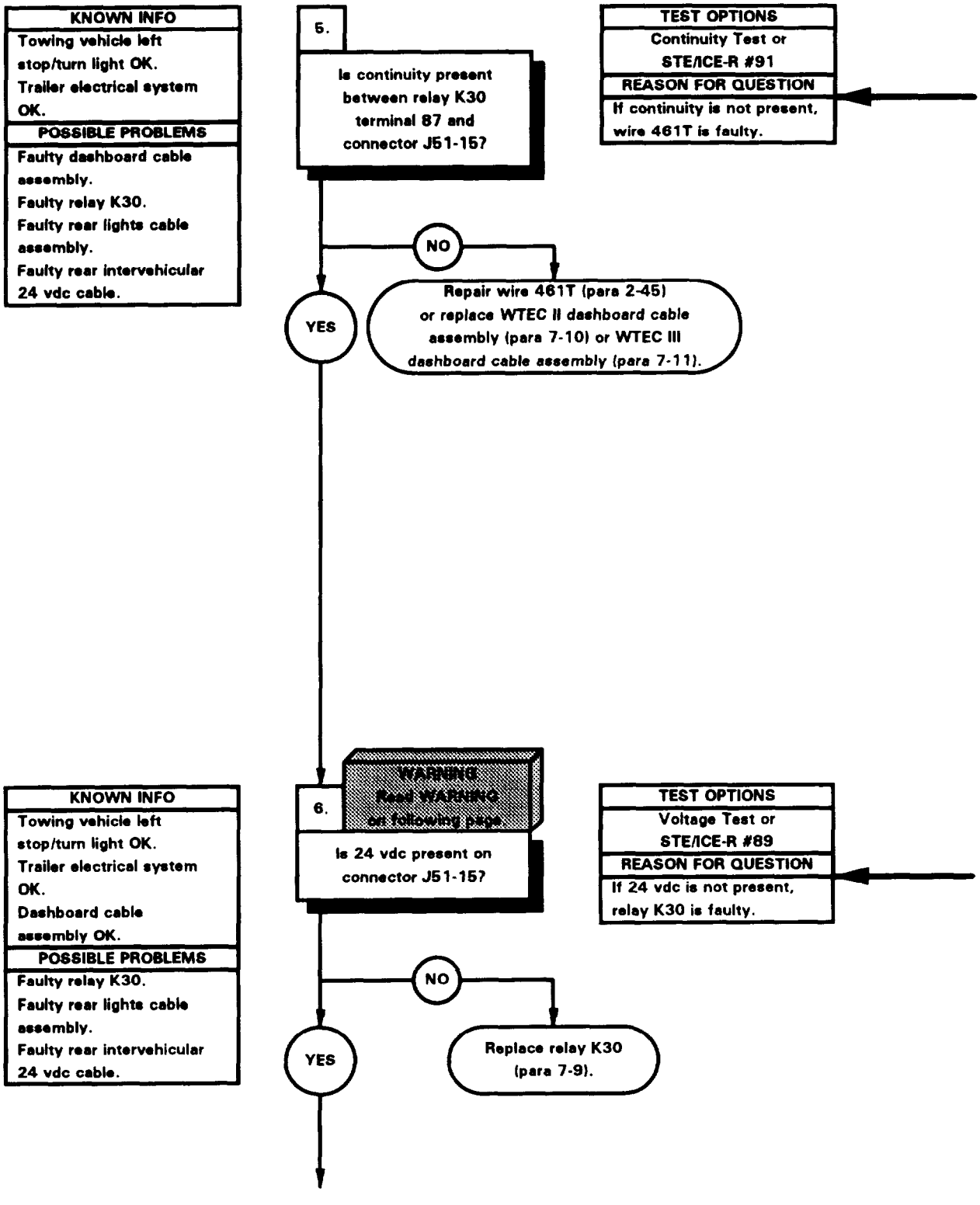
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

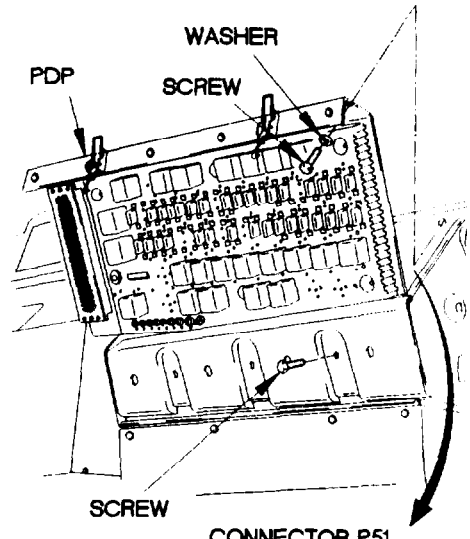
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to power distribution terminal 30, panel where relay K30 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1922 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-14) or WTEC III dashboard cable assembly (para 7-14A).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).

e67. TRAILER LEFT STOP/TURN LIGHT DOES NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Disconnect connector J51 from connector P51.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to PDP, terminal 87, where relay K30 was removed.
(7) Connect negative (-) probe of multimeter to connector J51-15 and note reading on multimeter.
(8) If continuity is not present, repair wire 461T (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Install relay K30 in PDP.

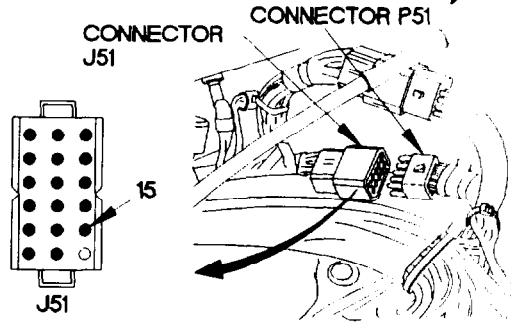


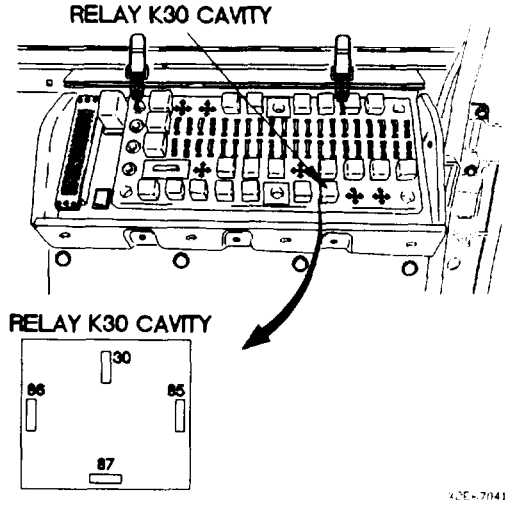
WARNING

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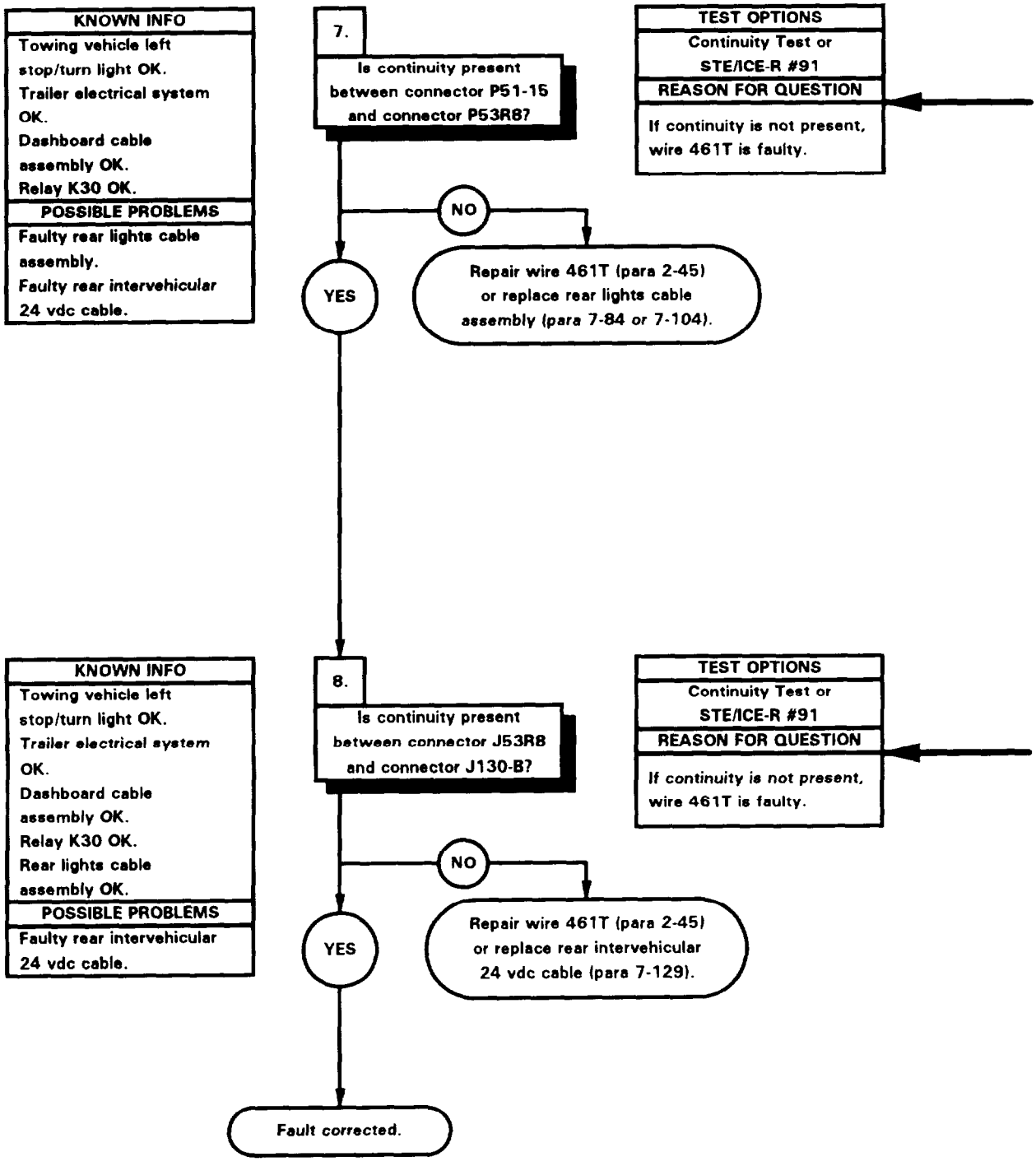
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to connector J51-15.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1).
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Apply brakes and note reading on multimeter.
(7) If 24 vdc is not present, replace relay K30 (para 7-9).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).
(9) Position master power switch to off (TM 9-2320-366-10-1).



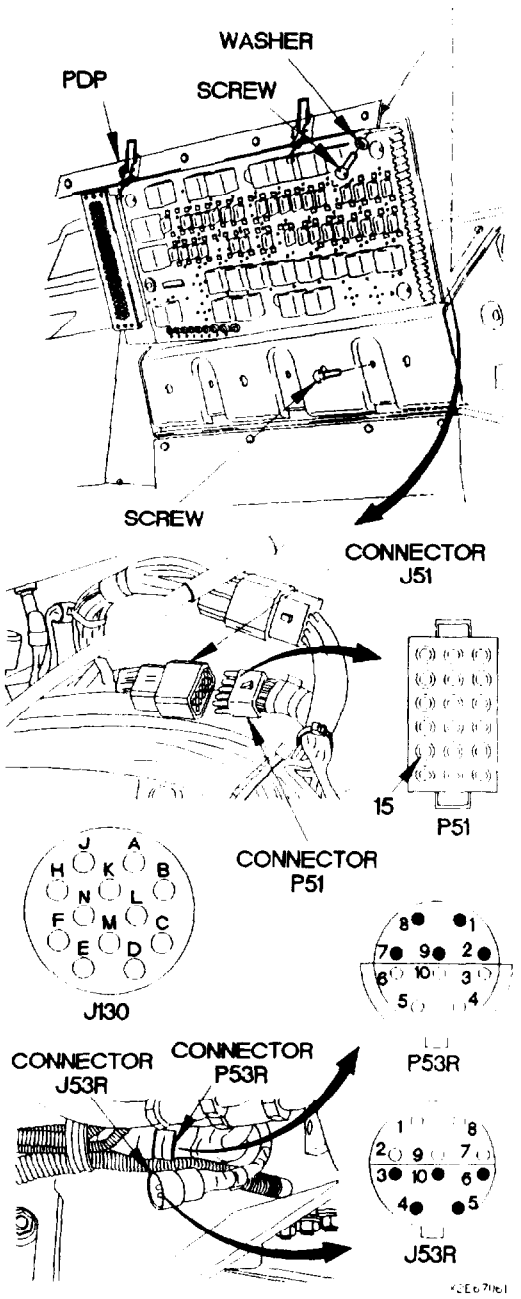


e67. TRAILER LEFT STOP/TURN LIGHT DOES NOT ILLUMINATE (CONT)



CONTINUITY TEST
(1) Disconnect connector P53R from J53R.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector P51-15.
(4) Connect negative (-) probe of multimeter to connector P53R8 and note reading on multimeter.
(5) If continuity is not present, repair wire 461T (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(6) Connect connector P51 to connector J51.
(7) Install PDP on dashboard with three screws.
(8) Install three washers and screws in PDP.
(9) Install PDP cover (para 16-2).

CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector J53R8.
(3) Connect negative (-) probe of multimeter to connector J130-B and note reading on multimeter.
(4) If continuity is not present, repair wire 461T (para 2-45) or replace rear intervehicular 24 vdc cable (para 7-129).
(5) Connect connector P53R to connector J53R.



c88. TRAILER BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE

INITIAL SETUP

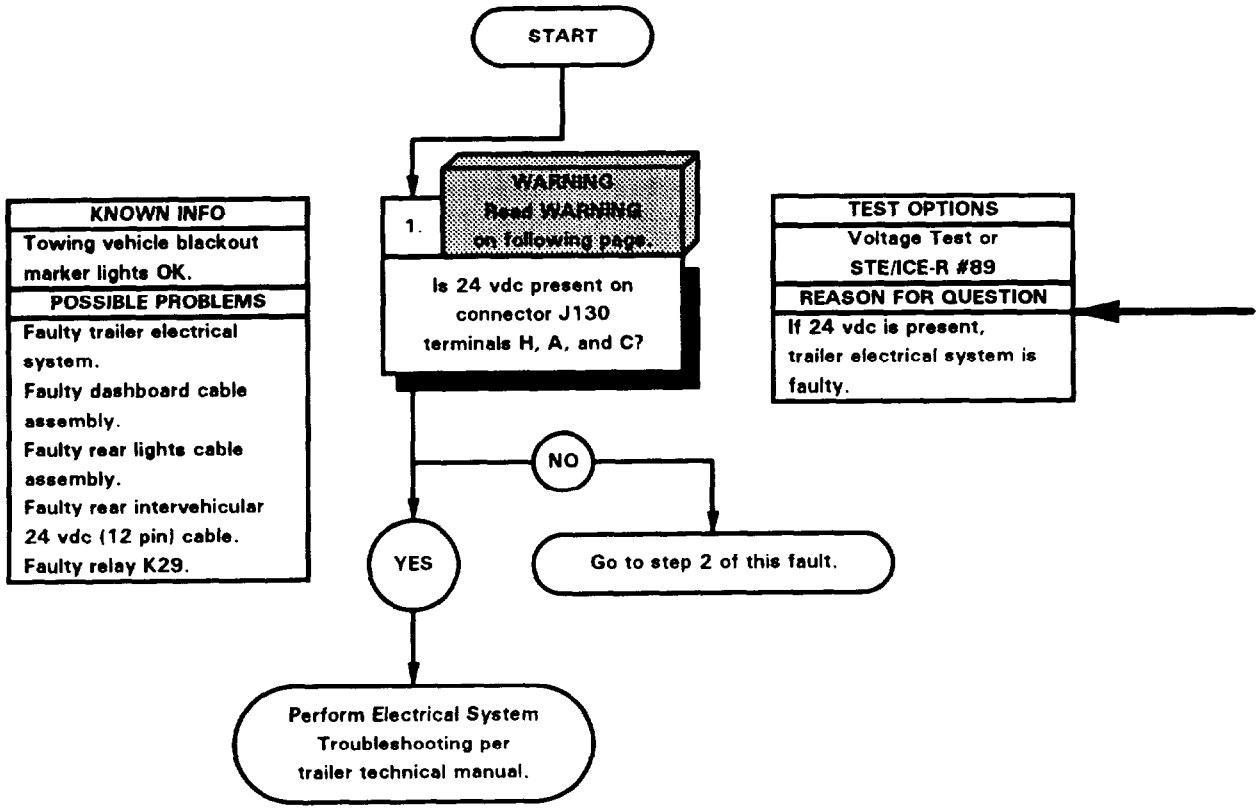
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Wire, Elect, 50 ft (Item 71, Appendix D)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

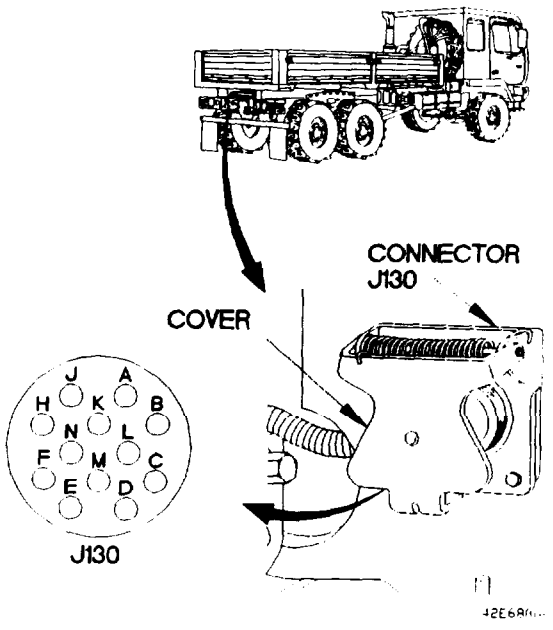


WARNING

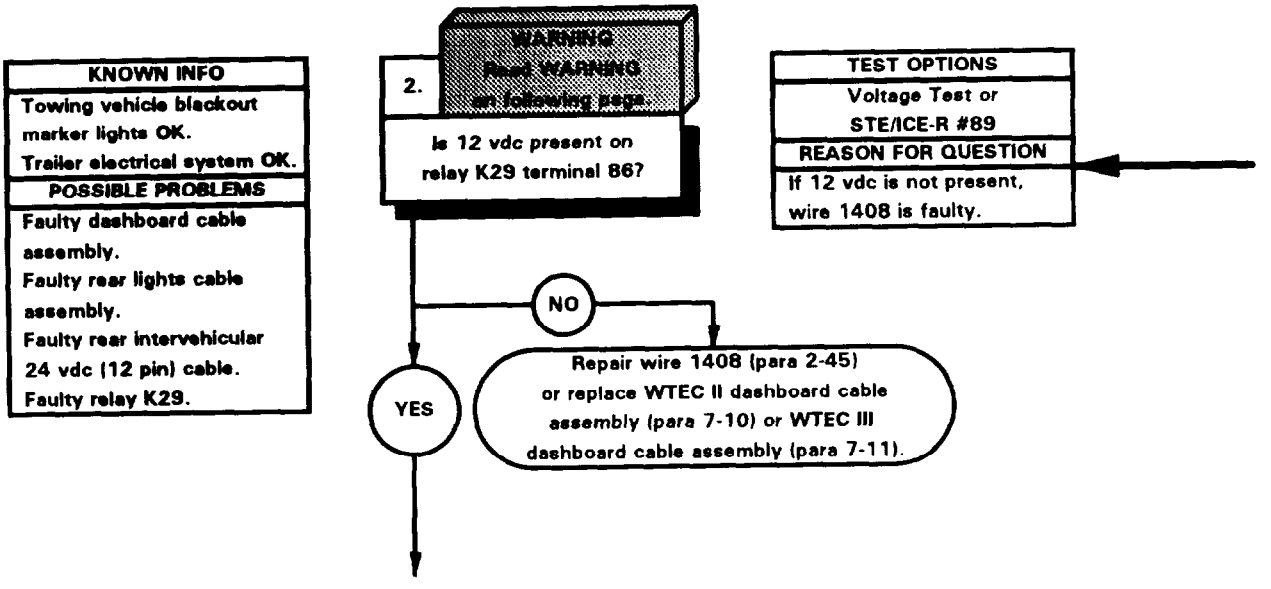
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Raise cover on connector J130 intervehicular 24 vdc connector.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J130 terminal H, terminal A and terminal C, one terminal at a time.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to BO MARKER (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, go to step 2 of this fault.
(7) If 24 vdc is present, perform Electrical System Troubleshooting per trailer technical manual.
(8) Position main light switch to OFF (TM 9-2320-366-10-1).



e68. TRAILER BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE (CONT)

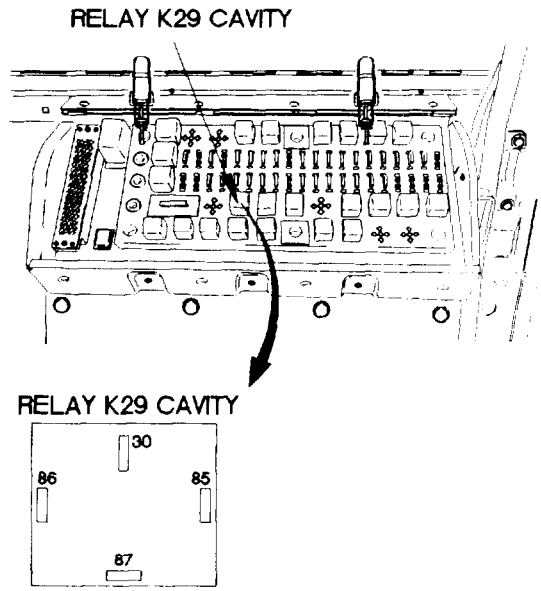


WARNING

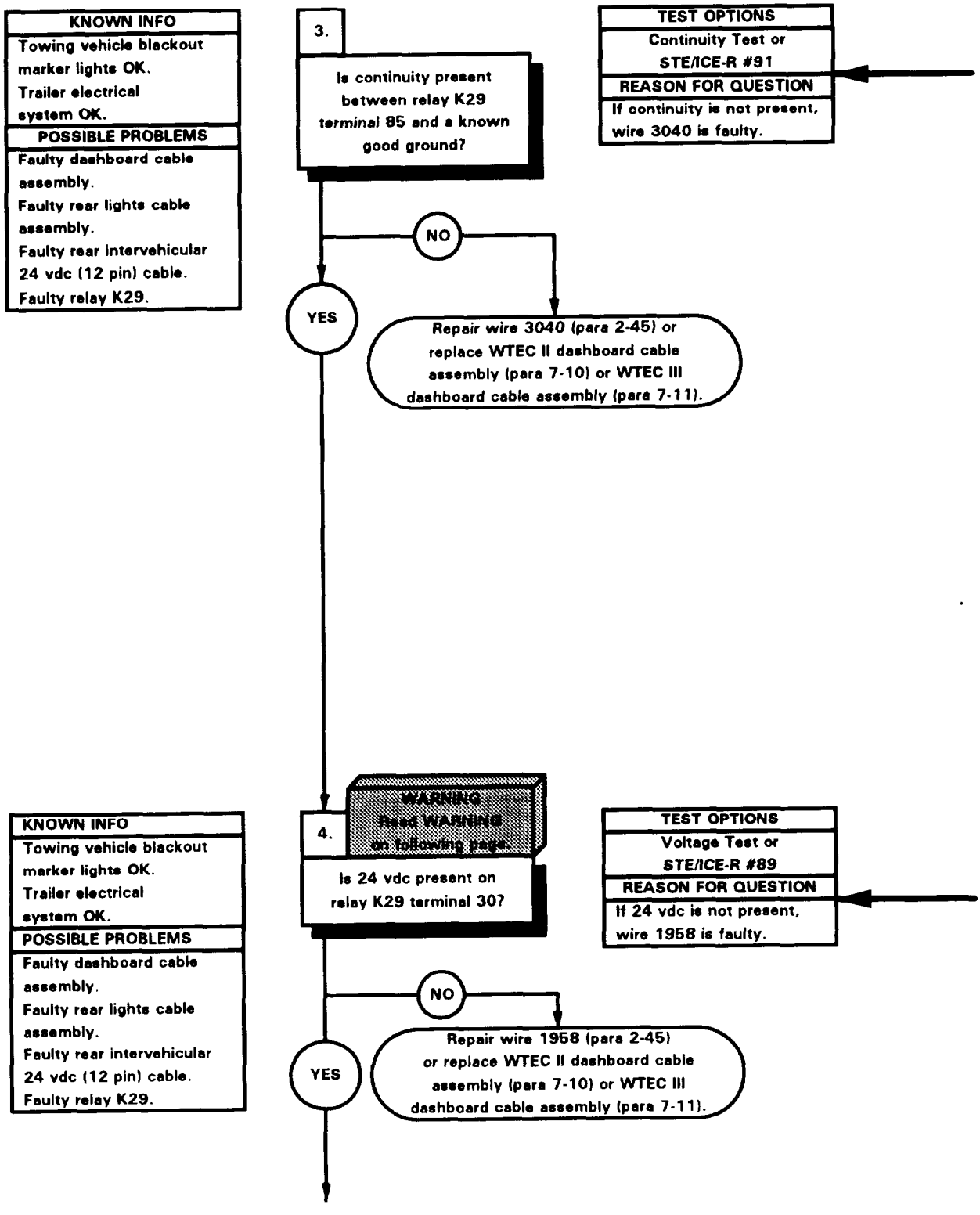
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove relay K29 from PDP.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to PDP, terminal 86, where relay K29 was removed.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position main light switch to BO MARKER (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, repair wire 1408 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).

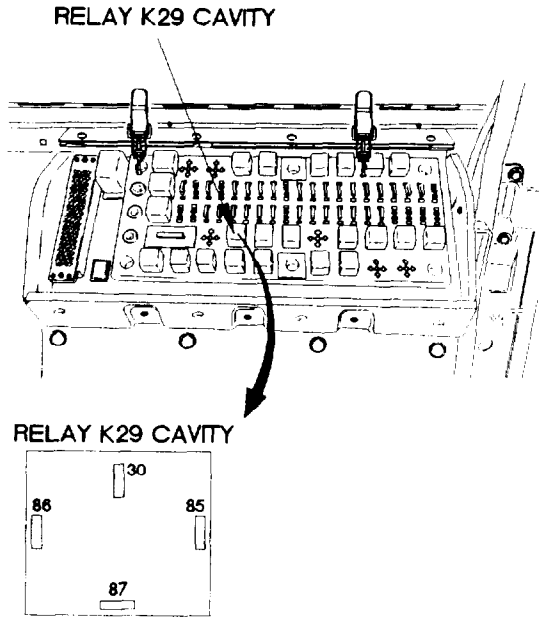


e68. TRAILER BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, terminal 85, where relay K29 was removed.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3040 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



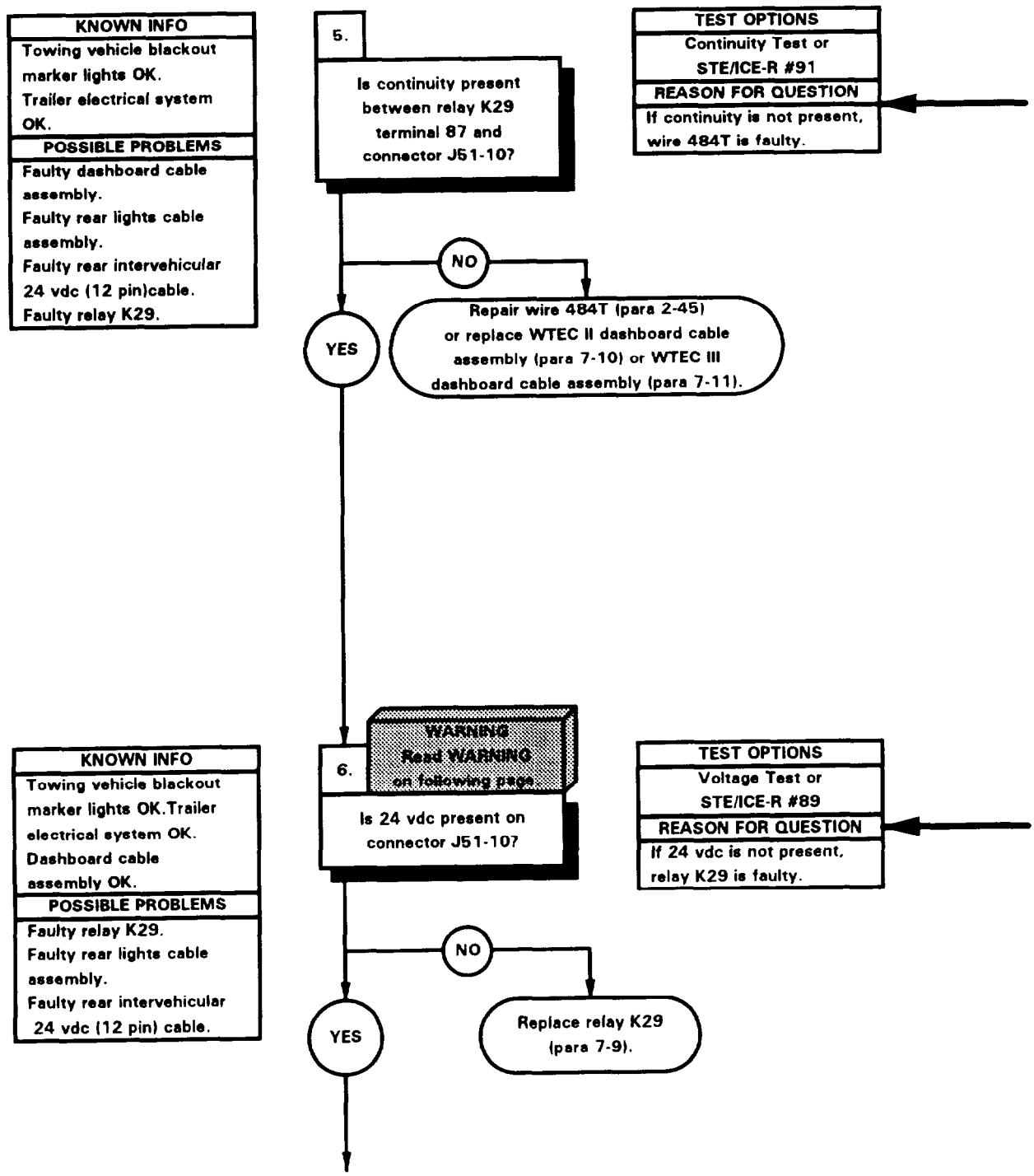
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

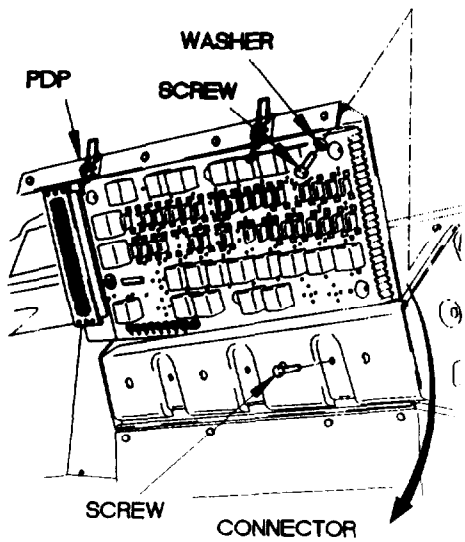
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, terminal 30, where relay K29 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to BO MARKER (TM 9-2320-366-10) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 1958 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).

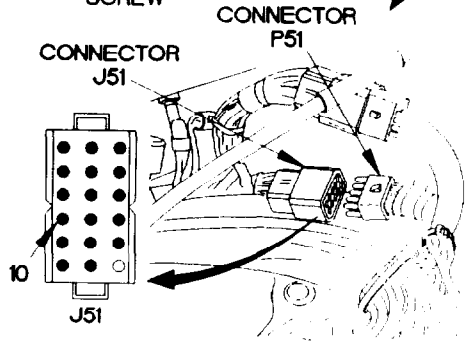
e68. TRAILER BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Disconnect connector J51 from connector P51.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to PDP, terminal 87, where relay K29 was removed.
(7) Connect negative (-) probe of multimeter to connector J51-10 and note reading on multimeter.
(8) If continuity is not present, repair wire 484T (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Install relay K29 in PDP.



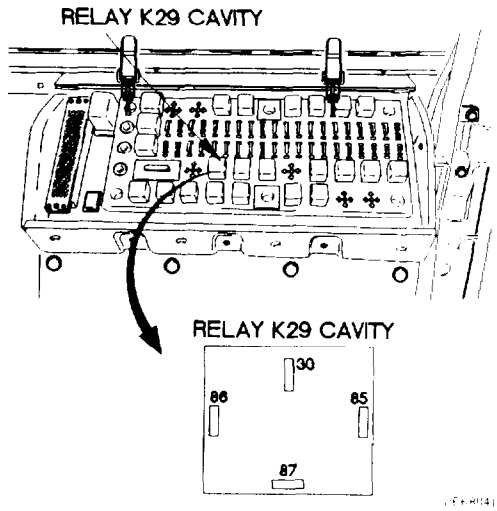


WARNING

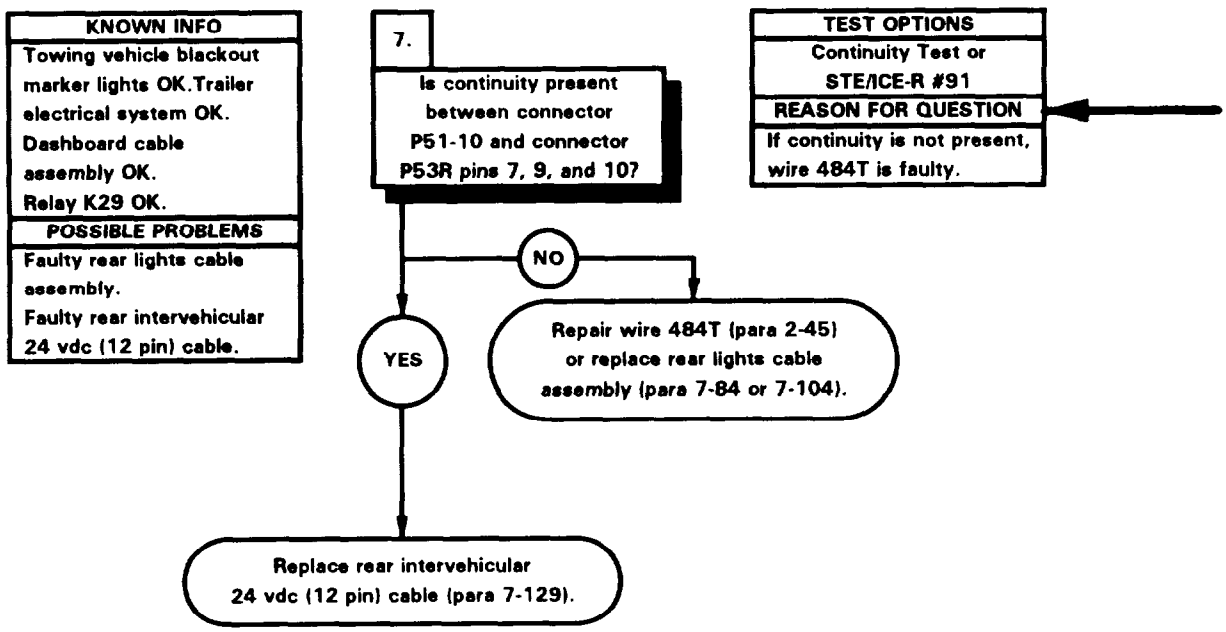
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

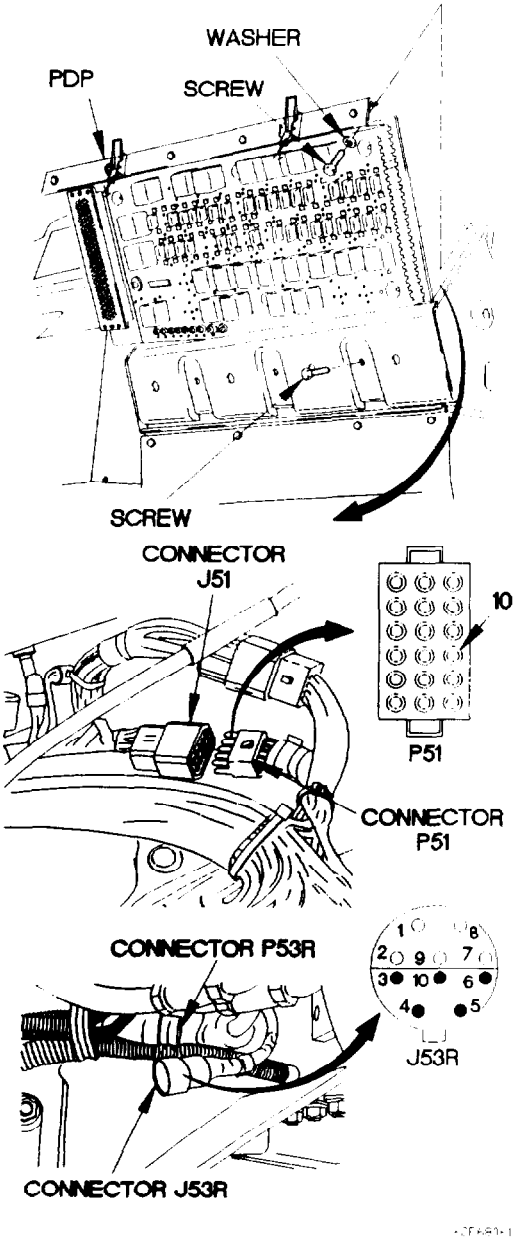
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to connector J51-10.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to BO MARKER (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, replace relay K29 (para 7-9).
(6) Position main light switch to OFF (TM 9-2320-366-10-1).



e68. TRAILER BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Disconnect connector P53R from connector J53R.
(3) Connect positive (+) probe of multimeter to connector P51-10.
(4) Connect negative (-) probe of multimeter to connector P53R-7 and note reading on multimeter.
(5) Connect positive (+) probe of multimeter to connector P51-10.
(6) Connect negative (-) probe of multimeter to connector P53R-9 and note reading on multimeter.
(7) Connect positive (+) probe of multimeter to connector P51-10.
(8) Connect negative (-) probe of multimeter to connector P53R-10 and note reading on multimeter.
(9) If continuity is not present, repair wire 484T (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(10) If continuity is present, replace rear intervehicular 24 vdc (12 pin) cable (para 7-129).
(11) Connect connector P51 to connector J51.
(12) Install PDP on dashboard with three screws.
(13) Install three washers and screws in PDP.
(14) Install PDP cover (para 16-2).



e69. TRAILER BLACKOUT STOP LIGHTS DO NOT ILLUMINATE

INITIAL SETUP

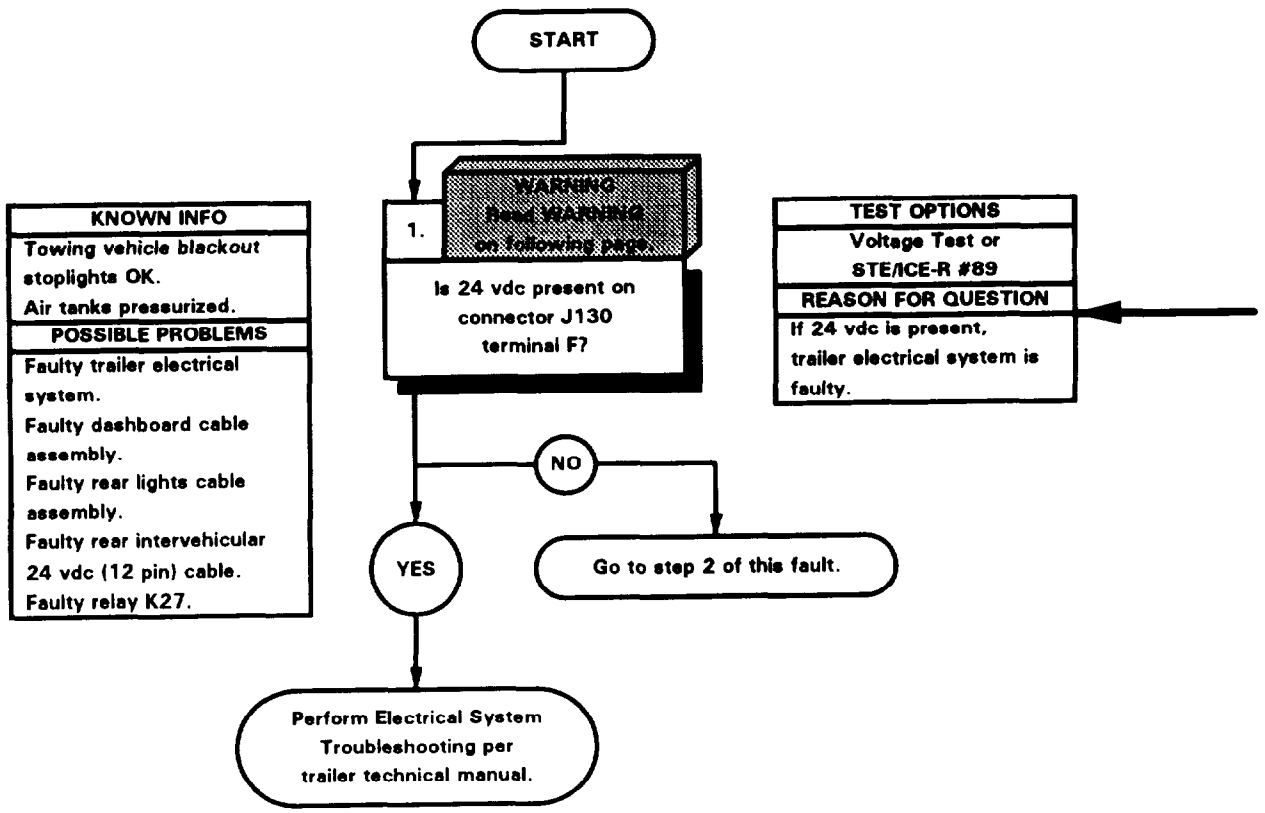
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Materials/Parts
Wire, Elect, 50 ft (Item 71, Appendix D)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

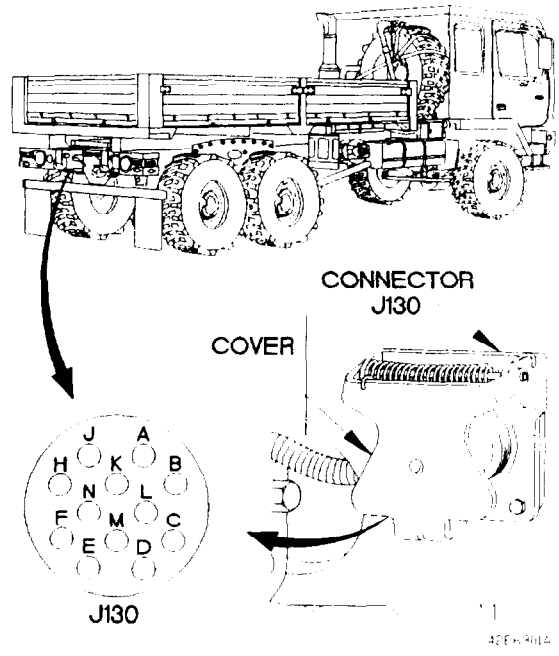


WARNING

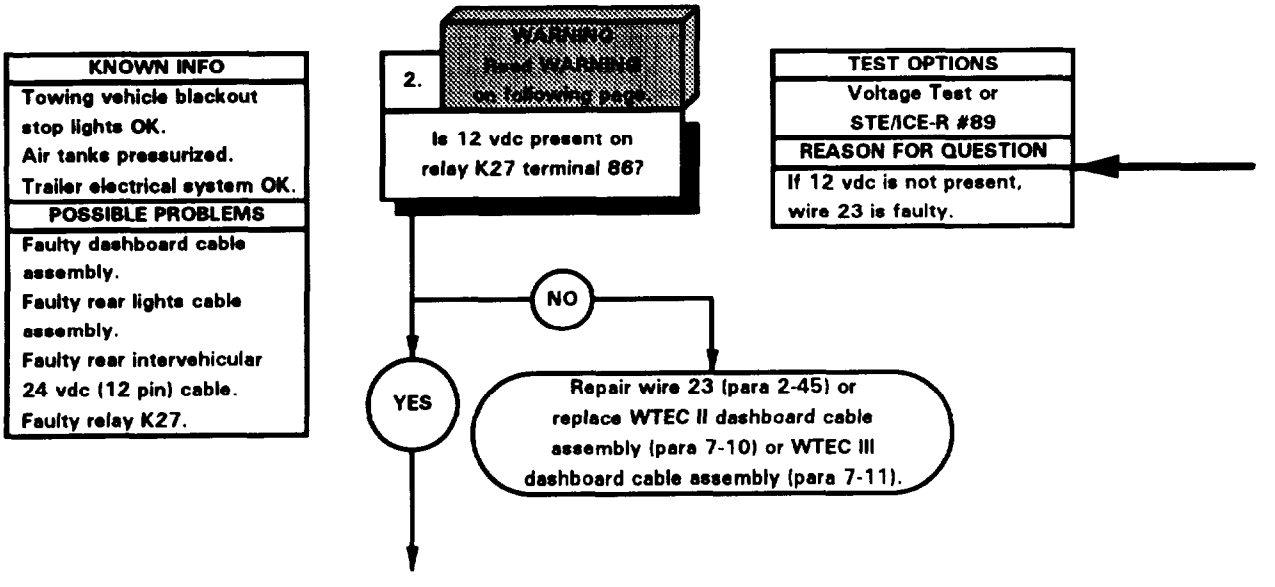
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Raise cover on connector J130 intervehicular 24 vdc connector.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J130 terminal F.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Position main light switch to BO DRIVE (TM 9-2320-366-10-1).
(7) Apply brakes (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, go to step 2 of this fault.
(9) If 24 vdc is present, perform Electrical System Troubleshooting per trailer technical manual.
(10) Position main light switch to OFF (TM 9-2320-366-10-1).
(11) Position master power switch to off (TM 9-2320-366-10-1).



e69. TRAILER BLACKOUT STOP LIGHTS DO NOT ILLUMINATE (CONT)

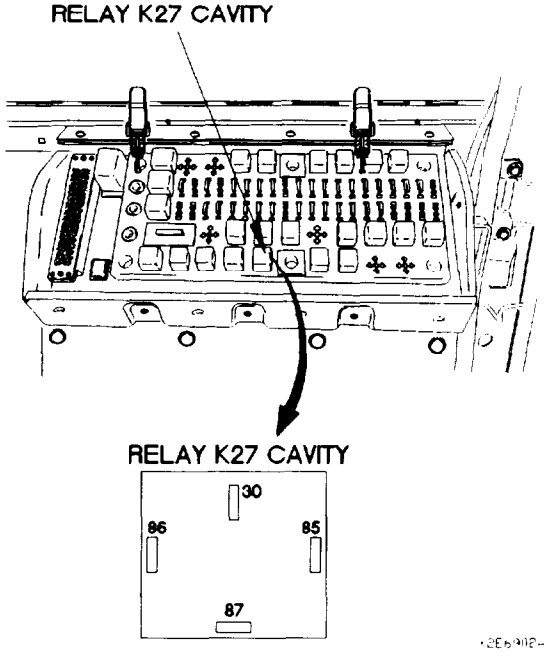


WARNING

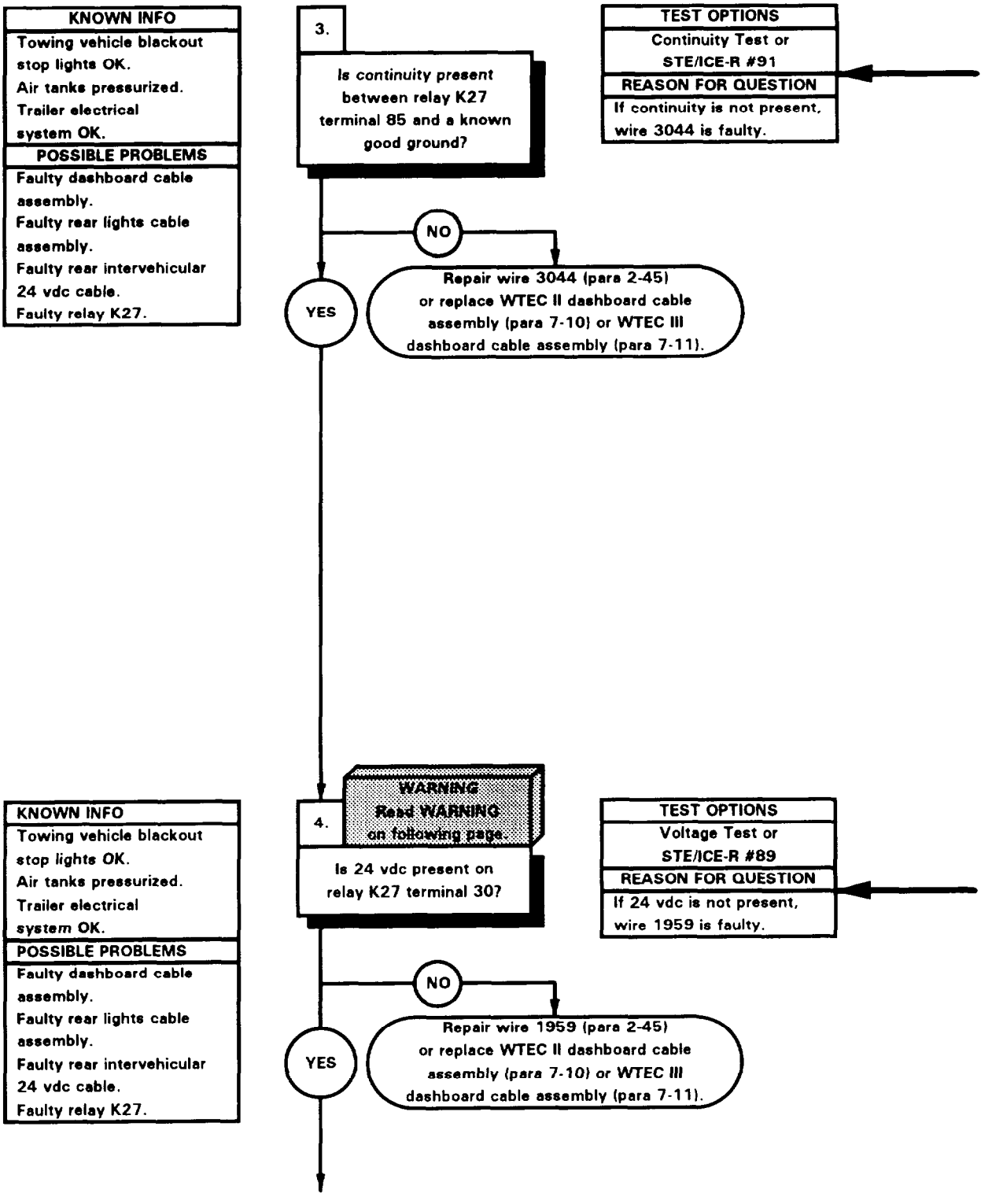
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove relay K27 from PDP.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to PDP, terminal 86, where relay K27 was removed.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1).
(7) Position main light switch to BO DRIVE (TM 9-2320-366-10-1).
(8) Apply brakes (TM 9-2320-366-10-1) and note reading on multimeter.
(9) If 12 vdc is not present, repair wire 23 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).
(11) Position master power switch to off (TM 9-2320-366-10-1).

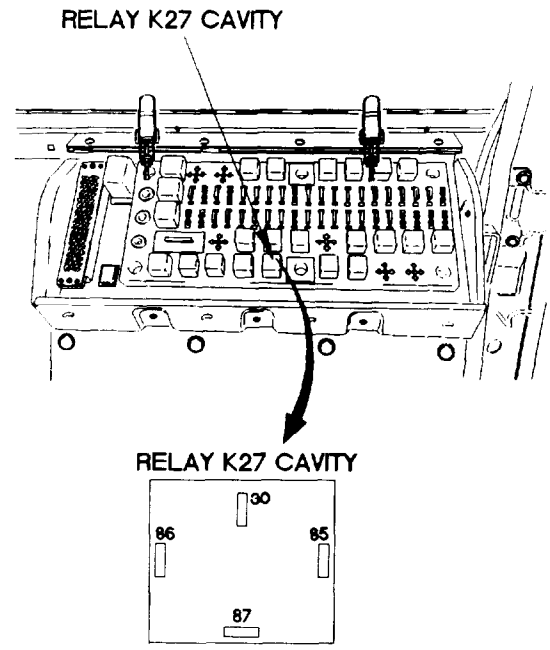


e69. TRAILER BLACKOUT STOP LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, terminal 85, where relay K27 was removed.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3044 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).



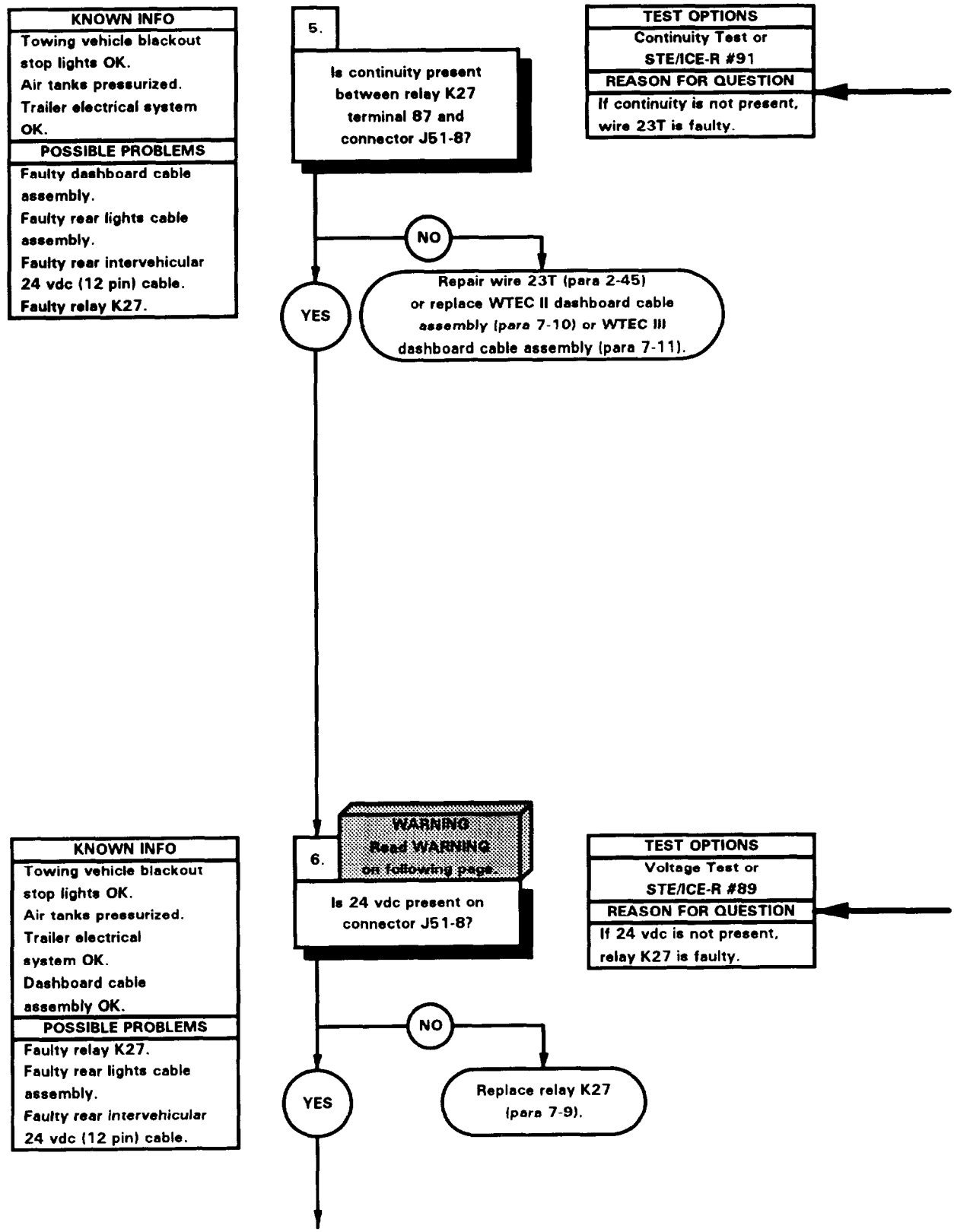
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

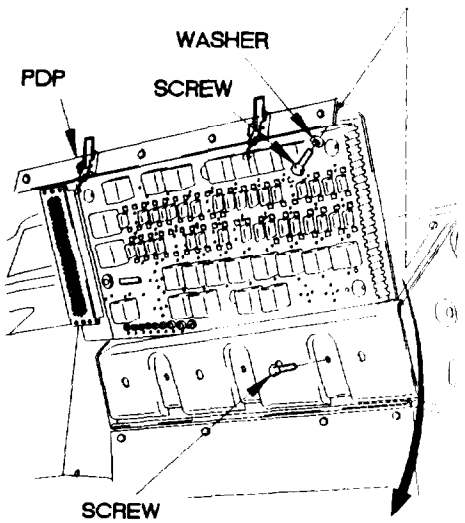
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, terminal 30,where relay K27 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1).
(5) Position main light switch to BO DRIVE (TM 9-2320-366-10-1).
(6) Apply brakes (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, repair wire 1959 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).
(9) Position master power switch to off (TM 9-2320-366-10-1).

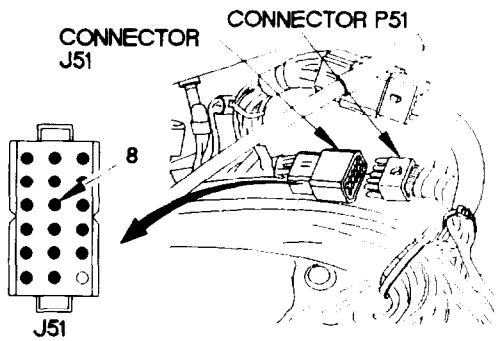
e69. TRAILER BLACKOUT STOP LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Disconnect connector J51 from connector P51.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to PDP, where relay K27 terminal 87 was removed.
(7) Connect negative (-) probe of multimeter to connector J51-8 and note reading on multimeter.
(8) If continuity is not present, repair wire 23T (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Install relay K27 in PDP.



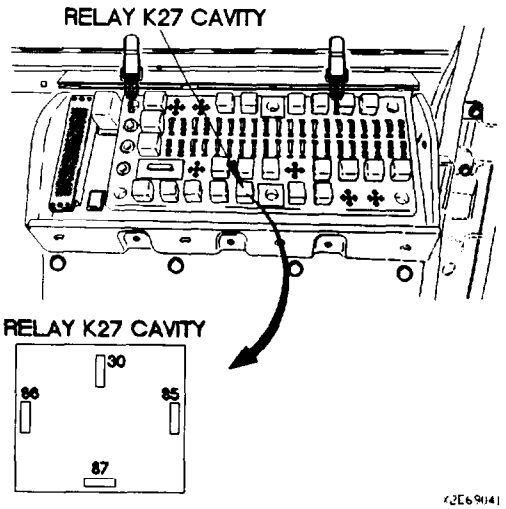


WARNING

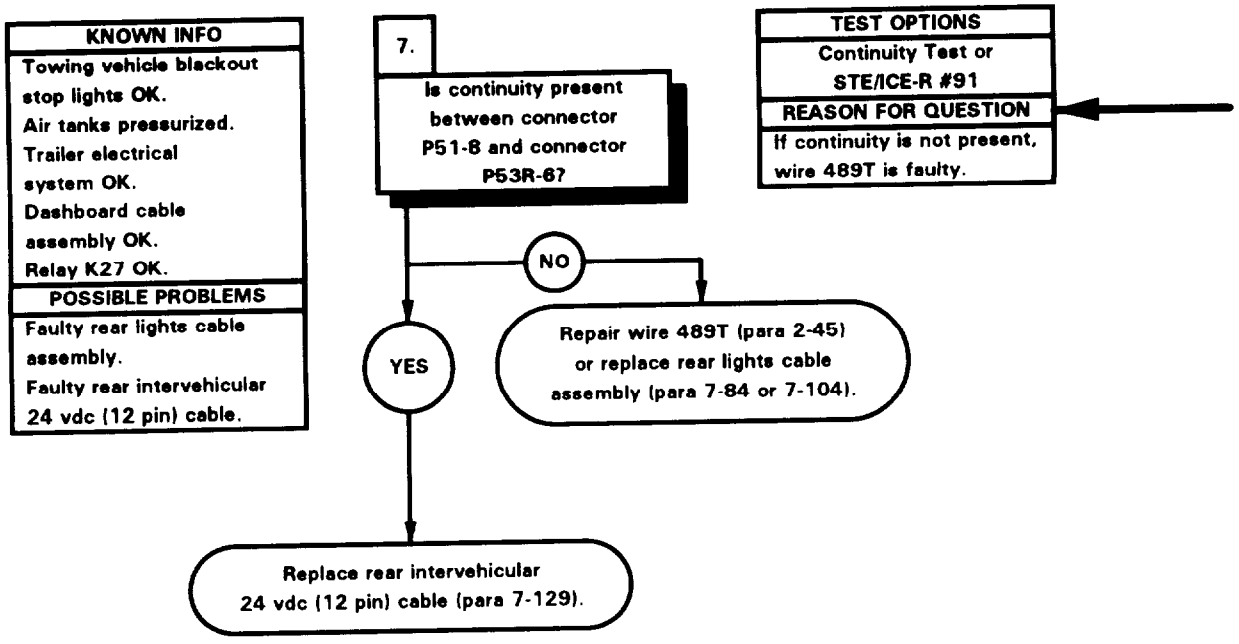
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to connector J51-8.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1).
(5) Position main light switch to BO DRIVE (TM 9-2320-366-10-1).
(6) Apply brakes (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, replace relay K27 (para 7-9).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).
(9) Position master power switch to off (TM 9-2320-366-10-1).

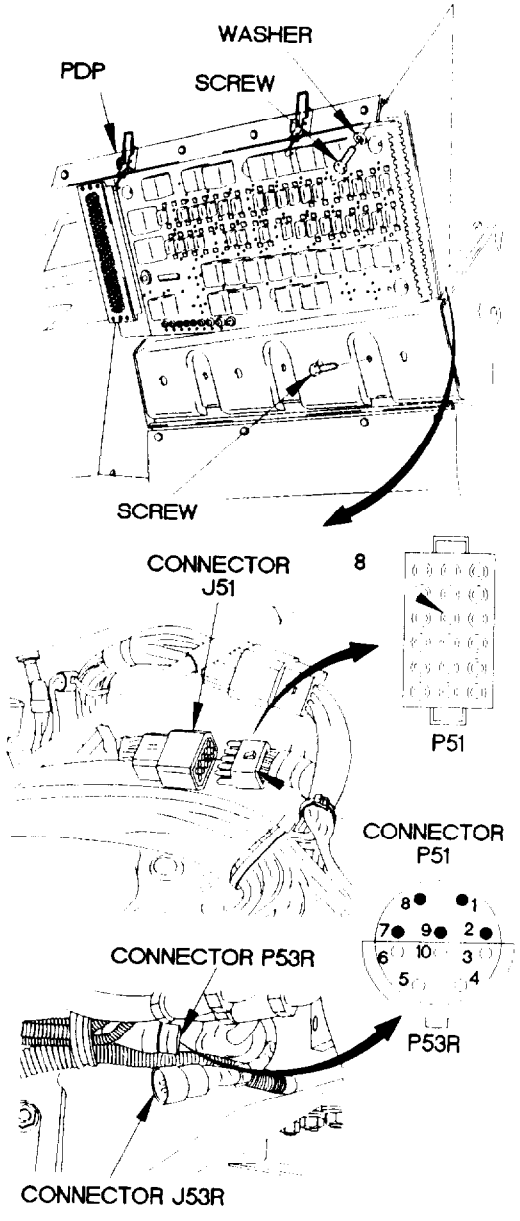


e69. TRAILER BLACKOUT STOP LIGHTS DO NOT ILLUMINATE (CONT)



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Disconnect connector P53R from connector J53R.
(3) Connect positive (+) probe of multimeter to connector P51-8.
(4) Connect negative (-) probe of multimeter to connector P53R-6 and note reading on multimeter.
(5) If continuity is not present, repair wire 489T (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(6) If continuity is present, replace rear intervehicular 24 vdc cable (para 7-129).
(7) Connect connector P51 to connector J51.
(8) Install PDP on dashboard with three screws.
(9) Install three washers and screws in PDP.
(10) Install PDP cover (para 16-2).



e70. INTERVEHICLE CLEARANCE LIGHTS DO NOT OPERATE

INITIAL SETUP

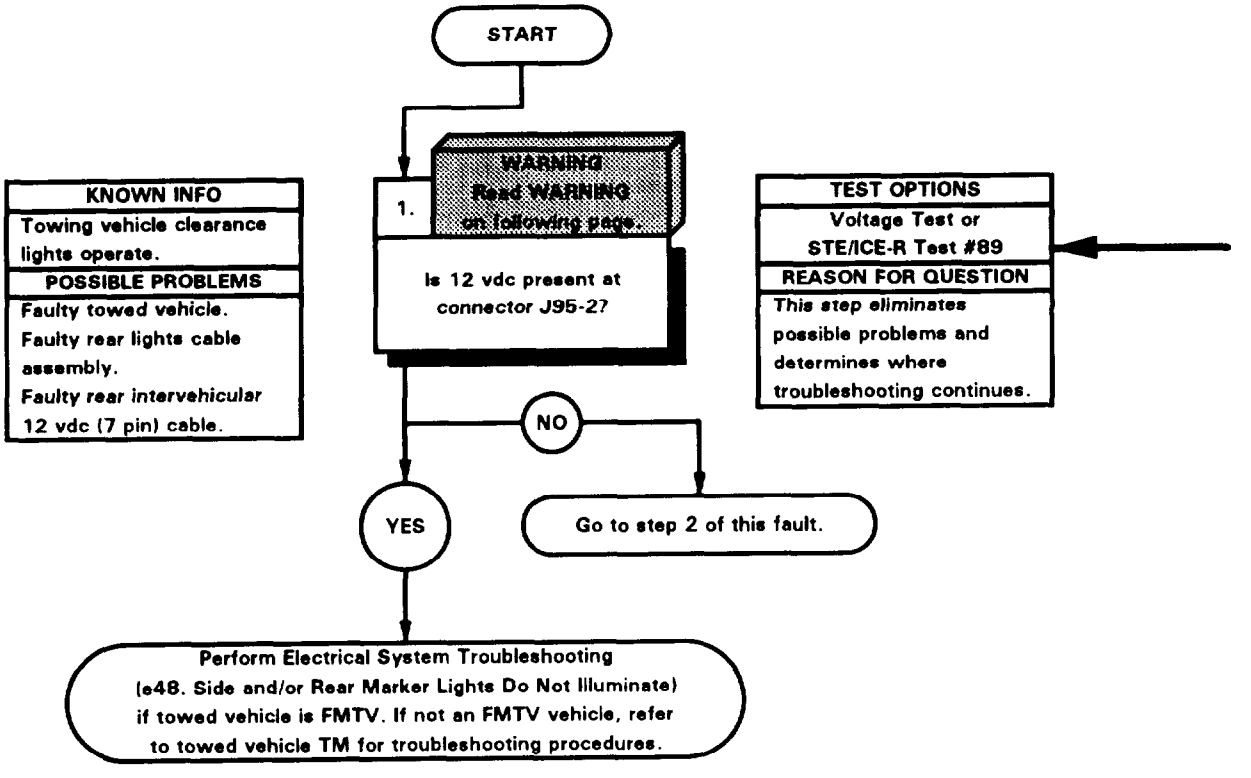
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)

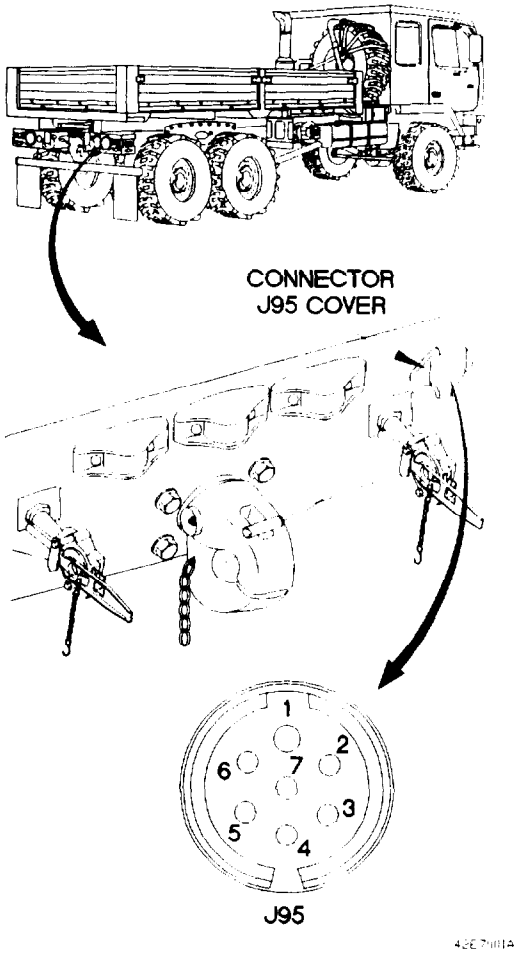


WARNING

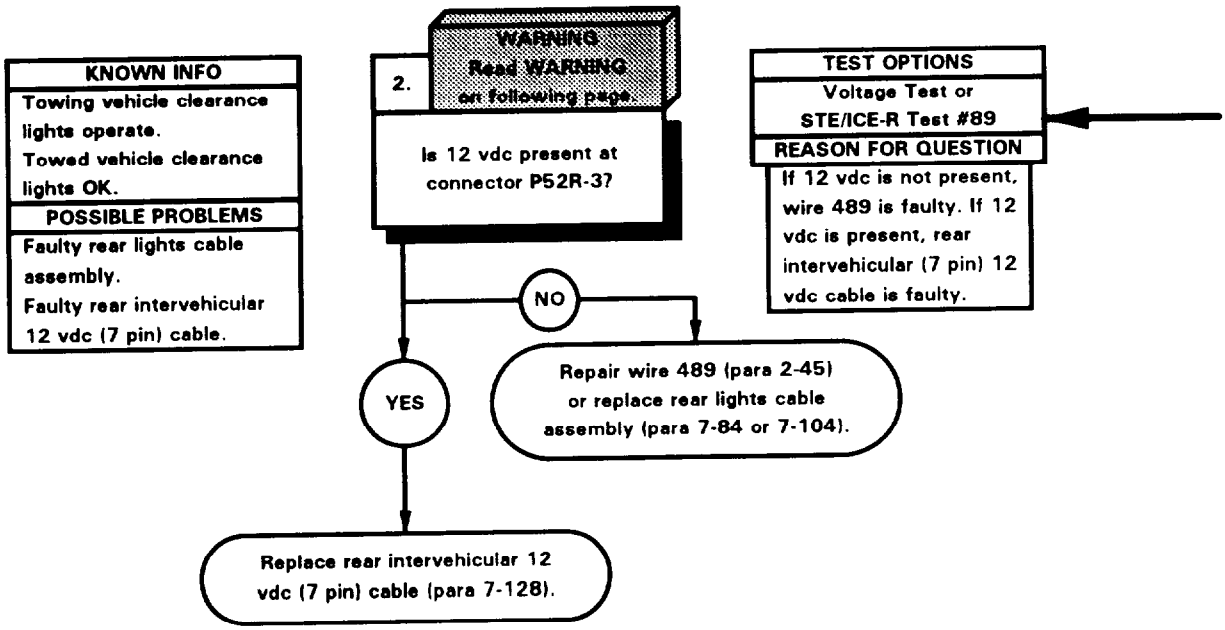
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Raise cover on connector J95 intervehicular 12 vdc connector.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J95-2.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 12 vdc is not present, go to step 2 of this fault.
(7) If 12 vdc is present, perform Electrical System Troubleshooting (e48. Side and/or Rear Marker Lights Do Not Illuminate) if towed vehicle is FMTV. If towed vehicle is not an FMTV, refer to towed vehicle TM for troubleshooting procedures.
(8) Position main light switch to OFF (TM 9-2320-366-10-1).



e70. INTERVEHICLE CLEARANCE LIGHTS DO NOT OPERATE (CONT)



WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

NOTE

Remove plastic cable ties as required.

(1) Disconnect connector P52R from connector J52.

(2) Set multimeter to volts dc.

(3) Connect positive (+) probe of multimeter to connector P52R-3.

(4) Connect negative (-) probe of multimeter to ground.

(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.

(6) If 12 vdc is not present, repair wire 489 (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).

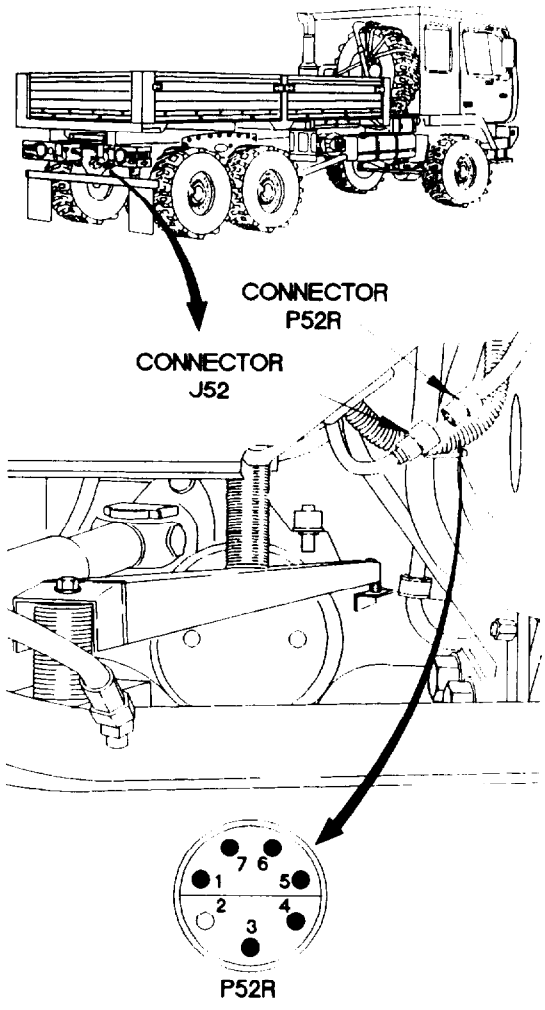
(7) If 12 vdc is present, replace rear intervehicular 12 vdc (7 pin) cable (para 7-128).

(8) Position main light switch to OFF (TM 9-2320-366-10-1).

NOTE

Install plastic cable ties as required.

(9) Connect connector P52R to connector J52.



e71. INTERVEHICLE LEFT TURN SIGNAL DOES NOT OPERATE

INITIAL SETUP

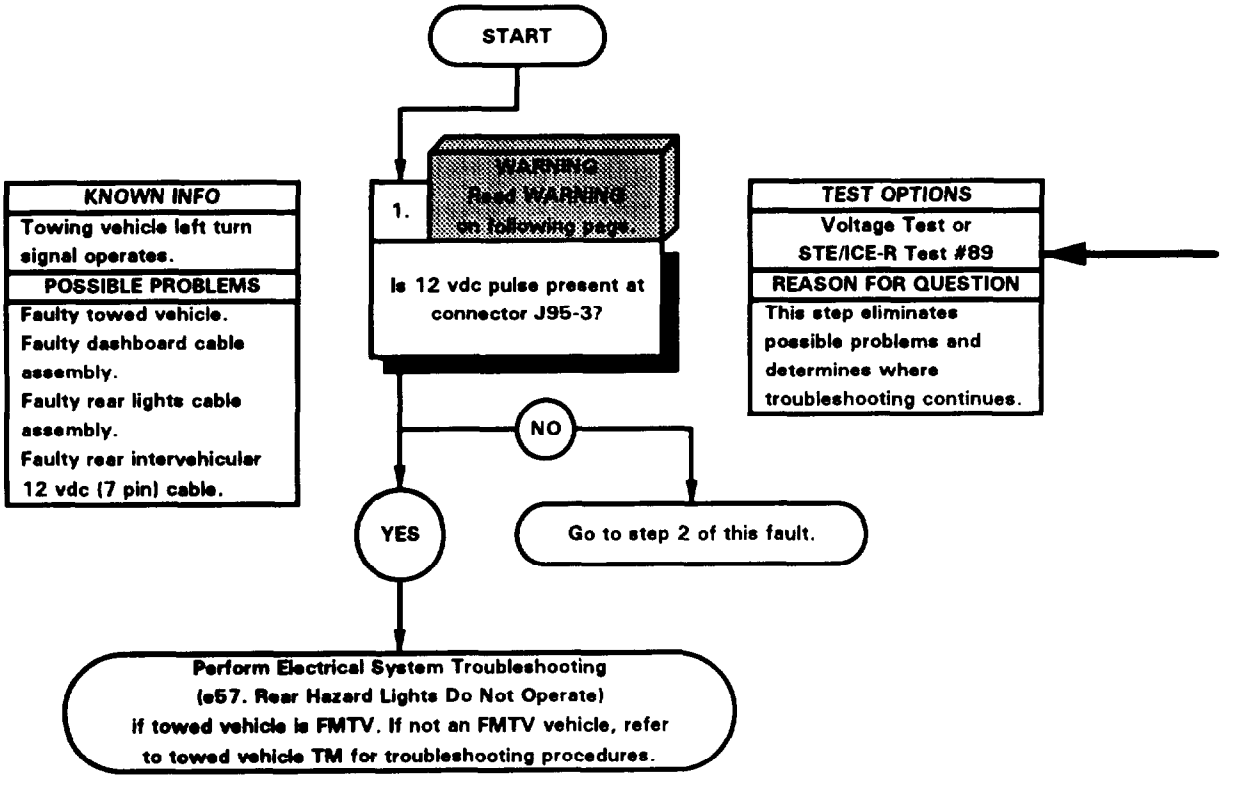
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)

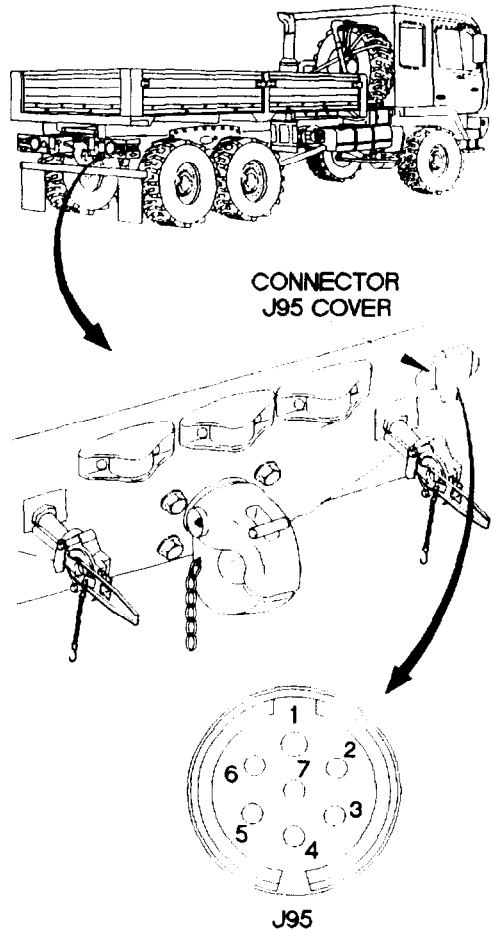


WARNING

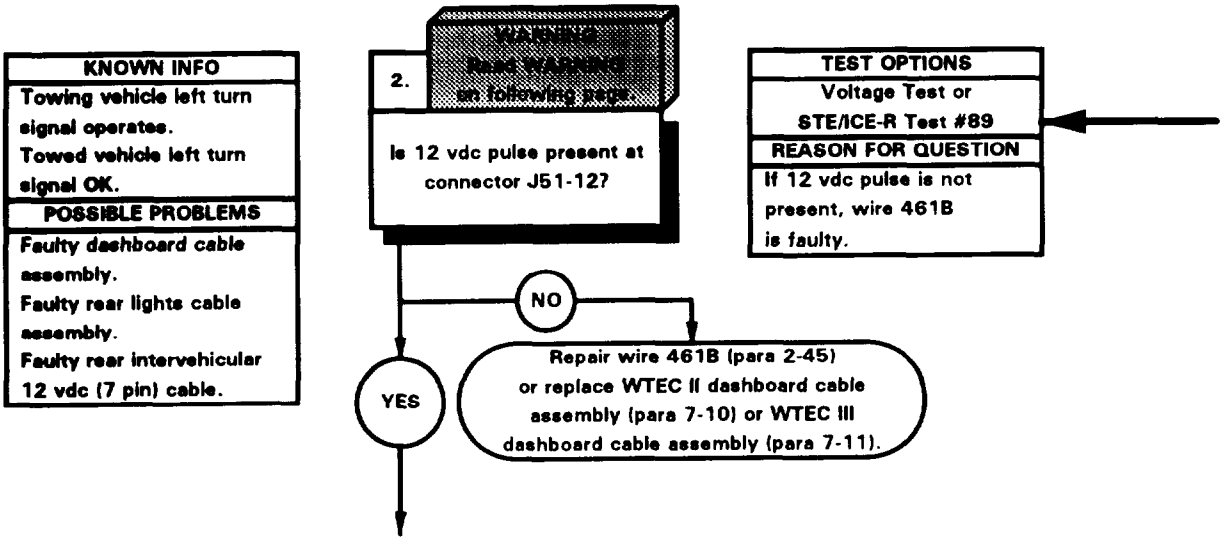
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Raise cover on connector J95 intervehicular 12 vdc connector.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J95-3.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Position turn signal switch for left turn (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc pulse is not present, go to step 2 of this fault.
(8) If 12 vdc pulse is present, perform Electrical System Troubleshooting (e57. Rear Hazard Lights Do Not Operate) if towed vehicle is FMTV. If towed vehicle is not an FMTV, refer to towed vehicle TM for troubleshooting procedures.
(9) Position turn signal switch to off (TM 9-2320-366-10-1).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).



e71. INTERVEHICLE LEFT TURN SIGNAL DOES NOT OPERATE (CONT)

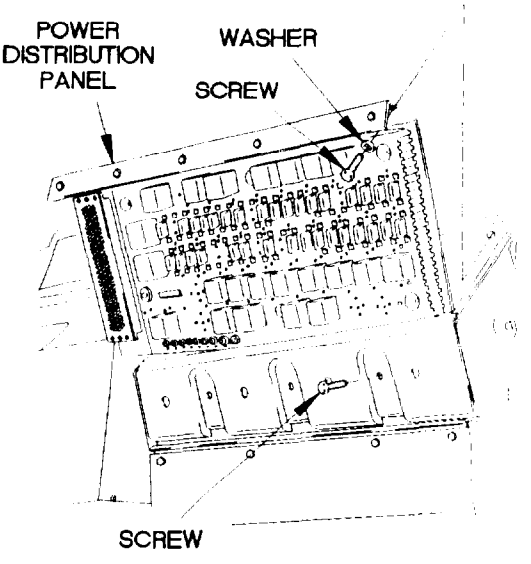


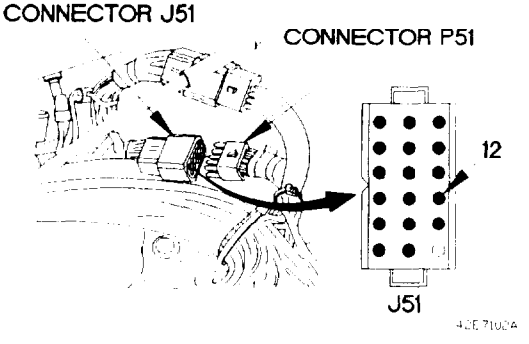
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

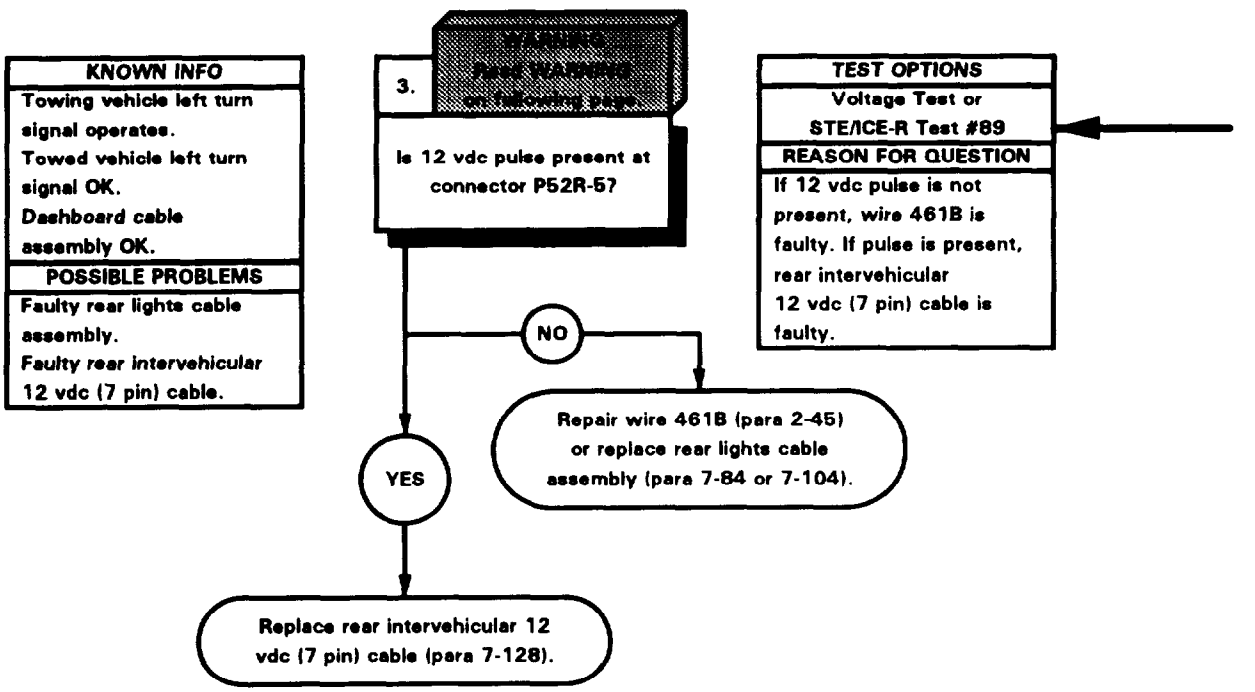
VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector J51 from connector P51.
(6) Set multimeter to volts dc.
(7) Connect positive (+) probe of multimeter to connector J51-12.
(8) Connect negative (-) probe of multimeter to ground.
(9) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(10) Position turn signal switch for left turn (TM 9-2320-366-10-1) and note reading on multimeter.
(11) If 12 vdc pulse is not present, repair wire 461B (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(12) Position main light switch to OFF (TM 9-2320-366-10-1).
(13) Position turn signal switch to off (TM 9-2320-366-10-1).
(14) Connect connector J51 to connector P51.
(15) Install PDP on dashboard with three screws.
(16) Install three washers and screws in PDP.
(17) Install PDP cover (para 16-2).





e71. INTERVEHICLE LEFT TURN SIGNAL DOES NOT OPERATE (CONT)



WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

NOTE

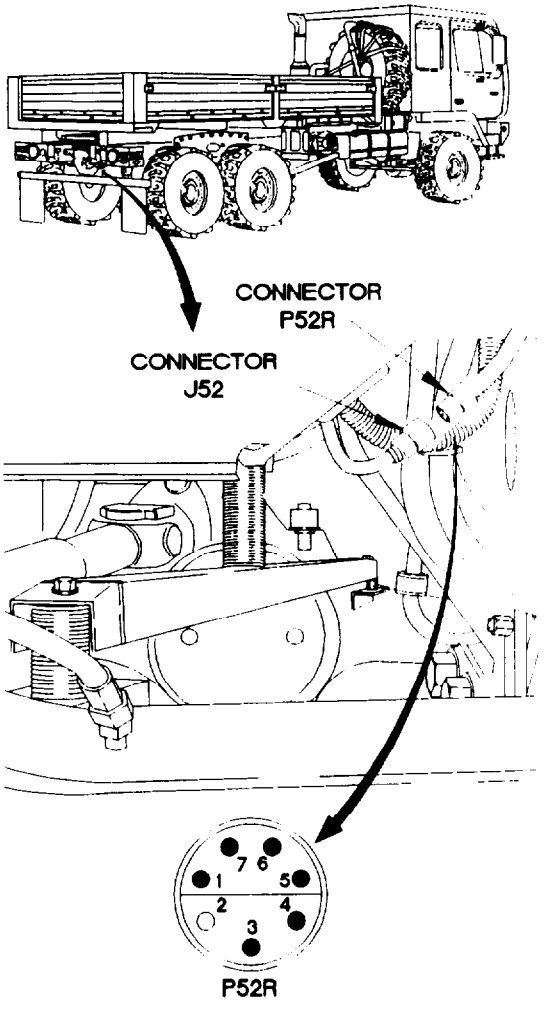
Remove plastic cable ties as required.

(1) Disconnect connector P52R from connector J52.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector P52R-5.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Position turn signal switch for left turn (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc pulse is not present, repair wire 461B (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(8) If 12 vdc pulse is present, replace rear intervehicular 12 vdc (7 pin) cable (para 7-128).
(9) Position turn signal switch to off (TM 9-2320-366-10-1).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).

NOTE

Install plastic cable ties as required.

(11) Connect connector P52R to connector J52.



e72. INTERVEHICLE RIGHT TURN SIGNAL DOES NOT OPERATE

INITIAL SETUP

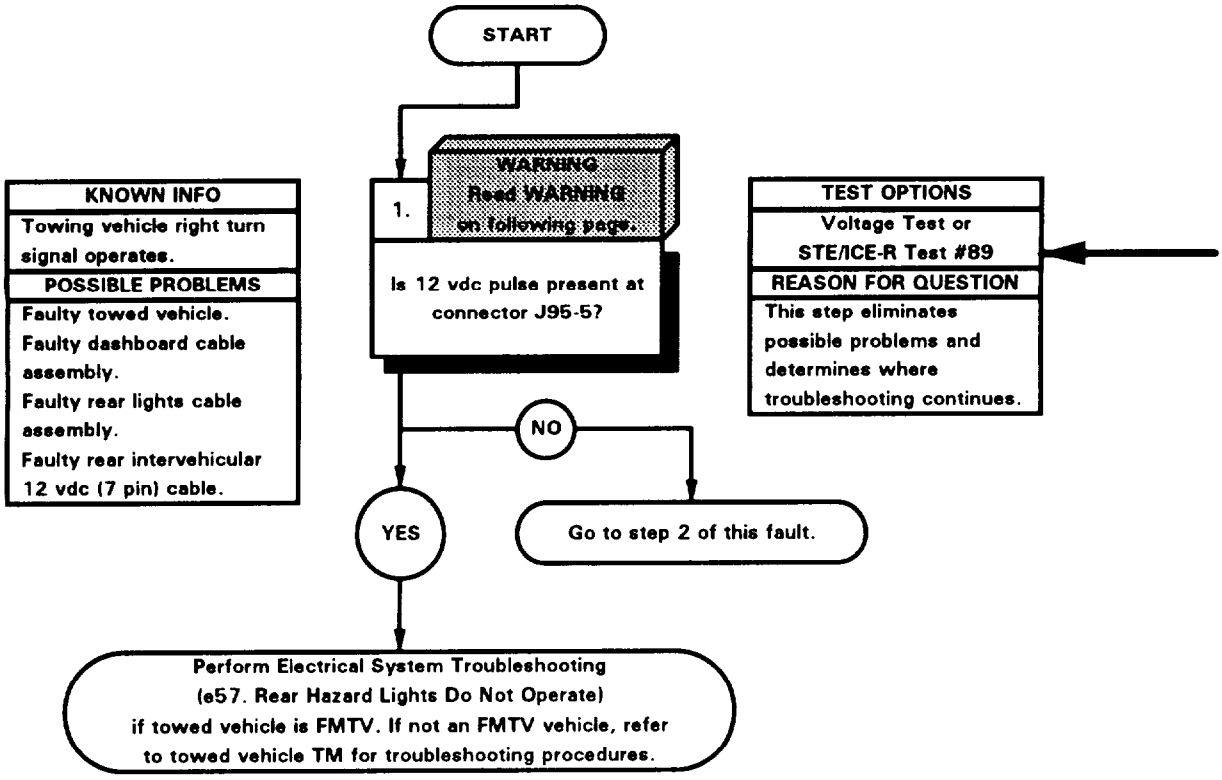
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)

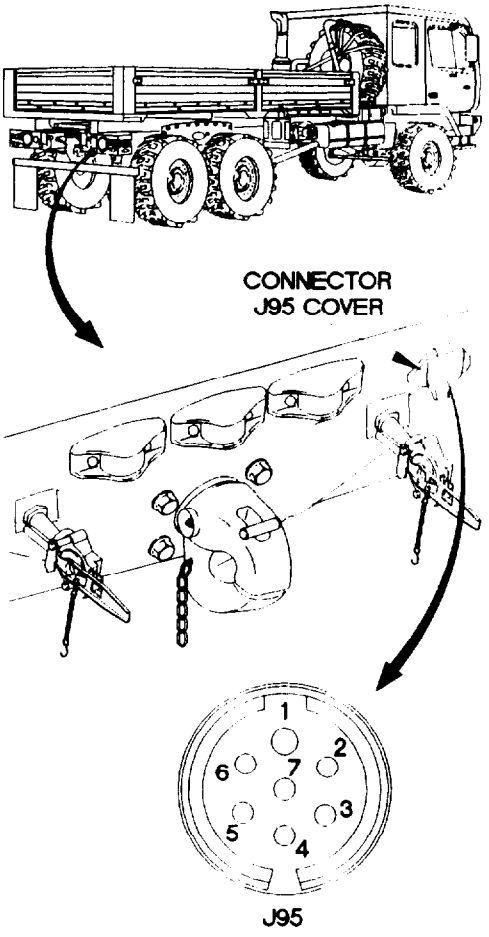


WARNING

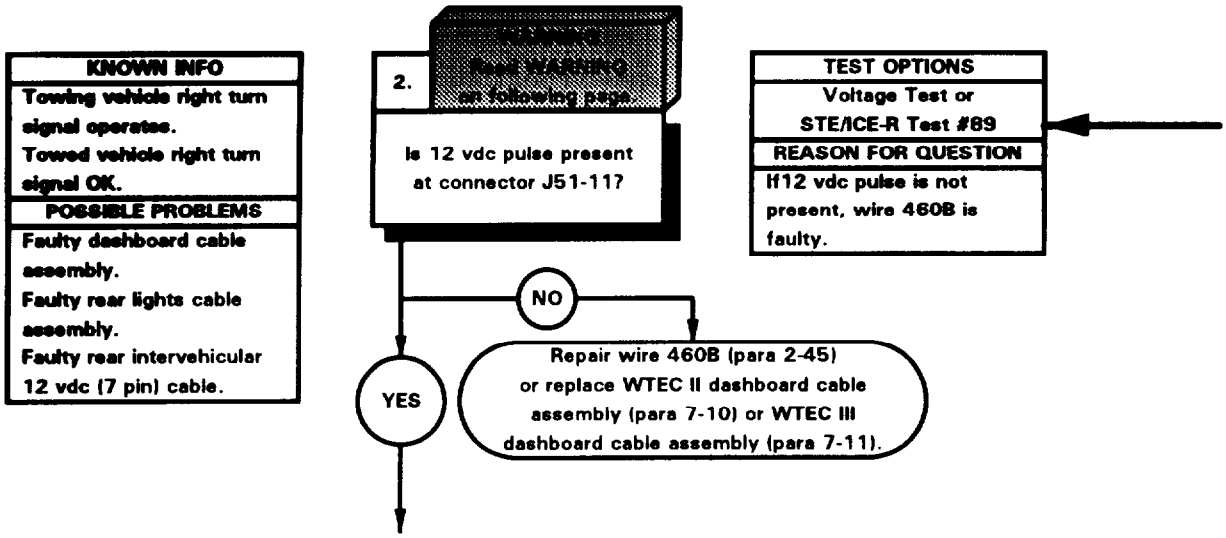
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Raise cover on connector J95 intervehicular 12 vdc connector.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J95-5.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Position turn signal switch for right turn (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc pulse is not present, go to step 2 of this fault.
(8) If 12 vdc pulse is present, perform Electrical System Troubleshooting (e57. Rear Hazard Do Not Operate) if towed vehicle is FMTV. If towed vehicle is not an FMTV, refer to towed vehicle TM for troubleshooting procedures.
(9) Position turn signal switch to off (TM 9-2320-366-10-1).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).



•72. INTERVEHICLE RIGHT TURN SIGNAL DOES NOT OPERATE (CONT)

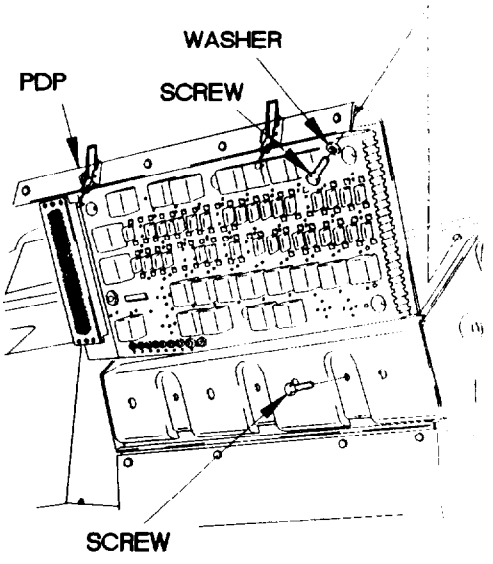


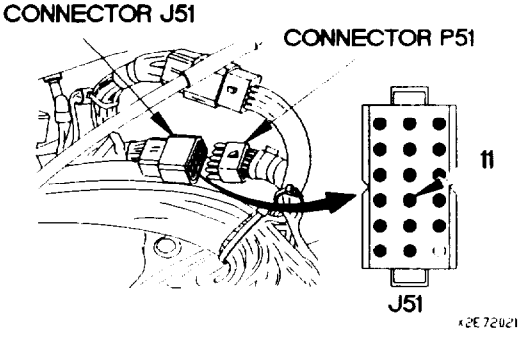
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

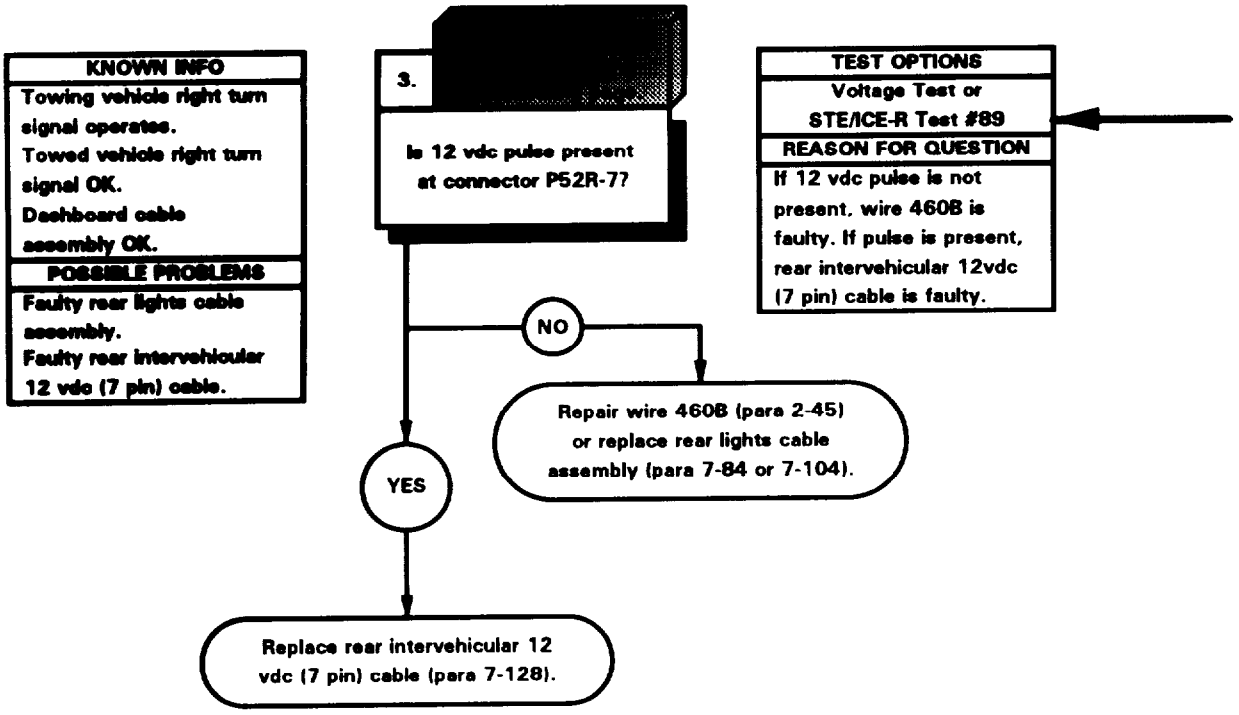
VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector J51 from connector P51.
(6) Set multimeter to volts dc.
(7) Connect positive (+) probe of multimeter to connector J51-11.
(8) Connect negative (-) probe of multimeter to ground.
(9) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(10) Position turn signal switch for right turn (TM 9-2320-366-10-1) and note reading on multimeter.
(11) If 12 vdc pulse is not present, repair wire 460B (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(12) Position turn signal switch to off (TM 9-2320-366-10-1).
(13) Position main light switch to OFF (TM 9-2320-366-10-1).
(14) Connect connector J51 to connector P51.
(15) Install PDP on dashboard with three screws.
(16) Install three washers and screws in PDP.
(17) Install PDP cover (para 16-2).





e72. INTERVEHICLE RIGHT TURN SIGNAL DOES NOT OPERATE (CONT)



WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

NOTE

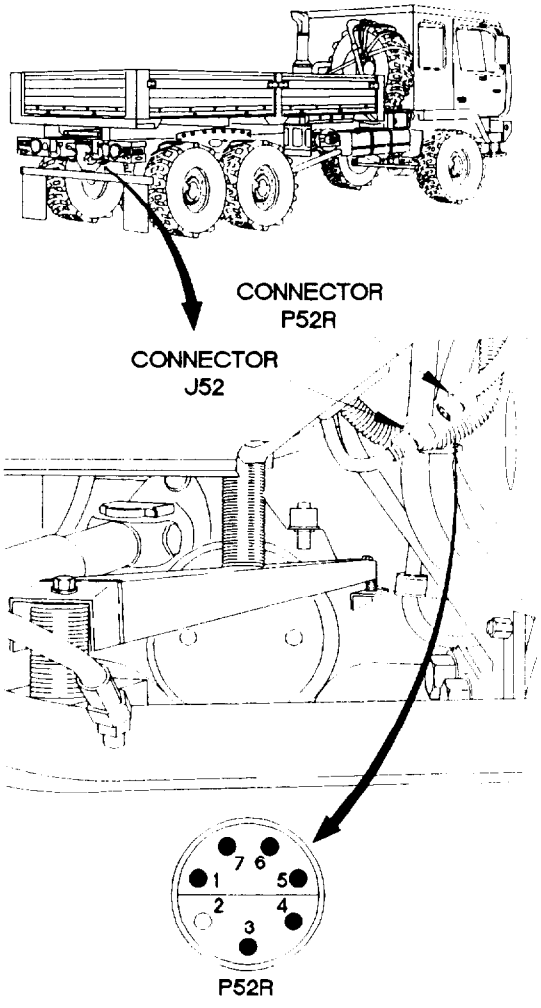
Remove plastic cable ties as required.

(1) Disconnect connector P52R from connector J52.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector P52R-7.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(6) Position turn signal switch for right turn (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc pulse is not present, repair wire 460B (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(8) If 12 vdc pulse is present, replace rear intervehicular 12 vdc (7 pin) cable (para 7-128).
(9) Position turn signal switch to off (TM 9-2320-366-10-1).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).

NOTE

Install plastic cable ties as required.

(11) Connect connector P52R to connector J52.



•73. INTERVEHICLE STOPLIGHTS DO NOT OPERATE

INITIAL SETUP

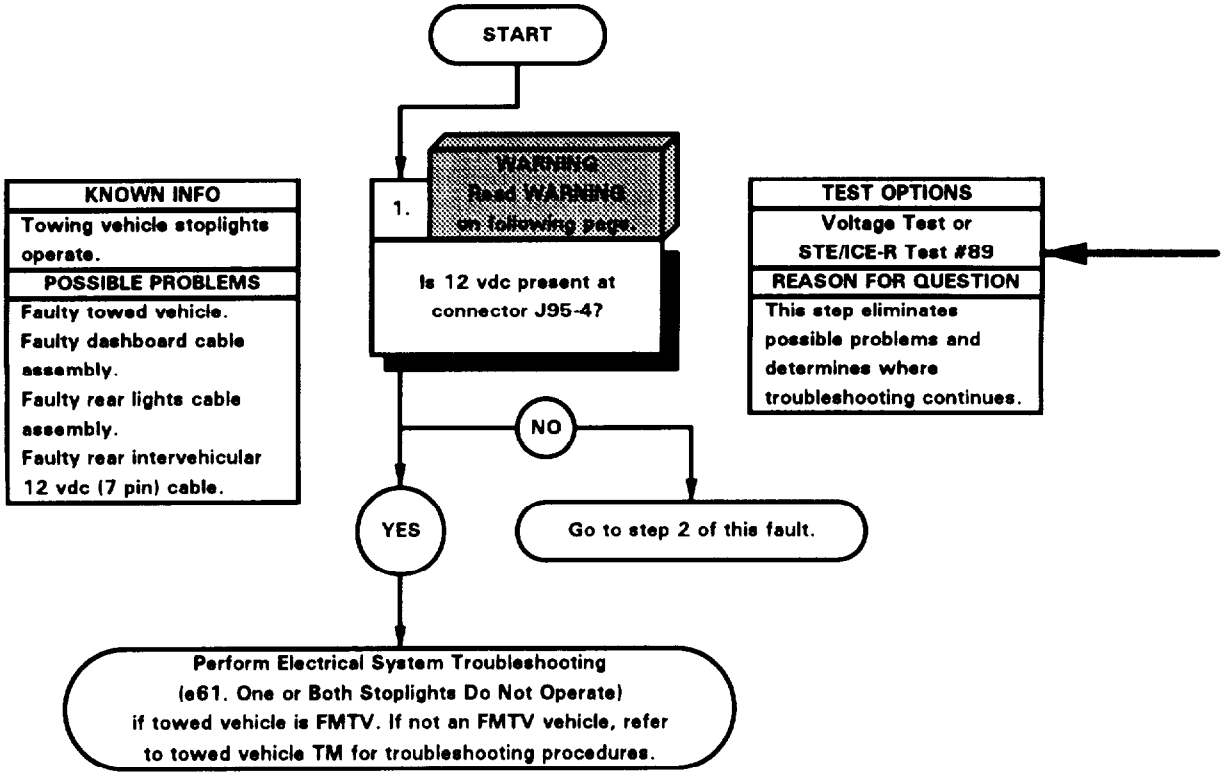
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

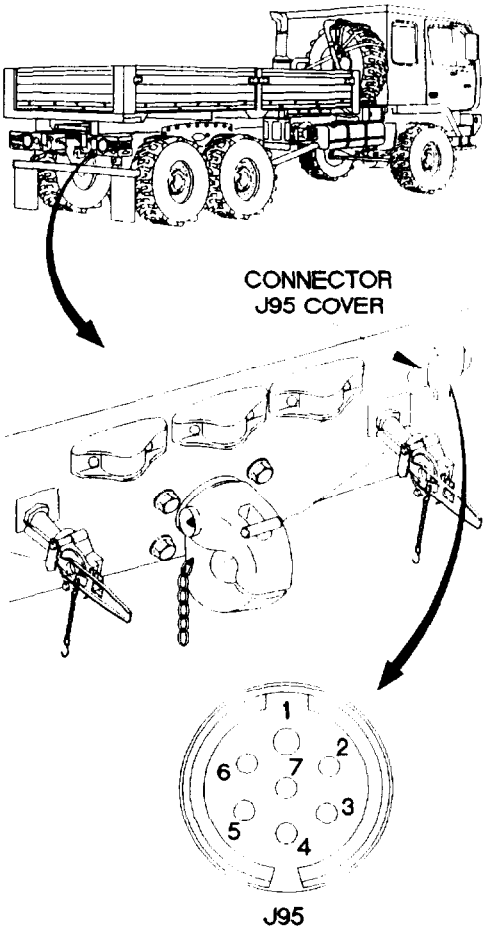
Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)



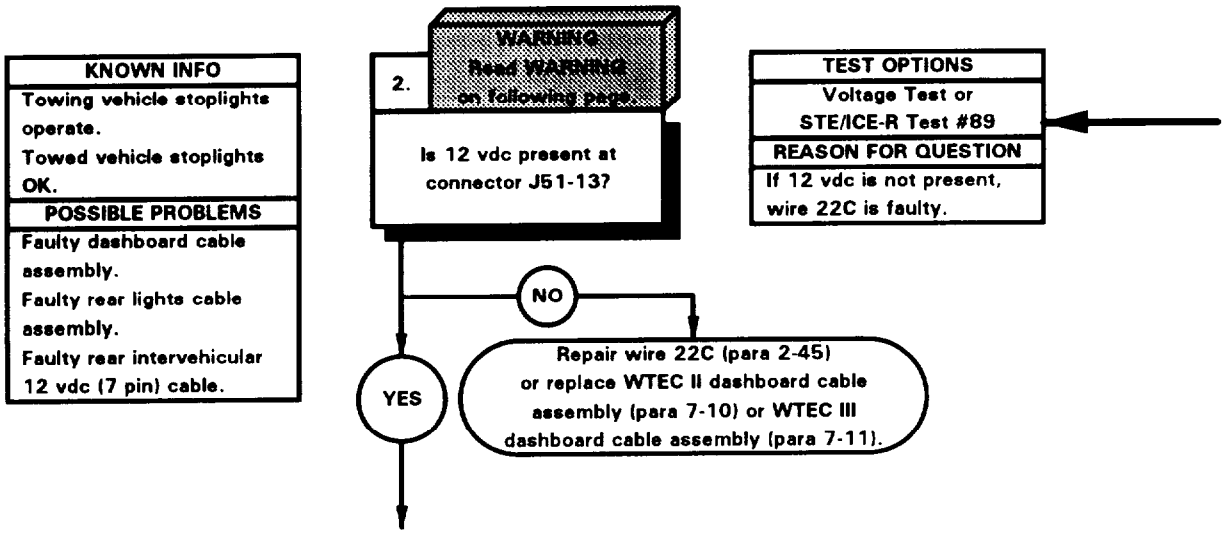
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST
(1) Raise cover on connector J95 intervehicular 12 vdc connector.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J95-4.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(7) Apply brakes (TM 9-2320-366-10-1)and note reading on multimeter.
(8) If 12 vdc is not present, go to step 2 of this fault.
(9) If 12 vdc is present, perform Electrical System Troubleshooting (e61. One or Both Stoplights Do Not Operate) if towed vehicle is FMTV. If towed vehicle is not an FMTV, refer to towed vehicle TM for troubleshooting procedures.
(10) Position main light switch to OFF (TM 9-2320-366-10-1).
(11) Position master power switch to off (TM 9-2320-366-10-1).



e73. INTERVEHICLE STOPLIGHTS DO NOT OPERATE (CONT)

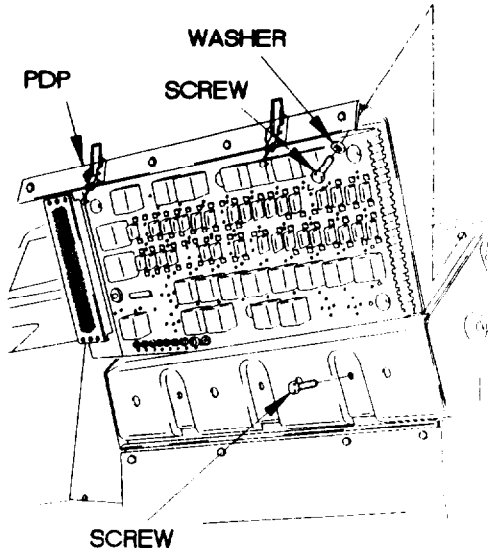


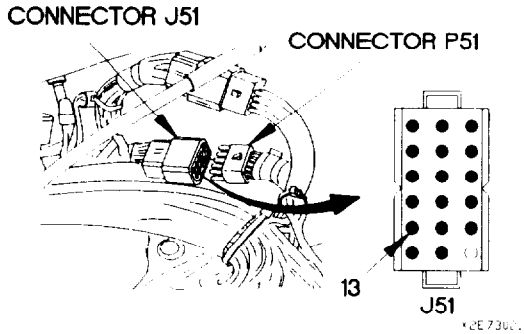
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

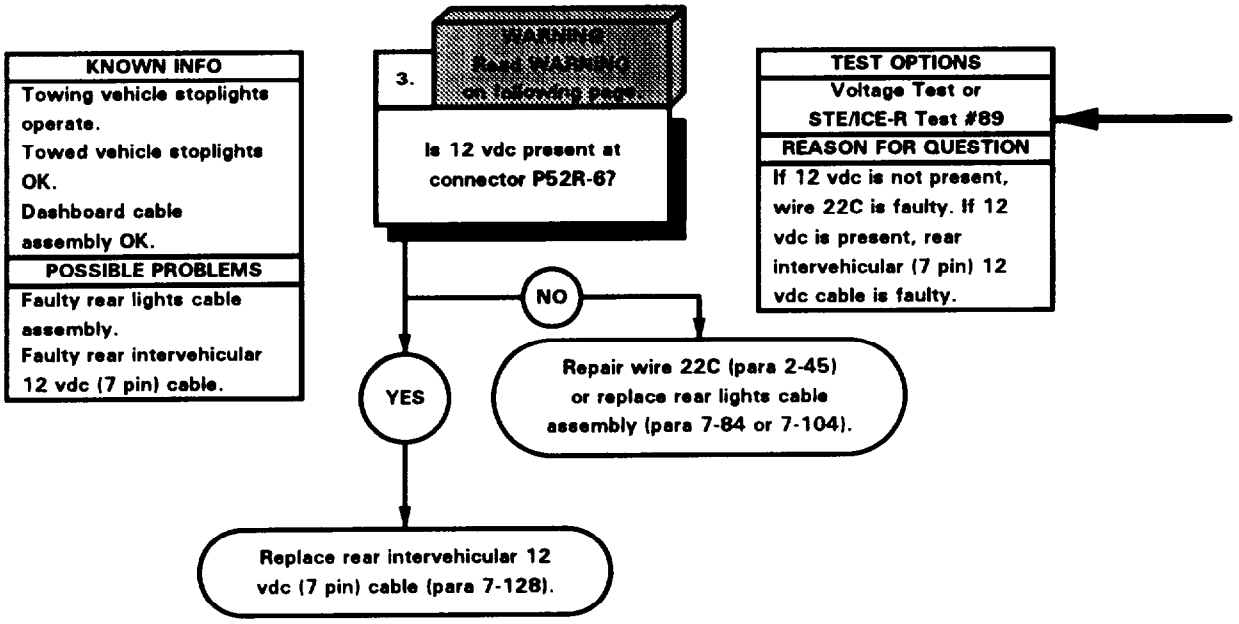
VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector J51 from connector P51.
(6) Set multimeter to volts dc.
(7) Connect positive (+) probe of multimeter to connector J51-13.
(8) Connect negative (-) probe of multimeter to ground.
(9) Position master power switch to on (TM 9-2320-366-10-1).
(10) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(11) Apply brakes (TM 9-2320-366-10-1)and note reading on multimeter.
(12) If 12 vdc is not present, repair wire 22C (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(13) Position main light switch to OFF (TM 9-2320-366-10-1).
(14) Position master power switch to off (TM 9-2320-366-10-1).
(15) Connect connector J51 to connector P51.
(16) Install PDP on dashboard with three screws.
(17) Install three washers and screws in PDP.
(18) Install PDP cover (para 16-2).





e73. INTERVEHICLE STOPLIGHTS DO NOT OPERATE (CONT)



WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

NOTE

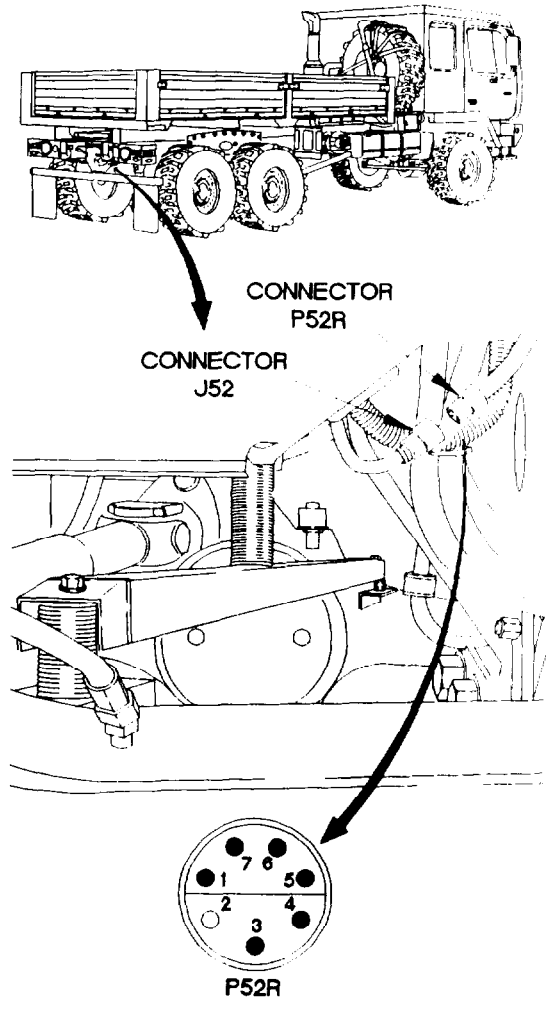
Remove plastic cable ties as required.

(1) Disconnect connector P52R from connector J52.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector P52R-6.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(7) Apply brakes (TM 9-2320-366-10-1)and note reading on multimeter.
(8) If 12 vdc is not present, repair wire 22C (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(9) If 12 vdc is present, replace rear intervehicular 12 vdc (7 pin) cable (para 7-128).
(10) Position main light switch to OFF (TM 9-2320-366-10-1).
(11) Position master power switch to off (TM 9-2320-366-10-1).

NOTE

Install plastic cable ties as required.

(12) Connect connector P52R to connector J52.



e74. INTERVEHICLE TAILLIGHTS DO NOT OPERATE

INITIAL SETUP

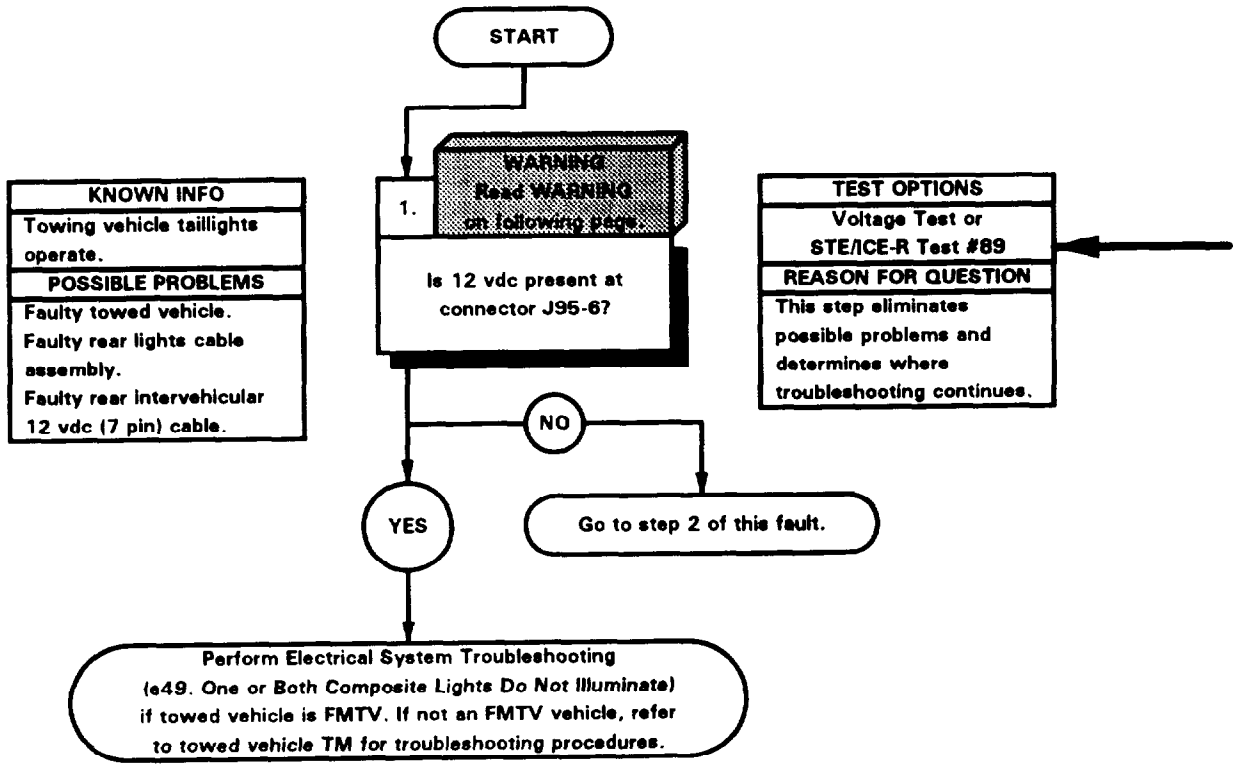
Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)

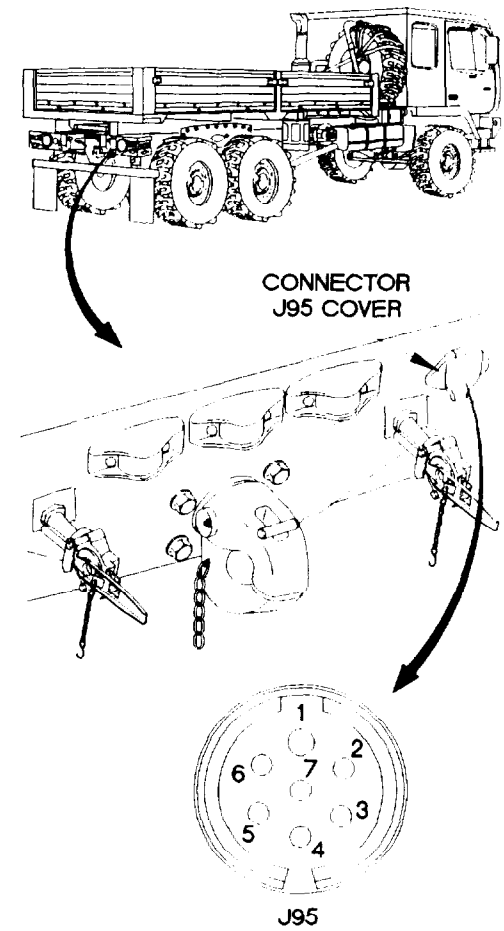


WARNING

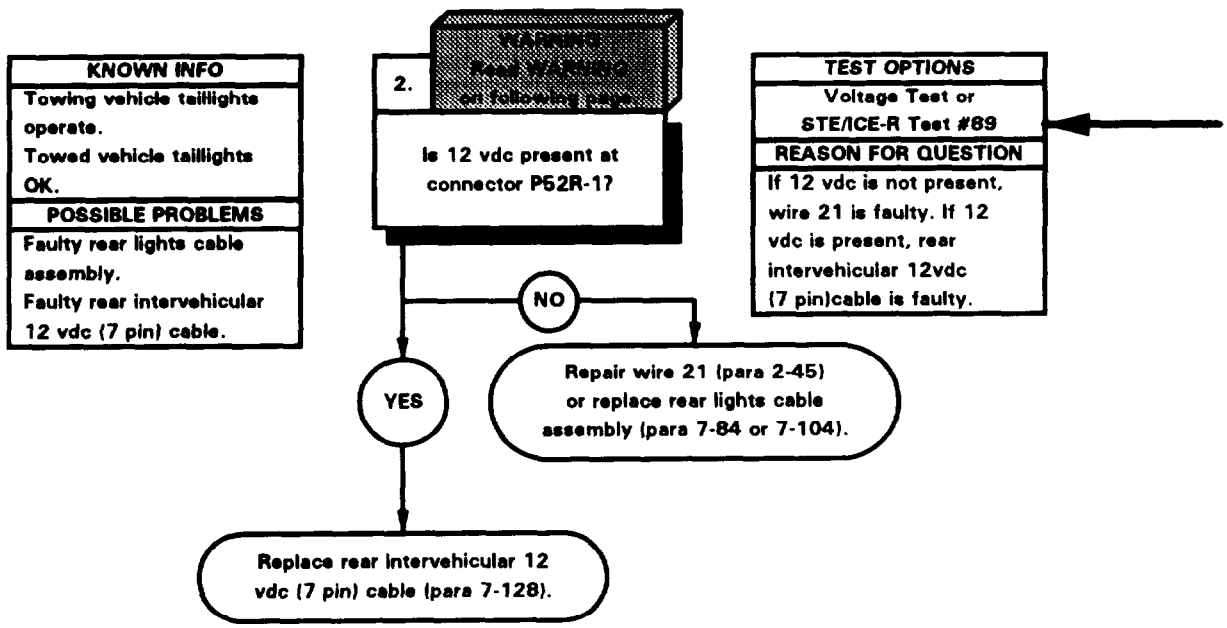
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Raise cover on connector J95 intervehicular 12 vdc connector.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J95-6.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 12 vdc is not present, go to step 2 of this fault.
(7) If 12 vdc is present, perform Electrical System Troubleshooting (e49. One or Both Composite Lights Do Not Illuminate) if towed vehicle is FMTV. If towed vehicle is not an FMTV, refer to towed vehicle TM for troubleshooting procedures.
(8) Position main light switch to OFF (TM 9-2320-366-10-1).



e74. INTERVEHICLE TAILLIGHTS DO NOT OPERATE (CONT)



WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

NOTE

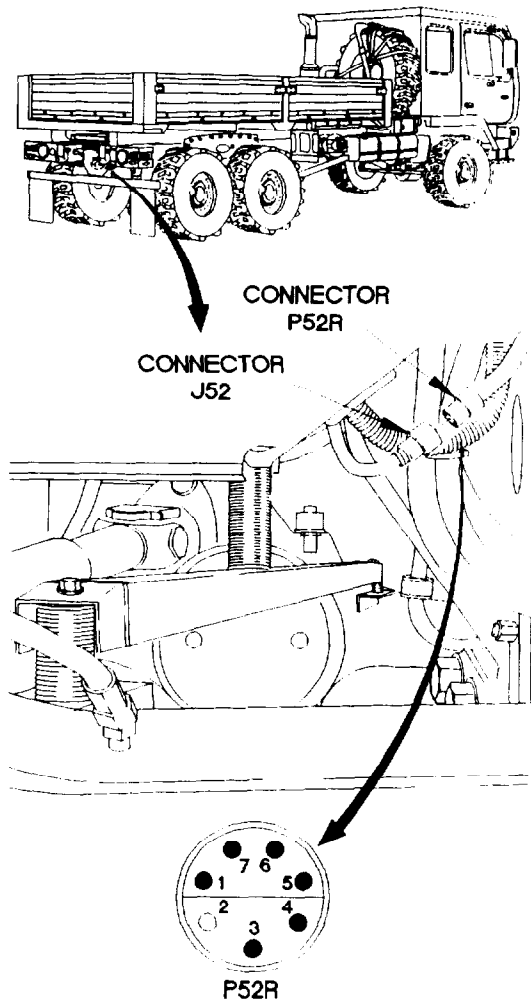
Remove plastic cable ties as required.

(1) Disconnect connector P52R from connector J52.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector P52R-1.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position main light switch to SER DRIVE (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 12 vdc is not present, repair wire 21 (para 2-45) or replace rear lights cable assembly (para 7-84 or 7-104).
(7) If 12 vdc is present, replace rear intervehicular 12 vdc (7 pin) cable (para 7-128).
(8) Position main light switch to OFF (TM 9-2320-366-10-1).

NOTE

Install plastic cable ties as required.

(9) Connect connector P52R to connector J52.



e75. PERSONNEL HEATER CONTROL ILLUMINATION DOES NOT OPERATE

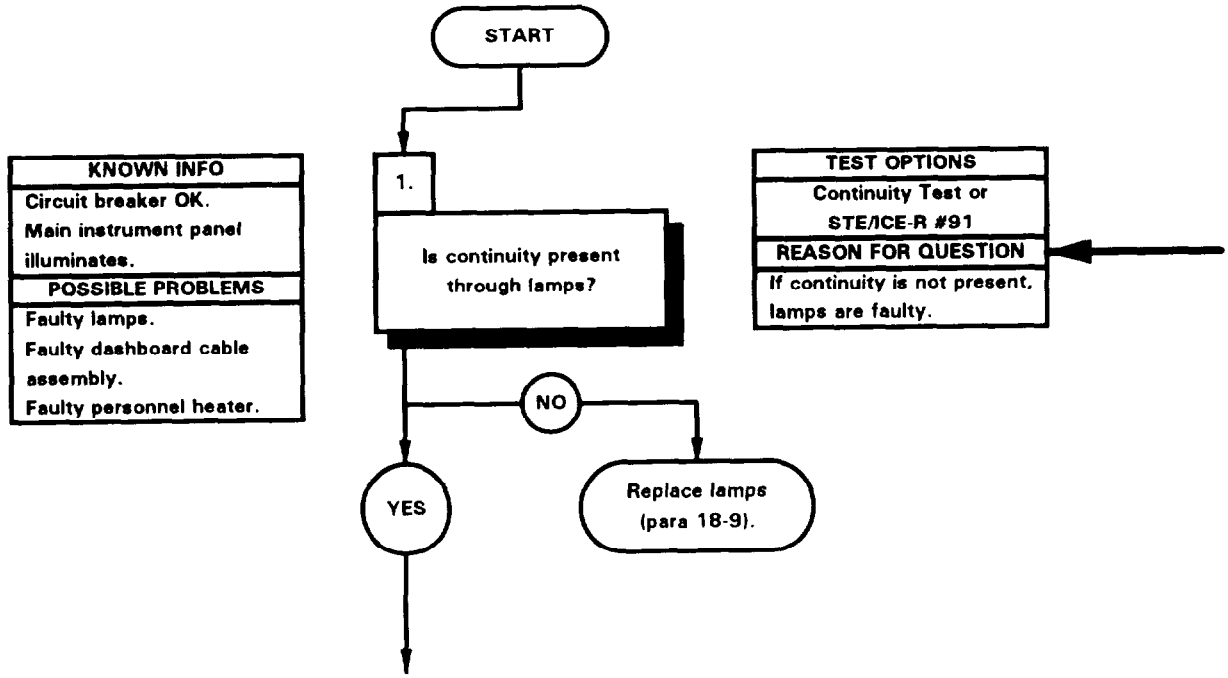
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

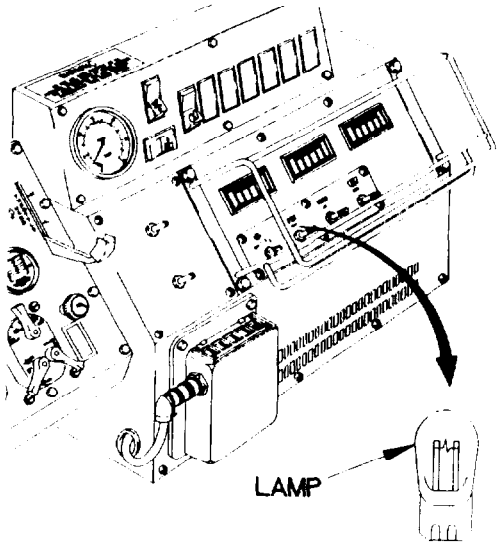
Personnel Required
(2)

References
TM 9-4910-571-12&P

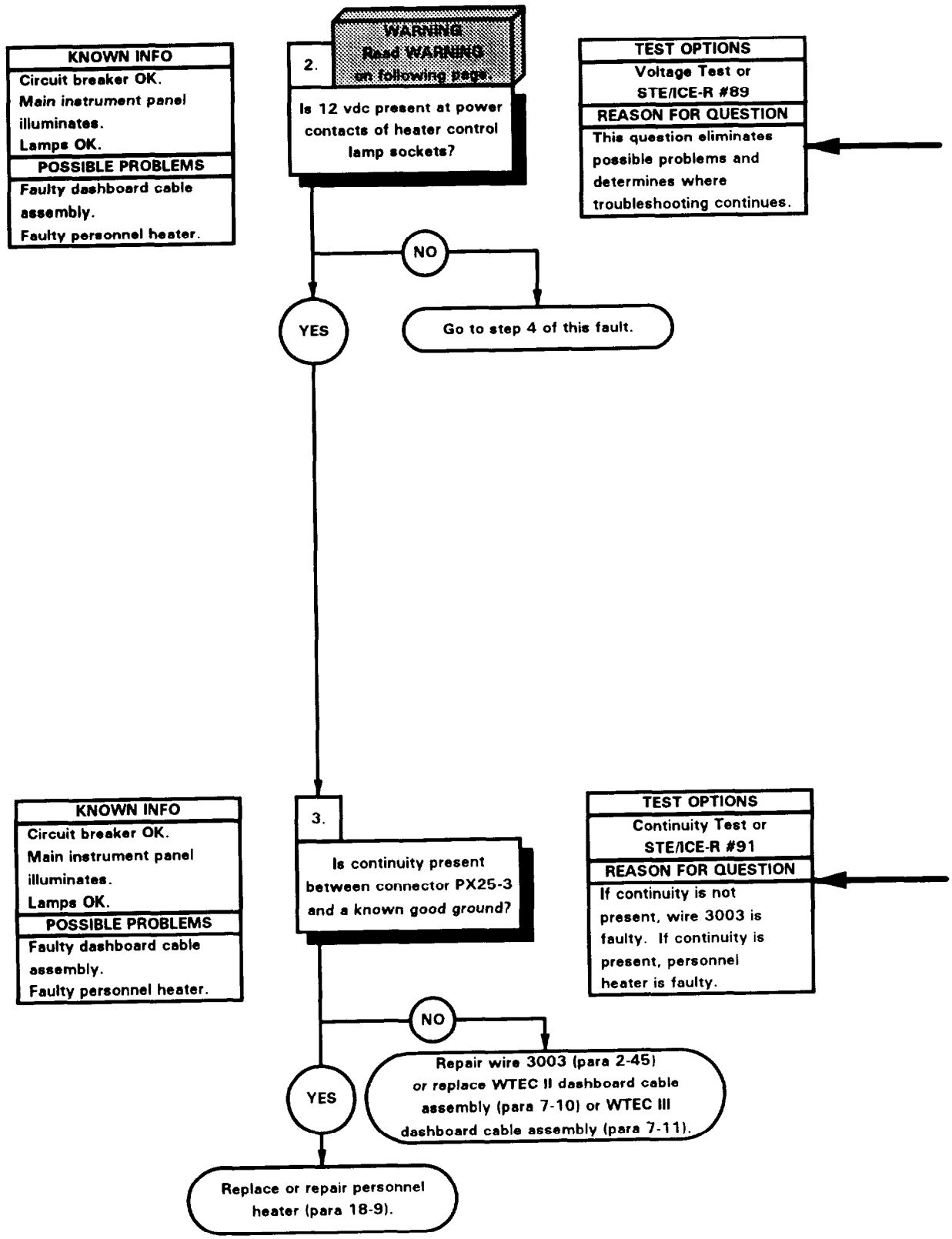
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)



CONTINUITY TEST
(1) Remove lamps from heater (para 18-9).
(2) Set multimeter to ohms.
(3) Check continuity through each lamp.
(4) If continuity is not present, replace lamp(s) (para 18-9).



e75. PERSONNEL HEATER ILLUMINATION DOES NOT OPERATE (CONT)

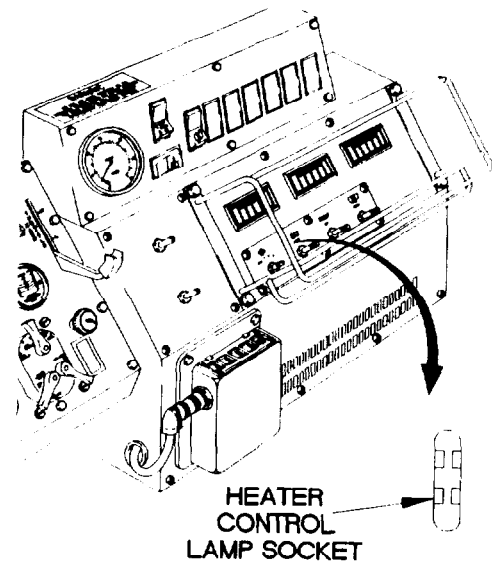


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

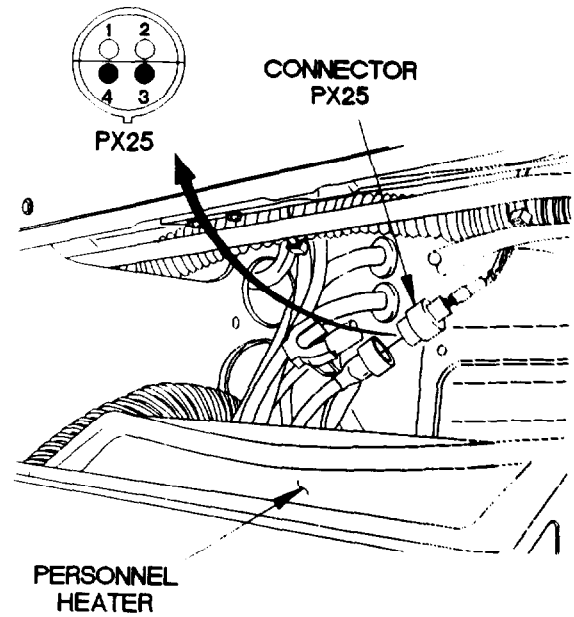
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to power contact of each heater control lamp socket.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position main light switch to SER DRIVE (TM 9-2320-366-10-1).
(5) Position main light switch auxiliary lever to PANEL BRT (TM 9-2320-366-10-1).
(6) Position dimmer switch to maximum brightness (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 12 vdc is not present, go to step 4 of this fault.
(8) Position main light switch to OFF (TM 9-2320-366-10-1).
(9) Position main light switch auxiliary lever to OFF (TM 9-2320-366-10-1).
(10) Install lamps in heater (para 18-9).



X2E75028A

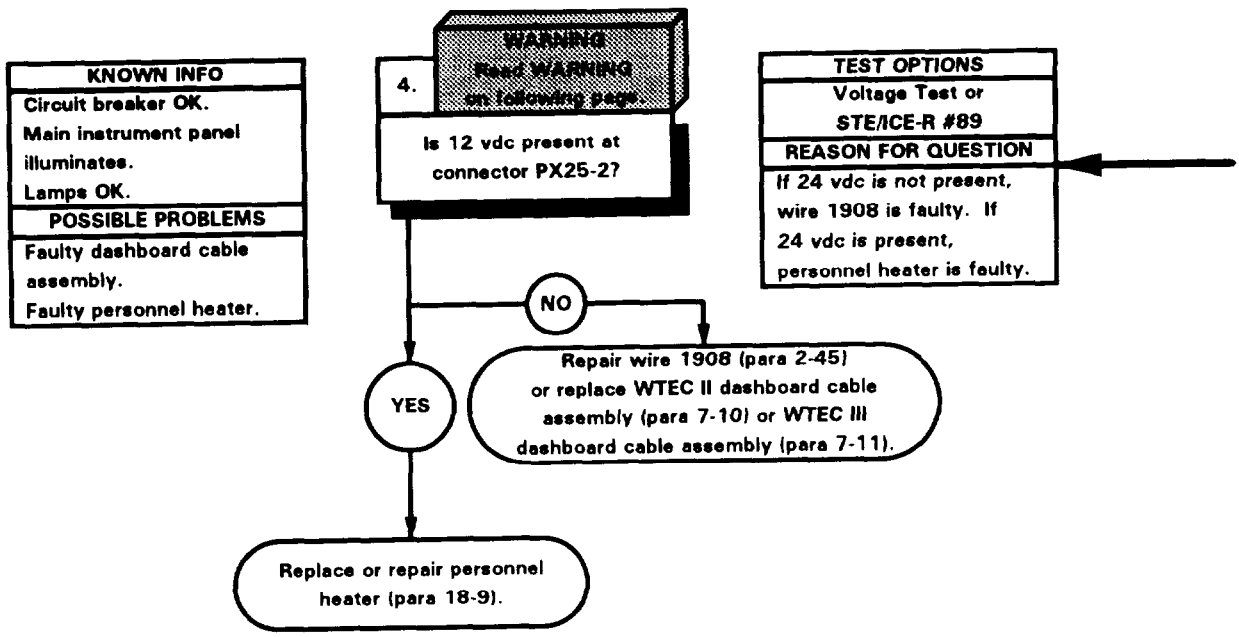
CONTINUITY TEST

(1) Remove personnel heater for access (para 18-9).
(2) Disconnect connector PX25 from personnel heater connector.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to connector PX25-3.
(5) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(6) If continuity is not present, repair wire 3003 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) If continuity is present, replace or repair personnel heater (para 18-9).
(8) Connect connector PX25 to personnel heater connector.
(9) Install personnel heater (para 18-9).



X2E75044

e75. PERSONNEL HEATER ILLUMINATION DOES NOT OPERATE (CONT)

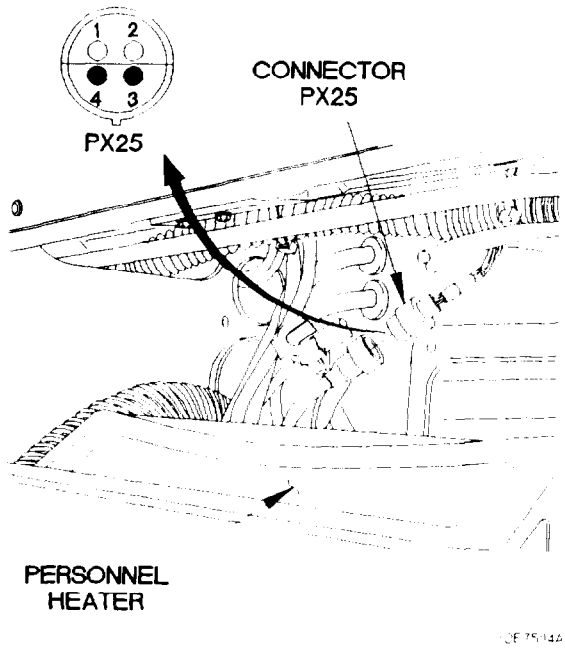


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove personnel heater for access (para 18-9).
(2) Disconnect connector PX25 from personnel heater connector.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector PX25-1.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1).
(7) Position main light switch auxiliary lever to PNL BRT (TM 9-2320-366-10-1).
(8) Position dimmer switch to maximum brightness (TM 9-2320-366-10-1) and note reading on multimeter.
(9) If 12 vdc is not present, repair wire 1908 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(10) If 12 vdc is present, replace or repair personnel heater (para 18-9).
(11) Position master power switch to off (TM 9-2320-366-10-1).
(12) Position main light switch auxiliary lever to OFF (TM 9-2320-366-10-1).
(13) Connect connector PX25 to personnel heater connector.
(14) Install personnel heater (para 18-8).



•76. PERSONNEL HEATER FAN DOES NOT OPERATE

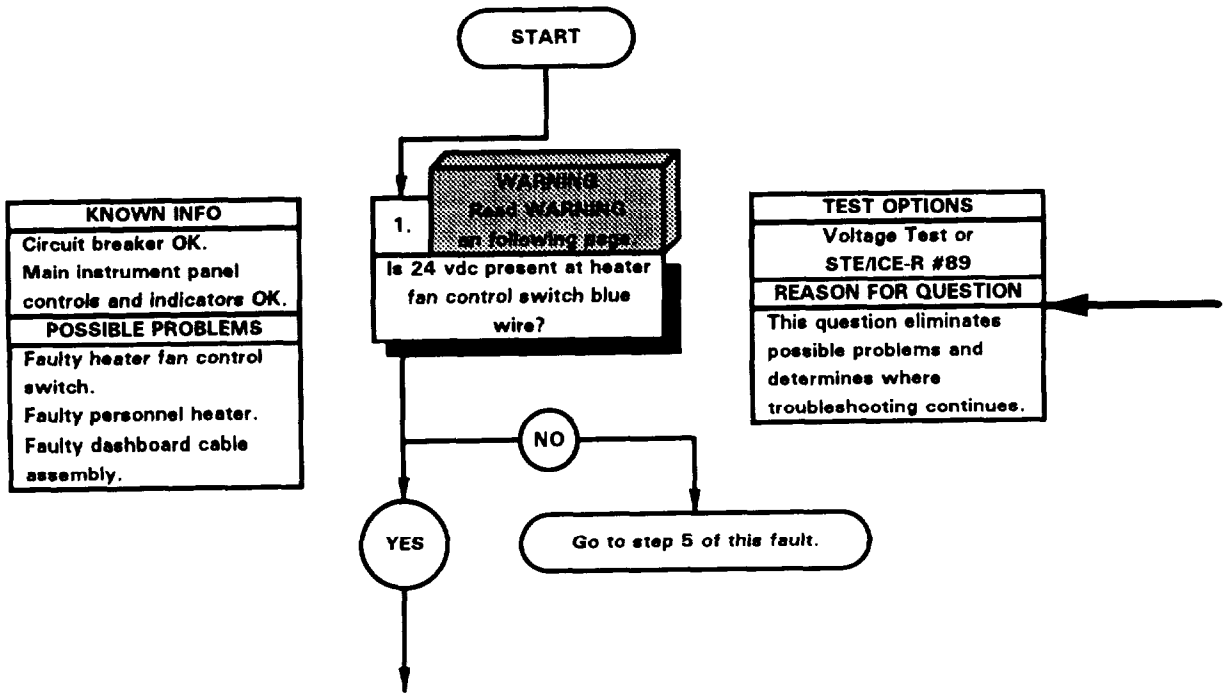
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

References
TM 9-4910-571-12&P

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

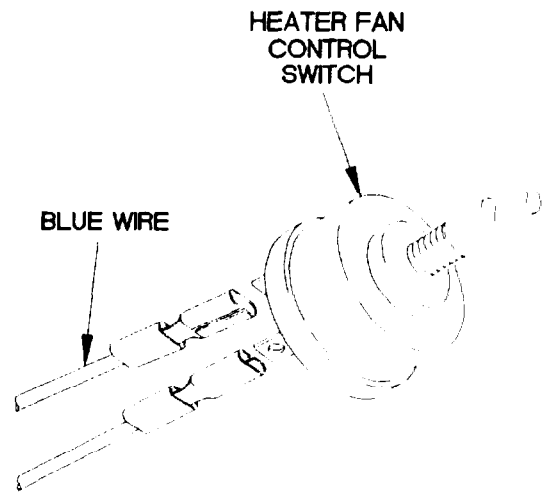


WARNING

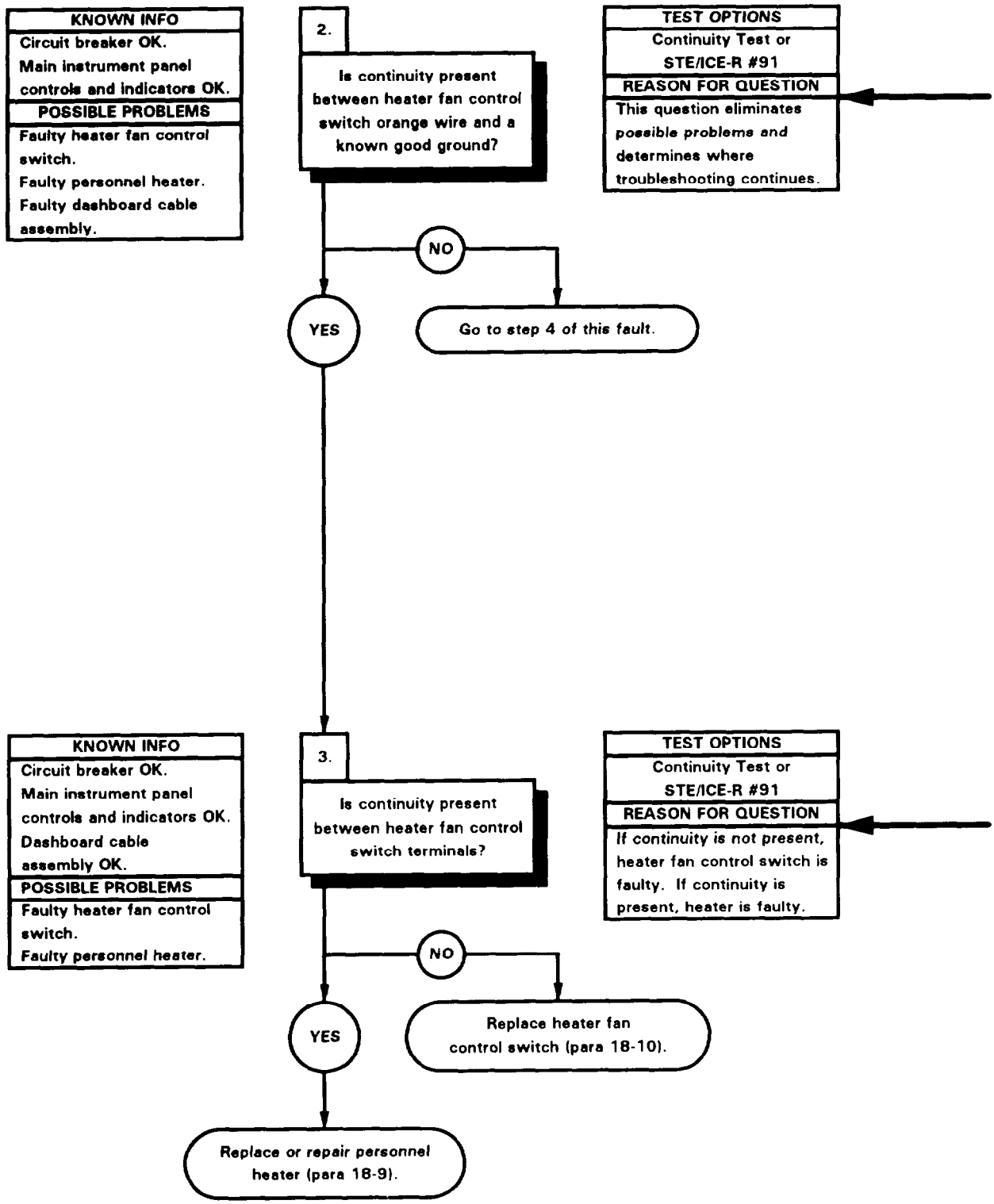
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

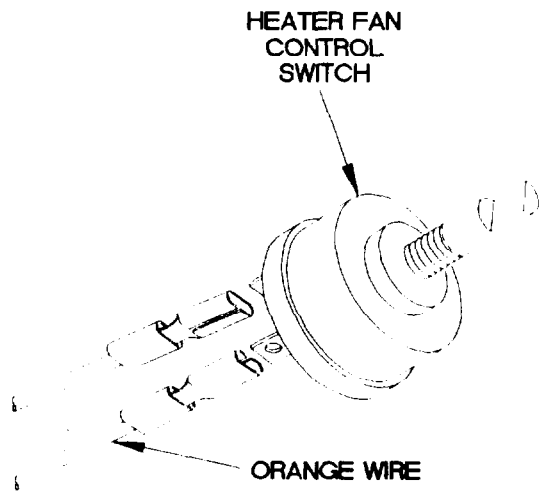
(1) Remove heater fan control switch (para 18-10).
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to personnel heater fan control switch blue wire.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, go to step 5 of this fault.
(7) Position master power switch to off (TM 9-2320-366-10-1).



e76. PERSONNEL HEATER FAN DOES NOT OPERATE (CONT)

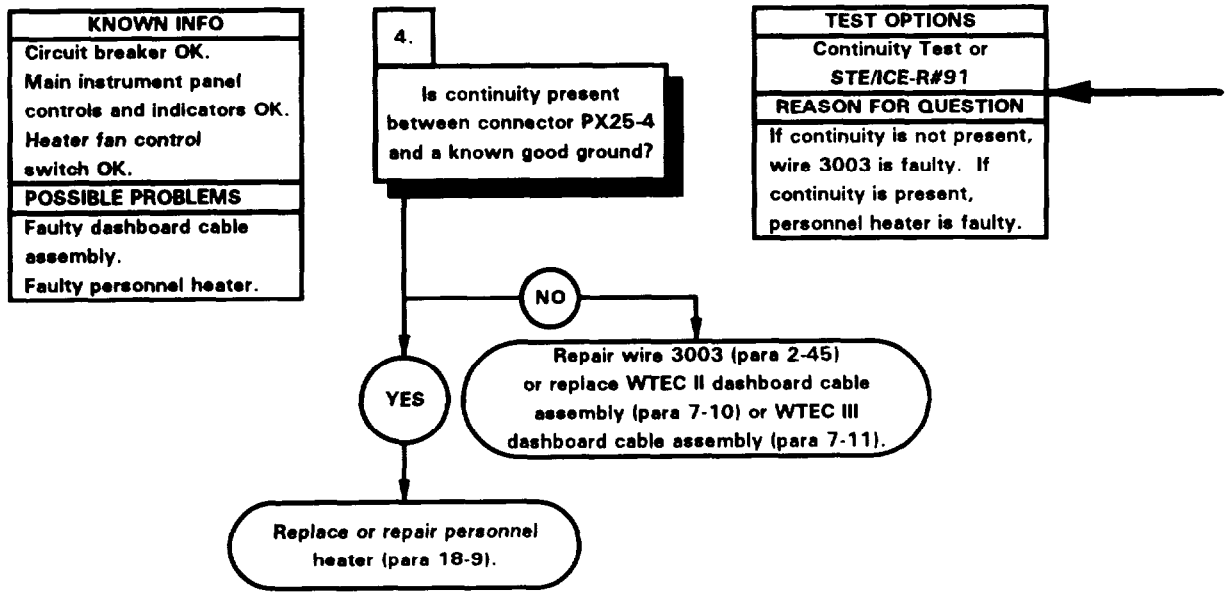


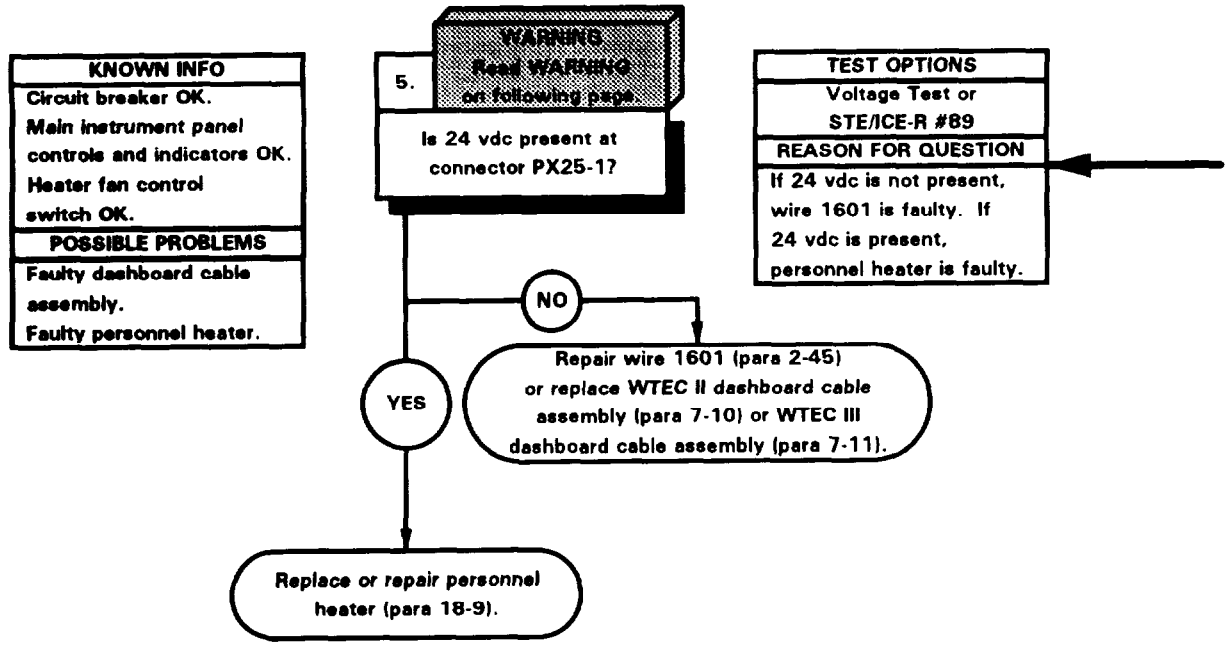
CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to heater fan control switch orange wire.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, go to step 4 of this fault.



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Position heater fan control switch to high speed.
(3) Connect positive (+) probe of multimeter to one heater fan control switch terminal.
(4) Connect negative (-) probe of multimeter to other heater fan control switch terminal and note reading on multimeter.
(5) If continuity is not present, replace heater fan control switch (para 18-10).
(6) If continuity is present, replace or repair personnel heater (para 18-9).
(7) Install heater fan control switch (para 18-10).

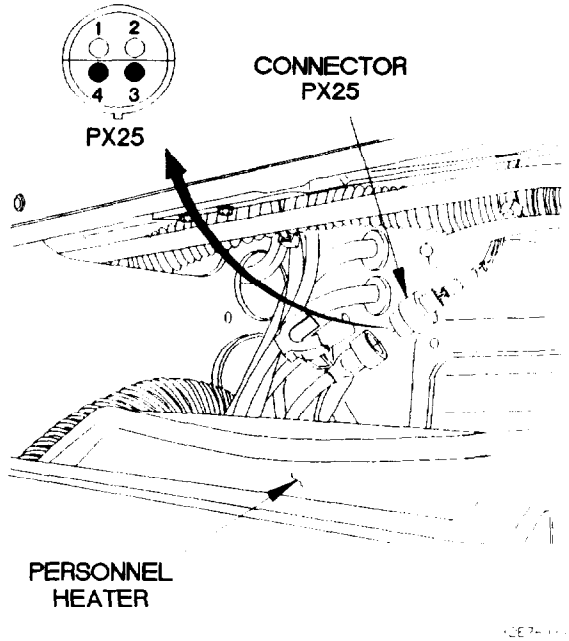
e76. PERSONNEL HEATER FAN DOES NOT OPERATE (CONT)





CONTINUITY TEST

(1) Remove personnel heater for access (para 18-9).
(2) Disconnect connector PX25 from personnel heater connector.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to connector PX25-4.
(5) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(6) If continuity is not present, repair wire 3003 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) If continuity is present, replace or repair personnel heater (para 18-9).
(8) Install personnel heater (para 18-9).
(9) Install heater fan control switch (para 18-10).



WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove personnel heater for access (para 18-9).
(2) Disconnect connector PX25 from personnel heater connector.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector PX25-2.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, repair wire 1601 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) If 24 vdc is present, replace or repair personnel heater (para 18-9).
(9) Position master power switch to off (TM 9-2320-366-20-1).
(10) Install personnel heater (para 18-9).
(11) Install heater fan control switch (para 18-10).

•77. WINDSHIELD WASHER DOES NOT OPERATE

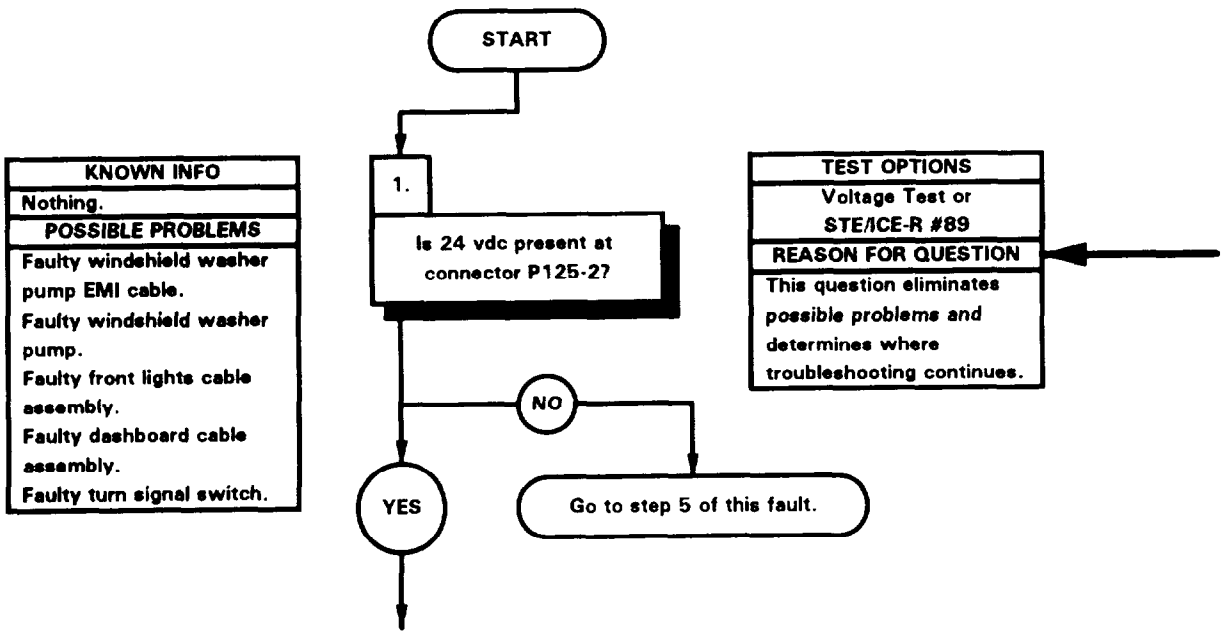
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

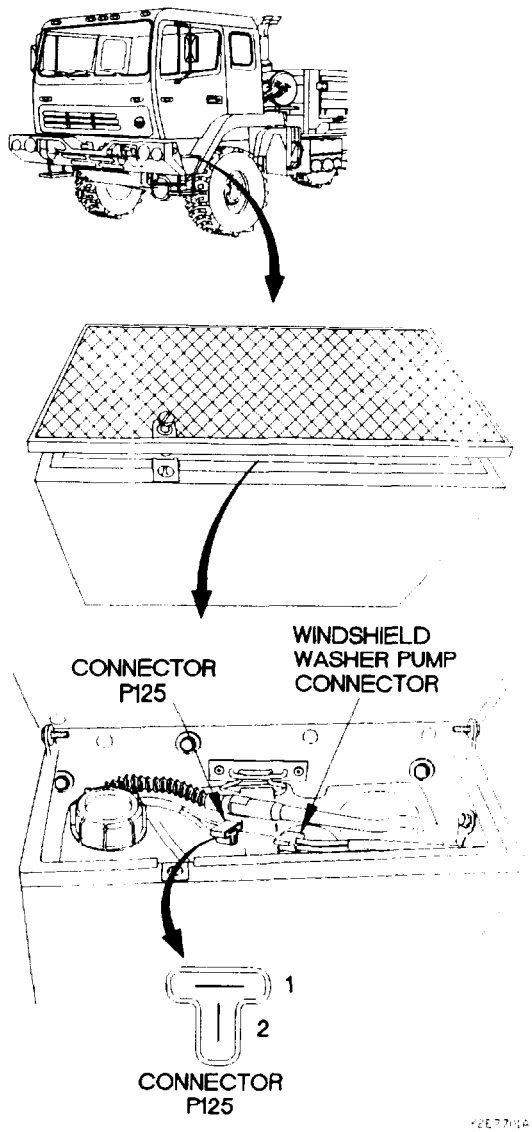
Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

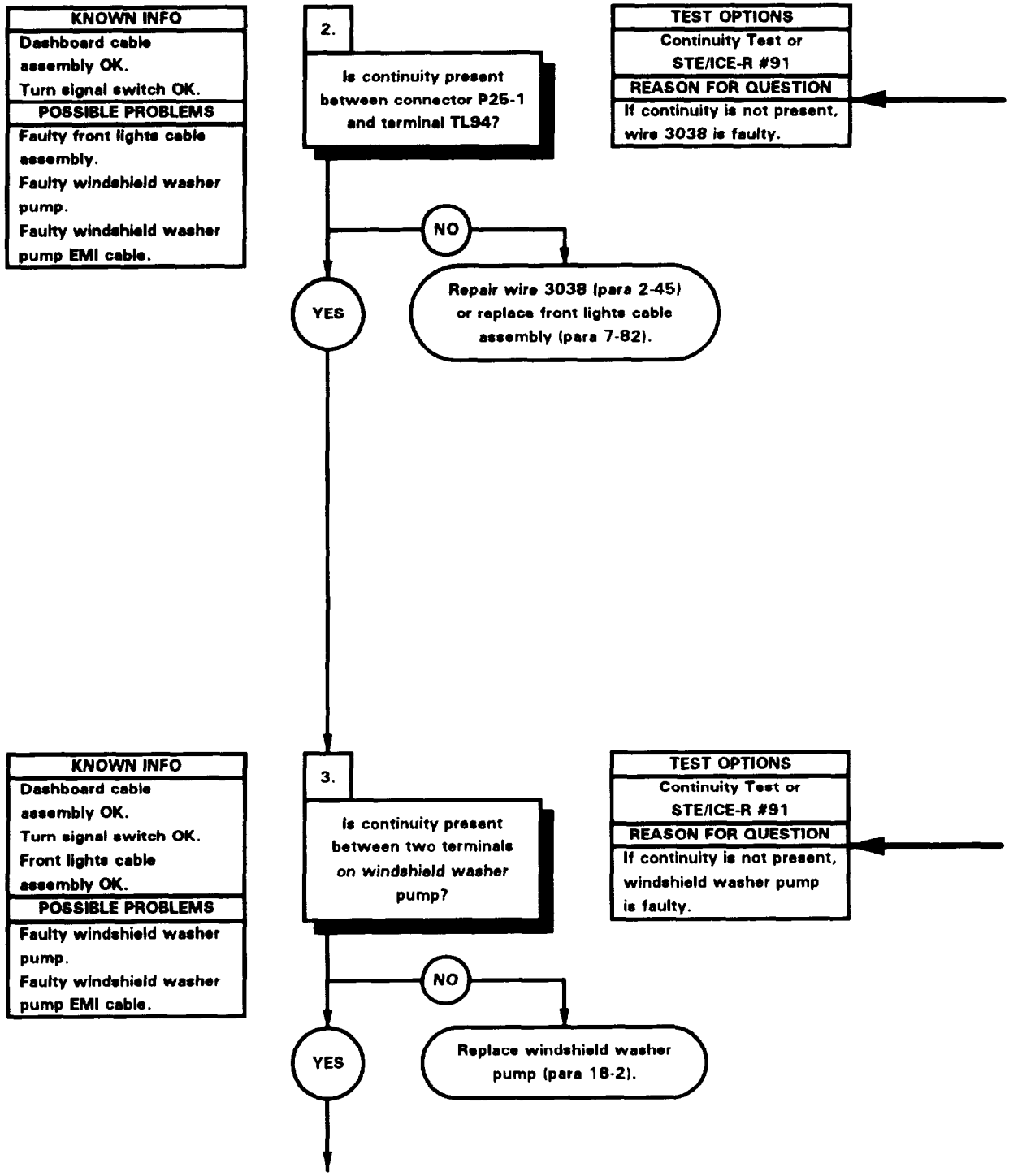
References
TM 9-4910-571-12&P



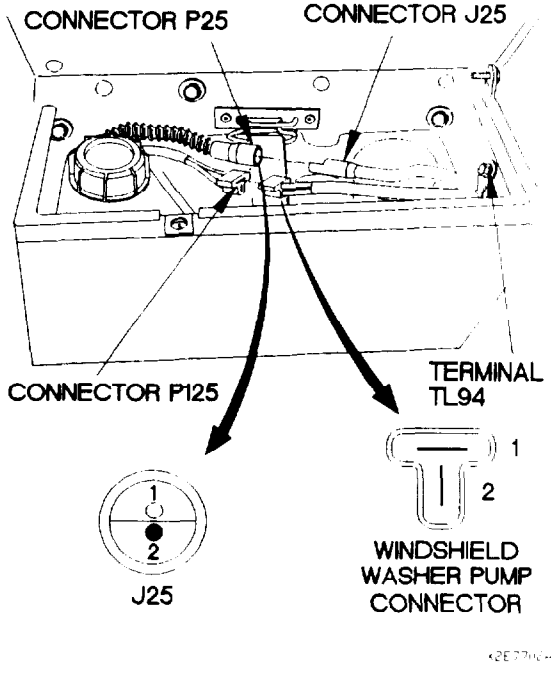
VOLTAGE TEST
(1) Open left cab step tread (TM 9-2320-366-10-1).
(2) Disconnect connector P125 from windshield washer pump connector.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector P125-2.
(5) Connect negative (-) probe of multimeter to ground.
(6) Operate windshield washer (TM 9-2320-366-10-1).
(7) If 24 vdc is not present, go to step 5 of this fault.
(8) Position master power switch to off (TM 9-2320-366-10-1).
(9) Connect connector P125 to windshield washer pump connector.



e77. WINDSHIELD WASHER DOES NOT OPERATE (CONT)

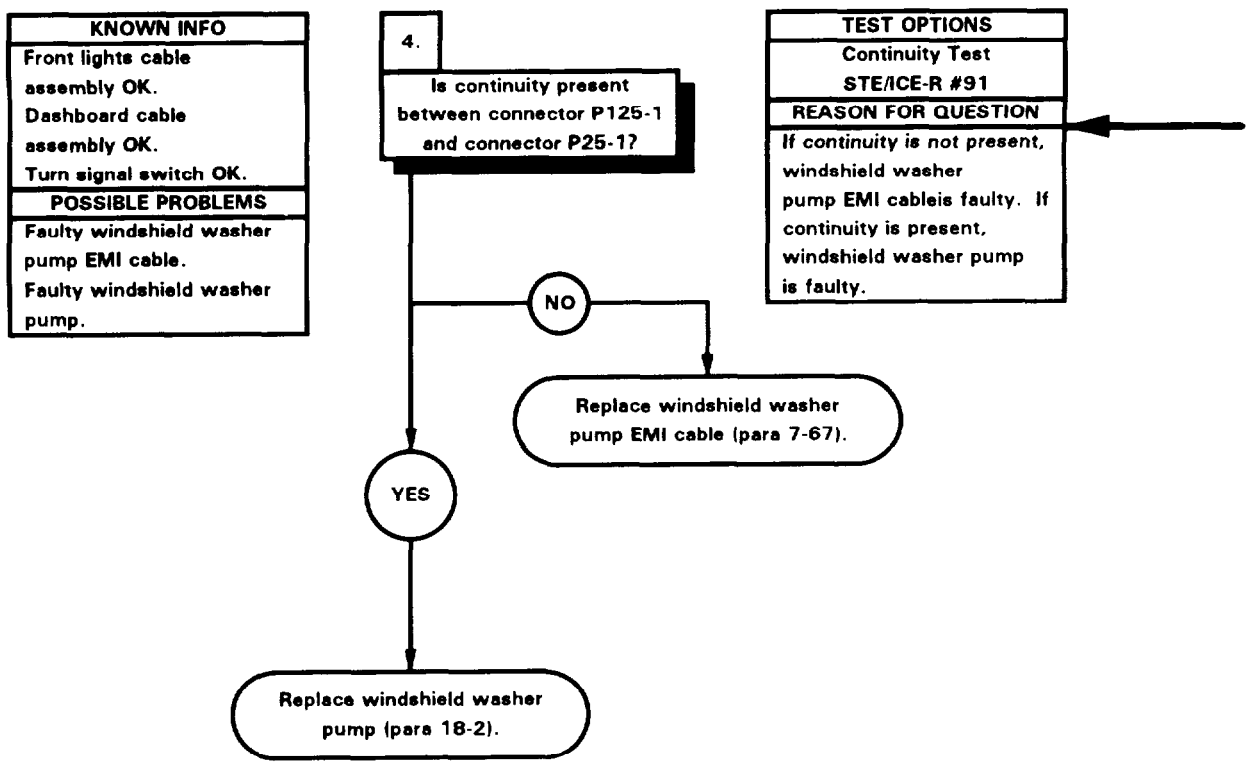


CONTINUITY TEST
(1) Disconnect connector P25 from connector J25.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector J25-1.
(4) Connect negative (-) probe of multimeter to terminal TL94.
(5) If continuity is not present, repair wire 3038 (para 2-45) or replace front lights cable assembly (para 7-82).
(6) Connect connector P25 to connector J25.



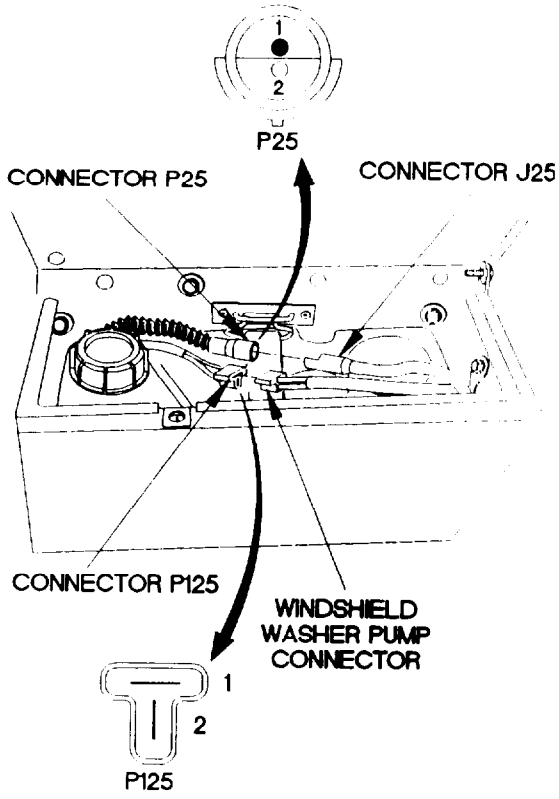
CONTINUITY TEST
(1) Disconnect connector P125 from windshield washer pump connector.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to terminal 1 of windshield washer pump connector.
(4) Connect negative (-) probe of multimeter to terminal 2 or windshield washer pump connector.
(5) If continuity is not present, replace windshield washer motor pump (para 18-2).
(6) Connect connector P125 to windshield washer pump connector.

e77. WINDSHIELD WASHER DOES NOT OPERATE (CONT)



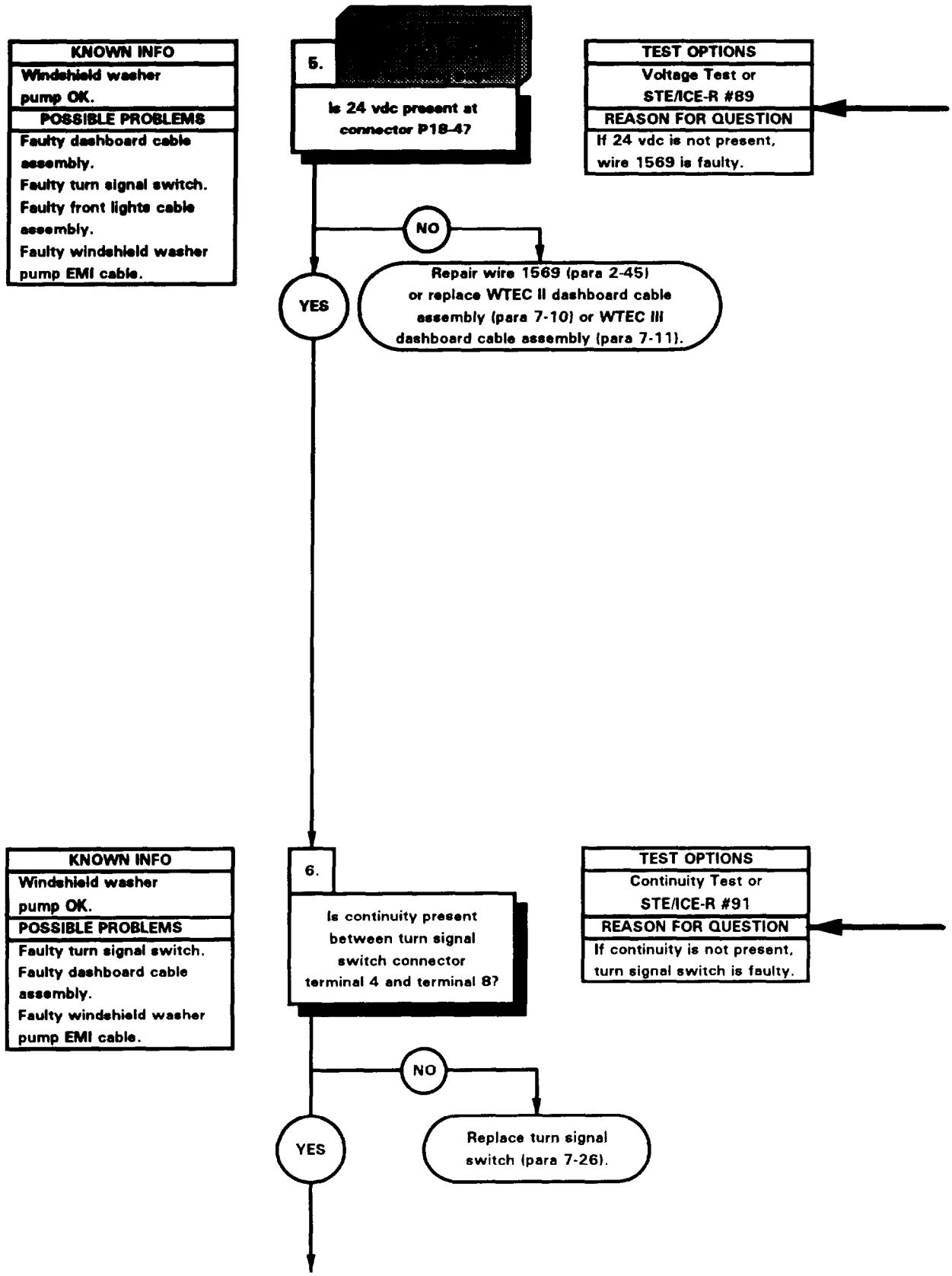
CONTINUITY TEST

(1) Disconnect connector P25 from connector J25.
(2) Disconnect connector P125 from windshield washer pump connector.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to connector P25-1.
(5) Connect negative (-) probe of multimeter to connector P125-1 and note reading on multimeter.
(6) If continuity is not present, replace windshield washer pump EMI cable (para 7-67).
(7) If continuity is present, replace windshield washer pump (para 18-2).
(8) Connect connector P25 to connector J25.
(9) Connect connector P125 to windshield washer pump.
(10) Close left cab step tread (TM 9-2320-366-10-1).



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e77. WINDSHIELD WASHER DOES NOT OPERATE (CONT)

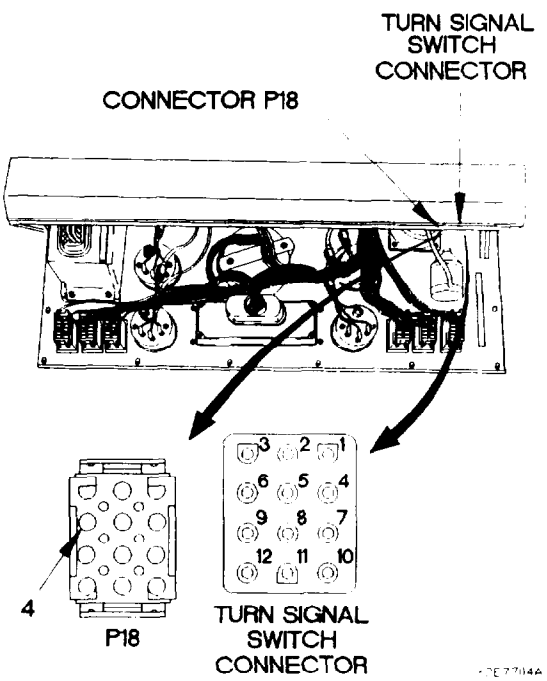


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

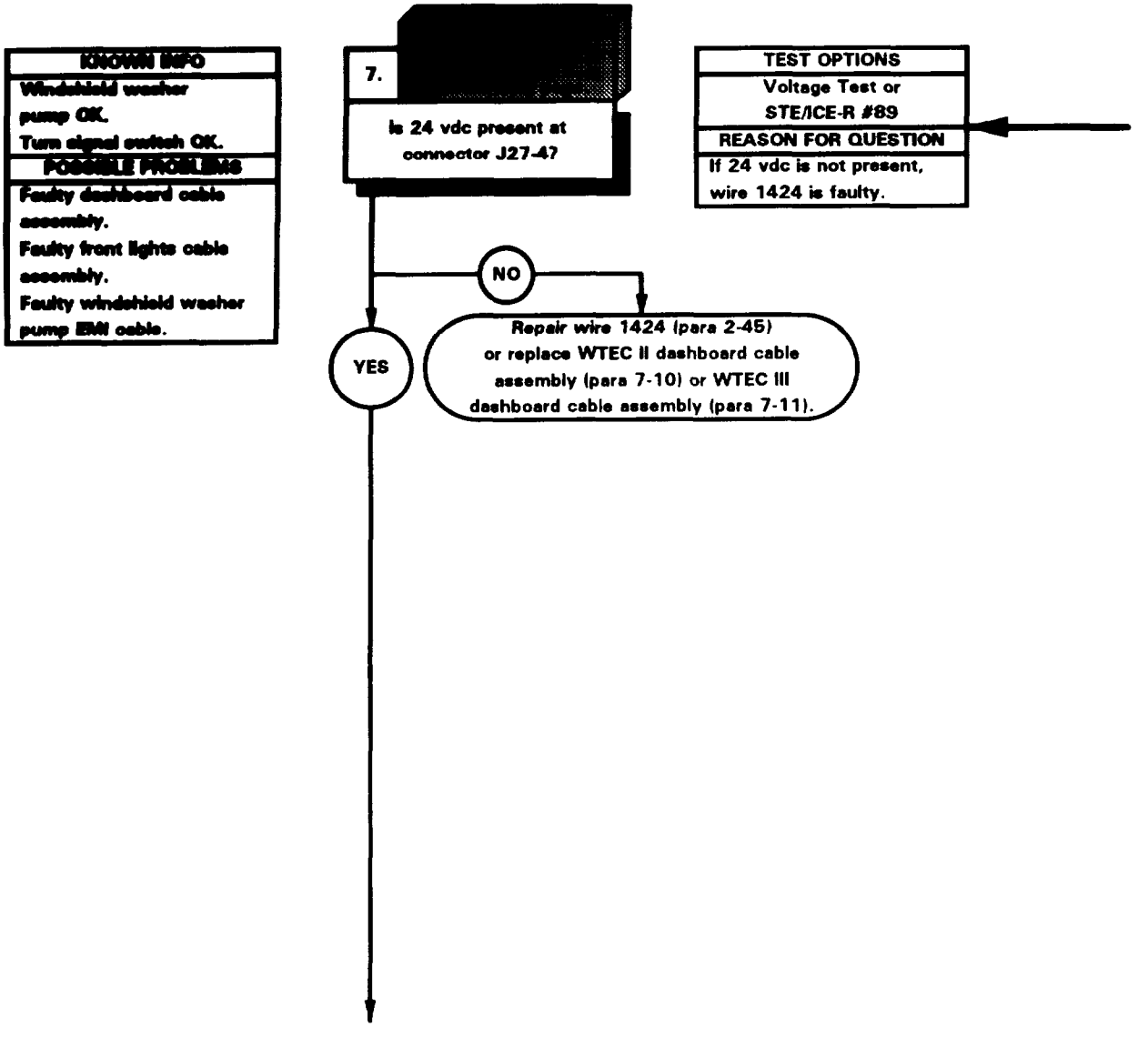
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector P18 from turn signal switch connector.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector P18-4.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1).
(7) Press windshield washer switch (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, repair wire 1569 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position master power switch to off (TM 9-2320-366-10-1).



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to turn signal switch connector terminal 4.
(3) Connect negative (-) probe of multimeter to turn signal switch connector terminal 8.
(4) Press windshield washer switch (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If continuity is not present, replace turn signal switch (para 7-26).
(6) Connect connector P18 to turn signal switch connector.
(7) Install instrument panel assembly (para 7-15).

e77. WINDSHIELD WASHER DOES NOT OPERATE (CONT)

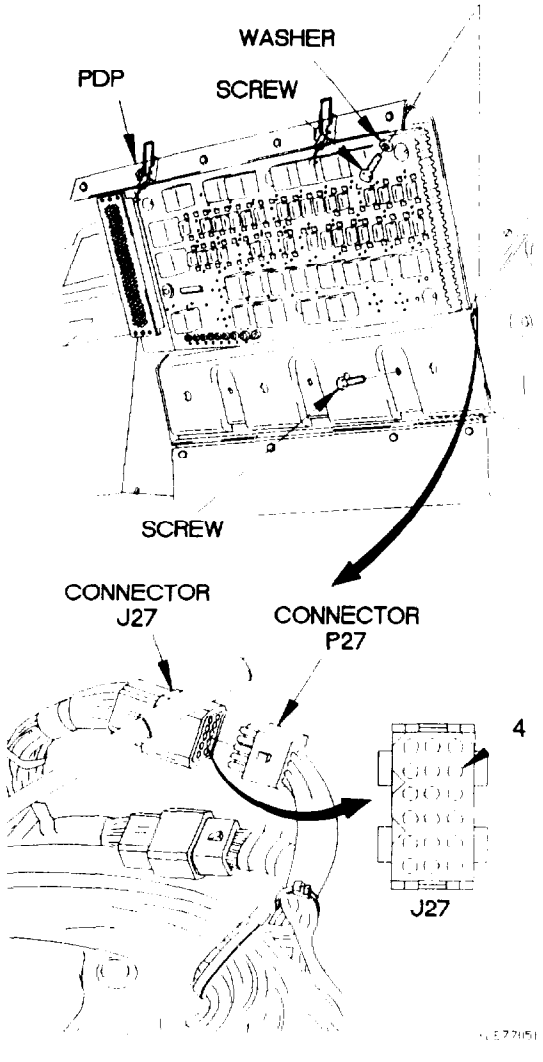


WARNING

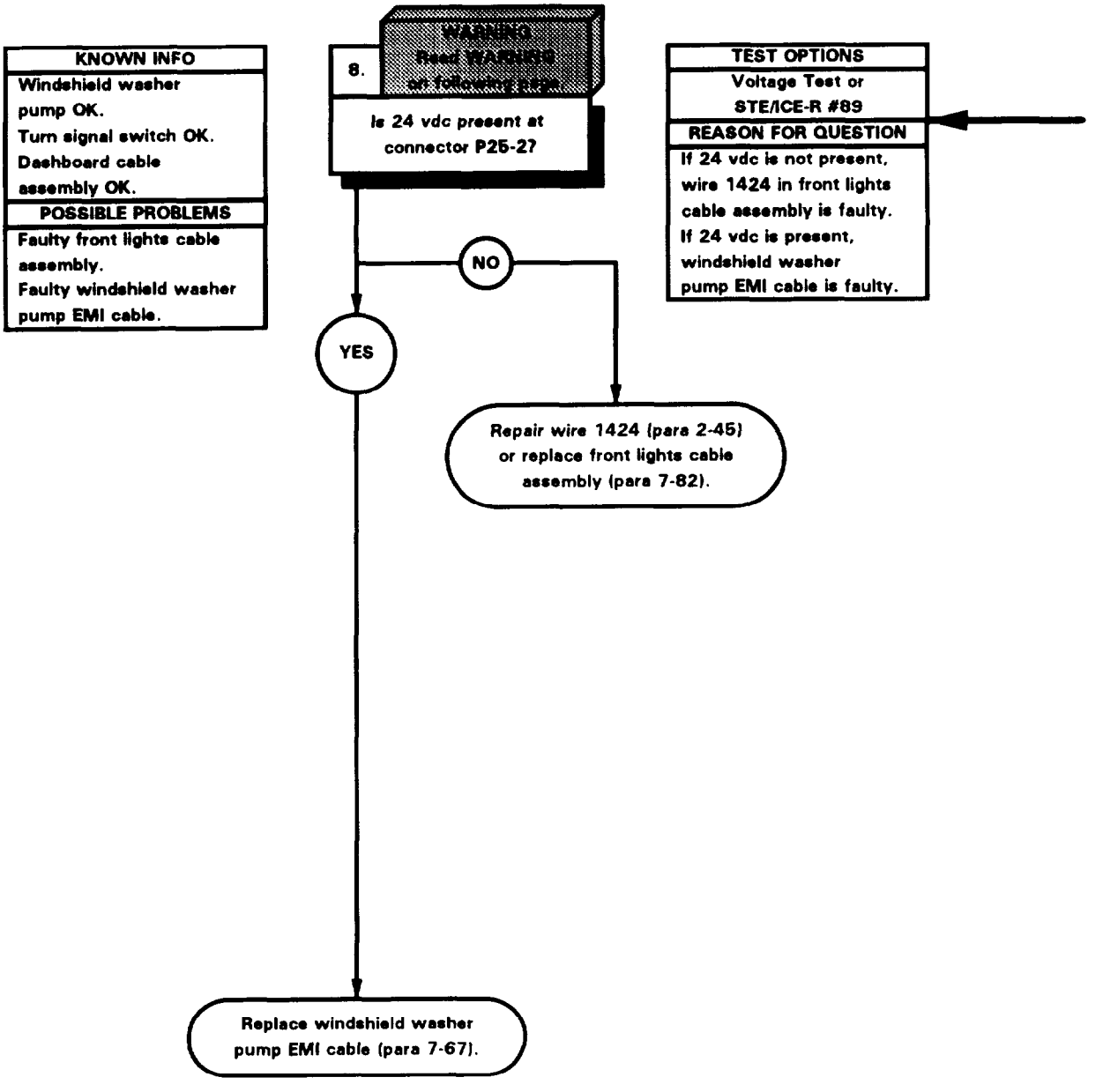
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector J27 from connector P27.
(6) Set multimeter to volts dc.
(7) Connect positive (+) probe of multimeter to connector J27-4.
(8) Connect negative (-) probe of multimeter to ground.
(9) Position master power switch to on (TM 9-2320-366-10-1).
(10) Press windshield washer switch (TM 9-2320-366-10-1) and note reading on multimeter.
(11) If 24 vdc is not present, repair wire 1424 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(12) Position master power switch to off (TM 9-2320-366-10-1).
(13) Connect connector J27 to connector P27.
(14) Install PDP on dashboard with three screws.
(15) Install three washers and screws in PDP.
(16) Install PDP cover (para 16-2).



e77. WINDSHIELD WASHER DOES NOT OPERATE (CONT)

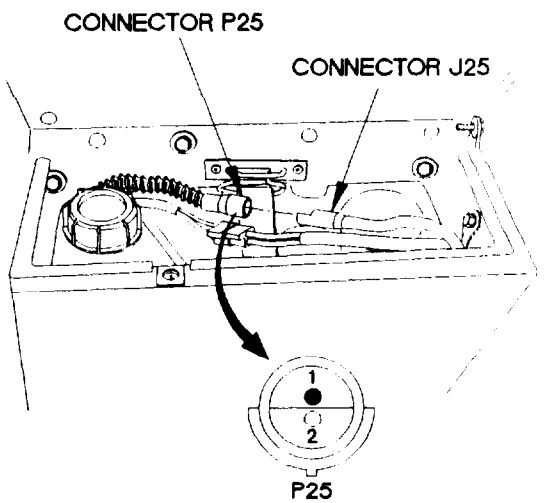


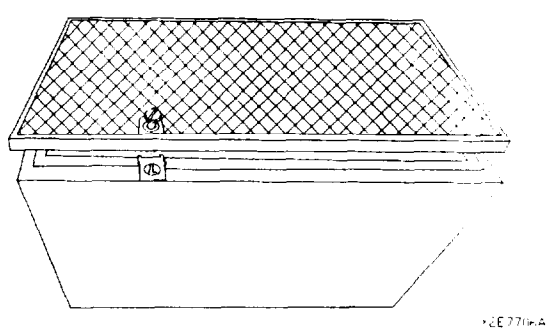
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Disconnect connector P25 from connector J25.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector P25-2.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Press windshield washer switch (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, repair wire 1424 (para 2-45) or replace front lights cable assembly (para 7-82).
(8) If 24 vdc is present, replace windshield washer pump EMI cable (para 7-67).
(9) Position master power switch to off (TM 9-2320-366-10-1).
(10) Connect connector P25 to connector J25.
(11) Close left cab step tread (TM 9-2320-366-10-1).





•78. WINDSHIELD WIPER DOES NOT OPERATE ON LOW SPEED

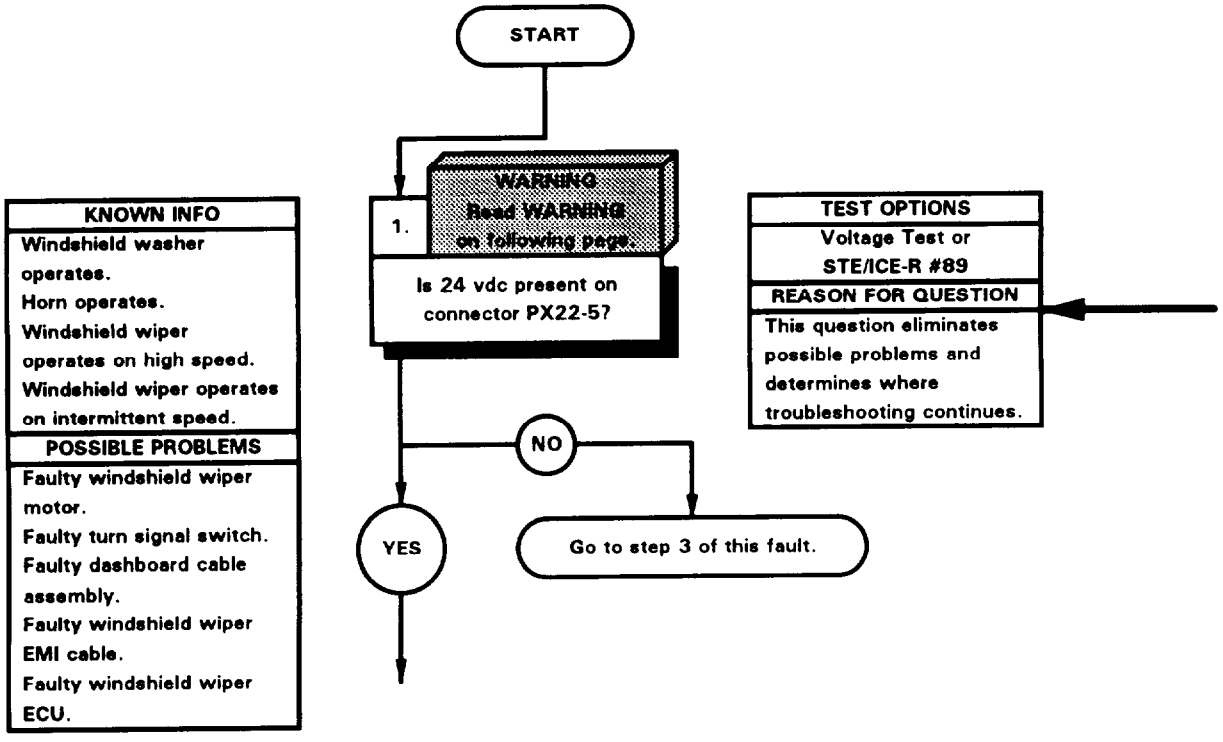
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

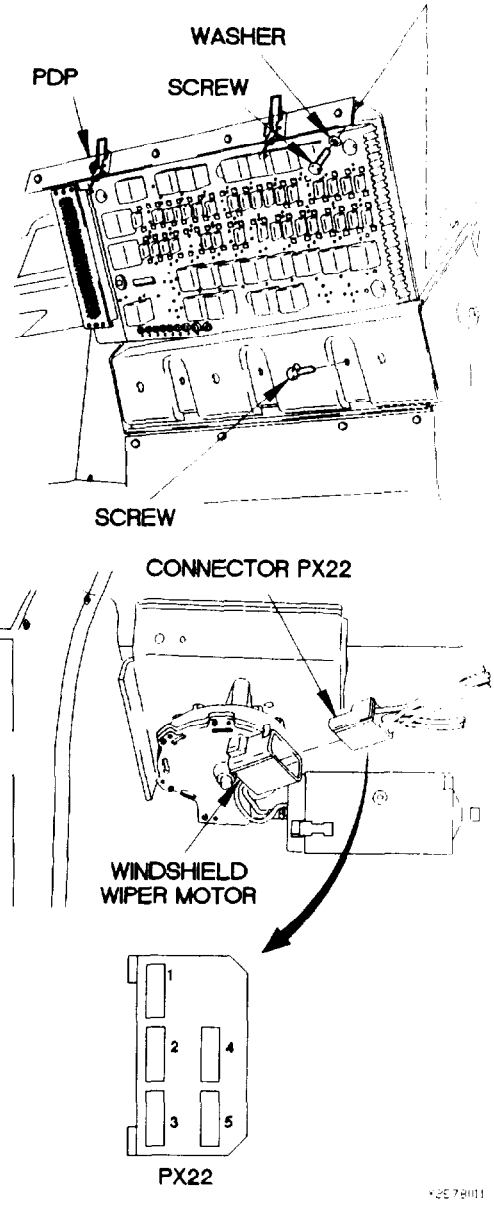


WARNING

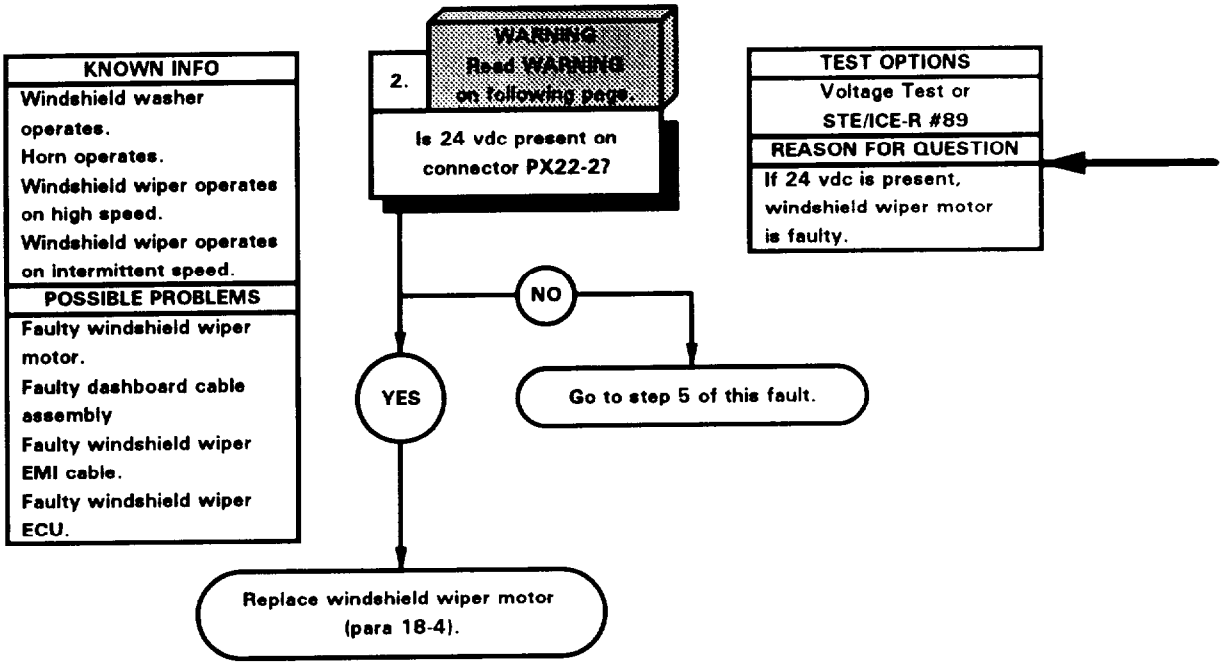
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

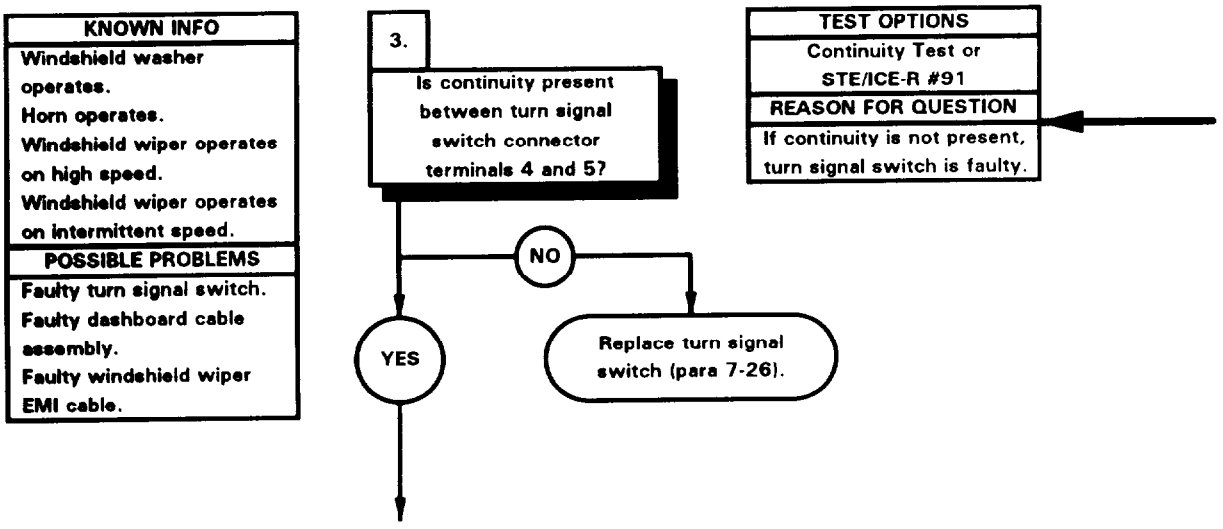
VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector PX22 from windshield wiper motor.
(6) Set multimeter to volts dc.
(7) Connect positive (+) probe of multimeter to connector PX22-5.
(8) Connect negative (-) probe of multimeter to ground.
(9) Position master power switch to on (TM 9-2320-366-10-1).
(10) Position windshield wiper switch to low (TM 9-2320-366-10-1) and note reading on multimeter.
(11) If 24 vdc is not present, go to step 3 of this fault.
(12) Position windshield wiper switch to off (TM 9-2320-366-10-1).
(13) Position master power switch to off (TM 9-2320-366-10-1).



e78. WINDSHIELD WIPER DOES NOT OPERATE ON LOW SPEED (CONT)





WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

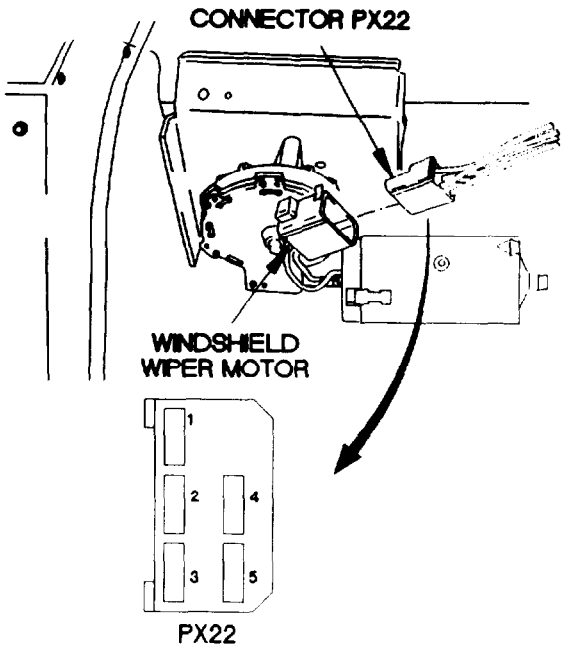
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to connector PX22-2.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1).

NOTE

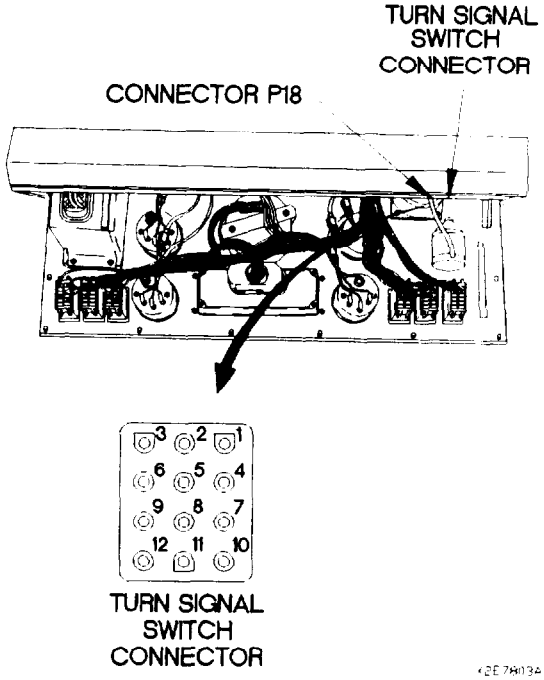
24 vdc is indicated for approximately 1 (one) second.

(5) Position windshield wiper switch to low (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, go to step 5 of this fault.
(7) Position windshield wiper switch to off (TM 9-2320-366-10-1).
(8) Position master power switch to off (TM 9-2320-366-10-1).

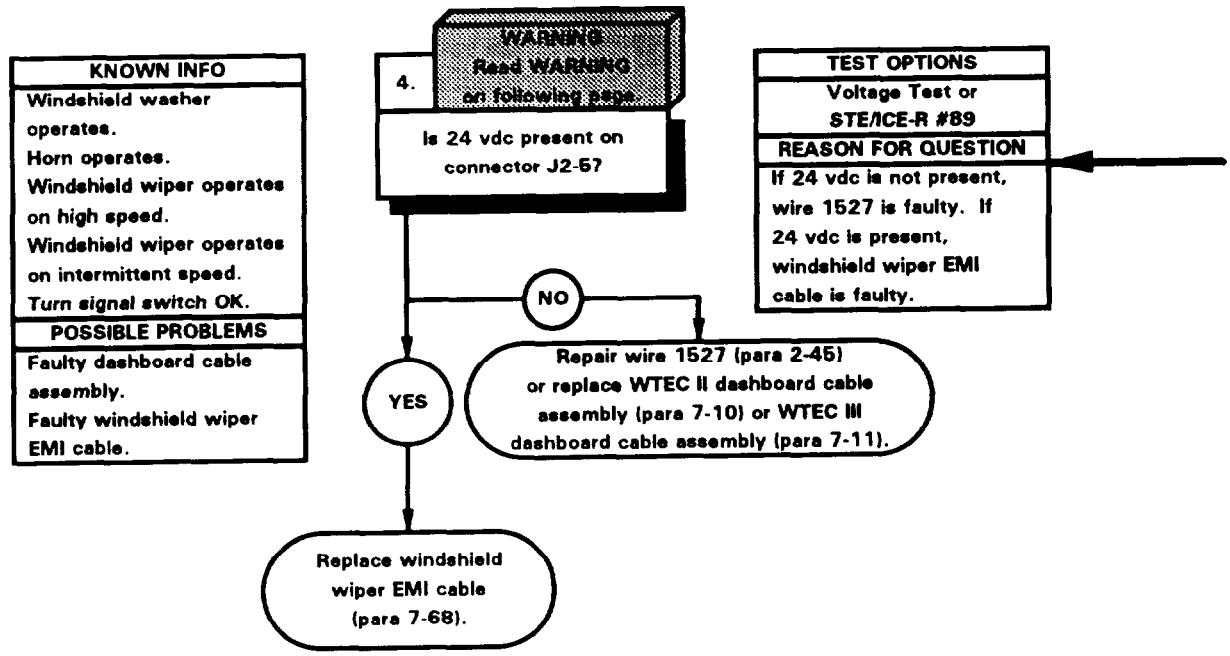


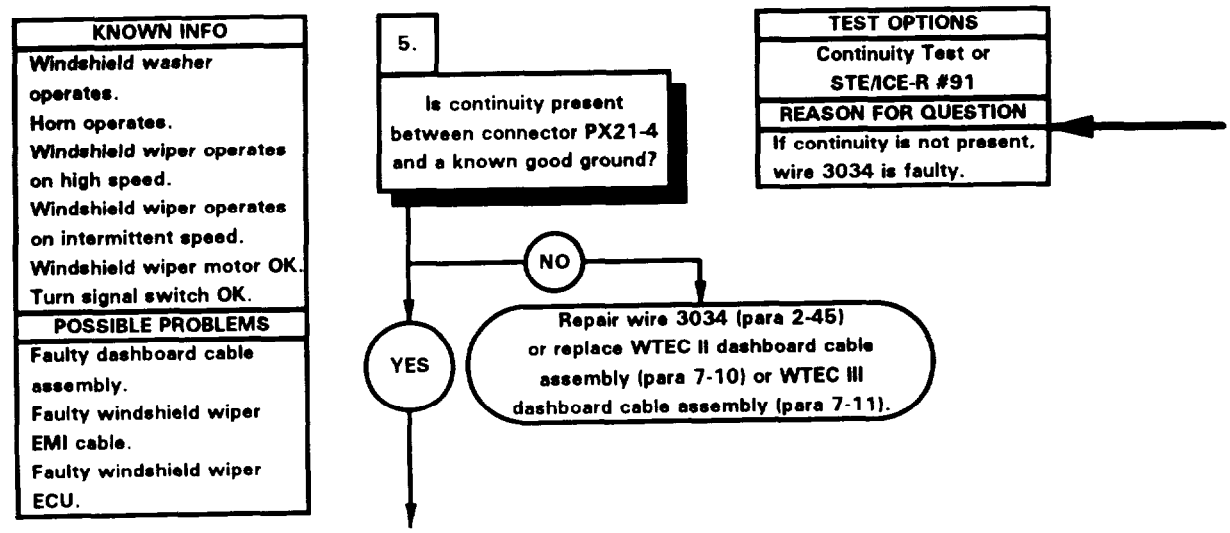
CONTINUITY TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect turn signal switch connector from connector P18.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to turn signal switch connector terminal 4.
(5) Connect negative (-) probe of multimeter to turn signal switch connector terminal 5.
(6) Position windshield wiper switch to low position (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If continuity is not present, replace turn signal switch (para 7-26).
(8) Position windshield wiper switch to off (TM 9-2320-366-10-1).
(9) Connect turn signal switch connector to connector P18.
(10) Install instrument panel assembly (para 7-15).



e78. WINDSHIELD WIPER DOES NOT OPERATE ON LOW SPEED (CONT)



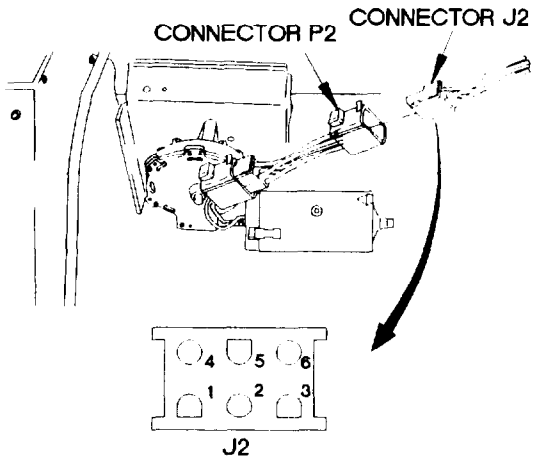


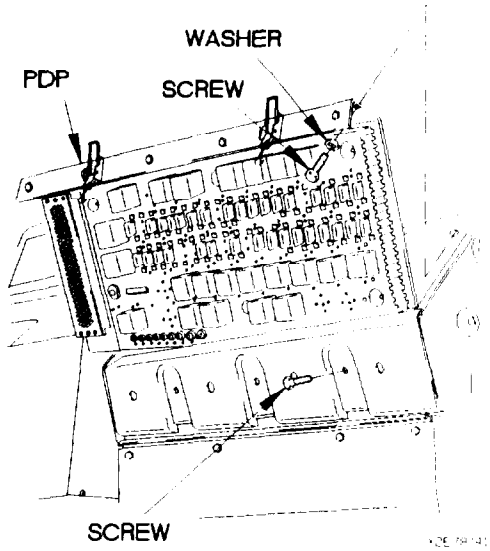
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

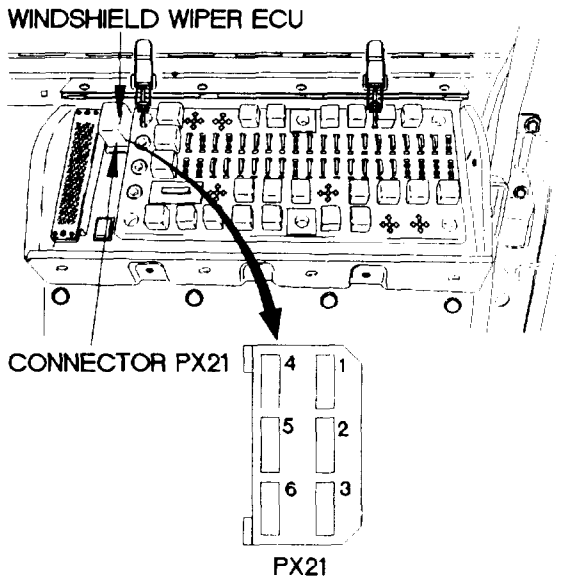
(1) Disconnect connector J2 from connector P2.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J2-5.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Position windshield wiper switch to low (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, repair wire 1527 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) If 24 vdc is present, replace windshield wiper EMI cable (para 7-68).
(9) Position windshield wiper switch to off (TM 9-2320-366-10-1).
(10) Position master power switch to off (TM 9-2320-366-10-1).
(11) Connect connector J2 to connector P2.
(12) Install PDP on dashboard with three screws.
(13) Install three washers and screws in PDP.
(14) Install PDP cover (para 16-2).



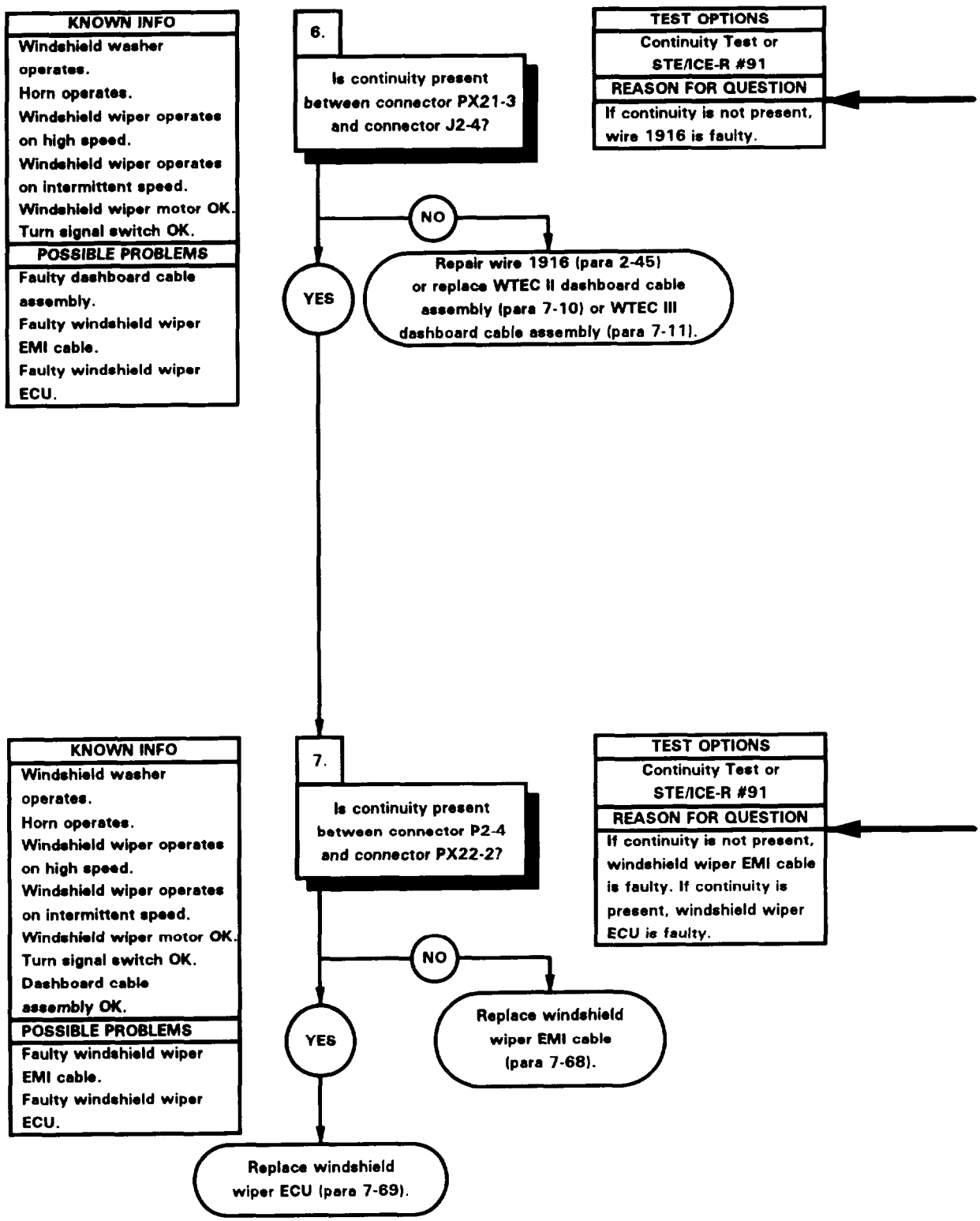


CONTINUITY TEST

(1) Disconnect windshield wiper ECU from connector PX21.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector PX21-4.
(4) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(5) If continuity is not present, repair wire 3034 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).

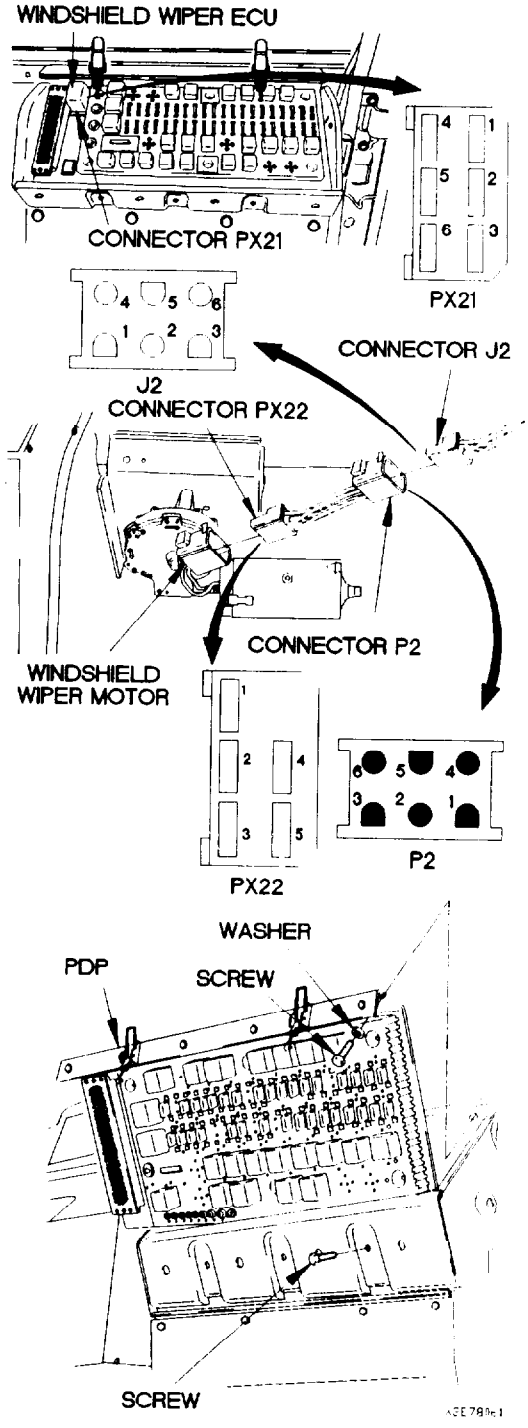


e78. WINDSHIELD WIPER DOES NOT OPERATE ON LOW SPEED (CONT)



CONTINUITY TEST

(1) Disconnect connector J2 from connector P2.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector J2-4.
(4) Connect negative (-) probe of multimeter to connector PX21-3 and note reading on multimeter.
(5) If continuity is not present, repair wire 1916 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Connect windshield wiper ECU to connector PX21.



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector P2-4.
(3) Connect negative (-) probe of multimeter to connector PX22-2 and note reading on multimeter.
(4) If continuity is not present, replace windshield wiper EMI cable (para 7-68).
(5) If continuity is present, replace windshield wiper ECU (para 7-69).
(6) Connect connector P2 to connector J2.
(7) Connect connector PX22 to windshield wiper motor.
(8) Install PDP on dashboard with three screws.
(9) Install three washers and screws in PDP.
(10) Install PDP cover (para 16-2).

•79. ALL WINDSHIELD WIPER SPEEDS DO NOT OPERATE

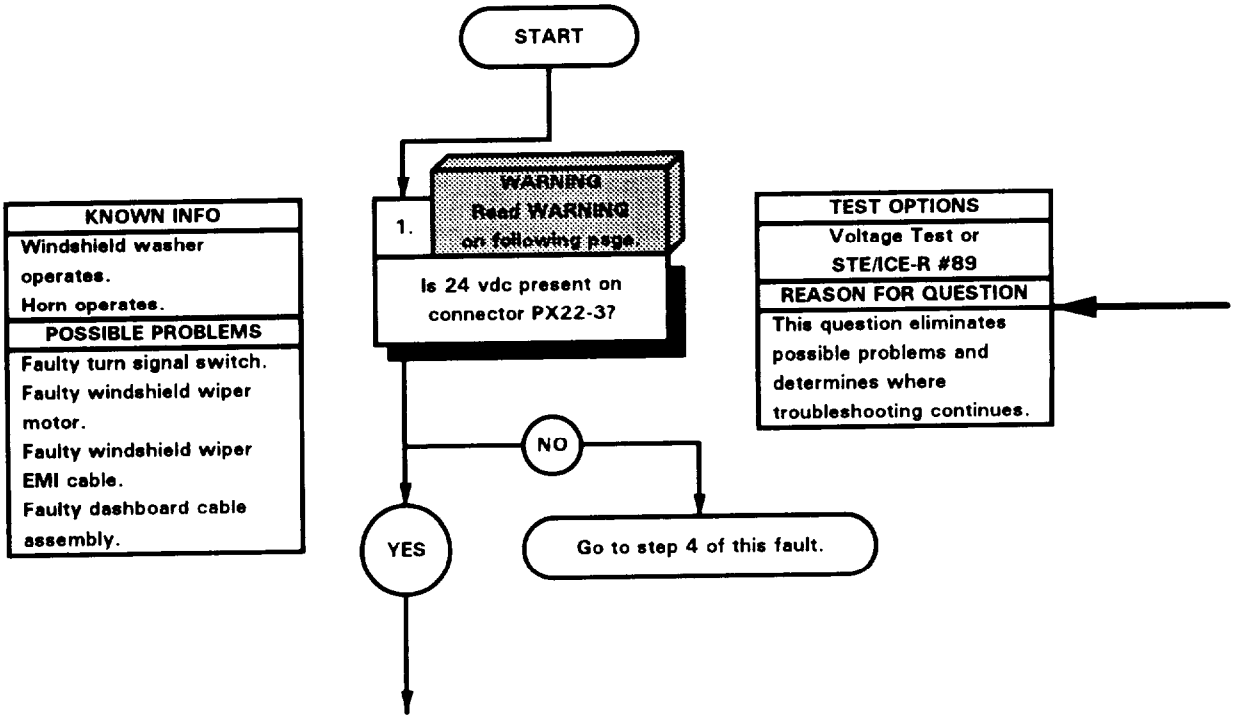
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

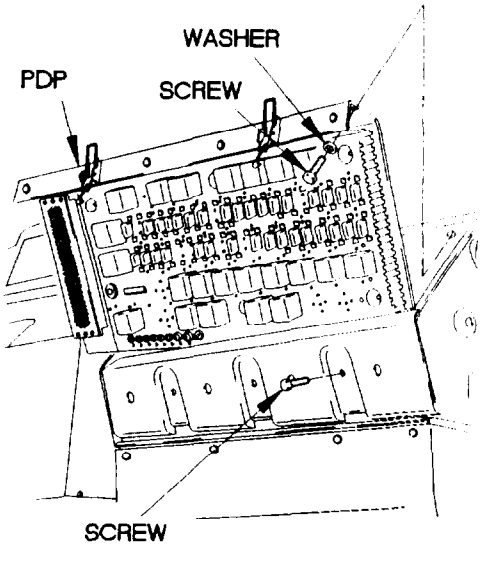


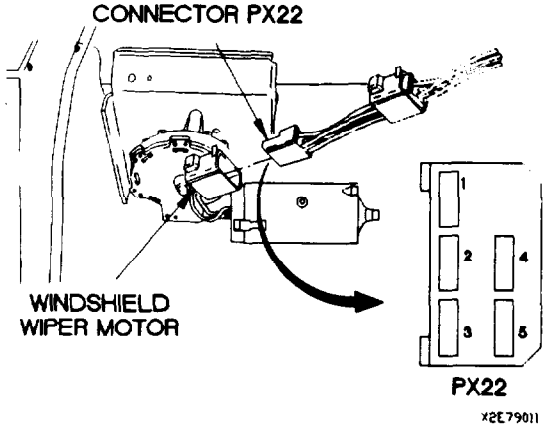
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

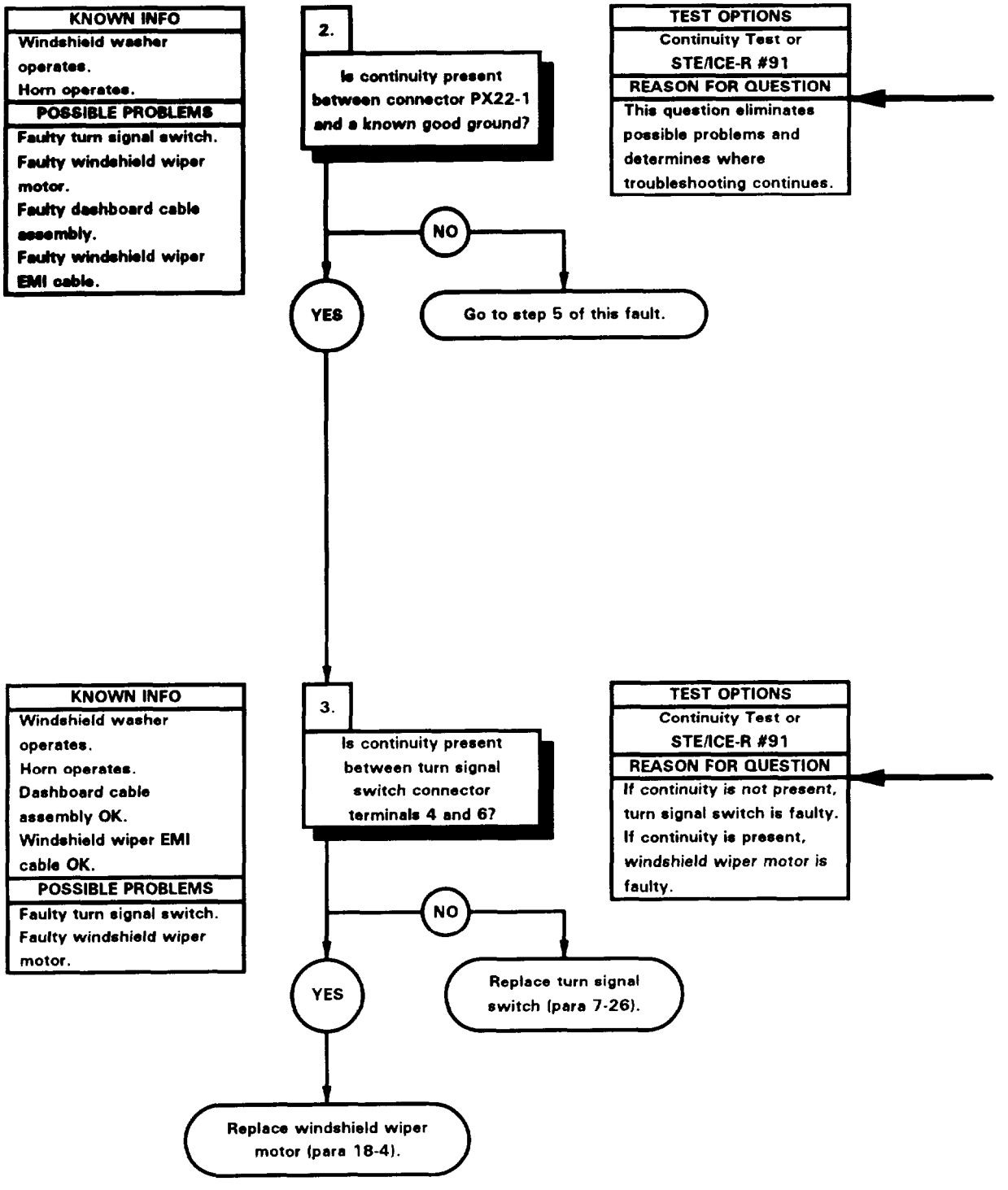
VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector PX22 from windshield wiper motor.
(6) Set multimeter to volts dc.
(7) Connect positive (+) probe of multimeter to connector PX22-3.
(8) Connect negative (-) probe of multimeter to ground.
(9) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(10) If 24 vdc is not present, go to step 4 of this fault.
(11) Position master power switch to off (TM 9-2320-366-10-1).

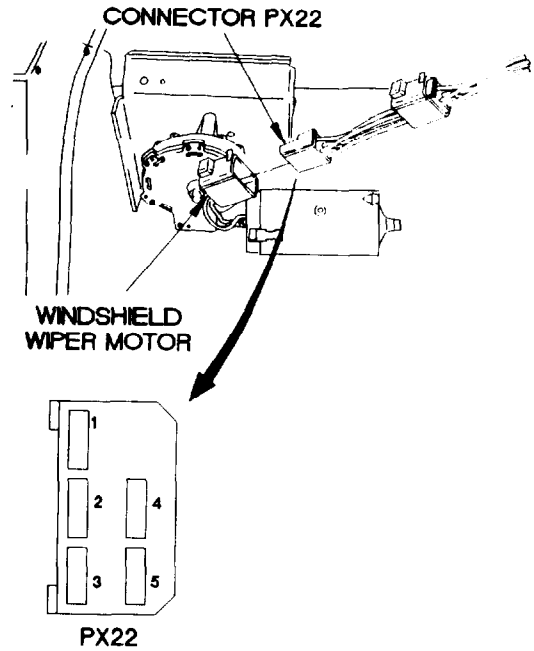




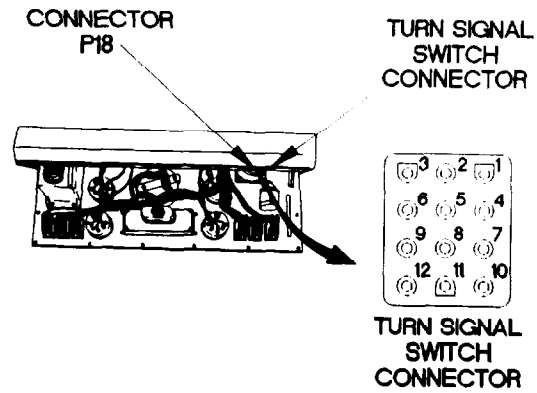
e79. ALL WINDSHIELD WIPER SPEEDS DO NOT OPERATE (CONT)

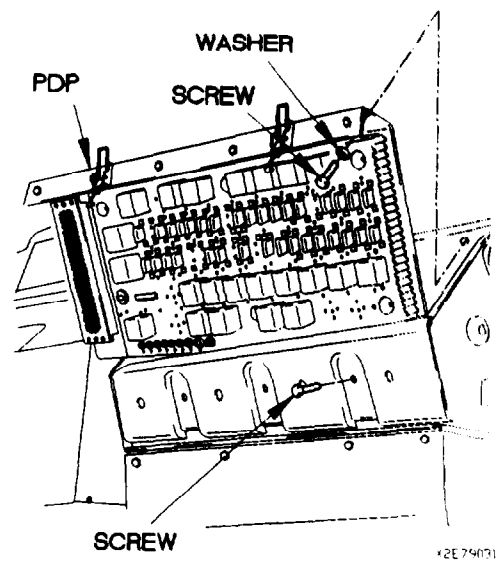


CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX22-1.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, go to step 5 of this fault.
(5) Connect connector PX22 to windshield wiper motor.

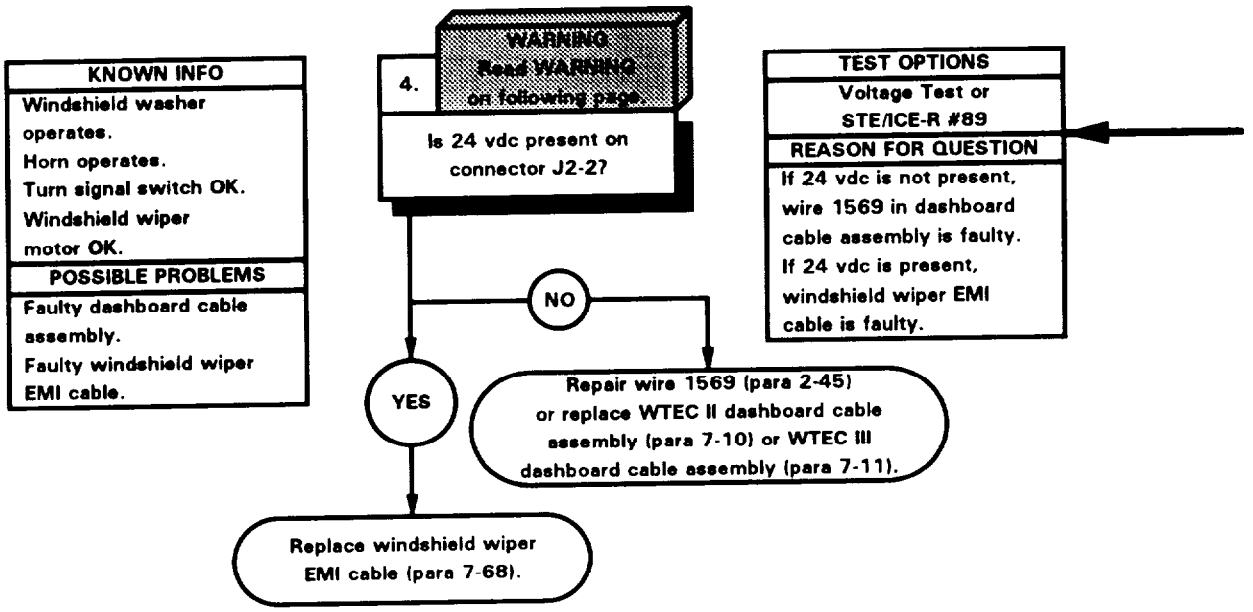


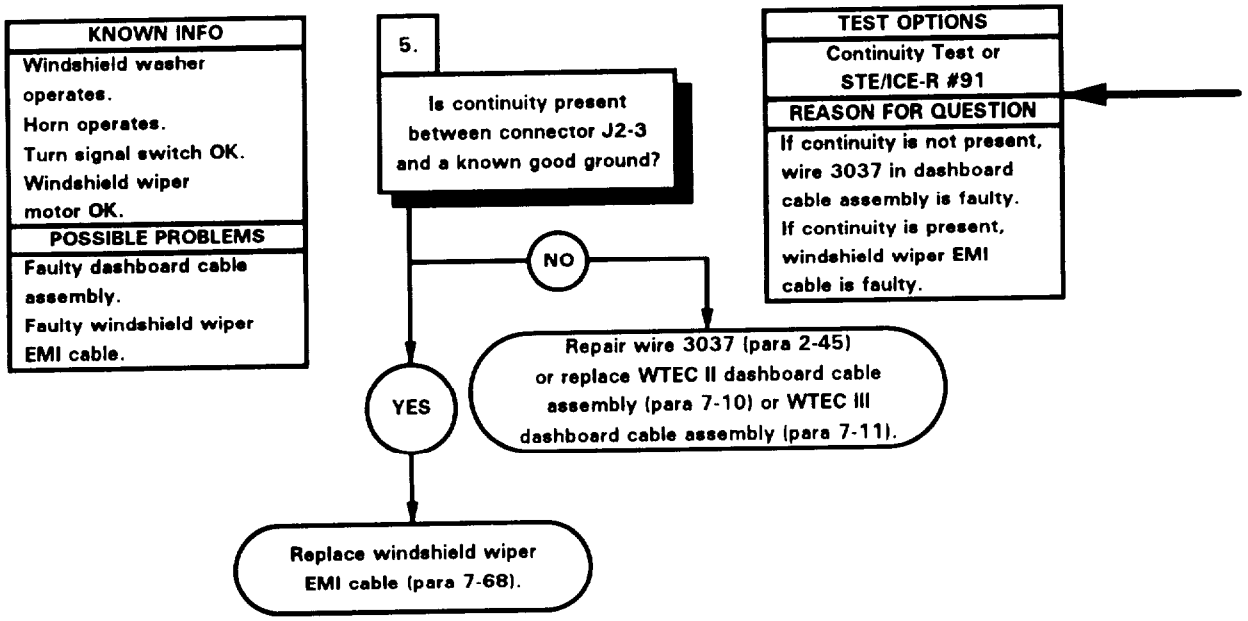
CONTINUITY TEST
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect turn signal switch connector from connector P18.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to turn signal switch connector terminal 6.
(5) Connect negative (-) probe of multimeter to turn signal switch connector terminal 4.
(6) Position windshield wiper switch to high (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If continuity is not present, replace turn signal switch (para 7-26).
(8) If continuity is present, replace windshield wiper motor (para 18-4).
(9) Position windshield wiper switch to off (TM 9-2320-366-10-1).
(10) Connect turn signal switch connector to connector P18.
(11) Install instrument panel assembly (para 7-15).
(12) Install PDP on dashboard with three screws.
(13) Install three washers and screws in PDP.
(14) Install PDP cover (para 16-2).





e79. ALL WINDSHIELD WIPER SPEEDS DO NOT OPERATE (CONT)



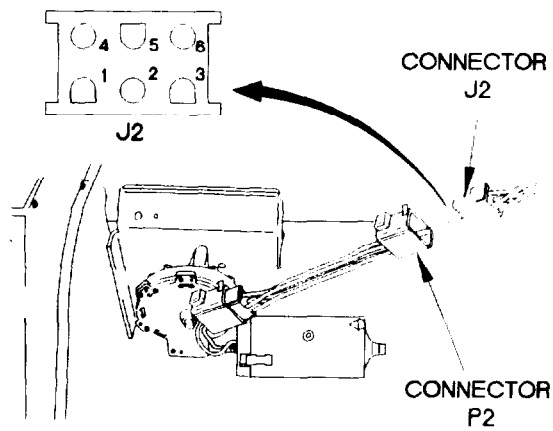


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

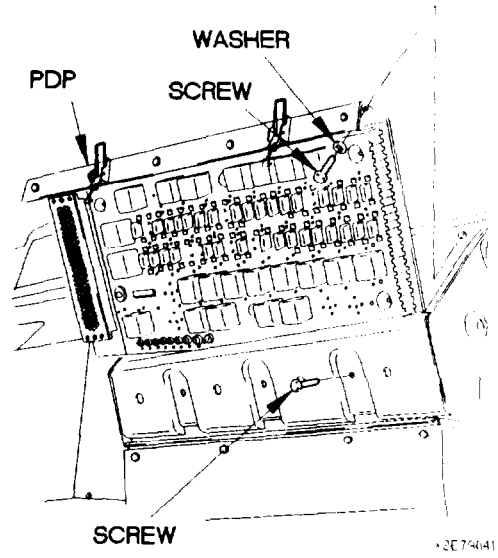
VOLTAGE TEST

(1) Disconnect connector J2 from connector P2.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J2-2.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, repair wire 1569 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) If 24 vdc is present, replace windshield wiper EMI cable (para 7-68).
(8) Position master power switch to off (TM 9-2320-366-10-1).
(9) Connect connector P2 to connector J2.
(10) Install PDP on dashboard with three screws.
(11) Install three washers and screws in PDP.
(12) Install PDP cover (para 16-2).



CONTINUITY TEST

(1) Disconnect connector J2 from connector P2.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector J2-3.
(4) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(5) If continuity is not present, repair wire 3037 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) If continuity is present, replace windshield wiper EMI cable (para 7-68).
(7) Connect connector P2 to connector J2.
(8) Install PDP on dashboard with three screws.
(9) Install three washers and screws in PDP.
(10) Install PDP cover (para 16-2).



•80. WINDSHIELD WIPER DOES NOT OPERATE ON INTERMITTENT SPEED

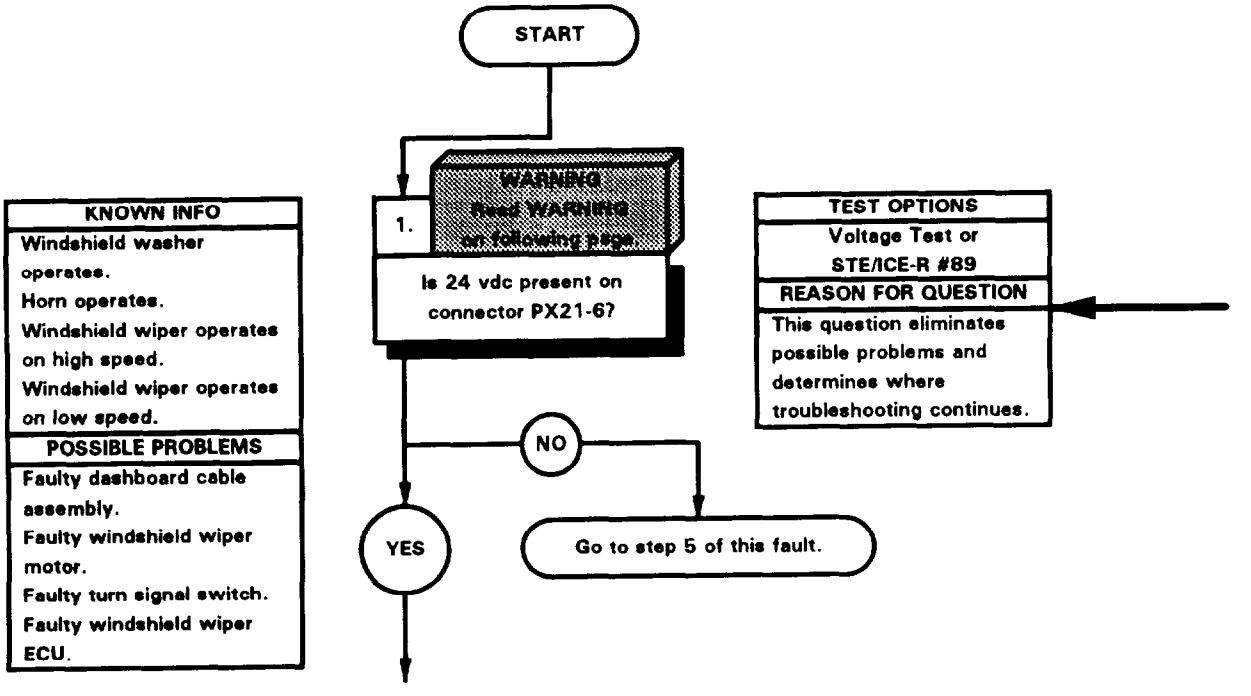
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

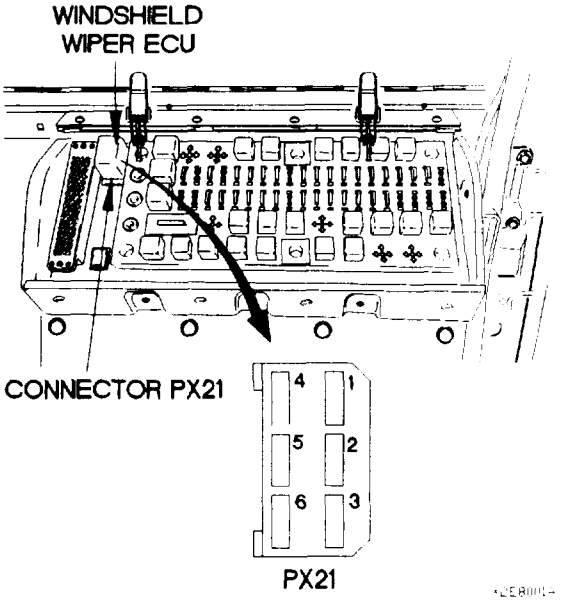


WARNING

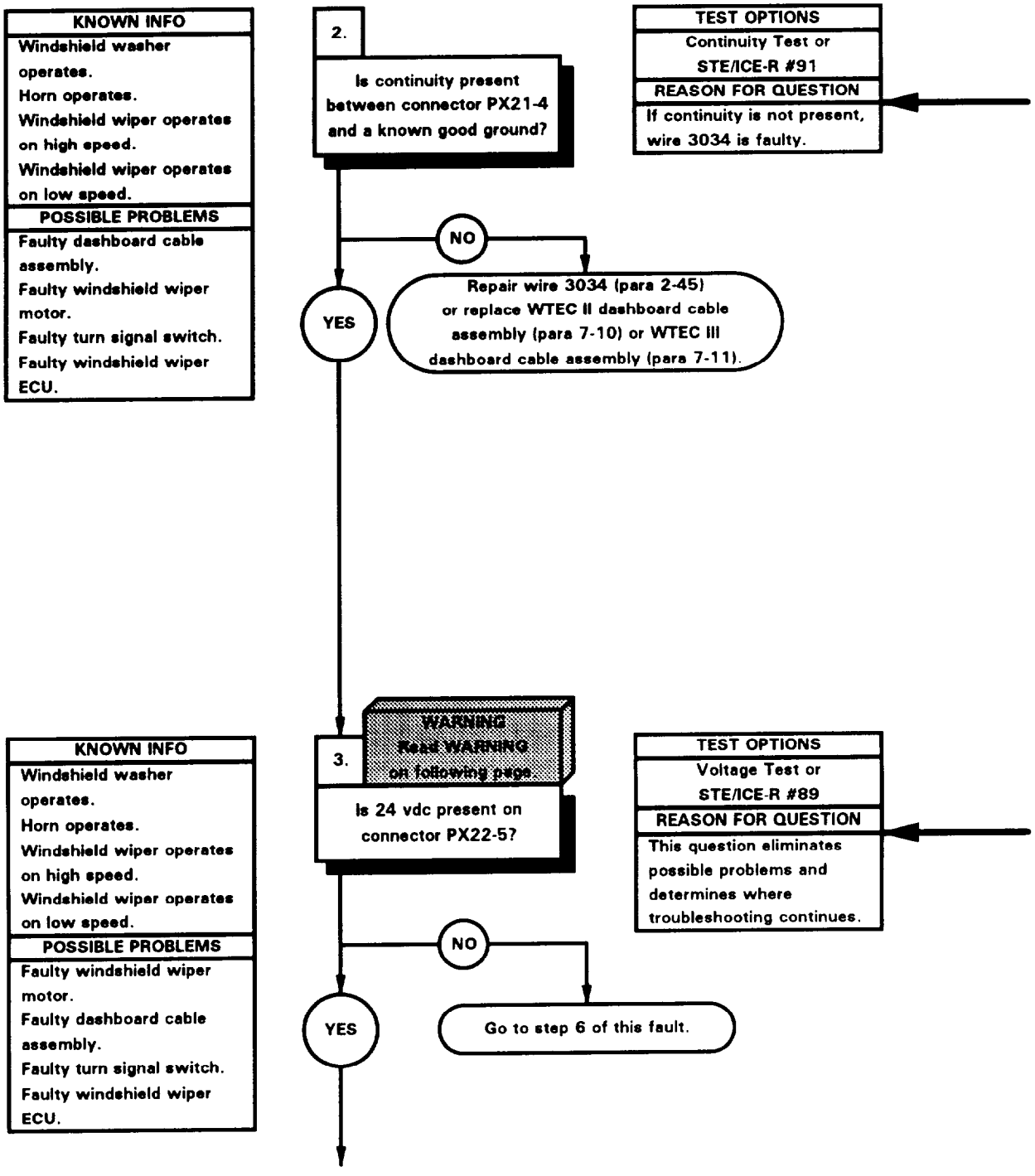
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Disconnect windshield wiper ECU from connector PX21.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector PX21-6.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1).
(7) Position windshield wiper switch to intermittent (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, go to step 5 of this fault.
(9) Position windshield wiper switch to off (TM 9-2320-366-10-1).
(10) Position master power switch to off (TM 9-2320-366-10-1).

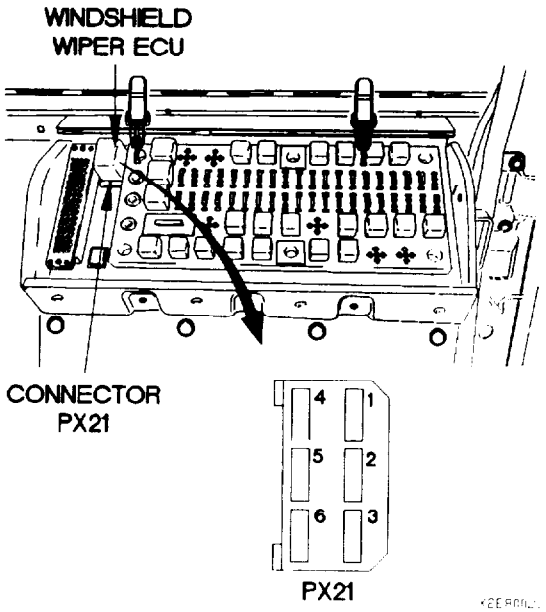


e80. WINDSHIELD WIPER DOES NOT OPERATE ON INTERMITTENT SPEED (CONT)



CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX21-4.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3034 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(5) Connect windshield wiper ECU to connector PX21.

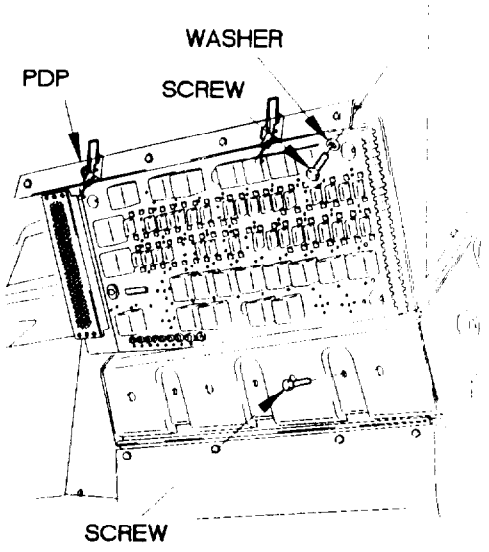


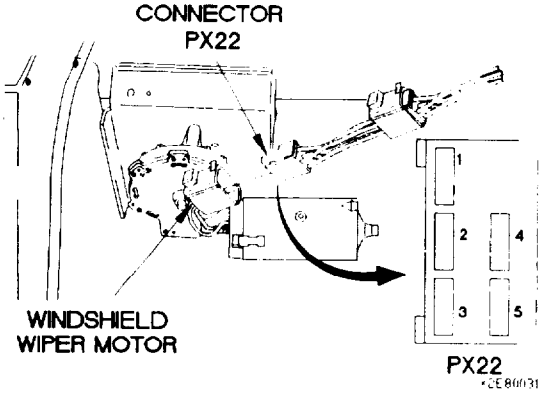
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

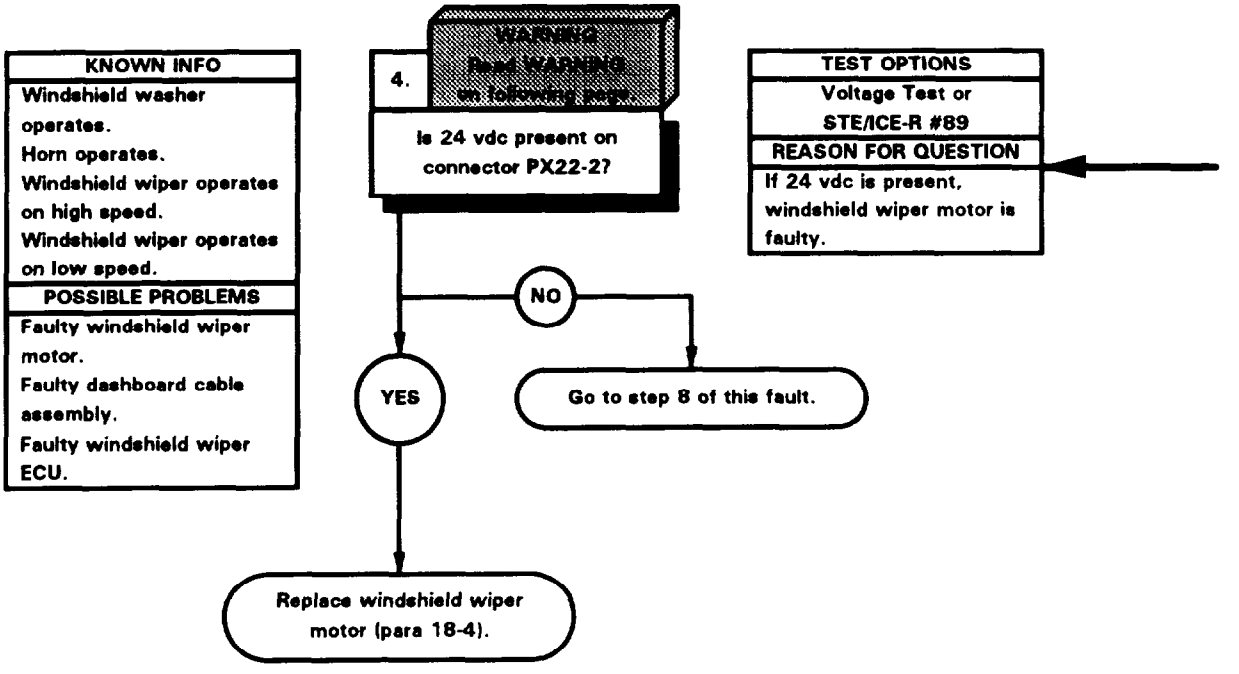
VOLTAGE TEST

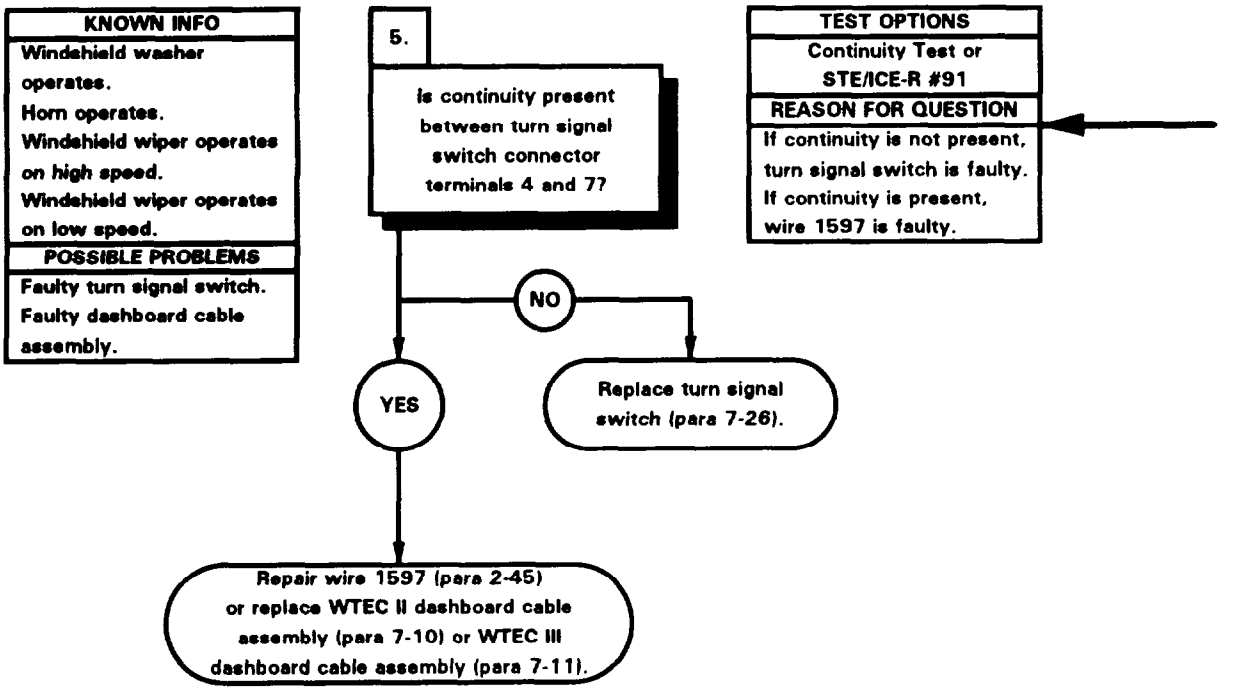
(1) Remove three screws from PDP.
(2) Remove three screws and washers from PDP.
(3) Lift PDP outward to gain access.
(4) Disconnect connector PX22 from windshield wiper motor.
(5) Set multimeter to volts dc.
(6) Connect positive (+) probe of multimeter to connector PX22-5.
(7) Connect negative (-) probe of multimeter to ground.
(8) Position master power switch to on (TM 9-2320-366-10-1).
(9) Position windshield wiper switch to intermittent (TM 9-2320-366-10-1) and note reading on multimeter.
(10) If 24 vdc is not present, go to step 6 of this fault.
(11) Position windshield wiper switch to off (TM 9-2320-366-10-1).
(12) Position master power switch to off (TM 9-2320-366-10-1).





e80. WINDSHIELD WIPER DOES NOT OPERATE ON INTERMITTENT SPEED (CONT)



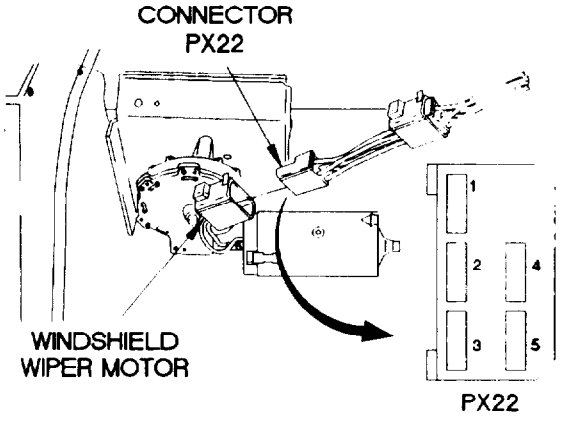


WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

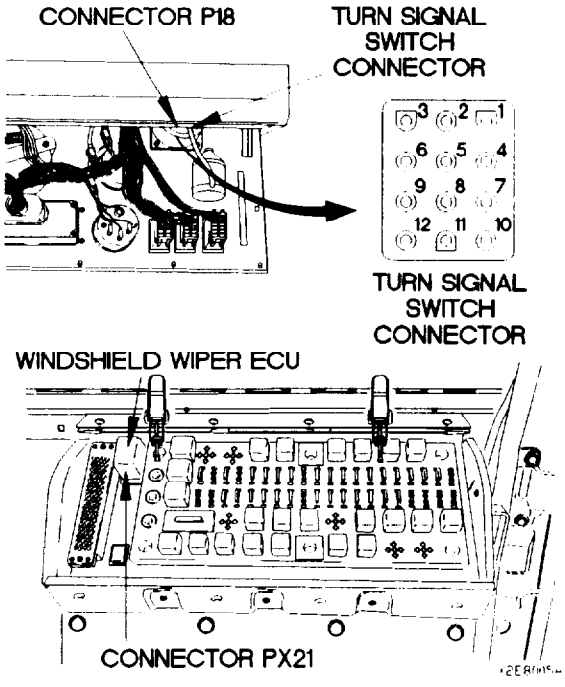
VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to connector PX22-2.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1).
(5) Position windshield wiper switch to intermittent (TM 9-2320-366-10-1) and note reading on multimeter.
(6) If 24 vdc is not present, go to step 8 of this fault.
(7) If 24 vdc is present, replace windshield wiper motor (para 18-4).
(8) Position windshield wiper switch to off (TM 9-2320-366-10-1).
(9) Position master power switch to off (TM 9-2320-366-10-1).
(10) Connect connector PX22 to windshield wiper motor.

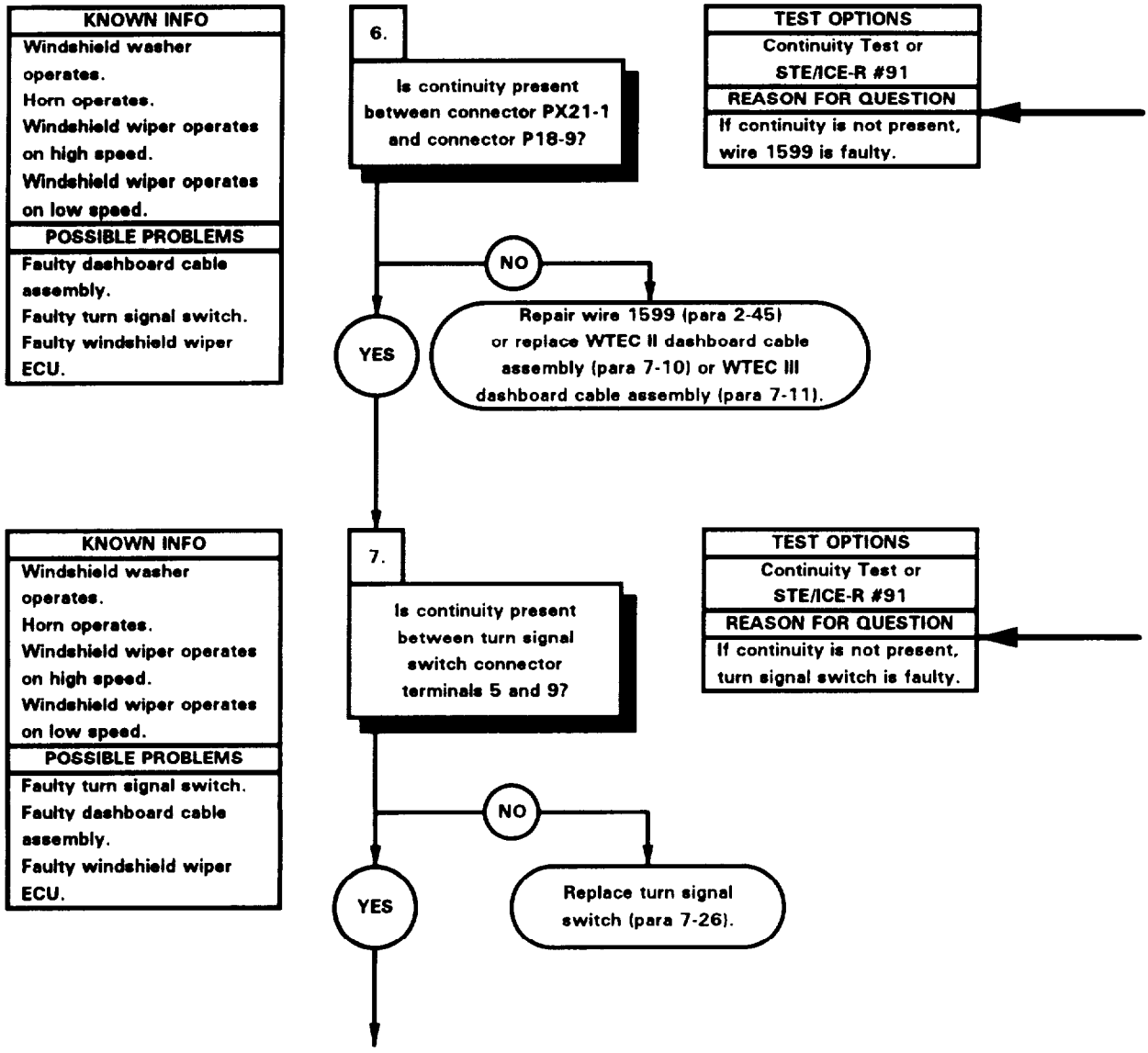


CONTINUITY TEST

(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect turn signal switch connector from connector P18.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to turn signal switch connector terminal 4.
(5) Connect negative (-) probe of multimeter to turn signal switch connector terminal 7.
(6) Position windshield wiper switch to intermittent (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If continuity is not present, replace turn signal switch (para 7-26).
(8) If continuity is present, repair wire 1597 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position windshield wiper switch to off (TM 9-2320-366-10-1).
(10) Connect turn signal switch connector to connector P18.
(11) Install instrument panel assembly (para 7-15).
(12) Connect windshield wiper ECU to connector PX21.
(13) Install PDP cover (para 16-2).



e80. WINDSHIELD WIPER DOES NOT OPERATE ON INTERMITTENT SPEED (CONT)

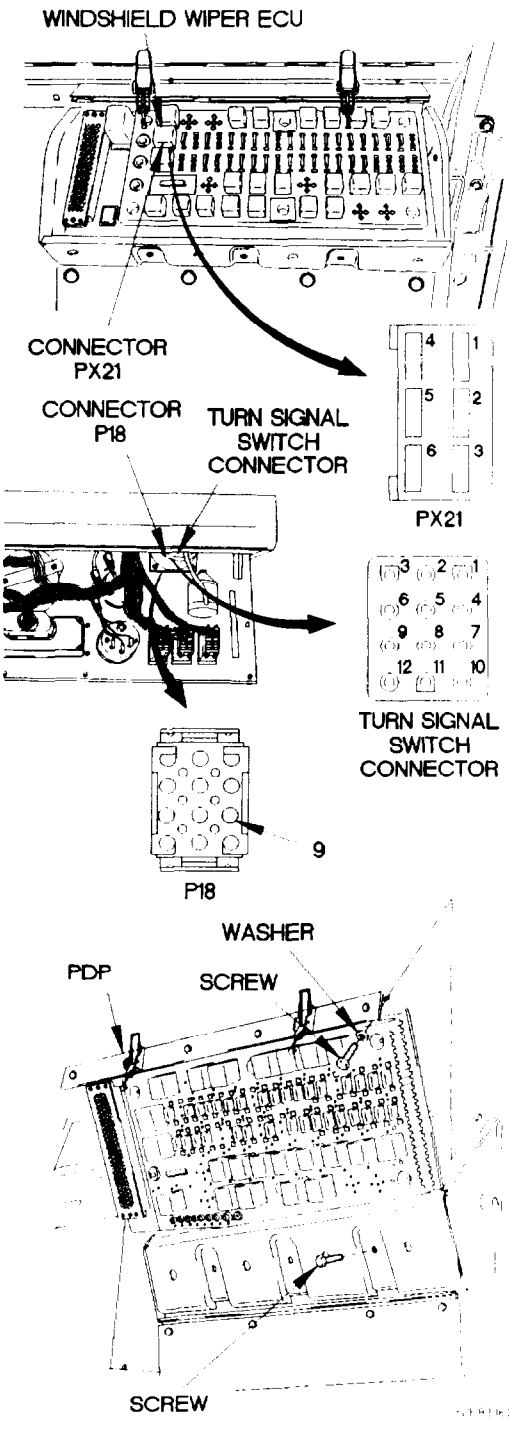


CONTINUITY TEST

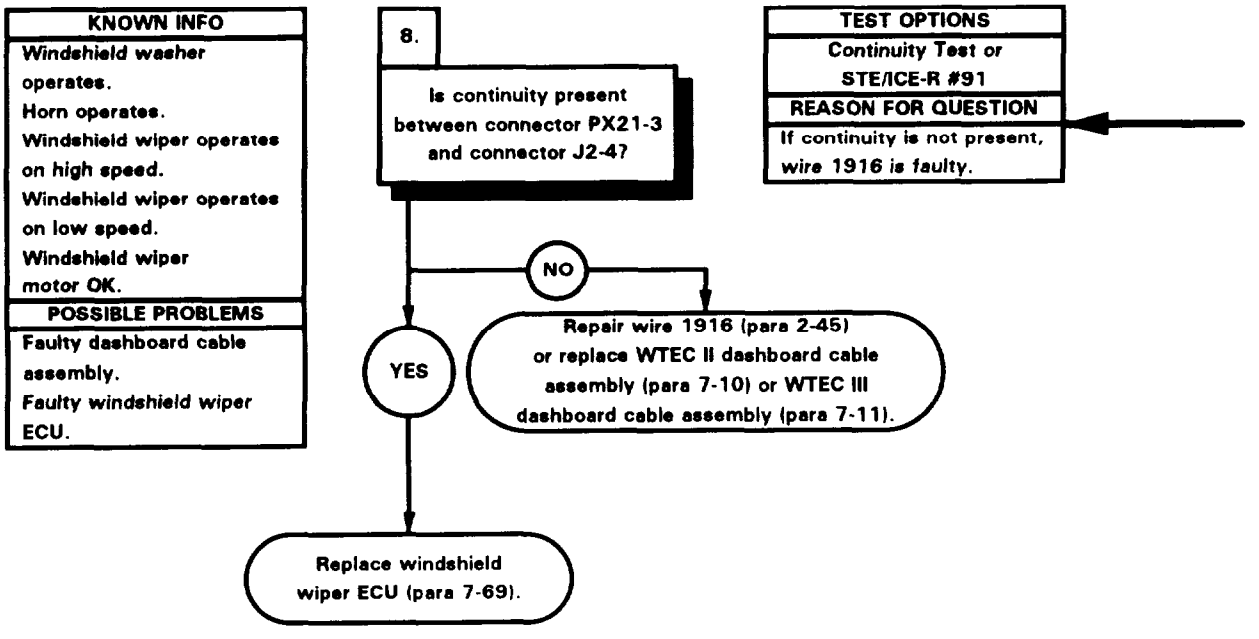
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect windshield wiper ECU from connector PX21.
(3) Disconnect connector P18 from turn signal switch connector.
(4) Set multimeter to ohms.
(5) Connect positive (+) probe of multimeter to connector PX21-1.
(6) Connect negative (-) probe of multimeter to connector P18-9 and note reading on multimeter.
(7) If continuity is not present, repair wire 1599 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).

CONTINUITY TEST

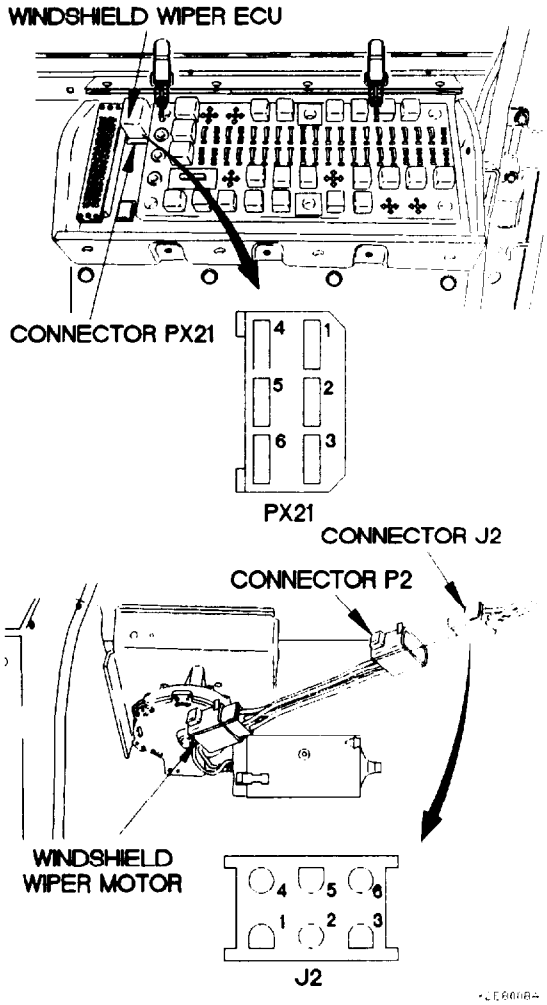
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to turn signal switch connector terminal 9.
(3) Connect negative (-) probe of multimeter to turn signal switch connector terminal 5.
(4) Position windshield wiper switch to intermittent (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If continuity is not present, replace turn signal switch (para 7-26).
(6) Position windshield wiper switch to off (TM 9-2320-366-10-1).
(7) Connect windshield wiper ECU to connector PX21.
(8) Connect connector P18 to turn signal switch connector.
(9) Install instrument panel assembly (para 7-15).
(10) Install PDP on dashboard with three screws.
(11) Install three washers and screws in PDP.
(12) Install PDP cover (para 16-2).



e80. WINDSHIELD WIPER DOES NOT OPERATE ON INTERMITTENT SPEED (CONT)



CONTINUITY TEST
(1) Disconnect connector J2 from connector P2.
(2) Disconnect windshield wiper ECU from connector PX21.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to connector PX21-3.
(5) Connect negative (-) probe of multimeter to connector J2-4 and note reading on multimeter.
(6) If continuity is not present, repair wire 1916 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) If continuity is present, replace windshield wiper ECU (para 7-69).
(8) Connect windshield wiper ECU to connector PX21.
(9) Connect connector P2 to connector J2.
(10) Install PDP on dashboard with three screws.
(11) Install three washers and screws in PDP.
(12) Install PDP cover (para 16-2).



e81. WINDSHIELD WIPER DOES NOT OPERATE ON HIGH SPEED

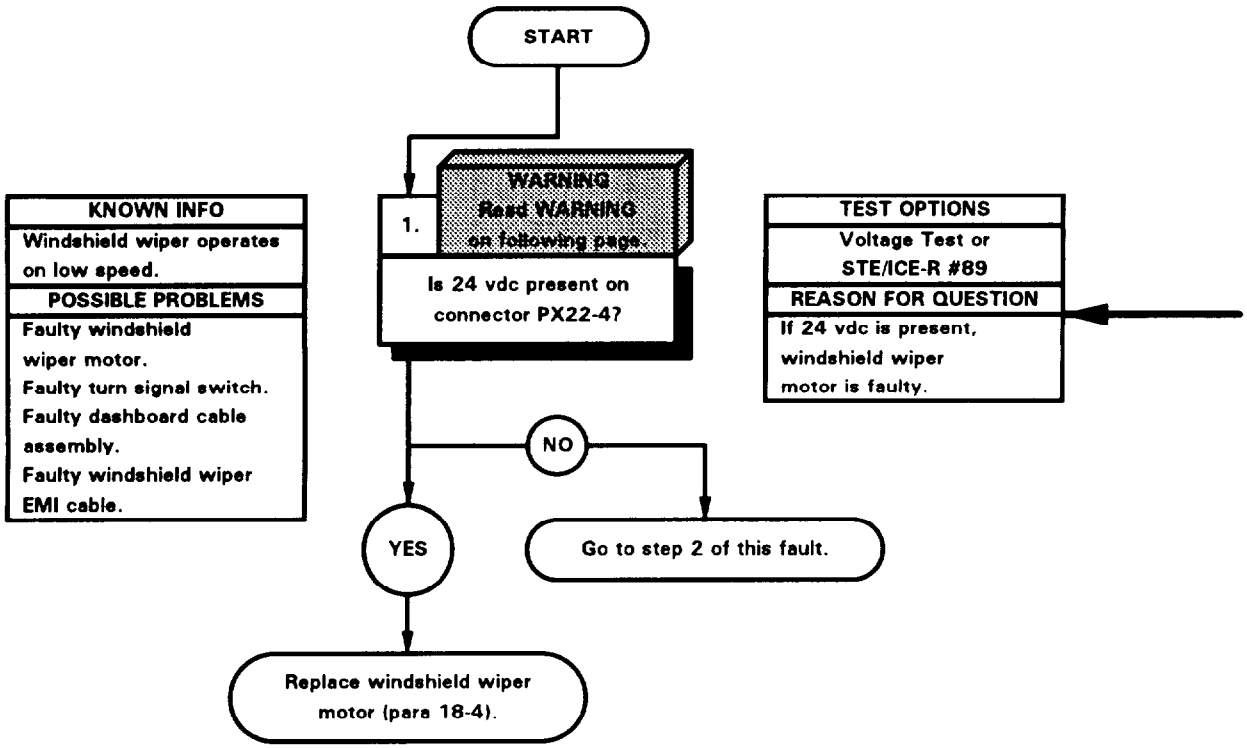
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

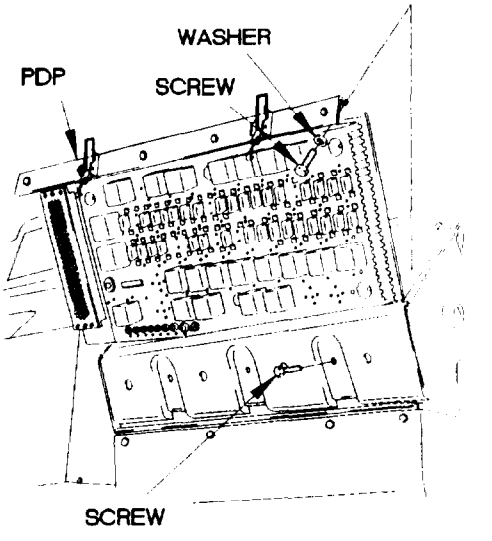


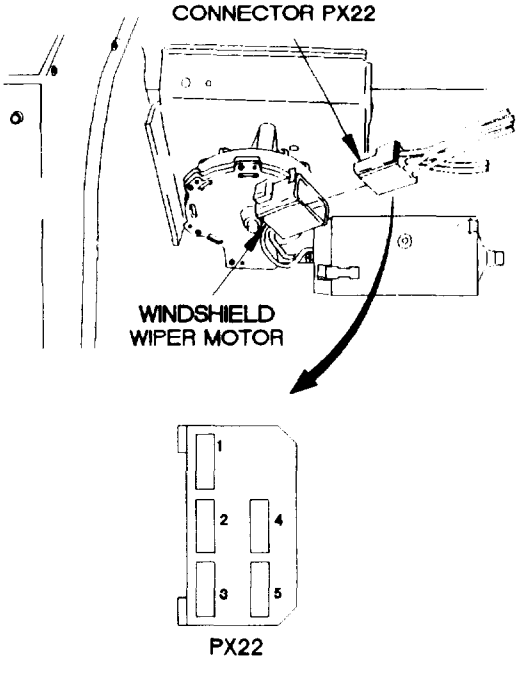
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

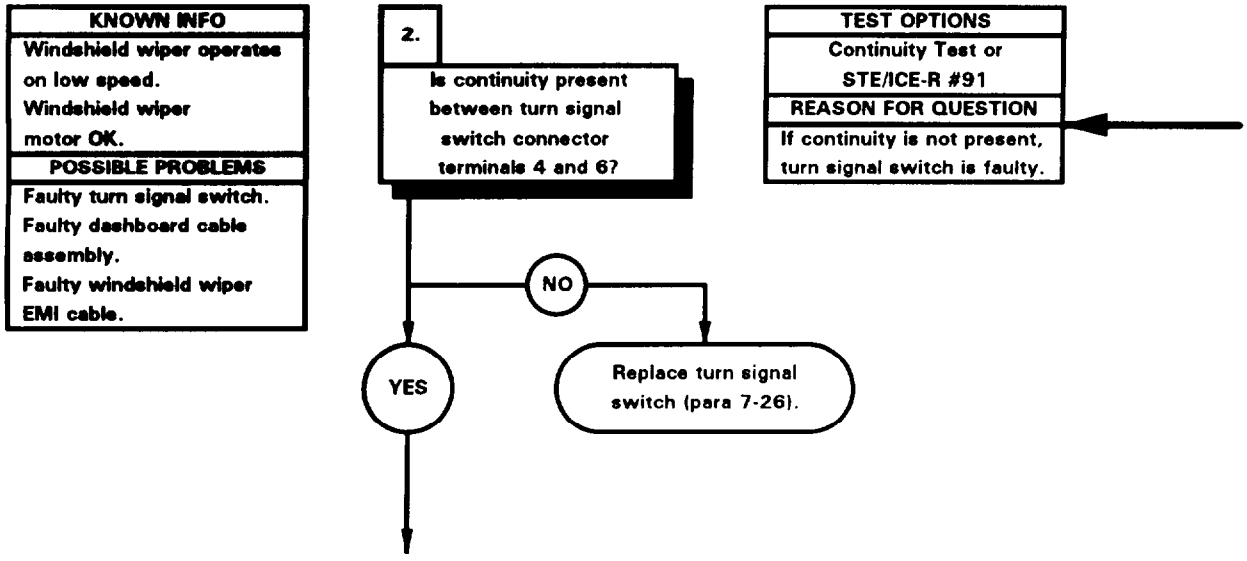
VOLTAGE TEST

(1) Remove PDP cover (para 16-2).
(2) Remove three screws and washers from PDP.
(3) Remove three screws from PDP.
(4) Lift PDP outward to gain access.
(5) Disconnect connector PX22 from windshield wiper motor.
(6) Set multimeter to volts dc.
(7) Connect positive (+) probe of multimeter to connector PX22-4.
(8) Connect negative (-) probe of multimeter to ground.
(9) Position master power switch to on (TM 9-2320-366-10-1).
(10) Position windshield wiper switch to high (TM 9-2320-366-10-1) and note reading on multimeter.
(11) If 24 vdc is not present, go to step 2 of this fault.
(12) If 24 vdc is present, replace windshield wiper motor (para 18-4).
(13) Position windshield wiper switch to off (TM 9-2320-366-10-1).
(14) Position master power switch to off (TM 9-2320-366-10-1).
(15) Connect connector PX22 to windshield wiper motor.

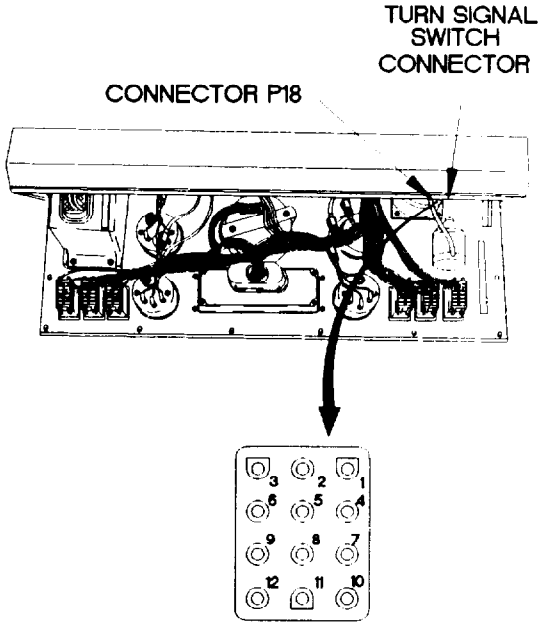




e81. WINDSHIELD WIPER DOES NOT OPERATE ON HIGH SPEED (CONT)

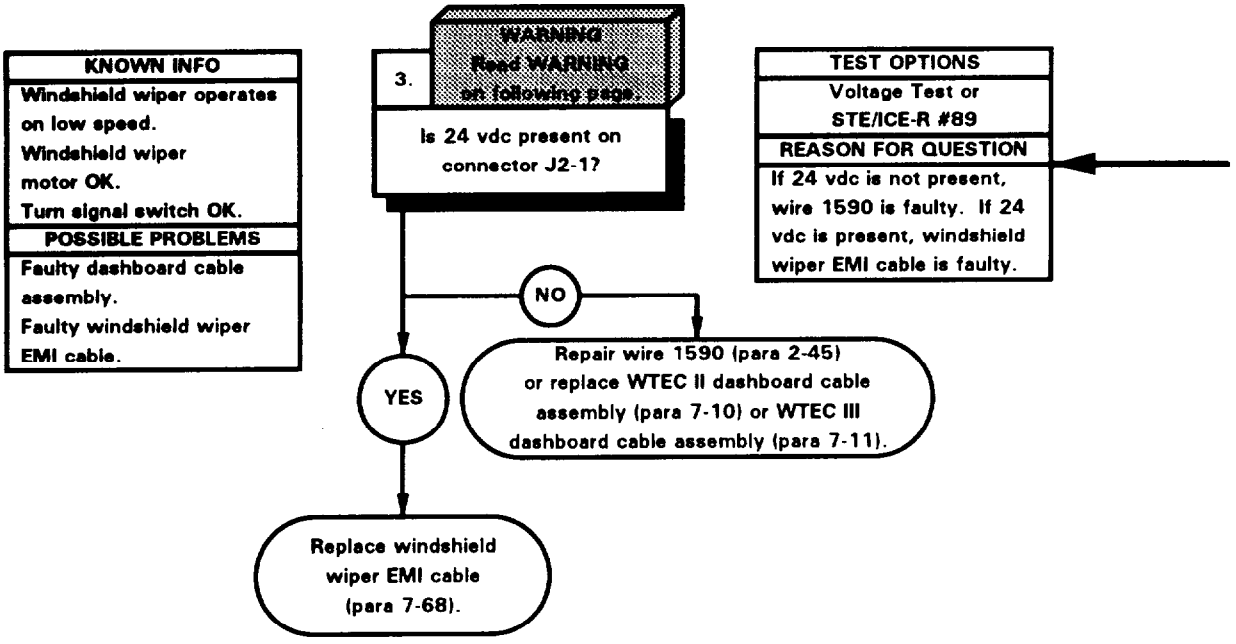


CONTINUITY TEST
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect turn signal switch connector from connector P18.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to turn signal switch connector terminal 4.
(5) Connect negative (-) probe of multimeter to turn signal switch connector terminal 6.
(6) Position windshield wiper switch to high (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If continuity is not present, replace turn signal switch (para 7-26).
(8) Position windshield wiper switch to off (TM 9-2320-366-10-1).
(9) Connect turn signal switch connector to connector P18.
(10) Install instrument panel assembly (para 7-15).



TURN SIGNAL SWITCH CONNECTOR

e81. WINDSHIELD WIPER DOES NOT OPERATE ON HIGH SPEED (CONT)

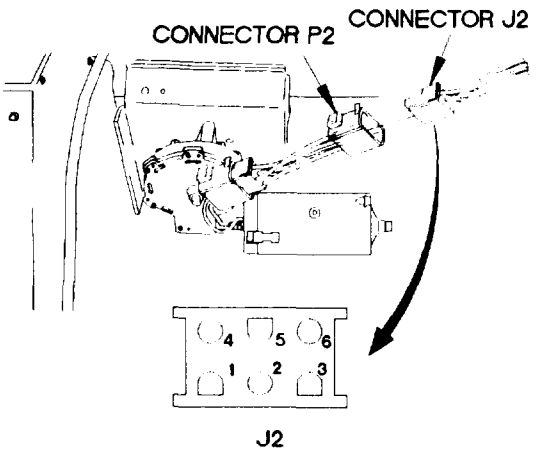


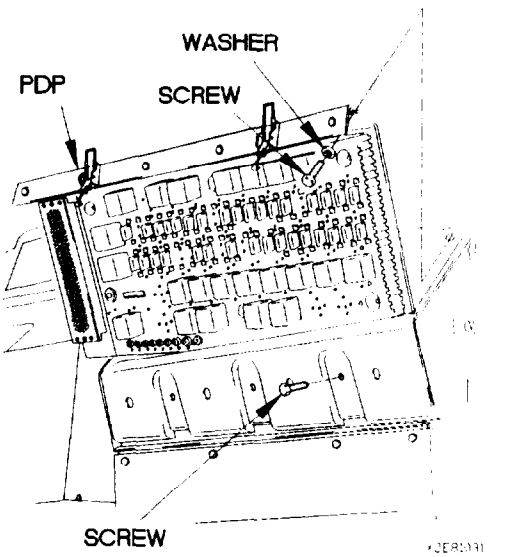
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Disconnect connector J2 from connector P2.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J2-1.
(4) Connect negative (-) probe of multimeter to *ground*.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Position windshield wiper switch to high (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, repair wire 1590 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) If 24 vdc is present, replace windshield wiper EMI cable (para 7-68).
(9) Position windshield wiper switch to off (TM 9-2320-366-10-1).
(10) Position master power switch to off (TM 9-2320-366-10-1).
(11) Connect connector J2 to connector P2.
(12) Install PDP on dashboard with three screws.
(13) Install three washers and screws in PDP.
(14) Install PDP cover (para 16-2).





e82. HORN DOES NOT OPERATE

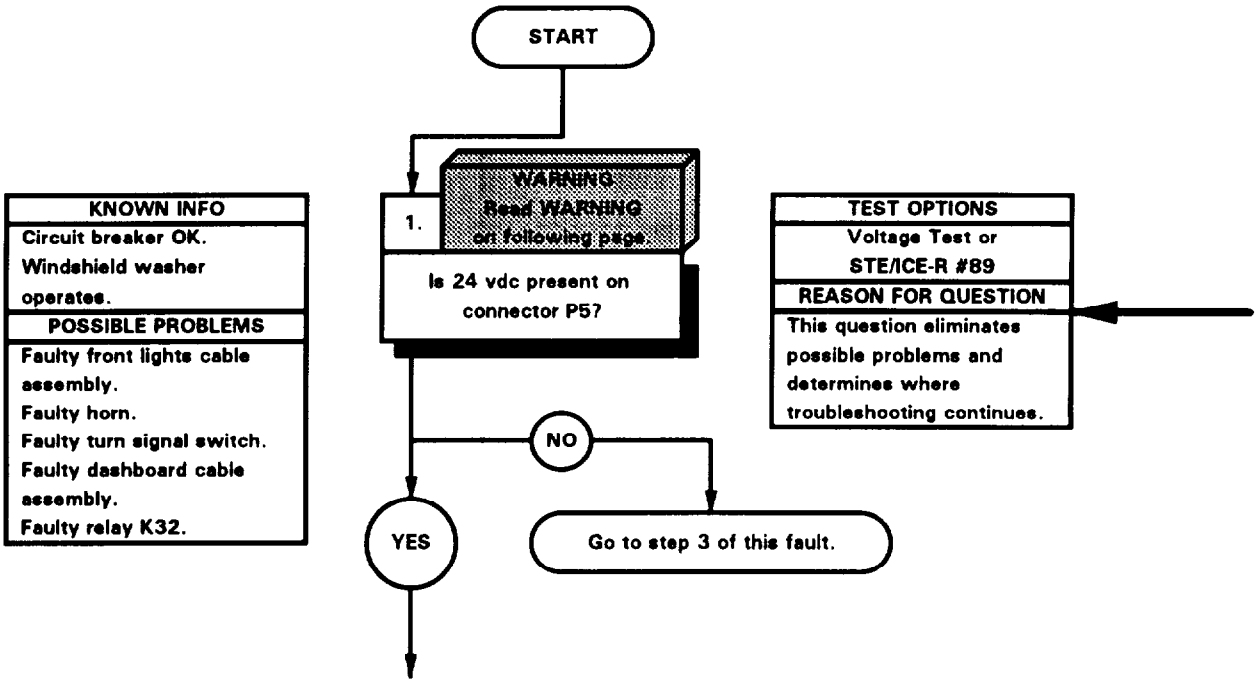
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)

References
TM 9-4910-571-12&P

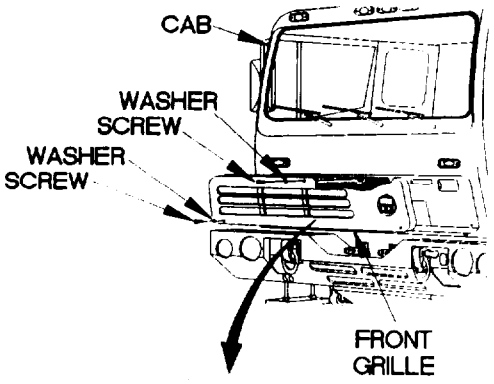


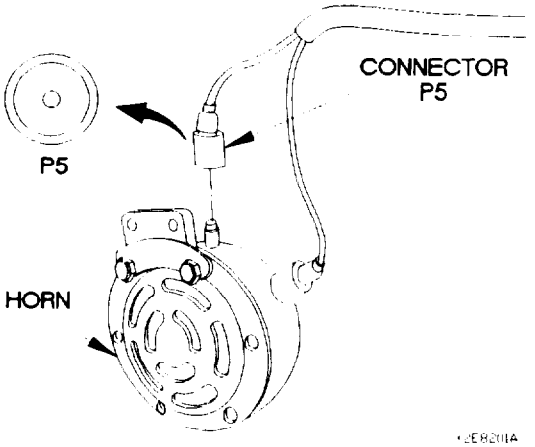
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

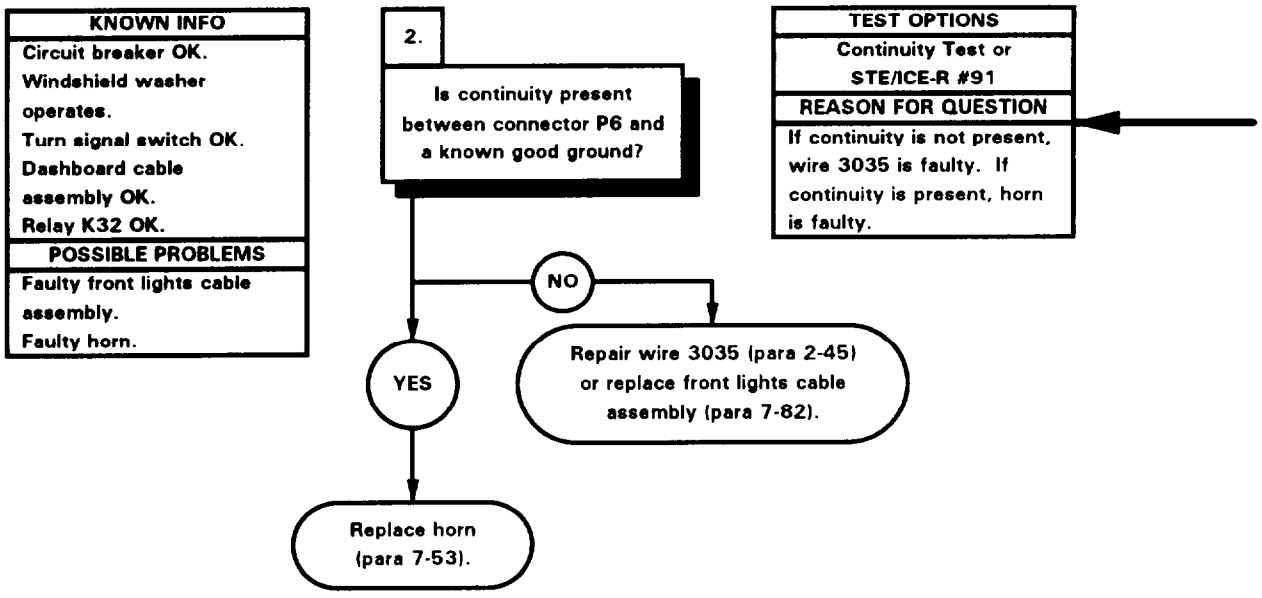
VOLTAGE TEST

(1) Remove two screws and washers from front grille.
(2) Remove screw and washer from front grille.
(3) Remove front grille from cab.
(4) Disconnect connector P5 from horn.
(5) Set multimeter to volts dc.
(6) Connect positive (+) probe of multimeter to connector P5.
(7) Connect negative (-) probe of multimeter to ground.
(8) Position master power switch to on (TM 9-2320-366-10-1).
(9) Press horn button (TM 9-2320-366-10-1) and note reading of multimeter.
(10) If 24 vdc is not present, go to step 3 of this fault.
(11) Position master power switch to off (TM 9-2320-366-10-1).
(12) Connect connector P5 to horn.

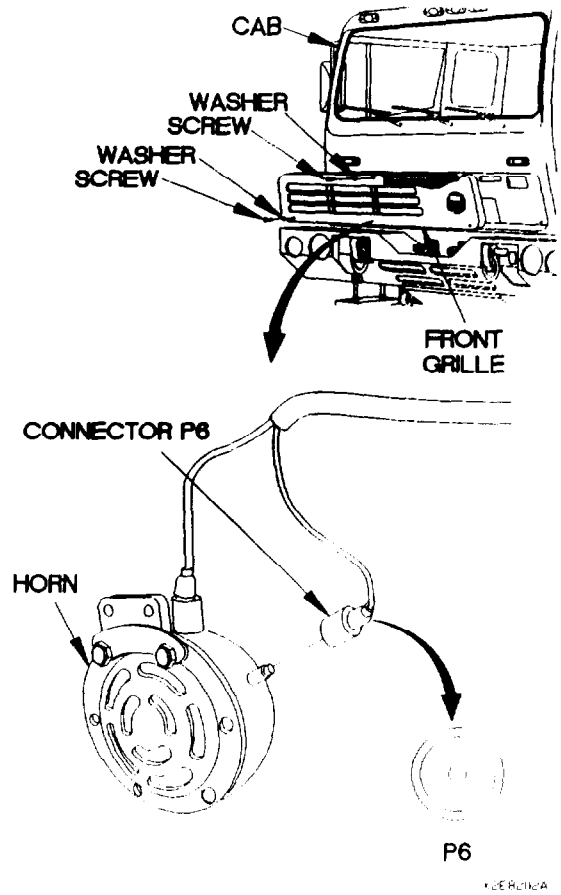




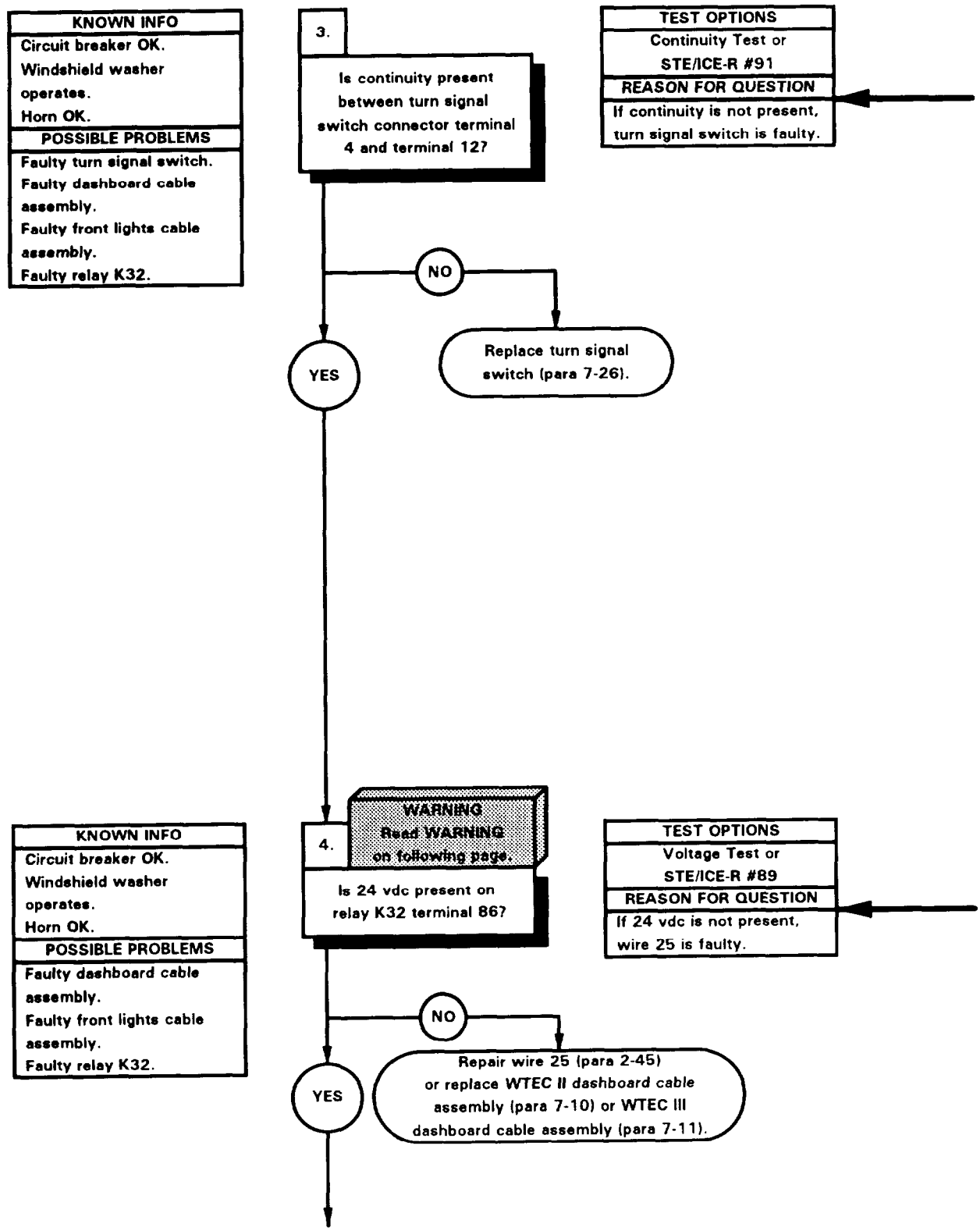
e82. HORN DOES NOT OPERATE (CONT)



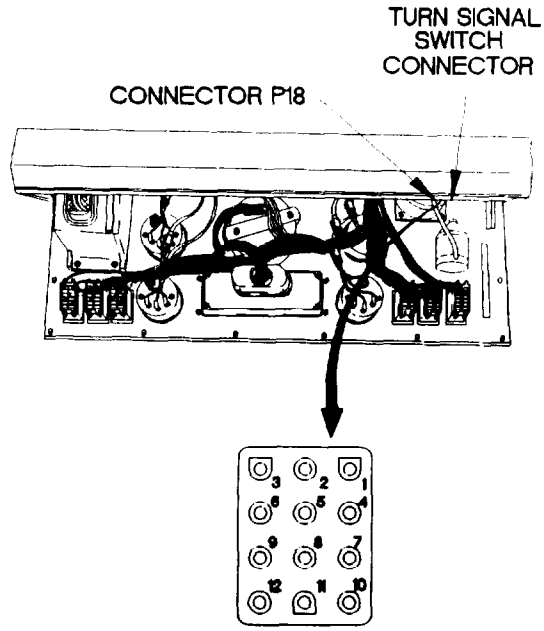
CONTINUITY TEST
(1) Disconnect connector P6 from horn.
(2) Set multimeter to ohms.
(3) Connect positive (+) probe of multimeter to connector P6.
(4) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(5) If continuity is not present, repair wire 3035 (para 2-45) or replace front lights cable assembly (para 7-82).
(6) If continuity is present, replace horn (para 7-53).
(7) Connect connector P6 to horn.
(8) Position front grille on cab with washer and screw.
(9) Position two washers and screws in front grille.
(10) Tighten screw to 48-60 lb-in. (5-7 N·m).
(11) Tighten two screws to 24 lb-in. (3 N·m).



e82. HORN DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Remove instrument panel assembly for access (para 7-15).
(2) Disconnect connector P18 from turn signal switch connector.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to turn signal switch connector terminal 4.
(5) Connect negative (-) probe of multimeter to turn signal switch connector terminal 12.
(6) Press horn button (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If continuity is not present, replace turn signal switch (para 7-26).
(8) Connect connector P18 to turn signal switch connector.
(9) Install instrument panel assembly (para 7-15).

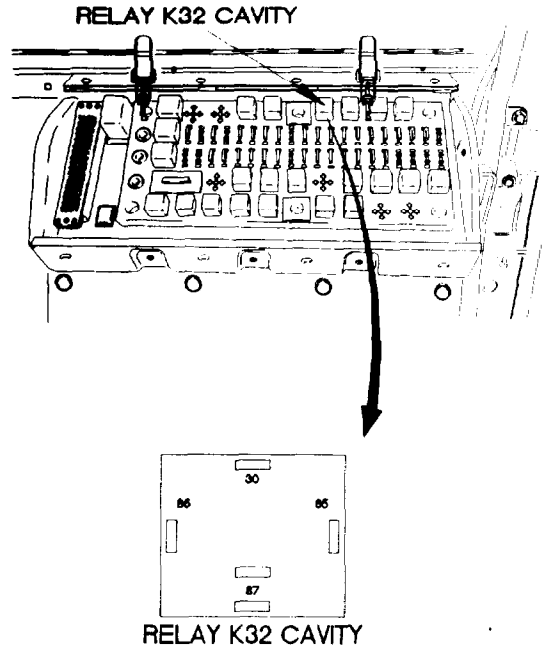


TURN SIGNAL SWITCH CONNECTOR

WARNING

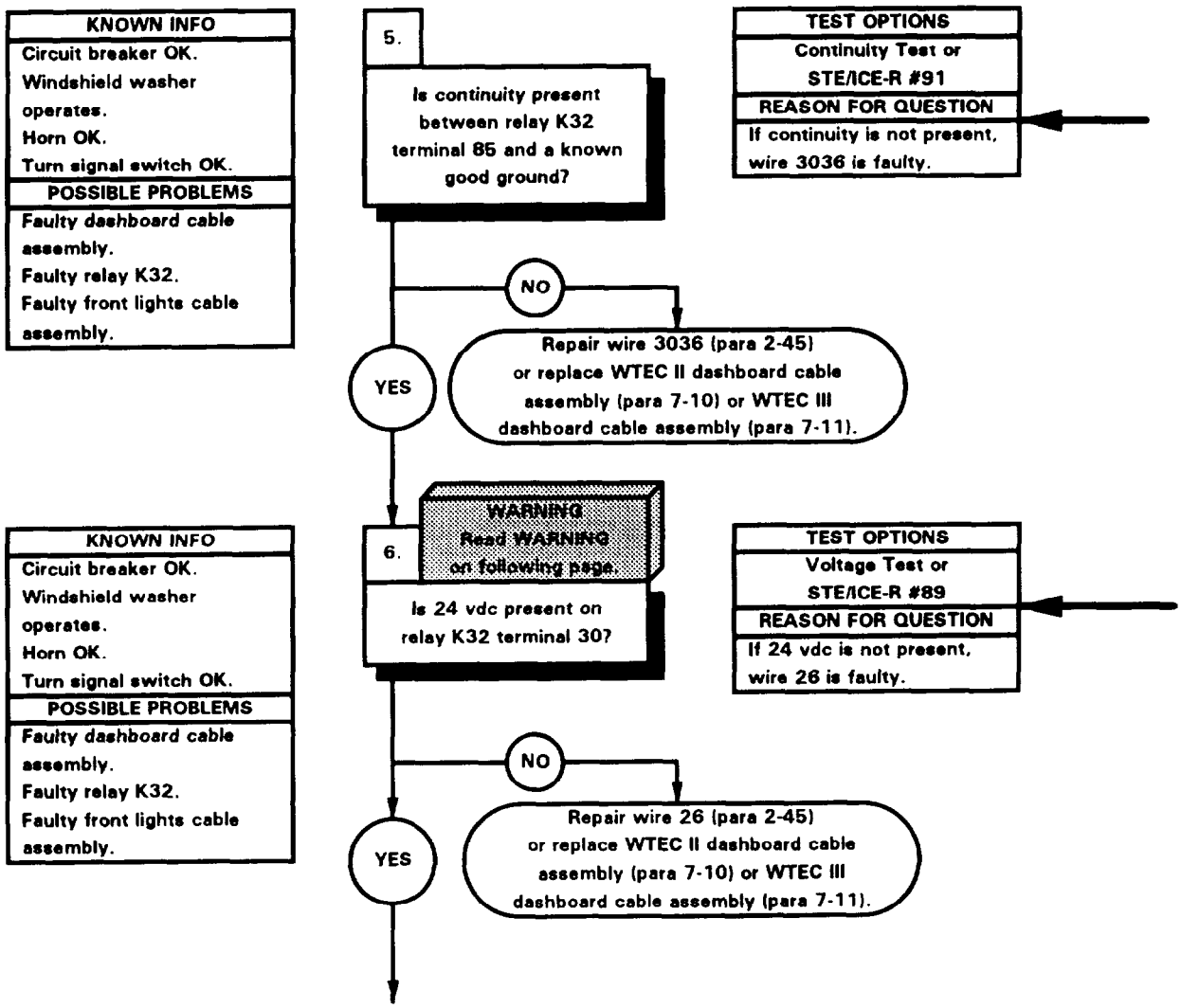
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST
(1) Remove PDP cover (para 16-2).
(2) Remove relay K32 from PDP.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to PDP, terminal 86, where relay K32 was removed.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1).
(7) Press horn button (TM 9-2320-366-10-1) and note reading on multimeter.
(8) If 24 vdc is not present, repair wire 25 (para 2-45) or WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Position master power switch to off (TM 9-2320-366-10-1).



RELAY K32 CAVITY

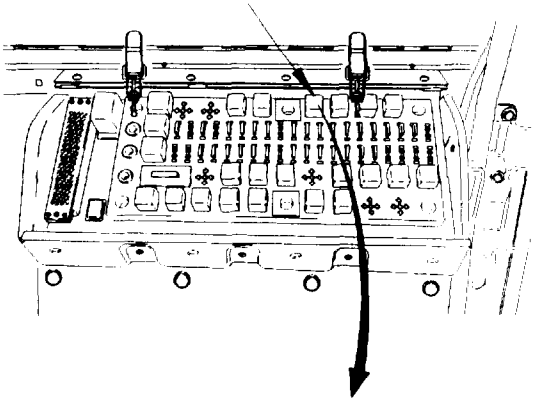
e82. HORN DOES NOT OPERATE (CONT)

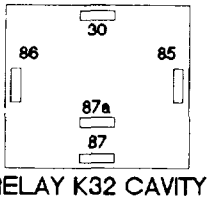


CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to PDP, terminal 85, where relay K32 was removed.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3036 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).

RELAY K32 CAVITY





RELAY K32 CAVITY

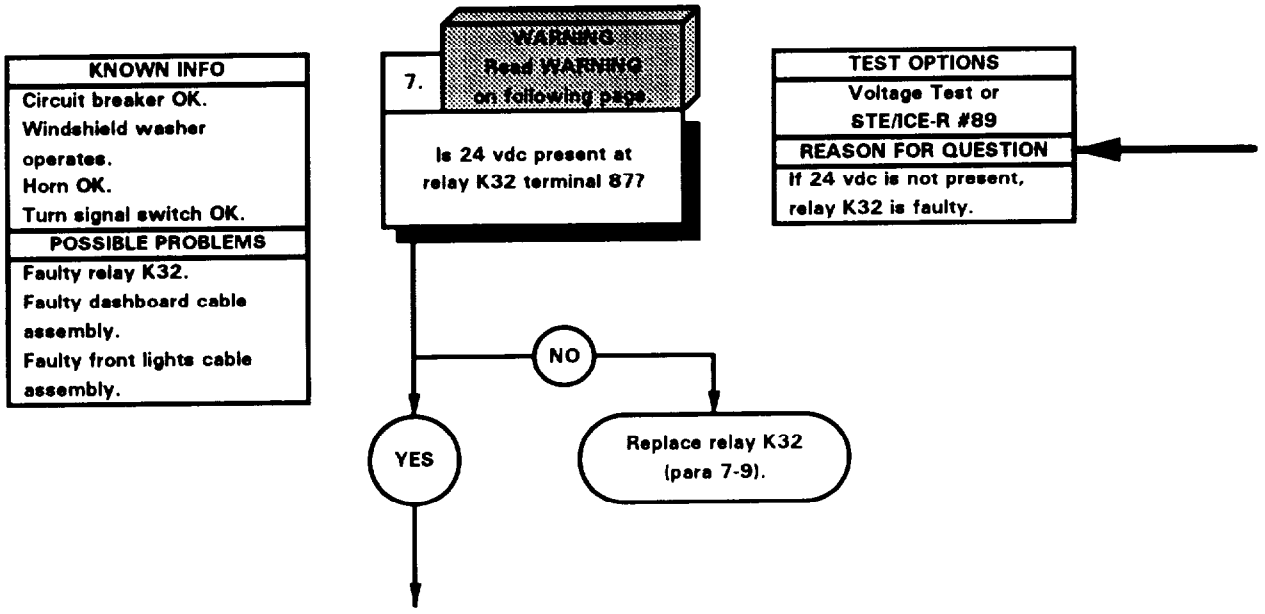
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to PDP, terminal 30, where relay K32 was removed.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 24 vdc is not present, repair wire 26 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(6) Position master power switch to off (TM 9-2320-366-10-1).

e82. HORN DOES NOT OPERATE (CONT)

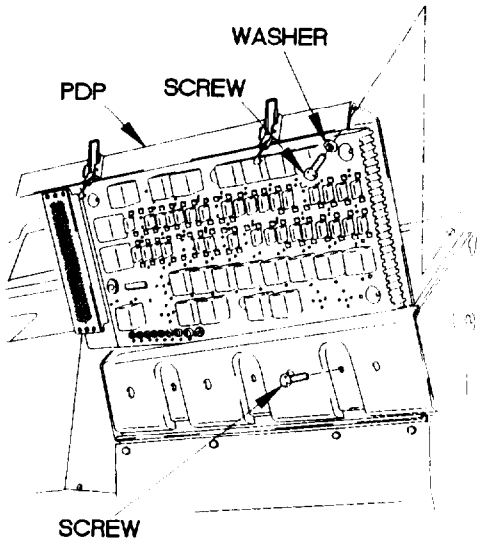


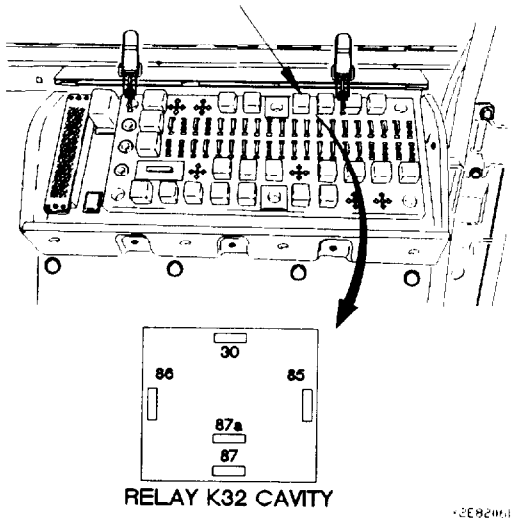
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

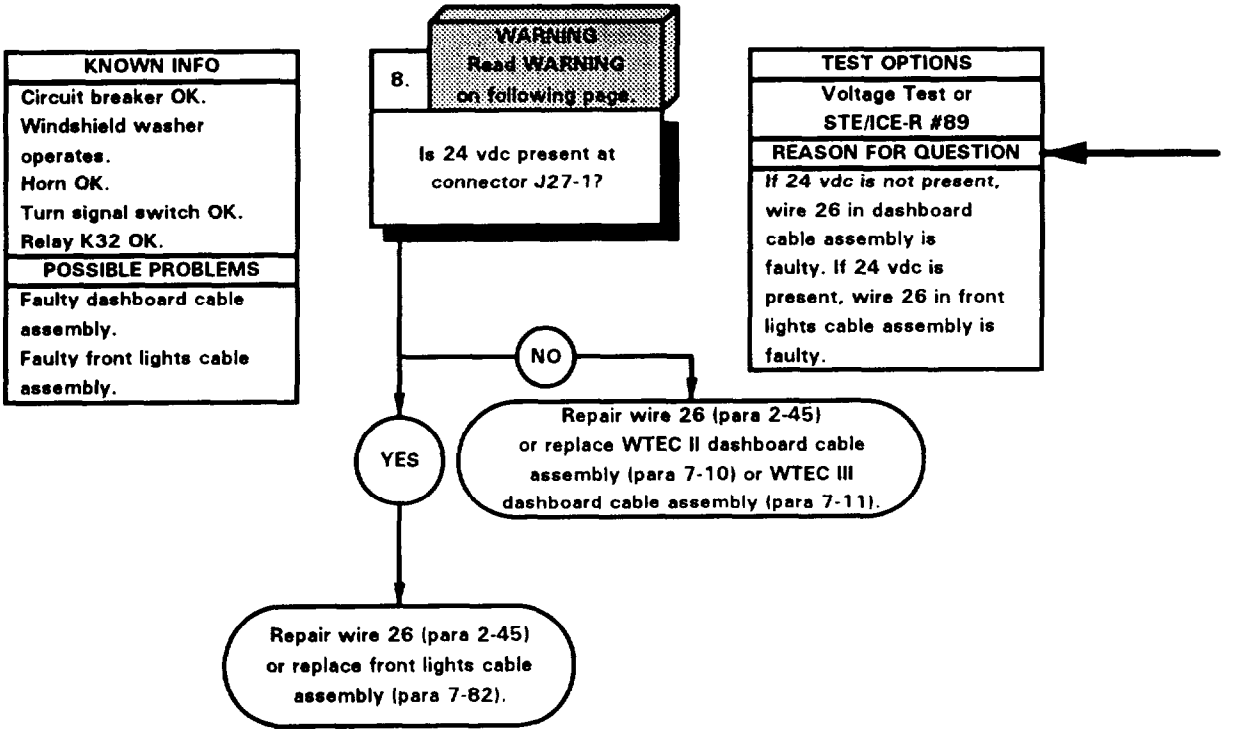
VOLTAGE TEST

(1) Remove three screws and washers from PDP.
(2) Remove three screws from PDP.
(3) Lift PDP outward to gain access.
(4) Install relay K32 in PDP.
(5) Set multimeter to volts dc.
(6) Connect positive (+) probe of multimeter to terminal 87 on relay K32.
(7) Connect negative (-) probe of multimeter to ground.
(8) Position master power switch to on (TM 9-2320-366-10-1).
(9) Press horn button (TM 9-2320-366-10-1) and note reading on multimeter.
(10) If 24 vdc is not present, replace relay K32 (para 7-9).
(11) Position master power switch to off (TM 9-2320-366-10-1).





e82. HORN DOES NOT OPERATE (CONT)

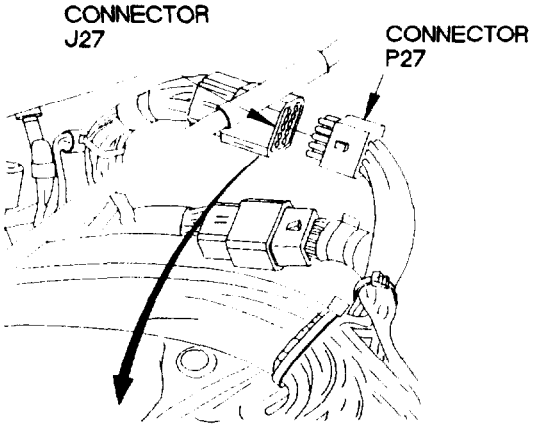


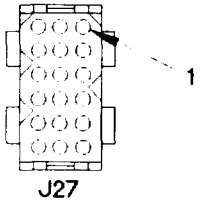
WARNING

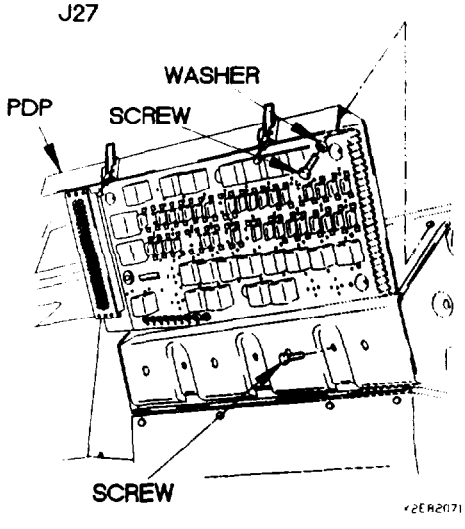
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Disconnect connector J27 from connector P27.
(2) Set multimeter to volts dc.
(3) Connect positive (+) probe of multimeter to connector J27-1.
(4) Connect negative (-) probe of multimeter to ground.
(5) Position master power switch to on (TM 9-2320-366-10-1).
(6) Press horn button (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, repair wire 26 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) If 24 vdc present, repair wire 26 (para 2-45) or replace front lights cable assembly (para 7-82).
(9) Position master power switch to off (TM 9-2320-366-10-1).
(10) Connect connector J27 to connector P27.
(11) Install PDP on dashboard with three screws.
(12) Install three washers and screws in PDP.
(13) Install PDP cover (para 16-2).







e83. CHEMICAL ALARM DOES NOT OPERATE

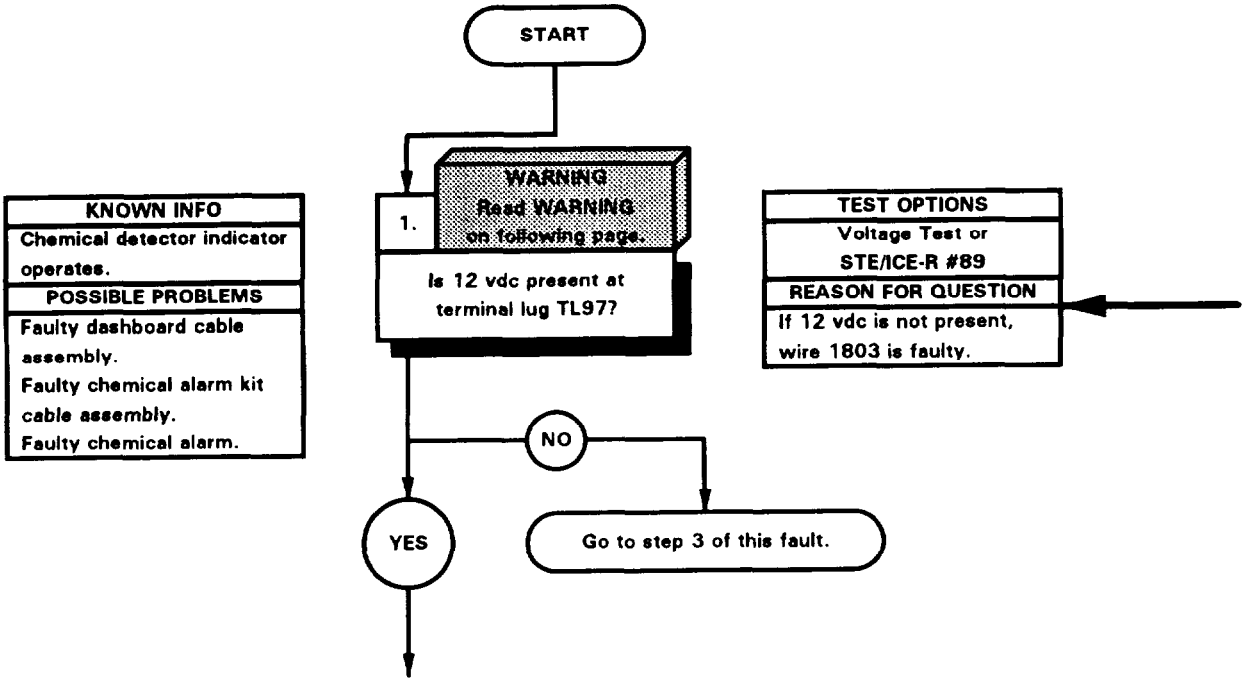
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)

References
TM 9-4910-571-12&P

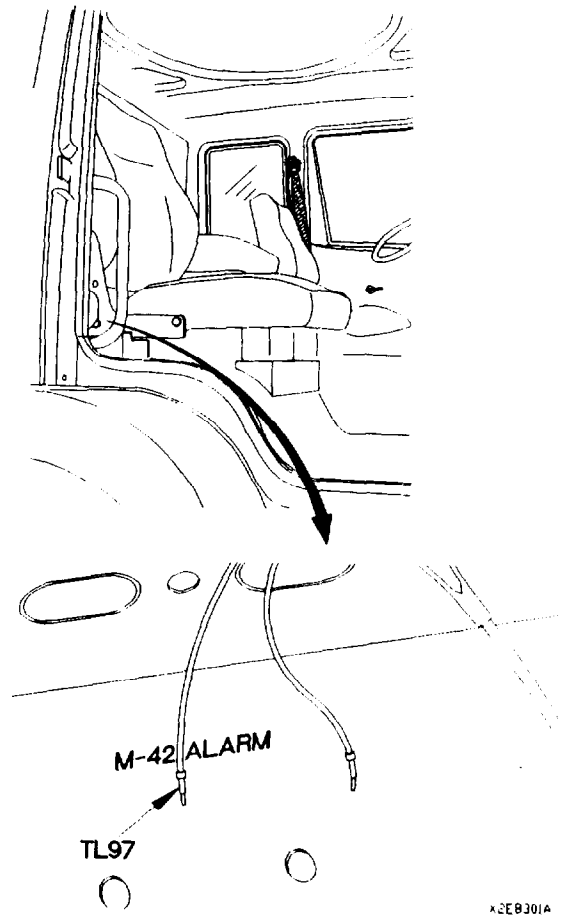


WARNING

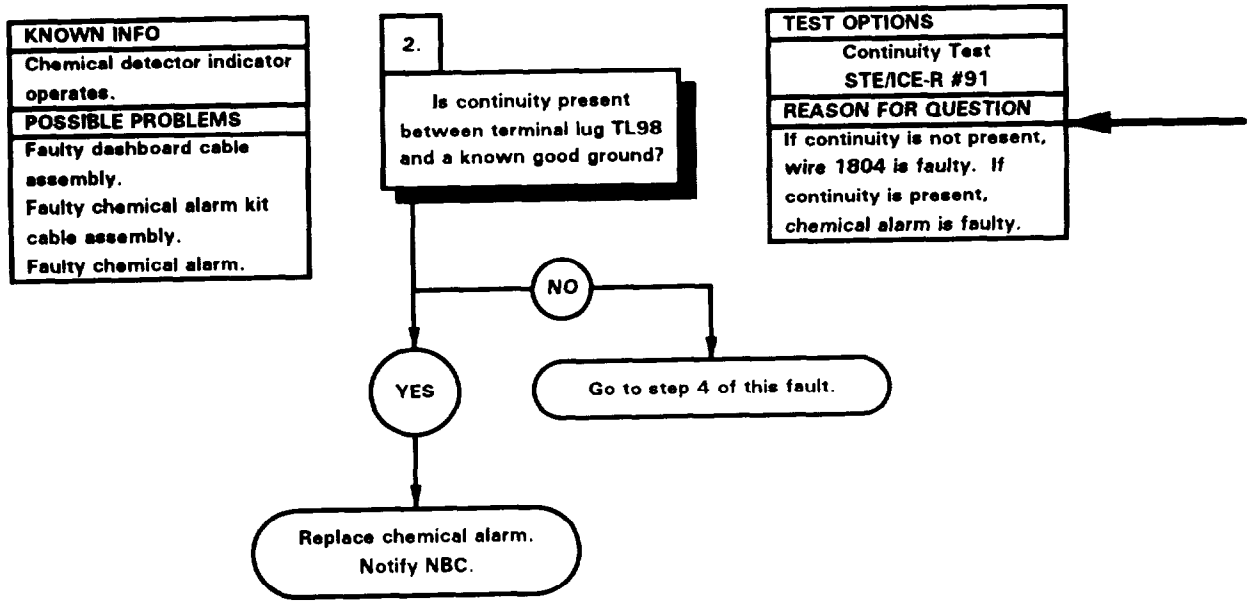
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

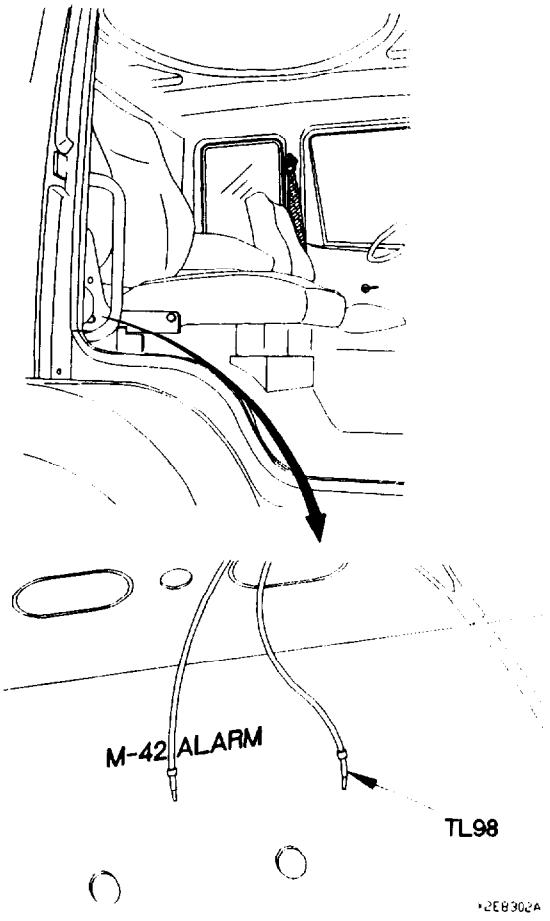
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to terminal lug TL97.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 12 vdc is not present, go to step 3 of this fault.
(6) Position master power switch to off (TM 9-2320-366-10-1).



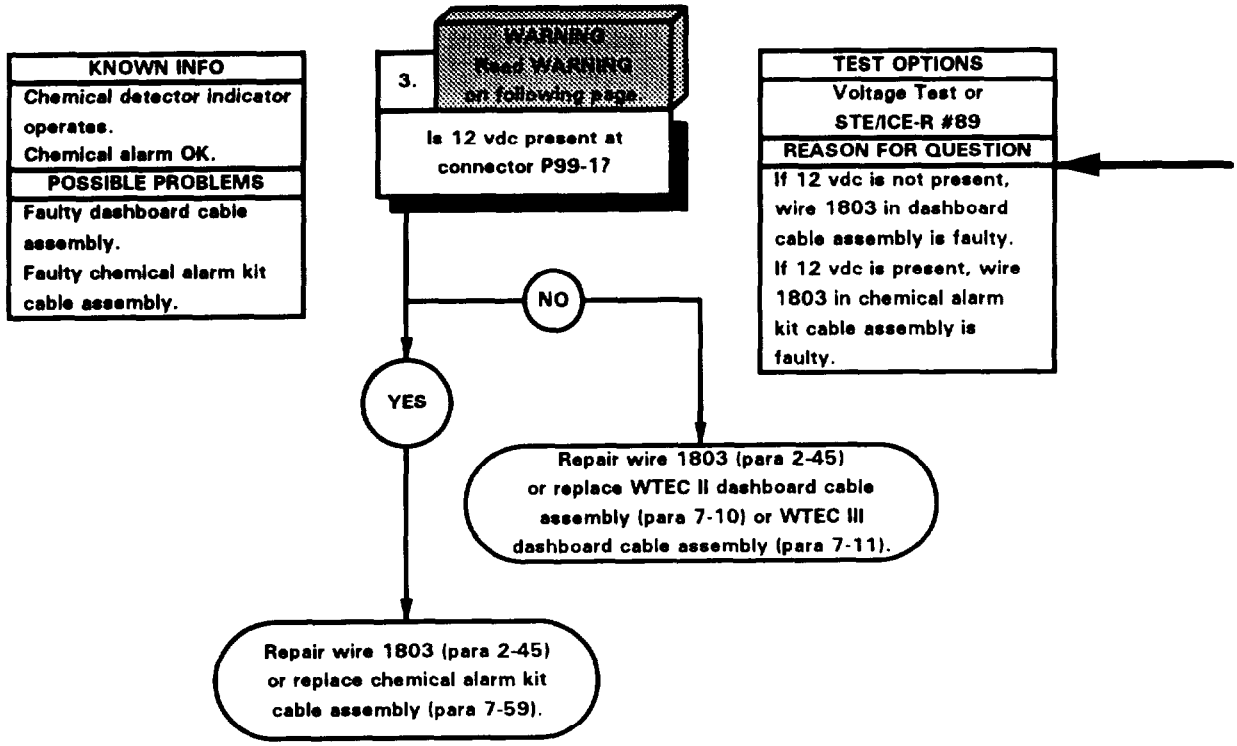
e83. CHEMICAL ALARM DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to terminal lug TL98.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, go to step 4 of this fault.
(5) If continuity is present, replace chemical alarm (notify NBC).



e83. CHEMICAL ALARM DOES NOT OPERATE (CONT)

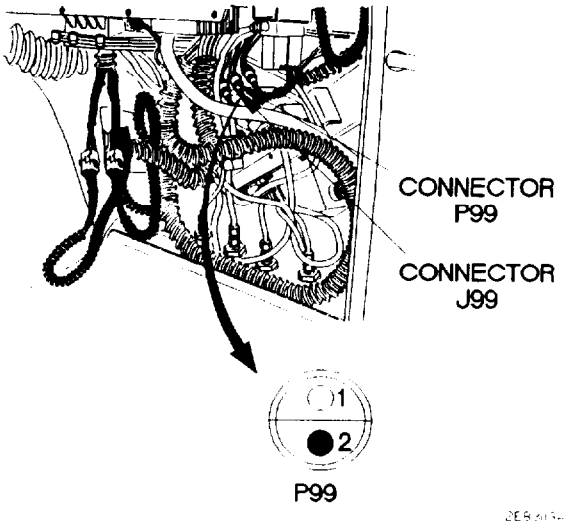


WARNING

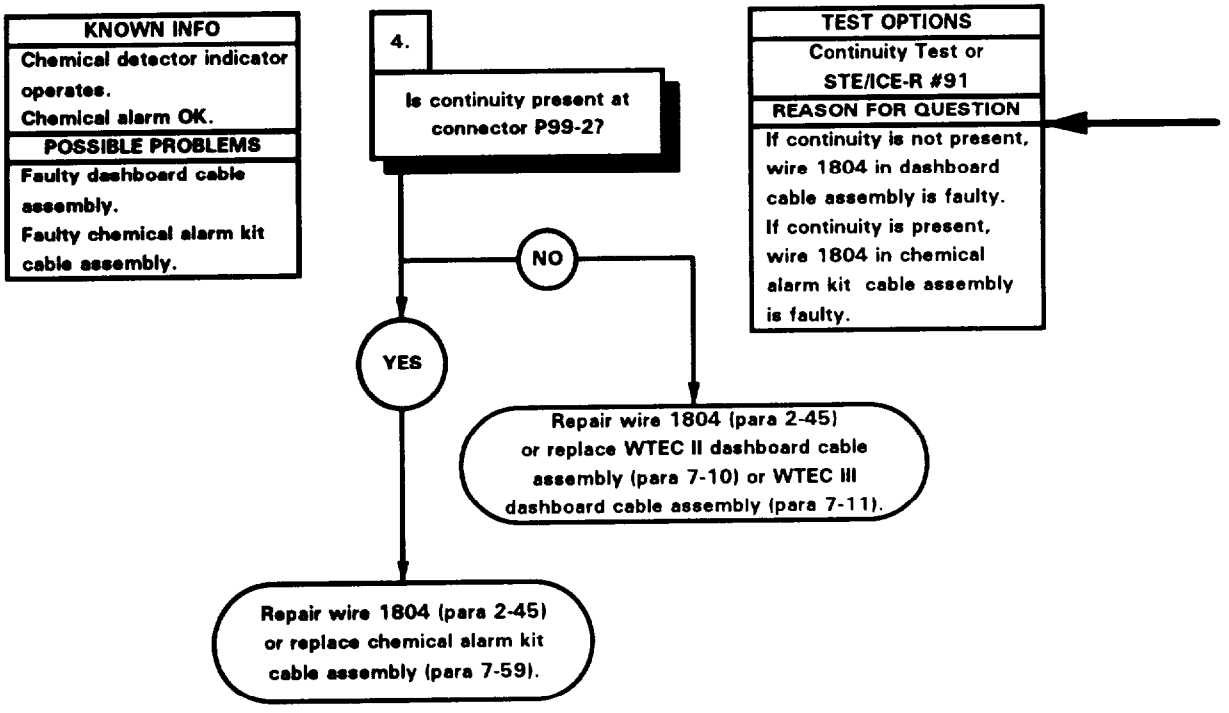
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

(1) Remove kick panel (para 16-3).
(2) Disconnect connector P99 from connector J99.
(3) Set multimeter to volts dc.
(4) Connect positive (+) probe of multimeter to connector P99-1.
(5) Connect negative (-) probe of multimeter to ground.
(6) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(7) If 24 vdc is not present, repair wire 1803 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(8) If 24 vdc is present, repair wire 1803 (para 2-45) or replace chemical alarm kit cable assembly (para 7-59).
(9) Position master power switch to off (TM 9-2320-366-10-1).
(10) Connect connector P99 to connector J99.
(11) Install kick panel (para 16-3).

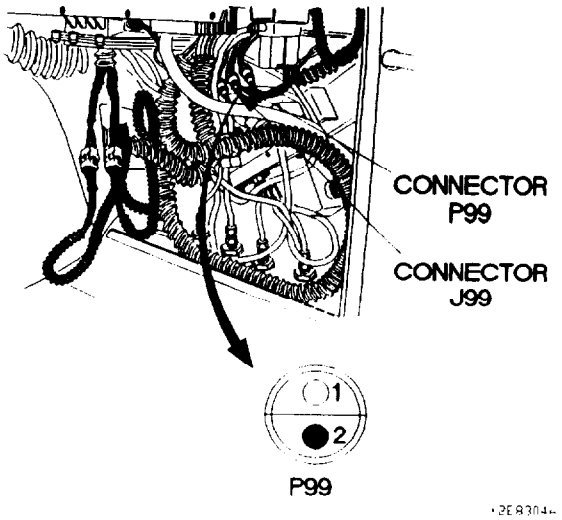


e83. CHEMICAL ALARM DOES NOT OPERATE (CONT)



CONTINUITY TEST

(1) Remove kick panel (para 16-3).
(2) Disconnect connector P99 from connector J99.
(3) Set multimeter to ohms.
(4) Connect positive (+) probe of multimeter to connector P99-2.
(5) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(6) If continuity is not present, repair wire 1804 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(7) If continuity is present, repair wire 1804 (para 2-45) or replace chemical alarm kit cable assembly (para 7-59).
(8) Connect connector P99 to connector J99.
(9) Install kick panel (para 16-3).



e84. CHEMICAL DETECTOR DOES NOT OPERATE

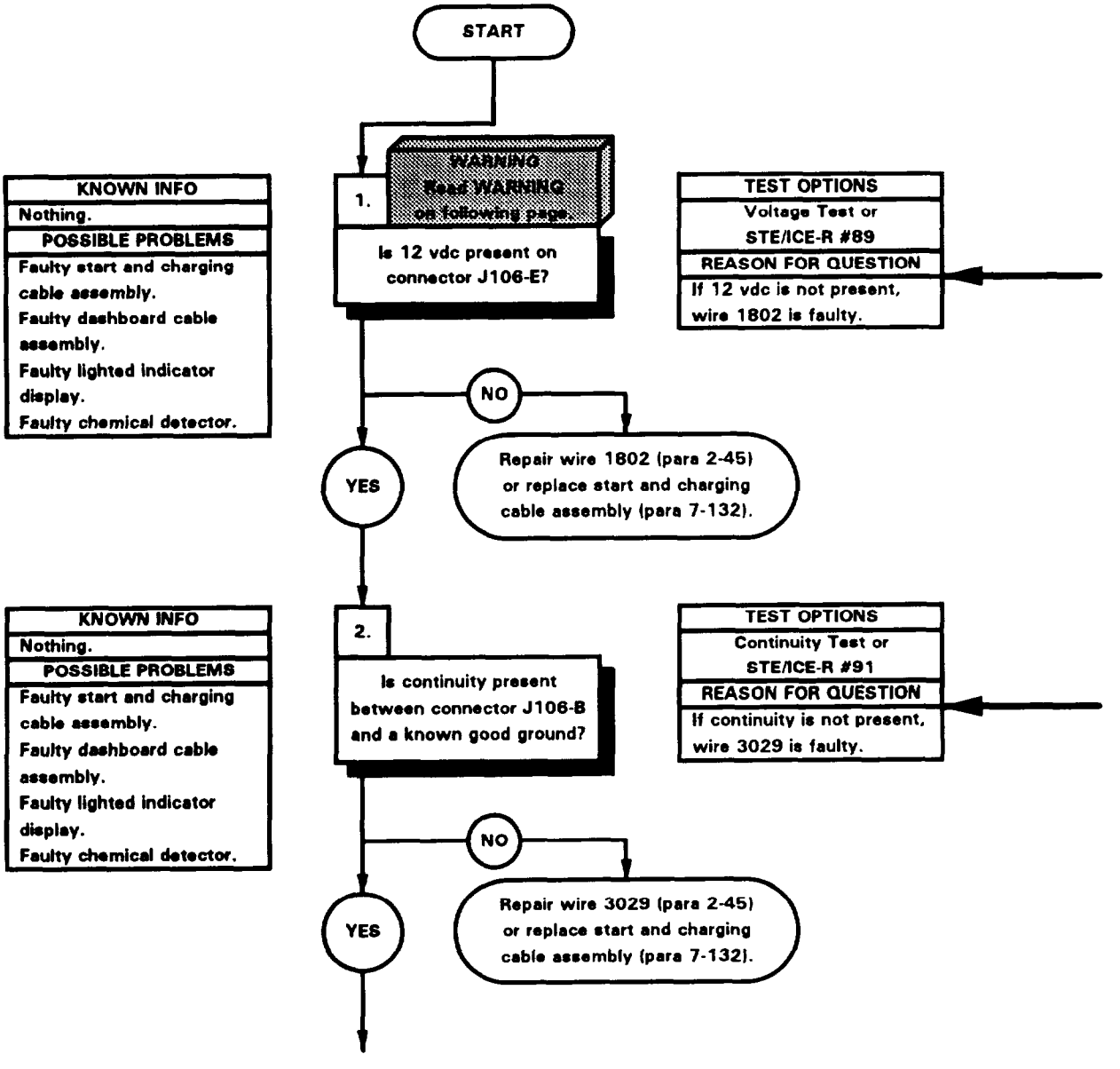
INITIAL SETUP

Equipment Condition
Engine shut down (TM 9-2320-366-10-1).

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
STE/ICE-R (Item 41, Appendix C)
Multimeter, Digital (Item 22, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

References
TM 9-4910-571-12&P



WARNING

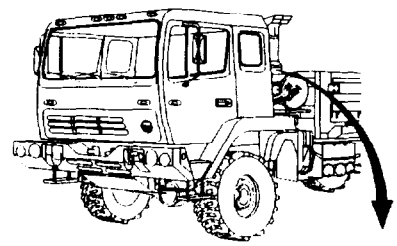
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock.

VOLTAGE TEST

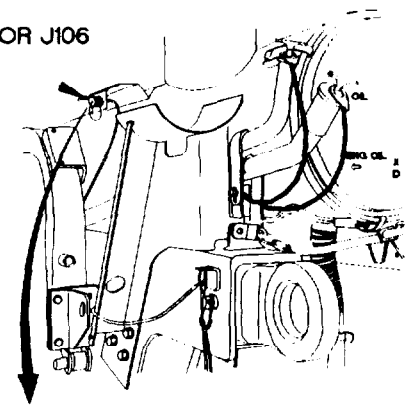
(1) Set multimeter to volts dc.
(2) Connect positive (+) probe of multimeter to connector J106-E.
(3) Connect negative (-) probe of multimeter to ground.
(4) Position master power switch to on (TM 9-2320-366-10-1) and note reading on multimeter.
(5) If 12 vdc is not present, repair wire 1802 (para 2-45) or replace start and charging cable assembly (para 7-132).
(6) Position master power switch to off (TM 9-2320-366-10-1).

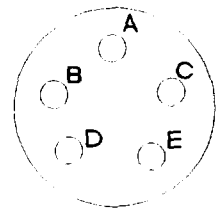
CONTINUITY TEST

(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector J106-B.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3029 (para 2-45) or replace start and charging cable assembly (para 7-132).



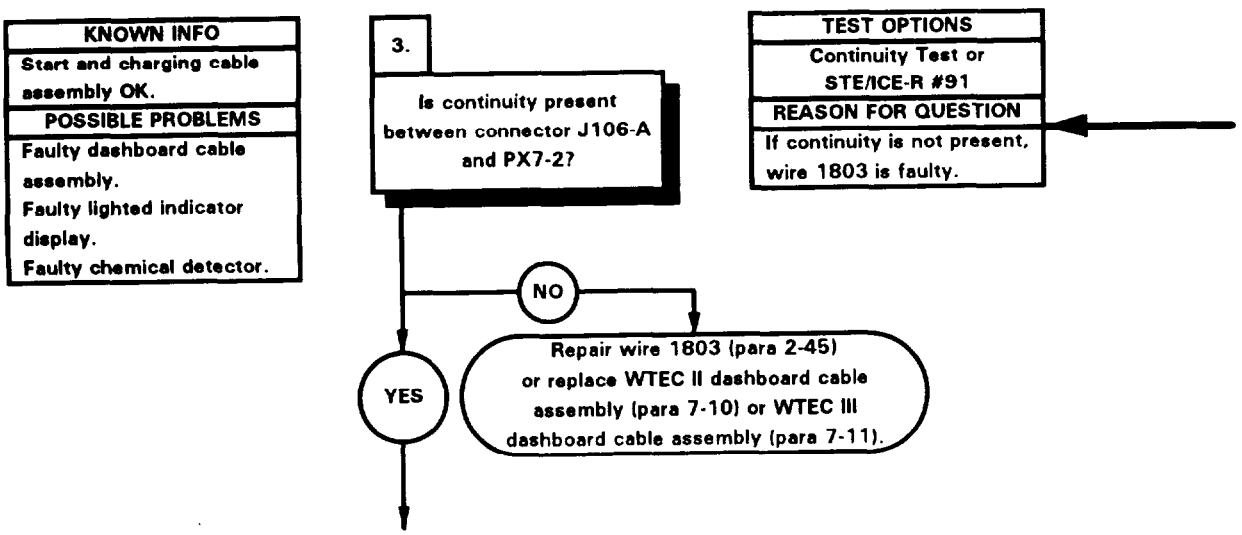
CONNECTOR J106



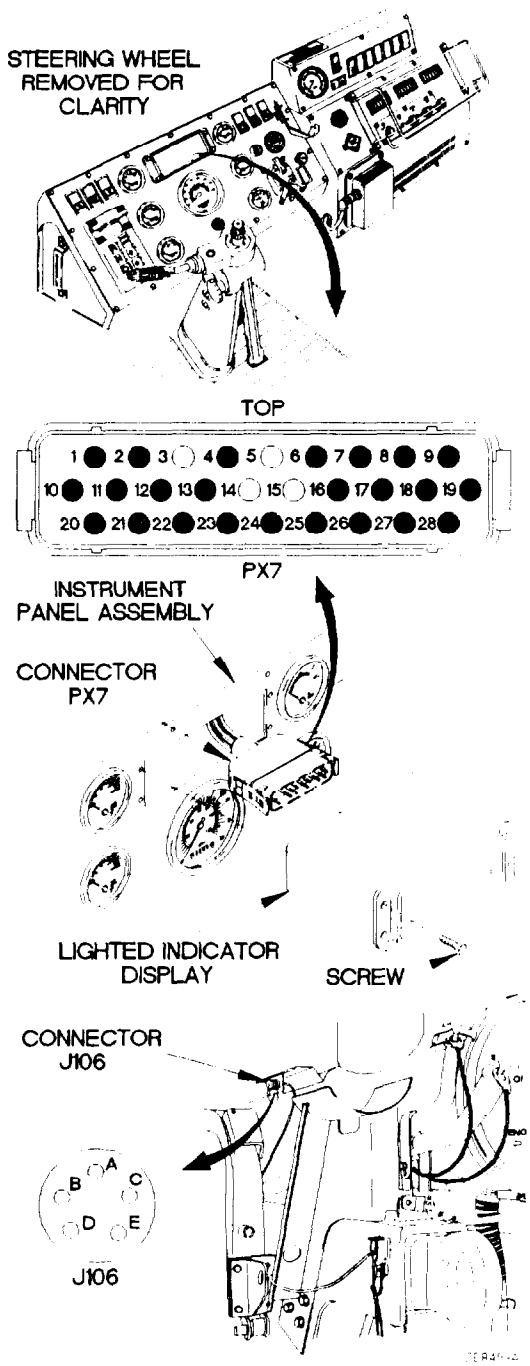


J106

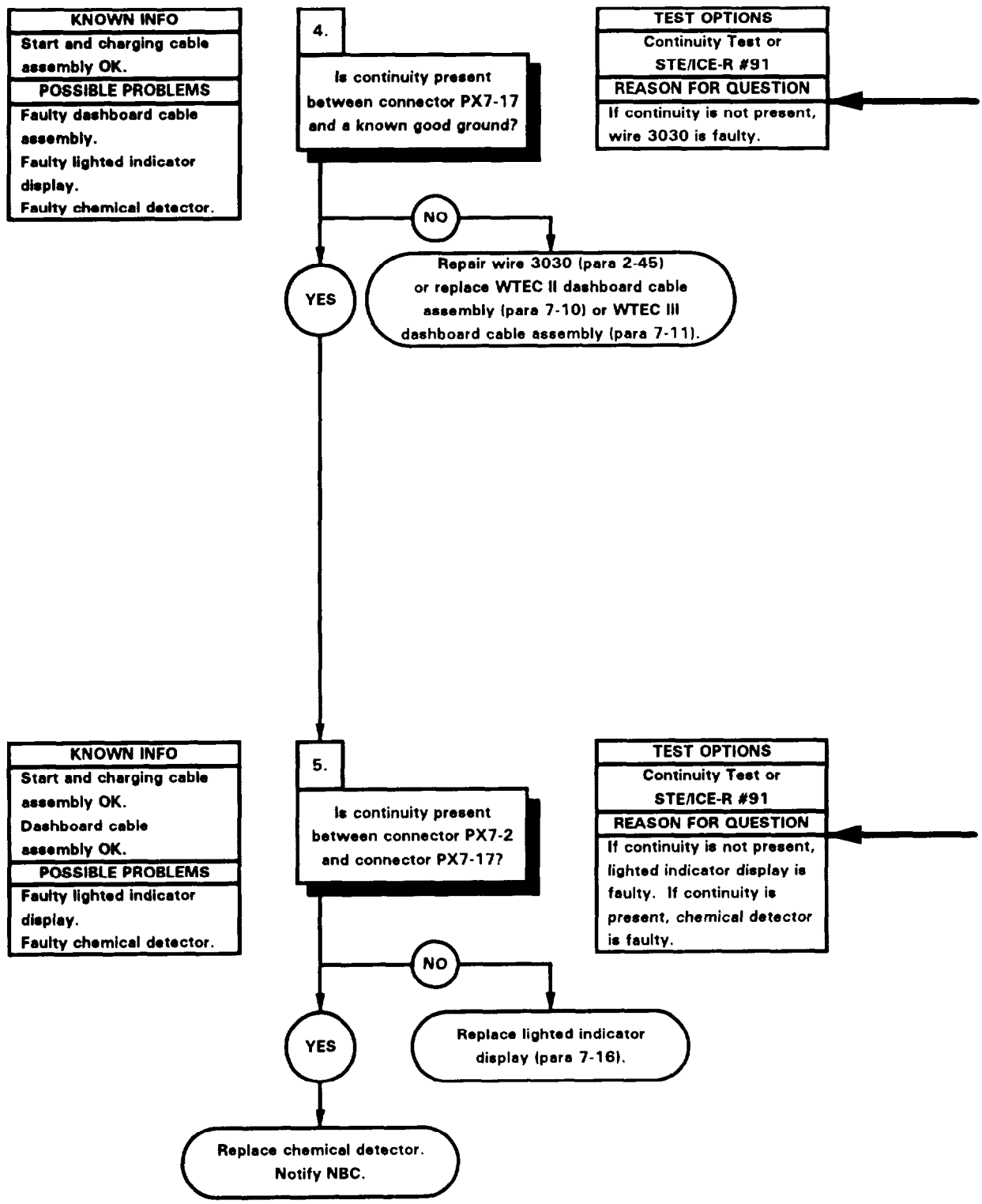
e84. CHEMICAL DETECTOR DOES NOT OPERATE (CONT)



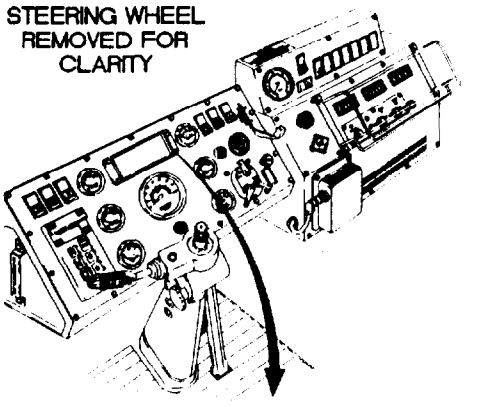
CONTINUITY TEST
(1) Disconnect batteries (para 7-57).
(2) Remove four screws from lighted indicator display.
(3) Remove lighted indicator display from instrument panel assembly.
(4) Disconnect connector PX7 from lighted indicator display.
(5) Set multimeter to ohms.
(6) Connect positive (+) probe of multimeter to connector J106-A.
(7) Connect negative (-) probe of multimeter to connector PX7-2 and note reading on multimeter.
(8) If continuity is not present, repair wire 1803 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).
(9) Connect connector J106 to connector P106.

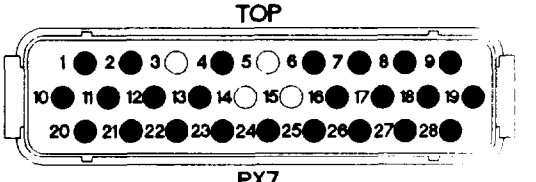


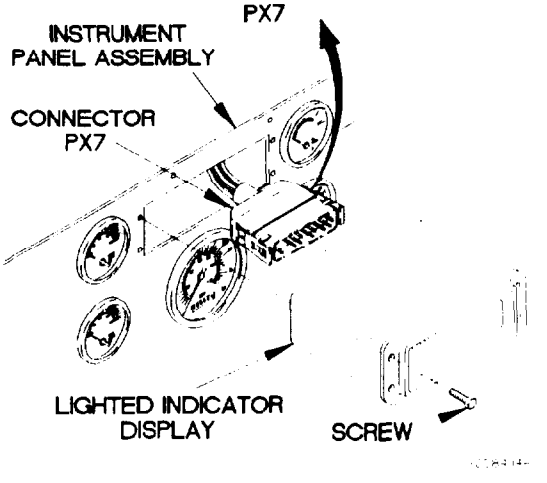
e84. CHEMICAL DETECTOR DOES NOT OPERATE (CONT)



CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX7-17.
(3) Connect negative (-) probe of multimeter to ground and note reading on multimeter.
(4) If continuity is not present, repair wire 3030 (para 2-45) or replace WTEC II dashboard cable assembly (para 7-10) or WTEC III dashboard cable assembly (para 7-11).







CONTINUITY TEST
(1) Set multimeter to ohms.
(2) Connect positive (+) probe of multimeter to connector PX7-2.
(3) Connect negative (-) probe of multimeter to connector PX7-17 and note reading on multimeter.
(4) If continuity is not present, replace lighted indicator display (para 7-16).
(5) If continuity is present, replace chemical detector (notify NBC).
(6) Connect lighted indicator display to connector PX7.
(7) Position lighted indicator display in instrument panel assembly with four screws.
(8) Tighten four screws to 6-10 lb-in. (1 N·m).
(9) Connect batteries (para 7-57).

APPENDIX A
REFERENCES

A-1. SCOPE

This appendix lists all forms, field manuals, technical manuals, and other publications referenced in this manual. Those publications that should be consulted for additional information about vehicle operations are also listed.

A-2. PUBLICATIONS INDEX

The following index should be consulted frequently for latest changes or revisions and for new publications relating to material covered in this technical manual.

Consolidated Index of Army Publications and Blank Forms . . . . . DA Pam 25-30

A-3. FORMS

The following forms pertain to this manual. See DA Pam 25-30 for index of blank forms. See DA Pam 738-750, The Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to this material.

Recommended Changes to DA Publications and Blank Forms . . . . . DA Form 2028-2
Equipment Inspection and Maintenance Worksheet . . . . . DA Form 2404
Maintenance Request . . . . . DA Form 2407
Equipment Control Record . . . . . DA Form 2408-9
Processing and Deprocessing Record of Shipping, Storage, and Issue of Vehicles and Spare Engines . . . . . DD Form 1397
Packaging Improvement Report . . . . . DD Form 6
Report of Item Discrepancy (ROID) . . . . . SF 364
Product Quality Deficiency Report . . . . . SF 368

A-4. OTHER PUBLICATIONS

The following publications contain information pertinent to the MTV and associated equipment.

a. Safety.

First Aid for Soldiers . . . . . FM 21-11
Security of Tactical Wheeled Vehicles . . . . . TB 9-2300-422-20
Safety Inspection and Testing of Lifting Devices . . . . . TB 43-0142

A-4. OTHER PUBLICATIONS (CONT)

b. MTV.

Direct Support and General Support Maintenance Manual for M1083 Series, 5-Ton, 6x6, Medium Tactical Vehicle (MTV) . . . . . TM 9-2320-366-34
Hand Receipt Covering Contents of Components of End Item (COEI), Basic Issue Items (Bll), and Additional Authorization List (AAL), for M1083 Series, 5-Ton, 6x6, Medium Tactical Vehicles (MTV) . . . . . TM 9-2320-366-10-HR
Operator's Manual for M1083 Series, 5-Ton, 6x6, Medium Tactical Vehicle (MTV) . . . . . TM 9-2320-366-10
Unit, Direct Support, and General Support Repair Parts and Special Tools List for M1083 Series, 5-Ton, 6x6, Medium Tactical Vehicle (MTV) . . . . . TM 9-2320-366-24P
Warranty Program for M1083 Series, 5-Ton, 6x6, Medium Tactical Vehicle (MTV) . . . . . TB 9-2300-366-15

c. General Vehicle Operation.

Army Motor Transport Units and Operations . . . . . FM 55-30
Deepwater Fording of Ordnance Material . . . . . TM 9-238
Manual for the Wheeled Vehicle Driver . . . . . FM 21-305
Petroleum Tank Vehicle Operations . . . . . FM 10-71
Safety Prevention of Motor Vehicle Accidents . . . . . AR 385-557
Vehicle Recovery Operations . . . . . FM 20-22

d. General Maintenance and Repair.

Army Oil Analysis Program . . . . . TB 43-0211
Camouflage Pattern Painting . . . . . FM 5-20
Charging System Troubleshooting . . . . . DA Pam 750-33
Color, Marking, and Camouflage Painting of Military Vehicles . . . . . TB 43-0209
Cooling Systems: Tactical Vehicles . . . . . TM 750-254
Corrosion Prevention and Control Including Rustproofing Procedures for Tactical Vehicles and Trailers . . . . . TB 43-0213
Description, Use, Bonding Techniques, and Properties of Adhesives . . . . . TB ORD 1032
Equipment Improvement Report and Maintenance Digest: TACOM Equipment . . . . . TB 43-0001-39-1
Equipment Improvement Report and Maintenance Summary . . . . . TM 43-0143
Installation Instructions for Installation Kit, Electronic Equipment, MK-2700/VRC (NSN 5895-01-421-0814) (EIC: N/A) to Permit Installation of Radio Set AN/VRC-87/88/90 Series into M1078, M1080, M1081, M1083-M1086, M1088-M1094 and M1096 Family of Medium Tactical Vehicles . . . . . TB 11-5820-890-20-101
Installation Instructions for Installation Kit, Electronic Equipment, MK-2715/VRC (NSN 5895-01-421-0812) (EIC: N/A) to Permit Installation of Radio Set AN/VRC-89/91/92 Series into M1078, M1080, M1081, M1083-M1086, M1088-M1094 and M1096 Family of Medium Tactical Vehicles . . . . . TB 11-5820-890-20-92
Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Materiel and Related Materials Including Chemicals . . . . . TM 9-247
Metal Body Repair and Related Operations . . . . . FM 43-2
Operator's and Organizational Maintenance Manual for Radio Sets . . . . . TM 11-5820-498-12
Operator's and Organizational Maintenance Manual Including Repair Parts and Special Tools List Simplified Test Equipment for Internal Combustion Engines Reprogrammable (STE/ICE-R) (NSN 4910-01-222-6589) . . . . . TM 9-4910-571-12&P
Operator's Manual, Radio Set, AN/VRC-46 . . . . . TM 11-5820-401-10-1
Operator's Manual, Radio Set, AN/VRC-90A . . . . . TM 11-5820-890-10-1
Operator's, Unit, Direct Support, and General Support Maintenance Manual for Lead-Acid Storage Batteries . . . . . TM 9-6140-200-14

Ordnance Tracked and Wheeled Vehicle Hull and Chassis Wiring, Repair of . . . . . TB ORD 650
Organizational Care, Maintenance, and Repair of Pneumatic Tires and Inner Tubes . . . . . TM 9-2610-200-14
Painting Instructions for Field Use . . . . . TM 43-0139
Purging, Cleaning, and Coating Interior Ferrous and Terne Sheet Vehicle Fuel Tanks . . . . . TB 43-0212
Repair of Tents, Canvas, and Webbing . . . . . FM 10-16
Rigging . . . . . FM 5-125
Use and Care of Hand Tools and Measuring Tools . . . . . TM 9-243
Use of Antifreeze Solutions and Cleaning Compounds in Engine Cooling Systems . . . . . TB 750-651
Welding Theory and Application . . . . . TM 9-237

e. Cold Weather Operation.

Basic Cold Weather Manual . . . . . FM 31-70
Northern Operations . . . . . FM 31-71
Operation and Maintenance of Ordnance Materiel in Cold Weather (0° to -65°F) . . . . . FM 9-207

f. Decontamination.

Decontamination Operations Facilities & Equipment . . . . . TB 700-4
NBC Decontamination . . . . . FM 3-5
NBC Protection . . . . . FM 3-4

g. Maintenance of Special Purpose Kits.

Operator and Organizational Maintenance Manual for Chemical Alarm . . . . . TM 3-6665-225-12
Operator's and Unit Maintenance Manual Including Repair Parts and Special Tools List for Decontaminating Apparatus: M13 . . . . . TM 3-4230-214-12&P
Operator, Organizational, Direct Support, and General Support Maintenance Manual Including Repair Parts and Special Tools List for Various Machine Gun Mounts . . . . . TM 9-1005-245-14

h. General.

Operator's Manual (M998 Series) . . . . . TM 9-2320-280-10
Operator's Manual (M1008 Series) . . . . . TM 9-2320-289-10
Operator's Manual (M35 Series) . . . . . TM 9-2320-361-10
Operator's Manual (M939 Series) . . . . . TM 9-2320-272-10
Principles of Automotive Vehicles . . . . . TM 9-8000
Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use (US Army Tank-automotive and Armaments Command) . . . . . TM 750-244-6
Route Reconnaissance and Classification . . . . . FM 5-36
Soldier's Manual MOS 88M Motor Transport Operator, Skill Levels 1/2 . . . . . STP 55-88-M12-SM

i. Land, Sea, and Air Shipment.

Airdrop of Supplies and Equipment: Rigging 5-Ton Trucks . . . . . FM 10-526
Containerization of Military Vehicles . . . . . MTMCTEA Ref 95-55-23
Lifting and Tiedown of U.S. Military Helicopters . . . . . MTMCTEA Ref 95-55-21
Marine Lifting and Lashing Handbook . . . . . MTMCTEA Ref 95-55-22
Marine Terminal Lifting Guidance . . . . . MTMCTEA Pam 56-1

A-4. OTHER PUBLICATIONS (CONT)

i. Land, Sea, and Air Shipment (Cont).

Multiservice Helicopter External Air Transport: Basic Operations and Equipment . . . . . FM 55-450-3
Multiservice Helicopter External Air Transport: Dual-Point Load Rigging Procedures . . . . . FM 55-450-5
Multiservice Helicopter External Air Transport: Single-Point Load Rigging Procedures . . . . . FM 55-450-4
Standard Characteristics (Dimensions, Weight, and Cube) for Transportability of Military Vehicles and Other Outsize/Overweight Equipment (in TOE Line Sequence) . . . . . TB 55-46-1
Tiedown Handbook for Rail Movements . . . . . MTMCTEA Pam 55-19
Tiedown Handbook for Truck Movements . . . . . MTMCTEA Ref 92-55-20

APPENDIX B
MAINTENANCE ALLOCATION CHART (MAC)

SECTION I

INTRODUCTION

B-1. The Army Maintenance System MAC.

a. This introduction (Section I) provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army Maintenance System concept.

b. The Maintenance Allocation Chart (MAC) in Section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Unit - includes two subcolumns, C (Operator/Crew) and O (Unit) maintenance.

Direct Support - includes an F subcolumn.

General Support - includes an H subcolumn.

Depot - includes a D subcolumn.

c. Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from Section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. Maintenance Functions. Maintenance functions are limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g. by sight, sound, or feel).

b. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition; e.g. to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemicals fluids, or gases.

d. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or Test, Measurement, and Diagnostic Equipment (TMDE) used in precision measurement. Consists of comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the 3d position code of the SMR code.

i. Repair. The application of maintenance services[1] including fault location/troubleshooting[2], removal/installation, and disassembly/assembly[3] procedures, and maintenance actions[4] to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. **Overhaul.** That maintenance effort (service/action) prescribed *to* restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

B-3. Explanation of Columns in the MAC, Section II.

a. Column 1, Group Number. Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly.

b. Column 2, Component/Assembly. Column 2 contains the item names of components , assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the items listed in Column 2. (For detailed explanation of these functions, see Paragraph B-2.)

d. Column 4, Maintenance Level. Column 4 specifies each level of maintenance authorized to perform each function listed in Column 3, by indicating work time required (expressed in man-hours in whole hours or decimals) in the appropriate subcolumn. This work-time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance levels, appropriate work-time figures are to be shown for each level. The work-time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions.

---

[1]Services - Inspect, test, service, adjust, align calibrate, and/or replace.

[2]Fault location/troubleshooting - The process of investigating and detecting the cause of equipment malfunction; the act of isolating a fault within a system or Unit Under Test (UUT).

[3]Disassembly/assembly - The step-by-step breakdown (taking apart) of a spare/functional group coded item, to the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

[4]Actions - Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance levels are as follows:

C . . . . . Operator or crew maintenance
O . . . . . Unit maintenance
F . . . . . Direct Support maintenance
L . . . . . Specialized Repair Activity (SRA)[5]
H . . . . . General Support maintenance
D . . . . . Depot maintenance

e. Column 5, Tools and Test Equipment Reference Code. Column 5 specifies, by code, those common tools sets (not individual tools), common TMDE, and special tools, special TMDE, and special support equipment required to perform the designated functions. Codes are keyed to tools and test equipment in Section Ill.

f. Column 6, Remarks. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks contained in Section IV.

B-4. Explanation of Columns in Tool and Test Equipment Requirements, Section Ill.

a. Column 1, Reference Code. The tool and test equipment reference code correlates with a code used in the MAC, Section II column 5.

b. Column 2, Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

c. Column 3, Nomenclature. Name or identification of the tool or test equipment.

d. Column 4, National Stock Number. The National Stock Number of tool or test equipment.

e. Column 5, Tool Number. The manufacturer's part number, model number, or type number.

B-5. Explanation of Columns in Remarks, Section IV.

a. Column 1, Remarks Code. The code recorded in column 6, Section II.

b. Column 2, Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

[5]This maintenance level is not included in Section II, Column (4) of the Maintenance Allocation Chart. Functions to this level of maintenance are identified by a work-time figure in the "H" column of Section II, Column (4), and an associated reference code is used in the Remarks column (6). This code is keyed to Section IV, Remarks, and the SRA complete repair application is explained there.

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
0100	ENGINE ASSEMBLY	Inspect		0.1				80	
		Test		1.5	0.3			80,81	
		Adjust			3.0			58,62,80, 82	
		Service		0.8				59,61,80	
		Replace			3.0			19,58,61, 63,80,81	
		Repair		0.4	1.6	3.3		19,35,36, 46,58,61, 62,63,80 81	
0101	CYLINDER HEAD ASSEMBLY	Inspect			0.1			80	
		Replace			2.0			46,58,61, 62,80	
		Repair				2.5		58,61,62, 63,64,80, 83	
0102	CRANKSHAFT	Replace				16.0		58,59,62, 73,80	
		Repair			3.8	16.0		19,35,36, 58,61,62, 63,80	
0103	FLEXPLATE, ENGINE	Replace			6.5			58,61,80	
		Repair			1.0			58,61,80	
0104	PISTON ASSEMBLY	Replace				9.0		58,59,61, 62,64,80, 81	
		Repair				0.6		80	
0105	CAMSHAFT ASSEMBLY	Replace				3.1		17,58,59, 61,62,80	
		Repair				1.2		58,80	
0105	ROCKER ARM AND PUSH RODS	Replace			2.0			46,61,62, 63,80	
		Repair			0.3			59,80	
0106	COOLER, ENGINE OIL	Replace			1.3			58,80	
		Repair			0.3			58,80	
0108	MANIFOLDS, INLET AND EXHAUST	Replace			1.5			58,62,63, 80,81	
0301	INJECTOR ASSEMBLY, FUEL	Replace			2.1			46,59,80, 82	
		Adjust			1.6			58,80,81, 82	
0304	AIR INTAKE SYSTEM	Service		0.3					
		Repair		0.3				48,59,	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
0304	INTAKE AIR CLEANER	Service		0.2					
		Replace		0.8				6,48,59, 80	
		Repair		0.4				59,80	
0305	TURBOCHARGER	Replace			0.8			58,63,80, 81	
0306	FUEL TANK	Inspect	0.1						
		Replace		1.5				59,61,80	
0308	GOVERNOR, ENGINE SPEED	Replace			1.0			59,62,78, 80,81	
		Repair		0.5	0.7			59,80	
0309	FILTER, FUEL/WATER SEPARATOR	Inspect	0.2						
		Service	0.2	0.3				80	
		Replace		0.5				59,80	
0311	ETHER STARTING AID	Replace		0.6				59,61,80	
0312	ACCELERATOR/HAND THROTTLE	Replace		0.5				59,80	
		Adjust		0.2				59,80	
0401	EXHAUST MUFFLER/PIPES	Inspect	0.1	0.2					
		Replace		0.9				59,61,80	
0501	RADIATOR/CHARGE AIR COOLER	Inspect	0.1						
		Replace		2.5				2,31,55, 61,80	
		Service		1.5				61,80	
		Repair		0.6	2.0			2,31,55, 61,80	
0501	RADIATOR OVERFLOW TANK	Replace		0.5				48,59,80	
		Repair		0.3				80	
0502	SHROUD, FAN	Replace		1.0				59,61,80, 90	
0503	HOSES, WATER	Replace		0.5				59,61,80, 90	
0504	PUMP, WATER	Replace		0.8				18,59,61, 80,90	
0505	CLUTCH, ENGINE FAN	Inspect		1.0				59	
		Service		0.2				61	
		Replace		1.5				2,55,59, 80	
		Repair			1.2			58,61,62, 63,80,81	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
0601	ALTERNATOR, 100 AMP	Inspect		0.2					
		Test		0.5	1.5			61,65,80	
		Replace		1.0				61,80	
		Repair		0.2	0.5			40,58,59, 61,65,80, 81	
0603	STARTING MOTOR, ENGINE	Inspect		0.1					
		Test		0.5	0.5			59,65	
		Replace		1.5				2,8,59, 61,80	
		Repair			2.1			54,58,61, 62,78,80	
0606	SOLENOID, FUEL SHUTOFF	Replace			1.0			62,80,82	
0607	CABLE ASSEMBLY, DASHBOARD	Test		0.5				58	
		Replace		2.9				59,61,78, 80	
		Repair		1.0	0.6			58,59,63, 80	
0607	DISPLAY, LIGHTED INDICATOR	Test		0.3					
		Replace		0.5				80,90	
		Repair		0.3				80	
0608	JUNCTION BOX ASSEMBLY, M1084/M1086	Inspect	0.1						
		Replace		1.5				59,61,80, 90	
		Repair		1.5				59,61,65, 80	
0608	JUNCTION BOX, ASSEMBLY, M1089	Inspect	0.1						
		Replace		1.5				59,61,80, 90	
		Repair		1.5				59,61,65 80	
0609	LIGHT ASSEMBLY, BACKUP	Inspect	0.1						
		Replace		0.8				59,80	
		Repair		0.3				80	
0609	LIGHT, BLACKOUT DRIVE	Inspect	0.1						
		Replace		0.8				59,61,80	
		Repair		0.5				80	
0609	TAILLIGHT ASSEMBLY, COMPOSITE	Inspect	0.1						
		Replace		0.8				59,61,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
		Repair		0.5				80	
0609	LIGHT ASSEMBLY, FRONT TURN SIGNAL AND PARK	Inspect	0.1						
		Replace		0.8				59,61,80	
		Repair		0.5				80	
0609	HEADLIGHT	Inspect	0.1						
		Adjust		0.4					
		Replace		1.0				59,61,80	
0609	WORKLIGHT ASSEMBLY, M1088/M1089 STATIONARY	Inspect	0.1						
		Replace		0.8				80	
		Repair		0.3				80	
0610	AUDIBLE ALARM	Inspect	0.1						
		Replace		0.6				80	
0611	HORN, CAB	Inspect	0.1						
		Replace		0.4				59,80	
0612	BOX ASSEMBLY, BATTERY	Inspect	0.1						
		Test		0.5				59,80	
		Service		0.3				59	A
		Replace		1.0				59,61,80	
		Repair		0.2				65	
0613	CABLE ASSEMBLY, LH/RH CAB AND DOOR MARKER LIGHTS	Inspect	0.1						
		Replace		0.8				80	
		Repair		0.7				65	
0613	CABLE ASSEMBLY, LOWER, CAB MARKER LIGHTS, M1093/M1094	Inspect	0.1						
		Replace		0.6				80,90	
		Repair		0.5				65	
0613	CABLE ASSEMBLY, UPPER, CAB CLEARANCE AND MARKER LIGHTS, M1093/M1094	Inspect	0.1						
		Replace		0.8				80,90	
		Repair		0.5				65	
0613	CABLE ASSEMBLY, STE/ICE-R	Replace		1.0				80	
		Repair		0.5	0.8			65	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
0613	CABLE ASSEMBLY, CAB CLEARANCE AND MARKER LIGHTS	Inspect	0.1						
		Replace		1.2				59,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, WARNING LIGHT	Replace		0.5				50,80,90	
		Repair		0.3	0.5			65	
0613	CABLE ASSEMBLY, WINDSHIELD WASHER PUMP/EMI	Replace		0.5				80	
		Repair		0.3				65	
0613	CABLE ASSEMBLY, ARTIC KIT W/PTO	Replace		1.8				59,61,80	
		Repair		0.5	0.5			65	
0613	CABLE ASSEMBLY, CRANE POWER	Inspect	0.1						
		Replace		1.2				80	
		Repair		0.5	0.5			65	
0613	BOX ASSEMBLY, CRANE REMOTE CONTROL	Test		0.5					
		Repair		0.7				80,90	
0613	CABLE ASSEMBLY, ENGINE CONTROL	Inspect	0.1						
		Replace		2.3				59,80	
		Repair		0.5	0.5			65	
0613	CABLE ASSEMBLY, FRONT INTERVEHICULAR, 12 VDC	Replace		0.8				61,80	
		Repair		0.2	1.3			65	
0613	CABLE ASSEMBLY, FRONT LIGHTS	Replace		2.0				59,61,80, 90	
		Repair		0.5	0.5			65	
0613	CABLE ASSEMBLY, REAR LIGHTS	Replace		2.8				59,61,80	
		Repair		0.5	0.5			65	
0613	CABLE, M1084/M1086 BOOM DOWN LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 BOOM DOWN SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
0613	CABLE, M1084/M1086 BOOM UP LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 BOOM UP SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 CONTROL LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 CRANE POWER	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 HOIST DOWN SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 HOIST UP LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 HOIST UP SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 LEFT JACK CYLINDER PROXIMITY SENSOR	Replace		1.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 OVERLOAD LOCKOUT	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 REMOTE CONTROL	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 SWING CCW SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 SWING CW SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 SYSTEM SHUTDOWN SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
0613	CABLE, M1084/M1086 TELESCOPE IN SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 TELESCOPE OUT LOCKOUT	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 TELESCOPE OUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 BOOM DOWN LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 BOOM DOWN SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 BOOM UP LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 BOOM UP SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, M1089 CONTROL PANEL POWER	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 CRANE POWER	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 HOIST DOWN SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 HOIST UP LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 HOIST UP SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 HYDRAULIC SYSTEM SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 LEFT SIDE REMOTE CONTROL	Replace		2.0				59,80	
		Repair		0.5	0.8			65	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
0613	CABLE, M1089 OVERLOAD LOCKOUT	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	WIRING HARNESS, M1089 REMOTE CONTROL	Replace		2.0				80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 RIGHT SIDE REMOTE CONTROL	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 SWING CCW SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 SWING CW SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 TELESCOPE IN SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 TELESCOPE OUT LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 TELESCOPE OUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	BOX ASSEMBLY, WRECKER REMOTE CONTROL	Replace		1.6				59,80	
0613	CABLE ASSEMBLY, M1090/M1094 DUMP	Replace		0.8				59,61,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, M1090/M1094 DUMP POWER	Replace		1.2				59,61,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, PTO	Replace		1.6				59,61,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, REAR INTERVEHICULAR, 24 VDC	Replace		0.6				61,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, START AND CHARGING	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, WINCH CONTROL VALVE	Replace		1.8				59,61,80	
		Repair		0.5	0.8			65	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
0613	CABLE ASSEMBLY, TRANSMISSION AUXILIARY OIL COOLER FAN	Replace		1.8				59,61,80	
		Repair		0.5				65	
0705	VEHICLE INTERFACE MODULE	Replace		0.6				80	
		Repair		0.8				80	
0708	TORQUE CONVERTER	Adjust			0.9			22,61,62,80	
		Remove/Install			0.8			48,61,62,64,80	
		Repair			1.3			34,58,61,62,64,80	
0710	TRANSMISSION	Inspect		0.4				80	
		Service		1.5				59,61,80	
		Replace			7.0			58,61,62,63,80,81,87	
		Repair		0.4	2.7	1.9		3,22,23,28,29,31,43,58,59,61,62,63,80,81,87	
0710	MODULE, FRONT SUPPORT	Remove/Install				2.0		58,59,61,62,63,80	
		Repair				0.7		34,58,59,61,62,63,80	
0710	MODULE, PLANETARY GEAR (P1)	Remove/Install				2.0		61,62,73,80	
		Repair				1.5		61,62,73,80	
0710	MODULE, PLANETARY (P2)	Remove/Install				2.0		3,58,61,62,63,80	
		Repair				1.9		3,23,58,61,62,63,73,80	
0710	PLANETARY CARRIER (P3)	Remove/Install				2.0		3,58,62,80	
		Repair				1.9		3,51,58,62,80	
0710	MODULE, MAIN SHAFT	Remove/Install				2.0		61,62,80	
		Repair				0.4		61,62,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
0710	MODULE, CONVERTER HOUSING	Remove/ Install				4.3		3,58,59, 61,62,80	
		Repair				2.0		3,23,29, 58,59,61, 62,80	
0713	CLUTCH ASSEMBLY, C3/C4/C5, TRANSMISSION	Remove/ Install				2.0		58,59,61, 62,80	
		Repair				1.0		43,58,59, 61,62,80	
0713	MODULE, ROTATING CLUTCH	Remove/ Install				2.0		3,58,61, 62,80	
		Repair				2.4		3,23,28, 58,61,62, 80	
0714	VALVE ASSEMBLY, CONTROL MODULE	Remove/ Install			2.0			58,61,62, 63,80,81	
		Repair		1.0	2.5			61,63,80, 81	
0714	BODY ASSEMBLY, MAIN VALVE	Service		1.5				59,61,80	
		Remove/ Install			2.0			58,61,62, 63,80,81	
		Repair		1.5	2.5			58,61,62, 63,80,81	
0801	MODULE, TRANSFER CASE	Adjust				1.0			
		Remove/ Install				2.0		25,58,59, 61,62,63, 73,76,80, 81	
		Repair				1.1		27,31,37, 52,58,59, 62,80	
0802	HOUSING ASSEMBLY, C6 AND C7 CLUTCH	Remove/ Install				2.0		58,61,62, 63,80	
		Repair				0.8		23,27,30, 31,32,33, 58,61,62, 63,64,73, 80	
0802	CONTROL VALVE ASSEMBLY	Remove/ Install				2.0		58,61,63, 80,81	
		Repair				1.0		58,61,63, 80,81	
0804	PUMP ASSEMBLY, OIL	Replace				1.0		81	
		Repair				0.8		81	
0900	PROPELLER SHAFT	Inspect		0.1					

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
		Service		0.5				61	
		Repair		0.6				59,61,80	
		Replace		0.5				59,61,80	
1000	AXLE ASSEMBLY, FRONT	Inspect	0.1	0.3	0.7			80	
		Adjust			1.0			59,81	
		Service		0.5				61,80	
		Replace			4.5			58,59,61, 62,63,72, 80	
		Repair		2.3	2.2	6.0		58,59,61, 62,63,80,	
1002	CARRIER ASSEMBLY, DIFFERENTIAL	Inspect		0.1	0.1	0.1		81	
		Service			0.3			80	
		Replace				4.6		25,58,59, 61,62,80, 81	
		Repair				2.7		58,59,61, 62,80,81	
1004	STEERING KNUCKLE, AXLE	Inspect			0.2				
		Adjust			2.5			81	
		Service			0.3			81	
		Replace			5.1			58,59,61, 62,73,80	
1100	AXLE ASSEMBLY, INTERMEDIATE	Inspect	0.1	0.4	0.7				
		Service		0.8				59,61,80	
		Replace			4.5			58,59,61, 62,63,80, 87	
		Repair			1.6	6.0		25,58,59, 61,62,69, 80	
1100	AXLE ASSEMBLY, REAR	Inspect	0.1	0.4	0.7				
		Service		0.8				59,61,80	
		Replace			4.5			38,58,59, 61,62,80, 87	
		Repair			0.9	6.0		25,58,59, 61,62,80, 87,88	
1102	CARRIER ASSEMBLY, DIFFERENTIAL, INTERMEDIATE AXLE	Inspect		0.1	0.1	1.0		80,81	
		Service			0.3			80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
		Replace				4.6		25,58,59, 61,62,69, 80	
		Repair				2.7		25,58,59, 61,62,63, 69,75,80	
1102	CARRIER ASSEMBLY, DIFFERENTIAL, REAR AXLE	Inspect		0.1	0.1	1.0		80,81	
		Service			0.3			80	
		Replace				4.6		25,58,59, 61,62,80, 81,88	
		Repair				2.7		25,39,58, 59,61,62, 73,75,80	
1202	BRAKE ASSEMBLY, FRONT AXLE	Inspect		0.1	1.0			61,80,81	
		Adjust		0.4				59,61,80	
		Repair		1.5	0.5			59,61,80, 85	
1202	BRAKE ASSEMBLY, INTERMEDIATE AND REAR AXLE	Inspect		0.1	1.0			61,80,81	
		Adjust		0.4				59,61,80	
		Repair		1.5	0.5			59,61,80, 85	
1208	AIR DRYER, BRAKE SYSTEM	Replace		0.5				59,61,80	
		Repair		1.0				59,61,80	
1209	AIR COMPRESSOR	Adjust		0.6				61,80	
		Replace			1.2			58,62,63, 80,81	
1311	WHEEL ASSEMBLY, PNEUMATIC TIRE	Inspect	0.1					59	B
		Replace	1.0	1.2				59,61	
		Repair		2.0				59,61	
1313	TIRE, PNEUMATIC	Replace		2.0				59,61	
1401	STEERING SYSTEM	Inspect		0.2					
		Adjust			1.0			58,62,80	
		Repair		1.0	1.5			56,58,59, 61,62,63, 80,81	
1407	STEERING GEAR ASSEMBLY	Replace			4.0			58,62,80	
1410	PUMP, POWER STEERING	Replace			1.5			49,58,61, 62,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
1411	HOSES, POWER STEERING	Replace		0.3				59,61,80, 90	
1413	HYDRAULIC RESERVIOR, POWER STEERING	Service	0.1	0.5				80	
		Replace		0.8				61,80,90	
1501	FRAME ASSEMBLY	Inspect	0.1	0.3					
		Repair		0.8	14.0			58,59,61, 62,63,80, 81	
1501	BOOM REST ASSEMBLY, CRANE	Inspect	0.1						
		Replace			2.0			58,59,61, 62,80,81, 87	
		Repair			0.7			58,59,61, 62,80,81, 87	
1504	RETAINER, SPARE TIRE	Inspect	0.1	0.1					
		Replace		3.0				59,61,80	
		Repair		0.6				59,61,80	
1506	FIFTH WHEEL ASSEMBLY	Inspect	0.1						
		Service		0.5				21,80	
		Replace			4.0			58,61,62, 80,81	
		Repair			2.5			21,58,61, 62,66,80, 81	
1601	LEAF SPRING ASSEMBLIES	Inspect	0.1	0.2					
		service		0.3				59	
		Replace			2.7			58,59,61, 62,80,81	
1604	SHOCK ABSORBERS	Inspect	0.1	0.3					
		Replace		0.5				59,61,80	
1605	STABILIZER BAR, REAR	Inspect		0.2					
		Replace		2.0				59,61,70, 80	
		Repair		1.5				59,80	
1801	CAB BODY, STANDARD	Inspect	0.1						
		Replace			60.0			58,59,62, 63,80,81	
		Repair		0.6				59,61,80	
1801	CAB BODY, AIR DROP	Inspect	0.1						
		Replace			60.0			58,59,62, 63,80,81	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
		Repair		0.6				59,61,80	
1801	CAB DOORS, STANDARD	Inspect	0.1						
		Replace			1.0			57,61,80	
		Repair		2.7				51,59,80	
1801	CAB DOORS, AIR DROP	Inspect	0.1						
		Replace			1.0			57,61,80	
		Repair		2.7				51,59,80	
1801	SUPPORT ASSEMBLY, CAB FRONT	Inspect	0.1						
		Repair		1.1				59,61,80	
		Replace			3.0			7,15,59, 61,62,80, 81	
1801	SUPPORT ASSEMBLY, CAB REAR	Inspect	0.1						
		Replace		1.0				59,61,80	
		Repair		0.8				59,80	
1802	WIND SHIELD	Replace			0.6			57,61,80	
1802	FENDER, VEHICULAR, FRONT	Inspect	0.1						
		Replace		2.0				59,61,80	
		Repair		0.5				59,80	
1803	ROOF, CAB, M1093/M1094	Replace		1.0				47,52,59, 61,80	
1805	STEP ASSEMBLY, CAB	Replace		1.0				59,80	
		Repair		0.7				59,80	
1808	TOOL BOX ASSEMBLY	Inspect	0.1						
		Replace		0.5				49,59,61, 80	
		Repair		0.5				59,61,80	
1808	STOWAGE BOX, CAB	Replace		0.8				59,80	
		Repair		0.5				59,80	
1810	BODY, CARGO, (W/MHC, LWB AND LWB W/MHC)	Inspect	0.1						
		Replace			4.0			58,59,61, 62,80	
		Repair		0.5				59,61,80	
1810	DUMP BODY ASSEMBLY	Inspect	0.1						
		Replace			4.0			58,61,62, 80	
		Repair		0.5	4.0			58,59,61, 62,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
1810	DUMP HYDRAULIC CYLINDER	Inspect	0.1						
		Replace			1.0			59,62,80	
		Repair				2.5		59,61,62, 80,89	
1810	DUMP TAILGATE ASSEMBLY	Inspect	0.1						
		Replace		1.5				80	
		Repair		0.8				80	
1812	BOX ASSEMBLY, TOOL, M1089	Inspect	0.1						
		Remove/ Install		1.0				59,61,80	
		Repair		0.8				59,61,80	
2001	UNDERLIFT ASSEMBLY, M1089	Inspect	0.1						
		Test		0.5	0.1				
		Service		0.5				61	
		Replace			6.0			58,59,61, 62,80,87	
		Repair			1.0			54,58,59, 61,62,80, 81,86,87	
2001	CROSSBAR ASSEMBLY, M1089	Inspect			0.1				
		Replace			0.5			58,59,61, 62,80,81, 86	
		Repair			1.0			58,59,61, 62,81,86	
2001	LOWER ARM, UNDERLIFT	Inspect			0.1				
		Replace			2.0			58,59,61, 62,80,87	
		Repair			0.5			58,59,61, 62,80,87	
2001	CYLINDER, TELESCOPIC LIFT	Replace			1.5			59,61,80	
		Repair				1.0		61,62,63, 80	
2001	STIFFLEG ASSEMBLY	Inspect			0.1				
		Replace			2.0			59,61,62, 80,87	
		Repair			1.6	1.0		58,59,61, 62,63,68, 80,87	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
2001	BOOM FRAME, FOLDING, UNDERLIFT	Inspect			0.1				
		Repair			2.5			61,80	
2001	ARM ASSEMBLY, UPPER, UNDERLIFT	Repair			2.5			58,59,61, 62,80	
2001	CYLINDER, UNDERLIFT FOLD	Replace			0.5			59,61,80, 87	
		Repair				0.5		59,61,62, 63,80	
2001	CYLINDER, UNDERLIFT STINGER	Replace			0.5			59,61,62, 80,87	
		Repair				0.5		58,61,62, 63,68,80, 81	
2001	WINDH, 15K SELF-RECOVERY	Inspect	0.1	4.0					
		Service		0.2				61	
		Replace			1.0			61,62,80	
		Repair			0.9			61,62,80	
2001	MOTOR, HYDRAULIC, SELF-RECOVERY WINCH	Replace			0.5			59,80	
2001	MATERIAL HANDLING CRANE (MHC), M1089	Inspect	0.1	0.5				80 59	
		Test	0.2		0.3			61	
		Service		0.5				59,61,62,	
		Replace			6.0			80,87 9,58,59,	
		Repair		0.5				61,62,80	
2001	CYLINDER, LIFT, M1089 MHC	Inspect	0.1						
		Test			0.2			61	
		Replace			4.0			58,62,80	
		Repair				2.0		59,61,62, 63,80	
2001	CYLINDER, ERECTION, M1089 MHC	Inspect	0.1						
		Test			0.4				
		Replace			4.0				
		Repair				2.0		61 58,62,80	
2001	HOIST ASSEMBLY, M1089 MHC	Inspect	0.1					59,61,62, 63,80,81	
		Test			0.2			61	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
		Replace			6.0			61,62,80	
		Repair			3.0			59,61,62, 80	
2001	HYDRAULIC MOTOR, HOIST, M1089 MHC	Inspect	0.1						
		Test			0.1			59,65	
		Replace			2.0			59,80	
		Repair				4.2		58,59,61, 62,63,80	
2001	GEAR SET, M1089 MHC	Inspect		0.2					
		Test			0.2			61	
		Repair			1.7			61,62,80	
2001	BOOM ASSEMBLY, M1089 MHC	Inspect	0.1						
		Test			0.2				
		Replace			8.0			58,62,80	
		Repair			2.0			58,61,62, 80	
2001	CYLINDER, TELESCOPIC, BOOM, M1089 MHC	Inspect	0.1						
		Test			0.2			61	
		Replace			6.0			58,61,62, 80	
		Repair				2.0		59,61,62, 80	
2001	SWING DRIVE ASSEMBLY, M1089 MHC	Inspect	0.1	0.5					
		Test			0.2			61	
		Service		0.3					
		Replace			4.0			59,61,62, 80	
		Repair			4.0			59,61,62, 80	
2001	MOTOR, ORBIT, HYDRAULIC, M1089 MHC	Inspect	0.1						
		Test			0.2				
		Replace			1.0			59,61,62, 80	
		Repair				3.0		59,61,62, 63,80,81	
2001	CYLINDER ASSEMBLY, EXTENSION, OUTRIGGER, M1089 MHC	Inspect	0.1						
		Test			0.2			61	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
		Replace			3.0			80	
		Repair				5.0		61,62,80	
2001	CYLINDER ASSEMBLY, JACK, M1089 MHC	Inspect	0.1						
		Test			0.2			61	
		Replace			3.0			62,80	
		Repair				5.0		59,61,62, 80	
2001	VALVE ASSEMBLY, EIGHT-BANK, M1089 MHC	Inspect	0.1						
		Replace			0.5			58,59,61, 80	
		Repair			2.0			58,59,61, 80	
2001	WINCH ASSEMBLY, M1089 (30K)	Inspect	0.1						
		Test		0.5	0.2			63	
		Replace			9.0			20,59,61, 62,80,81	
		Repair			0.5			59,61,62, 63,73,80, 81	
2001	MOTOR ASSEMBLY, DRIVE, (30K) WINCH	Replace			0.5			59,61,62, 63,73,80, 81	
		Repair			8.0			59,61,62, 63,73,80, 81	
2001	VALVE ASSEMBLY, MAIN, UPPER, M1089	Replace			0.5			61,62,80	
		Repair			0.5			61,62,80	
2001	VALVE ASSEMBLY, MAIN, LOWER, M1089	Replace			0.5			61,62,80	
		Repair			0.5			61,62,80	
2001	VALVE ASSEMBLY, MONO, M1089	Replace			1.5			59,61,62, 80,87	
		Repair			1.0			59,61,62, 80,87	
2001	MATERIAL HANDLING CRANE (MHC), M1084/M1086	Inspect	0.1						
		Test			0.2			81	
		Service		2.0				61	
		Replace			4.0			58,59,61, 62,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
		Repair				0.5		58,59,61, 62,63,73, 80,81	
2001	CYLINDER, LIFT, M1084/M1086 MHC	Inspect	0.1						
		Test			2.0			65,81	
		Replace			2.0			58,59,62, 80	
		Repair				4.0		58,59,62, 80	
2001	CYLINDER, ERECTION, M1084/M1086 MHC	Inspect	0.1						
		Test			0.2			65,81	
		Replace			4.0			58,62,80	
		Repair				4.0		59,61,63, 80,81	
2001	HOIST ASSEMBLY, M1084/M1086 MHC	Inspect	0.1						
		Test			0.2			65,81	
		Replace			6.0			61,62,80	
		Repair				3.5		59,61,62, 80	
2001	MOTOR, HYDRAULIC, HOIST, M1084/M1086 MHC	Inspect	0.1						
		Test			0.1			65,81	
		Replace			2.0			59,80	
		Repair				4.2		58,59,61, 62,63,80	
2001	GEAR SET, M1084/M1086 MHC	Inspect		0.2					
		Test			0.2				
		Repair			4.5			61,62,80	
2001	CYLINDER, TELESCOPIC, BOOM, M1084/M1086 MHC	Inspect	0.1						
		Test			0.1			65,81	
		Replace			2.0			58,61,62, 80	
		Repair				4.0		59,61,62, 80	
2001	SWING DRIVE ASSEMBLY, M1084/M1086 MHC	Inspect	0.1	0.5				61	
		Test			0.1			65,81	
		Service		0.3					

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
		Replace			4.0			59,61,62, 80	
		Repair			3.5	4.2		59,61,62, 80	
2001	MOTOR, ORBIT, HYDRAULIC, M1084/M1086 MHC	Inspect	0.1					61	
		Test			0.1			65,81	
		Replace			2.0			59,61,80	
		Repair				4.2		59,61,63, 73,80,81	
2001	VALVE ASSEMBLY, CONTROL, FOUR WAY, M1084/M1086 MHC	Replace			0.8			59,61,62, 80	
		Repair			1.1			59,61,62, 80	
2001	VALVE ASSEMBLY, CONTROL, THREE WAY, M1084/M1086 MHC	Replace			0.8			59,61,62, 80,81	
		Repair			1.1			59,61,62, 80,81	
2001	CYLINDER, JACK, M1084/M1086 MHC	Inspect	0.1						
		Test			0.2			81	
		Replace			2.0			62,80	
		Repair				4.0		59,61,62, 80	
2004	POWER TAKEOFF ASSEMBLY (PTO)	Inspect	0.1						
		Replace			1.0			58,59,61, 62,80	
		Repair			0.8			58,59,61, 62,80	
2201	CAB PROTECTOR, M1090/M1094	Inspect	0.1						
		Replace			2.0			58,80	
2202	MOTOR, WIPER, WINDSHIELD	Test		0.5					
		Replace		1.0				80	
2207	HEATER ASSEMBLY, PERSONNEL	Replace		2.0				59,61,80	
		Repair		1.0				59,61,80	
2210	DECALS	Inspect	0.1						
		Replace		1.0				80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
2401	POWER UNIT, AIR/HYDRAULIC	Inspect	0.1						
		Test		0.2					
		Service		1.0					
		Replace		3.0				59,61,80	
		Repair			2.0			59,61,62, 71,80,81	
2402	MANIFOLD, HYDRAULIC	Inspect	0.1						
		Test		0.2					
		Replace		1.5				53,59,61, 80	
		Repair		1.0				53,59,61, 80	
2406	FILTER, HYDRAULIC	Service		0.3				61,80	
		Replace		0.2				61,80	
2407	LATCH, HYDRAULIC, CAB	Inspect	0.1						
		Adjust		0.5				59,61,80	
		Replace		0.5				59,61,80	
2408	RESERVIOR, HYDRAULIC	Replace		1.0				59,61,80	
		Repair		0.5				59,61,80	
2408	TANK ASSEMBLY, HYDRAULIC, M1089	Inspect	0.1						
		Service		2.0				59,61,80	
		Replace		2.0				6,9,59, 61,80	
		Repair		0.5				59,61,80	
3303	SWINGFIRE ADAPTER KIT	Inspect	0.2						
		Test		1.0					
		Remove/ Install		3.0				59,61,80, 90	
		Replace		1.0				59,61,80, 90	
		Repair		1.7				59,61,80, 90	
3303	CAB ARTIC KIT	Inspect	0.2						
		Test		1.0					
		Install						62,80,81, 90	
		Replace		1.0				59,61,80, 90	
		Repair		1.7				59,61,80, 90	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
3303	CARGO ARTIC KIT	Inspect	0.2						
		Test		1.0					
		Remove/ Install			12.0			58,59,61, 62,80,81, 90	
		Replace		1.0				59,61,80, 90	
		Repair		1.7				59,61,80, 90	
3303	FURNACE ASSEMBLY, CARGO	Replace		3.0				59,61,80, 90	
		Repair		0.5				59,61,80, 90	
3303	CABLE ASSEMBLY, FURNACE, CARGO	Inspect	0.1						
		Replace		0.5				59,61,80	
		Repair		0.7				59,61,80	
3303	CONTROL UNIT ASSEMBLY, FURNACE	Replace		1.5				59,61,80	
		Repair		0.5				4,24,26, 41,59,80	
3303	HEATER ASSEMBLY, VEHICULAR	Inspect	0.1						
		Test		0.5					
		Service		0.5				61,80	
		Replace		1.5				59,80,90	
		Repair		1.5				59,80,90	
3305	FORDING KIT, DEEP WATER	Inspect	0.1						
		Remove/ Install		4.0				59,61,80	
3307	ALTERNATOR KIT, 200 AMP	Inspect	0.1	0.2					
		Test		0.5					
		Remove/ Install		2.0				59,61,80	
		Replace		1.0				59,61,80	
		Repair			0.5			58,59,62, 63,80	
3307	ALTERNATOR, 200 AMP	Inspect		0.2					
		Test		0.5	1.5			61,65,80	
		Replace		1.0				59,61,80	
		Repair		0.2	0.5			58,59,62, 63,65,80	
3307	CRANE (LMHC), MATERIAL HANDLING, LIGHT	Inspect	0.1	0.1					

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
		Replace		0.5				61,78,80	
		Repair		0.5					
		Test		0.5					
3307	WEIGHT BLICK AND WIRE ROPE, LMHC	Inspect	0.1						
		Replace		0.1				61,80	
		Repair		0.5				61,80	
		Test			0.5				
3307	WINCH, LMHC	Inspect	0.1						
		Replace		0.5				61,80	
		Repair		1.0				61,80	
		Test		0.5					
3307	MAST/SWING ASSEMBLY, LMHC	Inspect	0.1						
		Repair		1.0				61,80	
		Test		0.5					
3307	CONTROL BOX, LMHC	Inspect	0.1						
		Replace		0.1					
		Repair		0.5				78,80	
		Test	0.1	0.5					
3307	TROOPSEAT KIT	Remove/ Install	1.0						
		Inspect	0.1						
		Replace		1.0					
		Repair		0.5				80	
3307	COVER KIT, CARGO SOFT TOP	Remove/ Install	1.5						
		Inspect	0.1						
		Replace		2.0					
		Repair		0.5					
3307	WARNING LIGHT ASSEMBLY, AMBER	Inspect	0.1						
		Repair		0.4				80	
		Test		0.2					
3401	MACHINE GUN RING KIT	Inspect	0.1						
		Remove/ Install			4.0			58,59,62, 80,81,87	
		Repair		1.1				10,59,80	
3402	MOUNT, SMALL ARMS	Inspect	0.1						
		Replace		0.3				80	
3901	WARNING LIGHT ASSEMBLY, AMBER, M1089	Repair		0.8				59,61,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE (CONT)

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			Unit		Direct Support	General Support	Depot	Tools and Equipment	
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Ref Code	Remarks Code
3903	MAST, WARNING LIGHT, AMBER, M1089	Replace		0.6				59,61,80	
3909	CABLE ASSEMBLY, WARNING LIGHT	Inspect	0.1						
		Replace		0.5				80	
4316	AIR HOSE, CTIS	Inspect	0.1						
		Replace		0.4				61,80	
4317	VALVE, INVERSION	Replace		0.5				61,80	
4318	CYLINDER, PNEUMATIC, TAILGATE, M1090/M1094	Replace		0.4				61,80	
4321	AIR DRYER	Inspect	0.1	0.1					
		Replace		1.0				59,61,80	
		Repair		0.6				59,61,80	
4702	GUAGE, AIR FILTER RESTRICTION	Replace		0.5				80	

Section III. TOOLS AND TEST EQUIPMENT FOR MTV VEHICLES

Tool or Test Equipment REF Code	Maintenance Level	Nomenclature	National Stock Number	Tool Number
1	O,F	ADAPTER, RADIATOR	4910-01-170-4928	J29003-A
2	O	ADAPTER, SOCKET WRENCH	5120-00-240-8702	11655788-2
3	H	BUSHING DRIVER SET	5120-01-391-3541	J35922
4	O	CRIMPING TOOL, TERMINAL, HAND	5120-00-165-3912	M22520/1-01
5	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-00-078-3809	10935497
6	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-00-293-1010	5120-293-1282
7	F	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-074-7557	FCOM19
8	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-236-9996	FCOM15
9	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1089	FCO28
10	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1091	FCO32
11	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1119	SCO34

Section III. TOOLS AND TEST EQUIPMENT FOR MTV VEHICLES (CONT)

Tool or Test Equipment REF Code	Maintenance Level	Nomenclature	National Stock Number	Tool Number
12	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1122	SCO40
13	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1153	FCO20
14	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1156	FCO26
15	F	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-348-9473	AN8508-19A
16	O	CUTTER, BOLT	5110-00-224-7057	GGG-G-740
17	H	DRIVER KIT, BEARING	4910-01-032-3128	8S0602
18	O	GAGE, BELT TENSION	6635-01-092-7462	0755-0101
19	O,F	GAGE, BELT TENSION	6635-01-143-2237	GA-424
20	O,F	GAGE, PRESSURE, 0-150 psi	6685-00-474-5721	111T1D05A01
21	O	GAGE, PROFILE	5220-01-357-4913	TF-0237
22	F,H	GAGE, PROFILE	5220-01-388-1460	J-38548-1
23	H	HANDLE, DRIVE	5120-00-377-2259	J8092
24	O	HEATER, GUN TYPE, ELECTRIC	4940-00-561-1002	500A
25	F,H	HOLDING BAR, PINION	5120-01-166-0573	J3453
26	O	INSERTER AND REMOVER, ELECTRICAL CONTACT	5120-00-915-4588	MS3447-16
27	H	INSERTER AND REMOVER, SPRING	5120-01-388-3660	J38573
28	H	INSERTER AND REMOVER, SPRING	5120-01-388-4436	J35923
29	H	INSERTER, BEARING AND BUSHING	5120-01-388-7841	J-38565
30	H	INSERTER, BEARING AND BUSHING	5120-01-389-0658	J35921-1
31	H	INSERTER, BEARING AND BUSHING	5120-01-390-1104	J 38569
32	H	INSERTER, BEARING AND BUSHING	5120-01-390-1105	J 38568-3
33	H	INSERTER, BEARING AND BUSHING	5120-01-391-5133	J 38579
34	F,H	INSERTER, BEARING AND BUSHING	5120-01-414-7398	J38566
35	F	INSERTER, SEAL	5120-01-362-2026	1U7430
36	F	INSERTER, SEAL	5120-01-362-2027	1U7598
37	F	INSTALLER, SEAL	N/A	J38574
38	F	JACK, LEVELING SUPPORT, VEHICLE	2590-00-231-7418	10876244
39	H	PULLER KIT, UNIVERSAL	5180-00-089-3660	A57QB
40	F	PULLER KIT, UNIVERSAL	5180-01-124-1903	1P3075
41	O	REMOVER, ELECTRICAL CONTACT	5120-00-148-9844	MS3448-001B
42	F	RIVERTER, BLIND, HAND	5120-01-289-4310	HP-2
43	H	RIVERTER, YOKE, HAND	5120-01-415-3558	J-39354
44	F	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-00-601-6934	LAW120A
45	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-053-4158	FAM5A
46	O,F,H	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-055-1308	ANSIB18.3.2M

Section III. TOOLS AND TEST EQUIPMENT FOR MTV VEHICLES (CONT)

Tool or Test Equipment REF Code	Maintenance Level	Nomenclature	National Stock Number	Tool Number
47	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-079-8032	SAM8A
48	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-160-8862	S 6 HBS
49	O,F	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3462	SA10A
50	O,F	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3497	TMP12A
51	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3519	F23D
52	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3526	FP24
53	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3527	FP32A
54	F,H	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3536	FTX40A
55	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3574	GFA8A
56	O	DEPARATOR, BALL JOINT	5120-01-255-8238	2287
57	F	SETTING TOOL, WINDSHIELD	5120-01-316-4995	CRL216
58	O,F	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-348-7696	SC4910-95CLA02
59	O,F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0650	SC4910-95CLA72
60	O	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0653	SC4910-95CLA73
61	O,F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0654	SC4910-95CLA74
62	F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0705	SC4910-95CLA31
63	F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0706	SC4910-95CLA62
64	O,F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0707	SC4910-95CLA63
65	O,F	SHOP EQUIPMENT, FUEL AND ELECTRICAL	4910-00-754-0714	SC4910-95CLA01
66	F	SLIDER, SPRING COMPRESSOR	4910-01-165-6015	TF-TUN-J500
67	F	SLING, MULTIPLE LEG	3940-00-777-5744	A170
68	H	SOCKET SET, SOCKET WRENCH	5120-01-195-0640	208FA
69	F,H	SOCKET, SOCKET WRENCH	5120-01-068-5643	5555M
70	O	SOCKET, SOCKET WRENCH	5120-01-161-5907	GLDH382
71	F	SOCKET, SOCKET WRENCH	5120-01-335-0784	TW321
72	O	SOCKET, SOCKET WRENCH	5120-01-359-9521	TV940009
73	F	SOLDERING AND BRAZING OUTFIT, RESISTANCE HEATING	3439-00-460-7198	SC4940-95-CLB20
74	O	SOLDERING IRON, ELECTRIC	3439-01-036-3308	3112-S3-40W

Section III. TOOLS AND TEST EQUIPMENT FOR MTV VEHICLES (CONT)

Tool or Test Equipment REF Code	Maintenance Level	Nomenclature	National Stock Number	Tool Number
75	H	STAND, DIFFERENTIAL CARRIER REPAIR	4910-01-085-7729	J3409-D
76	H	STAND, MAINTENANCE, AUTOMOTIVE ENGINE	4910-00-808-3372	J29109
77	O	TESTING APPARATUS	4910-01-426-3974	440.28
78	O,F	TOOL KIT, AUTO FUEL AND ELECTRICAL SYSTEM REPAIR	5180-00-754-0655	SC4910-95CLA50
79	F	TOOL KIT, BODY AND FENDER	5180-00-754-0643	SC5180-90-N34
80	O,F,H	TOOL KIT, GENERAL MECHANIC'S	5180-00-177-7033	SC5180-90-CL-N26
81	F,H	TOOL KIT, GENERAL MECHANIC'S	5180-00-699-5273	SC5180-90-CL-N05
82	F	TOOL KIT, INTERNAL COMBUSTION ENGINE	5180-01-356-8155	1U6680
83	H	TOOL KIT, SLEEVE REPAIR	5180-01-415-5896	4C4462
84	F	TOOL OUTFIT, HYDRAULIC	4940-01-036-5784	SC4940-95-CL-B07
85	O	TOOL, SPRING REMOVAL	5120-01-360-1918	TV940010
86	F	WIRE TWISTER, PLIER	5120-00-542-4171	GGG-W-340
87	F	WRENCH SET, CROWFOOT, RATCHETING	5120-00-293-0013	GGG-W-646
88	F	WRENCH SET, SOCKET	5120-00-148-3706	ANSI-B107.5
89	H	WRENCH SET, SPANNER	5120-00-215-1882	46D7578
90	O	WRENCH, TORQUE, 0-75 LB-IN.	5120-01-112-9532	TQSC6A

Section IV. REMARKS FOR THE MTV VEHICLE

Remarks Code	Remarks
A	Battery service will be in accordance with TM 9-6140-200-14.
B	Repair of tires will be in accordance with TM 9-2610-200-14.

APPENDIX C
TOOLS IDENTIFICATION LIST

Section I. INTRODUCTION

C-1. INTRODUCTION

This appendix lists common tools, supplements, and special tools/fixtures that are suggested for maintenance tasks performed at the Unit Maintenance level.

C-2. EXPLANATION OF COLUMNS

a. Column (1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the item, e.g., "Bar, Pry (Item 1, Appendix C)."

b. Column (2) - Item Name. This column contains the nomenclature for the item.

c. Column (3) - National Stock Number. This is the national stock number assigned to the item which you can use to requisition it.

d. Column (4) - Part Number. This provides the Government, manufacturer, or vendor part number for the item.

e. Column (5) - Reference. This column contains the shop catalog (SC), technical manual, or other publication which provides an illustration and description of the item, or lists whether the item is fabricated.

APPENDIX C
Section II. TOOLS IDENTIFICATION LIST

(1) ITEM NUMBER	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) REFERENCE
1	ADAPTER, SOCKET WRENCH	5120-00-227-8088	A-A-2172	SC 4910-95-CL-A74
2	ADJUSTING TOOL, BRAKE SHOE	5120-01-154-3029	J34061	SC 4910-95-CL-A74
3	APRON, RUBBER	8145-00-082-6108	MIL-A-41829	SC 4910-95-CL-A74
4	CAPS, VISE JAW	5120-00-221-1506	GGG-C-137	SC 4910-95-CL-A74
5	DISPENSING PUMP, HAND DRIVEN	4930-00-263-9886	43D15069	SC 4910-95-CL-A74
6	DRILL SET, TWIST	5130-00-293-0983	58	SC 4910-95-CL-A74
7	DRILL, PORTABLE, ELECTRIC	5130-00-293-1849	W-D-661	SC 4910-95-CL-A74
8	DRILL, TWIST	5133-01-120-3519		SC 4910-95-CL-A72

Section II. TOOLS IDENTIFICATION LIST (CONT)

(1) ITEM NUMBER	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) REFERENCE
9	FISHING TOOL, PNEUMATIC TIRE VALVE	5120-00-516-4220	991	SC 4910-95-CL-A74
10	GAGE, DEPTH, MICROMETER	5210-00-619-4045	445BZ-6RL	CTA 50-909
11	GAGE, TIRE PRESSURE	4910-01-117-2994	955	SC 4910-95-CL-A72
12	GAGE, WHEEL ALIGNMENT	5210-00-529-1205	WA361	SC 4910-95-CL-A72
13	GLOVES, RUBBER	8415-00-641-4601	ZZ-G-381	SC 4910-95-CL-A74
14	GLOVES, WELDER'S	8415-00-268-7859	A-A-50022	SC 4910-95-CL-A72
15	GOGGLES, INDUSTRIAL	4240-00-052-3776	A-A-1110	SC 4910-95-CL-A74
16	GUN, LUBRICATING	4930-00-253-2478	1142	SC 4910-95-CL-A74
17	HAMMER, HAND	5120-00-224-4130	A-A-1292	SC 4910-95-CL-A74
18	HAMMER, HAND	5120-01-065-9037	57-533	SC 4910-95-CL-A72
19	HOSE ASSEMBLY, NONMETALLIC	4720-00-356-8557	AA-H-461	SC 4910-95-CL-A74
20	IRON, TIRE	5120-00-765-8536	T48A	SC 4910-95-CL-A74
21	JACK, HYDRAULIC, HAND	5120-00-224-7330	D120	SC 4910-95-CL-A74
22	MULTIMETER, DIGITAL	6625-01-139-2512	T00377	SC 4910-95-CL-A74
23	MULTIPLIER, TORQUE WRENCH	5120-00-574-9318	292	SC 4910-95-CL-A72
24	PAN, DRAIN	4910-00-387-9592	450	SC 4910-95-CL-A72
25	PAN, WASH	4940-00-617-9859	5582281	SC 4910-95-CL-A72
26	PRESSURE TESTER, RADIATOR	4910-01-170-4929	J24460-01	SC 4910-95-CL-A74
27	PULLER KIT, MECHANICAL	5120-00-313-9496	1178	SC 4910-95-CL-A74
28	PULLER , BATTERY TERMINAL	5120-00-944-4268	21	SC 4910-95-CL-A74
29	RESPIRATOR, AIR FILTER	4240-00-022-2524	GGG-M-125/6	SC 4910-95-CL-A72
30	SCALE, WEIGHING	6670-00-254-4634	AAA-S-133	SC 4910-95-CL-A72
31	SLING, CARGO	1670-00-823-5043	63J4261-13	CTA 50-970
32	SLING, ENDLESS	3940-00-675-5003	PD101-96	CTA 50-970
33	SOCKET SET, IMPACT	5120-01-117-0466	4151MMY	SC 4910-95-CL-A74
34	SOCKET SET, SOCKET WRENCH	5120-01-073-2821	217FMY	SC 4910-95-CL-A74

Section II. TOOLS IDENTIFICATION LIST (CONT)

(1) Item Number	(2) Item Name	(3) National Stock Number	(4) Part Number	(5) Reference
35	SOCKET SET, SOCKET WRENCH	5120-01-115-1149	315SIMMY	SC 4910-95-CL-A74
36	SOCKET SET, SOCKET WRENCH	5120-01-117-3876	221FSMY	SC 4910-95-CL-A72
37	SOCKET, SOCKET WRENCH	5120-00-181-6813	5530	SC 4910-95-CL-A74
38	SOCKET, SOCKET WRENCH	5120-00-232-5681	1242	SC 4910-95-CL-A74
39	SOCKET, SOCKET WRENCH	5120-00-243-7351	5316	SC 4910-95-CL-A72
40	SOCKET, SOCKET WRENCH	5120-01-112-0581	SIMM190	SC 4910-95-CL-A74
41	STE/ICE-R	4910-01-222-6589	12259266	SC 4910-95-CL-A74
42	TESTER, ANTIFREEZE AND BATTERY	6630-00-105-1418	10425	SC 4910-95-CL-A74
43	TOOL KIT, AUTO FUEL	5780-00-754-0655		SC 5180-95-CL-A50
44	TOOL KIT, BLIND RIVET	5180-01-201-4978	D-100-MIL-1	SC 4910-95-CL-A72
45	TOOL KIT, ELECTRICAL	5180-00-876-9336	7550526	SC 4910-95-CL-A72
46	TOOL KIT, GENERAL MECHANIC'S	5180-00-177-7033		SC 5180-90-N26
47	TRESTLE, MOTOR VEHICLE MAINTENANCE	4910-00-251-8013	306	SC 4910-95-CL-A72
48	VISE, MACHINIST	5120-00-293-1439	504M2	SC 4910-95-CL-A74
49	WRENCH SET, SOCKET	5120-00-081-2305	GGG-W-641	SC 4910-95-CL-A74
50	WRENCH SET, SOCKET	5120-00-204-1999	GGG-W-641	SC 4910-95-CL-A74
51	WRENCH SET, SOCKET	5120-00-322-6231	51200017510	SC 4910-95-CL-A74
52	WRENCH, ADJUSTABLE	5120-00-264-3793	2117080	SC 4910-95-CL-A72
53	WRENCH, ADJUSTABLE, AUTOMOTIVE	5120-00-449-8083	1B7536	SC 4910-95-CL-A74
54	WRENCH, BOX AND OPEN END	5120-00-277-8833	1244	SC 4910-95-CL-A74
55	WRENCH, BOX AND OPEN END	5120-00-277-8834	GGG-W-636	SC 4910-95-CL-A74
56	WRENCH, PIPE	5120-00-277-1485		SC 4910-95-CL-A74
57	WRENCH, STRAP ADJUSTABLE	5120-00-020-2947	A91C	SC 4910-95-CL-A74
58	WRENCH, TORQUE, 0-175 lb-ft	5120-00-640-6364	1753LDF	SC 4910-95-CL-A74

Section II. TOOLS IDENTIFICATION LIST (CONT)

(1) Item Number	(2) Item Name	(3) National Stock Number	(4) Part Number	(5) Reference
59	WRENCH, TORQUE, 0-200 lb-in.	5120-00-853-4538	F2001	SC 4910-95-CL-A72
60	WRENCH, TORQUE, 0-600 lb-ft	5120-00-221-7983	SW130-301	SC 4910-95-CL-A72

APPENDIX D
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. SCOPE

This appendix lists expendable and durable items that you will need to operate and maintain the MTV vehicle. This listing is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (except medical, class V repair parts, and heraldic items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

D-2. EXPLANATION OF COLUMNS

a. Column (1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the item, e.g., "Oil, Lubricating (Item 25, Appendix D).

b. Column (2) - Level. This column identifies the lowest level of maintenance that requires the item.

c. Column (3) - National Stock Number. This is the national stock number assigned to the item which you can use to requisition it.

d. Column (4) - Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number. This provides the other information you need to identify the item.

e. Column (5) - Unit of Measure. This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	O	4730-00-248-9340	Adapter, Pipe to Tube (81343) 4-4 010103B	ea
2	O	8040-00-273-8717	Adhesive (81348) MMM-A-121	pt
3	O	8040-00-152-0063	Adhesive (81348) MMM-A-1617 TY3	bt
4	O	8040-01-250-3969	Adhesive (05972) 242	ea
5	O	8040-00-117-8510	Adhesive (71984) 3145 RTV Clear	tu
6	O	8040-00-776-9602	Adhesive (73168) 80055-31	kt
7	O	8040-00-522-3429	Adhesive (81349) (MIL-A-46106)	oz
8	O	8040-00-118-2695	Adhesive (72799) RTV162	kt
9	O	8040-01-331-7473	Adhesive (81349) (MIL-A-46106 GP3TY1)	tu
10	O	8040-01-331-7470	Adhesive (81349) MIL-A-46106 5 oz tube	oz
11	C	6850-00-174-1806	Antifreeze, Arctic Type (81349) (MIL-A-11755) 55 gl drum	dr

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
12	C	6850-00-181-7940	Antifreeze, Ethylene Glycol, Permanent (813491 (MIL-A-46153) 55 gl drum	dr
13	O	8030-00-597-5367	Antiseize Compound (81349) (MIL-A-907)	lb
14	O	5340-00-450-5718	Cap and Plug Set (19207) 10935405	ea
15	O	6850-00-926-2275	Cleaning Compound, Windshield (81349) O-C-1901 16 oz bottle	bt
16	O	7920-00-044-9281	Cloth, Cleaning (81349) (MIL-C-85043)	bx
17	O		Corrosion Preventive Compound (81349) (MIL-C-16173)	
		8030-00-062-6950	Grade 1 1 quart can	qt
		8030-01-149-1731	Grade 2 - 1 quart can	qt
		8030-00-837-6557	Grade 3 - 1 pint can	pt
		8030-00-903-0931	Grade 4 - 1 pint can	pt
18	O	8030-00-033-4291	Corrosion Preventive Compound (81349) (MIL-C-82594) 8 ounce can	bt
19	C	9150-00-024-9621	Damping Fluid (81348) VV-D-1078	pt
20	O	7520-01-209-1152	Dispenser, Pressure Sensitive Adhesive Tape (75037) STD-0-9	ea
21	O	5330-01-325-6993	Gasket Forming Compound (05972) 515	ea
22	O		Grease, Automotive and Artillery (GAA) (81349) (MIL-G-10924)	
		9150-01-197-7688	2-1/4 oz tube	tu
		9150-01-197-7690	1.75 lb can	cn
		9150-01-197-7689	6.5 lb can	cn
		9150-01-197-7692	35 lb can	cn
23	O	9150-00-180-6382	Grease, General Purpose (81349) MIL-T-24139 6.5 pound can	lb
24	O	9150-00-935-4018	Grease, Molybenum Disulfide (81349) (MIL-G-21164)	ca
25	C	9150-00-265-9408	Hydraulic Fluid A (81349) (MIL-H-5606A) 55 gl drum	dr
26	O	7510-00-145-0559	Ink, Marking Stencil (81349) (MIL-I-43553)	oz
27	O	7510-01-386-0787	Inking Pad, Rubber Stamp (88001) 0603A	ea
28	O	5970-01-100-4464	Insulating Compound, Electrical (08800) RTV-102WHITE	tu
29	O	5970-00-838-5951	Insulation Sleeving, Electrical (06090) CRN3-16BLACK	ft

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
30	O	1650-00-166-4834	Lockwire (90166) 68A32	ea
31	O	9150-01-360-1905	Lubricant, Solid Film (81349) (MIL-L-46147) 16 oz can	cn
32	O	4730-00-019-0608	Nipple, Pipe (81996) A2303-12-52PC102	ea
33	O	4730-00-825-7304	Nipple, Tube (96906) MS51501B4	ea
34	O	5310-00-059-4265	Nut, Plain, Hex (89346) 98881R1	ea
35	C		Oil, Fuel, Diesel, DF-A Arctic (81348) (VV-F-800)	
		9140-00-286-5283	Bulk	gl
		9140-00-286-5284	55 gl drum, 16 gauge	dr
		9140-00-286-5285	55 gl drum, 18 gauge	dr
36	C		Oil, Fuel, Diesel, DF-1, Winter (81348) (VV-F-800)	
		9140-00-286-5286	Bulk	gl
		9140-00-286-5288	55 gl drum, 16 gauge	dr
		9140-00-286-5289	55 gl drum, 18 gauge	dr
37	C		Oil, Fuel, Diesel, DF-2, Regular (81348) (VV-F-800)	
		9140-00-286-5294	Bulk	gl
		9140-00-286-5296	55 gl drum, 16 gauge	dr
		9140-00-286-5297	55 gl drum, 18 gauge	dr
38	C		Oil, Lubricating, Arctic (81349) (MIL-L-46167)	
		9150-00-402-2372	5 gl can	cn
		9150-00-491-7197	55 gl drum	dr
39	C		Oil, Lubricating, Gear, GO 75W (81349) (MIL-L-2105)	
		9150-01-035-5390	1 qt can	cn
		9150-01-035-5391	5 gl can	cn
40	C		Oil, Lubricating, Gear, 80W-90 (81349) (MIL-L-2105)	
		9150-01-035-5392	1 qt can	qt
		9150-01-035-5393	5 gl can	cn
		9150-01-035-5394	55 gl drum, 16 gauge	dr
41	O		Oil, Lubricating, Gear, 85W-140 (81349) (MIL-L-2105)	
		9150-01-048-4591	1 qt can	qt
		9150-01-035-5395	5 gl can	cn
		9150-01-035-5396	55 gl drum	dr
42	C		Oil, Lubricating, OE/HDO 10 (81349) (MIL-L-2104)	
		9150-00-183-7807	Bulk	gl
		9150-00-186-6668	5 gl can	cn
		9150-00-191-2772	55 gl drum	dr
43	C	9150-00-189-6727	Oil, Lubricating, OE/HDO 10W (81349) (MIL-L-2104) 1 qt can	cn

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
44	C		Oil, Lubricating, OE/HDO 15W-40 (81349) (MIL-L-2104)	
		9150-01-152-4117	1 qt can	cn
		9150-01-152-4118	5 gl can	cn
		9150-01-152-4119	55 gl drum	dr
45	C		Oil, Lubricating, OE/HDO 30 (SAE 30) (81349) (MIL-L-2104)	
		9150-00-183-7808	Bulk	gl
		9150-00-186-6681	1 qt can	cn
		9150-00-188-9858	5 gl can	cn
		9150-00-189-6729	55 gl drum, 18 gauge	dr
46	C		Oil, Lubricating, OE/HDO 40 (81349) (MIL-L-2104)	
		9150-00-405-2987	Bulk	gl
		9150-00-189-6730	1 qt can	cn
		9150-00-188-9862	5 gl can	cn
47	O	5350-00-067-7639	Paper, Abrasive (28124) 02347 pg contains 100 sheets	pg
48	O	8010-01-146-2650	Polyurethane Coating (81349) (MIL-C-46168)	kt
49	O	8030-00-181-8372	Primer, Sealing Compound (05972) 747-56	cn
50	C	7920-00-205-1711	Rag, Wiping (64067) 7920-00-205-1711 50 lb bale	be
51	O	4730-00-021-1788	Reducer, Boss (30780) 4-6F50G5	ea
52	O	4020-00-106-9342	Rope, Nylon 181349) (MIL-R-24050)	ro
53	O	7520-00-634-2442	Rubber Stamp Set, Fixed Type (02663) W-5-3/8-AZ SET	ea
54	O	5305-01-296-0019	Screw, Cap, Socket Head (06888) SHCM75275 50 ct box	bx
55	O	8030-00-111-2762	Sealing Compound (05972) 290-31	bt
56	O	8030-00-133-3164	Sealing Compound (05972) 571-31	bt
57	O	8030-00-148-9833	Sealing Compound (05972) 271-21	bx
58	O	8030-00-204-9149	Sealing Compound (05972) 592-41	tu
59	O	8030-00-656-1426	Sealing Compound (81349) (MIL-S-45180)	pt
60	O	8030-01-025-1692	Sealing Compound (05972) 242-41	bt
61	O	8030-01-088-8140	Sealing Compound (52571) 9001512-0011	bt
62	O	8030-01-155-3238	Sealing Compound (11083) 6V6640	ml
63	C	7930-00-634-3935	Soap, Laundry (81348) P-S-1792	lb
64	O	3439-00-006-7764	Solder, Tin Alloy (81348) SN63WRAP3 1 lb spool	sl

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
65	C	6850-00-281-1985 6850-00-664-5685	Solvent, Dry Cleaning SD (P-D-680) 1 gl can 1 qt can	 cn cn
66	O	8030-00-889-3534	Tape, Antiseizing (81349) (MIL-T-27730)	ea
67	O	5640-00-103-2254	Tape, Duct (39428) 1791K70	ea
68	O	5970-00-644-3167	Tape, Insulation, Electrical (80063) TL83	ro
69	O	5975-01-379-4997	Ties, Cable, Plastic (06383) PLT 35-C-O	hd
70	O	8010-00-180-6343	Varnish, Oil (23667) 515320	pt
71	O	6145-01-148-2263	Wire, Electrical (80009) 175-0825-00 50 ft	ft
72	O	9505-00-555-8648	Wire, Nonelectrical (96906) MS20995C47 5 lb spool	sl

APPENDIX E
ILLUSTRATED LIST OF MANUFACTURED ITEMS

Section I. INTRODUCTION

E-1. INTRODUCTION

This appendix includes complete instructions for manufacturing or fabricating authorized items locally. All bulk materials needed to manufacture an item are listed by part number or specification number. Figures are provided as needed. See standards and specifications DOD-Std-00100D(AR) and ANSI Y14.5M1982 for required details.

Section II. MANUFACTURED ITEMS INDEX

ITEM NAME/PART NUMBER	ITEM DESCRIPTION	PARA NO.
Brake Adjusting Tool Support		E-2
Brake Plunger Seal Driver		E-3
Cab Support Tool		E-4
Dump Body Lifting Bracket		E-5
Headlight Adjustment Screen		E-6
M1089 Main Winch Test Adapter		E-7
M1089 Solenoid Test Adapter		E-8
Relay Test Wire		E-9
Transmission Auxiliary Oil Cooler Rubber Seal		E-10
Wheel Bearing Shim Tool Rest		E-11
12414690-001	Pneumatic Tube	E-12
12414690-002	Pneumatic Tube	E-12
12414690-003	Pneumatic Tube	E-12
12414690-004	Pneumatic Tube	E-12
12414690-005	Pneumatic Tube	E-12
12414690-006	Pneumatic Tube	E-12
12414690-007	Pneumatic Tube	E-12
12414690-008	Pneumatic Tube	E-12
12414690-009	Pneumatic Tube	E-12
12414690-010	Pneumatic Tube	E-12
12414690-101	Pneumatic Tube	E-12
12414690-102	Pneumatic Tube	E-12
12414690-103	Pneumatic Tube	E-12
12414690-104	Pneumatic Tube	E-12
12414690-105	Pneumatic Tube	E-12
12414690-106	Pneumatic Tube	E-12
12414690-107	Pneumatic Tube	E-12
12414690-108	Pneumatic Tube	E-12
12414690-109	Pneumatic Tube	E-12
12414690-112	Pneumatic Tube	E-12
12414690-113	Pneumatic Tube	E-12
12414690-115	Pneumatic Tube	E-12
12414690-118	Pneumatic Tube	E-12
12414690-120	Pneumatic Tube	E-12
12414690-125	Pneumatic Tube	E-12
12414690-128	Pneumatic Tube	E-12
12414690-129	Pneumatic Tube	E-12
12414690-130	Pneumatic Tube	E-12

Section II. MANUFACTURED ITEMS INDEX (CONT)

ITEM NAME/PART NUMBER	ITEM DESCRIPTION	PARA NO.
12414690-131	Pneumatic Tube	E-12
12414690-132	Pneumatic Tube	E-12
12414690-133	Pneumatic Tube	E-12
12414690-134	Pneumatic Tube	E-12
12414690-135	Pneumatic Tube	E-12
12414690-138	Pneumatic Tube	E-12
12414690-137	Pneumatic Tube	E-12
12414690-138	Pneumatic Tube	E-12
12414690-139	Pneumatic Tube	E-12
12414690-140	Pneumatic Tube	E-12
12414690-141	Pneumatic Tube	E-12
12414690-142	Pneumatic Tube	E-12
12414690-143	Pneumatic Tube	E-12
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12414690-147	Pneumatic Tube	E-12
12414690-148	Pneumatic Tube	E-12
12414690-149	Pneumatic Tube	E-12
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12414690-208	Pneumatic Tube	E-12
12414690-209	Pneumatic Tube	E-12
12414690-210	Pneumatic Tube	E-12
12414690-211	Pneumatic Tube	E-12
12414690-212	Pneumatic Tube	E-12
12414690-215	Pneumatic Tube	E-12

ITEM NAME/PART NUMBER	ITEM DESCRIPTION	PARA NO.
12414690-216	Pneumatic Tube	E-12
12414690-217	Pneumatic Tube	E-12
12414690-218	Pneumatic Tube	E-12
12414690-219	Pneumatic Tube	E-12
12414690-220	Pneumatic Tube	E-12
12414690-221	Pneumatic Tube	E-12
12414690-222	Pneumatic Tube	E-12
12414690-223	Pneumatic Tube	E-12
12414690-224	Pneumatic Tube	E-12
12414690-225	Pneumatic Tube	E-12
12414690-228	Pneumatic Tube	E-12
12414690-229	Pneumatic Tube	E-12
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12414690-231	Pneumatic Tube	E-12
12414690-232	Pneumatic Tube	E-12
12414690-233	Pneumatic Tube	E-12
12414690-234	Pneumatic Tube	E-12
12414690-235	Pneumatic Tube	E-12
12414690-236	Pneumatic Tube	E-12
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12414690-244	Pneumatic Tube	E-12
12414690-245	Pneumatic Tube	E-12
12414690-246	Pneumatic Tube	E-12
1’2414690-247	Pneumatic Tube	E-12
12414690-248	Pneumatic Tube	E-12
12414690-249	Pneumatic Tube	E-12
12414690-301	Pneumatic Tube	E-12
12414690-302	Pneumatic Tube	E-12
12414690-303	Pneumatic Tube	E-12
12416381P1	Non-Metallic Electrical Cable Conduit	E-13
12416381P10	Non-Metallic Electrical Cable Conduit	E-13
12416381P11	Non-Metallic Electrical Cable Conduit	E-13
12416381P12	Non-Metallic Electrical Cable Conduit	E-13
12416381P13	Non-Metallic Electrical Cable Conduit	E-13
12416381P14	Non-Metallic Electrical Cable Conduit	E-13
12416381P15	Non-Metallic Electrical Cable Conduit	E-13
12416381P16	Non-Metallic Electrical Cable Conduit	E-13
12416381P17	Non-Metallic Electrical Cable Conduit	E-13
12416381P2	Non-Metallic Electrical Cable Conduit	E-13
12416381P20	Non-Metallic Electrical Cable Conduit	E-13
12416381P21	Non-Metallic Electrical Cable Conduit	E-13
12416381P22	Non-Metallic Electrical Cable Conduit	E-13
12416381P23	Non-Metallic Electrical Cable Conduit	E-13
12416381P26	Non-Metallic Electrical Cable Conduit	E-13
12416381P3	Non-Metallic Electrical Cable Conduit	E-13
12416381P30	Non-Metallic Electrical Cable Conduit	E-13
12416381P32	Non-Metallic Electrical Cable Conduit	E-13

Section II. MANUFACTURED ITEMS INDEX (CONT)

ITEM NAME/PART NUMBER	ITEM DESCRIPTION	PARA NO.
12416381P34	Non-Metallic Electrical Cable Conduit	E-13
12416381P35	Non-Metallic Electrical Cable Conduit	E-13
12416381P36	Non-Metallic Electrical Cable Conduit	E-13
12416381P37	Non-Metallic Electrical Cable Conduit	E-13
12416381P38	Non-Metallic Electrical Cable Conduit	E-13
12416381P4	Non-Metallic Electrical Cable Conduit	E-13
12416381P5	Non-Metallic Electrical Cable Conduit	E-13
12416381P6	Non-Metallic Electrical Cable Conduit	E-13
12416381P7	Non-Metallic Electrical Cable Conduit	E-13
12416381P8	Non-Metallic Electrical Cable Conduit	E-13
12416381P9	Non-Metallic Electrical Cable Conduit	E-13
12418037	Steering Gear Return Hose	E-14
12418460-001	Transmission Oil Cooler Hose	E-14
12418460-002	Transmission Oil Cooler Hose	E-14
12418763	Lanyard Assembly	E-15
12420196	Lanyard Assembly	E-15
12420197-001	Non-Metallic Vent Air Hose	E-16
12420197-002	Non-Metallic Vent Air Hose	E-16
12420197-003	Non-Metallic Vent Air Hose	E-16
12420197-004	Non-Metallic Vent Air Hose	E-16
12420197-005	Non-Metallic Vent Air Hose	E-16
12420197-006	Non-Metallic Vent Air Hose	E-16
12420198-001	Non-Metallic Vent Air Hose	E-16
12420198-002	Non-Metallic Vent Air Hose	E-16
12420308-457	Personnel Heater Air Duct Hose	E-17
12420308-760	Personnel Heater Air Duct Hose	E-17
12420489	Block Seal	E-18
3256-H-1048	CTIS Seal Driver	E-19
3256-K-1051	Wheel Hub Grease Seal Driver	E-20

Section III. MANUFACTURED ITEMS

E-2. BRAKE ADJUSTING TOOL SUPPORT

Make the brake adjusting tool support from 0.134 in. (3.4 mm) flat steel stock according to the following instructions. Refer to the parts list and Figure E-1. Brake Adjusting Tool Support for details.

Item	Part Number	Material Description	Size	Qty
1	N/A	Steel, ASTM A569 Sheet, Hot Rolled	6.0 in. (152.4 mm) x 6.0 in. (152.4 mm) x 0.134 in. (3.4 cm)	2

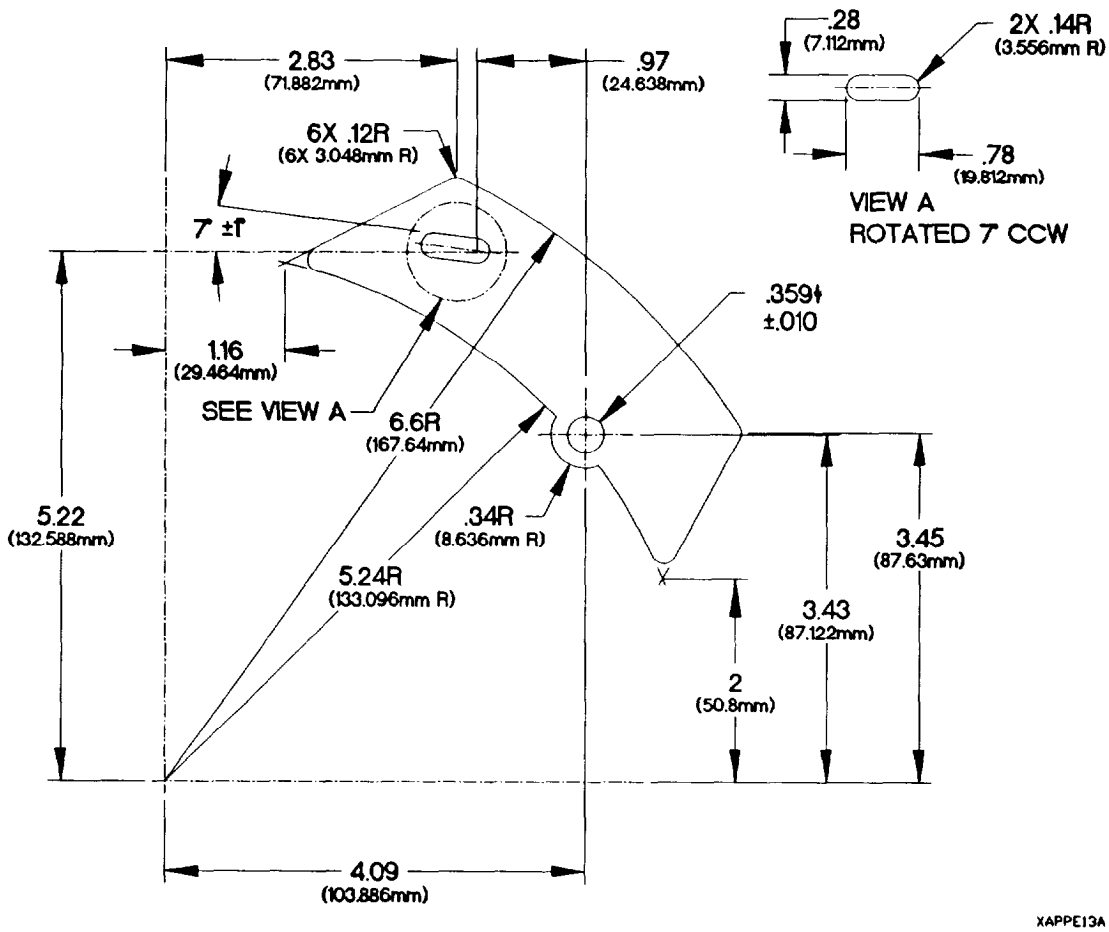


Figure E-1. Brake Adjusting Tool Support

a. All dimensions are in inches (millimeters).
b. Cut steel sheet as shown by dimensions on **Figure E-1. Brake Adjusting Tool Support.**
c. De-burr and remove sharp edges.

E-3. BRAKE PLUNGER SEAL DRIVER

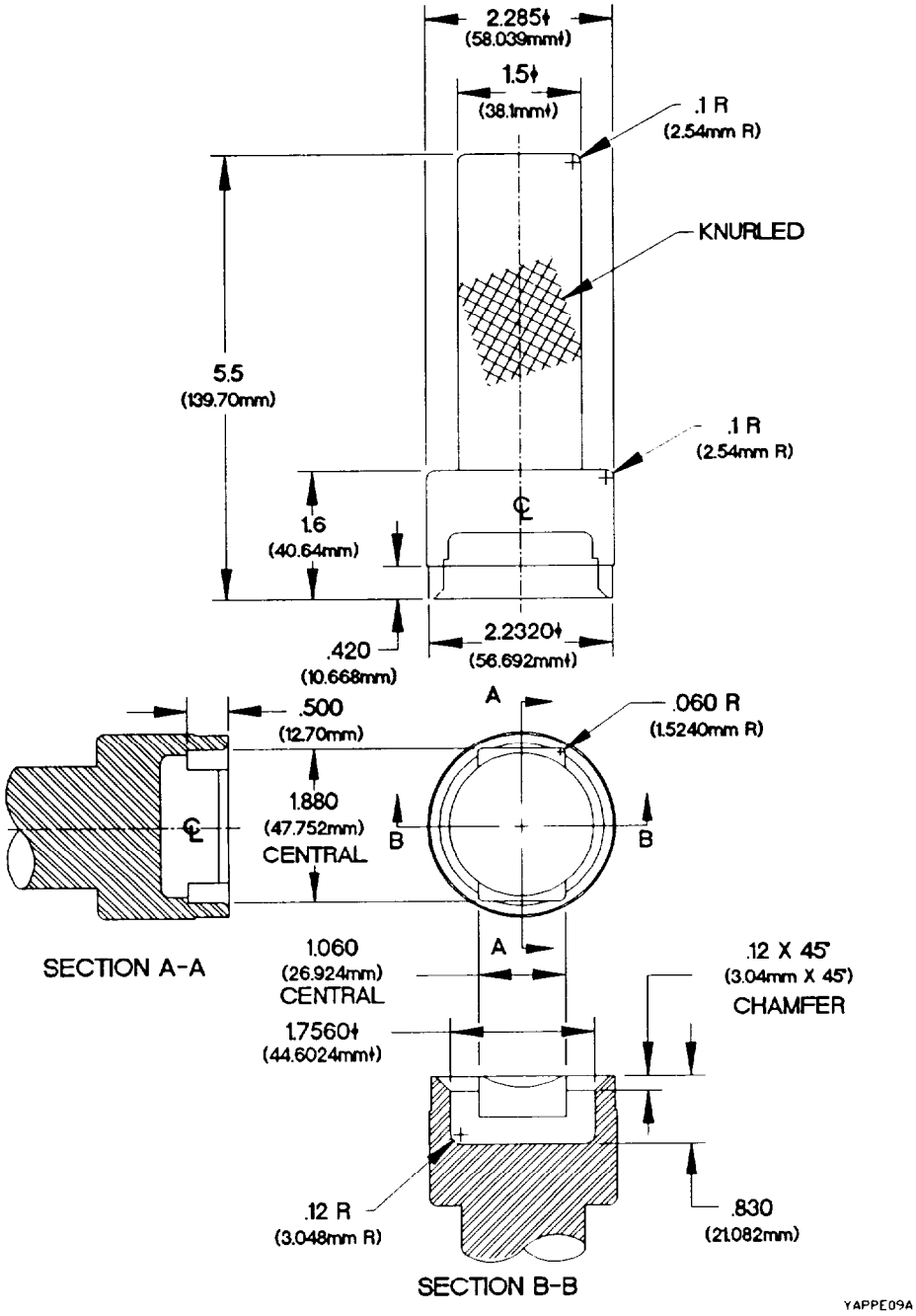


Figure E-2. Brake Plunger Seal Driver

a. All dimensions are in inches (millimeters).
b. Manufacture from round steel stock.
c. De-burr and remove sharp edges.

E-4. CAB SUPPORT TOOL

Make the cab support tool from .38 inch (.96 cm) flat steel stock and angle iron stock according to the following instructions. Refer to the pans list and Figure E-3. Cab Support Tool Strut and Cab Rest for details.

Item	Part Number	Material Description	Size	Qty
1	N/A	Steel, Flat Bar	4.0 in. (10.2 cm) X 33.38 in. X (84.8 cm) X 0.38 in. (0.96 cm)	1
2	N/A	Steel, Flat Bar	4.0 in. (10.2 cm) X 12.0 in. (30.5 cm) X 0.38 in. (0.96 cm)	1
3	N/A	Angle Iron	2.0 in. (5.1 cm) X 2.0 in. (5.1 cm) X 3.5 in. (8.9 cm)	2
4	H.S.105VW-1	Insulgrip, CSA 105 C		

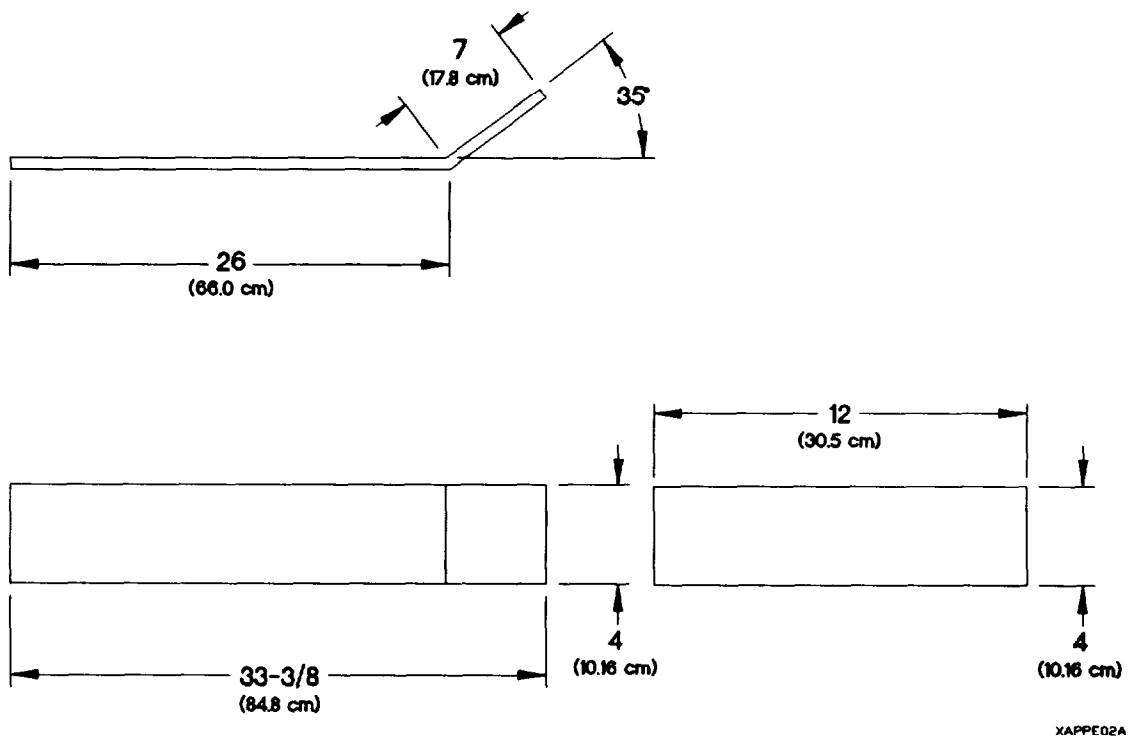


Figure E-3. Cab Support Tool Strut and Cab Rest

a. All dimensions are in inches (centimeters).
b. Cut cab support tool strut (1) from steel flat bar and bend to shape as shown in **Figure E-3. Cab Support Tool Strut and Cab Rest.**
c. Cut cab support tool cab rest (2) from steel flat bar.
d. De-burr and remove sharp edges.

E-4. CAB SUPPORT TOOL (CONT)

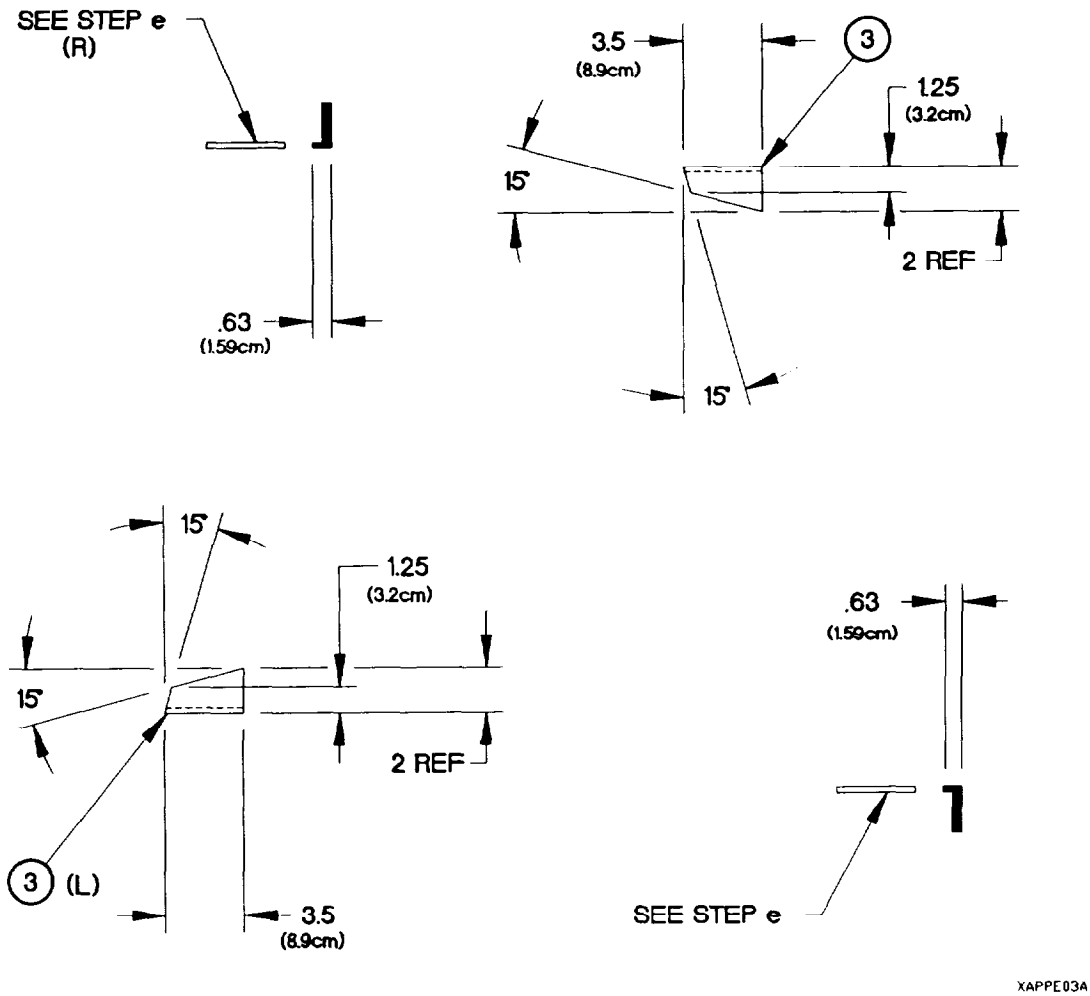


Figure E-4. Cab Support Tool Seat

e. Remove flange side of cab support tool seats (3) as shown in **Figure E-4. Cab Support Tool Seat.**
f. Cut cab support tool seats (3) L and (3) R according to dimensions and left\right orientation shown on **Figure E-4. Cab Support Tool Seat.**
g. De-burr and remove sharp edges.

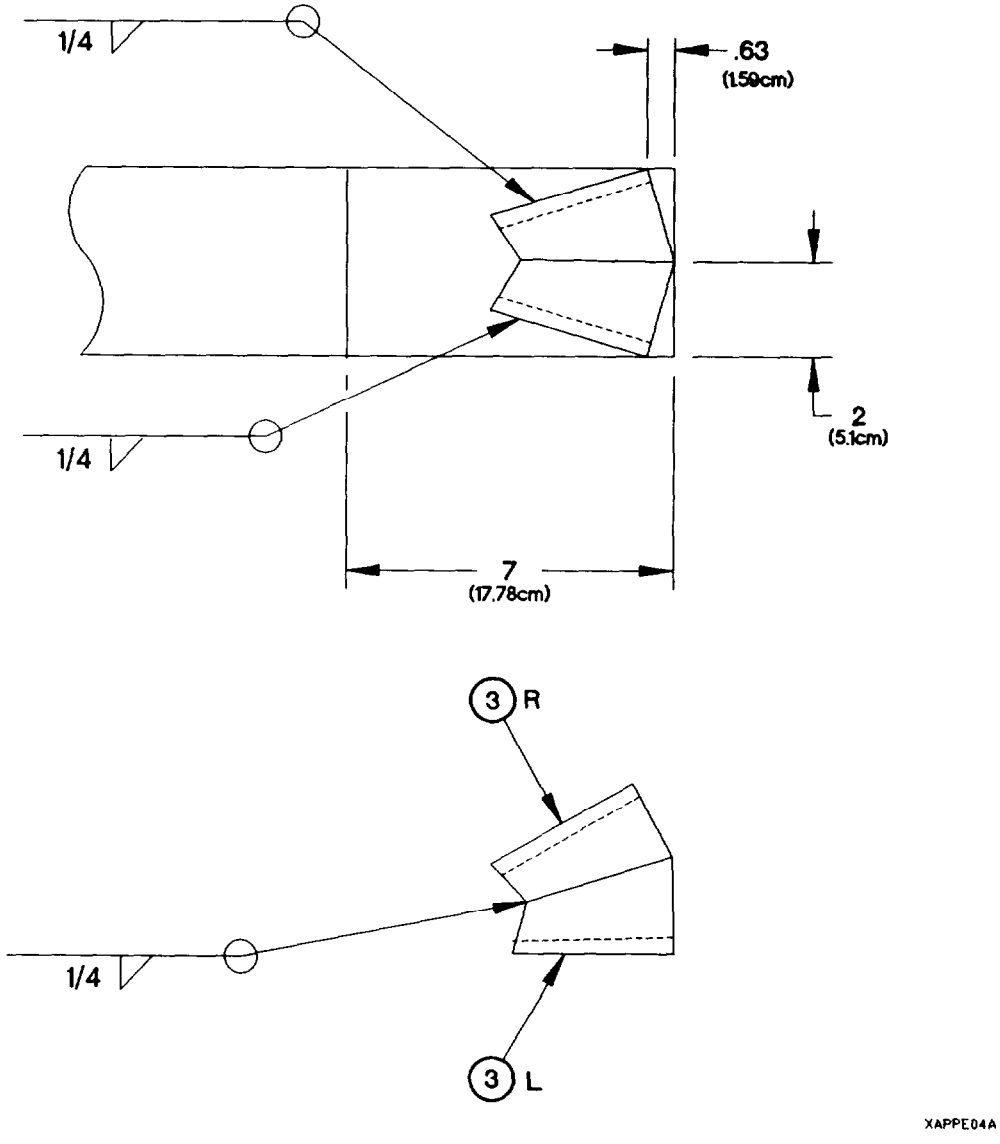


Figure E-5. Cab Support Tool Seat Layout

h. Position and clamp cab support tool seats (3) L and (3) R together as shown by dimensions on **Figure E-5. Cab Support Tool Seat Layout.**

i. Weld cab support tool seat (3) L to cab support tool seat (3) R as identified on assembly table and **Figure E-5. Cab Support Tool Seat Layout.**

j. Position and clamp cab support tool seats (3) L and (3) R to cab support tool strut (1) as shown by dimensions on **Figure E-5. Cab Support Tool Seat Layout.**

k. Weld items clamped in step (f) as shown in **Figure E-5. Cab Support Tool Seat Layout.**

I. De-burr and remove sharp edges.

E-4. CAB SUPPORT TOOL (CONT)

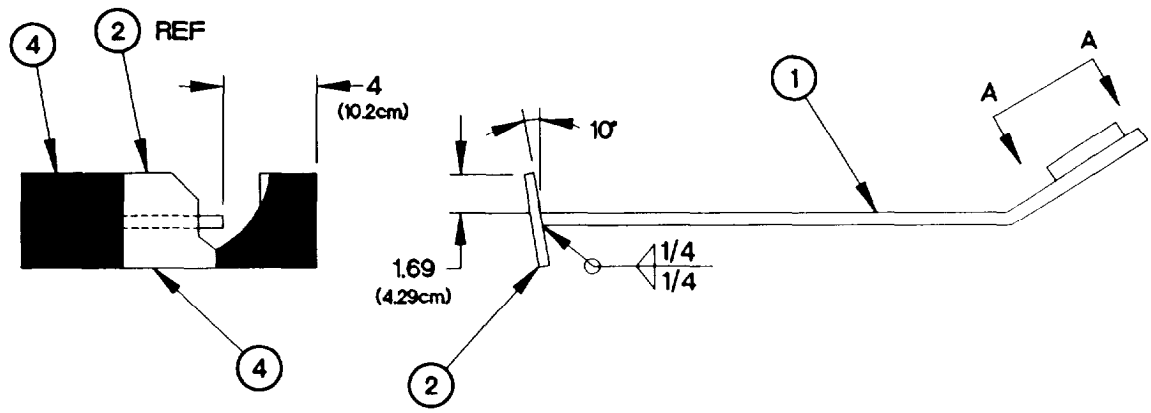


Figure E-6. Cab Support Tool Assembly

m. Position and clamp cab support tool strut (1) to cab support tool cab rest (2) as shown by dimensions on **Figure E-6. Cab Support Tool Assembly,** before insulgrip (4) is applied.
n. Weld cab support tool strut (1) to cab support tool cab rest (2).
o. Apply Insulgrip (4) to cab support tool cab rest (2) as described on material container.

E-5. DUMP BODY LIFTING BRACKET

Make the dump body lifting bracket assembly from the front, rear, top, guide, and mount plates according to the following instructions. Refer to the parts list tables and accompanying figures for details.

Item	Part Number	Name/Description	Qty
1	N/A	Rear Plate	1
2	N/A	Top Plate	1
3	N/A	Front Plate	1
4	N/A	Guide Brace	1
5	N/A	Plate, Mounting	1

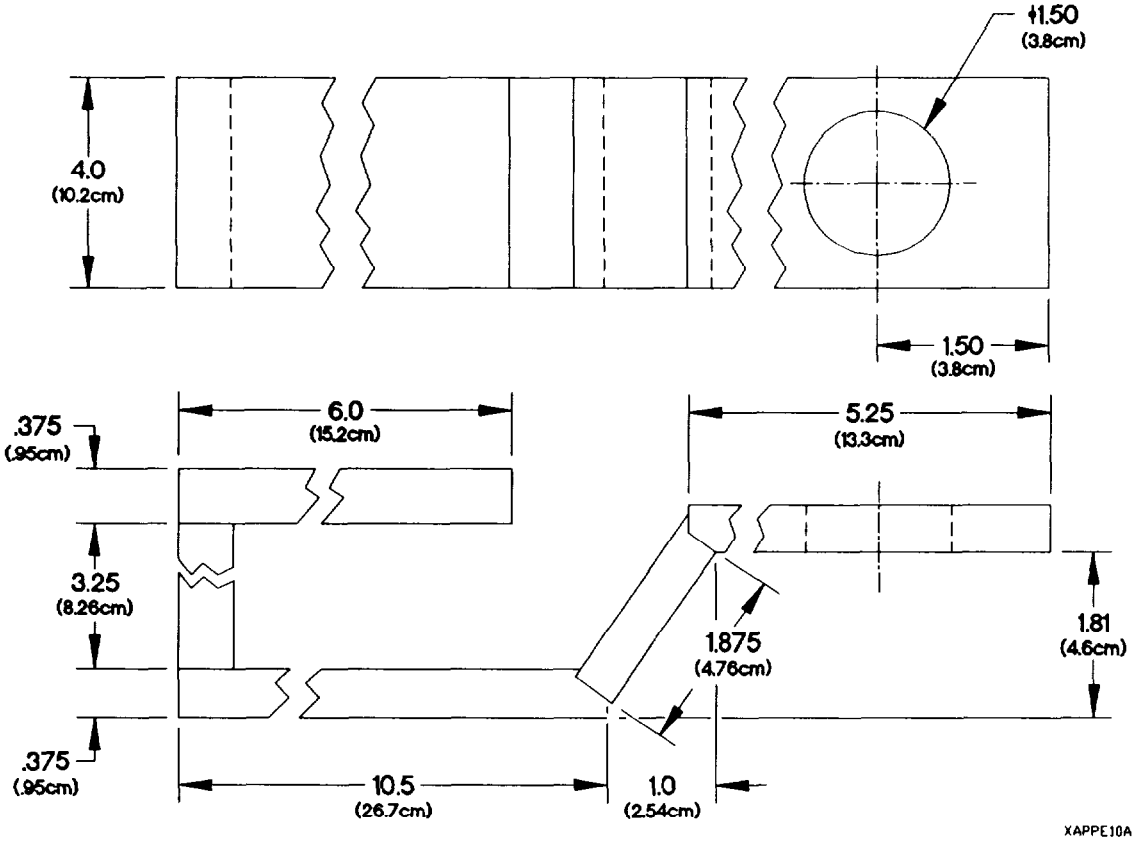


Figure E-7. Dump Body Lifting Bracket

a. All dimensions are in inches (centimeters).
b. Position and clamp pieces (1 through 5) together as shown by dimensions on **Figure E-7. Dump Body Lifting Bracket.**
c. Weld pieces together as shown in **Figure E-7. Dump Body Lifting Bracket.**
d. Coat all surfaces with Plastisol.

E-5. DUMP BODY LIFTING BRACKET (CONT)

Item	Part Number	Material Description	Size	Qty
1	N/A	Plate, steel, ASTM A-36	6.0 in. (15.2 cm) X 4.0 in. (10.2 cm) X 0.375 in. (0.95 cm)	1
2	N/A	Plate, steel, ASTM A-36	3.25 in. (8.26 cm) X 4.0 in. (10.2 cm) X 0.375 in. (0.95 cm)	1
4	N/A	Plate, steel, ASTM A-36	1.875 in. (10.2 cm) X 4.0 in. (10.2 cm) X 0.375 in. (0.95 cm)	1

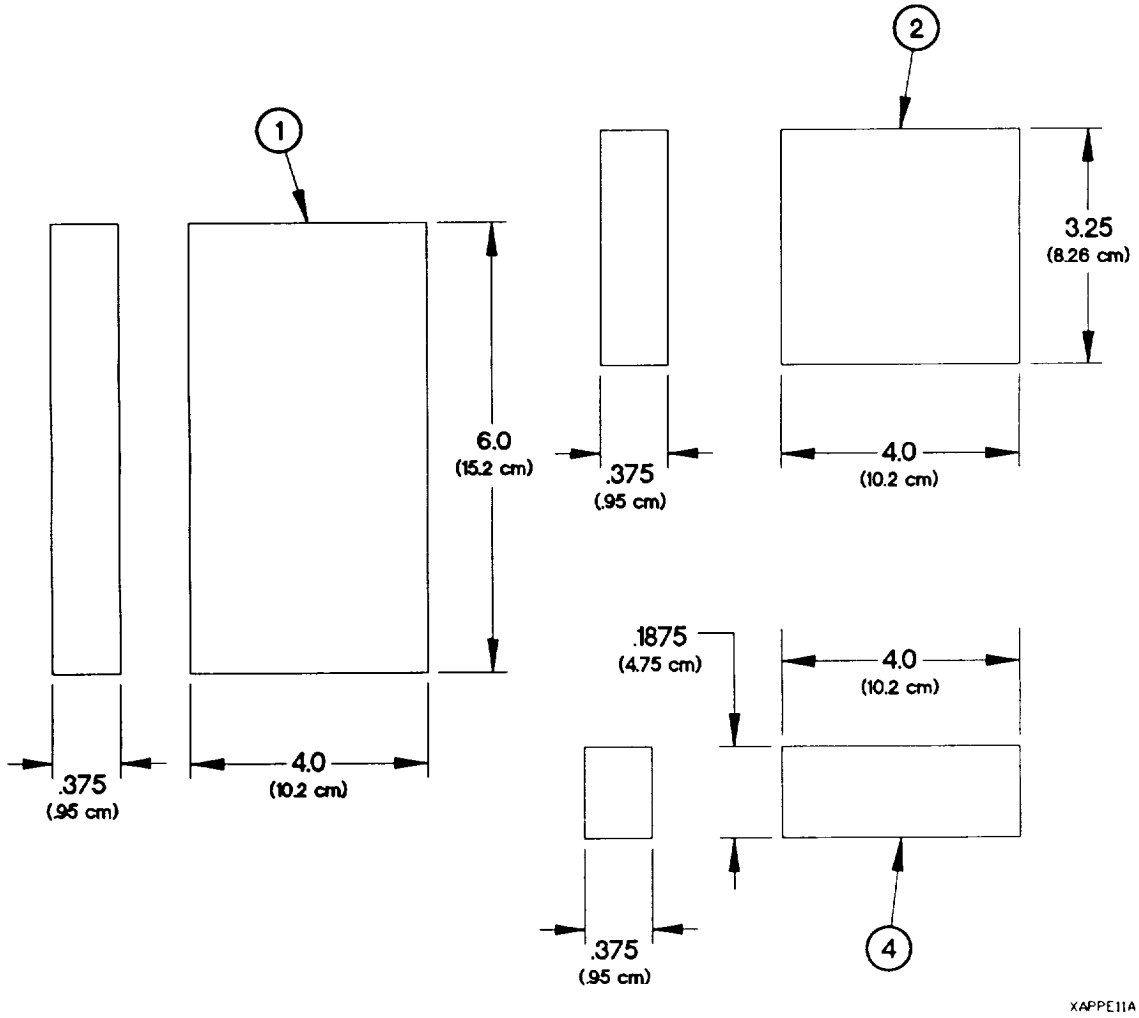


Figure E-8. Rear, Top, and Guide Plate

a. All dimensions are in inches (centimeters).
b. Fabricate (1),(2), and (4) from ASTM A-36 steel plate as shown on **Figure E-8. Rear, Top, and Guide Plate.**
c. De-burr and remove sharp edges.

Item	Part Number	Material Description	Size	Qty
3	N/A	Plate steel, ASTM A36	10.5 in. (26.7 cm) X 4.0 in. (10.2 cm) X 0.375 in. (0.95 cm)	1
5	N/A	Plate steel, ASTM A36	5.25 in. (13.3 cm) X 4.0 in. (10.2 cm) X 0.375 in. (0.95 cm)	1

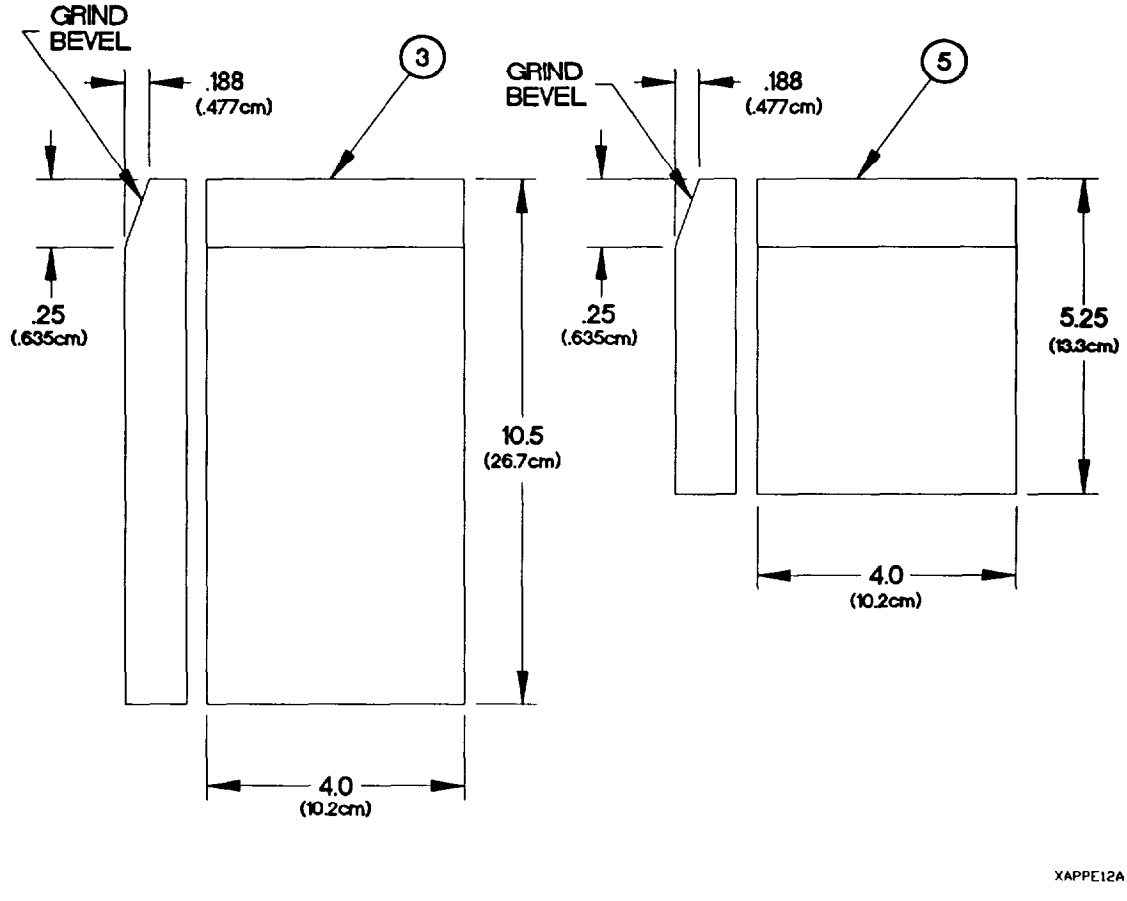


Figure E-9. Front and Mounting Plate

a. All dimensions are in inches (centimeters).
b. Fabricate (3) and (5) from ASTM A-36 steel plate.
c. Drill 1-1/2 inch (3.84 cm) diameter hoe in (5) as shown on **Figure E-9. Front and Mounting Plate.**
d. Grind bevel edge of each plate for weld surface as shown on **Figure E-9. Front and Mounting Plate.**
e. De-burr and remove sharp edges.

E-6. HEADLIGHT ADJUSTMENT SCREEN

The headlight adjustment screen may be drawn on any vertical surface at least 50 in. (127 cm) high and 100 in. (254 cm) wide.

a. Draw two vertical lines (1) 50 in. (127 cm) high and 90.6 in. (230 cm) apart (centered on headlight adjustment screen).

b. Locate two points 40 in. (101.6 cm) from floor and 13 in. (33 cm) toward the center from each vertical line (1).

c. Draw vertical line (2) about 3-5 in. (8-13 cm) centered on each of the two points.

d. Draw horizontal line (3) about 3-5 in. (8-13 cm) centered on each of the two points.

e. Measure out 4 in. (10 cm) along each vertical line (2) and horizontal line (3) from each of the two points to make 8 in. (20 cm) squares (4).

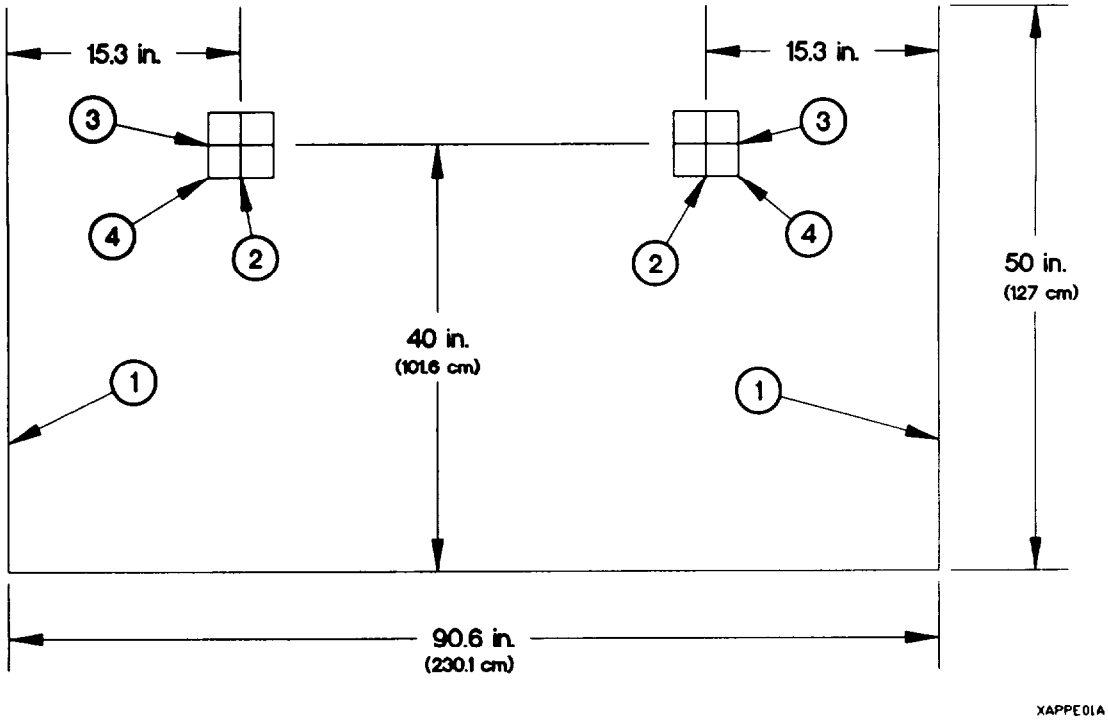


Figure E-10. Headlight Adjustment Screen

E-7. M1089 MAIN WINCH TEST ADAPTER

Assemble the M1089 main winch test adapter according to the following steps. Refer to the following parts list and Figure E-11. M1089 Main Winch Test Adapter for details.

Part Number	Material Description	National Stock Number	Qty
4-4-4 100401 BA	Tee, Tube	4730-01-095-3430	1
4-6 100102BA	Adapter, Straight, Pipe to Tube	4730-01-096-9398	1
207P-4	Coupling, Pipe	4730-00-881-1161	1
NB-4-035	Tubing, Nonmetallic	4720-01-071-4042	4 in.
1 MIL-T-27730	1 Tape, Antiseizing	8030-00-889-3534	1 roll

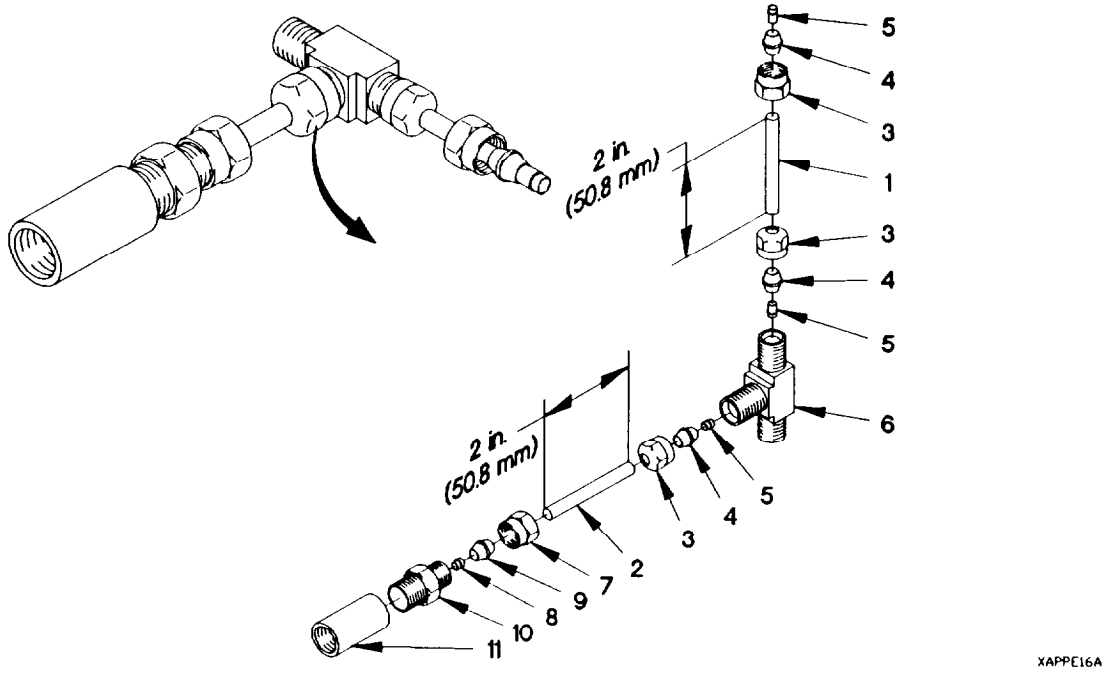


Figure E-11. M1089 Main Winch Test Adapter

a. All dimensions are in inches (millimeters).
b. Cut two pieces of nonmetallic tubing (1 and 2) to 2.0 in. (50.8 mm) long.
c. Remove three nuts (3), sleeves (4), and ferrules (5) from tube tee (6).
d. Install two nuts (3), sleeves (4), and ferrules (5) on nonmetallic tubing (1).
e. Install nonmetallic tubing (1) on tube tee (6).
f. Remove nut (7), sleeve (8), and ferrule (9) from straight adapter (10).
g. Install two nuts (3 and 7), sleeves (4 and 8), and ferrules (5 and 9) on nonmetallic tubing (2).
h. Install nonmetallic tubing (2) on tube tee (6).
i. Install nut (9) on straight adapter (10).
j. Apply one wrap of antiseizing tape to threads of straight adapter (10).
k. Install pipe coupling (11) on straight adapter (10).

E-8. M1089 SOLENOID TEST ADAPTER

Assemble the M1089 solenoid test adapter according to the following steps. Refer to the following parts list and Figure E-12. M1089 Solenoid Test Adapter for details.

Part Number	Material Description	National Stock Number	Qty
2-2-2 080401CA	Tee, Tube	4730-01-214-6990	1
2-2 080202CA	Elbow, Pipe to Tube	4730-00-845-5345	1
4-2 1301408	Bushing, Pipe	4730-00-828-0171	1
NB-2-031	Tubing, Nonmetallic	4720-01-287-4499	24 in.

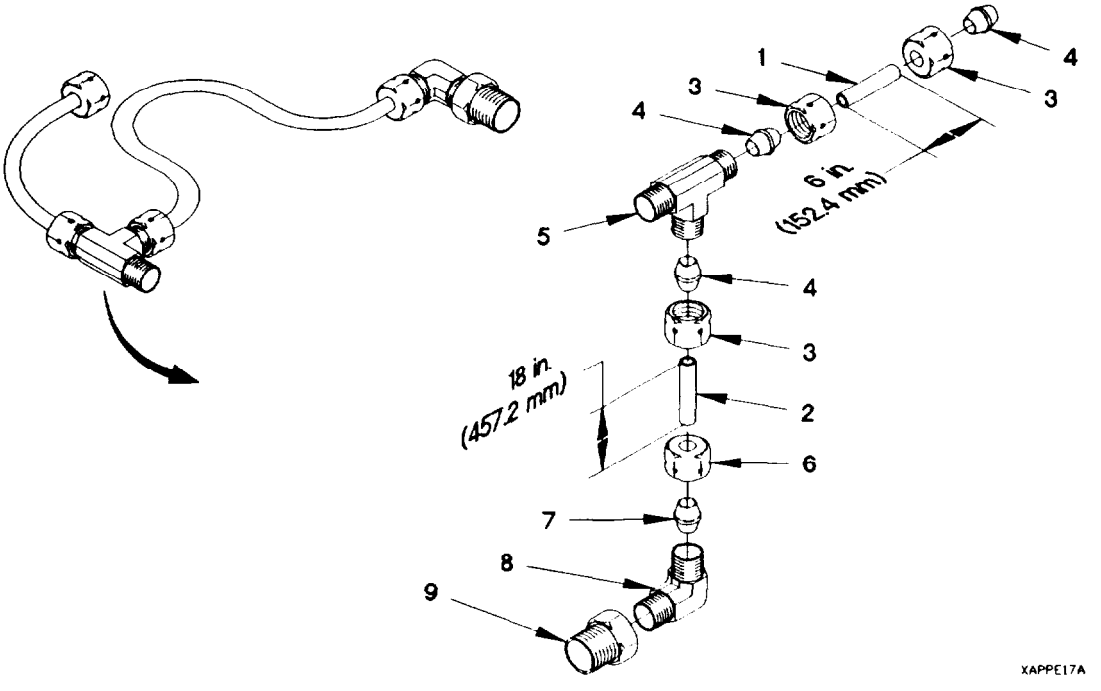


Figure E-12. M1089 Solenoid Test Adapter

.a. All dimensions are in inches (millimeters).
b. Cut one piece of nonmetallic tubing (1) to 6.0 in. (152.4 mm) long.
c. Cut one piece of nonmetallic tubing (2) to 18.0 in. (457.2 mm) long.
c. Remove three nuts (3) and ferrule sleeves (4) from tube tee (5).
d. Install two nuts (3) and ferrule sleeves (4) on nonmetallic tubing (1).
e. Install nonmetallic tubing (1) on tube tee (5).
f. Remove nut (6) and ferrule sleeve (7) from pipe to tube elbow (8).
g. Install two nuts (3 and 6) and ferrule sleeves (4 and 7) on nonmetallic tubing (2).
h. Install nonmetallic tubing (2) on tube tee (5).
i. Install nut (6) on pipe to tube elbow (8).
j. Install pipe bushing (9) on pipe to tube elbow (8).

E-9. RELAY TEST WIRE

Fabricate the relay test wire according to the following steps. Refer to the following parts list for materials.

Material Description	National Stock Number	Cut Length
Wire, Electrical (MIL-W-16878)	6145-00-330-3318	6 in. (152 mm)

a. Dimensions are in inches (millimeters).
b. Cut a length of wire six inches (152 mm) long.
c. Remove approximately 3/4 in. (19 mm) of electrical insulation from each end of wire.

E-10. TRANSMISSION AUXILIARY OIL COOLER RUBBER SEAL

Fabricate the transmission auxiliary oil cooler rubber seals in accordance with the following parts list.

Part Number	Description	National Stock Number	Cut Length	
			inches	mm
MIL-R-6130	Tape, Adhesive, Rubber	9320-00-501-7537	24.7	627

E-11. WHEEL BEARING SHIM TOOL REST

Fabricate the wheel bearing shim tool rest according to the following steps. Refer to the following parts list for materials.

Part Number	National Stock Number	Description
QQ-T-570	9510-00-866-1037	Bar. Metal

a. Dimensions are in inches (millimeters)
b. Cut metal bar to 9.0 inches (228.6 mm) long.
c. De-burr and remove sharp edges from ends of metal bar.

E-12. PNEUMATIC TUBES FABRICATION

Cut pneumatic tubes from bulk tubing stock listed in **Table E-1. Pneumatic Tube Lengths.** Use a fine-toothed hacksaw or suitable cutting device and cut tubing to required length.

Table E-1. Pneumatic Tube Lengths

Tube Part Number	Bulk Tubing Part Number	Cut Length	
		inches	cm
12414690-001	NT-100-4 (79470)	18.1	46.0
12414690-002	NT-100-4 (79470)	16.0	40.6
12414690-003	NT-100-4 (79470)	15.0	38.1
12414690-004	NT-100-4 (79470)	74.8	190.0
12414690-005	NT-100-4 (79470)	69.7	177.0

E-12. PNEUMATIC TUBES FABRICATION (CONT)

Table E-1. Pneumatic Tube Lengths (Cont)

Tube Part Number	Bulk Tubing Part Number	Cut Length	
		inches	cm
12414690-006	NT-100-4 (79470)	239.0	607.0
12414690-007	NT-100-4 (79470)	254.8	647.0
12414690-008	NT-100-4 (79470)	286.3	727.0
12414690-009	NT-100-4 (79470)	294.1	747.0
12414690-010	NT-100-4 (79470)	180.0	457.2
12414690-101	J844TYBSIZE 3/8 (81343)	18.0	45.7
12414690-102	J844TYBSIZE 3/8 (81343)	35.4	90.0
12414690-103	J844TYBSIZE 3/8 (81343)	20.9	53.0
12414690-104	J844TYBSIZE 3/8 (81343)	13.8	35.0
12414690-105	J844TYBSIZE 3/8 (81343)	11.8	30.0
12414690-106	J844TYBSIZE 3/8 (81343)	20.5	52.0
12414690-107	J844TYBSIZE 3/8 (81343)	39.0	99.0
12414690-108	J844TYBSIZE 3/8 (81343)	15.4	39.0
12414690-109	J844TYBSIZE 3/8 (81343)	23.0	58.4
12414690-112	J844TYBSIZE 3/8 (81343)	80.0	198.0
12414690-113	J844TYBSIZE 3/8 (81343)	11.4	29.0
12414690-115	J844TYBSIZE 3/8 (81343)	82.8	210.2
12414690-118	J844TYBSIZE 3/8 (81343)	11.8	30.0
12414690-120	J844TYBSIZE 3/8 (81343)	11.9	30.2
12414690-125	J844TYBSIZE 3/8 (81343)	10.8	27.3
12414690-128	J844TYBSIZE 3/8 (81343)	180.1	457.5
12414690-129	J844TYBSIZE 3/8 (81343)	39.3	99.7
12414690-130	J844TYBSIZE 3/8 (81343)	164.4	417.5
12414690-131	J844TYBSIZE 3/8 (81343)	180.1	457.5
12414690-132	J844TYBSIZE 3/8 (81343)	219.5	557.5
12414690-133	J844TYBSIZE 3/8 (81343)		
12414690-134	J844TYBSIZE 3/8 (81343)	277.4	704.5
12414690-135	J844TYBSIZE 3/8 (81343)	325.0	825.5
12414690-136	J844TYBSIZE 3/8 (81343)	332.5	844.6
12414690-137	J844TYBSIZE 3/8 (81343)	51 .0	129.5
12414690-138	J844TYBSIZE 3/8 (81343)	67.0	170.2
12414690-139	J844TYBSIZE 3/8 (81343)	98.5	250.2
12414690-140	J844TYBSIZE 3/8 (81343)	106.0	269.2
12414690-141	J844TYBSIZE 3/8 (81343)	52.5	133.4
12414690-142	J844TYBSIZE 3/8 (81343)	68.5	174.0
12414690-143	J844TYBSIZE 3/8 (81343)	100.0	254.0
12414690-144	J844TYBSIZE 3/8 (81343)	107.5	273.0

Table E-1. Pneumatic Tube Lengths (Cont)

Tube Part Number	Bulk Tubing Part Number	Cut Length	
		inches	cm
12414690-145	J844TYBSIZE 3/8 (81343)		
12414690-146	J844TYBSIZE 3/8 (81343)	267.3	679.0
12414690-147	J844TYBSIZE 3/8 (81343)	283.1	719.0
12414690-148	J844TYBSIZE 3/8 (81343)	314.6	799.0
12414690-149	J844TYBSIZE 3/8 (81343)	322.4	819.0
12414690-150	J844TYBSIZE 3/8 (81343)	296.1	752.0
12414690-151	J844TYBSIZE 3/8 (81343)	343.5	872.5
12414690-152	J844TYBSIZE 3/8 (81343)	36.0	91.5
12414690-153	J844TYBSIZE 3/8 (81343)	32.0	81.3
12414690-154	J844TYBSIZE 3/8 (81343)	48.0	122.0
12414690-155	J844TYBSIZE 3/8 (81343)	79.5	202.0
12414690-156	J844TYBSIZE 3/8 (81343)	87.0	221.0
12414690-157	J844TYBSIZE 3/8 (81343)	59.5	151.1
12414690-158	J844TYBSIZE 3/8 (81343)	66.5	169.0
12414690-159	J844TYBSIZE 3/8 (81343)	98.0	249.0
12414690-160	J844TYBSIZE 3/8 (81343)	105.5	268.0
12414690-161	J844TYBSIZE 3/8 (81343)	48.0	122.0
12414690-162	J844TYBSIZE 3/8 (81343)	36.0	91.5
12414690-163	J844TYBSIZE 3/8 (81343)	161.5	410.2
12414690-164	J844TYBSIZE 3/8 (81343)	120.0	304.8
12414690-165	J844TYBSIZE 3/8 (81343)	78.0	198.1
12414690-166	J844TYBSIZE 3/8 (81343)	108.0	274.3
12414690-167	J844TYBSIZE 3/8 (81343)	168.0	426.7
12414690-168	J844TYBSIZE 3/8 (81343)	108.0	274.3
12414690-169	J844TYBSIZE 3/8 (81343)	72.0	182.9
12414690-201	C608-100BLK (13174)	14.8	37.5
12414690-202	C608-100BLK (13174)	14.1	35.7
12414690-203	C608-100BLK (13174)	6.5	16.5
12414690-205	C608-100BLK (13174)	14.5	36.8
12414690-206	C608-100BLK (13174)	14.8	37.7
12414690-207	C608-100BLK (13174)	15.6	39.5
12414690-208	C608-100BLK (13174)	6.7	17.0
12414690-209	C608-100BLK (13174)	19.5	49.5
12414690-210	C608-100BLK (13174)	15.5	39.3
12414690-211	C608-100BLK (13174)	8.0	20.3
12414690-212	C608-100BLK (13174)	17.0	43.0
12414690-215	C608-100BLK (13174)	163.0	414.0
12414690-216	C608-100BLK (13174)	160.0	406.4
12414690-217	C608-100BLK (13174)	62.6	159.0

E-12. PNEUMATIC TUBES FABRICATION (CONT)

Table E-1. Pneumatic Tube Lengths (Cont)

Tube Part Number	Bulk Tubing Part Number	Cut Length	
		inches	cm
12414690-218	C608-100BLK (13174)	119.8	304.2
12414690-219	C608-100BLK (13174)	69.0	175.3
12414690-220	C608-100BLK (13174)	45.5	115.6
12414690-221	C608-100BLK (13174)	12.6	32.0
12414690-222	C608-100BLK (13174)	5.5	14.0
12414690-223	C608-100BLK (13174)	14.6	37.1
12414690-224	C608-100BLK (13174)	170.0	431.8
12414690-225	C608-100BLK (13174)	174.0	442.0
12414690-228	C608-100BLK (13174)	3.5	8.9
12414690-229	C608-100BLK (13174)	62.2	158.1
12414690-230	C608-100BLK (13174)	14.6	37.0
12414690-231	C608-100BLK (13174)	60.5	153.7
12414690-232	C608-100BLK (13174)	126.4	321.0
12414690-233	C608-100BLK (13174)	142.1	361.0
12414690-234	C608-100BLK (13174)		
12414690-235	C608-100BLK (13174)		
12414690-236	C608-100BLK (13174)	131.9	335.0
12414690-237	C608-100BLK (13174)	147.6	375.0
12414690-238	C608-100BLK (13174)	179.5	456.0
12414690-239	C608-100BLK (13174)	187.0	475.0
12414690-240	C608-100BLK (13174)	111.5	283.2
12414690-241	C608-100BLK (13174)	127.5	324.0
12414690-242	C608-100BLK (13174)	159.0	404.0
12414690-243	C608-100BLK (13174)	166.5	423.0
12414690-244	C608-100BLK (13174)	41.0	104.2
12414690-245	C608-100BLK (13174)	57.0	144.8
12414690-246	C608-100BLK (13174)	88.6	225.0
12414690-247	C608-100BLK (13174)	96.0	244.0
12414690-248	C608-100BLK (13174)	48.0	122.0
12414690-249	C608-100BLK (13174)	54.0	137.2
12414690-301	PFT-10B-BLK-100 (61424)	19.0	48.3
12414690-302	PFT-10B-BLK-100 (61424)	56.0	142.2
12414690-303	PFT-10B-BLK-100 (61424)	118.1	300.0

E-13. NON-METALLIC ELECTRICAL CABLE CONDUIT FABRICATION

Make conduit to cover electrical cables described on 1241638 from bulk tube stock listed in Table E-2. Non-Metallic Electrical Cable Conduit Lengths. Use a fine-toothed hacksaw or suitable cutting device and cut hose/tube to required length.

Table E-2. Non-Metallic Electrical Cable Conduit Lengths

Tube Part Number	Bulk Tube Part Number	Cut Length	
		inch	cm
12416381P1	49008	8.9	22.6
12416381P10	49008	17.8	45.2
12416381P11	49008	29.9	75.9
12416381P12	49008	33.0	83.8
12416381P13	49008	13.9	35.3
12416381P14	49008	4.0	10.2
12416381P15	49008	17.4	44.2
12416381P16	49008	3.2	8.1
12416381P17	49008	4.5	11.4
12416381P2	49008	16.2	41.1
12416381P20	27413	32.8	83.3
12416381P21	27413	9.2	23.4
12416381P22	27413	8.0	20.3
12416381P23	27413	23.3	59.2
12416381P26	49008	2.5	6.4
12416381P3	27413	7.3	18.5
12416381P30	49007	17.0	43.2
12416381P32	49005	1.7	4.3
12416381P34	49005	20.7	52.6
12416381P35	49005	21.8	55.4
12416381P36	49005	5.5	14.0
12416381P37	49005	8.0	20.3
12416381P38	49008	3.7	9.4
12416381P4	49008	12.0	30.5
12416381P5	49008	26.0	66.0
12416381P6	49008	7.7	19.6
12416381P7	49008	26.7	67.8
12416381P8	49008	5.2	13.2
12416381P9	49008	16.8	42.7

E-14. STEERING GEAR RETURN HOSE AND TRANSMISSION OIL COOLER HOSES FABRICATION

Cut the following hoses from bulk hose using a fine-toothed hacksaw or suitable cutting device.

Hose Part Number	Bulk Hose Part Number	Cut Length	
		inches	cm
12418037	A110 (30327)	75.5	191.7
12418460-001	MS521302B110360 (96906)	17.5	44.4
12418460-002	MS521301A206R (96906)	16.0	40.6

E-15. LANYARD ASSEMBLIES P/N 12418763 AND 12420196 FABRICATION

Make the following lanyard assemblies from bulk cable material, sleeves, and tab material and assemble according to **Figure E-14. Lanyard Assembly.** The following parts list identifies part numbers and lengths of cut pieces.

Item	Part Number	Material Description	Size	Qty
1	MIL-W-83420 Type 1, Comp B	1/16 in. stranded wire cable	4 in. (102 mm)	1
2	MS51844-22	Sleeve		2
3	N/A	Tab, Stainless Steel ASTM A617	.06 in. (16 cm) X .37 in. (9.5 mm) X 1.25 in. (32 mm)	1

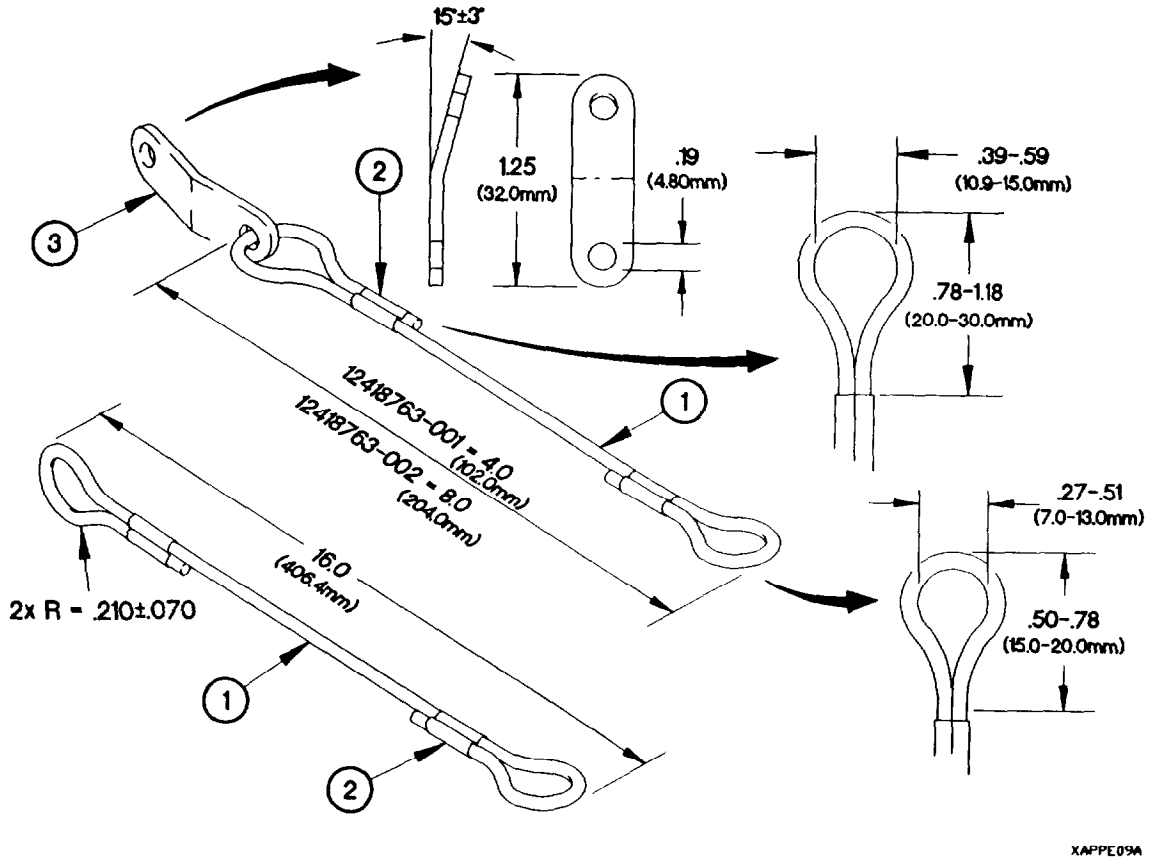


Figure E-14. Lanyard Assembly

a. All dimensions are in inches (millimeters).
b. Make from bulk cable and flat steel material as identified in parts list.
c. Drill two 0.19 in. (4.8 mm) diameter holes through tab material as shown on **Figure E-14. Lanyard Assembly.**
d. De-burr and remove sharp edges.
e. Bend tab as shown on **Figure E-14. Lanyard Assembly.**
f. Form loops on cable ends and insert sleeve material over cable on one end of cable and over cable and through sleeve at other end of cable as shown in **Figure E-14. Lanyard Assembly.**
g. Crimp two sleeves over cable ends.

E-16. NON-METALLIC VENT AIR HOSES FABRICATION

Cut the following vent air hoses from bulk hose using a fine-toothed hacksaw or suitable cutting device.

Hose Part Number	Bulk Hose Part Number	Cut Length	
		inches	cm
12420197-001	483666 (02280)	180.0	457.2
12420197-002	483666 (02280)	120.0	304.6
12420197-003	483666 (02280)	96.0	243.8
12420197-004	483666 (02280)	38.0	91.4
12420197-006	483666 (02280)	156.0	396.2
12420197-006	483666 (02280)	72.0	182.9
12420198-001	881-16 (98441)	120.0	304.8
12420198-002	11857469	36.0	91.4

E-17. PERSONNEL HEATER AIR DUCT HOSE FABRICATION

Cut the following hoses from bulk hose using a fine-toothed hacksaw or suitable cutting device.

Hose Part Number	Bulk Hose Part Number	Cut Length	
		inches	cm
12420308-457	8711054 (19207)	18.3	46.4
12420308-760	8711054 (19207)	30.4	77.2

E-18. BLOCK SEAL 12420489 FABRICATION

Make block seal from P/N (0VXY8) STN2.38X.5. Use a suitable cutting tool to cut seal to 0.52 inch (1.3 cm) long.

E-19. CTIS SEAL DRIVER 3256-H-1048

Used on Front, Intermediate, and Rear Axle CTIS Seals.

NOTES ON USE OF DRIVER

1) SEAL END OF DRIVER TO BE CLEAN OF DEBRIS, DIRT, NICKS AND BURRS
2) DO NOT USE A METAL HAMMER ON DRIVER
   A RUBBER, PLASTIC, WOOD OR SOME OTHER DEAD BLOW TYPE MALLET IS TO BE USED
3) SLIGHTLY GREASE SEAL END OF DRIVER PRIOR TO INSTALLING SEAL

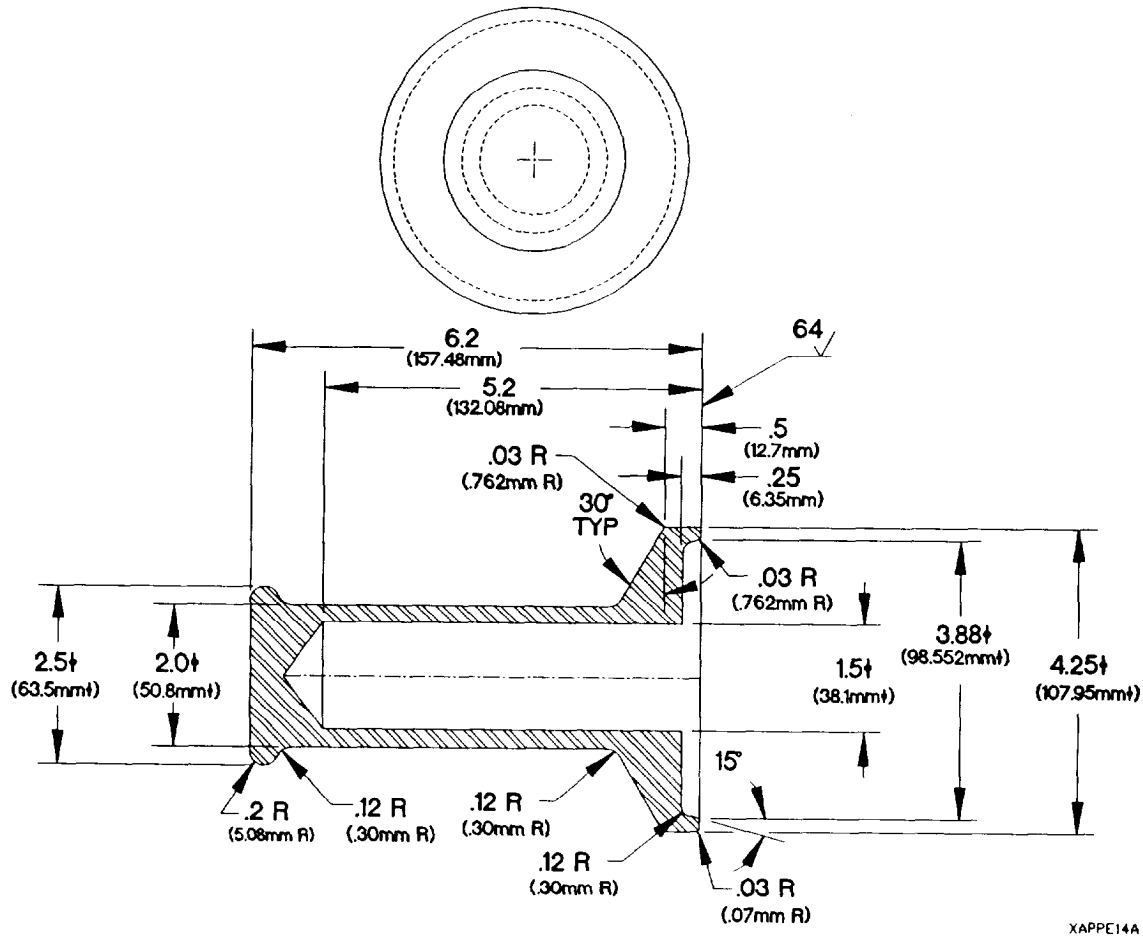


Figure E-15. CTIS Seal Driver

a. All dimensions are in inches (millimeters).
b. Manufacture from round steel stock.
c. De-burr and remove sharp edges.

E-20. WHEEL HUB GREASE SEAL DRIVER 3256-K-1051

NOTES ON USE OF DRIVER

1) SEAL END OF DRIVER TO BE CLEAN OF DEBRIS, DIRT, NICKS AND BURRS
2) DO NOT USE A METAL HAMMER ON DRIVER
   A RUBBER, PLASTIC, WOOD OR SOME OTHER DEAD BLOW TYPE MALLET IS TO BE USED
3) SLIGHTLY GREASE SEAL END OF DRIVER PRIOR TO INSTALLING SEAL

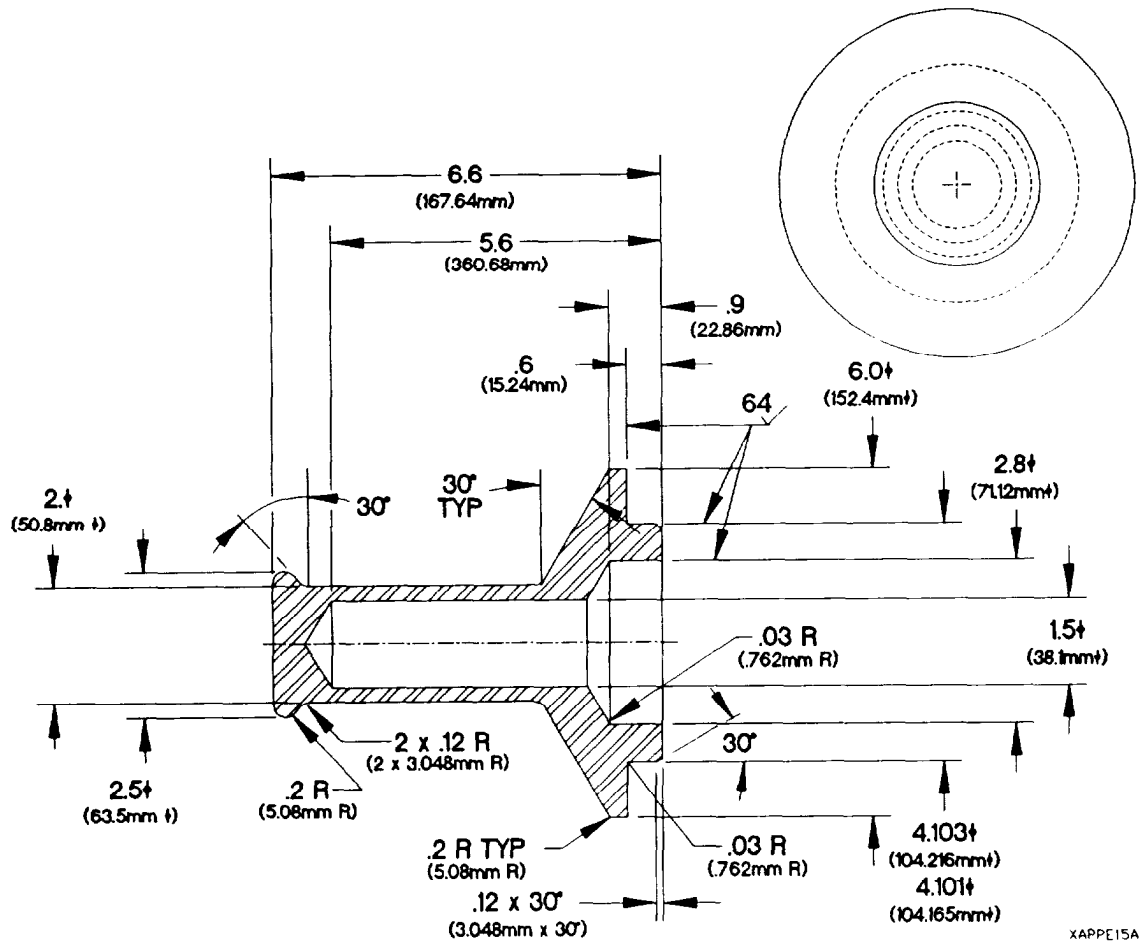


Figure E-16. Wheel Hub Grease Seal Driver

a. All dimensions are in inches (millimeters).
b. Manufacture from round steel stock.
c. De-burr and remove sharp edges.

APPENDIX F
TORQUE LIMITS

F-1 GENERAL

This appendix provides general torque limits for screws and nuts used on the vehicle. Special torque limits are shown in the maintenance procedures for applicable components. Use the general torque limit given in this appendix when specific torque limits are not given in the maintenance procedure. These general torque limits can not be applied to screws that retain rubber components. The rubber components will be damaged before the torque limit is reached. If a special torque limit is not given in the maintenance instructions for a fastener which retains a rubber component, tighten the screw or nut until it touches metal, then tighten one more turn. Whenever possible, the tightening force (torque) should be applied to the nut side of the fastener group.

F-2. TORQUE LIMITS

Refer to Table F-1. Torque Limits for SAE and ANSI Fasteners for torque limits on standard (SAE and ANSI) screws and free spinning nuts. Refer to **Table F-2. Torque Limits for SAE and ANSI Prevailing Torque Nuts** for torque limits on standard (SAE and ANSI) self-locking nuts. Refer to **Table F-3. Torque Limits for Metric Screws and Free Spinning Nuts** for torque limits on metric screws and free spinning nuts. Refer to **Table F-4. Torque Limits for Metric Prevailing Torque Nuts** for torque limits on metric self-locking nuts.

F-3. USE OF TORQUE TABLES

(1) Measure the diameter of the screw to be installed.

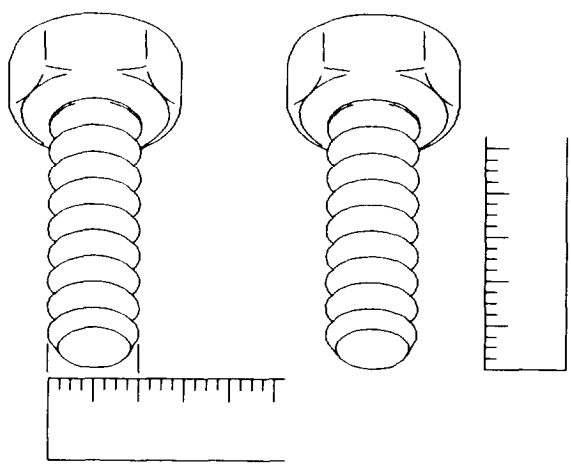
(2) Count the number of threads per inch.

(3) Under the heading DIAMETER look down the column until the diameter of the screw is found. (There are usually two lines beginning with the same diameter.)

(4) Under the heading THREADS PER INCH (SAE and ANSI) or THREAD PITCH (metric), find the number of threads per inch that matches the number counted in step (2).

(5) To find the grade of the screw, match the markings on the head to the correct picture under CAPSCREW HEAD MARKINGS on the torque table.

(6) Look down the column under the picture found in step (5) until the torque limit (lb-ft or N•m) for the diameter and threads per inch (or thread pitch, in the case of metric fasteners) of the screw are located.



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APPENDIX F
TORQUE LIMITS

Table F-1. Dry Torque Limits for SAE and ANSI Screws and Free Spinning Nuts

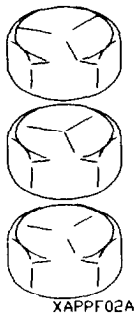
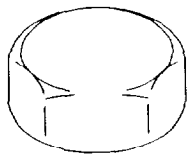
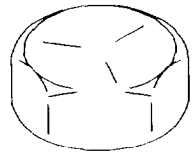
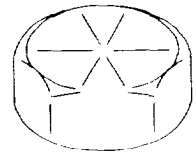
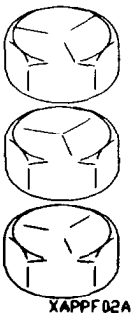
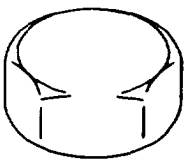
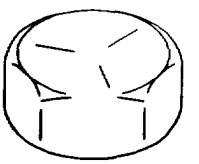
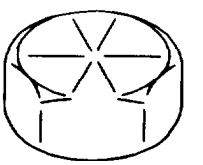
 XAPPF02A **NOTE** Manufacturer's marks may vary. These are all SAE Grade 5.		Material Grade Markings					
		 XAPPF03A SAE Grade 2		 XAPPF04A SAE Grade 5		 XAPPF06A SAE Grade 8	
Diameter	Threads per inch	Torque					
inch		lb-ft	N•m	lb-ft	N•m	lb-ft	N•m
1/4	20	3-5	5-7	5-7	8-10	8-10	10-14
1/4	28	4-6	5-7	6-8	9-11	8-12	12-16
1/4	32	4-6	5-7	7-9	9-11	9-13	12-16
5/16	18	7-9	9-13	11-15	15-21	15-21	21-29
5/16	24	8-10	11-15	12-16	17-23	17-23	24-32
5/16	32	9-11	12-16	14-18	18-24	19-25	27-34
3/8	16	13-17	17-23	20-26	27-35	28-38	38-50
3/8	24	15-19	20-26	22-30	31-41	32-42	43-57
3/8	32	15-21	21-27	24-32	33-43	33-45	55-61
7/16	14	20-28	28-38	32-42	43-57	44-60	61-81
7/16	20	23-31	31-41	35-47	48-64	49-67	68-90
7/16	28	25-33	33-45	37-51	51-69	54-72	73-97
1/2	13	32-42	43-57	49-65	66-88	68-92	93-123
1/2	20	35-47	48-64	55-73	74-98	77-103	105-139
1/2	28	38-50	51-67	58-78	79-105	82-110	111-149
9/16	12	55-61	62-82	70-94	95-127	98-132	134-178
9/16	18	50-68	69-91	78-104	105-141	109-147	149-199
9/16	24	53-71	72-96	82-110	111-149	115-155	158-210
5/8	11	62-84	85-113	95-129	131-175	136-182	184-246
5/8	18	70-94	96-128	108-146	148-198	154-206	209-279
5/8	24	73-99	100-134	114-154	155-207	161-217	219-293

Table F-1. Dry Torque Limits for SAE and ANSI Screws and Free Spinning Nuts (Cont)

 XAPPF02A Manufacturer's marks may vary. These are all SAE Grade 5		Material Grade Markings					
		 XAPPF03A SAE Grade 2		 XAPPF04A SAE Grade 5		 XAPPF06A SAE Grade 8	
Diameter	Threads per inch	Torque					
inch		lb-ft	N•m	lb-ft	N•m	lb-ft	N•m
11/16	24	99-133	135-181	153-207	209-279	217-291	295-394
3/4	10	110-148	150-200	171-229	232-310	240-324	325-439
3/4	16	123-165	168-224	190-256	259-345	269-361	366-488
3/4	20	127-171	174-232	197-265	268-358	278-374	378-505
13/16	20			252-340	345-459	357-481	487-649
7/8	9			275-369	374-498	387-521	526-704
7/8	14			303-407	413-551	427-575	583-777
7/8	20			319-429	435-579	450-606	614-818
15/16	20			395-531	538-718	558-750	760-1014
1	8			411-553	560-748	581-781	792-1058
1	12			450-606	614-818	636-856	867-1155
1	20			483-649	658-878	681-917	929-1239
1-1/16	18			576-776	782-1044	813-1095	1109-1479
1-1/8	7			507-683	693-923	824-1108	1123-1497
1-1/8	12			570-766	776-1034	923-1241	1258-1678
1-1/8	18			600-806	817-1089	971-1307	1324-1766
1-3/16	18			709-953	966-1288	1149-1545	1566-2088
1-1/4	7			716-964	976-1302	1161-1563	1584-2112
1-1/4	12			793-1067	1081-1441	1286-1730	1754-2338
1-1/4	18			831-1117	1132-1510	1346-1812	1835-2447
1-5/16	18			965-1299	1316-1754	1565-2105	2134-2846
1-3/8	6			939-1263	1281-1707	1523-2049	2076-2768

APPENDIX F
TORQUE LIMITS

Table F-2. Dry Torque Limits for SAE and ANSI Prevailing Torque Nuts

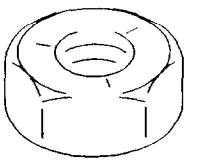
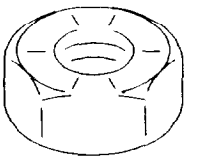
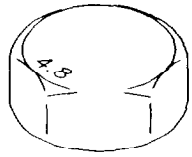
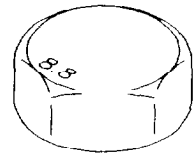
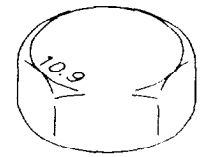
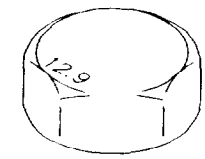
		Material Grade Markings			
		 XAPPF07A		 XAPPF08A	
		SAE Grade 5		SAE Grade 8	
Hole Diameter	Threads per inch	Torque			
inch		lb-ft	N•m	lb-ft	N•m
1/4	20	10-12	14-16	15-17	20-24
1/4	28	12-14	16-18	14-18	21-25
5/16	18	20-24	27-33	26-32	36-44
5/16	24	22-26	30-36	29-35	40-48
3/8	16	35-41	47-55	48-58	65-77
3/8	24	38-46	53-63	53-63	72-86
7/16	14	55-65	74-88	75-91	103-123
7/16	20	60-70	81-97	80-98	110-132
1/2	13	86-102	116-138	113-137	154-184
1/2	20	92-110	125-149	127-153	177-207
9/16	12	120-144	162-194	168-202	229-273
9/16	18	135-161	183-219	179-217	244-294
5/8	11	165-199	226-270	226-272	306-368
5/8	18	181-219	246-296	244-296	331-401
3/4	10	296-354	402-480	395-479	538-648
3/4	16	310-376	422-508	424-516	576-698
7/8	9	460-554	625-749	612-746	833-1009
7/8	14	503-607	684-822	652-800	888-1082
1	8	686-828	933-1121	941-1141	1280-1544

Table F-3. Dry Torque Limits for Metric Screws and Free Spinning Nuts

Diameter mm	Thread Pitch	Material Grade Markings							
		 XAPPF09A		 XAPPF10A		 XAPPF11A		 XAPPF12A	
		Metric Grade 4.8		Metric Grade 8.8		Metric Grade 10.9		Metric Grade 12.9	
		Torque							
		lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m
6	1	3	4-5	5-7	7-9	7-9	10-13	8-11	11-15
8	1.25	7-9	9-11	13-17	17-23	17-23	23-31	21-27	27-37
8	1	7-9	9-13	14-18	18-24	19-25	25-33	21-29	29-39
10	1.5	13-17	17-23	25-33	33-45	34-46	46-62	40-54	54-72
10	1.25	14-18	18-24	26-34	35-47	36-48	49-65	42-56	57-77
10	0.75	15-19	21-27	29-39	39-53	40-54	54-72	47-63	63-85
12	1.75	22-30	30-40	43-57	58-78	60-80	81-107	69-93	94-126
12	1.5	23-31	32-42	46-60	61-81	63-83	85-113	73-97	99-131
12	1.25	24-32	33-45	47-63	65-85	65-87	88-118	76-102	104-138
12	1	26-34	34-46	49-65	67-89	68-90	93-123	80-106	108-144
14	2	36-48	48-74	69-91	93-125	95-127	129-173	112-148	151-201
14	1.5	39-51	52-70	75-99	99-135	103-137	140-186	120-160	163-217
15	1	51-69	69-93	100-132	135-179	137-183	187-249	160-214	218-290
16	2	55-73	75-99	107-143	145-193	148-198	201-267	173-231	235-313
16	1.5	59-79	80-106	114-152	155-207	158-210	214-286	184-246	250-334
18	1.5			166-222	225-301	230-306	311-415	268-358	364-486
20	2.5			209-279	283-377	289-385	392-522	338-450	458-610
20	1.5			232-308	315-419	321-427	435-579	375-499	508-678
20	1			244-324	330-440	337-449	457-609	394-524	534-712
22	2.5			285-379	387-515	394-524	534-712	461-613	624-832
22	1.5			313-417	424-566	432-576	586-782	664-884	900-1200
24	3			361-481	489-653	499-665	677-903	584-778	791-1055
24	2			394-524	534-712	545-725	738-984	725-965	982-1310
25	1.5			467-621	633-843	645-859	875-1167	754-1004	1023-1363

APPENDIX F
TORQUE LIMITS

Table F-4. Dry Torque Limits for Metric Prevailing Torque Nuts

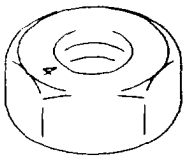
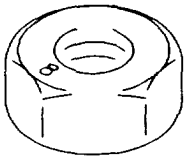
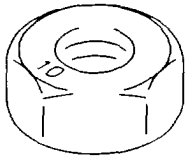
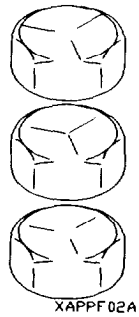
		Material Grade Markings							
		 XAPPF13A		 XAPPF14A		 XAPPF15A		 XAPPF16A	
		Metric Grade 4.8		Metric Grade 8.8		Metric Grade 10.9		Metric Grade 12.9	
Diameter mm	Thread Pitch	Torque							
		lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m
6	1	5-6	7-8	7-9	10-12	10-12	14-17	11-14	15-19
8	1.25	12-14	16-18	18-22	24-30	24-30	32-40	27-33	36-46
8	1	12-14	16-20	19-23	25-31	25-31	34-42	28-36	38-48
10	1.5	21-25	28-34	33-41	44-56	44-56	60-76	50-64	68-86
10	1.25	21-25	29-35	34-42	46-58	46-58	63-79	53-67	71-91
10	0.75	23-27	31-37	37-47	49-63	50-64	68-86	57-73	77-99
12	1.75	33-41	46-56	55-69	74-94	75-95	102-128	85-109	115-147
12	1.5	35-43	47-57	56-72	77-97	78-98	106-134	89-113	120-152
12	1.25	36-44	48-60	58-74	79-101	81-103	109-139	91-117	125-159
12	1	37-45	50-62	61-77	82-104	84-106	114-144	95-121	129-165
14	2	53-65	72-88	87-109	117-149	118-150	160-204	134-172	182-232
14	1.5	57-69	76-94	92-116	125-159	126-160	171-217	143-183	194-248
16	2	79-97	107-131	130-166	177-225	178-228	243-309	204-262	277-355
16	1.5	82-102	112-138	138-176	187-239	189-241	256-328	215-277	292-376
18	1.5			197-253	267-343	271-347	367-471	309-399	420-542
20	2.5			248-318	337-431	342-438	464-594	391-503	530-682
20	1.5			271-349	369-473	374-480	507-651	428-552	580-750
20	1			283-365	384-494	390-502	529-681	447-577	606-784
22	2.5			335-429	455-583	460-592	624-802	526-680	714-922
22	1.5			363-467	492-634	499-643	676-872	730-950	990-1290
24	3			420-540	569-733	577-743	783-1009	662-856	897-1161
24	2			453-583	614-792	622-804	844-1090	803-1043	1088-1416

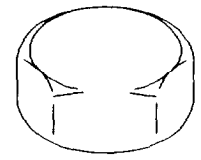
Table F-5. Wet Torque Limits for SAE end ANSI Screws end Free Spinning Nuts



XAPPF02A

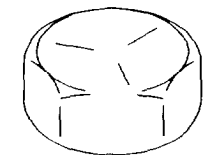
NOTE
Manufacturer's marks may vary. These are all SAE Grade 5.

Material Grade Markings



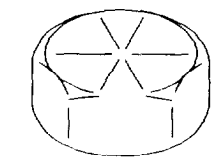
XAPPF03A

SAE Grade 2



XAPPF04A

SAE Grade 5



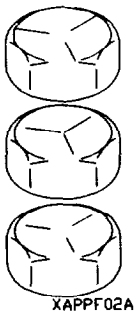
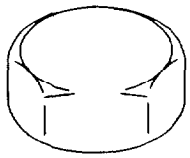
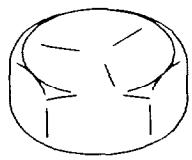
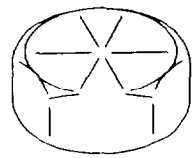
XAPPF06A

SAE Grade 8

Diameter	Threads per inch	Torque					
inch		lb-ft	N•m	lb-ft	N•m	lb-ft	N•m
1/4	20	4	6	6	8	9	12
1/4	28	5	7	7	9	10	14
5/16	18	8	11	13	18	18	24
5/16	24	9	12	14	19	20	27
3/8	16	15	20	23	31	35	47
3/8	24	17	23	25	34	35	47
7/16	14	24	33	35	47	55	75
7/16	20	25	34	40	54	60	81
1/2	13	35	47	55	75	80	108
1/2	20	40	54	65	88	90	122
9/16	12	50	68	80	108	110	149
9/16	18	55	75	90	122	130	176
5/8	11	70	95	110	149	170	231
5/8	18	80	108	130	176	180	244
3/4	10	120	163	200	271	280	380
3/4	16	140	190	220	298	320	434
7/8	9	110	149	300	407	460	624
7/8	14	120	163	320	434	500	678
1	8	160	217	440	597	680	922
1	12	170	231	480	651	740	1003
1-1/8	7	220	298	600	814	960	1302
1-1/8	12	260	353	660	895	1080	1464

APPENDIX F
TORQUE LIMITS

Table F-5. Wet Torque Limits for SAE and ANSI Screws and Free Spinning Nuts (Cont)

 XAPPF02A **Manufacturer's marks may vary. These are all SAE Grade 5**		Material Grade Markings					
		 XAPPF03A **SAE Grade 2**		 XAPPF04A **SAE Grade 5**		 XAPPF06A **SAE Grade 8**	
Diameter	**Threads per inch**	**Torque**					
inch		**lb-ft**	**N•m**	**lb-ft**	**N•m**	**lb-ft**	**N•m**
1-1/4	7	320	434	840	1139	1360	1844
1-1/4	12	360	488	920	1248	1500	2034
1-3/8	6	420	570	1100	1492	1780	2414
1-3/8	12	460	624	1260	1709	2040	2766

APPENDIX G
MANDATORY REPLACEMENT PARTS

Section I. INTRODUCTION

G-1. SCOPE

This appendix lists mandatory replacement parts you will need to maintain the MTV vehicle.

G-2. EXPLANATION OF COLUMNS

a. Column (1) - Item Number. This number is assigned to each entry in the listing and is referenced in the Initial Setup of the applicable task under Materials/Parts.

b. Column (2) - Nomenclature. Name or identification of the part.

c. Column (3) - Part Number. The manufacturer's part number.

d. Column (4) - National Stock Number. The National stock number of the part,

Section II. MANDATORY REPLACEMENT PARTS LIST

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
1	BLADE, WINDSHIELD WIPER	105.384	2540-01-364-1621
2	BOLT, MACHINE	12414307-065	5306-01-382-5054
3	BOOT KIT, EXHAUST	DQ6025	4730-01-417-3197
4	BUMPER, NONMETALLIC	1011-05	5340-01-342-1110
5	BUMPER, RUBBER	12419182	5340-01-410-8397
6	BUSHING, SLEEVE	7-199-002668	3120-01-367-6894
7	CHANNEL, RUBBER	ZZR765/2-001A7	9390-01-420-4560
8	CLAMP	024S9	
9	CLAMP	032S9	
10	COVER, FLUID FILTER	12412628	2590-01-414-1243
11	DECAL	12340917	7690-01-256-4909
12	FASTENER TAPE	MIL-F-21840	8315-00-006-9855
13	FASTENER TAPE	50-534718-19	8315-00-935-6762
14	FILTER ASSEMBLY	75223-11	2940-01-417-9333

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
15	FILTER ELEMENT	1048011	2940-01-385-8931
16	FILTER ELEMENT, FLUID	K05-0104	2910-01-377-3128
17	FILTER ELEMENT, FLUID	R22146	2910-01-360-6366
18	FILTER ELEMENT, FLUID	29507750	2940-01-361-2405
19	FILTER ELEMENT, FLUID	599791	4460-01-284-2344
20	FILTER ELEMENT, FLUID	931558	2940-01-363-4377
21	FILTER ELEMENT, INTAKE AIR CLEANER	P52-7750	2940-01-361-2407
22	FILTER, FUEL	7E9763	2910-01-363-3089
23	FILTER, OIL	1R0739	2940-00-029-0388
24	GASKET	F337576M6	
25	GASKET	M28840/24HA	5935-01-421-9754
26	GASKET	QS-1181	5330-01-058-3788
27	GASKET	10-36675-18	5330-00-298-0190
28	GASKET	119-2940	
29	GASKET	12412394	5330-01-371-6199
30	GASKET	350700	5330-01-295-3053
31	GASKET	350903	5330-00-576-4626
32	GASKET	352200	5330-01-421-6105
33	GASKET	352302	5330-01-421-6107
34	GASKET	353400	5330-01-421-6102
35	GASKET	353806	5330-01-421-6103
36	GASKET	353810	
37	GASKET	355148	5330-01-423-0596
38	GASKET	355175	5330-01-423-0623
39	GASKET	3K3257	5330-01-305-6550
40	GASKET	4P1624	5330-01-360-5934
41	GASKET	4W0549	5330-01-347-3207
42	GASKET	9Y8103	5330-01-360-5931
43	GASKET and PREFORMED PACKING KIT	P4-4	5330-00-122-0624
44	GASKET, FUEL FILTER	7C1159	5330-01-360-5941
45	GASKET, RING	331.406	5330-01-395-4645

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
46	GASKET, THERMOSTAT	2W7212	5330-01-347-3206
47	GROMMET, NONMETALLIC	MS21266-3N	5325-00-926-1394
48	GROMMET, NONMETALLIC	MS35489-109	5325-00-290-0074
49	GROMMET, NONMETALLIC	MS35489-6	5325-00-263-6632
50	GROMMET, NONMETALLIC	12412334-2	
51	GROMMET, NONMETALLIC	12417598	5325-01-375-1299
52	GROMMET, NONMETALLIC	12421402	
53	GROMMET, NONMETALLIC	4082-37634-01	5325-01-194-3076
54	GROMMET, NONMETALLIC	50S12-1-1AA	5325-01-145-0105
55	GROMMET, NONMETALLIC	8741442	5325-00-088-6147
56	INDICATOR, SIGHT, LIQUID	SLT-1214	6680-01-356-8162
57	INSERT, NYLON	12SWS2520	
58	INSERT, NYLON	12SWS2542	
59	INSERT, NYLON	12421463-003	
60	INSULATOR, TANK	A1394J	5970-01-385-7317
61	INSULATOR, TANK	A1394K	5970-01-385-7262
62	KIT, PROPELLER SHAFT	KT-16SB	2520-01-370-1360
63	KIT, FILTER	29526899	
64	KIT, FILTER	29503829	
65	LAMP, INCANDESCENT	CM7-7373	6240-00-270-6824
66	LAMP, INCANDESCENT	CM7376	6240-00-499-6278
67	LATCH, BAIL HEAD	68-20-101-10	2540-01-232-2470
68	LOCKNUT	0770-023-003	5310-01-423-3725
69	LOCKWASHER	ABCH207-LW-1/2	
70	LOCKWASHER	ABCH207-LW-3/8	
71	LOCKWASHER	D70336/1-20	5310-01-110-7933
72	LOCKWASHER	D70336/3-50	5310-01-439-2542
73	LOCKWASHER	D70336/3-52	5310-01-439-2543
74	LOCKWASHER	MS35333-136	5310-01-078-9699
75	LOCKWASHER	MS35333-78	5310-00-261-7156
76	LOCKWASHER	MS35335-30	5310-00-209-0788

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
77	LOCKWASHER	MS35335-31	5310-00-596-7693
78	LOCKWASHER	MS35335-33	5310-00-209-0786
79	LOCKWASHER	MS35335-36	5310-00-550-3503
80	LOCKWASHER	MS35335-37	5310-00-209-5116
81	LOCKWASHER	MS35335-38	5310-00-616-6354
82	LOCKWASHER	MS35335-58	5310-00-209-1366
83	LOCKWASHER	MS35335-61	5310-00-527-3634
84	LOCKWASHER	MS35335-62	5310-00-184-9562
85	LOCKWASHER	MS35337-25	5310-00-012-1637
86	LOCKWASHER	MS35338-100	5310-00-261-8278
87	LOCKWASHER	MS35338-103	5310-00-184-8971
88	LOCKWASHER	MS35338-137	5310-00-933-8119
89	LOCKWASHER	MS35338-138	5310-00-933-8120
90	LOCKWASHER	MS35338-141	5310-00-984-7042
91	LOCKWASHER	MS35338-41	5310-00-045-4007
92	LOCKWASHER	MS35338-42	5310-00-045-3299
93	LOCKWASHER	MS35338-43	5310-00-045-3296
94	LOCKWASHER	MS35338-44	5310-00-582-5965
95	LOCKWASHER	MS35338-45	5310-00-407-9566
96	LOCKWASHER	MS35338-46	5310-01-334-4710
97	LOCKWASHER	MS35338-47	5310-00-209-0965
98	LOCKWASHER	MS35338-51	5310-00-584-7888
99	LOCKWASHER	MS35338-58	5310-00-702-6286
100	LOCKWASHER	MS51414-1	5310-01-235-2057
101	LOCKWASHER	MS51414-2	5310-01-310-1098
102	LOCKWASHER	MS51414-4	5310-01-251-9276
103	LOCKWASHER	N9015	5310-01-046-0186
104	LOCKWASHER	N9459	5310-01-348-8393
105	LOCKWASHER	N9461	5310-01-348-8392
106	LOCKWASHER	114021	5310-01-081-0798
107	LOCKWASHER	1229-S-513-C	5310-01-062-3384

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
108	LOCKWASHER	12412477-14	
109	LOCKWASHER	12412601-02	5310-01-387-1152
110	LOCKWASHER	12414570-005	
111	LOCKWASHER	12414570-011	5310-01-374-3292
112	LOCKWASHER	12414570-013	5310-01-374-4515
113	LOCKWASHER	12414570-015	5310-01-388-2043
114	LOCKWASHER	12414570-021	5310-01-374-4516
115	LOCKWASHER	152.269	5310-01-407-4764
116	LOCKWASHER	152.544	5310-01-395-0823
117	LOCKWASHER	152.552	5310-12-189-1721
118	LOCKWASHER	1729B262	5310-00-964-7811
119	LOCKWASHER	488.671	
120	MOUNT, RESILIENT	12413126	
121	MOUNT, RESILIENT	12418476	5340-01-377-0693
122	NUT, CLIP	MS90724-24	5310-01-074-5041
123	NUT, CONDUIT	BL75	5975-00-642-7261
124	NUT, CONDUIT	141	5975-00-152-1075
125	NUT, CONDUIT	143	5975-00-714-8031
126	NUT, PLAIN, BLIND RIVET	ALS7-632-80	
127	NUT, PLAIN, HEX	MS35649-282	5310-00-934-9757
128	NUT, SELF-LOCKING	DIN-934STM6	5310-01-342-2739
129	NUT, SELF-LOCKING	MS20500-524	5310-00-208-4023
130	NUT, SELF-LOCKING	MS21042-04	5310-00-811-6419
131	NUT, SELF-LOCKING	MS21083N08	5310-00-941-6019
132	NUT, SELF-LOCKING	MS21083N6	5310-00-926-1852
133	NUT, SELF-LOCKING	MS51922-1	5310-00-088-1251
134	NUT, SELF-LOCKING	MS51922-17	5310-00-087-4652
135	NUT, SELF-LOCKING	MS51922-2	5310-00-929-1807
136	NUT, SELF-LOCKING	MS51922-33	5310-00-225-6993
137	NUT, SELF-LOCKING	MS51922-49	5310-00-269-4040
138	NUT, SELF-LOCKING	MS51922-5	5310-00-959-7600

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
139	NUT, SELF-LOCKING	MS51922-57	5310-00-067-6356
140	NUT, SELF-LOCKING	MS51922-65	5310-00-225-6992
141	NUT, SELF-LOCKING	MS51922-9	5310-00-984-3806
142	NUT, SELF-LOCKING	N9406	5310-01-362-6171
143	NUT, SELF-LOCKING	N9410	5310-01-348-8398
144	NUT, SELF-LOCKING	N9467	5310-01-350-4257
145	NUT, SELF-LOCKING	12301125	5310-01-210-0199
146	NUT, SELF-LOCKING	12412476-09	
147	NUT, SELF-LOCKING	12412476-11	5310-01-407-7178
148	NUT, SELF-LOCKING	12412476-12	
149	NUT, SELF-LOCKING	12412478-04	
150	NUT, SELF-LOCKING	12414308-002	5310-01-381-9819
151	NUT, SELF-LOCKING	12414308-003	5310-01-377-1549
152	NUT, SELF-LOCKING	12414308-004	5310-01-369-5703
153	NUT, SELF-LOCKING	12414308-007	5310-01-369-6073
154	NUT, SELF-LOCKING	12414308-017	5310-01-381-9830
155	NUT, SELF-LOCKING	12414308-018	5310-01-369-3337
156	NUT, SELF-LOCKING	12414308-019	5310-01-369-9522
157	NUT, SELF-LOCKING	12414308-020	5310-01-381-9849
158	NUT, SELF-LOCKING	12414308-021	5310-01-369-3338
159	NUT, SELF-LOCKING	12414308-022	5310-01-417-1262
160	NUT, SELF-LOCKING	12414308-023	5310-01-369-6705
161	NUT, SELF-LOCKING	12414308-025	5310-01-369-6706
162	NUT, SELF-LOCKING	12414308-027	5310-01-369-3339
163	NUT, SELF-LOCKING	12414308-078	
164	NUT, SELF-LOCKING	12414315-002	5310-01-374-1381
165	NUT, SELF-LOCKING	12414315-003	5310-01-374-1382
166	NUT, SELF-LOCKING	12414315-005	5310-01-372-3023
167	NUT, SELF-LOCKING	12414315-006	5310-01-369-3332
168	NUT, SELF-LOCKING	12414315-009	5310-01-365-7236
169	NUT, SELF-LOCKING	12414315-015	

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
170	NUT, SELF-LOCKING	12414315-017	5310-01-368-8065
171	NUT, SELF-LOCKING	12414420-004	5310-01-370-0010
172	NUT, SELF-LOCKING	12419003	5310-01-376-0773
173	NUT, SELF-LOCKING	29514660	
174	NUT, SELF-LOCKING	7-660-081600	5310-01-390-8487
175	NUT, SELF-LOCKING	7-660-082504	5310-01-354-8734
176	NUT, SELF-LOCKING	7794625	5310-00-579-1031
177	NUT, SELF-LOCKING	7951286	5310-00-789-0398
178	PACKING, PREFORMED	A82777	5330-00-579-6495
179	PACKING, PREFORMED	J515-16-3	
180	PACKING, PREFORMED	MK0012510	
181	PACKING, PREFORMED	MS28775-011	5330-00-582-2133
182	PACKING, PREFORMED	MS28778-10	5330-00-285-9842
183	PACKING, PREFORMED	MS28778-12	5330-00-251-8839
184	PACKING, PREFORMED	MS28778-16	5330-00-804-5694
185	PACKING, PREFORMED	MS28778-20	5330-00-816-3546
186	PACKING, PREFORMED	MS28778-4	5330-00-805-2966
187	PACKING, PREFORMED	MS28778-6	5330-00-804-5695
188	PACKING, PREFORMED	MS9955-113	5330-01-374-2325
189	PACKING, PREFORMED	M25988/1-246	5330-01-189-6351
190	PACKING, PREFORMED	OR420A	5330-01-389-6028
191	PACKING, PREFORMED	11639519-1	5330-00-463-0200
192	PACKING, PREFORMED	1509	5330-00-172-1919
193	PACKING, PREFORMED	2-012N507-90	5330-01-092-5502
194	PACKING, PREFORMED	2-108N507-90	5330-01-092-5503
195	PACKING, PREFORMED	2M4453	5330-00-074-3768
196	PACKING, PREFORMED	22617-16	5330-01-168-0885
197	PACKING, PREFORMED	23043446	5330-01-424-6629
198	PACKING, PREFORMED	29500969	5330-01-360-7852
199	PACKING, PREFORMED	29503383	5330-01-360-6017
200	PACKING, PREFORMED	3-906N552-90	5330-01-104-1093

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
201	PACKING, PREFORMED	3-908N552-90	5330-00-929-8171
202	PACKING, PREFORMED	3D2824	5330-00-944-8281
203	PACKING, PREFORMED	3J1907	5330-01-333-6444
204	PACKING, PREFORMED	3J7354	5330-00-952-8008
205	PACKING, PREFORMED	3K0360	5330-00-948-6482
206	PACKING, PREFORMED	4J5477	5330-00-855-8059
207	PACKING, PREFORMED	4L9564	5330-00-828-8639
208	PACKING, PREFORMED	5-X-1155	5330-01-392-1637
209	PACKING, PREFORMED	5F7054	5330-00-339-6224
210	PACKING, PREFORMED	5P7813	5330-01-335-0042
211	PACKING, PREFORMED	6V8397	5330-00-579-6495
212	PACKING, PREFORMED	673268	
213	PACKING, PREFORMED	673269	5330-01-395-1252
214	PACKING, PREFORMED	7F8267	5330-00-291-7353
215	PACKING, PREFORMED	7320658	5330-00-297-7106
216	PACKING, PREFORMED	9604792-001	5330-01-429-3089
217	PAD, CUSHIONING	12413120	
218	PARTS KIT, DEHYDRATOR	RN-60-A	4440-01-337-7324
219	PARTS KIT, HYDRAULIC PUMP	P1-12RP	4320-00-125-3208
220	PARTS KIT, SEAL REPLACEMENT	SK10-2	5330-01-350-4474
221	PARTS KIT, SEAL REPLACEMENT	SK10-3	5330-01-350-4472
222	PARTS KIT, SEAL REPLACEMENT	SK10-4	5330-01-343-2745
223	PIN, COTTER	K-2412-Z	5315-01-179-9882
224	PIN, COTTER	MS24665-151	5315-00-815-1405
225	PIN, COTTER	MS24665-298	5315-00-234-1861
226	PIN, COTTER	MS24665-385	5315-00-187-9382
227	PIN, COTTER	MS24665-394	5315-00-234-1628
228	PIN, COTTER	MS24665-423	5315-00-013-7228
229	PIN, COTTER	MS24665-455	5315-00-187-9392
230	PIN, COTTER	MS24665-457	5315-00-187-9393
231	PIN, COTTER	MS24665-459	5315-00-187-9394

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
232	PIN, COTTER	MS24665-494	
233	PIN, COTTER	MS24665-498	5315-00-849-9854
234	PIN, COTTER	MS24665-628	5315-00-846-0126
235	PIN, COTTER	MS24665-654	5315-00-187-9413
236	PIN, COTTER	MS24665-69	5315-00-828-8190
237	PIN, COTTER	352.497	5315-01-394-3546
238	PIN, SPRING	MS16562-142	5315-00-058-6115
239	PIN, SPRING	MS16562-146	5315-00-853-3814
240	PLASTIC STRIP	352700	5330-01-396-2109
241	RECEPTACLE	50R4-1-1AA	5325-01-049-2049
242	RING, BUSHING	152-157	
243	RIVET, BLIND	AD66H	5320-01-008-8204
244	RIVET, BLIND	MS20604B3W2	5320-00-721-9075
245	RIVET, BLIND	MS24243/1-B302	5320-00-999-0397
246	RIVET, BLIND	MS24243/1-B610	5320-00-454-5156
247	RIVET, BLIND	M24243/1-D404	5320-00-865-8994
248	RIVET, BLIND	M24243/1-D502	5320-00-850-3248
249	RIVET, BLIND	M24243/1-D504	5320-01-020-9756
250	RIVET, BLIND	M24243/1-D506	5320-00-850-3225
251	RIVET, BLIND	M24243/1-D604	5320-00-850-3233
252	RIVET, BLIND	M24243/1-D608	5320-00-850-3246
253	RIVET, BLIND	M24243/1-D610	5320-01-030-3218
254	RIVET, BLIND	M24243/1-F402	5320-00-129-9706
255	RIVET, BLIND	M24243/6-A503H	5320-00-490-2238
256	RIVET, BLIND	NAS1398C5A4	5320-00-321-2521
257	RIVET, BLIND	SD64BSLF	5320-01-397-3347
258	RIVET, BLIND	206057	5320-01-411-0081
259	RIVET, COMPRESSION	12418469	5320-01-376-0699
260	RUBBER STRIP	12412581	9320-01-399-4888
261	SCREW, CAP	12414475-131	5303-01-363-0703
262	SCREW, CAP	6V2315	5306-01-433-4753

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
263	SCREW, SELF-LOCKING	MS16998-61L	5305-01-211-3097
264	SEAL	VC08G1R0B	5330-01-389-6109
265	SEAL	355150	5330-01-423-0689
266	SEAL ASSEMBLY, CTIS	A1205-Q-2435	5330-01-360-7753
267	SEAL ASSEMBLY, HUB	A1205-R-2254	5330-01-360-5252
268	SEAL RING, METAL	29505809	5330-01-360-5329
269	SEAL, NONMETALLIC	CC3350	
270	SEAL, NONMETALLIC	12417725	5330-01-375-2908
271	SEAL, NONMETALLIC	673267	5330-01-395-1251
272	SEAL, URETHANE FOAM	12420420-001	
273	SEAL, URETHANE FOAM	12420420-002	
274	SEAL, URETHANE FOAM	12420420-003	
275	SPLICE, CONDUCTOR	23035	5940-01-210-9261
276	SPLICE, CONDUCTOR	23075	3830-01-210-9260
277	TERMINAL, LUG	MS20659-163	5940-00-113-3145
278	TERMINAL, LUG	MS20659-164	5940-00-113-3148
279	TERMINAL, LUG	MS25036-122	5940-00-113-8190
280	WASHER, FLAT	12417948-004	5365-01-436-8308
281	WASHER, FLAT RUBBER	900.032	5330-01-378-7541
282	WASHER, KEY	TW107	5310-014-5136
283	WASHER, NYLON	MS51859-16	5310-01-381-9990
284	WASHER, NYLON	12421464-001	
285	WASHER, NYLON	12421464-002	
286	WASHER, SPRING	D63474/1-30	5310-01-413-8475
287	WASHER, SPRING	110 7289	5310-01-246-1387
288	WASHER, SPRING	12414559-021	5310-01-374-4517
289	WASHER, SPRING	12414560-009	5310-01-333-5517
290	WASHER, SPRING	12414560-011	5310-01-421-9556
291	WASHER, SPRING	12414560-017	5310-01-395-0820
292	WASHER, SPRING	12414560-018	5310-01-381-3281
293	WASHER, SPRING	12414560-019	5310-01-369-6074

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
294	WASHER, SPRING	12417503	5310-01-406-6326
295	WASHER, SPRING	12418220	5310-01-372-3495
296	WASHER, SPRING	128BSTM4	5310-01-333-5517

APPENDIX H
LUBRICATION ORDER

SECTION I. INTRODUCTION

H-1. GENERAL

The information contained in this appendix provides the lubrication requirements for the MTV vehicle.

a. Adherence. Intervals (on-condition or hardtime) and the related man-hour times are based on normal operation. The man-hour time specified is the time needed to do all the services prescribed for a particular interval. On-condition (OC) oil sample intervals will be applied unless changed by the Army Oil Analysis Program (AOAP) laboratory. Change the hardtime interval if the lubricants are contaminated or if operating the equipment under adverse operating conditions, including longer-than-usual operating hours. The calendar interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken. Hardtime intervals will be applied in the event AOAP laboratory support is not available. Hardtime intervals must be applied during the warranty period.

Intervals shown in this lubrication order are based on mileage/calendar, and in some cases mileage alone. An example of a mileage/calendar interval is: Q, which means every 3,000 miles (4,827 km) or quarterly (every three months). The lubrication is to be performed at whichever interval occurs first for the vehicle. An example of a mileage alone interval is: 6K, which stands for every 6,000 miles 19,654 km). The lubrication is to be performed at the mileage indicated regardless of the calendar interval.

WARNING

- **Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breath vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 138°F (50°C). Failure to comply may result in serious injury or death to personnel.**

- **If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get medical attention. Failure to comply may result in injury to personnel.**

b. Cleaning fittings before lubricating. Clean parts with dry cleaning solvent (SD P-D-680) (Item 65, Appendix D) or equivalent. Dry before lubricating. Dashed arrows indicate lubrication on both sides of the equipment.

c. Lubricating after fording. If fording occurs, lubricate all fittings below fording depth and check submerged gearboxes for presence of water.

d. Lubricating after high-pressure washing. After a thorough washing, lubricate all grease fittings and oil can points outside and underneath vehicle.

e. Level of Maintenance. The lowest level of maintenance authorized to lubricate a point is Operator/Unit Maintenance (O). Operator/crew (C) may lubricate points authorized for Unit Maintenance (O) when authorized by Unit Maintenance (O).

f. Localized views. A reference to the appropriate localized view is given after most lubrication entries. Localized views begin on page H-13.

H-1. GENERAL (CONT)

g. Interval Symbols. The lubrications interval symbols will be used as applicable:

Q-quarterly/3,000 mi (4,827 km) (whichever occurs first)
S-semiannually/6,000 mi (9,654 km) (whichever occurs first)
A-annually/12,000 mi (19,308 km) (whichever occurs first)
B-biannuaIly/24,000 mi (38,616 km) (whichever occurs first)
3K-every 3,000 mi (4,827 km) (no calendar interval)
6K-every 6,000 mi (9,654 km) (no calendar interval)
12K-every 12,000 mi (19,308 km) (no calendar interval)
24K-every 24,000 mi (38,616 km) (no calendar interval)

H-2 OIL FILTERS

Oil filters shall be serviced/changed as applicable, when:

a. They are known to be contaminated, or clogged;

b. Service is recommended by AOAP laboratory analysis; or

c. At prescribed hardtime intervals while vehicle is under warranty, or if AOAP is not available/used as required.

H-3. AOAP SAMPLING INTERVAL

WARNING

- **Engine oil is hot and under pressure. The oil sampling valve releases oil proportionally to the amount of pressure applied to valve. Activate oil sampling valve by pressing in slowly to prevent injury to personnel. Failure to comply may result in injury to personnel.**

- **Wear safety goggles when taking oil sample. Oil is under pressure and could cause injury to personnel. Failure to comply may result in injury to personnel.**

Engine/transmission oil must be sampled every 90 days as prescribed by DA Pam 738-750. Hydraulic fluids must be sampled annually as prescribed by DA Pam 738-750.

H-4. WARRANTY HARDTIME STATEMENT

"For equipment under manufacturer's warranty, hardtime oil service intervals shall be followed. Intervals shall be shortened if lubricants are known to be contaminated or if operation is under adverse conditions (such as longer than usual operating hours, extended idling periods, extreme dust)."

SECTION II. LUBRICATION CHART

H-5. LUBRICATION KEY

LUBRICANTS	
Specification	**Type**
MIL-L-2104 (OE/HDO)	Lubricating Oil, Internal Combustion Engine, Combat/Tactical Service
MIL-L-46167 (OEA)	Lubricating Oil, Internal Combustion Engine, Arctic
MIL-L-2105 (GO)	Lubricating Oil, Gear, Multipurpose
MIL-G-10924 (GAA)	Grease, Automotive and Artillery
MIL-G-18458 (GW)	Grease, Wire-Rope and Exposed Gear
MIL-H-5606 (OHA)	Hydraulic Fluid, Petroleum Base, Aircraft, Missile, and Ordnance

DESCRIPTION	CAPACITY	EXPECTED TEMPERATURES		
		Above +40°F (Above +4°C)	+40°F to -15°F (+4°C to -26°C)	-15°F to -50°F (-26°C to -46°C)
Engine crankcase	25 qt (24 L)	OE/HDO-15/40	SAE 10W30 OR OE/HDO-10	OEA
Transmission (total system) (all models except M1088 and M1089)	49.3 qt (46.7 L)	OE/HDO-15/40	OE/HDO-10	OEA
Transmission (at oil change) (all models except M1088 and M1089)	36.8 qt (34.7 L)	OE/HDO-15/40	OE/HDO-10	OEA
Transmission (total system) (M1088 and M1089)	58.6 qt (55.4 L)	OE/HDO-15/40	OE/HDO-10	OEA
Transmission (at oil change) (M1088 and M1089)	31.8 qt (30.0 L)	OE/HDO-15/40	OE/HDO-10	OEA
Transmission (after overhaul)	39.0 qt (37.0 L)	OE/HDO-15/40	OE/HDO-10	OEA
Steering system	5 qt (4.8 L)	OE/HDO-10	OE/HDO-10	OEA
Hydraulic reservoir (except M1089)	27 gal (102.2 L)	OE/HDO-10	OE/HDO-10	OEA
Hydraulic tank (M1089)	74 gal (280 L)	OE/HDO-10	OE/HDO-10	OEA
Front axle differential (maximum capacity)	9.5 qt (9 L)	GO-80/90	GO-80/90	SAE 75W90 OR GO-75
Intermediate axle differential (maximum capacity)	14.7 qt (13.9 L)	GO-80/90	GO-80/90	SAE 75W90 OR GO-75
Rear axle differential (maximum capacity)	12.15 qt (11.5 L)	GO-80/90	GO-80/90	SAE 75W90 OR GO-75
Front axle planetary hubs	11-13 oz (0.33-0.38 L)	GO-80/90	GO-80/90	SAE 75W90 OR GO-75

H-5. LUBRICATION KEY (CONT)

DESCRIPTION	CAPACITY	EXPECTED TEMPERATURES		
		Above +40°F (Above +4°C)	+40°F to -15°F (+4°C to -26°C)	-15°F to -50°F (-26°C to -46°C)
Rear axle bogie	0.5 qt (0.5 L)	GO-85/140	GO-85/140	GO-85/140
15K Self-Recovery Winch (SRW)	As Required	GO-85/140	GO-80/90	GO-75
30K winches	As Required	GO-85/140	GO-80/90	GO-75
Propeller shaft universal and slip joints	As Required	GAA	GAA	GAA
Tie rod ends	As Required	GAA	GAA	GAA
Towing pintle assembly	As Required	GAA	GAA	GAA
Fifth wheel	As Required	GAA	GAA	GAA
Spring bolts and spring shackles	As Required	GAA	GAA	GAA
Front axle shaft U-joints and steering knuckles	As Required	GAA	GAA	GAA
Front axle inner wheel bearing	As Required	GAA	GAA	GAA
Intermediate axle inner wheel bearing	As Required	GAA	GAA	GAA
Rear axle inner wheel bearing	As Required	GAA	GAA	GAA
Front lifting beam	As Required	GAA	GAA	GAA
15K Self-Recovery Winch (SRW) cable	As Required	GW	GW	GW
30K winch cables	As Required	GW	GW	GW
Air/hydraulic power unit	3 pt (1.4 L)	OHA	OHA	OHA
Backup hydraulic pump	19 oz (562 ml)	OHA	OHA	OHA

COOLANT	
Specification	Type
MIL-A-46153	Antifreeze, Ethylene Glycol, Inhibited, Heavy Duty, Single Package
MIL-A-11755	Antifreeze, Arctic-Type

DESCRIPTION	CAPACITY	EXPECTED TEMPERATURES		
		Above +40°F (Above +4°C)	+40°F to -15°F (+4°C to -26°C)	-15°F to -50°F (-26°C to -46°C)
Cooling system (engine only)	14 qt (13 L)	MIL-A-46153	MIL-A-46153	
Cooling system (total system)	50.3 qt (47.6 L)	MIL-A-46153	MIL-A-46153	N/A
Cooling system (total system) (M1088, M1089)	52.8 qt (49.9 L)	MIL-A-46153	MIL-A-46153	N/A
Cooling system, Arctic (total system)	64.8 qt (61.3 L)	N/A	N/A	MIL-A-11755
Cooling system, Arctic (total system) (M1088, M1089)	76.5 qt (72.4 L)	N/A	N/A	MIL-A-11755

CLEANING AGENT	
Specification	**Type**
P-D-680	Dry Cleaning Solvent, SD-II
O-C-1901	Cleaning Compound, Windshield

DESCRIPTION	CAPACITY	EXPECTED TEMPERATURES		
		Above +15°F (Above -9°C)	+15°F to -15°F (-9°C to -26°C)	-15°F to -50°F (-26°C to -46°C)
All metal parts as required	N/A	SD-II (all temperatures)		
Windshield washer reservoir	7.5 qt (7.1 L)	2/3 water to 1/3 O-C-1901	1/2 water to 1/2 O-C-1901	1/3 water to 2/3 O-C-1901

For arctic operation refer to FM 9-207.

H-6. LUBRICATION INTERVALS

Intervals		Total Man-Hours
Quarterly (Q)	Lubrication performed once every three months or 3,000 mi. (4,827 km).*	2.0
Semi-annually (S)	Lubrication performed once every six months or 6,000 mi. (9,654 km).*	6.0
Annually (A)	Lubrication performed once every year or every 12,000 mi. (19,308 km).*	1.5
Bi-annually (B)	Lubrication performed once every two years or every 24,000 mi. (38,616 km).*	3.5
3K	Lubrication performed once every 3,000 mi. (4,827 km).**	1.0
6K	Lubrication performed once every 6,000 mi. (9,654 km).**	1.0
12K	Lubrication performed once every 12,000 mi. (19,308 km).**	6.5
24K	Lubrication performed once every 24,000 mi. (38,616 km).**	0.5

* Whichever occurs first.
** No calendar interval.

H-7. LUBRICATION LOCATOR VIEWS

LUBRICANT INTERVAL | **INTERVAL LUBRICANT**

Engine Crankcase Breather (O)
(See note 17 and view A)

Fuel Filter (O)
(See note 6 and view A)

Fuel/Water Separator (O)
(See note 5 and view B)

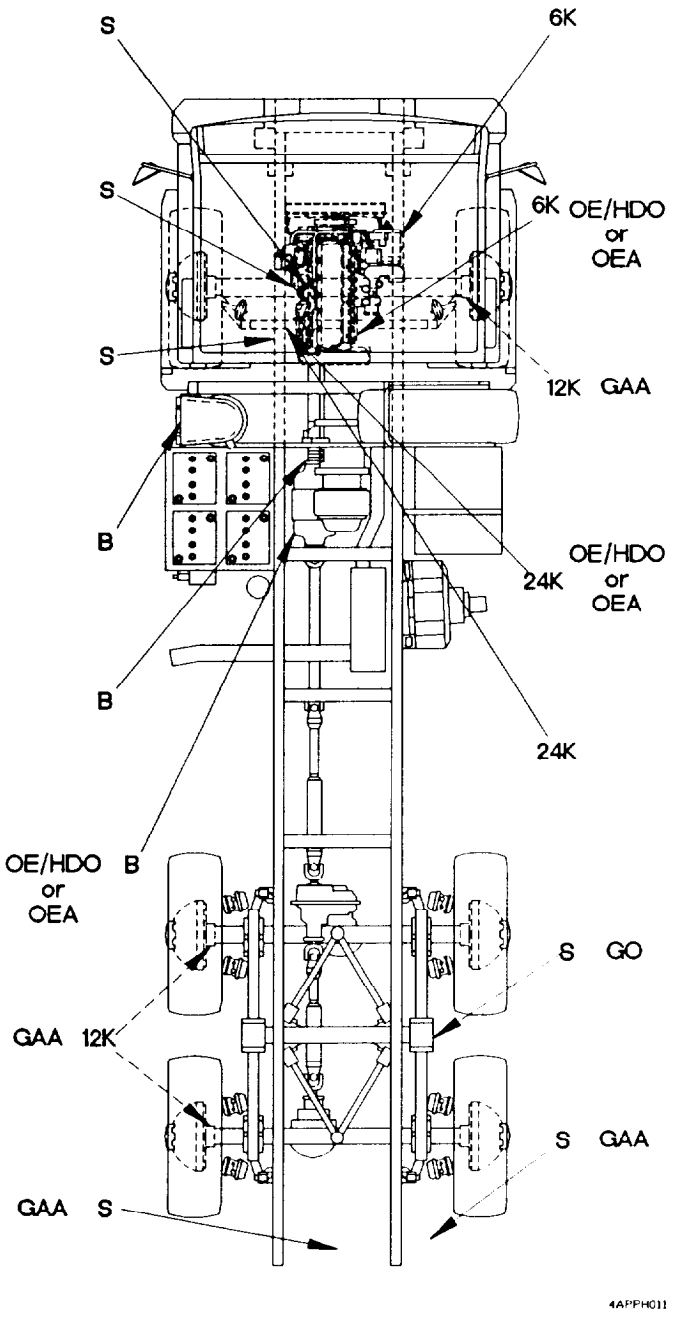
Cooling System (O)
(See note 7)

Transmission Filter (O)
(See note 3 and view F)

Transmission Drain and Fill (O)
(See note 3 and views D, E, and F)

Intermediate Axle and Rear Axle Inner Wheel Bearing Repack (O)
(See note 27)

Towing Pintle Fill (O)
(See note 16 and views J and K)



Engine Oil Filter (O)
(See note 2 and view C)

Crankcase Drain and Fill (O)
(See note 1 and views C and D)

Front Axle Inner Wheel Bearing Repack (O)
(See note 27)

Power Steering Reservoir Drain and Fill (O)
(See note 4 and view G)

Power Steering Filter (O)
(See note 4 and view G)

Rear Axle Bogie Drain and Fill (O)
(See note 28 and view AG)

15K Self-Recovery Winch (SRW) Cable Rear Roller Fairlead Fill (O)
(See note 29 and views AE and AF)

CHASSIS

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

LUBRICANT INTERVAL **INTERVAL LUBRICANT**

Spring Shackle
Fill (O)
(See note 18 and view I)

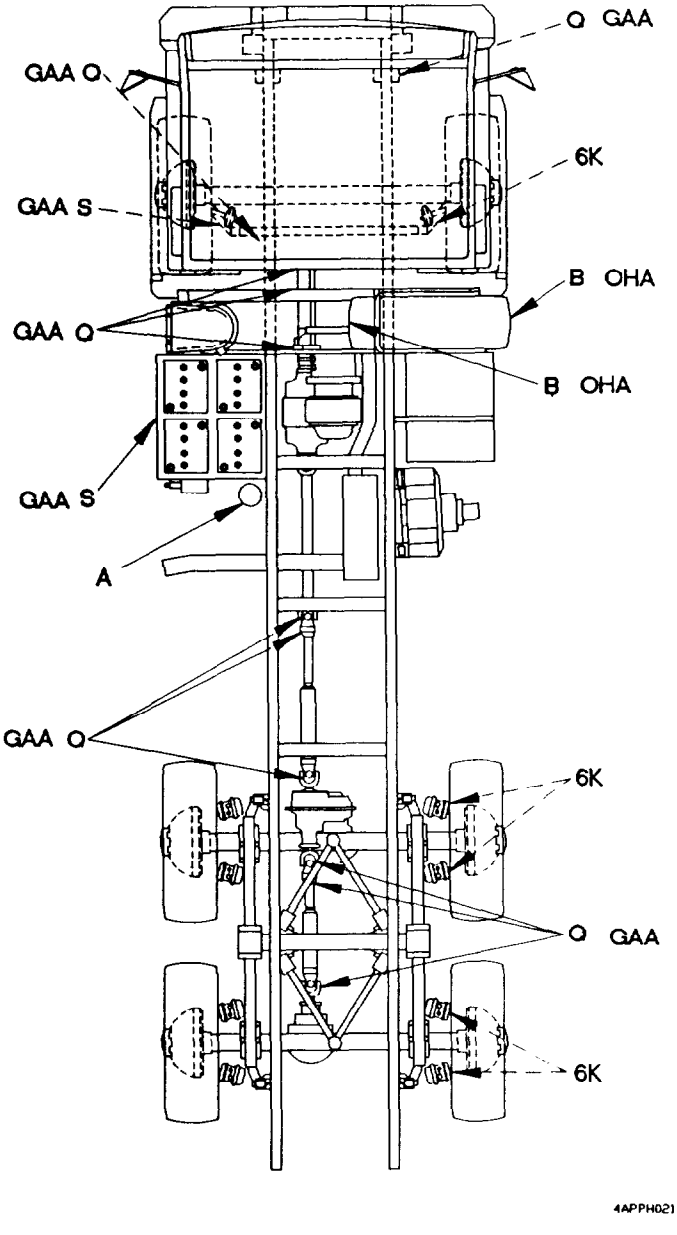
Tie Rod Ends
Fill (O)
(See note 13 and view N)

Universal and Slip Joints
Fill (O)
(See note 9 and view P)

Battery Posts (O)
(See note 19 and view Q)

Air Dryer (O)
(See note 37 and view BB)

Universal and Slip Joints
Fill (O)
(See note 9 and view P)



Spring Bolt
Fill (O)
(See note 18 and view H)

Brake Wedge and Air Chamber (O)
(See note 21 and view L)

Backup Hydraulic Pump Drain and Fill (O)
(See note 10 and view R)

Air/Hydraulic Power Unit Drain and Fill (O)
(See note 10 and view S)

Brake Wedge and Air Chamber (O)
(See note 21 and view M)

Universal Joint and Slip Joints
Fill (O)
(See note 9 and view P)

Brake Wedge and Air Chamber (O)
(See note 21 and view M)

CHASSIS

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

H-7. LUBRICATION LOCATOR VIEWS (CONT)

LUBRICANT INTERVAL **INTERVAL LUBRICANT**

Front Axle
Check and Fill (O)
(See note 11 and view T)

Axle Shaft U-Joints
Fill (O)
(See note 20 and view U)

Steering Knuckles
Fill (O)
(See note 20 and view U)

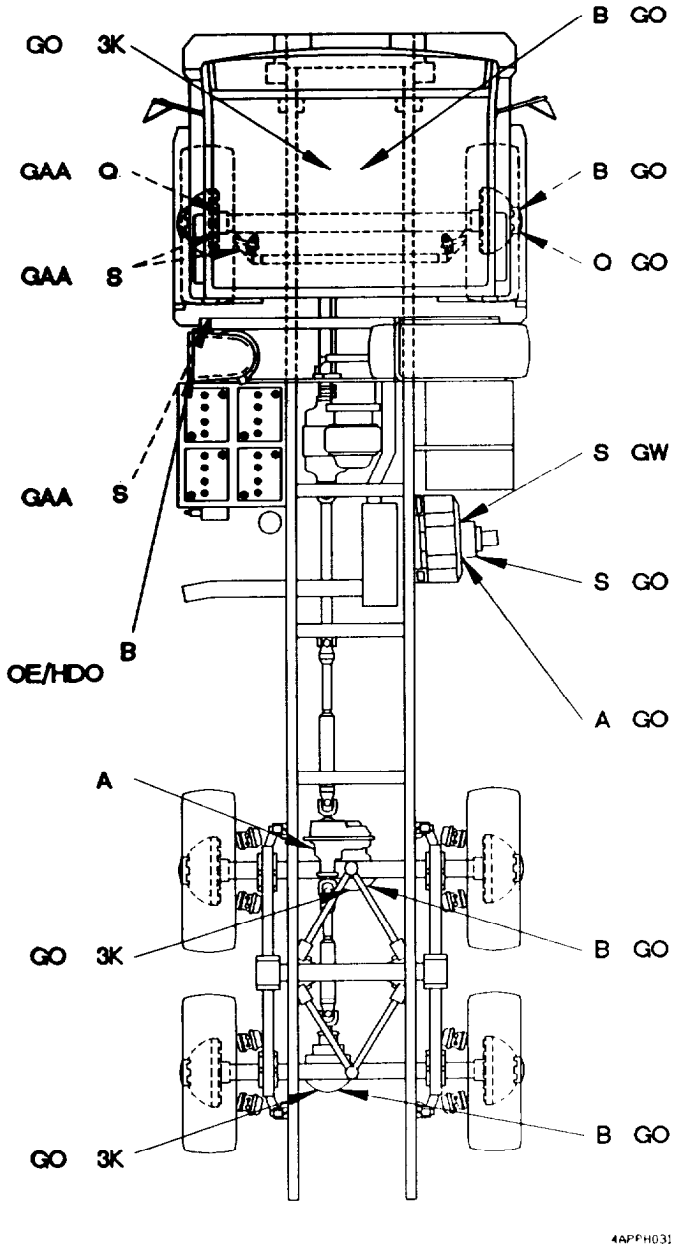
Front Lifting Beam
Clean and Fill (O)
(See note 36 and view AI)

Hydraulic Reservoir and Filter
Drain and Fill (O)
(See note 8 and view X)

Intermediate Axle Screen and Plug Oil Filter Assembly
Clean (O)
(See note 31 and view AH)

Intermediate Axle
Check and Fill (O)
(See note 11 and view T)

Rear Axle
Check and Fill (O)
(See note 11 and view T)



Front Axle
Drain and Fill (O)
(See note 11 and view T)

Wheel End Planetary Hubs
Drain and Fill (O)
(See note 12 and view V)

Wheel End Planetary Hubs
Check and Fill (O)
(See note 12 and view V)

15K Self-Recovery Winch (SRW) Cable
Fill (O)
(See note 14 and view W)

15K Self-Recovery Winch (SRW)
Check and Fill (O)
(See note 15 and view Y)

15K Self-Recovery Winch (SRW)
Drain and Fill (O)
(See note 15 and view Y)

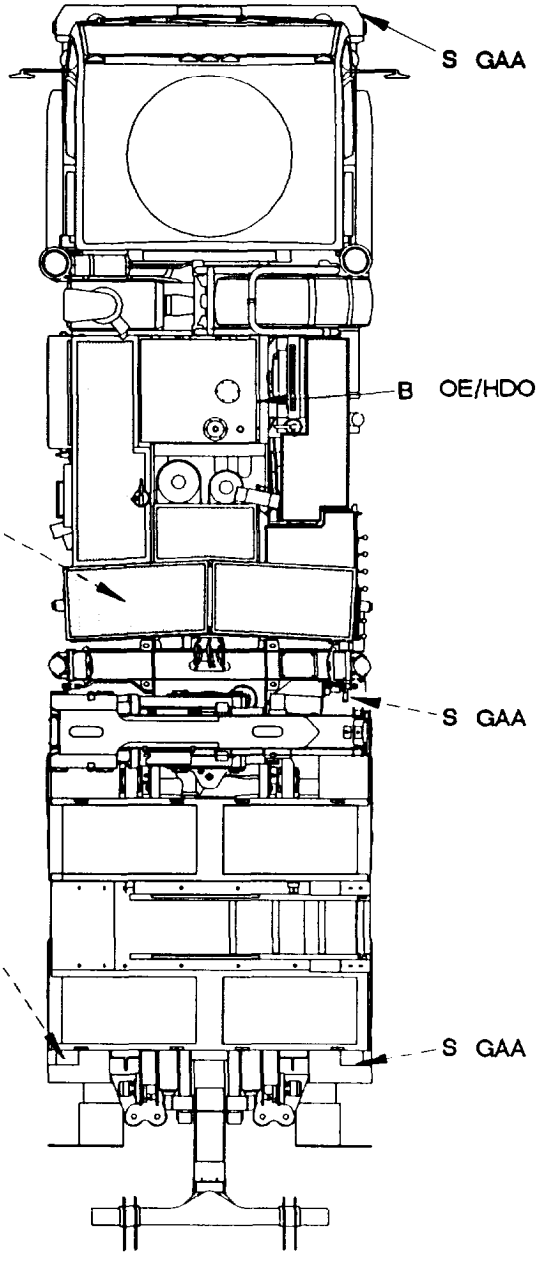
Intermediate Axle
Drain and Fill (O)
(See note 11 and view T)

Rear Axle
Drain and Fill (O)
(See note 11 and view T)

CHASSIS

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

LUBRICANT INTERVAL		INTERVAL LUBRICANT
	S GAA	**15K Self-Recovery Winch (SRW) Cable Front Roller Fairlead** **Fill (O)** (See note 29 and views Z and AA)
	B OE/HDO	**Hydraulic Tank and Filter Drain and Fill (O)** (See note 22 and view AD)
30K Winch Cable **Fill (O)** (See note 14 and view AB)	GW S	
	S GAA	**30K Winch Cable Guide Rollers** **Fill (O)** (See note 30 and view AB)
Pay-Out Assembly Lower Tension Sheave **Fill (O)** (See note 30 and view BA)	GAA S	
	S GAA	**30K Winch Cable Guide Rollers** **Fill (O)** (See note 30 and view AC)



M1089

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

H-7. LUBRICATION LOCATOR VIEWS (CONT)

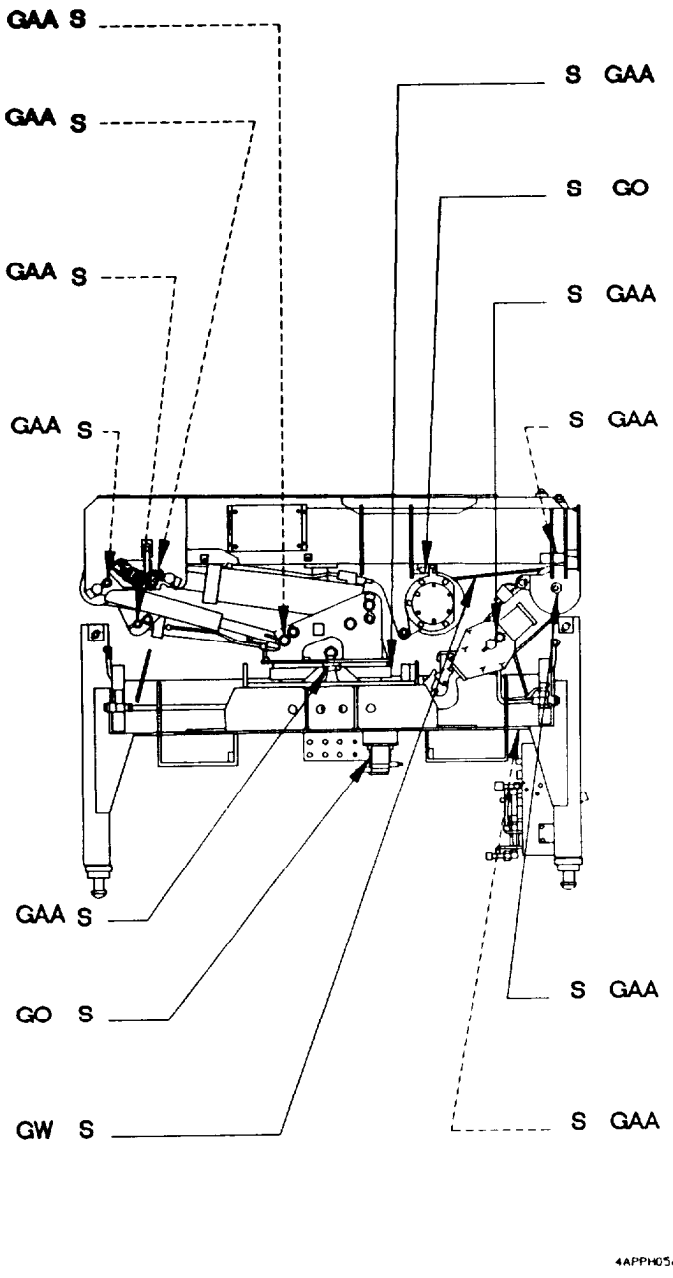
LUBRICANT INTERVAL **INTERVAL LUBRICANT**

Erection Cylinder and Tension Link Pivots
Fill (O)
(See note 34 and view AL)

Lift Cylinder Pivots
Fill (O)
(See note 34 and view AJ)

Erection Cylinder Pivots
Fill (O)
(See note 34 and view AK)

Tension Link Pivots
Fill
(See note 34 and view AL)



Turntable Bearing and Pinion Gear Teeth
Fill (O)
(See note 26 and view AM)

Hoist
Check and Fill (O)
(See note 24 and view AN)

Hook Block Sheave
Fill (O)
(See note 34 and view AO)

Boom Wear Pads
Fill (O)
(See note 23)

Turntable Bearing
Fill (O)
(See note 32 and view AP)

Turntable Gearbox
Check and Fill (O)
(See note 25 and view AQ)

Hoist Cable
Fill (O)
(See note 14)

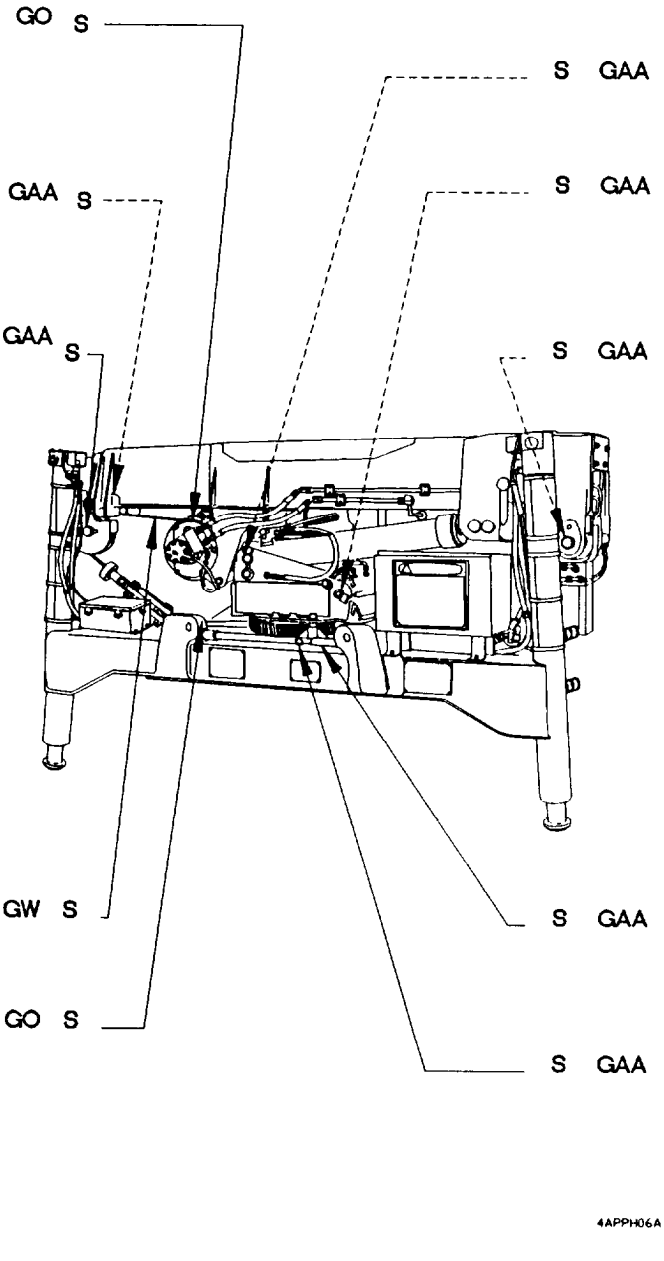
Boom Sheave
Fill (O)
(See note 34 and view AR)

Top and Bottom Plate
Fill (O)
(See note 33)

M1089 MATERIAL HANDLING CRANE (MHC)

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

LUBRICANT	INTERVAL
Hoist **Check and Fill (O)** (See note 24 and view AS)	GO S
Boom Wear Pads **Fill (O)** (See note 23)	GAA S
Boom Sheave **Fill (O)** (See note 34 and view AT)	GAA S
Hoist Cable **Fill (O)** (See note 14)	GW S
Turntable Gearbox **Check and Fill (O)** (See note 25 and view AU)	GO S



INTERVAL	LUBRICANT
S GAA	**Lift Cylinder Pivots** **Fill (O)** (See note 34 and view AV)
S GAA	**Erection Cylinder and Tension Link Pivots** **Fill (O)** (See note 34 and view AW)
S GAA	**Erection Cylinder and Tension Link Pivots** **Fill (O)** (See note 34 and view AX)
S GAA	**Turntable Bearing and Pinion Gear Teeth** **Fill (O)** (See note 26 and view AY)
S GAA	**Turntable Bearing** **Fill (O)** (See note 32 and view AZ)

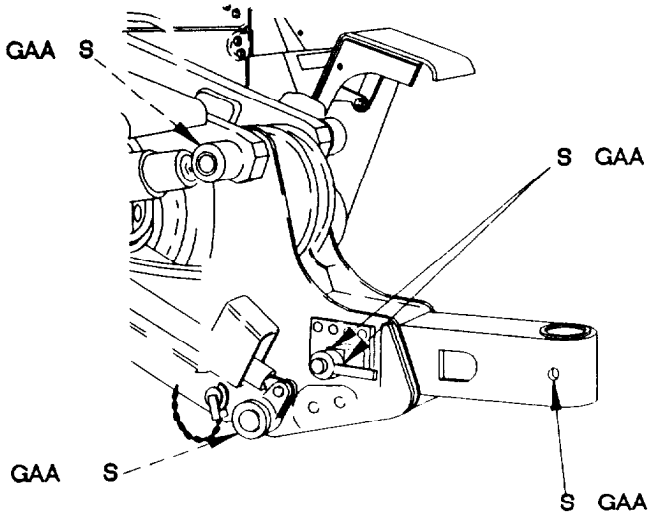
M1084/M1086 MATERIAL HANDLING CRANE (MHC)

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

H-7. LUBRICATION LOCATOR VIEWS (CONT)

LUBRICANT INTERVAL

INTERVAL LUBRICANT



Left and Right Lift Cylinder Pivots
Fill (O)
(See note 35)

Left and Right Lower Arm Pivots
Fill (O)
(See note 35)

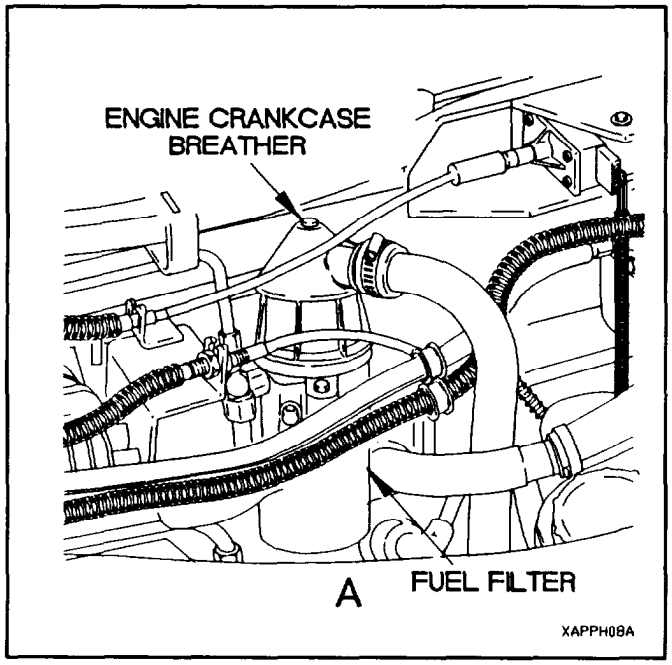
Camlock Assembly
Fill (O)
(See note 35)

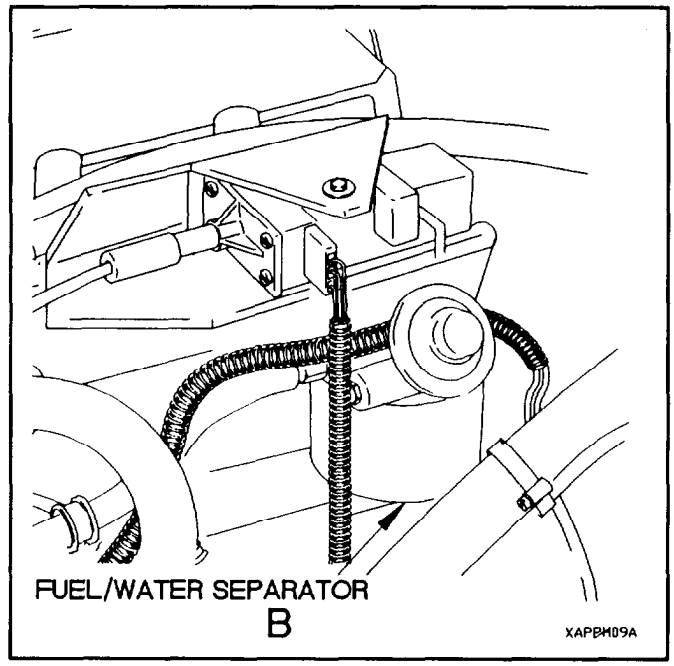
Crossbar Bushing
Fill (O)
(See note 35)

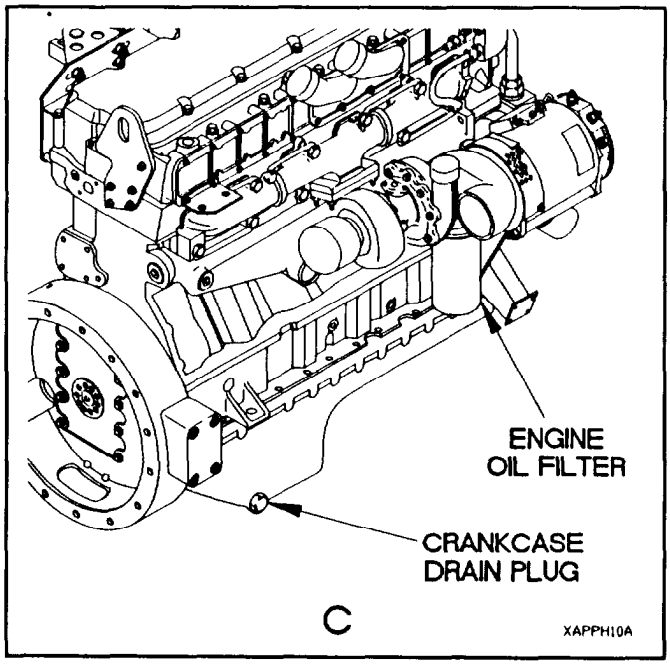
M1089 UNDERLIFT ASSEMBLY

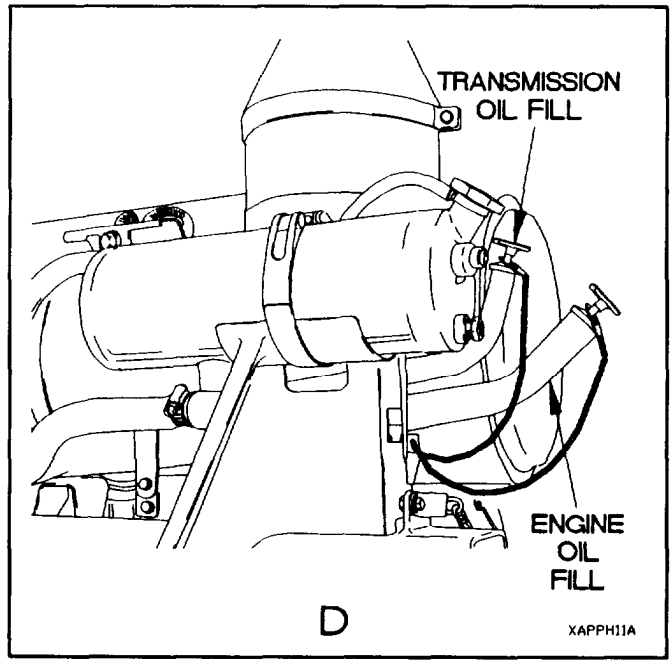
NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

H-8. LUBRICATION LOCAL VIEWS

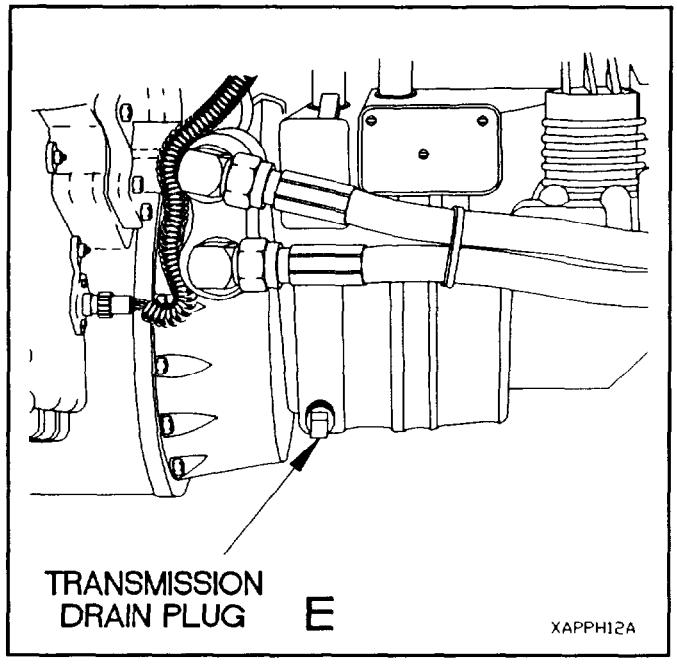


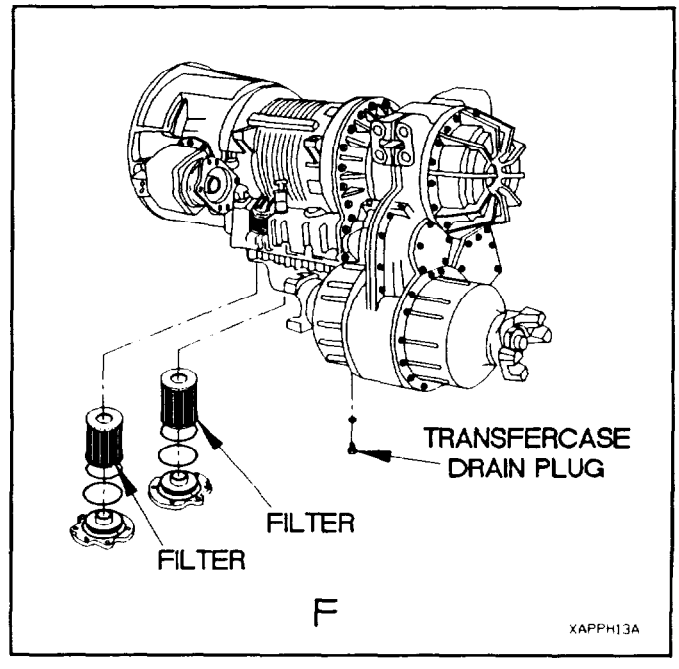


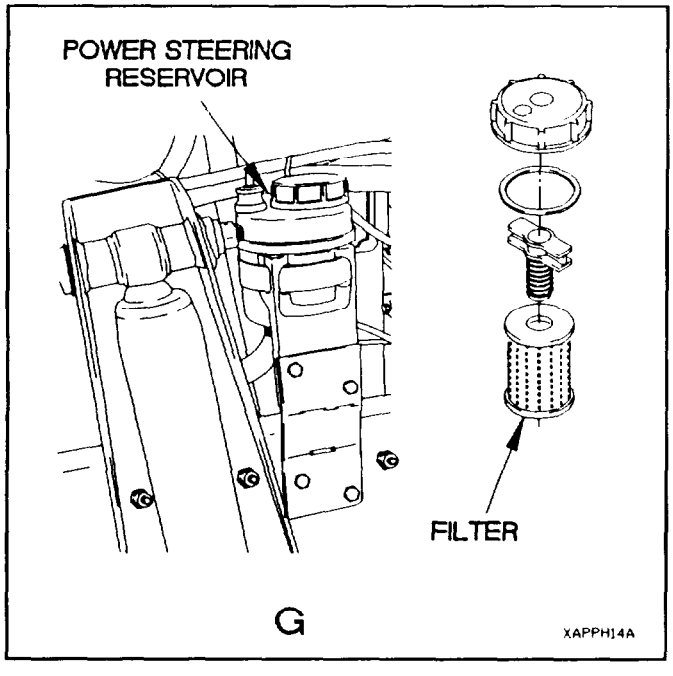


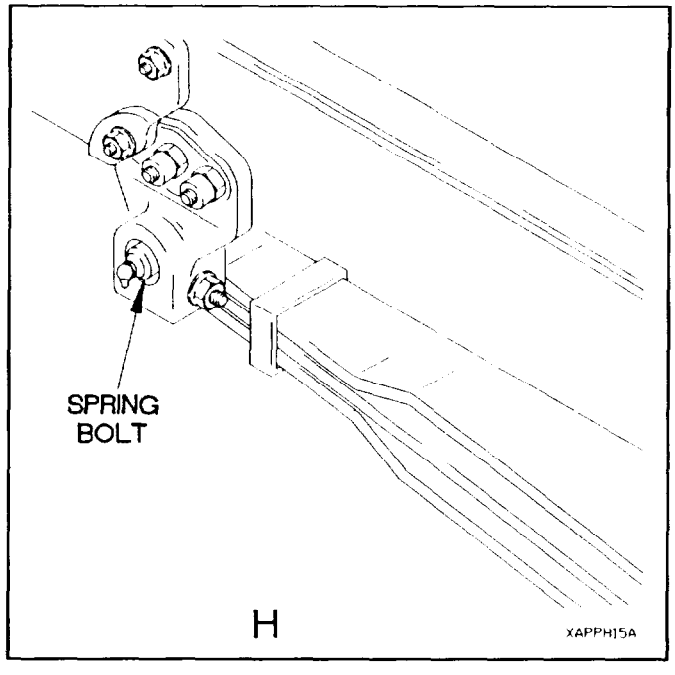


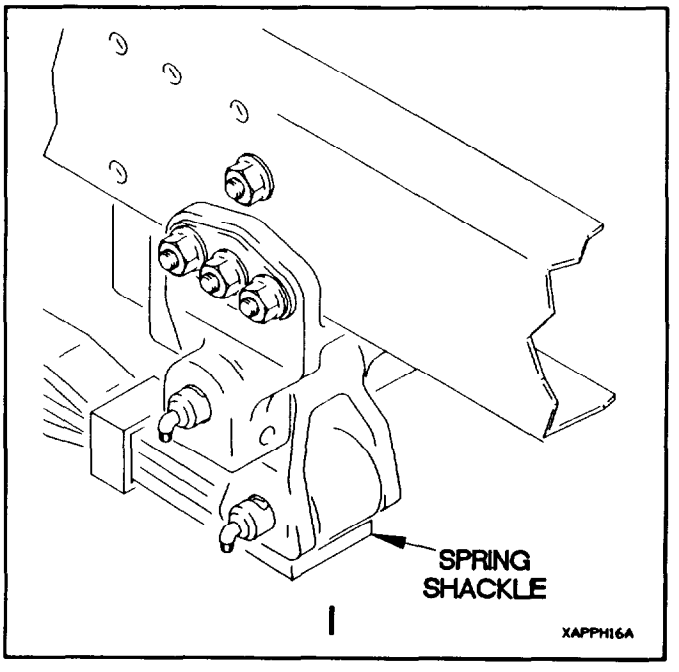
H-8. LUBRICATION LOCAL VIEWS (CONT)



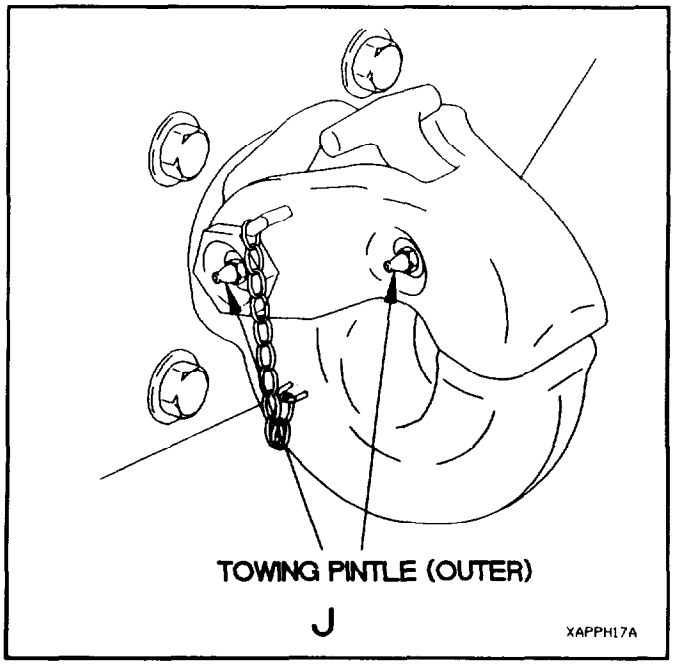




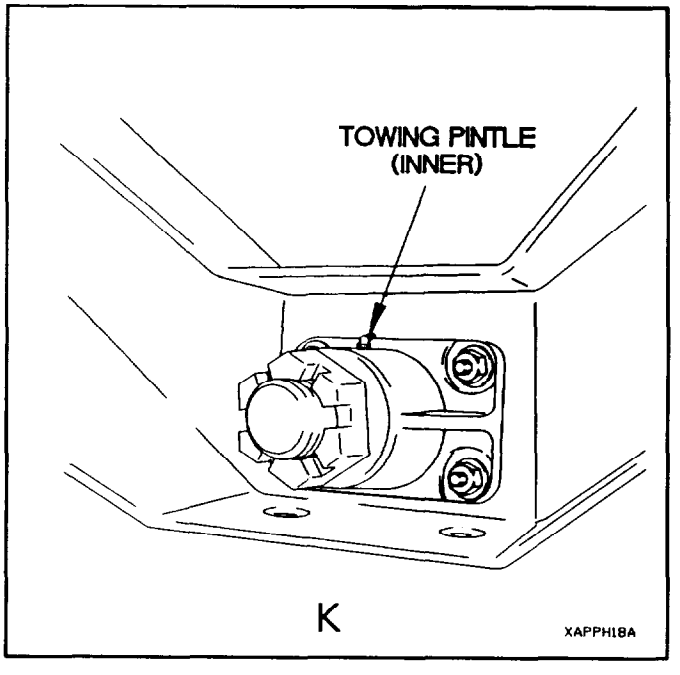



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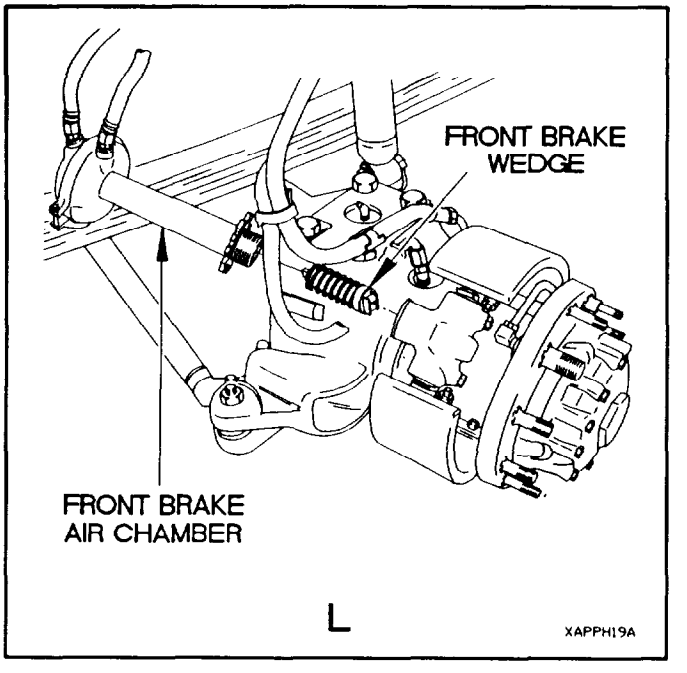
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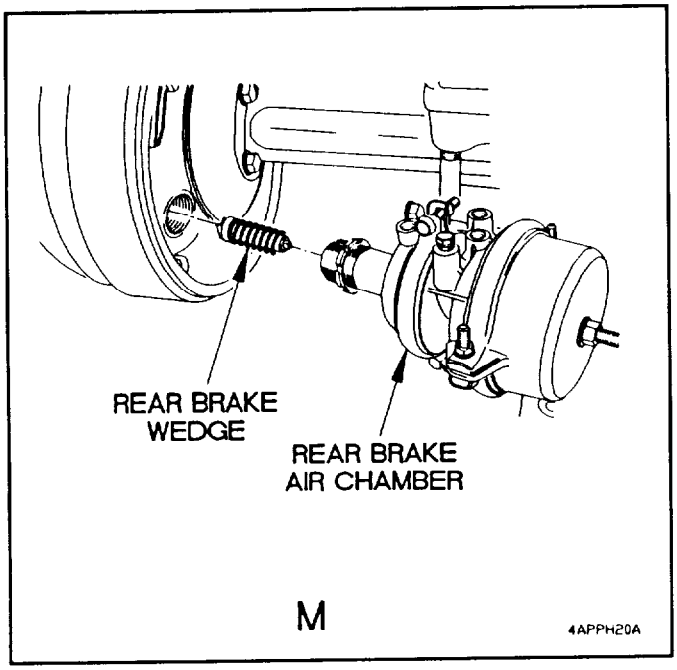

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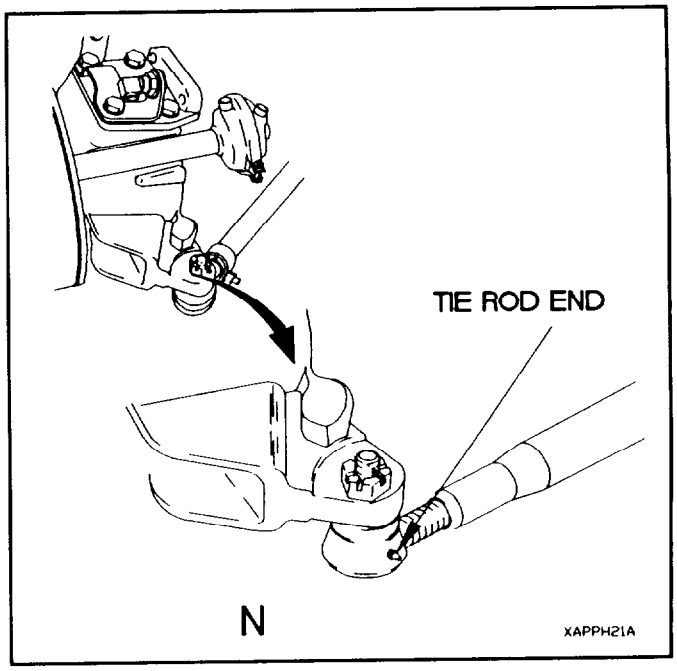
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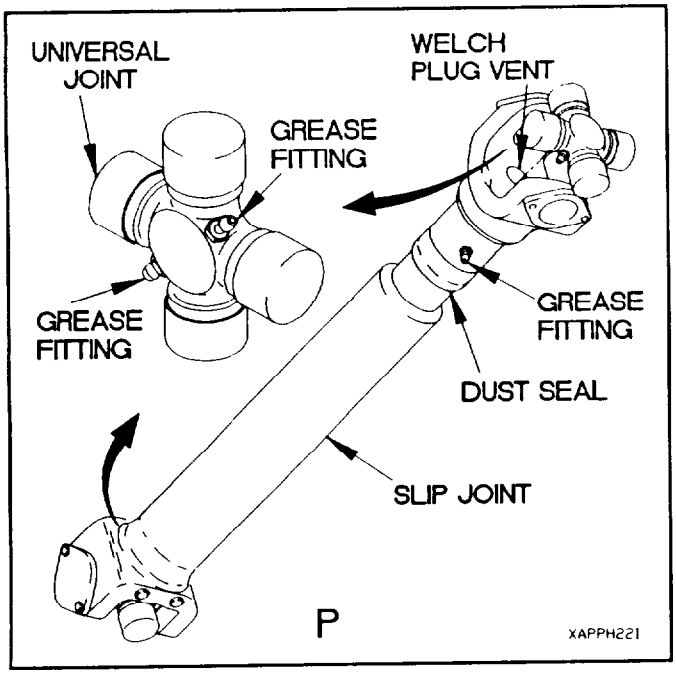

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WEDGE
FRONT BRAKE
AIR CHAMBER
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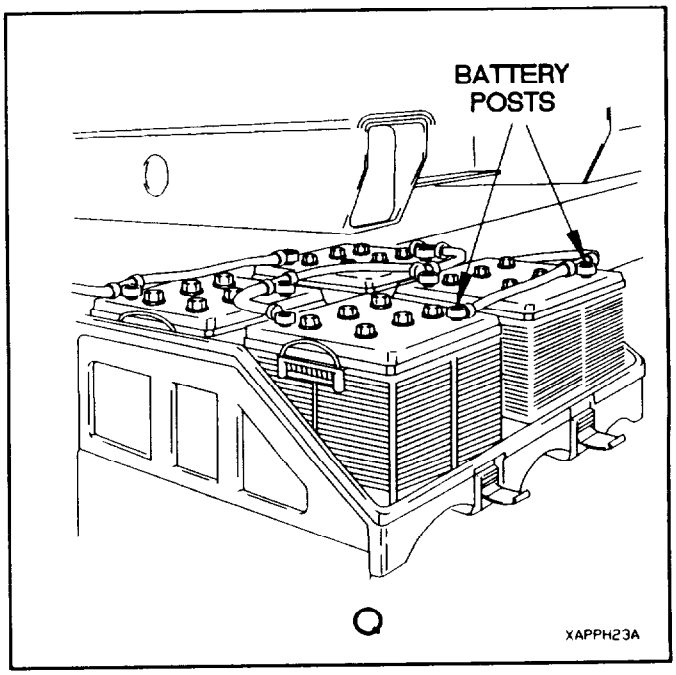
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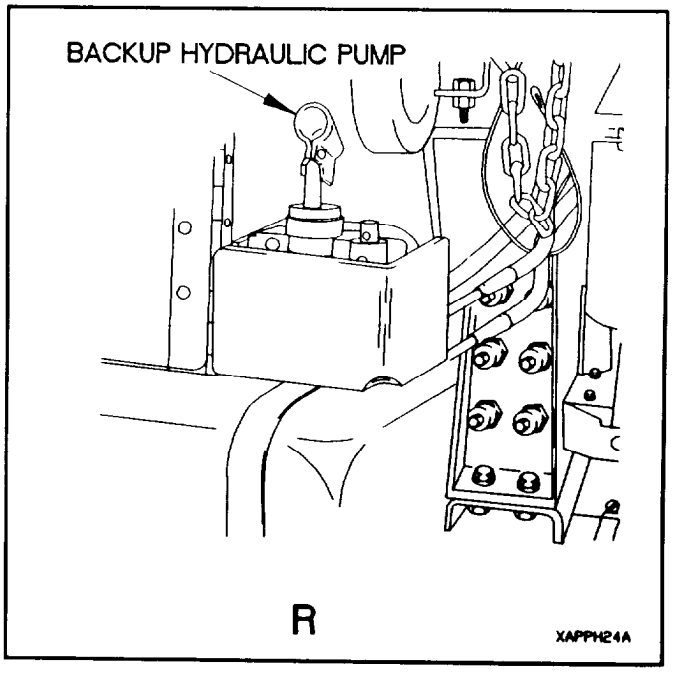
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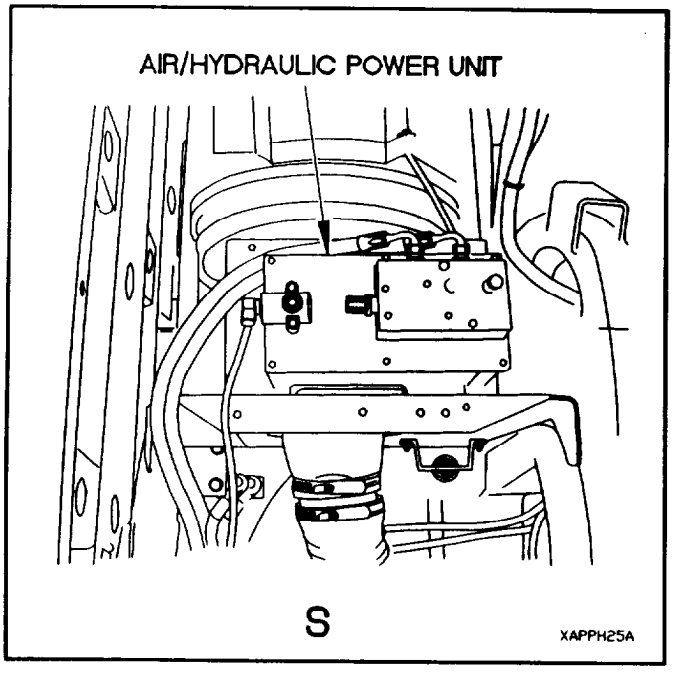


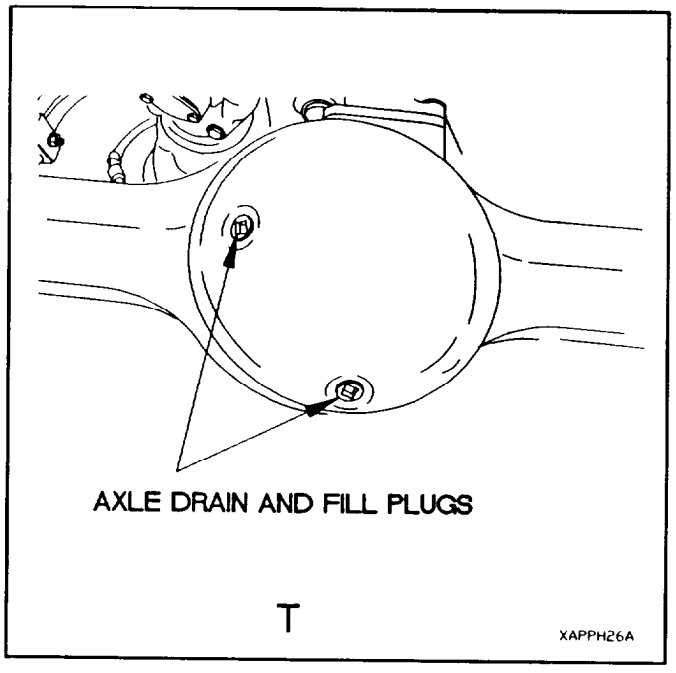


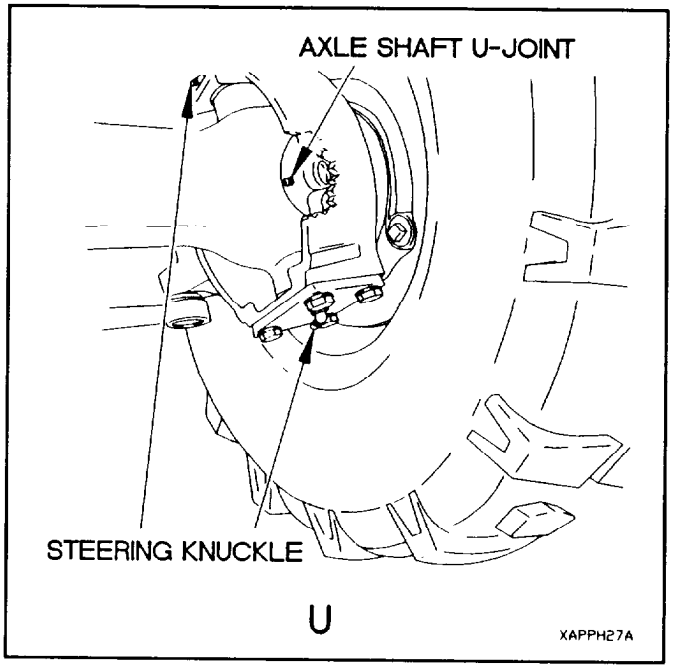




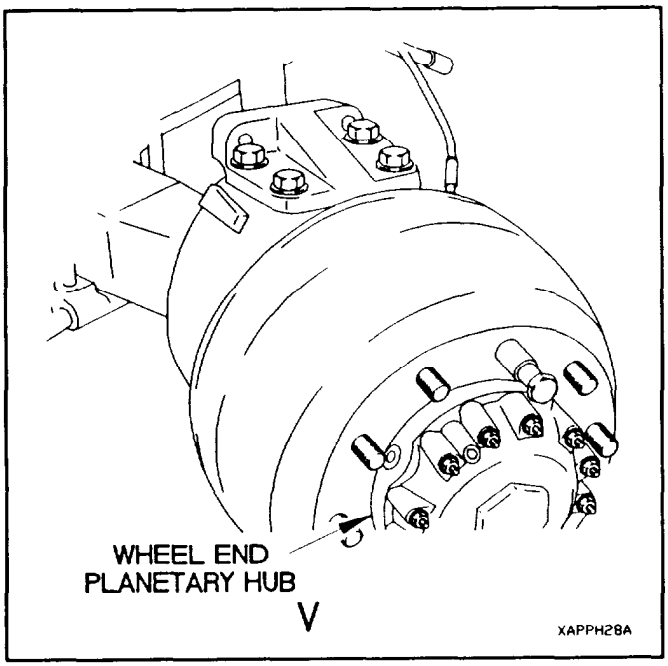

BACKUP HYDRAULIC PUMP
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XAPPH24A

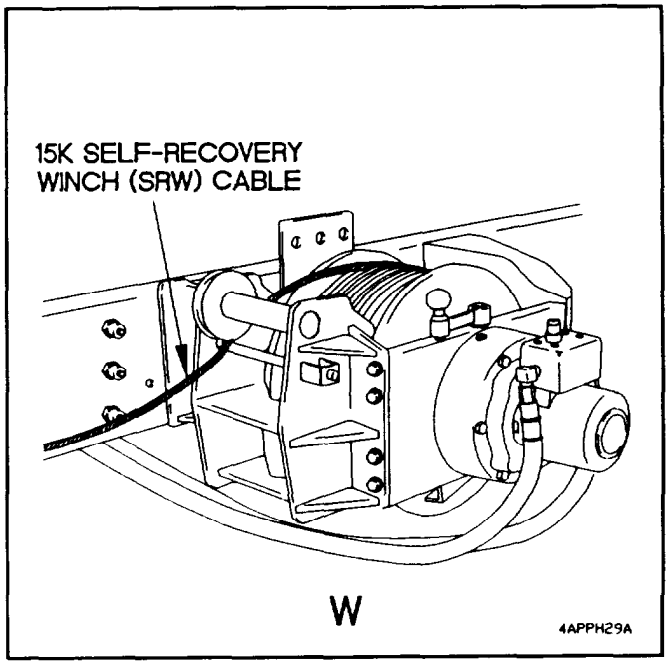

AIR/HYDRAULIC POWER UNIT
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XAPPH25A

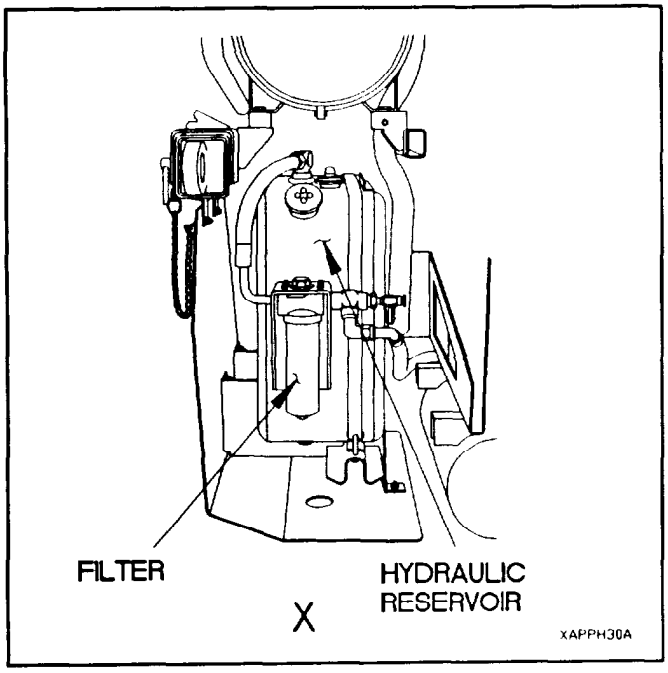

AXLE DRAIN AND FILL PLUGS
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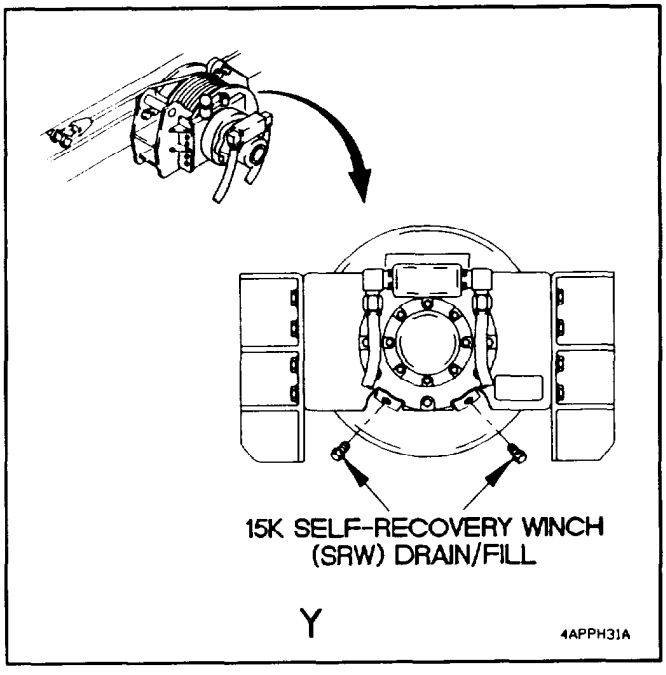

AXLE SHAFT U-JOINT
STEERING KNUCKLE
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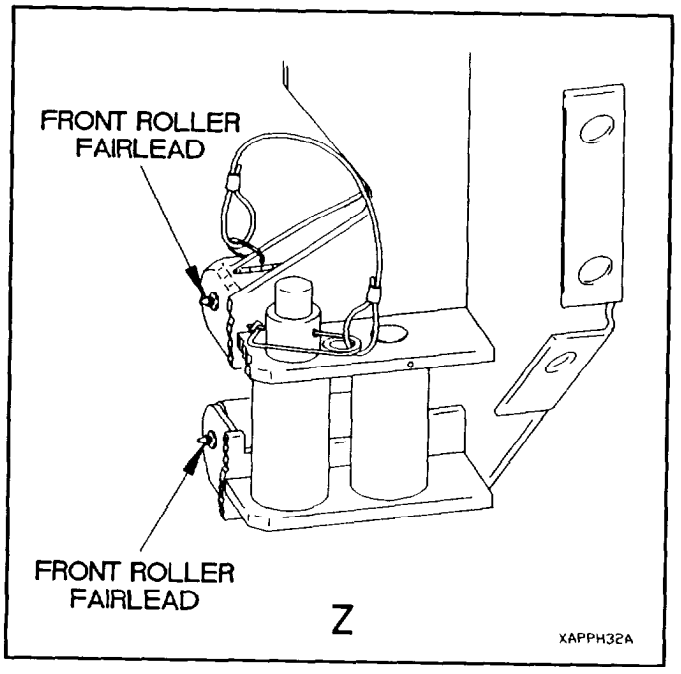
H-8. LUBRICATION LOCAL VIEWS (CONT)



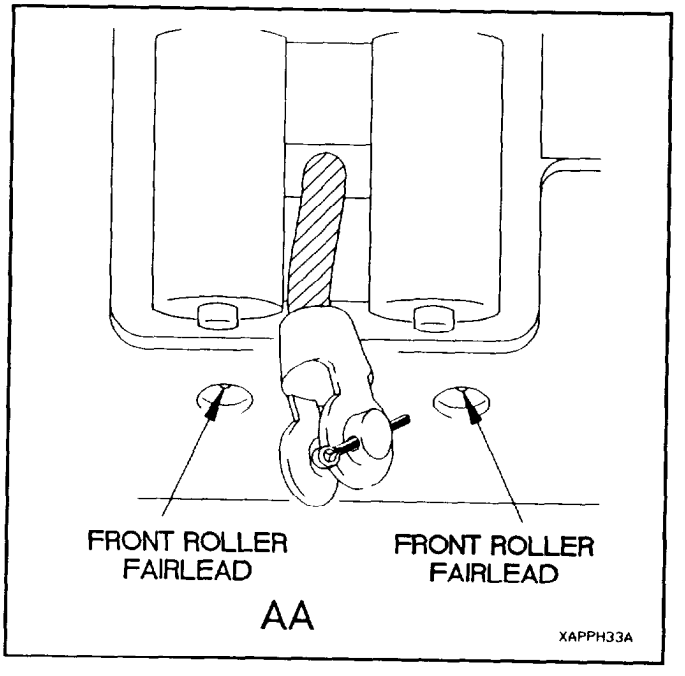




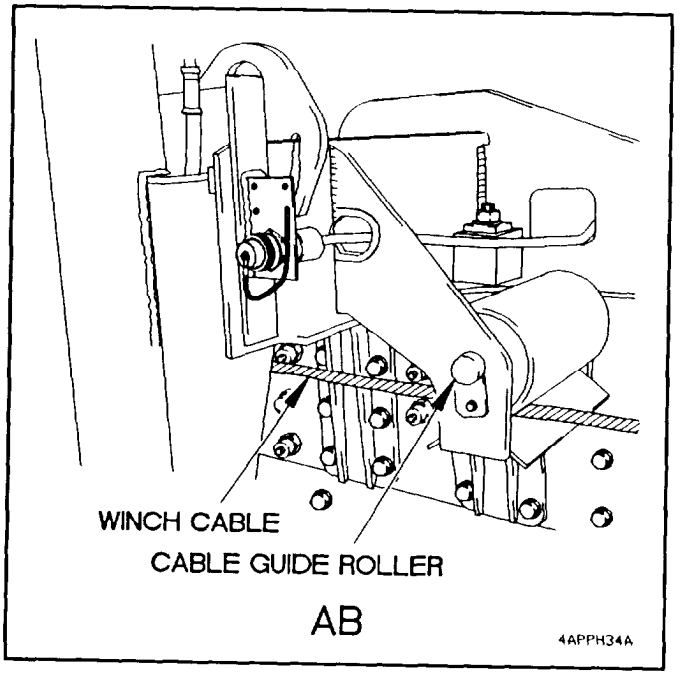



FRONT ROLLER FAIRLEAD
FRONT ROLLER FAIRLEAD
XAPPH32A

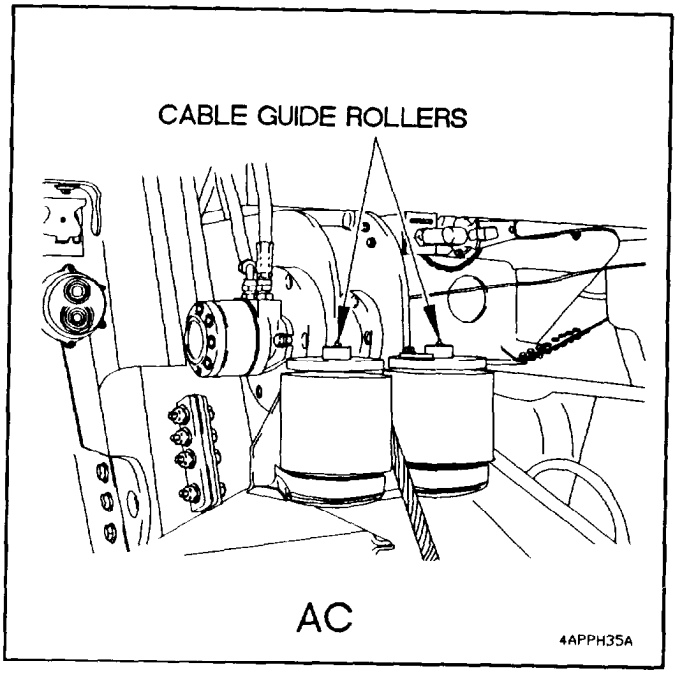
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FRONT ROLLER FAIRLEAD
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XAPPH33A

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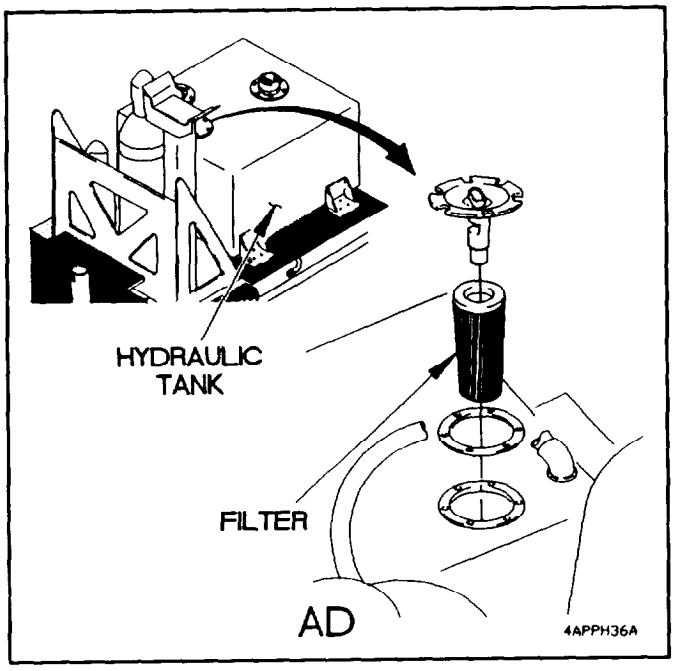

WINCH CABLE
CABLE GUIDE ROLLER
4APPH34A

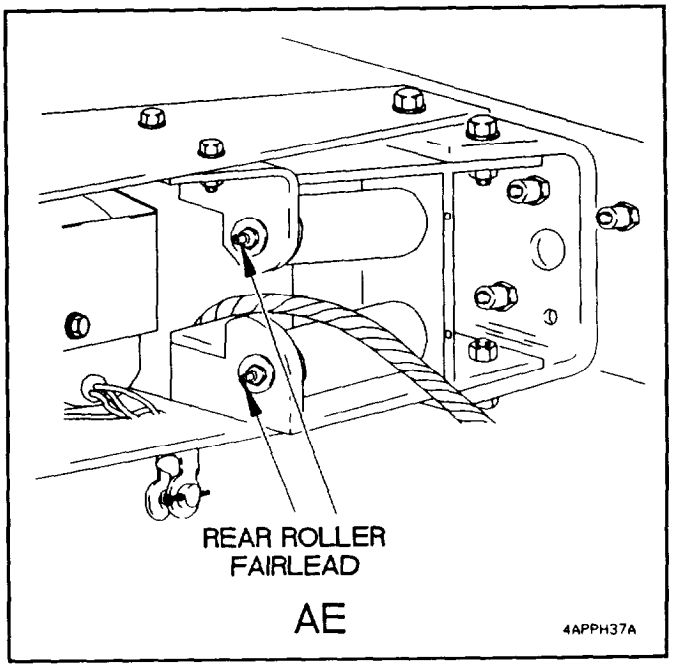
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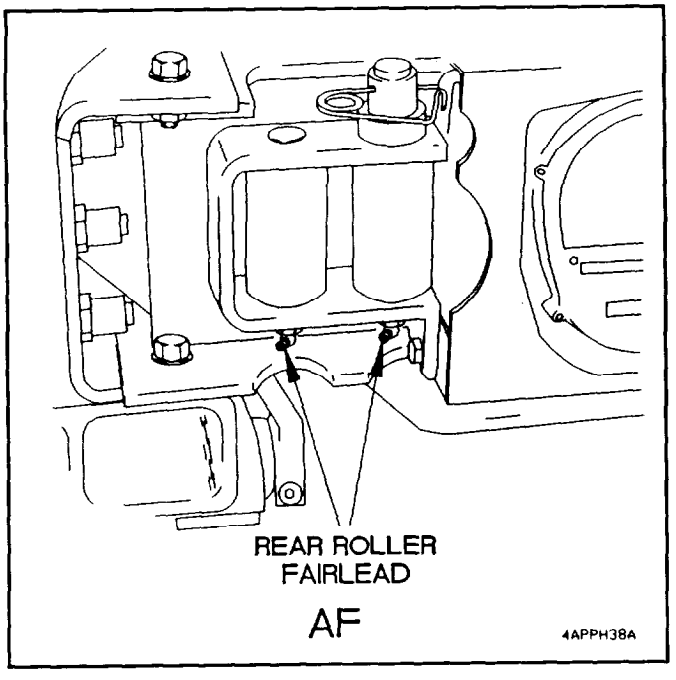

CABLE GUIDE ROLLERS
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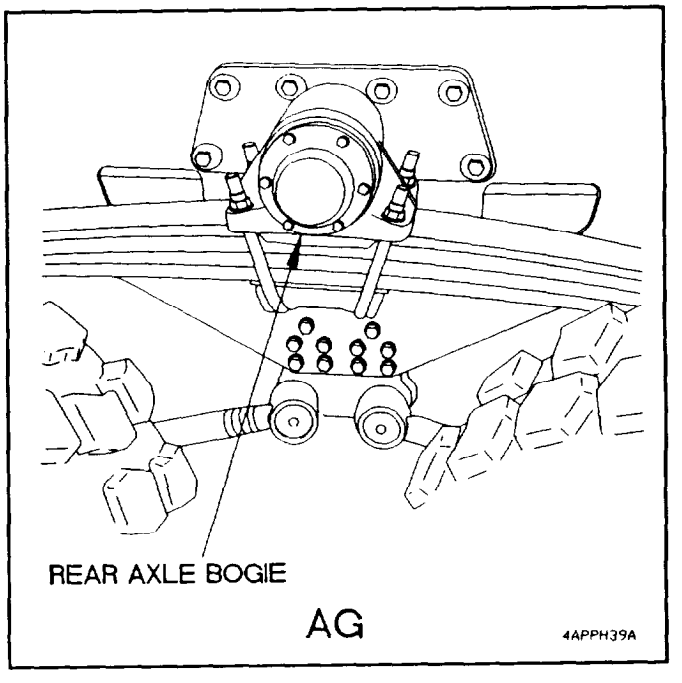
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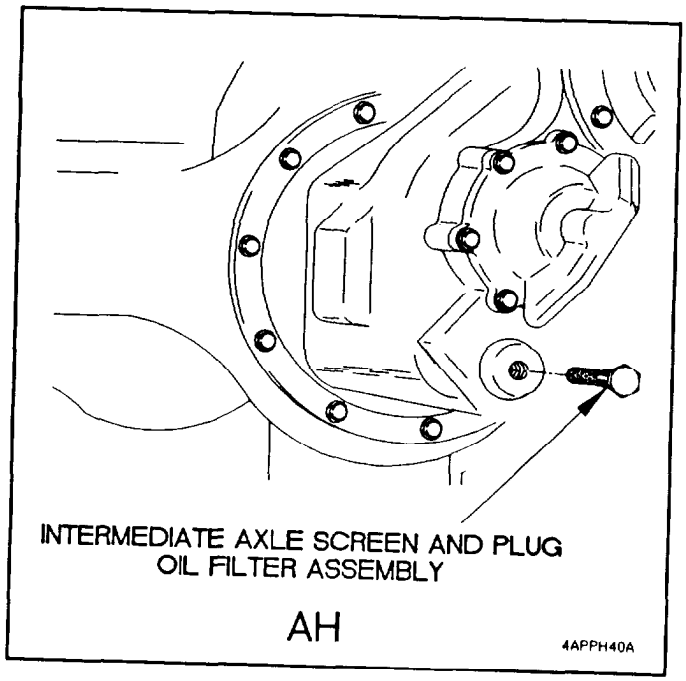
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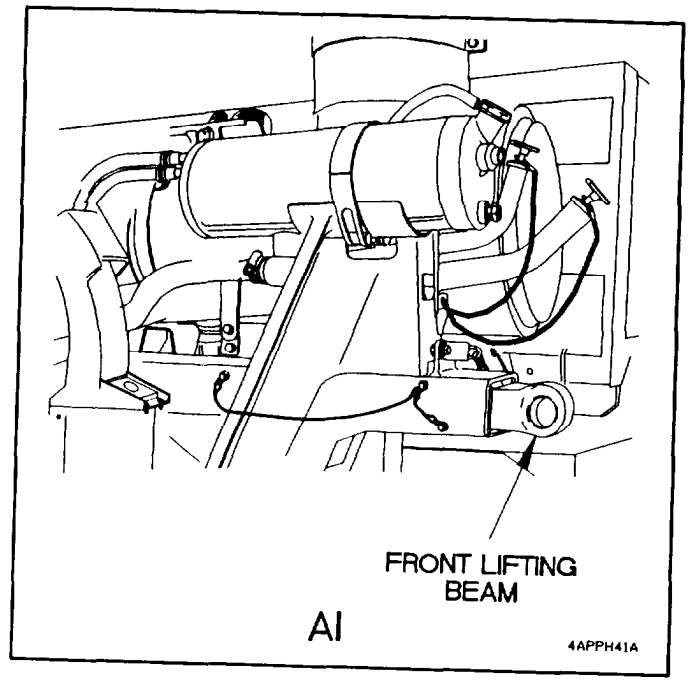


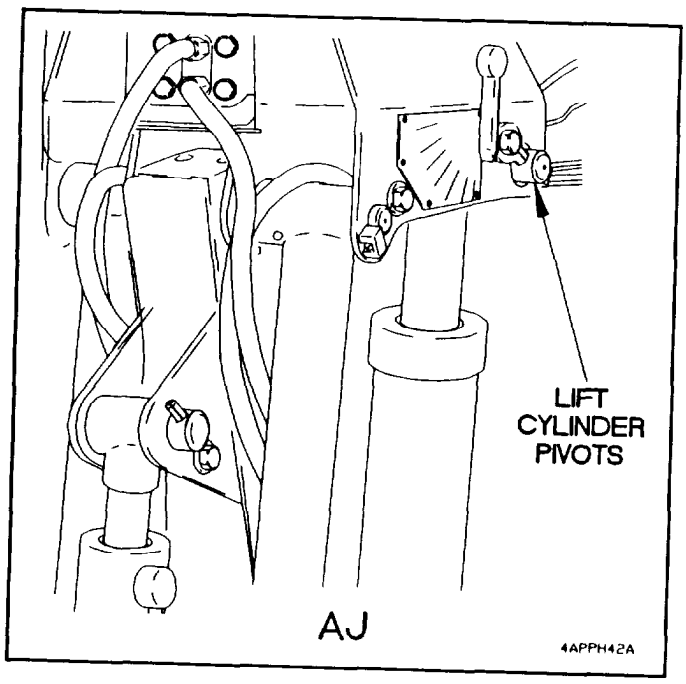


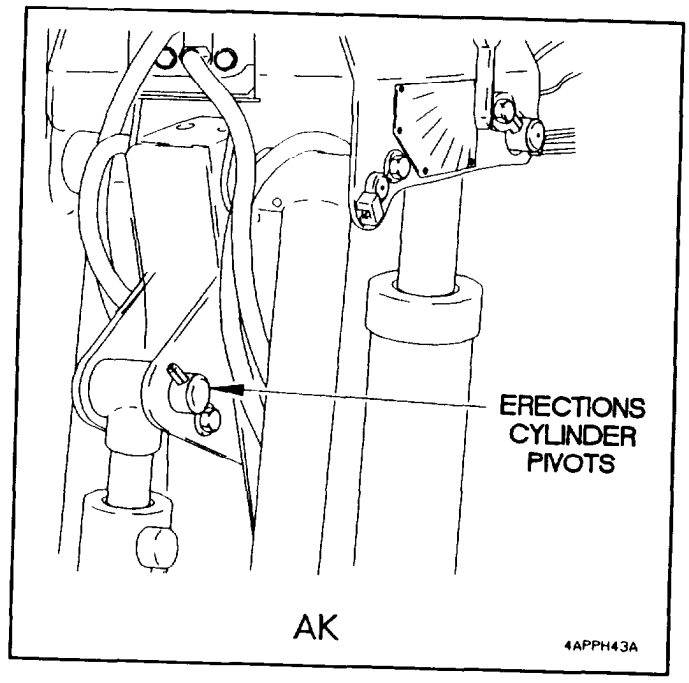




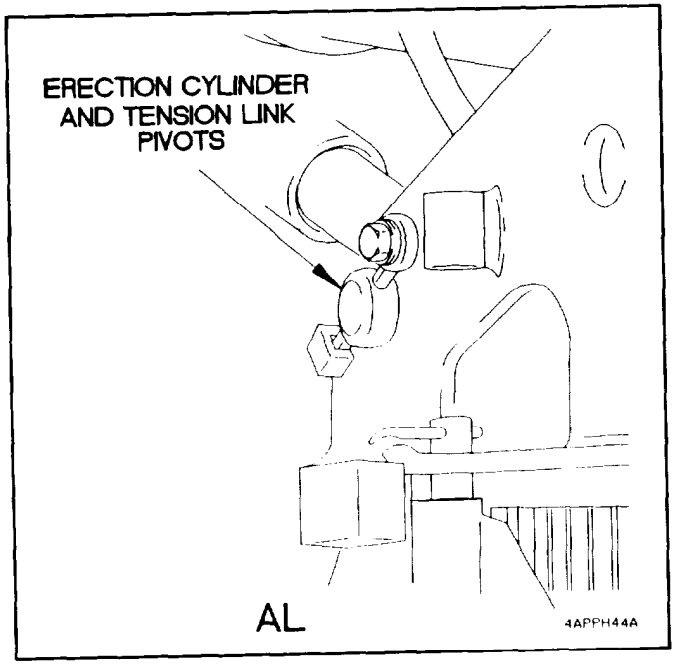

INTERMEDIATE AXLE SCREEN AND PLUG
OIL FILTER ASSEMBLY
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4APPH40A

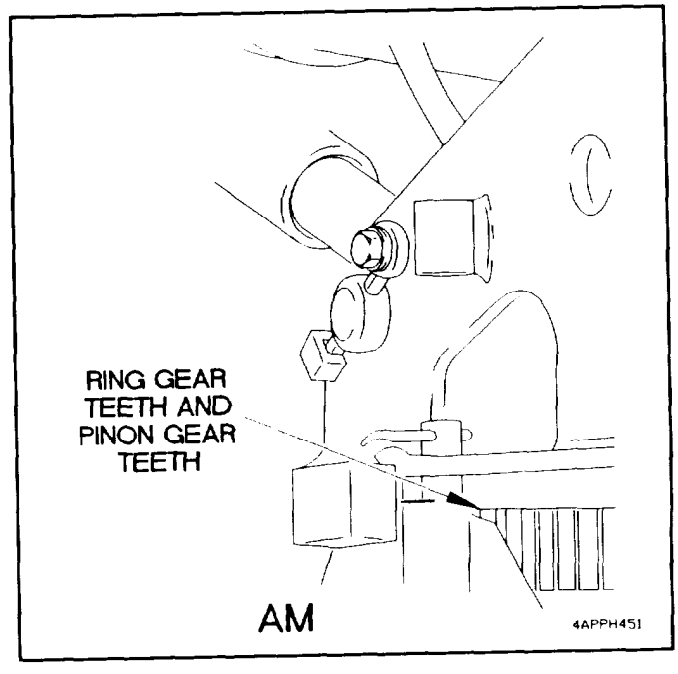

FRONT LIFTING
BEAM
AI
4APPH41A

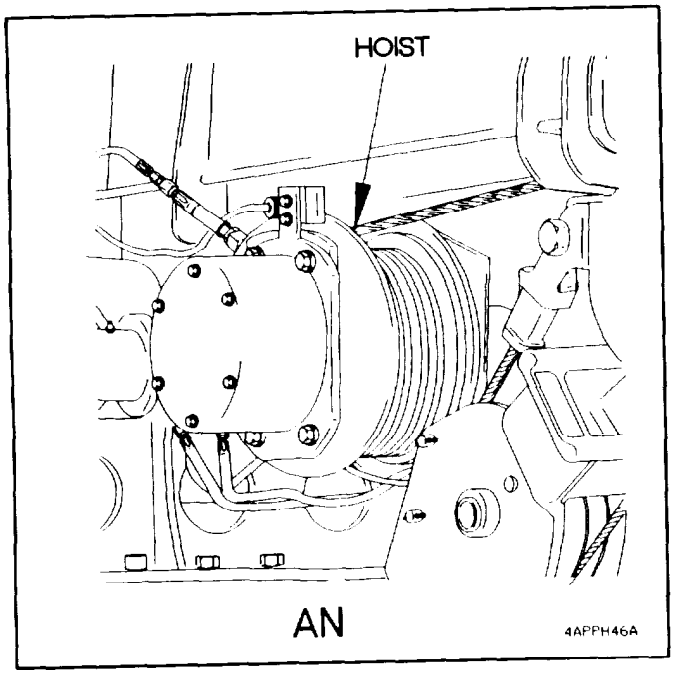

LIFT
CYLINDER
PIVOTS
AJ
4APPH42A

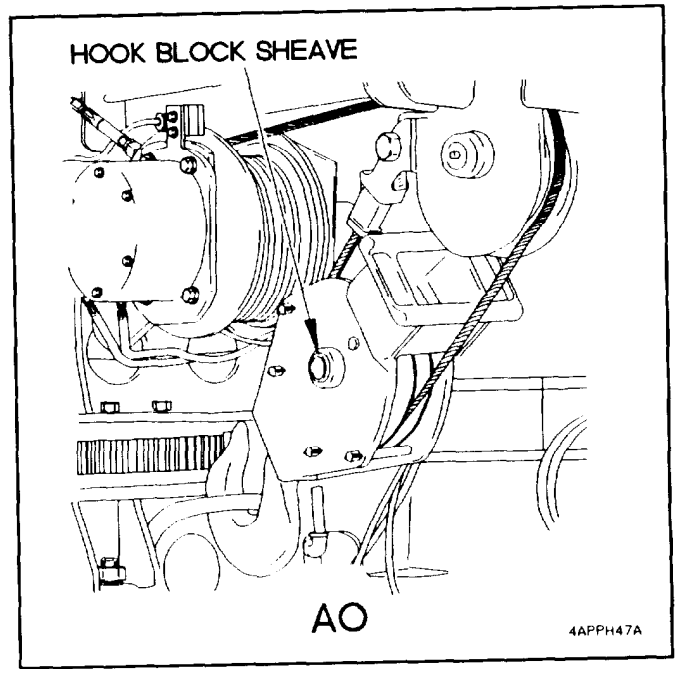

ERECTIONS
CYLINDER
PIVOTS
AK
4APPH43A

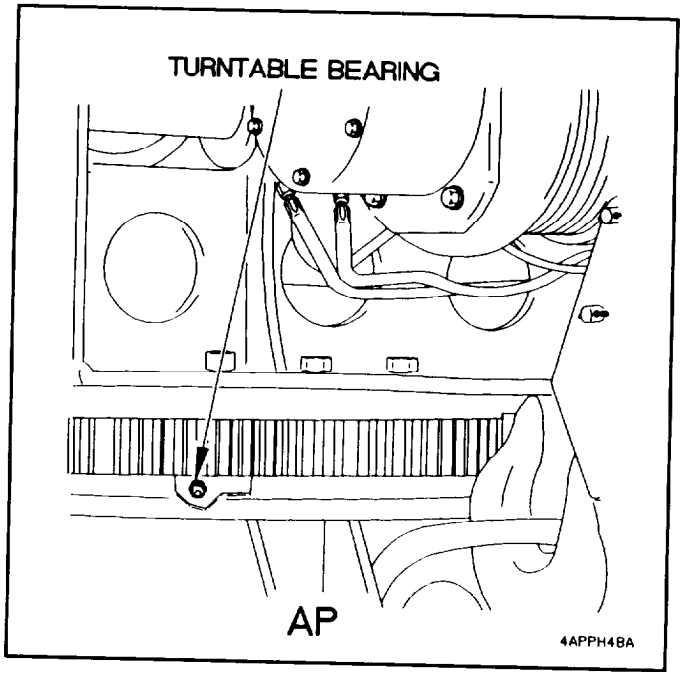
H-8. LUBRICATION LOCAL VIEWS (CONT)

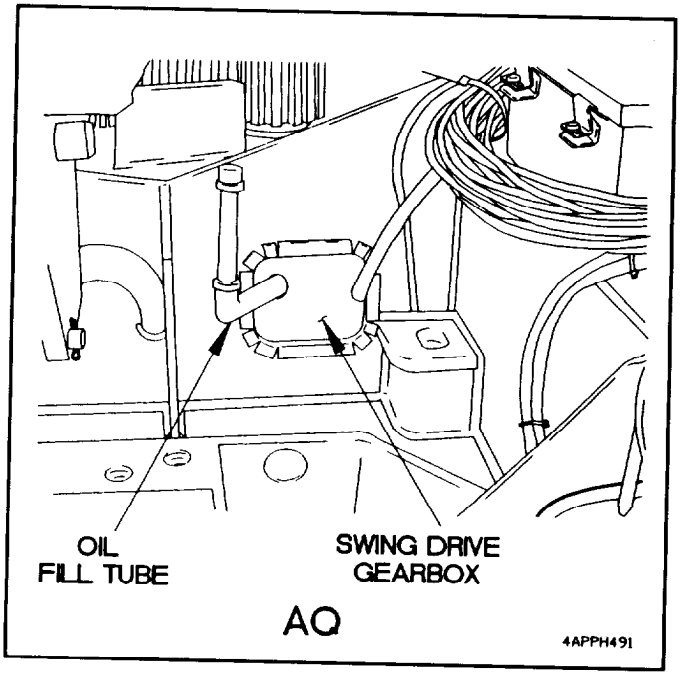


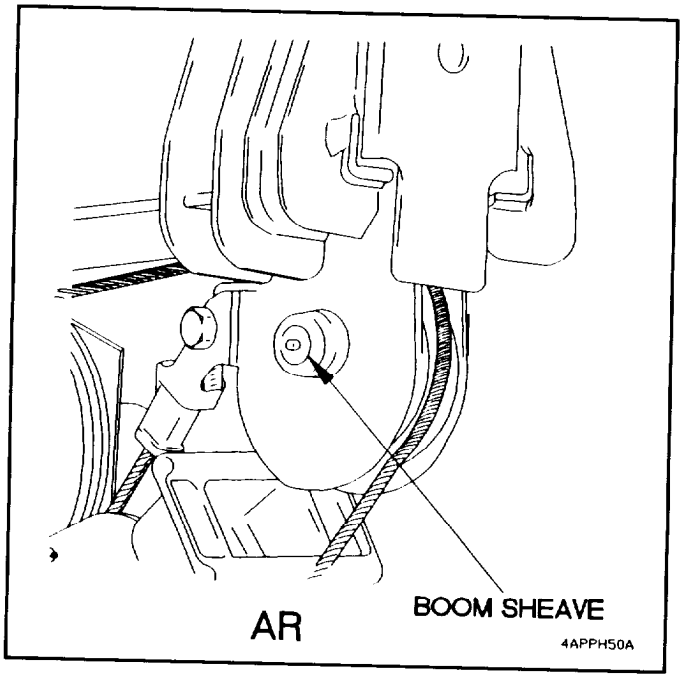


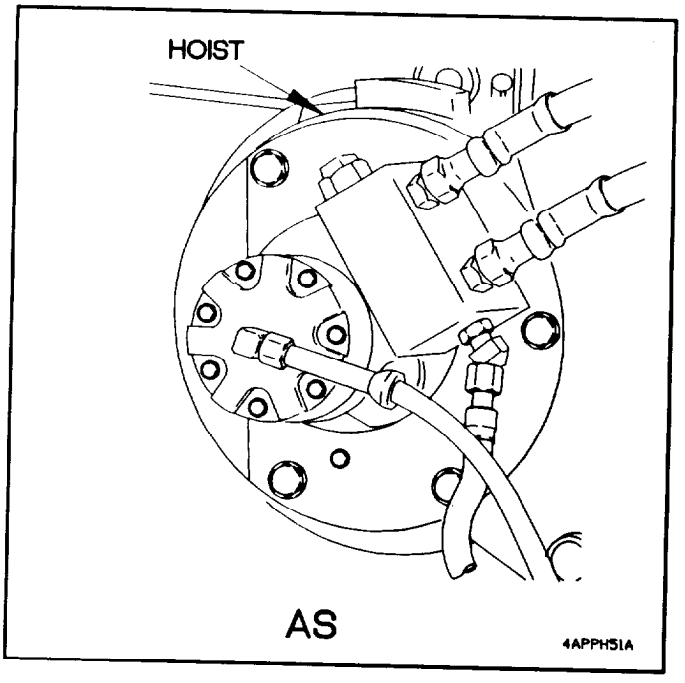




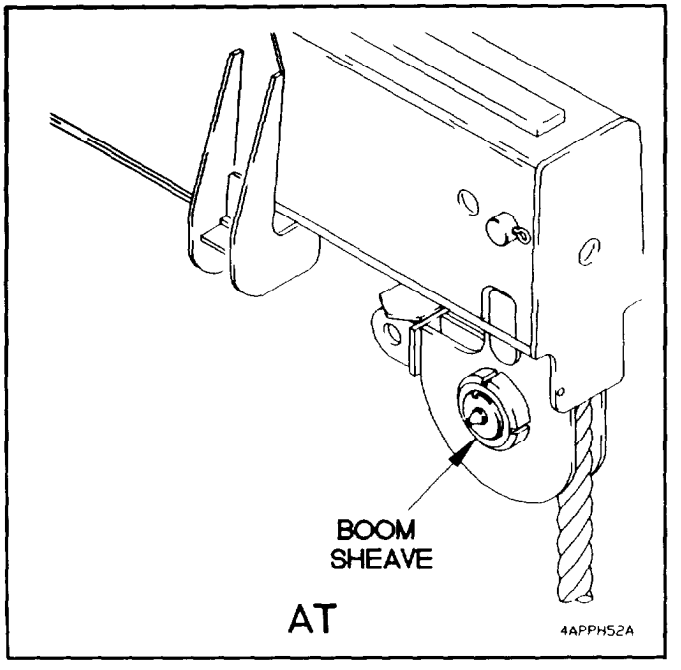

TURNTABLE BEARING
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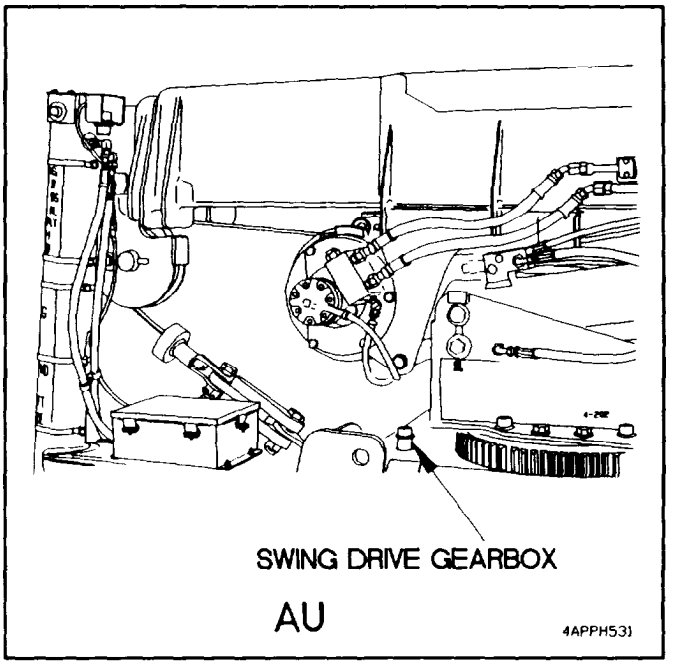

OIL
FILL TUBE
SWING DRIVE
GEARBOX
AQ
4APPH491

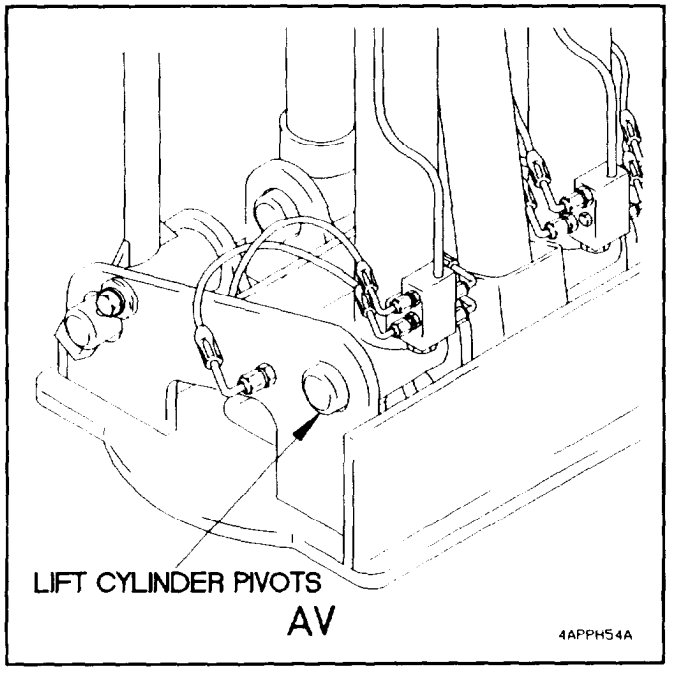

BOOM SHEAVE
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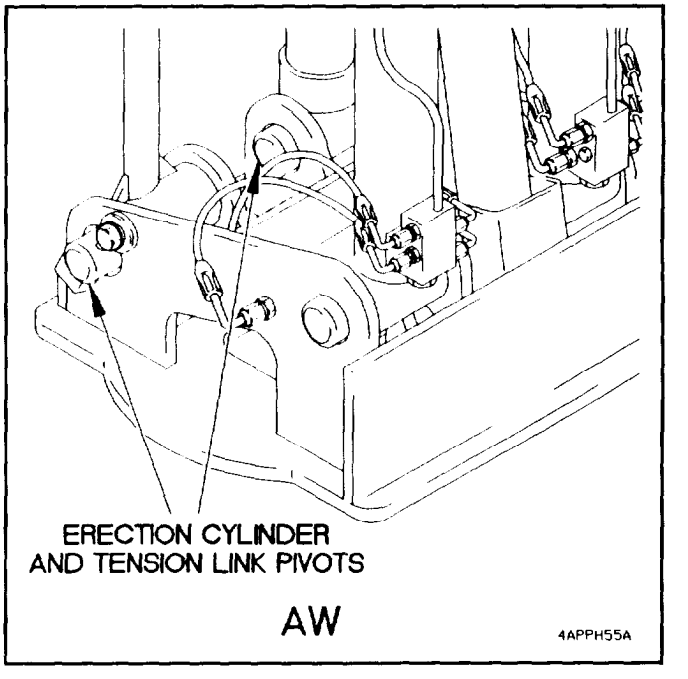

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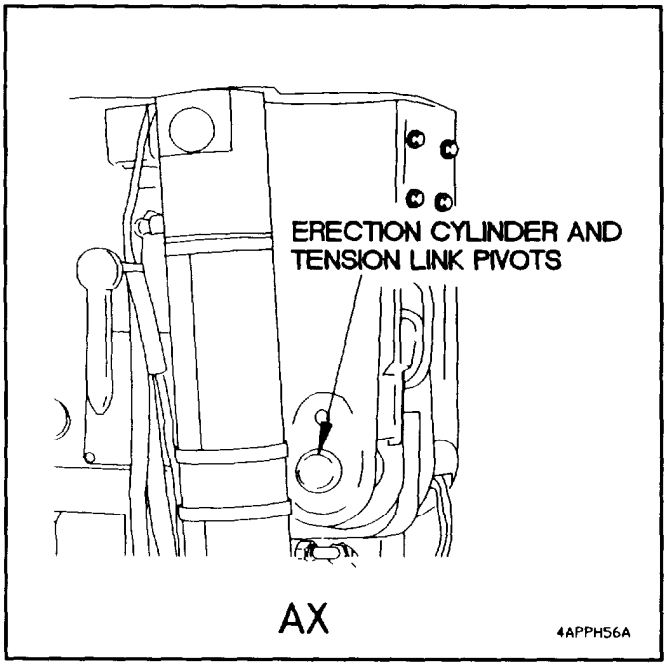
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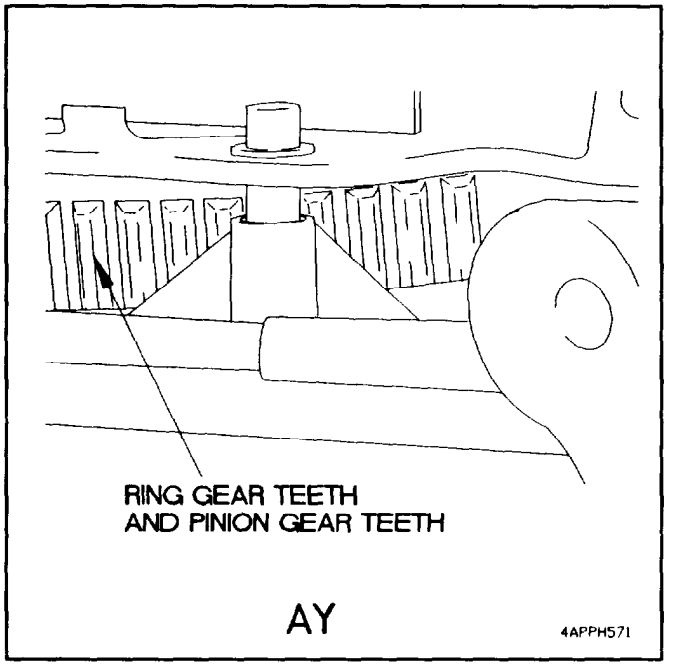




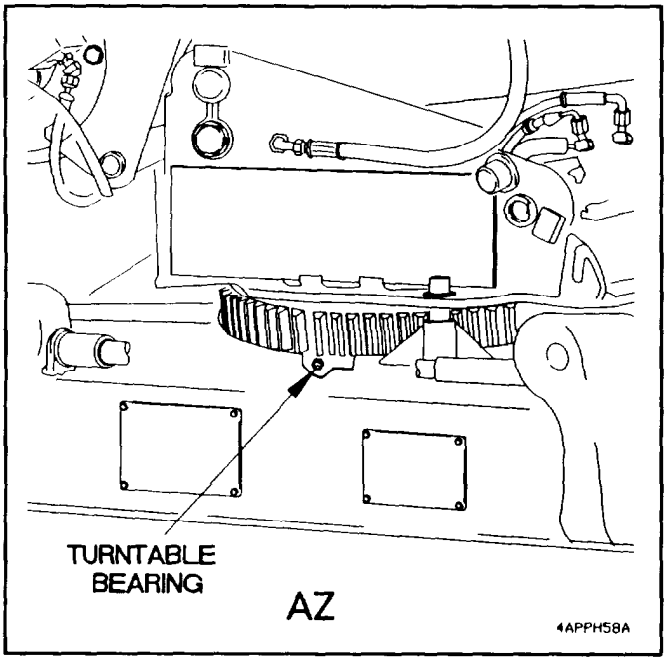




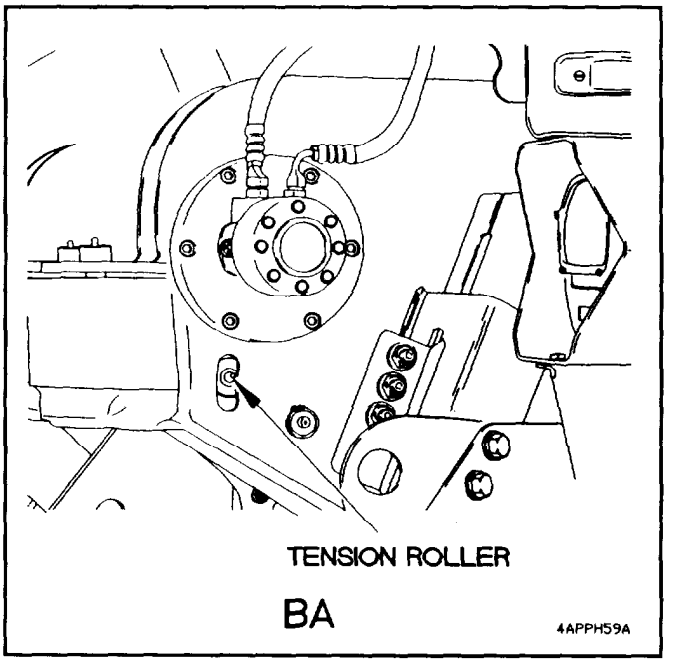
AX 4APPH56A



AY 4APPH57I

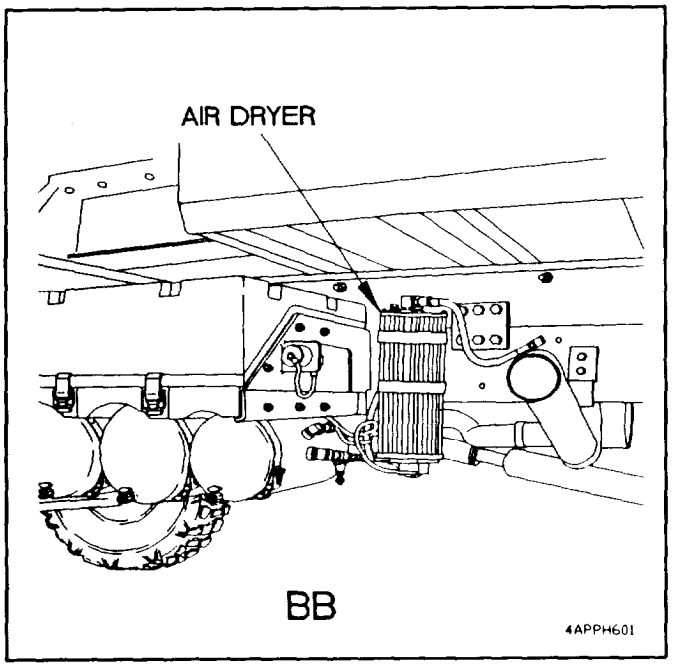


AZ 4APPH58A



BA 4APPH59A

H-8. LUBRICATION LOCAL VIEWS (CONT)



H-9. LUBRICATION NOTES

1. ENGINE CRANKCASE. Check engine oil level daily. Change engine oil at initial 5,000 miles (8,045 km). During the remainder of the 12,000 mile (19,308 km)/18 month warranty period, Units participating in AOAP will change engine oil every 6,000 miles (9,654 km). Units not participating in AOAP, will change engine oil every 6,000 miles (9,654 km) or every six months, whichever occurs first. After expiration of engine warranty period, Units participating in AOAP will perform engine oil change as directed by AOAP. Units not participating in AOAP will change engine oil every 6,000 miles (9,654 km) or every six months, whichever occurs first, or when operating in dusty areas or under severe operating conditions, change the oil every 3,000 miles (4,827 km) or every three months, whichever occurs first. Drain engine oil when engine is warm. Refill engine crankcase with OE/HDO specified for the ambient temperature. Engine oil is full when level is within crosshatch marks on the dipstick. Do not overfill.

2. ENGINE OIL FILTER. Filter is replaced each time the crankcase is drained. If water or metal particles are detected during oil filter replacement, notify Direct Support Maintenance personnel before refilling crankcase.

3. TRANSMISSION. Check transmission oil level daily. Change transmission oil at initial 5,000 miles (8,045 km). During the remainder of the 24 month/unlimited mileage warranty, Units participating in AOAP will perform transmission oil change as directed by AOAP. Units not participating in AOAP will perform transmission oil change every 24,000 miles (38,616 km) or once every two years, whichever occurs first. Drain transmission oil when engine is warm. Refill with OE/HDO specified for ambient temperature. Add oil until the proper level is reached (TM 9-2320-366-10-1). Do not overfill. Replace oil filters each time transmission oil is changed.

4. POWER STEERING. Check power steering oil level weekly. Change the oil every 24,000 miles (38,616 km). Disconnect upper and lower hoses from steering gear and drain oil. Refill power steering pump reservoir with OE/HDO specified for the ambient temperature. Reservoir is full when oil is between the two marks on the dipstick. Do not overfill. Remove dipstick, wipe clean and install dipstick fully into reservoir. Remove dipstick and read oil level. Replace oil filter each time power steering oil is changed.

5. FUEL/WATER SEPARATOR. Replace filter element every 6,000 miles (9,654 km) or once every six months, whichever occurs first.

6. FUEL FILTER. The fuel particle filter is replaced when a new fuel/water separator filter element is installed. The normal replacement interval is every 6,000 miles (9,654 km) or once every six months, whichever occurs first.

7. ENGINE COOLANT. Check engine coolant level daily. Change the coolant and flush the cooling system every 24,000 miles (38,616 km) or once every two years, whichever occurs first. Fill radiator overflow tank with an Ethylene Glycol/water mixture as specified in 0-A-548D. Service the cooling system before the specified interval if:

- Coolant is heavily contaminated.
- Engine overheats.
- Oil cooler has failed allowing oil and coolant to mix.

8. HYDRAULIC RESERVOIR AND FILTER (All Models Except M1089). Check oil level weekly and make sure oil level gage reads F (full). Units participating in AOAP will sample oil annually and change oil and filter as directed by AOAP. Units not participating in AOAP will change oil and filter every two years. Drain oil and refill hydraulic reservoir with OE/HDO specified for ambient operating temperature. Fill hydraulic reservoir until oil level gage reads F (full). Do not overfill. Replace oil filter each time oil is changed.

9. PROPELLER SHAFT UNIVERSAL and SLIP JOINTS.
Lubricate propeller shafts with GAA every 3,000 miles (4,827 km) or once every three months, whichever occurs first, using a low pressure lubrication gun. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

- UNIVERSAL JOINT:
  A. Apply grease to both grease fittings until new grease purges from all four bearing caps.
  B. If grease does not purge from all four bearing caps, replace the complete U-joint.

- SLIP JOINT:
  A. Apply grease until grease appears at the vent in the welch plug.
  B. Place your finger over the welch plug vent and add grease until grease purges from the dust seal.
  C. If grease does not purge from the dust seal, replace propeller shaft.

10. AIR/HYDRAULIC POWER UNIT and BACKUP HYDRAULIC PUMP. Change OHA oil every 24,000 miles (38,616 km) or once every two years, whichever occurs first. To service air/hydraulic power unit and backup hydraulic pump refer to vehicle paragraph number 19-8. Air Transportability Hydraulic System Service.

11. ALL AXLE DIFFERENTIALS. Check oil level in differentials every 3,000 miles (4,827 km). Check oil level with vehicle parked on level surface and axle differential at ambient temperature, allowing at least one hour to cool down after vehicle operation. If oil is checked when axle differential is hot, it is normal for oil to spill out of the port due to expansion from the heat. Oil level is considered full if it is within one inch of the bottom of the fill port. If oil spills from the fill port when the axle differential is cool, it is overfull. Allow oil to drain until no more drains out. If the oil level is more than one inch below the bottom of the fill port, refill axle differential with GO specified for the ambient temperature until level with bottom of fill port. Change the oil every 24,000 miles (38,616 km) or once every two years, whichever occurs first. Drain oil when hot after operation,

H-9. LUBRICATION NOTES (CONT)

12. FRONT AXLE WHEEL END PLANETARY HUBS. There are two lube intervals for the front axle wheel end planetary hubs.

a. Check and fill front axle wheel end planetary hubs every 3,000 miles (4,827 km) or once every three months, whichever occurs first, as follows:

(1) Position vehicle on a level surface. Allow 15 minutes for vehicle to cool before checking oil levels.
(2) Position fill port at 4 o'clock position. If oil flows from fill port when plug is loosened, let oil drain to correct level. If oil level is below fill port, fill hub with GO specified for the ambient temperature until oil is level with fill port.

b. Drain and fill front axle wheel end planetary hubs every 24,000 miles (38,616 km) or once every two years, whichever occurs first, following the repacking of the inner wheel bearings, or whenever wheel end assemblies are taken apart for other maintenance as follows:

(1) Position vehicle on a level surface.
(2) Position fill port at the 6 o'clock (down) position.
(3) Drain hub oil (allow a minimum of 15 minutes for oil to drain down from vent tubes).
(4) Refill hubs with 11-13 ounces of GO specified for the ambient temperature.

13. TIE ROD ENDS. Lubricate tie rod ends with GAA every 6,000 miles (9,654 km) or once every six months, whichever occurs first, using a low pressure lubrication gun, until new grease is seen purging from the boot area. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

14. WINCH CABLES:

CAUTION

Do not use dry cleaning solvent to clean winch cables. Use of dry cleaning solvent will remove lubricant from inner strands of winch cables. Failure to comply may result in damage to equipment.

a. After each operation:

Clean and lubricate length of winch cable reeled out with new OE/HDO 30.

b. Infrequently use or in very damp conditions:

Lubricate winch cables with GW.

c. Dry or dusty conditions:

Do not lubricate winch cables.

d. Every six months:

(1) Unwind entire length of winch cable (TM 9-2320-366-10-1).
(2) Soak and clean winch cable with new OE/HDO 30.
(3) Wipe off excess OE/HDO 30.
(4) Coat winch cable with GW.
(5) Rewind winch cable (TM 9-2320-366-10-1).

15. 15K SRW. Check 15K SRW gear oil level every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Refill 15K SRW with GO specified for ambient temperature. Change oil every 12,000 miles (19,308 km) or once every year, whichever occurs first. Use procedure (a) to check and fill oil level; use procedure (b) to change oil.

a. Check and fill oil level as follows:

(1) Shift the freespool mechanism to the disengage position so the drum can be freely rotated.
(2) Rotate the drum to where either plug is near the top of the 15K SRW. Remove the plug.
(3) Rotate the drum 90 degrees in the direction that allows the other plug to be near the top of the 15K SRW. Remove the plug.

NOTE

Oil level is full if a small amount of oil runs out of lower plug.

(4) Add oil until a small amount of oil runs out of lower plug hole.
(5) Apply adhesive (Item 3, Appendix D) to plug and position plug in top hole.
(6) Rotate drum until open hole is at top.
(7) Apply adhesive (Item 3, Appendix D) to plug and position plug in top hole.
(8) Tighten plugs to 13-15 lb-ft (18-20 N•m).

b. Change oil as follows:

(1) Shift the freespool mechanism to the disengage position so the drum can be freely rotated.
(2) Rotate the drum to where either plug is near the top of the 15K SRW. Remove the plug.
(3) Rotate the drum 90 degrees in the direction that allows the other plug to be near the top of the 15K SRW. Remove the plug.
(4) Position drain pan (Item 39, Appendix C) under 15K SRW.
(5) Rotate the drum until either hole is straight down to the bottom of the 15K SRW. Allow the oil to drain completely.
(6) Rotate the drum until either hole is at top.

NOTE

Oil level is full if a small amount of oil runs out of lower plug.

(7) Add oil until a small amount of oil runs out of lower plug hole.
(8) Apply adhesive (Item 3, Appendix D) to plug and position plug in top hole.
(9) Rotate drum until open hole is at top.
(10) Apply adhesive (Item 3, Appendix D) to plug and position plug in top hole.
(11) Tighten plugs to 13-15 lb-ft (18-20 N•m).

16. TOWING PINTLE. Lubricate towing pintle with GAA every 6,000 miles (9,654 km) or once every six months, whichever occurs first, using a low pressure lubrication gun until new grease is seen purging.

H-9. LUBRICATION NOTES (CONT)

WARNING

- **Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breath vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 138°F (50°C). Failure to comply may result in serious injury or death to personnel.**

- **If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get medical attention. Failure to comply may result in injury to personnel.**

17. ENGINE CRANKCASE BREATHER. Remove crankcase breather and clean with Dry Cleaning Solvent (SD P-D-680) (Item 65, Appendix D) or equivalent, and replace o-ring seal every 6,000 miles (9,654 km) or once every six months, whichever occurs first.

18. FRONT AXLE SPRING BOLT and SPRING SHACKLE. Lubricate front axle spring bolt and spring shackle with GAA every 3,000 miles (4,827 km) or once every three months, whichever occurs first, using a low pressure lubrication gun until grease appears between pins and bushings at both ends of spring bolt and spring shackle. If pins do not accept grease, remove pins. Clean and inspect pins and bushings, replace if necessary. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

19. BATTERY POSTS. Service batteries in accordance with TM 9-6140-200-14, every 6,000 miles (9,654 km) or once every six months, whichever occurs first.

20. FRONT AXLE SHAFT UNIVERSAL JOINTS and STEERING KNUCKLES. Lubricate universal joints every 3,000 miles (4,827 km) or once every three months, whichever occurs first. Lubricate steering knuckles with GAA every 6,000 miles (9,654 km) or once every six months, whichever occurs first, using a low pressure lubrication gun. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

21. BRAKE WEDGE and AIR CHAMBER: BRAKE SPIDER, SELF-ADJUSTER MECHANISM, AND WEDGE ASSEMBLY. Clean and lubricate (with GAA) areas of spider and hardware that contact the brake shoes. Disassemble, clean and lubricate the self-adjuster mechanism. Clean and lubricate the wedge head, rollers and ramps in the plungers. Clean and lubricate every 6,000 miles (9,654 km). If operating conditions are severe or abnormal, service at 3,000 miles (4,827 km) or once every three months, whichever occurs first, or when any of the following occur:

- Seals are replaced
- Plungers are removed
- Brakes are relined
- Grease becomes contaminated or hardened

22. HYDRAULIC TANK (M1089). Check oil level weekly and make sure oil level indicates FULL. Units participating in AOAP will sample oil annually and change oil and filter as directed by AOAP. Units not participating in AOAP will change oil and filter every two years. Drain oil and refill hydraulic tank with OE/HDO specified for ambient operating temperature. Fill hydraulic tank until oil level is at the FULL mark on the sight glass. Do not overfill. Clean air breather filter and replace hydraulic oil filter when oil is changed. Check oil level with Material Handling Crane (MHC) in the stowed position.

23. BOOM WEAR PADS (M1084/M1086/M1089). Lubricate every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Coat boom wear pads with GAA while boom is extended, for the lower wear pads, boom must be retracted and access cover removed at rear of base boom to grease the upper wear pads. Extend boom in and out while applying grease. This method assures full lubrication for entire length of boom. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

24. HOIST ASSEMBLY DRUM (M1084/M1086/M1089). Check hoist assembly drum oil level every 6,000 miles (9,654 km) or every six months, whichever occurs first. Check oil level in hoist assembly drum using two pipe plugs (90 degrees apart) on the drum housing. Operate hoist assembly drum so that one pipe plug is positioned at top of drum (fill point) and the other is accessible and level with ground (check level point). Oil level is full if a small quantity of oil runs from check level opening. If oil level is low, add oil at fill opening. to drain, operate drum so that one pipe plug is bottom of drum. Remove plug to drain. Drain and refill with GO specified for the ambient temperature, if oil becomes contaminated.

25. SWING DRIVE GEARBOX (M1084/M1086/M1089). Check swing drive gearbox oil level every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Oil level is checked by removing pipe plug located on side of gear reducer. Oil level is full if a small quantity of oil runs out of opening. Add oil at fill point if necessary. Drain and refill with GO specified for the ambient temperature, if oil becomes contaminated.

26. RING GEAR TEETH and PINION GEAR TEETH (M1084/M1086/M1089). Lubricate every 6,000 miles (9,654 km), after washing, or once every six months, whichever occurs first. Apply a light coat of GAA to ring gear teeth and pinion gear teeth. Operate MHC (TM 9-2320-366-10) to rotate turntable. This will allow grease to be applied to all gear teeth. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

27. FRONT, INTERMEDIATE, and REAR AXLE INNER WHEEL BEARINGS. Repack inner wheel bearings with GAA every 12,000 miles (19,308 km), when semiannual PMCS inspection of service brakes reveals oil leak from inner hub, or whenever wheel end assemblies are taken apart for other maintenance.

28. REAR AXLE BOGIE. Change oil every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Remove six screws and rear axle bogie cover from one side at a time. Raise axle on opposite side of vehicle to allow oil to drain out. Lower axle and repeat on other side of vehicle. Apply thin bead of silicone adhesive sealant 593 to seating surface of housing. Position cover (with fill plug at the 1 o'clock position) and six screws on housing. Tighten six screws to 24 lb-ft (32 N•m). Remove plug from cover and plug from top of rear axle bogie housing. Refill rear axle bogie with GO specified for the ambient temperature, until level with port on housing cover. Install plugs in cover and housing.

29. 15K SELF-RECOVERY WINCH (SRW) CABLE ROLLER FAIRLEADS. Lubricate with GAA every 6,000 miles (9,654 km) or once every six months, whichever occurs first, using a low pressure lubrication gun. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

30. 30K WINCH CABLE GUIDE ROLLERS and PAY-OUT LOWER TENSION SHEAVE. Lubricate with GAA every 6,000 miles (9,654 km) or once every six months, whichever occurs first, using a low pressure lubrication gun. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

H-9. LUBRICATION NOTES (CONT)

WARNING

- **Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breath vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38ºC) and for Type II is 138ºF (50ºC). Failure to comply may result in serious injury or death to personnel.**

- **If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get medical attention. Failure to comply may result in injury to personnel.**

31. SCREEN and PLUG OIL FILTER ASSEMBLY (intermediate axle only). Clean the area around the screen and plug oil filter assembly. Remove the screen and plug oil filter assembly. Clean with Dry Cleaning Solvent (Item 65, Appendix D) or equivalent, every 12,000 miles (19,308 km) or once every year, whichever occurs first. Clean filter each time the differential is drained. If screen is crushed or bent, replace with a new one. Clean the screen cavity in the carrier of all debris and particles. If excessive amount of metal particles are detected during oil filter servicing, notify Direct Support Maintenance personnel before refilling differential.

32. TURNTABLE BEARING (M1084/M1086/M1089). Lubricate with GAA every 6,000 miles (9,654 km), after washing, or once every six months, whichever occurs first. Use a low pressure lubrication gun. Apply lubrication to grease fitting inside turntable bearing. Operate MHC (TM 9-2320-366-10) to rotate turntable bearing through full range of travel between applications of grease. This method assures full lubrication of the turntable bearing. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

33. TOP and BOTTOM PLATES (M1089). Lubricate every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Coat top and bottom plates with GAA. Extending outriggers in and out while applying grease assures full lubrication for the entire length of top and bottom plates. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

34. CRANE GREASE FITTINGS (M1084/M1086/M1089). Lubricate with GAA every 6,000 miles (9,654), after washing, or once every six months, whichever occurs first. Use a low pressure lubrication gun. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

35. UNDERLIFT ASSEMBLY GREASE FITTINGS. Lubricate with GAA every 6,000 miles (9,654), after washing, or once every six months, whichever occurs first. Use a low pressure lubrication gun. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

36. FRONT LIFTING BEAM. Remove left and right lifting beams and clean with Dry Cleaning Solvent (Item 65, Appendix D) or equivalent, every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Apply a light coat of GAA to lifting beams. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

37. AIR DRYER. Service air dryer (para 23-11) every 12,000 miles (19,308 km) or annually, whichever occurs first.

APPENDIX J
ADDITIONAL AUTHORIZATION LIST (AAL)

Section I. INTRODUCTION

J-1 SCOPE

This appendix lists additional items you are authorized for the support of the MTV.

J-2. GENERAL

This list identifies items that do not have to accompany the MTV and that do not have to be turned in with it. These items are all authorized to you by Common Tables of Allowance (CTA), Modification Table of Organization and Equipment (MTOE), Tables of Distribution and Allowances (TDA), or Joint Table of Allowance (JTA).

J-3. EXPLANATION OF LISTING

National Stock Numbers, description, and quantities are provided to help you identify and request the additional items you require to support this equipment.

Section II. ADDITIONAL AUTHORIZATION LIST

(1) National Stock Number	(2) Description (CAGE) Part Number	(3) U/M	(4) Qty Auth
6685-01-193-1733	10,000 PSI Transducer: (19207) 12258956	EA	1

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GLOSSARY
ABBREVIATIONS

ANSI	American National Standards Institute
CCW	Counterclockwise
CTIS	Central Tire Inflation System
CW	Clockwise
ECU	Electronic Control Unit
EMI	Electromagnetic Interference
LED	Light Emitting Diode
LH	Left Hand
LMHC	Light Material Handling Crane
MAC	Maintenance Allocation Chart
MHC	Material Handling Crane
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological, or Chemical
NO/NC	Normally Open/Normally Closed
O/R	Outrigger
PDP	Power Distribution Panel
PMCS	Preventive Maintenance Checks and Services
PTO	Power Takeoff
RH	Right Hand
SAE	Society of Automotive Engineers
SRW	Self-Recovery Winch
STE/ICE-R	Simplified Test Equipment/Internal Combustion Engine-Reprogrammable
TEPSS	Transmission ECU Pushbutton Shift Selector
TM	Technical Manual
TPS	Thottle Position Sensor

GLOSSARY
ABBREVIATIONS (CONT)

TFSS . . . . . Transmission Pushbutton Shift Selector

VDC . . . . . Volts Direct Current

VIM . . . . . Vehicle Interface Module

WTEC II . . . . . World Transmission Electronic Controls (version 2)

WTEC III . . . . . World Transmission Electronic Controls (version 3)

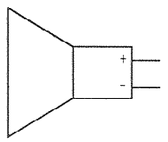
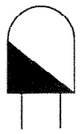
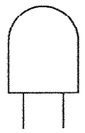
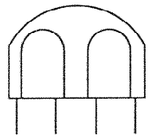
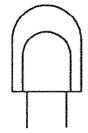
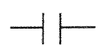
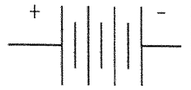
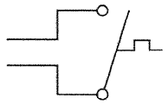
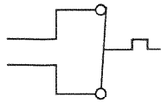
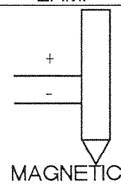
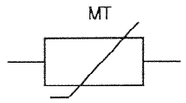
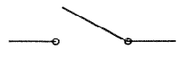
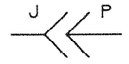
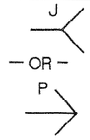
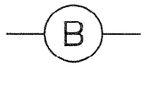
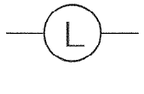
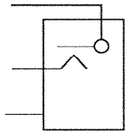
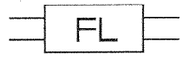
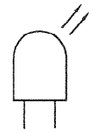
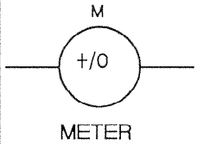
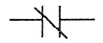
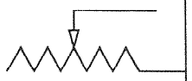
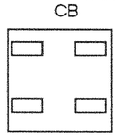
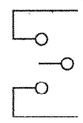
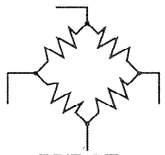
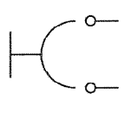
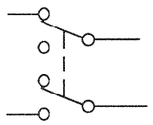
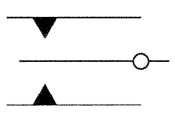
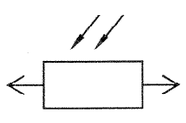
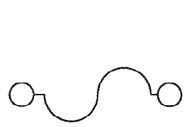
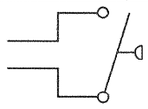
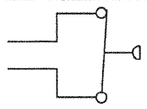
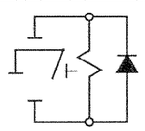
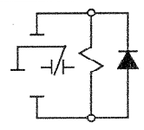
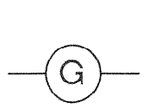
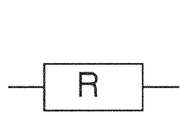
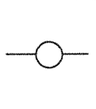
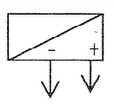
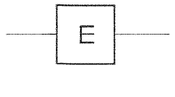
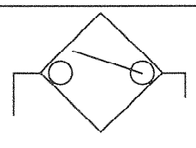
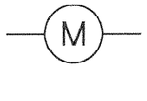
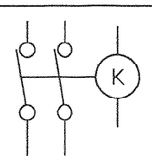
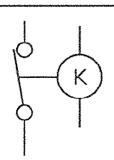
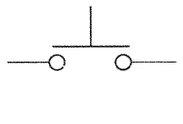
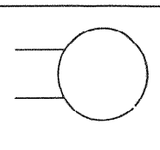
 HORN	 BLACKOUT MARKER	 LAMP	 DUALBEAM LAMP	 GROUND	 POWER LAMP	 OPEN CONTACT	 BATTERY
 TEMPERATURE SWITCH OPEN	 TEMPERATURE SWITCH CLOSED	 MAGNETIC PICKUP	 SENSOR	 NORMALLY OPEN	 NORMALLY CLOSED	 CONNECTOR	 RECEPTACLE
 MOTOR	 SOLENOID	 LEVEL SENSOR	 FILTER	 LED	 METER OR GAUGE	 CLOSED CONTACT	 DIMMER MODULE
 CIRCUIT BREAKER	 TWO WAY SWITCH	 BRIDGE RECTIFIER	 POWER SWITCH BREAKER	 DPDT SWITCH	 DPST SWITCH	 PHOTOCELL	 FUSE
 PRESSURE SWITCH OPEN	 PRESSURE SWITCH CLOSED	 NORMALLY OPEN	 NORMALLY CLOSED	 ALTERNATOR	 RESISTOR	 TERMINAL LUG	 ELECTRONIC IGNITION UNIT
 DIODE	 SPLICE	 SENSING SWITCH	 MOTOR	 GROUND RELAY	 RELAY	 PUSHBUTTON	 CIRCULATING PUMP

FIGURE FO-1 ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 1 OF 40

SIZE	ILL. NO.	
B	6WD01L1A	FP-1/FP-2 BLANK

CONNECTORS			
NUMBER	ZONE	SH	DESCRIPTION
A	C294	33	ELECTRONIC CONTROL UNIT
A	D300	34	ARCTIC KIT CAB HEATER
B	E294	33	ELECTRONIC CONTROL UNIT
B	E300	34	ARCTIC KIT CAB HEATER
C	E296	33	ELECTRONIC CONTROL UNIT
C	F302	34	ARCTIC KIT CAB HEATER
CABLE A	G315	35	OVERLOAD SHUTDOWN SYSTEM
CABLE A	D317	36	WRECKER MATERIAL HANDLING CRANE
CABLE A	F324	36	OVERLOAD SHUTDOWN SYSTEM
CABLE A	D340	38	WRECKER CONTROLS
CABLE B	A307	35	CARGO MATERIAL HANDLING CRANE
CABLE C	G308	35	CARGO MATERIAL HANDLING CRANE
CABLE F	B308	36	INTERNAL REMOTE CONNECTOR
CABLE G	F299	35	CARGO MATERIAL HANDLING CRANE
CABLE G	A324	36	INTERNAL REMOTE CONTROL CONNECTOR
CABLE H	F304	35	CRANE CONTROL PANEL
CABLE H	E313	36	CRANE CONTROL PANEL
CABLE I	G313	35	CRANE CONTROL PANEL
CABLE I	F322	36	CRANE CONTROL PANEL
CABLE J	G313	35	CRANE CONTROL PANEL
CABLE J	F322	36	CRANE CONTROL PANEL
CABLE K	G304	35	CRANE CONTROL PANEL
CABLE K	F322	36	CRANE CONTROL PANEL
CABLE L	D304	35	CRANE CONTROL PANEL
CABLE L	C322	36	CRANE CONTROL PANEL
CABLE M	D313	35	CRANE CONTROL PANEL
CABLE M	C322	36	CRANE CONTROL PANEL
CABLE N	D313	35	CRANE CONTROL PANEL
CABLE N	D322	36	CRANE CONTROL PANEL
CABLE O	C313	35	CRANE CONTROL PANEL
CABLE O	G322	36	CRANE CONTROL PANEL
CABLE P	C313	35	CRANE CONTROL PANEL
CABLE P	C322	36	CRANE CONTROL PANEL
CABLE Q	E313	35	CRANE CONTROL PANEL
CABLE Q	E322	36	CRANE CONTROL PANEL
CABLE R	E313	35	CRANE CONTROL PANEL
CABLE R	D322	36	CRANE CONTROL PANEL
CABLE S	F313	35	CRANE CONTROL PANEL
CABLE S	E322	36	CRANE CONTROL PANEL
CABLE T	F313	35	CRANE CONTROL PANEL
CABLE T	E322	36	CRANE CONTROL PANEL
CABLE U	A314	35	CRANE REMOTE CONNECTOR
CABLE V	E313	35	CRANE CONTROL PANEL
CONN F	C335	38	WRECKER REMOTE
CONN G	C340	38	WRECKER REMOTE
J2	A194	22	EMI FILTER
J3	D241	27	AIRDROP ONLY
J4	E340	38	WRECKER CONTROLS
J5	A47	6	VEHICLE HORN
J6	A47	6	VEHICLE HORN
J7	A197	22	WTEC II TRANSMISSION PUSHBUTTON SHIFT SELECTOR DIMMER MODULE
J8	B47	6	BLACKOUT MARKER RIGHT FRONT
J9	C47	6	FRONT RIGHT TURN SIGNAL
J10	B47	6	PARKING LIGHT FRONT RIGHT
J12	D47	6	RIGHT HEADLIGHT
J13	C47	6	RIGHT HEADLIGHT
J14	C47	6	RIGHT HEADLIGHT
J17	H47	6	BLACKOUT DRIVE LIGHT
J18	D47	6	LEFT HEADLIGHT
J19	E47	6	LEFT HEADLIGHT
J19	C186	21	CAB - DASH - LEFT - UNDERDASH
J20	D47	6	LEFT HEADLIGHT
J22	G47	6	PARKING LIGHT FRONT LEFT
J23	F47	6	FRONT LEFT TURN SIGNAL
J24	H47	6	BLACKOUT MARKER LEFT FRONT
J25	G94	11	WINDSHIELD WASHER ROTARY PUMP (B3)
J27	A52	6	CHASSIS - FRONT
J31	E65	8	ENGINE
J31X	F184	21	CAB - DASH - LEFT - UNDERDASH
J39	G70	8	ENGINE
J43	G51	6	CHASSIS - FRONT
J43X	F51	6	CHASSIS - FRONT

CONNECTORS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
J43X	G184	21	CAB - DASH - LEFT - UNDERDASH
J44	B238	27	ROTARY WARNING LIGHT CONNECTOR
J45	C238	27	ROTARY WARNING LIGHT CONNECTOR
J50	E94	11	CAB MARKER LIGHT FRONT UPPER LEFT
J51	D51	6	CHASSIS - FRONT
J52	E47	6	CHASSIS - FRONT BUMPER
J52	B239	27	CHASSIS - FRONT
J53	F236	27	AIRDROP ONLY
J55	C94	11	CAB MARKER LIGHT FRONT UPPER RIGHT
J57	D94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE LEFT
J59	C94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE RIGHT
J60	D94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE MIDDLE
J62	E97	11	ROTARY WARNING LIGHT CONNECTOR
J65	E195	22	ROTARY WARNING LIGHT CONNECTOR
J78	F194	22	CAB RADIO CONNECTOR
J80	A299	34	AIR DRYER CONNECTOR
J93	B59	7	CHASSIS - SPARE TIRE
J95	E47	6	12V INTERVEHICULAR
J95	B242	27	ENGINE
J99	E196	22	CHEMICAL ALARM CONNECTOR
J106	F59	7	CHEMICAL DETECTOR RECEPTACLE
J108	B258	29	CAB DASH CENTER OPTIONS PANEL
J111	E131	15	CTIS ELECTRONIC CONTROL UNIT
J113	G195	22	CTIS PRESSURE TRANSDUCER
J114	B173	20	CAB - DASH - LEFT - TRANSMISSION HARNESS
J115	C163	19	CAB - DASH - LEFT - WTEC III TRANSMISSION HARNESS
J116	C168	19	CAB - DASH - LEFT - WTEC III TRANSMISSION HARNESS
J117	F170	19	CAB - DASH - LEFT - WTEC III TRANSMISSION HARNESS
J117	B343	39	WTEC III DIAGNOSTIC CONNECTOR
J118	D170	19	CAB - DASH - LEFT - WTEC III TRANSMISSION HARNESS
J119	B178	20	CAB - DASH - LEFT - TRANSMISSION HARNESS
J119	C352	40	WTEC III CAB FLOOR LEFT
J129	F94	11	CAB MARKER LIGHT FRONT LOWER LEFT
J129	F94	11	CAB MARKER LIGHT LEFT DOOR
J130	F238	27	12 PIN CONNECTOR
J131	B94	11	CAB MARKER LIGHT RIGHT DOOR
J132	B94	11	CAB MARKER LIGHT FRONT LOWER RIGHT
J172	A300	34	DUMP BODY CONNECTOR
J204	D290	33	HEATER SWITCH
J204	B290	33	TROOP HEATER
J205	D290	33	HEATER SWITCH
J205	B290	33	TROOP HEATER
J206	D289	33	HEATER SWITCH
J206	B289	33	TROOP HEATER
J207	F291	33	FURNACE ASSEMBLY
J209	C292	33	WEBASTO CONTROL UNIT
J209	F265	30	ALL MTV W/O PTO
J209	G265	30	DUMP, CARGO LWB, CARGO W/MHC, CARGO LWB W/MHC
J209A	G267	30	TRACTOR W/O WINCH
J209A	C266	30	PTO EQUIPPED
J209A	A275	31	ARCTIC KIT W/PTO EQUIPPED
J209B	F267	30	TRANSMISSION AUXILIARY OIL COOLER FAN
J209B	D266	30	PTO EQUIPPED
J209B	B275	31	ARCTIC KIT W/PTO EQUIPPED
J210	F256	29	CAB DASH CENTER OPTIONS PANEL
J210	C291	33	FURNACE ASSEMBLY
J211	B291	33	FURNACE ASSEMBLY
J214	F282	32	SWINGFIRE HEATER
J215	E266	30	PTO EQUIPPED
J215	C275	31	ARCTIC KIT W/PTO EQUIPPED
J225	B294	33	FURNACE ASSEMBLY
J226	E294	33	WEBASTO CONTROL UNIT
J410	E298	34	CAB ARCTIC HEATER

CONNECTORS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
J912	B133	15	CAB DASH CENTER HEATER / CTIS ECU
J912	D245	28	CAB DASH CENTER OPTIONS PANEL
J912	G264	30	ALL MTV W/O PTO
J912	F265	30	TRACTOR W/O WINCH
J913	B131	15	CAB DASH CENTER HEATER / CTIS ECU
J921	G70	8	TROOP TRANSPORT ALARM
L4	E268	30	WINCH IN SOLENOID
L4	C277	31	WINCH OUT SOLENOID
L5	D268	30	WINCH OUT SOLENOID
L5	B277	31	WINCH IN SOLENOID
L7	B301	34	TAILGATE RELEASE CONNECTOR
L8	B301	34	DUMP BED UP CONNECTOR
L9	A301	34	DUMP BED DOWN CONNECTOR
P2	A194	22	EMI FILTER
P2	G282	32	SWINGFIRE HEATER
P3	D240	27	AIRDROP ONLY
P5	A47	6	VEHICLE HORN
P6	A47	6	VEHICLE HORN
P8	B47	6	BLACKOUT MARKER RIGHT FRONT
P9	C47	6	FRONT RIGHT TURN SIGNAL
P10	B47	6	PARKING LIGHT FRONT RIGHT
P12	D47	6	RIGHT HEADLIGHT
P13	C47	6	RIGHT HEADLIGHT
P14	C47	6	RIGHT HEADLIGHT
P17	H47	6	BLACKOUT DRIVE LIGHT
P18	D47	6	LEFT HEADLIGHT
P18	A186	21	CAB - DASH - LEFT - UNDERDASH
P19	E47	6	LEFT HEADLIGHT
P20	D47	6	LEFT HEADLIGHT
P22	G47	6	PARKING LIGHT FRONT LEFT
P23	F47	6	FRONT LEFT TURN SIGNAL
P24	H47	6	BLACKOUT MARKER LEFT FRONT
P25	G94	11	WINDSHIELD WASHER ROTARY PUMP (B3)
P25	B300	34	DUMP BED SWITCH CONNECTOR
P27	A52	6	CHASSIS - FRONT
P31	E65	8	ENGINE
P31X	D65	8	ENGINE
P32	F68	8	ENGINE OIL PRESSURE SENSOR
P33	H68	8	FUEL/WATER SEPARATOR
P34	E68	8	OIL PRESSURE WARNING LIGHT SWITCH
P36	A66	8	WATER COOLER TEMPERATURE
P37	C66	8	WATER TEMPERATURE SWITCH
P38	F70	8	ENGINE SPEED MAGNETIC PICKUP
P39	G70	8	ENGINE
P41	B66	8	WATER TEMPERATURE SENSOR
P42	F66	8	ETHER SENSOR SWITCH
P43	G51	6	CHASSIS FRONT
P43X	F51	6	CHASSIS FRONT
P50	E94	11	CAB MARKER LIGHT FRONT UPPER LEFT
P50	F242	27	LH FRONT TOP CAB MARKER LIGHT
P51	D199	23	CAB DASH RIGHT POWER DISTRIBUTION PANEL
P51	D208	24	REAR LIGHTS TRACTOR
P51	D217	25	LONG WHEEL BASE
P51	D226	26	CAB DASH RIGHT POWER DISTRIBUTION PANEL
P52F	E47	6	CHASSIS FRONT
P52M	G208	24	REAR LIGHTS TRACTOR
P52R	E205	23	WRECKER REAR LIGHTS
P52R	G214	24	REAR LIGHTS TRACTOR
P52R	E223	25	LONG WHEEL BASE
P52R	E232	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
P53M	F208	24	REAR LIGHTS TRACTOR
P53R	D205	23	WRECKER REAR LIGHTS
P53R	F214	24	REAR LIGHTS TRACTOR
P53R	D223	25	LONG WHEEL BASE
P53R	D232	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
P54	D207	23	LEFT REAR MARKER
P54	F215	24	LEFT REAR MARKER
P54	D224	25	LEFT REAR MARKER
P54	D234	26	LEFT REAR MARKER

CONNECTORS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
P55	C94	11	CAB MARKER LIGHT FRONT UPPER RIGHT
P56	E224	25	MIDDLE REAR MARKER
P55	D242	27	RH FRONT TOP CAB MARKER LIGHT
P56	D207	23	MIDDLE REAR MARKER
P56	F215	24	MIDDLE REAR MARKER
P56	E234	26	MIDDLE REAR MARKER
P57	D94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE LEFT
P57	F242	27	LH FRONT TOP CAB CLEARANCE LIGHT
P58	E207	23	RIGHT REAR MARKER
P58	E215	24	RIGHT REAR MARKER
P58	E224	25	RIGHT REAR MARKER
P58	E234	26	RIGHT REAR MARKER
P59	C94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE RIGHT
P59	D242	27	RH FRONT TOP CAB CLEARANCE LIGHT
P60	D94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE MIDDLE
P60	E242	27	MIDDLE FRONT TOP CLEARANCE LIGHT
P61	F207	23	RH COMPOSITE LIGHT
P61	E215	24	RH COMPOSITE LIGHT
P61	F224	25	RH COMPOSITE LIGHT
P61	F234	26	RH COMPOSITE LIGHT
P62	F207	23	RH COMPOSITE LIGHT
P62	D215	24	RH COMPOSITE LIGHT
P62	F224	25	RH COMPOSITE LIGHT
P62	F234	26	RH COMPOSITE LIGHT
P62A	B236	27	ROTARY WARNING LIGHT CONNECTOR
P63	F224	25	RH COMPOSITE LIGHT
P63	G207	23	RH COMPOSITE LIGHT
P63	D215	24	RH COMPOSITE LIGHT
P63	G234	26	RH COMPOSITE LIGHT
P64	F207	23	RH COMPOSITE LIGHT
P64	F224	25	RH COMPOSITE LIGHT
P64	D215	24	RH COMPOSITE LIGHT
P64	F234	26	RH COMPOSITE LIGHT
P65	E195	22	ROTARY WARNING LIGHT CONNECTOR
P67	D355	40	WTEC III TRANSMISSION
P69	D68	8	ENGINE
P71	H355	40	WTEC III TRANSFER CASE
P72	G355	40	WTEC III ENGINE SPEED SENSOR
P73	G354	40	WTEC III THROTTLE POSITION SENSOR
P74	B207	23	LH COMPOSITE LIGHT
P74	A215	24	LH COMPOSITE LIGHT
P74	B225	25	LH COMPOSITE LIGHT
P74	B234	26	LH COMPOSITE LIGHT
P76	B207	23	LH COMPOSITE LIGHT
P76	B215	24	LH COMPOSITE LIGHT
P76	B225	25	LH COMPOSITE LIGHT
P76	B234	26	LH COMPOSITE LIGHT
P77	C207	23	LH COMPOSITE LIGHT
P77	B215	24	LH COMPOSITE LIGHT
P77	C225	25	LH COMPOSITE LIGHT
P77	C234	26	LH COMPOSITE LIGHT
P78	B207	23	LH COMPOSITE LIGHT
P78	B215	24	LH COMPOSITE LIGHT
P78	B225	25	LH COMPOSITE LIGHT
P78	B234	26	LH COMPOSITE LIGHT
P80	C60	7	CHASSIS - REAR
P80	D87	10	AIR DRYER (EXCEPT DUMP)
P80	A298	34	AIR DRYER CONNECTOR (DUMP)
P80B	A298	34	AIR DRYER CONNECTOR (DUMP)
P80B	A299	34	AIR DRYER CONNECTOR (DUMP)
P81	C56	7	CHASSIS - FRONT
P81	D71	8	STARTER THERMO SWITCH
P82	B60	7	FUEL TANK LEVEL SENSOR
P83	B181	21	CAB - DASH - LEFT - UNDERDASH
P84	F60	7	CHASSIS - REAR
P85	A207	23	LH SIDE MARKER LIGHT
P85	A225	25	LH SIDE MARKER LIGHT
P85	A234	26	LH SIDE MARKER LIGHT
P86	A207	23	LH REAR MARKER LIGHT
P86	A216	24	LH REAR MARKER LIGHT

CONNECTORS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
P86	A225	25	LH REAR MARKER LIGHT
P86	A234	26	LH REAR MARKER LIGHT
P87	C207	23	BACKUP LIGHT
P87	B215	24	BACKUP LIGHT
P87	C225	25	BACKUP LIGHT
P87	C234	26	BACKUP LIGHT
P88	G207	23	RH SIDE MARKER LIGHT
P88	H225	25	RH SIDE MARKER LIGHT
P88	H234	26	RH SIDE MARKER LIGHT
P89	G207	23	RH REAR MARKER LIGHT
P89	C215	24	RH REAR MARKER LIGHT
P89	G225	25	RH REAR MARKER LIGHT
P89	G234	26	RH REAR MARKER LIGHT
P107	B199	23	WRECKER REAR LIGHTS
P108	B258	29	CAB DASH CENTER OPTIONS PANEL
P108	F199	23	WRECKER REAR LIGHTS
P110	E128	15	CTIS ELECTRONIC CONTROL UNIT
P111	E131	15	CTIS ELECTRONIC CONTROL UNIT
P112	G132	15	CAB DASH CENTER HEATER / CTIS ECU
P113	F132	15	CTIS ELECTRONIC CONTROL UNIT
P114	C350	39	WTEC III CAB DASH RIGHT KICK PANEL
P115	C344	39	WTEC III CAB DASH RIGHT KICK PANEL
P116	E345	39	WTEC III CAB DASH RIGHT KICK PANEL
P116	C194	22	CAB - DASH - RIGHT - UNDERDASH
P118	D170	19	CAB - DASH - LEFT - TRANSMISSION HARNESS
P119	A73	9	WTEC II TRANSMISSION SERIAL NUMBER (S/N) (6510032369)
P119	A78	9	WTEC II TRANSMISSION S/N (6510032369 AND HIGHER)
P119	A82	10	WTEC II TRANSMISSION PRIOR TO S/N (6510032369) WITH ADAPTER CABLE ASSEMBLY
P119	B178	20	CAB - DASH - LEFT - TRANSMISSION HARNESS
P125	G93	11	WINDSHIELD WASHER ROTARY PUMP (B3)
P129	F94	11	CAB MARKER LIGHT FRONT LOWER LEFT
P129	F94	11	CAB MARKER LIGHT LEFT DOOR
P131	A94	11	CAB MARKER LIGHT RIGHT DOOR
P132	B94	11	CAB MARKER LIGHT FRONT LOWER RIGHT
P133	A199	23	LH WORKLIGHTS
P133	B209	24	LH WORKLIGHTS
P133A	B199	23	LH WORKLIGHTS
P133A	B209	24	LH WORKLIGHTS
P134	G199	23	RH WORKLIGHTS
P134	C209	24	RH WORKLIGHTS
P134A	F199	23	RH WORKLIGHTS
P134A	B209	24	RH WORKLIGHTS
P135	D260	29	CAB DASH CENTER OPTIONS PANEL
P136	C260	29	CAB DASH CENTER OPTIONS PANEL
P171	F308	35	CARGO MATERIAL HANDLING CRANE
P172	A300	34	DUMP BODY CONNECTOR
P200	D291	33	TROOP HEATER
P200	D291	33	TROOP HEATER
P201	G70	8	ENGINE
P202	A276	31	ARCTIC KIT W/PTO EQUIPPED
P208	F291	33	TROOP HEATER
P209	C292	33	FURNACE ASSEMBLY
P209A	F268	30	TRANSMISSION AUXILIARY OIL COOLER FAN
P209B	G264	30	DUMP, CARGO LWB, CARGO W/MHC, CARGO LWB W/MHC
P209B	G268	30	TRANSMISSION AUXILIARY OIL COOLER FAN
P210	F258	29	CAB DASH CENTER OPTIONS PANEL
P210	C263	30	PTO EQUIPPED
P210	A271	31	ARCTIC KIT W/PTO EQUIPPED
P211	D274	31	ARCTIC KIT W/PTO EQUIPPED
P211A	D275	31	ARCTIC WATER PUMP
P212	E274	31	ARCTIC KIT W/PTO EQUIPPED
P214	G277	31	ARCTIC KIT W/PTO EQUIPPED
P215	E266	30	PTO EQUIPPED
P215	C275	31	ARCTIC KIT W/PTO EQUIPPED
P216	E265	30	PTO EQUIPPED
P216	B274	31	ARCTIC KIT W/PTO EQUIPPED
P216	A304	34	PTO PRESSURE SWITCH CONNECTOR
P217	C265	30	PTO EQUIPPED

FIGURE FO-1 ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 2 OF 40

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CONNECTORS (CONTINUED)

NUMBER	ZONE	SH	DESCRIPTION
P217	B274	31	ARCTIC KIT W/PTO EQUIPPED
P217	B304	34	PTO SOLENOID CONNECTOR
P410	E276	31	ARCTIC KIT W/PTO EQUIPPED
P901	A245	28	CAB DASH CENTER OPTIONS PANEL
P902	C250	28	CAB DASH CENTER OPTIONS PANEL
P902A	D250	28	CAB DASH CENTER OPTIONS PANEL
P903	C248	28	CAB DASH CENTER OPTIONS PANEL
P903A	D248	28	CAB DASH CENTER OPTIONS PANEL
P904	C247	28	CAB DASH CENTER OPTIONS PANEL
P904A	D247	28	CAB DASH CENTER OPTIONS PANEL
P905	A247	28	CAB DASH CENTER OPTIONS PANEL
P905A	B247	28	CAB DASH CENTER OPTIONS PANEL
P906	A248	28	CAB DASH CENTER OPTIONS PANEL
P906A	B248	28	CAB DASH CENTER OPTIONS PANEL
P908	A251	28	CAB DASH CENTER OPTIONS PANEL
P908A	B251	28	CAB DASH CENTER OPTIONS PANEL
P909	A256	29	CAB DASH CENTER OPTIONS PANEL
P909A	B256	29	CAB DASH CENTER OPTIONS PANEL
P910	B251	28	CAB DASH CENTER OPTIONS PANEL
P910A	D251	28	CAB DASH CENTER OPTIONS PANEL
P911	B256	29	CAB DASH CENTER OPTIONS PANEL
P911A	D256	29	CAB DASH CENTER OPTIONS PANEL
P912	B133	15	CAB DASH CENTER HEATER / CTIS ECU
P912	F133	15	CAB DASH CENTER HEATER / CTIS ECU
P913	B131	15	CAB DASH CENTER HEATER / CTIS ECU
P913	F245	28	CAB DASH CENTER OPTIONS PANEL
P914	A250	28	CAB DASH CENTER OPTIONS PANEL
P914A	B250	28	CAB DASH CENTER OPTIONS PANEL
P921	G70	8	TROOP TRANSPORT ALARM
P94	A199	23	LH INTERMEDIATE MARKER
P94	A217	25	LH INTERMEDIATE MARKER
P95	G199	23	RH INTERMEDIATE MARKER
P95	G217	25	RH INTERMEDIATE MARKER
P99	F195	22	CHEMICAL ALARM CONNECTOR
PX1	A101	12	ENGINE FAN OFF SWITCH
PX10	D116	13	CAB DASH LEFT INSTRUMENT PANEL
PX11	G116	13	CAB DASH LEFT INSTRUMENT PANEL
PX12	C121	14	ROTATING WARNING LIGHT SWITCH
PX12A	E121	14	CAB DASH LEFT INSTRUMENT PANEL
PX13	F101	12	ETHER STARTER SWITCH
PX13A	G101	12	CAB - DASH - LEFT - INSTRUMENT PANEL
PX14	F121	14	FULL HAZARD WARNING SWITCH
PX14A	H121	14	CAB DASH LEFT INSTRUMENT PANEL
PX15	C124	14	MAIN LIGHT SWITCH
PX17	A121	14	IGNITION SWITCH
PX17A	C112	14	CAB DASH LEFT INSTRUMENT PANEL
PX1A	B101	12	CAB - DASH - LEFT - INSTRUMENT PANEL
PX2	D101	12	LAMP TEST SWITCH
PX20	C197	22	TURN SIGNAL FLASHER
PX21	A143	16	WIPER DELAY MODULE
PX22	A193	22	EMI FILTER
PX24	G124	14	INSTRUMENT PANEL LIGHTS DIMMER MODULE
PX25	C128	15	CAB DASH CENTER HEATER / CTIS ECU
PX26	B188	21	CAB - DASH - LEFT - UNDERDASH
PX2A	E101	12	CAB - DASH - LEFT - INSTRUMENT PANEL
PX33	B191	22	CAB - DASH - RIGHT - UNDERDASH
PX33	G346	39	WTEC III TRANSMISSION PUSHBUTTON SHIFT SELECTOR
PX34	E197	22	FRONT AIR PRESSURE METER
PX4	F106	12	FAN SOLENOID
PX5	B106	12	REAR AIR PRESSURE METER
PX50	D197	22	INTER-AXLE DIFFERENTIAL SOLENOID
PX6	B116	13	CAB DASH LEFT INSTRUMENT PANEL
PX7	A113	13	CAB DASH LEFT INSTRUMENT PANEL
PX8	G111	13	CAB DASH LEFT INSTRUMENT PANEL
PX8	E343	39	WTEC III SPEEDOMETER SIGNAL
PX9	D106	12	FUEL LEVEL METER
X1	D299	34	CAB ARCTIC HEATER
X2	D300	34	CAB ARCTIC HEATER
X3	E299	34	CAB ARCTIC HEATER
X4	D299	34	CAB ARCTIC HEATER

LIGHTS

NUMBER	ZONE	SH	DESCRIPTION
DS1	D105	12	CAB DASH LEFT INSTRUMENT PANEL
DS2	G115	12	CAB DASH LEFT INSTRUMENT PANEL
DS3	F105	12	CAB DASH LEFT INSTRUMENT PANEL
DS4	B105	12	CAB DASH LEFT INSTRUMENT PANEL
DS5	B115	13	CAB DASH LEFT INSTRUMENT PANEL
DS6	G110	13	CAB DASH LEFT INSTRUMENT PANEL
DS7	D115	13	CAB DASH LEFT INSTRUMENT PANEL
DS8	C100	12	CAB DASH LEFT INSTRUMENT PANEL
DS9	B110	13	DUMP BODY UP
DS10	E120	14	CAB DASH LEFT INSTRUMENT PANEL
DS11	G100	12	CAB DASH LEFT INSTRUMENT PANEL
DS12	H120	14	CAB DASH LEFT INSTRUMENT PANEL
DS13	C120	14	CAB DASH LEFT INSTRUMENT PANEL
DS14	B110	13	LEFT TURN SIGNAL
DS15	B110	13	RIGHT TURN SIGNAL
DS16	E110	13	HIGH BEAM
DS17	D128	15	HEATER CONTROL PANEL ILLUMINATION
DS18	A244	28	CAB DASH CENTER OPTIONS PANEL
DS19	E110	13	RADIATOR FAN OFF
DS21	C110	13	EMERGENCY BRAKE
DS22	D110	13	PARKING BRAKE
DS23	C110	13	PTO ON
DS24	D110	13	OIL PRESSURE
DS25	C110	13	WATER TEMPERATURE
DS27	C110	13	REAR BRAKE AIR
DS28	E110	13	FRONT AIR BRAKE
DS29	D110	13	ENGINE OIL LEVEL
DS30	F110	13	MASTER STOP
DS31	D249	28	CAB DASH CENTER OPTIONS PANEL
DS32	B110	13	CHEMICAL DETECT
DS34	C110	13	CTIS OVERSPEED
DS35	C207	23	WRECKER BLACKOUT STOP LEFT REAR
DS35	B216	24	TRACTOR BLACKOUT STOP LEFT REAR
DS35	C225	25	LONG WHEEL BASE BLACKOUT STOP LEFT REAR
DS35	C234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE BLACKOUT STOP LEFT REAR
DS36	G207	23	WRECKER BLACKOUT STOP RIGHT REAR
DS36	D216	24	TRACTOR BLACKOUT STOP RIGHT REAR
DS36	G225	25	LONG WHEEL BASE BLACKOUT STOP RIGHT REAR
DS36	G234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE BLACKOUT STOP RIGHT REAR
DS37	B207	23	WRECKER REAR LEFT COMPOSITE
DS37	A216	24	TRACTOR REAR LEFT COMPOSITE
DS37	D225	25	LONG WHEEL BASE REAR LEFT COMPOSITE
DS37	B234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE REAR LEFT COMPOSITE
DS38	F207	23	WRECKER REAR RIGHT COMPOSITE
DS38	E216	24	TRACTOR REAR RIGHT COMPOSITE
DS38	F225	25	LONG WHEEL BASE REAR RIGHT COMPOSITE
DS38	F234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE REAR RIGHT COMPOSITE
DS39	F46	6	FRONT LEFT TURN SIGNAL
DS41	D110	13	TRANSMISSION OIL TEMPERATURE
DS42	C47	6	FRONT RIGHT TURN SIGNAL
DS43	D248	28	CAB DASH CENTER OPTIONS PANEL
DS44	D46	6	RIGHT HEADLIGHT
DS45	D207	23	WRECKER BACKUP LIGHT
DS45	C216	24	TRACTOR BACKUP LIGHT
DS45	C225	25	LONG WHEEL BASE BACKUP LIGHT
DS45	C234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE BACKUP LIGHT
DS46	D246	28	CAB DASH CENTER OPTIONS PANEL
DS47	G46	6	PARKING LIGHT FRONT LEFT
DS48	B47	6	PARKING LIGHT FRONT RIGHT
DS49	G46	6	BLACKOUT MARKER LEFT FRONT
DS50	B47	6	BLACKOUT MARKER RIGHT FRONT
DS51	B207	23	WRECKER BLACKOUT MARKER LEFT REAR
DS51	B216	24	TRACTOR BLACKOUT MARKER LEFT REAR
DS51	B225	25	LONG WHEEL BASE BLACKOUT MARKER LEFT REAR
DS51	C234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND WRECKER BLACKOUT MARKER LEFT REAR
DS52	F207	23	WRECKER BLACKOUT MARKER RIGHT REAR

LIGHTS (CONTINUED)

NUMBER	ZONE	SH	DESCRIPTION
DS52	D216	24	TRACTOR BLACKOUT MARKER RIGHT REAR
DS52	F225	25	LONG WHEEL BASE BLACKOUT MARKER RIGHT REAR
DS52	F234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE BLACKOUT MARKER RIGHT REAR
DS53	H46	6	BLACKOUT DRIVE LIGHT
DS54	D93	11	CAB MARKER LIGHT FRONT UPPER MIDDLE LEFT
DS54	F242	27	LH FRONT TOP CAB CLEARANCE LIGHT
DS52	F234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE BLACKOUT MARKER RIGHT REAR
DS53	H46	6	BLACKOUT DRIVE LIGHT
DS54	D93	11	CAB MARKER LIGHT FRONT UPPER MIDDLE LEFT
DS54	F242	27	LH FRONT TOP CAB CLEARANCE LIGHT
DS55	D93	11	CAB MARKER LIGHT FRONT UPPER MIDDLE MIDDLE
DS55	E242	27	MIDDLE FRONT TOP CLEARANCE LIGHT
DS56	C93	11	CAB MARKER LIGHT FRONT UPPER MIDDLE RIGHT
DS56	D242	27	RH FRONT TOP CAB CLEARANCE LIGHT
DS57	C93	11	CAB MARKER LIGHT FRONT UPPER RIGHT
DS57	D242	27	RH FRONT TOP CAB MARKER LIGHT
DS58	E93	11	CAB MARKER LIGHT FRONT UPPER LEFT
DS58	F242	27	LH FRONT TOP CAB MARKER LIGHT
DS59	B93	11	CAB MARKER LIGHT RIGHT DOOR
DS60	F93	11	CAB MARKER LIGHT FRONT LOWER LEFT
DS61	A93	11	CAB MARKER LIGHT RIGHT DOOR
DS62	F93	11	CAB MARKER LIGHT LEFT DOOR
DS63	B246	28	CAB DASH CENTER OPTIONS PANEL
DS64	B248	28	CAB DASH CENTER OPTIONS PANEL
DS65	A207	23	WRECKER LH SIDE MARKER LIGHT
DS65	A225	25	LONG WHEEL BASE LH SIDE MARKER LIGHT
DS65	A234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE LH SIDE MARKER LIGHT
DS66	A207	23	WRECKER LH REAR MARKER LIGHT
DS66	A216	24	TRACTOR LH REAR MARKER LIGHT
DS66	A225	25	LONG WHEEL BASE LH REAR MARKER LIGHT
DS66	A234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE LH REAR MARKER LIGHT
DS67	H207	23	WRECKER RH SIDE MARKER LIGHT
DS67	H225	25	LONG WHEEL BASE RH SIDE MARKER LIGHT
DS67	H234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE RH SIDE MARKER LIGHT
DS68	G207	23	WRECKER RH REAR MARKER LIGHT
DS68	C216	24	TRACTOR RH REAR MARKER LIGHT
DS68	G225	25	LONG WHEEL BASE RH REAR MARKER LIGHT
DS68	G234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE RH REAR MARKER LIGHT
DS69	D207	23	WRECKER LEFT REAR MARKER
DS69	G216	24	TRACTOR LEFT REAR MARKER
DS69	D225	25	LONG WHEEL BASE LEFT REAR MARKER
DS69	D234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE LEFT REAR MARKER
DS70	E207	23	WRECKER MIDDLE REAR MARKER
DS70	F216	24	TRACTOR MIDDLE REAR MARKER
DS70	E225	25	LONG WHEEL BASE MIDDLE REAR MARKER
DS70	E234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE MIDDLE REAR MARKER
DS71	E207	23	WRECKER RIGHT REAR MARKER
DS71	E216	24	TRACTOR RIGHT REAR MARKER
DS71	E225	25	LONG WHEEL BASE RIGHT REAR MARKER
DS71	E234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE RIGHT REAR MARKER
DS72	B207	23	WRECKER REAR LEFT COMPOSITE
DS72	B216	24	TRACTOR REAR LEFT COMPOSITE
DS72	B225	25	LONG WHEEL BASE REAR LEFT COMPOSITE
DS72	B234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE REAR LEFT COMPOSITE
DS73	F207	23	WRECKER REAR RIGHT COMPOSITE
DS73	E216	24	TRACTOR REAR RIGHT COMPOSITE
DS73	F225	25	LONG WHEEL BASE REAR RIGHT COMPOSITE
DS73	F234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE REAR RIGHT COMPOSITE
DS74	D46	6	LEFT HEADLIGHT
DS96	B251	28	CAB DASH CENTER OPTIONS PANEL
DS97	B255	29	CAB DASH CENTER OPTIONS PANEL

LIGHTS (CONTINUED)

NUMBER	ZONE	SH	DESCRIPTION
DS98	D251	28	CAB DASH CENTER OPTIONS PANEL
DS99	D255	29	CAB DASH CENTER OPTIONS PANEL
DS100	B249	28	CAB DASH CENTER OPTIONS PANEL
DS101	D128	15	HEATER CONTROL PANEL ILLUMINATION
DS108	E100	12	CAB DASH LEFT INSTRUMENT PANEL

TERMINAL LUGS

NUMBER	ZONE	SH	DESCRIPTION
CB20	C149	17	CAB RADIO
CB21	C158	18	WTEC II VIM STE/ICE
CB22	C158	18	FAN/ETHER
CB23	C156	18	HEATER BLOWER
CB30	C148	17	CHEMICAL ALARM
CB35	D158	18	WTEC II VIM POWER
CB36	C156	18	HORN POWER
CB37	C160	18	WINDSHIELD WIPER/WASHER
CB38	D156	18	ROTATING BEACON
CB39	C155	18	TRAILER BO STOP
CB40	C159	18	CTIS COOLER
CB41	C151	17	TRAILER REAR LIGHTS POWER
CB42	C151	17	BO MARKER LIGHTS POWER
CB43	C152	17	REAR COMPOSITE LIGHTS
CB43	D343	39	WTEC III ECU
CB44	C152	17	REAR COMPOSITE LIGHTS
CB45	C148	17	FUEL PREHEAT
CB48	C149	17	ARCTIC CAB/ENGINE KILL
CB49	C160	18	PTO POWER
CB50	C155	18	SWINGFIRE PUMP POWER
CB53	D149	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB54	D151	17	BO HEADLIGHT
CB61	D162	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB62	D162	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB63	D160	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB64	D160	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB65	D149	17	PARKING LIGHTS
CB66	D152	17	BO MARKER POWER
CB67	D148	17	MARKER LIGHTS
CB68	C161	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB70	D155	18	IGNITION/MAIN LIGHT SWITCH
CB71	D158	18	HAZARD/FLASHER WORKLIGHTS
CB72	D148	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB73	D159	18	BACK-UP LIGHT POWER
CB74	D159	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB76	D152	17	BO STOP RELAY POWER
CB77	C161	18	ENGINE INSTR POWER
CB78	D156	18	HEADLIGHTS
CB79	B343	39	WTEC III REVERSE WARNING RELAY
CB79	C159	18	WTEC II VIM POWER
CB80	D151	17	TAILLIGHTS
TL1	B63	7	POLARITY PROTECTION
TL1	E69	8	ALTERNATOR
TL1	F62	7	200 AMP
TL1	F290	33	TROOP HEATER
TL1	D294	33	WEBASTO CONTROL UNIT
TL2	D62	7	200 AMP
TL2	B62	7	POLARITY PROTECTION
TL2	D69	8	ALTERNATOR
TL2	F290	33	TROOP HEATER
TL2	D294	33	WEBASTO CONTROL UNIT
TL3	C94	11	CAB MARKER LIGHT FRONT UPPER RIGHT
TL3	D242	27	RH FRONT TOP CAB MARKER LIGHT
TL3	F292	33	FURNACE ASSEMBLY
TL3	D294	33	WEBASTO CONTROL UNIT
TL4	C94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE RIGHT
TL4	D242	27	RH FRONT TOP CAB CLEARANCE LIGHT
TL4	F292	33	FURNACE ASSEMBLY
TL4	D294	33	WEBASTO CONTROL UNIT
TL5	D69	8	ALTERNATOR

TERMINAL LUGS (CONTINUED)

NUMBER	ZONE	SH	DESCRIPTION
TL5	D294	33	WEBASTO CONTROL UNIT
TL6	D69	8	ALTERNATOR
TL6	D294	33	WEBASTO CONTROL UNIT
TL7	D294	33	WEBASTO CONTROL UNIT
TL9	D56	7	24V AUXILIARY STARTER SOLENOID
TL9	E294	33	WEBASTO CONTROL UNIT
TL8	D94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE MIDDLE
TL8	E242	27	MIDDLE FRONT TOP CLEARANCE LIGHT
TL8	E294	33	WEBASTO CONTROL UNIT
TL10	C61	7	CHASSIS - REAR (REF E1)
TL10	E294	33	WEBASTO CONTROL UNIT
TL11	B294	33	WEBASTO CONTROL UNIT
TL12	C58	7	BATTERIES
TL12	C71	8	STARTER/STARTER SOLENOID
TL12	B294	33	WEBASTO CONTROL UNIT
TL13	C294	33	WEBASTO CONTROL UNIT
TL14	E97	11	ROTARY WARNING LIGHT CONNECTOR
TL14	C294	33	WEBASTO CONTROL UNIT
TL15	A207	23	WRECKER REAR LIGHTS
TL15	A225	25	LONG WHEEL BASE
TL15	A234	26	LH SIDE MARKER LIGHT
TL15	C294	33	WEBASTO CONTROL UNIT
TL16	B207	23	WRECKER REAR LIGHTS
TL16	G215	24	REAR LIGHTS TRACTOR
TL16	B225	25	LONG WHEEL BASE
TL16	A234	26	LH REAR MARKER LIGHT
TL16	C294	33	WEBASTO CONTROL UNIT
TL17	C234	26	BACKUP LIGHT
TL17	C207	23	WRECKER REAR LIGHTS
TL17	C215	24	REAR LIGHTS TRACTOR
TL17	C225	25	LONG WHEEL BASE
TL17	C294	33	WEBASTO CONTROL UNIT
TL18	C207	23	WRECKER REAR LIGHTS
TL18	H215	24	REAR LIGHTS TRACTOR
TL18	C225	25	LONG WHEEL BASE REAR LIGHTS
TL18	C234	26	LONG WHEEL BASE
TL18	C294	33	WEBASTO CONTROL UNIT
TL19	H207	23	WRECKER REAR LIGHTS
TL19	H225	25	LONG WHEEL BASE
TL19	H234	26	RH SIDE MARKER LIGHT
TL19	C294	33	WEBASTO CONTROL UNIT
TL20	G234	26	RH REAR MARKER LIGHT
TL20	C215	24	LONG WHEEL BASE
TL20	G225	25	WRECKER REAR LIGHTS
TL20	G207	23	WEBASTO CONTROL UNIT
TL20	C294	33	WEBASTO CONTROL UNIT
TL21	G207	23	WRECKER REAR LIGHTS
TL21	D215	24	REAR LIGHTS TRACTOR
TL21	G225	25	LONG WHEEL BASE
TL21	G234	26	RH COMPOSITE LIGHT
TL22	D94	11	CAB MARKER LIGHTS
TL22	E242	27	LH FRONT TOP CAB CLEARANCE LIGHT
TL23	D56	7	24V AUXILIARY STARTER SOLENOID
TL24	D56	7	24V AUXILIARY STARTER SOLENOID
TL25	C56	7	CHASSIS - FRONT
TL25	C71	8	STARTER/STARTER SOLENOID
TL26	B56	7	CHASSIS - FRONT
TL26	C71	8	STARTER/STARTER SOLENOID
TL27	E94	11	CAB MARKER LIGHTS
TL27	F242	27	LH FRONT TOP CAB MARKER LIGHT
TL28	G66	8	FUEL SOLENOID
TL29	H66	8	FUEL SOLENOID
TL30	D207	23	WRECKER REAR LIGHTS
TL30	E215	24	REAR LIGHTS TRACTOR
TL30	D225	25	LONG WHEEL BASE
TL30	D234	26	LEFT REAR MARKER
TL31	E207	23	WRECKER REAR LIGHTS
TL31	F215	24	REAR LIGHTS TRACTOR

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 3 OF 40

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TERMINAL LUGS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
TL31	E225	25	LONG WHEEL BASE
TL31	E234	26	MIDDLE REAR MARKER
TL32	E207	23	WRECKER REAR LIGHTS
TL32	G215	24	REAR LIGHTS TRACTOR
TL32	E225	25	LONG WHEEL BASE
TL32	E234	26	RIGHT REAR MARKER
TL320	E268	30	PTO EQUIPPED
TL320	C277	31	ARCTIC KIT W/PTO EQUIPPED
TL33	E56	7	24V AUXILIARY STARTER SOLENOID
TL35	D70	8	ALTERNATOR
TL36	B62	7	POLARITY PROTECTION
TL36	F63	7	200 AMP
TL37	F63	7	200 AMP
TL37	B63	7	POLARITY PROTECTION
TL38	D59	7	SHUNT
TL39	C61	7	CHASSIS - REAR (REF E1)
TL41	B62	7	POLARITY PROTECTION
TL42	B62	7	POLARITY PROTECTION
TL44	B62	7	POLARITY PROTECTION
TL44	E63	7	200 AMP
TL45	D59	7	SHUNT
TL46	D58	7	SHUNT
TL46	D71	8	STARTER/STARTER SOLENOID
TL47	F63	7	200 AMP
TL47	C63	7	POLARITY PROTECTION
TL48	E61	7	CHASSIS - REAR (REF E2)
TL49A	D61	7	CHASSIS - REAR (REF E1)
TL49A	F61	7	NATO SLAVE RECEPTACLE
TL50	G130	15	CHASSIS GROUND
TL50A	H61	7	NATO SLAVE RECEPTACLE
TL51	E59	7	SHUNT
TL52	E59	7	SHUNT
TL53	B56	7	CHASSIS - FRONT
TL53	B71	8	STARTER/STARTER SOLENOID
TL54	C200	23	WRECKER REAR LIGHTS
TL55	B56	7	CHASSIS - FRONT
TL55	C71	8	STARTER/STARTER SOLENOID
TL56	F145	17	X3 GROUND
TL57	F145	17	CAB GROUND
TL58	D69	8	ALTERNATOR
TL59	C70	8	ALTERNATOR
TL60	C62	7	POLARITY PROTECTION
TL60	D69	8	ALTERNATOR
TL61	C62	7	POLARITY PROTECTION
TL61	E69	8	ALTERNATOR
TL61	F62	7	200 AMP
TL62	C56	7	CHASSIS - FRONT
TL63	C56	7	CHASSIS - FRONT
TL63	B71	8	STARTER/STARTER SOLENOID
TL66	H70	8	ENGINE (REF P201)
TL67	F307	35	CARGO MATERIAL HANDLING CRANE
TL68	D260	29	CAB DASH CENTER OPTIONS PANEL
TL69	E260	29	CAB DASH CENTER OPTIONS PANEL
TL70	B47	6	BLACKOUT MARKER RIGHT FRONT
TL70	B47	6	PARKING LIGHT FRONT RIGHT
TL70	B47	6	FRONT RIGHT TURN SIGNAL
TL71	A94	11	CAB MARKER LIGHT RIGHT DOOR
TL72	H47	6	BLACKOUT DRIVE LIGHT
TL73	B95	11	CAB MARKER LIGHTS
TL74	D95	11	CAB MARKER LIGHTS
TL74	E240	27	AIRDROP ONLY
TL75	F96	11	CAB MARKER LIGHTS
TL76	D265	30	PTO EQUIPPED
TL77	B299	34	DUMP BODY
TL78	B298	34	DUMP BODY
TL79	F47	6	FRONT LEFT TURN SIGNAL
TL79	G47	6	PARKING LIGHT FRONT LEFT
TL79	Q47	6	BLACKOUT MARKER LEFT FRONT
TL80	E63	7	200 AMP
TL80	C62	7	POLARITY PROTECTION
TL81	A48	6	CHASSIS - FRONT (REF J13)
TL81	C47	6	CHASSIS - FRONT
TL82	A47	6	CHASSIS - FRONT

TERMINAL LUGS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
TL82	F47	6	FRONT LEFT TURN SIGNAL
TL83	B61	7	FUEL TANK LEVEL SENSOR
TL84	B58	7	CHASSIS - SPARE TIRE (REF J93)
TL85	G61	7	CHASSIS - REAR
TL86	C95	11	CAB MARKER LIGHTS
TL86	D240	27	AIRDROP ONLY
TL87	F95	11	CAB MARKER LIGHTS
TL88	A199	23	WRECKER REAR LIGHTS
TL88	A217	25	LONG WHEEL BASE
TL89	G199	23	WRECKER REAR LIGHTS
TL89	G217	25	LONG WHEEL BASE
TL90	H199	23	WRECKER REAR LIGHTS
TL90	H217	25	LONG WHEEL BASE
TL92	H200	23	WRECKER REAR LIGHTS
TL92	C215	24	REAR LIGHTS TRACTOR
TL92	G225	25	LONG WHEEL BASE
TL92	F231	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
TL93	H199	23	WRECKER REAR LIGHTS
TL93	G215	24	REAR LIGHTS TRACTOR
TL93	G230	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
TL93M	G208	24	REAR LIGHTS TRACTOR
TL94	G94	11	WINDSHIELD WASHER ROTARY PUMP (B3)
TL97	B97	11	CHEMICAL ALARM CONNECTOR
TL98	B97	11	CHEMICAL ALARM CONNECTOR
TL99	D61	7	CHASSIS - REAR (REF E2)
TL101	G264	30	ALL MTV W/O PTO
TL101	G267	30	TRACTOR W/O WINCH
TL101	B275	31	ARCTIC KIT W/PTO EQUIPPED
TL102	F275	31	ARCTIC KIT W/PTO EQUIPPED
TL103	G275	31	ARCTIC KIT W/PTO EQUIPPED
TL109	C209	24	REAR LIGHTS TRACTOR
TL110	D70	8	ALTERNATOR
TL111	D266	30	PTO EQUIPPED
TL123	E47	6	CHASSIS - FRONT (REF J19)
TL126	Q95	11	WINDSHIELD WASHER ROTARY PUMP (B3)
TL126	E135	15	PARKING BRAKE SWITCH
TL130	F94	11	CAB MARKER LIGHTS
TL131	A94	11	CAB MARKER LIGHTS
TL133	F94	11	CAB MARKER LIGHTS
TL134	B94	11	CAB MARKER LIGHT FRONT LOWER RIGHT
TL150	F186	21	SENSOR/FRONT AIR PRESSURE TRANSMITTER
TL151	G186	21	SENSOR/REAR AIR PRESSURE TRANSMITTER
TL152	C188	21	STOPLIGHT SWITCH
TL501	G197	22	CAB DASH RIGHT UNDERDASH
TL502	G197	22	CAB DASH RIGHT UNDERDASH
TL153	C188	21	STOPLIGHT SWITCH
TL154	D188	21	STOPLIGHT SWITCH
TL155	D188	21	STOPLIGHT SWITCH
TL156	F186	21	SWITCH/FRONT AIR PRESSURE TRANSMITTER
TL157	G186	21	SWITCH/REAR AIR PRESSURE TRANSMITTER
TL158	E146	17	START INHIBIT PUSHBUTTON
TL159	E145	17	START INHIBIT PUSHBUTTON
TL162	B123	14	STARTER PUSHBUTTON
TL163	B123	14	STARTER PUSHBUTTON
TL164	G71	8	ENGINE (REF J921)
TL165	G71	8	ENGINE (REF J921)
TL166	F62	7	200 AMP
TL167	E62	7	200 AMP
TL168	D63	7	200 AMP
TL169	D62	7	200 AMP
TL170	F284	32	SWINGFIRE HEATER
TL171	F62	7	200 AMP
TL172	F62	7	200 AMP
TL173	E63	7	200 AMP
TL174	D62	7	200 AMP
TL190	D344	39	WTEC III PRESSURE SWITCH GROUND
TL201	E134	15	PARKING BRAKE SWITCH
TL202	E133	15	PARKING BRAKE SWITCH

SWITCHES			
NUMBER	ZONE	SH	DESCRIPTION
S3	A186	21	COLUMN SWITCH
S3	C186	21	COLUMN SWITCH
S4	D123	14	MAIN LIGHT SWITCH
S5/1	B120	14	IGNITION SWITCH
S5/11	A100	12	ENGINE FAN OFF SWITCH
S5/14	C249	28	WINCH ON OFF
S5/15	B248	28	WINCH IN-OUT
S5/16	F100	12	ETHER STARTER SWITCH
S5/2	D100	12	LAMP TEST SWITCH
S5/2	D120	14	ROTATING WARNING LIGHT SWITCH
S5/22	G120	14	FULL HAZARD WARNING SWITCH
S5/25	A255	29	SWINGFIRE PUMP SWITCH
S5/37	C255	29	DUMP UP DOWN SWITCH
S5/5	A247	28	WORKLIGHTS ON/OFF SWITCH
S5/6	B246	28	PTO ON/OFF SWITCH
S5/8	A249	28	BLACKOUT OVERRIDE SWITCH
S5/9	A250	28	FUEL PRE-HEAT SWITCH
S6	A123	14	STARTER PUSHBUTTON
S7	F146	17	START INHIBIT PUSHBUTTON
S10A	C188	21	STOPLIGHT SWITCH
S10B	D188	21	STOPLIGHT SWITCH
S18	D305	34	PTO PRESSURE SWITCH
S20	E186	21	SWITCH/FRONT AIR PRESSURE TRANSMITTER
S23	F61	7	AIR PRESSURE SWITCH FOR CTIS
S24	E134	15	PARKING BRAKE SWITCH
S25	B299	34	DUMP BED POSITION SWITCH
S26	C66	8	WATER TEMPERATURE SENSOR
S27	E68	8	OIL PRESSURE WARNING LIGHT SWITCH
S29	G186	21	SWITCH/REAR AIR PRESSURE TRANSMITTER
S31	A252	28	ARCTIC TROOP HEATER SWITCH
S36	C251	28	TAILGATE RELEASE SWITCH
S40	F67	8	ETHER SENSOR SWITCH
S45	G71	8	TROOP ALARM SWITCH
S56	A66	8	WATER TEMPERATURE SWITCH

GAGES			
NUMBER	ZONE	SH	DESCRIPTION
M2	D115	13	VOLTMETER
M3	B115	13	ENGINE OIL PRESSURE METER
M4	F105	12	FRONT AIR PRESSURE METER
M5	B105	12	REAR AIR PRESSURE METER
M6	G116	13	WATER TEMPERATURE METER
M7	D105	12	FUEL LEVEL METER
M8	G111	13	SPEEDOMETER
M9	A246	28	TACHOMETER

RELAYS			
NUMBER	ZONE	SH	DESCRIPTION
K1	B345	39	WTEC III STARTER RELAY
K1	E295	33	GROUND RELAY
K1	E301	34	ARCTIC CAB HEATER
K1	F158	18	STARTER RELAY
K2	B152	17	CONTROL PANEL RELAY
K2	D295	33	HEATER MOTOR RELAY
K2	E302	34	ARCTIC CAB HEATER
K3	D296	33	CONTROL THERMOSTAT RELAY
K3	E302	34	ARCTIC CAB HEATER
K4	D296	33	IGNITION RELAY
K4	E302	34	ARCTIC CAB HEATER
K5	D297	33	FLAME CONTROL RELAY
K5	E303	34	ARCTIC CAB HEATER
K6	F153	17	STOPLIGHT RELAY
K7	G162	18	HEADLIGHT RELAY
K8	G160	18	HEADLIGHT LO/HI-BEAM RELAY
K9	A151	17	HAZARD FLASHER BO OVERIDE
K10	F159	18	STARTER RELAY
K11	F155	18	ALTERNATOR EXCITATION RELAY
K12	B148	17	WORKLIGHT RELAY
K13	B158	18	ROTATING BEACON BO OVRD RELAY
K15	B149	17	AUXILIARY COOLER RELAY
K19	B159	18	START INHIBIT RELAY
K20	H147	17	MARKER LIGHTS RELAY
K24	B160	18	CRANKING LOCKOUT RELAY

RELAYS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
K25	B346	39	WTEC III REVERSE WARNING RELAY
K26	B344	39	WTEC III NEUTRAL START RELAY
K27	H152	17	BO STOP RELAY
K28	H151	17	TRAILER REAR LIGHTS RELAY
K29	B349	39	WTEC III BLACKOUT DRIVE RELAY
K29	F151	17	BO MARKER RELAY
K30	H156	18	REAR LEFT COMPOSITE LAMP RELAY
K31	H158	18	REAR RIGHT COMPOSITE LAMP RELAY
K32	B156	18	HORN RELAY
K37	B348	39	WTEC III PTO ENABLE OUTPUT RELAY
K52	H148	17	CTIS OVERSPEED INDICATION RELAY
K53	H149	17	RADIO POWER RELAY

RESISTORS			
NUMBER	ZONE	SH	DESCRIPTION
R1	D88	10	AIR DRYER
R2	E181	21	CAB - DASH - LEFT - UNDERDASH
R4	D184	21	CAB - DASH - LEFT - UNDERDASH
R5	C184	21	CAB - DASH - LEFT - UNDERDASH
R6	F181	21	CAB - DASH - LEFT - UNDERDASH

SOLENOIDS			
NUMBER	ZONE	SH	DESCRIPTION
KS	D56	7	24V AUXILIARY STARTER SOLENOID
L1	E198	22	FAN SOLENOID
L1	H337	38	RIGHT WINCH OUT
L2	H76	8	FUEL SOLENOID
L2	H337	38	RIGHT WINCH IN
L3	B305	34	PTO SOLENOID
L4	E269	30	WINCH IN SOLENOID
L4	C278	31	WINCH IN SOLENOID
L5	D269	30	SOLENOID
L5	B278	31	WINCH OUT SOLENOID
L5	H340	38	LEFT WINCH IN
L6	D198	22	INTER-AXLE DIFFERENTIAL SOLENOID
L6	H339	38	LEFT WINCH OUT
L7	B302	34	TAILGATE RELEASE SOLENOID
L8	B302	34	DUMP BED UP SOLENOID
L9	A302	34	DUMP BED SOLENOID
L11	H338	38	UNDERLIFT DOWN
L13	H339	38	STINGER OUT
L14	H338	38	UNDERLIFT UP
L15	B60	7	CHASSIS - SPARE TIRE
L15	H337	38	UNDERLIFT FOLD DOWN
L16	H339	38	STINGER IN
L16	F275	31	ARCTIC KIT W/PTO EQUIPPED
L17	D276	31	ARCTIC KIT W/PTO EQUIPPED
L18	H338	38	UNDERLIFT FOLD UP

HORNS AND ALARMS			
NUMBER	ZONE	SH	DESCRIPTION
LS1	A46	6	VEHICLE HORN
LS2	H110	13	AUDIBLE ALARM

MOTORS			
NUMBER	ZONE	SH	DESCRIPTION
B2	A192	22	WINDSHIELD WIPER MOTOR
B4	C127	15	FAN MOTOR
B6	F268	30	TRANSMISSION AUXILIARY OIL COOLER FAN
B6A	G268	30	TRANSMISSION AUXILIARY OIL COOLER FAN

BATTERYS			
NUMBER	ZONE	SH	DESCRIPTION
BT1	C61	7	BATTERY
BT2	D61	7	BATTERY
BT3	D61	7	BATTERY
BT4	E61	7	BATTERY

MISCELLANEOUS			
NUMBER	ZONE	SH	DESCRIPTION
10A	C192	22	WTEC II VEHICLE INTERFACE MODULE
10A	E192	22	WTEC II VEHICLE INTERFACE MODULE
A2	F127	15	CTIS ELECTRONIC CONTROL UNIT
A3	G123	14	INSTRUMENT PANEL LIGHTS DIMMER MODULE
A5	A143	16	WIPER DELAY MODULE
A7	B188	21	FREQUENCY DIVIDER
A18	A112	13	LIGHTED INDICATOR DISPLAY
A20	H68	8	FUEL/WATER SEPARATOR
B1	C72	8	STARTER/STARTER SOLENOID
B10	E76	9	WTEC II TRANSFER CASE (SERIAL # 6510032369)
B10	E81	9	WTEC II TRANSFER CASE (SERIAL # 6510032369 AND HIGHER)
B10	E75	9	WTEC II TRANSMISSION (SERIAL # 6510032369)
B10	E79	9	WTEC II TRANSMISSION (SERIAL # 6510032369 AND HIGHER)
B10	E85	10	TRANSFER CASE PRIOR TO (SERIAL # 6510032369 WITH ADAPTER CABLE ASSEMBLY)
B10	E83	10	TRANSMISSION PRIOR TO (SERIAL # 6510032369 WITH ADAPTER CABLE ASSEMBLY)
B3	G92	11	WINDSHIELD WASHER ROTARY PUMP
BJ1	A184	21	JUNCTION BOX
D1A	C147	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
D1B	C147	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
D2A	D147	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
D2B	D147	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
D3A	B147	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
D3B	A147	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
D7	B307	35	DIODE ASSEMBLY
D7	B318	36	DIODE ASSEMBLY
D8	C307	35	DIODE ASSEMBLY
D8	A318	36	DIODE ASSEMBLY
E1	C61	7	BATTERY
E1	D61	7	BATTERY
E1	D61	7	BATTERY
E1	E61	7	BATTERY
E14	E221	25	LONG WHEEL BASE
E14	E230	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E15	E224	25	LONG WHEEL BASE
E15	E233	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E16	A224	25	LONG WHEEL BASE
E16	A233	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E17	G222	25	LONG WHEEL BASE
E17	G222	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E18	G212	25	LONG WHEEL BASE
E18	G221	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E19	F212	25	LONG WHEEL BASE
E19	F221	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E2	C4	6	CHASSIS FRONT BUMPER (REF J27)
E2	C52	7	BATTERY
E2	D52	7	BATTERY
E2	E52	7	BATTERY
E2	E52	7	BATTERY
E20	F213	25	LONG WHEEL BASE
E20	E221	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E21	D213	25	LONG WHEEL BASE
E21	D222	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E22	B86	11	CAB MARKER LIGHTS

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 4 OF 40

SIZE B | ILL. NO. 6WD01L41 | FP 7/FP 8 BLANK

MISCELLANEOUS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
E27	F213	24	REAR LIGHTS TRACTOR
E28	G215	24	REAR LIGHTS TRACTOR
E29	E209	24	REAR LIGHTS TRACTOR
E3	H157	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
E30	D214	24	REAR LIGHTS TRACTOR
E31	D213	24	REAR LIGHTS TRACTOR
E32	G212	24	REAR LIGHTS TRACTOR
E33	C209	24	REAR LIGHTS TRACTOR
E34	B210	24	REAR LIGHTS TRACTOR
E35	F209	24	REAR LIGHTS TRACTOR
E36	E210	24	REAR LIGHTS TRACTOR
E37	E211	24	REAR LIGHTS TRACTOR
E38	F209	24	REAR LIGHTS TRACTOR
E39	E210	24	REAR LIGHTS TRACTOR
E4	H159	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
E40	F210	24	REAR LIGHTS TRACTOR
E41	D211	24	REAR LIGHTS TRACTOR
E42	D210	24	REAR LIGHTS TRACTOR
E43	D210	24	REAR LIGHTS TRACTOR
E44	H213	24	REAR LIGHTS TRACTOR
E45	G209	24	REAR LIGHTS TRACTOR
E46	G203	23	WRECKER REAR LIGHTS
E47	F203	23	WRECKER REAR LIGHTS
E48	E204	23	WRECKER REAR LIGHTS
E49	D203	23	WRECKER REAR LIGHTS
E5	B160	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
E50	E206	23	WRECKER REAR LIGHTS
E51	A206	23	WRECKER REAR LIGHTS
E52	G204	23	WRECKER REAR LIGHTS
E53	D200	23	WRECKER REAR LIGHTS
E54	B200	23	WRECKER REAR LIGHTS
E55	F200	23	WRECKER REAR LIGHTS
E56	E211	24	REAR LIGHTS TRACTOR
E57	E203	23	WRECKER REAR LIGHTS
E58	D204	23	WRECKER REAR LIGHTS
E59	G204	23	WRECKER REAR LIGHTS
E64	D221	25	LONG WHEEL BASE
E65	B50	6	CHASSIS - FRONT
E66	C50	6	CHASSIS - FRONT
E66	E352	40	WTEC III TRANSMISSION HARNESS
E67	D47	6	CHASSIS - FRONT
E68	D49	6	CHASSIS - FRONT
E69	D260	29	CAB DASH CENTER OPTIONS PANEL
E70	C265	30	PTO EQUIPPED
E70	F266	30	TRACTOR W/O WINCH
E70	A274	31	ARCTIC KIT W/PTO EQUIPPED
E71	F182	21	CAB - DASH - LEFT - UNDERDASH
E72	G222	25	LONG WHEEL BASE
E73	G274	31	ARCTIC KIT W/PTO EQUIPPED
E74	G266	30	TRACTOR W/O WINCH
E74	B265	31	ARCTIC KIT W/PTO EQUIPPED
E76	E265	31	ARCTIC KIT W/PTO EQUIPPED
E78	A290	34	DUMP BODY
E79	B227	27	ROTARY WARNING LIGHT CONNECTOR
E80	C227	27	ROTARY WARNING LIGHT CONNECTOR
E81	B228	27	ROTARY WARNING LIGHT CONNECTOR
E82	C228	27	ROTARY WARNING LIGHT CONNECTOR
E83	B228	27	ROTARY WARNING LIGHT CONNECTOR
E84	B228	27	ROTARY WARNING LIGHT CONNECTOR
E88	B106	13	CAB DASH LEFT INSTRUMENT PANEL
E89	C106	13	CAB DASH LEFT INSTRUMENT PANEL
E90	F352	40	WTEC III TRANSMISSION HARNESS
E91	D352	40	WTEC III TRANSMISSION HARNESS
FL	E183	22	WTEC II VEHICLE INTERFACE MODULE
FL1	G85	11	EMI FILTER
FL2	A184	22	EMI FILTER
FL3	C118	15	FAN MOTOR
G1	D60	8	ALTERNATOR
MPU1	F61	8	ENGINE SPEED MAGNETIC PICKUP
MT11	A63	8	THROTTLE POSITION SENSOR
MT3	F60	8	ENGINE OIL PRESSURE SENSOR
MT4	E177	21	SENSOR/FRONT AIR PRESSURE TRANSMITTER

MISCELLANEOUS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
MT5	G186	21	SENSOR/REAR AIR PRESSURE TRANSMITTER
MT6	B66	8	WATER COOLER TEMPERATURE
MT7	B61	7	FUEL TANK LEVEL SENSOR
NS	E192	22	WTEC II VEHICLE INTERFACE MODULE
NS	F192	22	WTEC II VEHICLE INTERFACE MODULE
R11	D59	7	SHUNT
TB	C309	35	CARGO MATERIAL HANDLING CRANE
TB	F309	35	CARGO MATERIAL HANDLING CRANE
TB	D319	36	WRECKER MATERIAL HANDLING CRANE
TB	E247	38	WRECKER CONTROLS
TB1	B293	33	WEBASTO CONTROL UNIT
TB1	C137	16	CAB DASH RIGHT POWER
TB2	F139	16	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
TB2	D293	33	WEBASTO CONTROL UNIT
X1	C146	17	24 VDC
X11	F61	7	NATO SLAVE RECEPTACLE
X2	D146	17	24 VDC
X3	F146	17	GROUND

TRANSMISSION			
NUMBER	ZONE	SH	DESCRIPTION
A10	B192	22	WTEC II VEHICLE INTERFACE MODULE
A11	C347	39	WTEC III TRANSMISSION ECU
A12	G347	39	WTEC III TRANSMISSION PUSHBUTTON SHIFT SELECTOR
A13	A75	9	WTEC II TRANSMISSION A13 (SERIAL # 6510032369)
A13	A79	9	WTEC II TRANSMISSION A13 (SERIAL # 6510032369 AND HIGHER)
A13	A83	10	WTEC II TRANSMISSION A13 PRIOR TO (SERIAL # 6510032369 WITH ADAPTER CABLE ASSEMBLY)
MT9	E75	9	WTEC II ENGINE SPEED SENSOR (SERIAL # 6510032369)
MT9	E79	9	WTEC II ENGINE SPEED SENSOR (SERIAL # 6510032369 AND HIGHER)
MT9	E83	10	WTEC II ENGINE SPEED SENSOR PRIOR TO (SERIAL # 6510032369 WITH ADAPTER CABLE ASSEMBLY)
MT11	F75	9	WTEC II TRANSMISSION (SERIAL # 6510032369)
MT11	F79	9	WTEC II TRANSMISSION (SERIAL # 6510032369 AND HIGHER)
MT11	F83	9	WTEC II TRANSMISSION PRIOR TO (SERIAL # 6510032369 WITH ADAPTER CABLE ASSEMBLY)
REV	C192	22	WTEC II VEHICLE INTERFACE MODULE
RW	D192	22	WTEC II VEHICLE INTERFACE MODULE
S02	F192	22	WTEC II VEHICLE INTERFACE MODULE
S03	F192	22	WTEC II VEHICLE INTERFACE MODULE
SF01	D192	22	WTEC II VEHICLE INTERFACE MODULE
SF01	D192	22	WTEC II VEHICLE INTERFACE MODULE
SF02	C192	22	WTEC II VEHICLE INTERFACE MODULE
SF02	D192	22	WTEC II VEHICLE INTERFACE MODULE
SF3	F192	22	WTEC II VEHICLE INTERFACE MODULE
SF04	C192	22	WTEC II VEHICLE INTERFACE MODULE
SF4	D192	22	WTEC II VEHICLE INTERFACE MODULE

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 5 OF 40

SIZE B | ILL. NO. 6WD01L5A | FP-9/FP-10 BLANK

46 47 48 49 50 51 52 53 54

CHASSIS - FRONT BUMPER

CHASSIS - FRONT

VEHICLE HORN (LS1) + 26 − 3035 — P5 J5 — P6 J6 — TL81

BLACKOUT MARKER RIGHT FRONT — DS50 — 3091 — TL70 — 3091 — TL82 — P8 J8 — 20

PARKING LIGHT FRONT RIGHT — DS48 — 3091 — TL70 — P10 J10 — 491

FRONT RIGHT TURN SIGNAL — DS42 — 3091 — TL70 — P9 J9 — 460

RIGHT HEADLIGHT — DS44 — 3051 — P13 J13 — TL81 — E67 (HIGH) — P14 J14 — 17 — P12 J12 — 17 — 18 — E68 (LOW) — 18

LEFT HEADLIGHT — DS74 — P18 J18 — P20 J20 — 17 — 3052 — P19 J19 — TL123

12V CONNECTOR INTERVEHICULAR — J95 — J52 P52F

	J95		J52 P52F	
GROUND	1	3045	4	3045
MARKER LIGHTS	2	489	3	489F
LEFT TURN SIGNAL	3	461B	5	461B
STOP LIGHTS	4	22C	6	22C
RIGHT TURN SIGNAL	5	460B	7	460B
TAIL LIGHTS	6	21	1	21A
AUXILIARY	7	489G	2	489G

FRONT LEFT TURN SIGNAL — DS39 — 3091 — TL79 — 3091 — TL82 — P23 J23 — 461

PARKING LIGHT FRONT LEFT — DS47 — 3091 — TL79 — P22 J22 — 491

BLACKOUT MARKER LEFT FRONT — DS49 — 3091 — TL79 — P24 J24 — 20

BLACKOUT DRIVE LIGHT — DS53 — 3091 — TL72 — P17 J17 — 19

E65 E66

P27 J27

26	1	26	to K32-87 (A157)
489G	2	489G	to TB1-24 (C136)
20	3	20	to TB1-52 (D138)
to P25-2 (H95) 1424	4	1424	to PX21-5 (B142)
461B	5	461B	to K30-86 (H157)
17	6	17	to K8-87 (G161)
19	7	19	to CB54/4 (E151)
489F	8	489F	to tb1-22 (C136)
491	9	491	to CB65/8 (E150)
460B	10	460B	to K31-86 (H159)
460	11	460	to TB1-42 (F138)
21A	12	21A	to TB1-23 (C136)
18	13	18	to K8-87A (H160)
461	14	461	to TB1-47 (D137)
22C	15	22C	to TB1-28 (B137)
to TL202 (E133)	16	1616	to PX7-11 (B114)
		E2	to PX7-22 (D114)

J51

to K12-87 (B148)	2002	1
to PX33-A1 (B190)	490	2
to CB80/2 (E150)	21	3
to K31-86 (H158)	460B	4
to K30-86 (H157)	461B	5
to K27-86 (G153)	23	6
to TB1-11 (E136)	489	7
to K27-87 (H153)	23T	8
to K28-87 (H151)	489T	9
to K29-87 (F151)	484T	10
to K31-86 (H158)	460B	11
to K30-86 (H157)	461B	12
to TB1-31 (B136)	22C	13
to K6-87 (F153)	1404	14
to K30-87 (H156)	461T	15
to K31-87 (H158)	460T	16
to TB1-54 (C138)	24	17

REAR LIGHTS WRECKER (D199)
REAR LIGHTS TRACTOR (D208)
REAR LIGHTS LONG WHEEL BASE (D217)
REAR LIGHTS ALL MODELS EXCEPT WRECKER, TRACTOR AND LONG WHEEL BASE (D226)

J43X P43X — G185 — E55

1	1471	1471
2	1472	1472
3	1474	1474
4	1480	1480
5	1479	1479
6	1478	1478
7	1475	1475
8	1476	1476
9	1477	1477

J43 P43 — F55 — G55

to J31-15 (G64)	1403	1	1403	1403
to J111-F (F131)	1790	2	1790	1790
to PX9-4 (D106)	28	3	28	28
to TB2-32 (F143)	3029	4	3029	3029
to CB30/2 (C148)	1802	5	1802	1802
to P99-1 (F195)	1803	6	1803	1803
to PX7-2 (A114)	1803	7	1804	1804
to P99-2 (F195)	1804	8	74	74
to K1-87 (F158)	74	9	1481	1481
to TB1-35 (G137)	1481			

FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 6 OF 40

SIZE B | ILL. NO. 6WD0101A | FP-11/FP-12 BLANK

46 47 48 49 50 51 52 53 54

CHASSIS - FRONT

CHASSIS - SPARE TIRE / AIR CLEANER AREA

CHASSIS - REAR

1478 TL53
1480 TL55
14 TL26
14A TL25
93A TL63
C62
TL62
P81
93A A
93 B
D71
24V AUXILIARY STARTER SOLENOID (KS)
93 TL23
1479 TL24
14A TL9
14 TL33
74 TL33
1471
1472
1474
1480
F54
1479
1478
1475
1476
1477
1403
1790
28
H53
3029
1802
1803
1804
74
H52
1481

TL84
ETHER STARTER SOLENOID (L15)
J93
3014 2
1403 1
C62 TL12
100 AMP B62
200 AMP D62
100 AMP B63
200 AMP F63
100 AMP D63
200 AMP F63
D62 TL46
SHUNT R11
TL45 GND
1474 TL38
1475
1476 TL51
1477
N TL52
J106
1803 A
3029 B
1804 D
1802 E
CHEMICAL DETECTOR RECEPTACLE
1403
1790
28
3029
1802
1803
1804
1481

FUEL TANK LEVEL SENSOR (MT7)
P82
28 1
3001 2
TL83
BATTERIES
TL10 E1
TL39
B11-E1
BT1
BT1-E2 E2
BT2-E1 E1
TL49A
BT2
TL99
BT2-E2 E2
BT3-E1 E1
BT3
BT3-E2 E2
BT4-E1 TL136 E1
BT4-E1
BT4-E2
BT4
TL48
TL50A E2
BATTERY TESTER
NATO SLAVE RECEPTACLE (X11)
LMHC REMOTE CONTROL BOX NATO CONNECTOR
TL50A 1 1 150
TL49A 2 2 170
F87
P84
1790 B
3032 A
C
AIR PRESSURE SWITCH FOR CTIS (S23)
TL85
P80
3009 1
1481 2
D87

100 AMP
POLARITY PROTECTION (P/P)
C58 1471 TL36
1472 TL37 C59
D69 TL2 TL1
24V BAT
C145 TL42 TL44
24V LOAD
TL41 TL80 TL47
D145 12V LOAD D59
D69 TL60 TL61
12V BAT

200 AMP
POLARITY PROTECTION (P/P)
TL2 TL168
24V BAT
TL169
24V LOAD
TL174
TL173 12V LOAD
12V BAT
TERMINAL BLOCK
TL167 24V LOAD TL44 C145
TL172 12V LOAD TL80 D145
TL166 24V BATT. TL37 C59
D69 TL1 TL171 12V BATT. TL47 TL36 C58
D69 TL61 TL36 D59

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 7 OF 40

SIZE B | ILL NO. 6WD01021 | FP-13/FP-14 BLANK

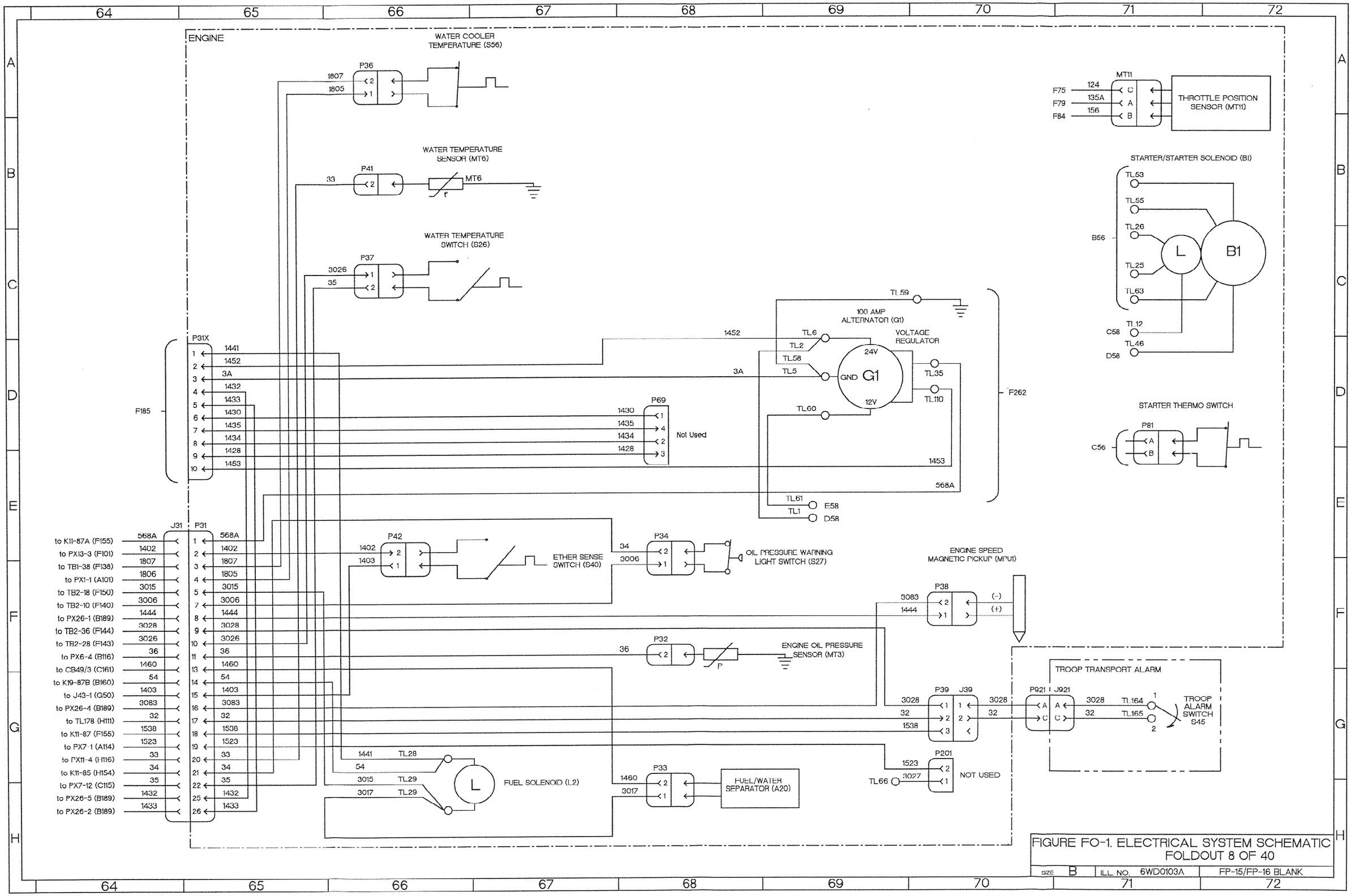


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 8 OF 40

SIZE	ILL. NO.	
B	6WD0103A	FP-15/FP-16 BLANK

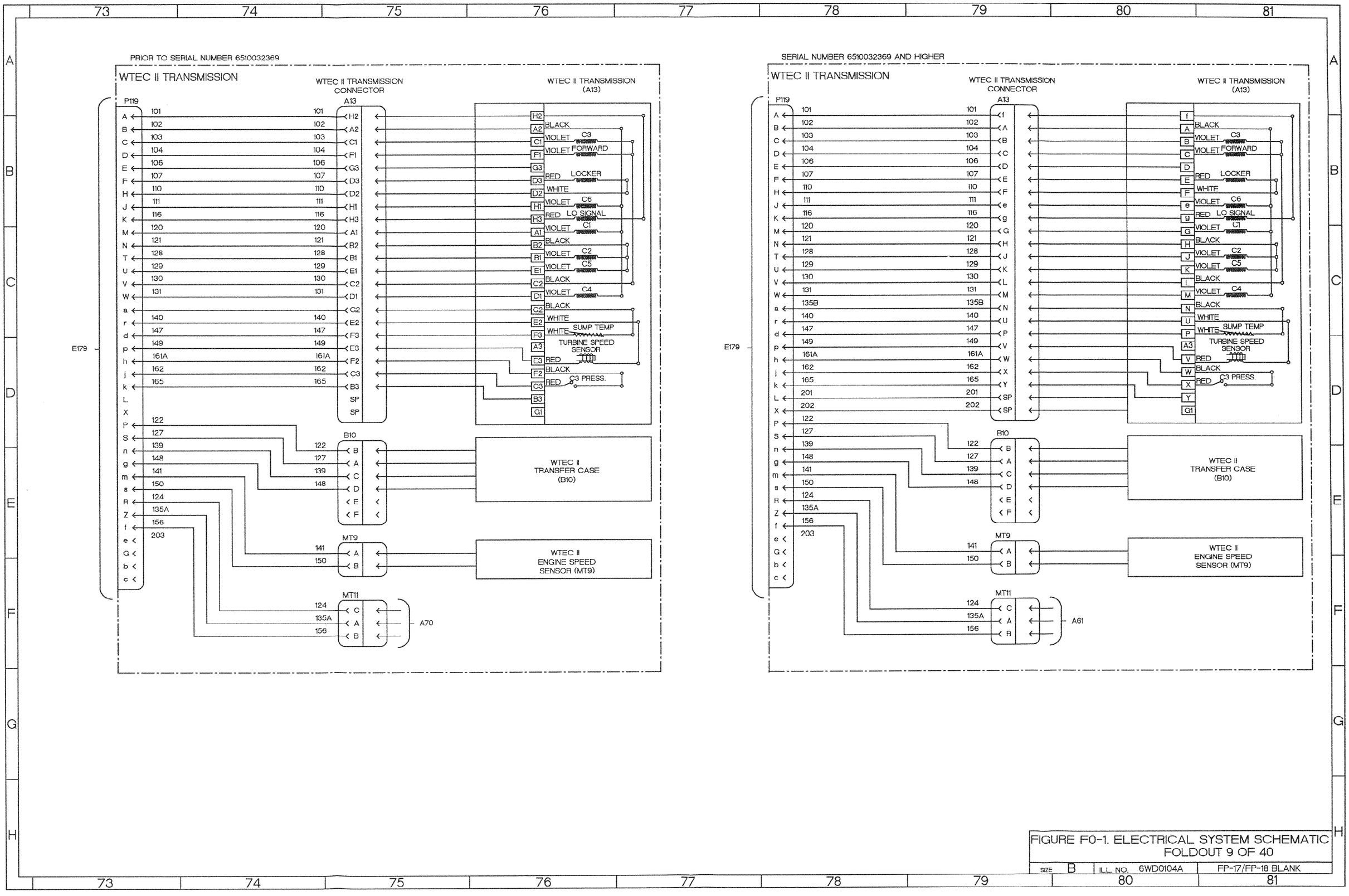


FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 9 OF 40

SIZE	ILL. NO.	
B	6WD0104A	FP-17/FP-18 BLANK

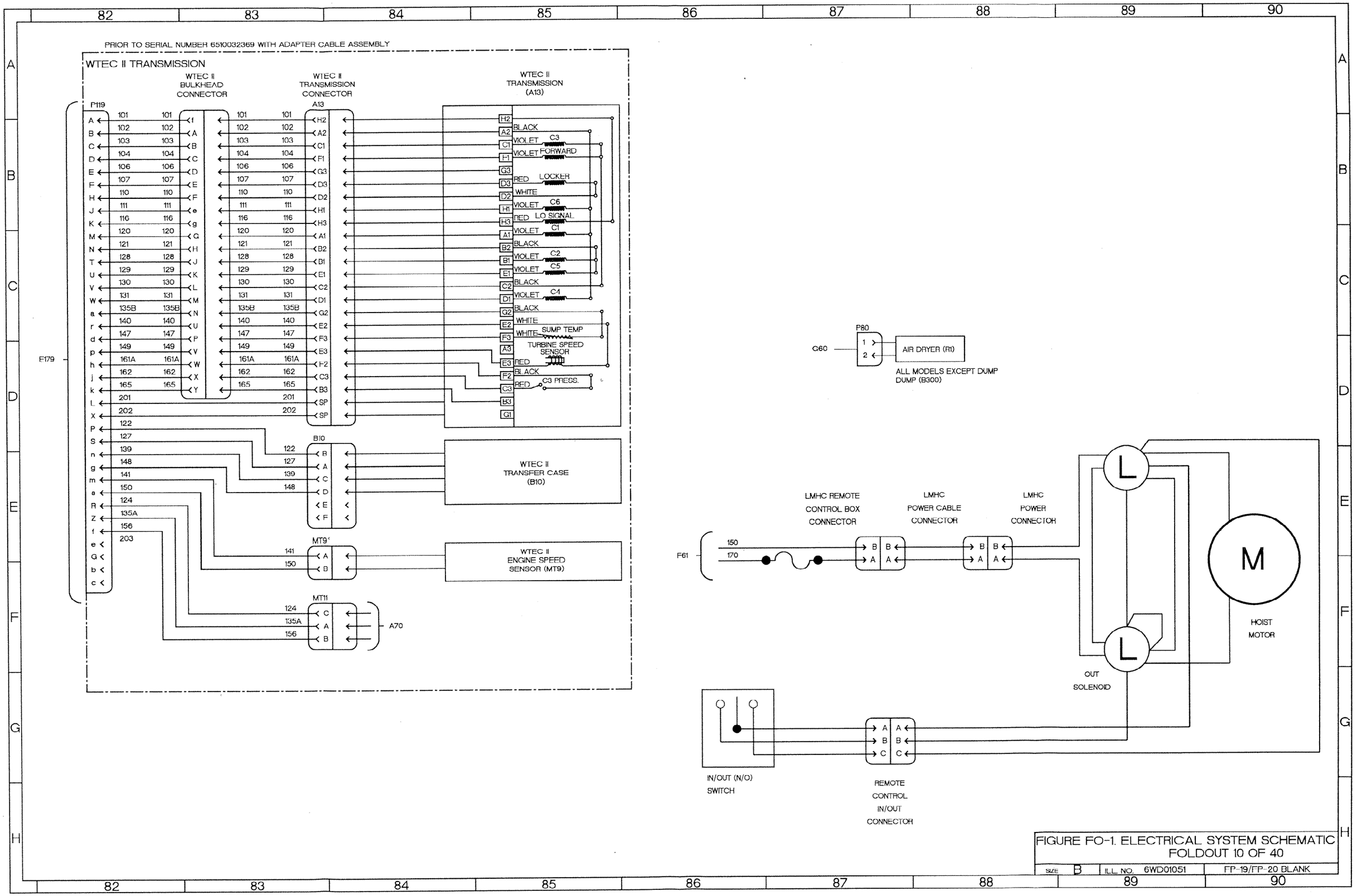


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 10 OF 40

SIZE	ILL. NO.	
B	6WD01051	FP-19/FP-20 BLANK

CAB - MARKER LIGHTS

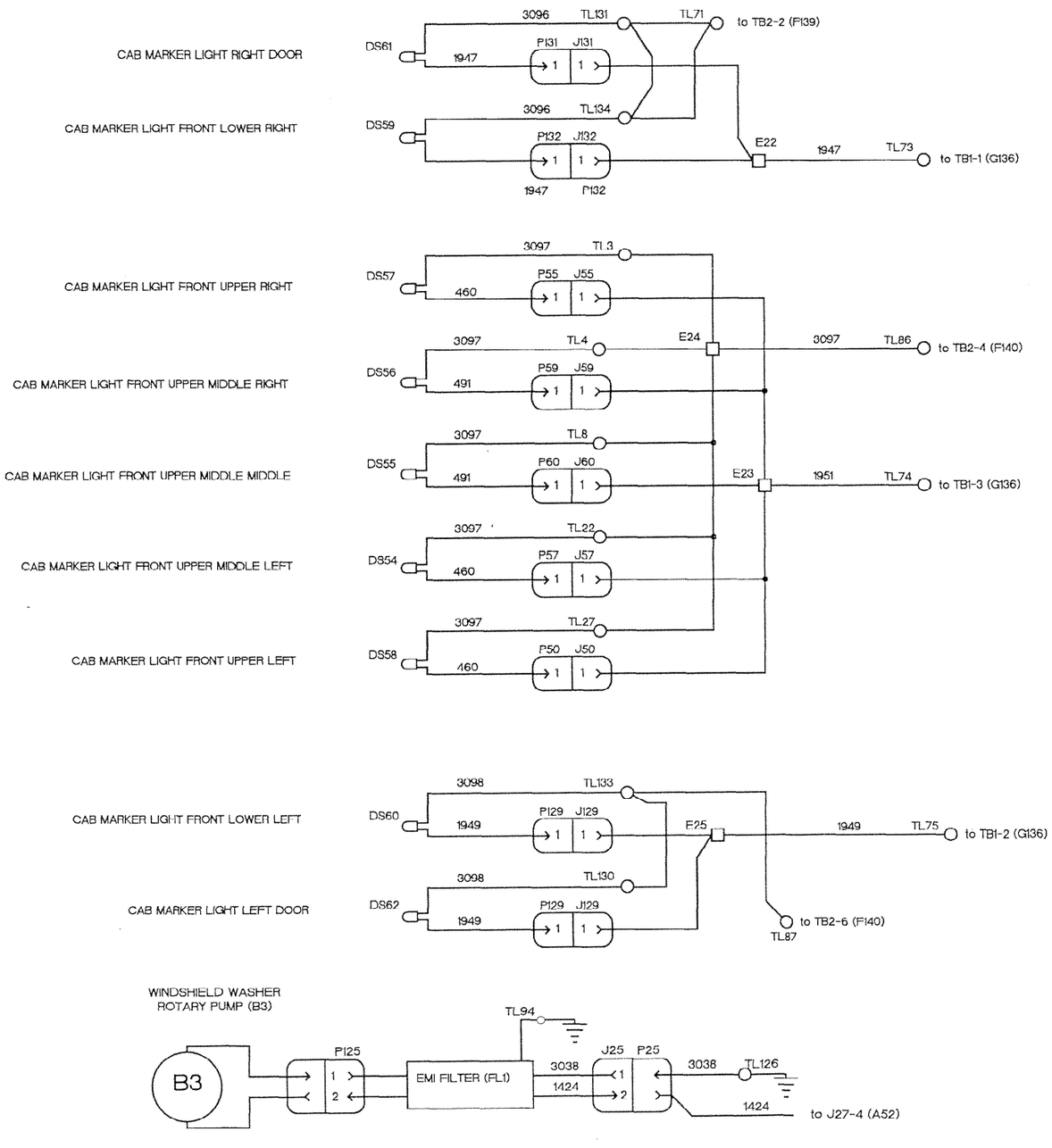


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 11 OF 40

SIZE	ILL. NO.	
B	6WD0106A	FP-21/FP-22 BLANK

CAB - DASH - LEFT - INSTRUMENT PANEL

1814 A109

ENGINE FAN OFF SWITCH (S5/11)

PX1
1 1806 to PX34-1 (E197)
2 1806 to J31-4 (F64)
3 3023 to TB2-24 (F142)
4
5 1812 to TB1-40 (F138)
6 1814
7
8

PX1A
DS8 1 1908
2 1908
3020
3020

LAMP TEST SWITCH (S5/2)

PX2
1 35 to PX7-12 (C115)
2 1537 to PX7-20 (D115)
3 3020
4 3020
5
6
7
8

PX2A
DS108 1 1908
2 3020
3020

ETHER STARTER SWITCH (S5/16)

PX13
1 1401 to TB1-39 (F138)
2
3 1402 to J31-2 (E64)
4
5
6
7
8

PX13A
DS11 1 1908
2 1908
3020
3020

WTEC II TRANSMISSION ECU PUSHBUTTON SHIFT SELECTOR

R MODE
N ⇧
D ⇩

E163

D173

REAR AIR PRESSURE METER (M5)

DS4 P

PX5
1 3020
2 3020
3 1908
4 1908
1546
1792 to TL151 (G187)

FUEL LEVEL METER (M7)

DS1 I

PX9
1 3020
2 3020
3 1908
4 1908
1546
1546
28 to J43-3 (G50)

FRONT AIR PRESSURE METER (M4)

DS3 P

PX4
1 3020
2 3020
3 1908
4 1908
1546
1546
1791 to TL150 (F187)

1546
1908
3020 F109

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 12 OF 40

SIZE B | ILL. NO. 6WD0107A | FP-23/FP-24 BLANK

CAB - DASH - LEFT - INSTRUMENT PANEL

A108 — 1814

LIGHTED INDICATOR DISPLAY (A18)

		PX7	
CHEM DETECT	DS32	1	1523 to J31-19 (G64)
RIGHT TURN SIGNAL	DS15	2	1803 to J43-6 (H51)
LEFT TURN SIGNAL	DS14	3	
DUMP BODY UP	DS9	4	1580 to TB1-41 (F138)
CTIS OVRSPD	DS34	5	
PTO ON	DS23	6	1570
EMER BRAKE	DS21	7	3021 to TB2-25 (G142)
WATER TEMPERATURE	DS25	8	2034 to P912-9 (C133)
REAR BRAKE AIR	DS27	9	1528 to J111-D (F131)
TRANS OIL TEMP	DS41	10	2021 to J913-13 (C130)
ENGINE OIL LEVEL	DS29	11	1616 to J27-16 (C52)
PARK BRAKE	DS22	12	35
OIL PRESSURE	DS24	13	1525 to TL157 (H187)
HIGH BEAM	DS16	14	
FRONT AIR BRAKE	DS28	15	
RADIATOR FAN OFF	DS19	16	1532
		17	3030 to TB2-33 (F143)
MASTER STOP	DS30	18	
		19	1536
		20	1537
		21	
		22	1616 to J27-16 (C52)
		23	34A to D38-4 (A147)
		24	1681 to K8-87 (F160)
		25	1530 to TL156 (F187)
		26	1814
		27	1658 to TB1-61 (B138)
		28	2010 to P912-7 (B133)

ENGINE OIL PRESSURE METER (M3)

DS5 — OP — PX6

1	3020
2	3020
3	1908
4	1908
	1546
	1546
	36 to J31-11 (F64)

PX6 → B118

E88 35 to PX2-1 (D101)
35 to J31-22 (H64)

E89 1537 to PX2-2 (D101)
1537 to J118-1 (D171)

VOLTMETER (M2)

DS7 — V — PX10

1	3020
2	3020
3	1908
4	1908
	1546 to J913-9 (C130)
	1546
	3004 to TB2-9 (G140)

PX10 → D118, E118

F108 — 1546, 1908, 3020 → 3020, 1908 — F118

SPEEDOMETER (M8)

DS6 — KM — PX8

1	3020
2	3020
3	1908
4	1908
	1546
	1546
	1793 to PX33-H2 (E190)
	1793 to J111-B (F131)

WATER TEMPERATURE METER (M6)

DS2 — t° — PX11

1	3020
2	3020
3	1908
4	1908
	1546
	1546
	33 to J31-20 (G64)

PX11 → G118

AUDIBLE ALARM (LS2)

32	TL178	to J31-17 (G64)
1536 (−)	TL160	
1532 (+)	TL161	

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 13 OF 40

SIZE	ILL. NO.	
B	6WD0108A	FP-25/FP-26 BLANK

CAB - DASH - LEFT - INSTRUMENT PANEL

IGNITION SWITCH (S5/1)

PX17

1548 — to K2-86 (A152)

1586 — to CB70/4 (E155)

PX17A

DS13 — 1908, 1908, 3020, 3020

B117 — 3020, 3020, 1908, 1908, 1546, 1546

STARTER PUSHBUTTON (S6)

TL163 — TL162 — 1405 — to K24-87 (A161)

3007 — to TB2-11 (G140)

MAIN LIGHT SWITCH (S4)

PX15

B	1542	
C	22	to D1A-2 (C147)
D	19	to CB54/3 (D151)
E	1572	to CB66/1 (D152)
F	1586	to CB70/4 (D155)
H	1575	
J	1577	to CB74/5 (D159)
K	1404	to K6-87 (F152)
L	491	to CB65/7 (D150)
M	16	to P18-3 (B187)
N	23	to K27-86 (G152)

ROTATING WARNING LIGHT SWITCH (S5/2)

PX12

1559 — to K13-86 (A158)

1575 — 1575 — to K20-86 (G147)

PX12A

DS10 — 1908, 1908, 3020, 3020

D117 — 3020, 3020, 1908, 1908

E117 — 1546

F117 — 3020, 1908

G117 — 3020, 3020, 1908, 1908, 1546

FULL HAZARD WARNING SWITCH (S5/22)

PX14

1	1565	to K9-87 (B151)
2	1566	to J19-5 (D186)
3	1566	to K10-87A (F159)
5	1567	to PX20-B (C197)
6	1568	to J19-12 (E186)
7	1568	to PX20-A (C197)
8	1514	to CB74/6 (E159)

PX14A

DS12 — 1908, 1908, 3020, 3020

1908 — to J913-11 (C130)

3020 — to J913-10 (C130)

INSTRUMENT PANEL LIGHTS DIMMER MODULE (A3)

PX24

1908, 1908, 1542

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 14 OF 40

SIZE B | ILL. NO. 6WD0109A | FP-27/FP-28 BLANK

CAB - DASH - CENTER - HEATER / CTIS ECU

PERSONNEL HEATER

FAN MOTOR
B4
FL3
3 HIGH
2 MED
1 LOW
OFF

PX25
1 1601 to CB23// (C166)
2 1908
3 3003 to TB2-8 (F149)
4 3003

HEATER CONTROL PANEL ILLUMINATION
DS17
DS101

J913 P913
to K12-86 (A148) 1673 — 1 1673
to CB72/2 (D148) 1674 — 2 1674
to D2B-3 (D147) 1672 — 3 1672
to CB45/4 (C148) 1670 — 4 1670
to CB49/3 (C161) 1925 — 5 1925
to J118-9 (E171) 1954 — 6 1954
to PX33-A3 (C190) 161 — 7 161
to J118-13 (E171) 161 — 8 153
to J118-8 (D171) 153 — 9 1546
to PX10-3 (E116) 1546 — 10 3020
to TB1-61 (B138) 1546 — 11 1908
to TB2-31 (G143) 3020 — 12 1550
to PX14A-2 (H121) 3020 — 13 2021
to PX14A-1 (H121) 1908 — 14 2019
1908 — 15 1904
to PX26-1 (B188) 1550
to PX7-10 (B114) 2021
to PX33-E2 (D190) 2019
to PX33-E3 (D190) 1904
G244

P912 J912
to CB50/2 (C154) 2006 — 1 1 2006
to CB48/8 (C150) 2069 — 2 2 2006
3 2069
to K12-87 (B148) 2004 — 4 3 2012
to CB63/1 (D160) 1328 — 5 4 2004
6 5 1328
to PX7-28 (D114) 2010 — 7 6 2010
to CB53/6 (E149) 2033 — 8 7 2033
to PX7-8 (B114) 2034 — 9 8 2033
to TB1-20 (D136) 2040 — 10 9 2034
to TB1-50 (D138) 2041 — 11 10 2040
to X1 (C145) 1650 — 12 11 2041
to X1 (C145) 1653 — 13 12 1650
to K19-87 (B159) 2037 — 14 13 1653
to K15-87A (A149) 1811 — 15 14 2037
15 1811
E244

PARKING BRAKE SWITCH
C51 TL202 1616 S24 3024 TL201 TL126
to P25-1 (G95)
3038

CTIS ELECTRONIC CONTROL UNIT (A2)

P110
H 01
F 02
Z 01 — 01 (ALL VEHICLES EXCEPT Wrecker + Tractor Only)
M
U 03
S 04
E 05
T 06
P 07
b 08
c 09
i 10
R 11
B 12
C 13

P111 J111
01 E E 1911 to CB40/7 (C159)
02 A A 3031 to TB2-35 (G144)
03 B B 1793 to PX8 4 (G112)
04 G G 1911 to K52-87A (G148)
05 D D 1528 to PX7-9 (B114)
06 F F 1790 to J43-2 (G51)

P113
B
C
A

P112
D
F
E
A
B
G195

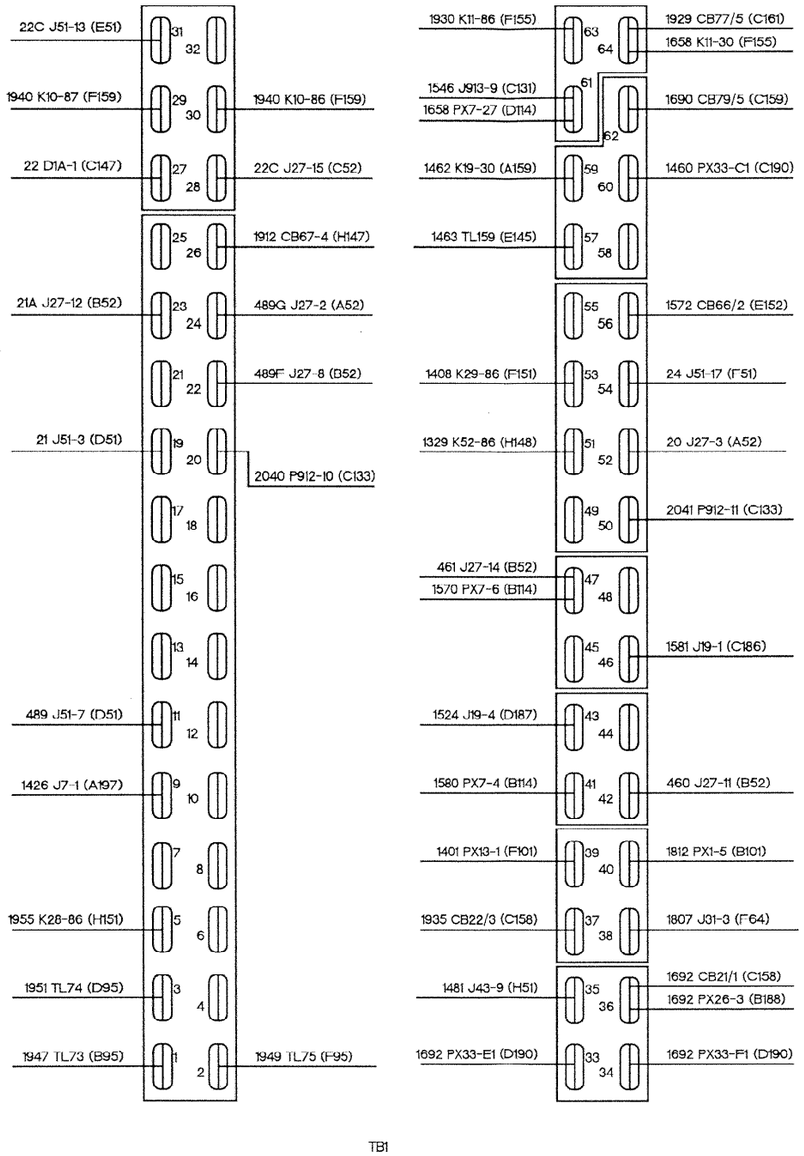
TL50
CHASSIS GROUND

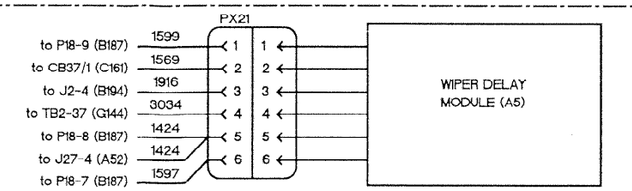
P912
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
F264
to K15-87A (A150) 1811A

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 15 OF 40

SIZE B | ILL. NO. 6WD0110A | FP-29/FP-30 BLANK

CAB - DASH - RIGHT - POWER DISTRIBUTION PANEL





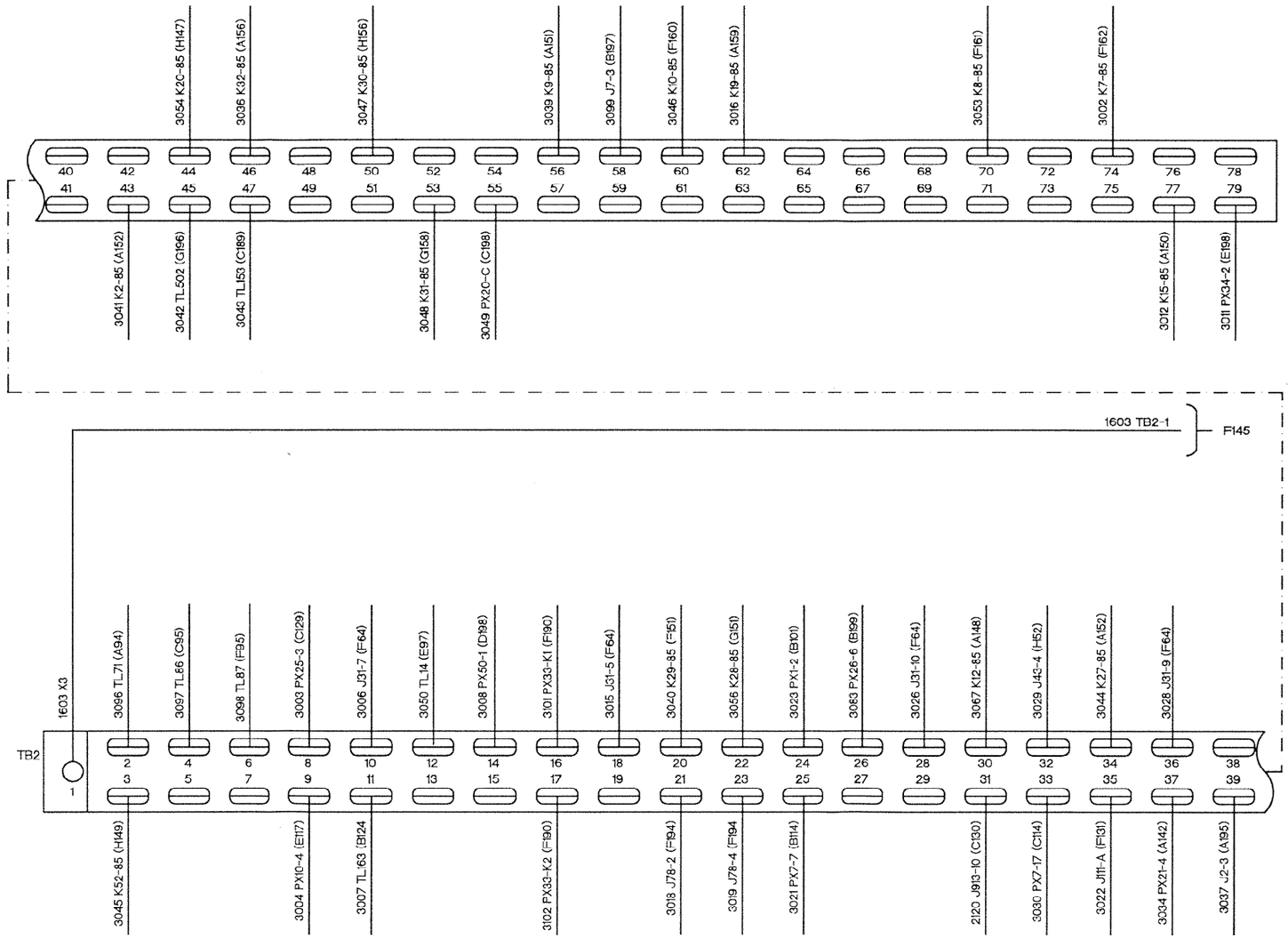


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 16 OF 40

SIZE	ILL. NO.	
B	6WD0111A	FP-31/FP-32 BLANK

CAB - DASH - RIGHT
POWER DISTRIBUTION PANEL

34 K24-85 (A160)
34A PX7-23 (D114)
D3B
D3A
74 K24-30 (F149)

1674 CB72/2
3067 TB2-30 (F143)
2004 P912-4 (B133)
K12
WORKLIGHT RELAY
2002 J51-1 (D51)
1673 J913-1 (B130)

1808 CB68/7
1806 PX34-1 (E196)
1811 P912-15 (C133)
3039 TB2-56 (B141)
3012 TB2-77 (C144)
K15
AUX. COOLER RELAY
1811A P912A-15 (C133)

1566 CB71/4
1514 CB74/6
1565 D2B-4
1565 PX14-1 (F121)
K9
HAZARD FLASHER BO OVERIDE

1602 X1
1637
1548 PX17-1 (A121)
3041 TB2-43 (C144)
K2
CONTROL PANEL RELAY
1604 X6 (B154)
1548 CB76/3
A154
B154

3054
1566
C154

to CB43 (C343)
to CB79 (B343)
to P912-12 (C133)
1650
to P912-13 (C133)
1653
to TL44 (E58)
X4 1602 K2-30
X1
+24 VDC
1602 K1-30

461B J19-2 (C187)
22 PX15-C (D124)
D1B
D1A
461B K30 86
22 TB1-27 (B136)

+24V
CHEMICAL ALARM
CB30
CB45
FUEL PREHEAT
1802 J43-5 (H51)
1670 J913-4 (B130)

+24V
CAB RADIO
CB20
CB48
ARCTIC CAB/ ENGINE KILL
1906 K53 30
2069 P912-2 (B133)

+24V
TRAILER REAR LIGHTS POWER
CB41
CB42
BO MARKER LIGHTS POWER
1957 K28-30
1958 K29-30

+24V
REAR COMPOSITE LIGHTS
CB44
CB43
REAR COMPOSITE LIGHTS
1956 K31-30
1922 K30-30
1956

1601
D154

X7 1601
X5 1601
to TL41 (E58)
X2
+12 VDC

1565 K9-87
460B J19-3 (D187)
D2B
D2A
460B K31-86
1672 J913-3 (B130)

1674 K12-30
1914 K20-87
CB72
CB67
MARKER LIGHTS
1674 J913-2 (B130)
1912 TB1-26 (C136)

+12V
2033 P912-8 (C133)
491 PX15-L (E125)
CB53
CB65
PARKING LIGHTS
491 J27-9 (C52)

19 PX15-D (D124)
1914A K20-87
CB80
CB54
TAIL LIGHTS
BO HEADLIGHT
21 J51-3 (D51)
19 J27-7 (B52)

1572 PX15-E (D125)
1548 K2-86
CB66
CB76
BO MARKER POWER
BO STOP RELAY POWER
1572 TB1-56 (C138)
1641 K6-30

1601
1514
1808
1911
E154

1911

1958 CB42/4
1408 J7-2 (B197)
1408 TB1-53 (C138)
3040 TB2-20 (F142)
484T J51-10 (E51)
K29
BO MARKER RELAY

1641 CB76-4
1404 PX15-K (E124)
1404 J51-14 (E51)
1594 TL501 (G196) TRACTOR ONLY
K6
STOP LIGHT RELAY

TL159
TL158
to TB1-57 (C138)
1463
1637 K19-86
START INHIBIT PUSHBUTTON (S7)

D135
1603 TB2-1
TL57
TL56
CAB GND
X3
GROUND

1602
461B D1B-3
460B
1691
74
G154

1601
1691 K1-86
3054 K13-85
1575 PX12-5 (D122)
3054 TB2-44 (B140)
1914 CB67/3
1914A CB80/1
K20
MARKER LIGHTS RELAY

1911 CB40/7
1329 TB1-51 (D138)
1911 J111-G (F132)
3045 TB2-3 (G139)
K52
CTIS OVERSPEED INDICATION RELAY

1906 CB20/6
74 K1-85
1906 J78-3 (F194)
K53
RADIO POWER RELAY

1957 CB41/2
3056 TB2-22 (F142)
1955 TB1-5 (F136)
489T J51-9 (E51)
K28
TRAILER REAR LIGHTS RELAY

3035 TB2-34 (F144)
1959 CB39/4
23 PX15-N (E124)
23 J51-6 (D51)
23T J51-8 (E51)
K27
BO STOP RELAY

FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 17 OF 40

SIZE B | ILL. NO. 6WD01121 | FP-33/FP-34 BLANK

CAB - DASH - RIGHT
POWER DISTRIBUTION PANEL

A153 — 1637
B152 — 1604 X6
B153 — 3054, 1566
C153 — 2006 P912 1 (B133), 1959 K27-30, 1922, 1956
D153 — 1601
E153 — 1514, 1808, 1911
F153 — 1602, 461B D1B-3, 460B, 1691, 74, 1959

1637 TL158

26 CB36/5 — 25 P18-12 (C187) — 26 J27-1 (A52) — 3036 TB2-46 (C140) — K32 — HORN RELAY

509 CB38/8 — 3054 K20-85 — K13 — ROTATING BEACON BO OVRD RELAY — 509 P65-1 (E195) — 1559 PX12-1 (D122)

1462 TB1-59 (B138) — 3016 TB2-62 (C142) — K19 — START INHIBIT RELAY — 2037 P912-14 (C133) — 54 J31-14 (C64)

1658 K11-30 — 74 D3B-3 (B146) — 74 K1-85 — 34 K11-85 — 34 D3B-4 (B145) — K24 — CRANKING LOCKOUT RELAY — 1405 TL162 (B124)

+24V — SWING FIRE PUMP POWER — CB50 — CB39 — TRAILER BO STOP LIGHTS

26 K32-30 — 1601 PX25-1 (C129) — HORN POWER — CB36 — CB23 — HEATER BLOWER

1692 TB1-36 (G138) — WTEC II VIM STE/ICE — CB21 — CB22 — FAN/ETHER — 1935 TB1-37 (F138)

1690 TB1-62 (B138) — 1911 J111-E (E132) — 1911 K52-30 — WTEC II VIM POWER — CB79 — CB40 — CTIS COOLER

E5 — 1569 J2-2 (A194) — 1569 P18-4 (B186) — 1569 PX21-2 (A143) — 1925 J913-5 (B131) — 1460 J31-13 (F64) — WINDSHIELD WIPER/WASHER — CB37 — CB49 — PTO POWER

1929 TB1-64 (B138) — 1808 K15-30 — ENGINE INSTR POWER — CB77 — CB68

+12V — IGNITION/MAIN LIGHT SWITCH — CB70 — 1586 PX15-F (D124) — 1586 PX17-5 (D121)

+12V — HEAD LIGHTS — CB78 — CB38 — ROTATING BEACON — 509 K13-30

+12V — VIM POWER — CB35 — CB71 — HAZARD/FLASHER WORKLIGHTS — 1566 K9-30 — 1900 PX33-J1 (E191) — 1900 PX33-J2 (E191)

1577 PX15-J (C125) — BACK-UP LIGHT POWER — CB74 — CB73 — 1514 PX14-7 (G122) — 1813 PX33-B1 (C190)

1328 P912-5 (B133) — CB63 — CB64

CB61 — CB62

1514 K9-86

1416 K7-30 — 1416

1911

34 K24-85 — 1658 K24-86 — 1658 TB1-64 (B138) — 1930 TB1-63 (B138) — 568A J31-1 (E64) — 1538 J31-18 (G64) — 34 J31-21 (G64) — K11 — ALTERNATOR EXCITATION RELAY

74 K24-30 — 74 K53-85 — 1602 X1 — 1691 PX33-G1 (E190) — 1691 K53-86 — 74 J43-8 (H51) — K1 — STARTER RELAY

1594 J19-6 (D187) — 1940 TB1-30 (B137) — 3046 TB2-60 (B142) — K10 — STOP/HAZARD FLASHER RELAY — 1940 TB1-29 (B136) — 1566 PX14-2 (G122)

18 J27-13 (B52) — 3053 TB2-70 (B143) — 1417 K7-87 — 16A P18-2 (B187) — K8 — HEADLIGHT LO/HI-BEAM RELAY — 17 J27-6 (B52) — 1681 PX7-24 (D114)

3002 TB2-74 (B143) — 1416 CB76/6 — 16 P18-3 (B187) — 1417 K8-30 — K7 — HEADLIGHT RELAY

1922 CB43/8 — 3047 TB2-50 (C140) — 461T J51-15 (E51) — K30 — REAR LEFT COMPOSITE LAMP RELAY — 461B — E3 — 461B J51-12 (E51) — 461B J27-5 (B51) — 461B J51-5 (E51) — 461B D1B-3

1956 CB44/6 — 3048 TB2-53 (C142) — K31 — REAR RIGHT COMPOSITE LAMP RELAY — 460T J51-16 (E51)

E4 — 460B D2A-1 — 460B J51-4 (D51) — 460B J51-11 (E51) — 460B J27-10 (B51)

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 18 OF 40

SIZE B | ILL. NO. 6WD0113A | FP-35/FP-36 BLANK

CAB - DASH - LEFT - WTEC II TRANSMISSION HARNESS

G175: 123 118 115 113 105 / 125 119 117 114 112

H177: 135A/B 156 147 149 161A/B / 162 148 150 165

G176 G176 G176

G174

J115
1 135A/B
2 136A/D
3 137
4
5 139
6 140
7 141
8 142A/B
9 143A/D
10 144
11 136C/D
12 146
13 147
14 148
15 149
16 150
17 151A/B
18 143C/D
19 153
20 154
21 155
22 156
23 157
24 158
25
26
27 161A/B
28 162
29 163
30
31 165
32
33
34

C104

J116
143A A1
132 B1
C1
123 D1
136A E1
146 F1
143C A2
157 B2
125 C2
112 D2
136C E2
113 F2
115 A3
B3
158 C3
D3
E3
114 F3

D194

P118 J118
105 1 1537 PX7-20 (C114)
118 2
119 3
4
137 5
142B 6
151B 7
153 8 153 J913-8 (B130)
155 9 1954 J913-6 (B130)
10
11
154 12
161B 13 161 J913-7 (B130)
163 14 163 PX33-A2 (C190)
15
117 16

J117
143D A
B
C
D
E
F
G
136D H
142A J
151A K
L
M

WTEC II DIAGNOSTIC CONNECTOR

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 19 OF 40

SIZE B | ILL. NO. 6WD0114A | FP-37/FP-38 BLANK

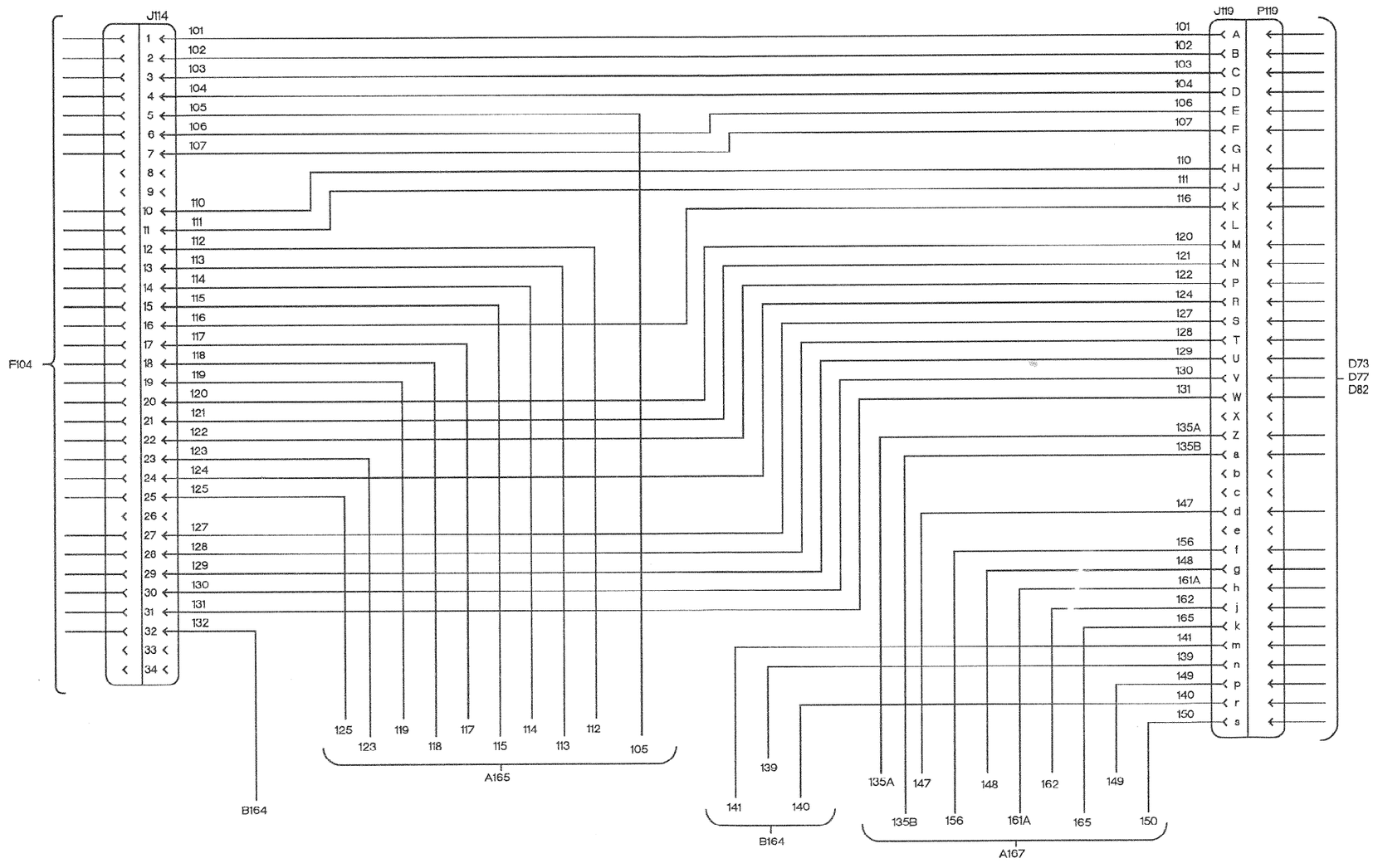


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 20 OF 40

SIZE		II.I. NO.	
B	6WD0115A	FP-39/FP-40 BLANK	

CAB - DASH - LEFT - UNDERDASH

STE / ICE RECEPTACLE

P83

f 1610
AB 1437
AD 1431
z 1446
x 1427
p 1423
m 1438
AA 1436
g 1612
k 1439
n 1421
w 1425
y 1447
AC 1429
R 1441
N 1452
P 3A
d 1432
c 1433
v 1435
u 1428
O 1453
E 1471
V 1472
Y 1474
T 1480
S 1479
M 1478
F 1475
X 1476
W 1477
h — R2
j
s — R6
U 1482
Z 1482
a 1482 — E71
b 1482

JUNCTION BOX (BJ1)

1610
1430
R5
1437
1431
1446
1427
1423
1438
1436
1612
R4
1434
1439
1421
1425
1447
1429

BLUE
BROWN
GREEN
RED
YELLOW
BLACK
WHITE

J31X

1441 1
1452 2
3A 3
1432 4
1433 5
1430 6
1435 7
1434 8
1428 9
1453 10
D64

J43X

1471 1
1472 2
1474 3
1480 4
1479 5
1478 6
1475 7
1476 8
1477 9
F50

COLUMN SWITCH (S3)

P18

1 — 16A — to K8-86 (F160)
2 — 16 — to K7-86 (F162)
3 — 16 — to PX15-M (E125)
4 — 1569 — to CB37/1 (B161)
5 — 1527 — to J2-5 (B195)
6 — 1590 — to J2-1 (A195)
7 — 1597 — to PX21-6 (B142)
8 — 1424 — to PX21-5 (B142)
9 — 1599 — to PX21-1 (A142)
10
11
12 — 25 — to K32-86 (B156)

COLUMN SWITCH (S3)

J19

1 — 1581 — to TB1-46 (E138)
2 — 461B — to D1B-4 (C146)
3 — 460B — to D2A-2 (D147)
4 — 1524 — to TB1-43 (E137)
5 — 1566 — to PX14-2 (G122)
6 — 1594 — to K10-30 (F159)
7
8
9
10
11
12 — 1568 — to PX14-6 (G122)

FREQUENCY DIVIDER (A7)

INPUT (+)
OUTPUT (+)
+24V POWER
INPUT (-)
OUTPUT (-)
GROUND

PX26

1 — 1550 — to J913-12 (C130)
2 — 1444 — to J31-8 (F64)
3 — 1433 — to J31-26 (H64)
4 — 1692 — to TB1-36 (G138)
5 — 3083 — to J31-16 (G64)
6 — 1432 — to J31-25 (G64)
3083 — to TB2-26 (F142)

STOP LIGHT SWITCH (S10A)

TL152 — TL153 — 3043 — 3043 — to TB2/47 (C140)
1594 — 1594 — to TL501 (G197) (TRACTOR ONLY)

STOP LIGHT SWITCH (S10B)

TL154 — TL155 — 3043
1594

FRONT AIR PRESSURE TRANSMITTER

SENSOR (MT4) / SWITCH (S20)

TL150 — 1791 — to PX4-4 (G106)
P
TL156 — 1530 — to PX7-25 (D114)

REAR AIR PRESSURE TRANSMITTER

SENSOR (MT5) / SWITCH (S29)

TL151 — 1792 — to PX5-4 (B106)
P
TL157 — 1525 — to PX7-13 (C114)

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 21 OF 40

SIZE B | ILL. NO. 6WD0116A | FP-41/FP-42 BLANK

CAB - DASH - RIGHT - UNDERDASH

WINDSHIELD WIPER MOTOR (B2)

B2

PX22

EMI FILTER (FL2)

P2 J2

1590 to P18-6 (B187)
1569 to CB37/1 (B160)
3037 to TB2-39 (G144)
1916 to PX21-3 (A142)
1527 to P18-5 (B187)

TRANSMISSION DIMMER MODULE

J7

1426 to TB1-9 (F139)
1408 to K29-86 (F150)
3099 to TB2-58 (B144)
158

WTEC II VEHICLE INTERFACE MODULE (A10)

PX33

to J51-2 (D51)
to J118-14 (E171)
to J913-7 (B130)
to CB73/8 (E159)
to TB1-60 (B138)
to TB1-33 (G137)
to J913-14 (D130)
to J913-15 (D130)
to TB1-34 (G138)
to K1-86 (F158)
to PX8-4 (G112)
to CB35/2 (E158)
to CB35/2 (E158)
to TB2-16 (F141)
to TB2-17 (G141)

PTO ENABLE OUTPUT RELAY SF02
DIFFERENTIAL LOCK RELAY SF04
REVERSE WARNING RELAY RW
INDICATOR OUTPUT RELAY SF01
NEUTRAL START RELAY NS
NOT USED SF3

REV
SF01
SF4
SF02
NS
FL
10A
10A
S02
S03

P116

D168

TURN SIGNAL FLASHER (A1)

OUTPUT
INPUT
GROUND

PX20

1568 to PX14-6 (G122)
1567 to PX14-5 (G122)
3049 to TB2-55 (C141)

INTER-AXLE DIFFERENTIAL SOLENOID (L6)

PX50

to TB2-14 (F141)
3008
1697

L

ROTARY WARNING LIGHTS CONNECTION

to K13-87 (B158) 509 P65 J65 509 to J62-B (E97)

FAN SOLENOID (L1)

to K15-86 (A149) 1806
to PX1-1 (A101) 1806
to TB2-79 (C144) 3011

PX34

L

CHEMICAL ALARM CONNECTION

P99 J99

to J43-6 (H51) 1803 — 1803 to TL88 (B97)
to J43-7 (H51) 1804 — 1804 to TL98 (B97)

CAB RADIO CONNECTION

J78

to TB2-21 (G142) 3018
to K53-87A (H150) 1906
to TB2-23 (G142) 3019

J113

G132

CTIS PRESSURE TRANSDUCER

CTIS PNEUMATIC CONTROLLER

C180 1594
to K6-85 (F152) 1594

TL501 TL502

3042 to TB2-45 (D140)

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 22 OF 40

SIZE B | ILL. NO. 6WD0117A | FP-43/FP-44 BLANK

WRECKER REAR LIGHTS

LH INTERMEDIATE MAKER — P94 — 1 — 489 — TL88 — 3089

LH WORK LIGHTS — P133 (A 3063, B 2002); P133A (1 3064, 2 2002) — E54

E341 — P107 (a 3088, b 3087, d 2037, e 2033, f 2069, g 2006, z 2033) — TL54

CAB-DASH-RIGHT-POWER DISTRIBUTION PANEL

D52 — P51 (1 2002, 2 490, 3 21, 4 460B, 5 461B, 6 23, 7 489, 8 23T, 9 489T, 10 484T, 11 460B, 12 461B, 13 22C, 14 1404, 15 461T, 16 460T, 17 24) — E53

B258 — P108 (9 2033, 13 2037, 14 2033, 15 2069, 16 2006)

RH WORK LIGHTS — P134A (1 3062, 2 2002) — E55; P134 (A 3061, B 2002)

RH INTERMEDIATE MARKER — P95 — 1 — 489 — TL89 — 3089 — T90 — 3089

TL93 — 3094; TL92 — 3094; 3094

E49

E57

E48

E47

E46

E59

E58 — P53R (3094 1, 489T 2, 3094 3, 1404 4, 460T 5, 23T 6, 484T 7, 461T 8, 484T 9, 484T 10) — F236

P52R (21 1, 489 2, 3045 3, 461B 4, 22C 5, 460B 6, 489 7) — B239

E52

E51 — P85 — 489 — DS65 LH SIDE MARKER LIGHT — 3094 — TL15

P86 — 489 — DS66 LH REAR MARKER LIGHT — 3094 — TL16

P74 — 461B — DS37 REAR LEFT COMPOSITE

P78 — 21 — DS72 REAR LEFT COMPOSITE

E28 — P76 — 24 — DS51 BLACKOUT MARKER LEFT REAR

P77 — 23 — DS35 BLACKOUT STOP LEFT REAR

3094 — 3094 TL86 — TL18 — DS45

P87 — 490 — BACKUP LIGHT — 3094 — TL17

E50 — P54 — 489 — DS69 LEFT REAR MARKER — 3094 — TL30

P56 — 489 — DS70 MIDDLE REAR MARKER — 3094 — TL31

P58 — 489 — DS71 RIGHT REAR MARKER — 3094 — TL32

P61 — 460B — DS38 REAR RIGHT COMPOSITE

P64 — 21 — DS73 REAR RIGHT COMPOSITE

P62 — 24 — DS52 BLACKOUT MARKER RIGHT REAR

P63 — 23 — DS36 BLACKOUT STOP RIGHT REAR

3095 — 3095 TL21

P89 — 489 — DS68 RH REAR MARKER LIGHT — 3095 — TL20

P88 — 489 — DS67 RH SIDE MARKER LIGHT — 3095 — TL19

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 23 OF 40

SIZE B | ILL. NO. 6WD0118A | FP-45/FP-46 BLANK

REAR LIGHTS TRACTOR

LH WORKLIGHTS — P133A (1, 2) / P133 (A, B)

RH WORKLIGHTS — P134A (1, 2) / P134 (A, B)

E33, E34, TL109

D52 — P51: 1 2002, 2 490, 3 21, 4 460B, 5 461B, 6 23, 7 489, 8 23T, 9 489T, 10 484T, 11 460B, 12 461B, 13 22C, 14 1404, 15 461T, 16 460T, 17 24

F236 — P53M: 1 3033, 2 489T, 3 3089, 4 1404, 5 460T, 6 23T, 7 484T, 8 461T, 9 484T, 10 484T; TL93M

B239 — P52M: 1 21, 2, 3 489, 4 3045, 5 461B, 6 22C, 7 460B

E29, E35, E36, E37, E38, E39, E40, E41, E42, E43, E45, E56

E26, E27, E30, E31, E32, E44

F236 — P53R: 1 489T, 2, 3 1404, 4 460T, 5 23T, 6 484T, 7 461T, 8 484T, 9 484T, 10

B239 — P52R: 1 21, 2, 3 489, 4 3045, 5 461B, 6 22C, 7 460B

P86 (1) — DS66 LH REAR MARKER LIGHT

461B — P74 (1) — DS37

21 — P78 (1) — DS72 LH COMPOSITE LIGHT

24 — P76 (1) — DS51

23 — P77 (1) — DS35

490 — P87 (1) — DS45 BACKUP LIGHT

TL17

TL20, TL92

489 — P89 (1) — DS68 RH REAR MARKER LIGHT

TL21

P63 (1) — DS36

P62 (1) — DS52 RH COMPOSITE LIGHT

P64 (1) — DS73

P61 (1) — DS38

489 — P58 (1) — DS71 RIGHT REAR MARKER

TL30

489 — P56 (1) — DS70 REAR MIDDLE MARKER

TL31

489 — P54 (1) — DS69 LEFT REAR MARKER

TL32

TL93, E28

TL16

TL18

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 24 OF 40

SIZE B | ILL. NO. 6WD0119A | FP-47/FP-48 BLANK

208 209 210 211 212 213 214 215 216

LONG WHEEL BASE REAR LIGHTS

LH INTERMEDIATE MAKER — P94 — 1 — 3050 — TL88

RH INTERMEDIATE MARKER — P95 — 1 — TL89 — 3090 — TL90 — 3089

D52 — P51

1	
2	490
3	21
4	460B
5	461B
6	23
7	489
8	23T
9	489T
10	484T
11	460B
12	461B
13	22C
14	1404
15	461T
16	460T
17	24

E64, E14, E19, E18, E72, E17, E20, E21, E15, E16

P53R — F236

1	3094
2	489T
3	3094
4	1404
5	460T
6	23T
7	484T
8	461T
9	484T
10	484T

P52R — B239

1	21
2	
3	489
4	3045
5	461B
6	22C
7	460B

P85	489	DS65	LH SIDE MARKER LIGHT
	489	TL15	
P86	3050	DS66	LH REAR MARKER LIGHT
	3094	TL16	
P74	461B	DS37	
P78	21	DS72	
P76	24	DS51	LH COMPOSITE LIGHT
P77	23	DS35	
	TL86	TL18	
P87	490	DS45	BACKUP LIGHT
	3094	TL17	
P54	489	DS69	LEFT REAR MARKER
		TL30	
P56	489	DS70	MIDDLE REAR MARKER
		TL31	
P58	3050	DS71	RIGHT REAR MARKER
		TL32	
P61	460B	DS38	
P64	21	DS73	
P62		DS52	RH COMPOSITE LIGHT
P63		DS36	
		TL21	
	3095		
P89	3050	DS68	RH REAR MARKER LIGHT
	TL20		
	TL92		
P88	489	DS67	RH SIDE MARKER LIGHT
	TL19		

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 25 OF 40

SIZE B | ILL. NO. 6WD0120A | FP-49/FP-50 BLANK

REAR LIGHTS ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE

CAB-DASH-RIGHT-POWER DISTRIBUTION PANEL

P51
1 490
2 21
3 460B
4 461B
5 23
6 489
7 23T
8 489T
9 484T
10 460B
11 461B
12 22C
13 1404
14 461T
15 460T
16 24
17

D52

E21
P53R
3094 1
489T 2
3094 3
1404 4
460T 5
23T 6
484T 7
461T 8
484T 9
484T 10

F236

E14
E20
P52R
21 1
2
489 3
3045 4
461B 5
22C 6
460B 7

B239

3095 TL92

E19
E18
TL93

E16
P85
489 DS65 LH SIDE MARKER LIGHT
3094 TL15
P86
489 DS66 LH REAR MARKER LIGHT
3094 TL16
P74
461B DS37
P78
21 DS72 LH COMPOSITE LIGHT
P76
24 DS51
P77
23 DS35
3094
TL18
3094 TL86
P87
490 DS45 BACKUP LIGHT
3094 TL17

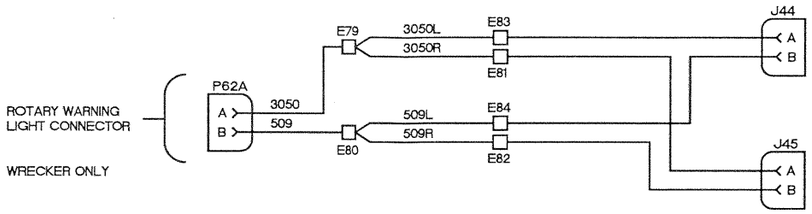
E15
P54
489 DS69 LEFT REAR MARKER
3094 TL30
P56
489 DS70 MIDDLE REAR MARKER
3094 TL31
P58
489 DS71 RIGHT REAR MARKER
3094 TL32

P61
460B DS38
P64
21 DS73 RH COMPOSITE LIGHT
P62
24 DS52
P63
23 DS36
3095
TL21
3095
P89
489 DS68 RH REAR MARKER LIGHT
3095 TL20

E17
P88
489 DS67 RH SIDE MARKER LIGHT
3095 TL19

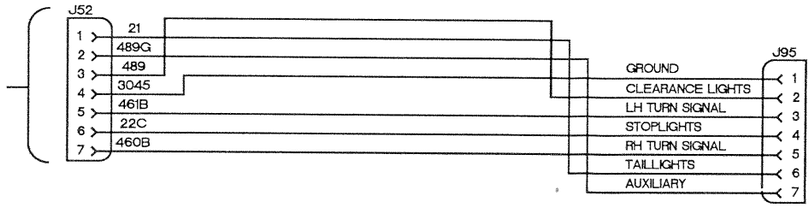
FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 26 OF 40

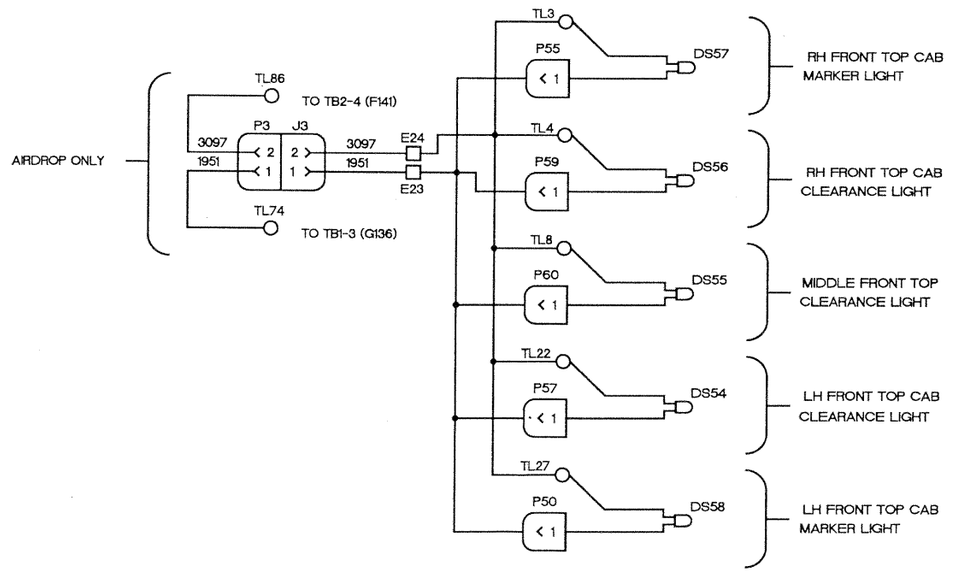
SIZE	ILL. NO.	
B	6WD0121A	FP-51/FP-52 BLANK



E232 ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E223 LONG WHEEL BASE
H214 TRACTOR
G208 TRACTOR
E205 WRECKER

12 VDC INTERVEHICULAR CABLE





D232 ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
D223 LONG WHEEL BASE
G214 TRACTOR
D205 WRECKER
F208 TRACTOR

24 VDC INTERVEHICULAR CABLE

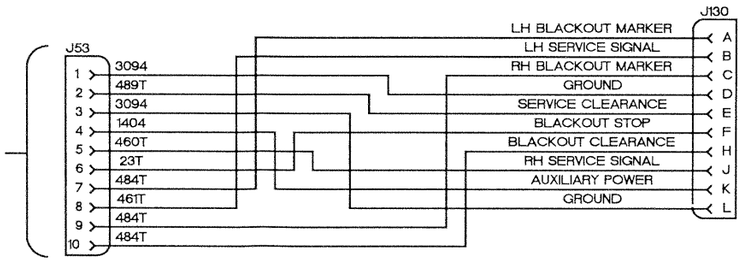


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 27 OF 40

SIZE B | ILL. NO. 6WD0122A | FP-53/FP-54 BLANK

CAB - DASH - CENTER - OPTIONS PANEL

DS18 — REV — TACHOMETER (M9) — P901: 1 3020, 2 1908, 3 1546, 4 1550

P905: 1 1673, 2 WORK LIGHTS ON/OFF SWITCH (S5/5), 5 1672

P906: 1 1673, 1673 BLACKOUT OVERRIDE SWITCH (S5/8), 5 1674

P914: 1 1670, FUEL PRE-HEAT SWITCH (S5/9), 5 1671

P908: 1 1675, ARCTIC TROOP HEATER SWITCH (S31), 5 2069

DS63 — P905A: 1 1908, 2 1908 3020 3020

PTO ON/OFF SWITCH (S5/6) — P904: 1 1904, 2 1904 1954 153, 5 1925 1952

DS64 — P906A: 1 1908 1908, 2 3020 3020

DS100 — P914A: 1 1908 1908, 2 3020 3020

DS96 — P908A: 1 1908 1908, 2 3020 3020

WINCH IN/OUT SWITCH (5/15) — P903: 1 2005, 3 1924, 7 2008

WINCH ON/OFF SWITCH (5/14) — P902: 2 1924, 6 1904

TAILGATE RELEASE SWITCH (S36) — P910: 1 2045, 3 2006

DS46 — P904A: 1 1908 1908, 2 3020 3020

DS43 — P903A: 1 1908 1908, 2 3020 3020

DS31 — P902A: 1 1908 1908, 2 3020 3020

DS98 — P910A: 1 1908 1908, 2 3020 3020

J912 — B134:

1	2006	2006
2	2069	2069
3	2012	
4	2004	
5	1328	
6	2010	
7	2033	
8	2033	
9	2034	
10	2040	
11	2041	
12	1650	
13	1653	
14	2037	
15	1811	

P913 — C132:

1	1673
2	1674
3	1672
4	1670
5	1925
6	1954
7	1952
8	153
9	1546
10	3020
11	1908
12	1550
13	2021
14	2019
15	1904

2004 — 2045 — D254

2010, 2033, 2034, 2069, 1328 — E254

2040, 2041, 2037, 2012, 1811, 1671, 1650, 1653, 2006 — F254

2008, 1670, 2005, 3020, 1908 — G254

2021, 2019 — H254

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 28 OF 40

SIZE B | ILL. NO. 6WD0123A | FP-55/FP-56 BLANK

CAB - DASH - CENTER - OPTIONS PANEL

SWING FIRE PUMP SWITCH (S5/25)

DUMP UP/DOWN SWITCH (S5/37)

DS97

DS99

P909

P909A

P911

P911A

J108 P108

J210 P210

D252

E252

F252

G252

H252

E69

P136

P135

TL68

TL69

F199
F308

to P172-F (E300)
to P172-G (E300)
to P172-C (F300)
to P172-A (F300)

MODELS W/O ARCTIC KIT D262
MODELS WITH ARCTIC KIT B271

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 29 OF 40

SIZE B | ILL. NO. 6WD0124A | FP-57/FP-58 BLANK

PTO EQUIPPED

P210
1 1811
4 2019
6 2021
8 2008
14 2005
G258

E70

P217
3068 1
2019 2
E304

TL76

P216
3025 1
2021 2
D304

J209A
1811 1
3013 2
F268

3013 TL111

J209B
1811 1
3013 2

G264 (DUMP, CARGO LWB, CARGO W/MHC, CARGO LWB W/MHC)
G268 (CARGO, AIR DROP, TRACTOR, DUMP, AIR DROP, WRECKER)

WINCH OUT SOLENOID (L5)

L5
3070 1
2 L5

TL320

WINCH IN SOLENOID (L4)

L4
3069 1
2 L4

P215 J215
2008 1 2008
2005 2 2005

J912
G134 15 1811 J209 1 F268
3013 2
3013 TL101
ALL MTV W/O PTO

P209B J209
G268 1 1811 1
2 3013 2 D266
DUMP, CARGO LWB, CARGO W/MHC, CARGO LWB W/MHC

J912
G134 15 1811 E70 J209B 1 G268
3013 2
E74 3013 TL101
J209A
1811 1
3013 2 F268
TRACTOR W/O WINCH

P209A
C266 1
F265 2
B6
TRANSMISSION AUXILIARY OIL COOLER FAN

P209B
D266 1
G264 2
B6A
TRANSMISSION AUXILIARY OIL COOLER FAN

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 30 OF 40

SIZE B | ILL. NO. 6WD0125A | FP-59/FP-60 BLANK

ARCTIC KIT W/PTO EQUIPPED

P210
1 1811
2 1671
3 1650
4 2019
6 2021
8 2008
11 1675
12 2012
13 1653
14 2005
15 2007
16 2018
17 2011
G258

E70
J209A 1811 / 3013 — F268 — P202 3082 / 1671
P217 3068 / 2019 — E304
P216 3025 / 2021 — D304
E74 — TL101 3072
J209B 1811 / 3013 — G268

WINCH OUT SOLENOID (L5)
L5 3070 — L5
TL320
WINCH IN SOLENOID (L4)
L4 3069 — L4

P215 J215 2008 / 2005
P211 2014 / 3073
P211A 2014 / 3073 — L17 ARCTIC KIT WATER PUMP

P212 2016 / 3072 — E76 — L16 ARCTIC KIT WATER SOLENOID

P410
1650 a
3075 b
3074 c
1675 d
2012 e
3071 f
2018 g
TL102 — 3076 K
2011 L
2016 N
1653 P
2014 Z
F298

E73 — TL103 3074

P214 3081 / 2007 — F282

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 31 OF 40

SIZE B | ILL NO 6WD0126A | FP-61/FP-62 BLANK

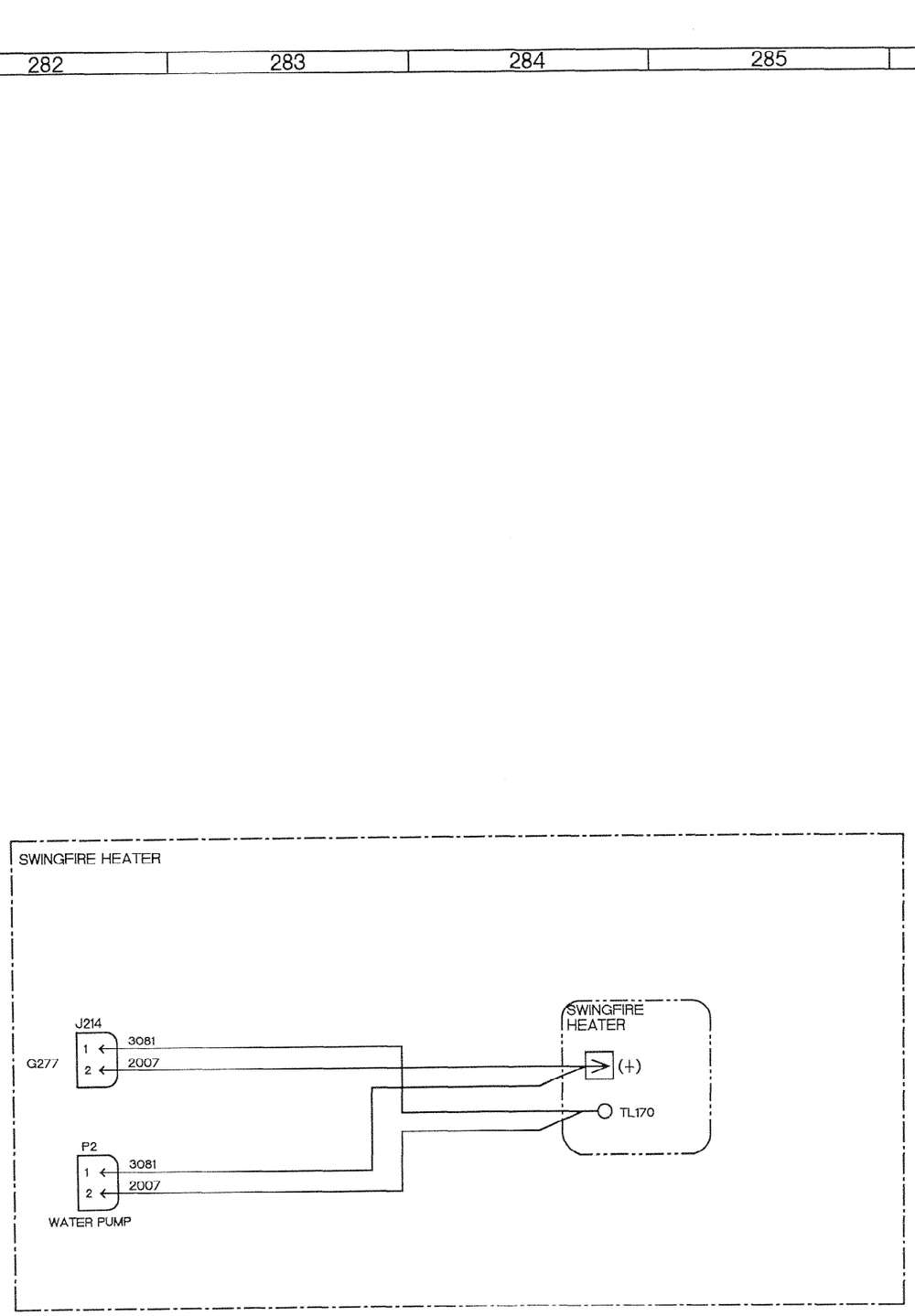


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 32 OF 40

SIZE	ILL. NO.	
B	6WD0127A	FP-63/FP-64 BLANK

289 290 291 292 293 294 295 296 297

TROOP HEATER

FURNACE ASSEMBLY

FURNACE CONTROL UNIT

ELECTRONIC CONTROL UNIT

HEATER MOTOR
HEATER SWITCH
BLK
BRN
J206 (MTV LWB)
J205
J204
J206 (MTV LWD)
J204 (MTV LWD)

P200 J211
P209 J209
P200 J210
P208 J207

WHT
WHT/BLK
WHT/BRN
WHT/RED
WHT/ORG
WHT/YEL

POWER LAMP
D52
D51

TB1 (-)
TL11 TL12 TL13 TL14 TL15 TL16 TL17 TL18 TL19 TL20

TB2 (+)
TL1 TL2 TL3 TL4 TL5 TL6 TL7 TL8 TL9 TL10

J225
CIRCULATING PUMP

J226

K1 GROUND RELAY
K2 CONTROL THERMOSTAT RELAY
K3 HEATER MOTOR RELAY
K4 IGNITION RELAY
K5 FLAME CONTROL RELAY

TO BATTERY +24V
TO BATTERY -24V
TL1
TL2
T2(+)
T1(-)
TL3
TL4
BL1
BL2
BL3
F1
MAIN POWER CIRCUIT BREAKER SWITCH
CB/50

HEATER SWITCH

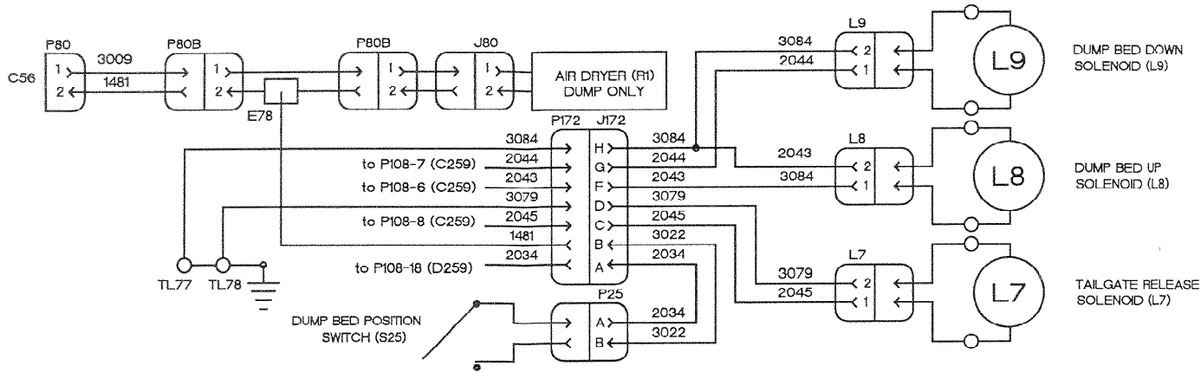
YEL
WHT
BLU
ORG
GRN
BRN
BLK

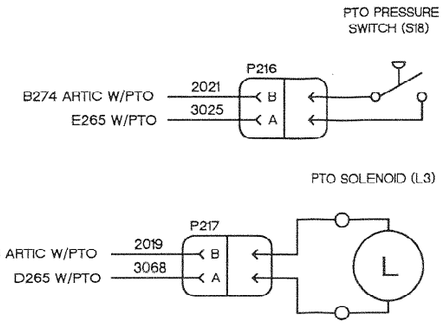
OVERHEAT FUSE
OVERHEAT THERMOSTAT
CONTROL THERMOSTAT
SOLENOID VALVE
FLAME DETECTION PHOTOCELL
ELECTRONIC IGNITION UNIT
HEATER MOTOR

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 33 OF 40

SIZE B | ILL. NO. 6WD0128A | FP-65/FP-66 BLANK

298 | 299 | 300 | 301 | 302 | 303 | 304 | 305 | 306





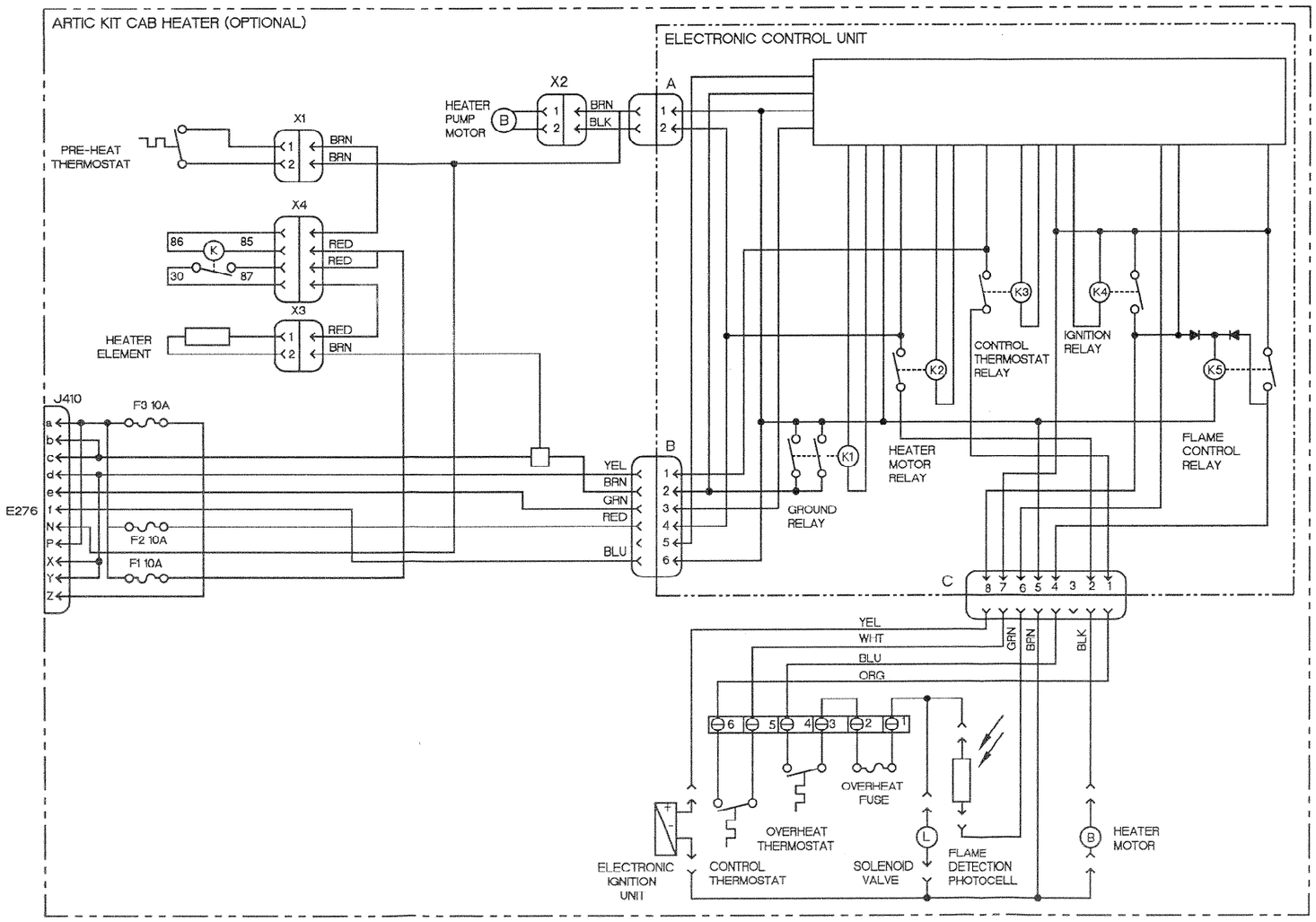


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 34 OF 40

SIZE B | ILL. NO. 6WD0129A | FP-67/FP-68 BLANK

CARGO MATERIAL HANDLING CRANE

PROXIMITY SENSOR
CABLE B
WHT
BLK
RED

JUNCTION BOX
BLK
10A
WHT
POWER SWITCH/BREAKER
DIODE ASSEMBLY
D7
D8

CONTROL LOCKOUT RELAY
RED 2
K
1 GRN
5 BLU
3 BLK
4 WHT

HYDRAULIC SYSTEM SHUTDOWN RELAY
RED 2
K
1 GRN
5 BLU
3 BLK
4 WHT

TB
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
RED
GRY
VIO
WHT
BLK
WHT
WHT
BLK
BLK
RED
TAN
YEL
WHT
PNK
BRN
BLK
ORG
BLU
BLK
RED/GRN
WHT
WHT

GROUNDING STRIP
BLK 19 20 GRN
BLK 17 18 GRN
BLK 15 16 RED
BLK 13 14 RED
BLK 11 12 GRN
BLK 9 10 GRN
BLK 7 8 BLK
BLK 5 6 BLK
BLK 3 4 BLK
BLK 1 2 BLK
BLK

P171 CABLE G
3077 WHITE
2069 GREEN
2033 BLACK
3078 RED
to P108-15 (C259)
to P108-9 (C259)
TL67

TB
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

PROXIMITY SENSOR
CABLE C
SHIELD
RED
WHT
BLK

CRANE REMOTE CONNECTOR CABLE U
RED A
GRN B
YEL C
WHT D
BLU E
BLK F
ORG G
VIO H
RED/GRN J
GRY K
TAN L
BRN M
PNK N

CRANE CONTROL PANEL
CABLE O — SYSTEM SHUTDOWN
CABLE P — BOOM UP L/O
CABLE N — CONTROL L/O
CABLE L — TELESCOPE OUT L/O
CABLE M
CABLE V — BOOM DOWN L/O
CABLE R — HOIST UP L/O
HOIST DOWN
CABLE Q — HOIST UP
CABLE T — BOOM DOWN
CABLE S — BOOM UP
CABLE H — TELESCOPE IN
CABLE I — TELESCOPE OUT
CABLE K — SWING CW
CABLE J — SWING CCW

OVERLOAD SHUTDOWN SYSTEM
HOIST
TENSION LOAD CELL
EXC
+EXC
-EXC
OUT
OUT
HOIST LAYER SENSING SWITCH
SHIELD GRN RED WHT BLK
E D C B A
OVERLOAD SHUTDOWN BOX
BLK
BLU
BRN
CABLE A

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 35 OF 40

SIZE B | ILL. NO. 6WD0130A | FP-69/FP-70 BLANK

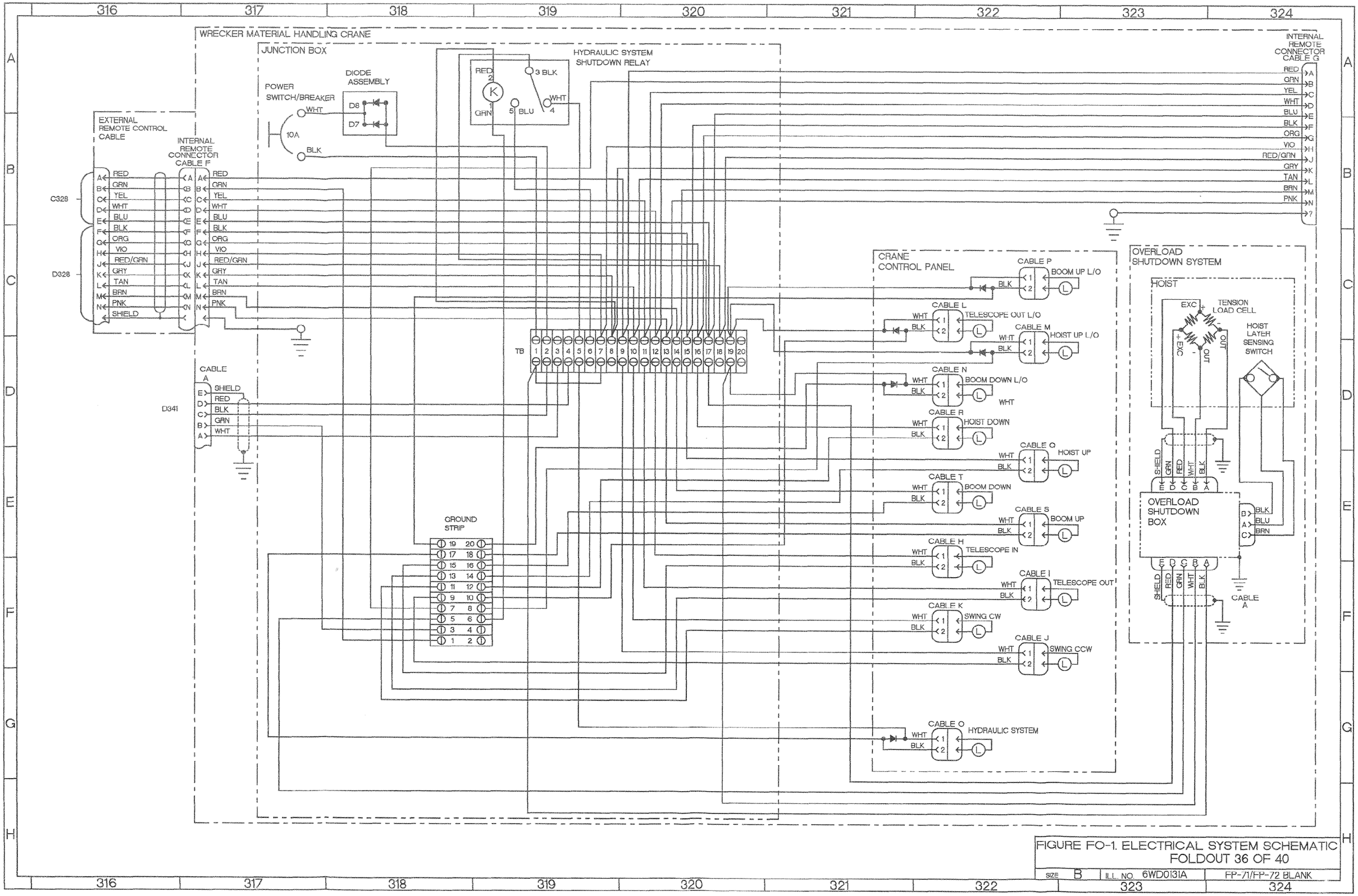
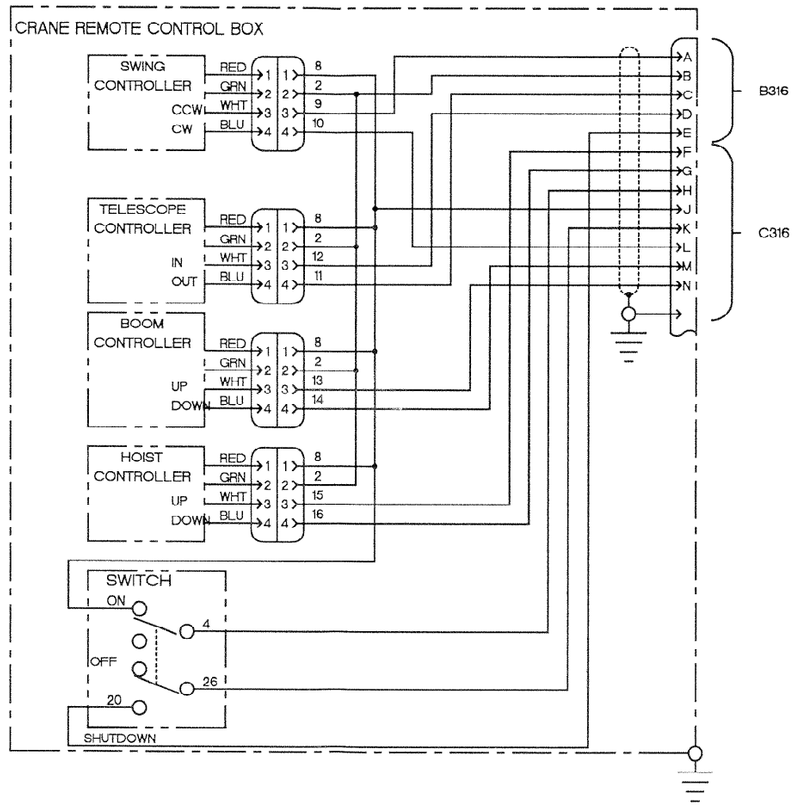


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 36 OF 40

SIZE	ILL. NO	
B	6WD0131A	FP-71/FP-72 BLANK



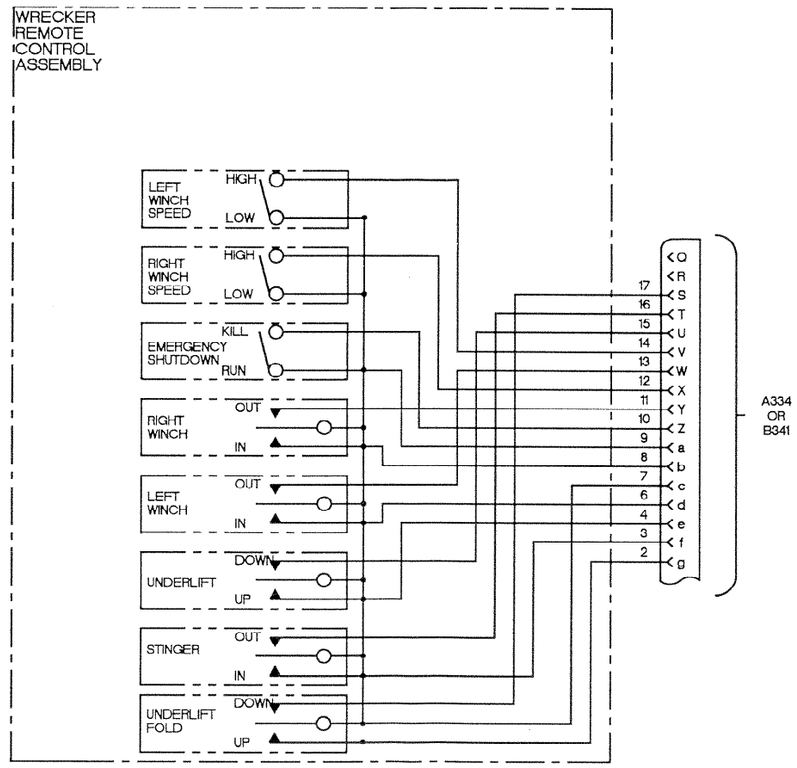


FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 37 OF 40

SIZE	ILL. NO.	
B	6WD0132A	FP-73/FP-74 BLANK

334 335 336 337 338 339 340 341 342

WRECKER CONTROLS

E333

WRECKER REMOTE CONNECTOR F

WRECKER REMOTE CONNECTOR G

E333

MAIN CONTROL PANEL

LEFT WINCH FREE SPOOL — ON / OFF

RIGHT WINCH FREE SPOOL — ON / OFF

LEFT WINCH SPEED — HIGH / LOW

RIGHT WINCH SPEED — HIGH / LOW

EMERGENCY SHUTDOWN — KILL / RUN

HYDRAULIC POWER — EXTERNAL / SLAVE

STATION SELECTOR — CONTROL PANEL / REMOTE CONTROL

CABLE A

BLU → E

BLK → C

GRN → B

D317

J4

a, b, d, g

C199

TB 2 3 3A 4 4A 5A 6 6A 7 7A 8 9 9 10 11 12 13 14 15 16 17 18 19 C C C C C

RIGHT WINCH SPEED

LEFT WINCH SPEED

RIGHT WINCH FREE SPOOL — YEL / BLK

LEFT WINCH FREE SPOOL — YEL / BLK

EXTERNAL POWER — BLU / BLU — BLK / BLK

SLAVE POWER — BLU / BLU — RED / RED

| | | |

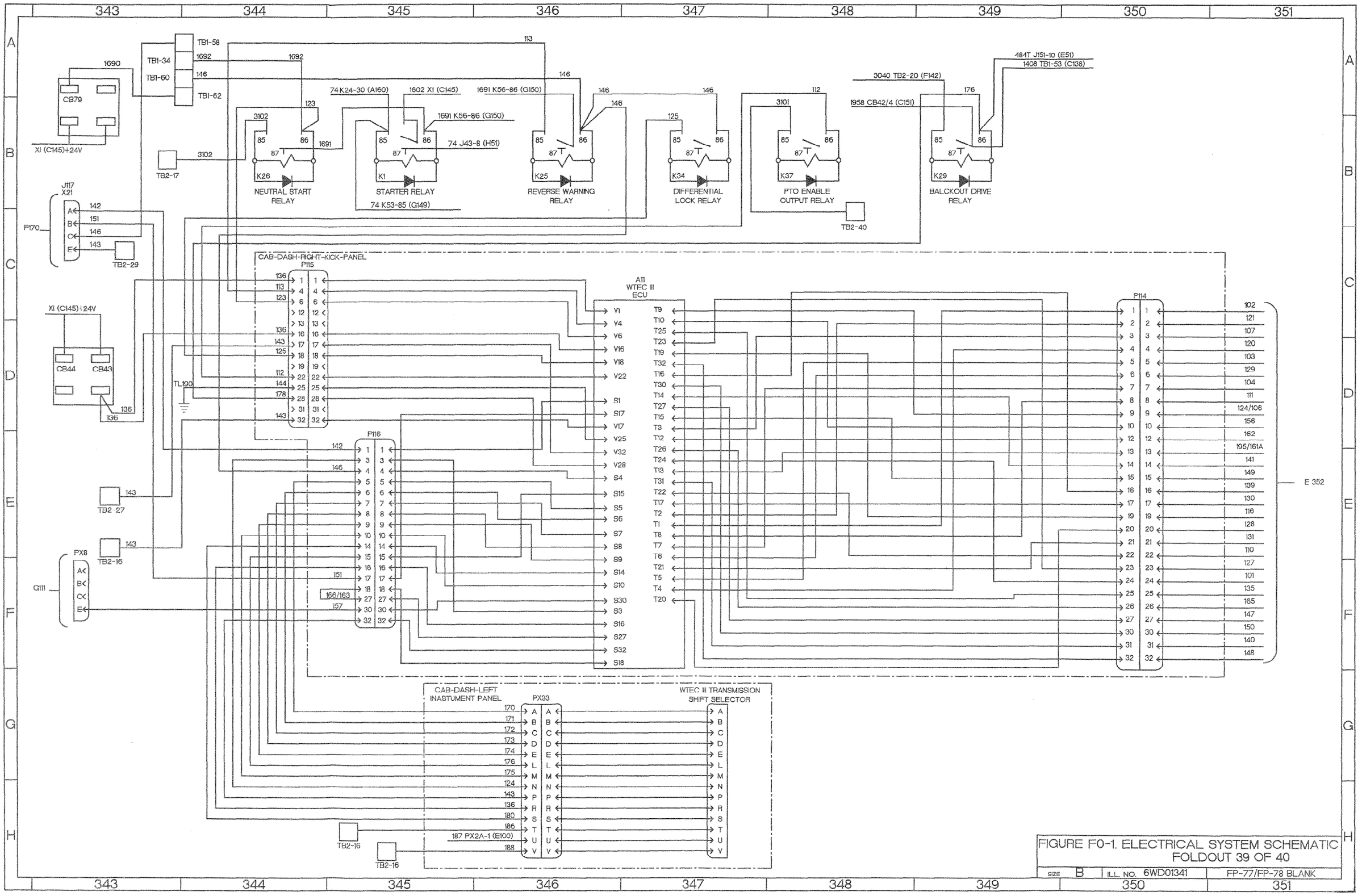


FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 39 OF 40

SIZE	ILL. NO.	
B	6WD01341	FP-77/FP-78 BLANK

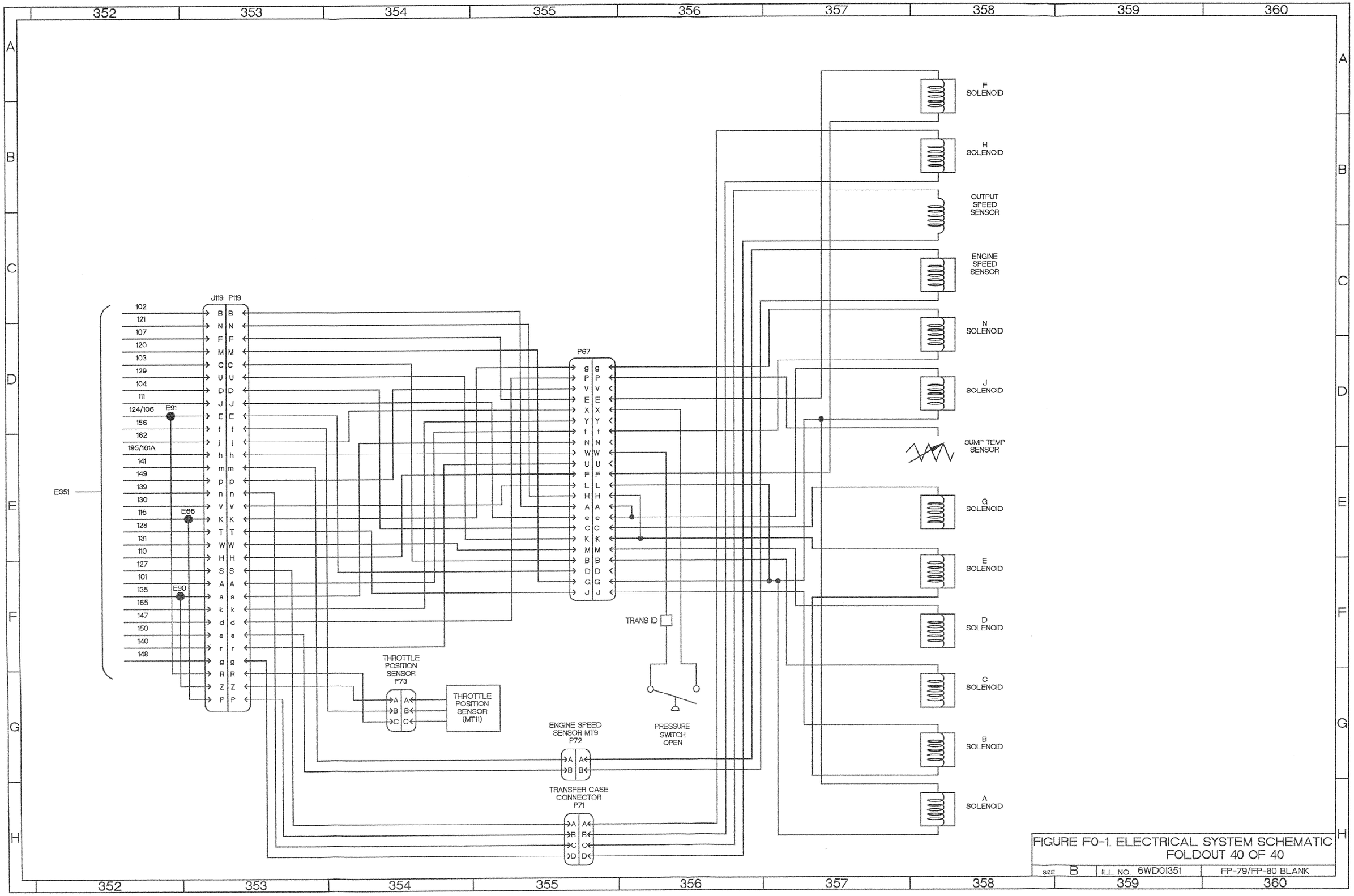


FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 40 OF 40

SIZE	I.I. NO	
B	6WD01351	FP-79/FP-80 BLANK

REAR AXLE BRAKE CHAMBER	FRONT AXLE BRAKE CHAMBER	COUPLER AIR BRAKE	AIR DRYER	AIR CLEANER INTAKE	AIR COMPRESSOR WITH GOVERNOR	AIR TANK	DASH GAUGE
MANUAL VALVE	ONE WAY CHECK VALVE	FAN CLUTCH	MODULATED CONTROL VALVE	QUICK RELEASE VALVE	TWO WAY CHECK VALVE	3/2 WAY SOLENOID VALVE	PRESSURE SWITCH
PRESSURE RELIEF VALVE	FOOT CONTROL VALVE	PARK CONTROL VALVE (HAND OPERATED)	TRAILER AIR SUPPLY VALVE (HAND OPERATED)	LOAD SENSING VALVE (MECHANICALLY CONTROLLED)	DIRECTIONAL RELAY VALVE	CONTROL VALVE WITH TWO WAY CHECK VALVE	STOPLIGHT SWITCH
CONNECTION	SUPPLY AIR HOSE	NO CONNECTION	DELIVERY AIR HOSE	PARK/EMERGENCY AIR HOSE	AIR BRAKE PROTECTING VALVE	INTERMEDIATE DIFFERENTIAL	AIR BRAKE PRESSURE TRANSMITTER
BOOSTER VALVE	AIR/HYDRAULIC INVERSION VALVE	DELIVERY AIR HOSE NO CONNECTION	DUMP TAILGATE SOLENOID	BLEED VALVE	TAILGATE CYLINDER	CTIS MANIFOLD VALVE	WHEEL VALVE
KNEELING VALVE	TIRE	(SINGLE ACTING) CYLINDER RETURN SPRING	2-POSITION SPRING OFFSET SOLENOID VALVE	(DOUBLE ACTING) CYLINDER	MANIFOLD VALVE	2-POSITION SOLENOID VALVE	

FIGURE F0-2 PNEUMATIC SYSTEM SCHEMATIC
FOLDOUT 1 OF 4

SIZE	ILL. NO.	
B	6PD01AL1	FP-1/FP-2 BLANK

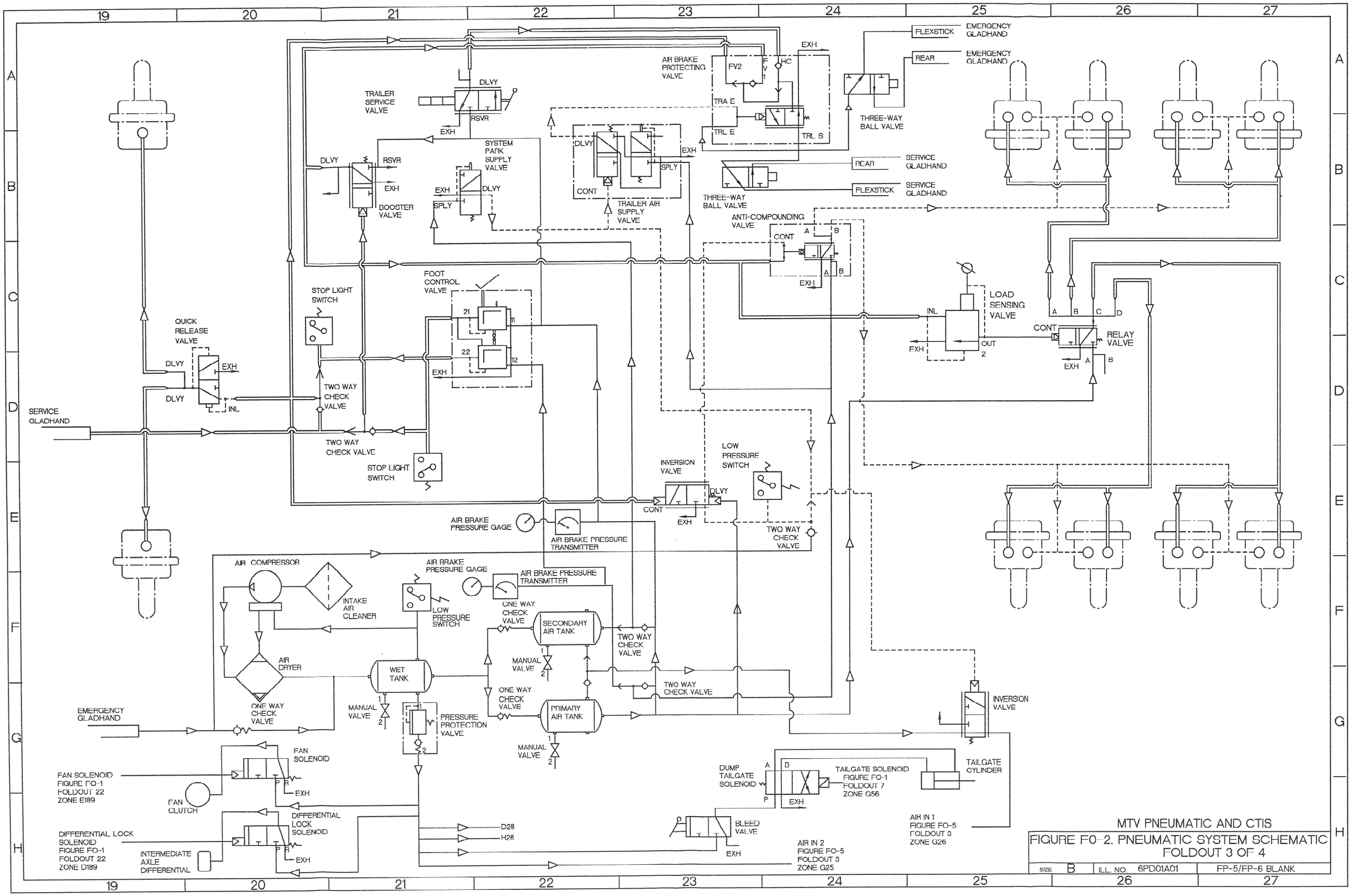
SH	ZONE	DESCRIPTION
3	E22	AIR BRAKE PRESSURE TRANSMITTER
3	F21	AIR BRAKE PRESSURE TRANSMITTER
3	A23	AIR BRAKE PROTECTING VALVE
3	F20	AIR COMPRESSOR
3	F20	AIR DRYER
3	B24	ANTI-COMPOUNDING VALVE
3	H23	BLEED VALVE
3	B21	BOOSTER VALVE
4	D30	CONTROL VALVE
4	C30	CTIS MANIFOLD VALVE
4	D31	DEFLATE VALVE
3	H20	DIFFERENTIAL LOCK SOLENOID
3	G24	DUMP TAILGATE SOLENOID
3	A25	EMERGENCY GLADHAND
3	A25	EMERGENCY GLADHAND
3	G19	EMERGENCY GLADHAND
3	H20	FAN CLUTCH
3	G20	FAN SOLENOID
3	C22	FOOT CONTROL VALVE
3	F20	INTAKE AIR CLEANER
3	H19	INTERMEDIATE AXLE DIFFERENTIAL
3	F23	INVERSION VALVE
3	G25	INVERSION VALVE
4	A28	KNEELING VALVE
4	C28	KNEELING VALVE
4	E28	LH MAIN WINCH FREESPOOL
4	E30	LH MAIN WINCH TENSIONER
4	G29	LH MAIN WINCH VALVE
3	C25	LOAD SENSING VALVE
3	E23	LOW PRESSURE SWITCH
3	F21	LOW PRESSURE SWITCH
4	F28	MANIFOLD
4	G29	MANIFOLD
3	F22	MANUAL VALVE
3	G21	MANUAL VALVE
3	G22	MANUAL VALVE
3	F22	ONE WAY CHECK VALVE
3	G20	ONE WAY CHECK VALVE
3	G22	ONE WAY CHECK VALVE
3	G21	PRESSURE PROTECTION VALVE
3	G22	PRIMARY AIR TANK
4	B30	QUICK RELEASE VALVE
4	B33	QUICK RELEASE VALVE
4	B36	QUICK RELEASE VALVE
3	C20	QUICK RELEASE VALVE
4	E30	REGULATOR
4	E31	REGULATOR

SH	ZONE	DESCRIPTION
4	F28	REGULATOR
3	D26	RELAY VALVE
4	E29	RH MAIN WINCH FREESPOOL
4	E30	RH MAIN WINCH TENSIONER
4	G33	RH MAIN WINCH VALVE
3	F22	SECONDARY AIR TANK
3	B24	SERVICE GLADHAND
3	B24	SERVICE GLADHAND
3	D19	SERVICE GLADHAND
4	G30	STINGER VALVE
3	C20	STOPLIGHT SWITCH
3	E21	STOPLIGHT SWITCH
4	D31	SUPPLY VALVE
3	B21	SYSTEM PARK SUPPLY VALVE
3	G25	TAILGATE CYLINDER
3	A24	THREE WAY BALL VALVE
3	B23	THREE WAY BALL VALVE
3	B22	TRAILER AIR SUPPLY VALVE
3	A21	TRAILER SERVICE VALVE
3	D21	TWO WAY CHECK VALVE
3	D21	TWO WAY CHECK VALVE
3	E24	TWO WAY CHECK VALVE
4	E30	TWO WAY CHECK VALVE
4	E30	TWO WAY CHECK VALVE
3	F23	TWO WAY CHECK VALVE
3	G23	TWO WAY CHECK VALVE
4	G32	UNDERLIFT FOLD VALVE
4	G31	UNDERLIFT VALVE
3	F21	WET TANK
4	C34	WHEEL VALVE
4	A28	WHEEL VALVE
4	A32	WHEEL VALVE
4	A34	WHEEL VALVE
4	C28	WHEEL VALVE
4	C32	WHEEL VALVE

MTV PNEUMATIC AND CTIS

FIGURE F0-2. PNEUMATIC SYSTEM SCHEMATIC
FOLDOUT 2 OF 4

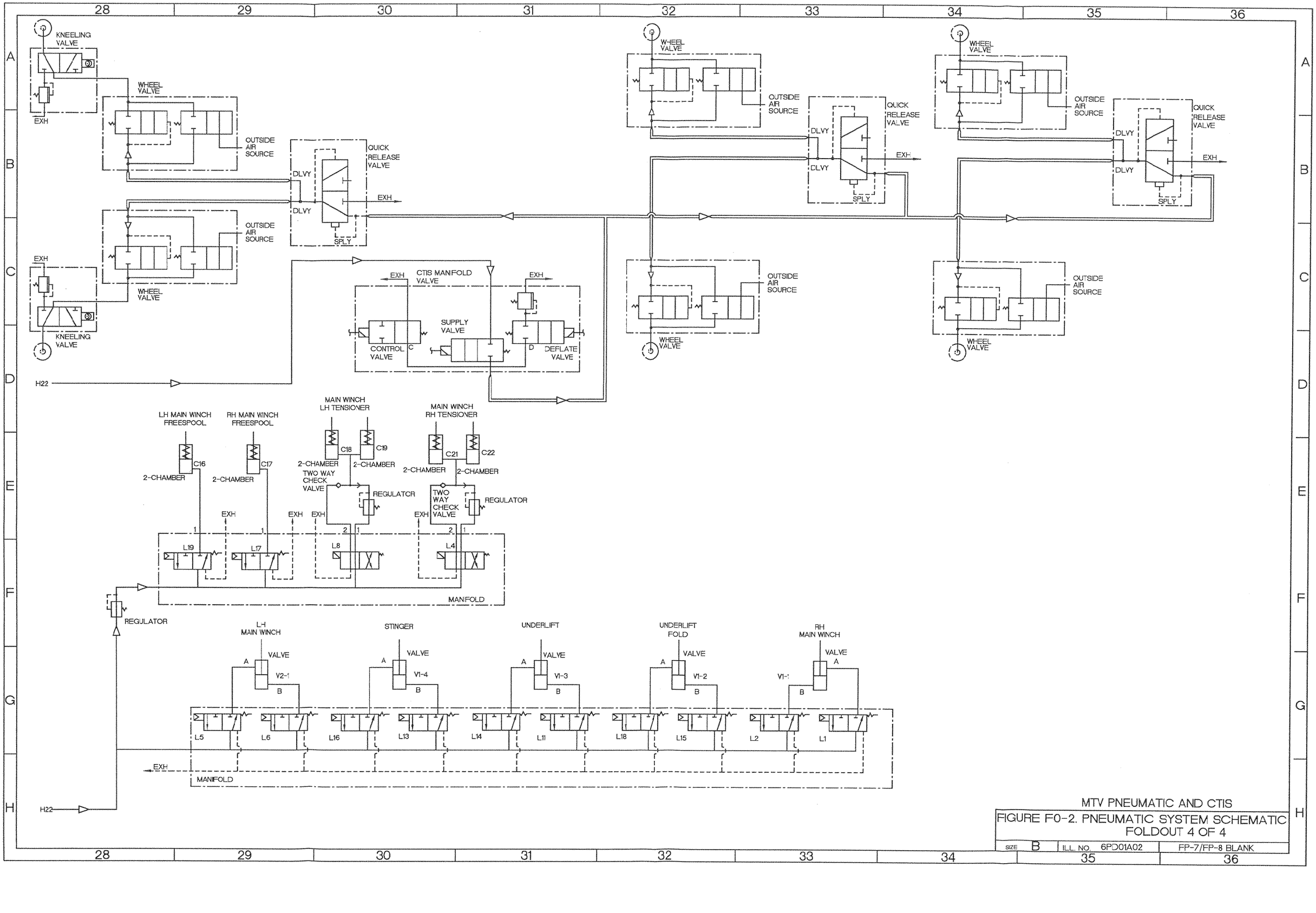
SIZE B | ILL. NO. 6PD01AL2 | FP-3/FP-4 BLANK



MTV PNEUMATIC AND CTIS

FIGURE FO-2. PNEUMATIC SYSTEM SCHEMATIC FOLDOUT 3 OF 4

SIZE	ILL. NO.	
B	6PD01A01	FP-5/FP-6 BLANK



MTV PNEUMATIC AND CTIS

FIGURE F0-2. PNEUMATIC SYSTEM SCHEMATIC FOLDOUT 4 OF 4

SIZE	ILL. NO	
B	6PD01A02	FP-7/FP-8 BLANK

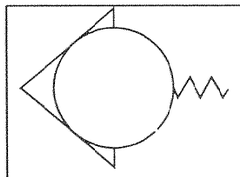
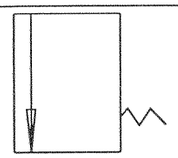
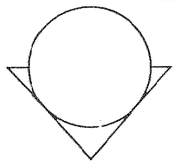
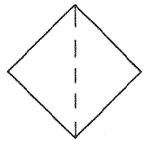
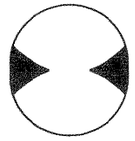
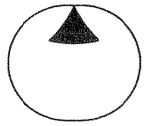
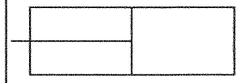
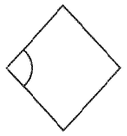
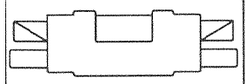
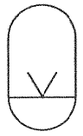
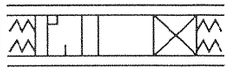
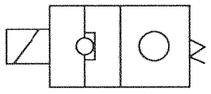
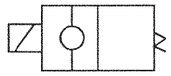
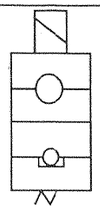
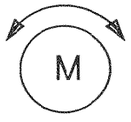
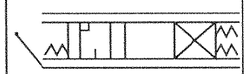
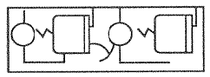
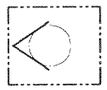
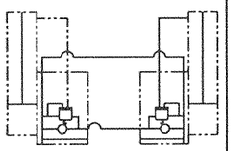
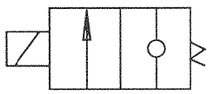
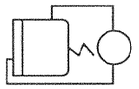
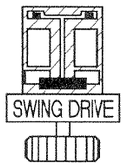
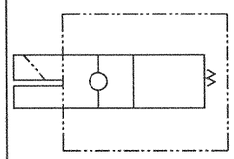
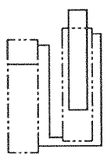
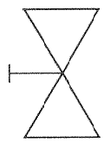
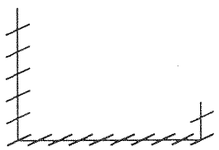
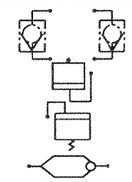
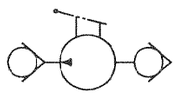
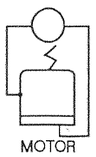
 CHECK VALVE	 BYPASS VALVE	 CHECK VALVE	 AIR OR OIL FILTER	 MOTOR	 PUMP	 PTO	 HOIST CYLINDER
 AIR LINE LUBRICATOR	 CYLINDER	 HYDRAULIC ACCUMULATOR	 FLOW CONTROL VALVE	 CLOSED 2 WAY VALVE	 2 WAY SOLENOID VALVE	 VALVE	 SWING MOTOR
 DIRECTIONAL CONTROL VALVE	 PRESSURE CONTROL VALVE	 CHECK VALVE	 HOLDING VALVE	 NORMALLY CLOSED 2 WAY VALVE	 PRESSURE RELIEF VALVE	 SWING DRIVE SWING DRIVE	 RESERVOIR
 VALVE	 HYDRAULIC CYLINDER	 MANUAL SHUT OFF	 SUCTION LINE	 CROSS OVER RELIEF VALVE	 HAND PUMP	 MOTOR CONTROL VALVE	

FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC

FOLDOUT 1 OF 8

SIZE	ILL. NO.	
B	6HD01AL1	FP-1/FP-2 BLANK

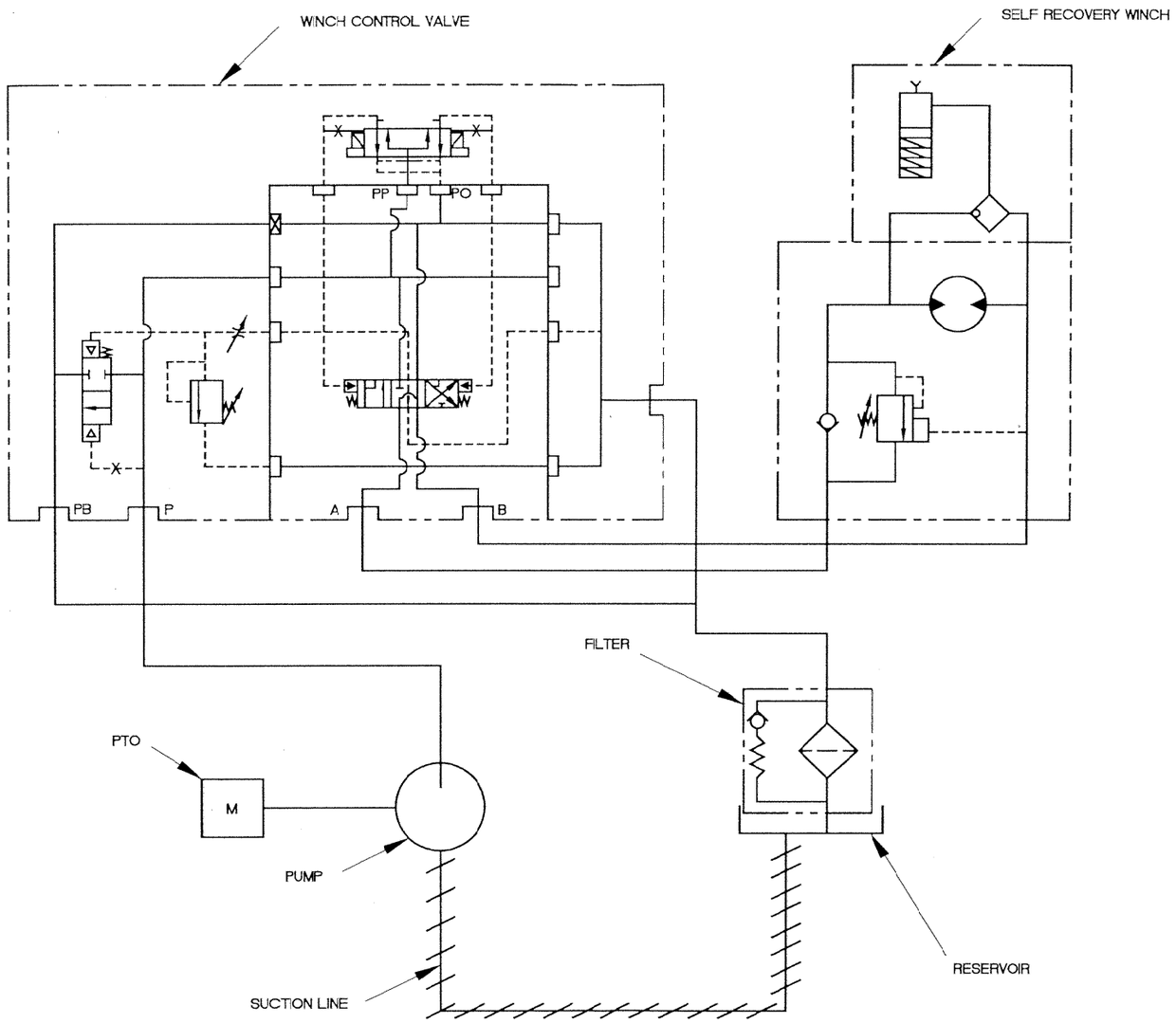
SH	ZONE	DESCRIPTION
6	D46	2 WAY SOLENOID VALVE
7	D60	2 WAY SOLENOID VALVE
7	D55	2 WAY SOLENOID VALVE, OPERATING PRESS
7	F60	3 BANK VALVE ASSEMBLY
7	C61	4 BANK VALVE ASSEMBLY
6	B52	BOOM
7	F55	BULKHEAD PLATE (SUBFRAME)
7	F57	CHECK VALVE
7	G62	CHECK VALVE
7	D55	CHECK VALVE
5	E37	CHECK VALVE CK1
5	E37	CHECK VALVE CK2
5	E37	CHECK VALVE CK3
5	E37	CHECK VALVE CK4
5	E37	CHECK VALVE CK5
5	E37	CHECK VALVE CK6
8	E65	CONTROL VALVE
5	B44	COUNTERBALANCE VALVE
6	B48	CROSS RELIEF VALVE
7	C57	CROSS RELIEF VALVE
8	E64	DUMP BODY HYDRAULIC HOIST
6	G48	ERECTION CYLINDER
5	E38	FC1 SLAVE POWER
5	E38	FC2 EXTERNAL POWER
3	F23	FILTER
4	D34	FILTER
8	E68	FILTER
5	B43	FLOW CONTROL VALVE
5	B45	FLOW CONTROL VALVE
5	B43	FOLD CYLINDER
7	C62	FULL FLOW
6	G54	GAUGE PORT
6	E47	HAND PUMP
7	E56	HAND PUMP
7	C57	HOIST
7	A62	HOIST
6	B53	HOIST
8	G65	HOIST CYLINDER
7	C58	HOIST MOTOR
6	G46	HOIST MOTOR
7	H57	HOIST MOTOR CONTROL VALVE
6	H46	HOIST MOTOR CONTROL VALVE
7	H59	HOLDING VALVE
7	G62	HOLDING VALVE
6	C47	HOLDING VALVE
6	H53	HOLDING VALVE
7	C55	HOLDING VALVE
7	G56	HOLDING VALVES
6	E48	HOLDING VALVES
6	G48	HOLDING VALVES
5	D41	HYDRAULIC MOTOR, PAY-OUT
5	E41	HYDRAULIC MOTOR, PAY-OUT
7	A60	HYDRAULIC ACCUMULATOR

SH	ZONE	DESCRIPTION
6	E54	HYDRAULIC ACCUMULATOR
7	H61	LEFT JACK CYLINDER
6	H49	LEFT JACK CYLINDER
5	G42	LEFT MAIN WINCH
7	A61	LIFT
6	E48	LIFT CYLINDERS
5	C37	LINEAR DIRECTIONAL CONTROL VALVE
5	B42	LOWER MAIN CONTROL VALVE ASSEMBLY
5	D37	M1089 MATERIAL HANDLING CRANE LOC.
6	B51	MANUAL OVERRIDE
7	G61	MAST ERECTION
7	H59	MAST ERECTION CYLINDER
4	C30	MATERIAL HANDLING EQUIPMENT
5	E38	MC1 SLAVE POWER
5	E38	MC2 EXTERNAL POWER
5	D40	MONO BLOCK VALVE ASSEMBLY
7	G58	MOTOR DRAIN
6	G46	MOTOR DRAIN
6	D54	N/C 2 WAY VALVE
6	H52	OUTRIGGER EXTENSION CYLINDER
7	A60	PRESSURE CHECK POINT
3	F21	PTO
4	E32	PTO
8	G68	PTO
3	F22	PUMP
4	E33	PUMP
8	F68	PUMP
5	F37	PUMP ASSEMBLY
5	D41	RELIEF VALVE
5	E41	RELIEF VALVE
5	F42	RELIEF VALVE ASSEMBLY
5	B42	RELIEF VALVE ASSY (RIGHT MAIN WINCH)
3	F24	RESERVOIR
4	F34	RESERVOIR
8	G69	RESERVOIR
5	G40	RETURN VALVE
5	B44	RH UNDERLIFT COUNTERBALANCE VALVE
7	G62	RIGHT JACK CYLINDER
6	H54	RIGHT JACK CYLINDER
5	B42	RIGHT MAIN WINCH
5	F40	SAMPLING VALVE
3	B24	SELF RECOVERY WINCH
5	G41	SELF RECOVERY WINCH
8	B71	SELF RECOVERY WINCH
5	G43	STIFFLEG CYLINDER LH
5	G45	STIFFLEG CYLINDER RH
5	B45	STINGER CYLINDER
7	F55	SUCTION LINE-HAND PUMP
3	G22	SUCTION LINE
4	F33	SUCTION LINE
5	F37	SUPPLY VALVE
7	A58	SWING
6	B50	SWING

SH	ZONE	DESCRIPTION
6	B48	SWING DRIVE
7	B57	SWING DRIVE
6	A48	SWING MOTOR
7	B57	SWING MOTOR
6	C46	TELESCOPE CYLINDER
7	A59	TELESCOPE
6	B51	TELESCOPE
7	B55	TELESCOPE CYLINDER
5	A44	TELESCOPIC LIFT CYLINDER, LH
5	A45	TELESCOPIC LIFT CYLINDER, RH
6	F49	UNLOADER VALVE
7	E56	UNLOADER VALVE
5	E42	UPPER MAIN CONTROL VALVE ASSEMBLY
5	E37	VALVE, SELECTOR
3	B21	WINCH CONTROL VALVE
8	B69	WINCH CONTROL VALVE

FIGURE FO-3 HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 2 OF 8

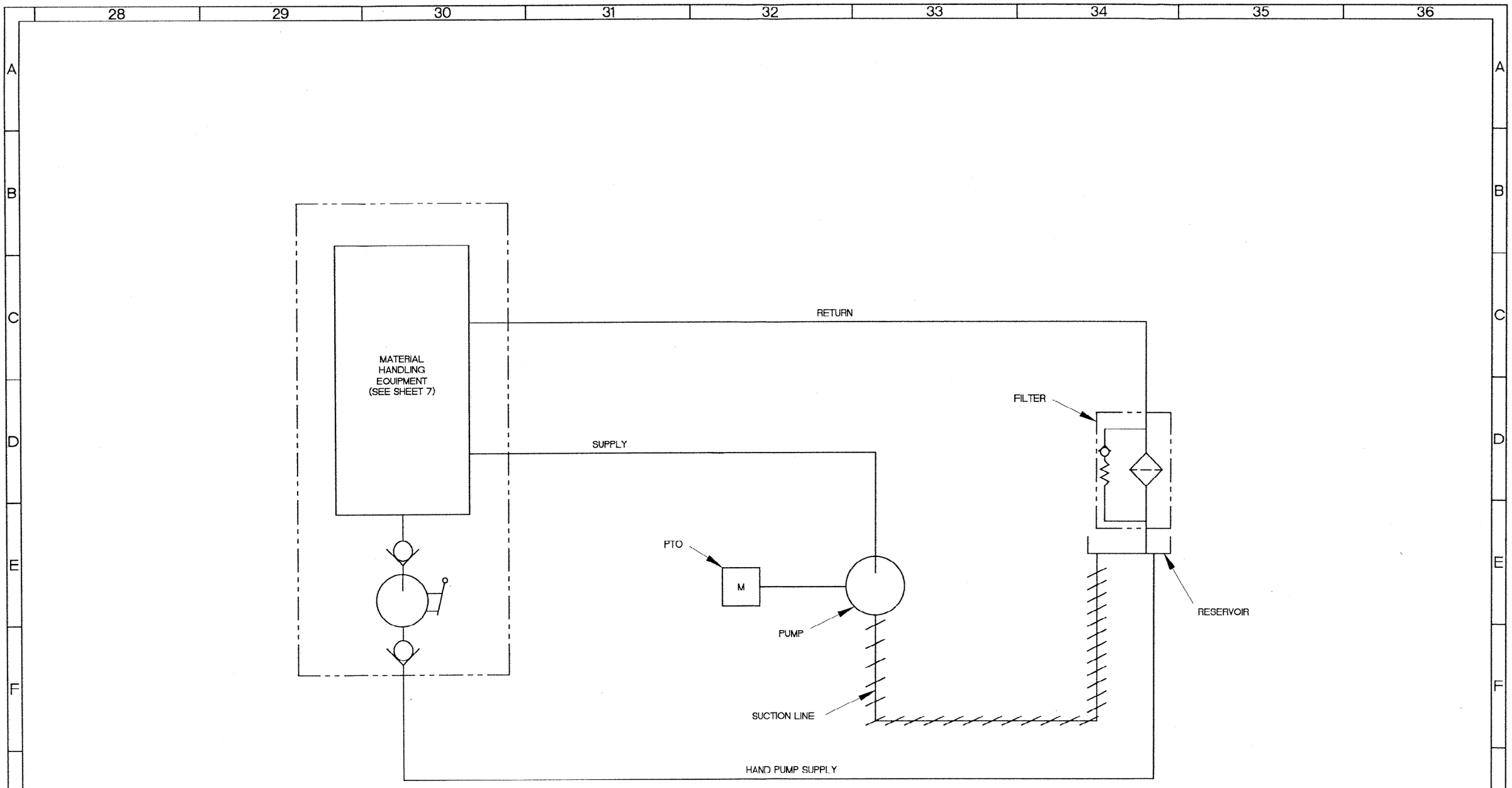
SIZE B | ILL. NO. 6HD01AL2 | FP-3/FP-4 BLANK



MTV TRUCK W/WINCH

FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC FOLDOUT 3 OF 8

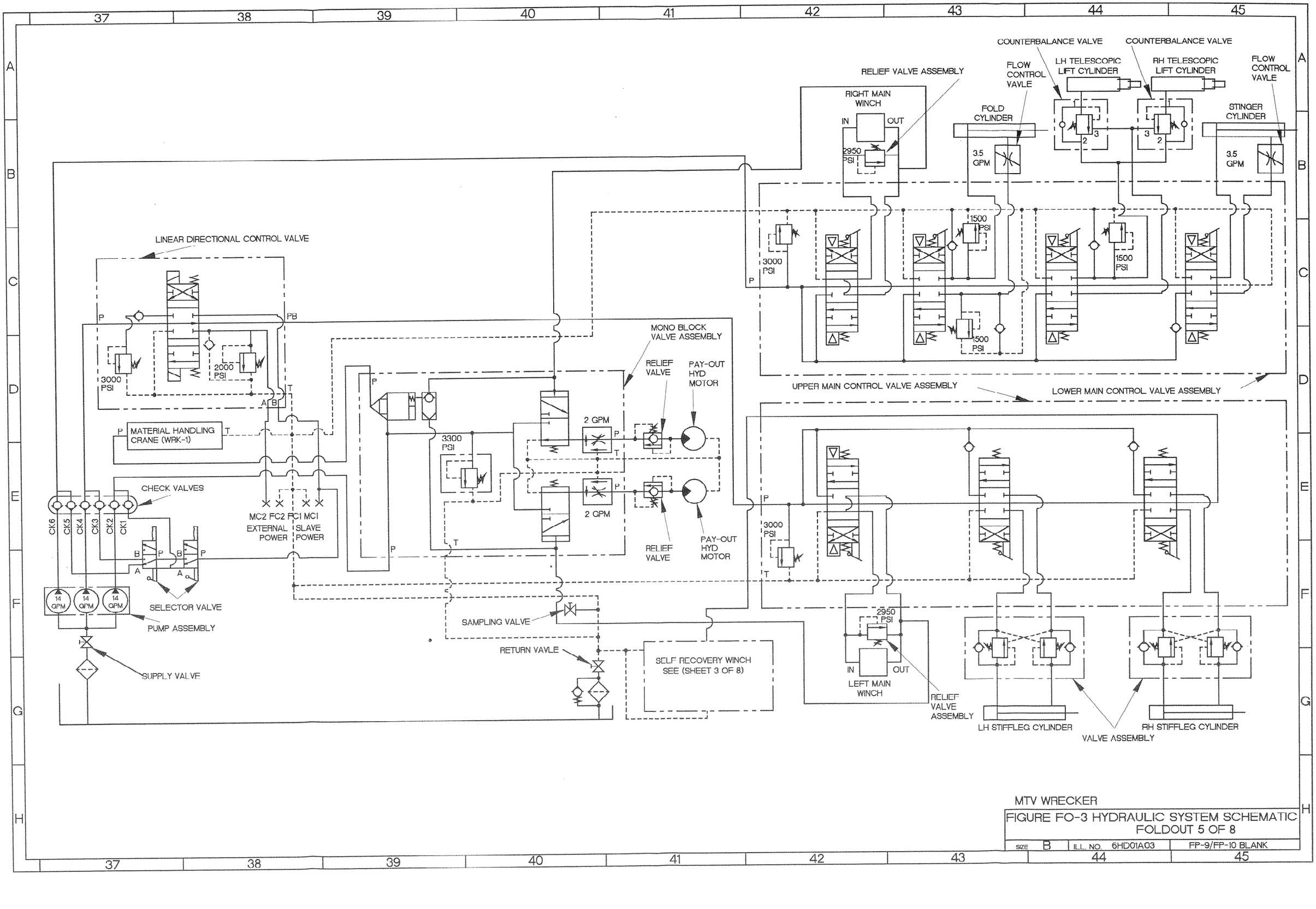
SIZE	ILL. NO.	
B	6HD01A01	FP-5/FP-6 BLANK



MTV MATERIAL HANDLING CRANE

FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 4 OF 8

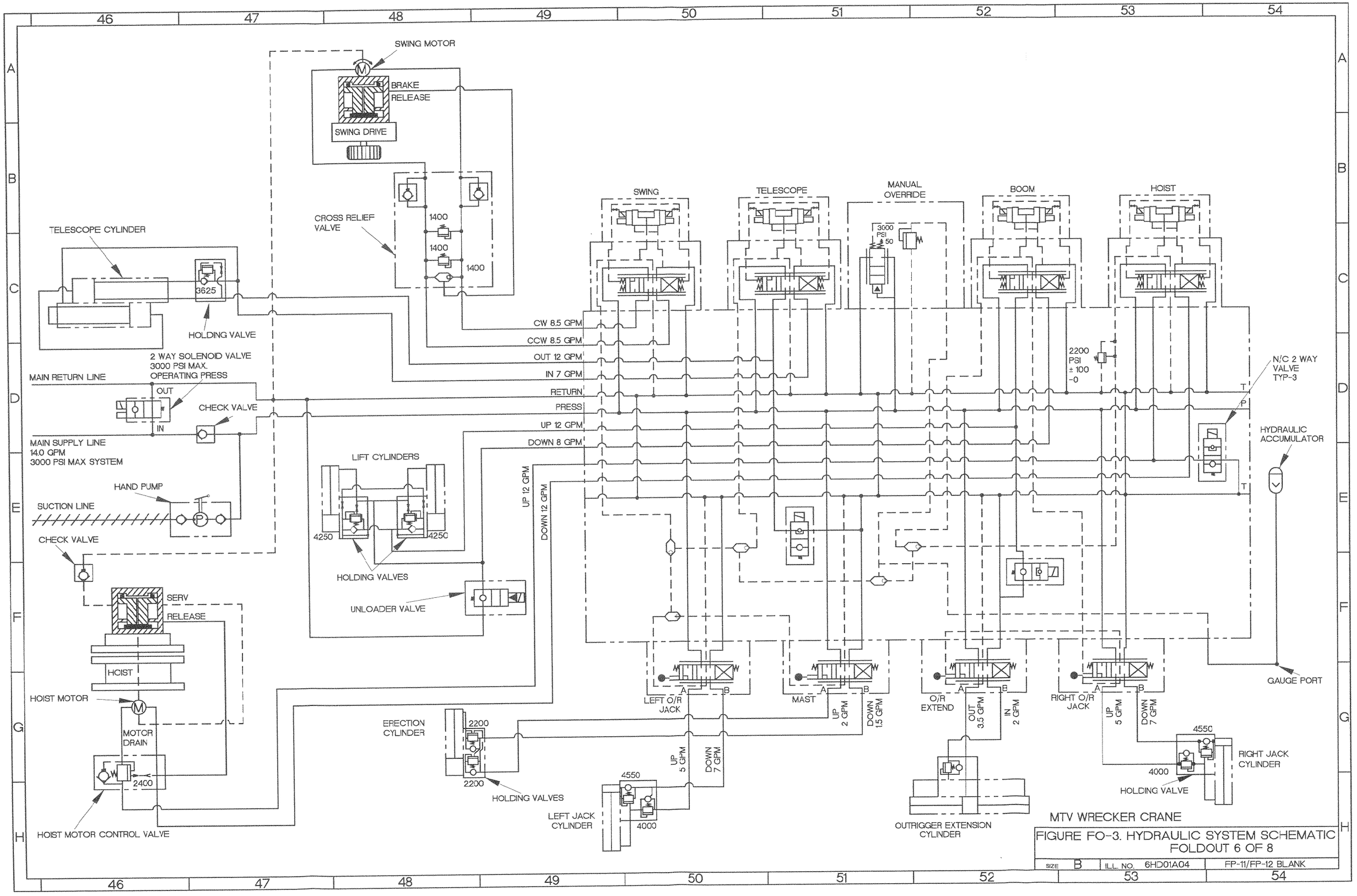
SIZE	ILL. NO.	
B	6HD01A02	FP-7/FP-8 BLANK



MTV WRECKER

FIGURE FO-3 HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 5 OF 8

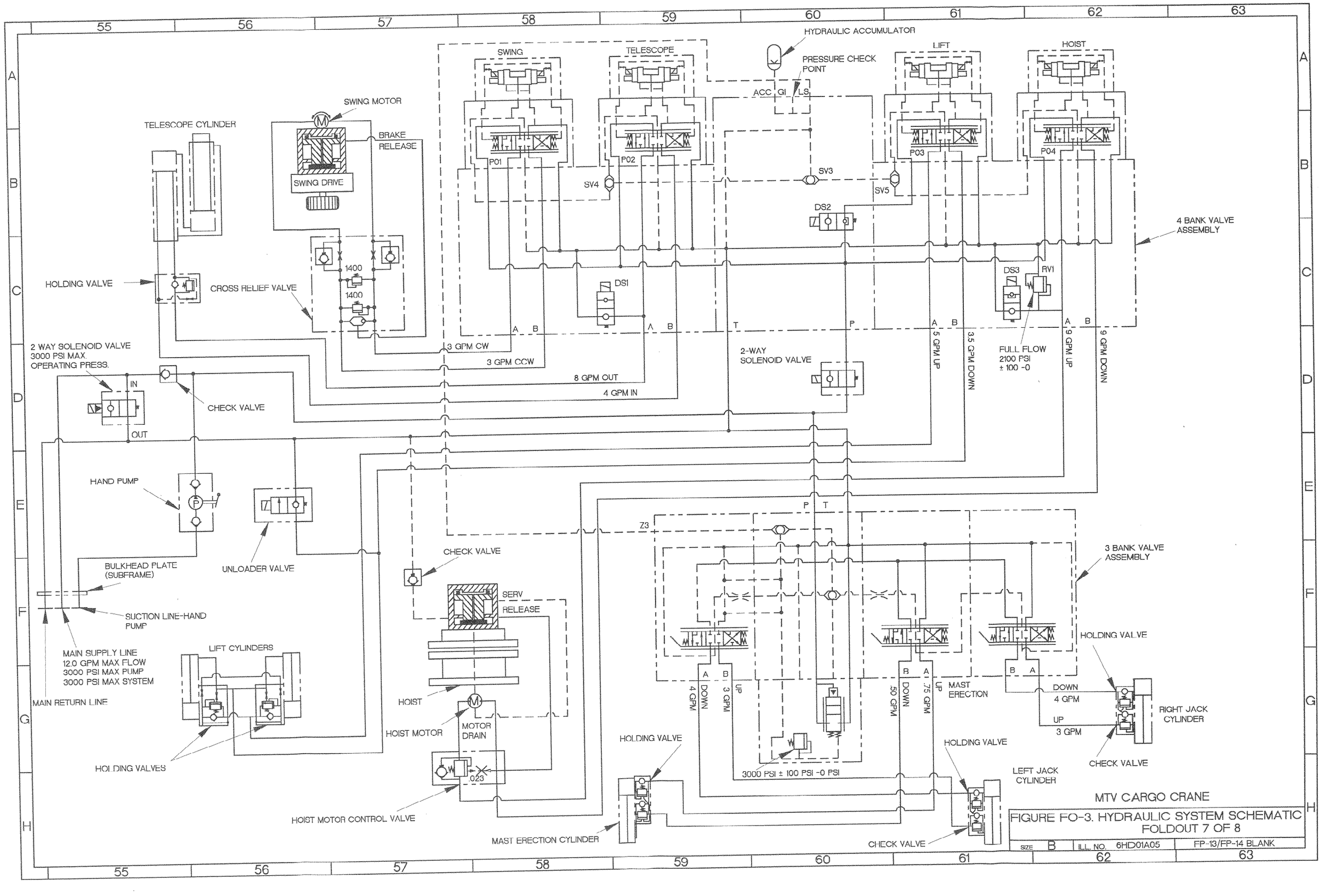
SIZE	ILL. NO.	
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MTV WRECKER CRANE

FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 6 OF 8

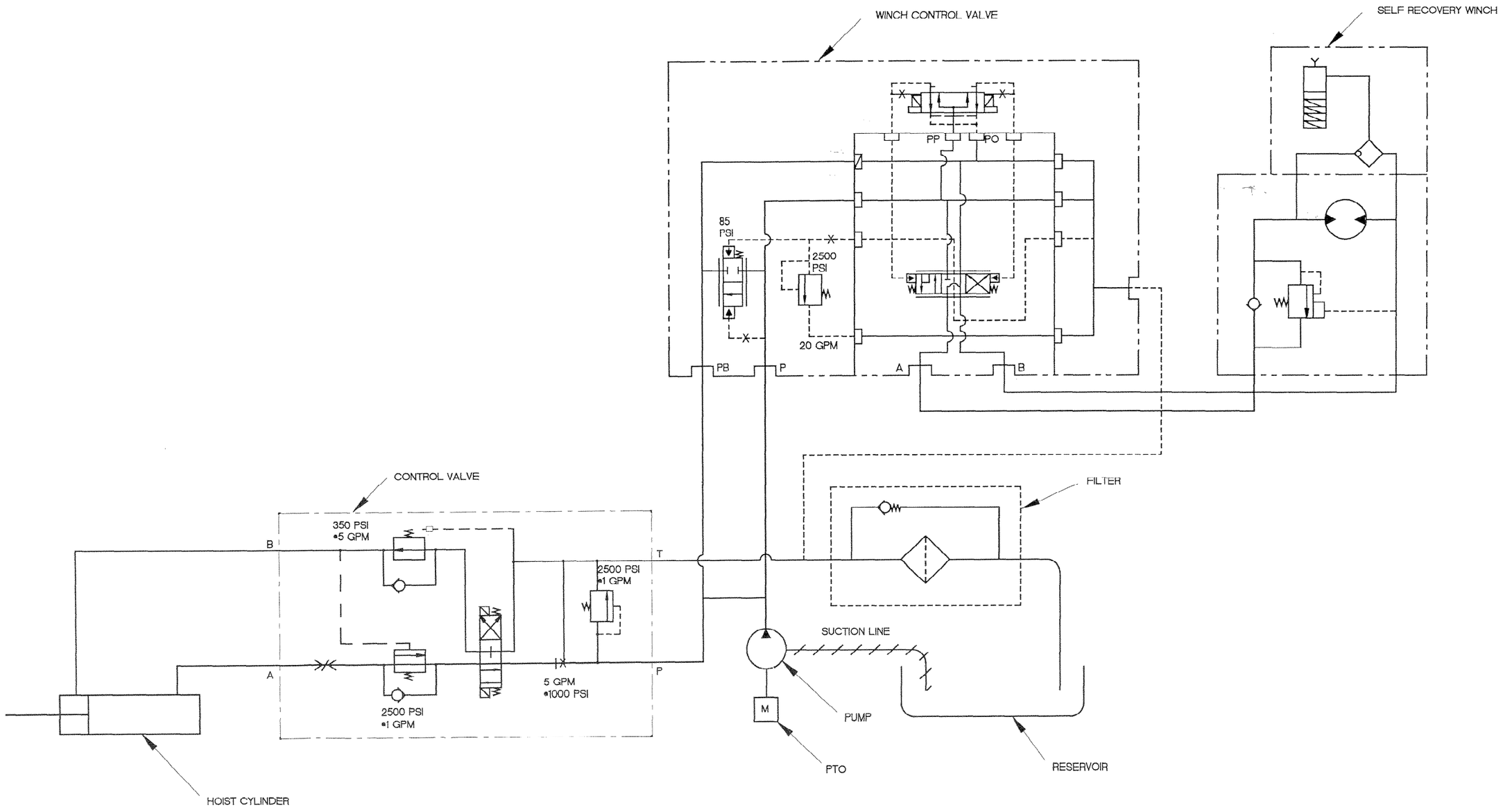
SIZE	ILL. NO.	
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MTV CARGO CRANE

FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 7 OF 8

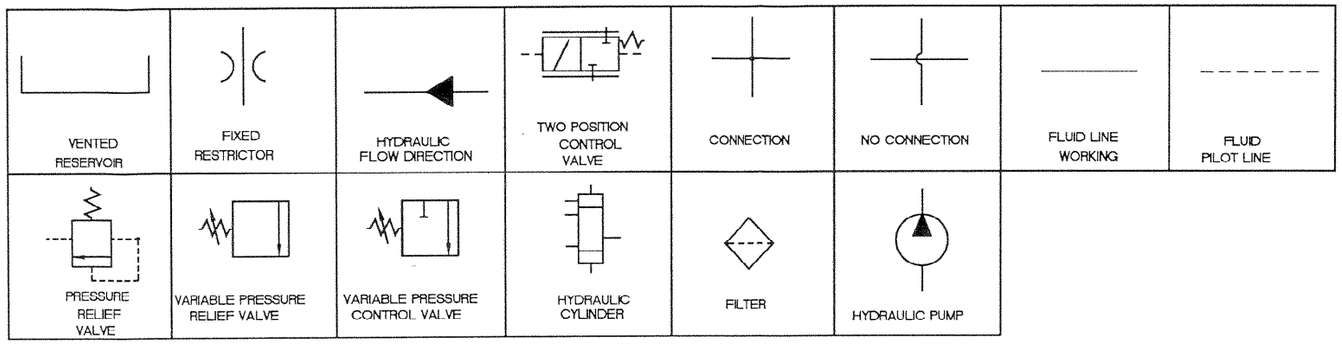
SIZE	ILL. NO.	
B	6HD01A05	FP-13/FP-14 BLANK



MTV DUMP W/ WINCH
MTV DUMP W/O WINCH

FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 8 OF 8

SIZE	ILL. NO.	
B	6HD01A06	FP-15/FP-16 BLANK



SH	ZONE	DESCRIPTION
2	D11	FILTER
2	D14	FIXED RESTRICTOR
2	E17	HYDRAULIC CYLINDER
2	E13	HYDRAULIC PUMP
2	C13	PRESSURE RELIEF VALVE
2	D13	TWO POSITION CONTROL VALVE
2	E16	VARIABLE PRESSURE CONTROL VALVE
2	E16	VARIABLE PRESSURE RELIEF VALVE
2	C11	VENTED RESERVOIR

FIGURE FO-4 HYDRAULIC STEERING SYSTEM

FOLDOUT 1 OF 2

SIZE B | ILL. NO. YSD01AL1 | FP-1/FP-2 BLANK

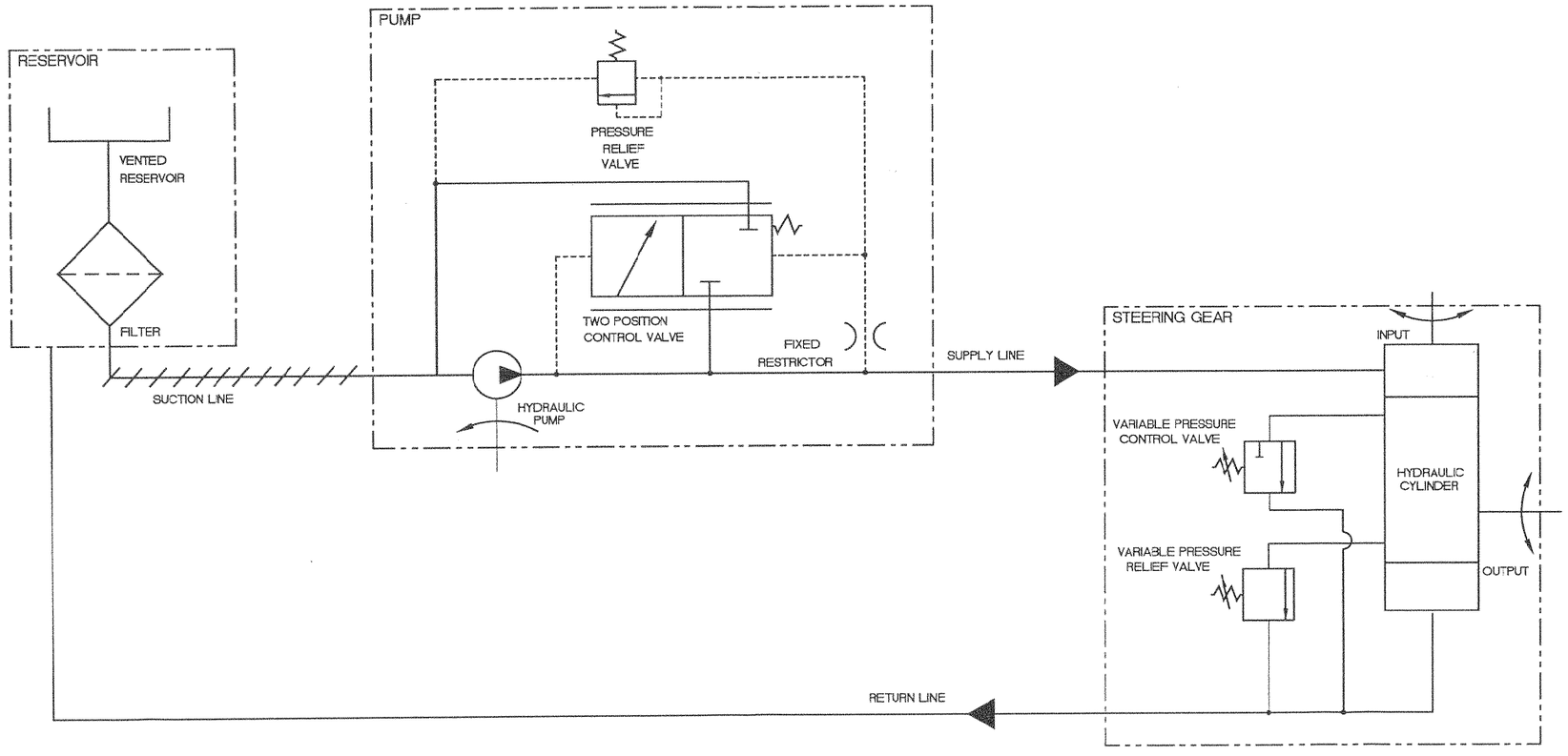


FIGURE FO-4 HYDRAULIC STEERING SYSTEM

FOLDOUT 2 OF 2

SIZE	ILL. NO.	
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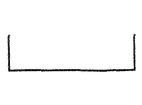
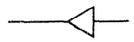
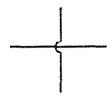
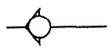
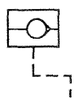
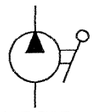
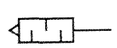
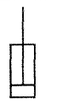
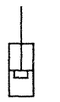
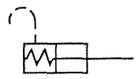
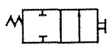
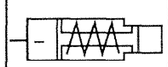
 VENTED RESERVOIR	 ABOVE FLUID LEVEL RESERVOIR	 HYDRAULIC FLOW DIRECTION	 PNEUMATIC FLOW DIRECTION	 CONNECTION	 NO CONNECTION	FLUID LINE WORKING	FLUID PILOT LINE
 FIXED RESTRICTOR	 CHECK VALVE	 VARIABLE CONTROL CHECK VALVE	 CHECK PILOT	 PRESSURE RELIEF VALVE	 FILTER	 HAND PUMP	 DETENT
 TWO POSITION CAB SUSPENSION VALVE	 MUFFLER	 HYDRAULIC CYLINDER	 CAB AIR SUSPENSION W/DAMPER	 REAR CAB LATCH	 TWO POSITION AIR PUMP VALVE	 PRESSURE INTENSIFIER	 HEIGHT CONTROL VALVE
 TWO POSITION CAB TILT VALVE	 TWO POSITION SUSPENSION VALVE	 TWO POSITION SPARE TIRE VALVE	 THREE POSITION SELECTION VALVE				

FIGURE F0-5 AIR TRANSPORTABILITY
HYDRAULIC/PNEUMATIC SYSTEM SCHEMATIC

FOLDOUT 1 OF 3

SIZE B | ILL. NO. YAD01AL1 | FP-1/FP-2 BLANK

SH	ZONE	DESCRIPTION
3	A25	CAB AIR SUSPENSION W/DAMPER
3	F21	CHECK PILOT
3	A22	CHECK VALVE
3	A23	CHECK VALVE
3	B22	CHECK VALVE
3	B23	CHECK VALVE
3	B25	CHECK VALVE
3	C20	CHECK VALVE
3	C21	CHECK VALVE
3	E19	CHECK VALVE
3	E24	CHECK VALVE
3	E25	CHECK VALVE
3	F19	CHECK VALVE
3	F21	CHECK VALVE
3	G21	CHECK VALVE
3	A22	FILTER
3	B22	FILTER
3	A24	FILTER
3	B24	FILTER
3	D19	FILTER
3	D20	FILTER
3	D21	FILTER
3	E19	FILTER
3	G19	FILTER
3	G21	FILTER
3	A22	FIXED RESTRICTOR
3	B22	FIXED RESTRICTOR
3	A23	FIXED RESTRICTOR
3	B23	FIXED RESTRICTOR
3	F19	HAND PUMP
3	B25	HEIGHT CONTROL VALVE
3	B22	HYDRAULIC CYLINDER
3	B23	HYDRAULIC CYLINDER
3	C21	HYDRAULIC CYLINDER
3	F20	MUFFLER
3	F21	PRESSURE INTENSIFIER
3	F19	PRESSURE RELIEF VALVE
3	A24	REAR CAB LATCH
3	E21	THREE POSITION SELECTION VALVE
3	D26	TWO POSITION AIR PUMP VALVE
3	D25	TWO POSITION CAB SUSPENSION VALVE
3	C24	TWO POSITION CAB TILT VALVE
3	C23	TWO POSITION SPARE TIRE VALVE
3	D21	TWO POSITION SUSPENSION VALVE
3	G22	VARIABLE CONTROL CHECK VALVE
3	G22	VENTED RESERVOIR

FIGURE F0-5 AIR TRANSPORTABILITY
HYDRAULIC/PNEUMATIC SYSTEM SCHEMATIC
FOLDOUT 2 OF 3

SIZE B | ILL. NO. YAD01AL2 | FP-3/FP-4 BLANK

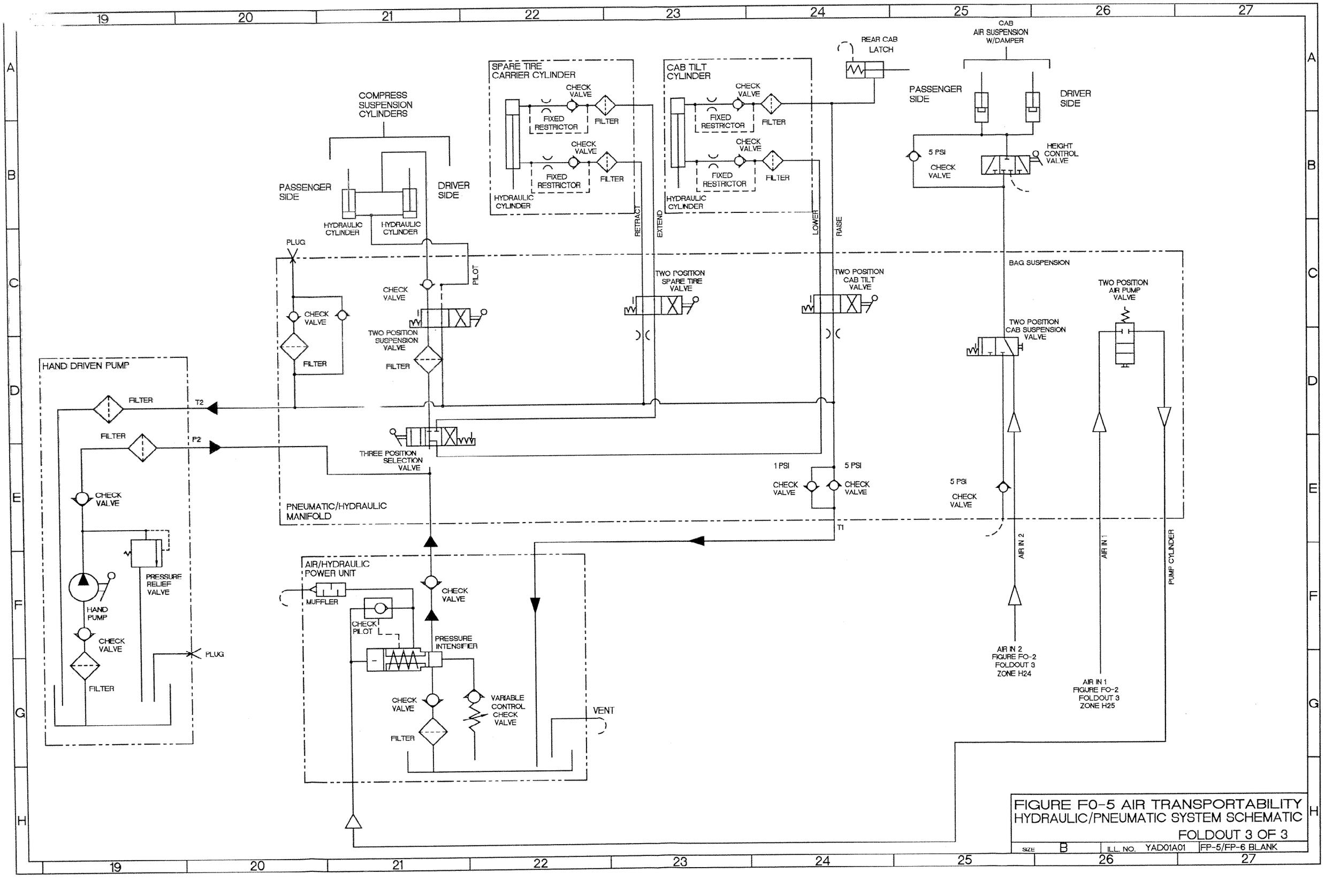


FIGURE FO-5 AIR TRANSPORTABILITY
HYDRAULIC/PNEUMATIC SYSTEM SCHEMATIC
FOLDOUT 3 OF 3

SIZE	B	ILL. NO.	YAD01A01	FP-5/FP-6 BLANK

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
05128

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15-33	15-7	4		Item 10. Change illustration. Reason: Text calls out 90-degree fitting, art shows straight fitting. Text is correct.
19-6	19-2			Step (4) of removal says to disconnect four hydraulic hoses from manifold. The correct number of hydraulic hoses is five. Correct the text to reflect the actual quantity of hydraulic hoses. The supporting illustration is correct.

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE
1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

SQUARE MEASURE
1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

WEIGHTS
1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

CUBIC MEASURE
1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

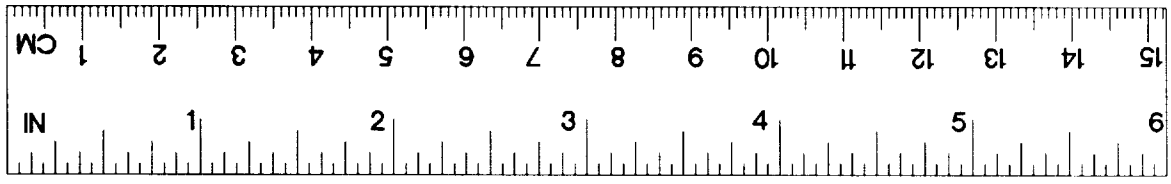
LIQUID MEASURE
1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

TEMPERATURE
5/9 (°F - 32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 C° + 32 = F°

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Inches	Millimeters	25.4
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Pounds (force)	Newtons	4.448
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds/Sq Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Millimeters	Inches	3.937
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Sq Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Sq Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Newtons	Pounds (force)	0.2248
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Km per Liter	Miles per Gallon	2.354
Km per Hour	Miles per Hour	0.621



YMET001A

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