# **TECHNICAL MANUAL**

# ORGANIZATIONAL MAINTENANCE MANUAL

CONCRETE-MOBILE®MIXER BODY M919, MODEL 8CM-24/F NSN 3895-01-028-4391

This copy is a reprint which includes current pages from Change 1.

HEADQUARTERS, DEPARTMENT OF THE ARMY AUGUST 1980

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DAFFIN MOBILE PRODUCTS DIV'ISION OF BARBER GREENE COMPANY

(MANUAL PREPARED BY AM GENERAL CORPORATION)

DAAE07-77-C-4211

#### **WARNING AND FIRST AID DATA**

WARNING

#### WET CEMENT AND CONCRETE CAN CAUSE BURNS.

**WARNING** 

#### CARBON MONOXIDE POISONING CAN BE DEADLY.

Carbon monoxide is a colorless, odorless, poisonous gas, which, when breathed, deprives the body of oxygen and causes suffocation. Exposure to air contaminated with carbon monoxide produces symtoms of headache, dizziness, loss of muscular control, apparent drowsiness, or coma. Permanent brain damage or death can result from severe exposure.

Carbon monoxide occurs in the exhaust fumes of fuel-burning internal combustion engines and can become dangerous under conditions of inadequate ventilation. The following precautions must be observed to insure the safety of personnel:

DO NOT operate the engine of a vehicle in an enclosed area unless it is ADEQUATELY VENTILATED.

DO NOT idle the engine for long periods without maintaining ADEQUATE VENTILATION in the personnel compartments and immediate area.

DO NOT operate any vehicle with inspection plates, cover plates, or engine compartment doors removed unless it is necessary for maintenance purposes.

BE ALERT at all times during vehicle operation for exhaust odors, and exposure symptoms. If either are present, IMMEDIATELY VENTILATE the area. If symptoms persist, remove affected personnel from the area and treat as follows:

Expose to fresh air.

Keep warm.

DO NOT PERMIT EXERCISE.

If necessary, administer artificial respiration.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS ADEQUATE VENTILATION.

WARNING

#### **EXHAUST SYSTEM COMPONENTS CAN CAUSE SEVERE BURNS**

During normal operation the exhaust pipe and muffler can become very hot. Be careful not to touch these components with your bare hands. Do not allow your body to come in contact with the pipe or muffler. Exhaust system components may be hot enough to cause serious bums.

WARNING

# **AVOID CONTACT WITH WET CONCRETE**

Prolonged contact with wet concrete can cause skin irritation or burns. Skin areas that have been exposed either directly or through saturated clothing should be thoroughly washed with water. If any concrete material gets into the eye, flush immediately with water and GET PROMPT MEDICAL ATTENTION.

**WARNING** 

#### **CEMENT DUST CAN BE HARMFUL**

During loading operations or at any time there is cement dust in the air take precautions to avoid direct inhalation of the dust. If you must be in the immediate vicinity of the dust, wear a dust mask or if none are available, cover your nose and mouth with a cloth. CEMENT DUST CAN CAUSE SERIOUS LUNG PROBLEMS.

WARNING

#### **MOVING MACHINERY IS DANGEROUS**

When working in the area of the belt drives on the main conveyor, the chain drives for the cement and dry admix bins, or the mixing trough auger be extremely careful to avoid contact or catching clothing in moving parts. Serious injury or loss of life can result from entanglement in moving machinery.

**WARNING** 

Compressed air used for cleaning purposes will not exceed 30 PSI. Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.).

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., 30 November 1990

# ORGANIZATIONAL MAINTENANCE MANUAL

CONCRETE-MOBILE ® D MIXER BODY M919, MODEL 8CM-24/F NSN 3895-01-028-4391

TM 5-3895372-20, 15 August 1980, is changed as follows:

- 1. Remove old pages and insert new pages.
- 2. New or changed material is indicated by a vertical bar in the margin and by a vertical bar adjacent to the TA number.

Remove Pages	Insert Pages
1 thru 1-2	i thru 1-2
3-1 and 3-2	3-1 and 3-2
3-5 and 3-6	3-5 and 3-6
6-45 thru 6-50	6-45 thru 6-50
7-11 thru 7-18	7-11 thru 7-18
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A-1 thru A-3(A-4 Blank)	A-1 thru A-3(A-4 Blank)
B-1 thru B-10	B-1 thru B-11(B-12 Blank)
Index-1 and Index-2	Index-1 and Index-2

3. File this change sheet in front of the publication for reference purposes.

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Official:

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The Adjutant General

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DEPARTMENT OF THE ARMY HEADQUARTERS Washington, DC, 15 August 1980

#### **ORGANIZATIONAL MAINTENANCE MANUAL**

# M919 CONCRETE-MOBILE® MIXER BODY MODEL 8CM-24/F NSN 3895-01-0284391

#### REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (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 Command, ATTN: AMSTA-MB, Warren, MI 48397-5000. A reply will be furnished to you.

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# HOW TO USE THIS MANUAL.

This manual contains the following information to help you understand how the Concrete-Mobile mixer body works, how to service it, and how to make authorized repairs.

# WHAT THIS MANUAL CONTAINS.

This manual is divided into chapters which provide the following information:

#### CHAPTER 1 INTRODUCTION.

This chapter contains general information about the Concrate-Mobile mixer body. It also tells you where to find maintenance forms.

# CHAPTER 2 PRINCIPLES OF OPERATION.

This chapter contains information on how the vehicle works. It is divided into sections by function: Power train, water system, etc. (see Table of Contents for complete listing).

#### CHAPTER 3 INTEGRATED MAINTENANCE.

This chapter includes information that applies to all the maintenance chapters that follow (chapters 4 thru 14). It tells:

- a. When to inspect, test, and service the vehicle. Preventive Maintenance Checks and Services)
- b. Where to find the troubleshooting procedures for a specific problem. (Troubleshooting Symptom Index.)

# CHAPTER 4 THRU 14 INDIVIDUAL MAINTENANCE CHAPTERS.

These chapters give you the following information:

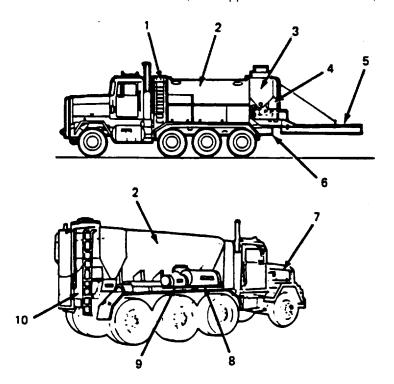
- a. How to find out what's causing a problem (Troubleshooting Procedures).
- b. A list of authorized maintenance procedures (Maintenance Task Summaries).
- c. Detailed procedures for replacing and servicing component parts (Task Procedures). Procedures include a list of special tools that you'll need (if any), materials required and references to other manuals, if needed.

# REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR'S).

If your mixer 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. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-MP, Warren, MI 48397-5000. We'll send you a reply.

EQUIPMENT IMPROVEMENT REPORT AND MAINTENANCE DIGEST (EIR MD) AND EQUIPMENT IMPROVEMENT REPORT AND MAINTENANCE SUMMARY (EIR MS).

Maintenance Digest, TB 43-0001-39 series, contains valuable field information on the equipment covered in this manual. The information in the TB 43-0001-39 series is compiled from some of the Equipment Improvement Reports that you prepared on the vehicles covered in this manual. Many of these articles result from comments, suggestions, and improvement recommendations that you submitted to the EIR program. The TB 43-0001-39 series contains information on equipment improvements, minor alterations, proposed Modification Work Orders (MWO's), warranties (if applicable), actions taken on some of your DA Form 2028's (Recommended Changes to Publications), and advance information on proposed changes that may affect this manual. In addition, the more maintenance significant articles, including minor alterations, field-fixes, etc., that have a more permanent and continuing need in the field are republished in the Equipment Improvement Report and Maintenance Summary (EI R MS) for TARCOM Equipment (TM 43-0143). Refer to both of these publications (TB 43-0001-39 series and TM 43-0143) periodically, especially the TB 43-0001-39 series, for the most current and authoritative information on your equipment. The information will help you in doing your job better and will help in keeping you advised of the latest changes to this manual. Also refer to DA Pam 25-30, Consolidated Index of Army Publications and Blank Forms, and Appendix A. 'References', of this manual.



#### LEGEND:

- WATER TANK
- 2. SAND AND STONE
- 3. CEMENT BIN
- 4. ELECTRIC WINCH
- 5. MIXING TROUGH
- 6. CONTROL AREA
- 7. M919 TRUCK CHASSIS
- 8. HI-FLOW LIQUID ADMIX TANK
- 9. LOW FLOW LIQUID ADMIX TANK
- 10. DRY ADMIX BIN

TA 076156

Major Components of the Concrete-Mobile® Mixer Body.

#### **CHAPTER 1**

#### INTRODUCTION

# 1-1. OVERVIEW.

This chapter provides you with the following information:

- a. Forms and record data required for maintenance.
- b. Features and specifications of Concrete-Mobile® mixer body.

# **Section I GENERAL INFORMATION**

#### 1-2 SCOPE.

Type of Manual: Organizational Maintenance.

Model Number and Equipment Name: M919 - Concrete-Mobile Mixer Body.

Purpose of Equipment: Mixes and delivers concrete at a maximum rate of 40 cu ft per minute.

# 1-3. MAINTENANCE FORMS, RECORDS, AND REPORTS.

Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by DA Pam 738750.

# 1-4. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

Requirements and procedures for destruction of army material to prevent enemy use are given in TM 750-244-6.

# 1-5 ADMINISTRATIVE STORAGE.

Storage information is given in TM 740-901, Administrative Storage.

#### **Section II EQUIPMENT DESCRIPTION AND DATA**

#### 1-6. PURPOSE, CAPABILITIES, AND FEATURES.

The Concrete-Mobile® mixer body carries water, admixtures, dry aggregates, and cement. It mixes these to make concrete fresh at the jobsite.

# Change 1 1-1

# 1-6. PURPOSE, CAPABILITIES, AND FEATURES (Continued)

Features important for maintenance are:

- a. Cement stays dry until it enters the mixing trough. There should be no wet concrete inside the mixer body.
- b. Moving parts are guarded by metal shields. These shields can be removed for maintenance.
- c. Draincocks are provided for venting air pressure and draining water from Concrete Mobile systems.
- d. Plastic caps on lube points keep cement dust out of fittings.
- e. Concrete-Mobile'mixer body is calibrated at the factory. You can easily check calibration if there is doubt about yields (refer to TM 53895372-10).

#### **CHAPTER 2**

#### PRINCIPLES OF OPERATION

# 2-1. OVERVIEW.

This chapter explains the functioning of mixer body components you will be maintaining at the Organizational level, and shows how they relate to each other. The explanation is broken down into the following sections:

- a. Concrete-Mobile Mixer Body (paras 2-2 and 2-3).
- b. Power Train (paras 2-4 and 2-5).
- c. Water System (paras 2-6 and 2-7).
- d. Admix Systems (paras 2-8, 2-9 and 2-10).
- e. Aggregate Supply System (paras 2-11 and 2-12).
- f. Cement System (paras 2-13 and 2-14).
- g. Mixer-Auger System (paras 2-15 and 2-16).
- h. Hydraulic System (paras 2-17 and 2-18).
- i. Air System (paras 2-19 and 2-20).
- I. Electric Winch (paras 2-21 and 2-22).
- k. Lamps (paras 2-23 and 2-24).

You can find other basic information about the Concrete-Mobile Mixer Body in:

- a. Appendix D (Schematic Diagrams).
- b. TM 5-3895-372-10 (Operator's Manual for the M919 Concrete-Mobile® Mixer Body).

#### Section I CONCRETE-MOBILE MIXER BODY

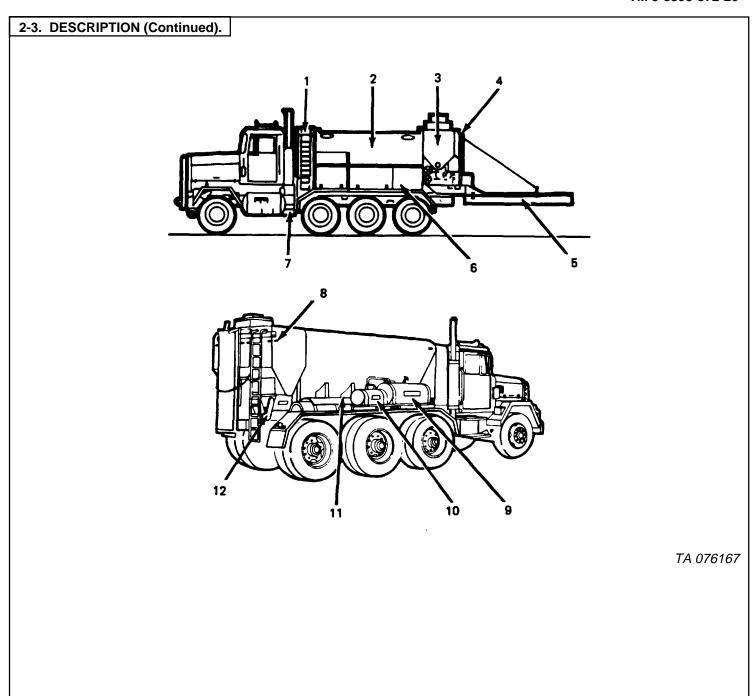
# 2-2. INTRODUCTION.

This section identifies the major systems of the Concrete-Mobile Mixer Body (hereafter referred to as the mixer body). It explains the function of each system and how the systems relate to each other.

For a description of the components of each system, see sections II thru XI.

# 2-3. DESCRIPTION.

- 1. WATER SYSTEM. (Section III) supplies water for mixing concrete and for washing the
- 2. AGGREGATE SUPPLY SYSTEM. (Section V) includes bins for carrying sand and stone, controls and gates for proportioning the aggregates, and a conveyor to carry dry materials to
- CEMENT SYSTEM. (Section VI) stores dry cement, meters it out for concrete production, and registers the amount of cement used.
- 4. ELECTRIC WINCH. (Section X) raises mixer trough for storage, lowers it for concrete
- 5. MIXER-AUGER SYSTEM. (Section VII) mixes aggregates, cement, and water to form concrete. During mixing, concrete is carried from conveyor belts to delivery chute at end of
- 6. HYDRAULIC SYSTEM. (Section VIII) hydraulic pump, driven by belts from power train, turns mixer-auger motor.
- 7. POWER TRAIN. (Section II) driven by truck engine, through PTO. Provides direct mechanical drive for sand and stone conveyor, cement bin auger and meter, and dry admix auger and meter. Belts from main drive turn water and hydraulic pumps.
- 8. LAMPS. (Section XI) clearance lamps mark top and sides of mixer body.
- 9. HI-FLOW LIQUID ADMIX SYSTEM. (Section IV) used for adding relatively large amounts of chemical admixtures to concrete. Air pressure forces admixture from 42 gal (160 l) tank
- 10. LOW-FLOW LIQUID ADMIX SYSTEM. (Section IV) same as the hi-flow, except tank has smaller capacity (12 gal, 45 l).
- 11. Al R SYSTEM. (Section IX) pressurized air from chassis air system. Powers vibrators to shake dry materials from bins, and air pads to loosen settled cement. Also supplies pressure to liquid admix systems. Air hose attachment can be used to blow water system dry in cold
- 12. DRY ADMIX SYSTEM. (Section IV) injects powdered admixtures and colorings into concrete.



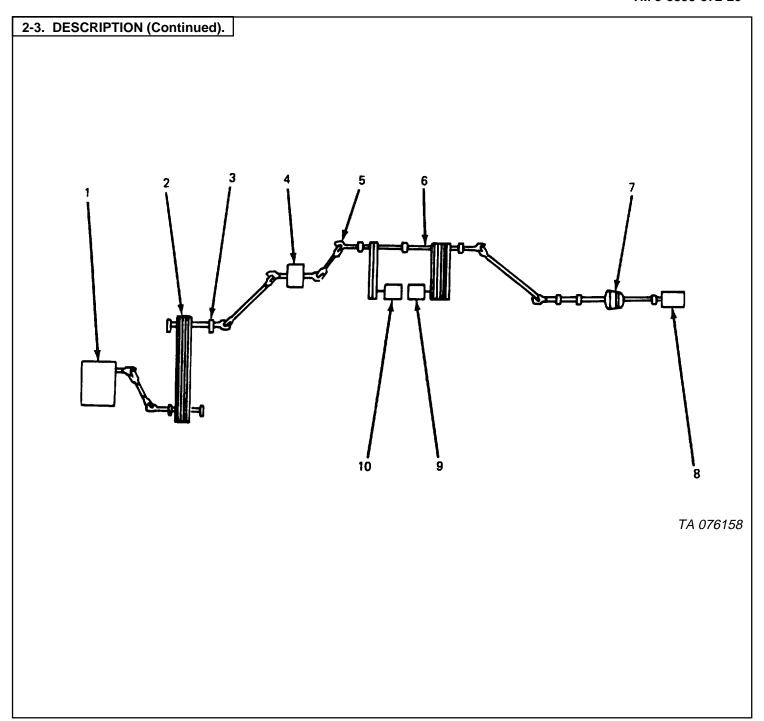
#### **Section II POWER TRAIN**

#### 2-4. INTRODUCTION.

The mixer body is mechanically driven by the truck engine. The power train is located on the left side of the unit. It provides power for all mixer body systems except the lamps and the electric winch.

# 2-5. DESCRIPTION.

- 1. POWER TAKEOFF (PTO). Supplies engine power to mixer body. When engaged, meshes with transmission gears to turn PTO shaft. (See TM 9-2320273-20).
- 2. PTO V-BELTS (5). Driven by PTO jackshaft. Turn main drive.
- 3. BEARINGS BLOCKS (10). Hold PTO jackshaft and main drive in place. Bearings allow shafts to turn freely.
- 4. REVERSING GEAR BOX. Reverses direction of shaft rotation.
- 5. UNIVERSAL JOINTS (8). Transmit rotation between two shafts mounted at an angle.
- 6. MAIN DRIVE. Driven by PTO V-belts. Rotating shaft powers water pump, hydraulic pump, and angle drive gear box.
- 7. MAIN CLUTCH. When engaged, connects main drive to angle drive gear box. Manually
- 8. ANGLE DRIVE GEAR BOX. Powered by main drive when main clutch is engaged. Turns sand and stone conveyor belt, cement meter-feeder, and dry admix feeder. Output shaft mounted at right angle to main drive.
- 9. HYDRAULIC PUMP. Driven by six V-belts from main drive. Powers mixer-auger.
- 10. WATER PUMP. Driven by two V-belts from main drive. Pumps water for concrete mixing and cleanup.



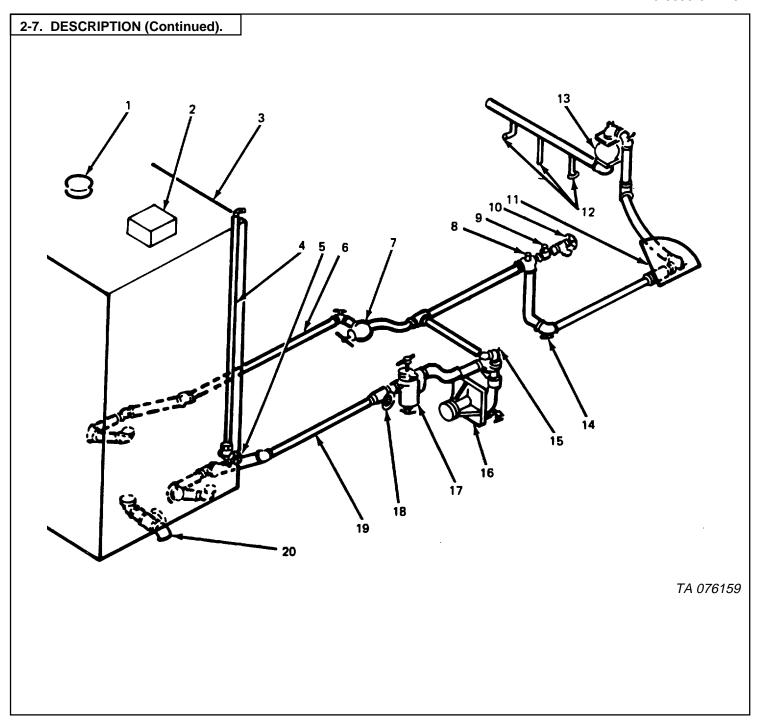
#### Section III WATER SYSTEM

#### 2-6. INTRODUCTION.

The mixer body carries enough water to mix a full load of concrete and clean up afterwards. Pressure should be maintained at 60 psi (414 kPa). The wet admix systems (paras 2-8 and 2-9) are separate from the main system.

#### 2-7. DESCRIPTION.

- 1. FILLER CAPS. Used when potable water is available.
- 2. INLET WATER STRAINER. Filters out leaves, stones, and other large particles as water enters tank. Used when water supply is impure.
- 3. WATER TANK. Holds 400 gal (1514 liters). Carries water for concrete mixing and cleanup. Coated inside with water-repellent paint to prevent leaks and rust.
- 4. SIGHT GAGE. Allows operator to check tank water level.
- GAGE VALVE. Used to shut off water supply to gage if gage is broken or being removed.
- 6. WATER RETURN LINE. Allows water to return from pump through relief valve to tank.
- 7. PRESSURE RELIEF VALVE. Adjustable valve controls water pressure by regulating flow in return line. Normal pressure is 60 psi (414 kPa).
- 8. AIR FITTING. Used to blow water out of system to prevent freeze-up.
- 9. VENT. Used in draining system in cold weather.
- 10. HOSE VALVE. Controls water flow to washout hose.
- 11. WATER CONTROL. Controls water flow into mixer trough. Pointer attached to valve handle indicates water flow.
- 12. SPRAY NOZZLES (3). Spray water into cement and aggregate mixture as it enters mixer trough. Outside nozzles spray at an angle for better mixing action. Admixture solutions are injected into center nozzle.
- 13. QUICK-OPENING VALVE. Mechanical link to main clutch control automatically opens valve when main clutch is engaged. Allows water from flow control valve to enter spray
- 14. DRAINCOCKS (8). Located at low points of system. Allow water drainage to prevent freeze-up. Must be opened before compressed air is blown into system.
- 15. AIR FITTING. Used to blow water out of system to prevent freeze-up.
- WATER PUMP. Supplies pressure to water system. Belt-driven from main drive.
- 17. SCREEN STRAINER. Filters water flowing into pump.
- 18. SHUTOFF VALVE. Controls water flow from tank to pump.
- 19. WATER SUPPLY LINE. Carries water from tank through shutoff valve to pump.
- 20. DRAIN VALVE. Opens to allow drainage of water from tank.



#### **Section IV ADMIX SYSTEMS**

#### 2-8. INTRODUCTION.

The mixer body has three admix systems for adding chemicals or coloring to concrete. The two liquid admix (exactorate) systems are identical except for the tank capacities. Both tanks are mounted on the right side of the mixer. The liquid admix systems are described in paragraph 2-9.

The dry admix system, mounted on the right rear of the cement bin, adds powdered chemicals and colorings to concrete. It is maintained at the Organizational level.

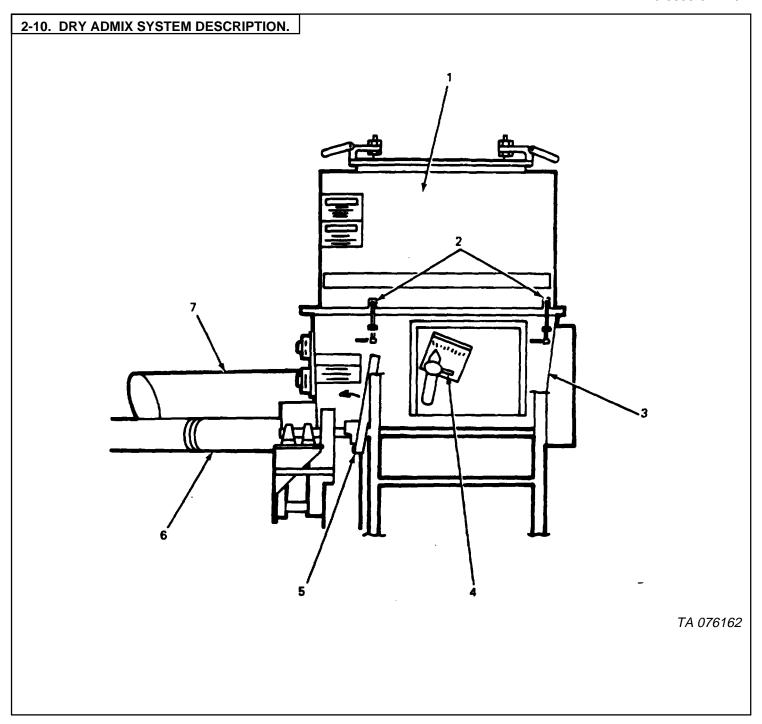
# 2-9. DESCRIPTION (LIQUID ADMIX SYSTEMS).

- AIR SUPPLY LINE. Supplies dry compressed air from mixer body air system.
- 2. AIR REGULATOR. Controls air pressure to admix systems. Operator turns handle to adjust pressure to 15 psi (103 kPa).
- AIR PRESSURE GAGE. Indicates air pressure to admix tanks. Normal reading is 141' 15%1 psi (100-109 kPa).
- 4. Al R GATE VALVES (2). Block air pressure to each admix tank when that system is not in use. Open to admit pressure when admixture is needed.
- 5. CHECK VALVES (2). One-way valves prevent admixture solutions from backing up into
- 6. RELIEF VALVES (2). Automatically vent air when pressure exceeds 18-20 psi (124-138 kPa).
- 7. FI LL CAPS (2). Used to fill admix tanks. Vent on each cap allows operator to release pressure before removing cap.
- 8. HI-FLOW TAN K. Pressure-tight tank holds 42 gal (160 liters) of liquid admixture.
- 9. SIGHT GAGES (2). Show level of liquid in each tank.
- 10. DRAIN VALVES (2). Allow draining of admixtures from tanks. Also used when pumping admixture under pressure into tanks.
- 11. GAGE VALVES (4). Close to prevent air and liquid from entering sight gages. Top gage valves have vents for bleeding pressure. Bottom gage valves have draincocks.
- 12. SPRAY NOZZLE. Inject water and liquid admixture solutions into dry ingredients as they enter mixer-auger trough.
- VENTS (4). Open to prevent suction blocks when flowmeters and sight gages are drained.
- 14. FLOWMETERS (2). Floats in calibrated glass tubes indicate admixture flow.
- 15. CONTROL VALVES (2). Control liquid admixture flow. Adjusted by control levers extending to front of flowmeter assembly.
- 16. DRAINCOCKS (6). Used to drain admixture solutions from flowmeter assemblies and sight
- 17. QUICK-ACTING VALVES (2). Allow admixtures to flow from tanks through flowmeter to spray nozzle. Mechanically linked to main clutch, opens automatically when main clutch is
- 18. STRAINERS (2). Wire screens filter admixtures flowing from tanks to flowmeter assembly.
- 19. SOLUTION GATE VALVES (2). Control flow of solutions from tanks to flowmeter assembly.
- 20. LOW-FLOW TANK. Pressure-tight tank holds 12 gal (45 liters) of liquid admixture.

# 2-9. DESCRIPTION (LIQUID ADMIX SYSTEM) (Continued). TA 078181

# 2-10. DRY ADMIX SYSTEM DESCRIPTION.

- 1. DRY ADMIX BIN. Mounted on rear of cement bin. Powdered admixtures drop from bin into feeder.
- 2. C-CLAMPS (4). Hold dry admix feeder to bin. Two in front, two in rear.
- 3. DRY ADMIX FEEDER. Feeder shaft delivers metered amounts of dry admix to main conveyor belt. Entire feeder assembly is removable for cleaning.
- 4. DRY ADMIX CONTROL. Knob and pointer assembly adjusts amount of admix delivered to main conveyor.
- 5. DRY ADMIX CLUTCH. Engages dry admix feeder with admix drive shaft. Dog type clutch.
- 6. ADMIX DRIVE SHAFT. Chain driven from main conveyor shaft. When dog clutch is engaged, powers dry admix feeder shaft and augers in feeder.
- 7. FEEDER TUBE. Shaft inside tube carries admix to main conveyor.



#### Section V AGGREGATE SUPPLY SYSTEM

#### 2-11. INTRODUCTION.

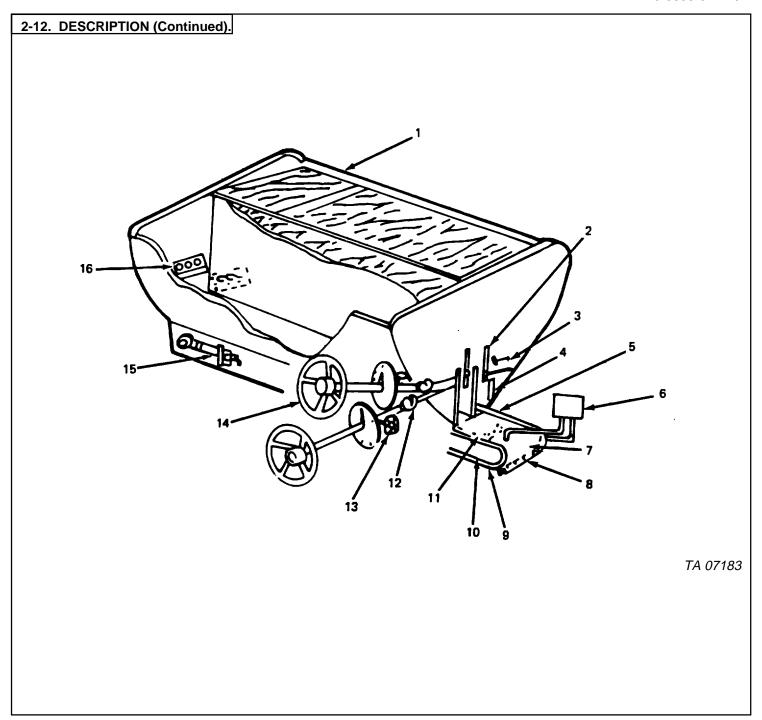
The aggregate supply system is composed of:

- A sand bin (on the left).
- b. A stone bin (on the right).
- c. Gates controlling sand and stone delivery.
- d. A conveyor assembly which carries aggregates to the mixing trough.

Although the bins are called "sand" and "stone" bins, their controls are the same. The vibrators mounted on the bins are described in paragraph 2-20.

# 2-12. DESCRIPTION.

- 1. SCREENS (6). Sift sand and stone as they are loaded into the hopper. Keep large lumps and foreign objects out of bins.
- 2. RACKS (2). Welded to gates on bins. Open and close gates as pinions turn.
- 3. PINIONS (2). Mesh with racks to raise and lower gates when hand wheels are turned.
- 4. RUBBER GUIDES (5). Keep sand and stone on belt and prevent mixing between bins. Two on eachside and one in center.
- 5. METAL GUIDES (2). Keep aggregates and dry cement from falling off belt. (One on each side.)
- 6. CHAIN OILER. Drips oil onto chains as belt turnms.
- 7. BELT. Carries sand and stone from bins through gates to mixer trough. Rubber belt is bolted to cross bars.
- 8. BELT WIPER. Adjustable rubber scraper removes aggregates and cement stuck to belt.
- 9. SAND DEFLECTOR. Channels sand onto center of belt
- 10. BELT CHAIN. Used for belt rotation.
- 11. BELT LACER. Used for adjoining ends of belt
- 12. UNIVERSAL JOINTS (2). Transmit rotation of handwheel shafts to pinion shafts.
- 13. STOP SCREWS42). Hold handwheel shafts at proper setting. Loosen to allow turning of handwheels
- 14. HANDWHEELS (2). Allow operator-to set gate openings through rack and pinion action. Pointers attached to handwheel shafts indicate settings on dials.
- 15. BELT TENSIONING DEVICES (2). Hold front sprocket in place. Used to adjust belt tension.
- 16. FRONT SEALS (2). Prevent aggregates from falling through conveyor belt openings in front of bins.



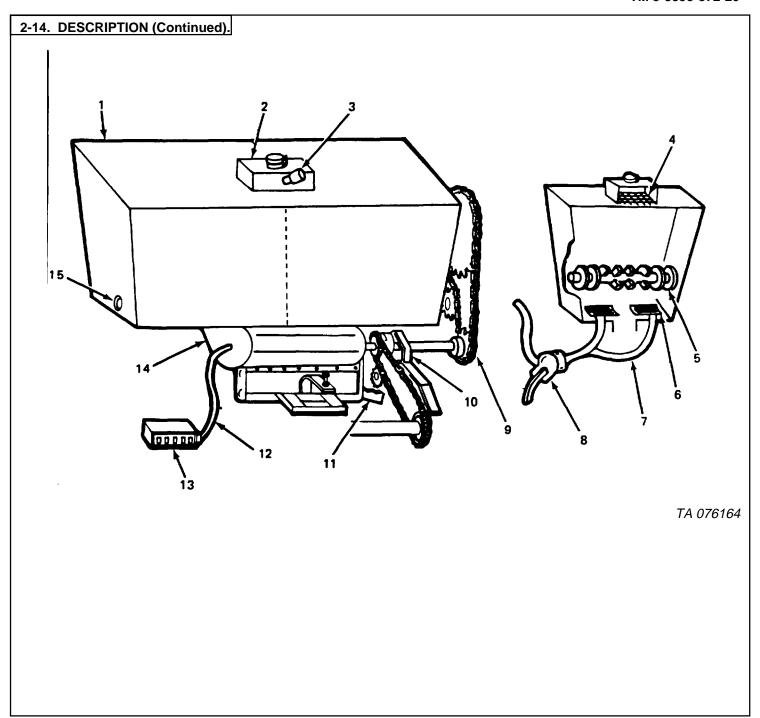
#### Section VI CEMENT SYSTEM

# 2-13. INTRODUCTION.

The cement system is calibrated to deliver cement at a known, constant rate, while the other ingredients are varied to produce different mixes. For information about the cement bin vibrators, see Section IX.

#### 2-14. DESCRIPTION.

- 1. CEMENT BIN. Holds 63 cu ft (1.76 <sup>m3)</sup> of dry cement.
- 2. QUICK-LOADING HOPPER. Mounted on cement bin top. Small top opening to accept "elephant trunk," removable lid for bulk loading. Lid gasket seals out moisture.
- VIBRATOR. Shakes screen to sift cement during loading. Powered by compressed air from chassis air reservoirs. Air line equipped with quick-disconnect fitting.
- 4. SCREEN. Breaks up cement and strains out large lumps during loading. Connected to
- 5. CEMENT BIN AUGER. Loosens cement and channels it into meter-feeder. Auger blades at ends carry cement to center. Fingers in center break up packed cement. Supported by hardwood bearing block.
- 6. AIR PADS (2). Loosen settled cement with blasts of air. Air pases through cloth pads held by metal screens.
- 7. FLUFFER AIR LINES. Carry pressurized air to air pads.
- 8. FLUFFER CONTROL VALVE. When operated, allows dry air from filter to go to air pads.
- 9. CEMENT METER DRIVE CHAINS. Driven by sprockets on conveyor drive shaft. Turn cement bin auger and meter feeder. Actuated automatically when main clutch is engaged.
- 10. CEMENT FEEDER CLUTCH. Normally engaged. When disengaged allows cement meter to be turned independently of sand and stone conveyor. Dog type clutch.
- 11. SPRING TINE ASSEMBLY. Knocks cement out of meter pockets Spring tension causes hammers on tines to snap against turning meter wheel.
- 12. METER REGISTER CABLE. Connects meter-register to feeder.
- 13. METER REGISTER. Shows units of cement delivered. Large resettable readout indicates cement delivered per job. Smaller readout shows total cement delivered.
- 14. CEMENT METER-FEEDER. Measures and delivers cement from bin to conveyor belt. Cement is carried in pockets of rotating wheel. Exact capacity varies between units, but will be approximately 2.4 cu ft/min (0.067 m³/min).
- 15. BEARINGS (5). Support cement bin auger and meter-feeder shaft. Allow them to turn freely.



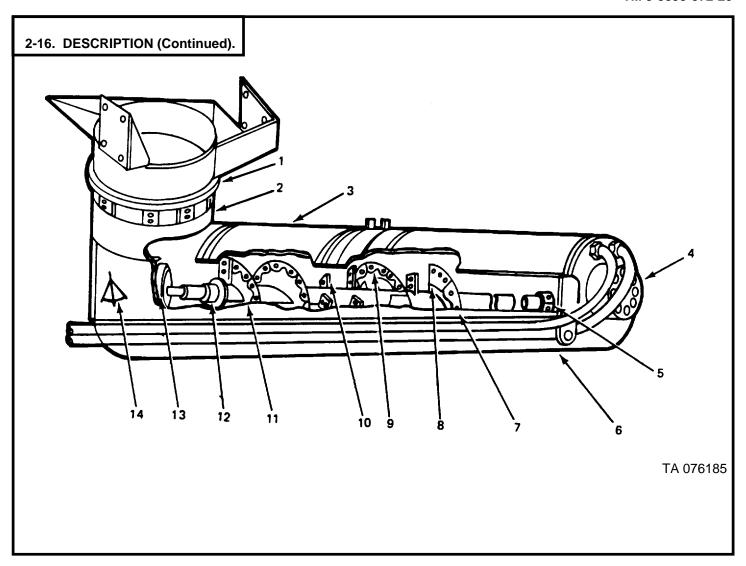
#### Section VII MIXER-AUGER SYSTEM

# 2-15. INTRODUCTION.

The mixer-auger combines the wet and dry ingredients to make concrete. The system consists of a hydraulically-powered auger turning in the mixer trough. (Further information about the hydraulic motor may be found in Section VI II). The assembly is raised and lowered by an electric winch (Section X).

# 2-16. DESCRIPTION.

- 1. SWIVEL ASSEMBLY. Supports front of mixer assembly. Fixed frame is bolted to main body. Rotating ring holds trough, allows it to pivot on swivel frame.
- 2. MINISKIRT. Rubber guard channels concrete ingredients from conveyor into mixing trough. 3. TROUGH COVERS. Prevent splashing and protect personnel from auger. Lift up for access to auger.
- 4. HYDRAULIC MOTOR. Turns auger. Driven by hydraulic pump.
- 5. AUGER DRIVE BUSHING. Connects auger core to hydraulic motor.
- 6. RUBBER BOTTOM. Flexible trough bottom "gives" to prevent auger from breaking on lumps and large stones.
- 7. TROUGH FRAME. Metal frame supports rubber bottom, hydraulic motor, and auger. Held to swivel ring by a cotter-key and pin assembly. Can be swung left or right to about 850.
- 8. BLADES (8). Replaceable blades protect ends of flighting. (Bolted on.)
- 9. SECTIONAL BLADES (9). Replaceable blades protect flighting edge. (Bolted on.)
- 10. PADDLES (26). Mix aggregates, cement, water, and admixture to form concrete. A replaceable wear paddle bolts onto each paddle.
- 11. FLIGHTING. Spiral blades push concrete through mixing trough as auger turns. Welded to auger core. Flighting is reinforced by replaceable blades and sectional blades.
- 12. MIXING AUGER. Mixes concrete ingredients, carries them to rear of trough. Paddles and flighting are welded onto core of hollow pipe. Pipe has 21/ in. (5.7 cm) outside diameter, 7 ft (2.1 meters) long.
- 13. BEARING. Supports front end of auger. Allows it to turn freely.
- 14. INCLINOMETER. Indicates angle of elevation of mixing trough. Auger is normally operated at a 15° 25° angle.



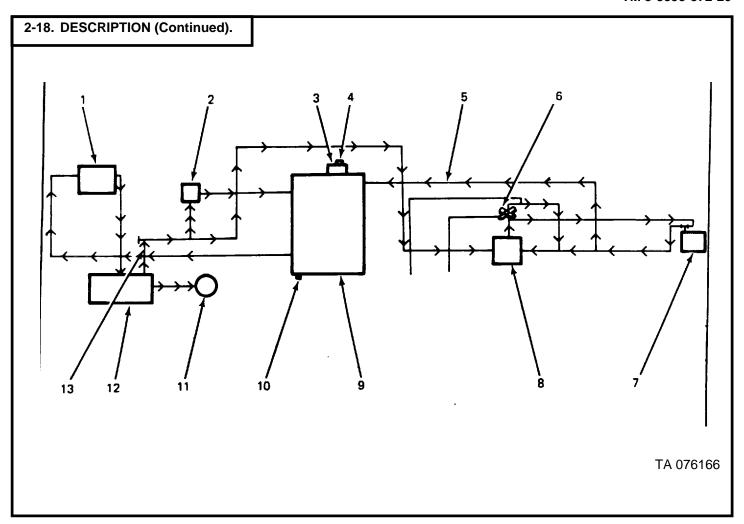
# **Section VIII HYDRAULIC SYSTEM**

#### 2-17. INTRODUCTION.

The hydraulic system is driven by belts from the main drive (Section II) and provides power for the mixer-auger (Section VII).

# 2-18. DESCRIPTION.

- 1. OIL FILTER. Removes impurities from oil entering pump. Throw-away 33 micron paper element.
- 2. RELIEF VALVE. Adjusted to control pressure in hydraulic system. When pressure rises above 1900-2000 psi (1310013800 kPa), diverts oil to reservoir instead of control valve.
- 3. FILLER CAP. Has dipstick for checking reservoir oil level.
- 4. BREATHER. Allows air and fumes from hot oil to escape.
- 5. RETURN LINE. Carries oil back to reservoir from control and bypass valves, relief valve, and motor.
- 6. BYPASS VALVE. (Normally closed). Used to slow mixer-auger during cleanup. When open, allows some oil from motor supply line to escape to reservoir. Color coded bands on stem aid in establishing proper rate of bypass.
- 7. HYDRAULIC MOTOR. Turns mixer-auger. Driven by oil under pressure from pump.
- 8. CONTROL VALVE. When lever is pushed forward, oil is blocked from motor and returns to reservoir through return line. When lever is pulled back, return line is blocked. Oil goes to motor and mixer-auger operates.
- 9. HYDRAULIC RESERVOIR. Holds reserve supply of oil for system. 34 gal (129 liter) capacity.
- 10. DRAIN PLUG. Used to drain reservoir.
- 11. TACHOMETER. Indicates hydraulic pump speed. Normal range is 1620-1720 rpm. Driven by cable from center of hydraulic pump pulley.
- 12. HYDRAULIC PUMP. Supplies pressure to drive hydraulic motor. Driven by six V-belts from main drive. Pump speed depends on truck engine speed. Will vary as main clutch and mixer-auger are engaged.
- 13. GAGE POINT. (Normally plugged). Plug can be removed and gage inserted to test hydraulic pressure. Pressure should be 1900-2000 psi (13100-13800 kPa). Located so gage can be read while relief valve is adjusted.



#### Section IX AIR SYSTEM

# 2-19. INTRODUCTION.

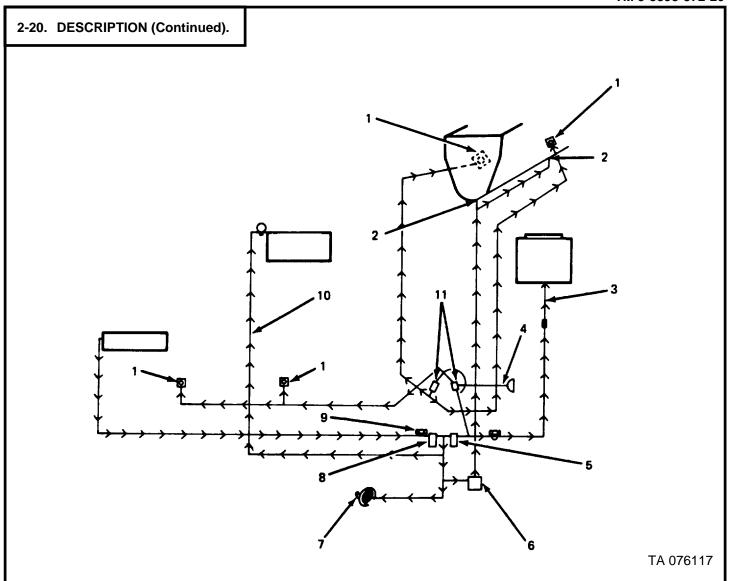
The mixer body air system draws pressure from the chassis air reservoir. A safety valve at the reservoir cuts off the mixer body air supply if reservoir pressure drops below 65 psi (448 kPa).

#### NOTE

The cement screen vibrator is described in para 2-14.

# 2-20. DESCRIPTION.

- 1. VIBRATORS (4). Shake the sand and cement bins. Keep aggregates and cement loose; prevent bridging. (Two on each bin.)
- 2. AIR PADS (2). Loosen settled cement with blasts of air.
- CEMENT SCREEN VIBRATOR AIR LINE. Carries lubricated air to quick-disconnect fitting for cement screen vibrator (see para 2-14).
- MANUAL VIBRATOR CONTROL. Allows manual activation of aggregate bin vibrators. Handle connects to rear vibrator air valve.
- AIR LUBRICATOR. Sprays fine oil mist into vibrator air lines. Should be adjusted to one drop every 3rd vibration.
- FLUFFER CONTROL VALVE. Manually operated valve controls air supply to air pads. Mounted "upside down" to prevent cement dust from clogging valve.
- 7. AUXILIARY AIR HOSE. May be used on air fittings of water system to blow moisture out in cold weather.
- 8. Al R FILTER. Removes moisture from incoming air. Petcock in bottom for draining trapped liquid.
- 9. GATE VALVE. Controls air flow from chassis reservoir to mixer body air system.
- 10. LIQUID ADMIX AIR SUPPLY LINE. Carries dry air from filter to liquid admix system (para 2-9).
- VIBRATOR AIR VALVES. Control air supply on vibrators. Mounted above cam attached to cement meterfeeder. Open when contacted by cam lobe.



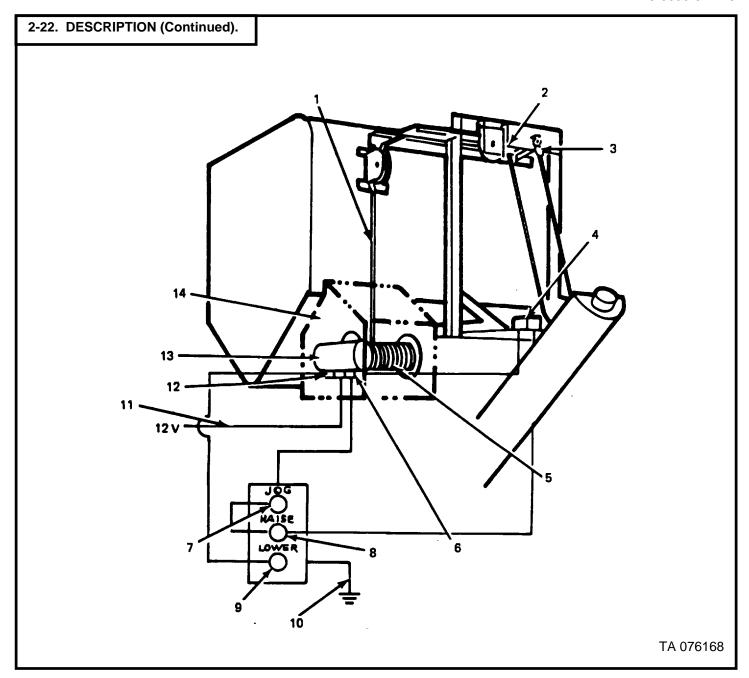
#### Section X ELECTRIC WINCH

# 2-21. INTRODUCTION.

The electric winch raises and lowers the mixing trough. It draws power from the chassis electrical system.

# 2-22. DESCRIPTION.

- 1. WINCH CABLE. Raises, lowers, and supports mixing trough.
- 2. PULLEYS (4). Guide winch cable. Three on body, one on trough.
- 3. CABLE END. Anchored to loop on trough support frame.
- 4. LIMIT SWITCH. Normally closed. Opened by bar on trough when trough is pulled up against the support frame. Breaks circuit between RAISE button and IN solenoid.
- 5. CABLE REEL. Pays out and winds in cable. Chain driven by winch motor.
- 6. IN SOLENOID. Activated by signal from RAISE button through limit switch or JOG switch. Causes cable to be sealed in.
- 7. JOG BUTTON. When pressed at the same time as RAISE button, completes circuit to IN solenoid. Provides alternative pathway to raise trough slightly after limit switch opens.
- 8. RAISE BUTTON. When pressed, partially closes circuit to IN solenoid. Circuit must be completed through limit switch or JOG button.
- 9. LOWER BUTTON. When pressed, closes circuit to the OUT solenoid. Used to lower trough.
- 10. GROUND CABLE. Grounds winch circuit to chassis frame.
- 11. POWER UNIT CABLE. Supplies winch with 12V power from starter solenoid of chassis electrical system. (See TM 9-2320-273-20 for a description of the chassis electrical system.)
- 12. OUT SOLENOID. Activated by signal from LOWER button. Causes cable to be paid out.
- 13. WINCH MOTOR. 12-volt electrical motor turns cable reel. Energized by IN and OUT solenoids.
- 14. WINCH GUARD. Sheet metal box covers winch motor, solenoids, and reel. Bolted to rear of cement bin.



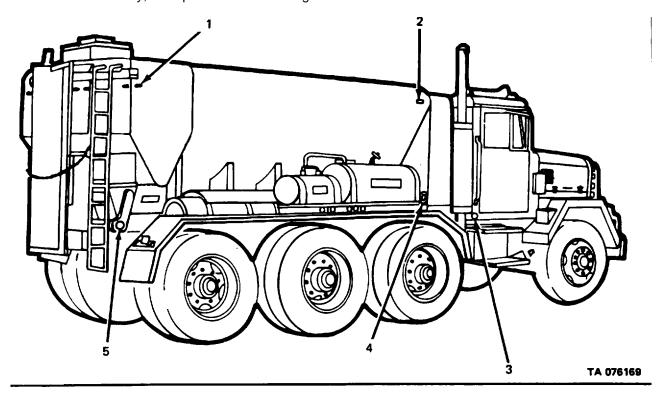
### Section XI LAMPS

# 2-23. INTRODUCTION.

The lamps on the mixer body are an extension of the chassis marker and clearance lamps system. The lamps go on automatically when the chassis blackout switch is set to NORMAL and the headlamp switch is in either of its two "ON" positions. (See TM 9-2320-273-20 for a description of chassis marker arid clearance lamps).

# 2-24. DESCRIPTION.

- 1. MARKER LAMPS. Five red lamps across the back of the cement bin and one on each side of the bin. Mark the rear of the mixer body. Wired from inside the cement bin.
- 2. CLEARANCE LAMPS. Four yellow lamps on the upper front corners of the aggregate bins. Two face forward, one faces to each side. Mark width of mixer body.
- 3. 12-VOLT CONNECTOR. Supplies power for the mixer body lamps from the chassis marker and clearance lamp circuit.
- 4. YELLOW REFLECTOR. Two, one located at front of mixer body on each side. Reflect light to other vehicle(s) for visual safety, if lamps are not functioning.
- 5. RED REFLECTOR. Two, one located at rear of mixer body on each side. Reflect light to other vehicle(s) for visual safety, if lamps are not functioning.



### **CHAPTER 3**

### INTEGRATED MAINTENANCE

### 13-1. OVERVIEW.

This chapter provides you with the following information related to overall mixer body maintenance.

- a. All required special tools and equipment.
- b. Troubleshooting procedures.
- c. Maintenance procedures.

### Section I REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

# 13-2 COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

# 13-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

The special tools, TMDE, and support equipment for mixer body integrated maintenance procedures described in this chapter are limited to the following item. (Refer to Organizational Maintenance RPSTL, TM 5-3895372-20P for tool description and illustration.)

- a. Hydraulic pressure gage, 0-5000 psi (0-34475 kPa).
- b. Air pressure gage, 0-150 psi (0-1000 kPa).
- c. Water pressure gage, 0-75 psi (0500 kPa).

### 13-4. SPARES AND REPAIR PARTS.

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools List covering Organizational Maintenance for the equipment (TM 5-3895-372-20P).

### Section II SERVICE UPON RECEIPT

### 13-5. CHECKING UNPACKED EQUIPMENT.

- a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6, Packaging Improvement Report.
- b. Check the equipment against the packaging slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of DA Pam 738-750.

### **Change 1 3-1**

<b>3-6</b> .	SERVICE UPON RECEIPT C	HECKLIST - M919 MIXER BODY.	
	LOCATION/ITEM	ACTION	REMARKS
1.	Protective wrappings.	Remove.	
2.	Parts and cartons.	Remove from sand, stone, and cement bins.	
3.	Hold-down bolts	Tighten.	
4.	Meter-feeder.	Turn with hand crank. Check for:  a. Free feeder movement. b. Meter-register operation.	See para 8-5 for instructions on use of the hand crank.
5.	Main clutch, cement bin clutch, dry admix dog clutch.	Check for:  a. Free operation. b. Proper lubrication.	See LO 5-3895-372-12 and TM 5-3895-372-10.
6.	Liquid admix tanks.	Fill with water. Check for leaks. Check flowmeters calibration.	See TM 5-3895-372-10 and see para 6-10.
7.	Water tank.	Fill. Check system for leaks. Check water control calibration.	
8.	PTO.	Engage. Make dry run.	See TM 5-3895-372-10
9.	Mixer body.	<ul> <li>a. Fill with sand, stone, cement, and admixtures</li> <li>b. Using mix setting chart, check yield of each mix.</li> </ul>	See TM 5-3895-372-10. See TM 5-3895-372-10.

### Section III PREVENTIVE MAINTENANCE CHECKS AND SERVICES

### 3-7. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES. |

To insure that the mixer body is ready for operation at all times, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. Table 3-1 contains a tabulated listing of preventive maintenance checks and services to be performed by organizational maintenance personnel. All deficiencies and shortcomings will be recorded, as well as, the corrective action taken on DA Form 2404 at the earliest possible opportunity.

- a. The item numbers of Table 3-1 indicate the sequence of the PMCS. Perform at the intervals shown below:
  - (1) Do your (Q) PREVENTIVE MAINTENANCE once each 3 months.
  - (2) Do your (S) PREVENTIVE MAINTENANCE twice a year, or each 6 months.
  - (3) Do your (A) PREVENTIVE MAINTENANCE once each year.
  - (4) Do your (B) PREVENTIVE MAINTENANCE once each two years.
  - (5) Do your (H) PREVENTIVE MAINTENANCE at the hour interval listed.
  - (6) Do your (MI) PREVENTIVE MAINTENANCE when the mileage of the vehicle reaches the amount listed.
- b. If something doesn't work, troubleshoot it with the instructions in this manual or notify your supervisor.
- c. Always do your preventive maintenance in the same order, so it gets to be a habit. Once you've had some practice, you'll spot anything wrong in a hurry.
- d. If anything looks wrong and you can't fix it, write it down on your DA Form 2404. If you find something seriously wrong, report it to direct support as soon as possible.

#### **WARNING**

Dry cleaning solvent SD-2, used to clean parts, is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 1380F.

- (1) Keep it clean: Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent (SD-2) to clean metal surfaces. Use soap and water when you clean rubber or plastic material.
- (2) Bolts, nuts, and screws: Check that they are not loose, missing, bent, or broken. You can't try them all with a tool, of course, but look for chipped paint, bare metal, or rust around bolt heads. Tighten any that you find loose.
- (3) Welds: Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to direct support.

- (4) Electric wires and connectors: Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connections and make sure the wires are in good condition.
- (5) Hoses and fluid lines: Look for wear, damage, and leaks. Make sure clamps and fittings are tight. Wet spots show leaks, of course, but a stain around a fitting or connector can mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, either correct it or report it to direct support (refer to MAC chart).
- e. It is necessary for you to know how fluid leaks affect the status of your equipment. The following are definitions of the types/classes of leakage you need to know to be able to determine the status of your equipment. Learn and be familiar with them and REMEMBER When in doubt, notify your supervisor!

Leakage definitions for Organizational PMCS:

- CLASS I Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
- CLASS II Leakage of fluid great enough to form drops but not enough to cause drops to drip from the item being checked/inspected.
- CLASS III Leakage of fluid great enough to form drops that fall from the item being checked/ inspected.

Table 3-1. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES Q - Quarterly S - Semiannually A - Annually B - Biennially H - Hours M - Miles

1	INTERVAL							
ITEM NO	Q S A B H MI		MI	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, adjusted as needed				
							NOTE	
							PERFORM OPERATOR/CREW PMCS PRIOR TO OR IN CONJUNCTION WITH ORGANIZATIONAL PMCS IF:	
							There is a delay between the daily operation of the equipment and the organizational PMCS.	
							b. Regular operator is not assisting/participating.	
							ELECTRICAL SYSTEM	
1		•					Check wiring harness for corrosion and bare wires. Replace defective wiring.	
2	•						Check all lights for proper operation. Replace defective lamps and lights.	
							BODY	
3		•					Replace all mounting tie downs and fasteners that are badly damaged or broken. Replace all broken reflectors.	
							MAIN DRIVE	
4	•						Check belts for wear and damage. Replace defective belts.	
5	•						Check all U-joints. Check for wear and cracks. Replace defective U-joints.	
6		•					Service reversing gear box.	
7		•					Service angle drive gear box.	
8	•						Adjust main clutch, if necessary.	
							WATER SYSTEM	
9			•				Check for deterioration and leaks in coolant lines, hoses, fittings, valves, filter and tank. Repair leaks or replace items as needed.	
10		•					Service water system strainer.	
11	•						Service system for lowest freezing temperature expected.	
							SAND AND STONE BINS	
12		•					Check screens and repair or replace broken rods.	
13	•						Check sand and stone bin front seal cracked or damaged seals/	

Table 3-1. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES

Q - Quarterly S - Semiannually A - Annually B - Biennially H - Hours M - Miles

Q - Qu	Q - Quarterly S - Semiar			Sen	nian	nually A - Annually B - Biennially H - Hours M - Miles				
ITEM NO	Q	INT S	ERV A	/AL B	Н	MI	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, adjusted as needed			
							CEMENT BIN			
14	•						Adjust meter-feeder spring tines.			
15	•						Check filter cloth operation. If torn or badly clogged, replace.			
16		•					Check cement meter register cable for free operation. Lubricate cable.			
							MIXING TROUGH			
17	•						Check and replace worn auger wear plates.			
18	•						Check auger alignment. If wobbly, repair.			
19	•						Check rubber trough. Repair tears or replace entire trough.			
							WINCH			
20		•					Check wiring harness for corrosion and bare wires. Replace defective wiring.			
21		•					Check cable for fraying, kinks, or broken strands Replace, if necessary.			
22			•				Service gear box.			
							CONVEYOR			
23	•						Adjust conveyor belt.			
24	•						Hammer down loose prongs on belt lacers Check that all bolts are in place.			
							HYDRAULIC SYSTEM			
25				•			Change oil filter.			
							NOTE			
							Change oil filter after 6 months, then every 2 years			
26	•						Check hydraulic system for 1900-2000 psi pressure. Adjust valve, if necessary.			
27		•					Replace any faulty lines or fittings.			

INTERVAL					ITEM TO BE INSPECTED					
NO Q S A				В	Н	МІ	PROCEDURE: Check for and have repaired, filled, adjusted as needed			
							AIR SYSTEM			
28	•						Check for air leaks in lines, valves and fittings with vehicle pressure of 60-120 psi. Repair or replace leaking lines, valves or fittings.			
							LIQUID ADMIX			
29	•						Service liquid admix strainer.			
							DRY ADMIX			
30	•						Check auger alignment. If wobbly, repair.			

### Section IV TROUBLESHOOTING SYMPTOM INDEX

# 3-8. INTRODUCTION.

Detailed troubleshooting procedures are provided in chapters 4 thru 13 of this manual. The procedures are arranged by malfunctions within each system. The following Malfunction Symptom Index will help you find the procedure you need.

Table 3-2. Composite Troubleshooting Sympton Index.

	Troubleshoot	ing Procedures
	Page	
	<u>Table</u>	<u>Number</u>
ADMIX SYSTEMS.		
Air pressure cannot be maintained at 15 psi (103 kPa).	6-1	6-3
Liquid admix flows unevenly.	6-1	6-3
Liquid admix flows too quickly.	6-1	6-5
Liquid admix flows too slowly or not at all.	6-1	6-5
Quick-opening valve sticks.	6-1	6-7
Flowmeter does not return to zero.	6-1	6-8
Dry admix system inoperative.	6-1	6-8
AGG REGATE SUPPLY SYSTEM.		
Conveyor belt does not move.	7-1	7-3
Conveyor belt is loose.	7-1	74
Conveyor belt is torn or damaged.	7-1	74
Sand or stone drops on ground beneath concrete mobile		
during mixing. 7-1	7-	
Sand or stone controls out of adjustment.	7-1	7-6
Excessive wear on chains.	7-1	7-7
AIR SYSTEM.		
Air pressure is low (below 65 psi, 448 kPa)	11-1	11-3
Cement in bin is not properly aerated.	11-1	11-3
Vibrators do not function properly.	11-1	11-4
CEMENT SYSTEM		
Hard lumps of cement in bin.	8-1	8-6
Cement delivery uneven.	8-1	8-7
Meter-feeder does not turn.	8-1	8-10
Cement bin auger will not turn.	8-1	8-12

Table 3-2. Composite Troubleshooting Sympton Index (Continued).

	Troubleshooting	Procedures
CEMENT SYSTEM (Continued).	<u>Table</u> <u>Number</u>	Page
Cement meter feeder blocked in place. Cement counter does not operate. Cement screen does not vibrate.	8-1 8-1 8-1	8-13 8-13 8-14
ELECTRIC WINCH		
Trough does not raise or lower. Trough does not raise. Trough does not lower.	12-1 12-1 12-1	12-3 12-3 12-3
HYDRAULIC SYSTEM.		
Hydraulic motor does not operate. Hydraulic pump is noisy. Hydraulic pressure is low. Hydraulic motor vibrates. Tachometer does not work properly.	101 101 10-1 10-1 101	102 103 103 103 103
LAMPS.		
See paragraphs 13-5 and 13-6.		13-2
MIX-AUGER SYSTEM		
Mixer-auger stalls, will not rotate. Mixer-auger vibrates. Swivel ring binds - chute hard to move.  POWER TRAIN.	9-1 9-1 91	92 9-2 9-2
Noisy shaft bearings. Power train V-belt slippage. Main clutch slips. Angle drive gear box runs hot, is noisy.	4-1 4-1 41 41	4 42 4-2 4-2

Table 3-2. Composite Troubleshooting Sympton Index (Continued).

	Troubleshooti	ng Procedures
WATER SYSTEM.	<u>Table</u>	Page <u>Number</u>
Mix water does not flow at a steady rate. Water line valves leak. Quick Opening valve sticks.	5-1 5-1 5-1	5-3 5-4 5-4

### **CHAPTER 4**

### **POWER TRAIN**

# 4-1. OVERVIEW.

This chapter provides you with the following information related to power train maintenance.

- a. All required special tools and equipment.
- b. Troubleshooting procedures.
- c. Maintenance procedures.

### Section I REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

# 14-2. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

# 14-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

No special tools, TMDE, or support equipment are required for power train maintenance procedures described in this chapter.

### 14-4. SPARES AND REPAIR PARTS.

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools List covering Organizational Maintenance for this equipment (TM 5-3895-372-20P).

#### Section II TROUBLESHOOTING

### 4-5.INTRODUCTION.

Troubleshooting procedures for the power train are given in table 4-1. It is arranged by malfunctions, in the following order:

- a. Noisy shaft bearings (Malfunction No. 1).
- b. Power train V-belt slippage (Malfunction No. 2).
- c. Main clutch slips (Malfunction No. 3).
- d. Angle drive gear box runs hot, is noisy (Malfunction No. 4).

### Table 4-1. Power Train Troubleshooting.

# **MALFUNCTION**

### **TEST OR INSPECTION**

### **CORRECTIVE ACTION**

### 1. NOISY SHAFT BEARINGS:

Step 1. Inspect for signs of excessive heat and dryness.

Lubricate bearings. (See LO 53895372-12).

Step 2. Inspect for vibrating, seized, cracked or worn bearings.

Replace shaft bearings (para 4-12 and 4-13).

### 2. POWER TRAIN V-BELT SLIPPAGE:

Step 1. Inspect for loose V-belts.

Adjust V-belts (paras 4-11, 4-16, and 4-17).

Step 2. Inspect for worn or oil saturated V-belts.

Replace V-belts (paras 4-11, 4-16, and 4-17).

Step 3. Inspect drive shafts, water pump, and hydraulic pump for binding or seizure.

- a. Replace drive shaft bearings (paras 4-12 and 4-13).
- b. Inspect and repair water pump (para 5-10).
- c. Inspect and repair hydraulic pump. Notify Direct Support Maintenance.

### 3. MAIN CLUTCH SLIPS:

Step 1. Inspect for signs of excessive heat, burning, and lost motion.

Adjust main clutch (para 418).

Step 2. Inspect clutch discs for excessive wear, oil saturation, contamination.

Repair main clutch, Notify Direct Support Maintenance.

### 4. ANGLE DRIVE GEAR BOX RUNS HOT, IS NOISY:

Step 1. Check oil level in gear box.

Add oil. (Refer to TM 5-3895-372-10 and LO 5-3895-372-12).

- Step 2. Check gear box for plugged breather holes in cap.
  - a. Use wire to unplug holes.
  - b. If problem still persists, notify Direct Support Maintenance.

# Section III MAINTENANCE PROCEDURES.

# 4-6. INTRODUCTION.

This section provides you with Organizational level maintenance procedures for the power train of the mixer body. Paragraph 4-7 summarizes the maintenance tasks. Paragraphs 4-8 thru 4-19 contain detailed instructions for each task.

# 4-7. MAIN DRIVE ASSEMBLY MAINTENANCE TASK SUMMARY.

### **INITIAL SETUP:**

**EQUIPMENT** CONDITION

**APPLICABLE CONFIGURATIONS PARAGRAPH** CONDITION DESCRIPTION M919.

4-8A. Cement Register Removed. Reversing Gear Box Removed 4-8A.

(as needed).

4-16A & 4-17A. Belts Loosened. **TEST EQUIPMENT** 4-16B & 4-17B Belts Removed

4-10A. Universal Joints Removed None.

(as needed).

Shaft Assemblies Removed. 4-12A. 10-12A. **Tachometer and Mounting SPECIAL TOOLS** Bracket Removed.

4-15A Steps 1 & 2 Covers Removed. None.

MATERIALS/PARTS (P/N)

Lubricant - (Refer to Appendix C). V-Belts - Water Pump, NP 5032 010, (50663). GAA - (Refer to Appendix C). V-Belts - Hyd Pump NP 5032 002, (50663).

Dry Cleaning Solvent-(Refer to Appendix C). Penetrating Oil (Refer to Appendix C). Liquid Teflon - (See Appendix C). Universal Kits, 2675 X 28188, (50663).

Universal Kit, 1875 X, (50663). V-Belts - Drive; NP-5032-120, (50663). SPECIAL ENVIRONMENTAL CONDITIONS Vehicle Parked on Level Ground.

PERSONNEL REQUIRED

Two (MOS-63B20).

**REFERENCES (TM)** LO 5-3895-372-12.

TM 5-3895-372-10.

TM 9-2320-273-10.

TM 5-3895-372-20P.

**GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission in Neutral.

# REFERENCES (TROUBLESHOOTING)

Lock Wire (Refer to Appendix C).

Table 4-1.

LIST OF TASKS

TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)
1.	Reversing Gear Box Maintenance:	4-8	4-1
	A. Removal. B. Installation. C. Checking oil level.	4-8A 4-8B 4-8C	
2.	PTO to PTO Belts Shaft - Universal Joints Maintenance:	4-9	4-1
	<ul><li>A. Removal.</li><li>B. Disassembly.</li><li>C. Cleaning and inspection.</li></ul>	4-9A 4-9B 4-9C	

# 4-7. MAIN DRIVE ASSEMBLY MAINTENANCE TASK SUMMARY (Continued).

# LIST OF TASKS

TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)
2.	PTO to PTO Belts Shaft - Universal Joints Maintenance		
	(Continued):		
	D. Assembly.	49D	
	E. Installation.	4-9E	
3.	Universal Joints Maintenance:	410	4-1
	A. Removal.	410A	
	B. Disassembly.	4-10B	
	C. Cleaning and inspection.	410C	
	D. Assembly.	4-10D	
	E. Installation.	410E	
4.	PTO Belts Maintenance:	411	4-1
	A. Removal.	4-11A	
	B. Installation.	411 B	
	C. Adjustment.	4-11C	
5.	Main Shaft Maintenance:	412	41
	A. Removal.	412A	
	B. Disassembly.	412B	
	C. Cleaning and inspection.	412C	
	D. Assembly.	4-12D	
	E. Installation.	4-12E	
	F. Checking alignment.	412F	
6.	PTO Belts Shaft Assemblies Maintenance:	413	41
	A. Disassembly.	4-13A	
	B. Cleaning and inspection.	413B	
	C. Assembly.	413C	

# 4-7. MAIN DRIVE ASSEMBLY MAINTENANCE TASK SUMMARY (Continued).

# LIST OF TASKS

TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)
7.	Reversing Gear Box Output Shaft Maintenance:	4-14	4-1
	A. Removal.	4-14A	
	B. Disassembly.	4-14B	
	C. Cleaning and inspection.	4-14C	
	D. Assembly.	4-14D	
	E. Installation.	4-14E	
8.	Rear Incline Shaft Maintenance	4-15	4-1
	A. Removal.	4-15A	
	B. Disassembly.	4-15B	
	C. Cleaning and inspection.	4-15C	
	D. Assembly.	4-15D	
	E. Installation.	4-15E	
9.	Water Pump Belts Maintenance:	4-16	4-1
	A. Loosening.	4-16A	
	B. Removal.	4-16B	
	C. Installation.	4-16C	
	D. Adjustment.	4-16D	
10.	Hydraulic Pump Belts Maintenance	4-17	4-1
	A. Loosening.	4-17A	
	B. Removal.	417B	
	C. Installation.	4-17C	
	D. Adjustment.	4-17D	
11.	Main Clutch Adjustment:	4-18	4-1
	Clutch adjustment.		

4-7. MAI	4-7. MAIN DRIVE ASSEMBLY MAINTENANCE TASK SUMMARY (Continued).							
	LIST OF TASKS							
TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)					
12.	Angle Drive Gear Box Maintenance: A. Removal. B. Installation.	4-19 4-19A 4-19B	4-1					
	C. Operational check.	4-19C						

### 4-8. REVERSING GEAR BOX MAINTENANCE.

### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (15)b. Installation. (25)c. Checking Oil Level. (5)

45 Minutes Total.

**INITIAL SETUP** 

EQUIPMENT CONDITION

APPLICABLE CONFIGURATIONS PARAGRAPH CONDITION DESCRIPTION

None. None.

**TEST EQUIPMENT** 

None.

M919.

**SPECIAL TOOLS** 

None.

**MATERIALS/PARTS (P/N)** 

Lubricant - (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

LO 5-3895-372-12. Engine off.

TM 92320-273-10. Transmission in Neutral.

Park Brake set.

TROUBLESHOOTING REFERENCES

Table 4-1.

# 4-8. REVERSING GEAR BOX MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

### A. REMOVAL.

1. Five cap screws (12) and five lock washers (11).

Remove.

2. Cover (13).

Remove.

3. Lockwires (2) and (5).

Remove.

4. Set screws (1) and (6).

Loosen.

5. Shaft (10). reversing box shaft.

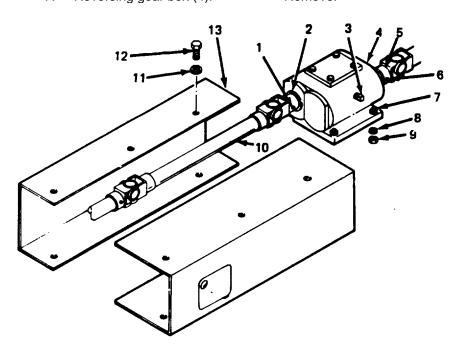
Slide forward off of

6. Four hex bolts (7), hex nuts (9), and lock washers (8).

Remove.

7. Reversing gear box (4).

Remove.



### **LEGEND:**

- 1. SET SCREW
- 2. LOCKWIRE
- 3. OIL LEVEL PLUG
- 4. REVERSING GEAR BOX
- 5. LOCKWIRE
- 6. SET SCREW
- 7. HEX BOLT (4)
- 8. LOCK WASHER (4)
- 9. HEX NUT (4)
- 10. SHAFT
- 11. LOCK WASHER (8)
- 12. CAP SCREW (5)
- 13. COVER

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### 4-8. REVERSING GEAR BOX MAINTENANCE (Continued).

### LOCATION/ITEM ACTION REMARKS

### B. INSTALLATION. I

8. Reversing gear box (4).

9. Four hex bolts (7), hex nuts (9), and lock washers (8).

lock washers (8).
Shaft (10).
Slide onto reversing

10. Shaft (10). gear box shafts.

11. Set screws (1) and (6).

12. Lockwires (2) and (5).

13. Cover (13).

Tighten.

Set in place.

Install and tighten.

Install.

a. Place on vehicle.

b. Install cap screws (12) and lock washers (11).

c. Tighten.

### C. CHECKING OIL LEVEL.1

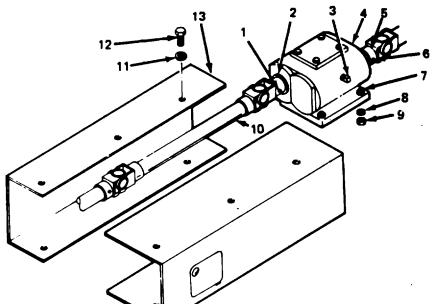
14. Oil level plug (3).

a. Remove.

b. Check that oil in reversing gear box (4) is up to level of plug hole.

c. Screw in and tighten plug

Add oil if necessary. (refer to LO 5-3895-372-12).



### LEGEND:

- 1. SETSCREW
- 2. LOCKWIRE
- 3. OIL LEVEL PLUG
- 4. REVERSING GEAR BOX
- 5. LOCKWIRE
- 6. SETSCREW
- 7. HEX BOLT (4)
- 8. LOCKWASHER (41
- 9. HEX NUT (4)
- 10. SHAFT
- 11. LOCKWASHER (8)
- 12. CAPSCREW (5)
- 13. COVER

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### 4-9. PTO TO PTO BELTS SHAFT - UNIVERSAL JOINTS MAINTENANCE.

### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (30)
b. Disassembly. (20).
c. Cleaning and Inspection. (20)
d. Assembly. (20)
e. Installation. (30)

120 Minutes Total.

INITIAL SETUP

EQUIPMENT CONDITION

PARAGRAPH None. **CONDITION DESCRIPTION** 

None.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIALSIPARTS (P/N)** 

SD-2 Dry Cleaning Solvent (Refer to Appendix C). Universal Joint Kits, 2675 X 28188 (50663). GAA - (Refer to Appendix C). Lockwire (Refer to Appendix C).

PERSONNEL REQUIRED

One (MOS-62B20).

SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

**REFERENCES (TM)** 

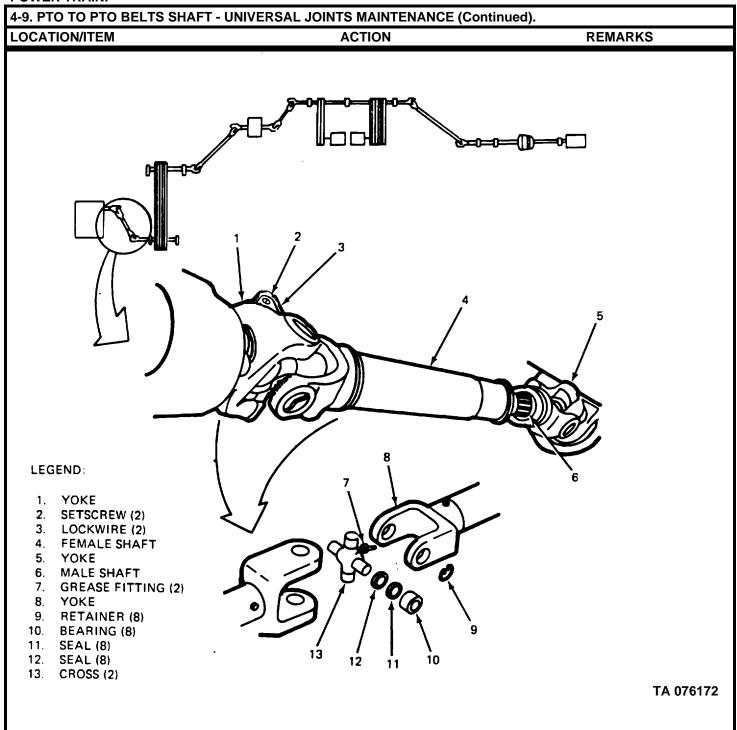
LO 5-3895-372-12. TM 5-389~5372-20P TM 9-2320-273-10. **GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

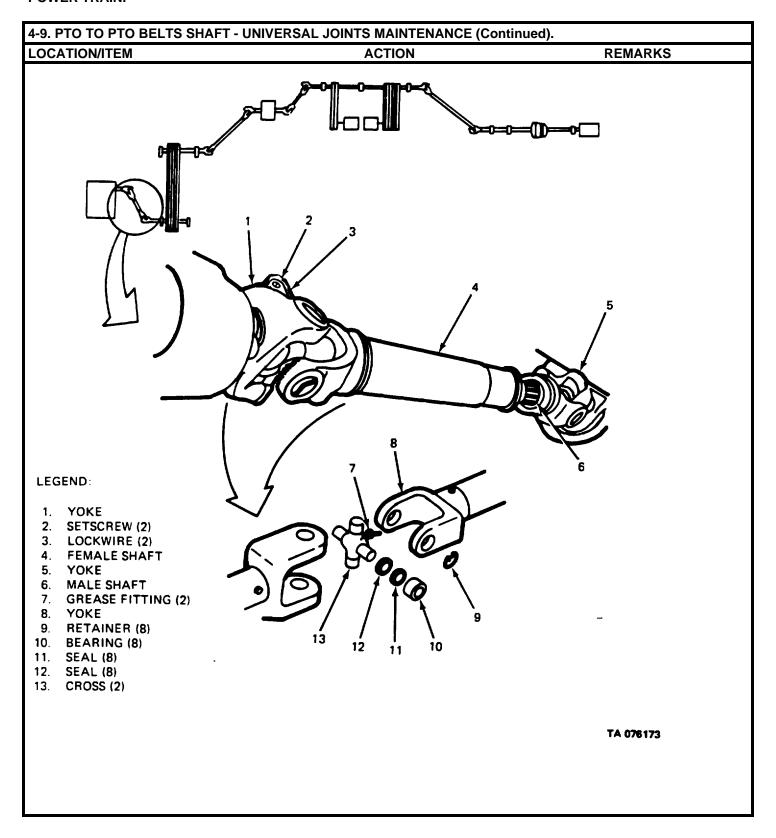
Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REFERENCES

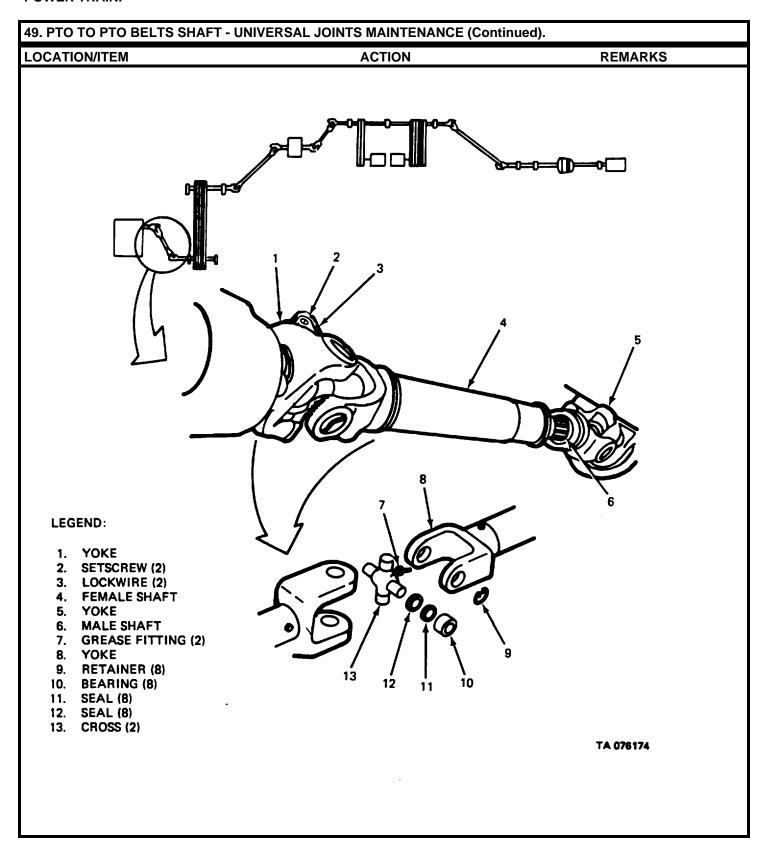
Table 4-1.



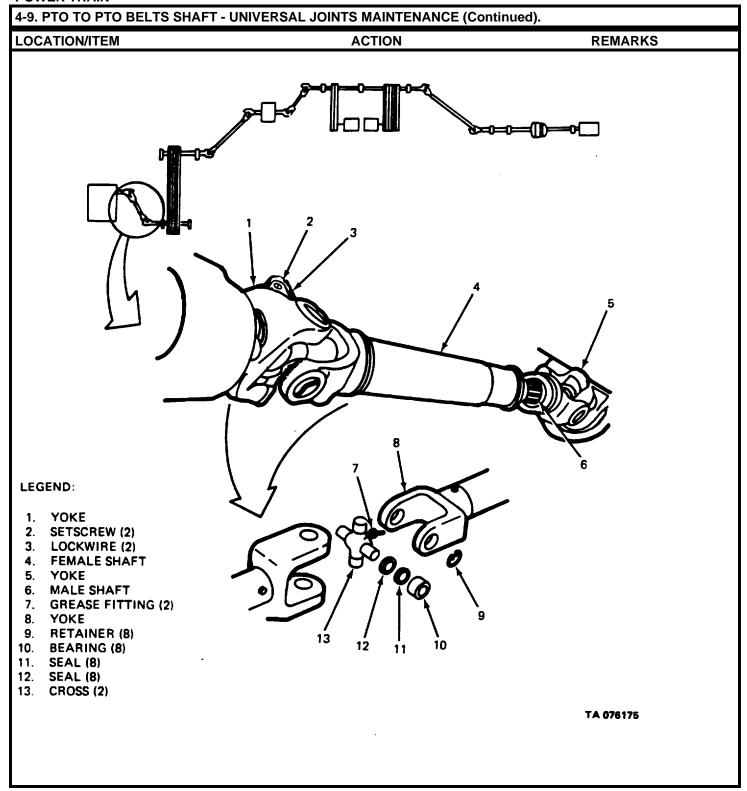
		IIVERSAL JOINTS MAINTENANCE (Contin	
_OCA	ATION/ITEM	ACTION	REMARKS
A R	EMOVAL.		
1.	Two lock wires (3).	Cut and remove.	One on each end of shaft.
2.	Two setscrews (2).	Loosen.	One on each yoke.
		<b></b>	
		CAUTION	
	Before removing fema	lle shaft (4) and male shaft (6), punch mark s	shafts for reassembly
		universal joints may occur if shafts are not a	
2	Volto (4)	Demove with attacked famal-	It may be personally to to a all
3.	Yoke (1).	Remove with attached female shaft (4).	It may be necessary to tap off PTO shaft with hammer.
4.	Yoke (5).	Remove with attached male	It may be necessary to tap off
	shaft (6).	bearing shaft with hammer.	
	DISASSEMBLY.		
В.	DISASSEMBLY.		
5.	Eight retainers (9).	Remove.	
6.	Eight bearings (10).	Remove.	Remove the first bearing by
	3		tapping gently on the opposite bearing. Remove bearing and
			tap cross back toward first
			bearing. Repeat until all bearings are removed.
7.	Yoke (1) and yoke (8).	Separate.	
	( ) ) (-).		



OCA	TION/ITEM	ACTION	REMARKS
3.	DISASSEMBLY (Continued).		
3. Two crosses (13) and eight seals (11) and (12).		Remove.	
Tw	o grease fittings (7).	Remove.	
	CLEANING AND INSPECTION.	]	
0.	All parts.	Clean in SD-2 dry cleaning solvent.	
1.	Three yokes (5), (1), and (8).	Inspect for: a. b. Breaks c. Wear. d. Deformities.	Replace if necessary. Cracks.
2.	Two crosses (13).	Inspect for: a. Nicks. b. Burrs. c. Scratches. d. Needle marks.	Use fine stone to remove light marks. Replace if necessary
3.	Eight bearings (10).	Inspect for: a. Missing needles. b. Flat spots. c. Nicked surface. d. Deformities.	
. AS	SEMBLY.		
4.	Sixteen seals (11) and (12).	Install on crosses (13).	
5.	Two crosses (13) and eight bearings (10).	Apply clean grease (GAA).	
6.	Two crosses (13).	Install.	



4-9. PTO TO PTO BELTS SHAFT - UNIV LOCATION/ITEM		ACTION	REMARKS
D.	ASSEMBLY (Continued).		
17.	Eight bearings (10).	Tap gently into place.	
18.	Eight retainers (9).	Install.	
E.	INSTALLATION.		
19.	Yoke (5) with attached male shaft (6).	Tap onto bearing shaft.	
20.	Setscrew (2).	Tighten. Install lock wire (3).	
21.	Female shaft (4).	Aline punch mark with punch mark on male shaft (6) and slide together.	Be sure yokes are in alinement
22	Yoke (1).	Tap onto PTO shaft.	
23.	Setscrew (2).	Tighten. Install lock wire (3).	
		NOTE	
		Follow-on maintenance required:	
		Grease (LO 5-3895-372-12).	



### 4-10. UNIVERSAL JOINTS MAINTENANCE.

### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (25)
b. Disassembly. (15)
c. Cleaning and Inspection. (15)
d. Assembly. (20)
e. Installation. (30)

105 Minutes Total.

**INITIAL SETUP** 

EQUIPMENT CONDITION PARAGRAPH

4-8A.

**CONDITION DESCRIPTION** 

Reversing Gear Box Removed

(as Needed).

4-16A & 4-17A. Belts Loosened.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

GAA (Refer to Appendix C). Universal Joint Kit, 1875X (50663). Lock wire (Refer to Appendix C).

PERSONNEL REQUIRED

**CONDITIONS** 

One (MOS-62B20).

SPECIAL ENVIRONMENTAL

Vehicle Parked on Level Ground.

REFERENCES (TM)

LO 5-3895-372-12.

TM 5-3895-372-10.

TM 5-3895-372-20P.

TM 9-2320-273-10.

**GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Tablet-1.

# 4-10. UNIVERSAL JOINTS MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

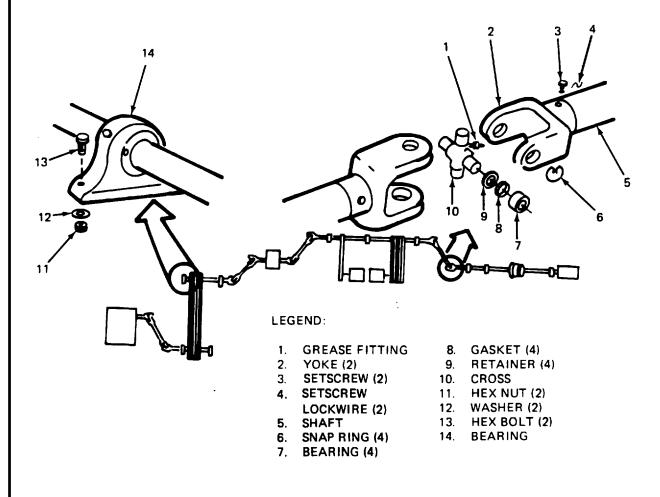
# A. REMOVAL

### **NOTE**

The illustration shows all bearings (14) and universal joints of the power train. Use it to decide which bearings you will need to loosen to allow slack in the drive system.

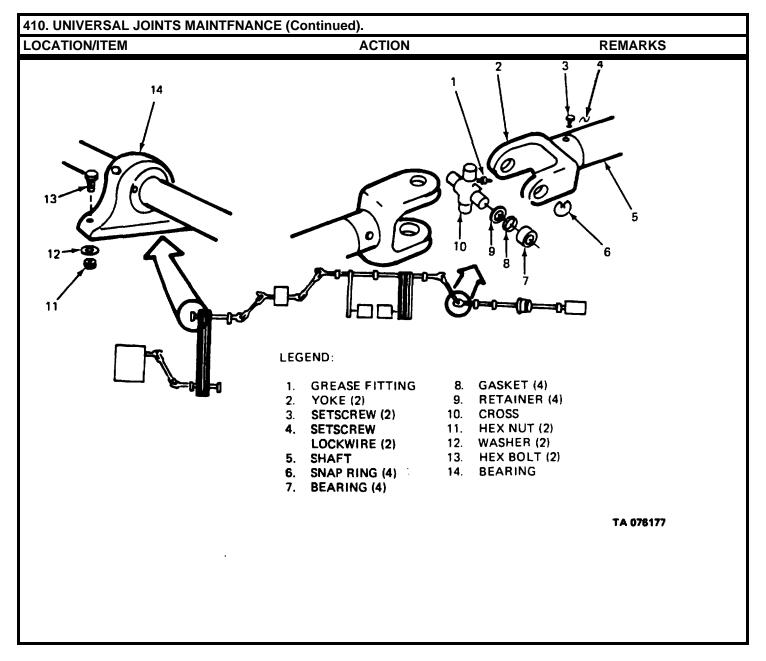
# CAUTION

Before removing U-joints, be sure that shafts (5) and yokes (2) are punch marked.



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4-10. UNIVERSAL JOINTS MAINTENANCE (Continued).							
LOCAT	TION/ITEM	ACTION	REMARKS				
Α.	REMOVAL (Continued).						
1.	Two hex bolts (13), hex nuts (11), and washers (12).	Remove as needed.					
2.	Two set screw lock wires (4).	Remove.					
3.	Two yoke collar set- screws (3).	Loosen	Two on each U-joint.				
		NOTE					
	The two U-joints at the rea hammer.	r of the vehicle have roll pins. Tap out	these roll pins with a drift and				
4.	Shafts (5) and universal joint.	Slide apart. Remove universal joint assembly.	It may be necessary to tap loose with a hammer.				
В.	DISASSEMBLY.						
5.	Grease fitting (1).	Remove from cross (10).					
		CAUTION					
Tap bearings only hard enough to break them away from snap rings.							
6.	Four bearings (7).	Use a soft drift to break away from snap rings (6).					
7.	Four snap rings (6).	Remove.					
8.	Four bearings (7).	Remove.	You can push the first bearing out of each yoke by tapping gently on the opposite bearing. Tap cross end to push out second bearing.				
9.	Four gaskets (8) and retainers (9).	Remove.					
10	Cross (10) and-two yokes (2).	Separate.					



#### 4-10. UNIVERSAL JOINTS MAINTENANCE (Continued).

LOCATION ACTION REMARKS

#### C. CLEANING AND INSPECTION.

#### WARNING

Compressed air used for cleaning purposes will not exceed 30 psi. Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.).

11. Yokes (2).

- a. Clean with SD-2 dry cleaning solvent.
- b. Dry with compressed air.

# CAUTION

Bearings (7) and cross (10) should be replaced as a set. If the cross or any bearing is damaged, replace the set.

12. Yokes (2).

Inspect for:

- a. Cracks.
- b. Wear.
- c. Nicks.
- d. Burrs.

#### D. ASSEMBLY.

13. Four new retainers

(9) and gaskets (8).

Place on cross (10).

14. Cross (10).

Place between two yokes (2).

15. Four bearings (7).

Use rawhide mallet to tap

bearings into yokes.

16. Four snap rings (6).

Set in grooves of yoke (2).

17. grease fitting (1).

Install in cross (10).

#### E. INSTALLATION.

18. Two yokes (2).

a. Press onto shaft (5).

b. Aline punch marks.

19. Two setscrews (3).

Tighten firmly, then install two setscrew lockwires (4).

Check that shafts do not slip in

joints.

#### 4-10. UNIVERSAL JOINTS MAINTENANCE (Continued),

#### **LOCATION ACTION REMARKS**

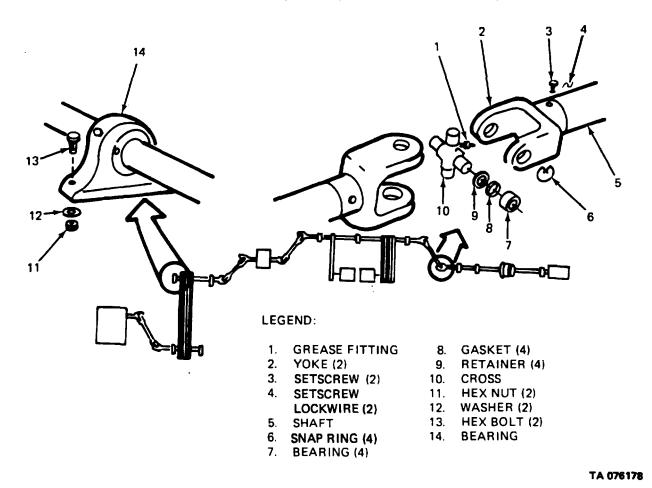
#### E. INSTALLATION (Continued).

20. Hex bolts (13), washers (12), and hex nuts (11). Install and tighten.

#### **NOTE**

Follow-on maintenance required, as applicable:

- a. Reversing gear box installed (para 4-8B).
- b. Adjust V-belts (para 4-16D or 4-17D).
- c. Lubricate (refer to LO 5-3895-372-12).
- d. Check operation (refer to TM 5-3895-372-10).



#### 4-11. PTO BELTS MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (45)b. Installation. (60)c. Adjustment. (10)

115 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS None. None.

M919.

TEST EQUIPMENT

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

V-Belts, Drive, NP5032-120 (50663). Lockwire (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 9-2320-273-10. Engine Off.

TM 5-3895-372-20P. Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 4-1.

#### 4-11. PTO BELTS MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** A. REMOVAL. 1. Four hex bolts (3) Remove. and lockwashers (2). 2. Hex bolt (7). Remove. 3. Cover (1). Remove. 4. Six hex bolts (4) Remove. and lockwashers (5) 30 LEGEND: COVER LOCKWASHER (4) 29 3. HEX BOLT (4) HEX BOLT (6) LOCKWASHER (6) 28 **UPPER YOKE ASSEMBLY HEX BOLT COVER** SETSCREW LOCKWIRE 10. LOCKWASHER (4) 11. HEX NUT (4) 12. 25 13. ACCESS COVER (2) HEX BOLT (6) 14. HEX NUT (4) 15. 24 LOCKWASHER (4) 16. LOWER BEARING ASSEMBLY 17. 18. PLATE LOWER YOKE ASSEMBLY 19. 20. HEX BOLT (4) 21. FLATWASHER (4) 22 22. LOCKWIRE

- **SETSCREW** 23.
- **BOTTOM PLATE** 24.
- **UPPER BEARING ASSEMBLY 25**.
- **HEX LOCKNUT (2)** 26.
- **27**. **ADJUSTING SCREW (2)**
- 28. V-BELTS (5)
- 29. FLATWASHER (4)
- 30. HEX BOLTS (4)
- UPPER ASSEMBLY AND PLATE

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LOCATION/ITEM		ACTION	REMARKS
Α. Ι	REMOVAL (Continued)		
<b></b> 5.	Cover (8).	Remove.	
i.	Six hex bolts (14).	Remove.	
	Access covers (13).	Remove.	
	Lockwire (10).	Cut and remove.	
١.	Setscrew (9).	Loosen.	
0.	Upper yoke assembly (6).	Remove.	Tap off with hammer.
1.	Four hex nuts (12), lockwashers (11), and bottom plate (24).	Remove.	
2.	Four hex bolts (30) and and flat washers (29).	Remove.	
3	Two hex locknuts (26).	Loosen.	
4.	Adjusting screws (27).	Loosen evenly.	
5.	Lockwire (22).	Cut and remove.	
6.	Setscrew (23).	Loosen.	
7.	Lower yoke assembly (19).	Remove.	Tap off with hammer.
8.	Four hex nuts (15) and lockwashers (16).	Remove.	
9.	Four hex bolts (20) and flat washers (21).	Remove.	
:0.	Two lower bearing assemblies (17) and plate (18).	Remove.	
1.	Two upper bearing assemblies (25) and bottom plate (24).	Remove.	
2.	V-beits (28).	Remove and discard.	
В.	INSTALLATION.		
23.	Two upper bearing assemblies (25) and plate (24).	Set in place.	

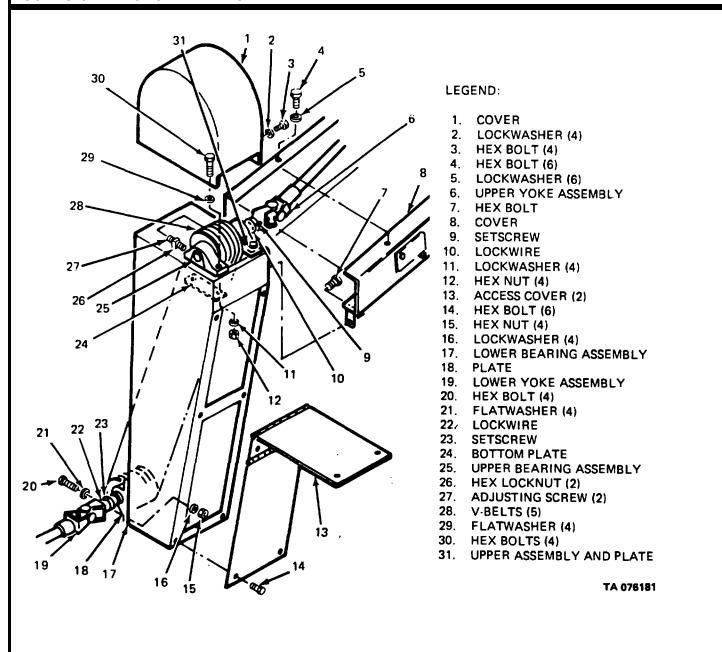
#### 4-11. PTO BELTS MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS B. INSTALLATION (Continued).** 24. Five V-belts (28). Place over upper bearing assembly (25). 25. Two lower bearing Place in V-belts (28). assemblies (17). 26. Two lower bearing assem-Line up and install four hex bolts blies (17) and plate (18). (20) and flat washers (21). 30 LEGEND: COVER 1. LOCKWASHER (4) 2. 3. HEX BOLT (4) 29 HEX BOLT (6) LOCKWASHER (6) 6. **UPPER YOKE ASSEMBLY** 28 7. **HEX BOLT** 8. COVER 9. **SETSCREW** 10. LOCKWIRE 11. LOCKWASHER (4) 12. HEX NUT (4) 13. ACCESS COVER (2) 25 HEX BOLT (6) 14. HEX NUT (4) 15. 16. LOCKWASHER (4) 24 **17**. LOWER BEARING ASSEMBLY 18. PLATE LOWER YOKE ASSEMBLY 19. 20. HEX BOLT (4) FLATWASHER (4) 21. 23 22/ LOCKWIRE 22 21 23. **SETSCREW** 24. **BOTTOM PLATE** 25. **UPPER BEARING ASSEMBLY** 26. **HEX LOCKNUT (2)** 27. **ADJUSTING SCREW (2)** 28. V-BELTS (5) 29. FLATWASHER (4) 30. HEX BOLTS (4) UPPER ASSEMBLY AND PLATE 31. 17 TA 076181

#### 4-11. PTO BELTS MAINTENANCE (Continued).

LOCATION/ITEM		ACTION	REMARKS
B. INSTALLATION (Continued).I			
27.	Four hex nuts (15). and lockwashers (16).	Install. Tighten securely.	
28.	Lower yoke assembly (19).		
29.	Setscrew (23).	Tighten and install lock wire (22).	
30.	Bottom plate (24).	Place under upper pulley assembly and aline holes.	
31.	Four hex bolts (30) and flat washers (29).	Install.	
32.	Four hex nuts (12) lockwashers (11), and bottom plate (24).	Install	
C.	ADJUSTMENT. I		
33.	Adjusting screws (27).	Tighten evenly until 1/2 in. deflection occurs at center of V-belts, while applying approximately six pounds pressure at center. Use straight edge and ruler to determine this reading.	
34.	Locknuts (26).	Tighten.	
35.	Four hex nuts (12). and hex bolts (30).	Tighten securely.	
36.	Upper yoke assembly (6).	Slide onto shaft.	
37.	Setscrew (9).	Tighten. Install lockwire (10).	
38.	Access covers (13).	Set in place and secure with six hex bolts (14). Tighten.	
39.	Cover (8).	Set in place and secure with six hex bolts (4) and lockwashers (5). Tighten.	
40. Co	over (1).	Set in place and secure with four hex bolts (3) and lockwashers (2). Tighten.	
41. He	ex bolt (7).	Tighten securely.	

#### 4-11. PTO RFI TS MAINTFNANCE (Continued).

#### LOCATION/ITEM ACTION REMARKS



#### 4-12. MAIN SHAFT MAINTENANCE'

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10)b. Disassembly. (30)Cleaning and Inspection. (25)C. Assembly. d. (35)e. Installation. (10)f. Checking Alinement. (5)

115 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION PARAGRAPH

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS4-8A.Reversing Gear Box Removed.

4-16B & 4-17B. Water Pump & Hydraulic Pump .

Belts Removed.

4-10A. Universal Joint Removed

TEST EQUIPMENT
None. (as Needed).

SPECIAL TOOLS

None.

M919.

MATERIALS/PARTS (P/N)

Oil (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Two (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

LO 5-38953-72-12. Engine Off.

TM 9-38937273-10. Transmission in Neutral.

TROUBLESHOOTING REFERENCES

Table 4-1.

#### 4-12. MAIN SHAFT MAINTENANCE (Continued).

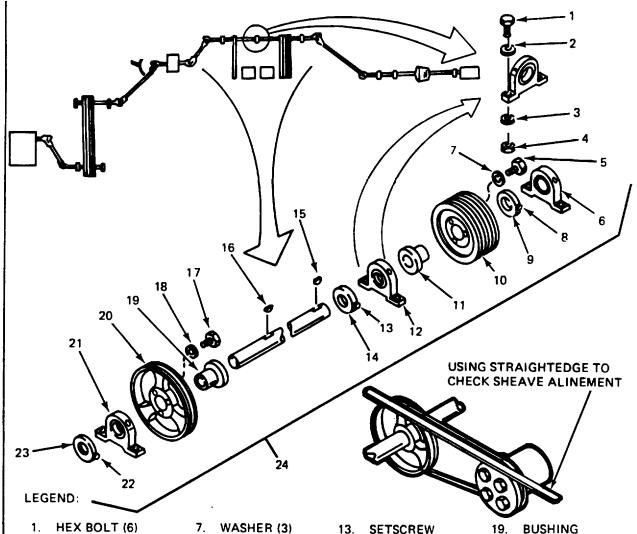
LOCATION/ITEM **ACTION REMARKS** 

#### A. REMOVAL.

1. Six hex bolts (1), nuts (4), washers (2) and lockwashers (3).

Remove from bearings (6), (12) and (21).

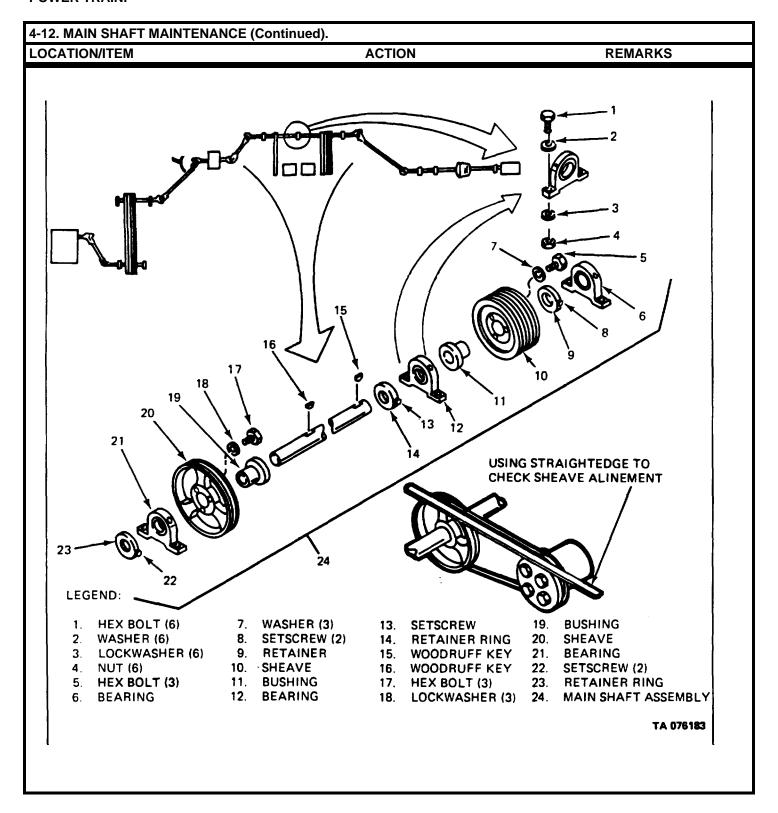
2. Main shaft assembly (24). Remove.



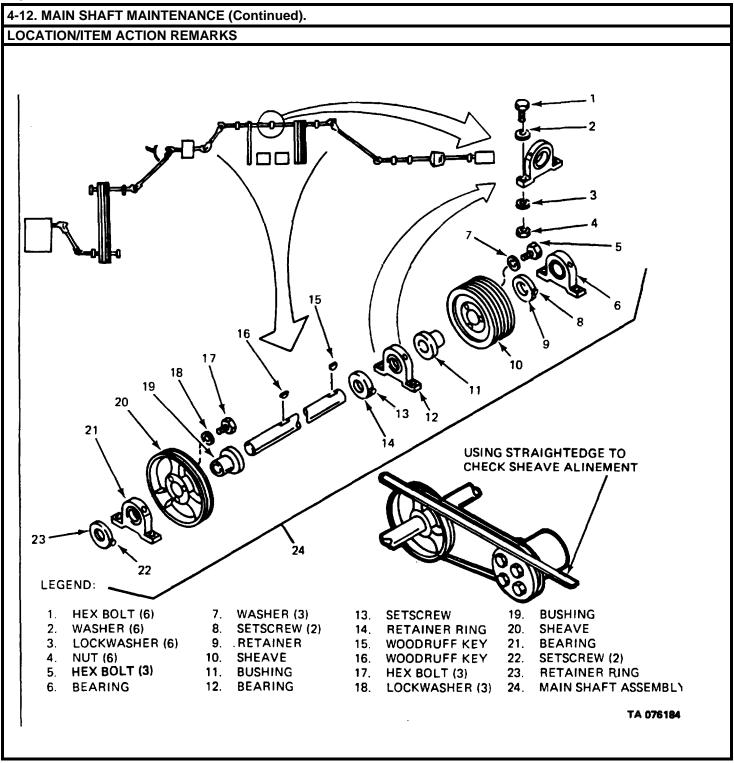
- 2. WASHER (6)
- LOCKWASHER (6) 3.
- **NUT (6)**
- ) 5. HEX BOLT (3)
- 6. BEARING
- WASHER (3)
- SETSCREW (2)
- RETAINER 9.
- SHEAVE 10. **BUSHING** 11.
- 12. BEARING
- **SETSCREW**
- 14. **RETAINER RING**
- 15. **WOODRUFF KEY** 16. **WOODRUFF KEY**
- 17. HEX BOLT (3)
- 18. LOCKWASHER (3) 24. MAIN SHAFT ASSEMBLY
- BUSHING
- 20. **SHEAVE**
- 21. **BEARING** SETSCREW (2) 22.
- 23. **RETAINER RING**

TA 076182

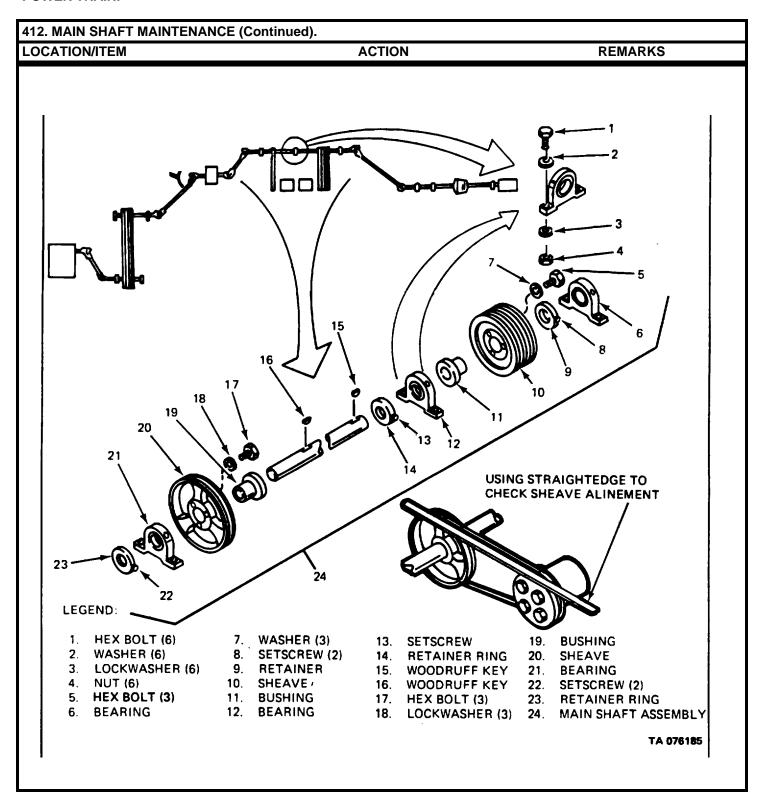
4-12. M	-12. MAIN SHAFT MAINTENANCE (Continued).				
LOCAT	ION/ITEM	ACTION	REMARKS		
B. DI	B. DISASSEMBLY				
		NOTE			
	of oil applied to the shaft will aid in the	shaft assembly, all paint must be removed e removal of the component parts. Punch shings, so that they can be re-alined prope	mark shaft, adjacent to		
3.	Two setscrews (22).	Loosen.			
4.	Bearing (21) and retainer (23).	Remove.	Tap off gently, using soft headed hammer.		
5.	Hex bolts (17) and lockwashers (18).	Remove.			
6.	Hex bolts (17). holes.	Install in tapered pusher and bushing separate.	Tighten evenly until sheave		
7.	Sheave (20).	Remove.			
8.	Bushing (19)	Remove.	Tap off gently, using soft		
9.	Woodruff key (16).	Remove.			
10.	Setscrew (13).	Loosen.	There are two setscrews.		
11.	Bearing (12) and retainer ring (14).	Remove.	Tap off gently, using soft headed hammer.		
12.	Three hex bolts (5) and three washers (7).	Remove.			
13.	Three hex bolts (5).	Install in tapered pusher holes.	Tighten evenly until sheave and bushing separate.		
14.	Sheave (10).	Remove.			
15.	Bushing (11) and woodruff key (15).	Remove.	Tap off gently, using soft headed hammer.		
16.	Setscrew (8).	Loosen.			
17.	Bearing (6) and retainer (9).	Remove.	Tap off gently, using soft headed hammer.		



#### 4-12. MAIN SHAFT MAINTENANCE (Continued). **ACTION REMARKS** LOCATION/ITEM C. CLEANING AND INSPECTION 18. All parts. Clean in SD-2 dry cleaning solvent. 19. Bearings. Inspect for: Wear. Cracks. b. Breaks. c. d. Deformities. Smooth operation. e. 20. Inspect for: Sheaves, retainers, Wear. bushings and shaft. b. Cracks. Breaks. c. d. Bends. e. Deformities. D. **ASSEMBLY NOTE** A light coat of oil, applied to the shaft and mating surface of component parts, will aid in the reassembly. 21. Bearing (6) and Install. Tap on gently, using soft headed hammer. retainer (9). 22. Retainer (9). Aline with punch marks. 23. Setscrew (8). Tighten. 24. Bushing (11) and Install. woodruff key (15). 25. Bushing (11). Aline with punch marks. Tap on gently, using soft headed hammer. 26. Sheave (10). Install. 27. Hex bolts (5) and Tighten bolts evenly. washers (7). 28. Retainer (14) and Install. bearing (12). 29. Retainer ring (14). Aline with punch marks. 30. Setscrew (13). Tighten.



31. Bushing (19).  32. Bushing (19).  33. Sheave (20).  34. Hex bolts (17) lockwashers (  35. Bearing (21) a retainer ring (2)  36. Retainer ring (3)  37. Setscrew (22)  E. INSTALLATION  38. Main shaft ass  39. Hex bolts (1), washers (2) a washers (3).  40. Universal joint			REMARKS
32. Bushing (19).  33. Sheave (20).  34. Hex bolts (17) lockwashers (  35. Bearing (21) a retainer ring (2).  36. Retainer ring (3).  37. Setscrew (22)  E. INSTALLATION  38. Main shaft ass.  39. Hex bolts (1), washers (2) a washers (3).  40. Universal joint	LY (Continued)		
33. Sheave (20).  34. Hex bolts (17) lockwashers (  35. Bearing (21) a retainer ring (2  36. Retainer ring (3  37. Setscrew (22)  E. INSTALLATION  38. Main shaft ass  39. Hex bolts (1), washers (2) a washers (3).  40. Universal joint	19).	Install.	Tap on gently, using soft headed hammer.
34. Hex bolts (17) lockwashers ( 35. Bearing (21) a retainer ring (2 36. Retainer ring (3 37. Setscrew (22)  E. INSTALLATION  38. Main shaft ass  39. Hex bolts (1), washers (2) a washers (3).  40. Universal joint	19).	Aline with punch marks.	
lockwashers ( 35. Bearing (21) a retainer ring (2 36. Retainer ring (3 37. Setscrew (22)  E. INSTALLATIO 38. Main shaft ass 39. Hex bolts (1), washers (2) a washers (3). 40. Universal joint	20).	Install.	
retainer ring (2) 36. Retainer ring (3) 37. Setscrew (22)  E. INSTALLATIO 38. Main shaft ass 39. Hex bolts (1), washers (2) as washers (3). 40. Universal joint		Tighten bolts evenly.	
37. Setscrew (22)  E. INSTALLATION  38. Main shaft ass  39. Hex bolts (1), washers (2) a washers (3).  40. Universal joint		Install.	Tap on gently, using soft headed hammer.
E. INSTALLATION  38. Main shaft ass  39. Hex bolts (1), washers (2) a washers (3).  40. Universal joint	ing (23).	Aline with punch marks.	
38. Main shaft ass  39. Hex bolts (1), washers (2) a washers (3).  40. Universal joint	(22).	Tighten.	
<ul><li>39. Hex bolts (1), washers (2) a washers (3).</li><li>40. Universal joint</li></ul>	ATION.		
washers (2) a washers (3).  40. Universal joint	t assembly (24).	Place in vehicle and aline bearing mounting holes.	
·	2) and lock-	Install finger tight.	
	joints.		Install those removed. Refer paragraph 4-10.
41. Hydraulic pum	pump belts.	Install.	Refer to paragraph 4-17.
42. Water pump b	np belts.	Install.	Refer to paragraph 4-16.
43. Reversing gea	gear box.	Install.	Refer to paragraph 4-8.
44. Lubricate.		Refer to LO 5-3895-372-12.	



#### 4-12. MAIN SHAFT MAINTENANCE (Continued).

#### LOCATION/ITEM ACTION REMARKS

#### F. **CHECKING ALINEMENT.**

#### **NOTE**

Check the alinement of both sheaves as shown in illustration. If alinement is correct, this procedure is completed. If it is necessary to re-aline the sheaves, follow steps below and re-check alinement.

45. V-belts. Remove as needed. Refer to paragraph 4-16 or 4-17.

46. Hex bolts (5) and Remove. washers (7) or hex

> bolts (17) and washers (18).

47. Sheave (10) or (20). Remove.

48. Tap with soft headed Bushing (11) or (19).

hammer to aline.

49. Install. Sheave (10) or (20).

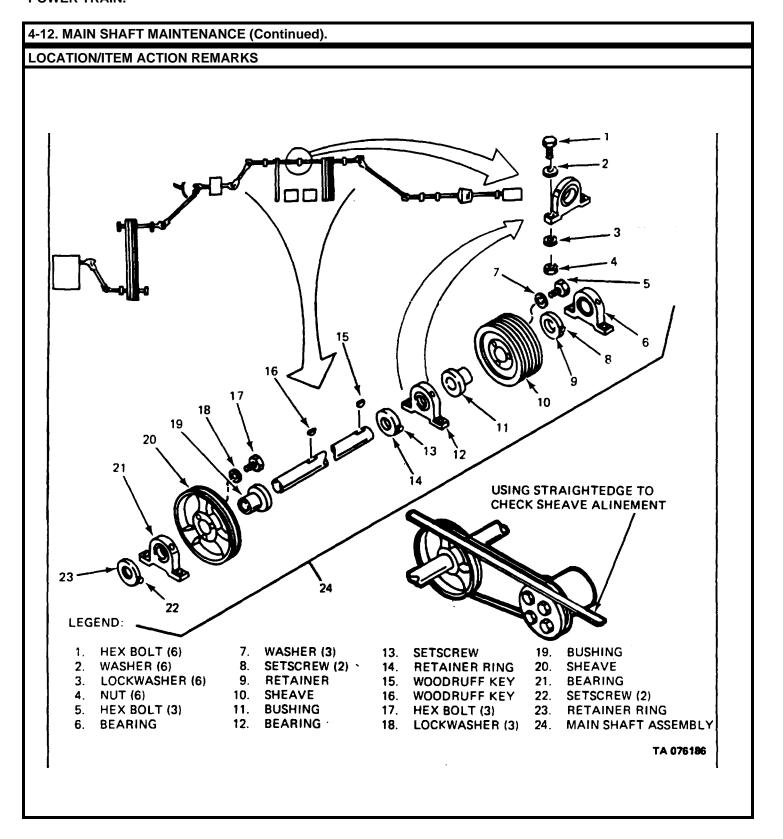
50. Install and tighten. Three hex bolts (5) and

washers (7) or hex bolts (17) and washers (18).

V-belts. Install 51. Refer to paragraph 4-16 or

4-17.

52. Re-check alinement.



#### 4-13. PTO BELTS SHAFT ASSEMBLIES MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a Disassembly. (30)b. Cleaning and Inspection. (20)c. Assembly. (30)

Minutes Total.

<u>INITIAL SETUP</u>

EQUIPMENT CONDITION PARAGRAPH 4-12A.

**CONDITION DESCRIPTION** 

A. Shaft Assemblies Removed.

(as Needed).

4-16A & 4-17A. Belts Loosened.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIALS/PARTS (P/N)** 

SD-2 Dry Cleaning Solvent (Refer to Appendix C).

**PERSONNEL REQUIRED** 

Two (MOS-62B20).

**SPECIAL ENVIRONMENTAL CONDITIONS** 

Vehicle Parked on Level Ground.

**REFERENCES (TM)** 

LO 5-3895372-12. TM 9-2320-273-10. GENERAL SAFETY INSTRUCTIONS Engine Off.

Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 4-1.

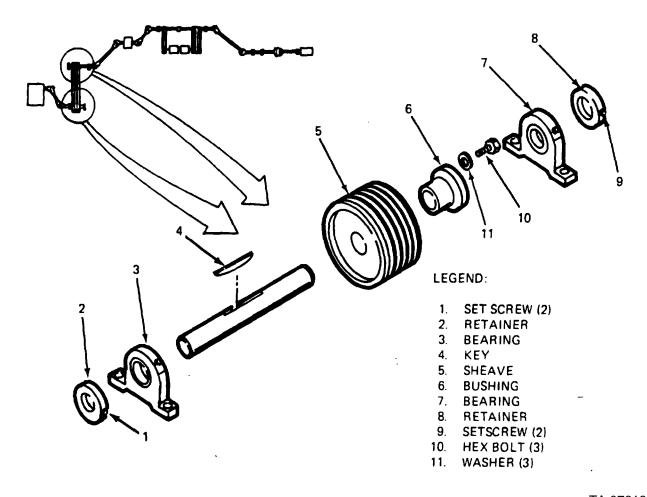
#### 4-13. PTO BELTS SHAFT ASSEMBLIES MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### A. DISASSEMBLY.

#### NOTE

Prior to the disassembly of shaft assemblies, shafts must be cleaned thoroughly. Use emery paper to remove all paint. Punch mark the shafts, adjacent to the bearing retainers and split bushing, to aid in the alinement of the sheaves and bearings at time of assembly.



TA 076187

4-13	4-13. PTO BELTS SHAFT ASSEMBLIES MAINTENANCE (Continued).				
		LOCATION/ITEM	ACTION	REMARKS	
A. D	)IS	ASSEMBLY (Continued).			
	1.	Two retainer setscrews	Loosen.	Two on each retainer. (1) and (9).	
	2.	Bearings (3) and (7) and retainers (2) and	Remove.	Tap off gently using soft headed hammer. (8).	
	3.	Three hex bolts (10)	Remove. and washers (11).		
	4.	Three hex bolts (10).	Install in three tapered pusher holes and tighten evenly until sheave (5) and bushing (6) separate.		
		Sheave (5). Bushing (6) and key (4).	Remove. Remove.	Tap off gently using soft headed hammer.	
В. (	CLE	ANING AND INSPECTION.			
	7.	All parts.	Clean all parts in SD-2 dry cleaning solvent.		
	8. 4S	All parts.  SEMBLY.	Inspect for: a. Cracks. b. Breaks. c. Burrs. d. Excessive wear. e. Deterioration.		
	9.	Bushing (6) and key (4).	Install.	Tap onto shaft gently using soft headed hammer. Aline bushing with punch marks.	
	10.	Sheave (5).	Install.		
	11.	Three hex bolts (10) and washers (11).	Install. Tighten evenly.		
	12.	Bearings (3) and (7).	Install.	Tap on gently using soft headed	
	13.	Retainers (2) and (8).	Install.	Tap on gently using soft headed	
			4-44		

#### 4-13. PTO BELTS SHAFT ASSEMBLIES MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### C. ASSEMBLY (Continued).

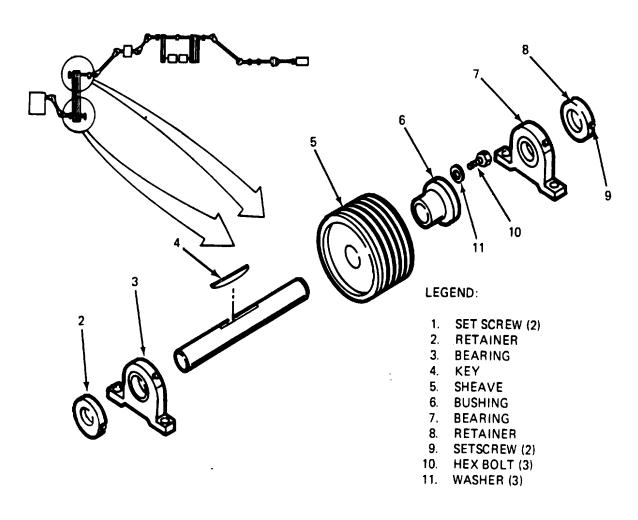
14. Retainers (2) and (8).

Aline with punch marks and tighten two setscrews (1) and (9).

#### NOTE

Follow-on maintenance required:

Install shaft assemblies (refer to para 4-12 E and F). Lubricate (refer to LO 5-3895-372-12).



TA 076188

#### 4-14. REVERSING GEAR BOX OUTPUT SHAFT MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10)
b. Disassembly. (10)
c. Cleaning and Inspection. (15)
d. Assembly. (10)
e. Installation. (15)

60 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

<u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

<u>APPLICABLE CONFIGURATIONS</u> 4-BA. Reversing Gear Box Removed.

M919.

TEST EQUIPMENT

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Lockwire (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 53895372-20P. Engine Off.

TM 9-2320-273-10. Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 4-1.

#### 4-14. REVERSING GEAR BOX OUTPUT SHAFT MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### A. REMOVAL.

- 1. Two lockwires (5).
- 2. Two setscrews (2).
- 3. Yoke and shaft

Cut and remove.

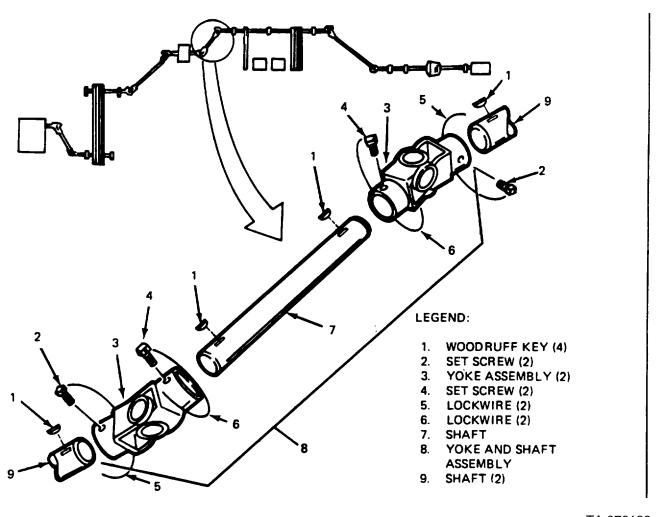
Loosen.

Remove.

Tap off with hammer. assembly (8).

NOTE

Be careful not to lose the two woodruff keys from the shafts (9).



TA 076189

4-14. F	REVERSING GEAR BOX OUTPUT SHA	AFT MAINTENANCE (Continued).	
	LOCATION/ITEM	ACTION	REMARKS
A. REI	MOVAL (Continued).		
4.	Yoke and shaft assembly (8).	Place in suitable vise. shaft.	Be careful not to damage the
B. DIS	SASSEMBLY.		
5.	Two lockwires (6)	Cut and remove.	
6.	Two setscrews (4).	Loosen.	
7.	Two yoke assem blies (3).	Remove by tapping off with hammer.	Be careful not to lose the wood-ruff keys (1) from shaft (7).
C. CL	EANING AND INSPECTION.		
8.	Shaft.	Inspect for: a. Wom keyways. b. Wear. c. Bends. d. Cracks. e. Breaks.	Replace if necessary.
9.	Yokes.	Inspect for: a. Worn keyways. b. Wear. c. Cracks. d. Breaks. e. Deformities.	
10.	Universal joints.	Inspect for:	Replace if necessary (refer to
		<ul><li>a. Wear.</li><li>b. Missing parts.</li><li>c. Damage.</li></ul>	para 410).
D. AS	SEMBLY.		
11.	Yoke assemblies (3).	Install.	Make sure two woodruff keys (1) are in place on shaft (7). Tap on with hammer.
12.	Setscrews (4).	Tighten.	
13.	Lockwires (6).	Install.	
		4.75	
		4-48	

## 4-14. REVERSING GEAR BOX OUTPUT SHAFT MAINTENANCE (Continued). **ACTION** LOCATION/ITEM **REMARKS** E. INSTALLATION. 14. Yoke and shaft Make sure two woodruff keys Install. assembly (8). (1) are in place on shafts (9). Tap on with hammer. 15. Two setscrews (2). Tighten and install two lockwires (5). LEGEND: WOODRUFF KEY (4) SET SCREW (2) YOKE ASSEMBLY (2) 3. 4. SET SCREW (2) LOCKWIRE (2) LOCKWIRE (2) SHAFT YOKE AND SHAFT **ASSEMBLY** 9. SHAFT (2) TA 076190

#### 4-15. REAR INCLINE SHAFT MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS DESCRIPTION.)

a. Removal. (30)
b. Disassembly. (10)
c. Cleaning and Inspection. (10)
d. Assembly. (10)
e. Installation. (30)

90 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

<u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

None None

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIALSIPARTS (PIN)** 

Lockwire (Refer to Appendix C).

SD-2 Dry Cleaning Solvent (Refer to Appendix C).

PERSONNEL REQUIRED

One (MOS-62B20).

SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

REFERENCES (TM)

TM 9-2320-273-10.

TM 5-3895-372-20P.

**GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 4-1.

## 4-15. REAR INCLINE SHAFT MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** NOTE Punch mark yokes and shafts prior to removal. A. REMOVAL. 1. Six capscrews (1) Remove. and washers (2). 2. Covers (13). Remove. 3. Lockwire (6). Cut and remove. LEGEND: CAPSCREW (6) SHAFT 2. WASHER (6) YOKE 3. SHAFT SHAFT 10. WOODRUFF KEY (4) 11. **ROLL PIN** 5. SET SCREW 12. **ROLL PIN** LOCKWIRE 13. COVER (2) 7. YOKE 14. ROLL PIN TA 076191

	LOCATION/ITEM	ACTION	REMARKS
		ACTION	REIWARRS
A. RE	MOVAL (Continued).		
4.	Setscrew (5).	Loosen.	
5.	Yoke (7) and woodruff key (4).	Using hammer, tap yoke (7) off of shaft (3).	Be careful not to lose woodruff key (4).
6.	Roll pin (12).	Remove.	Tap out with drift and hammer.
7.	Shaft (8).	Remove from yoke (9) and key (4) from shaft (8).	Tap out with drift and hammer.
8.	Shaft (8) with attached yoke (7).	Remove from vehicle.	
9.	Roll pin (11).	Remove.	Tap out with drift and hammer.
10.	Yoke (9).	Remove from shaft and remove key (4).	Tap off with hammer.
B. DIS	SASSEMBLY.		
11.	Shaft (8) with attached yoke (7).	Place in suitable vise.	
12.	Roll pin (14).	Remove.	Tap out with drift and hammer.
13.	Yoke (7).	Tap off of shaft (8) with hammer and remove key (4).	
C. CL	EANING AND INSPECTION	٧.	
14.	All parts.	Clean in dry cleaning solvent.	
15.	Shaft.	Inspect for: a. Cracks. b. Breaks. c. Bends. d. Abnormal wear. e. Worn keyway.	Replace if necessary.
16.	Universal joints.	Inspect for: a. Cracks. b. Breaks. c. Wear. d. Missing parts.	Replace if necessary (refer to para 4 1 0).

## 4-15. REAR INCLINE SHAFT MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** D. ASSEMBLY. NOTE When installing yokes, make certain that punch marks on yokes and shafts are lined up. LEGEND: 1. CAPSCREW (6) 8. SHAFT 2. WASHER (6) YOKE 9. 3. SHAFT 10. SHAFT 4. WOODRUFF KEY (4) 11. ROLL PIN 5. SET SCREW 12. ROLL PIN 6. LOCKWIRE 13. COVER (2) 7. YOKE 14. ROLL PIN TA 076192

	LOCATION/ITEM	ACTION	REMARKS
D. AS	SEMBLY (Continued)		
17.	Yoke (7) and woodruff key (4).	Install on shaft (8).	Tap onto shaft with a hammer.
18.	Roll pin (14).	Install.	
E. INS	STALLATION.		
19.	Yoke (9) and woodruff key (4).	Install on shaft (10).	Tap onto shaft with a hammer.
20.	Roll pin (11).	Install through shaft (10).	
21.	Shaft (8) with attached yoke (7).	Place in vehicle.	
22.	Shaft (8).	Install in yoke (9).	Tap in with hammer and drift, from above, while one man alines yoke (9) and shaft (8).
23.	Roll pin (12).	Install through shaft (8).	
24.	Yoke (7) and woodruff key (4).	Install on shaft (3).	Tap on with hammer.
25.	Setscrew (5).	Tighten and install lockwire (6).	Tap on with hammer.
26.	Covers (13).	Install.	
27.	Six capscrews (1) and washers (2).	Install and tighten.	

# 4-15. REAR INCLINE SHAFT MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** LEGEND: 1. CAPSCREW (6) 8. SHAFT 9. YOKE 10. SHAFT 2. WASHER (6) 3. SHAFT 11. ROLL PIN 4. WOODRUFF KEY (4) 12. ROLL PIN 13. COVER (2) 14. ROLL PIN 5. SET SCREW 6. LOCKWIRE 7. YOKE TA 076193

#### 4-16. WATER PUMP BELTS MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Loosening. (5)b. Removal. (45)c. Installation. (60)d. Adjustment. (10)

120 Minutes Total.

**INITIAL SETUP EQUIPMENT** CONDITION

CONDITION DESCRIPTION PARAGRAPH Reversing Gear Box Removed. 4-8A. Hydraulic Pump Belts Loosened. 4-17A.

**APPLICABLE CONFIGURATIONS** 

M919.

TEST EQUIPMENT

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

V-Belts, NP5032-010 (50663).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS Vehicle Parked on Level Ground.

One (MOS-62B20).

REFERENCES (TM) **GENERAL SAFETY INSTRUCTIONS** 

Transmission in Neutral. TM -2325-2732-210.

Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 4-1.

### 4-16. WATER PUMP BELTS MAINTENANCE (Continued). **ACTION** LOCATION/ITEM **REMARKS** A. LOOSENING. 1. Two nuts (7) and Loosen. capscreyvs (8). 15 13 LEGEND: 12 12 **BOLT (6)** 1. 2. WASHER (6) 3. LOCKWASHER (6) 4. **NUT (6)** 5. SCREW (2) 6. JAM NUT (2) 7. **NUT (2)** 8. CAPSCREW (2) 9. **BELT (2)** 10. PULLEY (2) 11. **PUMP** 12. BEARING (2) 13. **BEARING** 14. **SHAFT** UNIVERSAL 15. TA 076194

#### 4-16. WATER PUMP BELTS MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### A. LOOSENING (Continued).

2. Two jam nuts (6).

Loosen.

One on each screw (5).

3. Pump (11).

Slide inward.

NOTE

You may slide two belts (9) off of pulleys at this point.

#### B. REMOVAL.

## CAUTION

Always replace the two belts (9) as a set.

4. Two bearings (12).

Loosen four nuts (4) and bolts (1).

Two on each bearing.

5. Bearing (13).

Remove two nuts (4), lock-washers (3), washers (2), and capscrews (1).

6. Two belts (9).

Slide under bearing (13) and off forward end of shaft (14) and universal (15).

#### C. NSTALLATION.

7. Two belts (9).

Slide over universal shaft (15). Under bearing (13) and over shaft (14). Install belts (9) on two pulleys (10).

8. Two bearings (12) and bearing (13).

- a. Install bolts (1), washers (2), lockwashers (3), and nuts (4) on front bearing (13).
- b. Use a straightedge to check that pulley sheaves are alined. Tighten nuts (4) and bolts (1) on all three bearings.

## 4-16. WATER PUMP BELTS MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** 15 13 LEGEND: 12 1. **BOLT (6)** WASHER (6) 3. LOCKWASHER (6) 4. **NUT (6)** SCREW (2) **5**. 6. JAM NUT (2) NUT (2) 7. 8. CAPSCREW (2) 9. **BELT (2)** 10. PULLEY (2) 11. **PUMP** 12. BEARING (2) 13. **BEARING** SHAFT 14. 15. UNIVERSAL TA 076195

### 4-16. WATER PUMP BELTS MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

# D. ADJUSTMENT.

# CAUTION

Measure belt tension at a point halfway between the pulleys. Tighten adjusting nuts evenly.

- 9. Two adjusting nuts
- a. Turn until belts (9) deflect(6). 9/64 in. (3.6 mm) under6 lb (27 N-m) pressure.
- b. Use a straightedge to be sure pulleys (10) are alined.

If pulleys (10) are misalined, the nuts were tightened un-

evenly.

c. Tighten jam nuts (6).

One on each screw.

10. Two nuts (7) and capscrews (8).

Tighten.

11. Two belts (9).

Make a final check on tension and pulley alinement.

NOTE

Follow-on maintenance required:

Adjust hydraulic pump belts (para 4-17D). Install reversing gear box (para 4-8B).

# 4-16. WATER PUMP BELTS MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** 13 LEGEND: 12 12 1. BOLT (6) 2. WASHER (6) 3. LOCKWASHER (6) 4. NUT (6) 5. SCREW (2) JAM NUT (2) 6. 7. NUT (2) 8. CAPSCREW (2) 9. **BELT (2)** 10. PULLEY (2) 11. **PUMP** 12. BEARING (2) 13. **BEARING** SHAFT 14. 15. UNIVERSAL TA 076196

#### 4-17. HYDRAULIC PUMP BELTS MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Loosening. (5)b. Removal. (45)c. Installation. (60)

d. Adjustment. (10)120 Minutes Total.

**INITIAL SETUP EQUIPMENT** CONDITION

PARAGRAPH 4-16A.

10-12A.

APPLICABLE CONFIGURATIONS

M919.

TEST EQUIPMENT

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

V-Belts, NP5032002 (50663). Lockwire (Refer to Appendix C).

PERSONNEL REQUIRED

Two (MOS-62B20).

REFERENCES (TM)

TM 9-2320-273-10.

TM 5-3895-372-20P.

TROUBLESHOOTING REFERENCES

Table 4-1.

SPECIAL ENVIRONMENTAL CONDITIONS

CONDITION DESCRIPTION

Water Pump Belts Loosened.

Tech Cable Disconnected.

Vehicle Parked on Level Ground.

**GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission in Neutral. Parking Brake Set.

TA 076197

# **POWER TRAIN.** 4-17. HYDRAULIC PUMP BELTS MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** A. LOOSENING. 1. Four nuts (10) and Loosen. bolts (9). 2. Four jam nuts (11). One on each adjusting screw Loosen 16 LEGEND: BEARING (2) BEARING **U-JOINT SET SCREW** LOCKWIRE 5. SHAFT PULLEY SHEAVE (2) 8. BELT (6) 9. **BOLT (4)** 10. **NUT (4)** 11. JAM NUT (4) **ADJUSTING SCREW (2)** 12. 13. **PUMP** 14. **NUT (6)** LOCKWASHER (6) 15. 16. WASHER (6) 17. CAPSCREW (6)

# 4-17. HYDRAULIC PUMP BELTS MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### A. LOOSENING (Continued).

3. Pump (13). Slide inward.

NOTE

You may remove belts (8) from two pulleys sheaves (7) at this point.

# B. REMOVAL.

NOTE

Always replace the six belts (8) as a set.

4. Two bearings (1), Remove six nuts (14), and bearing (2). lockwashers (15), washers

(16) and bolts (17).

5. U-joints (3).

Be sure U-joints (3) and shaft (6) are punch marked.

6. Lockwire (5).

Remove from setscrew (4).

7. Setscrew (4).

Loosen.

8. U-joint (3).

Slide rearwards off of shaft.

Remove.

# C. INSTALLATION.

9. Six belts (8).

Slide over shaft (6) and under bearing (2).

10. U-joint (3).

Slide shaft (6) into U-joint (3). Be sure punchmarks

are alined.

11. Setscrew (4).

Tighten.

Shaft must not slip in collar.

Two each bearing.

12. Lockwire (5).

Install.

13. Two bearings (1), and (2).

a. Loosely install six capscrews (17), washers (16), lockwashers (15),

and nuts (14).

b. Use a straightedge to check that two pulley sheaves (7)

are alined.

c. Tighten nuts (14) and bolts (17) on all three bearings.

# 4-17. HYDRAULIC PUMP BELTS MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** LEGEND: BEARING (2) BEARING 3. **U-JOINT SET SCREW** 5. LOCKWIRE SHAFT PULLEY SHEAVE (2) BELT (6) 9. **BOLT (4)** 10. NUT (4) 11. JAM NUT (4) ADJUSTING SCREW (2) 12. 13. **PUMP** 14. **NUT (6)** 15. LOCKWASHER (6) 16. WASHER (6) 10 17. CAPSCREW (6) TA 076198

# 4-17. HYDRAULIC PUMP BELTS MAINTENANCE (Continued).

**REMARKS** LOCATION/ITEM **ACTION** 

#### D. ADJUSTMENT.

#### NOTE

Measure belt tension at a point halfway between the pulleys.

14. Two adjusting screws (12).

Tighten adjusting screws evenly.

b. Position pump so that belts deflect 5/32 in. (4.0 mm) under 6 lb. (27 N-m) pressure.

c. Use a straightedge to check pulley sheave alinement. tightened evenly.

If pulley sheaves are misalined, adjusting screws (12) were not

15. Four jam nuts (11). Tighten.

Two on each screw.

16. Four nuts (10) and

bolts (9).

Tighten.

17. Six belts (8). Make a final check on tension and pulley alinement.

NOTE

Follow-on maintenance required: Adjust water pump belts (para 4-16D). Install tachometer cable (para 10- 12B).

# 4-17. HYDRAULIC PUMP BELTS MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** LEGEND: BEARING (2) BEARING 2. **U-JOINT SET SCREW** LOCKWIRE SHAFT 6. PULLEY SHEAVE (2) 7. 8. BELT (6) **BOLT (4)** 10. **NUT (4)** 11. JAM NUT (4) ADJUSTING SCREW (2) 12. 13. PUMP 14. NUT (6) 15. LOCKWASHER (6) 16. WASHER (6) 17. CAPSCREW (6) TA 076199

#### 4-18. MAIN CLUTCH ADJUSTMENT.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

Clutch Adjustment. (5)

5 Minutes Total.

**INITIAL SETUP** 

**EQUIPMENT** CONDITION ARAGRAPH
4-15A Steps 1 & 2.

CONDITION DESCRIPTION
Covers Removed <u>PARAGRAPH</u>

APPLICABLE CONFIGURATIONS M919.

**TEST EQUIPMENT** None.

SPECIAL TOOLS None.

MATERIALS/PARTS (P/N) Penetrating Oil (Refer to Appendix C).

PERSONNEL REQUIRED One (MOS-62B20).

REFERENCES (TM) TM 9-2320-273-10. TM ~53895-372-20P.

TROUBLESHOOTING REFERENCES Table 4-1.

SPECIAL ENVIRONMENTAL CONDITIONS Vehicle Parked on Level Ground.

**GENERAL SAFETY INSTRUCTIONS** Transmission in Neutral. Parking Brake Set.

# 4-18. MAIN CLUTCH ADJUSTMENT (Continued).

LOCATION/ITEM ACTION REMARKS

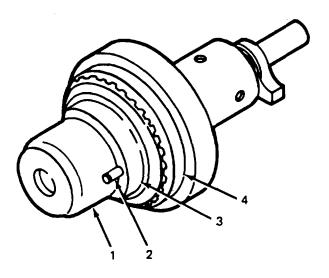
# CLUTCH ADJUSTMENT.

- 1. Pin (2).
- 2. Plate (4) and cover (1).

- a. Pull out.
- b. Insert a small nail or wire through hole in pin.
   Hold plate in place. Turn cover clockwise to tighten clutch.
- a. If cover will not turn, put penetrating oil at oil point(3).
- b. Adjust so clutch lever snaps or locks tight.

#### NOTE

Clutch will not hold until pin is pushed back in.



#### LEGEND:

- 1. COVER
- 2. PIN
- 3. OILPOINT
- 4. PLATE

TA 076200

# 4-18. MAIN CLUTCH ADJUSTMENT (Continued).

LOCATION/ITEM ACTION REMARKS

# CLUTCH ADJUSTMENT.

- 3. Pin (2). a. Remove nail or wire.
- b. Turn cover (1) until Test under load. pin locks into plate (4).

#### NOTE

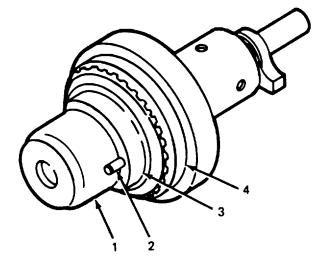
If clutch slips quickly out of adjustment, check to see if pin (2) has slipped out of hole. If pin is broken, refer problem to Direct Support Maintenance.

Follow-on maintenance action required:

Install covers (refer to para 4-15, steps 26 and 27).

# 4-18. MAIN CLUTCH ADJUSTMENT (Continued).

LOCATION/ITEM ACTION REMARKS



# LEGEND:

- 1. COVER
- 2. PIN
- 3. OILPOINT
- 4. PLATE

TA 076201

#### 4-19. ANGLE DRIVE GEAR BOX MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (30)b. Installation. (30)c. Operational Check. (5)

65 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

**CONDITION DESCRIPTION** 

Cement Register Removed.

Tachometer and Mounting

Bracket Removed.

Cover Removed.

<u>PARAGRAPH</u>

APPLICABLE CONFIGURATIONS 8-14A. 10-12A.

M919. 4-15A Steps 1 & 2.

TEST EQUIPMENT

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

Liquid Teflon (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

LO 5-3895-372-12. Engine Off.

TM 9-2320-273-10. Transmission in Neutral. TM 5-3895-372-10. Parking Brake Set. TM 5-3895-372-20P.

TROUBLESHOOTING REFERENCES

Table 4-1.

#### 4-19. ANGLE DRIVE GEAR BOX MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** A. REMOVAL. 1 1. Water control valve Close. Rotate clockwise. lever (21). Drain cock (16). Use drain pan to catch water. 2. Open. LEGEND: **SETSCREW** 2. BOSTON COUPLER 3. HEX BOLT (8) 4. SETSCREW (4) 25 5. COUPLING 6. PIPE ASSEMBLY 7. CLAMP (4) 8. SHEAR BOLT 9. HOSE 10. LOCKWASHER (8) 11. HEX NUT (8) 22 12. NUT FLATWASHER (4) 13. 14. **GEAR BOX** 15. PIPE NIPPLE 16. DRAIN COCK 17. MOUNTING BRACKET 18. HEX NUT (2) 19 19. LOCKWASHER (2) 20. U-BOLT 21. WATER CONTROL **VALVE LEVER 22**. **HEX NUT** 23. U-BOLT (2) 24. LOCKWASHER (4) 25. HEX NUT (4) TA 076202

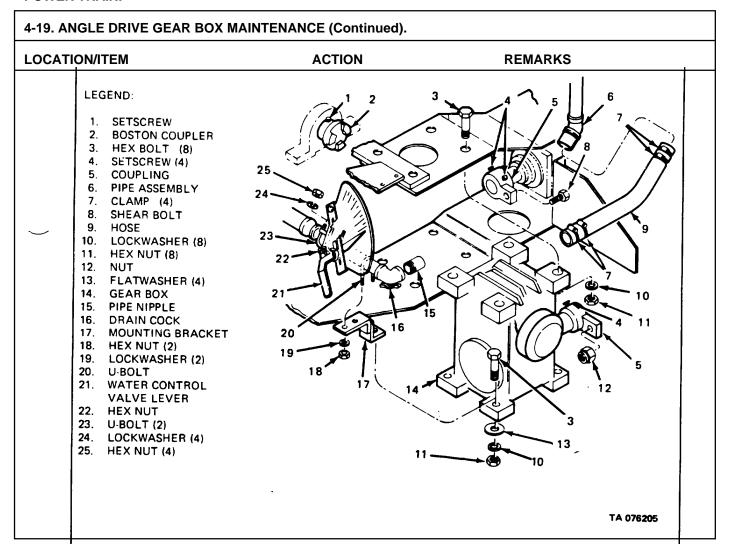
4-19.	4-19. ANGLE DRIVE GEAR BOX MAINTENANCE (Continued).			
LOC	ATION/ITEM	ACTION	REMARKS	
A. R	EMOVAL (Continued).			
3.	Four clamps (7).	Loosen.		
4.	Hose (9).	Remove.		
5.	Pipe nipple (15).	Remove.		
6.	Pipe assembly (6).	Swing upward.	For added clearance.	
7.	Eight hex bolts (3), lockwashers (10), hex nuts (11) and four flatwashers (13).	Remove.	Flatwashers on lower bolts only.	
8.	Shear bolt (8) and nut (1 2).	Remove.	Relieve tension on bolt by turning input shaft on gear box.	
9.	One U-bolt (20), two hex nuts (18) and lockwashers (19).	Remove.		
10.	Mounting bracket (17).	Remove.		
11.	Hex nut (22).	Remove.		
12.	Two U-bolts (23), four hex nuts (25) and lockwashers (24).	Remove.		
13.	Water control valve lever.	Remove.		
14.	Setscrew(1).	Loosen.		
15.	Boston coupler (2).	Separate.	Slide rearward.	
16.	Four setscrews (4).	Loosen.		
17.	Couplings (5).	Separate.		
18.	Gear box (14).	Remove.		

#### 4-19. ANGLE DRIVE GEAR BOX MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** LEGEND: SETSCREW 2. BOSTON COUPLER 3. HEX BOLT (8) 4. SETSCREW (4) 25. 5. COUPLING 6. PIPE ASSEMBLY 7. CLAMP (4) 8. SHEAR BOLT 9. HOSE 23 10. LOCKWASHER (8) 11. HEX NUT (8) 22 12. NUT 13. FLATWASHER (4) 14. GEAR BOX 21 10 15. PIPE NIPPLE 16. DRAIN COCK 17. MOUNTING BRACKET 20 18. HEX NUT (2) 19. LOCKWASHER (2) 20. U-BOLT 18 21. WATER CONTROL 12 **VALVE LEVER** 22. HEX NUT 23. U-BOLT (2) 24. LOCKWASHER (4) 13 25. HEX NUT (4) 10 TA 076203

4-19. ANGLE DRIVE GEAR BOX MAINTENANCE (Continued).			
LOCA	ATION/ITEM	ACTION	REMARKS
B. INS	STALLATION.		
19.	Gear box (14).	Set in place.	
20.	Couplings (5).	Slide together.	
21.	Boston couplings (2).	Slide into place.	
22.	Four setscrews (4).	Tighten securely.	
23.	(1). Tighten securely.		
24. lever (	Water control valve	Set in place.	
25.	Two U-bolts (23), four hex nuts (25) and lockwashers (24).	Install.	Do not tighten.
26.	Hex nut (22).	Install and tighten securely.	
27.	Mounting bracket (17).	Set in place.	
28.	One U-bolt (20), two hex nuts (18) and lockwashers (19).	Install.	Do not tighten.
29.	Eight hex bolts (3), lockwashers (10), hex nuts (11) and four flatwashers (13).	Install and tighten securely.	Flatwashers on lower bolts only.
30.	One U-bolt (20), two hex nuts (18), and lockwashers (19).	Tighten securely.	
31.	Two U-bolts (23), four hex nuts (25), and lockwashers (24).	Tighten securely.	
32.	Shear bolt (8) and nut (12).	Install and tighten securely.	Aline holes in coupling by turning input shaft on gear box.
33.	Pipe assembly (6).	Swing downward into place.	
34.	Pipe nipple (15).	Install and tighten.	Coat threads with liquid Teflon.

#### 4-19. ANGLE DRIVE GEAR BOX MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** LEGEND: 1. SETSCREW 2. BOSTON COUPLER 3. HEX BOLT (8) 4. SETSCREW (4) 25. 5. COUPLING PIPE ASSEMBLY 6. 24 7. CLAMP (4) 8. SHEAR BOLT 9. HOSE 23 10. LOCKWASHER (8) 11. HEX NUT (8) 22 12. NUT 13. FLATWASHER (4) 14. GEAR BOX 21 15. PIPE NIPPLE 16. DRAIN COCK 17. MOUNTING BRACKET 20 18. HEX NUT (2) 19. LOCKWASHER (2) 18 20. U-BOLT 21. WATER CONTROL **VALVE LEVER** 22. HEX NUT 23. U-BOLT (2) 24. LOCKWASHER (4) 25. HEX NUT (4) 10 TA 076204

4-19. ANGLE DRIVE GEAR BOX MAINTENANCE (Continued).			
LOCATION/ITEM ACTION REMARKS			REMARKS
B. INSTALLATION (Continued).			
35.	Hose (9).	Install.	
36.	Four clamps (7).	Tighten securely.	
37.	Drain cock (16).	Close.	
C. OP	ERATIONAL CHECK.		
38.	Mixer body.	Start up and engage PTO. (Refer to TM 92320-273-10.)	
39.	Main clutch.	Engage.	
40.	Angle drive gear box.	Check for free operation while increasing tachometer rpm up to 1650.	Close sand and stone gates if bins are full.
41.	Main clutch.	Disengage.	
42.	Mixer body.	Shut down. (Refer to TM 92320-273-10.)	
		NOTE	
	Follow-on maintenance action required:		
Install cement meter register; refer to para -14B. Install tach and mounting bracket; refer to pare 10-12B. Install covers; refer to para 4-15E, steps 26 and 27.			



4-79/4-80(Blank)

#### **CHAPTER 5**

#### **WATER SYSTEM**

#### 5-1. OVERVIEW.

This chapter provides you with the following information related to water system maintenance:

- a. All required special tools and equipment.
- b. Troubleshooting procedures.
- c. Maintenance procedures.

#### Section I REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

#### 5-2. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

#### 5-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

The special tools, TMDE, and support equipment for maintenance procedures described in this chapter are limited to water pressure gage, 0-75 psi (0-500 kPa). (Refer to Organizational Maintenance RPSTL, TM 5-3895-372-20P for tool description and illustration.)

#### 5-4. SPARES AND REPAIR PARTS.

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools List covering Organizational Maintenance for this equipment (TM 5-3895-372-20P).

#### **Section II TROUBLESHOOTING**

# 5-5. INTRODUCTION.

Troubleshooting procedures for the water system are given in table 5-1. It is arranged by malfunctions, in the following order:

- a. Mix water does not flow at a steady rate (Malfunction No. 1).
- b. Water line valves leak (Malfunction No. 2).
- c. Quick-opening valve sticks (Malfunction No. 3).

Most water system problems are caused by dirt or ice in the water lines. If you find sediment, remind the operator to use clean water and to use the inlet strainer when filling the tank.

Freezing damage could occur. Caution operator to open draincocks and blow water out of system when he is finished with cleanup. Check for clogged draincocks.

#### **MALFUNCTION**

#### **TEST OR INSPECTION**

#### **CORRECTIVE ACTION**

- 1 MIX WATER DOES NOT FLOW AT A STEADY RATE:
  - Step 1. Check that:
    - a. Tank is filled.
    - b. Water shutoff valve is open.

Fill tank, open valve.

Step 2. Check water pump V-belt tension. Belt should deflect 9/64 in. (3.6 mm) when 6 lbs (27 N) pressure is applied.

Adjust belt (para 4-16D).

Step 3. Check that tachometer reads 1620-1720 rpm.

Use throttle to adjust pump speed.

Step 4. Check for dirt or sediment in water tank.

Flush system with clean water.

Step 5. Check for blocked strainer.

Clean strainer (para 5S).

Step 6. Check water lines for leaks.

Replace leaking lines (para 5-12).

Step 7. Check water system pre e.

Adjust pressure relief valve (TM 5-3895372-10).

# **MALFUNCTION**

#### **TEST OR INSPECTION**

#### **CORRECTIVE ACTION**

1. MIX WATER DOES NOT FLOW AT A STEADY RATE (Continued):

#### NOTE

If a pressure gage is not available, adjust pressure so that water can be sprayed about 35 ft with washout hose.

Step 8. Check for air trapped in water lines.

Bleed air by squirting water from the washout hose until it flows in a steady stream.

- Step 9. If temperature is below 320F (0°C) check for frozen water lines.
  - a. Open draincocks.
  - b. Apply heat to melt ice.
  - c. When system is free of ice, close draincocks.
- 2. WATER LINE VALVES LEAK:
  - a. Engage PTO. Pump speed should be 1620-1720 rpm.
  - b. Check each valve for leakage.

Replace leaking valves (para 5-12 & 5-13).

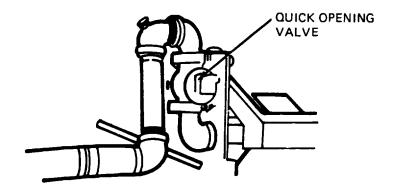
- 3. QUICK-OPENING VALVE STICKS;
  - Step 1. Check for sticking or binding as valve is opened and closed.
    - a. Lubricate valve stem with engine oil. Repack rubber boot, if necessary.

#### **MALFUNCTION**

#### **TEST OR INSPECTION**

### CORRECTIVE ACTION

3. QUICK-OPENING VALVE STICKS (Continued):



TA 076206

- b. Check tightness of packing nut.
  - (1) Tighten nut until valve sticks.
  - (2) Back it off just until valve works freely.
- Step 2. Check for sediment blocking valve.
  - a. Flush system with clean water.
  - b. Clean strainer screen (see para 5-8).

# **Section III MAINTENANCE PROCEDURES**

# 5-6. INTRODUCTION. I

This section provides you with Organizational Level maintenance procedures for the water system of the mixer body. Paragraph 5-7 summarizes the maintenance tasks. Paragraphs 5-8 thru 5-16 contain detailed instructions for each task.

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#### 5-7. WATER SYSTEM MAINTENANCE TASK SUMMARY.

**INITIAL SETUP** 

**EQUIPMENT** 

CONDITION

<u>APPLICABLE CONFIGURATIONS</u> <u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

M919. 5-12A.

5-12A. Shutoff Valve Closed. TM 5-3895-372-10. Water Pump Drained.

Pump Removed.

TEST EQUIPMENT 5-9A.

5-14A. Water Tank Removed.

**SPECIAL TOOLS** 

Eye Bolt (4).

None.

Chain Bridle, Four Leg.

1500 Lb Hoist.

MATERIALS/PARTS (P/N)

Soap Solution (Refer to Appendix C). Water Pump:

Liquid Teflon (Refer to Appendix C).

Dry Cleaning Solvent (Refer to Appendix C).

Lockwire (Refer to Appendix C).

Seal, 1, 9501-3 (94001).

O-Ring, 1, 1720-83 (94001).

Seal Retainer, 1, 1830-40 (94001).

Strainer Gasket, NP3703004 (50663). Slinger Ring, 1, 1410A-56 (94001).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Two (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-20P. Engine Off.

TM 5-3895-372-10. Transmission in Neutral. TM 9-2320273-10. Parking Brake Set.

	LIST OF TASKS		
TASK NO.	TASK REF	TASK REF (	TROUBLESHOOTING TABLE)
1.	Strainer Maintenance:  a Removal.  b Cleaning and Inspection.  c. Installation.	58 5-8A 5-8B 5-8C	5-1
2.	Water Pump Maintenance: a. Removal. b. Installation. c. Adjustment.	5-9 59A 5-9B 5-9C	5-1

# **WATER SYSTEM**

5-7. WATER SYSTEM MAINTENANCE TASK SUMMARY (Continued).			
		LIST OF TASKS	
TASK NO.	TASK	TASK REF	TROUBLESHOOTING (REF (TABLE)
3.	Water Pump Repair: a. Disassembly. b. Inspection. c. Assembly.	5-10 5-10A 5-10B 5-10C	5-1
4.	Sight Gage Maintenance: a. Removal. b. Cleaning. c. Installation.	5-11 5-11A 5-11B 5-11C	5-1
5.	Valves and Water Lines Maintenance: a. Removal. b. Inspection. c. Installation. d. Checking for Leaks.	5-12 512A 5-12B 5-12C 5-12D	5-1
6.	Flow Control Valve Maintenance: a. Removal. b. Installation. c. Operational Check.	5-13 5-13A 5-13B 5-13C	5-1
7.	Water Tank Maintenance:  a. Removal. b. Repair. c. Installation. d. Operational Check.	5-14 5-14A 5-14B 514C 5-14D	5-1
8.	Water Tank Components Maintenance: a. Removal. b. Installation.	5-15 5-15A 5-15B	5-1
9.	Water Tank Sub-Frames Maintenance: a. Removal. b. Installation.	516 516A 5-16B	5-1
		5-9	

#### WATER SYSTEM.

#### 58. STRAINER MAINTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5)b. Cleaning and Inspection. (10)c. Installation. (5)

20 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS None. None.

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALSIPARTS (P/N)

Soap Solution (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-389372-10. Engine Off.

TM 5-3895-372-20P. Transmission in Neutral. TM 9-232-0273-10. Parking Brake Set.

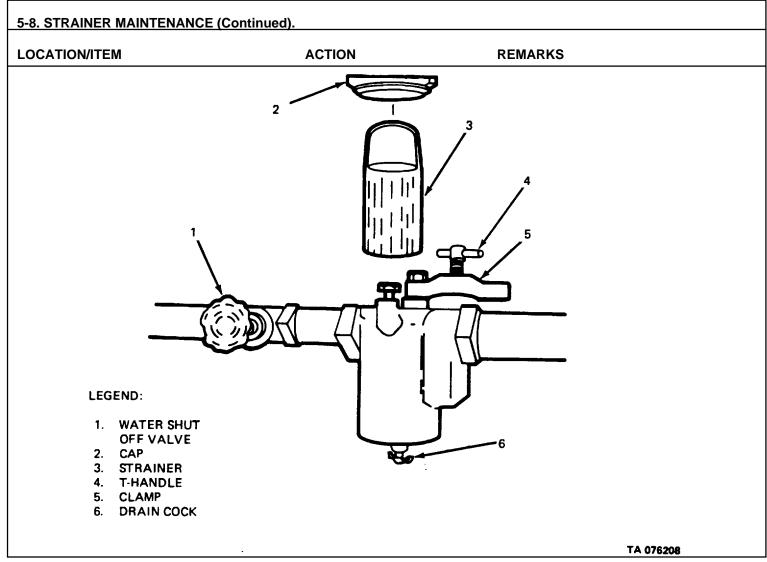
TROUBLESHOOTING REFERENCES

Table 51.

# 58. STRAINER MAINTENANCE (Continued). **ACTION** LOCATION/ITEM **REMARKS** A. REMOVAL. 1. Water shutoff valve (1). Close. 2. Draincock (6). Open. Turn counterclockwise. 3. T-handle (4). Swing aside. 4. Clamp (5). Lift off. 5. Cap (2). 6. Strainer (3). Lift out. LEGEND: 1. WATER SHUT OFF VALVE 2. CAP 3. STRAINER T-HANDLE CLAMP **DRAIN COCK** TA 076208

#### 5-8. STRAINER MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** B. CLEANING AND INSPECTION. 7. Strainer (3). a. Shake off large pieces of dirt. b. Clean with soap and water If it can't be cleaned, replace. and brush. c. Allow to dry. d. Inspect for holes. Open slightly. When all dirt is 8. Water shutoff valve (1). rinsed out of strainer housing, close. C. INSTALLATION. 9. Strainer (3). Place in position. 10. Cap (2). Put on. 11. Bracket (5). Swing into place. 12. T-handle (4). Turn clockwise to tighten. Draincock (6). Close. 13. 14. Water shutoff valve (1). Open. Check for leaks. 5-12

# WATER SYSTEM.



5-9. WATER PUMP MAINTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (30)b. Installation. (30)c. Adjustment. (15)

75 Minutes Total.

**EQUIPMENT** INITIAL SETUP

CONDITION

PARAGRAPH **CONDITION DESCRIPTION** 

5-12A. Shut Off Valve Closed. Pump Drained.

APPLICABLE CONFIGURATIONS TM 92320-273-10.

M919.

TEST EQUIPMENT

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

Liquid Teflon (Refer to Appendix C).

SPECIAL ENVIRONMENTAL CONDITIONS PERSONNEL REQUIRED

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) **GENERAL SAFETY INSTRUCTIONS** 

Engine Off. TM 9 N232S273-10.

TM -3295-37273-10 Transmission in Neutral.

Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 5-1.

#### WATER SYSTEM.

#### 5-9. WATER PUMP MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** A. REMOVAL. 1. Two hex nuts (10). Loosen. 2. Two U-bolt hex nuts (21). Loosen. 3. Four hex nuts (7). Loosen 4. Water pump (3). Slide inward to release belt Tap with rawhide mallet. tension. 5. Two V-belts,(18)' Remove. 6. Two hose clamps (20). Loosen. 7. Inlet hose (19).Remove. Remove 8. Union ring (2) Remove LEGEND: 21 INLET NIPPLE 20 1. UNION RING 2. WATER PUMP 19 3. CAPSCREW (2) 4. LOCKWASHER (2) 17 -5. SETSCREW (2) 6. **NUT (4)** 7. SETSCREW 8. 16-KEY 9. **NUT (2)** 10. LOCKWASHER (2) 15 11. FLAT WASHER (2) 12. CAPSCREW (2) 13. LOCKWASHER (3) 14. CAPSCREW (3) 15. BUSHING 16. SHEAVE 17. V-BELT (2) 18. 13 INLET HOSE 19. HOSE CLAMP (2) 12 11 20. 8 **NUT (2)** TA 07620 10 21.

5-9. WATER PUMP MAINTENANCE (Continued).				
LOCA	TION/ITEM	ACTION	REMARKS	
A. REMOVAL (Continued).				
9.	Two hex head capscrews (4) and lockwashers (5).	Remove.		
10.	Water pump (3). bench.	Remove and place on work	Allow excessive water to drain.	
11.	Three capscrews (15) and lockwashers (14).	Remove.		
12.	Three capscrews (15) and lockwashers (14).	Install in three tapped holes in bushing (16).	Tighten evenly until sheave (17) and bushing (16) separate.	
13.	Setscrew (8).	Remove.		
14.	Bushing (16), key (9) and sheave (17).	Remove.		
NOTE  Mark attaching nipple and fittings before removing. This will aid in assembling them in their proper places, and the directions at which they point, at time of assembly.				
15.	Attaching nipples and fittings.	Remove	Clamp pump in vise.	
B. INS	STALLATION.			
NOTE Apply liquid teflon to all pipe threads.				
16.	Attaching nipples and fittings.	Install and tighten.	Clamp pump in vise.	
17.	Woodruff key (9)	Install in keyway in pump shaft.		
18.	Sheave (17) and bushing (16).	Assemble and aline holes.		
19.	Bushing (16).	Spread slightly with screw- driver tip and install on shaft.		

TA 076210

#### 5-9. WATER PUMP MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS B. INSTALLATION (Continued).** 20. Three capscrews (15) Install. Tighten securely. and lockwashers (14). Setscrew (8). Install and tighten. 21. 22. Water pump (3). Place in vehicle and aline mounting holes. Two capscrews (4) Install. Tighten securely. 23. and lockwashers (5). 24. Union ring (2). Coat union faces and threads with liquid teflon. Install ring (2) and tighten. LEGEND: 21 **INLET NIPPLE** 1. 20 **UNION RING** 2. **WATER PUMP** 3. CAPSCREW (2) 5. LOCKWASHER (2) 17 -6. SETSCREW (2) 7. **NUT (4) SETSCREW** 8. 9. **KEY** 16-10. **NUT (2)** LOCKWASHER (2) 11. 15 FLAT WASHER (2) 12. CAPSCREW (2) 13. 14. LOCKWASHER (3) CAPSCREW (3) 15. **BUSHING** 16. 17. SHEAVE 18. **V-BELT (2) INLET HOSE** 19. 13 20. HOSE CLAMP (2) 21. **NUT (2)** 12 10 9 8

TA 076210

#### WATER SYSTEM.

#### 5-9. WATER PUMP MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### B. INSTALLATION (Continued).

25. Hose (19).

Install.

26. Hose clamps (20).

Slide into position and tighten.

27. V-belts (18).

Install.

#### C. ADJUSTMENT

28. Refer to para 4-11.

#### **NOTE**

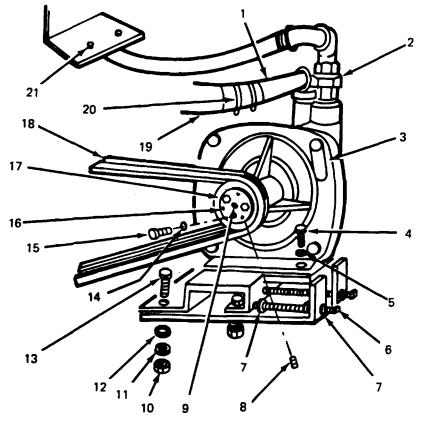
Follow-on maintenance action required:

a. Close water pump draincock. Refer to TM 5-3895-372-10.

b. Open shut-off valve. Refer to para 5-12.

#### LEGEND:

- 1. INLET NIPPLE
- 2. UNION RING
- 3. WATER PUMP
- 4. CAPSCREW (2)
- 5. LOCKWASHER (2)
- 6. SETSCREW (2)
- 7. NUT (4)
- 8. SETSCREW
- 9. KEY
- 10. NUT (2)
- 11. LOCKWASHER (2)
- 12. FLAT WASHER (2)
- 13. CAPSCREW (2)
- 14. LOCKWASHER (3)
- 15. CAPSCREW (3)
- 16. BUSHING
- 17. SHEAVE
- 18. V-BELT (2)
- 19. INLET HOSE
- 20. HOSE CLAMP (2)
- 21. NUT (2)



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#### 5-10. WATER PUMP REPAIR.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Disassembly. (30)b. Inspection. (10)c. Assembly. (30).

70 Minutes Total

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

<u>APPLICABLE CONFIGURATIONS</u> 5-A. Pump Removed.

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (PIN)

Seal, 1, 9501-3 (94001). O-Ring, 1, 1720-83 (94001). Seal, 1, 9501-4 (94001).

Slinger Ring, 1, 1410-56 (94001).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 9-2320-273-10. Engine Off.

TM 5-3895-372-20P. Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 5-1.

5-10. WATER PUMP REPAIR (Continued).						
LOCA	ATION/ITEM	ACTION	REMARKS			
A. DISASSEMBLY.						
1.	Nipple and draincock (12).	Remove.				
2.	Four capscrews (8).	Remove.				
3.	Pump casing (14).	Remove	Tap with soft head hammer to break seal if required.			
4.	0-ring (17).	Remove	Discard.			
5.	Mounting flange (1).	Clamp in vise.				
6.	Impeller nut (10).	Remove.	. 5			
10 LEGEND:  1. MOUNTING FLANGE 1. MOUNTING FLANGE 1. NIPPLE & DRAIN COCK 2. KEY 12 NIPPLE & DRAIN COCK 4. SNAPRING (2) 4. SNAPRING (2) 5. SNAPRING 6. BEARING 7. BEARING 7. BEARING 7. BEARING 8. CAPSCREW (4) 9. IMPELLER 9. IMPELLER 19. SLINGER RING 10. IMPELLER NUT						

5-10. WATER PUMP REPAIR (Continued).						
LOCATION/ITEM		ACTION	REMARKS			
A. DI	A. DISASSEMBLY (Continued).					
7.	Impeller (9).	Remove.	Pry up with two small pry bars, 180° apart, to break loose from shaft.			
8.	Shaft key (2).	Remove.				
9.	Seals (15) and (16).	Remove.	Discard.			
10.	Seal retainer (18).	Remove.				
11.	Slinger ring (19).	Remove.	Discard.			
12.	Snap ring (5).	Remove.				
13.	Shaft (3) with bearings (6) and (7) and snap rings (4).	Remove.	Remove components by tapping threaded end of shaft with soft head hammer.			
14.	Bearing (7).	Remove from shaft (3).	Using press.			
15.	Two snap rings (4).	Remove from shaft (3).				
16.	Bearing (6).	Remove from shaft (3).	Using press.			
17.	Vent drain plugs (13) and (11).	Remove if necessary.				
B. INSPECTION.						
18.	Bearings (7) and (6).	Check for roughness in rotation.	Replace if necessary.			
19.	Mounting flange (1).	Check for cracks or chipped casting.	Replace if necessary.			
20.	Impeller (9).	Check for cracks or broken casting.	Replace if necessary.			
21.	Pump casing (14).	Check for cracks or broken casting.	Replace if necessary.			
C. AS	C. ASSEMBLY.					
22.	Mounting flange (1).	Remove from vise.	Set in press impeller side down.			
23.	Slinger ring (19).	Install in mounting flange (1).				
5-22						

### 5-10. WATER PUMP REPAIR (Continued). **REMARKS** LOCATION/ITEM **ACTION** 17 18 16 13 LEGEND: 10 1. MOUNTING FLANGE 11. VENT DRAIN PLUG 2. KEY 12. NIPPLE & DRAIN COCK 3. SHAFT 13. VENT DRAIN PLUG 4. SNAPRING (2) 14. PUMP CASING 5. SNAPRING 15. SEAL 6. BEARING 16. SEAL 7. BEARING 17. O-RING 8. CAPSCREW (4) 18. SEAL RETAINER 9. IMPELLER 19. SLINGER RING 10. IMPELLER NUT TA 076213

	5-10. WATER PUMP REPAIR (Continued).				
	LOCATION/ITEM	ACTION	REMARKS		
C.	ASSEMBLY (Continue	ed).			
24.	Bearing (7).		Install in mounting flange (1).	Tap on outer race only with punch and hammer.	
25.	Mounting flange (1).		Clamp in vise.		
26.	Two snap rings (4).		Install on shaft (3).		
27.	Shaft (3).		Install until snap ring (4) is against bearing (7).	Threaded end toward impeller end.	
28.	Mounting flange (1) and shaft (3).		Install in press.	Threaded shaft supported.	
29.	Bearing (6).		Press bearing (6) onto shaft (3) and mounting flange (1).	Use press.	
30.	Snap ring (5).		Install.		
			NOTE		
31.	Seal retainer (18) and seal (16).	Lubricate	seals with a light coat of oil prior to in Install seal retainer (18) into seal(s) and press into mount- ing flange (1).	nstallation.	
32.	Seal (165).		Install.		
33.	Key (2).		Install.		
34.	Impeller (9).		Install.		
35.	Impeller nut (10).		Install.	Torque to 4050 lb-in (5-7 N-m).	
36.	0-ring (17).		Install.		
37.	Pump casing (14).		Install.		
38.	Four cap screws (8).		Install.	Torque to 31 b-ft (42 N-m).	
39.	Vent drain plugs (13) and (11).		Install.		
40.	Nipple and draincock (	12).	Install.		
41.	Waterpump.		Remove from vise.		
42.	Water pump.		Install.	Refer to para 59.	
	5-24				

## 5-10. WATER PUMP REPAIR (Continued). LOCATION/ITEM **ACTION REMARKS** LEGEND: 1. MOUNTING FLANGE 11. VENT DRAIN PLUG 2. KEY 12. NIPPLE & DRAIN COCK 3. SHAFT 13. VENT DRAIN PLUG 4. SNAPRING (2) 14. PUMP CASING 5. SNAPRING 15. SEAL 6. BEARING 16. SEAL 17. O-RING 18. SEAL RETAINER 19. SLINGER RING 7. BEARING 8. CAPSCREW (4) 9. IMPELLER 10. IMPELLER NUT TA 076214

#### 5-11. SIGHT GAGE MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10)b. Cleaning. (10)c. Installation. (10)

30 Minutes Total.

INITIAL SETUP EQUIPMENT CONDITION

PARAGRAPH CONDITION DESCRIPTION

None. None.

**APPLICABLE CONFIGURATIONS** 

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIALS/PARTS (PIN)** 

Dry Cleaning Solvent SD-2 (Refer to Appendix C).

PERSONNEL REQUIRED

One (MOS-62B20).

SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

**REFERENCES (TM)** 

TM 9-2320-273-10. TM 5-3895-372-20P. TM 53895372-10. **GENERAL SAFETY INSTRUCTIONS** 

Engine Off.
Transmission in Neutral.
Parking Brake Set.

#### TROUBLESHOOTING REFERENCES

Table 5-1.

## WATER SYSTEM. 5-11. SIGHT GAGE MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** A. REMOVAL. 1. Gage valve (4). Turn handle clockwise to close. 2. Draincock (5). Open and drain gage tube (1). 3. Gage collar nut (3). Unscrew from gage valve ({4). Remove by lifting up through 4. Gage tube (1). Remove from gage valve (4). three gage tube brackets (6). 5. Three grommets (2). Remove from three gage tube Replace if deteriorated. brackets (6). LEGEND:

- 1. GAGE TUBE
- 2. GROMMET (3)
- 3. GAGE COLLAR NUT
- 4. GAGE VALVE
- 5. DRAIN COCK
- 6. GAGE TUBE BRACKET (3)
- 7. AIR VENT

#### 5-11. SIGHT GAGE MAINTENANCE (Continued)

LOCATION/ITEM ACTION REMARKS

#### B. CLEANING.

#### WARNING

Compressed air used for cleaning purposes will not exceed 30 psi. Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.).

## CAUTION

Do not allow dry cleaning solvents, such as SD-2, to come in contact with seals or flexible hoses. These cleaners may damage leather, rubber, and synthetic materials.

6. Gage-tube (1).

- a. Clean with soap and water.
- If dirt or scum remains, use dry cleaning solvent SD-2.
   Dry with compressed air.

7. Air vent (7).

Pull from gage tube (1) and inspect for blockage and deterioration.

Replace as necessary.

#### C. INSTALLATION.

8. Air vent (7).

Install onto top of gage tube (1).

9. Three grommets (2).

Install into three gage tube brackets (6).

10. Gage collar nut (3) and gage tube (1).(6) and grommets (2).

a. Slide gage tube (1) down thru the gage tube brackets

b. Slide gage collar nut (3) over bottom end of gage tube (1).

c. Insert gage tube (1) into top of gage valve (4) and secure with gage collar nut (3).

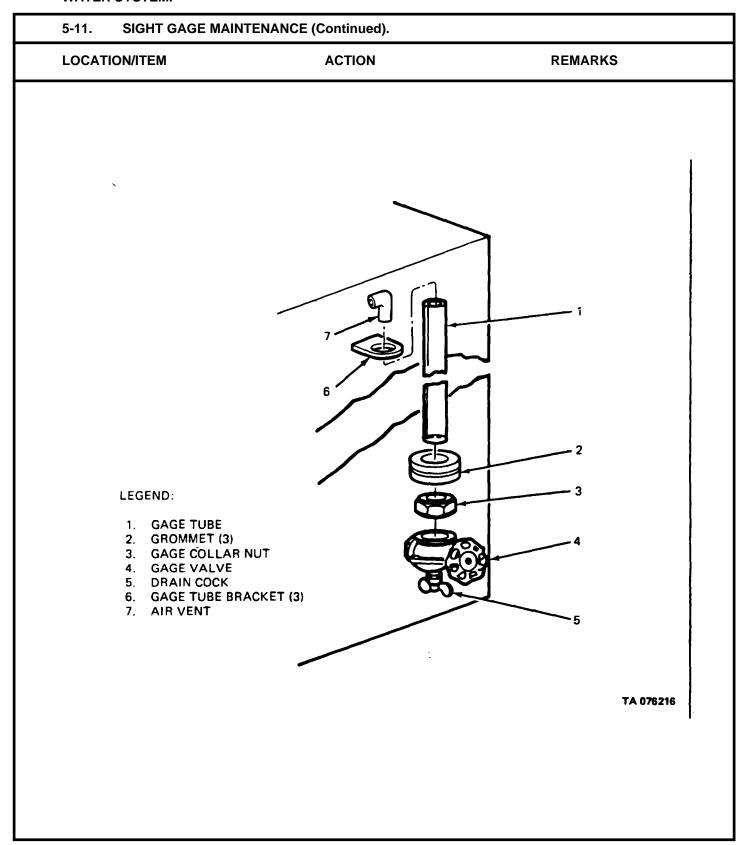
Install with red line in gage tube toward center of vehicle.

11. Draincock (5) and gage valve (4).

Close draincock (5) and open gage valve (4). Gage tube (1) should fill to level of water

in tank.

Check for leaks and retighten gage collar nut (3) as necessary.



#### 5-12. VALVES AND WATER LINES MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5)b. Inspection. (5)c. Installation. (5)

d. Checking for leaks. (5)

20 Minutes Total.

**INITIAL SETUP** 

EQUIPMENT CONDITION PARAGRAPH

PARAGRAPH
None.

CONDITION DESCRIPTION
None.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

Liquid Teflon (Refer to Appendix C). Masking Tape.

Marking Pen.

**PERSONNEL REQUIRED** 

One (MOS-62B20).

**SPECIAL ENVIRONMENTAL CONDITIONS** 

Vehicle Parked on Level Ground.

REFERENCES (TM)

TM 9-2320-273-10. TM 5-3895-372-20P. Parking Brake Set. **GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission in Neutral.

#### TROUBLESHOOTING REFERENCES

Table 5-1.

#### 5-12. VALVES AND WATER LINES MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

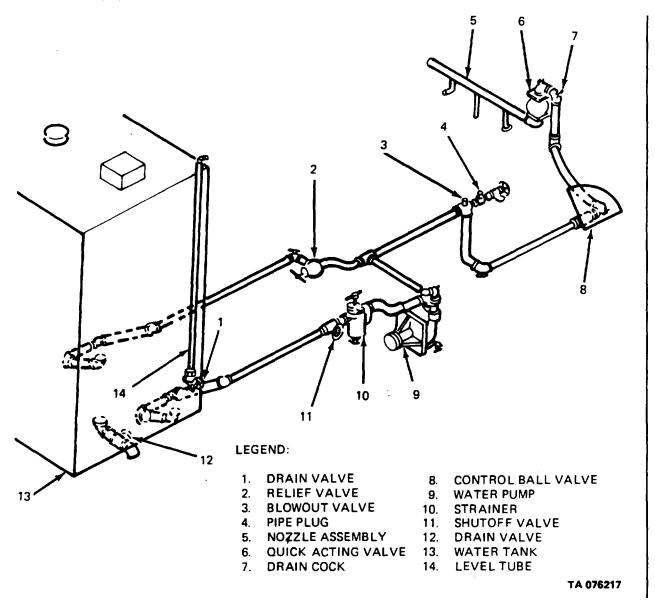
#### A. REMOVAL.

#### **NOTE**

The layout and major components of the water system are illustrated below. To replace any valve, water line, or fitting, follow these general steps using general shop practices.

1. Shutoff valve (11).

Close.



#### 5-12. VALVES AND WATER LINES MAINTENANCE (Continued).

LOCATION/ITEM **ACTION REMARKS** 

#### Α. **REMOVAL** (Continued).

#### **NOTE**

When replacing shutoff valve (11), relief valve (2) or any component between these valves and the water tank (13), the water tank must be drained. Proceed to the pipe union or hose clamp nearest the component which is to be removed and start removal of attaching lines at this point.

2. Attaching lines and hoses. lines and fittings. Unscrew and remove.

Use tape and marking pencil to identify hoses,

3. Valve, fittings, or line to be replaced. Remove.

#### В. INSPECTION.

Valve, line, or fittings. water flow.

a. Inspect for dirt or sediment blocking You may be able to remove blockage with running

water.

Inspect fittings, valves, and lines for:

Replace if necessary.

1. Cracks.

2. Breaks.

3. Deformities.

#### C. INSTALLATION.

#### **NOTE**

Apply liquid teflon to all threads.

5. Valve, line, hose, or fittings.

Screw onto attaching hardware.

Install as marked at removal.

#### 5-12. VALVES AND WATER LINES MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### D. CHECKING FOR LEAKS.

#### **NOTE**

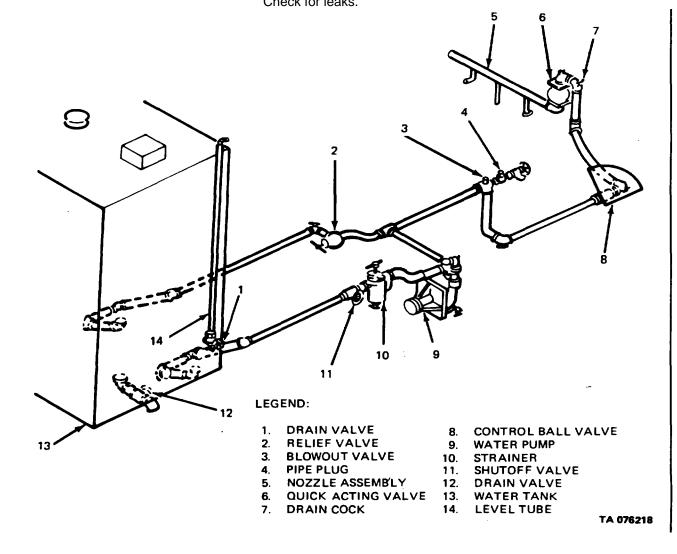
If water tank has been drained, refill at this time. Refer to TM 5-3895-372-10.

6. Shutoff valve (11).

Open.

7. Water system.

Check operation. Check for leaks.



#### 5-13. FLOW CONTROL VALVE MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (20)b. Installation. (20)c. Operational Check. (5)

45 Minutes Total.

INITIAL SETUP EQUIPMENT CONDITION

PARAGRAPH
5-12A. CONDITION DESCRIPTION
Shut Off Valve Closed.

APPLICABLE CONFIGURATIONS

M919.

TEST EQUIPMENT

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

Liquid Teflon (Refer to Appendix C).

**PERSONNEL REQUIRED** 

One (MOS-62B20).

**REFERENCES (TM)** 

TM 9-2320-273-10. TM 5-3895-372-10. TM 5-3895372-20P.

TROUBLESHOOTING REFERENCES

Table 5-1.

**SPECIAL ENVIRONMENTAL CONDITIONS** 

Vehicle Parked on Level Ground.

**GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission in Neutral. Parking Brake Set.

#### 5-13. FLOW CONTROL VALVE (Continued).

LOCATION/ITEM ACTION REMARKS

#### A. REMOVAL.

#### NOTE

Before beginning service, shut-off water shutoff valve. Refer to paragraph 5-12.

1. Four nuts and Lock washers (5).

Remove.

2. Two U-bolts (4).

Remove.

3. One cap screw and three spacers (6).

Remove.

4. Gage assembly (1).

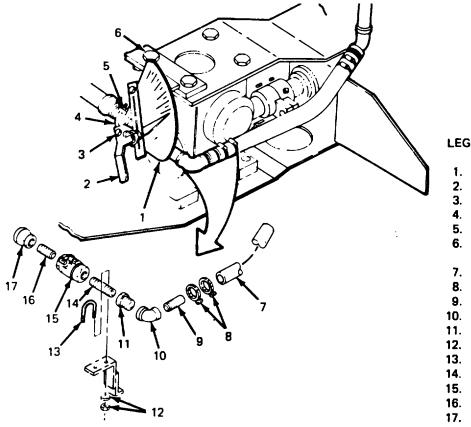
Remove.

5. Nut (3).

Remove.

6. Lever and pointer (2).

Remove.



#### LEGEND:

- 1. GAGE ASSEMBLY
- 2. LEVER AND POINTER
- 3. NUT
- 4. U-BOLT (2)
- 5. NUT AND LOCKWASHER (4)
- 6. CAPSCREW AND THREE
- SPACERS
- 7. HOSE
- 8. RING CLAMP (2)
- 9. NIPPLE
- 10. ELBOW
- 11. BUSHING
- 12. NUT AND WASHER (2)
- 13. U-BOLT
- 14. NIPPLE
- 15. VALVE
- 16. NIPPLE
- 17. BUSHING

5-13. FLOW CONTROL VALVE (Continued).					
	LOCATION/ITEM	ACTION	REMARKS		
Α.	REMOVAL (Continued	).			
8. 9. 10. 11. 12. 13.	Nipple (9).		Remove from nipple (9) only. Remove. Remove. Remove. Remove. Remove. Remove. Remove.	Catch excess water in drain pan.  Catch excess water in drain pan.	
B.IN	STALLATION.		reducer (16 and 17).		
20. 21. 22. 23. 24. 25. 26. 27.	Valve (15)  Bushing and nipple Elbow (10). U-bolt (13). Two nuts and lock- washers (12). Nipple (9). Hose (7). Two ring clamps (8). Gage assembly (1). Two U-bolts (4). Four nuts and lock- washers (5). Lever and pointer (2). One cap screw and thre spacers (6). Nut (3).	e <b>e</b>	Install in nipple and reducer (16 and 17). Install and tighten. Install and tighten. Install. Install and tighten.  Install and tighten.  Install and tighten Slip over nipple (9). Tighten securely. Set in place. Install. Install and tighten securely.  Set in place. Install and tighten.  Install and tighten.	Coat threads with liquid teflon. Coat threads with liquid teflon. Coat threads with liquid teflon.  Coat threads with liquid teflon.	

#### 5-13. FLOW CONTROL VALVE (Continued).

LOCATION/ITEM ACTION REMARKS

#### C. OPERATIONAL CHECK.

29. Water shut-off valve.

Open.

30. Mixer body.

Start up (see TM 9-2320-

273-10 and TM 5-3895-372-10).

31. Valve (15).

Open.

32. Main clutch.

Activate.

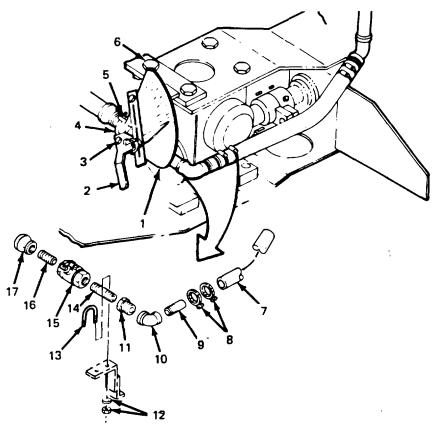
33. Valve (15).

a. Check for leaks.

b. Water flow from nozzles.

34. Mixer body.

Shut-down (see TM 9-2320-273-10 and TM 5-3895-372-10).



#### LEGEND:

- 1. GAGE ASSEMBLY
- 2. LEVER AND POINTER
- 3. NUT
- 4. U-BOLT (2)
- 5. NUT AND LOCKWASHER (4)
- 6. CAPSCREW AND THREE SPACERS
- 7. HOSE
- 8. RING CLAMP (2)
- 9. NIPPLE
- 10. ELBOW
- 11. BUSHING
- 12. NUT AND WASHER (2)
- 13. U-BOLT
- 14. NIPPLE
- 15. VALVE
- 16. NIPPLE
- 17. BUSHING

#### 5-14. WATER TANK MAINTENANCE.

#### THIS TASK COVERS: (APPROX{MATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (60)b. Repair. (60)c. Installation. (60)d. Operational Check. (10)

190 Minutes Total.

TM 5-3895-372-10.

INITIAL SETUP EQUIPMENT CONDITION

PARAGRAPH CONDITION DESCRIPTION

Water Tank Empty.

**APPLICABLE CONFIGURATIONS** 

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

Eye Bolts (4). Four Point Sling. Overhead Winch.

**MATERIALS/PARTS (P/N)** 

Liquid Teflon (See Appendix C).

Tank to Frame Gasket, NP5033029 (50663).

**PERSONNEL REQUIRED** 

Two (MOS-62B20).

SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

**REFERENCES (TM)** 

TM 9-2320-273-10. TM 3895-23727-10. TM 5-3895-372-20P. TM 5-3895-372-20P. GENERAL SAFETY INSTRUCTIONS

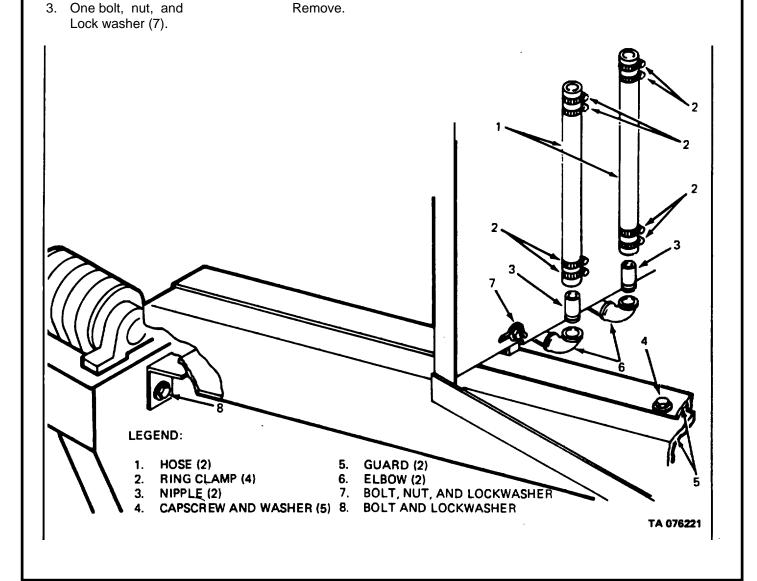
Engine Off.

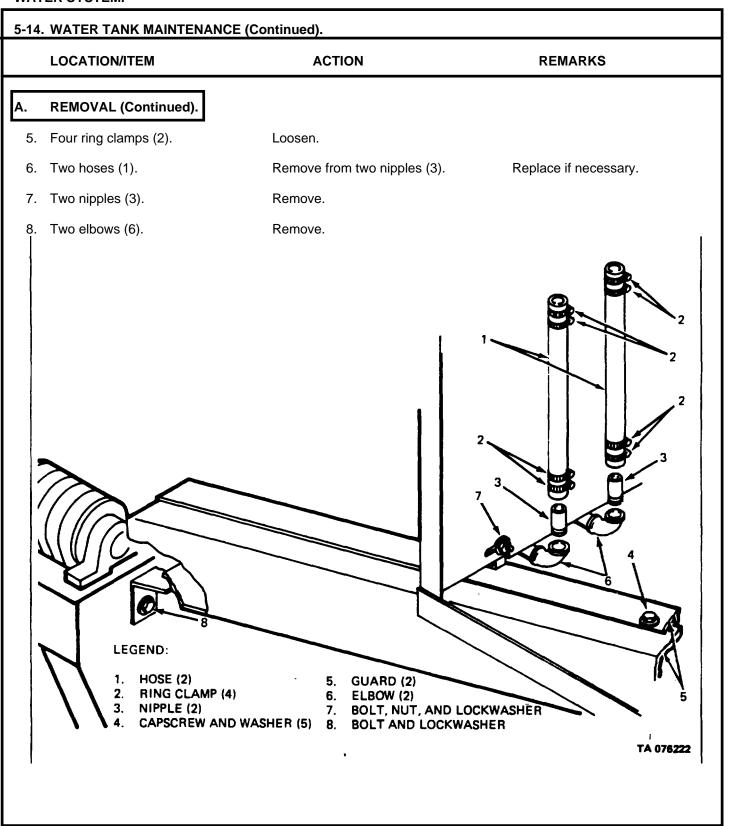
Transmission in Neutral. Parking Brake Set.

#### TROUBLESHOOTING REFERENCES

Table 5-1.

# 5-14. WATER TANK MAINTENANCE (Continued). LOCATION/ITEM ACTION REMARKS NOTE Before beginning service, drain water tank. A. REMOVAL. 1. Five cap screws and washers (4). 2. One bolt and lock washer (8). Remove.





# 5-14. WATER TANK MAINTENANCE (Continued). ACTION LOCATION/ITEM REMARKS Α. **REMOVAL** (Continued). 9. Two elbows (10) and Remove. pipes (9) and (11). Two elbows (12). 10. Remove. LEGEND: 9. PIPE (2) 10. ELBOW (2) 11. PIPE (2) 12. ELBOW (2) TA 076223

# 5-14. WATER TANK MAINTENANCE (Continued). **ACTION REMARKS** LOCATION/ITEM A. REMOVAL (Continued). 11. Elbow(13). Remove. 12. Drain valve (14), nipple Remove intact. (15) and elbow (16). 13. Nipple (17). Remove. LEGEND: 13. ELBOW 14. **DRAIN VALVE** 15. NIPPLE 16. ELBOW 17. NIPPLE TA 076224 5-42

# 5-14. WATER TANK MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS REMOVAL** (Continued). 14. Ten leg bolts, nuts, Remove. and lock washers (18). 18 0 LEGEND: 18. LEG BOLT, NUT, AND LOCKWASHER (10) TA 076225

#### 5-14. WATER TANK MAINTENANCE (Continued).

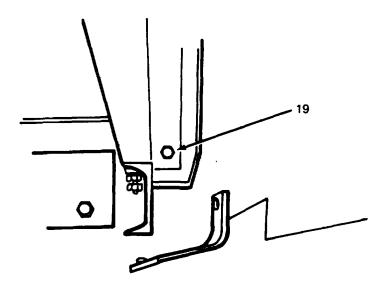
LOCATION/ITEM ACTION REMARKS

#### A. REMOVAL (Continued).

15. Two bolts, lock washers, and nuts (19).

Remove.

Located between water tank and sand and stone bin.



#### LEGEND:

19. BOLT, LOCKWASHER, AND NUT (2)

#### 5-14. WATER TANK MAINTENANCE (Continued).

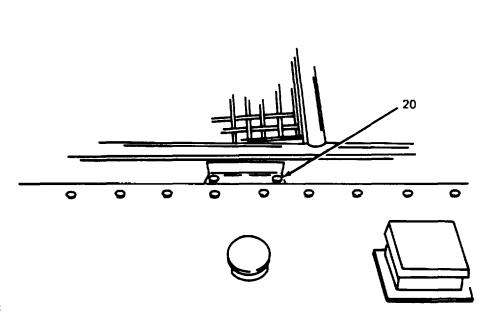
LOCATION/ITEM ACTION REMARKS

#### A. REMOVAL (Continued).

16. Two bolts, flatwashers, Lock washers, and nuts (20).

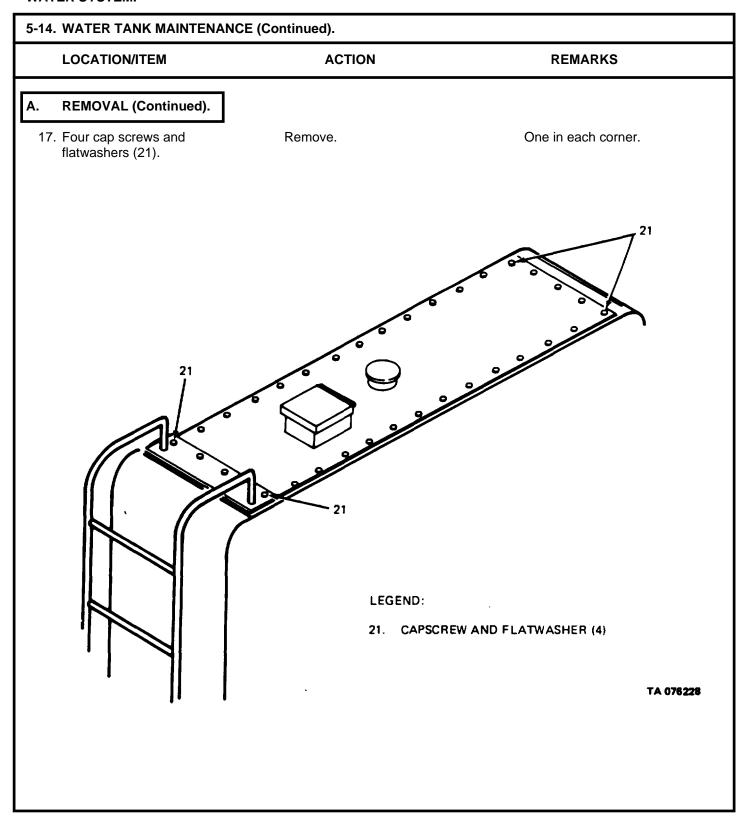
Remove

Top back-side of water tank.



#### LEGEND:

20. BOLT, FLATWASHER, LOCKWASHER, AND NUT (2)



# 5-14. WATER TANK MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** A. REMOVAL (Continued). 18. Four eye bolts (22). Install. One in each corner. 19. Four point sling (23). Install. Raise water tank approximately 10 in. and remove through left 20. Overhead winch. side of vehicle. LEGEND: 22. EYE BOLT (4) FOUR POINT SLING TA 076229

#### 5-14. WATER TANK MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### **B. REPAIR**

21. Mounting gasket (24).

Inspect and replace if

necessary.

22. Cracks.

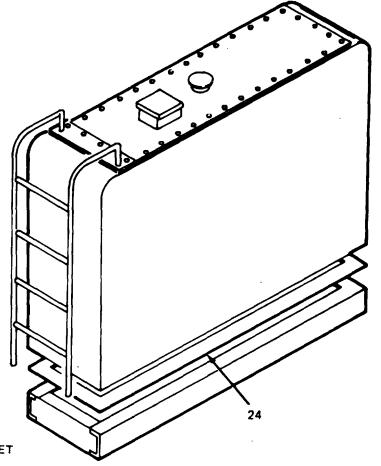
Weld cracks inside and outside of tank using standard shop practices and techniques for

galvanized steel.

After welding, recoat the inside of the tank with bitumask paint

#### **NOTE**

If necessary, abnormally large holes or cracks may be patched and welded with galvanized steel.



LEGEND:

24. MOUNTING GASKET

TA 076231

#### WATER SYSTEM.

#### 5-14. WATER TANK MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### C. INSTALLATION.

#### NOTE

If installing a new water tank, transfer usable components from damaged tank to replacement tank.

23. Four eye bolts (22). Install and tighten securely. One in each corner, top of tank.

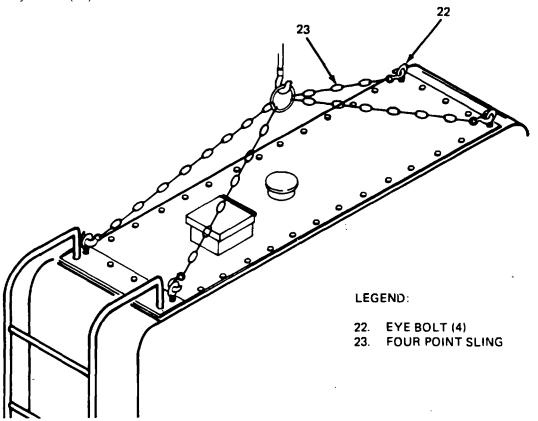
24. Four point sling (23). Install.

25. Overhead winch. Raise water tank approximately

10 in. over water tank mounting frame and install through left side of vehicle and set in position.

26. Four point sling (23). Remove.

27. Four eye bolts (22) Remove.



# 5-14. WATER TANK MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** C. INSTALLATION (Continued). 28. Four capscrews and Install and tighten. One in each corner. flatwashers (21). LEGEND: 21. CAPSCREW AND FLATWASHER (4) TA 076232

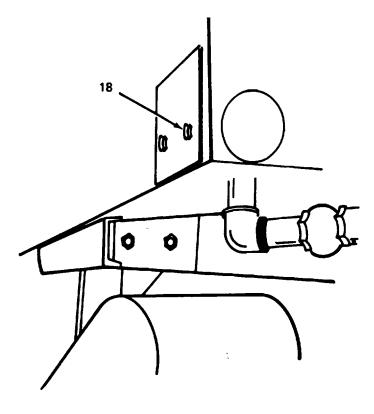
#### 5-14. WATER TANK MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### C. INSTALLATION (Continued).

29. Ten leg bolts, nuts and lockwashers (18).

Install and tighten securely.



LEGEND:

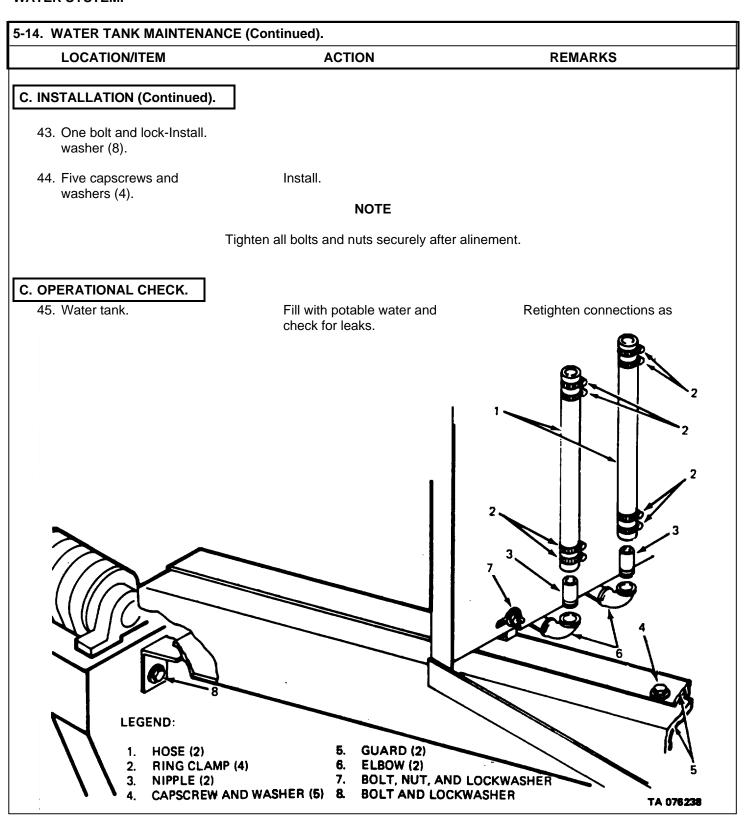
18. LEG BOLT, NUT, AND LOCKWASHER (10)

## 5-14. WATER TANK MAINTENANCE (Continued). **ACTION** LOCATION/ITEM **REMARKS** C. INSTALLATION (Continued). 30. Two bolts, lockwashers, Install and tighten securely. Located between water tank and nuts (19). 31. Two bolts, flatwashers, Install and tighten securely. Top backside of water tank. lockwashers and nuts (20). 0 0 LEGEND: 19 BOLT, LOCKWASHER, AND NUT (2) 20. BOLT, FLATWASHER, LOCKWASHER, AND NUT (2) TA 076234

## 5-14. WATER TANK MAINTENANCE (Continued). **ACTION** LOCATION/ITEM **REMARKS** C. INSTALLATION (Continued). 32. Two elbows (12). Install. Coat threads with liquid teflon. 33. Two elbows (10) and Install. Coat threads with liquid teflon. pipes (11) and (12). LEGEND: 9. PIPE (2) ELBOW 10. 11. PIPE (2) 12. ELBOW (2) TA 076235

### 5-14. WATER TANK MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** C. INSTALLATION (Continued). 34. Nipple (17). Install. Coat threads with liquid teflon. Install on nipple (17). 35. Drain valve (14), nipple Coat threads with liquid teflon. (15), and elbow (16). 36. Elbow (13). Install. Coat threads with liquid teflon. LEGEND: 13. ELBOW 14. DRAIN VALVE NIPPLE ELBOW 15 16. 17. NIPPLE 13 TA 076236

LOCATION/ITEM	ACTION	REMARKS
INSTALLATION (Continued).		
37. Two elbows (6).	Install.	Coat threads with liquid teflon.
38. Two nipples (3).	Install.	Coat threads with liquid teflon.
39. Two hoses (1).	Install.	
40. Four ring clamps (2).	Tighten securely.	
41. Guards (5).	Set in place.	
42. One bolt, nut and lockwasher (7).	Install.	_
		2 3 7 3



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### 5-14. WATER TANK COMPONENTS MAINTENANCE.

### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (30)b. Installation. (30)

60 Minutes Total.

**EQUIPMENT INITIAL SETUP** 

**CONDITION** 

CONDITION DESCRIPTION PARAGRAPH

None. None.

**APPLICABLE CONFIGURATIONS** 

M919.

TEST EQUIPMENT

None.

SPECIAL TOOLS

1500 Lb Hoist.

MATERIALS/PARTS (P/N)

Strainer Assembly Gasket, NP3703004 (50663).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Two (MOS-62B20). Vehicle Parked on Level Ground.

**GENERAL SAFETY INSTRUCTIONS** REFERENCES (TM)

TM 5-3895372-10. Engine Off.

Transmission in Neutral. TM 5-3895372-20P. Parking Brake Set. TM 9-2320-273-10.

TROUBLESHOOTING REEERENCES

None.

### 5-14. WATER TANK COMPONENTS MAINTENANCE (Continued). **ACTION** LOCATION/ITEM **REMARKS** A. REMOVAL. 1. Ten screws (6) and Unscrew and remove strainer assem-Discard gasket. bly (5), strainer assembly gasket (8), washers (7). and handle (9). LEGEND: WATER TANK WATER TANK COVER CHAIN (2) 4. WATER TANK CAP 5. STRAINER ASSEMBLY 6. SCREW (44) 7. WASHER (42) 8. STRAINER ASSEMBLY GASKET 9. HANDLE 10. UPPER LADDER SECTION 11. LOWER LADDER SECTION 12. HINGE BOLT (2) 13. SNAP HOOK 14. NUT (2) 15. WASHER (2) TA 076240

### 5-14. WATER TANK MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

### A. REMOVAL (Continued).

2. One chain (3) and water tank cap (4).

- a. Inspect for damage.
- b. If damaged, refer to Direct Support Maintenance as welding will be required.

### WARNING

If the water tank cover and/or ladder is to be removed, do not stand on the water tank ladder. Use a suitable platform or step ladder. Use a suitable overhead hoist with a rope or chain attached thru the strainer assembly hole and around the end of the water tank cover.

- 3. Thirty-four screws (6), thirty-two washers (7), two washers (15) and nuts (14).
- a. Unscrew from water tank cover(2), upper ladder section (10),and lower ladder section (11).
- b. Remove upper ladder section (10) and lower ladder section (11) with one chain (3) and snap hook (13) attached.
- 4. Water tank cover (2).

Attach a suitable chain or rope from an overhead hoist thru the strainer assembly hole and around the end of the water tank cover. Raise up and away from vehicle, then lower to ground.

Second mechanic guides to ground and detaches chain or rope.

. 0 0 0

5. One chain (3) and snap hook (13).

Inspect for damage.

Replace as necessary.

6. Two hinge bolts (12).

Remove and separate upper ladder section (10) from lower ladder section (11).

Welded in place.

#### NOTE

Inspect upper ladder section, lower ladder section, handle, and water tank cover for cracks or breaks. Repair as necessary by welding, or replace.

### 5-14. WATER TANK MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** 10 LEGEND: 1. WATER TANK 11 2. WATER TANK COVER 3. CHAIN (2) 4. WATER TANK CAP 5. STRAINER ASSEMBLY 6. SCREW (44) 7. WASHER (42) 8. STRAINER ASSEMBLY GASKET 9. HANDLE 10. UPPER LADDER SECTION 11. LOWER LADDER SECTION HINGE BOLT (2) 12. 13. SNAPHOOK 14. NUT (2) 15. WASHER (2) TA 076241 5-61

5-14. WATER TANK MAINTENANCE (Continued).					
	LOCATION/ITEM	ACTION	REMARKS		
B. INSTALLATION.					
7.	Upper ladder section (10) and lower ladder section (11).	Mount together by welding with two hinge bolts (12), if removed.	One chain (3) and snap hook (13) is weld mounted to upper ladder section (10).		
8.	Water tank cover (2).	<ul> <li>Attach a suitable rope or chain from an overhead hoist and install as done for removal.</li> </ul>			
		<ul><li>b. Raise into position on top of water tank (1).</li><li>c. Detach hoist hook-up.</li></ul>	One mechanic on suitable plat- form or ladder and second mechanic on ground to guide into position.		
9.	Upper ladder section (10), lower ladder section (11), and water tank cover (2).	<ul> <li>a. Aline mounting holes with those in water tank (1).</li> <li>b. Mount to water tank (1)</li> <li>(6), thirty-two washers (7), two washers (15) and nuts (14)</li> </ul>	Tighten securely. with thirty-four screws		
10.	New strainer assembly gasket (8), strainer assembly (5), and handle (9).	<ul><li>a. Position on water tank cover (2).</li><li>b. Secure with ten screws (6)</li></ul>	and washers (7).		

### 5-14. WATER TANK MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** 10 LEGEND: 1. WATER TANK 11 2. WATER TANK COVER 3. CHAIN (2) 4. WATER TANK CAP 5. STRAINER ASSEMBLY SCREW (44) 7. WASHER (42) 8. STRAINER ASSEMBLY GASKET 9. HANDLE 10. UPPER LADDER SECTION 11. LOWER LADDER SECTION 12. HINGE BOLT (2) 13. SNAPHOOK 14. NUT (2) 15. WASHER (2) TA 076241 5-63

### 5-14. WATER TANK SUB-FRAMES MAINTENANCE.

### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (30)b. Installation. (30)

60 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION PARAGRAPH

ARAGRAPH

5-14A.

CONDITION DESCRIPTION
Water Tank Removed.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS 1500 Lb Hoist.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-10. Engine Off.

TM 5-3895-372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

TROUBLESHOOTING REEERENCES

None.

# 5-14. WATER TANK SUB-FRAMES MAINTENANCE (Continued). LOCATION/ITEM ACTION REMARKS

### A. REMOVAL.

1. Eight bolts (2), tapered shims (3), tapered shims (15), washers (14), and nuts (13).

Unscrew and remove.

2. Eight bolts (4), washers (6), and nuts (5).

Unscrew and remove.

Lift top sub-frame (1) from vehicle with suitable hoist.

3. Eight bolts (9), washers (8), washers (10), and nuts (11).

Unscrew and remove.

b. Repair by welding

a. Inspect for broken welds.

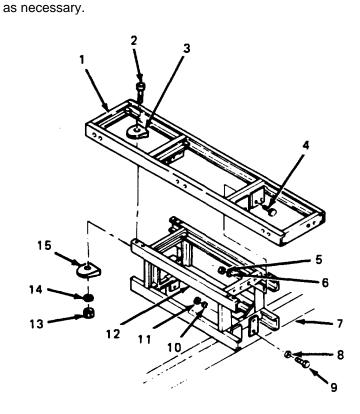
Lift bottom sub-frame (12) from chassis frame (7) with

suitable hoist.

4. Top sub-frame (1) and bottom sub-frame (12).

### LEGEND:

- 1. TOP SUB-FRAME
- 2. BOLT (8)
- 3. TAPERED SHIM (8)
- 4. BOLT (8)
- 5. NUT (8)
- 6. WASHER (8)
- 7. CHASSIS FRAM.
- 8. WASHER (8)
- 9. BOLT (8)
- 10. WASHER (8)
- 11. NUT (8)
- 12. BOTTOM SUB-FRAME
- 13. NUT (8)
- 14. WASHER (8)
- 15. TAPERED SHIM (8)



TA 076242

5. Bottom sub-frame (12).  a. Set in position on chassis frame (7). b. Install with eight bolts (9), washers (10), and nuts (11).  6. Top sub-frame (1).  a. Set in position on bottom sub-frame (12). b. Install eight bolts (4), washers (6), and nuts (5). c. Install eight bolts (2), tapered shims (3), tapered shims (15), washers (14), and nuts (13).  NOTE  Follow-on maintenance action required: Install water tank (refer to para 5-14C)  LEGEND.  1. TOP SUB-FRAME 2. BOLT (8) 3. TAPERED SHIM (8) 4. BOLT (8) 5. NUT (8) 6. WASHER (8) 7. CHASSIS FP AME 8. WASHER (8) 9. BOLT (8) 10. WASHER (8) 11. NUT (8) 12. BOTTOM SUB-FRAME 13. NUT (8)	LOCATION/ITEM	ACTION	REMARKS
frame (7). b. Install with eight bolts (9), washers (8), washers (10), and nuts (11).  6. Top sub-frame (1).  a. Set in position on bottom sub-frame (12). b. Install eight bolts (4), washers (6), and nuts (5). c. Install eight bolts (2), tapered shims (3), tapered shims (15), washers (14), and nuts (13).  NOTE  Follow-on maintenance action required: Install water tank (refer to para 5-14C)  LEGEND:  1. TOP SUB-FRAME 2. BOLT (8) 3. TAPERED SHIM (8) 4. BOLT (8) 5. NUT (8) 6. WASHER (8) 7. CHASSIS FRAME 8. WASHER (8) 9. BOLT (8) 10. WASHER (8) 11. NUT (8) 12. BOTTOM SUB-FRAME	INSTALLATION.		
sub-frame (12).  b. Install eight bolts (4),     washers (6), and nuts (5).  c. Install eight bolts (2),     tapered shims (3), tapered     shims (15), washers (14),     and nuts (13).  NOTE  Follow-on maintenance action required:  Install water tank (refer to para 5-14C)  LEGEND:  1. TOP SUB-FRAME 2. BOLT (8) 3. TAPERED SHIM (8) 4. BOLT (8) 5. NUT (8) 6. WASHER (8) 7. CHASSIS FRAME 8. WASHER (8) 9. BOLT (8) 10. WASHER (8) 11. NUT (8) 12. BOTTOM SUB-FRAME	5. Bottom sub-frame (12).	frame (7). b. Install with eight bolts (9), washers (8), washers (10),	Use a suitable hoist
Follow-on maintenance action required:  Install water tank (refer to para 5-14C)  LEGEND:  1. TOP SUB-FRAME 2. BOLT (8) 3. TAPERED SHIM (8) 4. BOLT (8) 5. NUT (8) 6. WASHER (8) 7. CHASSIS FRAME 8. WASHER (8) 9. BOLT (8) 10. WASHER (8) 11. NUT (8) 12. BOTTOM SUB-FRAME	6. Top sub-frame (1).	sub-frame (12). b. Install eight bolts (4), washers (6), and nuts (5). c. Install eight bolts (2), tapered shims (3), tapered shims (15), washers (14),	Use a suitable hoist
Install water tank (refer to para 5-14C)  LEGEND:  1. TOP SUB-FRAME 2. BOLT (8) 3. TAPERED SHIM (8) 4. BOLT (8) 5. NUT (8) 6. WASHER (8) 7. CHASSIS FRAME 8. WASHER (8) 9. BOLT (8) 10. WASHER (8) 11. NUT (8) 12. BOTTOM SUB-FRAME		NOTE	
1. TOP SUB-FRAME 2. BOLT (8) 3. TAPERED SHIM (8) 4. BOLT (8) 5. NUT (8) 6. WASHER (8) 7. CHASSIS FRAME 8. WASHER (8) 9. BOLT (8) 10. WASHER (8) 11. NUT (8) 12. BOTTOM SUB-FRAME		Follow-on maintenance action required:	
2. BOLT (8) 3. TAPERED SHIM (8) 4. BOLT (8) 5. NUT (8) 6. WASHER (8) 7. CHASSIS FRAME 8. WASHER (8) 9. BOLT (8) 10. WASHER (8) 11. NUT (8) 12. BOTTOM SUB-FRAME			
14. WASHER (8) 15. TAPERED SHIM (8) 14 13	2. BOLT (8) 3. TAPERED SHIM (8) 4. BOLT (8) 5. NUT (8) 6. WASHER (8) 7. CHASSIS FRAME 8. WASHER (8) 9. BOLT (8) 10. WASHER (8) 11. NUT (8) 12. BOTTOM SUB-FRAME 13. NUT (8) 14. WASHER (8)	14	7

### **CHAPTER 6**

#### **ADMIX SYSTEMS**

### 6-1. OVERVIEW.

This chapter provides you with the following information related to liquid admix systems maintenance.

- a. All required special tools and equipment.
- b. Troubleshooting procedures.
- c. Maintenance procedures.

### Section I REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

### 6-2. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

### 6-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

The special tools, TMDE, and support equipment for liquid and dry admix systems maintenance procedures described in this chapter are as follows. (Refer to Organizational Maintenance RPSTL, TM 5-3895-372-20P for tool description and illustration.)

- a. Air pressure gage, 0-25 psi (0-172 kPa).
- b. Stop watch.
- c. Measuring container, 7 qt (6.6 l1) minimum, calibrated in qts (or liters).
- d. Measuring container, 150 oz (4436 ml) minimum, calibrated in oz (or milliliters).

### 6-4. SPARES AND REPAIR PARTS.

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools List covering Organizational Maintenance for this equipment (TM 5-3895-372-20P).

### Section II TROUBLESHOOTING

### 6-5. INTRODUCTION.

Troubleshooting procedures for the wet admix systems are given in table 6-1. It is arranged by malfunctions, in the following order:

- a. Air pressure cannot be maintained at 15 psi (Malfunction No. 1).
- b. Liquid admix flows unevenly (Malfunction No. 2).
- c. Liquid admix flows too quickly (Malfunction No. 3).
- d. Liquid admix flows too slowly or not at all (Malfunction No. 4).
- e. Quick opening valve sticks (Malfunction No. 5).
- f. Flowmeter does not return to zero (Malfunction No. 6).
- g. Dry admix system inoperative (Malfunction No. 7).

If only one liquid admix system malfunctions, apply the troubleshooting steps to that system only. If both systems malfunction, troubleshoot both of them.

You will find that most malfunctions are caused by a gelatinous or gummy sediment from the admixtures themselves. Remove sediment with the cleaning agent recommended by the admixture manufacturer.

Remind the operator:

- a. Never mix admixtures in tanks.
- b. Always flush and drain each system after use.

### Table 6-1. Admix Systems Troubleshooting Procedures.

## MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

### 1. AIR PRESSURE CANNOT BE MAINTAINED AT 15 PSI (103 kPa):

Step 1. Check for open draincocks and vents.

Close all draincocks and vents.

Step 2. Use soap solution to check for air leaks.

Tighten loose fittings. Replace leaking valves or lines (para 6-14).

Step 3. Turn regulator in both directions. Watch gage for pressure response.

Replace faulty regulator (para 6-14).

Step 4. Attach pressure gage between regulator and gate valves. Check that it reads the same as pressure gage installed on regulator.

Replace pressure gage (pare 6-14).

Step 5. Increase pressure to 18-20 psi (124-138 kPa). Check that relief valves vent when pressure reaches 18-20 psi (124-138 kPa).

Adjust relief valve (para 6-17).

Step 6. Check for blockage in supply line.

Remove obstruction or replace line (para 6=14).

Step 7. Check compressed air system for leaks.

Troubleshoot compressed air system (para 11-5).

### 2. LIQUID ADMIX FLOWS UNEVENLY:

Step 1. Check for 14½ - 15' psi (100-107 kPa) air pressure.

See Malfunction No. 1.

Step 2. Check for leaks.

Tighten loose connections. Replace leaking lines or valves (para 6-14).

Step 3. Check for dirt or sediment in system.

Flush system. First use cleaning agent recommended by admixture manufacturer. Then use clean water.

Table 6-1. Admix Systems Troubleshooting Procedures (Continued).

# MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

- 2. LIQUID ADMIX FLOWS UNEVENLY (Continued):
  - Step 4. Check for blocked strainer.

Clean strainer (pare 6-8).

- Step 5. If temperature is below 320F (OOC) check for frozen admix lines.
  - a. Open draincocks.
  - b. Apply heat to melt ice.
  - c. When ice is melted, close draincocks.
- Step 6. Working from nozzles to tanks, check individual elements for blockage.

Clean or replace blocked lines or valves (para 6-14).

Step 7. Check down pipe for breakage or blocked breather.

Clean breather or replace pipe as needed.

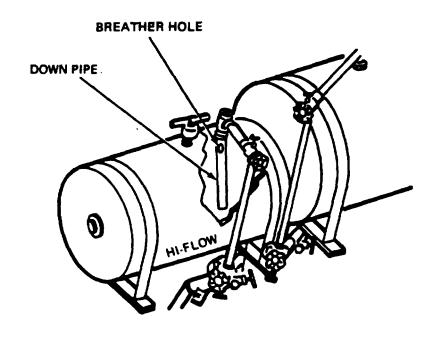


Table 6-1. Admix Systems Troubleshooting Procedures (Continued).

## MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

### 3. LIQUID ADMIX FLOWS TOO QUICKLY:

Step 1. Check for 14%1 - 15Y2 psi (100-107 kPa) air pressure.

See Malfunction No. 1.

Step 2. Check for relief valves venting at 15 psi (103.5 kPa).Bleed pressure. Remove vent and install test gage with 1/8 in. thread. Check pressure.

If gage is faulty, replace. Otherwise, adjust relief valve (para 6-17).

Step 3. Check flowmeter calibration (see para 6-10).

Replace faulty flowmeter (see para 6-10).

### 4. LIQUID ADMIX FLOWS TOO SLOWLY OR NOT AT ALL:

Step 1. Check for 14%' - 15% psi (100-107 kPa) air pressure.

See Malfunction No. 1.

Step 2. Check for leaks.

Tighten loose connections. Replace leaking lines or valves (para 6-14).

Step 3. Check for dirt or sediment blocking system.

Flush system. First use cleaning agent recommended by admixture manufacturer. Then use clean water.

Step 4. Check for blocked strainer.

Clean strainer (para 6-8).

- Step 5. If temperature is below 320F (0°C) check for frozen admix lines.
  - a. Open draincocks.
  - b. Apply heat to melt ice.
  - c. When ice is melted, close draincocks.
- Step 6. Check flowmeter calibration (para 6-10).

Repair or replace flowmeter. (See para 6-11 or 6-10).

Table 6-1. Admix Systems Troubleshooting Procedures (Continued).

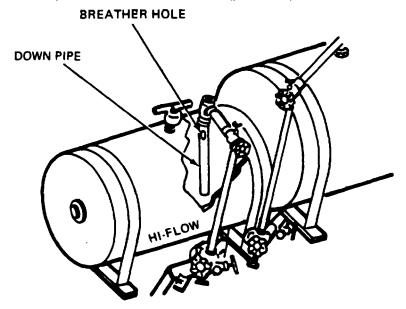
# MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

- 4. LIQUID ADMIX FLOWS TOO SLOWLY OR NOT AT ALL (Continued):
  - Step 7. Check mechanical linkage between quick acting valve and main clutch lever. Valve should be opened fully when clutch is engaged.

Repair linkage. Check for broken down pipe or clogged breather in pipe.

Step 8. Beginning at nozzles and working back to tanks, check individual components for blockage. Be sure to check down pipes in tanks for blocked breather holes.

Clean or replace blocked lines or valves (para 6-14).



TA 076245

Table 6-1. Admix Systems Troubleshooting Procedures (Continued).

### **MALFUNCTION**

### TEST OR INSPECTION CORRECTIVE ACTION

### 5. QUICK OPENING VALVE STICKS:

Step 1. for sticking or binding as valve is opened and closed.

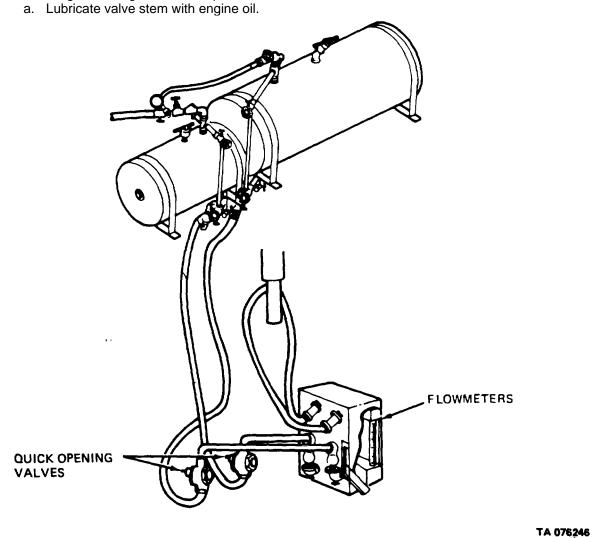


Table 6-1. Admix Systems Troubleshooting Procedures (Continued).

### **MALFUNCTION**

### TEST OR INSPECTION CORRECTIVE ACTION

### 5. QUICK OPENING VALVE STICKS (Continued):

- b. tightness of packing nut. Tighten until valve sticks, then back off just until valve operates freely.
- Step 2. for sediment or gelatinous mass blocking valve.
  - a. Flush system. First use cleaning agent recommended by admixture manufacturer. Then use clean water.
  - b. Clean strainer screen (para 6-8).

### 6. FLOWMETER DOES NOT RETURN TO ZERO:

- Step 1. Check whether quick acting valve is sticking. See Malfunction No. 5.
- Step 2. Check for dirt in flowmeter. Disassemble and clean flowmeter (para 6-11).

### 7. DRY ADMIX SYSTEM INOPERATIVE:

- Step 1. Check for main clutch engagement. Adjust if necessary (para 4-18).
- Step 2. Check for dry admix bin clutch engagement and if chains and sprockets are in operating condition. Engage clutch.
- Step 3. Check operation and correct dial setting. Set dial indicator (refer to para 6-19).
- Step 4. Check operation of dry admix bin. Repair as necessary (refer to para 6-19).

### **Section III MAINTENANCE PROCEDURES**

### 6-6. INTRODUCTION.

This section provides you with Organizational Level maintenance procedures for the liquid admix systems of the mixer body. Paragraph 6-7 summarizes the maintenance tasks. Paragraphs 6-8 thru 6-19 contain detailed instructions for each task.

### 6-7. LIQUID ADMIX SYSTEMS MAINTENANCE TASK SUMMARY.

**INITIAL SETUP** 

EQUIPMENT

APPLICABLE CONFIGURATIONS CONDITION PARAGRAPH

M919. TM 5-3895-372-10. Solution Gate Valve Closed. M 5-3895-372-10. Admixture Tanks Filled With

diluted Admixture Solution or

CONDITION DESCRIPTION

water.

TEST EQUIPMENT

None.

TM 5-3895-372-10. Admix System Drained.

TM 9-2320-273-10. Air Pressure Drained.

M 5-3895-372-10. Liquid Admix Systems Drained

d Flushed.

<u>SPECIAL TOOLS</u> 6-9A. Sight Gage Removed.

None. TM 5-3895-372-10. Bin Empty.

MATERIALS/PARTS (P/N)

Cleaning Agent.

Liquid Teflon (Refer to Appendix C).

GAA - (Refer to Appendix C).

Silicone Grease (Refer to Appendix C). SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

PERSONNEL REQUIRED

One (MOS-62B20).

REFERENCES (TM)

TM 5-3895-372-20P TM 9-2320-273-10.

TM 9-2320-273-10. GENERAL SAFETY INSTRUCTIONS
Transmission in Neutral.

TM 5-3895-372-10. Engine Off.

REFERENCES (TROUBLESHOOTING) Parking Brake Set.

Table 6-1.

LIST OF TASKS			
TASK	TASK	TASK	TROUBLESHOOTING
NO.		REF	REF (TABLE)
1.	Strainer Service;	6-8	6-1
	A. Removal.	6-8A	
	B. Cleaning and Inspection.	6-8B	
	C. Installation.	6-8C	
2.	Sight Gages Maintenance:	6-9	6-1
	A. Removal	6-9A	
	B. Cleaning	6-9B	
	C. Installation.	6-9C	

6-7. LIQUID ADMIX SYSTEMS MAINTENANCE TASK SUMMARY (Continued).				
TASK LIST OF TASKS  TASK TROUBLESHOOTING				
	TACK			
NO.	TASK	REF	REF (TABLE)	
3.	Flowmeters Maintenance:	6-10	6-1	
	A. Removal	6-10A		
	B. Installation. Operational Check.	6-10B		
	C.	6-10C		
4.	Flowmeters Repair:	6-11	6-1	
	A. Disassembly.	6-11A		
	B. Cleaning and Inspection.	6-11B		
	C. Assembly.	6-11C		
5.	Flowmeter Hose Maintenance:	6-12	6-1	
	A. Removal.	6-12A		
	B. Installation.	6-12B		
6.	Flowmeter Valve Maintenance:	6-13	6-1	
	A. Removal.	6-13A		
	B. Installation.	6-138		
7.	Valves, Lines, and Fittings Maintenance:	6-14	6-1	
	A. Removal.	614A		
	B. Inspection.	6-14B		
	C. Installation	6-14C		
	D. Checking for Leaks.	6-14D		
8.	Liquid Admix Tanks Maintenance (Hi-Flow):	6-15	6-1	
٠.	A. Removal.	6-15A		
	B. Repair.	6-15B		
	C. Installation.	6-15C		
	D. Checking for Leaks.	6-15D		

6-7. LIQUID ADMIX SYSTEMS MAINTENANCE TASK SUMMARY (Continued).				
	LIST OF TASKS			
TASK		TASK	TROUBLESHOOTING	
NO.	TASK	REF	REF (TABLE)	
9.	Liquid Admix Tank Maintenance (Low-Flow):	6-16	6-1	
A.	Removal.	6-16A		
B.	Repair.	6-16B		
C.	Installation.	6-16C		
D.	Checking for Leaks.	6-16D		
10.	Air Relief Valve Maintenance and Adjustment:	6-17	6-1	
A.	Removal.	6-17A		
B.	Disassembly.	617B		
C.	Inspection.	6-17C		
D.	Assembly.	6-17D		
E.	Installation.	617E		
F.	Adjustment.	617F		
11.	Admix Injector Maintenance:	618 61		
A.	Removal.	618A		
B.	Installation.	-18B		
C.	Operational Clock.	6-8C		
12.	Dry Admix Bin Maintenance:	6-19	61	
A.	Removal.	6-19A		
B.	Disassembly.	619B		
C.	Cleaning and Inspection.	6-19C		
D.	Assembly.	619D		
E.	Installation.	619E		
F.	Test	619F		

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6-8. STRAINER SERVICE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5)b. Cleaning and Inspection. (10)c. Installation. (5)

20 Minutes Total.

<u>INITIAL SETUP</u> <u>EQUIPMENT</u>

CONDITION

PARAGRAPH CONDITION DESCRIPTION TM 53895-372-10. Solution Gate Valve Closed.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Cleaning Agent (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

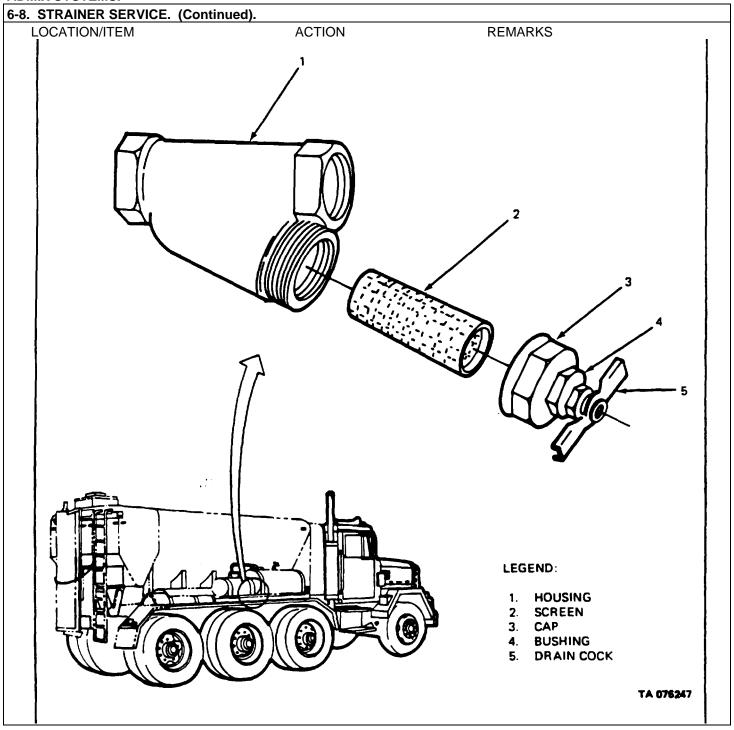
REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-10. Engine Off.

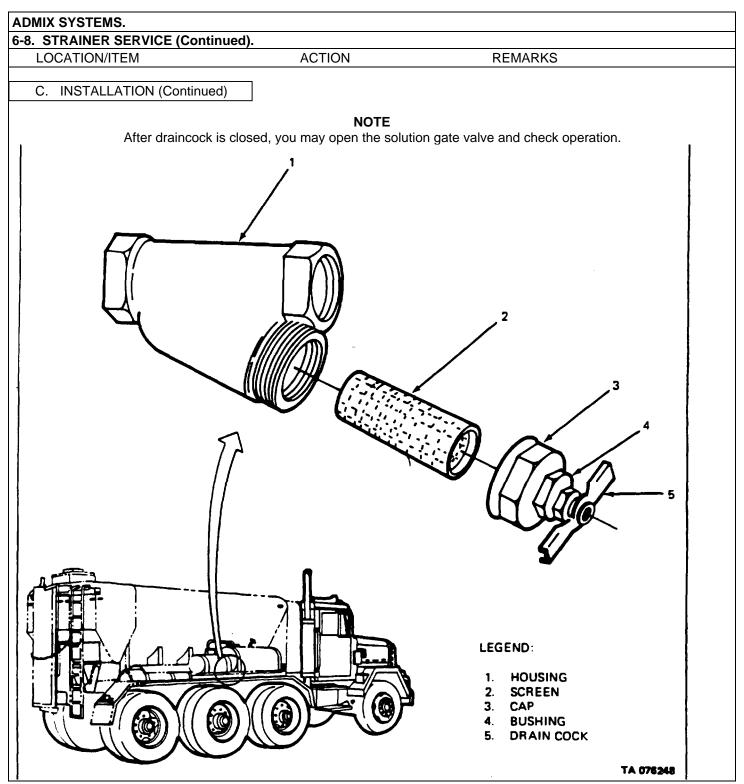
TM 5-3895-372-20P. Transmission in Neutral. TM 92320-273-10. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 6-1.



ADMIX SYSTEMS.					
6-8. STRAINER SERVICE (Continued).					
	LO	CATION/ITEM	ACTION R	EMARKS	
Α.	REI	MOVAL.			
			NOTE		
	Each liquid admix system has a strainer screen. The procedure below may be used to clean the hi-flow or the low-flow strainer.				
			NOTE		
		Close so	olution gate valve adjacent to strainer, if tan	k is full.	
		Draincock (5).	Open.		
	2.	Draincock (5) and	Remove.		
	_	bushing (4).	Harris and an experience	Harris St. and Control of	
	3.	Cap (3).	Unscrew and remove.	Use a six point socket.	
D		ANING AND INSPECTION	Remove screen (2).		
D.	B. CLEANING AND INSPECTION.				
	4.	Screen (2).	a.	Clean. Use cleaning agent	
	•••	20.00(2).	recommended by admixture	Gream Goo Greathing agont	
			manufacturer. Then use water.		
			b. Inspect for:	Replace if necessary.	
			(1) Cracks	·	
			(2) Breaks		
			(3) Deformities.		
	_		W. I. d. B. d.		
	5.	Housing (1).	Wash out any sediment.		
		INSTALLATION.			
	<u> </u>	INSTALLATION.			
	6.	Screen (2).	Place in housing (1).		
	7.	Cap (3).	Screw on and tighten.	Use a six point socket	
	8.	Draincock (5) and	Install bushing (4).		
		, ,			
	9.	Draincock (5).	Close.		



#### 6-9, SIGHT GAGES MAINTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

 a. Removal.
 (21

 b. Cleaning.
 (6).

 c. Installation.
 (2)

10 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

None. None.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Cleaning Agent.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 53895-372-10. Engine Off.

TM 53895372-20P. Transmission in Neutral. TM 92320-273-10. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 6-1.

### 6-9. SIGHT GAGES MAINTENANCE (Continued).

LOCATION/ITEM **ACTION** REMARKS

### A. REMOVAL.

### **NOTE**

The two liquid admix sight gages are identical except for the length of the tube. Use the procedure below for the hi-flow or the lo-flow sight gage.

1. Two gage valves (4). Close. 2. Two draincocks (1). Open. 3. Two grommet nuts (3). a. Loosen.

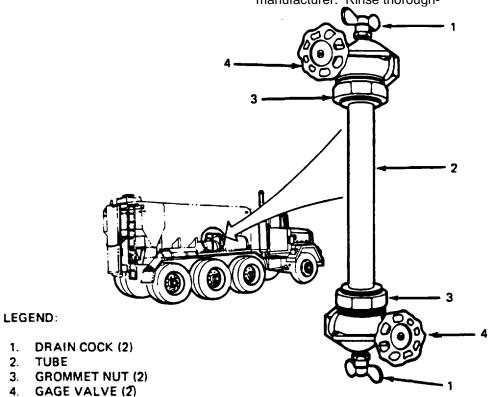
b. Remove tube (2).

### B. CLEANING.

1.

2.

4. Tube (2). Clean. Use cleaning agent recommended by admixture manufacturer. Rinse thorough-



TA 076249

## 6-9. SIGHT GAGES MAINTENANCE (Continued). REMARKS LOCATION/ITEM ACTION C. INSTALLATION. 5. Tube (2). Set in place. 6. Two grommet nuts (3). Tighten to hold tube (2). 7. Two gage valves (4). 8. Two draincocks (1). Open. Close. LEGEND: 1. DRAIN COCK (2) TUBE 3. GROMMET NUT (2) 4. GAGE VALVE (2) TA 076250

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### 6-10. FLOWMETERS MAINTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10)b. Installation. (10)c. Operational Check. (20)

40 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

TM 53805372-10. Admixture Tanks Filled With Diluted Admixture Solution or

Water.

TM 9232027310. Air Pressure Drained.

**TEST EOUIPMENT** 

None.

M919.

SPECIAL TOOLS

None.

MATERIALS/PARTS (PIN)

Liquid Teflon (Refer to Appendix C).

**APPLICABLE CONFIGURATIONS** 

PERSONNEL REOQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM S3895372-10. Engine Off.

TM S3895372-20P. Transmission in Neutral.

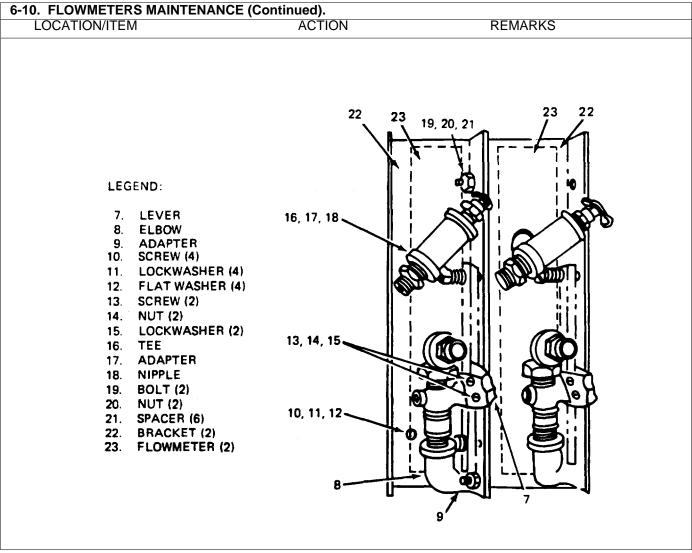
TM 92320-273-10. Parking Bru Set.

TROUBLESHOOTING REFERENCES

Table 6-1.

# 6-10. FLOWMETERS MAINTENANCE (Continued). LOCATION/ITEM ACTION REMARKS A. REMOVAL. 1. Two swivel nuts (2). Remove. Tag hoses for location. 2. Two swivel nuts (1). Remove. Tag hose for location. 3. Four bolts (5), nuts Remove. (6) and lockwashers (4). 4. Four spacers (3). Remove. LEGEND: 1. SWIVEL NUT (2) 2. SWIVEL NUT (2) 3. SPACER (4) LOCKWASHER (4) 5. BOLT (4) NUT (4) TA 076251

ADMIX 0101EMG.					
6-10. FLOWMETERS MAINTENANCE (Continued).					
LO	CATION/ITEM	ACTION	REMARKS		
A. REI	MOVAL (Continued).				
	, ,				
5.	Two flowmeters (23).	Remove from vehicle.			
6.	Two bolts (19), nuts	Remove.	Separate flowmeters (23).		
	(20) and six spacers (21).		•		
		NOTE			
	The follow	wing describes the removal of any or	ne of the flowmeters.		
7.	Tee (16), adapter	Remove.			
	(17) and nipple (18).				
8.	Two screws (13), nut	Remove.			
	(14) and lockwasher				
	(15).				
	Lever (7).	Remove.			
10.	Elbow (8) and adap-	Remove.			
	ter (9).				
11.	Four screws (10), lock-	Remove.	Separate flowmeter (23)		
	washer (11) and flat-		from bracket (22).		
	washer (12).				
D INIO	TALLATION	1			
B. INS	TALLATION.	I			
10	Four screws (10), lock-	Install through brookst (22)			
12.	washer (11) and flat-	Install through bracket (22) and into flowmeter (23) and			
12	washer (12). Two bolts (19), nuts	tighten securely. Install through brackets (22)			
13.	, , ,				
11	(20) and spacers (21). Elbow (8) and	and tighten. Install.	Use liquid teflon on threaded		
14.	adapter (9).	joints.	Ose liquid tellori ori trireaded		
15	Lever (7).	Install.			
	Two screws (13), nut	Install.			
10.	(14) and lockwashers	mstan.			
	(14) and lockwashers (15).				
17	Tee (16), adapter	Install.	Coat threads with liquid teflon.		
17.	(17) and nipple (18).	motali.	Coat throads with hydra terion.		
18	Two flowmeters (23).	Install in vehicle.			
10.	1 110 HOWHIGIOIS (20).	motern in vernois.			



TA 076252

ADMIX	ADMIX SYSTEMS.				
6-10. I	FLOWMETERS MAINTENANCE	(Continued).			
LC	CATION/ITEM	ACTION	REMARKS		
B. INS	STALLATION (Continued).				
19.	Four spacers (3).	Install.			
20.	Four bolts (5), nuts (6) and lockwashers (4).	Install and tighten.			
21.	Two swivel nuts (1).	Install and tighten.	Outlet hoses.		
22.	Two swivel nuts (2).	Install and tighten.	Inlet hoses.		
C. OP	ERATIONAL CHECK.				
23.	Mixer body.	Start up (see TM 9-2320-273- 10 and TM 5-3895-372-10).			
24.	Air shut-off valve.	Open.			
25.	Air pressure regulator. kPa).	Set to exactly 15 psi (103			
	NOTE				
	The PTO should be disengaged during the following check. The two flowmeters are identical. Use the following procedure to check either of them.				
26.	Air and solution gate valves.	Open on system being checked.	See TM 5-3895-372-10.		
27.	Flowmeter (23).	Set to exactly 5.8 quarts per minute.			
28.	Container.	Position to catch all liquid from nozzles.			
29.	Main clutch lever.	<ul><li>a. Pull towards rear to open valve. State</li><li>b. Push forward after exactly one minute</li></ul>			

TA 076253

# **ADMIX SYSTEMS.** 6-10. FLOWMETERS MAINTENANCE (Continued). ACTION REMARKS LOCATION/ITEM C. OPERATIONAL CHECK (Continued) 30. Container. a. Record amount of admixture solution in container. b. Empty container. 4,5,6 LEGEND: 1. SWIVEL NUT (2) 2. SWIVEL NUT (2) 3. SPACER (4) 4. LOCKWASHER (4)

5. BOLT (4) 6. NUT (4)

36. Pressure gage.

6-10. FLOWMETERS MAINTENANCE (Continued).				
LOCATION/ITEM	ACTION	REMARKS		

# C. OPERATIONAL CHECK (Continued).

#### NOTE

Repeat steps 28 thru 30 four more times.

31. Worksheet. a. Add the five amounts you

wrote down.

b. Divide by five. Your answer should be 6 qts, + 1/8 qt, (or 4 oz), (5.68 liters i 0.12 liters).

#### **NOTE**

If your answer is not within acceptable limits perform steps 32 thru 36.

32. Air pressure gage. Check pressure. Must be 14' - Adjust pressure.

15X psi (100-107 kPa).

33. Solution tank. Check for air or liquid Replace, if necessary.

leaks.

34. Pipes, flexible hoses, Check for leaks or blockage. Remove blockage or

and connections. replace part.

35. Valves and tank Check for leaks or blockage Remove blockage or

down pipe. and functioning, replace part.

Insert test gage between If admix air pressure

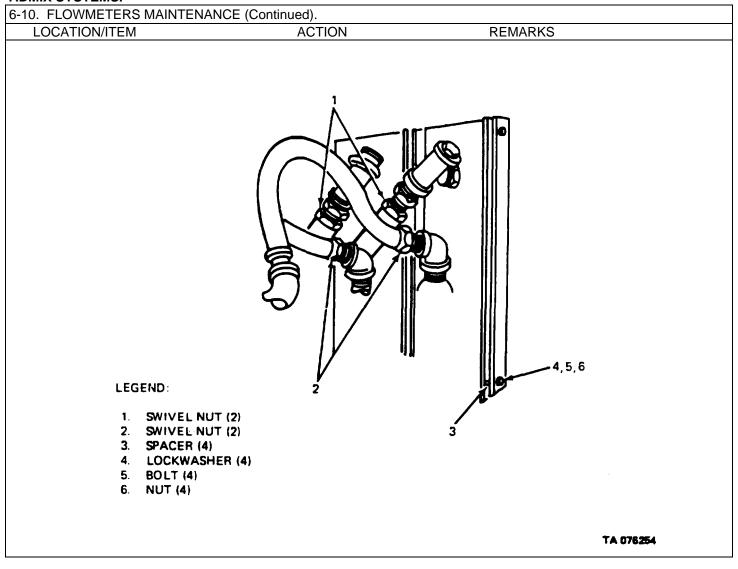
admix air pressure gage gage is faulty, replace it.

and gate valves. Compare

readings.

#### **NOTE**

Recheck operation check after performing steps 32 thru 36.



#### 6-11. FLOWMETERS REPAIR.

### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION)

a. Disassembly. (10)b. Cleaning and Inspection. (10)c. Assembly. (10)

30 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

None.

<u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

None.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Silicone Grease (Refer to Appendix C).

Dry Cleaning Solvent (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 53895372-10. Engine Off.

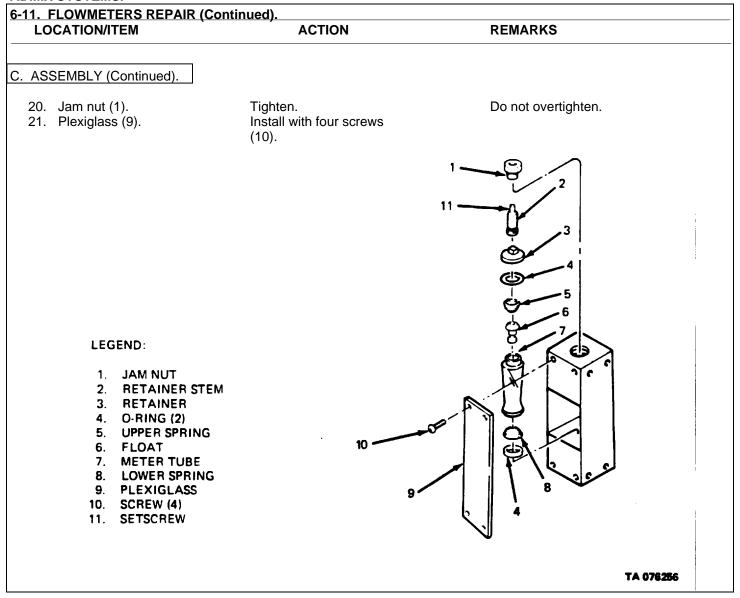
TM 5-3895-372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 6-1.

6-11. FLOWMETERS REPAIR (Continued).			
LO	CATION/ITEM	ACTION	REMARKS
A.	DISASSEMBLY.		
	Four screws (10).	Remove.	
	Plexiglass (9).	Remove.	
	Jam nut (1).	Loosen.	
4.	Meter tube (7).	Remove.	
	Upper spring (5).	Remove from tube.	
	Float (6).	Remove from tube.	
	Lower spring (8).	Remove from tube.	
8.	Jam nut (1).	Remove.	Hold setscrew (11) with
			hex key wrench while
_		_	turning nut
9.	Retainer stem (2)	Remove.	Through inside of
4.0	and retainer (3).	5	housing.
10.	O-rings (4)	Remove	Lubricate with silicone grease
			11
			3
			4
			5
	LEGEND:		
	1. JAM NUT		
	2. RETAINER STEM		
	3. RETAINER		
	4. O-RING (2)		
	5. UPPER SPRING	40	
	6. FLOAT	10	
	7. METER TUBE 8. LOWER SPRING		
	8. LOWER SPRING 9. PLEXIGLASS		8 315
	10. SCREW (4)		9   4 °
	11. SETSCREW		<b>ს</b> ∥
			TA 076255

6-11. FLOWMETERS REPAIR (Continued).				
	CATION/ITEM	ACTION	REMARKS	
B. CLE	EANING AND INSPECTION.			
11.	Flowmeter.	<ul> <li>a. Clean all parts of sediment and admix build-up. to come in contact with solvent.</li> <li>b. Replace any parts that are damaged and/or are not able to be cleaned sufficiently.</li> </ul>	Clean in solvent. Do not allow rubber components	
C. AS	SEMBLY.			
12.	Retainer stem (2). and retainer (3).	Install.	Through inside of housing.	
13.	Jam nut (1).	Install.	Hold setscrew (11) with hex key wrench while turning nut. Do not tighten.	
14.	Retainer stem (2) and retainer (3).	Retract into end fitting until retainer is flush with bottom of end fitting.	ag. recin	
15.	Lower spring (8).	Install in meter tube.		
16.	Float (6).	Install in meter tube.	Pin wheel towards spring.	
	Upper spring (5). Meter tube (7).	Install in meter tube. Install in housing and center in 0-rings (4).	Calibration numbers toward the front.	
CAUTION				
If tube is not centered in O-rings when tightening, damage to the meter tube will occur.				
19.	Retainer stem (2).	Tighten carefully until meter cannot be rotated with fingers.	Use hex key wrench.	



#### 6-12. FLOWMETER HOSE MAINTENANCE.

### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5) b. Installation. (5)

10 Minutes Total.

**INITIAL SETUP EQUIPMENT** 

CONDITION

CONDITION DESCRIPTION PARAGRAPH TM 5-3895-372-10. Admixture Tanks Filled With

APPLICABLE CONFIGURATIONS

M919.

Diluted Admixture Solution or Water.

TM 9232273-10.

Air Pressure Drained.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Liquid Teflon (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) **GENERAL SAFETY INSTRUCTIONS** 

TM 5-3895-372-10. Engine Off.

TM 5-3895372-20P. Transmission in Neutral. Parking Brake Set. TM 92320-273-10.

TROUBLESHOOTING REFERENCES

Table 6-1.

# 6-12. FLOWMETER HOSE MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

# A. REMOVAL.

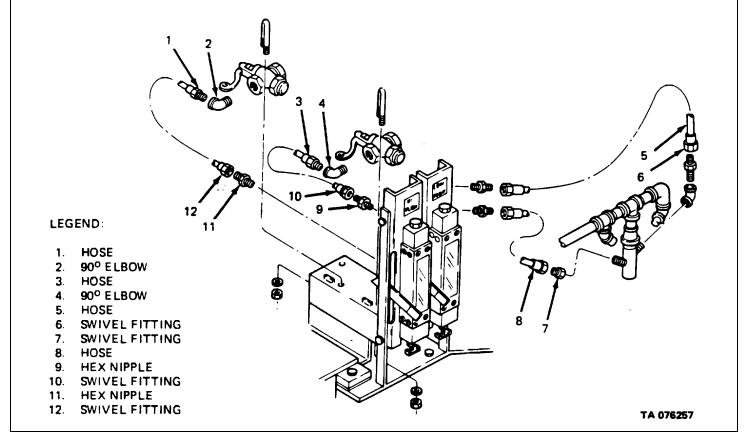
#### **NOTE**

The following procedure describes removal and installation for hose (1). Similar procedures can be used for removal and installation of hoses (3), (5) and (8).

- 1. Swivel fitting (12). Remove from hex nipple (11).
- 2. Hose (1). Remove from 900 elbow (2).

# B. INSTALLATION.

- 3. Hose (1). Install on 90° elbow (2).
- 4. Swivel fitting (12). Instll on hex nipple (11).



#### 6-13. FLOWMETER VALVE MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5) b. Installation. <u>(5)</u>

10 Minutes Total.

**EQUIPMENT** INITIAL SETUP CONDITION

> **PARAGRAPH CONDITION DESCRIPTION**

**APPLICABLE CONFIGURATIONS** 6-12A.

Hoses Removed. M919. TM 9-2320-273-10. Air Pressure Drained.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (PIN)

Liquid Teflon (See Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

**GENERAL SAFETY INSTRUCTIONS** REFERENCES (TM)

TM 5-3895-372-10. Engine Off.

TM 53895-372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 6-1.

# 6-13. FLOWMETER VALVE MAINTENANCE (Continued). LOCATION/ITEM ACTION REMARKS

# A. REMOVAL.

1. Two 90° elbows (1). Remove from valve (3).

2. Two nuts (5) and lock- Remove from U-bolt (2).

washers (4).

3. U-bolt (2). Remove from valve (3).

4. Valve (3). Remove from bracket (6).

# B. INSTALLATION.

5. Valve (3). Install on bracket (6).

6. U-bolt (2). Install on valve (3).

7. Two nuts (5) and Install on U-bolt (2). lockwashers (4).

8. Two 90° elbows (1). Install on valve (3).

LEGEND:

1. 90° ELBOW (2)
2. U-BOLT
3. VALVE
4. LOCKWASHER (2)
5. NUT (2)
6. BRACKET

TA 076258

#### 6-14. VALVES. LINES. AND FITTINGS MAINTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5)
b. Inspection. (15)
c. Installation. (5)
d. Checking for leaks. (5)

30 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

TM 53895372-10. Admix System Drained. TM 9-2320-273-10. Drain Air System.

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Cleaning Agent (See Appendix C).

Masking Tape. Marker Pen.

Liquid Teflon (See Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895372-10. Engine Off.

TM 5-3895372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 6-1.

## 6-14. VALVES. LINES, AND FITTINGS MAINTENANCE (Continued).

LOCATION/ITEM **ACTION REMARKS** LEGEND: AIR LINE **HEX ADAPTER** GATE VALVE (2) CLOSE NIPPLE (9) CHECK VALVE (2) 90° STREET ELBOW 6. 7. PIPE NIPPLE **RELIEF VALVE (2)** 8. 9. PIPE NIPPLE 10. PIPE NIPPLE 11. 45° ELBOW 35 12. PIPE NIPPLE 13. FILL CAP (2) 14. HI-FLOW TANK 15. **REDUCER BUSHING** 36 16. CLOSE NIPPLE (4) 17. TEE (2) 18. REDUCER BUSHING 19. **CLOSE NIPPLE** TEE (2) 20. 21. 90° STREET ELBOW COUPLING (4) 22. 23. **GATE VALVE (2)** GAUGE VALVE (4) 24. 25. **BUSHING DRAIN COCK (4)** 26. **REDUCER BUSHING (2)** 28. **BUSHING (4)** 29. STRAINER (2) REDUCER BUSHING (2) 30. 31. **DRAIN COCK (2)** 32. HI-FLOW HOSE 33. **LO-FLOW HOSE** 34. AIR LINE 35. PRESSURE REGULATOR 36. PRESSURE GAUGE 37. 90° STREET ELBOW **REDUCER BUSHING (2)** 39. PIPE CROSS 40. **CLOSE NIPPLE (2)** 41. **REDUCER BUSHING (2)** 42. PIPE NIPPLE PIPE NIPPLE 43. 44. PIPE NIPPLE 45. LO-FLOW TANK 46. SIGHT GLASS (2) 47. **GATE VALVE (2)** 48. TEE TA 076259

#### 6-14. VALVES. LINES, AND FITTINGS MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

NOTE

The illustration shows layout and main components of the liquid admix systems. To replace any valve, line, or flitting of the liquid admix systems, follow these general steps.

Be sure the system is drained and air pressure is bled before you start.

A. REMOVAL.

1. Attached lines and fittings. Disconnect. Use tape and marker pen to

identify lines for reassembly.

2. Valves and fittings. Remove using standard shop

practices.

B. INSPECTION.

3. Line, valve, or fitting. a. Inspect for blockage. Clean if needed. First use clean-

sing agent recommended by admixture manufacturer. Then use

clean water.

b. Check for leaks or damaged

Replace, if necessary. fittings. Also inspect threads on attaching hard-

ware.

C. INSTALLATION.

4. Attaching lines, Reconnect using standard Install in locations as fittings, and valves. Shop practices. marked at disassembly.

D. CHECKING FOR LEAKS.

5. Mixer body. Start up (see TM 9-2320-273-

10 and TM 5-3895372-10).

6. Liquid admix systems. Check for air or admix leaks.

### 6-14. VALVES. LINES, AND FITTINGS MAINTENANCE (Continued).

LOCATION/ITEM **ACTION REMARKS** LEGEND: AIR LINE 1. **HEX ADAPTER GATE VALVE (2) CLOSE NIPPLE (9)** 12 5. **CHECK VALVE (2)** 90° STREET ELBOW 6. 7. PIPE NIPPLE 8. **RELIEF VALVE (2)** 9. PIPE NIPPLE PIPE NIPPLE 10. 45° ELBOW 11. 35 12. PIPE NIPPLE 13. FILL CAP (2) 14. **HI-FLOW TANK** 15. **REDUCER BUSHING** 36 16. **CLOSE NIPPLE (4)** 17. TEE (2) 18. **REDUCER BUSHING** 19. **CLOSE NIPPLE** 20. TEE (2) 21. 90° STREET ELBOW COUPLING (4) ·22. 23. **GATE VALVE (2)** 24. **GAUGE VALVE (4)** 25. **BUSHING** 26. DRAIN COCK (4) **REDUCER BUSHING (2)** 28. **BUSHING (4)** STRAINER (2) 29. 30. **REDUCER BUSHING (2)** 31. DRAIN COCK (2) **HI-FLOW HOSE** 32. 33. LO-FLOW HOSE 34. AIR LINE 35. PRESSURE REGULATOR 36. PRESSURE GAUGE 37. 90° STREET ELBOW **REDUCER BUSHING (2)** 38. 32 39. PIPE CROSS 40. **CLOSE NIPPLE (2)** 26 41. **REDUCER BUSHING (2)** 42. PIPE NIPPLE PIPE NIPPLE 43. 44. PIPE NIPPLE 45. LO-FLOW TANK 46. SIGHT GLASS (2) 47. **GATE VALVE (2)** 48. TEE TA 076260

#### 6-15. LIQUID ADMIX TANKS MAINTENANCE (HI-FLOW).

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (15)
b. Repair. (20)
c. Installation. (15)
d. Chooking for Leaks

d. Checking for Leaks. (5)

55 Minutes Total.

INITIAL SETUP

EQUIPMENT CONDITION

6-9A

APPLICABLE CONFIGURATIONS

PARAGRAPH TM 5-3895372-10. CONDITION DESCRIPTION
Liquid Admix Systems

Drained and Flushed. Sight Gage Removed.

TEST EQUIPMENT

None.

M919.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

Liquid Teflon (Refer to Appendix C).

PERSONNEL REQUIRED

One (MOS-62B20).

SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

REFERENCES (TM)

TM 53895-372-10. TM 53B95-372-20P. TM 9-2320-273-10. **GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 6-1.

# 6-15. LIQUID ADMIX TANKS MAINTENANCE (HI-FLOW) (Continued).

LOCATION/ITEM ACTION REMARKS

# A. REMOVAL.

#### NOTE

Close main air valve at filter. Be sure the system is drained and air pressure bled before you start.

1. Fill cap (1).

2. Inlet fitting (2).

3. Outlet fitting (7).

Unscrew and remove.

Unscrew. Lift down tube

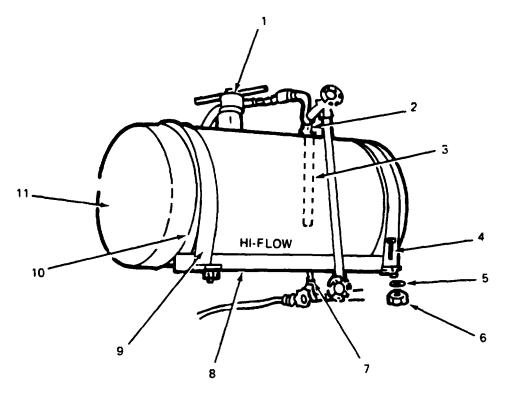
(3) from tank.

Unscrew. Push piping out

of way.

# LEGEND:

- 1. FILL CAP
- 2. INLET FITTING
- 3. DOWN TUBE
- 4. BOLT (4)
- 5. LOCKWASHER (4)
- 6. NUT (4)
- 7. OUTLET FITTING
- 8. CRADLE
- 9. STRAP (2)
- 10. BELT (2)
- 11. TANK



TA 076261

6-15. LIQUID ADMIX TANKS MAINTENANCE (HI-FLOW) (Continued).			
LOCATION/ITEM	ACTION	REMARKS	

### A. REMOVAL (Continued)

Unscrew and remove. Move two 4. Two bolts (4), lock washers (5) and nuts (6). straps (9) aside.

5. Tank (11). Remove.

6. Two belts (10). Remove.

# B. REPAIR.

7. Tank (11). Weld any cracks using standard See also TM 9237, Welding practices for welding of galvanized Theory and Application.

steel.

### C. INSTALLATION.

#### NOTE

Use liquid teflon on all threaded joints at assembly.

8. Two belts (10). Put around tank (11). Place belts so that they will lie

under straps (9) when tank is

mounted.

9. Tank (11). Place in cradle (8).

10. Two straps (9). Put around tank. Straps

should lie over belts (10).

11. Two bolts (4), lock-

washers (5), and nuts (6).

Put on and tighten.

12. Outlet fitting (7). Screw in and tighten.

Place in tank (11). 13. Down tube (3). Tighten inlet fitting (2).

14. Fill cap (1). Screw on and tighten.

#### NOTE

Install sight gage (para 6-9) before checking for leaks.

#### D. CHECKING FOR LEAKS

15. Tank (11). a. Fill.

b. Pressurize (see TM 5-3895-

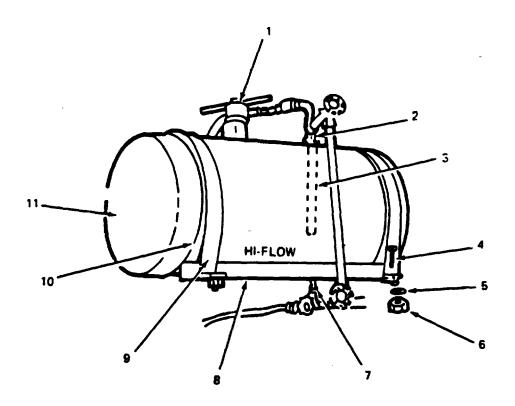
372-10).

c. Check for air or liquid

leaks.

# 6-15. LIQUID ADMIX TANKS MAINTENANCE (HI-FLOW) (Continued).

#### LOCATION/ITEM **ACTION REMARKS**



- 1. FILLCAP
- 2. INLET FITTING
- 3. DOWN TUBE
- 4. BOLT (4)
- 5. LOCKWASHER 14)

- 7. OUTLET FITTING
- 8. CRADLE
- 9. STRAP (2 10. BELT (2) 11. TANK

TA 076262

#### 6-16. LIQUID ADMIX TANK MAINTENANCE (LOW-FLOW).

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (15)b. Installation. (20)c. Checking for Leaks. (5)

40 Minutes Total.

INITIAL SETUP EQUIPMENT CONDITION

PARAGRAPH TM 5-3895372-10.

6-9A Sight Gage Removed.

CONDITION DESCRIPTION
Liquid Admix Systems Drained

APPLICABLE CONFIGURATIONS M919

TEST EQUIPMENT None.

**SPECIAL TOOLS** 

None.

MATERIALSIPARTS (P/N)

Liquid Teflon (Se Appendix C).

PERSONNEL REQUIRED

One (MOS-62B20).

REFERENCES (TM)

TM 5-3895-372-10. TM 5-389372-20P. TM 5-3895372-20P.

TM 92320-273-10.

TROUBLESHOOTING REFERENCES

Table 6-1.

SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

**GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission In Neutral.

Parking Be

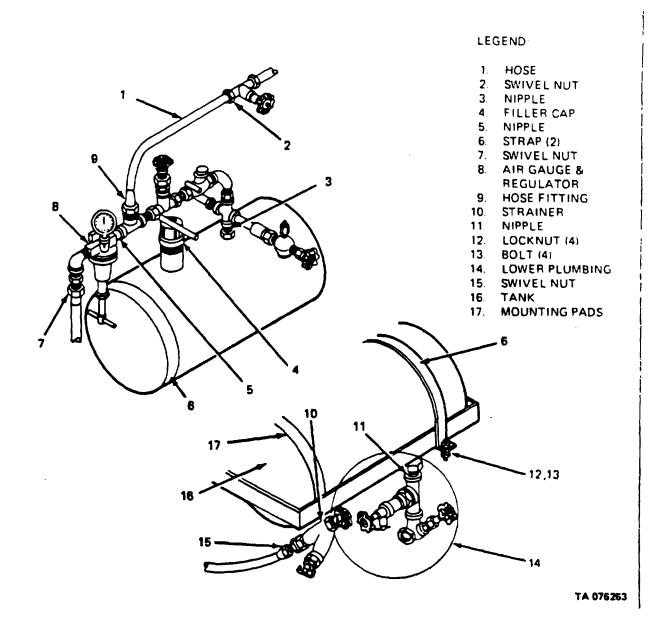
# 6-16. LIQUID ADMIX TANKS MAINTENANCE (LOW-FLOW) (Continued).

LOCATION/ITEM ACTION REMARKS

# A. REMOVAL.

# NOTE

Close main air valve at filter. Be sure the system is drained and air pressure bled before beginning service.



# **ADMIX SYSTEMS** 6-16. LIQUID ADMIX TANKS MAINTENANCE (LOW-FLOW) (Continued). **ACTION** LOCATION/ITEM **REMARKS** A. REMOVAL (Continued). 1. Swivel nut (2). Disconnect. 2. Hose fitting (9). Remove. Remove hose (1) from vehicle. 3. Swivel nut (7). Disconnect. Swivel nut (15). Disconnect. 5. Strainer (10). Remove. 6. Lower plumbing (14). Revolve counterclockwise until parallel with tank. 7. Four bolts (13) and Remove two straps (6) and locknuts (12). mounting pads (17). 8. Tank (16). Remove. 9. Air gage and regulator Remove at nipple (5). 10. Filler cap (4). Remove. 11. Air valve and plumb-Remove at nipple (3). ing components. 12. Lower plumbing (14). Remove at nipple (11). B. INSTALLATION. NOTE Use liquid teflon on all threaded joints at assembly. 13. Valve and lower Install at nipple (11). Plumbing should face the rear plumbing (14). and parallel with tank.

# **ADMIX SYSTEMS** 6-16. LIQUID ADMIX TANKS MAINTENANCE (LOW-FLOW) (Continued). LOCATION/ITEM **ACTION REMARKS** B. INSTALLATION (Continued) 14. Air valve and plumbing Install at nipple (3). components. 15. Filler cap (4). Install. Install at nipple (5). 16. Air gage and Regulator (8). LEGEND: HOSE SWIVEL NUT NIPPLE FILLER CAP NIPPLE STRAP (2) SWIVEL NUT AIR GAUGE & REGULATOR HOSE FITTING 10. STRAINER 11. NIPPLE LOCKNUT (4) 12. 13. BOLT (4) LOWER PLUMBING SWIVEL NUT 16. **TANK** MOUNTING PADS 12,13 TA 076264

# 6-16. LIQUID ADMIX TANKS MAINTENANCE (LOW-FLOW) (Continued).

LOCATION/ITEM ACTION REMARKS

#### B. INSTALLATION (Continued).

17. Mounting pads (17) and straps (6).

18. Tank (16).

19. Four bolts (13) and locknuts (12).

20. Lower plumbing (14).

21. Strainer (10).22. Swivel nut (15).23. Swivel nut (7).

24. Hose fitting (9).25. Swivel nut (2).

26. Sight gage.

Position on tank.

Install in vehicle.
Install and tighten.

Revolve clockwise until valves are accre ible and tight.

Install. Install. Install. Install. Install.

Install. Refer to pa 6-9.

# C. CHECKING FOR LEAKS.

27. Tank (16).

- a. Fill (me TM 5-3895372-10).
- b. Pressurize (see TM 5-3895-372-10).
- c. Check for air or liquid leaks

# 6-16. LIQUID ADMIX TANKS MAINTENANCE (LOW-FLOW) (Continued).

LOCATION/ITEM **ACTION REMARKS** LEGEND: 1. HOSE 2. SWIVEL NUT 3. NIPPLE FILLER CAP NIPPLE STRAP (2) SWIVEL NUT AIR GAUGE & REGULATOR **HOSE FITTING** STRAINER 10. **NIPPLE** 11. LOCKNUT (4) 12. BOLT (4) 13. LOWER PLUMBING SWIVEL NUT 15. 16. TANK 17. MOUNTING PADS -12,13 TA 076265

#### 6-17. AIR RELIEF VALVE MAINTENANCE AND ADJUSTMENT.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5)b. Disassembly. (10)c. Inspection. (5)d. Assembly. (10)e. Installation. (5)f. djustment. (10)

45 Minutes Total.

**INITIAL SETUP EQUIPMENT** 

CONDITION PARAGRAPH

CONDITION DESCRIPTION TM 9-2320-273-10. Air Pressure Drained. TM 5-3895-372-10. Air Valve Shut Off.

**APPLICABLE CONFIGURATIONS** 

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

Liquid Teflon (See Appendix C).

PERSONNEL REQUIRED

One (MOS-62B20).

SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

REFERENCES (TM)

TM 5-3895372-10. TM 5-3895372-20P.

TM 9-2320-273-10.

**GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 6-1.

# 6-17. AIR RELIEF VALVE MAINTENANCE AND ADJUSTMENT (Continued).

LOCATION/ITEM ACTION REMARKS

# A. REMOVAL.

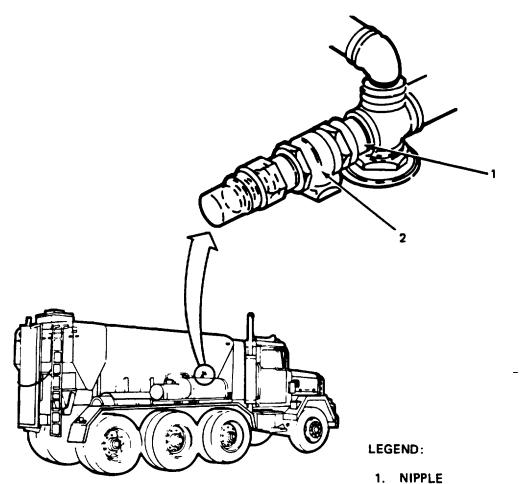
# NOTE

The following procedure may be used for both liquid admix tank air relief valves. Make certain that the air shutoff valve is closed and pressure is drained from liquid admix tanks before proceeding.

1. Air relief valve (2).

Remove from nipple (1).

Place in vise.



2. AIR RELIEF VALVE

TA 078266

#### 6-17. AIR RELIEF VALVE MAINTENANCE AND ADJUSTMENT (Continued).

LOCATION/ITEM **ACTION REMARKS** 

# B. DISASSEMBLY.

2. Acorn cap (3). Remove. 3. Jam nut (5). Loosen.

4. Adjusting screw (4). Remove. Coat threads and note for

installation. 5. Relief body (6). Remove.

6. Spring seat (7). Remove. 7. Spring (8). Remove. 8. Ball (9). Remove.

# C. INSPECTION.

9. Relief valve components. Inspect for:

a. Cracks.

- b. Breaks.
- c. Clogged inlet.
- d. Clogged outlet.
- e. Sediment.
- f. Corrosion.

#### NOTE

Replace relief valve if defective components are found.

# D. ASSEMBLY.

10. Ball (9). Install in housing (10). 11. Spring (8). Install in housing (10).

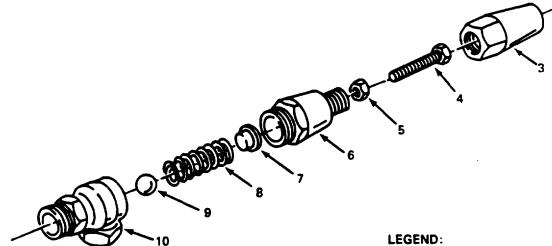
12. Spring seat (7). Install. 13. Relief body (6). Install.

14. Adjusting screw (4). Install. As noted at removal. Do not

tighten jam nut (5).

# 6-17. AIR RELIEF VALVE MAINTENANCE AND ADJUSTMENT (Continued).

**ACTION** LOCATION/ITEM **REMARKS** 



- 3. ACORN CAP
- 4. ADJUSTING SCREW
- 5. JAM NUT
- 6. RELIEF BODY
- 7. SPRING SEAT
- 8. SPRING
- 9. BALL
- 10. HOUSING

TA 076267

# 6-17. AIR RELIEF VALVE MAINTENANCE AND ADJUSTMENT (Continued).

LOCATION/ITEM **ACTION REMARKS** 

15. Relief valve (2). Install on nipple (1). Coat threads with liquid teflon.

# F. ADJUSTMENT.

#### NOTE

The following adjustment procedure pertains to both relief valves. Each valve must be adjusted individually with the other system shut-off valve closed.

16. Mixer body. Start-up (see TM 3895372-Allow vehicle to reach oper-10 and TM 9-2320-273-10). ating pressure. 17. Air hutoff valve (13). Open. 18. Acor cap (3). Remove. If not removed in disassembly

19. Jam nut (11). Loosen.

20. Regulator handle (12). Turn until gage reads 1820

psi (124-138 kPa).

21. Jam nut (5). Loosen. If not loosened in disassembly

22. Adjusting screw (4). Turn until valve begins to Turn in to increas pressure. Turn out to decrease pressure.

vent.

23. Jam nut (5). Tighten securely.

24. Regulator handle (12). Turn until gage reads 141/2 -Relief valve should stop vent-15½ psi (100 107 kPa). ing when pressure drops below

18-20 psi (124-138 kPa).

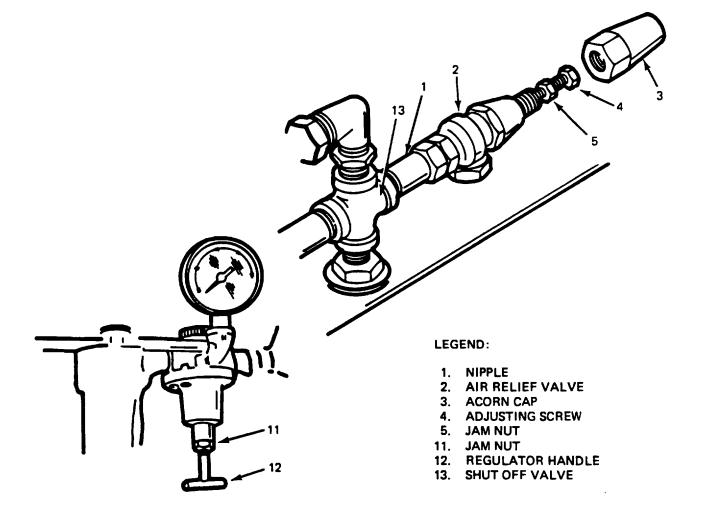
Tighten securely. 25. Jam nut (1 1).

26. Acorn cap (3). Install and tighten securely. 27. Mixer body. Shut-down (see TM 9-2320-

273-10 and TM 5-3895-372-10).

# 6-17. AIR RELIEF VALVE MAINTENANCE AND ADJUSTMENT (Continued).

LOCATION/ITEM ACTION REMARKS



TA 076268

#### 6-18. ADMIX INJECTOR MAINTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5)b. Installation. (5)c. Operational Check. (5)

15 Minutes Total.

**INITIAL SETUP** 

EQUIPMENT CONDITION PARAGRAPH

**APPLICABLE CNFIGURATIONS** 

ARAGRAPH
TM 5-3895-372-10.

CONDITION DESCRIPTION
Liquid Admix System
Filled and Pressurized.

APPLICABLE CONFIGURATIONS

M919.

TEST EQUIPMENT

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (PIN)

Liquid Teflon (See Appendix C).

PERSONNEL REQUIRED

SPECIAL ENVIRONMENTAL CONDITIONS
Vehicle Parked on Level Ground.

One (MOS-62B20).

REFERENCES (TM)

GENERAL SAFETY INSTRUCTIONS

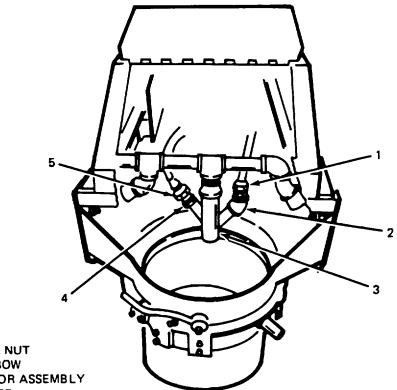
TM 5-3895-372-10. TM 53895372-20P. TM 92320273-10. Engine Off.
Transmission in Neutral.
Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 6t.

# 6-18. ADMIX INJECTOR MAINTENANCE (Continued).

LOCATION/ITEM **ACTION REMARKS** 



LEGEND:

- 1. SWIVEL NUT
- 2. 45° ELBOW
- 3. INJECTOR ASSEMBLY
- 4. ADAPTER
- 5. SWIVEL NUT

TA 076269

### 6-18. ADMIX INJECTOR MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

# A. REMOVAL.

1. Swivel nut (1). Remove.

2. Swivel nut (5). Remove.

3. Injector assembly (3). Remove.

4. Adapter (4). Remove.

5. 450 elbow (2). Remove.

#### B. INSTALLATION.

6. 450° elbow (2). Install. Coat threads with liquid teflon.

7. Adapter (4). Coat threads with liquid teflon.

8. Injector assembly (3). Install. Coat with liquid teflon.

9. Swivel nut (5). Install.

10. Swivel nut (1). Install.

# C. OPERATIONAL CHECK.

11. Air and solution gate valves. Open.

12. Flowmeters. Set to 5.8 gallons per minute approximately.

13. Quick opening valve. Open.

a. Check for leaks at hose

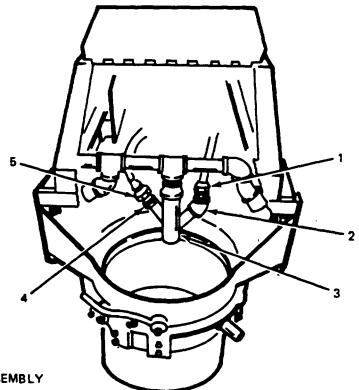
joints.

b. Check that admix solution flows freely.

6-60

# 6-18. ADMIX INJECTOR MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS



#### LEGEND:

- 1. SWIVEL NUT
- 2. 45° ELBOW
- 3. INJECTOR ASSEMBLY
- 4. ADAPTER
- 5. SWIVEL NUT

TA 076270

#### 6-19. DRY ADMIX BIN MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5)b. Disassembly. (30)c. Cleaning and Inspection. (10) d. Assembly. (30)e. Installation. (5)f. Test. (10)

90 Minutes Total.

**INITIAL SETUP** 

**EQUIPMENT** CONDITION <u>PARAGRAPH</u> TM 538372-10.

**CONDITION DESCRIPTION** 

Bin Empty.

**APPLICABLE CONFIGURATIONS** 

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALSIPARTS (P/N)

Marking Pen. Masking Tape.

PERSONNEL REQUIRED

SPECIAL ENVIRONMENTAL CONDITIONS One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM)

TM 5-3895-372-20P.

TM -3w895-372-10r. TM 9-2320-273-10.

**GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 6-1.

#### 6-19. DRY ADMIX BIN MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

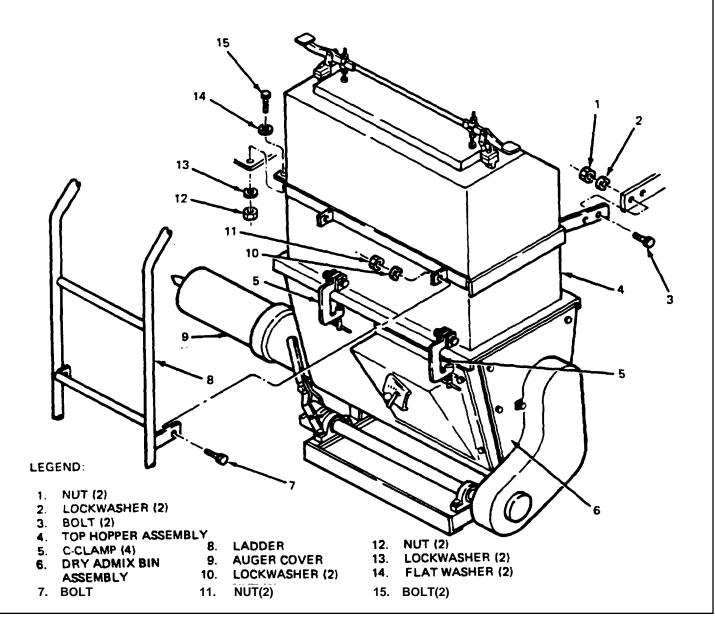
## A. REMOVAL.

#### NOTE

Support the dry admix bin (6) and the top hopper assembly (4) before performing the following steps.

1. Four C-clamps (5).

Unclamp and swing upwards out of the way.



# 6-19. DRY ADMIX BIN MAINTENANCE (Continued). LOCATION/ITEM ACTION REMARKS

## A. REMOVAL (Continued).

2. Dry admix bin assembly (6).

Lower slightly to unseat from Top hopper assembly (4). Slide to right to disengage auger and auger cover (9) from vehicle and remove dry admix bin assembly (6).

3. Two bolts (7), two lockwashers (101 and two nuts (11).

Remove from ladder (8).

4. Two bolts (15), two flat washers (14), two lockwashers (13), and two nuts (12).

Remove

5. Two bolts (3), two lockwashers (2), and two nuts (1).

Loosen and remove top hopper assembly (4).

# 6-19. DRY ADMIX BIN MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** 15 LEGEND: 1. NUT (2) LOCKWASHER (2) BOLT (2) TOP HOPPER **ASSEMBLY** 9. AUGER COVER C-CLAMP (4) DRY ADMIX BIN 10. LOCKWASHER (2) 11. NUT (2) ASSEMBLY 7. BOLT (2) 14. FLAT WASHER (2) 12. NUT (2) 15. BOLT (2) 8. LADDER 13. LOCKWASHER (2) TA 076272

LEGEND:

17. COVER

16. CAPSCREW AND

LOCKWASHER (3)

# 6-19. DRY ADMIX BIN MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** B. DISASSEMBLY. 6. Three capscrews and lockwashers (16). Remove. 7. Cover 17. Remove.

TA 076273

# 6-19. DRY ADMIX BIN MAINTENANCE (Continued). **ACTION** LOCATION/ITEM **REMARKS** B. DISASSEMBLY (Continued). 8. Four screws (21) and Loosen and remove side cover four lockwashers (20). (26) from dry admix bin (18). 9. Two gaskets (27) and Remove from side cover (26). Replace if necessary. gasket (19). 10. Screw (22), lockwasher Loosen and remove from side (23), flat washer (25) cover (26). and knob (24). LEGEND: 18 **DRY ADMIX BIN** 19 GASKET LOCKWASHER (4) 20 21 SCREW (4) 22 **SCREW** 23 **LOCKWASHER** KNOB FLAT WASHER 25 SIDE COVER 26 27 GASKET (2) 26 25 TA 076274

#### 6-19. DRY ADMIX BIN MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

# B. DISASSEMBLY (Continued)

#### NOTE

Tag chains to aid in reassembly. Chains are of different lengths.

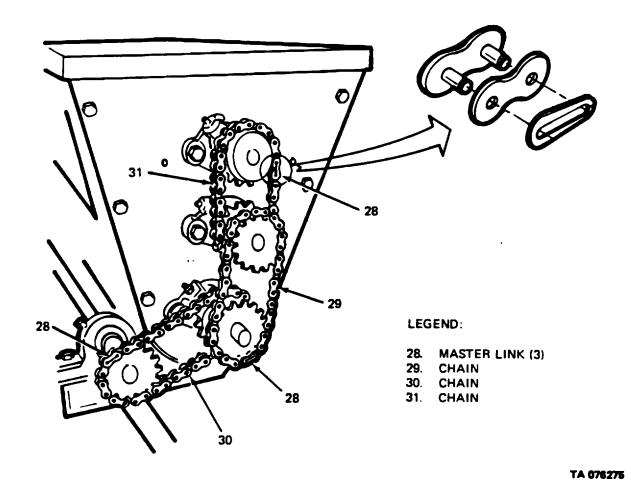
11. Three master links (28).

Remove.

12. Three chains (29, 30,

Remove.

and 31).



6-19. DRY ADMIX BIN MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** B. DISASSEMBLY (Continued). I 13. Six setscrews (32). Loosen. 14. Six sprockets (33). Remove. Pry apart with a tapered tool. 15. Four keys (34). Remove. Mark keys for assembly. 16. Three lubrication fittings (35). Remove. 33 Ø 35, LEGEND: SETSCREW (6) **32**. **33**. SPROCKET (6) 34. **KEY (4) 35**. LUBRICATION FITTING (3) 33 TA 076771

#### 6-19. DRY ADMIX BIN MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### B. DISASSEMBLY (Continued).j

17. Ten screws (36), ten lockwashers (37), and ten flat washers (38).

Remove.

18. Five collars (46) and ten set screws (45).

Loosen ten setscrews (45), remove five collars (46), and five flange bearings (44).

19. Two lubrication fittings (50).

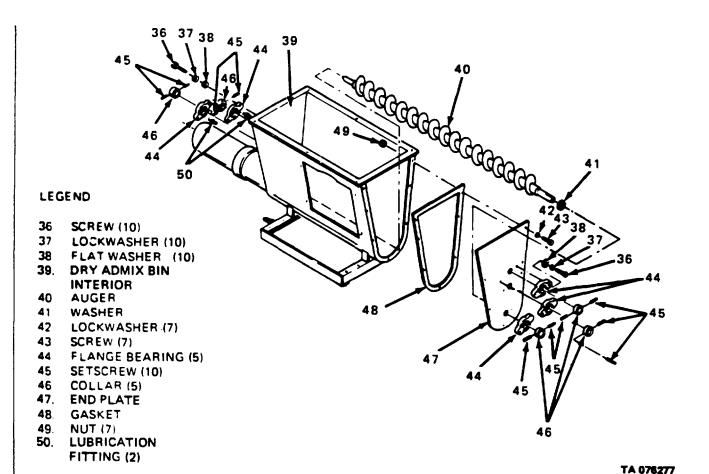
20. Seven screws, 43, seven lockwashers (42), and seven

nuts (49).

Remove.

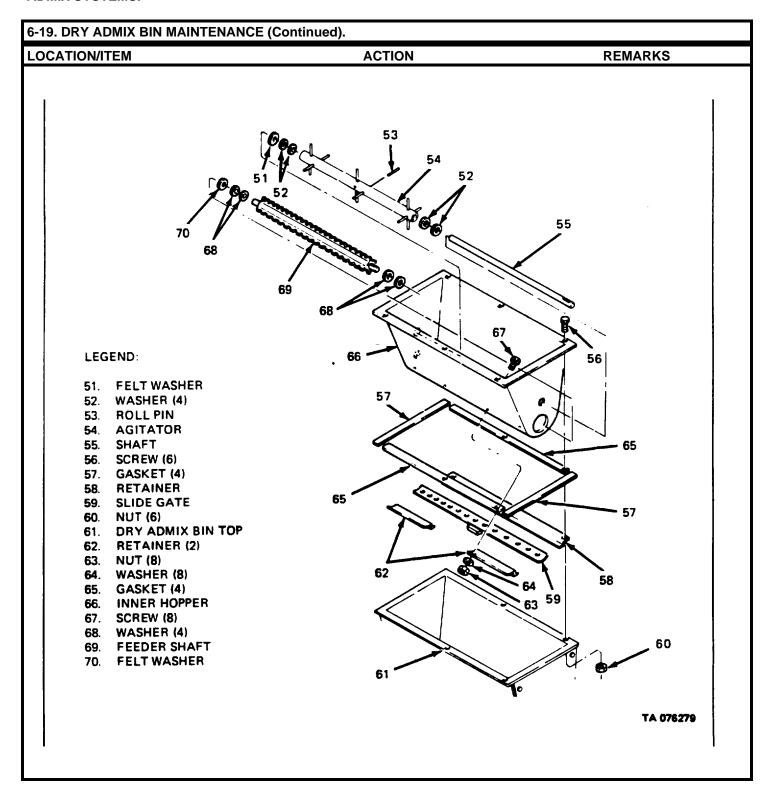
Loosen and remove end plate (47), and gasket (48).

21. Auger (40). Remove from dry admix bin interior (39).

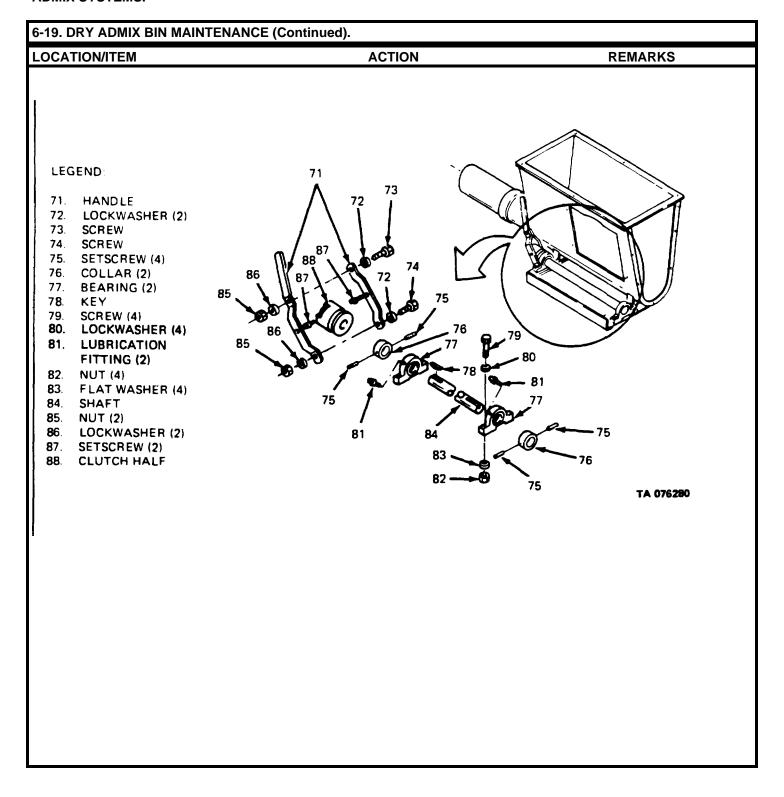


#### 6-19. DRY ADMIX BIN MAINTENANCE (Continued). **ACTION** LOCATION/ITEM **REMARKS** B. DISASSEMBLY (Continued). 22. Roll pin (53). Remove. 23. Shaft (55). Remove. Remove from sprocket end while supporting agitator (54). 24. Agitator (54). Remove. Mark for right and left side. 55 68 69 68 LEGEND: 66 51. **FELT WASHER 52**. WASHER (4) **ROLL PIN 5**3. **AGITATOR** 54. 55. SHAFT 65 SCREW (6) **56**. **57**. GASKET (4) 58. RETAINER 65 **SLIDE GATE** 59. 60. **NUT (6)** 57 **DRY ADMIX BIN TOP** 61. RETAINER (2) 62. **NUT (8)** 63. 64. WASHER (8) 58 65. GASKET (4) **INNER HOPPER** 67. SCREW (8) 68. WASHER (4) 69. **FEEDER SHAFT** FELT WASHER 70. TA 076278

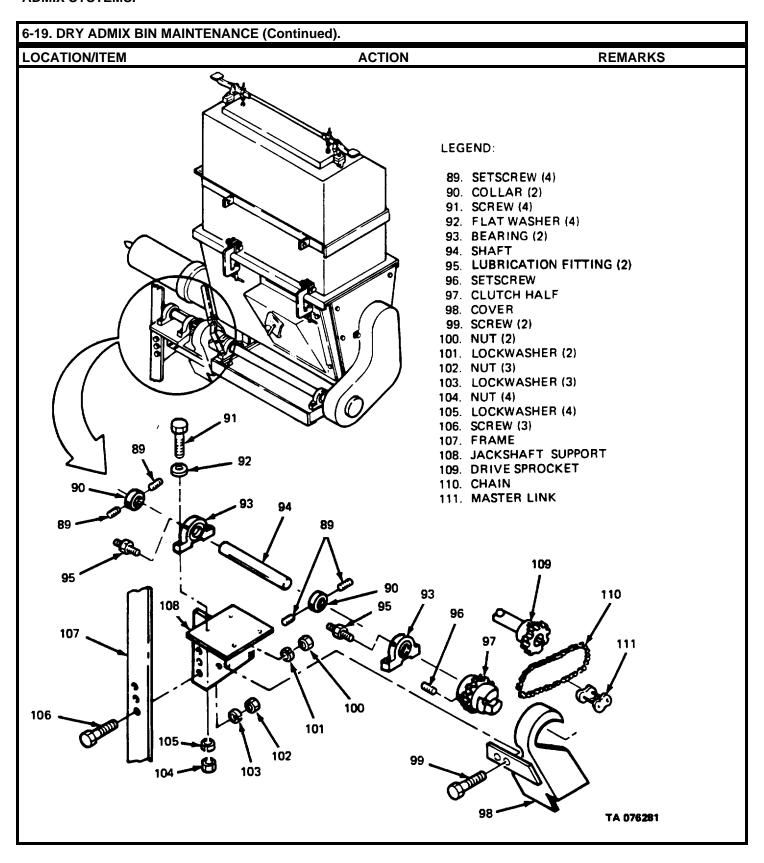
LOCATION/ITEM		ACTION	REMARKS
B. DISASSEMBLY (Continued).			
25.	Felt washer (51), and four washers (52).	Remove from inner hopper (66).	
26.	Feeder shaft (69).	Remove.	
7.	Four washers (68), and felt washers (70).	Remove.	
3.	Six screws (56), and nuts (60).	Loosen and remove screws and nuts. Lift inner hopper (66), from dry admix bin (61).	
9.	Four gaskets (57) and four gaskets (65).	Remove if ton.	
0.	Eight screws (67), eight lockwashers (64), and eight nuts (63).	Remove.	
1.	Retainer (58), two retainers (62), and slide plate (59).	Remove.	



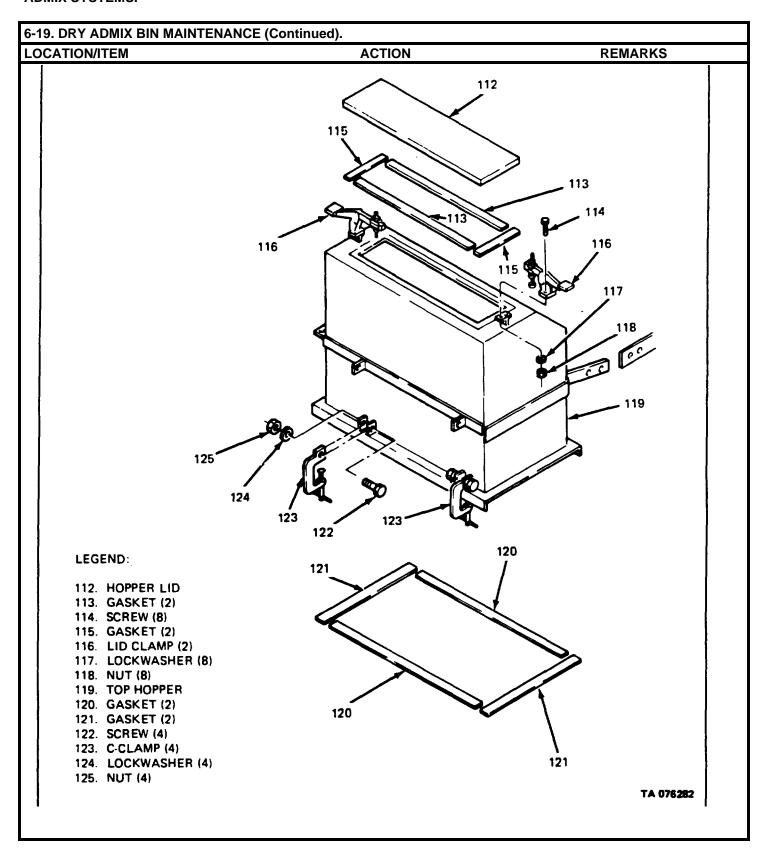
LOCA	ATION/ITEM	ACTION	REMARKS
B. DISASSEMBLY (Continued).			
32.	Four screws (79), four lockwashers (80), four flat washers (83) and four nuts (82).	Remove.	
33.	Two screws (73 and 74), two lockwashers (72), two lockwashers (86) and two nuts (85).	Remove handle (71).	
34.	Clutch half (88) and key (78).	Remove.	
35.	Two setscrews (87).	Remove.	
36.	Two lubrication fittings (81).	Remove.	
37.	Four set screws (75), two collars (76), and two bearings (77).	Remove from shaft (84).	Clean and polish shaft



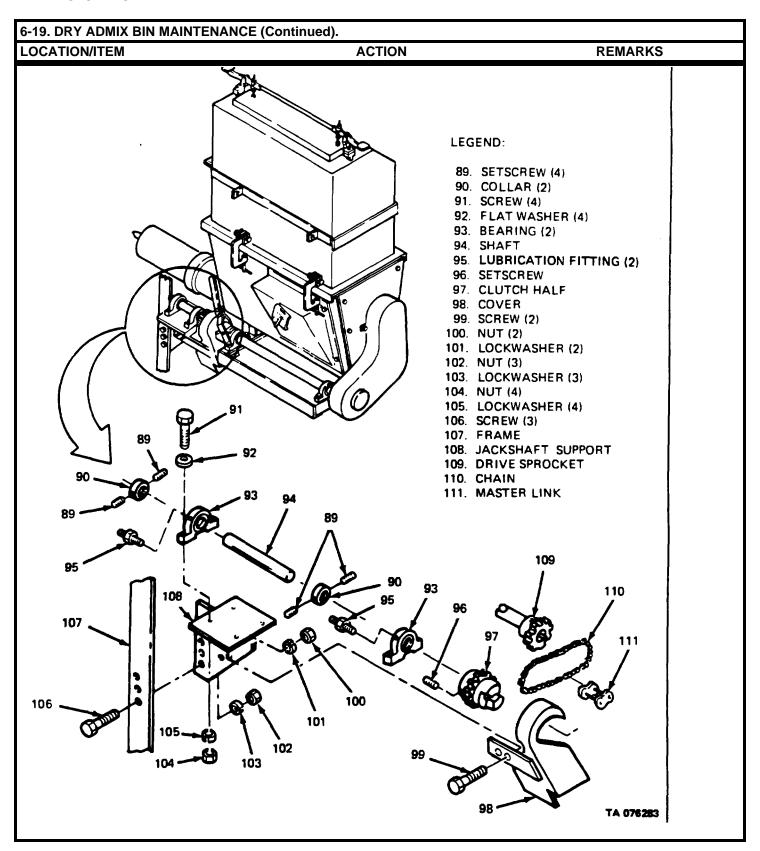
LOCA	ATION/ITEM	ACTION	REMARKS
В. С	DISASSEMBLY (Continued).		
38.	Master link (111) and chain (110). (109 and clutch half (97).	Remove from chain (110); chain from drive sprocket	Mark chain to aid assembly.
39.	Two screws (99), lock-washers (101, nuts (100), and setscrew (96).	Unscrew and remove cover (98) and clutch half (97).	
40.	Four setscrews (89), four screws (91), flat washers (92), lockwashers (105) and nuts (104).	Loosen set screws (89) and remove two collars (90).	
41.	Two bearings (93) and lubrication fittings (95). lubrication fittings (95) from bearings (93).	Remove bearings (93) from shaft (94); remove	Clean and polish shaft.
42.	Three screws (106), lockwashers (103), and nuts (102).	Unscrew and remove jackshaft support (108) and frame (107).	



6-19.	6-19. DRY ADMIX BIN MAINTENANCE (Continued).				
LOCA	ATION/ITEM	ACTION	REMARKS		
В.	DISASSEMBLY (Continued)I				
43.	Eight screws (114), lock-washers (117) and nuts (118).	Loosen and remove two lid clamps (116).			
44.	Hopper lid (112).	Lift from top hopper (119).			
45.	Two gaskets (113), and two gaskets (115).	Remove if necessary.			
46.	Four screws (122), lock-washers (124), and nuts (125).	Loosen and remove four C-clamps (123).			
47.	Two gaskets (120), and two gaskets (121).	Remove if necessary.			
C.	CLEANING AND INSPECTION.				
48.	All metal parts. broken welds, rust and broken pieces.	lean and inspect for cracks, required.	Paint, weld or replace as		
49.	All bearings.	Check for roughness and looseness.	Replace as required.		
D.	ASSEMBLY.				
50. (115).	Two gaskets (112) and removed during disassembly.	Install in hopper lid (112) if			
51.	Hopper lid (112).	Install on top hopper (119).			
52.	Two lid clamps (116).	Position lid clamps (116), and secure with eight screws (114), lockwashers (117) and nuts (118).			
53.	Four C-clamps (123).	Aline C-clamps and secure with four screws (122), lockwashers (124), and nuts (125).			
54.	Two gaskets (120) and 121).	Install if removed during disassembly.			
	anu 121).	assembly.			



# 6-19. DRY ADMIX BIN MAINTENANCE (Continued). LOCATION/ITEM **REMARKS ACTION** D. ASSEMBLY (Continued). Position to frame (107) and 55. Jack shaft support (108). secure with three screws (106), lockwashers (101), and nuts (102). 56. Two bearings (93) and Position on shaft (94). Position bearing (93) over two collars (90) holes in jack shaft support (108) and install four screws (91), flat washers (92), lockwashers (105), and nuts (104).57. Clutch half (97). Install and secure with set screw (96). 58. Four setscrews (89) and Install. two lubrication fittings /95). 59. Chain (11 0). Position chain (110) on clutch half (97), and drive sprocket (109). Secure with master link (111). 60. Cover (98). Position cover (98), and install two screws (99), lockwashers (101), and nuts (100).



#### 6-19. DRY ADMIX BIN MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### D. ASSEMBLY (Continued).

61. Two lubrication fittings (81). Install.

62. Two bearings (77), and Position on shaft (84) collars (76). and install four screws (79), lockwashers (80), flat washers (83) and

nuts (82).

63. Clutch half (88). Install with key (78), on

shaft (84).

64. Four set screws (75). Install.

65. Two Setscrews (87). install and adjust to fit in groove of clutch half (88).

66. Handle (71). Position on clutch half (88), and install two screws

(73 and 74), four lockwashers (72 and 86), and

two nuts (85).

#### LEGEND:

71. HANDLE

72. LOCKWASHER (2)

73. SCREW

74. SCREW

75. SETSCREW (4)

76. COLLAR (2)

77. BEARING (2)

78. KEY

79. SCREW (4)

80. LOCKWASHER (4)

81. LUBRICATION FITTING (2)

82. NUT (4)

83. FLAT WASHER (4)

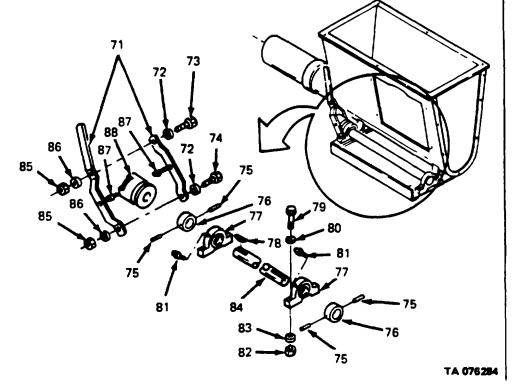
84. SHAFT

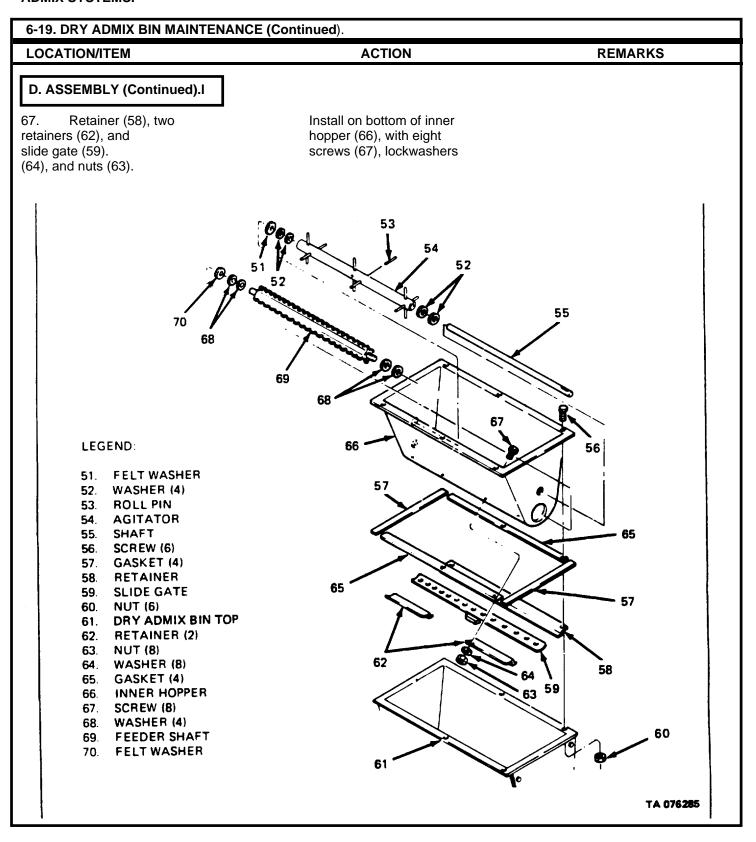
85. NUT (2)

86. LOCKWASHER (2)

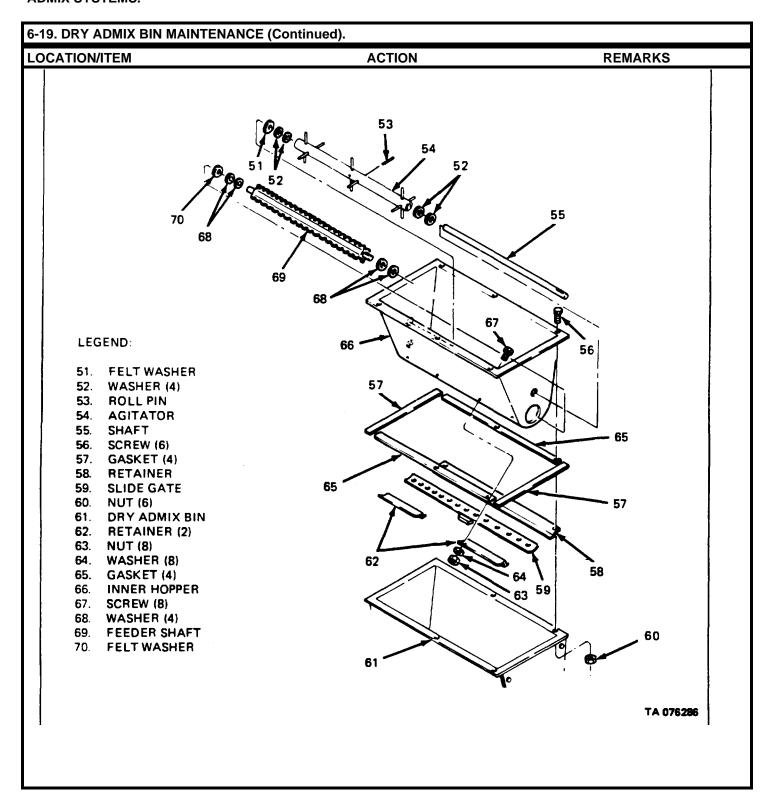
87. SETSCREW (2)

88. CLUTCH HALF





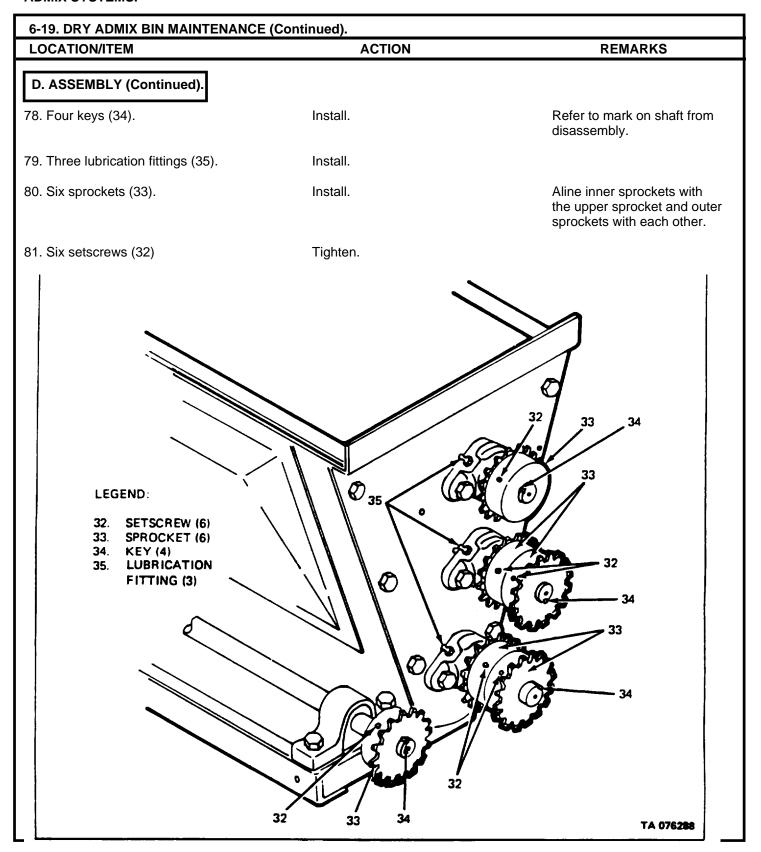
D. ASSEMBLY (Continued).		ACTION	REMARKS	
68.	Four gaskets (57) and four gaskets (65). during disassembly.	Install on bottom edge of inner hopper (66), if removed	Two each side.	
69.	Inner hopper (66).	Install with six screws (56), and six nuts (60) to dry admix bin top (61).		
70.	Felt washer (70), four washers (68), and feeder shaft (69).	Position felt washer (70), and two washers (68) on feeder shaft (69). Install feeder shaft (69) and two washers (68).	Support feeder shaft so that it stays level.	
71.	Felt washer (51), four washers (52), and agitator (54).	Position in inner hopper (66) and drive shaft (55) thru inner hopper (66), two washers (52), agitator (54), two washers (52), inner hopper (66).	felt washer (51), and	
72.	Roll pin (53).	Aline holes in agitator (54) and shaft (55). Install roll pin (53).		



TA 076287

**LUBRICATION FITTING (2)** 

#### 6-19. DRY ADMIX BIN MALNTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** D. ASSEMBLY (Continued). 73. Auger (40). Install. 74. Washer (41). Install on sprocket end of auger (40). 75. Gasket (48), and Position on dry admix bin interior (39) over shafts and inplate (47). stall seven screws (43), lockwashers (42), and nuts (49). 76. Five flange bearings Position and install ten screws (44) and two lubrication (36), lockwashers (37), and flat fittings (50). washers (38). Install two lubrication fittings (50) in the two bearings (44) on left end of dry admix bin interior (39). 77. Five collars (46) and Install collars (46), against bearings (44) and tighten setscrews (45). ten set screws (45). 37 38 40 Coccoccio de la coccio della coccio de la coccio de la coccio de la coccio della coccio della coccio de la coccio della co 50 LEGEND: **SCREW (10)** 36. LOCKWASHER (10) 37. 38. FLAT WASHER (10) 39. DRY ADMIX BIN INTERIOR 40. **AUGER** 48 WASHER 42. LOCKWASHER (7) SCREW (7) 43. **FLANGE BEARING (5)** 44. SETSCREW (10) 45. 46. COLLAR (5) **END PLATE** 47. GASKET 48. 49. **NUT (7)**



# 6-19. DRY ADMIX BIN MAINTENANCE (Continued). **ACTION** LOCATION/ITEM **REMARKS** D. ASSEMBLY (Continued). | 82. Three chains (29, 30, Install. Install as marked during disand 31). assembly. Install inner chains 83.and 31). .first. 83. Three master links (28). Connect chains. 28 LEGEND: 28. MASTER LINK (3) CHAIN 29. **30**. CHAIN 31. CHAIN TA 076289

TA 076290

#### **ADMIX SYSTEMS.**

#### 6-19. DRY ADMIX BIN MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

# D. ASSEMBLY (Continued).

84. Screw (22), lock washer (23), flat washer (25), and knob (24).

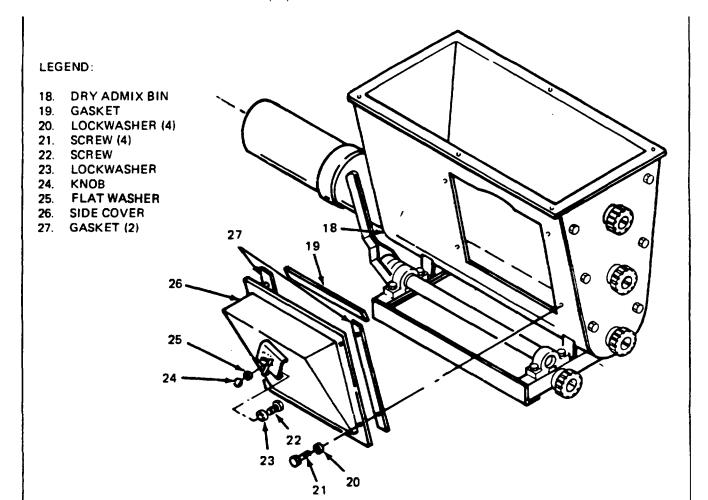
Install screw (22) and lock washer (23), thru back side of indicator on side cover. Position flat washer (25) on screw (22), and install knob (24).

85. Two gaskets (27), and gasket (19).

Install on side cover (26).

86. Side cover (26).

Position side cover (26), on dry admix bin (18), and install four screws (21), and lock washers (20).



# 6-19. DRY ADMIX BIN MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

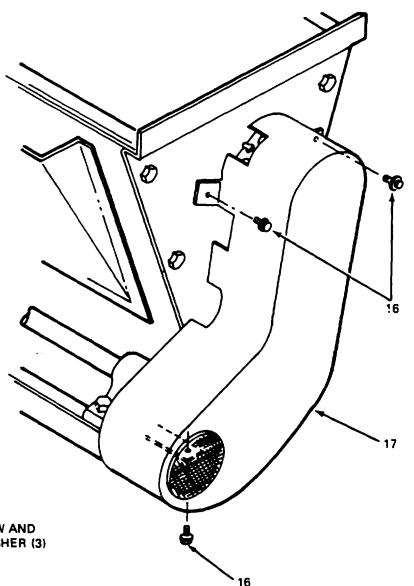
# D. ASSEMBLY (Continued).

87. Cover (17).

88. Three cap screws and washers (16).

Set in place.

Install and tighten.



LEGEND:

16. CAPSCREW AND LOCKWASHER (3)

17. COVER

TA 076291

# 6-19. DRY ADMIX BIN MAINTENANCE (Continued). **ACTION REMARKS** LOCATION/ITEM E. INSTALLATION. 89. Top hopper (4). Position top hopper (4), and install four bolts (3 and 15), two flat washers (14), four lockwashers (2 and 13), and four nuts (1 and 12). 15 LEGEND: NUT (2) LOCKWASHER (2) 3. BOLT (2) TOP HOPPER 8. LADDER NUT (2) 12. 5. C-CLAMP (4) 9. AUGER COVER 13. LOCKWASHER (2) 6. DRY ADMIX BIN 10. LOCKWASHER (2) 14. FLAT WASHER (2) 7. BOLT (2) 11. NUT (2) 15. BOLT (2) TA 076292

# 6-19. DRY ADMIX BIN MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

# E. INSTALLATION (Continued).

90. Ladder (8). Position and install two bolts

(7), lock washers (10), and

nuts (11).

91. Dry admix bin assembly Insert auger cover (9) first, (6), and four C-clamps (5). then raise and push the dry

admix bin assembly (6), to the left and seat against top hopper (4) and clamp in place

with four C-clamps (5).

# ADMIX SYSTEMS. 6-19. DRY ADMIX BIN MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** 15 LEGEND: NUT (2) LOCKWASHER (2) 2. 8. LADDER 3. BOLT (2) 9. AUGER COVER TOP HOPPER 10. LOCKWASHER (2) 5. C-CLAMP (4) 41. NUT (2) 6. DRY ADMIX BIN ASSEMBLY 14. FLAT WASHER (2) 12. NUT (2) 7. BOLT (2) 13. LOCKWASHER (2) 15. BOLT (2) TA 076293

#### ADMIX SYSTEMS.

# 6-19. DRY ADMIX BIN MAINTENANCE (Continued).

LOCATION/ITEM **ACTION REMARKS** 

#### F. TEST.

#### **NOTE**

Due to the wide variation of weights of the materials and the amounts required, the calibration must be made with the materials to be used. In order to calibrate the exactorate system, the sand, stone, and cement bin on the mixer must be empty. The clutch operating the cement metering wheel must be engaged. When calibrating, the mixer must be operating at its regular speed, refer to TM 5-3895-372-10.

92. Top hopper. Fill with material to be used. Indicator dial. Place in half open position. 93.

#### **NOTE**

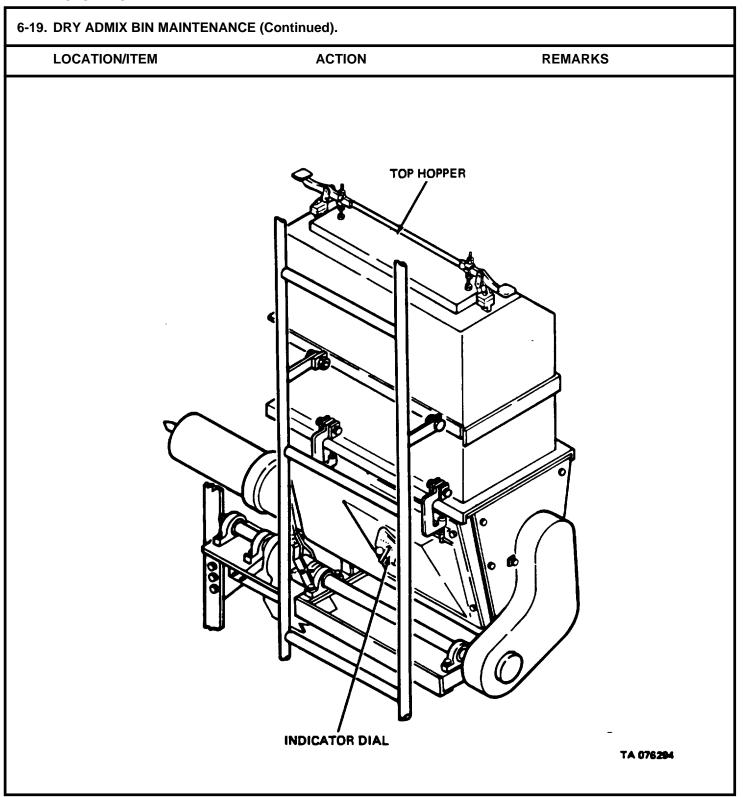
Prepare an empty container to catch the material as it falls from the belt. Weigh container before using.

94. Mixer. Place in operation Run off enough material to TM 5-3895372-10. give a true weight when start-

ing to calibrate. Catch the material in container as it

drops off belt

# **ADMIX SYSTEMS.**



#### **ADMIX SYSTEMS.**

# 6-19. DRY ADMIX BIN MAINTENANCE (Continued).

	LOCATION/ITEM	ACTION	REMARKS
F.	TEST (Continued).		
95.	Cement meter register.	Use count as shown in TM 53895372-10 to deliver 1 bag of cement.	Multiply this count by 4.
96.	Container with material.	Weigh.	Deduct the weight of the container to obtain material weight only.
97.	Material weight.	Divide by 4.	This is then the amount of material being delivered for each bag of cement used.

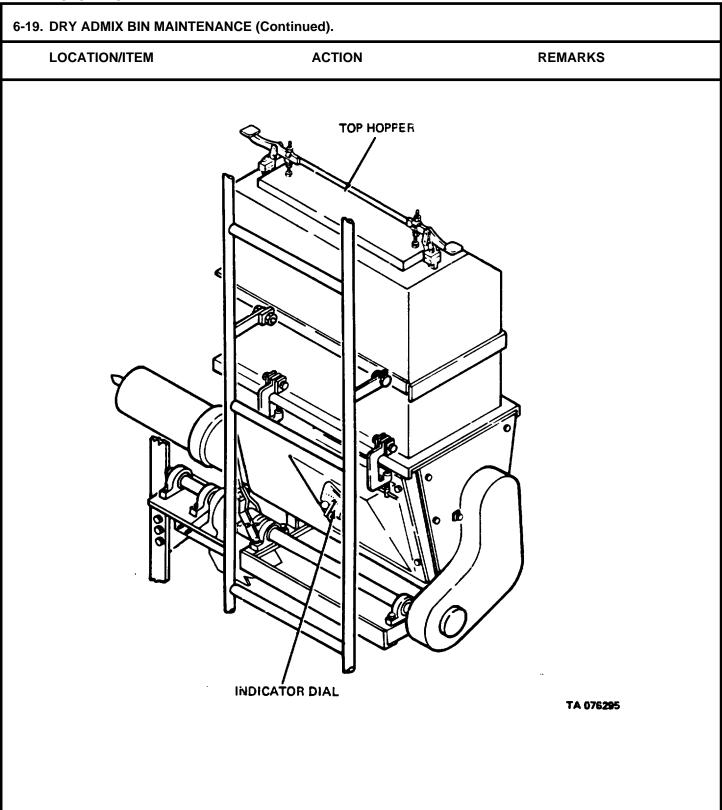
#### NOTE

Do this at various settings on the indicator dial as required by the amount of material to be used in the mix.

#### **EXAMPLE:**

The metering wheel on the mixer is 66. Four (4) times 66 equals 264 count on the meter. Discharge this amount in the container at the exactorate dial setting selected, weigh container and material, deduct the weight of the container and divide by 4. This will give you the amount of material per bag of cement. Repeat at various settings as often as required to determine amounts to be discharged per bag of cement.

The exactorate system may also be calibrated by using the time required to discharge one (1) bag of cement. The time will be shown in front of the manual. This method is not as accurate as the 4 bag method previously described.



# **CHAPTER 7**

#### AGGREGATE SUPPLY SYSTEM

# 7-1. OVERVIEW.

This chapter provides you with the following information related to aggregate supply system maintenance.

- a. All required special tools and equipment.
- b. Troubleshooting procedures.
- c. Maintenance procedures.

# Section I EPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

# 7-2. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

# 7-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

The special tools, TMDE, and support equipment for aggregate supply system maintenance procedures described in this chapter are limited to gate opening gage, 3 x 3 x 8 in. (76 x 76 x 203 mm). (Refer to Organizational Maintenance RPSTL, TM 5-3895-372-20P for tool description and illustration.)

# 7-4. SPARES AND REPAIR PARTS.

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools List covering Organizational Maintenance for this equipment (TM 5-3895-372-20P).

# Section II TROUBLESHOOTING

# 7-5. INTRODUCTION.

Troubleshooting procedures for the aggregate supply system are given in table 7-1. It is arranged by malfunctions, in the following order:

- a. Conveyor belt does not move (Malfunction No. 1).
- b. Conveyor belt is loose (Malfunction No. 2).
- c. Conveyor belt is torn or damaged (Malfunction No. 3).
- d. Sand or stone drops on ground beneath Concrete Mobile during mixing (Malfunction No. 4).
- e. Sand or stone controls out of adjustment (Malfunction No. 5).
- f. Excessive wear on chains (Malfunction No. 6).

Table 7-1. Aggregate Supply System Troubleshooting Procedures.

#### **TEST OR INSPECTION**

# **CORRECTIVE ACTION**

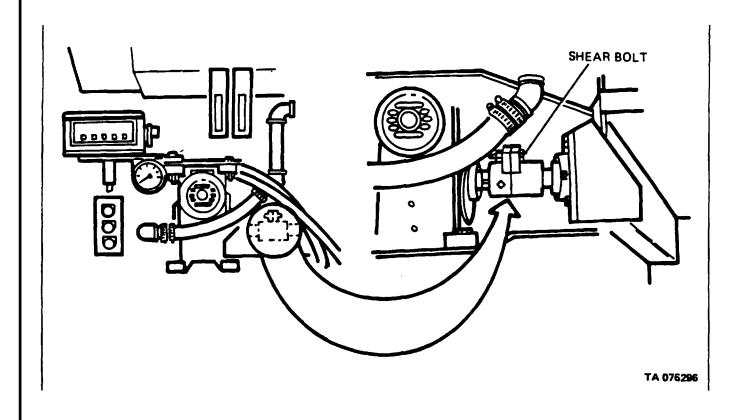
# 1. CONVEYOR BELT DOES NOT MOVE:

- Step 1. Check that PTO and main clutch are engaged. Engage PTO and main clutch.
- Step 2. Check for broken shear bolt.

#### NOTE

A broken bolt is caused by some other problem. Often something is caught on the belt or chain. Unless you correct this problem, shear bolts will continue to break.

- a. Find cause of shearing. Correct problem.
- b. Replace shear bolt.



#### **TEST OR INSPECTION**

# **CORRECTIVE ACTION**

# 1. CONVEYOR BELT DOES NOT MOVE (Continued).

Step 3. Check belt tension (para 7-13).

Adjust.

Step 4. Refer problem to Direct Support Maintenance.

#### 2. CONVEYOR BELT IS LOOSE:

Check belt tensioning bolts for maladjustment.

Adjust bolts (para 7-13).

#### 3. CONVEYOR BELT IS TORN OR DAMAGED:

Step 1. Check belt tension (para 7-13).

Adjust.

- Step 2. Check for material stuck between belt and guides or underneath belt.
  - a. Remove sand and stone from bins.
  - b. Remove:
    - (1) Large stones.
    - (2) Lumps of frozen sand.
    - (3) Wood.
    - (4) Metal.
    - (5) Tools.
  - c. Check belt tension (para 7-13).

Adjust.

Step 3. Check gates for blockage.

Remove blocks. Check gates for smooth operation.

# Table 7-1. Aggregate Supply System Troubleshooting Procedures (Continued).

# **MALFUNCTION**

#### **TEST OR INSPECTION**

# **CORRECTIVE ACTION**

# 3. CONVEYOR BELT IS TORN OR DAMAGED (Continued):

Step 4. Check for 1/16 in. (1.59 mm) clearance between metal guides, and top of belt.

Adjust guides (para 7-10).

Step 5. Check operation of vibrators.

Troubleshoot air system (para 11-5).

- Step 6. Check for damaged cross bars.
  - a. Empty sand and stone bins.
  - b. Operate belt. Use low operating speed.
  - c. As each cross bar passes inspection ports, check for:
    - (1) Bends.
    - (2) Breaks.
    - (3) Twists.
    - (4) Looseness.
    - d. Refer problem to Direct Support Maintenance.
- Step 7. Check for damaged chain.
  - a. Empty sand and stone bins.
  - b. Operate belt. Use low operating speed.
  - c. Check for proper lubrication of chain. (See TM 5-3895-372-10 and LO 5-3895-372-12).
  - d. As each link passes sprocket at rear, check for:
    - (1) Loose crossbars.
    - (2) Crossbars attached to wrong links.
    - (3) Broken links.
  - e. Refer problem to Direct Support Maintenance.

Table 7-1. Aggregate Supply System Troubleshooting Procedures (Continued).

#### **TEST OR INSPECTION**

#### **CORRECTIVE ACTION**

# 3. CONVEYOR BELT IS TORN OR DAMAGED (Continued):

Step 8. Check for bridging or arching in sand and stone bins.

Use clean aggregates for good quality.

(See TM 5-3895-372-10).

#### 4. SAND OR STONE DROPS ON GROUND BENEATH CONCRETE MOBILE DURING MIXING.

Step 1. Check for 1/16 in. (1.59 mm) clearance between metal guides and top of belt.

Adjust metal guides (para 7-10).

Step 2. Check that rubber guides touch belt.

Adjust rubber guides (para 7-9).

Step 3. Check that belt wiper is funneling all material into chute.

Adjust wipers (para 7-11 and 7-12).

#### 5. SAND OR STONE CONTROLS OUT OF ADJUSTMENT:

Step 1. Check that drilled holes on shaft handwheels and pointer collars are aligned.

(See TM 5-3895-372-10).

- a. Loosen collar set screw.
- b. Align holes.
- c. Tighten set crew.
- Step 2. Use Gate Opening Gage to check sand and stone gate openings (See TM 5-3895-372-10). Gates should be open 3 in. (76 mm) when dials read 6.4 + 0.2.

Adjust gate openings.

- Step 3. Check universal joints for:
  - a. Looseness.
  - b. Breakage.
  - c. Alignment of drill holes.

Tighten, align, or replace universal joints (para 7-18).

Table 7-1. Aggregate Supply System Troubleshooting Procedures (Continued).

#### **TEST OR INSPECTION**

# **CORRECTIVE ACTION**

# 5. SAND OR STONE CONTROLS OUT OF ADJUSTMENT (Continued):

Step 4. Check pinion gear for damage.

Refer problem to Direct Support Maintenance.

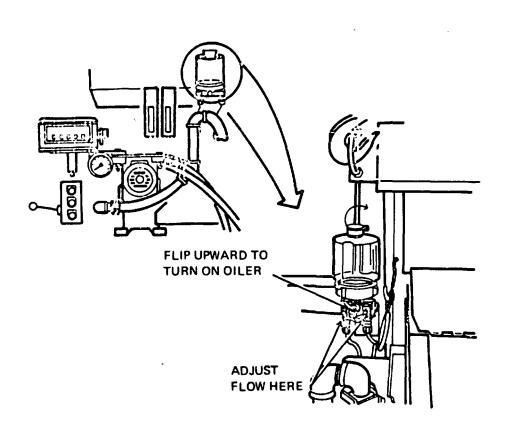
# 6. EXCESSIVE WEAR ON CHAINS:

Step 1. Check chain oiler. It should be full and set to deliver 5 drops/min.

Adjust delivery by turning the square headed screws.

# **NOTE**

Remind operator to turn chain oiler on when he operates conveyor belt.



TA 076297

Table 7-1. Aggregate Supply System Troubleshooting Procedures (Continued).

# **TEST OR INSPECTION**

# **CORRECTIVE ACTION**

# 6. EXCESSIVE WEAR ON CHAINS (Continued):

Step 2. Check for plugged oil lines.

Clean out or replace oil lines.

Step 3. Check for broken chain rail.

Refer problem to Direct Support Maintenance.

# Section III MAINTENANCE PROCEDURES

# 7-6. INTRODUCTION.

This section provides you with Organizational Level maintenance procedures for the aggregate supply system of the mixer body. Paragraph 7-7 summarizes the maintenance tasks. Paragraphs 7-8 thru 7-18 contain detailed instructions for each task.

#### 7-7. AGGREGATE SUPPLY SYSTEM MAINTENANCE TASK SUMMARY.

#### **INITIAL SETUP**

**APPLICABLE CONFIGURATIONS** 

M919.

TM 5-3895372-10. **TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (PIN)

1'/. O.D. x 4 ft Long Pipe.

50 ft Rope (High Strength). Mechanics Wire.

Towing Vehicle.

½ in. x 1 3/4 in. Bolts.

½ in. Nuts.

½ in. Flat Washers.

Fire Extinguisher.

Acetylene Torch.

Razor Knife.

Belt Lacer, NP5010 003 (50663).

Belt Lacer Pin, NP 5010 004 (50663).

Rubber Belt, NP 5028 027 (50663).

Nuts and Bolts, NP5043001 (50663).

Oil - (See Appendix C).

Sand Belt Wiper, NP2887002 (50663).

Stone Belt Wiper, NP2887000 (50663).

Conveyor Belt Assembly, NS3817007 (50663).

Conveyor Chain, NP3817008 (50663).

PERSONNEL REQUIRED

Three (MOS-62B20).

REFERENCES (TM)

TM 5-3895-372-20P.

TM 5-3895-372-10.

TM 9-2320-273-10.

LO 5-3895-372-12.

**REFERENCES (TROUBLESHOOTING)** 

Table 7-1.

EQUIPMENT CONDITION PARAGRAPH

9-9A.

TM 5-3895372-10.

TM 5-3895372-10.

TM 5-3895372-10.

7-14A.

4-10A.

PARAGRAPH CONDITION DESCRIPTION
TM 9-2320-273-10 Engine Running P.T.O. Eng

TM 9-2320-273-10. Engine Running. P.T.O. Engaged.

Screens Open Aggregate

Bins Empty.

TM 5-3895-372-10. Aggregate Bins Empty and

Front Seals Open.

TM 5-3895372-10. Sand and Stone Gates Open.

Cement Bin Clutch Disengaged. Admix Bin Clutch Disengaged.

Mix Auger Assembly Removed.

Conveyor Belt Removed.

Bin Gates Closed. Gate Adjustment.

Access Panels Removed. Universal Joint Removed.

# SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

# **GENERAL SAFETY INSTRUCTIONS**

Parking Brake Set.

Be Extremely Careful to Avoid Moving Parts.

Exhaust System Components Can Cause Severe Burns.

Carbon Monoxide Poisoning Can Be Deadly.

#### 7-7. AGGREGATE SUPPLY SYSTEM MAINTENANCE TASK SUMMARY (Continued). LIST OF TASKS **TASK TASK TASK TROUBLESHOOTING** NO. REF **REF** REF (TABLE) 7-1 1. Screens Maintenance: 7-8 7-8A A. Removal. B. Installation. 7-8B 2. Rubber Guides Maintenance: 7-9 7-1 A. Removal. 7-9A B. Installation. 7-98 7-9C C. Adjustment. 3. Metal Guides and Sand Deflector Maintenance: 7-10 7-1 A. Removal. 7-10A B. Installation. 7-10B C. Adjustment. 7-10C 4. Front Wipers Maintenance: 7-11 7-1 A. Inspection. 7-11A B. Removal. 7-11B C. Installation. 7-11 C 7-1 D D. Adjustment. 7-12 5. Rear Wiper Maintenance: 7-1 A. Removal. 7-12A B. Installation. 7-12B C. Adjustment. 7-12C 6. Conveyor Belt Adjustment: 7-13 7-1 A. Adjustment of belt. 7-13A B. Even tension check. 7-13B

Change 1 7-11

	LIST OF T	ASKS	
TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)
7.	Conveyor Belt Replacement:	7-14	7-1
	A. Removal.		
	B. Installation.	7-14A	
	C. Operational check. D. Removal of broken belt.	7-14B 7-14C	
	D. Removal of broken belt.	7-14C 7-14D	
3.	Conveyor Belt and Belt Lacer: Repair	7-15	7-1
).	Chain Oiler:	7-16	7-1
	A. Removal.	7-16A	
	B. Installation.	7-16A 7-16B	
	C. Operational check.	7-16C	
10.	Sand or Stone Gates Maintenance:	7-17	7-1
10.	A. Removal.	7-17A	1''
	B. Inspection.	7-17B	
	C. Installation.	7-17C	
	D. Adjustment.	7-17D	
11.	Sand and Stone Controls Maintenance:	7-18	7-1
	A. Inspection.	7-18A	
	B. Removal.	7-18B	
	C. Repair.	7-18C	
	D. Installation.	7-18D	

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# 7-8. SCREENS MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.I

a. Removal. b. Installation. (60)

(30)

90 Minutes Total.

**INITIAL SETUP** 

**EQUIPMENT** CONDITION **PARAGRAPH** 

**APPLICABLE CONFIGURATIONS** 

None.

M919

**TEST EQUIPMENT** 

None

**SPECIAL TOOLS** 

None

**MATERIALS/PARTS (P/N)** 

None.

**SPECIAL ENVIRONMENTAL CONDITIONS** 

**CONDITION DESCRIPTION** 

None.

Vehicle Parked on Level Ground.

**REFERENCES (TM)** 

**PERSONNEL REQUIRED** 

One IMOS-62B20).

TM 53895-372-10. TM 5-3895372-20P TM 9-2320273-10.

**GENERAL SAFETY INSTRUCTIONS** 

Engine Off. Transmission in Neutral.

Parking Brake Set.

# **TROUBLESHOOTING REFERENCES**

Table 7-1.

TA 076298

2.

NUT BOLT

WASHER

**REAR SCREEN** 

7. FRONT SCREEN

CENTER SCREEN

# AGGREGATE SUPPLY SYSTEM. 7-8. SCREENS MAINTENANCE (Continued). **ACTION** LOCATION/ITEM **REMARKS NOTE** The following procedure describes removal and installation of the stone bin screens. Sand bin screens are removed in the same manner. Washers (4) are used as spacers and will vary from vehicle to vehicle. When removed, tag so they can be installed in the same location. 10 LEGEND: NUT

**BOLT** 

NUT

11. NUT

12. BOLT

BOLT

10.

7-8.	SCREENS MAINTENANCE (Contin	ued).	
LO	CATION/ITEM	ACTION	REMARKS
A.	REMOVAL.		
1.	Nut (2) and bolt (3).	Remove.	
2.	Nut(1).	Remove.	
3.	Rear screen (5).	Slide off bolt (12) and remove.	
4.	Nut(11).	Remove.	
5.	Bolt (10).	Remove.	
6.	Center screen (6).	Slide off bolt (10) and remove.	
7.	Nut (9).	Remove.	
8.	Bolt (10).	Remove.	
9.	Front screen (7).	Slide off bolt (8) and remove.	
10.	Bolt (8).	Remove.	
B.	INSTALLATION.		
11.	Bolt (8).	Set in place.	
12.	Front screen (7).	<ul><li>a. Slide onto bolt (8).</li><li>b. Support rear side by inserting bolt (10).</li></ul>	
13.	Nut (9).	Screw on and tighten.	
14.	Center screen (6).	<ul><li>a. Slide onto bolt (10).</li><li>b. Support ear side by inserting bolt (12).</li></ul>	
15.	Nut(1 1).	Screw on and tighten.	

# 7-8. SCREENS MAINTENANCE (Continued). ACTION REMARKS LOCATION/ITEM В. **INSTALLATION** (Continued). 16. Rear screen (5). Slide onto bolt (12). a. b. Install and tighten bolt (2) and nut (3). 17. Nut (1). Screw on and tighten. 12 LEGEND: NUT 2. NUT 3. BOLT BOLT WASHER NUT REAR SCREEN 10. BOLT CENTER SCREEN 11. NUT 7. FRONT SCREEN 12. BOLT TA 076299

Change 1 7-17

# 7-9. RUBBER GUIDES MAINTENANCE (Continued).

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10)b. Installation. (10)c. Adjustment. (30)

50 Minutes Total.

INITIAL SETUP

EQUIPMENT CONDITION PARAGRAPH

**CONDITION DESCRIPTION** 

<u>APPLICABLE CONFIGURATIONS</u> TM 5-3895372-10. Screens Open.

Aggregate Bins Empty.

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIAL SIPARTS (PIN)** 

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Two (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

 TM 5-3895-372-10.
 Engine Off.

 TM 5-3895-372-20P.
 Transmission in Neutral.

 TM 9-2320-273-10.
 Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 7-1.

# 7-9. RUBBER GUIDES MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

# **NOTE**

Guide maintenance requires two mechanics, one on each side of the bin wall. For routine adjustment, go directly to procedure C (step 5). Use procedures A and B only if you need to replace a damaged guide.

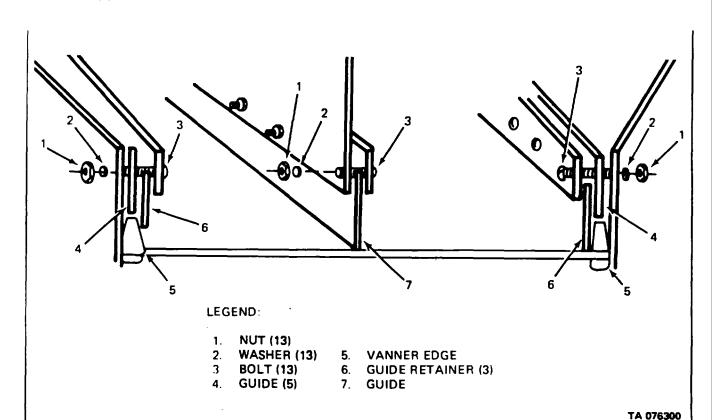
# A. REMOVAL

1. Thirteen nuts (1) and washers (2).

Remove.

2. Thirteen bolts (3), damaged guides (4) and (7) and three guide retainers (6). Remove from bolts (3).

Thirteen bolts are welded to retainer.



# 7-9. RUBBER GUIDES MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### B. INSTALLATION.

3. New guides (4 and 7) three guide retainers (6), and thirteen bolts (3).

Set in place. Push screws on retainer through holes in bin wall.

4. Thirteen washers (2) and nuts (1).

Install but do not tighten.

# CAUTION

Adjust guides to touch belt lightly. If they are too high sand and stone will fall out. If they are pressed down too hard, guides and belt will be damaged.

# C. ADJUSTMENT.

5. Sand bin wall.

Loosen thirteen nuts (1).

If you replaced a guide, nuts will already be loose.

- 6. Five sand bin guides (4) and three guide retainers (6).
- a. Starting at one end, tap guides down.
  - 1. Outer guide (4) rests on vanner edge (5) of belt.
  - 2. Guide retainer (6) rests on flat surface of belt.
- b. Tighten nuts (1) as you work.

7. Center divider.

Loosen thirteen nuts (1).

8. Center guide (7).

- a. Starting at one end, tap guide down. Guide should rest on belt surface.
- b. Tighten nuts (1) as you work.

9. Stone bin wall.

Loosen thirteen nuts (1).

- 10. Stone bin edge guide (4) and guide retainer (6).
- a. Starting at one end, tap guides
  - 1. Adjust outer guide (4) to vanner edge (5).
  - 2. Adjust guide retainer (6) to belt surface.
- b. Tighten nuts (1) as you go.

# 7-9. RUBBER GUIDES MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** LEGEND: NUT (13) 5. VANNER EDGE WASHER (13) 6. GUIDE RETAINER (3) 3. BOLT (13) GUIDE (5) 7. GUIDE TA 076301

# 7-10. METAL GUIDES AND SAND DEFLECTOR MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5)b. Installation. (5)c. Adjustment. (10)

20 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS None. None.

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIALS/PARTS (P/N)** 

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-10. Engine Off.

TM 5-3895-372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 7-1.

# 7-10. METAL GUIDES AND SAND DEFLECTOR MAINTENANCE (Continued). **ACTION REMARKS** LOCATION/ITEM NOTE For routine adjustment, go directly to procedure C (step 4). Use procedures A and B only if you need to replace a damaged guide. 0 LEGEND: 0 0 1. RIGHT HAND SUPPORT GUIDE REAR GUIDE (2) WASHER (16) CAPSCREW (16) DEFLECTOR LEFT HAND SUPPORT GUIDE TA 076302

# 7-10. METAL GUIDES AND SAND DEFLECTOR MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

# A. REMOVAL.

1. Sixteen cap screws (4) and washers (3).

Unscrew and remove two rear guides (2) and deflector (5).

# B. INSTALLATION.

2. Two rear guides (2) and deflector (5). port guide (6).

3. Sixteen cap screws (4) and washers (3).

Align slots with holes in RH support guide (1) and LH sup-

Slots should face upward.

Screw in and tighten.

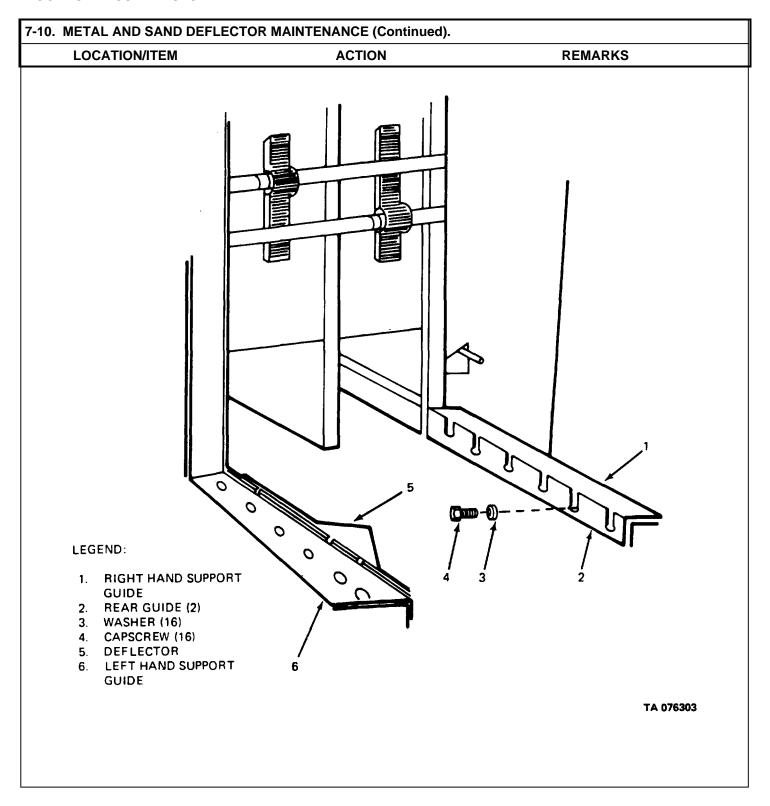
C. ADJUSTMENT.

# CAUTION

Adjust guides carefully. If they are too high, sand and stones will spill. If they are too low, they will damage the belt.

4. Two rear guides (2) and deflector (5).

- Place 1/16 in. (1.6 mm) flat washers between guides and belt. Also place them between deflector and belt.
- Tap guides and deflector down to rest on flatwashers.
   Work from one end to the other. Check cap screws (4) for tightness as you go.
- c. Remove flat washers.



#### 7-11. FRONT WIPERS MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Inspection (5)
b. Removal. (5)
c. Installation. (5)

APPLICABLE CONFIGURATIONS

d. Adjustment (5)

20 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION PARAGRAPH

TM 5-3895-372-10.

CONDITION DESCRIPTION
Aggregate Bins Empty,
Front Screens Open.

**TEST EQUIPMENT** 

None.

M919.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Strainer Assembly Gasket, NP3703004 (50663).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Two (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895372-10. Engine Off.

TM 5-3895372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

TROUBLESHOOTING REEERENCES

Table 7-1.

# 7-11. FRONT WIPERS MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

# A. INSPECTION

1. Stone belt wiper (3) and sand belt wiper (6).

Check for:

a. Cracks.b. Tears.

Replace. Replace. Adjust.

c. Improper adjustment.

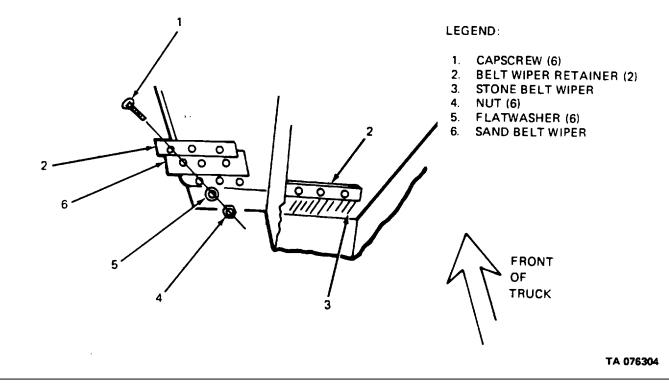
NOTE

If wiper seals are to be replaced, complete steps B, C and D. For horizontal adjustment only, go to step D.

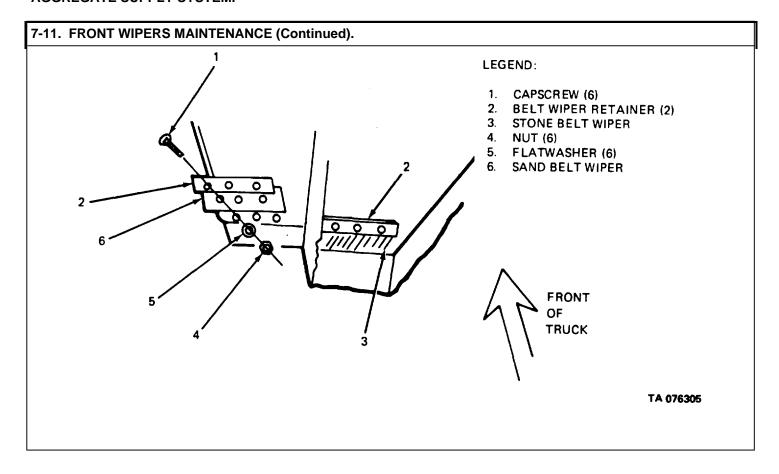
# **B. REMOVAL.**

# **NOTE**

Front seal replacement requires two mechanics; one inside bin and one outside.



LOCATION/ITEM	ACTION	REMARKS
B. REMOVAL (Continued).		
<ul><li>3. Belt wiper retainers (2).</li><li>4. Stone belt wiper (3) and sand belt wiper (6).</li></ul>	Remove. Remove.	
C. INSTALLATION.		
<ol> <li>New stone belt wiper</li> <li>(3) and sand belt wiper (6).</li> </ol>	Aline bolt holes in retainers (2), stone belt wiper (3), sand belt wiper (6), and bin wall.	
6. Six nuts (4), flat washers (5) and capscrews (1).	Install.	Do not tighten.
D. ADJUSTMENT.		
7. Six nuts (4).	Loosen.	If seal was replaced, nuts will already be loose.
8. Stone belt wiper (3) and sand belt wiper (6). divider and sand or stone bin wall. Wiper should ride against conveyor belt.	Adjust horizontally be- tween sand and stone bin	
9. Six nuts (4). Tighten securely.		



#### 7-11. FRONT WIPERS MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5)b. Installation. (5)c. Adjustment (5)

15 Minutes Total.

INITIAL SETUP EQUIPMENT CONDITION

PARAGRAPH CONDITION DESCRIPTION None.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

None

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-10. Engine Off.

TM 5-3895-372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

TROUBLESHOOTING REEERENCES

Table 7-1.

# 7-12. REAR WIPER MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

# **NOTE**

For routine adjustment, go directly to procedure C (step 7). Use procedures A and B only if you need to replace a damaged belt wiper.

1. Two nuts (4), lockwashers (3), and capscrews (2). Remove. Remove belt wiper assembly from unit.

Capscrew on each side.

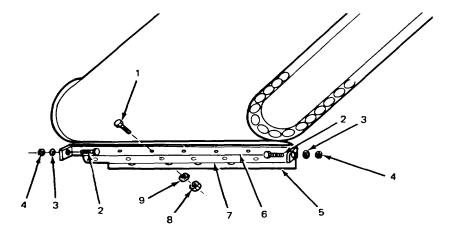
Six nuts (8), and washers and capscrews (1).

Remove. Separate belt wiper (6) and belt wiper rubber (7) from belt wiper retainer (5).

# **B. INSTALLATION.**

3. Belt wiper rubber (7) and belt wiper bar (6).

Install over screws on belt wiper retainer (5).



TA 076307

#### LEGEND:

- . CAPSCREW (6)
- 2. CAPSCREW (2)
- 3. LOCKWASHER (2)
- NUT (2)
- 5. BELT WIPER RETAINER
- 6. BELT WIPER BAR
- 7. BELT WIPER RUBBER
- 8. NUT (6)
- LOCKWASHER (6)

	LOCATION/ITEM	ACTION	REMARKS
B. IN	STALLATION Continued).		
5.	Wiper assembly.	Set in place.	
6.	Two nuts (4), lock-washers (3) and capscrews (2).	Install and tighten.	
C. AI	DJUSTMENT.		
7.	Six capscrews (1).	Loosen.	If you replaced belt wiper rubber (7), capscrews (1) will already be loose.
8.	Belt wiper rubber (7).	Drive firmly against belt	If concrete sticks to belt bottom when equipment is operated, wiper is too loose.
9.	Six capscrews (1).	Tighten.	

# 7-12. REAR WIPER MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** TA 076307 LEGEND: 1. CAPSCREW (6) 6. BELT WIPER BAR 2. CAPSCREW (2) 3. LOCKWASHER (2) 7. BELT WIPER RUBBER 4. NUT (2) 8. NUT (6) 5. BELT WIPER RETAINER 9. LOCKWASHER (6)

#### 7-13. CONVEYER BELT ADJUSTMENT.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Adjustment of Belt. (5)

b. Even Tension Check. (5)

10 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS None. None.

TEST EQUIPMENT

None.

M919.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895372-10. Engine Off.

TM 5-3895372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

TROUBLESHOOTING REEERENCES

Table 7-1.

TA 076308

#### AGGREGATE SUPPLY SYSTEM.

## 7-13. CONVEYOR BELT ADJUSTMENT (Continued). LOCATION/ITEM **ACTION REMARKS** A. ADJUSTMENT OF BELT. 1. Two nuts (2). One on each side of mixer. Loosen. 2. Two adjusting rods (1). Tighten to 20 lb-ft (27 N-m). **B. EVEN TENSION CHECK** 3. Two brackets (3) and roller Use ruler to measure distances bearing cages (4). between bracket and roller bearing cage on each side. If there is more than 1/4 in. (0.6 cm) difference between distances, loosen bolts. Readjust until distances are within 1/4 in. (0.6 cm) of each other. 4. Two nuts (2). Tighten securely. Hold adjust-One nut (2) on each side of ing rod (1) to prevent turning mixer. while tightening. 0 $\bigcirc$ Ximmunimi 怣 LEGEND: ADJUSTING ROD (2) NUT (2) 2. BRACKET (2) 3. **ROLLER BEARING CAGE (2)**

CONDITION DESCRIPTION Mix Auger Assembly Removed

Sand and Stone Gates Open.

Cement Bin Clutch Disengaged.

Admix Bin Clutch Disengaged.

#### AGGREGATE SUPPLY SYSTEM.

#### 7-14. CONVEYOR BELT REPLACEMENT.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (45)b. Installation. (45)c. Operational Check. (5) d. Removal of Broken Belt. (45)

> 140 Minutes Total.

**INITIAL SETUP EQUIPMENT** 

CONDITION **PARAGRAPH** 

APPLICABLE CONFIGURATIONS 9-9A.

M919. TM 5-3895-372-10. TM 5-3895-372-10. **TEST EQUIPMENT** TM 5-3895-372-10.

Belt Adjustment. None. 7-13A.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Fire Extinguisher. 1 ¼ O.D. x 4 ft. Long Pipe. Acetylene Torch. 50 ft. Rope (High Strength). Mechanics Wire. Razor Knife.

Towing Vehicle. Conveyer Belt Assembly, NS3817007 (50663).

1/2 in. Nuts.

1/2 in. Flat Washers.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Three (MOS-62B20). Vehicle Parked on Level Ground.

**GENERAL SAFETY INSTRUCTIONS** REFERENCES (TM)

Engine Off. TM 5-3895372-10.

Transmission in Neutral. TM 5-3895372-20P. Parking Brake Set. TM 9-2320-273-10.

Be Extremely Careful to Avoid Moving Parts.

Exhaust System Components Can Cause Severe Burns.

Carbon Monoxide Poisoning Can Be Deadly.

TROUBLESHOOTING REEERENCES

Table 7-1.

### 7-14. CONVEYOR BELT REPLACEMENT (Continued). LOCATION/ITEM **ACTION REMARKS** A. REMOVAL. 1. Eight bolts (1), nuts Remove. (2) and lockwashers (3). 2. Two capscrews (7), washers Remove. (8) and nuts (9). 3. Hopper (10). Remove. Remove front conveyor door and safety guard door simultaneously. 4. Two admix hoses (5). Remove. Tag for identification. 5. Admix injector (6). Remove. 6. Two water nozzles (4). Remove. 7. Mixer body. Start up (see TM 9-2320-Run engine at idle speed. 273-10 and TM 5-3895-372-10). 1, 2, 3 -LEGEND: 1. BOLT (8) 2. NUT (8) 3. LOCKWASHER (8) 7, 8, 9 4. WATER NOZZLE (2) 5. ADMIX HOSE (2) ADMIX INJECTOR CAPSCREW (2) 8. WASHER (2) 9. NUT (2) 10. HOPPER TA 076309

#### 7-14. CONVEYOR BELT REPLACEENT (Continued).

**ACTION** LOCATION/ITEM **REMARKS** 

#### A. REMOVAL (Continued).

#### NOTE

Before performing step 8, remove oval inspection window cover.

8. Belt lacer (11). Run engine at idle speed.

Engage the main clutch and roll the conveyor belt (20) around until the belt lacer (11) is visible in the oval inspection window at the rear

of the conveyor frame.

9. Mixer body. Disengage clutch and turn

off engine (see TM 9-2320-273-10 and TM 5-3895-372-10).

# 7-14. CONVEYOR BELT REPLACEENT (Continued). REMARKS LOCATION/ITEM **ACTION** 20 LEGEND: 11. BELT LACER 20. CONVEYOR BELT TA 076310

#### 7-14. CONVEYOR BELT REPLACEENT (Continued).

LOCATION/ITEM ACTION REMARKS

#### A. REMOVAL (Continued).

10. Two locknuts (13). Loosen approximately Both sides of vehicle.

1-1/2 in. (38 mm).

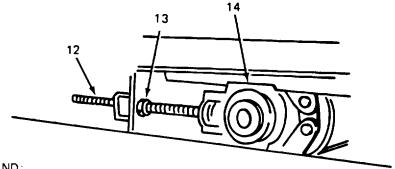
11. Two belt tensioning Loosen bolts (12) until devices (14). locknuts (13) meet

flanges.

Lubricate bolts and bearing slides for easy operation.

#### CAUTION

Do not turn bolts (12) farther than 1-1/2 in. (38 mm), or the sprockets will catch in the cross angles.



#### LEGEND:

- 12. BOLŤ (2)
- 13. LOCKNUT (2)
- 14. BELT TENSIONING DEVICE (2)

TA 076311

7-14. CONVEYOR BELT REPLACEENT (Continued).				
LOCATION/ITEM	ACTION	REMARKS		
A. REMOVAL (Continued).				
12. Four cotter pins (16). the two master links (15).	Remove from back plates of Both sides of conveyor.	Underside rear of conveyor.		
13. Two master links (15).	Remove.	Through oval openings in frame.		
LEGEND: 15. MASTER L 16. COTTER PI	16 INK (2)	15		
		TA 076312		

# 7-14. CONVEYOR BELT REPLACEENT (Continued). **ACTION** LOCATION/ITEM **REMARKS** A. REMOVAL (Continued). 14. Lacer pin (17). Remove from belt lacer (11). Use vise grips to work it loose. LEGEND: 11. BELT LACER17. LACER PIN TA 076313

7-42

TM 5-3895-372-20

#### AGGREGATE SUPPLY SYSTEM.

LOCATION/ITEM	ACTION	REMARKS
. REMOVAL (Continued).		
15. Two winch line pulleys (21).	<ul> <li>a. Remove by pulling pins.</li> <li>b. Mount to lower rear frame holes with two bolts (23), nuts (24) and twelve flat washers (22).</li> </ul>	Use four flatwashers (22) on each side for spacers between the pulley and frame.

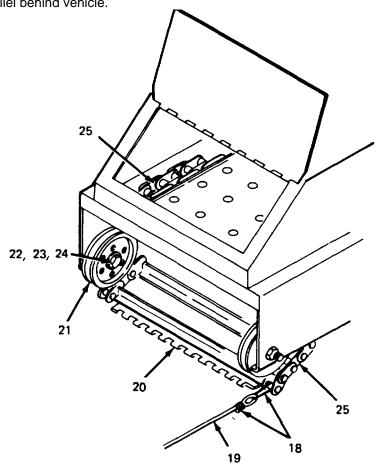
- 16. Conveyor belt (20).
- 17. Two ropes (19) and four wires (18).

Let the end down over the winch line pulleys (21).

Secure to end chain link at either side of conveyor belt (20) and lay ropes (19) out parallel behind vehicle.

### LEGEND:

- 18. WIRE (4)
- 19. ROPE (2)
- 20. CONVEYOR BELT
- 21. WINCH LINE PULLEY (2)
- 22. FLATWASHER (12)
- 23. BOLT (2)
- 24. NUT (2)
- 25. CHAIN (2)



TA 07631

#### 7-14. CONVEYOR BELT REPLACEENT (Continued).

LOCATION/ITEM ACTION REMARKS

#### A. REMOVAL (Continued).

18. Mixer body. Start up (see TM 9-2320-273-10 and TM 5-3895-372-10). Run engine at idle speed.

#### CAUTION

Run the engine at idle speed and run the belt out slowly. Shut off immediately if the conveyor belt (20) jams.

19. Main clutch. Engage and run the conveyor

belt (20) out.

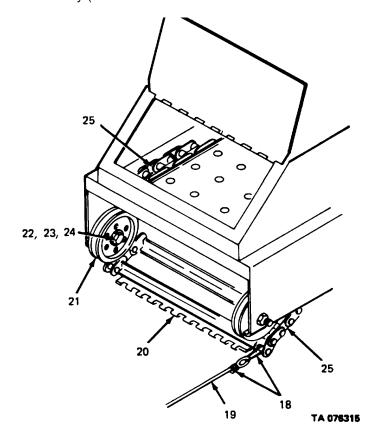
Have an assistant hold the free end as it's run out.

20. Conveyor belt (20). When completely removed, dis-

engage main clutch and shut down mixer body (see TM 9-

### LEGEND:

- 18. WIRE (4)
- 19. ROPE (2)
- 20. CONVEYOR BELT
- 21. WINCH LINE PULLEY (2)
- 22. FLATWASHER (12)
- 23. BOLT (2)
- 24. NUT (2)
- 25. CHAIN (2)



#### 7-14. CONVEYOR BELT REPLACEMENT (Continued).

#### LOCATION/ITEM ACTION REMARKS

#### B. INSTALLATION.

#### **NOTE**

If new conveyor belt (20) is being installed, transfer wires (18) and ropes (19) to new conveyor belt and chains (25).

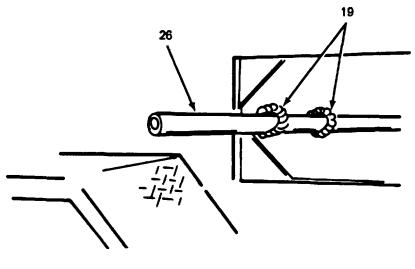
21. Pipe (26).

Slacken ropes (19) and insert pipe (26) through frame and ropes.

Located under water tank.

#### CAUTION

Be sure rope is in upper chain rail for ease of installation.



LEGEND:

19. ROPE (2) 26. PIPE

TA 076316

7-14. CONVEYOR BELT REPLACEMENT (Continued).				
LOCA	TION/ITEM	ACTION	REMARKS	
B. INS	STALLATION (Continued).			
22.	Conveyor belt (20).	Manually feed end of belt up and over winch line pulleys (21) to drive sprockets and mate link to sprocket.	Two mechanics required.	
23.	Towing vehicle (27).	Straddle conveyor belt (20) and attach ropes.		
24.	Shear bolt (28) and nut (29).	Remove from drive gear box coupling		
25.	Towing vehicle (27).	Slowly pull the ropes (19) while inserting the conveyor belt (20) into the mixer body.	Two assistants to help feed conveyor belt (20) and keep ropes (19) from binding on sides of chain (25). One assistant required to monitor belt travel around front sprockets.	
	Proceed with special can damage to the chains of	CAUTION  are when chains (25) are going around from sprockets.	ont sprockets to prevent binding and	
26.	Conveyor belt (20).	Allow to travel approximately eight inches past front sprockets.		
27.	Pipe (26).	Slacken the ropes (19) and remove pipe (26).		
28.	Conveyor belt (20).	Manually wrap belt around front sprockets and mate link to sprocket.		
29.	Towing vehicle (27).	Continue pulling ropes (19). Stop the conveyor belt (20) when the belt lacer reaches the rear oval inspection window	v.	
30.	Two ropes (19) and four wires (18).	Remove from chain links.		
31.	Two bolts (23), nuts (24) and twelve washers (22).	Remove.		

#### 7-14. CONVEYOR BELT REPLACEMENT (Continued). **ACTION** LOCATION/ITEM **REMARKS** B. INSTALLATION (Continued). Two winch line 32. Remove. Install back in proper pulleys (21). location securing with clevis pins and cotter pins. 19 25 22, 23, 24 20 20 25 28 19 LEGEND: NUT (2) 24. 18. **WIRE (4)** 25. CHAIN (2) ROPE (2) 19. PIPE **2**6. **20**. **CONVEYOR BELT TOWING VEHICLE** WINCH LINE PULLEY (2) 27. 21. 28. SHEAR BOLT 22. FLATWASHER (12) 29. NUT 23. BOLT (2) TA 076317

# 7-14. CONVEYOR BELT REPLACEMENT (Continued). LOCATION/ITEM **ACTION REMARKS B. INSTALLATION (Continued).** Push conveyor belt (20) in at bottom of front sprockets 33. Conveyor belt (20). Requires three personnel at front of truck. and hold in place. Wrap around rear sprockets and mate belt lacer (11). 34. Lacer pin (17). Install. 11 20 17 LEGEND: **BELT LACER** 11. 17. LACER PIN 20. CONVEYOR BELT TA 076318

7-14. CONVEYOR BELT REPLACEMENT (Continued)					
LOC	LOCATION/ITEM ACTION REMARKS				
B. IN	STALLATION (Continued).				
35.	Two master links (15).	Install.	Through oval openings in frame. Side plates installed from under side of conveyor.		
36.	Four cotter pins (16)	Install in master link.	Under side rear of conveyor.		
		CAUTION			
	Correct ter	nsion is highly important. Tighten b	oth bolts equally.		
37.	Two belt tensioning devices (14).	Refer to paragraph 7-13 for adjustment.			
38.	Two locknuts (13).	Tighten securely.	1		
	LEGEND:				
	12. BOLT (2) 13. LOCKNUT (2) 14. BELT TENSIONING DEVICE (2) 15. MASTER LINK (2) 16. COTTER PIN (4)		15 TA 076319		

#### 7-14. CONVEYOR BELT REPLACEMENT (Continued). LOCATION/ITEM **ACTION REMARKS** B. INSTALLATION (Continued). 39. Two water nozzles (4). Install. 40. Admix injector (6). Install. 41. Two admix hoses (5). Install. 42. Hopper (10). Set in place. 43. Eight bolts (1), nuts (2), Install and tighten securely. Prior to installing bolts, set and lockwashers (3). front conveyor door and safety guard door in place. 44. Two capscrews (7), Install and tighten securely. washers (8), and nuts (9). 1, 2, 3 -LEGEND: **BOLT (8) NUT (8)** LOCKWASHER (8) WATER NOZZLE (2) 7, 8, 9 ADMIX HOSE (2) ADMIX INJECTOR 7. CAPSCREW (2) 8. WASHER (2) 9. NUT (2) 10. HOPPER TA 076320

7-14. CONVEYOR BELT REPLACEMENT (Continued)				
LOCA	ATION/ITEM	ACTION	REMARKS	
B. IN	STALLATION (Continued).			
45.	Mixer body.	Start up (see TM 9-2320-273-10 and TM 5-3895-372-10).	Let engine idle.	
46.	Main clutch.	Activate until drive gear box couplings line up.		
47.	Shear bolt (28) and nut (29).	Install and tighten securely.		
C. OF	PERATIONAL CHECK.			
48.	Conveyor belt (20).	Test run the conveyor belt at normal operating rpm (see TM 5-3895-372-10).		
49.	Mixer body.	Shut down (see TM 9-2320 273-10 and TM 5-3895-372-	10).	
LEGEND:  28 SHEAR BOLT  29 NUT				
		29	TA 076321	

#### 7-14. CONVEYOR PELT REPLACEMENT (Continued). LOCATION/ITEM **ACTION REMARKS** D. REMOVAL OFBROKEN BELT. **NOTE** If conveyor belt is to be removed when aggregate bins are full, shovel out materials before beginning service. 51. Eight bolts (1), nuts Remove. (2) and lockwashers (3). 52. Two capscrews (7), Remove. washers (8), and nuts (9). 53. Hopper (10). Remove. Remove front conveyor door and safety guard door simultaneously. Remove from admix 54. Two admix hoses (5). injector (6). 55. Admix injector (6). Remove. 1, 2, 3 LEGEND: BOLT (8) 1. 2. **NUT (8)** LOCKWASHER (8) 3. 7, 8, 9 WATER NOZZLE (2) 4. ADMIX HOSE (2) 5. ADMIX INJECTOR 6. CAPSCREW (2) 7. WASHER (2) 9. **NUT (2)** HOPPER 10. TA 076322

#### 7-14. CONVEYOR BELT REPLACEMENT (Continued).

LOCATION/ITEM ACTION REMARKS

#### D. REMOVAL OF BROKEN BELT (Continued).

57. Shear bolt (28) and nut (29).

Remove from drive gear

box coupling.

58. Conveyor belt (20).

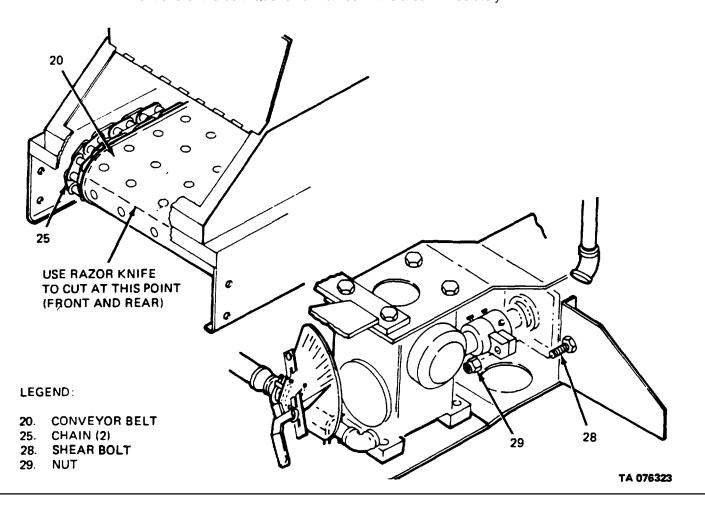
Use a razor knife to cut the belt at the front and rear.

from side to side, cut only in rear.

If belt is broken completely

WARNING

During chain cutting, grease, or the belt itself will usually catch on fire. Have a fire extinguisher within easy reach. The fuel tank is close to the front end of the belt. Quench all flames in this area immediately.



7-14. CONVEYOR BELT REPLACEMENT (Continued).			
LOCA	ATION/ITEM	ACTION	REMARKS
D. RE	EMOVAL OF BROKEN BELT (C	Continued).	
60.	Two winch line pulleys (21).	a. Remove pins holding pulleys in place. b. Mount pulleys with two bolts (23), nuts (24), and twelve washers (22) to the lower rear frame holes.	Use four washers each for spacers between pulleys and frame.
61.	Conveyor belt (20).	Let the end of the belt down over the winch line pulleys (21).	
62.	Two ropes (19) and four wires (18).	<ul><li>a. Attach to upper and lower half of chain links.</li><li>b. Attach other end of ropes (19) to towing vehicle (27).</li><li>c. Pull both halves of conveyor belt (20) from mixer body.</li></ul>	First pull one half out, then attach ropes and wires to other half.
63.	Two locknuts (13).	Loosen.	
64.	Two belt tensioning devices (14).	Loosen bolts (12) approximately 1-1/2 in. (38 mm).	Lubricate bolts and bearing slides for easy operation.
	Do not turn bolts (12) fart	her than 1-1/2 in. (38 mm) or the sprockets will o	catch in the cross angles.
65.	Conveyor belt (20).	Install. (Refer to procedure B.)	

# 7-14. CONVEYOR BELT REPLACEMENT (Continued). LOCATION/ITEM **ACTION REMARKS** 14 19 27 13 12 25 20 25 22, 23, 24 21 20 25 18 19 LEGEND: TA 076324 12. BOLT (2) 13. LOCKNUT (2) BELT TENSIONING DEVICE (2) 14. 18. WIRE (4) 19. ROPE (2) 20. **CONVEYOR BELT** 21. WINCH LINE PULLEY (2) 22. FLAT WASHER (12) **23**. **BOLT (2)** 24. NUT (2) 25. CHAIN (2) 27. TOWING VEHICLE

#### 7-15. CONVEYOR BELT AND BELT LACER REPAIR.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

Repair.

(30)

30 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS 7-14A. Conveyor Belt Removed.

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

#### MATERIALS/PARTS (P/NI

Belt Lacer, NP5010003 (50663). Belt Lacer Pin, NP5010004 (50663). Rubber Belt, NP5028027 (50663). Conveyor Chain, NP3817008 (50663). Bolt and Nut, NP6043001 (50663).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-20P. Engine Off.

TM 5-3895-372-10. Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 7-1.

#### 7-15. CONVEYOR BELT AND BELT LACER REPAIR (Continued). **ACTION REMARKS** LOCATION/ITEM REPAIR. Conveyor belt (1). Stretch (rubber down) and count 1. back three crossbars (10) at each end of the rubber belt (9) for replacement of belt lacer (7). 1 1.654 CHAIN **PITCH** NEW 0.56 in. BELT 14.3 mm 0.56 in. 14.3 mm LEGEND: 1. CONVEYOR BELI 2. CHAIN 3. ROLLER PIN 4. SIDE BAR PIN 6 **BELT LACER** 7. NUT 9. RUBBER BELT 10. **CROSS BAR** 11. BOLT TA 076325

7-15	CONVEYOR B	FIT AND REI	T L ACER REI	PAIR (Continued).
7-10.	CONVETOR D	ELI AND DEL	I LACEN NEI	AIN (Continued).

**ACTION REMARKS** LOCATION/ITEM

#### **REPAIR** (Continued).

#### **NOTE**

For replacement of belt sections, count back three crossbars (10) from the damaged section at each end.

2. Rubber belt (9). Cut belt between the third and fourth crossbars (10)

at each end.

3. Bolts (11) and Unscrew and remove the If necessary, shear off nuts (8) with a chisel and hammer. nuts (8). old rubber belt (9) from

the crossbars (10).

Chain (2). Connect the chain and secure If replacing belt lacer (7) 4.

with two pins (4). only.

#### NOTE

There cannot be any crossbars at the lacer/lacers. If necessary, remove crossbars. The chain will be left the same length.

5. Rubber belt (9).

- a. Stretch the area to be repaired.
- b. Lay damaged rubber belt (9) on top of new rubber belt and cut to same length.
- c. Clamp one end of the new rubber belt (9) onto the first crossbar (10).

#### NOTE

Be sure that 0.56 in. (14.3 mm) of the rubber belt (9) is extending beyond the centerline of the second roller (3). The thicker coating of rubber should be on the conveying side of the rubber belt.

> d. Using the crossbar (10) as a jig, drill 0.28 (7.1 mm) holes in the new rubber belt (9).

6. Bolts (11) and

Install thru new rubber belt nuts (8). (9) and crossbar (10). Tighten bolts until flat head is flush

with its surface.

#### 7-15. CONVEYOR BELT AND BELT LACER REPAIR (Continued).

#### LOCATION/ITEM **ACTION REMARKS**

#### **REPAIR** (Continued).

#### **NOTE**

Repeat steps 5d and 6 with the balance of the crossbars. Be certain that 0.56 in. (14.3 mm) of the new rubber belt is extending beyond the centerline of the second roller (2

7. Rubber belt (9). After installing nuts (8) and bolts (11) in the last crossbar (10), cut extra length of the rubber belt (9) so that it is extending 0.56 in. (14.3 mm) beyond the centerline of the second roller (3).

8. Bolts (11). Cut off the excess length with a bolt cutter or chisel.

This distorts the treads and Prevents the nuts (11) from coming off.

#### NOTE

The center of the pin (6) should be in the center of the side bars (5).

9. Belt lacers (7).

4.

5.

6.

7. 8.

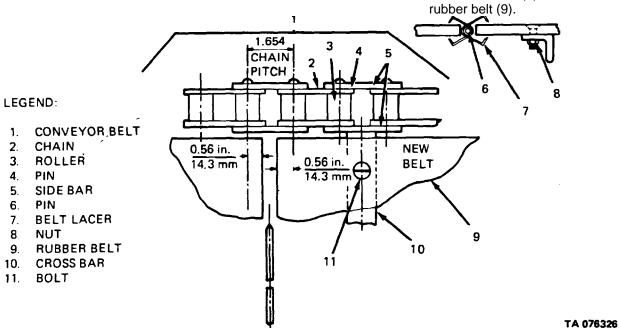
9.

10.

11.

Use the pin (6) to space belt lacers between the ends of

Hammer teeth of belt lacer into rubber belt (9).



7-16. CHAIN OILER.

THIS TASK COVEBS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10)b. Installation. (10)

c. Operational Check. (5)
25 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

<u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

TM 5-3895-372-10. Chain Oiler Turned Off

**APPLICABLE CONFIGURATIONS** 

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFTEY INSTRUCTIONS

LO 53895372-12. Engine Off.

TM 9-2320-273-10. Transmission in Neutral TM 53895-372-10. Parking Brake Set

TM 53895372-20P.

TROUBLESHOOTING REFERENCES

Table 7-1.

#### 7-16. CHAIN OILER (Continued).

#### ACTION REMARKS LOCATION/ITEM

#### A. REMOVAL.

#### **NOTE**

Before beginning service, ensure chain oiler is turned OFF.

1. Two nuts (5) and sleeves (4), with two tubes (6).

Unscrew from chain oiler (1).

Nut (3) and washer 2.

Remove

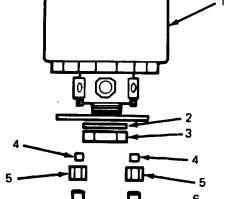
3. Chain oiler (1). Remove

4. Screw (7), flatwasher (8), clamp (9), and nut (10).

Remove

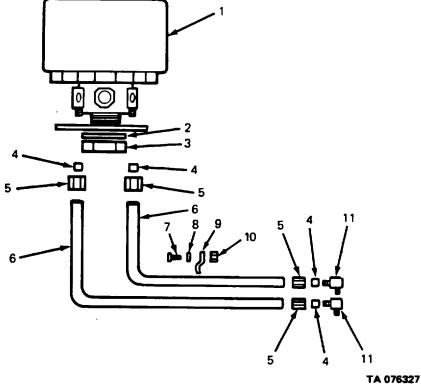
Two nuts (5), and 5. sleeves (4).

Unscrew and remove with Two tubes (6) from two elbows (11).

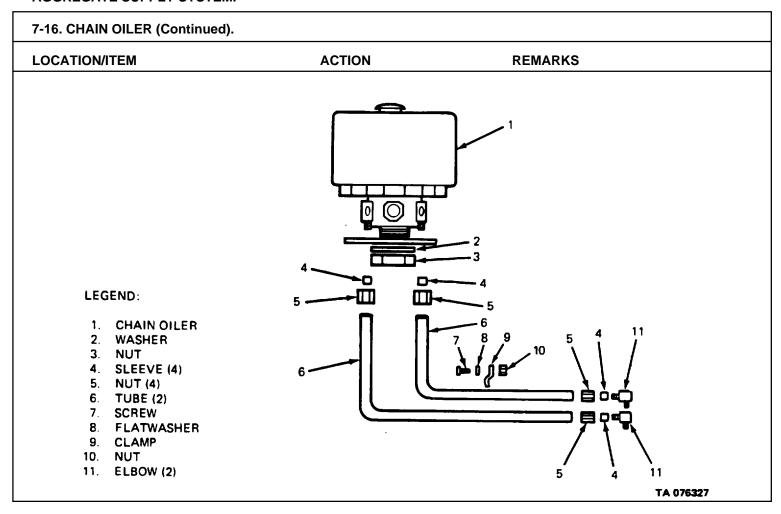


#### LEGEND:

- 1. CHAIN OILER
- WASHER 2.
- 3. NUT
- 4. SLEEVE (4)
- 5. NUT (4)
- **TUBE (2)**
- **SCREW**
- 8. FLATWASHER
- 9. CLAMP
- 10. NUT
- 11. ELBOW (2)



7-16. CHAIN OILER (Continued).				
LOCATION/ITEM ACTION REMARKS				
B. INSTALLATION.				
6.	Chain oiler (1).	Install to body with washer (2) and nut (3).		
7.	Four nuts (5) and sleeves (4), with two tubes (6).	a.Screw onto chain oiler (1). b.Screw onto two elbows (11).		
8.	Clamp (9).	Install and secure with screw (7), washer (8) and nut (10).		
c. o	PERATIONAL CHECK.			
9.	Chain oiler (1)	a Turn on and check for five drops per minute. b. Check for leakage at Connections. c. Turn off chain oiler (1).	Retighten as necessary.	
	Installation of a new c	<b>NOTE</b> hain oiler necessitates filling reservoir with fresl	h oil (refer to LO 53895-372-12).	



#### 7-17. SAND OR STONE GATES MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a.Removal.(20)b.Inspection.(10)c.Installation.(20)d.Adjustment.(10)

60 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

<u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

APPLICABLE CONFIGURATIONS TM 53895372-10. Access Panels On Side of

Vehicle Removed.

Sand and Stone Bins Empty

as Needed.

M919

None.

**TEST EQUIPMENT** 

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Two (MOS-62B20). Vehicle Parked on Level Ground.

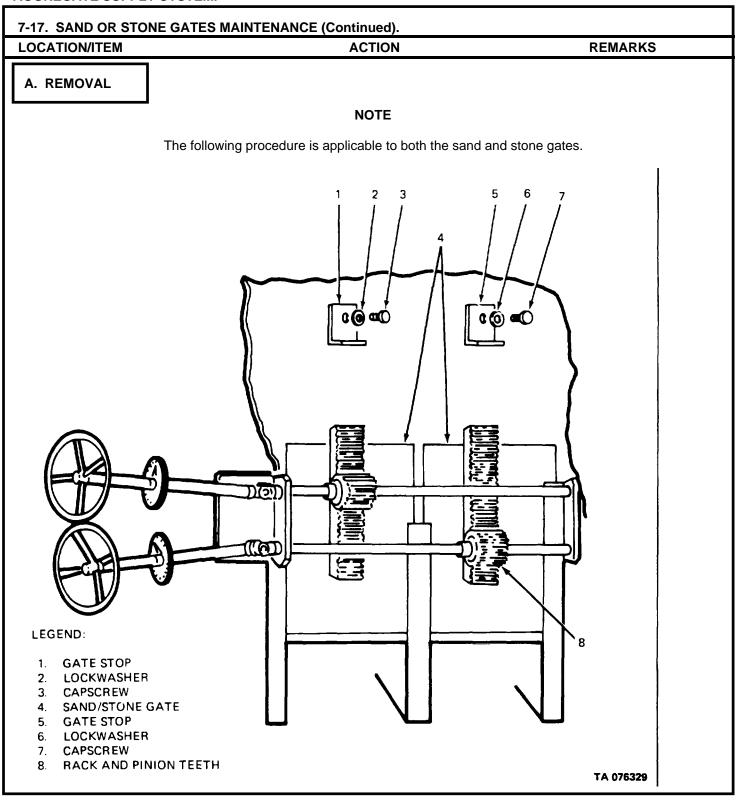
REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

LO 5-3895-372-12. Engine Off.

TM 9-2320-273-10. Transmission in Neutral. TM 5-3895-372-10. Parking Brake Set. TM 5-3895-372-20P.

TROUBLESHOOTING REFERENCES

Table 7-1.



#### 7-17. SAND OR STONE GATES MAINTENANCE (Continued).

#### LOCATION/ITEM ACTION REMARKS

#### A. **REMOVAL (Continued)**

1. Capscrew (3) or (7) and lockwasher (2) or (6).

Remove.

2. Gate stop (1) or (5). Remove.

3. Sand/stone gate (4 Remove..

With one man raising gate by turning wheel the other may support gate from falling.

#### В. **INSPECTION**

4. Sand/stone gate (4). Inspect for: a.

Cracks. Breaks. b.

Chips. C.

Wear.

5. Rack and pinion teeth (8).

Inspect for wear.

#### C. INSTALLATION.

6. Sand/stone gate (4). Install.

7. Gate stop (1) or (5). Aline.

With one man starting the gate in place, the other may lower gate by turning wheel

8. Capscrew (3) or (7) and lockwasher (2) or (6). Install and tighten

#### D ADJUSTMENT.

Refer to TM 5-3895-372-10.

# 7-17. SAND OR STONE GATES MAINTENANCE (Continued). LOCATION/ITEM ACTION REMARKS LEGEND: GATE STOP 1. LOCKWASHER 3. CAPSCREW SAND/STONE GATE 5. GATE STOP 6. LOCKWASHER 7. CAPSCREW 8. RACK AND PINION TEETH TA 076330

#### 7-18. SAND AND STONE CONTROLS MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Inspection. (5)
 b. Removal. (5)
 c. Repair. (AR)
 d. Installation. (10)

20 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION PARAGRAPH

AGRAPH CONDITION DESCRIPTION

**APPLICABLE CONFIGURATIONS** TM 5-3895-372-10. Sand and Stone Bins Empty.

Bin Gates Closed.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

One (MOS-62B20).

REFERENCES (TM) ENERAL SAFETY INSTRUCTIONS

LO 5.3895-372-12.

TM 9-2320-273-10. TM 5-3895-372-10. TM 5-3895-372-20P. Engine Off.
Transmission in Neutral.
Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 7-1.

# AGGREGATE SUPPLY SYSTEM.

# 7-18. SAND AND STONE CONTROLS MAINTENANCE (Continued).

# **LOCATION/ITEM ACTION REMARKS**

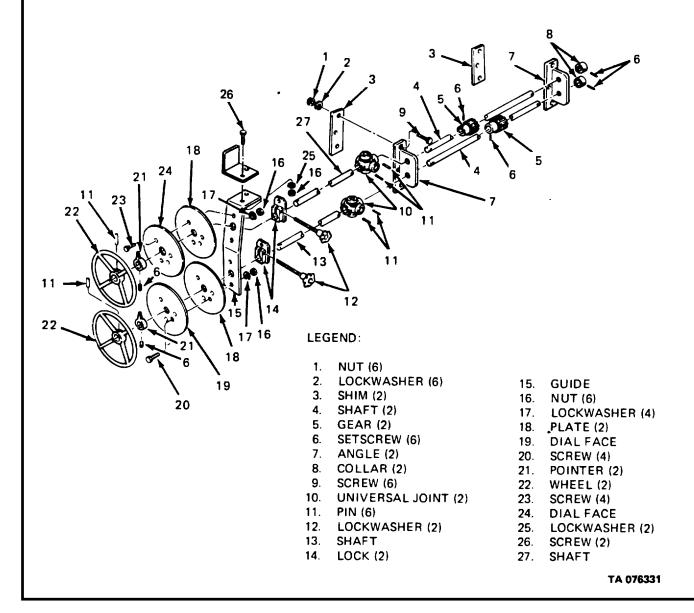
# A. INSPECTION.

#### **NOTE**

The universal joints of the sand and stone gate controls have been permanently lubricated by the manufacturer.

- 1. Two universal joints (10), two shafts (4), shaft (1) and shaft (97
- a. Check whether shafts slip inside two collars (8).

If shafts slip, check for worn or missing pins (11). Replace pins (11) as needed.



#### AGGREGATE SUPPLY SYSTEM. 7-18. SAND AND STONE CONTROLS MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** Α. **INSPECTION (Continued)** b. Check for binding, sticking, or grinding as universal joints turn. \*\*\*\*\*\*\*\*\*\*\* CAUTION Before removing universal joints, check that collars and shafts are punch marked. If they are not. mark them for proper position at assembly. В. REMOVAL. 2. Two pins (11). Drive out and remove two wheels (22) from shaft (13) and (27). Unscrew and remove two pointers (21). 3. Two set screws (6). 4. Four screws (20), lock-Remove. washers (17), and nuts (16). Four screws (23), lock-Unscrew and remove two plates (18), 5. washers (17), and nuts (16). dial face (19), and dial face (24). Unscrew and remove guide (15) by 6. Two screws (26), lockwashers (25), and nuts (16) sliding from shafts (13) and (27). Unscrew and remove; slide locks (14) 7. Two lock screws (12 from shafts (13) and (27). Four pins (11). Drive out and remove two universal 8. joints (10). 9. Two setscrews (6) Back out and remove two collars (8). 10. Six screws (9), lock-Unscrew and remove two angles (7) washers (2), and nuts (1). with two shims (3). 11. Two setscrews (6). Loosen and remove two gears (5) from two shafts (4). C. REPAIR. Refer to para 4-10 for Repair service is limited to the repair of universal joints. universal joints. All other control components are simply replaced if worn or damaged. D. INSTALLATION.

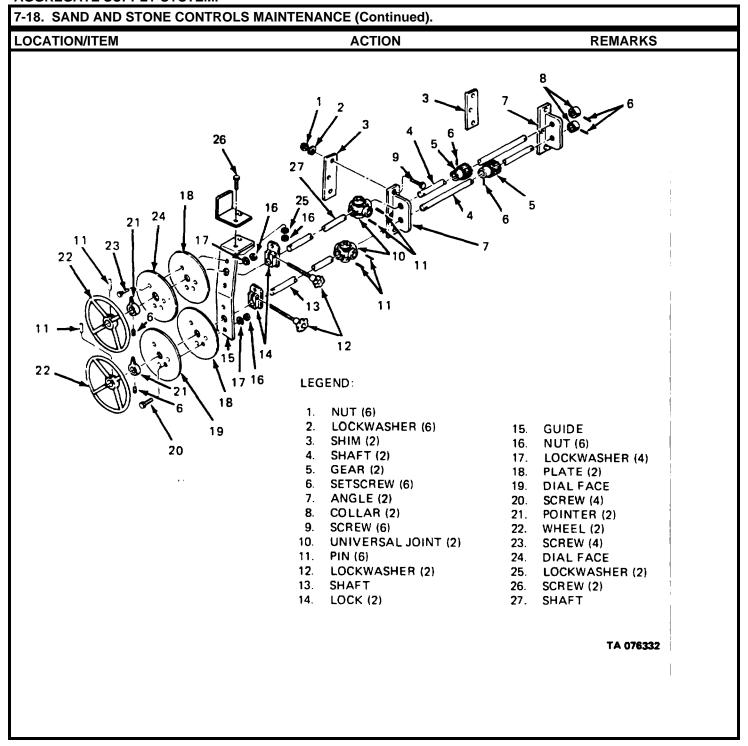
Aline holes and secure with six screws

(9), lockwashers (2), and nuts (1).

12.

Two angles (7) and

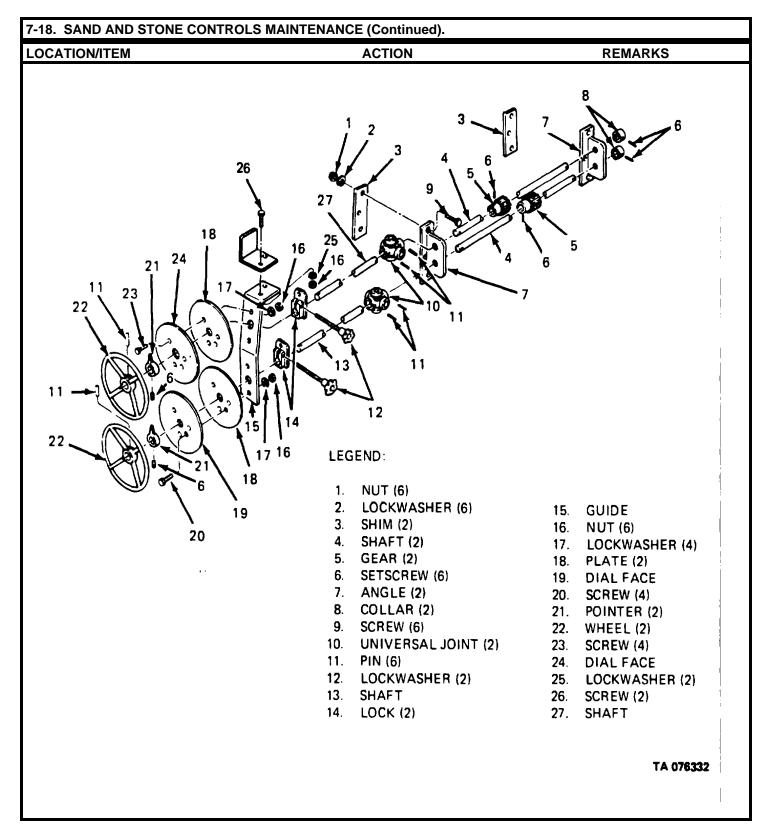
shims (3).



#### AGGREGATE SUPPLY SYSTEM.

#### 7-18. SAND AND STONE CONTROLS MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** D. **INSTALLATION** (Continued). 13. Two shafts (4). Position thru two angles (7) and install two gears (5) with two setscrews (6). 14. Two collars (8). Slide onto shafts (4) and secure with two setscrews (6). Two universal joints (10). Install on two shafts (4) and secure 15. Be sure punch marks are with two pins (11). properly aligned. 16. Shaft (13) and (27). Install in two universal joints (10), Be sure punch marks are and secure with two pins (11). properly alined. 17. Two locks (14). Slide over shafts (13) and (27) and install two lock screws (12). 18. Guide (15). Slide onto shafts (13) and (27), aliening with holes in bracket welded to sand bin: secure with two screws (26), two lockwashers (25), and two nuts (16). a. Aline holes and secure with four 19 Two plates (18), dial face (19), and dial face (24). screws (20), lockwashers (17), and nuts (16). b. Slide over shafts (13) and (27), aline holes and secure to guide (15) with four screws (23), lockwashers (17) and nuts (16). 20. Two pointers (21). Slide onto shafts (13) and (27): secure with two setscrews (6). 21. Two wheels (22). Slide onto shafts (13) and (27); secure by driving in two pins (11). NOTE Check gate adjustment after installation is completed (see TM 5-3895-372-10).

# AGGREGATE SUPPLY SYSTEM.



#### **CHAPTER 8**

#### **CEMENT SYSTEM**

# 8-1. OVERVIEW.

This chapter provides you with the following information related to cement system maintenance:

- a. All required special tools and equipment.
- b. Troubleshooting procedures.
- c. Maintenance procedures.

# Section I REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

## 8-2. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

# 8-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

The special tools, TMDE, and support equipment for maintenance procedures described in this chapter are as follows. (Refer to Organizational Maintenance RPSTL, TM 5-3895-372-20P for tool description and illustration.)

- a. Stopwatch.
- b. Scales 0-400 lb, accurate to 1 lb (0-180 kg, accurate to 0.5 kg).

## 8-4. SPARES AND REPAIR PARTS.

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools List covering Organizational Maintenance for this equipment (TM 5-3895-372-20P).

# 8-5. TURNING THE METER FEEDER MANUALLY.

LOCATION/ITEM ACTION REMARKS

# CAUTION

Always turn the meter feeder counterclockwise (in the direction of normal operation). Never turn it backwards (clockwise).

# NOTE

Many of the procedures in this chapter tell you to turn the meter feeder manually. A bar and crank is provided with each mixer body for this purpose. To use them, follow the instructions below.

# MANUAL POSITIONING.I

Access plate.

Swing open.

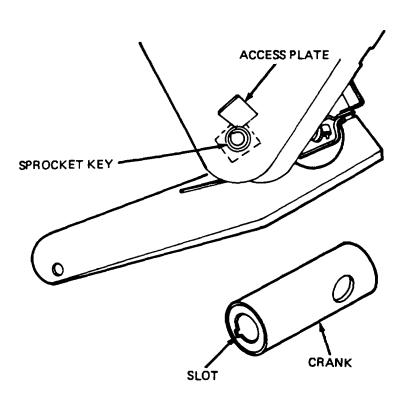
On right hand side of cement

bin.

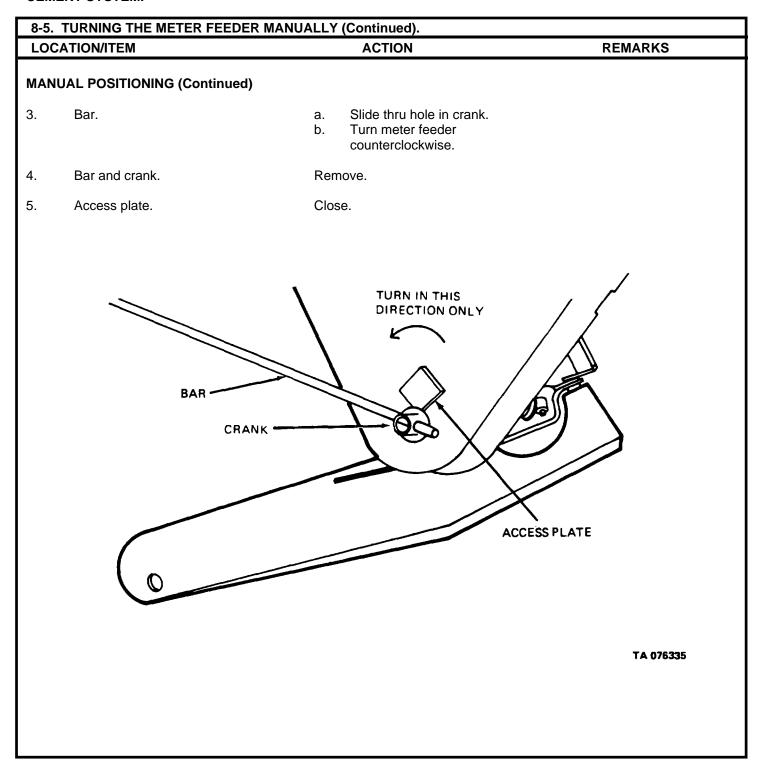
2. Crank

Plance on shaft.

The slot in the crank fits over the sprocket key.



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8-3/8-4 (Blank)

#### Section II TROUBLESHOOTING

# 8 6. INTRODUCTION

Troubleshooting procedures for the cement system are given in table 8-1. It is arranged by m functions, in the following order:

- a. Hard lumps of cement in bin (Malfunction No. 1).
- b. Cement delivery uneven (Malfunction No. 2).
- c. Meter feeder does not turn (Malfunction No. 3).
- d. Cement bin auger will not turn (Malfunction No. 4).
- e. Cement meter feeder locked in place (Malfunction No. 5).
- f Cement counter does not operate (Malfunction No. 6).
- g. Cement screen does not vibrate (Malfunction No. 7).

# **NOTE**

Troubleshooting procedures for air pads and bin vibrators are contained in table 11-1, para 11-5.

Table 8-1. Cement System Troubleshooting Procedures

#### **TEST OR INSPECTION**

#### **CORRECTIVE ACTION**

#### 1. HARD LUMPS OF CEMENT IN BIN:

# **NOTE**

Lumps of hardened cement result from moisture in bin. If this problem occurs remove cement. Clean and dry bin. Find what caused the problem. Follow the steps below. They will tell you how to keep the problem from happening again. Remember that bin should be emptied if mixer is left standing for more than a few days.

Step 1. Check for bent or warped cover.

Straighten cover and hammer out dents.

Cover must fit tightly on all sides.

Replace if necessary.

Step 2. Check for broken or loose cover gasket.

Replace gasket (refer to para 8-10).

Step 3. Check latch tensions. Latches should hold cover tightly against gasket on all sides.

Refer problem to Direct Support Maintenance.

# 2. CEMENT DELIVERY UNEVEN:

Step 1. Check for proper aeration.

See table 11-1, Malfunction No. 2.

Step 2. Check vibrators for proper operation.

See table 11-1, Malfunction No. 3.

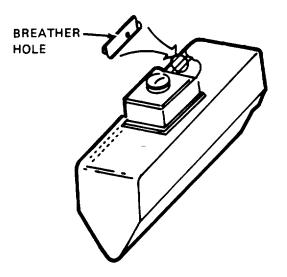
#### **TEST OR INSPECTION**

## **CORRECTIVE ACTION**

# 2. CEMENT DELIVERY UNEVEN (Continued):

Step 3. Check for plugged breather.

Use a stiff wire to unplug breather.



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Step 4. Check to be sure meter feeder pockets are clean.

- a. Remove side access doors.
- b. Loosen spring tines.
- c. Disengage clutch.
- d. Rotate feeder. Use metal scraper to clean each pocket.

# **NOTE**

If hard deposits of cement repeatedly build up in pockets, they are probably caused by condensation. To prevent this, place a lighted 100-watt electric bulb under the meter feeder when the mixer is parked overnight.

Table 8-1. Cement System Troubleshooting Procedures (Continued)

#### **TEST OR INSPECTION**

#### **CORRECTIVE ACTION**

# 2. CEMENT DELIVERY UNEVEN (Continued):

- e. Readjust spring tines (para 8-12).
- Step 5 Check spring tines for:
  - a. Bends.
  - b. Breaks.
  - c. Missing tines.
  - d. Missing hammers.
  - e. Proper tension (para 8-12).

Replace tines or hammers, adjust tension.

Step 6. Make sure cross-auger fingers are straight and in place.

Inspect and replace auger fingers (para 9-8).

Step 7. Check that meter-register cable turns.

Tighten setscrews in cable ends (para 8-13).

Step 8. Check meter-register cable for loose play.

Adjust or replace cable (para 8-13).

Step 9. Check that ground straps are in good condition and touch ground.

Properly position or replace straps.

Table 8-1. Cement System Troubleshooting Procedures (Continued)

# **MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION CEMENT DELIVERY UNEVEN (Continued):** 2. GROUNDING **STRAPS** TA 076337

# **TEST OR INSPECTION**

# **CORRECTIVE ACTION**

# 3. METER-FEEDER DOES NOT TURN:

Step 1. Make sure that clutch is engaged.

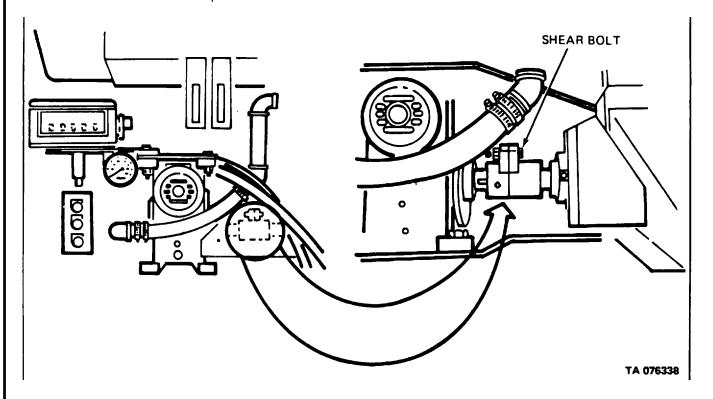
Engage clutch.

Step 2. Check for broken shear bolt on main conveyor.

# **NOTE**

A broken shear bolt results from some other problem. Often something is caught on the belt or chain. Unless you correct this problem, shear bolts will continue to break.

- a. Find cause of shearing. Correct problem.
- b. Replace shear bolt.



#### **TEST OR INSPECTION**

# **CORRECTIVE ACTION**

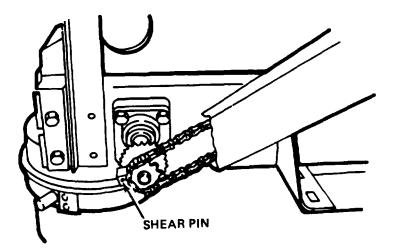
# 3. METER-FEEDER DOES NOT TURN (Continued):

- Step 3. Check for broken shear pin on meter-feeder drive, caused by objects stuck between vanes and housing of meter-feeder.
  - a. Raise rear access door.
  - b. Remove plate above housing.



Do not turn meter-feeder backwards unless spring tines are released.

- Rotate feeder slowly in operating direction. Check for objects stuck between vanes and housing.
   Remove objects. If necessary, release spring tines so that you can rock meter-feeder back and forth.
- d. Replace shear pin.



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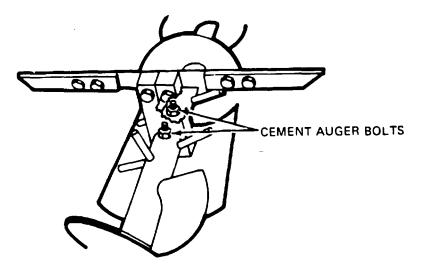
#### **TEST OR INSPECTION**

# **CORRECTIVE ACTION**

# 4. CEMENT BIN AUGER WILL NOT TURN:

Step 1. Remove cement from bin. Check for loose or missing bolts holding auger tube to shaft.

Tighten or replace bolts.



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These are special, grade 5 machine bolts. Be sure you use the same kind of replacement.

Step 2. Check for broken key in sprocket.

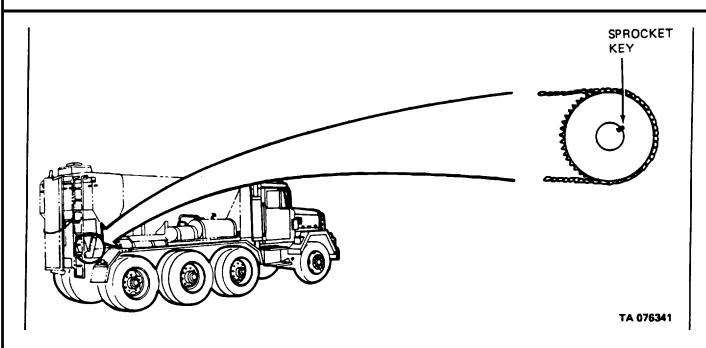
#### **NOTE**

A broken key results from some other problem. Usually the auger is jammed by hardened cement. Unless you correct the problem, keys will continue to break.

- a. Find cause of breakage. Correct problem.
- b. Replace key.

# **TEST OR INSPECTION**

# **CORRECTIVE ACTION**



# 5. CEMENT METER-FEEDER BLOCKED IN PLACE:

Refer problem to Direct Support Maintenance.

# 6. CEMENT COUNTER DOES NOT OPERATE:

- Step 1. Check cable for:
  - a. Breaks.
  - b. Kinks.

Straighten or replace cable (para 813).

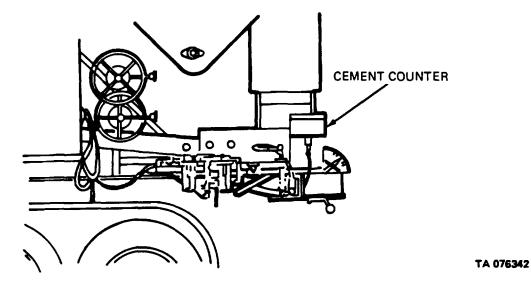
Step 2. Check drive system for free movement.

Use manual control to actuate air pads. Give several sharp blasts of air.

# **TEST OR INSPECTION**

# **CORRECTIVE ACTION**

# 6. CEMENT COUNTER DOES NOT OPERATE (Continued):



Step 3. Check that cable connectors are unbroken and properly seated.

Tighten connectors or replace cable (para 8-13).

Step 4. Be sure setscrews are tight.

Tighten setscrews (para 8-13).

# 7. CEMENT SCREEN DOES NOT VIBRATE:

Step 1. Check that arm between vibrator and screen is unbroken, firmly attached.

Attach or replace arm.

Step 2. Check that vibrator is properly lubricated.

Lubricate vibrator. (See para 11-8).

#### **TEST OR INSPECTION**

# **CORRECTIVE ACTION**

# 7. CEMENT SCREEN DOES NOT VIBRATE (Continued):

Step 3. Check that chassis air pressure is over 65 psi (448 kPa).

Start up truck and allow pressure to build up. If pressure remains low, trouble-shoot chassis air system (see TM 9-2320-273-20).

Step 4. Check for air leaks.

Tighten connections or replace leaking part (para 11-12).

Step 5. Check air supply at vibrator.

Find blocked line or valve.

Remove block or replace part (para 11-12).

Step 6. Replace vibrator (para 11-8).

# Section III MAINTENANCE PROCEDURES

# 8-7. INTRODUCTION. I

This section provides you with Organizational Level maintenance procedures for the cement system of the mixer body. Paragraph 8-8 summarizes the maintenance tasks. Paragraphs 8-9 thru 8-15 contain detailed instructions for each task.

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#### 88. CEMENT SYSTEM MAINTENANCE TASK SUMMARY.

INITIAL SETUP EQUIPMENT CONDITION

APPLICABLE CONFIGURATIONS PARAGRAPH CONDITION DESCRIPTION

M919. TM 5-3895372-10. Cement Bin Empty.

#### **TEST EQUIPMENT**

None.

# **SPECIAL TOOLS**

None.

# **MATERIALS/PARTS (P/N)**

Oil (See Appendix C).
Filter Cloth, NP5033034 (50663).
GAA (See Appendix C).
Cement Meter Register, NP5016-004 (50663).

# **SPECIAL ENVIRONMENTAL CONDITIONS**

# PERSONNEL REQUIRED

Two One (MOS-62B20).

Vehicle Parked on Level Ground.

# **REFERENCES (TM)**

REFERENCES (TM) LO 5-3895-372-12 TM 53895372-10. TM 53895372-20P. TM 9-232027310

# **GENERAL SAFETY INSTRUCTIONS**

Engine Off.
Transmission in Neutral.
Parking Brake Set.
Safety Glasses Should be Worn When Working
Around Cement

# **REFERENCES (TROUBLESHOOTING)**

Table -1.

# LIST OF TASKS

TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)
1.	Cement Screen Maintenance:	89	8-1
	a. Removal. b. Installation.	8-9A 89B	
2.	Screen Vibrator Maintenance:	8-10	8-1
	<ul><li>a. Removal.</li><li>b. Installation.</li><li>c. Operational check.</li></ul>	8-10A 8-10B 8-10C	

# 8-8. CEMENT SYSTEM MAINTENANCE TASK SUMMARY (Continued).

# LIST OF TASKS

TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)
3.	Filter Cloth Replacement:	8-11	8-1
	a. Operational check.	8- 11A	
	b. Removal.	8-11 B	
4.	c. Installation. Spring Tine Maintenance:	8-11C 8-12	8-1
	a. Inspection.	8-12A	
	b. Hammer replacement.	8-12B	
5.	c. Adjustment. Meter Register Cable Maintenance:	8-12C 8-13	8-1
	a. Removal.	8-13A	
	b. Lubrication.	8-13B	
	c. Installation.	8-13C	
	d. Operational check.	8-13D	
	NOTE  Maintenance procedures for the fluffer air supply and bin vibrators are listed in paragraphs 11-8, 11-12, and 11-14.		
6.	Cement Meter Register Replacement:	8-14	8-1
	a. Removal.	8-14A	
	b. Installation.	8-14B	
7.	Cement System Drive Maintenance:	8-15	8-1
	a. Removal.	8-15A	
	b. Disassembly.	8-15B	
	c. Cleaning and inspection.	8-15C	
	d. Assembly.	8-15D	
	e. Installation.	8-15E	

#### 8-9. CEMENT SCREEN MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5)b. Installation. (10)

15 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

None. None

**APPLICABLE CONFIGURATIONS** 

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

One (MOS-62B20).

REFERENCES (TM) ENERAL SAFETY INSTRUCTIONS

LO 5.3895-372-12. Engine Off.

TM 9-2320-273-10. Transmission in Neutral. TM 5-3895-372-10. Parking Brake Set. TM 5-3895-372-20P.

**TROUBLESHOOTING REFERENCES** 

Table 8-1.

13.

14.

15.

16.

**SCREEN** 

NUT (6)

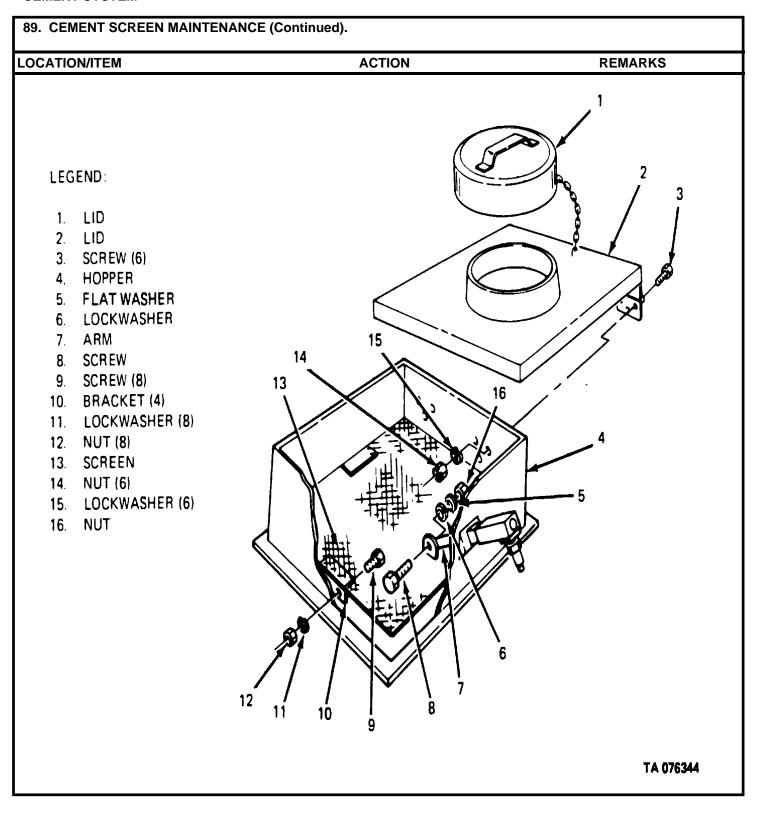
NUT

LOCKWASHER (6)

#### 8-9. CEMENT SCREEN MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** A. REMOVAL. 1. Hopper (4). Remove from bin. 2. Screw (8), lockwasher Unscrew and remove arm (6), flat washer (5), and (7) from screen (13). nut (16). Turn hopper (4) up-side-3. Eight screws (9), lockdown to loosen and washers (11), and eight nuts (12). remove four brackets (10) and screen (13). LEGEND: LID 1. LID 2. SCREW (6) 3. HOPPER 5. FLAT WASHER LOCKWASHER 7. ARM SCREW 8. SCREW (8) 9. 10. BRACKET (4) LOCKWASHER (8) 11. **NUT (8)** 12.

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8-9. C	EMENT SCREEN MAIN	ENANCE (Continued).	
LOCA	TION/ITEM	ACTION	REMARKS
A. REI	MOVAL (Continued). <sub>1</sub>		
		NOTE	
		If necessary, use the following steps to remove lids.	
4.	Six screws (3), lock-washers (15), and nuts (14).	Unscrew and remove lid (2) from hopper (4).	
5.	Lid (1).	Pull up and remove from lid (2).	
В.	INSTALLATION.		
6.	Screen (13).	Turn hopper (4) up-side- down and set screen (13) in place.	
7.	Four brackets (10).	Install to hopper (4) with eight screws (9), lockwashers (11), and nuts (12).	
8.	Arm (7). I	Install to screen (13) with screw (8), lockwasher (6), flat washer (5), and nut (16).	
9.	Lid (2).	Install to hopper (4) with six screws (3), lockwashers (15), and nuts (14).	
10.	Lid (1).	Set in place on lid (2).	



#### 8-10. SCREEN VIBRATOR MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5)b. Installation. (5)c. Operational Check. (5)

15 Minutes Total

INITIAL SETUP EQUIPMENT

CONDITION PARAGRAPH

PARAGRAPH CONDITION DESCRIPTION

None. None..

**APPLICABLE CONFIGURATIONS** 

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIALS/PARTS (P/N)** 

Oil (See Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

One (MOS-62B20).

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

LO 53895-372-12. Engine Off. Transmission Tr

TM 5-3895-372-10. Transmission in Neutral. Parking Brake Set.

TM 923285-273-10P. Safety Glasses Should be Worn When Working

Around Cement.

TROUBLESHOOTING REFERENCES

Table 61.

	NANCE (Continued).	DEMARKS
LOCATION/ITEM	ACTION	REMARKS
. REMOVAL		
1. Air line (8).	Twist and pull off of coupler (7).	
2. Coupler (7).	Unscrew from vibrator (6).	
3. Screw (5), lockwasher (1), flat washer (2), and nut (3).	Unscrew and remove vibrator (6).	
4. Screw (11), lockwasher (1), flat washer (2), and nut (3).	Unscrew and remove arm (9) and grommet (10).	
5. Gasket (12)	Remove from hopper (4).	Replace if damaged.
1. LOCKWASHER (2) 2. FLAT WASHER (2) 3. NUT (2) 4. HOPPER 5. SCREW 6. VIBRATOR 7. COUPLER 8. AIR LINE 9. ARM 10. GROMMET 11. SCREW 12. GASKET 13. SCREEN	13	3 3 9 7 8
	••	TA 076345

# 8-10. SCREEN VIBRATOR MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

## B. INSTALLATION.

6. Gasket (12).

7. Grommet (10) and arm (9).

and

8. Vibrator (6).

9. Coupler (7).

10. Air line (8).

Position on bottom of hopper (4).

- a. Install grommet (10) into hopper (4) as shown.
- b. Install arm (9) thru grommet (10) and secure inside hopper at screen (13) with screw (11), lockwasher (1), flat washer (2) and nut (3).

Aline with arm (9) and secure with screw (5), lockwasher (1), flat washer (2), and nut (3). Screw into vibrator (6).

Twist and push onto coupler (7).

# C. OPERATIONAL CHECK

11. Air line (8).

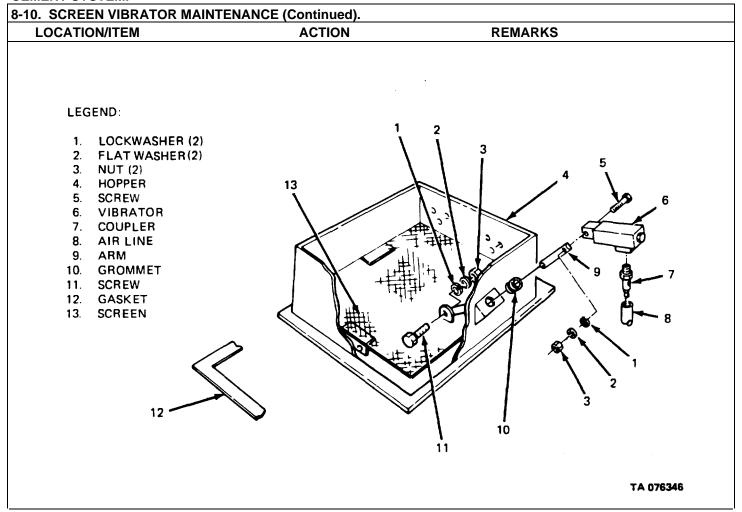
- Use quick-disconnect fitting to connect to supply line (see TM 5-3895-372-10).
- b. Check for screen vibration.

## **NOTE**

If screen does not vibrate, check for:

If screen does not vibrate, check for:

- a. Chassis air pressure less than 65 psi (448 kPa).
- b. Arm (9) broken or not bolted to screen.
- c. Unlubricated vibrator. (Vibrator may rust due to moisture in air lines.)
- d. Blocked or leaking air lines.



#### 8-11. FILTER CLOTH REPLACEMENT.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Operational Check. (10)b. Removal. (5)c. Installation. (10)

25 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION PARAGRAPI

PARAGRAPH CONDITION DESCRIPTION

TM 5-3895-372-10. Cement Bin Empty. TM 9-2320-273-10. Air System Charged.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIALS/PARTS (P/N)** 

Filter Cloth, NP5033034 (50663).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Two (MOSR62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-10. Engine Off.

TM 5-3895-372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

Safety Glasses Should be Worn When Working

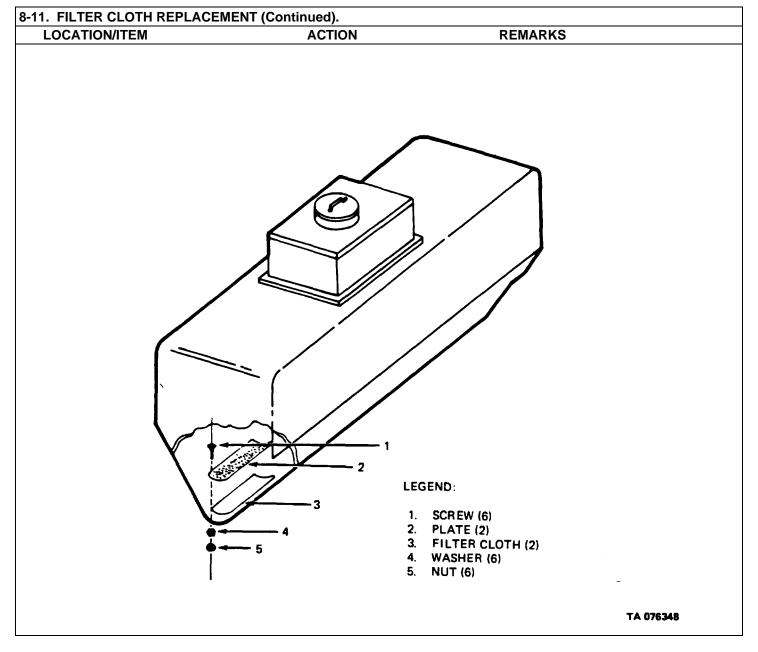
Around Cement.

TROUBLESHOOTING REFERENCES

Table 8-1.

# 8-11. FILTER CLOTH REPLACEMENT (Continued). LOCATION/ITEM **ACTION REMARKS** A. OPERATIONAL CHECK. (8-13 cm) 1. Cement bin. Fill 3-5 in. deep with cement. 2. Two filter cloths (3). Actuate with several short One mechanic at fluffer consharp blasts. Watch for trol, one at top of cement gentle puffs of cement. Torn cloth gives sharp b. Clogged cloth gives no air action. LEGEND: 1. SCREW (6) 2. PLATE (2) 3. FILTER CLOTH (2) 4. WASHER (6) **NUT (6)** TA 076347

EMOVAL  3. Cement bin. 4. Six screws (1), washers	Emphy	
	Empty	
(4), and nuts (5). 5. Plate (2) and filter cloth (3).	Empty. Unscrew and remove. Remove.	Refer to TM 5-3895-372-10. One mechanic in bin, one outside.
ISTALLATION.		
6. Filter cloth (3) and plate (2).	Place in bin.	
7. Six screws (1), washers (4), and nuts (5)	Screw in and tighten.	One mechanic in bin, one outside.
Wh	<b>NOTE</b> en procedure is finished, recheck o	neration (part A)



# 8-12. SPRING TINE MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Inspection. (5)b. Hammer Replacement. (5)c. Adjustment. (5)

15 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

8-15. Panels Removed.

**APPLICABLE CONFIGURATIONS** 

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 53895-372-20P. Engine Off.

TM 5-3895-372-10. Transmission in Neutral. Parking Brake Set.

Safety Glasses Should be Worn When Working

Around Cement.

TROUBLESHOOTING REFERENCES

Table 81.

Replace if necessary

(Part B).

#### **CEMENT SYSTEM.**

# 8-12. SPRING TINE MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### **NOTE**

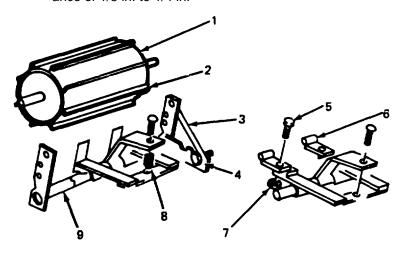
Before you begin maintenance, be sure hammers (6) have 1/8 in. to 1/4 in. clearance from drum (1), not being lifted by vane (2).

# A. INSPECTION.

1. Two hammers (6).

Inspect for:

- a. Worn heads.
- b. Breaks.
- c. Bends.
- d. Missing parts.
- e. Hammer to drum clearance of 1/8 in. to 1/4 in.



#### LEGEND:

- 1. DRUM
- 2. VANE
- 3. SHAFT LINK
- 4. ARM
- 5. SCREW
- 6. HAMMER (2)
- 7. NUT
- 8. SPRING
- 9. SHAFT

TA 076349

B-	B-12. SPRING TINE MAINTENANCE (Continued).						
	LOCATION/ITEM	ACTION	REMARKS				
A.	INSPECTION (Con	tinued).					
	2. Notched arm (4	Check that arm can be pressed down 3/4-1 in. (19-25 mm) when shaft link (3) is in notch.	Adjust if necessary (Part C).				
B.	HAMMER REPLAC	EMENT.					
		CAUTION					
		Always check adjustment after replace	sing a hammer.				
	<ol> <li>Shaft link (3).</li> <li>Screw (5) and (1)</li> </ol>	hammer (6).	Remove				
	5. Hammer (6).	Attach to spring tine with screw (5) and nut (7).	Tighten.				
c.	ADJUSTMENT.						
	6. Shaft link (3).	Try placing link in a different. notch of arm (4). be able to press arm down	If this does not work, go to You should Step 7.				
	7. Shaft (9).	3/4-1 in. spring tension. Turn with pipe wrench until arm goes down 3/4-1 in. (19- 25 mm) against spring (8) when shaft link (3) is in a notch.	(19-25 mm) against				

# 8-12. SPRING TINE MAINTENANCE (Continued). LOCATION/ITEM ACTION REMARKS LEGEND: 1. DRUM 2. VANE 3. SHAFT LINK 4. ARM 5. SCREW 6. HAMMER (2) 7. NUT 8. SPRING 9. SHAFT TA 078350

#### 8-13. METER REGISTER CABLE MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5)b. Lubrication. (5)c. Installation. (10)d. Operational Check. (5)

25 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS None. None.

M919.

TEST EQUIPMENT

None.

**SPECIAL TOOLS** 

None.

MATERIALSIPARTS (PIN)

GAA (See Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

<u>REFERENCES (TM)</u> <u>GENERAL SAFETY INSTRUCTIONS</u>

LO 5-3895372-12. Engine Off.

TM 5-3895-372-10. Transmission in Neutral. TM 5-3895-372-20P. Parking Brake Set.

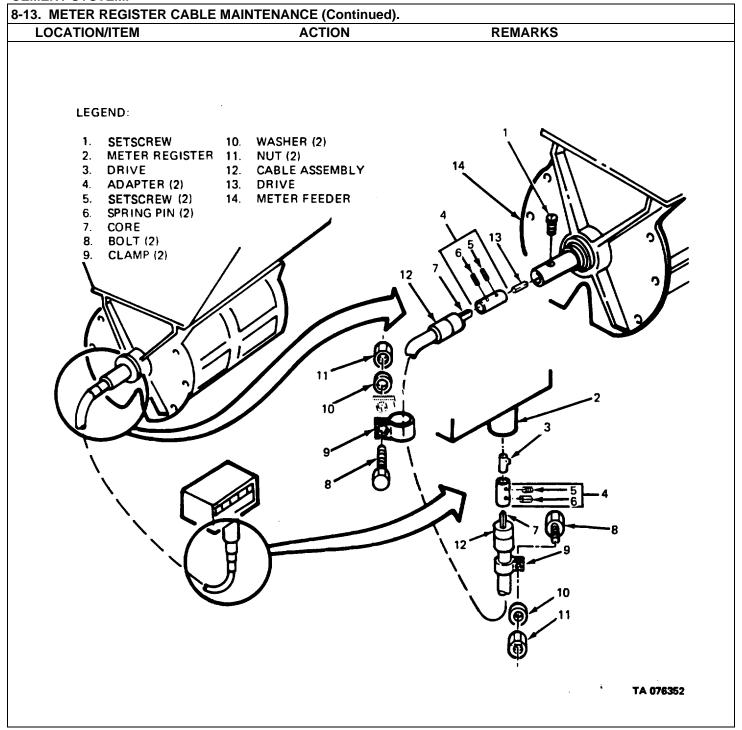
TM 9-2320-273-10.

TROUBLESHOOTING REFERENCES

Table 81.

8-13. METER REGISTER CABLE MAINTENANCE (Continued).				
LOCATION/ITEM	ACTION	REMARKS		
A. REMOVAL.				
<ol> <li>Clamp (9), bolt (8), washer (10), and nut (11).</li> <li>Cable assembly (12).</li> </ol>	Loosen and remove.  Remove from meter register (2).	At meter register (2).		
Access panel to meter feeder cable	Open	Cable passes through slot in bottom.		
LEGEND:				
	NUT (2) CABLE ASSEMBLY DRIVE			
		' TA 076351		

LOCATION/ITEM		ACTION	REMARKS
A. REI	MOVAL (Continued).		
4.	Setscrew (1).	Loosen.	Turn meter feeder (14) until setscrew (1) is accessible.
	Clamp (9), bolt (8), (10), and nut (11).	<ul> <li>a. Loosen and remove.</li> <li>b. Pull cable assembly (12)from meter feeder (14).</li> </ul>	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
6.	Two adapters (4).	Loosen two setscrews (5) and remove two drives (3) and (13).	
7.	Two spring pins (6).	Push from adapters (4) and remove adapters from cable assembly (12).	
3. LUE	BRICATION.I	dosembly (12).	
8.	Core (7).	Remove from cable assembly (12) and grease thoroughly with GAA.	
C. INS	TALLATION.		
	Core (7). Cable assembly (12).	Reinstall.  a. Position into two clamps (9).  b. Install two bolts (8), washers (10), and nuts (11).	Do not tighten bolts (8) at this time.
11.	Two adapters (4).	Position on core (7) and install two spring pins (6).	and and.
12.	Two drives (3) and (13).	<ul> <li>a. Position into two adapters</li> <li>(4) and lock with two setscrews (5).</li> <li>b. Insert drive (13) into meter feeder (14) and lock with setscrew (1).</li> <li>c. Insert drive (3) into meter register (2).</li> </ul>	
13.	Two bolts (8).	Tighten at clamps (9) to secure cable assembly (12).	
D. OPI	ERATIONAL CHECK.	·	
14.	Meter feeder (14).	<ul><li>a. Disengage cement bin clutch.</li><li>b. Turn meter feeder manually.</li><li>c. Check that meter register count changes with each turn.</li></ul>	See TM 5-3895-372-10.



8-14. CEMENT METER REGISTER REPLACEMENT.

LOCATION/ITEM ACTION REMARKS

a. Removal. (10)b. Installation. (10)

20 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION PARAGRAPH

PARAGRAPH
8-13. Condition DESCRIPTION
Cable Assembly Removed.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIALS/PARTS (P/N)** 

Cement Meter Register, NP5016004 (50663).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 53895372-20P. Engine Off.

TM 9-2320-273-10. Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table -1.

# 8-14. CEMENT METER REGISTER REPLACEMENT (Continued). **ACTION** LOCATION/ITEM **REMARKS** A. REMOVAL. 1. Four bolts (5) and Remove. washers (6). 2. Meter register (1) and Remove. base (2). 3. Brace (4) and two nuts (3). Remove if necessary. B. INSTALLATION. 4. Brace (4) and two nuts (3). Install. 5. Meter register (1) Set in place 6. Four bolts (5) and Install. Tighten. washers(6). LEGEND: METER REGISTER 2. BASE 3. NUT (2) BRACE 5. BOLT (4) 6. WASHER (4) TA 076353

#### 8-15. CEMENT SYSTEM DRIVE MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (30)b. Disassembly. (20)c. Cleaning and Inspection. (15)d. Assembly. (20)e. Installation. (30)

115 Minutes Total.

**INITIAL SETUP EQUIPMENT** 

CONDITION

**PARAGRAPH CONDITION DESCRIPTION** 

None.

APPLICABLE CONFIGURATIONS None.

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALSIPARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

**GENERAL SAFETY INSTRUCTIONS** REFERENCES (TM)

TM R389(372-20P. Engine Off.

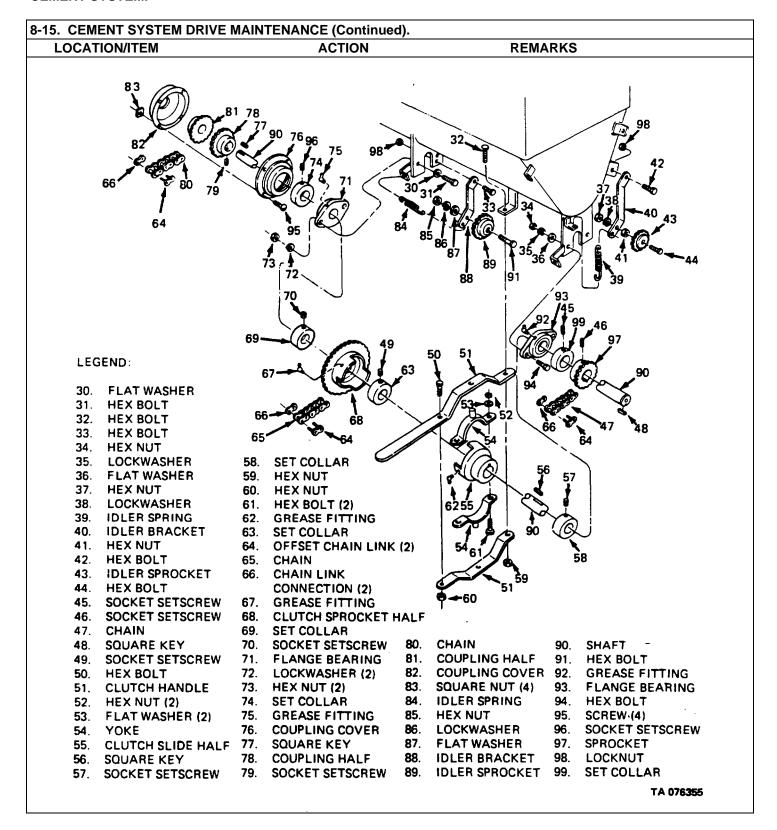
TM 9-2320-273-10. Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REFERENCES

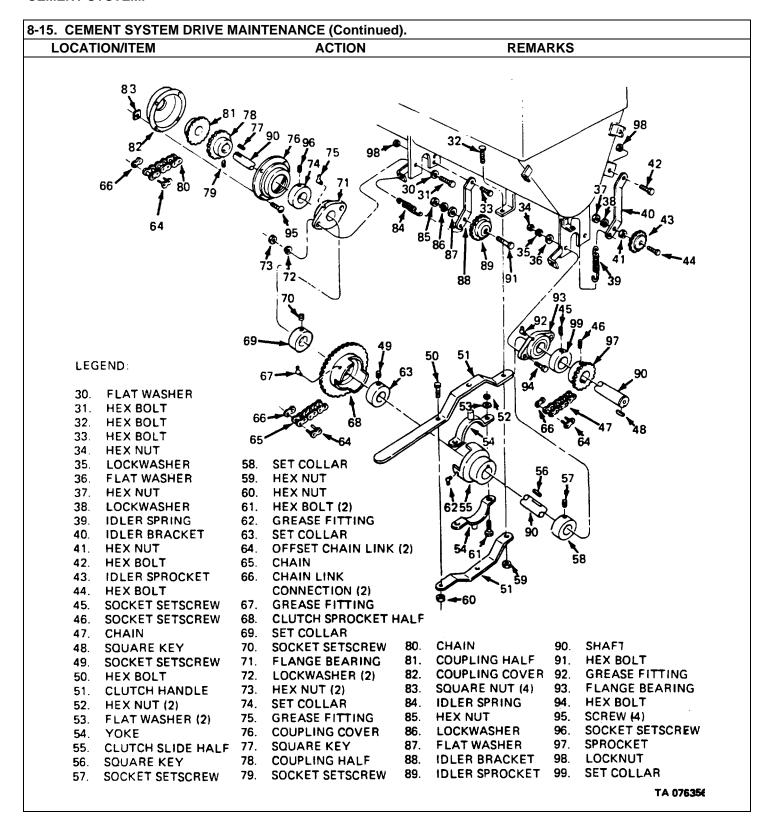
Table 81.

#### 8-15. CEMENT SYSTEM DRIVE MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** A. REMOVAL. 1. Cement auger a. Remove three hex bolts (4), drive guard (5). (12), and (27) with lockwashers (3), (11), and (28). b. Remove cement auger drive guard (5) from end of cement bin (29). c. If necessary, remove access cover (8) by removing hex bolt (9), flat washer (10) and hex nut (6). 2. Front guard (15) a. Unscrew six hex bolts (19) and and rear guard (17). lockwashers (18) and remove assembled front guard (15) and rear guard (17). b. If necessary, separate by removing three hex bolts (16), lockwashers (14), and hex nuts (13). LEGEND: **ACCESS COVER** HEX BOLT **HEX BOLT** 9. LOCKWASHER 10. **FLAT WASHER** 3. LOCKWASHER **LOCKWASHER** 11. 4. HEX BOLT 12. **HEX BOLT** 5. CEMENT AUGER 13. HEX NUT (3) **DRIVE GUARD** 14. LOCKWASHER (3) 6. HEX NUT **FRONT GUARD** 15. 7. FLAT WASHER 16. HEX BOLT (3) 17. **REAR GUARD** 18. LOCKWASHER (6) 19. HEX BOLT (6) 20. **HEX BOLT** 21. **BIN DRIVE GUARD** 22. HEX BOLT 23. JAW CLUTCH LATCH 24. LOCKNUT 25. **LOCKWASHER** 26. **HEX BOLT** 27. **HEX BOLT** 28. LOCKWASHER 29. **CEMENT BIN** TA 076354

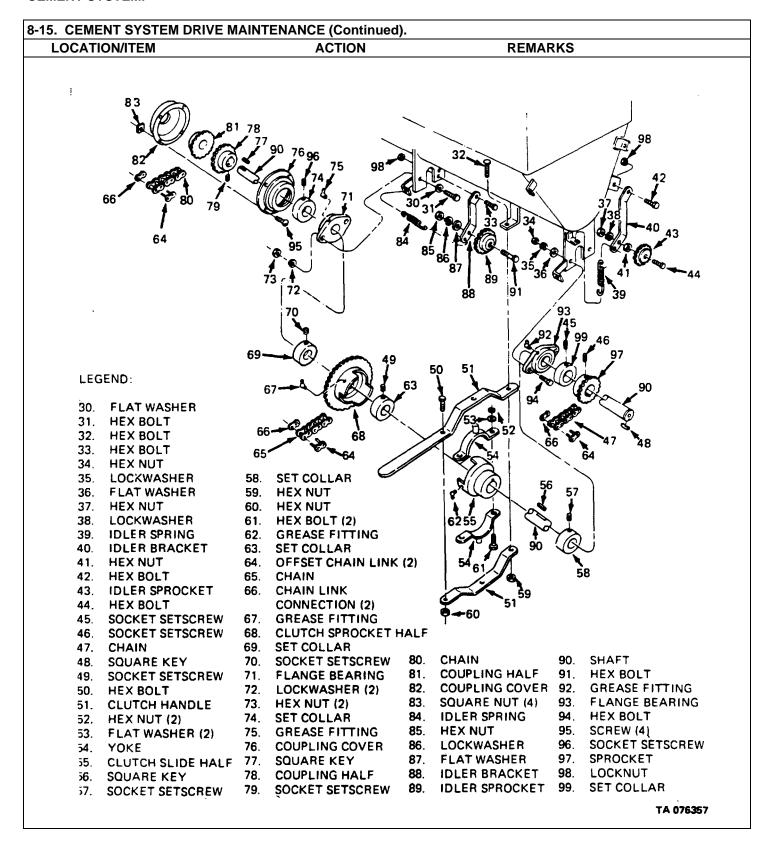
8-15. CEMENT SYSTEM DRIVE MAINTENANCE (Continued).				
LC	CATION/ITEM	ACTION	REMARKS	
A. RF	MOVAL (Continued).			
4.	Idler spring (39).	Remove.		
5.	Idler Bracket (40).	Unscrew hex bolt (42) with locknut (98).		
6.	Idler sprocket (43).	Remove hex bolt (44), two hex nuts (37) and (41), and lockwasher (38).		
7.	Two chains (47) and (65).	Unfasten two chain link con- nections (66) from offset chain links (64) and remove.		
8.	Sprocket (97).	Loosen socket setscrew (46) and pry sprocket (97) and square key (48) off shaft (90).		
9.	Idler spring (84).	Remove.		
10.	ldler bracket (88).	Unscrew hex bolt (33) from		
11.	Idler sprocket (89).	locknut (98) and remove. Remove hex bolt (91), hex nut (85), lockwasher (86) and flat		
12.	Coupling cover (76) and (82).	washer (87). Separate by removing four screws (95) and square nuts (83).		
13.	Chain (80).	Unfasten chain link connection (66) from offset chain link (64) and remove.		
14.	Clutch handle (51).	<ul><li>a. Remove two hex bolts (32)</li><li>and (50) with hex nuts (59)</li><li>and (60).</li><li>b. Separate halves and remove</li></ul>		
15.	Shaft (90).	from pins on yoke (54).  a. Support shaft (90) and remove four hex bolts (94) and (31), flat washers (30) and (36), lockwashers (72) and (35) with hex nuts (73) and (34).  b. Lower shaft (90) sliding the two flange bearings (71) and (93) in the slots.		



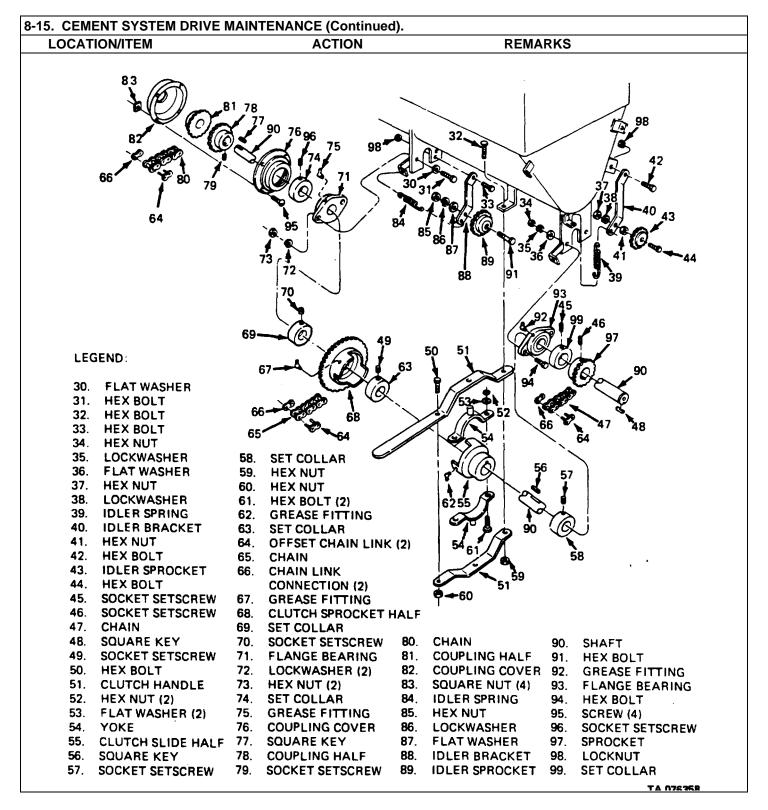
8-15. CEMENT SYSTEM DRIVE MAINTENANCE (Continued).					
LC	CATION/ITEM	ATION/ITEM ACTION REMARKS			
	SASSEMBLY.	Loosen	Mark location on shoft (00)		
16.	Socket setscrew (79).	Loosen.	Mark location on shaft (90) to aid in reassembly.		
17	Coupling half (78).	Remove.	to ald in reassembly.		
	Square key (77).	Remove.			
	Coupling cover (76).	Remove.			
	Shaft (90).	a. Remove all paint from set			
20.	Shart (90).	collar (74) to end.			
		b. Clean and polish with emery			
		paper.			
21	Set collar (74).	Loosen socket setscrew (96)	Mark location on shaft (90)		
	Set collai (74).	and remove.	to aid in reassembly.		
22	Flange bearing (71).	Remove.	to did in reassembly.		
	Set collar (69).	Loosen socket setscrew (70)	Mark location on shaft (90)		
20.	Get condi (65).	and remove.	to aid in reassembly.		
24	Clutch sprocket half (68).	Remove.	to aid in reassembly.		
	Set collar (63).	Loosen socket setscrew (49)	Mark location on shaft (90)		
	Get Genar (GG).	and remove.	to aid in reassembly.		
26	Yoke (54).	Unscrew two hex bolts (61),	to did in rodocomory.		
	1 OKO (04).	flat washers (53) and hex nuts			
		(52) and remove.			
27	Clutch slide half (55).	Remove.			
28.		Remove.			
	Set collar (58).	Loosen socket setscrew (57)	Mark location on shaft (90)		
	<b>3</b> 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	and remove.	to aid in reassembly.		
		u <u>u</u> uu.			
		NOTE			
	In steps 30 and 31	, the parts are removed from the right	end of the shaft (90).		
	·		• •		
30.	Set collar (99).	Loosen socket setscrew (45)	Mark location on shaft (90)		
		and remove.	to aid in reassembly.		
31	Flange bearing (93	Remove.			



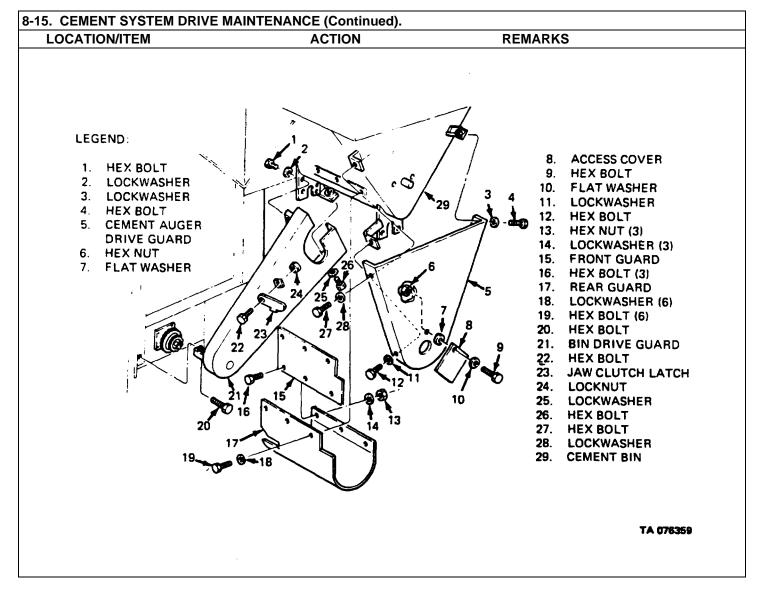
8-15. CEMENT SYSTEM DRIVE MAINTENANCE (Continued).				
LO	CATION/ITEM	ACTION	REMARKS	
C. CLE	EANING AND INSPECTION.			
	Two flange bearings			
	nd (93).	Clean and inspect for rough- ness and looseness.	Replace, if required.	
	Four grease fittings 67), (75), and (92).	ness and looseness. Inspect for damaged or broken	Replace, if required.	
	Sprocket (97), clutch	fittings.	rtopiass, ii roquiisa.	
sprock	et half (68), and	Inspect for excessively worn	Replace, if required.	
	er sprockets (43)	or broken cogs.		
and (89 35	9). Three chains (47), (65),			
and (80		Clean and inspect for damaged or excessively worn links.		
D. AS	SEMBLY.	•		
36.	Flange bearing (93).			
37.	Set collar (99).	Install.		
20	Square key (49)	Install and tighten socket set- screw (45).	Position in location marked during disassembly.	
	Square key (48). Sprocket (97).	Install on shaft (90).	duling disassembly.	
	oproener (er).	Install and tighten socket	Position in location marked	
40.	Set collar (58).	setscrew (46).	during disassembly.	
<i>4</i> 1	Square key (56).	Install and tighten socket setscrew (57).		
	Clutch slide half (55).	Install.		
	Yoke (54).	Install.		
		Install and secure with two		
44	Set collar (63).	hex bolts (61), flat washers (53), and hex nuts (52).		
77.	Cot condi (00).	Install and tighten socket set-	Position in location marked	
	Clutch sprocket half (68).	screw (49).	during disassembly.	
46.	Set collar (69).	Install.	Position in location marked	
47	Flange Bearing (71).	Install and tighten socket set- screw (70).	during disassembly.	
	Set collar (74).	Install.	during disdosorribly.	
	- ( )	Install and tighten socket setscrew (96).	Position in location marked during disassembly.	



	CEMENT SYSTEM DRIVE MAII CATION/ITEM	ACTION	REMARKS
D. AS	SEMBLY (Continued).		
49.	Coupling cover (76).	Install.	
	Square key (77).	Install.	
	Coupling half (78).	Install and tighten socket	Position in location marked
		setscrew (79)	during disassembly.
E. INS	TALLATION		
52.	Shaft (90).	<ul> <li>a. Install and support.</li> <li>b. Install four hex bolts (94)</li> <li>and (31), flat washer (30).</li> <li>and (36), lockwashers (72)</li> <li>and (35) with hex nuts (73)</li> <li>and (34) and tighten.</li> </ul>	Be sure two flange bearings (71) and (93) are outside of the mounting bracket
53.	Clutch handle (51).	a. Install two halves on pins of yoke (54).	
		b. Install and tighten two hex bolts (32) and 50) with hex nuts (59) and (60).	
54.	Chain (80).	<ul> <li>a. Install on sprockets of coupling halves (78) and (81)</li> <li>b. Install offset chain link (64)</li> </ul>	).
		and chain link connection (66	3)
55.	Coupling cover (76) and	Assemble with four screws (95)	-,-
(82		and square nuts (83).	
56.	Ídler sprocket (89).	Install and tighten hex bolt (91), hex nut (85), lockwasher (86) and flat washer (87).	
57.	Idler bracket (88).	Install and tighten hex bolt (33) and locknut (98).	
	Idler spring (84).	Install.	
59.	Idler sprocket (43).	Install hex bolt, two hex nuts (37) and (41), and lockwasher (38).	
	Idler bracket (40).	Install and tighten hex bolt (42) and locknut (98).	
	Idler spring (39).	Install.	
62.	Two chains (47) and (65).	<ul> <li>a. Install around sprockets and over top of two idler sprockets (43 and (89).</li> <li>b. Install two offset chain links</li> </ul>	•
		(64)and chain link connectior (66).	าร



LC	CATION/ITEM		ACTION	REMARKS	
E. INS	STALLATION (Continued).				
63.	Bin drive guard (21).	la aı b. Ir he	removed, install jaw clutch tch (23) with hex bolt (22) nd locknut (24). estall bin drive guard (21) with ex bolts (1), (20) and (26) and to lockwashers (2) and (25).		
64.	Front guard (15) and rear guard (17).	a. If bo ai b. In	separated, install three hex olts (16), lockwashers (14), and hex nuts (13). Install with six hex bolts (19), and lockwashers (18).		
65.	Cement auger drive guard (5).	a. If (8 (1 b. In (1	removed, install access cover by with hex bolt (9), flat washer 0) and hex nut (6). Install with three hex bolts (4), 2) and (27) and lockwashers by, (11), and (28).		



8-53/(8-54 Blank)

#### **CHAPTER 9**

#### **MIXER-AUGER SYSTEM**

## 9-1. OVERVIEW.

This chapter provides you with the following information related to mixer-auger system maintenance:

- a. All required special tools and equipment.
- b. Troubleshooting procedures.
- c. Maintenance procedures.

#### Section I REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

#### 9-2. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

# 9-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

The special tools, TMDE, and support equipment for mixer-auger system maintenance procedures described in this chapter are limited to mixer-auger wear gage. (Refer to Organizational Maintenance RPSTL, TM 5-3895372-20P for tool description and illustration.)

#### 9-4. SPARES AND REPAIR PARTS.

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools List covering Organizational Maintenance for this equipment (TM 5-3895-372-20P).

#### Section II TROUBLESHOOTING

## 9-5. INTRODUCTION.

Troubleshooting procedures for the mixer-auger system are given in Table 9-1. It is arranged by multifunctions in the following order:

- a. Mixer-auger stalls, will not rotate or rotates slowly (Malfunction No. 1).
- b. Mixer-auger vibrates (Malfunction No. 2).
- c. Swivel ring binds chute hard to move (Malfunction No. 3).

Table 9 1. Mixer-Auger System. Troubleshooting Procedures

#### MALFUNCTION

#### **TEST OR INSPECTION**

#### CORRECTIVE ACTION

- 1. MIXER-AUGER STALLS, WILL NOT ROTATE, OR ROTATES SLOWLY:
  - Step 1. Check that key between motor and auger is in place by locking auger with a pipe wrench and activating control valve slowly.
  - Step 2. Check hydraulic pressure.

Troubleshoot hydraulic system. See Table 10(1, Malfunction No. 3. Hydraulic pressure should be set at 19002000 psi (13,100-13,800 kPa).

Step 3. Inspect for buildup of hardened concrete on auger. Clean all hardened concrete from auger.

- 2. MIXER-AUGER VIBRATES:
  - Step 1. Inspect for buildup of hardened concrete on auger.
    Clean all hardened concrete from auger.
- Step 2. Inspect bearing and motor attaching hardware for tightness.

  Tighten fastening hardware as required (refer to para 910).
  - 3. SWIVEL RING BINDS-CHUTE HARD TO MOVE:

Check for dirt, stones, or cement on swivel rings.

Remove material blockage as necessary.

CAUTION

Raise jack slowly. Place wood block and jack under rear plate of mixer-auger. Raise jack until dust seal is broken. Lubricate rings liberally with heavy machine oil. Slowly lower jack.

# **Section III MAINTENANCE PROCEDURES**

# 9-6. INTRODUCTION.

This section provides you with Organizational Level maintenance procedures for the mixer-auger system of the mixer body. Paragraph 9-7 summarizes the maintenance tasks. Paragraphs 9-8 thru 917 contain detailed instructions for each task

#### 9-7. MIXER-AUGER SYSTEM MAINTENANCE TASK SUMMARY.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

APPLICABLE CONFIGURATIONS PARAGRAPH CONDITION DESCRIPTION

M919. TM 5-3895372-10. Mixer Trough Lowered.

TM 5-3895-372-10. Cleanup Water Hose Removed

TEST EQUIPMENT From Auger.

9-9A. Mixer Trough Removed.

None. 9-10A. Mix Auger Removed.

SPECIAL TOOLS

Mixer-Auger Wear Gage, NP2727000 (50663).

MATERIALSIPARTS (P/N)

Wear Blades Kit, NS3427-001 (50663).

Vee Blocks. Surface Plate.

Tri-Square.

Stub-Shaft, NP3352002 (50663).

Drive Bushing, NP5033056 (50663).

Rubber Trough Repair Kit, NP2923000 (50663).

Miniskirt, NP2730004 (50663).

Shouldered Shaft, NP3352003 (50663).

Rubber Trough Patch Kit, NP3013000 (50663).

Rubber Trough Bottom, NP2186000 (50663).

PERSONNEL REQUIRED

Two (MOS-62B20).

REFERENCES

LO 5-3895-372-12.

TM 5-3895-372-10.

TM 5-3895-372-20P.

TM 9-2320-273-10.

TROUBLESHOOTING REFERENCES

Table 9-1.

SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

**GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission in Neutral.

Park Brake Set.

Wet Cement and Concrete Can Cause Bums.

Safety Glasses Should be Worn When Working

Around Cement.

#### LIST OF TASKS

TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)
1.	Wear Blades Replacement:  A. Removal	9-8 9-8A	9-1
2.	B. Installation Mixing Auger Assembly Maintenance:	9-8B 9-9	9-1
	A. Removal B. Installation C. Operational Check	99A 99B 99C	

9-7. MI	XER-AUGER SYSTEM MAINTENANCE TASK SUMMA		
	LIST OF TAS	KS	T
TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)
3.	Mixer-Auger Maintenance: A. Removal.	9-10 9-10A	91
	B. Installation.	9-10B	
	C. Operational check.	910C	
4.	Mixer-Auger Repair:  A. Straightening.	9-11 911A	9-1
	B. Replacement of stub or shouldered shaft.	911B	
	C. Replacement of drive bushing.	911C	
5.	Rubber Trough Maintenance: A. Removal.	912 9-12A	9-1
	B. Installation.	9-12B	
6.	Rubber Trough Repair:  A. Repair at bearing end.	9-13 9-13A	9-1
	B. Repair of other areas.	9-13B	
7.	Swivel Ring Maintenance:  A. Removal of trough.	914 9-14A	9-1
	B. Removal of swivel ring.	9-14B	
	C. Installation of swivel ring.	9-14C	
	D. Installation of trough.	9-14D	
	E. Operational check.	9-14E	
8.	Miniskirt Assembly Maintenance: A. Removal.	9-15 9-15A	9-1
	B. Installation.	9-15B	
9.	Chute Maintenance:	9-16	91
10.	Trough Guard Maintenance: A. Removal.	9-17 9-17A	9-1
	B. Installation.	9-17B	

#### MIXER AUGER SYSTEM.

# 9-8. WEAR BLADES REPLACEMENT.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5) (Each)b. Installation. (10) (Each)

15 Minutes Total (Each).

INITIAL SETUP EQUIPMENT

CONDITION PARAGRAPH

APPLICABLE CONFIGURATIONS

PARAGRAPH
TM 538;372-10.

CONDITION DESCRIPTION
Mixer Trough Lowered.

Trough Guards Open.

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Wear Blades Kit, NS3427001 (50663).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

One (MOS-62B20).

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-10. Engine Off.

Transmission in Neutral. TM 5-3895-372-20P. Parking Brake Set.

TM 9-2320273-10. Safety Glasses Should be Wom When Working

Around Cement.

TROUBLESHOOTING REFERENCES Wet Cement and Concrete Can Cause Burns.

Table 9-1.

#### MIXER-AUGER SYSTEM.

#### 9-8. WEAR BLADES REPLACEMENT (Continued).

LOCATION/ITEM ACTION REMARKS

A. REMOVAL

# CAUTION

Do not damage rubber trough bottom when removing nuts.

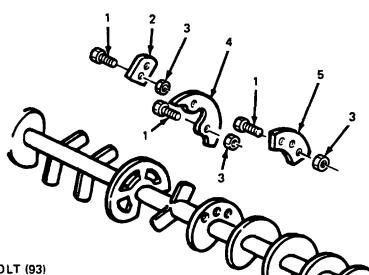
#### **NOTE**

This procedure covers removal and replacement of one of each of the three different blade configurations. Follow the same procedure for any quantity to be replaced. The legend contains the total quantities per auger assembly. For replacement of all wear blades, use kit NS 3427001 (50663).

1. Two socket bolts (1) Unscrew and remove paddle It may be necessary to chisel and locknuts (3). Wear blade (2).

2. Two socket bolts (1) Unscrew and remove segand locknuts (3). Unscrew and remove segonf. It may be necessary to chisel off.

3. Three socket bolts (1) Unscrew and remove wear It may be necessary to chisel and locknuts (3). blade (5). off.



#### LEGEND:

- 1. SOCKET BOLT (93)
- 2. PADDLE WEAR BLADE (26)
- 3. LOCKNUT (93)
- 4. SEGMENTED WEAR BLADE (10)
- 5. WEAR BLADE (7)
- 6. AUGER

TA 076360

## 9-8. WEAR BLADES REPLACEMENT (Continued).

LOCATION/ITEM ACTION REMARKS

# B. INSTALLATION.



Wear blades are made of hardened steel and may break if bent during tightening. Use washers if there is a large gap between auger and blade.

#### **NOTE**

After installation is completed, adjust blades (refer to TM 5-3895-372-10).

4. Wear blade (5).

- a. Aline with mounting holes in auger (6).
- b. Install with three socket bolts (1) and locknuts (3).

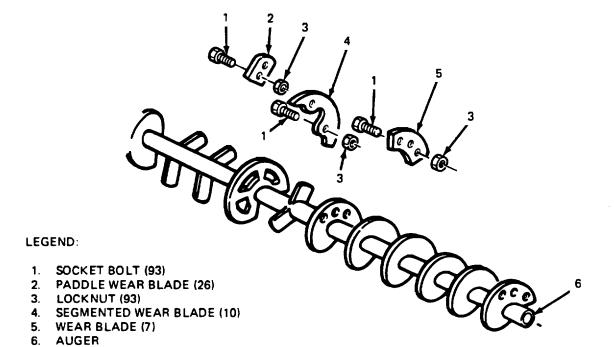
5. Segmented wear blade (4).

- a. Aline with mounting holes in auger (6).
- b. Install with two socket bolts (1) and locknuts (3).
- 6. Paddle wear blade (2).
- a. Aline with mounting holes in auger (6).
- b. Install withtwo socket bolts (1) and locknuts (3).

9-8

# 9-8. WEAR BLADES REPLACEMENT (Continued).

LOCATION/ITEM ACTION REMARKS



TA 076361

#### MIXER-AUGER SYSTEM.

#### 9-9. MIXING AUGER ASSEMBLY MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (20).b. Installation. (20)c. Operational Check. (5)

45 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

<u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

APPLICABLE CONFIGURATIONS TM 5-3895372-10. Clean Up Water Hose Removed

From Trough.

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALSIPARTS (P/N)

Plug. 2. Drain Pan. Marking Pen. Masking Tape.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

One (MOS-62B20).

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

LO 5-3895-372-12. Engine Off.

TM 5-3895-372-10 Transmission in Neutral. TM 5-3895-372-20P. Parking Brake Set.

TM 9-2320-273-10. Wet Cement and Concrete Can Cause Bums.

TROUBLESHOOTING REFERENCES

Table 91.

TA 076362

#### MIXER-AUGER SYSTEM.

25. PULLEY

# 9-9. MIXING AUGER ASSEMBLY MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** A. REMOVAL. 1. Mixing auger (6). Lower to horizontal position and support with suitable hoist. 2. Nut (3) and lock-Unscrew and remove clamp (2). washer (4). 3. Two hydraulic hoses Disconnect and plug Drain oil from hoses into s pan. Tag for correct location at installation. LEGEND: 1. BRACKET 2. CLAMP 3. NUT 4. LOCKWASHER 5. **HYDRAULIC HOSE (2)** 6. **MIXING AUGER** 7. **CABLE COTTER PIN** 8. 9. PIN 10. COTTER PIN (2) 11. BOLT (2) 12. NUT (2) 13. LOCKWASHER (2) 14. BRACKET (2) 15. BOLT (2) 23 16. NUT (2) 17. LOCKWASHER (2) 1, 12, 13 18. WASHER (2) 19. PIVOT PIN (2) 20. BOLT (4) 21. WASHER (4) 22. NUT (4) 15, 16, 17 23. PULLEY HOUSING 24. PULLEY BRACKET

# MIXER-AUGER SYSTEM.

9-9. MIXING AUGER ASSEMBLY MAINTENANCE (Continued).				
LOCATION/ITEM ACTION REMARK				
A. RI	EMOVAL (Continued).			
4.	Cotter pin (8) and pin (9).	<ul><li>a. Remove.</li><li>b. Lift out pulley (25) and cable (7).</li></ul>	Take tension off cable (7) and secure to ladder.	
5.	Four bolts (20), washers (21), and nuts (22).	<ul> <li>Unscrew and remove pulley bracket (24).</li> </ul>		
		<ul> <li>Remove pulley housing (23) from pulley bracket (24).</li> </ul>		
6.	Two nuts (12), lockwashers (13), and bolts (11).	Unscrew and remove.	On right hand side.	
7.	Two nuts (16), lockwashers (17), and bolts (15).	Unscrew and remove bracket (14).	On right hand side.	
8.	Two cotter pins (10) and washers (18).	Remove from two pivot pins (19).		
9.	Mixing auger (6).	Lift mixing auger (6) with welded bracket (1) off pivot pin (19). Once clear, lower to ground.		
10.	Nuts (12), and (16), lock- washers (13) and (17), and bolts (11) and (15).	Reinstall and tighten bracket (14) to mixing auger (6).		
11.	Mixing auger (6).	Roll over and brackets (14) and (1) will support mixing auger (6).		
B. IN	STALLATION.			
12.	Mixing auger (6).	Roll over with brackets (14) and (1) facing upwards.		
13.	Two nuts (12), lock- washers (13) and bolts (11).	Remove.		
14.	Two nuts (16), lockwashers (17) and bolts (15).	Loosen.		
15.	Mixing auger (6).	Lift with suitable hoist and slide brackets (14) and (1) onto two pivot pins (19).		
<u> </u>				

TA 076363

#### MIXER-AUGER SYSTEM. 9-9. MIXING AUGER ASSEMBLY MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** B. INSTALLATION (Continued) 16. Two washers (18) and Install in two pivot pins (19). cotter pins (10). 17. Two nuts (12), nuts (16), Install and tighten. lockwashers (13) and (17), and bolts (1 1) and (15). 18. Pulley housing (23) and Install with four bolts (20). Pulley bracket (24). Washers (21), and nuts (22). LEGEND: 1. BRACKET CLAMP NUT 3. LOCKWASHER **HYDRAULIC HOSE (2) MIXING AUGER** 7. CABLE 8. **COTTER PIN** 9. PIN 10. COTTER PIN (2) **BOLT (2)** 11. 12. **NUT (2)** 13. LOCKWASHER (2) 24 **BRACKET (2)** 14. 10 15. **BOLT (2)** NUT-(2) 16. 23 LOCKWASHER (2) 17. 1, 12, 13 18. WASHER (2) 19. PIVOT PIN (2) BOLT (4) 20. WASHER (4) 21. 22. **NUT (4)** PULLEY HOUSING 15, 16, 17 23.

24.

**2**5.

**PULLEY BRACKET** 

**PULLEY** 

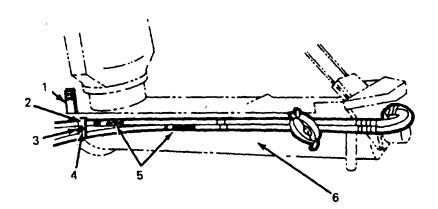
# MIXER-AUGER SYSTEM.

9-9. MIXING AUGER ASSEMBLY MAINTENANCE (Continued).						
L	LOCATION/ITEM	ACTION	REMARKS			
B. IN	ISTALLATION (Continued).					
19.	Cable (7) and pulley (25).	<ul> <li>a. Install cable (7) around pulley (25).</li> <li>b. Install pulley (25) into pulley housing (23) with pin (9) and cotter pin (8).</li> <li>c. Raise until there is tension on cable and remove hoist.</li> </ul>				
20.	Two hydraulic hoses (5).	Remove plugs and install.	Be sure to connect hoses as you marked at removal.			
21.	Clamp (2).	<ul><li>a. Position over two hydraulic hoses (5).</li><li>b. Install with lockwasher (4) and nut (3).</li></ul>				
C. O	PERATIONAL CHECK.	and nat (o).				
22.	Mixing auger (6).	Raise and lower. Lubricate if necessary (refer to LO 5-3895-372-12).				
23.	Mixer body.	Start up (refer to TM 9-2320- 273-10 and TM 5-3895-372-10).				
24.	Hydraulic motor.	Activate; check connections of two hydraulic hoses (5) for leaks and proper functioning.	Retighten connections as necessary.			
25.	Mixer body.	Shut down (refer to TM 9-2320 273-10 and TM 5-3895-372-10).				
26.	Mixing auger (6).	Raise and latch (refer to TM 5-3895-372-10).				
		CAUTION				
	Always latch mixing auger in vertical position and utilize safety chain					

#### MIXER-AUGER SYSTEM.

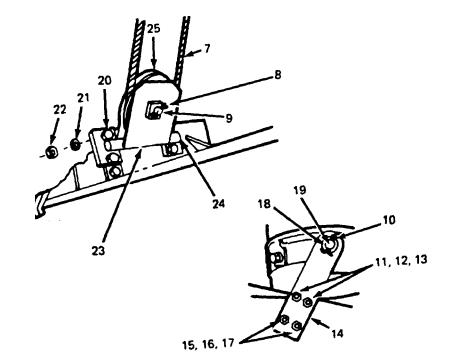
#### 9-9. MIXING AUGER ASSEMBLY MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS



#### LEGEND:

- 1. BRACKET
- 2. CLAMP
- 3. NUT
- 4. LOCKWASHER
- 5. HYDRAULIC HOSE (2)
- 6. MIXING AUGER
- 7. CABLE
- 8. COTTER PIN (2)
- 9, PIN
- 10. COTTER PIN (2)
- 11. BOLT (2)
- 12. NUT (2)
- 13. LOCKWASHER (2)
- 14. BRACKET (2)
- 15. BOLT (2)
- 16. NUT (2)
- 17. LOCKWASHER (2)
- 18. WASHER (2)
- 19. PIVOT PIN (2)
- 20. BOLT (4)
- 21. WASHER (4)
- 22. NUT (4)
- 23. PULLEY HOUSING
- 24. PULLEY BRACKET
- 25. PULLEY



TA 076

### 9-10. MIXER-AUGER MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (20)b. Installation. (20)c. Operational Check. (10)

50 Minutes Total.

**INITIAL SETUP EQUIPMENT** 

CONDITION

None.

**PARAGRAPH** CONDITION DESCRIPTION

None.

APPLICABLE CONFIGURATIONS

M919.

TEST EQUIPMENT

None.

**SPECIAL TOOLS** 

None.

MATERIALSIPARTS (P/N)

Marking Pen. Masking Tape. Plug (2).

PERSONNEL REQUIRED

One (MOS-62B20).

SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

REFERENCES (TM)

TM 5-3895-372-10.

TM 5-3895-372-20P.

TM 9-2320-273-10.

TROUBLESHOOTING REFERENCES

Table 9-1.

**GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission in Neutral.

Parking Brake Set.

Wet Cement and Concrete Can Cause Burns. Safety Glasses Should be Worn When Working

Around Cement.

# 9-9. MIXING AUGER ASSEMBLY MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

# A. REMOVAL.

1. Auger assembly (5). Lower to horizontal position

and support under frame.

2. One nut (4) and lock-

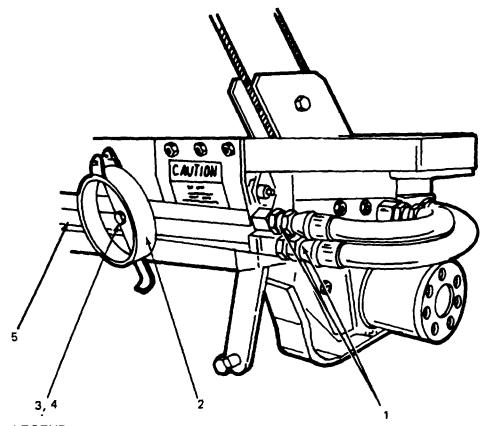
washer (3).

Remove.

3. Hose support bracket (2). Remove.

4. Two swivel nuts (1). Remove

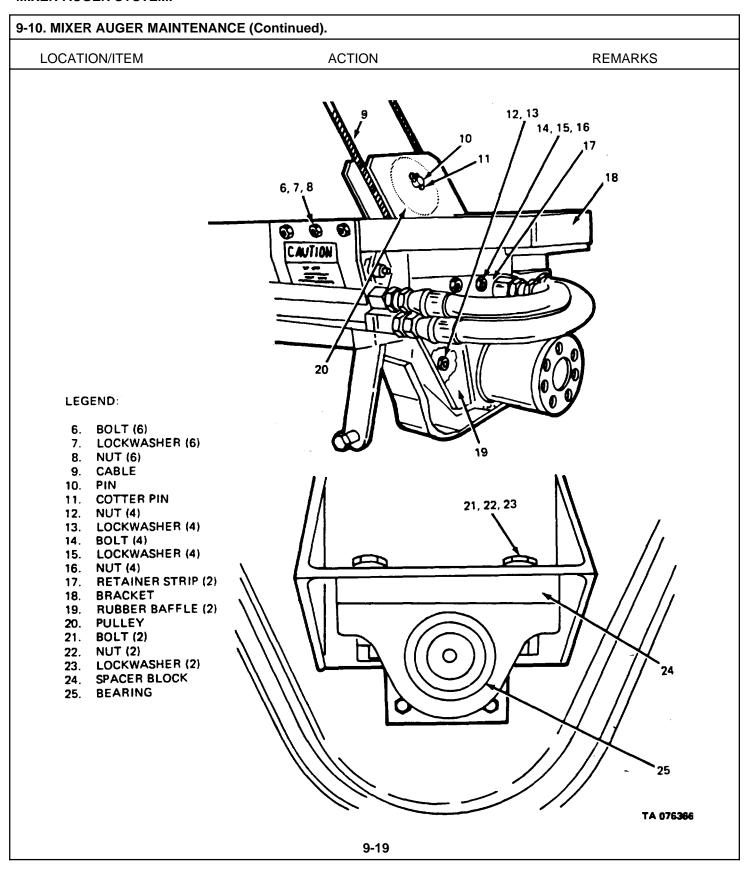
Plug pipe ends and mark location for reassembly.



# LEGEND:

- 1. Swivel nut (2)
- 2. HOSE SUPPORT BRACKET
- 3. LOCKWASHER
- 4. NUT
- 5. AUGER ASSEMBLY

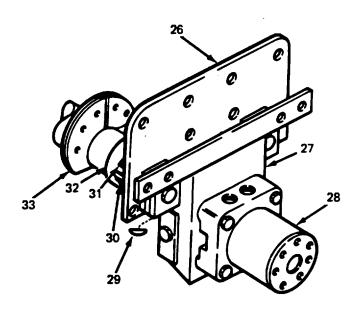
9-10. MIXER AUGER MAINTENANCE (Continued).		
A. REMOVAL (Continued).		
5. Six bolts (6), lockwashers (7) and nuts (8).	Remove.	
6. Bracket (18).	Remove.	
7. Four bolts (14), lock-washers (15), and nuts (16).	Remove.	
8. Two retainer strips (17).	Remove.	
9. Cotter pin (11) and pin (10).	Remove.	
10. Pulley (20) and cable (9).	Remove.	
11. Four nuts (12) and lockwashers (13).	Unscrew and remove two rubber baffles (19).	
12. Two bolts (21), nuts (22), and lockwashers (23).	Unscrew and remove.	
13. Spacer block (24).	Remove.	
14. Bearing (25).	<ul><li>a. Clean end of shaft.</li><li>b. Remove bearing (25).</li></ul>	
	9-18	



LC	CATION/ITEM	ACTION	REMARKS
A. REI	MOVAL (Continued)		
15.	Motor 128) and mixerauger (33).	Remove from trough.	
16.	Two bolts (31) and locknuts (30).	Loosen.	
17.	Mixer-auger hub (32).	Wedge a screwdriver into the slots.	Be careful not to split the hub, or "lock" tool into hub.
18.	Motor (28), key (29), flexible mount (27), and end plate (26).	Remove from mixer-auger (33).	
3. INS	TALLATION.		5
19.	Motor (28), key (29), flexible mount (27), and end plate (26).	<ul> <li>a. Place key in motor shaft.</li> <li>b. Install motor (28) with flexible mount (27) and end plate (26) attached, into mixer-auger hub (32).</li> </ul>	Remove screwdriver from slots of mixer-auger hub, if used.
20.	Two bolts (31) and locknuts (30).	Install thru mixer-auger hub (32) and tighten.	
21.	Motor (28) and mixerauger (33).	Install in trough.	

# 9-10. MIXER AUGER MAINTENANCE (Continued).

**ACTION** LOCATION/ITEM **REMARKS** 



# LEGEND:

- 26. END PLATE
- 27. FLEXIBLE MOUNT

- 27. FLEXIBLE MOUNT
  28. MOTOR
  29. KEY
  30. LOCKNUT (2)
  31. BOLT (2)
  .32. MIXER-AUGER HUB
  33. MIXER-AUGER

9-10. MIXER AUGER MAINTENANCE (Continued).		
LOCATION/ITEM	ACTION	REMARKS
B. INSTALLATION (Continued)		
22. Four nuts (12) and lockwashers (13).	Install.	
23. Bearing (25).	Install over rear of auger shaft.	
24. Spacer block (24).	Install.	
25. Two bolts (21), lockwashers (23), and nuts (22).	Install.	
26. Cable (9) and pulley (20).	Install and secure with pin (10) and cotter pin (11).	
27. Two retainer strips (17) and rubber baffles (19).	Install and secure with four bolts (14), lockwashers (15), and nuts (16).	
28. Bracket (18).	Install and secure with six bolts (6), lockwashers (7) and nuts (8).	
	9-22	

# 9-10. MIXER AUGER MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** 12, 13 14, 15, 16 10 18 6, 7, 8 20 LEGEND: 6. BOLT (6) 7. LOCKWASHER (6) 8. NUT (6) 9. CABLE 10. PIN 11. COTTER PIN 21, 22, 23 12. NUT (4) 13. LOCKWASHER (4) 14. BOLT (4) 15. LOCKWASHER (4) 16. NUT (4) 17. RETAINER STRIP (2) 18. BRACKET 19. RUBBER BAFFLE (2) 20. PULLEY 21. BOLT (2) 22. NUT (2) 23. LOCKWASHER (2) 24. SPACER BLOCK 25. BEARING 25 TA 076368

### 9-10. MIXER AUGER MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

# B. INSTALLATION (Continued).

29. Two swivel nuts (1).

a. Unplug connections.

b. Install and tighten.

Install in correct locations as you marked during removal.

30. Hose support bracket (2).

Install with nut (4) and

lockwasher (3).

# C. OPERATIONAL CHECK.

31. Mixer body. Start up (refer to TM 92320-

273-10 and TM 5-3895-372-10).

32. Mixer-auger. Activate; check for:

a. Leaks.

b. Auger turning true (no wobble).

33. Mixer body. Shut down (refer to TM 9-2320-

273-10 and TM 5-3895-372-10).

34. Auger assembly (5). Raise and latch.

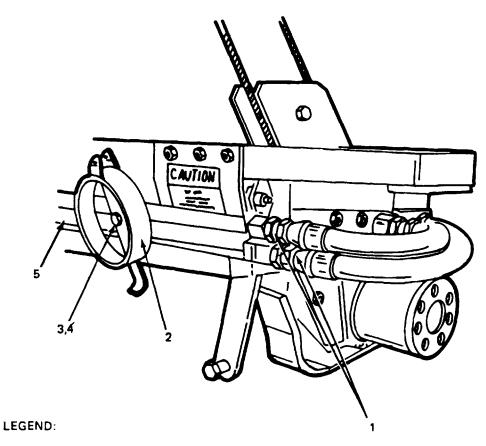
### **WARNING**

Always utilize safety chain when auger assembly is latched.

9-24

# 9-10. MIXER AUGER MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS



- 1. SWIVEL NUT (2)
- 2. HOSE SUPPORT BRACKET
- 3. LOCKWASHER
- 4. NUT
- 5. AUGER ASSEMBLY

### 9-11. MIXER-AUGER REPAIR.

### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Straightening. (60)b. Replacement of Stub or Shouldered Shaft. (60)

c. Replacement of Drive Bushing. (30)

150 Minutes Total.

INITIAL SETUP EQUIPMENT

**CONDITION** 

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS 910A. Mixer-Auger Removed.

M919.

TEST EQUIPMENT

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

Vee Block, 2. Surface Plate. Tri-Square.

Stub Shaft. NP3352002 (50663). Shouldered Shaft, NP3352003 (50663). Drive Bushing, NP5033056 (50663).

Hammer. Chisel.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOSE62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-10. Engine Off.

TM 5-3895-372-20P. Transmission in Neutral. Parking Brake Set.

Safety Glases Should be Worn When

Hitting Shaft with Hammer.

TROUBLESHOOTING REFERENCES

Table 9-1.

	MIXER AUGER REPAIR (C	onunuea).	
LC	CATION/ITEM	ACTION	REMARKS
. STF	RAIGHTENING.		
1.	Mixer-auger (6).	Place in position, as shown, with stub shaft (9) and shouldered shaft (2) resting on two vee blocks (1) and (10).	Vee blocks must be on a leve surface; use a surface plate if available.
2.	Tri-square (4).	Position on surface plate with arm close to tube (5), but not touching.	Start near either end.
3.	Mixer-auger (6).	<ul> <li>a. Slowly turn while watching the point where tri-square (4) was placed.</li> <li>b. Select another point about one-third towards the opposite end and check again.</li> </ul>	If distance remains the same for 3600 rotation, auger is OK at that point.
	2 3	2. 3. 4. 5. 6. 7. 8.	VEE BLOCK SHOULDERED SHAFT WELD TRI-SQUARE TUBE MIXER-AUGER WELD DRIVE BUSHING
	7		STUB SHAFT VEE BLOCK

# 9-11. MIXER AUGER REPAIR (Continued).

LOCATION/ITEM ACTION REMARKS

## A. STRAIGHTENING (Continued).

4. Mixer-auger (6).

- a. If distance increases or decreases between tube (5) and tri-square (4), mark the spot where the distance is the least.
- Place the marked spot at top and hit with a heavy hammer; then recheck with tri-square until distance remains constant.

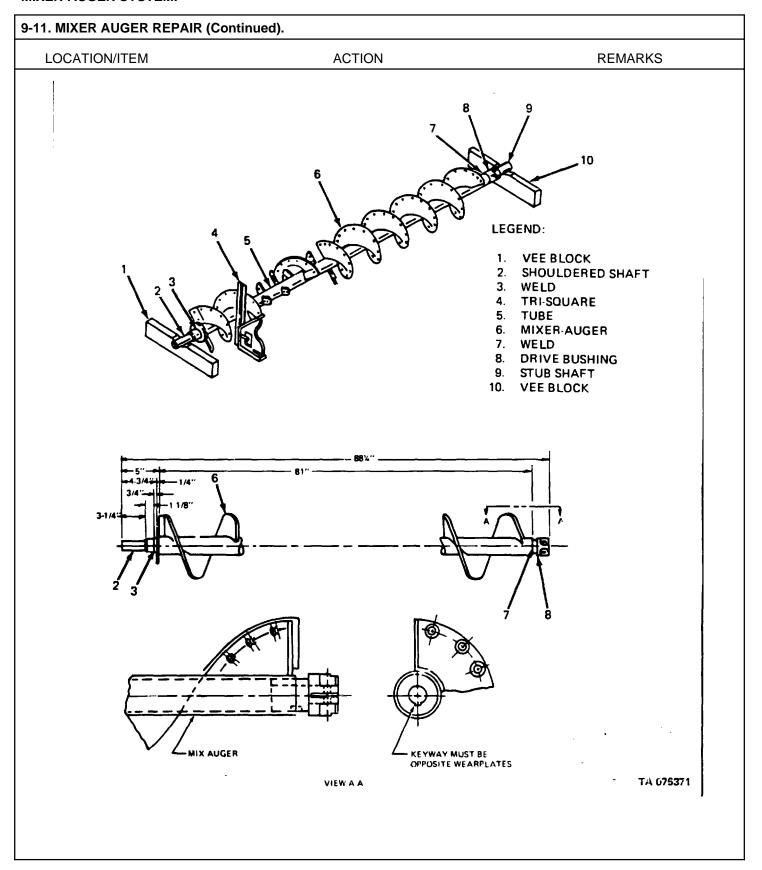
### NOTE

Perform the straightening procedure at three or four points along the length of the mixer-auger (6), until all high spots have been eliminated. If mixer-auger (6) cannot be straightened in this manner, replace it.

# B. REPLACEMENT OF STUB OR SHOULDERED SHAFT.

- 5. Shouldered shaft (2) or stub shaft (9) and drive bushing (8).
- a. Using a suitable hammer and chisel break weld (3) or (7).
- b. Remove all old weld and clean area
- c. Position new shouldered shaft(2) or stub shaft (9) and drivebushing (8) in position to tube (5).
- d. Weld in place.

9-28



### 9-12. RUBBER TROUGH MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (20)b. Installation. (30)

50 Minutes Total.

**INITIAL SETUP EQUIPMENT** CONDITION

PARAGRAPHCONDITION DESCRIPTION

Mixer Trough Removed.

**APPLICABLE CONFIGURATIONS** 

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

Rubber Trough Bottom, NP2186000 (50663).

Hammer. Chisel.

Marking Pen. C-Clamp, 4.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

None.

One (MOS62B20).

REFERENCES (TM) **GENERAL SAFETY INSTRUCTIONS** 

TM 53895372-20P. None.

TROUBLESHOOTING REFERENCES

Table 9-1.

9-30

# MIXER-AUGER SYSTEM. 9-12. RUBBER TROUGH MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** A. REMOVAL. 1. Thirty-four nuts (8) Unscrew and remove; press Under severe conditions, i, and screws (71. to remove screws. may be necessary to shear off nuts with a hammer and chisel. 2. Eleven screws (1), flat Unscrew and remove. washer (2), lockwashers (3) and nuts (4). 3. Two rear clamping bars Remove from trough (10). (5), front clamping bars (6), clamping ring (11), and rubber bottom (9). LEGEND: **SCREW (11)** 1. 10 FLAT WASHER (11) 2. LOCKWASHER (11) 3. NUT (11) 4. REAR CLAMPING BAR (2) 5. FRONT CLAMPING BAR (2) 6. **SCREW (34)** 7. NUT (34) 8. RUBBER BOTTOM 9. TROUGH 10. **CLAMPING RING** 11 TA 076372

# 9-12. RUBBER TROUGH MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS**

### B. INSTALLATION.

4. Rubber bottom (9).

- a. Lay new rubber down on
  - wood backing.
- b. Place old rubber over new rubber and mark holes.
- c. Remove old rubber.
- d. Using a 5/16 inch punch, punch holes in new rubber.

### NOTE

When installing and tightening screws, start at the front of trough (10) and work towards the rear.

5. Rubber bottom (9) (new).

a. Place in trough (10). Use C-clamps to hold in

Remove Cclamps if used.

- b. Aline holes with a punch. position.
- 6. Two front clamping bars (6).

Secure in position with fourteen screws (7) and

nuts (8).

7. Two rear clamping

bars (5).

Secure in position with twenty screws (7) and

nuts (8).

8. Clamping ring (11).

Secure in position with eleven screws (1), flat washers (2), lockwashers (3), and nuts (4).

### **NOTE**

Follow-on maintenance required;

Install mixer trough; refer to para 9-9B.

9-32

# 9-12. RUBBER TROUGH MAINTENANCE (Continued). LOCATION/ITEM **ACTION** REMARKS LEGEND: 1. SCREW (11) 10 2. FLAT WASHER (11) LOCKWASHER (11) 4. NUT (11) 5. REAR CLAMPING BAR (2) 6. FRONT CLAMPING BAR (2) 7. SCREW (34) 8. NUT (34) 9. RUBBER BOTTOM 10. TROUGH **CLAMPING RING** TA 076373

### 9-13. RUBBER TROUGH REPAIR.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Repair at Bearing L-nd. (120)b. Repair of Other Areas. (60)

180 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

<u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

<u>APPLICABLE CONFIGURATIONS</u> 9-9A. Mixer Trough Removed.

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALSIPARTS (P/N)

Rubber Trough Repair Kit, NP2923000 (50663). Rubber Trough Patch Kit, NP3013000 (50663).

Marking Pen.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20).

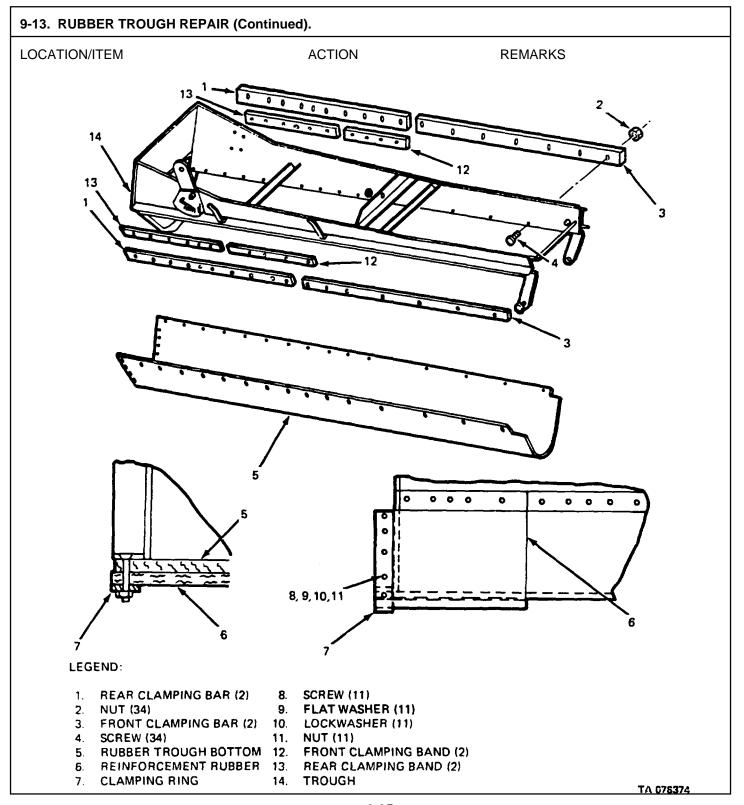
REFERENCES (TM) GENERAL SAFETV INSTRUCTIONS

None.

TM 5-3895372-10. TM 5-3895-372-20P. TM 9-23'20 27.3-10.

TROUBLESHOOTING REFERENCES

Table 9-1



Mark repair area so that at least

three screws (4) and nuts (2) attach each rear clamping bar (1).

### 9-13. RUBBER TROUGH REPAIR (Continued).

LOCATION/ITEM	ACTION	REMARKS	
LOCATION/ITEM	ACTION	REWARNS	

### A. REPAIR AT BEARING END.

### **NOTE**

For this procedure, use kit NP 2923000.

- Two rear clamping Mark dimension of repair area on 1. bars (1). the two rear clamping bars (1).
  - Twenty screws (4) Unscrew and remove two and nuts (2). rear clamping bars (1).
- 3. Eleven screws (8), flat washers (9), lockwashers (10), and nuts (11).

2.

Unscrew and remove clamping ring (7).

4. Two rear clamping bars (1)

Cut at dimension you marked in step 1, to make two front clamping bands (12) and two rear clamping bands (13).

- Reinforcement rubber (6). 5.

Cut to fit the damaged area and drill holes to aline with those in front clamping bands (12) and rear clamping bands

- 6. One front clamping band (12), one rear clamping band (13), and cut to fit reinforcement rubber (6).

Install on one side of trough (14) with ten screws (4) and nuts (2).

7 Reinforcement rubber (6) and rubber trough bottom (5).

Coat with rubber cement from kit.

8. One front clamping band (12), one rear clamping band (13), and free end of reinforcement rubber (6).

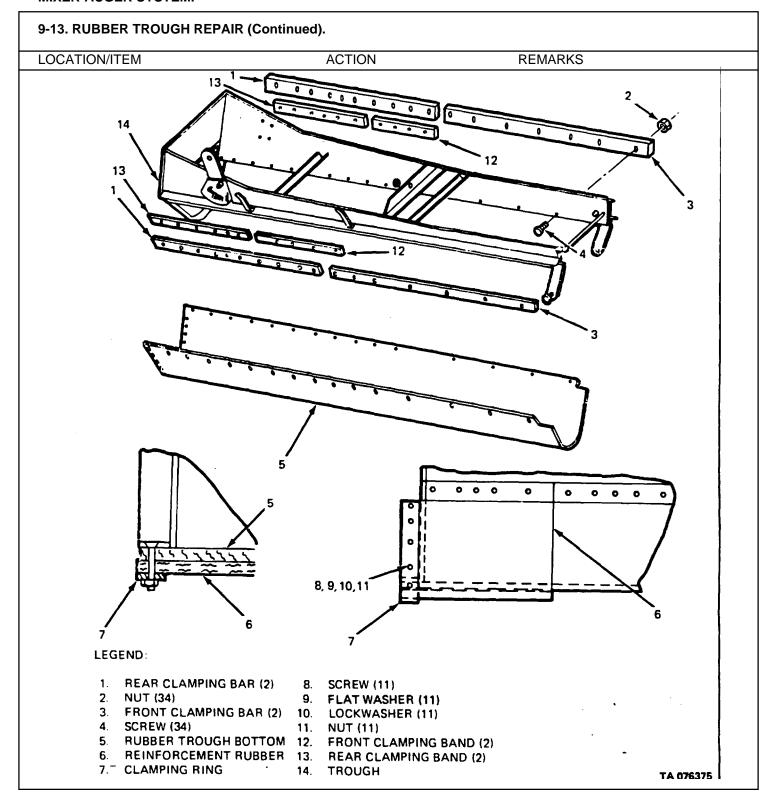
Install on other side of trough (14) with ten screws (4) and nuts (2).

9. Reinforcement rubber (6). Drill to fit holes in clamping ring (7).

10. Clamping ring (7).

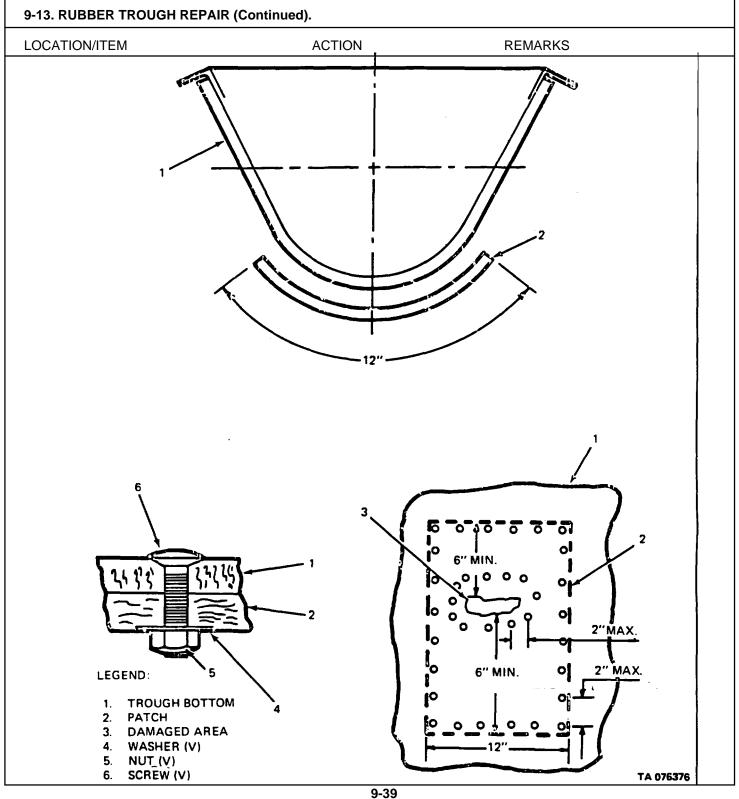
Install with eleven screws (8), flat washers (9), lockwashers (10) and nuts (11).

9-36



9-13. RUBBER TROUGH REPAIR (Continued).				
LOCA	ATIONIITEM	ACTION	REMARKS	
B. RE	PAIR OF OTHER AREAS.	]		
		NOTE		
		For this procedure, use kit NP 3D 1300	0.	
11.	Damaged area (3).	Measure area as shown to determine patch size required.		
12.	Patch (2).	Cut to size and mark trough area where patch will be applie	ed.	
13.	Patch (2) and trough bottom (1).	Apply rubber cement from kit.	Follow instructions on container	
14.	Patch (2).	<ul> <li>a. Apply to trough bottom (1) over damaged area (3)</li> <li>b. Drill 9/32" holes as shown thru patch (2) and trough Bottom (1) around damaged area (3) and around outer edge of patch (2)</li> </ul>	Keep patch tightly against trough bottom. holes should be a maximum of two inches apart.	
15.	Screws (6), washers (4), and nuts (5).	Install in each hole you drilled Thru the patch (2) and trough	Tighten securely.	

bottom (1).



### 9-14. SWIVEL RING MAINTENANCE.

## THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal of Trough. (15)
b. Removal of Swivel Ring. (10)
c Installation of Swivel Ring. (15)
d. Installation of Trough. (20)
e. Operational Check. (5)

65 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

None None

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Two (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895372-10. Engine off.

TM 5-3895-372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

Wet Cement and Concrete Can Cause Burns.

Safety Glasses should be Worn When

Working Around Cement.

### TROUBLESHOOTING REFERENCES

Table 9-1.

# 9-14. SWIVEL RING MAINTENANCE (Continued).

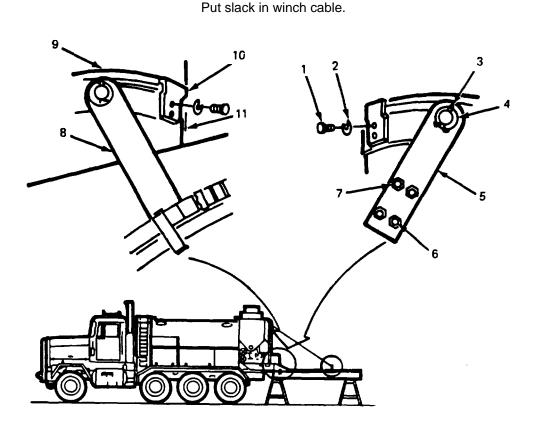
LOCATION/ITEM ACTION REMARKS

# A. REMOVAL OF TROUGH.

1. Mixer trough.

a. Lower to horizontal position.b. Support with suitable hoist.

Refer to TM 5-3895372-10.



### LEGEND:

- 1. CAPSCREW (18)
- 2. LOCKWASHER (18)
- 3. COTTER PIN (2)
- 4. WASHER (2)
- 5. RIGHT HAND HANGER BRACKET
- 6. CAPSCREW (4)
- 7. NUT (4)
- 8. SWIVEL FRAME
- 9. SWIVEL RING RETAINER
- 10. SWIVEL RING
- 11. LEFT HAND HANGER BRACKET

	9-14. SWIVEL RING MAINTENANCE (Continued).				
	LOCA	TION/ITEM	ACTION	REMARKS	
ſ	A. REI	MOVAL OF TROUGH (Continued).			
_	2.	Two cotter pins (3) and washers (4).	Remove.	One cotter pin on each side of trough.	
	3.	Four nuts (7) and capscrews (6).	Remove two on top and loosen two on bottom.	Right hand side.	
	4.	Right hand hanger bracket (5). chute pivot pins.	Slide off of pin. Pivot trough and remove from not under rubber bottom.	Lift trough and push to left Support trough under frame	
	B. REI	MOVAL OF SWIVEL RING.			
	5.	Eighteen capscrews (1) and lockwashers (2).	Unscrew and remove. Remove swivel ring (10) and swivel ring retainer (9).		
	C. INS	TALLATION OF .WIVEL RING.			
	6.	Swivel frame (8)	Lubricate with heavy machine oil and remove rust and scale with a wire brush.	Weld cracks using standard shop practices and techniques.	
	7.	Swivel ring retainer (9)	<ul><li>a. Place eighteen capscrews (1) and lockwashers (2) through holes.</li><li>b. Slide up around swivel frame (8).</li></ul>	Do not tighten yet.	
	8.	Swivel ring (10).	Place under swivel frame (8).		
	9.	Eighteen capscrews (1). and lockwashers (2).	Screw in and tighten.		
_	10.	Swivel ring (10).	Check for binding or sticking.		
	D. INS	TALLATION OF TROUGH.			
	11.	Trough.	<ul><li>a. Place in position.</li><li>b. Lift front end and slide left hanger bracket (11) onto pin.</li></ul>		

TA 076378

# 9-14. SWIVEL RING MAINTENANCE (Continued). **ACTION** LOCATION/ITEM REMARKS 10 LEGEND: 7. NUT (4) 1. CAPSCREW (18) 8. SWIVEL FRAME 2. LOCKWASHER (18) 9. SWIVEL RING RETAINER 3. COTTER PIN (2) 10. SWIVEL RING 4. WASHER (2) 11. LEFT HAND HANGER 5. RIGHT HAND HANGER BRACKET **BRACKET** 6. CAPSCREW (4)

# 9-14. SWIVEL RING MAINTENANCE (Continued).

LOCATION/ITEM **ACTION REMARKS** 

# D. INSTALLATION OF TROUGH (Continued).

12. Right hanger a. Slide onto pin. bracket (5).

b. Attach to trough with four

Capscrews are installed from nuts (7) and capscrews (6). the inside.

Tighten nuts.

13. Two washers (4). Slide over pins.

14. Two cotter pins (3). Slide through pins. Bend cotter

pins to hold pins in place.

Winch cable. Draw up slack and remove hoist 15.

from trough.

# E. OPERATIONAL CHECK.

16. Mixer trough. a. Turn trough from side to side.

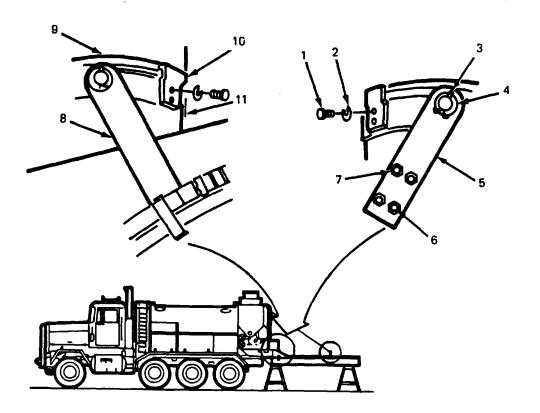
Check for sticking or binding

of swivel ring.

b. Raise trough and latch. Always utilize safety chain.

# 9-14. SWIVEL RING MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS



# LEGEND:

- 1. CAPSCREW (18)
- 2. LOCKWASHER (18)
- 3. COTTER PIN (2)
- 4. WASHER (2)
- 5. RIGHT HAND HANGER BRACKET
- 6. CAPSCREW (4)

- 7. NUT (4)
- 8. SWIVEL FRAME
- 9. SWIVEL RING RETAINER
- 10. SWIVEL RING
- 11. LEFT HAND HANGER BRACKET

# 9-15. MINISKIRT ASSEMBLY MAINTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10) b. Installation. (15)

25 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

<u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

Miniskirt, NP2730004 (50663).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground

REFERENCES (TM)

TM 53895-372-20P. TM 5-3895-372-10. TM 92320273-10.

TROUBLESHOOTING REFERENCES

Table 9-1.

# 9-15. MINISKIRT ASSEMBLY MAINTENANCE (Continued).

LOCATION/ITEM **ACTION** REMARKS

### NOTE

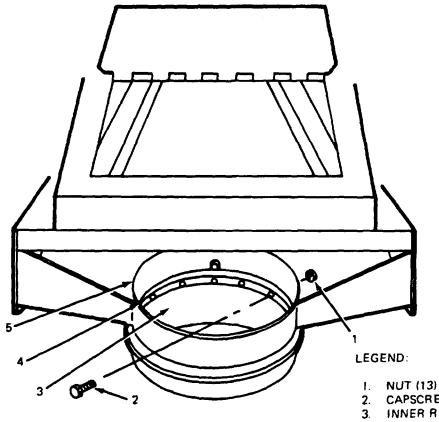
Auger should be lowered approximately 1/3 of the way from top to aid removal.

# A. REMOVAL.

1. Inner ring (3), rubber (4), and outer ring (5). Disconnect three hooks from pegs by rotating assembly.

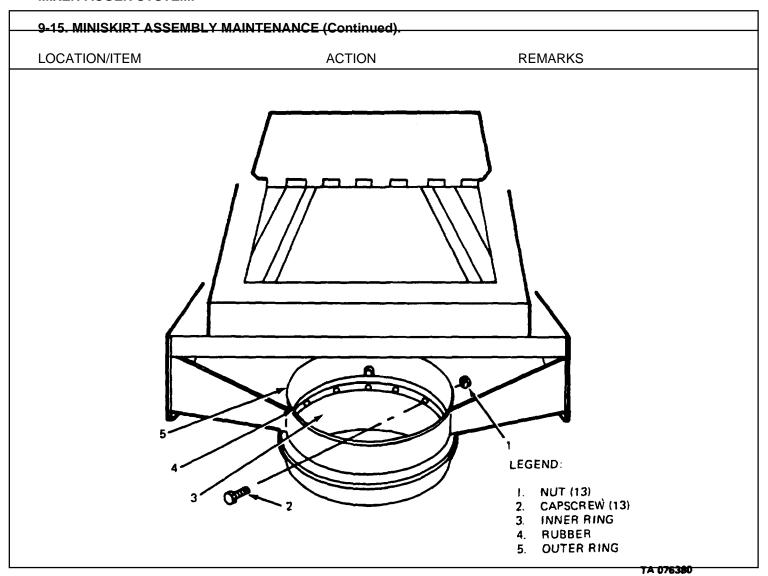
2. Thirteen nuts (1) and capscrews (2).

Unscrew and remove. Separate inner ring (3), rubber (4), and outer ring (5).



- CAPSCREW (13)
- INNER RING
- RUBBER
- 5. OUTER RING

9-15. MINISK IRT ASSEMBLY MAINTENANCE (Continued).				
LOCA	LOCATION/ITEM ACTION REMARKS			
B. INSTALLATION.				
3.	New rubber (4).	<ul><li>a. Place under old rubber and mark holes with pencil.</li><li>b. Cut out holes with a 5/16 in. punch or equivalent.</li></ul>		
4.	Inner ring (3), rubber (4), and outer ring (5).	Assemble and aline bolt holes.	Opening in rubber must face forward when hooks are laid over pegs.	
5.	Thirteen capscrews (2) and nuts (1).	Install and tighten evenly.		
6.	Inner ring (3), rubber (4), and outer ring (5).	Lift into swivel frame. Hook onto pegs.		
7.	Mixer auger.	Raise and latch. Always utilize safety chain.		



9-16. CHUTE MA; NTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

Repair. (20

20 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS None. None.

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

One (M0S62B20).

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 53895372-20P. Engine Off.

Transmission in Neutral. Parking Brake Set.

Wet Cement and Concrete Can Cause Bums. Safety Glasses Should be Worn When Working

TROUBLESHOOTING REFERENCES

with Cement.

Hitting Hard Concrete with Hammer Will Cause

Table 9-1. Chips to Fly.

9-16. CHUTE MAINTENANCE (Continued).					
LOCA	LOCATION/ITEM ACTION REMARKS				
REPA	AIR.				
1.	Chutes (1) or (3) and ear (4).	<ul><li>a. Hammer out any dents.</li><li>b. Weld any cracks which are found using standard shop practices.</li></ul>	Refer to TM 9-237 for further welding guidance.		
2.	Chain (2).	Replace chain which has any broken links.			
		NOTE			
			TA 076382		

#### 9-17. TROUGH GUARD MAINTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10) b. Installation. (10)

20 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION

<u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

APPLICABLE CONFIGURATIONS TM 5-3895-372-10. Trough Lowered in a Horizontal

Position.

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P'N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

LO 53895372-12. Engine Off.

TM 5-3895g37210P. Transmission in Neutral. TM 53895372-20P. Parking Brake Set.

TM 9-2320-273-10. Wet Cement and Concrete Can Cause Burns.

TROUBLESHOOTING REFERENCES

Table 9-1.

TA 076383

#### 9-17. TROUGH GUARD MAINTENANCE (Continued). **ACTION** LOCATION/ITEM **REMARKS** A. REMOVAL. NOTE This procedure may be used for either trough guard. Twenty-two elevator Remove. 1. bolts (9) and nuts (1). 2. Rubber cover (6). Remove from frame (7). Replace rubber cover (6) if deteriorated. 3. Machine screw (8) Unscrew and remove handle and nut (2). (5), spring (4), and washer (3). B. INSTALLATION. 4. Handle (5), spring (4), a. Place in position. b. Install with machine screw and washer (3). (8) and nut (2). a. Position on frame (7). 5. Rubber cover (6). b. Install with twenty-two elevator bolts (9) and nuts (1). LEGEND: NUT (22) 2. NUT 3. WASHER 4. SPRING 5. HANDLE 6. RUBBER COVER 7. FRAME

8. MACHINE SCREW

**ELEVATOR BOLT (22)** 

#### **CHAPTER 10**

#### **HYDRAULIC SYSTEM**

#### 10-1. OVERVIEW.

This chapter provides you with the following information related to hydraulic system maintenance.

- a. All required special tools and equipment.
- b. Troubleshooting procedures.
- c. Maintenance procedures.

#### Section I REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

#### 10-2. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

#### 10-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

The special tools, TMDE, and support equipment for hydraulic system maintenance procedures described in this chapter are limited to hydraulic pressure gage, 0-2500 psi (0-17200 kPa). Refer to Organizational Maintenance RPSTL, TM 5-3895-372-20P for tool description and illustration.)

#### 10-4. SPARES AND REPAIR PARTS.

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools list covering Organizational Maintenance for this equipment (TM 5-3895-372-20P).

#### Section II TROUBLESHOOTING

#### 10-5. INTRODUCTION.

Troubleshooting procedures for the hydraulic system are given in table 10-1. It is arranged by malfunctions, in the following order:

- a. Hydra3ulic motor does not operate (Malfunction No. 1).
- b. Hydraulic pump is noisy (Malfunction No. 2).
- c. Hydraulic pressure is low (Malfunction No. 3).
- d. Hydraulic motor vibrates (Malfunction No. 4).
- e. Tachometer does not work properly (Malfunction No. 5).

#### **MALFUNCTION**

#### **TEST OR INSPECTION**

#### **CORRECTIVE ACTION**

- 1. HYDRAULIC MOTOR DOES NOT OPERATE:
  - Step 1 Check that tachometer reads 1620-1720 rpm.

Use throttle to adjust engine speed.

Step 2 Check to be sure bypass valve is closed.

Close bypass valve.

Step 3 Check oil level by removing cap and checking dipstick in hydraulic tank.

Add oil if needed (see LO 5-3895-372-12).

Step 4 Check filter for clogging.

Replace clogged filter (see TM 5-3895-372-10).

Step 5 Check hydraulic pump drive belt tension. Belts should deflect 5/32 in. (4.0mm) when 6 lb (27 N-m) pressure is applied.

Adjust drive belts (para 417).

Step 6. Check PTO drive belt tension. Belts should deflect 5/32 in. (,1.0 mm) when 6 lb (27 N-m) pressure is applied.

Adjust drive belts (para 4-11).

Step 7 Check that proper type of hydraulic oil is being used. (See LO 5-3895-372-12.)

Fill system with correct oil.

Step 8 Check hydraulic lines for oil leaks.

Replace leaking lines on couplings (para 10-15).

Step 9 Check for air leaks at hydraulic pump intake.

Replace leaking line or coupling (para 10-15).

Step 10 Check hydraulic line oil pressure (10-10). Pressure should be 1900-2000 psi (13,100-13,800 kPa).

Adjust pressure valve (para 10-10).

#### **MALFUNCTION**

#### **TEST OR INSPECTION**

#### CORRECTIVE ACTION

#### 2. HYDRAULIC PUMP IS NOISY:

Step 1 Check for clogged filter.

Replace clogged filter (see TM 5-3895-372-10).

Step 2. Check that lines are tight.

Tighten.

Step 3. Rebuild hydraulic pump.

Refer problem to Direct Support Maintenance.

#### 3. HYDRAULIC PRESSURE IS LOW:

Step 1 Check that tachometer reads 1620-1720 rpm.

Use throttle to adjust engine speed.

Step 2 When oil is hot, check hydraulic bypass valve for heat and leakage.

Clean hydraulic bypass valve para 10-9).

Step 3 Check pressure relief valve adjustment (para 10-10).

- a. Adjust pressure relief valve.
- b. Refer problem to Direct Support Maintenance.
- 4. HYDRAULIC MOTOR VIBRATES:

Refer problem to Direct Support Maintenance.

#### 5. TACHOMETER DOES NOT WORK PROPERLY:

Step 1 Be sure setscrews at cable ends are tight.

Tighten setscrews.

Step 2 Check hydraulic pump belts. Deflection should be 5/32 in. (4.0 mm) under 6 lb (27 N-m) pressure.

Adjust pump belts (para 4-17).

#### **MALFUNCTION**

#### **TESTS OR INSPECTION**

#### CORRECTIVE ACTION

- 5. TACHOMETER DOES NOT WORK PROPERLY (Continued):
  - Step 3. Remove cable and check for damage (para 10-12).

Replace damaged cable core or assembly.

Step 4. Replace tachometer.

Refer to para 10-12.

#### **Section III MAINTENANCE PROCEDURES**

#### 10-6. INTRODUCTION. I

This section provides you with Organizational Level maintenance procedures for the hydraulic system of the mixer body. Paragraph 107 summarizes the maintenance tasks. Paragraphs 108 thru 10-16 contain detailed instructions for each task.

10-7. HYDRAULIC SYSTEM MAINTENANCE TASK SUMMARY.

INITIAL SETUP EQUIPMENT CONDITION

<u>APPLICABLE CONFIGURATIONS</u> <u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

M919. LO 53895372-12. Oil Tank Drained.

**TEST EQUIPMENT** 

Hydraulic Gage.

0-5000 psi (0-34475 kPa).

SPECIAL TOOLS

Auger Stop Tool. NP3817116 (50663).

MATERIALS/PARTS (P/N)

Filter Assembly. NP5014003 (50663).

Oil - (See Appendix C).

Teflon Tape - (See Appendix C).

Drain Pan.

GAA-Grease - (See Appendix C).

Tachometer, NP5016003 (50663). SPECIAL ENVIRONMENTAL CONDITIONS

Liquid Teflon - (See Appendix C). Vehicle Parked on Level Ground.

PERSONNEL REQUIRED

Two (MOS-62B20).

REFERENCES (TM)

TM 53895372-10. GENERAL SAFETY INSTRUCTIONS

TM 5-3895372-20P. Engine OFF.

TM 9-232(0273-10. Transmission in Neutral.

Park Brake Set.

Hydraulic Oil May Be Hot Enough to Burn Skin.

TROUBLESHOOTING REFERENCES

Wet Cement and Concrete Can Cause Bums.

Table 10-1.

LIST OF TASKS

	LIOT OF TAORO					
TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)			
1.	Oil Filter Assembly Maintenance:	108	10-1			
	A. Removal.	10S8A				
	B. Disassembly.	10-BB				
	C. Assembly.	10-8C				
	D. Installation.	10-8D				
	E. Operational Check.	10-8E				

#### 10-7. HYDRAULIC SYSTEM MAINTENANCE TASK SUMMARY (Continued). LIST OF TASKS TASK TASK **TASK** TROUBLESHOOTING NO. **REF** REF (TABLE) 2. Bypass Valve Maintenance: 10-9 10-1 A. Removal. 10 9A B. Installation. 10-9B C. Operational check. 10-9C 3. Relief Valve Adjustment: 10-10 10-1 A. Test pressure. 10-10A B. Adjustment 10-10B C. Gage removal. 10-10C Relief Valve Maintenance: 4. 10-11 10-1 A. Removal. 10-11A B. Installation. 1011B C. Operational check. 1011C 5. Tachometer and Tachometer Cable Maintenance: 10-12 10-1 A. Removal. 10-12A B. Installation. 10-12B C. Operational check. 10-12C 6. Lines and Fittings Maintenance 10-13 10-1 Removal and installation. 10-13

#### 10-7. HYDRAULIC SYSTEM MAINTENANCE TASK SUMMARY (Continued). LIST OF TASKS TASK **TASK TROUBLESHOOTING** NO. TASK **REF** REF (TABLE) 7. Oil Reservoir Maintenance: 10-14 10-1 A. Removal. 10-14A B. Repair. 10-14B C. Installation. 10-14C D. Operational check. 10-14D 8. Control Valve Maintenance: 10-15 10-1 A. Removal. 1015A B. Installation. 10-15B C. Operational check. 10-15C 9 Hydraulic Motor Maintenance: 10-1 10-16 A. Removal. 10-16A B. Installation. 10-16B C. Operational check. 10-16C

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#### 10-8. OIL FILTER ASSEMBLY MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a.Removal.(20)b.Disassembly.(10)d.Assembly.(10)d.Installation.(20)

e. Operational Check. (5) 65 Minutes Total.

05 Millutes Total

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS None. None.

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

#### MATERIALS/PARTS (P/N)

Hydraulic Oil (Refer to Appendix C). Repair Kit (4330-01-044-2888). Repair Kit, K23022 (09249). Liquid Teflon (See Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

LO 5-3895-372-12. Engine Off.

Transmission in Neutral.

TM -5-3895372-10P. Parking Brake Set.

TM 9-2320-273-10. Hydraulic Oil May Be Hot Enough to Burn Skin.

TROUBLESHOOTING REFERENCES

Table 10-1.

#### 10-8. OIL FILTER ASSEMBLY MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### **NOTE**

Before beginning service drain oil reservoir and raise rear access panel (refer to LO 5-3895-372-12).

#### A. REMOVAL.

1. Swivel nut (1). Remove. Swing hose upward around

access panel.

2. Four allen-head bolts Remove.

and lock washers (4).

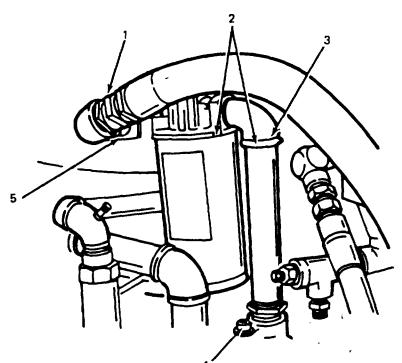
inlet pipe (2).

3. Oil filter and pump Remove from vehicle. Use drain pan to catch excess

oil.

4. Street elbow (5). Remove from filter head.

5. Street elbow (3). Remove from filter head.



#### LEGEND:

- 1. SWIVEL NUT
- 2. OIL FILTER AND PUMP INLET PIPE
- 3. STREET ELBOW
- 4. ALLEN HEAD BOLT AND LOCKWASHER (4)
- 5. STREET ELBOW

TA 076384

B. DISASSEMBLY.  6. Center post (15).  Remove from head (7).  Leave center post (15) inserted through filter housing (17).  7. Preformed Packing (9) and filter element top seal (10).  8. Filter element bottom seal (12), backup washer (13) and conical spring (14).  10. Center post (15) and center post gasket (16).  11. Relief valve spring (6) and relief valve poppet (8).  12. Decal (18), housing (17) if necessary.  Remove from filter housing (17).  Remove decal from filter  Use a sharp tool.		LOCATION/ITEM	ACTION	REMARKS		
7. Preformed Packing (9) and filter element top seal (10).  8. Filter element bottom seal (12), backup washer (13) and conical spring (14).  10. Center post (15) and center post gasket (16).  11. Relief valve spring (6) and relief valve poppet (8).  12. Decal (18). housing (17) if necessary.  Remove.  Remove.  Remove from filter housing (17).  Remove from filter housing (17).  Remove from head (7).  Use a sharp tool.	В.	DISASSEMBLY.				
and filter element top seal (10).  8. Filter element (11). Remove from filter housing (17).  9. Filter element bottom seal (12), backup washer (13) and conical spring (14).  10. Center post (15) and center post gasket (16).  11. Relief valve spring (6) and relief valve poppet (8).  12. Decal (18). Remove decal from filter was a sharp tool.  Remove decal from filter was a sharp tool.	6.	Center post (15).	Remove from head (7).			
<ul> <li>9. Filter element bottom seal (12), backup washer (13) and conical spring (14).</li> <li>10. Center post (15) and center post gasket (16).</li> <li>11. Relief valve spring (6) and relief valve poppet (8).</li> <li>12. Decal (18). housing (17) if necessary.</li> <li>Remove from filter housing (17).</li> <li>Remove from head (7).</li> <li>Remove decal from filter</li> <li>Use a sharp tool.</li> </ul>	7.	and filter element top	Remove.			
seal (12), backup washer (13) and conical spring (14).  10. Center post (15) and center post gasket (16).  11. Relief valve spring (6) Remove from head (7).  12. Decal (18). Remove decal from filter Use a sharp tool. housing (17) if necessary.	8.	Filter element (11).	Remove from filter housing (17).			
post gasket (16).  11. Relief valve spring (6) Remove from head (7). and relief valve poppet (8).  12. Decal (18). Remove decal from filter Use a sharp tool. housing (17) if necessary.	9.	seal (12), backup washer	Remove.			
and relief valve poppet (8).  12. Decal (18). Remove decal from filter Use a sharp tool. housing (17) if necessary.	10.		Remove from filter housing (17).			
housing (17) if necessary.	11.		Remove from head (7).			
10-12	12.		Remove decal from filter	Use a sharp tool.		
	10-12					

# 10-8. OIL FILTER ASSEMBLY MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** - 12 15 LEGEND: 6. RELIEF VALVE SPRING 7. HEAD 8. RELIEF VALVE POPPET 9. PREFORMED PACKING 10. FILTER ELEMENT TOP SEAL 11. FILTER ELEMENT 12. FILTER ELEMENT BOTTOM SEAL 13. BACK-UP WASHER 14. CONICAL SPRING 15. CENTER POST 16. CENTER POST GASKET 17. FILTER HOUSING 18. DECAL TA 076385

10-8. OIL FILTER ASSEMBLY MAINTENANCE (Continued).						
LOCATION/ITEM		ACTION	REMARKS			
C.	ASSEMBLY.					
13.	Relief valve spring (6) and relief valve poppet (8).	Install in head (7).				
14. 15.	Center post (15) and center post gasket (16). Filter element bottom seal (12), backup washer (13) and conical spring (14).	Install in filter housing (17). Install.				
16.	Filter element (11).	Install.				
17.	Preformed packing (9) and filter element top seal (10).	Install.				
18.	Center post (15).	Install in head (7).				
19.	Decal (18).	If removed, install a new	decal (18) on filter housing (17).			
		10-14				

10-14

## 10-8. OIL FILTER ASSEMBLY MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** 17 -- 10 - 11 16 15 LEGEND: 6. RELIEF VALVE SPRING 7. HEAD 8. RELIEF VALVE POPPET 9. PREFORMED PACKING 10. FILTER ELEMENT TOP SEAL 11. FILTER ELEMENT 12. FILTER ELEMENT BOTTOM SEAL 13. BACK-UP WASHER 14. CONICAL SPRING 15. CENTER POST 16. CENTER POST GASKET 17. FILTER HOUSING 18. DECAL TA 076386

#### 10-8. OIL FILTER ASSEMBLY MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### D. INSTALLATION.

#### **NOTE**

Apply liquid teflon to threaded joints at installation.

20. Street elbow (3). Install in filter head.

21. Street elbow (5). Install in filter head.

22. Oil filter and pump Install in vehicle.

inlet pipe (2).

23. Four allen-head bolts and Lock washers (4).

Install and tighten securely.

24. Swivel nut (1). Install.

#### E. OPERATIONAL CHECK.

25. Oil reservoir. Fill (see LO 5-3895372-12).

26. Mixer. Start up (see TM 9-2320-273-

10 and TM 5-3895-372-10).

27. Auger. Lower auger and activate.

28. Oil filter assembly. Check for leaks.

29. Mixer. Shut down (see TM 9-2320-273-

10 and TM 5-3895-372-10).

30. Auger. Raise and secure with safety chain.

10-16

# 10-8. OIL FILTER ASSEMBLY MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** LEGEND: 1. SWIVEL NUT 2. OIL FILTER AND PUMP INLET PIPE 3. STREET ELBOW 4. ALLEN HEAD BOLT AND LOCKWASHER (4) 5. STREET ELBOW TA 076387

#### 10-9. BYPASS VALVE MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10)b. Installation. (10)c. Operational Check. (5)

25 Minutes Total.

INITIAL SETUP: EQUIPMENT CONDITION

PARAGRAPH CONDITION DESCRIPTION
LO 5-3895-372-12. Hydraulic Oil Reservoir Drained.

**SPECIAL ENVIRONMENTAL CONDITIONS** 

**GENERAL SAFETY INSTRUCTIONS** 

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIAL SIPARTS (P/N)** 

Teflon Tape (Refer to Appendix C).

Drain Pan.

**PERSONNEL REQUIRED** 

(4400 0000)

One (MOS-62B20). Vehicle Parked on Level Ground.

**REFERENCES (TM)** 

LO 5-3895-372-12. Engine Off.
TM 53895-372-10. Transmission in Neutral.
TM 5-3895372-20P. Parking Brake Set.

TM 9-2320-273-10. Parking Brake Set.

Hydraulic Oil May Be Hot Enough to Bum Skin.

TROUBLESHOOTING REFERENCES

Table 10-1.

### 10-9. BYPASS VALVE MAINTENANCE (Continued). **ACTION** LOCATION/ITEM **REMARKS** REMOVAL. Disconnect. 1. Swivel nut (5). Catch excess oil in drain pan. Remove. Remove hose (6) Catch excess oil in drain pan. 2. Fitting (1). from vehicle. 3. 900 elbow (2). Remove. 4. Bypass valve (3). Remove from adapter (4). LEGEND: **FITTING** 1. 90° ELBOW 2. **BYPASS VALVE** 3. **ADAPTER** 5. SWIVEL NUT 6. HOSE TA 076388 10-19

#### 10-9. BYPASS VALVE MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### B. INSTALLATION.

#### **NOTE**

Apply liquid teflon to threaded joints at assembly.

5. Bypass valve (3). Install in adapter (4).

6. 900 elbow (2). Install.

7. Hose (C). Install fitting (1) in 90°

elbow (2).

8. Swivel nut (5). Connect.

#### C. OPERATIONAL CHECK.

9. Oil reservoir. Fill. (Refer to LO 5-

3895-372-12).

10. Mixer body. Start up (see TM 9-2320-273-

10 and TM 5-3895372-10).

11. Auger. Unlatch and lower.

12. Bypass valve (3). a. Activate auger. Check to

see if bypass valve will limit auger rotation speed.

b. Check for leaks.

13. Auger. Shut down. Raise and latch.

14. Mixer body. Shut down (see TM 9-2320-273-

10 and TM 5-3895-372-10).

10-20

## 10-9. BYPASS VALVE MAINTENANCE (Continued). LOCATION/ITEM ACTION **REMARKS** LEGEND: **FITTING** 1. 90° ELBOW 2. 3. **BYPASS VALVE** ADAPTER 4. 5. SWIVEL NUT HOSE TA 076389 10-21

#### 10-10. RELIEF VALVE ADJUSTMENT.

#### THIS TASK COVERS: AAPPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Test Pressure. (5)
b. Adjustment. (10)

c. Gage Removal. (5)
20 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS None. None

M919.

#### **TEST EQUIPMENT**

Hydraulic Test Gage. 0-5000 PSI (0-34475 kPa).

#### **SPECIAL TOOLS**

Auger Stop Tool, NP3817116 (50663).

#### **MATERIAL SIPARTS (P/N)**

None.

#### PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Two (MOS-62B20). Vehicle Parked on Level Ground.

#### REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-10. Engine Off. Transmission in Neutral.

TM 5-38952372-20P. Parking Brake Set.

Hydraulic Oil May Be Hot Enough to Bum Skin.

#### TROUBLESHOOTING REFERENCES

Table 10-1.

#### 10-10. RELIEF VALVE ADJUSTMENT (Continued).

LOCATION/ITEM ACTION REMARKS

#### A. TEST PRESSURE.

#### **NOTE**

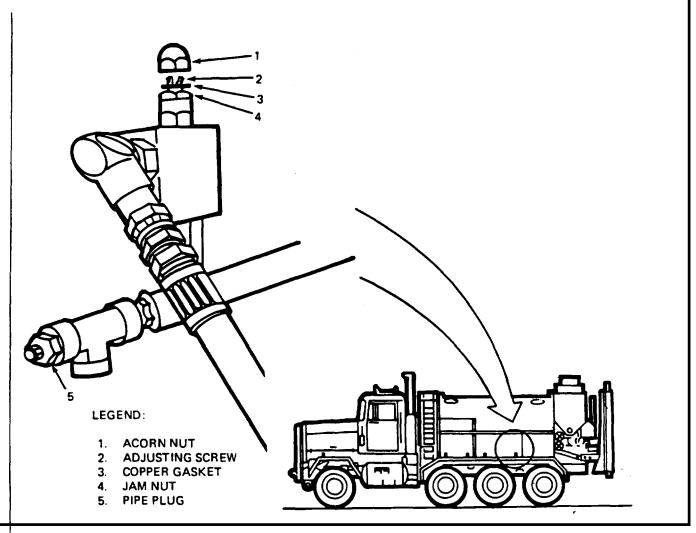
Perform test with engine running and hydraulic oil warmed up.

1. Pipe plug (5).

- a. Remove.
- b. Screw in hydraulic gage.

Bypass valve.

Open.



TA 076390

#### 10-10. RELIEF VALVE ADJUSTMENT (Continued).

LOCATION/ITEM ACTION REMARKS

#### A TEST PRESSURE (Continued).

3. Mixer-auger. Hold with auger stop tool, turn

slowly until wrench lodges against side of trough. Do not allow auger to turn while you test hydraulic pressure.

4. Mixer body. Start up and engage PTO. (Re-

fer to TM 9-2320-273-10.)

5. Hand throttle, tachometer. Adjust throttle until tacho- Maintain this pump speed

meter reads 1250. throughout test.

**WARNING** 

Do not open valve quickly or wrench will be thrown free. Turn valve slowly until completely open.

6. Hydraulic control valve. Open as if starting hydraulic

motor.

Bypass valve. Close slowly. Continue until valve is com-

pletely closed.

Part C.

8. Pressure gage. Read. Pressure should be a. If pressure is correct, go to

1900C2000 psi (13,10

13,800 kPa). b. If pressure needs adjust-

ment, go to Part B.

CAUTION

Do not lose copper gasket.

#### B. ADJUSTMENT.

9. Acorn nut (1) and Remove.

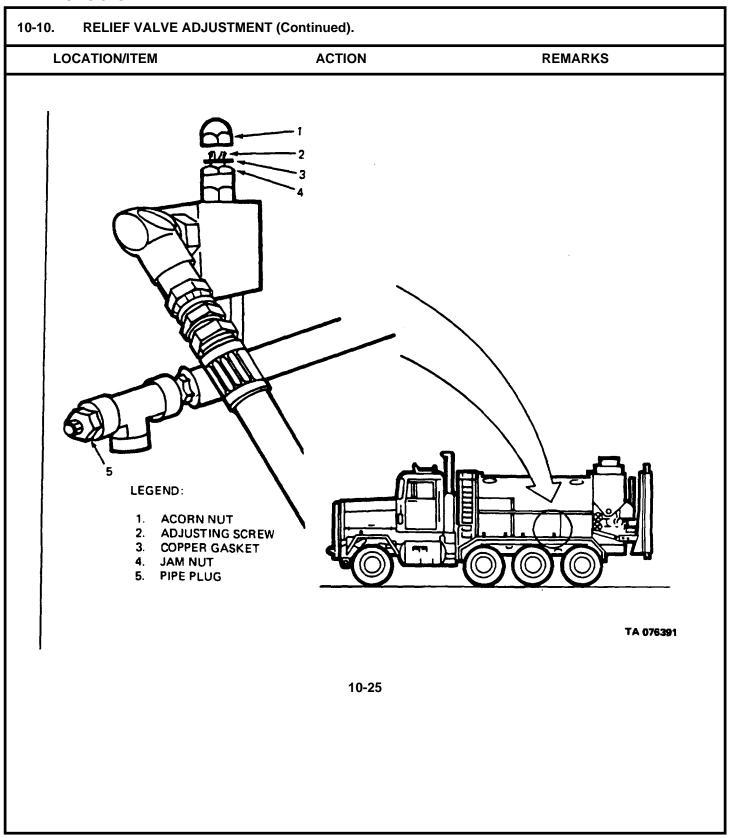
copper gasket (3).

10. Jam nut (4). Loosen.

11. Adjusting screw (2). Turn until pressure reaches Turn clockwise to increase

1950 (13,450 kPa). pressure.

10-24



#### 10-10. RELIEF VALVE ADJUSTMENT (Continued).

LOCATION/ITEM ACTION REMARKS

#### B. ADJUSTMENT (Continued).

12. Jam nut (4). Tighten.

13. Copper gasket (3) and Screw on and tighten. acorn nut (1).

14. Pressure gage. Read. Pressure should be 1900-2000 psi (13,100-

13,800 kPa).

#### **NOTE**

If you are unable to obtain proper pressure, refer problem to Direct Support Maintenance.

#### C. GAGE REMOVAL.

15. Control valve. Close.

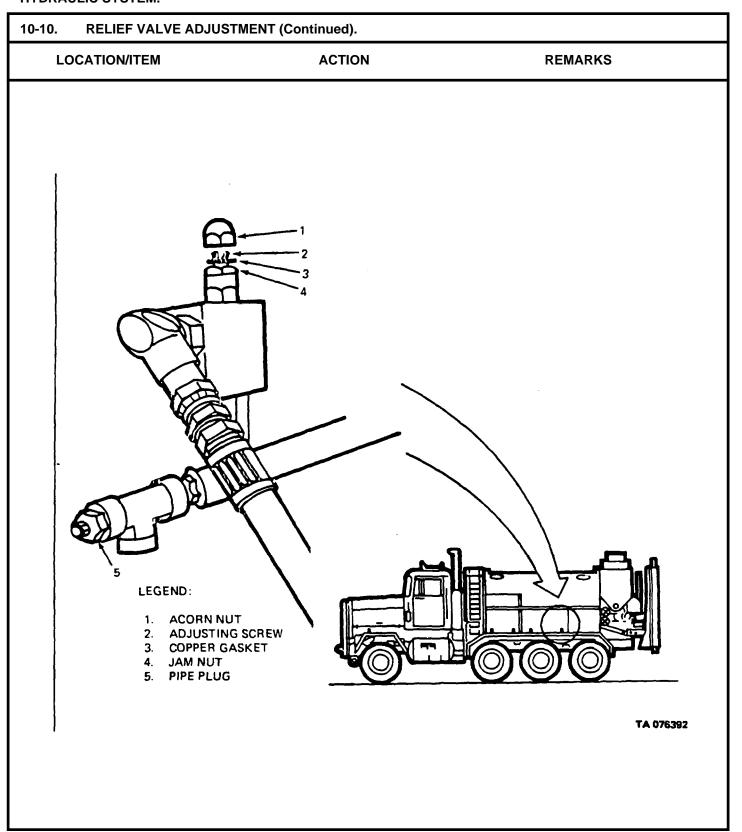
16. Engine. Shut down. Refer to Ta1 9-2320-

273-10.

17. Auger stop-tool. Remove from auger.

18. Pressure gage. Remove.

19. Pipe plug (5). Install.



#### 10-11. RELIEF VALVE MAINTENANCE.

#### THIS TASK COVERS: IAPPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10)b. Installation. (10)c. Operational Check. (10)

30 Minutes Total.

INITIAL SETUP EQUIPMENT CONDITION

PARAGRAPH CONDITION DESCRIPTION

**APPLICABLE CONFIGURATIONS** LO 5-3895-372-12. Oil Reservoir Drained.

M919.

**TEST EQUIPMENT** 

None

**SPECIAL TOOLS** 

None.

#### **MATERIAL SIPARTS (PIN)**

Liquid Teflon (Refer to Appendix C). Oil (Refer to Appendix C).

#### **PERSONNEL REQUIRED**

SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

#### **REFERENCES (TM)**

GENERAL SAFETY INSTRUCTIONS

 LO 5-3895-372-12.
 Engine Off.

 OTM 53895-372-10.
 Transmission in Neutral.

 TM 53895-372-20P.
 Parking Brake Set.

 TM 9-2320-273-10.
 Hydraulic Oil May Be Hot Enough to Bum Skin.

#### **TROUBLESHOOTING REFERENCES**

Table 10-1.

#### 10-11. **RELIEF VALVE MAINTENANCE (Continued).**

LOCATION/ITEM ACTION **REMARKS** 

#### Α. REMOVAL.

1. Swivel nut (3).

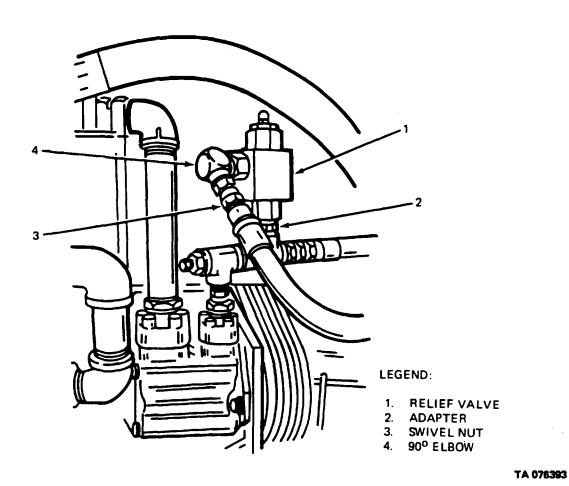
Remove.

2. 900 elbow (4).

Remove.

3. Relief valve (1).

Remove from adapter (2).



#### 10-11. RELIEF VALVE MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### B. INSTALLATION.

#### NOTE

Apply liquid teflon to threaded joints at installation.

4. Relief valve (1). Install in adapter (2).

5. 900 elbow (4). Install.

6. Swivel nut (3). Install and tighten securely.

#### **NOTE**

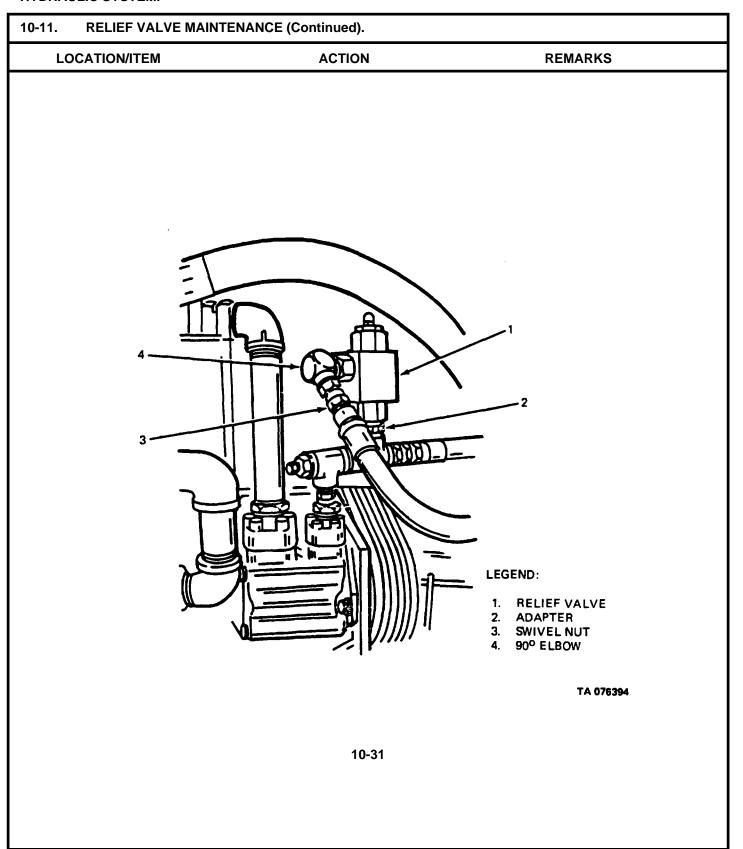
Follow on maintenance action required: Fill oil reservoir; refer to LO 5-3895-372-12.

#### C. OPERATIONAL CHECK.

#### **NOTE**

After installing a new relief valve, always test and adjust to specifications For this procedure refer to paragraph 1010.

10-30



#### 10-12. TACHOMETER AND TACHOMETER CABLE MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10)b. Installation. (10)

c. Operational Check. (5)

25 Minutes Total.

INITIAL SETUP EQUIPMENT CONDITION

PARAGRAPH CONDITION DESCRIPTION

None. None.

**APPLICABLE CONFIGURATIONS** 

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIAL SIPARTS (P/N)** 

GAA Grease (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

LO 5-3895-372-12. Engine Off.
TM 5-3895372-10. Transmission in Neutral.
TM 5-3895-372-20P. Parking Brake Set.

TM 9-2320-273-10.

**TROUBLESHOOTING REFERENCES** 

Table 10-1.

#### 10-12. TACHOMETER AND TACHOMETER CABLE MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** Α. REMOVAL. 1. One set screw (14). Loosen. 2. Screw (16) and nut (13). Loosen. 3. Cable (18). Slide out of bracket (11). 4. Screw (12), lock washer Remove and remove bracket (11). (10) and nut (9). LEGEND: SCREW (2) 1. LOCKWASHER (2) 2. 3. NUT (2) **TACHOMETER** 4. BRACKET 5. **BRACKET** 6. WASHER (2) 7. 8. NUT (2) NUT 9. **LOCKWASHER** 10. 11. **BRACKET SCREW** 12. 13. NUT **SETSCREW** 14. 15. TACH DRIVE **SCREW** 16. 17. INNER CABLE 18. CABLE 13 10 TA 076395

10-12. TACHOMETER AND TACHOMETER		CABLE MAINTENANCE (Continued	).
LO	CATION/ITEM	ACTION	REMARKS

#### A. REMOVAL (Continued).

5. Inner cable (17). Pull out of tach drive (15).

6. Cable (18). Remove from tachometer.

7. Screw (1), lock washer Remove from bracket (5).

(2) and nut (3).

8. Nut (8) and Unscrew and remove bracket (6). washer (7).

9. Bracket (5). Remove from tachometer (4).

10. Inner cable (17) Pull internal cable (17) from

and cable (18). cable (18).

#### B. INSTALLATION.

#### **NOTE**

If the inner cable (17) is damaged, you may pull it out and put a new inner cable in the old cable (18). Make certain new cable is the same length as the old one. You may also replace inner cable and cable as a unit.

11. Inner cable (17). Apply grease and install in cable (18).

12. Bracket (5). Install and secure using two

screws (1), two lock washers (2).

and three nuts (3).

13. Tachometer (4). Install through bracket (5) and

secure with bracket (6), two lock washers (7) and two nuts

(8).

14. Bracket (11). Install and secure with screw

(12), lock washer I10), and

nut (9).

15. Cable (18). Install on tachometer (4).

### 10-12. TACHOMETER AND TACHOMETER CABLE MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** LEGEND: SCREW (2) LOCKWASHER (2) 2. 3. NUT (2) **TACHOMETER** 5. **BRACKET** 6. **BRACKET** 7. WASHER (2) 8. NUT (2) NUT 9. **LOCKWASHER** 10. BRACKET 11. **SCREW** 12. NUT 13. 14. SETSCREW **TACH DRIVE** 15. 16. **SCREW** INNER CABLE 17. 18. ÇABLE 13 • TA 076396 10-35

#### 10-12. TACHOMETER AND TACHOMETER CABLE MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### B. INSTALLATION (Continued).

16. Cable (18). Slide through bracket (11) and

install inner cable (17) into

tach drive (15).

17. Set screw (14). Tighten.

18. Screw (16) and Tighten securely.

nut (13).

#### C. OPERATIONAL CHECK.

19. Mixer body. Start up (see TM 9-2320-273-

10 and TM 53895372-10). Check for normal tachometer reading. Vary engine speed and check tachometer response.

#### **NOTE**

If set screw (14) and cable (18) are secure and tachometer still does not operate, disconnect cable at tachometer end and replace tachometer (4).

20. Mixer body. Shut down (see TM 92320-273-

10 and TM 5-3895372-10).

10-36

# 10-12. TACHOMETER AND TACHOMETER CABLE MAINTENANCE (Continued). **ACTION REMARKS** LOCATION/ITEM LEGEND: 1. SCREW (2) LOCKWASHER (2) NUT (2) TACHOMETER **BRACKET BRACKET** WASHER (2) NUT (2) NUT **LOCKWASHER** 10. BRACKET 11. 12. **SCREW** 13. NUT 14. SETSCREW **15**. TACH DRIVE 16. SCREW 17. INNER CABLE 18. CABLE 13 -10 TA 076397

#### 10-13. LINES AND FITTINGS MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

Removal and Installation. (AR)

(AR) Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS LO 53895372-12. Oil Reservoir Drained.

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

#### **MATERIALS/PARTS (PIN)**

Liquid Teflon (Refer to Appendix C). Marking Pen. Masking Tape.

#### PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

#### REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 53895372-10. TM 5-3895-372-20P. LO 53895-372-12. TM 9-2320-273-10. Engine Off.
Transmission in Neutral.
Parking Brake Set.
Hydraulic Oil May Be Hot Enough to Bum Skin.

#### **TROUBLESHOOTING REFERENCES**

Table 101.

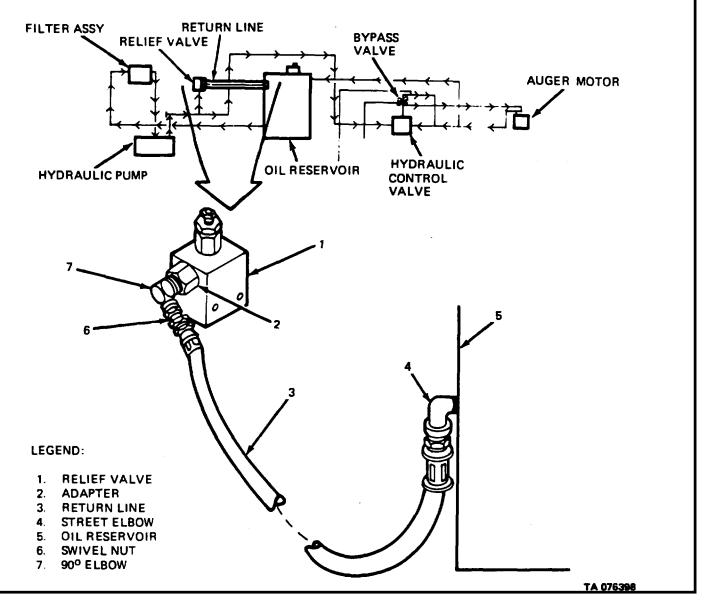
#### 10-13. LINES AND FITTINGS MAINTENANCE (Continued).

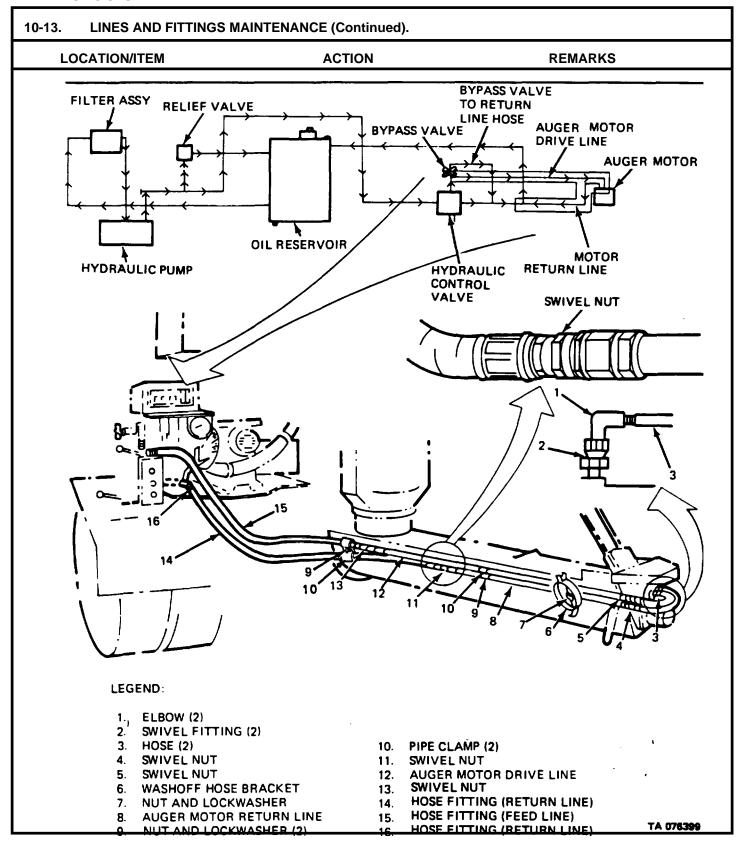
LOCATION/ITEM ACTION REMARKS

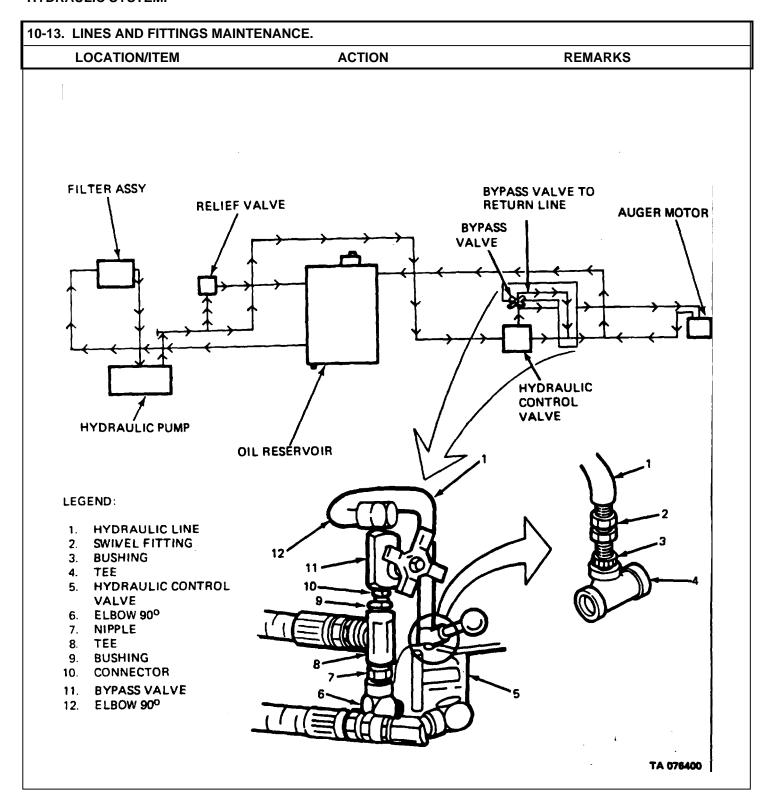
#### REMOVAL AND INSTALLATION.

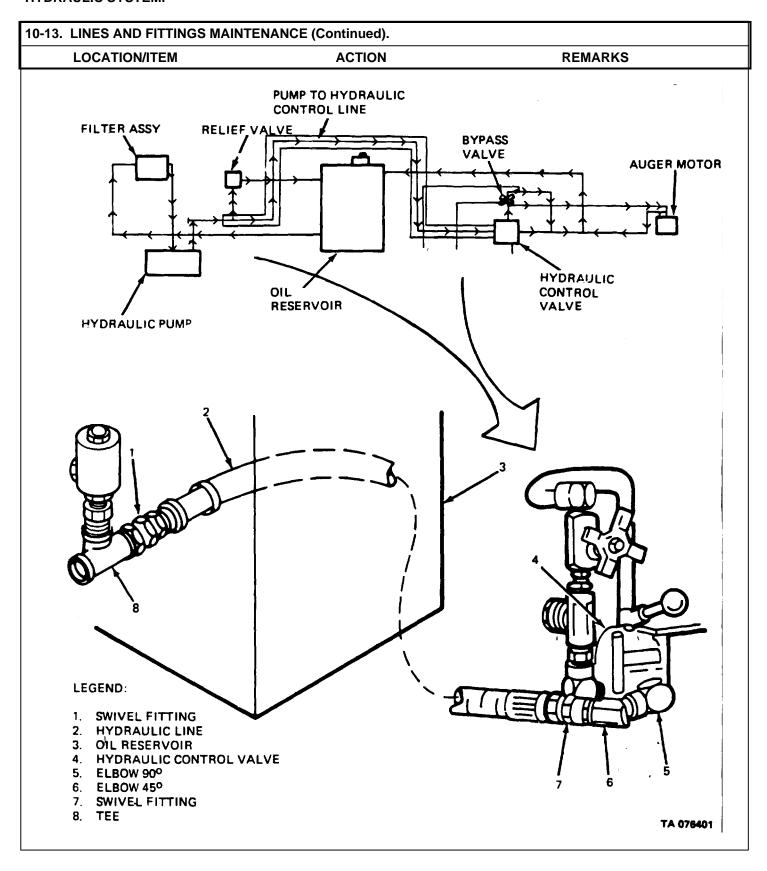
#### **NOTE**

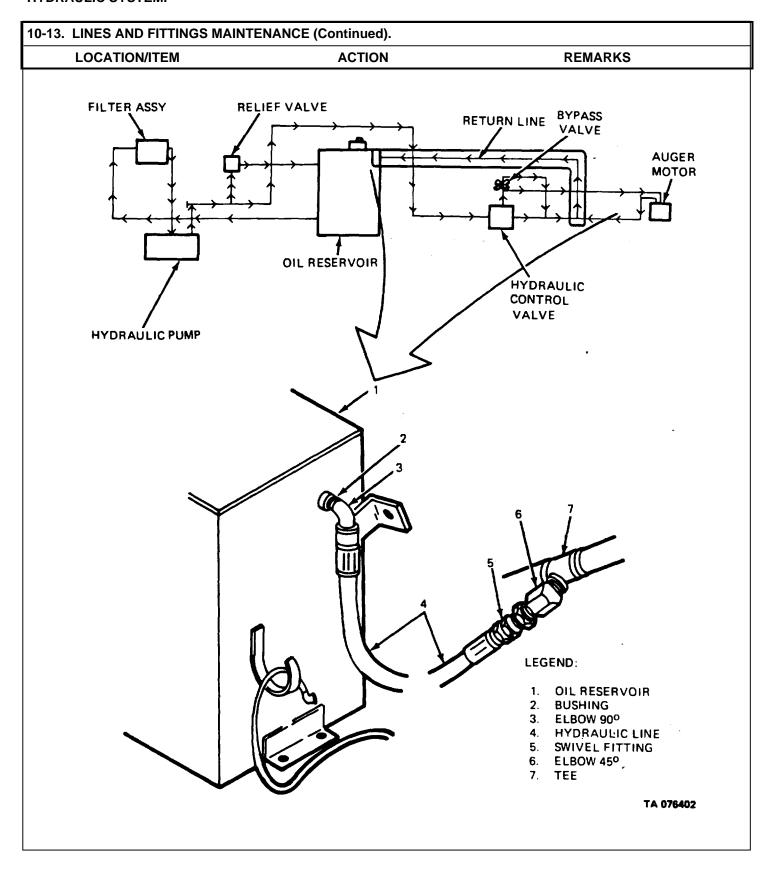
All hydraulic lines are removed and installed using standard shop practices. On lines with swivel nut on one end only, remember that the swivel nut must be removed first. Drain oil reservoir before beginning service and apply liquid teflon to all threaded joints at installation. Mark each line at removal for ease of proper installation.

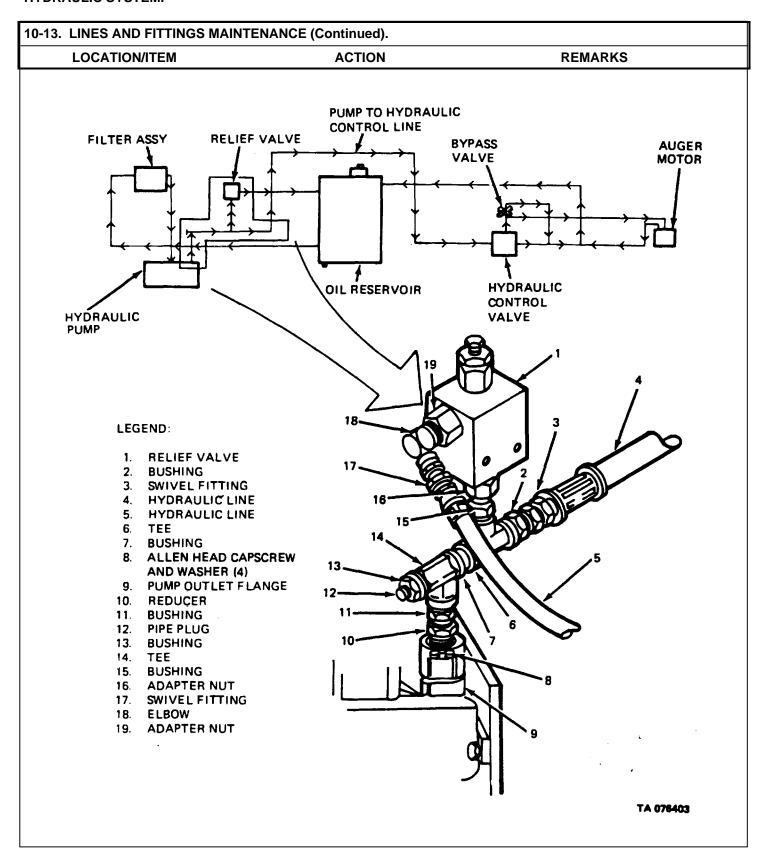


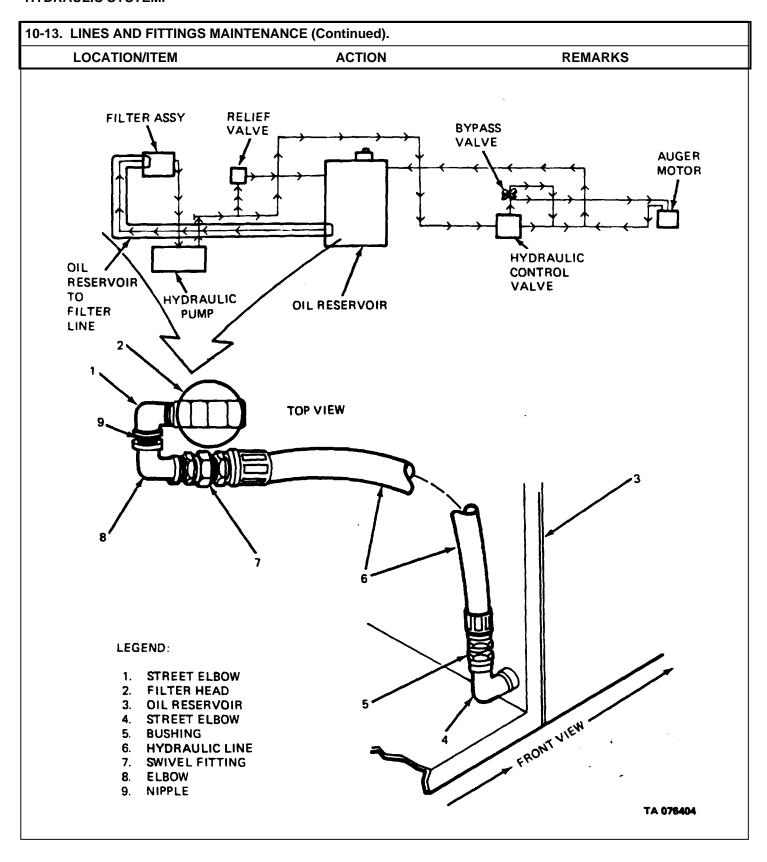












# 10-13. LINES AND FITTINGS MAINTENANCE (Continued). **ACTION REMARKS** LOCATION/ITEM FILTER TO PUMP PIPE FILTER ASSY **RELIEF VALVE BYPASS VALVE AUGER** MOTOR HYDRAULIC **CONTROL LINE** OIL RESERVOIR VALVE HYDRAULIC PUMP LEGEND: 1. ELBOW 90° 2. FILTER ASSEMBLY 3. ELBOW 90° 4. PIPE 5. BUSHING 6. HYDRAULIC PUMP 7. PUMP INLET FLANGE 8. ALLEN HEAD CAPSCREW AND WASHER (4)

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10-47

#### 10-14. OIL RESERVOIR MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (15)b. Repair. (20)c. Installation. (20)d. Operational Check. (10)

65 Minutes Total.

<u>INITIAL SETUP</u>

EQUIPMENT CONDITION PARAGRAPH

**CONDITION DESCRIPTION** 

APPLICABLE CONFIGURATIONS None.

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Drain Pan.

Oil (refer to Appendix C).

Liquid Teflon (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

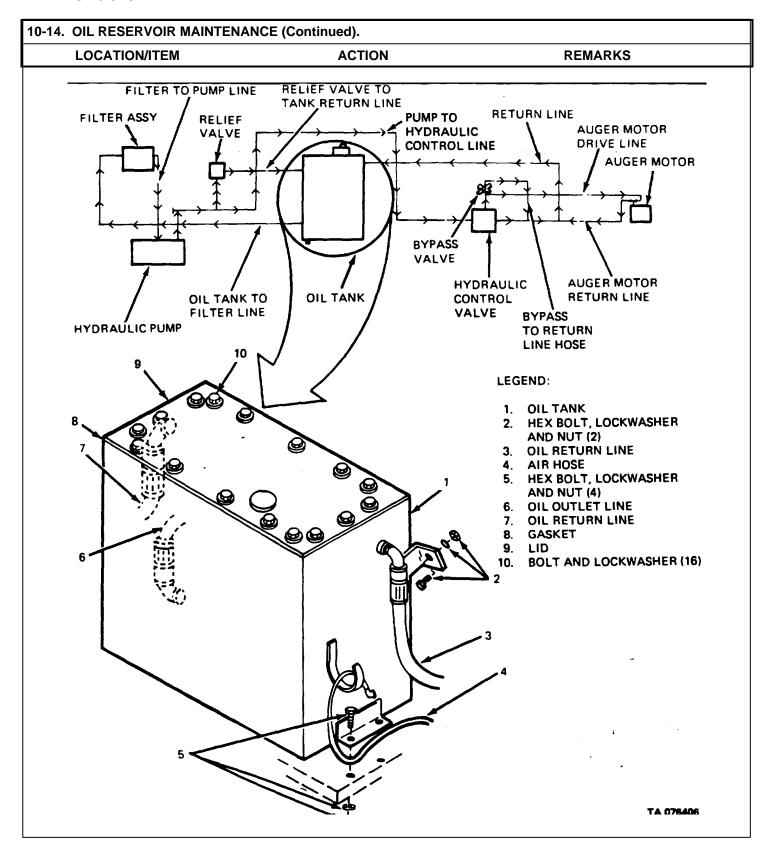
LO 5-3895-372-12. Engine Off.

TM 5-3895-372-10. Transmission in Neutral. TM 5-3895-372-20P. Parking Brake Set.

TM 9-2320-273-10. Hydraulic Oil May Be Hot Enough to Burn Skin.

TROUBLESHOOTING REEERENCES

Table 10-1.



#### 10-14. OIL RESERVOIR MAINTENANCE (Continued).

LOCATION/ITEM **ACTION REMARKS** 

#### **NOTE**

Before beginning service, raise and prop access panel. If gasket (8) is to be replaced, complete steps 1, 2, and 3 only. Proceed with steps 4 thru 10 if the oil reservoir is to be removed.

#### A. REMOVAL.

1. Sixteen bolts and washers (10). Remove.

2. Lid (9). Remove.

3. Gasket (8). Remove. Use sharp tool if necessary.

4. Oil tank (1). Drain oil. Refer to LO 5-3895372-12.

5. Air hose (4). Remove from bracket.

6. Oil return line (3) and (7). Remove. Drain excess oil in drain pan.

7. Oil outlet line (6). Remove. Drain excess oil in drain pan.

8. Hex bolts and Remove two bolts and

lockwashers (2). lockwashers.

9. Hex bolts, lockwashers, Remove four hex bolts, lockwashers and hex nuts. and hex nuts (5).

Remove from vehicle. 10. Oil tank (1).

#### NOTE

Use liquid teflon on all threaded joints at installation.

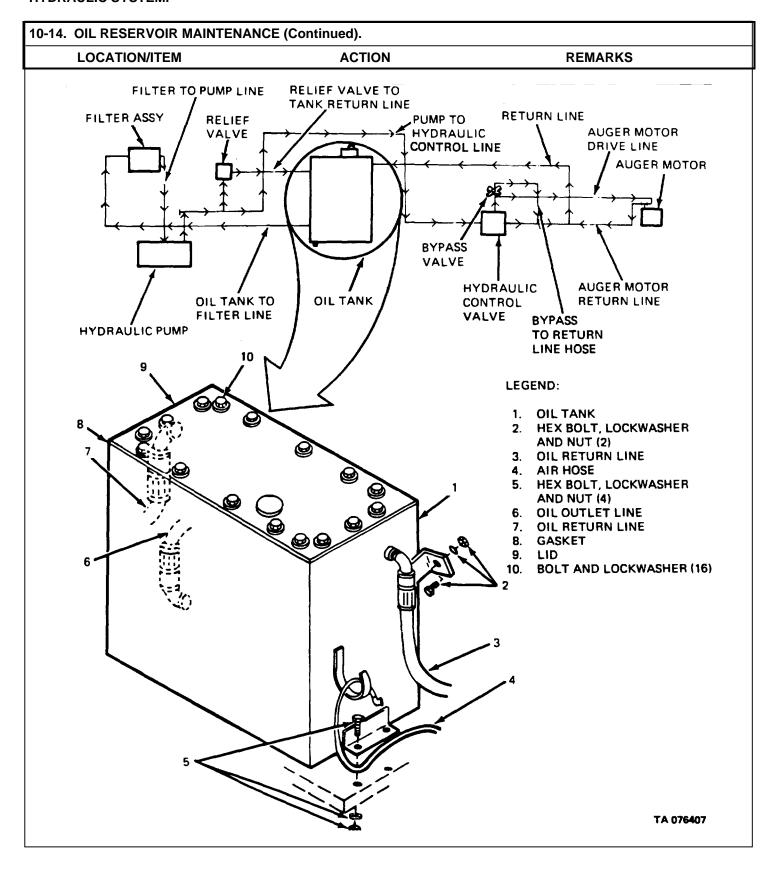
#### B. REMOVAL.

11. Oil tank (1). Weld cracks using standard shop practices and techniques

for welding galvanized steel.

#### NOTE

In extreme cases with abnormally large cracks, it may be necessary to patch the damaged area with galvanized steel stock.



#### 10-14. OIL RESERVOIR MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### C. INSTALLATION.

#### **NOTE**

If a new oil tank is being installed, transfer the fittings from the damaged tank to the new tank.

12. Gasket (8). Set in place. If removed.

13. Lid (9). Set in place. If removed.

14. Sixteen bolts and Install and tighten securely. If removed.

lockwashers (10).

15. Oil tank (1). Install in vehicle.

16. Hex bolts, lockwashers, Install four hex bolts, lock-

and hex nuts (5). washers, and hex nuts.

17. Hex bolts and lock- Install two hex bolts and

washers (2). lockwashers (2).

18. Oil outlet line (6). Install outlet line (6) in

oil tank.

19. Oil return lines (3) Install in oil tank.

and (7).

20. Air hose (4). Install on bracket.

21. Oil tank (1). Fill tank with oil (see

LO 5-3895372-12).

#### D. OPERATIONAL CHECK.

22. Mixer body. Start up (see TM 9-2320-273-

10 and TM 5-3895-372-10). Activate auger and check for leaks. Shut down auger and

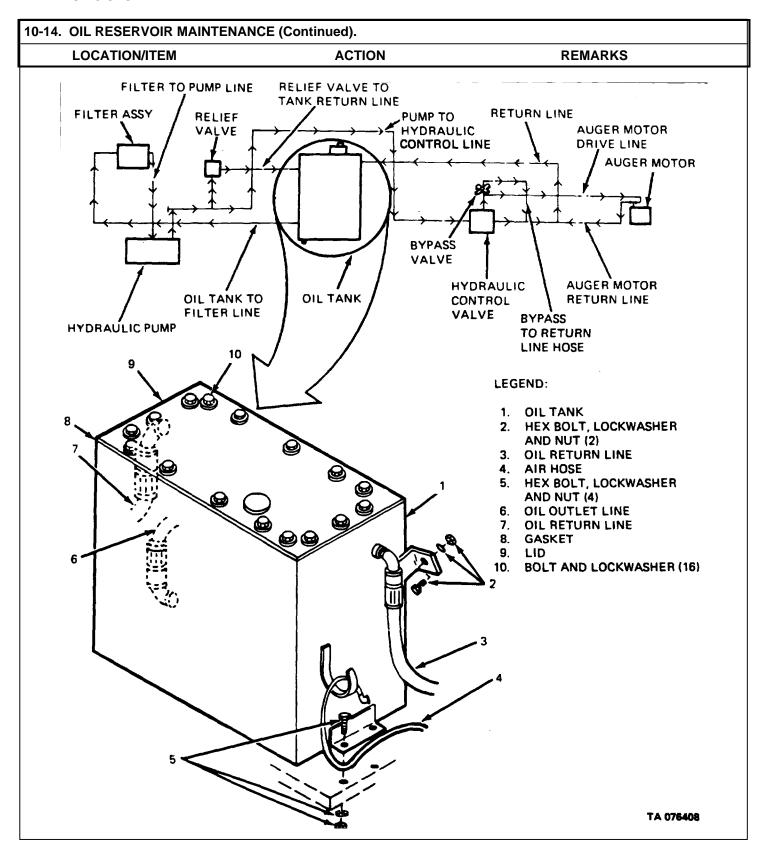
stop engine.

23. Oil tank (1). Check oil level with dipstick

in hydraulic oil tank cap.

Add oil if needed.

24. Access panel. Close and latch.



#### 10-15. CONTROL VALVE MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (20)b. Installation. (20)c. Operational Check. (10)

50 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

None. None.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Drain Pan

Liquid Teflon (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

LO 5-3895-372-12. Engine Off.

TM 5-3895-372-10. Transmission in Neutral. TM 5-3895-372-20P. Parking Brake Set.

TM 9-2320-273-10. Hydraulic Oil May Be Hot Enough to Burn Skin.

TROUBLESHOOTING REEERENCES

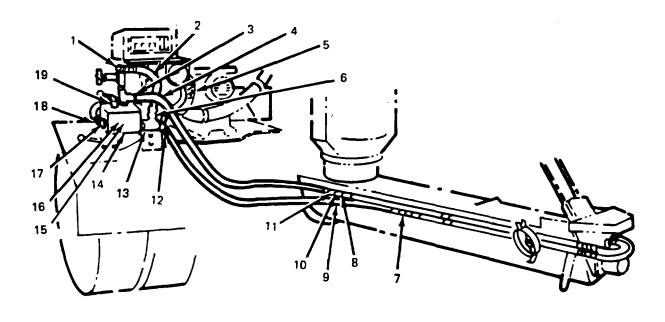
Table 10-1.

### 10-15. CONTROL VALVE MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** 18 17 16 15 LEGEND: 11. MOUNTING CLAMP (2) **HOSE FITTING** 1. 12. HOSE FITTING HOSE 2. 13. ADAPTER **HOSE FITTING** 3. 14. CONTROL VALVE 4. HOSE 15. CAPSCREW (2) **5**. SWIVEL NUT 16. LOCKWASHER (2) SWIVEL NUT 6. 17. ELBOW SWIVEL NUT 7. SWIVEL NUT 18. SWIVEL NUT 8. 9. LOCKWASHER (2) 19. ELBOW 10. NUT (2) TA 076410

10-15. CONTROL VALVE MAINTENANCE (Continued).						
	LOCATION/ITEM	ACTION	REMARKS			
NOTE						
Before beginning service lower auger to horizontal position and have access to drain pan.						
A. RE	EMOVAL.					
1.	Two nuts (10) and lockwashers (9).	Remove from mounting studs.	Front and intermediate clamps.			
2.	Two mounting clamps (11).	Remove from mounting studs.	Front and intermediate clamps.			
3.	Swivel nut (18).	Loosen and remove hose.	Cap end of hose.			
4.	Swivel nut (7).	Loosen and remove hose.	Drain excess oil in pan.			
5.	Swivel nut (8).	'Loosen and remove hose.	Drain excess oil in pan.			
6.	Hose fitting (12).	Remove.				
7.	Hose fitting (3).	Remove hose (4).				
8.	Swivel nut (6).	Loosen and remove hose (2).	Drain excess oil in pan.			
9.	Two capscrews (15) and lockwashers (16).	Remove.				
10	. Hydraulic control valve (14).	Remove from vehicle and place in a vise.				
11	. Swivel nut (5).	Loosen.				
12	. Hose fitting (1).	Loosen and remove hose (2).				
13	. Elbow(17).	Remove from valve (14).				
14	. Elbow (19).	Remove from valve (14).				
15	. Adapter (13).	Remove from valve (14).				
B. IN	STALLATION.					
		NOTE				
Apply liquid teflon on all threaded joints at installation.						
10	Adoptor (12)	Install in value (1.1)				

16. Adapter (13). Install in valve (14).17. Elbow (19). Install in valve (14).

# 10-15. CONTROL VALVE MAINTENANCE (Continued). LOCATION/ITEM ACTION REMARKS



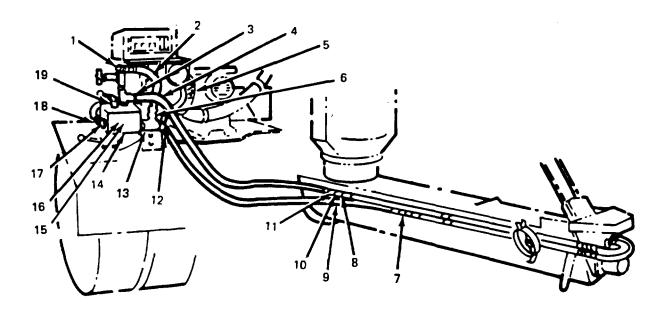
#### LEGEND:

- 1. HOSE FITTING 11. MOUNTING CLAMP (2)
- . HOSE 12. HOSE FITTING
- HOSE FITTING 13. ADAPTER
- 4. HOSE 14. CONTROL VALVE
- 5. SWIVEL NUT 15. CAPSCREW (2)
- 6. SWIVEL NUT 16. LOCKWASHER (2)
- 7. SWIVEL NUT 17. ELBOW
- 8. SWIVEL NUT 18. SWIVEL NUT
- 9. LOCKWASHER (2) 19. ELBOW
- 10. NUT (2)

TA 076412

U-15.	CONTROL VALVE MAINTENANCE	CE (Continued).	
	LOCATION/ITEM	ACTION	REMARKS
R IN	STALLATION (Continued).		
	s. Elbow (17).	Install in valve (14).	
19	. Hose fitting (1).	Install hose (2) and fitting (1).	
20	. Swivel nut (5).	Install on nipple and tighten.	
21	. Hydraulic control valve (14).	Remove from vise and install in vehicle.	
22	. Two capscrews (15)Install. and lockwashers (16).		
23	s. Swivel nut (6).	Install on nipple and tighten.	
24	. Hose (4) and hose fitting (3).	Install and tighten.	
25	. Hose fitting (12).	Install and tighten.	
26	s. Swivel nut (8).	Install and tighten.	
27	7. Swivel nut (7).	Install and tighten.	
28	. Mounting clamps (11).	Install two clamps on mounting studs.	Front and intermediate studs.
29	Nut (10) and lockwasher (9).	Install and tighten.	Front and intermediate studs.
30	. Swivel nut (18).	Install on nipple and tighten.	
31	. Oil reservoir.	Fill reservoir with oil (see LO 5-3895-372-12).	

# 10-15. CONTROL VALVE MAINTENANCE (Continued). LOCATION/ITEM ACTION REMARKS



#### LEGEND:

- HOSE FITTING 11. MOUNTING CLAMP (2)
- . HOSE 12. HOSE FITTING
- HOSE FITTING 13. ADAPTER
- 4. HOSE 14. CONTROL VALVE 5. SWIVEL NUT 15. CAPSCREW (2)
- 6. SWIVEL NUT 16. LOCKWASHER (2)
- 7. SWIVEL NUT 17. ELBOW
- 8. SWIVEL NUT 18. SWIVEL NUT 9. LOCKWASHER (2) 19. ELBOW
- 10. NUT (2)

TA 076412

LOCATION/ITEM	ACTION	REMARKS
C. OPERATIONAL CHECK.		
32. Mixer body.	Start up (see TM 9-2320-273-10 and TM 5-3895-372-10). Activate auger by hydraulic control valve and check for leaks. Shut down auger and stop engine.	
33. Oil reservoir.	Check oil level with dipstick in hydraulic oil tank cap. Add oil if needed. Refer to LO 5 3895-372-12.	
34. Mixer body.	Shut down (see TM 9-2320-273- 10 and TM 5-3895-372-10).	

TA 076412

### 10-15. CONTROL VALVE MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** 18 17 16 15 LEGEND: **HOSE FITTING** 11. MOUNTING CLAMP (2) HOSE 12. HOSE FITTING HOSE FITTING 13. ADAPTER 4. HOSE 14. CONTROL VALVE 5. SWIVEL NUT 15. CAPSCREW (2) 6. SWIVEL NUT 16. LOCKWASHER (2) 7. SWIVEL NUT 17. ELBOW 8. SWIVEL NUT 18. SWIVEL NUT 9. LOCKWASHER (2) 19. ELBOW 10. NUT (2)

#### 10-15. HYDRAULIC MOTOR MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (20)b. Installation. (20)c. Operational Check. (5)

45 Minutes Total.

INITIAL SETUP EQUIPMENT CONDITION

PARAGRAPH CONDITION DESCRIPTION None.

APPLICABLE CONFIGURATIONS

M919.

TEST EQUIPMENT

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Drain Pan

Liquid Teflon (Refer to Appendix C).

Plugs.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-10. Engine Off.

TM 5-3895-372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

TROUBLESHOOTING REEERENCES

Table 10-1.

Hydraulic Oil May Be Hot Enough to Burn Skin.

# 10-16. HYDRAULIC MOTOR MAINTENANCE (Continued). LOCATION/ITEM ACTION REMARKS

#### **NOTE**

Before beginning service, lower auger until motor can be reached easily.

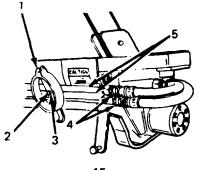
#### A. REMOVAL.

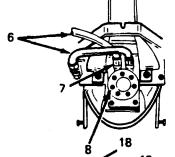
- 1. Nut (2) and lockwasher (3).
- 2. Two swivel nuts (4).

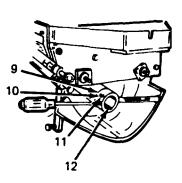
Unscrew and remove hose bracket (1)

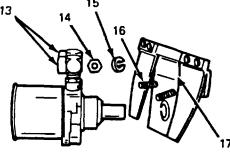
Unscrew from two pipes (5).

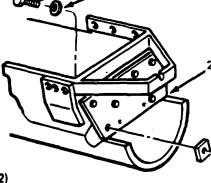
Catch excess oil in drain pan and plug pipes (5).

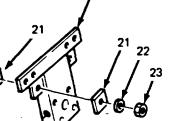












## LEGEND:

- 1. HOSE BRACKET
- 2. NUT
- 3. LOCKWASHER
- 4. SWIVEL NUT (2)
- 5. PIPE (2)
- 6. HOSE (2)
- 7. HOSE FITTING (2)
- B. HYDRAULIC MOTOR
- 9. SHAFT COUPLING
- 10. NUT (2)
- 11. BOLT (2)
- 12. WOODRUFF KEY

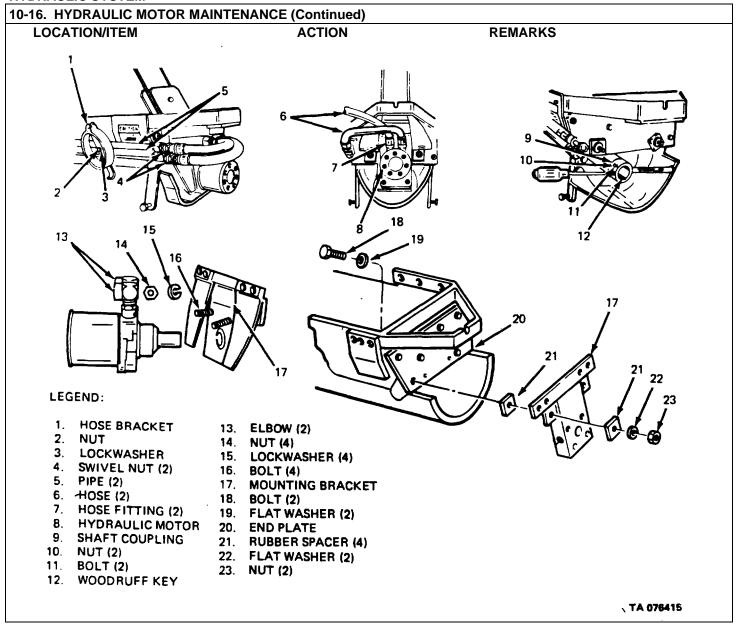
- 13. ELBOW (2)
- 14. NUT (4)
- 15. LOCKWASHER (4)
- 16. BOLT (4)
- 17. MOUNTING BRACKET
- 18. BOLT (2)
- 19. FLAT WASHER (2)
- 20. END PLATE
- 21. RUBBER SPACER (4)
- 22. FLAT WASHER (2)
- 23. NUT (2)

TA 076413

	LOCATION/ITEM	ACTION	REMARKS
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	TELLIN II II I
A. RE	MOVAL (Continued).		
3.	Two hose fittings (7).	Unscrew and remove two hoses (6) from vehicle.	Note location for ease of installation.
4.	Two nuts (23), flat washers (22), flat washers (19), bolts (18), and four rubber spacers (21).	Remove from end plate (20).	Located behind rubber flaps.
5.	Two bolts (11) and nuts (10).	Loosen.	
6.	Shaft coupling (9).	Wedge a tapered tool into slots on sides of coupling.	
7.	Hydraulic motor (8).	Remove from shaft coupling (9).	
8.	Woodruff key (12).	Remove from motor shaft.	
9.	Four bolts (16), nuts (14) and lockwashers (15).	Remove.	
10	. Mounting bracket (17). motor (8).	Remove from hydraulic	
11	. Two elbows (13).	Remove from hydraulic motor (8).	Note location for ease of installation.
B. IN	STALLATION.		
		NOTE	
	Apply	liquid teflon to all threaded joints at asser	mbly.
12	. Two elbows (13).	Install in hydraulic motor (8).	Coat threads with liquid teflon.
13	.Mounting bracket (17).	Install on hydraulic motor (8) with four bolts (16), lockwashers (15) and nuts (14).	
14	. Woodruff key (12).	Install in motor shaft.	
15	. Hydraulic motor (8).	Install in shaft coupling (9).	Once installed, remove wedge tool from slot.
16	. Two bolts (11) and nuts (10).	Tighten securely.	

#### 10-16. HYDRAULIC MOTOR MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** 9 LEGEND: 1. HOSE BRACKET 13. ELBOW (2) 2. NUT **NUT (4)** 14. 3. LOCKWASHER 15. LOCKWASHER (4) A. SWIVEL NUT (2) BOLT (4) MOUNTING BRACKET 16. 5. PIPE (2) 17. 6. HOSE (2) BOLT (2) 18. 7. HOSE FITTING (2) FLAT WASHER (2) 19. 8. HYDRAULIC MOTOR **END PLATE** 20. 9. SHAFT COUPLING **RUBBER SPACER (4)** 21. 10. NUT (2) 22. FLAT WASHER (2) 11. BOLT (2) 23. NUT (2) 12. WOODRUFF KEY TA 076414

10-16. HYDRAULIC MOTOR MAINTENANCE (Continued).					
LOCATION/ITEM	ACTION	REMARKS			
B. INSTALLATION (Continued).					
17. Two nuts (23), flat washers (22), flat washers (19), bolts (18) and four rubber spacers (21).	Install per illustration to end plate (20).				
18. Two hoses (6).	Install in hydraulic motor (8) and tighten two hose fittings (7).				
19. Two swivel nuts (4).	Unplug two pipes (5) and tighten two swivel nuts (4) to two hoses (6).				
20. Hose bracket (1).	Install with lockwasher (3) and nut (2).				
C. OPERATIONAL CHECK.					
21. Mixer body.	Start up (see TM 9-2320-273- 10 and TM 53895372-10).				
22. Auger.	Activate and check for leaks.	Tighten connections as necessary.			
NOTE					
If auger is not rotating in correct direction, switch hose (6) connections.					
23.Mixer body.	Shut down (see TM 9-2320-273-10 and TM 53895-372-10).	Raise and latch auger.			



10-67/(10-68 Blank)

#### **CHAPTER 11**

#### **AIR SYSTEM**

#### 11-1. OVERVIEW.

This chapter provides bou with the following information related to air system maintenance:

- a. All required special tools and equipment.
- b. Troubleshooting procedures.
- c. Maintenance procedures.

#### Section I REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

#### 11-2. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

#### 11-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

The special tools, TMDE, and support equipment for air system maintenance procedures described in this chapter are limited to air pressure gage, 0-150 psi (0-1000 kPa). (Refer to Organizational Maintenance RPSTL, TM 5-3895-372-20P for tool description and illustration.)

#### 11-4. SPARES AND REPAIR PARTS.

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools List covering Organizational Maintenance for this equipment (TM 5-3895-372-20P).

#### Section II TROUBLESHOOTING

#### 11-5. INTRODUCTION.

Troubleshooting procedures for the air system are given in table 11-1. It is arranged by malfunctions, in the following order:

- a. Air pressure is low (below 65 psi, 448 kPa) (Malfunction No. 1).
- b. Cement in bin is not properly aerated (Malfunction No. 2).
- c. Vibrators do not function properly (Malfunction No. 3).

#### **NOTE**

Troubleshooting procedures for low admix air pressure are contained in table 6-1.

Troubleshooting procedures for cement screen vibrator are contained in table 81.

#### Table 11-1. Air System Troubleshooting Procedures.

#### **MALFUNCTION**

#### **TEST OR INSPECTION**

#### **CORRECTIVE ACTION**

- 1. AIR PRESSURE IS LOW (Below 65 psi, 448 kPa):
- Step 1. Check that air tank draincock is closed.

Close draincock.

Step 2. Check that air control valve is open.

Open valve.

Step 3. Check that fluffer valve and vibrator valves are not stuck (para 11-11 and 11-14).

Lubricate valves. Replace if necessary.

Step 4. Check air filter for loose or broken bowl or defective O-ring.

Tighten bowl or replace filter (pare 11-13).

Step 5. Use soap solution to check for leaks in air system.

Replace leaking lines or valves.

Step 6. Troubleshoot chassis air system (refer to TM 9-2320-273-20).

- 2. CEMENT IN BIN IS NOT PROPERLY AERATED.
- Step 1. Check that air pressure is above 65 psi (448 kPa) (see TM 9-2320-273-10).

Refer to Malfunction No. 1.

- Step 2. Check air supply to air pads.
  - a. Remove air hoses at bottom outside of bin.
  - b. Actuate manual control valve. Check for air from hoses.
  - c. If no air comes out, disconnect hose from manual control valve. Actuate valve.
    - (1) If air comes out, hose is blocked. Remove block or replace hose (pare 11-12).
    - (2) If no air comes out, valve is blocked or broken. Clean or replace valve (para 11-12).
- Step 3. Check filter cloth.
  - a. Empty bin until cement is 3-5 in. (7.6-12.7 cm) deep.

#### Table 11-1. Air System Troubleshooting Procedures (Continued).

#### **MALFUNCTION**

#### **TEST OR INSPECTION**

#### **CORRECTIVE ACTION**

- 2. CEMENT IN BIN IS NOT PROPERLY AERATED (Continued):
  - b. Actuate air pads.
    - 1. If filter cloth is torn, you will see a blast of air.
    - 2. If filter cloth is clogged, no air action will be visible
    - 3. If filter cloth is in good condition, you will see gentle puffs of cement.

Replace tom or clogged filter cloth (para 8-11).

Step 4. Open draincocks of truck air reservoirs (see TM 9-2320273-20) and mixer body moisture trap. Check for moisture in air system.

Drain completely, then close cocks.

- 3. VIBRATORS DO NOT FUNCTION PROPERLY:
- Step 1. Check that air pressure is above 65 psi (448 kPa).

Refer to Malfunction No.1.

Step 2. Check that lubricator bowl is full of oil.

Fill lubricator (see TM 5-3895-372-10).

Step 3. Check for a fine mist of oil at the vibrators as they are operated.

If there is no mist, replace lubricator.

Step 4. Check for cam follower clearance of 1/16 in. (1.6 mm) (para 11-10).

Adjust timing device.

Step 5. Open draincocks of truck air reservoirs (see TM 9-2320-273-20) and mixer body moisture trap. Check for moisture in air system.

Drain completely, then close cocks.

Step 6. Use soap solution to check for air line leaks.

Replace leaking lines.

Table 1 1-1. Air System Troubleshooting Procedures (Continued).

#### **MALFUNCTION**

#### **TEST OR INSPECTION**

#### **CORRECTIVE ACTION**

- 3. VIBRATORS DO NOT FUNCTION PROPERLY (Continued):
- Step 7. Disconnect air hoses at vibrators and check for air supply.

Find blockage. Clear out or replace blocked line or valve (para 11-12).

- Step 8. Lubricate vibrator.
  - a. Disconnect air hose at vibrator.
  - b. Put several drops of penetrating oil into vibrator.

#### NOTE

If vibrator end of hose is hard to reach, disconnect other end. Put the penetrating oil into the hose.

- c. Reconnect hose and check vibrator operation.
- d. Remove and clean vibrator (para 118).
- e. If vibrator still does not work, replace it.

#### **Section III MAINTENANCE PROCEDURES**

# 11-6. INTRODUCTION.

This section provides you with Organizational Level maintenance procedures for the air system of the mixer body. Paragraph 11-7 summarizes the maintenance tasks. Paragraphs 11-8 thru 11-14 contain detailed instructions for each task.

#### 11-7. AIR SYSTEM MAINTENANCE TASK SUMMARY.

INITIAL SETUP EQUIPMENT CONDITION

<u>APPLICABLE CONFIGURATIONS</u> <u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

M919. TM 9-2320-273-10. Air System Bled.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALSIPARTS (P/N)

Penetrating Oil (Refer to Appendix C).

No. 320 Emery Paper. Oil (Refer to Appendix C).

Liquid Teflon (Refer to Appendix C).

Dry Cleaning Solvent SD-2 (Refer to Appendix C).

SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

PERSONNEL REQUIRED

Two (MOS-62B20).

REFERENCES (TM)

LO 53895-372-12.

TM 5-3895372-10. GENERAL SAFETY INSTRUCTIONS

TM 5-3895372-20P. Engine Off

TM 9-2320-273-10 Transmission in Neutral

Park Brake Set.

REFERENCES (TROUBLESHOOTING)

Table 11-1.

LIST OF TASKS

TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)
1.	Vibrator Maintenance and Replacement:	11-8	11-1
	A. Removal.	11-8A	
	B. Cleaning and lubrication.	11-8B	
	C. Installation.	11-BC	
	D. Operational check.	11-8D	

# 11-7. AIR SYSTEM MAINTENANCE TASK SUMMARY (Continued).

# LIST OF TASKS

TASK		TASK	TROUBLESHOOTING
NO.	TASK	REF	REF (TABLE)
2.	Lubricator Maintenance:	11-9	11-1
	A. Removal.	11-9A	
	B. Disassembly.	11-9B	
	C. Assembly.	11-9C	
	D. Installation.	11-9D	
	E. Operational check.	11-9E	
3.	Timing Device Adjustment:	11-10	11-1
	A. Inspection.	1 1-OA	
	B. Adjustment.	11-1OB	
	C. Operational check.	11-1OC	
4.	Timing Device Maintenance:	11-11	11-1
	A. Removal.	1I-11A	
	B. Cleaning.	11-11B	
	C. Installation.	11-11C	
	<ul><li>D. Operational check.</li></ul>	11-11D	
5.	Air Valves and Hoses Maintenance:	11-12	11-1
	A. Removal.	11-12A	
	B. Inspection.	11-12B	
	C. Installation.	11-12C	
	<ul><li>D. Operational check.</li></ul>	11-12D	
6.	Air Filter Maintenance:	11-13	11-1
	A. Removal.	11-13A	
	B. Disassembly.	11-13B	
	C. Assembly.	11-13C	
	D. Installation.	11-13D	
	E. Operational check.	11-13E	

11-7. AIR SYST	11-7. AIR SYSTEM MAINTENANCE TASK SUMMARY (Continued).			
	LIST OF TASKS			
TASK NO.				
7.	Fluffer Valve Maintenance: A. Removal. B. Inspection. C. Installation. D. Operational check.	11-14 11-14A 11-14B 11-14C 11-14D	11-1	

#### 11-8. VIBRATOR MAINTENANCE AND REPLACEMENT.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (20)
b. Cleaning and Lubrication. (20)
c. Installation. (20)
d. Operational Check. (5)

65 Minutes Total.

TM 9-2320-273-10.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

Air System Bled.

**APPLICABLE CONFIGURATIONS** 

M919.

TEST EQUIPMENT

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (PIN)

Penetrating Oil (Refer to Appendix C).

No. 320 Emery Paper.
Oil (Refer to Appendix C).
Liquid Teflon (See Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Two (MOS-62B20i. Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

Engine Off. Engine Off.

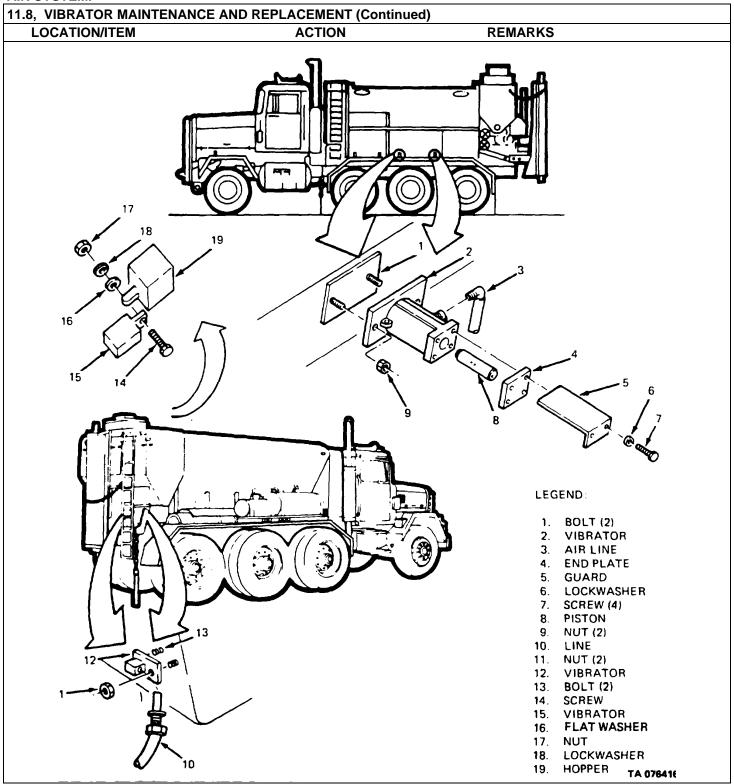
LO 5-3895-372-12. Engine Off

TM LO3895372-10. Transmission in Neutral. TM 5-3895-372-20P. Parking Brake Set.

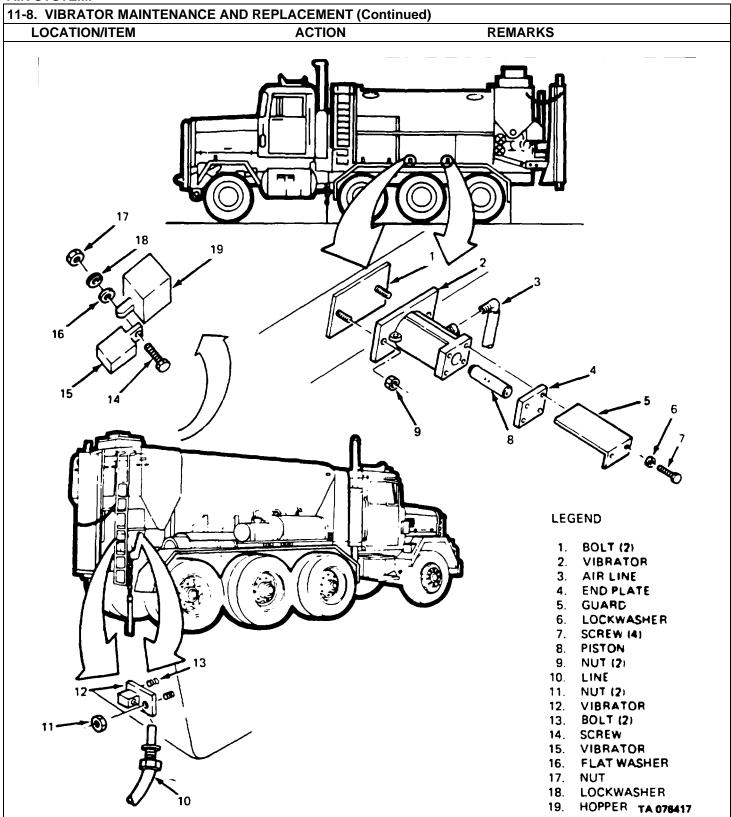
TM 53895-372-20P. TM 92320273-10.

TROUBLESHOOTING REFERENCES

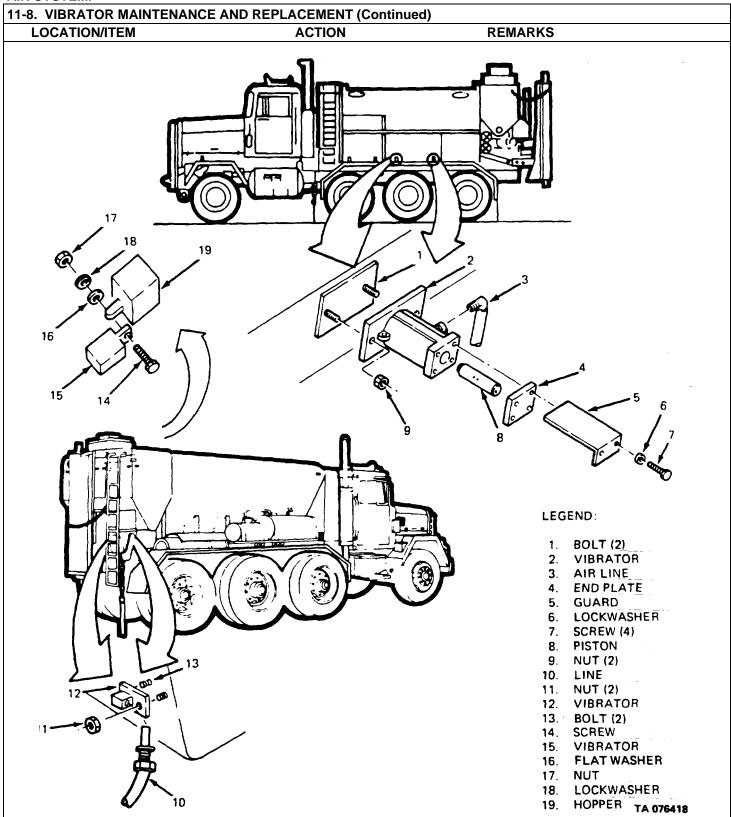
Table 11-1.



11-8. VIBRATOR MAINTENANCE AND REPLACEMENT (Continued).			
LOCATION/ITEM	ACTION	REMARKS	
	WARNING		
Before removing vibrator, be s	ure that air gate valve is closed. Check pressure.	that draincocks have been opened to relieve	
A. REMOVAL.	p. 222		
1. Air line (3).	<ul> <li>a. Disconnect.</li> <li>b. Inspect for: <ol> <li>Cracks.</li> <li>Leaks.</li> <li>Damaged fittings.</li> </ol> </li> </ul>	Replace if necessary.	
2. Two nuts (9).	Loosen and remove vibrator (2).	If necessary, tap vibrator loose with a hammer.	
3. Line (10).	<ul><li>a. Disconnect.</li><li>b. Inspect for:</li></ul>	Replace if necessary.	
<ol> <li>Cracks.</li> <li>Leaks.</li> <li>Damaged fittings.</li> </ol>			
4. Two nuts (11).	Loosen and remove vibrator (12).	If necessary, tap vibrator loose with a hammer.	
<ol> <li>One screw (14), flat washer (16), lockwasher (18), and nut (17).</li> </ol>	Loosen and remove vibrator (15) from hopper (19).		
NOTE  If vibrators are to be replaced, advance to installation procedure "C".			



11-8.	1-8. VIBRATOR MAINTENANCE AND REPLACEMENT (Continued)				
LC	DCATION/ITEM	ACTION	REMARKS		
B. CL	EANING AND LUBRICATION.				
	<b>NOTE</b> The following procedure is for cleaning only. Components are not available for service.				
6.	Four screws (7) and lockwashers (6).	Remove.			
7.	Guard (5) (sand bin vibrators only).	Remove.			
8.	End plate (4).	Remove.	If necessary, ta hammer.	p loose with	
9.	Piston (8).	Add a drop of penetrating oil.	Piston located vibrator.	inside of	
10.	Piston (8).	Remove from vibrator (2).			
11.	Piston (8) and vibrator (2).	Remove rust.	Use No.	320 emery paper.	
12.	Piston (8).	Oil piston with machine oil and replace in vibrator (2).			
13.	End plate (4).	Install.			
14.	Guard (5).	Install.			
15.	Four screws (7) and lockwashers (6).	Install and tighten.			



and (15).

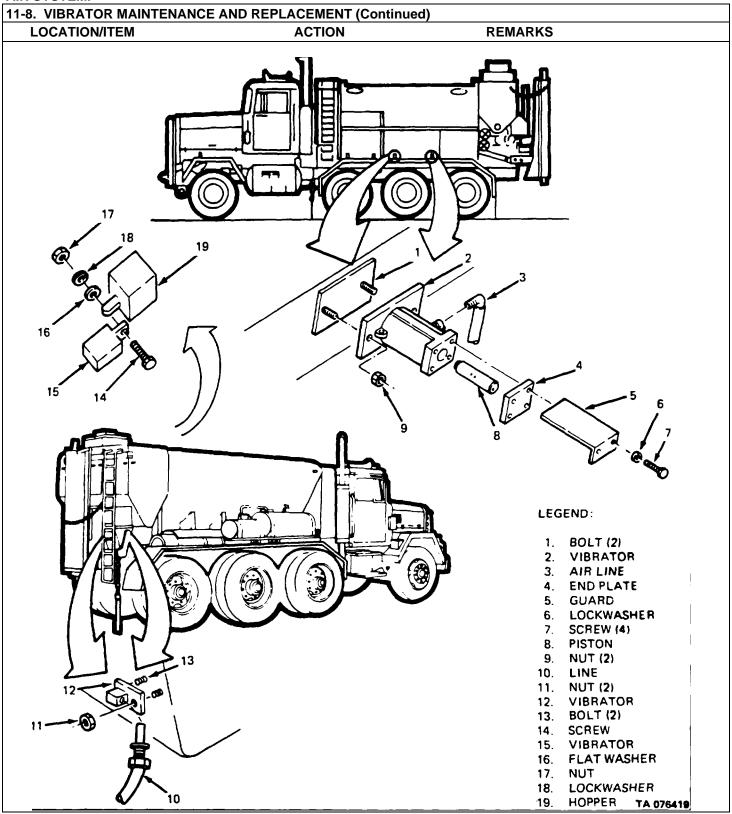
23. Mixer body.

#### AIR SYSTEM. 11-8. VIBRATOR MAINTENANCE AND REPLACEMENT (Continued) LOCATION/ITEM **ACTION REMARKS** C. INSTALLATION. **NOTE** If vibrators (2) and (12) are replaced, transfer elbow from defective vibrator to the replacement vibrator. Apply liquid teflon to all threaded air fittings. Aline to bolts (1) on sand 16. Vibrator (2). bin and secure with two nuts (9). Install and tighten. 17. Air line (3). 18. Vibrator (12). Aline to bolts (13) on cement bin and secure with two nuts (11). 19. Line (10). Install and tighten. 20. Vibrator (15). Aline to hopper (19) and secure with one screw (14), flat washer (16), lockwasher (18), and nut (17). D. OPERATIONAL CHECK. 21. Mixer body. Start up (see TM 5-3895-372-10 and TM 9232(0273-10). 22. Vibrators (2), (12) a. Check operation.

b. Check for air leaks.

10).

Shut down (see TM 5-3895 372-10 and TM 92320-273-



# 11-9. LUBRICATOR MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (15)
b. Disassembly. (10)
c. Assembly. (10)
d. Installation. (15)
e. Operational Check. (5)

55 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

TM 92320-273-10.

<u>PARAGRAPH</u> <u>CONDITION</u> <u>DESCRIPTION</u>

Air System Bled.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Dry Cleaning Solvent (Refer to Appendix C).

Liquid Teflon (Refer to Appendix C).

Oil (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

LO 5-3895372-12. Engine Off.

TM 5-3895-372-10. Transmission in Neutral. TM 5-3895-372-20P. Parking Brake Set.

TM 92320273-10.

TROUBLESHOOTING REFERENCES

Table 11-1.

# 11-9. LUBRICATOR MAINTENANCE (Continued)

LOCATION/ITEM ACTION REMARKS

# A. REMOVAL.

1. Lubricator, lock ring and canister (6).

2. Air hose (4).

3. Air hose (5).

4. Four nuts(1).5. Two U-bolts (8).

6. Lubricator head (2).

unscrew from nipple (7).

7. Street elbow (3) and attached components (9 and 10).

Unlock and remove and empty

oil in clean container.

Remove.

Remove.

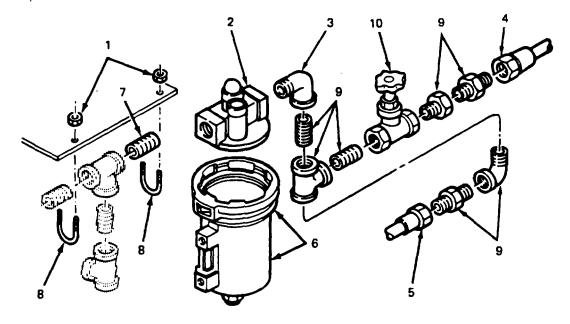
Remove.

Remove.

Swing out from vehicle and

Unscrew from lubricator

head (2).



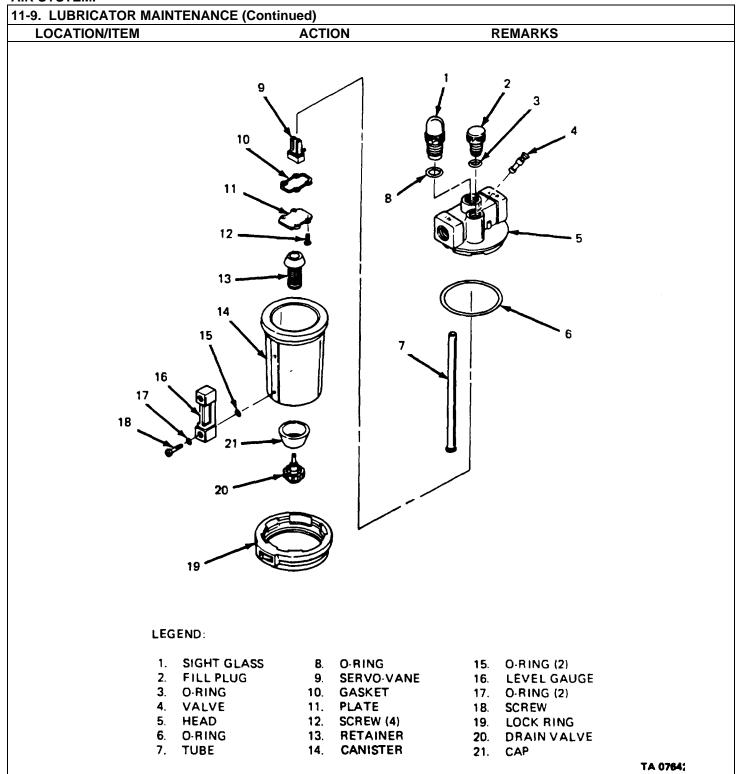
#### LEGEND:

- 1. NUT (4)
- 2. LUBRICATOR HEAD
- 3. ELBOW
- 4. AIR HOSE
- 5. AIR HOSE

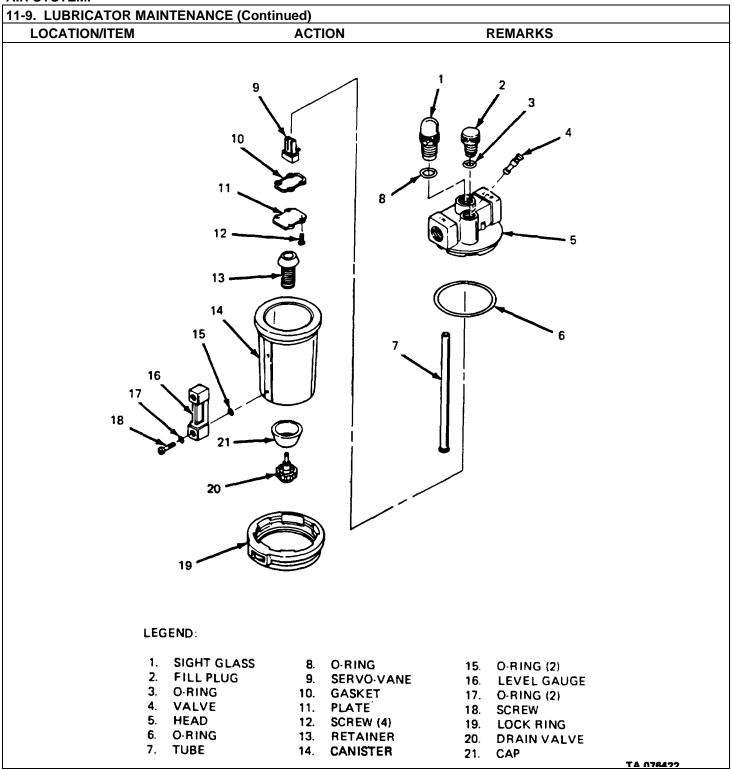
- 6. LOCKRING & CANISTER
- 7. NIPPLE
- 8. U-BOLT (2)
- 9. FITTING
- 10. FEMALE GATE VALVE

TA 076420

11-9. I	11-9. LUBRICATOR MAINTENANCE (Continued)			
LO	CATION/ITEM	ACTION	REMARKS	
B. DIS	ASSEMBLY.			
0	Circlet place (4)	Danage from board (5)		
	Sight glass (1).	Remove from head (5).		
9.	3 ( )	Remove.		
10.	Fill plug (2).	Remove.		
11.	0-ring (3.	Remove.		
12.	Valve (4).	Remove.		
13.	0-ring (6.	Remove.		
14.	Tube (7).	Remove.		
15.	Four screws(12).	Remove.		
	Plate (11) and gasket (10).	Remove.		
17.	Servo vane (9).	Remove.		
	Two screws (18).	Remove.		
19.	Level gage (16).	Remove.		
20.		Remove.		
	(15) and (17).			
21.	Lock ring (19).	Slide off of canister (14).		
22.		Unscrew and disassemble cap		
	(21) from canister (14)	•		
	, , , , , , , , , , , , , , , , , , , ,			



LO	CATION/ITEM	ACTION	REMARKS	
. AS	SEMBLY.			
23.	Retainer (13) and cap (21).	Assemble to canister (14).		
24.	Lock ring (19).	Slide on canister (14).		
25.	Two screws (18).	Install two O-rings (17) over screws.		
26.	Level gage (16).	Install screws (18) through gage.		
27.	Two 0-rings (15).	Slide over screws (18) and mount level gage (16) to canister (14).		
28.	Servo-vane (9).	Position in head (5).		
29.	Plate (11) and gasket (10).	Secure to head (5) with four screws (12) mounting servovane (9).		
30.	Tube (7).	Install in head (5).		
31.	0 ( )	Install on head (5).		
32.	<b>O</b> ( )	Slide over sight glass (1).		
33.	0 0 i,	Screw into head (5).		
34.	<b>3</b> \ ,	Slide over fill plug (2).		
35.	. 0 /	Screw into head (5).		
36.	Valve (4).	Install in head (5).		



11-9. I	11-9. LUBRICATOR MAINTENANCE (Continued)			
LO	CATION/ITEM	ACTION	REMARKS	
D. INS	TALLATION	NOTE		
		Apply liquid teflon on threaded joints at in-	stallation.	
37.	Street elbow (3) and attached components (9, 10).	Install in lubricator head (2).		
39.	Lubricator head (2). Two U-bolts (8). Air hose (5).	Install on nipple (7). Install U-bolts with four nuts (1). Install.		
41.	Lubricator lockring and canister (6).	Install on lubricator head (2).		
	Air hose (4). Air lubricator.	Install. Add oil, see LO 5-3895 372-12.		
E. OP	ERATIONAL CHECK.			
44.	Mixer body.	Close all draincocks and open valve. Start up. (See TM 53895		
45.	Air lubricator.	372-10. Operate vibrators. Check for fine drop of oil as vibrators operate. if necessary.	There should be one drop of oil every 3rd vibration. Adjust, (See TM 5-389 372-10.)	
46.	Mixer body.	Shut down (See TM 5-3895 372-10 and TM 9-2320-273-10).	,	

TA 076423

# 11-9. LUBRICATOR MAINTENANCE (Continued) LOCATION/ITEM ACTION REMARKS LEGEND: 1. NUT (4) 2. LUBRICATOR HEAD 3. ELBOW 4. AIR HOSE 5. AIR HOSE 10. FEMALE GATE VALVE

#### 11-10. TIMING DEVICE ADJUSTMENT.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Inspection. (5)b. Adjustment. (5)c. Operational Check. (5)

15 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

<u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

None. None.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 53895-372-20P. Engine Off.

TM 53895-372-10. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

TROUBLESHOOTING REFERENCES

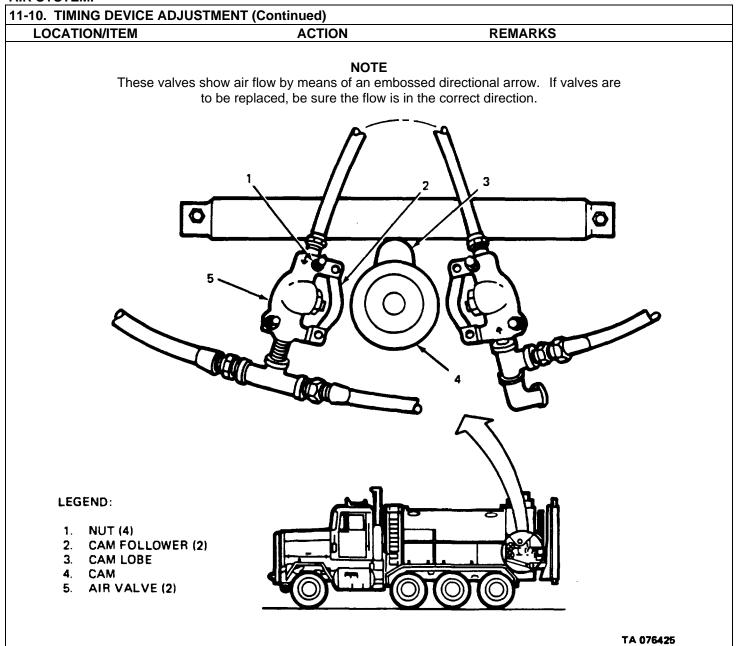
Table 11 -1.

# TM 5-3895-372-20 AIR SYSTEM. 11-10. TIMING DEVICE ADJUSTMENT (Continued) LOCATION/ITEM **ACTION REMARKS** A. INSPECTION. **NOTE** Before beginning service, open cam and air valve access panel. **NOTE** The two cam followers (2) should not be lifted by cam lobe (3) when clearance is checked. LEGEND: **NUT (4)**

- **CAM FOLLOWER (2)** 2.
- CAM LOBE
- CAM
- AIR VALVE (2)



11-10. TIMING DEVICE ADJUSTMENT (Continued)			
LOCATION/ITEM	ACTION	REMARKS	
A. INSPECTION (Continued).			
Two cam followers    (2) and cam (4).	Check for 1/16 in. (1.6 mm) clearance.	Use 1/16 in. (1.6 mm) steel plate or suitable measuring device.	
	NOTE		
If clearance doe	s not comply to specified tolerance, proc	eed to adjustment procedures.	
B. ADJUSTMENT.			
2. Four nuts (1). (two per valve).	Loosen.		
3. Air valve (5).	Slide valve until 1/16 in. (1.6 mm) clearance is obtained between cam and follower.		
4. Four nuts (1).	Tighten.	After tightening, check to be	
C. OPERATIONAL CHECK.		sure clearance has not changed.	
5. Mixer body.	Start up (see TM 5-3895-372-10 and TM 9-2320-273-10). Check operation of vibrators. Shut down vehicle and close access panel.		



11-11. TIMING DEVICE MAINTENAN	11-11. TIMING DEVICE MAINTENANCE			
LOCATION/ITEM	ACTION	REMARKS		
<ul><li>a. Removal.</li><li>b. Cleaning.</li><li>c. Installation.</li><li>d. Operational Check.</li></ul>	(15) (15) (15) ( <u>5)</u> 50 Minutes Total.			
INITIAL SETUP  APPLICABLE CONFIGURATIONS M919.	EQUIPMENT CONDITION PARAGRAPH 11-12A.	CONDITION DESCRIPTION Air Lines Disconnected.		
TEST EQUIPMENT None.				
SPECIAL TOOLS None.				
MATERIALSIPARTS (P/N) None.				
PERSONNEL REQUIRED One (MOS-62B20).	SPECIAL ENVIRONMENTAL CONDIT Vehicle Parked on Level Ground.	<u>IONS</u>		
REFERENCES (TM) TM 5-3895372-10. TM 5-3895372-20P. TM 9-2320-273-10.	GENERAL SAFETY INSTRUCTIONS Engine Off. Transmission in Neutral. Parking Brake Set.			
TROUBLESHOOTING REFERENCES Table 11-1.				

# 11-11. TIMING DEVICE MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

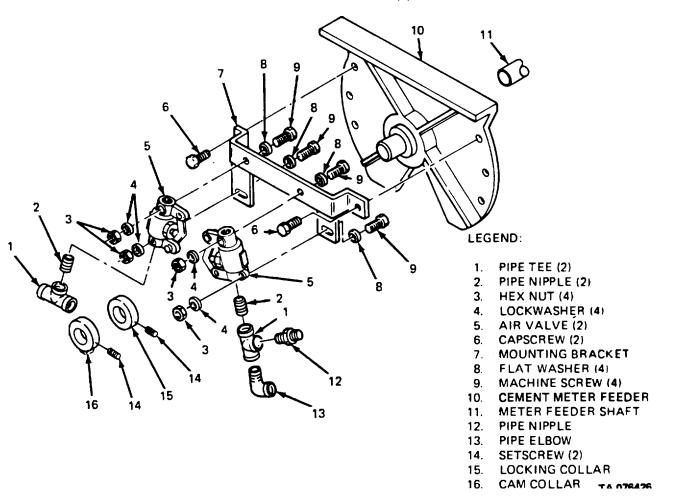
# A. REMOVAL.I

#### **NOTE**

Before beginning service, open cam and air valve access panel.

1. Two air valves (5)

- a. Remove pipe tee (1) and pipe nipple (2) from left hand air valve (5).
- b. Remove pipe elbow (13), pipe nipple (12), pipe tee (1) and pipe nipple (2) from right hand air valve (5).
- c. Remove four hex nuts (3), lockwashers (4), flat washers (8), and machine screws (9).
- d. Remove two air valves (5)



11-11. TIMING DEVICE MAINTENANCE (Continued).			
LOC	ATION/ITEM	ACTION	REMARKS
A. RI	EMOVAL (Continued).		
2.	Cam collar (16) and locking collar (15).	Loosen two set sor remove from mete	
3.	Mounting bracket (7).	Remove two capso off end of cement	
B. CI	EANING AND INSPECTION.		
4.	All parts.	a.Remove cement b a wire brush or scr b.Inspect for damag wear and replace a	aper. e and excessive
C. IN	STALLATION.		
5.	Mounting bracket (7).	Aline mounting hol cement meter feed two capscrews (6)	ler (10) and install
6.	Cam collar (16) and locking collar (15).	Install on meter fee tighten two setscre	eder shaft (11) and ews (14)-
7.	Two air valves (5).	<ul> <li>a. Install on mounting bracket (7) and loosely secure with four machine screws (9), flat washers (8), lockwashers (4), and hex nuts (3).</li> <li>b. Apply liquid teflon to threads and install two pipe nipples (2), pipe tees (1), pipe nipple (12), and pipe elbow (13).</li> <li>c. Adjust timing device, refer to para 11-10.</li> </ul>	
		NOTE	
	Follow-on mainter	nance action required: Insta	all air lines, refer to para 11-12C.
D. O	PERATIONAL CHECK.		
8.	Mixer body.	Start up (refer to T and TM 9-2320-27 ation of vibrators. S and close access p	:10). Check oper- Shut down vehicle

# 11-11. TIMING DEVICE MAINTENANCE (Continued). **ACTION** LOCATION/ITEM REMARKS LEGEND: 1. PIPE TEE (2) PIPE NIPPLE (2) 2. 3. HEX NUT (4) LOCKWASHER (4) 4. AIR VALVE (2) CAPSCREW (2) 6. MOUNTING BRACKET 7. 8. FLAT WASHER (4) 9. **MACHINE SCREW (4)** 10. **CEMENT METER FEEDER** METER FEEDER SHAFT 11. 12. PIPE NIPPLE 13. PIPE ELBOW 14. SETSCREW (2) LOCKING COLLAR 15. 16. CAM COLLAR TA 076427

#### 11-12. AIR VALVES AND HOSES MAINTENANCE.

# THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (AR)b. Inspection. (AR)c. Installation. (AR)d. Operational Check. (AR)

AR Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION

<u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

TM 92320-2710. Air System Bled.

**APPLICABLE CONFIGURATIONS** 

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Liquid Teflon (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-10. Engine Off.

TM 5-3895-372-20P Transmission in Neutral. TM 9-23-20273-10 Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 11-1.

# 11-12. AIR VALVES AND HOSES MAINTENANCE (Continued). LOCATION/ITEM **ACTION** REMARKS மையின LEGEND: SAND VIBRATOR (2) **CEMENT VIBRATOR (2) TIMING VALVE (2)** AIR LUBRICATOR AIR FILTER FLUFFER VALVE **FEMALE GATE VALVE (2)** 7. AIR COUPLING AIR CHUCK TA 076428

#### 11-12. AIR VALVES AND HOSES MAINTENANCE (Continued).

**ACTION** LOCATION/ITEM **REMARKS** 

A. REMOVAL.

#### **NOTE**

The layout and main components of the air system are illustrated in para 2-20. To replace any air valve, hose, or fitting, follow general shop practices and techniques as described below.

# WARNING

Before beginning maintenance, be sure air gate valve is closed. Check that draincocks have been opened to relieve pressure.

Attached valves and 1. hoses.

Unscrew and remove.

2. Mounting bolts (if applicable).

Unscrew and remove.

Valve, hose, or fitting 3.

Remove.

# B. INSPECTION.

4. Valve, line, or fitting. Inspect for:

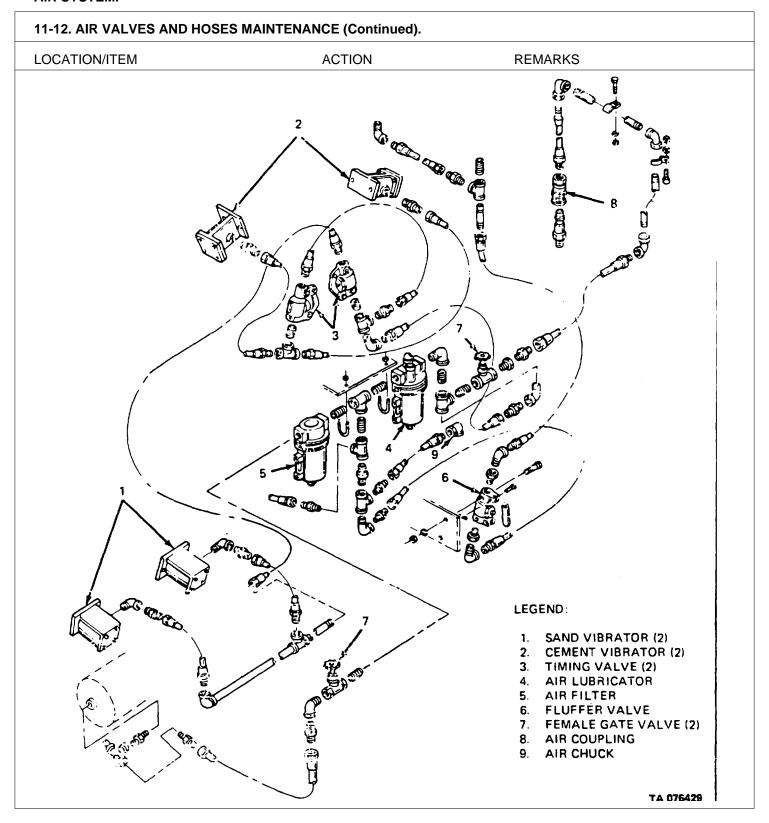
Remove blockage or replace, if necessary.

a.Leaks.

b.Cracks.

c. Blockage. d.Damaged fittings.

Also inspect fittings on attaching valves and hoses.



#### 11-12. AIR VALVES AND HOSES MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### NOTE

Valves are directional. Be sure air flows through them in the correct direction. Apply liquid teflon to all threaded joints at installation.

# C. INSTALLATION.

5. Valve, line, or fitting. Mount in position with mounting

bolts or screws (if applicable).

6. Attaching valves and Screw on and tighten. Be sure hoses are connected

hoses. to the proper ports.

D. OPERATIONAL CHECK.

7. Draincocks. Close.

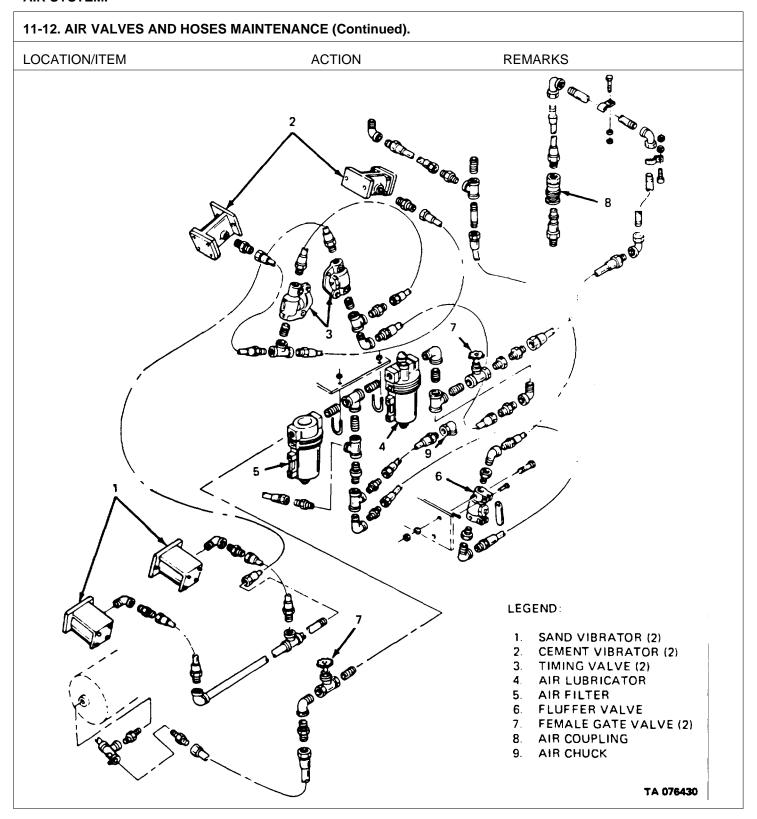
8. Female gate valve (7). Open.

9. Mixer body. Start up (see TM 9-2320273- Be sure chassis pressure is

10 and TM 5-3895372-10). over 65 psi (448 kPa).

10. Valve, line, or fitting. Check for leaks.

11-38



#### 11-13. AIR FILTER MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (15)
b. Disassembly. (10)
c. Assembly. (10)
d. Installation. (15)

e. Operational Check. (5)
55 Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS TM 92320-273-10. Air System Bled.

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

Liquid Teflon (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS623a20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-10. Engine Off.

TM 5-3895-372-20P Transmission in Neutral TM 59-2320-273-10 Parking Brake Set.

TROUBLESHOOTING REFERENCES

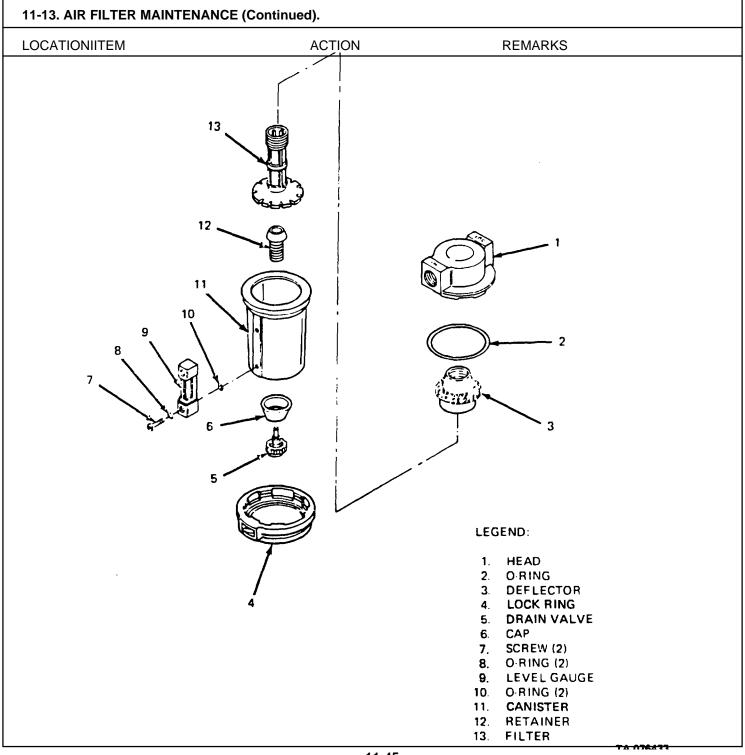
Table 11-1

### 11-13. AIR FILTER MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** A. REMOVAL. WARNING Before removal of air filter, be sure that all drain valves have been opened to relieve air pressure in system. LEGEND GATE VALVE NIPPLE 3. HEAD NIPPLE 5. NUT (4) 6. U-BOLT (2) DRAIN VALVE 7. 8. LOCKRING & CANISTER 9. HOSE 10 FITTING **ELBOW** 11. TA 076431

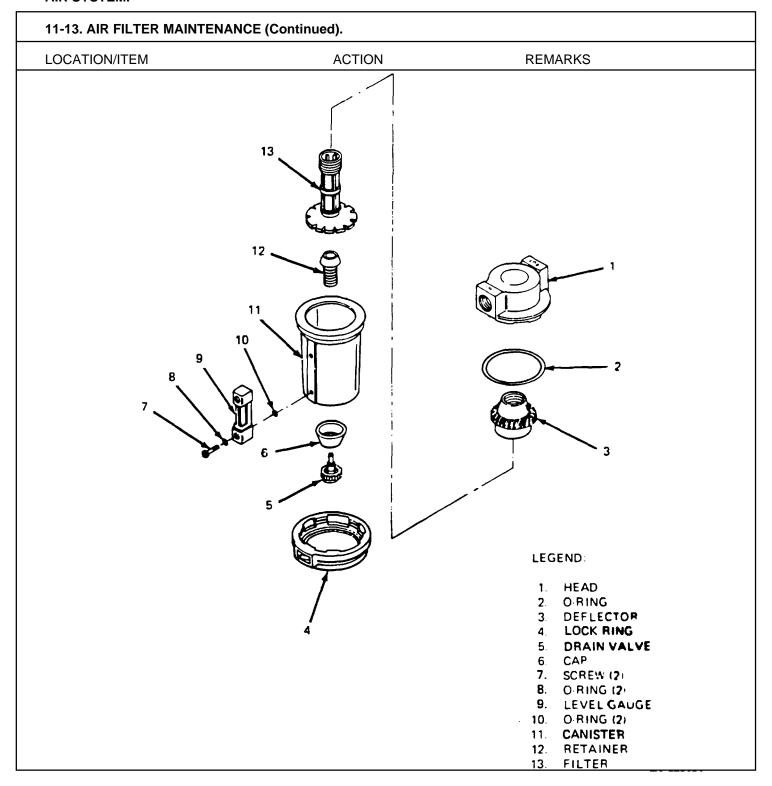
11-13	11-13. AIR FILTER MAINTENANCE (Continued).				
LOCA	ATION/ITEM	ACTION	REMARKS		
A. RE	A. REMOVAL Continued				
1.	Drain valve (7).	Open.	Drain out water.		
2.	Air hose (9).	Remove.			
3.	Four nuts (5).	Remove.			
4.	Two U-bolts (6).	Remove.			
5.	Air filter lock ring and canister (8).	Unlock and remove.			
6.	Air filter head (3).	Remove from nipple	(4).		
7.	Nipple (2), gate valve (1), elbow (11), and fitting (10).	Remove from head (	(3!.		

## 11-13. AIR FILTER MAINTENANCE (Continued). **ACTION** LOCATION/ITEM REMARKS LEGEND: 1. GATE VALVE 2. NIPPLE 3. HEAD 4. NIPPLE 5. NUT (4) 6. U-BOLT (2) 7. DRAIN VALVE 8. LOCKRING & CANISTER 9. HOSE 10. FITTING 11. ELBOW 11 TA 076432

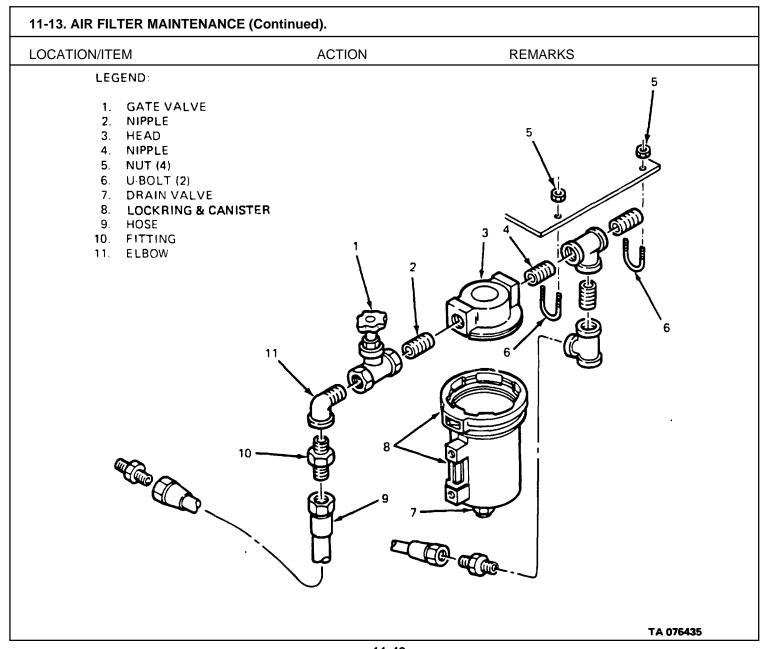
11-13	11-13. AIR FILTER MAINTENANCE (Continued).				
LOC	ATION/ITEM	ACTION	REMARKS		
B. DI	SASSEMBLY.				
8.	0-ring (2).	Remove from head	(1).		
9.	Deflector (3) and filter (13).	Remove from head	(1).		
10.	Deflector (3) and filter (13).	Disassemble.			
11.	Two screws (7).	Remove.			
12.	Level gage (9).	Remove.			
13.	Four O-rings (8) and (10).	Remove.			
14.	Lock ring (4).	Remove from canist	er (11).		
15.	Drain valve (5).	Remove.			
16.	Retainer (12) and cap (6).	Disassemble from c	anister (11).		



11-13	11-13. AIR FILTER MAINTENANCE (Continued).				
LOCA	LOCATION/ITEM ACTION REMARKS				
C. AS	C. ASSEMBLY.				
17.	17. Retainer (12) and Assemble to canister (11). cap (6).				
18.	Drain valve (5).	Install.			
19.	Lock ring (4).	Slide on canister (11).			
20.	Four 0-rings (8) and (10) and two screws (7).	Mount level gage (9) to canister (11).			
21.	Deflector (3) and filter (13).	Assemble.			
22.	Deflector (3) and filter (13).	Install on head (1).			
23.	23. 0-ring (2). Install on head (1).				



11-13	11-13. AIR FILTER MAINTENANCE (Continued).				
LOCA	TION/ITEM	ACTION	REMARKS		
D. INS	D. INSTALLATION.				
		NOTE Apply liquid teflon on all threaded jo	oints at installation.		
24.	Nipple (2), gate valve (1), elbow (11), and fitting (10).	Install in head (3).			
25.	Air filter head (3).	Install on nipple (4).			
26.	Air filter lock ring and canister (8).	Install on air filter hea	ad (3).		
27.	Two U-bolts (6) and and four nuts (5).	Install.			
28.	Air hose (9).	Install.			
29.	Drain valve (7).	Close.			
E. OP	ERATIONAL CHECK.				
30.	Mixer body	Close all draincocks open gate valve. Sta (see TM 5-3895-372-and TM 9-2320-2731	rt up -10		
31.	Air filter.	Check for leaks.			
32.	Mixer body.	Shut down (see TM 5 372-10 and TM 9232			



#### 11-14. FLUFFER VALVE MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10)b. Inspection. (5)c. Installation. (10)d. Operational Check. (5)

30 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS None. None.

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALSIPARTS (P/N)

Liquid Teflon (Refer to Appendix C).

Masking Tape. Marking Pen.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 53895372-10. Engine Off.

TM 5-38923720-210P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

TROUBLESHOOTING REFERENCES

Table 11-1.

#### 11-14. FLUFFER VALVE MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### NOTE

Before beginning service, close air gate valve and open air draincocks to relieve air pressure.

#### A. REMOVAL.

1. Air line (1) air line (1) for installation.

Remove.

Remove swivel end first. Tag

2. Air line (6). air line (6) for installation.

Remove.

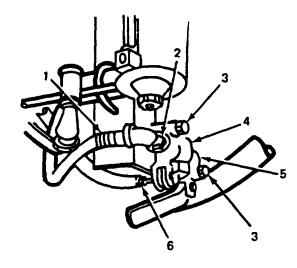
Remove swivel end first. Tag

3. Two bolts, nuts, and lockwashers (3).

Remove. Remove fluffer valve (4) from vehicle.

4. Two elbows (2) and adapters (5).

Remove from fluffer valve (4).

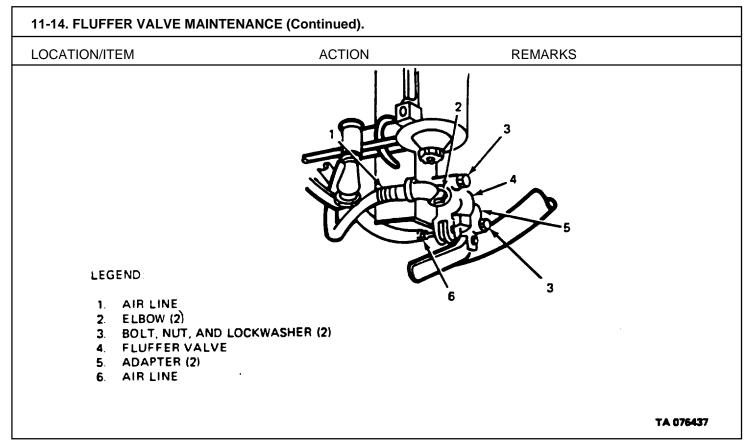


#### LEGEND:

- 1. AIR LINE
- 2. ELBOW (2)
- 3. BOLT, NUT, AND LOCKWASHER (2)
- 4. FLUFFER VALVE
- 5. ADAPTER (2)
- 6. AIR LINE

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11-14.	11-14. FLUFFER VALVE MAINTENANCE (Continued).					
LOCATION/ITEM		ACTION	REMARKS			
B. INS	B. INSPECTION.					
5.	Air lines (1) and (6).	Inspect for damaged lines or fittings.	Replace, if necessary.			
C. INS	STALLATION					
	Apply liquid	NOTE teflon to all threaded joints at insi	tallation			
	Apply liquid	terion to all threaded joints at inst	taliation.			
6.	Two elbows (2) and adapters (5).	Install in fluffer valve (4).				
7.	Two bolts. nuts, and lockwashers (3).	Mount fluffer valve (4) and tighten.	Check before mounting valve. Embossed arrow on valve gives direction of air flow.			
8.	Air line (6).	Install and tighten.	Install swivel end last.			
9.	Air line (1).	Install and tighten.	Install swivel end last			
D. OP	ERATIONAL CHECK.					
10.	Draincocks and air gate valve.	Close draincocks and open air gate valve.				
11.	Mixer body.	Start up (see TM 9-2320273- 10 and TM 5-3895-372-10).	Chassis pressure should be at least 65 psi (448 kPa).			
12.	Fluffer valve (4) and air lines (1) and (6).	Activate fluffer valve (4). Check for leaks				
13.	Mixer body.	Shut down. (See TM 9-2320 273-10 and TM 5-3895-372-10	).			



11-53/11-54 (Blank)

#### **CHAPTER 12**

#### **ELECTRIC WINCH**

#### **12-1. OVERVIEW.**

This chapter provides you with the following information related to electric winch maintenance:

- a. All required special tools and equipment.
- b. Troubleshooting procedures.
- c. Maintenance procedures.

#### Section I REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

#### 12-2. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

#### 12-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

Special tools, TMDE, and support equipment for electric winch maintenance are limited to jumper cables. (Refer to Organizational Maintenance RPSTL, TM 5-3895-372-20P, for tool description and illustration.)

#### 12-4. SPARES AND REPAIR PARTS.

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools List covering Organizational Maintenance for this equipment (TM 5-3895-372-20P).

#### **Section II TROUBLESHOOTING**

#### 12-5. INTRODUCTION.

Before beginning tests on the winch circuits, make a general inspection. Check for:

- a. Loose connections
- b. Loose ground wire.
- c. Frayed, broken, or corroded wiring.

#### 12-5. INTRODUCTION (Continued).

Often, tightening a loose connection or replacing a frayed wire will solve your problem. Troubleshooting procedures for the electric winch are given in table 12-1. It is arranged by malfunctions, in the following order:

- a. Trough will not raise or lower (Malfunction No. 1).
- b. Trough will not raise (Malfunction No. 2).
- c. Trough will not lower (Malfunction No. 3).

#### **NOTE**

The electric winch will not operate if the truck battery is dead. In this case you must troubleshoot the chassis electrical system. Refer to TM 92320273-20.

Table 12-1. Electric Winch Troubleshooting Procedures.

Malf	Step	Instruction	Indication	Yes	No	Remarks
1		Trough Will Not Raise Or Lower				
2	1	Connect one end of jumper cable to LOWER terminal of the OUT solenoid (fig. 12-1). Briefly ground the other end of the cable to the frame. Trough Will Not Raise	Trough lowers.	Replace control box.	Replace winch assembly.	
	1	Lower trough. Press JOG and RAISE but- tons simultaneously.	Trough is raised.	Replace limit switch.	Go to step2.	
	2	Connect one end of jumper cable to RAISE terminal of the IN solenoid (fig. 12-1). Briefly ground				
3		the other end of the cable to the frame. Trough Will Not Lower	Trough is raised.	Replace control box.	Replace IN sole noid.	
	1	Connect one end of jumper cable to LOWER terminal of the OUT solenoid				
		Briefly ground the other end of the cable to the frame.	Trough lowers.	Replace control box.	Replace OUT solenoid.	

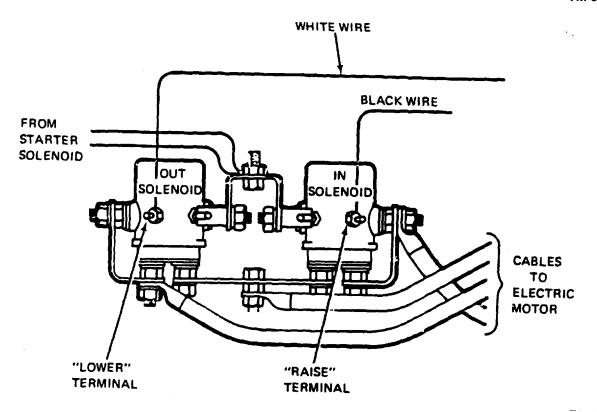


Figure 12-1. Winch Solenoids.

#### **Section III MAINTENANCE PROCEDURES**

#### 12-6. INTRODUCTION.

This section provides you with Organizational level maintenance procedures for the mixer body electric winch. Paragraph 12-7 summarizes the maintenance tasks. Paragraphs 12-8 thru 12-11 contain detailed instructions for each task.

#### **NOTE**

Before beginning any maintenance procedures in this chapter, unbolt and remove the winch guard.

12-7. ELECTRIC WINCH MAINTENANCE TASK SUMMARY.

INITIAL SETUP

**EQUIPMENT** 

CONDITION

APPLICABLE CONFIGURATIONS PARAGRAPH CONDITION DESCRIPTION

M919. 12-8A. Cable Removed.

12-1OA. Winch Assembly Removed.

TEST EQUIPMENT

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Oil (Refer to Appendix C).

SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

PERSONNEL REQUIRED

One (MOS-62B20).

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

Engine OFF.

LO 53895-372-12. Transmission in Neutral.

Park Brake Set.

REFERENCES (TROUBLESHOOTING)

Table 12-1.

#### LIST OF TASKS

TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)
1.	Winch Cable Maintenance:	12-8	12-1
	A. Removal.	12-8A	
	B. Cleaning and Lubrication.	12-BB	
	C. Installation.	12-8C	
2.	Winch Assembly Service:	12-9	12-1
	A. Checking Oil Level.	12-9A	
	B. Checking Wire Connections.	12-9B	

#### 12-7. ELECTRIC WINCH MAINTENANCE TASK SUMMARY (Continued). LIST OF TASKS TASK TASK TASK TROUBLESHOOTING NO. REF. REF. (TABLE) 3. Winch Assembly Maintenance: 12-10 12-1 A. Removal. 12-10A B. Installation. 12-10B C. Operational Check. 12-10C 4. Motor and Gear Box Assembly Maintenance: 12-11 12-1 A. Removal. 12-11A B. Installation. 12-1 B

#### 12-8, WINCH CABLE MAINTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10)b. Cleaning and Lubrication. (20)c. Installation. (15)

c. Installation. (15) 45 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

<u>PARAGRAPH</u> <u>CONDITION DESCRIPTION</u>

APPLICABLE CONFIGURATIONS None. None.

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

CW (Refer to Appendix C).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

One (MOS-62B20).

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

LO 5-3895-372-12. Engine off.

TM 53895372-10. Transmission in Neutral. TM 53895-37220P. Parking Brake Set. TM 9-2320-273-10.

TROUBLESHOOTING REFERENCES

Table 12-1.

# 12-8. WINCH CABLE MAINTENANCE (Continued). LOCATION/ITEM ACTION REMARKS

#### A. REMOVAL.

7. CABLE END (2) 8. STOP SLEEVE 9. SETSCREW

1. Mixing trough. Lower. Support trough end

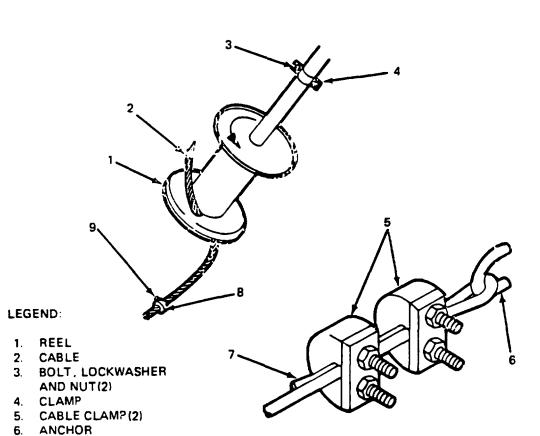
so that cable is slack.

2. Two cable clamps (5). Loosen the four nuts on the

clamps.

3. Cable end (7). Pull free of clamps (5) and

anchor (6).



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#### 12-8. HYDRAULIC MOTOR MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### A. REMOVAL (Continued).

and bolts (3).

4. Winch control box. Press the LOWER button until cable is completely paid out.

Two nuts, lockwashers,
 Remove.

6. Clamp (4). Remove.

7. Setscrew (9). Loosen.

8. Cable (2). Pull out of stop sleeve (8) and reel (1). Remove the cable.

#### **B. CLEANING AND LUBRICATION.**

9. Cable (2). a. Wipe with a damp rag.

b. Inspect for rust or fraying. Replace if necessary.

c. Oil with CW.

d. Wipe off excess oil.

#### C. INSTALLATION.

10. Cable (2).

a. Thread through three pulleys on trough support frame.

b. Thread through hole in reel (1) and through stopsleeve (8).

11. Setscrew (9). Tighten.

12. Clamp (4). Slide spool toward motor and gear box, and install clamp

around shaft.

around sna

13. Two nuts, lockwashers, Install and tighten securely. and bolts (3).

14. Cable end (7).

a. Thread through pulley on trough.

b. Thread through anchor (6) and back through two

clamps (5).

12-10

#### 12-8. HYDRAULIC MOTOR MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

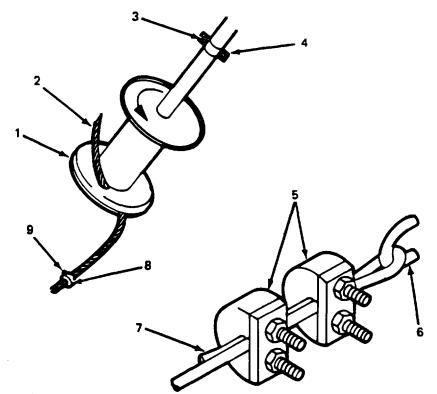
#### C. INSTALLATION (Continued).

15. Two clamps (5).

16. Winch control box.

Tighten four nuts.

Push RAISE button. Wind cable onto reel.



#### LEGEND:

- 1. REEL
- 2. CABLE
- 3. BOLT, LOCKWASHER AND NUT (2)
- 4. CLAMP
- 5. CABLE CLAMP(2)
- 6. ANCHOR
- 7. CABLE END (2)
- 8 STOP SLEEVE
- 9. SETSCREW

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**CONDITION DESCRIPTION** 

None.

#### **ELECTRIC WINCH.**

#### 12-9. WINCH ASSEMBLY SERVICE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Checking Oil Level. (10)

b. Checking Wire Connections. (5)

15 Minutes Total.

**INITIAL SETUP** 

EQUIPMENT CONDITION PARAGRAPH None.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Oil (Refer to Appendix C)

PERSONNEL REQUIRED

One (MOS-62B20).

SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

REFERENCES (TM)

LO 5-3895-372-12.

TM 5-3895-372-10. TM 5-3895-372-20P. TM 9-2320-273-10. **GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REEERENCES

Table 12-1.

## 12-9. WINCH ASSEMBLY SERVICE (Continued). LOCATION/ITEM ACTION REMARKS

#### A. CHECKING OIL LEVEL.

1. Oil level plug (1).

a. Remove.

b. Check that oil is up to level of plug.

c. Screw in and tighten.

Add oil through plug opening if necessary.

#### B. CHECKING WIRE CONNECTIONS.

2. Three stud terminals (2).

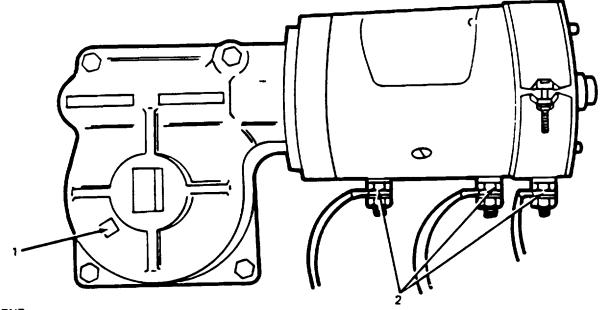
#### Check for:

a. Corroded wires.

b. Loose connections.

c. Bare or worn insulation.

Clean if necessary. Tighten securely. Replace cable if necessary.



#### LEGEND:

- 1. OIL LEVEL PLUG
- 2. STUD TERMINAL (3)

TA 076441

#### 12-10. WINCH ASSEMBLY MAINTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (15)b. Installation. (20)c. Operational Check. (5)

40 Minutes Total.

INITIAL SETUP EQUIPMENT CONDITION

PARAGRAPH
12-8A.

CONDITION DESCRIPTION
Cable Removed.

APPLICABLE CONFIGURATIONS

M919.

TEST EQUIPMENT

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-10. Engine Off.

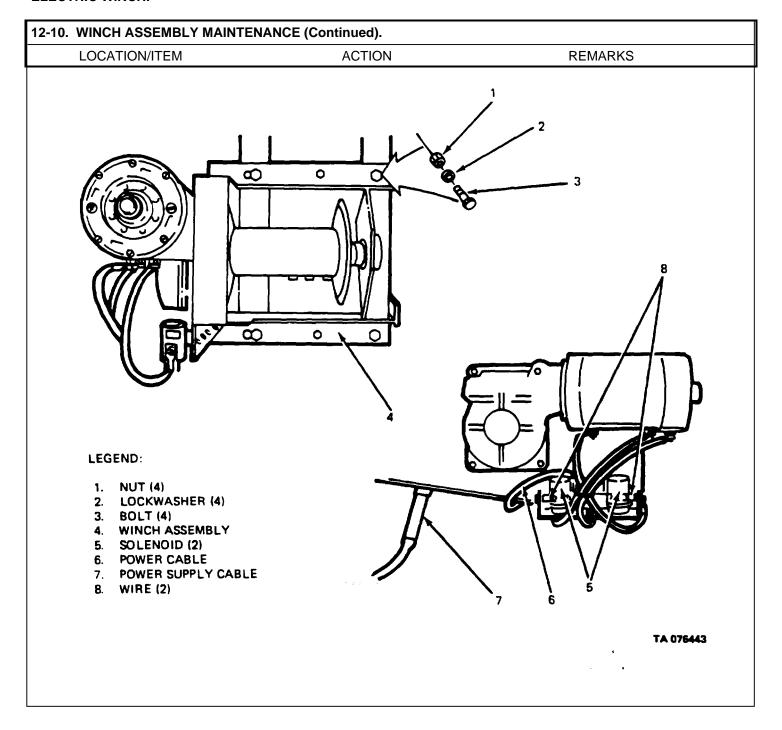
TM 5-3895-372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

TROUBLESHOOTING REEERENCES

Table 12-1.

### 12-10. WINCH ASSEMBLY MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** A. REMOVAL. 1. Power supply cable (7). Disconnect. Pull off terminal. 2. Two wires (8S. Disconnect from Tag for location. solenoids (5). $\infty$ 0 LEGEND: 1. NUT (4) 2. LOCKWASHER (4) 3. BOLT (4) 4. WINCH ASSEMBLY 5. SOLENOID (2) 6. POWER CABLE 7. POWER SUPPLY CABLE 8. WIRE (2) TA 076443

12-10.	2-10. WINCH ASSEMBLY MAINTENANCE (Continued).			
	LOCATION/ITEM	ACTION	REMARKS	
3.	EMOVAL (Continued).  Power cable (6).  Four nuts (1), lockwashers (2), and bolts (3).	Disconnect.  Remove. Remove motor, gear box, and reel as a unit.		
	STALLATION. Winch assembly (4).	Position to concrete mobile body.		
6.	Four nuts (1), lockwashers (2), and bolts (3).	Install and tighten.		
7.	Power cable (6).	Connect.		
8.	Two wires (8).	Connect.		
9.	Power supply (7).	Connect.		
l	PERATIONAL CHECK Winch.	Check operation by raising and lowering trough.		



#### 12-11. MOTOR AND GEAR BOX ASSEMBLY MAINTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (15)b. Installation. (15)

30 Minutes Total.

INITIAL SETUP EQUIPMENT CONDITION

PARAGRAPH
12-10A.

CONDITION DESCRIPTION
Winch Assembly Removed.

APPLICABLE CONFIGURATIONS

M919.

**TEST EQUIPMENT** 

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Masking Tape. Marking Pen.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-3895-372-10. Engine Off.

TM 5-3895-372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

TROUBLESHOOTING REEERENCES

Table 12-1.

# 12-10. WINCH ASSEMBLY MAINTENANCE (Continued). LOCATION/ITEM ACTION REMARKS

#### A. REMOVAL.

1. Setscrew (1).

Loosen.

2. Three nuts and lockwashers (8).

Remove.

3. Three power cables (9).

Remove from motor terminals.

Tag for location for ease of

installation.

4. Four bolts, washers, spacers, and nuts (6).

Remove.

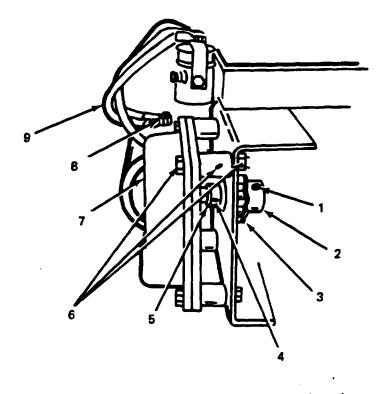
5. Motor and gear box assembly (7).

Simultaneously separate motor and gear box assembly (7) and

sprocket (2).

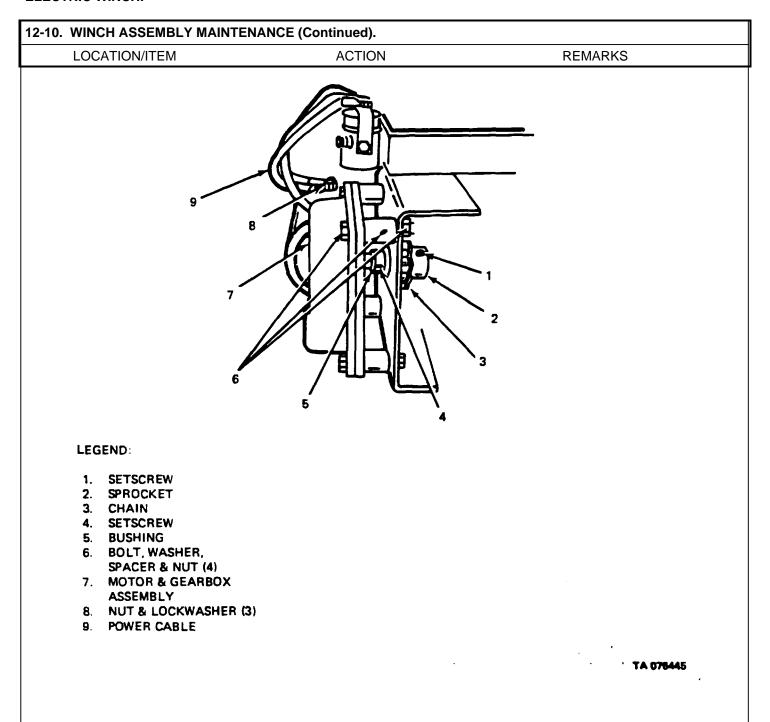
#### LEGEND:

- 1. SETSCREW
- 2. SPROCKET
- 3. CHAIN
- 4. SETSCREW
- 5. BUSHING
- 6. BOLT, WASHER, SPACER & NUT (4)
- 7. MOTOR & GEARBOX ASSEMBLY
- 8. NUT & LOCKWASHER (3)
- 9. POWER CABLE (3)



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12-10.	. WINCH ASSEMBLY MAINTENANCE (Continued).			
	LOCATION/ITEM	ACTION	REMARKS	
	EMOVAL (Continued).			
6.	Woodruff key.	Remove from gear box shaft.		
7.	Motor and gear box assembly (7).	Remove from mounting frame.		
8.	Setscrew (4).	Loosen.		
9.	Bushing (5).	Remove.		
B. IN	STALLATION.			
10	. Bushing (5).	Install on gear box shaft.	Do not tighten setscrew.	
11	. Motor and gear box assembly (7).	Install in frame.		
12	. Woodruff key.	Install in gear box shaft.		
13	. Motor and gear box assembly (7).	Simultaneously slide sprocket (2) and chain (3) onto gear box shaft.		
14	. Four bolts, washers, spacers, and nuts (6).	Install and tighten securely.		
15	. Bushing (5).	Slide bushing against frame bearing and tighten setscrew (4).		
16	. Setscrew (1).	Tighten.		
17	. Three power cables (9).	Install on motor terminals.		
18	. Three nuts and lock- washers (8).	Install and tighten securely.		



#### **CHAPTER 13**

#### **LAMPS AND WIRING**

#### 13.1. OVERVIEW.

This chapter provides you with the following information related to lamps maintenance:

- a. All required special tools and equipment.
- b. Troubleshooting procedures.
- c. Maintenance procedure. The maintenance procedures in this chapter apply to the bulb replacement and assembly replacement of the mixer body clearance and marker lamps. For the maintenance procedures of the tail lamps and blackout lamps, refer to TM 92320273-20.

#### Section I REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

#### 13-2. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

#### 13-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

No special tools, TMDE, or support equipment are required for lamps maintenance.

#### 13-4. SPARES AND REPAIR PARTS.

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools list covering Organizational Maintenance for this equipment (TM 53895-372-20P).

#### Section II TROUBLESHOOTING

#### 13-5. INTRODUCTION.

No special troubleshooting procedures are required for the lighting system of the mixer body. If the lamps malfunction, use the general procedures below.

#### 13-6. GENERAL PROCEDURES.

- a. If all of the mixer body lamps fail to function, the problem may be in the chassis electrical system. Check whether the chassis marker and clearance lamps are functioning. If they are not, refer to TM 9-2320-273-20 for troubleshooting procedures. If they are, check that the mixer body lamps are securely plugged in.
  - b. All other malfunctions in the mixer body lighting system may be traced to one of the following causes:
    - (1) Burnt-out bulbs.
    - (2) Loose connections.
    - (3) Frayed, broken, or corroded wires.

Replace bulbs, tighten connections, and repair wiring, as necessary.

#### Section III MAINTENANCE PROCEDURES

#### 13-7. INTRODUCTION.

This section provides you with Organizational Level maintenance procedures for the lamps and wiring system of the mixer body. Paragraph 13-8 summarizes the maintenance tasks. Paragraphs 13-9 thru 13 11 contain detailed instructions for each task.

#### **ELECTRIC WINCH.**

#### 13-8. LAMPS AND WIRING MAINTENANCE TASK SUMMARY.

INITIAL SETUP

EQUIPMENT CONDITION

PARAGRAPH None.

APPLICABLE CONFIGURATIONS

M919

CONDITION DESCRIPTION

None.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

Cable Ties, PLT4H-MD (06383).

PERSONNEL REQUIRED Two (MOS-62B20).

SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

REFERENCES (TM)

TM 5-3895-372-20P.

TM 5-3895-372-10. TM 9-2320-273-10. **GENERAL SAFETY INSTRUCTIONS** 

Engine Off.

Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REEERENCES

None.

#### **LIST OF TASKS**

TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)		
1.	Clearance and Marker Lamp Bulb Replacement:	13-9			
	A. Removal.	13-9A			
	B. Installation.	13-9B			
	C. Operational Check.	13-9C			

#### **ELECTRIC WINCH.**

LIST OF TASKS				
TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)	
2.	Clearance and Marker Lamp Assembly Maintenance:	13-10		
	A. Removal.	13-10A		
	B. Installation.	13-10B		
	C. Operational Check.	13-10C		
3.	Wire and Cable Maintenance:	13-11		
	A. Removal and Installation.	13-11A		
	B. Operational Check.	13-11B		

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#### 13-9. CLEARANCE AND MARKER LAMP BULB REPLACEMENT.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (5)b. Installation. (5)

c. Operational Check. (5)

15 Minutes Total.

**INITIAL SETUP EQUIPMENT CONDITION** 

PARAGRAPH

CONDITION DESCRIPTION **APPLICABLE CONFIGURATIONS** None. None.

TEST EQUIPMENT

None.

M919.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

**GENERAL SAFETY INSTRUCTIONS** REFERENCES (TM)

TM 5-3895-372-20P. Engine Off.

TM 9-2320-273-10. Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REEERENCES

TA 076446

#### LAMPS AND WIRING.

## 13-9. CLEARANCE AND MARKER LAMP BULB REPLACEMENT (Continued). LOCATION/ITEM **ACTION REMARKS** A. REMOVAL. **NOTE** Prior to removal of bulbs, make certain that lamp switch is OFF. Remove. 1. Lens(1). Lens snaps off. 2. Two bulbs (2). Remove. Push in and twist to the left LEGEND: 1. LENS 2. BULB (2)

#### 13-9. CLEARANCE AND MARKER LAMP BULB REPLACEMENT (Continued).

LOCATION/ITEM ACTION REMARKS

#### B. INSTALLATION.

#### **NOTE**

Prior to installation, remove rust and corrosion from bulb socket with emery paper.

3. Two bulbs (2). Push in and twist to the right.

4. Lens (1). Snap on.

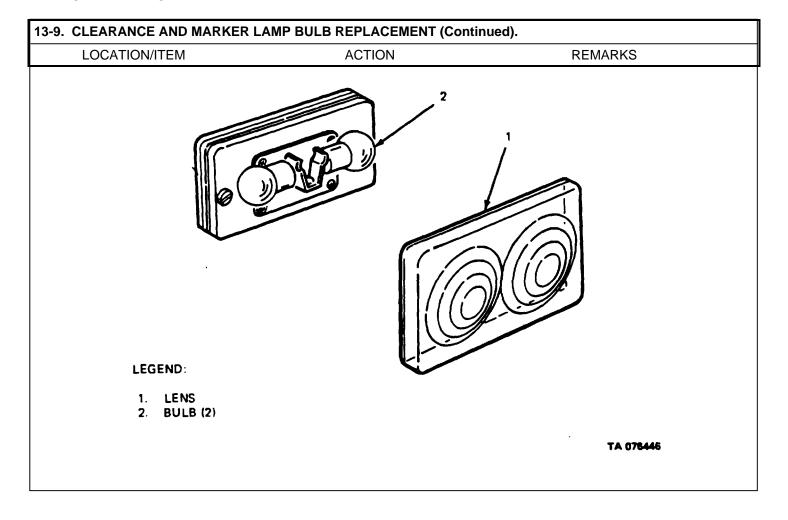
#### C. OPERATIONAL CHECK.

5. Lamp. Pull main lamp switch to the ON position and check oper-

ation.

#### **NOTE**

If bulb fails to light, check contact in bulb socket for rust or corrosion. If not repairable, replace lamp assembly. (See para 13-10.)



#### 13-10. CLEARANCE AND MARKER LAMP ASSEMBLY MAINTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (10)b. Installation. (10)c. Operational Check. (5)

25 Minutes Total.

**INITIAL SETUP EQUIPMENT CONDITION** 

PARAGRAPH

CONDITION DESCRIPTION **APPLICABLE CONFIGURATIONS** None. None.

M919.

TEST EQUIPMENT

None.

SPECIAL TOOLS

None.

MATERIALS/PARTS (P/N)

Butt Connector, 230379 (23705).

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) **GENERAL SAFETY INSTRUCTIONS** 

TM 5-3895-372-20P. Engine Off.

TM 9-2320-273-10. Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REEERENCES

## 13-10. CLEARANCE AND MARKER LAMP ASSEMBLY MAINTENANCE (Continued). LOCATION/ITEM ACTION REMARKS

#### A. REMOVAL.

#### **NOTE**

Before beginning service, be sure that main lamp switch is in the OF F position.

1. Lens (2). Remove. Lens snaps off.

2. Lens gasket (1). Remove from lamp body (4).

3. Two screws (3). Remove.

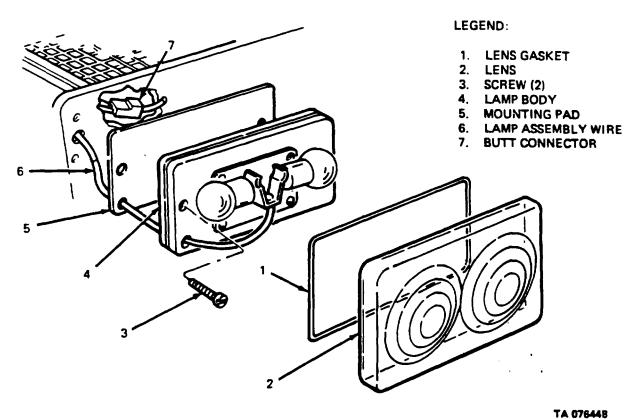
4. Lamp body (4). Pull out.

5. Wire (6). Cut closely at rear of body (4)

and remove. Tuck remainder of

wire into bin.

6. Mounting pad (5). Remove.



13-10. CLEARANCE AND MARKER LAWP ASSEMBLT MAINTENANCE (CONTINUE	3-10.	RKER LAMP ASSEMBLY MAINTENANCE (Contin	ued).
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LOCATION/ITEM ACTION REMARKS

B. INSTALLATION.

7. Mounting pad (5). Run lamp assembly wire (6)

through mounting pad (5)

into bins.

8. Lamp body (4). Mount with two screws (3).

9. Lamp assembly wire (6). Enter bin and splice existing

wire and new lamp assembly wire (6) with new butt connector (7). Use a suitable pair

of pliers.

10. Lens gasket (1) Install on lamp body (4).

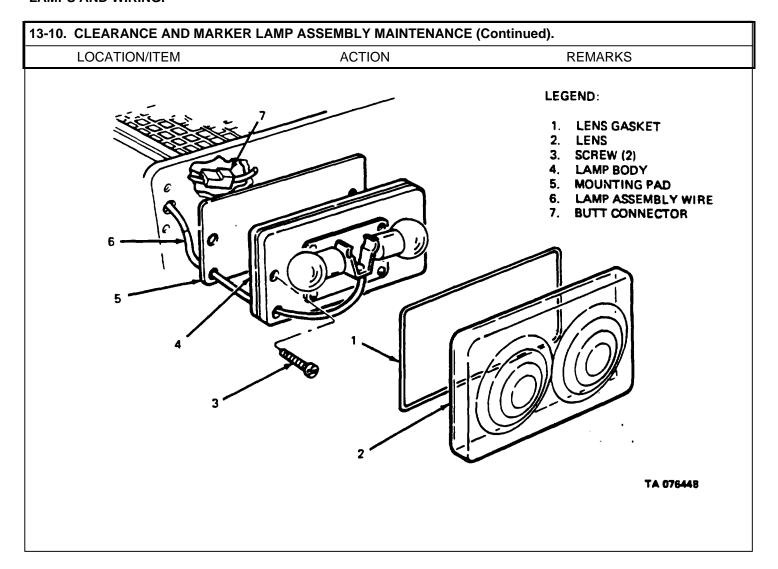
11. Lens (2). Install. Snap on.

C. OPERATIONAL CHECK.

12. Lamp switch. Pull to ON position. Check

amp operation. Push to OFF

position.



#### 13-11. WIRE AND CABLE MAINTENANCE.

THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal and Installation. (AR)b. Operational Check. (AR)

AR Minutes Total.

INITIAL SETUP EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS None. None.

TEST EQUIPMENT None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

Marking Pen. Masking Tape.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Two (MOS-62B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

None. Engine Off.

Transmission in Neutral. Parking Brake Set.

TROUBLESHOOTING REEERENCES

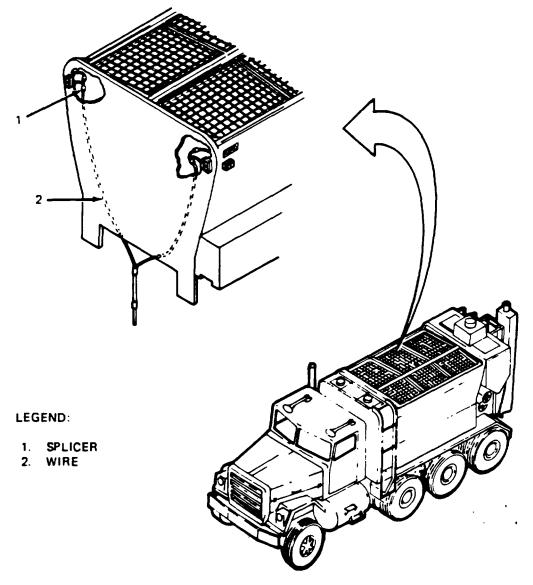
#### 13-11. WIRE AND CABLE MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### A. REMOVAL INSTALLATION.

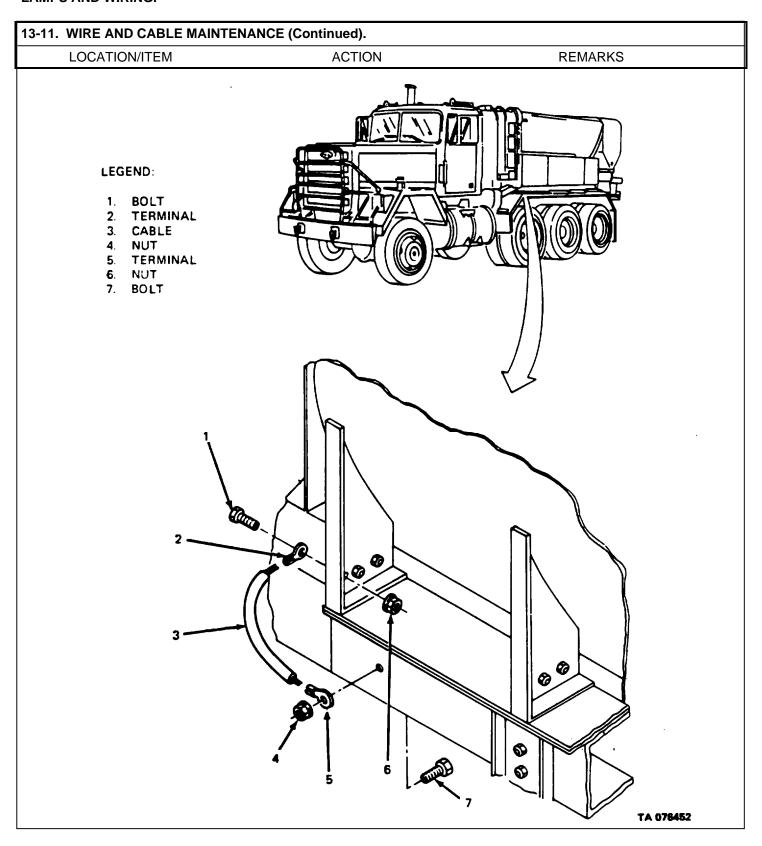
#### **NOTE**

Before beginning service make sure the main lamp switch is in the OFF position. Check wiring for damage and replace as necessary using standard shop practices. Tag wires as they are removed to aid installation.

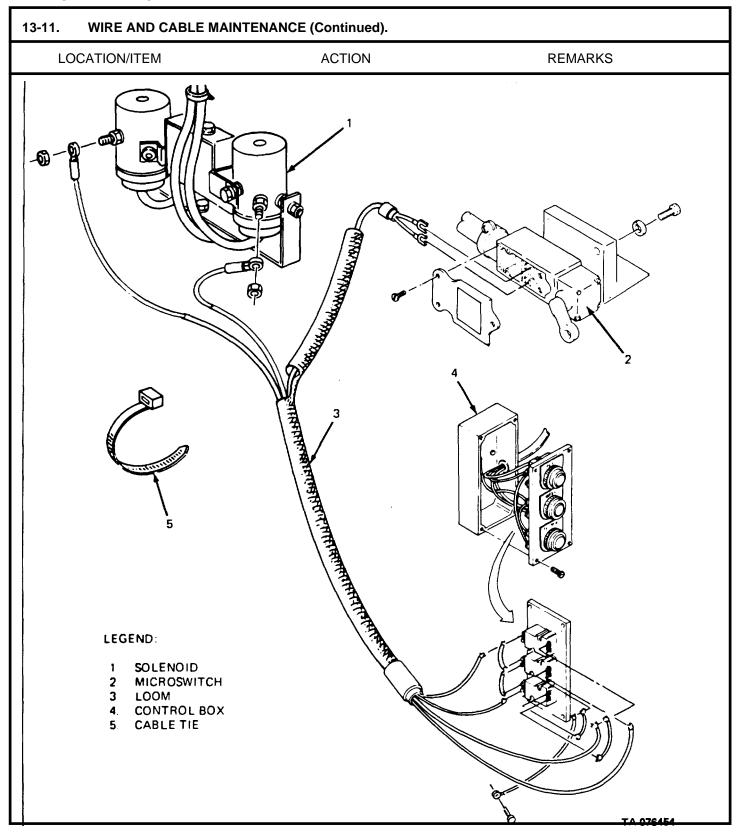


TA 076450

# 13-11. WIRE AND CABLE MAINTENANCE (Continued). LOCATION/ITEM **ACTION** REMARKS LEGEND: 1. SPLICER (8) 2. WIRE (2) TA 078451



# 13-11. WIRE AND CABLE MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** LEGEND: 1. CABLE **FEMALE CONNECTOR** MALE CONNECTOR PLATE (2) CABLE CIRCUIT BREAKER TA 076453



#### 13-11. WIRE AND CABLE MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### B. OPERATIONAL CHECK.

Main lamp switch

Turn to ON position. Check lamps for operation. Turn OFF lamp switch.

#### NOTE

If lamps fail to light, do the following steps:

- a. Replace bulb with new or known good bulb.
- b. Check wire connections. Repair if necessary.
- c. Check lamp assemblies for corrosion or rust. Repair or replace as necessary. Refer to para 13-9 and 13-10.
- d. Check for power at lamp assembly.
- e. Use a voltmeter or 12-volt test lamp and check for power where body wire splices into chassis harness.

13-20

#### **CHAPTER 14**

#### **MISCELLANEOUS BODY COMPONENTS**

#### 14-1. OVERVIEW.

This chapter provides you with the following information related to miscellaneous body components maintenance:

- a. All required special tools and equipment.
- b. Troubleshooting procedures.
- c. Maintenance procedures.

#### Section I REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

#### 14-2. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

#### 14-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

No special tools, TMDE, or support equipment are required for miscellaneous body components maintenance procedures described in this chapter.

#### 14-4. SPARES AND REPAIR PARTS.

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools List covering Organizational Maintenance for this equipment (TM 53895-372-20P).

#### Section II TROUBLESHOOTING

#### 14-5. INTRODUCTION.

No specific troubleshooting procedures for the miscellaneous body components covered in this chapter are required. Use the maintenance procedures contained in this chapter when damage, requiring replacement, is apparent.

#### Section III MAINTENANCE PROCEDURES

#### 14-6. INTRODUCTION.

This section provides you with Organizational Level maintenance procedures for miscellaneous body components of the mixer body. Paragraph 14-7 summarizes the maintenance tasks. Paragraphs 14-8 thru 14-11 contain detailed instructions for each task.

#### 14-7. MISCELLANEOUS BODY COMPONENTS MAINTENANCE TASK SUMMARY.

INITIAL SETUP EQUIPMENT CONDITION

APPLICABLE CONFIGURATIONS PARAGRAPH CONDITION DESCRIPTION

M919. 6-15 and 6-16A. Liquid Admix Tanks Removed. TM 3895-372-10 . Extension Chutes Removed.

TM 53895372-10 . Auxiliary Cement Bin Removed.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-2B20). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 53895372-10. Engine OFF.

TM 53895372-20P. Transmission in Neutral.

TM 92320-273-10. Park Broke Set.

#### **TROUBLESHOOTING REFERENCES**

LIST OF TASKS			
TASK NO.'	TASK	TASK REF	TROUBLESHOOTING REF (TABLE)
1.	Auxiliary Cement Bin Maintenance: A. Disassembly. B. Assembly. C. Adjustment.	14-8 14-8A 14-8B 14-8C	

#### 14-7. MISCELLANEOUS BODY COMPONENTS MAINTENANCE TASK SUMMARY (Continued).

LIST OF TASKS				
TASK NO.	TASK	TASK REF	TROUBLESHOOTING REF(TABLE)	
2.	Tarpaulin Maintenance:	14-9		
	A. Removal.	14-9A		
	B. Repair.	14-9B		
	C. Installation.	14-9C		
3.	Mud Flap and Rear Fender Maintenance:	14-10		
	A. Removal.	14-10A		
	B. Installation.	14-10B		
4.	Reflector Maintenance:	14-11		
	A. Removal.	14-11A		
	B. Installation.	14-11B		
	14-3			
	14-5			

#### 14-8. AUXILIARY CEMENT BIN MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

 a.
 Disassembly.
 (15)

 b.
 Assembly.
 (15)

 c.
 Adjustment.
 (5)

35 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS TM 5-38951372-10. Auxiliary Cement Bin Removed.

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIALSIPARTS (P/N)** 

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). Auxiliary Cement Bin on Level Ground

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 53895.372-10. TM 53895372-20P. TM 92320-273-10.

None.

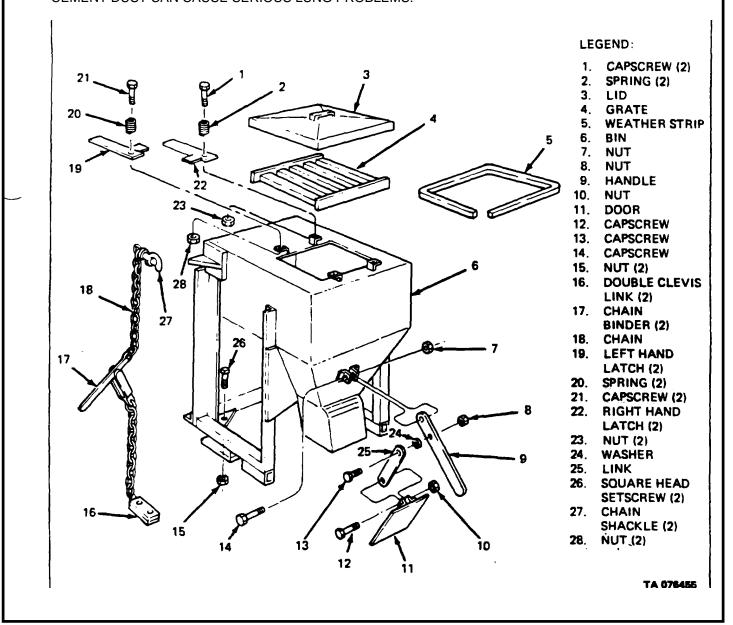
TROUBLESHOOTING REFERENCES

#### 14-8. AUXILIARY CEMENT BIN MAINTENANCE (Continued).

LOCATION/ITEM ACTION REMARKS

#### **WARNING**

Cement dust can be harmful. During removal and installation operations, or any time there is cement dust in the air, take precautions to avoid direct inhalation of the dust. If you must be in the immediate vicinity of dust, wear a dust mask; or if none is available, cover your nose and mouth with a cloth. CEMENT DUST CAN CAUSE SERIOUS LUNG PROBLEMS.



#### 14-8. AUXILIARY CEMENT BIN MAINTENANCE (Continued).

#### LOCATION/ITEM ACTION REMARKS

#### **WARNING**

Prolonged contact with cement or wet concrete can cause skin irritation or burns. During loading operations with cement or while working with wet concrete, take every precaution to avoid contact with skin. Skin areas that have been exposed either directly or through saturated clothing should be washed thoroughly with water. If any cement or concrete material gets into the eye, flush immediately with water and get PROMPT MEDICAL ATTENTION.

#### A. DISASSEMBLY.

two right hand latches (22).

1. Four cap screws (1) and Remove from bin (6). (21) and nuts (23) and (28).

2. Four springs (2) and (20), Remove. two left hand latches (19) and

3. Lid (3) and grate (4). Remove.

4. Weather strip (5). Remove from lid (3).

5. Two square head screws Remove. (26) and nuts (15).

6. Two chain shackles (27). Remove chain (18) from bin (6). and double clevis link (16).

7. Two chain binders (17). Remove from chain (18).

8. Cap screw (13), nut (8) Remove from handle (9) and and washer (24).

9. Cap screw (14) and nut (7). Remove from bin (6) and handle (9).

10. Cap screw (12) and nut (10). Remove from link (25) and door (11).

11 Door (11). Remove from bin (6).

#### 14-8. AUXILIARY CEMENT BIN MAINTENANCE (Continued). LOCATION/ITEM **ACTION REMARKS** LEGEND: CAPSCREW (2) SPRING (2) LID GRATE WEATHER STRIP 6. BIN 7. NUT 8. NUT 19 9. HANDLE NUT 10. 11, **DOOR** 12. CAPSCREW 13. **CAPSCREW** 14. **CAPSCREW** 15. NUT (2) 28 16. DOUBLE CLEVIS LINK (2) 17. CHAIN 27 BINDER (2) 18. CHAIN LEFT HAND LATCH (2) 20. SPRING (2) 21. CAPSCREW (2) 22. RIGHT HAND LATCH (2) 23. **NUT (2)** WASHER 24. **25**. LINK SQUARE HEAD SETSCREW (2) 27. CHAIN SHACKLE (2) 15 **28**. NUT (2) 13 10 TA 076456

14-8. AUXILIARY CEMENT BIN MAINTENANCE (Continued).				
	LOCATION/ITEM	ACTION	REMARKS	
В.	ASSEMBLY.			
12.	Door (11).	Install in bin (6).		
13.	Cap screw (12) and nut (10).	Install to link (25) and door (11).	Do not overtighten or binding will exist	
14.	Cap screw (14) and nut (7).	Install to bin (6) and handle (9).	Do not overtighten or binding will exist.	
15.	Cap screw (13), nut (8) and washer (24).	Install to handle (9) and link (25).	Tighten until binding exists and then back off 1/4 turn.	
16.	Two chain binders (17).	Install to chain (18).		
17.	Two chain shackles (27) and double clevis link (16).	Install chain (18) to bin (6).		
18.	Two square head screws (26) and nuts (15).	Install.		
19.	Weather strip (5).	Install to lid (3).		
20.	Lid (3) and grate (4).	Install.		
21.	Four springs (2) and (20), two left hand latches (19), two right hand latches (22), four cap screws (1) and (21), and nuts (23) and (28).	Install to bin.	Do not tighten.	
C.	ADJUSTMENT.			
22.	Two left hand latches (19) and two right hand latches	Adjust cap screws (1) and (21) to give adequate tension on		
(22	). latches (19) and (22) when in a latched position over lid (3).			
		14-8		

#### 14-8. AUXILIARY CEMENT BIN MAINTENANCE (Continued). LOCATION/ITEM **ACTION** REMARKS LEGEND: CAPSCREW (2) SPRING (2) LID 3. **GRATE** 5. **WEATHER STRIP** 6. BIN 5 7. NUT 8. NUT 9. **HANDLE** 10. NUT 23 **DOOR** 11. 12. **CAPSCREW CAPSCREW** 13. 14. **CAPSCREW** 15. NUT (2) DOUBLE CLEVIS 16. 28 LINK (2) 17. CHAIN 27 BINDER (2) 18. CHAIN 19. **LEFT HAND** LATCH (2) 20. SPRING (2) 21. CAPSCREW (2) 22. RIGHT HAND LATCH (2) 23. NUT (2) 24. WASHER **25**. LINK **2**6. **SQUARE HEAD** SETSCREW (2) 27. CHAIN SHACKLE (2) 15 28. NUT (2) TA 076457

#### 14-9. TARPAULIN MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

 a. Removal.
 (10)

 b. Repair.
 (AR)

 c. Installation.
 (10)

20 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

APPLICABLE CONFIGURATIONS None. None.

M919.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIALS/PARTS (PIN)** 

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20). vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 53895372-10. Engine Off.

TM 5-3895-372-20P. Transmission in Neutral. TM 9-2320-273-10. Parking Brake Set.

**TROUBLESHOOTING REFERENCES** 

#### 14-9. TARPAULIN MAINTENANCE (Continued).

**ACTION REMARKS** LOCATION/ITEM

#### **REMOVAL.**

1. Rope (3). Loosen and remove from twenty-

five hooks (2).

2. Tarpaulin (1). Remove and fold.

В. REPAIR.

#### **NOTE**

For sewing of tears or patches, refer to FM 10-16, General Repair of Tent, Canvas, and Webbing.

#### C. INSTALLATION.

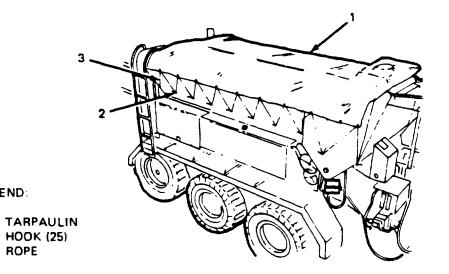
LEGEND:

ROPE

3. Tarpaulin (1). Unfold and lay over bins.

4. Rope (3). Place on twenty-five hooks (2);

tighten and secure.



TA 076458

#### 14-10. MUD FLAP AND REAR FENDER MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal. (30)b. Installation. (30)

60 Minutes Total.

<u>INITIAL SETUP</u> EQUIPMENT

CONDITION

PARAGRAPH CONDITION DESCRIPTION

**APPLICABLE CONFIGURATIONS** 

M919.

6-13 and 614. Liquid admix tanks removed. TM5-3895-372-10. Extension chutes removed.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

MATERIALS/PARTS (P/N)

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

Vehicle Parked on Level Ground.

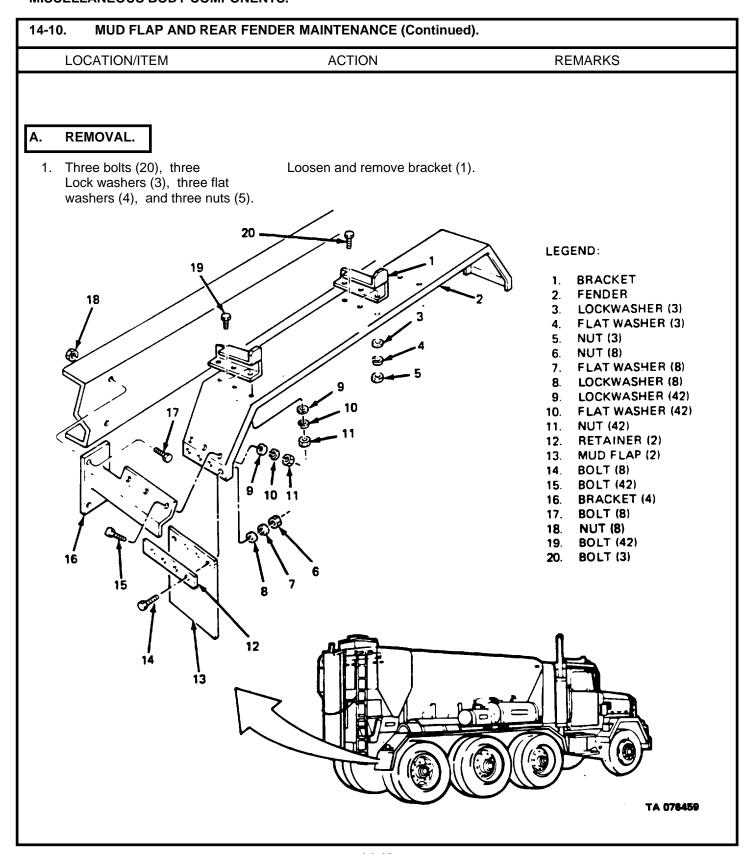
Two (MOSi2B20I.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

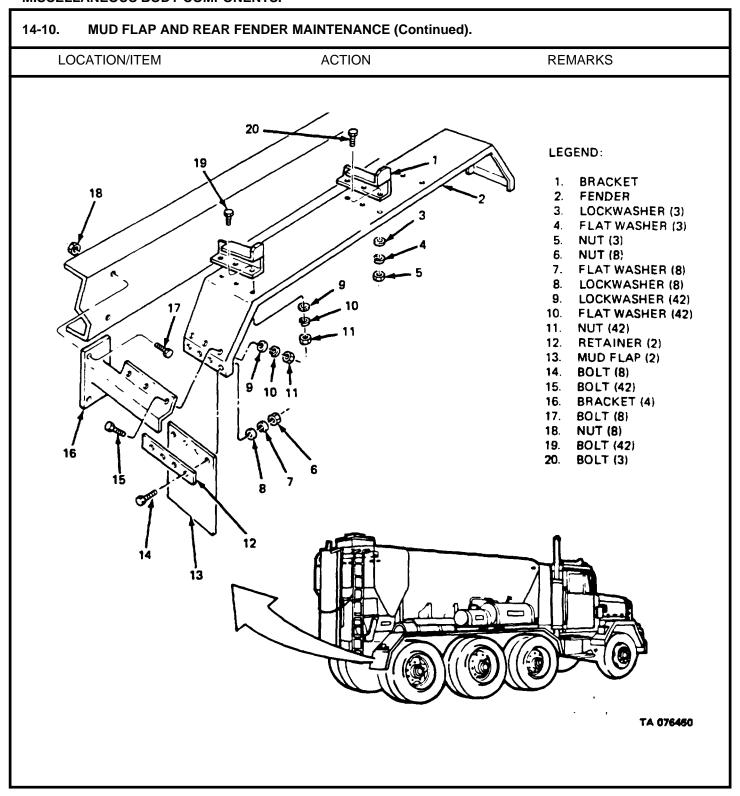
TM 53895372-10. Engine Off.

TM 53895372-20P. Transmission in Neutral. TM 92320-273-10. Parking Brake Set.

TROUBLESHOOTING REFERENCES



14-10. MUD FLAP AND REAR FENDER MAINTENANCE (Continued).				
LOCATION/ITEM ACTION REMARKS				
Α.	REMOVAL (Continued).			
2.	Eight bolts (14), eight lock washers (9), eight flat washers (10), and eight nuts (11).	Loosen and remove two mud flaps (13) and two retainers (12).		
		NOTE		
		Support fenders before performing step 3.		
3.	Forty-two bolts (19), forty-two lock washers (9), forty-two flat washers (10), and forty-two nuts (11).	Loosen and remove two fenders (2).		
4.	Eight bolts (17) and eight nuts (18).	Loosen and remove four brackets (16).		
В.	INSTALLATION.			
5. bolt	Four brackets (16). s (17) and nuts (18).	Align holes and secure with eight		
		NOTE		
		Support fender while performing step 6.		
6.	Two fenders (2).	Align with holes and secure with forty-two bolts (19), lock washers (9), flat washers (10) and nuts (11).		
7.	Two retainers (12) and two mud flaps (13).	Align retainers (12) with fender holes. Align mud flaps (13) to retainers (12) and secure with eight bolts (14), lock washers (8), flat washers (7) and nuts (6).		
8.	Bracket (1).	Align bracket (1) with holes in the right fender (2). Secure with three bolts (20), lock washers (3), flat washers (4), and nuts (5).		



#### 14-11. REFLECTOR- MAINTENANCE.

#### THIS TASK COVERS: (APPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

a. Removal.

(15) (15)

b. Installation.

30 Minutes Total.

**INITIAL SETUP** 

EQUIPMENT CONDITION PARAGRAPH

None.

**APPLICABLE CONFIGURATIONS** 

M919.

CONDITION DESCRIPTION None.

None.

**TEST EQUIPMENT** 

**SPECIAL TOOLS** 

None.

**MATERIALS/PARTS (P/N)** 

None.

PERSONNEL REQUIRED SPECIAL ENVIRONMENTAL CONDITIONS

One (MOS-62B20)). Vehicle Parked on Level Ground.

REFERENCES (TM) GENERAL SAFETY INSTRUCTIONS

TM 5-389372-10. TM 53895372-20P. TM 92320273-10. Engine Off.
Transmission in Neutral.
Parking Brake Set.

**TROUBLESHOOTING REFERENCES** 

14-1	1. REFLECTOR MAINTENANCE	(Continued).	
	LOCATION/ITEM	ACTION	REMARKS
A.	REMOVAL.		
1.	Four screws (6), and washers (4), and nuts (3)	Loosen and remove two red reflectors (5).	

# 14-11. REFLECTOR MAINTENANCE (Continued). LOCATION/ITEM **ACTION** REMARKS A. REMOVAL. Loosen and remove two red 1. Four screws (6), and reflectors (5). washers (4), and nuts (3). LEGEND: 1. RED REFLECTOR (2) 2. AMBER REFLECTOR (2) 3. NUT (4) 4. WASHER (4) 5. RED REFLECTOR (2) 6. SCREW (4) TA 076461

arp tool, pry off. rs have been removed.  Clean surface area after roles and secure crews (6), washers uts (3).  per covering the we back and press
noles and secure crews (6), washers uts (3).  per covering the ve back and press
noles and secure crews (6), washers uts (3).  per covering the ve back and press
noles and secure crews (6), washers uts (3).  per covering the ve back and press
crews (6), washers uts (3).  per covering the ve back and press
crews (6), washers uts (3).  per covering the ve back and press
ve back and press
ace.
14-18

# 14-11. **REFLECTOR MAINTENANCE (Continued).** LOCATION/ITEM **ACTION REMARKS** LEGEND: 1. RED REFLECTOR (2) 2. AMBER REFLECTOR (2) 3. NUT (4) 4. WASHER (4) 5. RED REFLECTOR (2) 6. SCREW (4) TA 076462

14-12. DECALS, PLATES, AND MARKERS MAINTENANCE

THIS TASK COVERS: IAFPROXIMATE TIME REQUIRED FOLLOWS TASK DESCRIPTION.)

Removal.

(6)<u>(6)</u>

b. Installation.

12 Minutes Total.

**INITIAL SETUP** 

**EOUIPMENT** CONDITION

**APPLICABLE CONFIGURATIONS** 

PARAGRAPH CONDITION DESCRIPTION

M919.

None. None.

**TEST EQUIPMENT** 

None.

**SPECIAL TOOLS** 

None.

**MATERIALS/PARTS (PIN)** 

None.

PERSONNEL REQUIRED

**SPECIAL ENVIRONMENTAL CONDITIONS** Vehicle Parked on well Ground.

One (MOS-62B20).

**REFERENCES (TM)** 

**GENERAL SAFETY INSTRUCTIONS** 

TM 5-3895-372-20P.on in Neutral.

TM 92320-273-10.

Prin Broke St.

**TROUBLESHOOTING REFERENCES** 

None.

## 14-12. DECALS, PLATES, AND MARKERS MAINTENANCE

LOCATION/ITEM ACTION REMARKS

## A. REMOVAL

1. Screw (1), (4), (7), or (13). Remove

2. Identification plate (2), (5),

(8), or (14). Remove

3. Rivet (10). Remove

4. Identification plate (11). Remove

5. Marker, label or decal (15) Peel or scrape off.

Screw (1), (4), (7), or (13).  Identification plate (2), (5), (8), or (14).  Remove  Rivet (10).  Remove  Identification plate (11).  Marker, label, or decal (15).  Peel or scrape off.  Clean and dry surface before applying new marker, label, or decal playing new marker, label, or	LOCATION/ITEM	ACTION	REMARKS
Lend:  Identification plate (2), (5), (8), or (14).  Remove  Remove  Identification plate (11).  Marker, label, or decal (15).  Peel or scrape off.  Clean and dry surface before applying new marker, label, or decal plate (15).  SCREW  IDENTIFICATION PLATE REVERSING GEAR BOX SCREW IDENTIFICATION PLATE CONTROL VALVE ASSEMBLY SCREW IDENTIFICATION PLATE OIL PUMP ASSEMBLY RIVET IDENTIFICATION PLATE OIL PUMP ASSEMBLY RIVET IDENTIFICATION PLATE MAIN CLUTCH SCREW IDENTIFICATION PLATE MAIN CLUTCH IDENTIFICATION PLATE IDENTIFICATION PLATE MAIN CLUTCH IDENTIFICATION	. REMOVAL		
Remove  Rivet (10).  Remove  Identification plate (11).  Marker, label, or decal (15).  Peel or scrape off.  Clean and dry surface before applying new marker, label, or decal plants of decal	. Screw (1), (4), (7), or (13).	Remove	
Marker, label, or decal (15).  Peel or scrape off.  Clean and dry surface before applying new marker, label, or decal period applying new marker. In the control period applying new marker. In the c	. Identification plate (2), (5), (8), or (14).	Remove	
BEND: SCREW IDENTIFICATION PLATE CONTROL VALVE ASSEMBLY SCREW DI DILATE MAIN CLUTCH SCREW DI DENTIFICATION PLATE MAIN CLUTCH SCREW DI DENTIFICATION PLATE MAIN CLUTCH MA	. Rivet (10).	Remove	
before applying new marker, label, or decidence of the control valve assembly assembly assembly appearance of the control valve assembly as a control valve as a contr	. Identification plate (11).	Remove.	
	GEND:  SCREW  IDENTIFICATION PLATE  REVERSING GEAR BOX  SCREW  IDENTIFICATION PLATE  CONTROL VALVE ASSEMBLY  SCREW  ID PLATE  OIL PUMP ASSEMBLY  RIVET  IDENTIFICATION PLATE  MAIN CLUTCH  SCREW  IDENTIFICATION PLATE		before applying new marker, label, or deca

4-1	2. DECALS, PLATES, AND I	MARKERS MAINTENANCE	
	LOCATION/ITEM	ACTION	REMARKS
	INSTALLATION.		
1.	Marker, label, or decal (15).	Peel off backing and apply to clean, dry surface.	
2.	Identification plate (11).	Install with two rivets (10).	
3.	Identification plate (2), (5), (8), or (14)	Install with two screws (1), (4), (7), or (13).	

LOCATION/ITEM	ACTION	REMARKS
. INSTALLATION.		
. Marker, label, or decal (15).	Peel off backing and apply to a clean, dry surface.	
. Identification plate (11).	Install with two rivets (10).	
dentification plate (2), (5), (8), or (14).	Install with two screws (1), (4), (7), or (13).	
GEND  SCREW  DENTIFICATION PLATE  REVERSING GEAR BOX  SCREW  DENTIFICATION PLATE  CONTROL VALVE ASSEMBLY  SCREW  DID PLATE  OIL PUMP ASSEMBLY  RIVET  DENTIFICATION PLATE  MAIN CLUTCH  SCREW  DENTIFICATION PLATE  MARKER, LABEL, OR DECAL		

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#### **APPENDIX A**

#### **REFERENCES**

#### A-1. GENERAL.

The following index should be consulted frequently for latest changes or revisions and for new publications relating to material covered in this technical manual.

### A-2. FORMS.

The following forms pertain to this material. (Refer to DA Pam 25-30 for index of blank forms.)

Standard Form 91, Operator Report of Motor Vehicle Accident

Recommended Changes to DA Publications and Blank Forms, DA Form 2028

Operator's Manual for M915, M916, and M920 Truck Tractors and

Refer to DA Pam 738-750, The Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to this material.

### A-3. OTHER PUBLICATIONS.

The following publications contain information pertinent to the major item materiel and associated equipment.

#### a. Operating Vehicle.

	Chassis for M917, M918, and M919	TM 9-2320-273-10
	Operator's Manual for M919 Concrete Mobile Mixer Body	TM 5-3895-372-10
	Army Motor Transport Units and Operations	FM 5530
	Manual for the Wheeled Vehicle Driver	FM 21-305
	Prevention of Motor Vehicle Accidents	AR 355
	Accident Reporting and Records	AR 38540
b.	Maintenance and Repair.	
	Organizational Maintenance for M915, M916, and M920 Truck Tractors and Chassis for M917, M918, and M919	TM 9-2320-273-20
	Organizational Maintenance Repair Parts and Special Tools Used for M915, M916, and M920 Truck Tractors and Chassis for M917, M918, and M919	TM 9-2320-273-2P
	Organizational Maintenance Repair Parts and Special Tools Lists for M919 Concrete Mobile Mixer Truck	TM 5-3895-372-20P
	Lubrication Order for M915, M916, and M920 Truck Tractors and Chassis for M917, M918, and M919	LO 9-2320-273-12

## Change 1 A-1

Lubrication Order for M919 Concrete Mobile Mixer Body......

20I f.	General.	1101 3-3093-372-
201		1101 3-3093-372-
	Organizational Maintenance Repair Parts and Special Tools List for M919 Concrete Mobile Mixer Body	TM 5-3805-372-
20	Organizational Maintenance Manual for M919 Concrete Mobile Mixer Body	TM 5-3895-372-
e.	Truck Bodies	
	NBC Decontamination	FM 3-5
d.	Decontamination.	
J	Operation and Maintenance of Ordnance Materiel in Extreme Cold Weather (O0F to -65*F)	FM 9-207
	Personnel Heater and Winterization Kit Policy for Tank-Automotive Construction and Materiel Handling Equipment	SB 9-16
	Northern Operations	FM 31-71
	Basic Cold Weather Manual	FM 31-70
c.	Vehicles and Special Purpose Equipment  Cold Weather Operation and Maintenance.	ТВ 750-93-1
	Functional Grouping Codes: Combat. Tactical, and Support	
	Cooling Systems: Tactical Vehicles	
	Use of Antifreeze Solutions and Cleaning Compounds In Engine Cooling Systems	
	Inspection, Care, and Maintenance of Anti-friction Bearings	
J	Operator's Manual for Welding Theory and Application  Painting Instructions for Field Use	
)	Metal Body Repair and Related Operations	
	·	
	Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Materiel and Related Materials, Including Chemicals	
24	Description, Use, Bonding Techniques, and Properties of Adhesives	
	Maintenance and Repair (Continued). Organizational, Direct Support and General Support Care, Maintenance and Repair of Pneumatic Tires and Inner Tubes	TM 9-610-200-

f.	General (Continued).	
	Shipment and United Storage	MIL-V-62038
	Storage Serviceability Standard: Tracked Vehicles, Wheeled Vehicles, and Component Parts	SB 740-98-1
g.	Warranty	TB 9-2300-295-15/17

Change 1 A-3/A-4 (Blank)

## APPENDIX B MAINTENANCE ALLOCATION CHART

#### Section I INTRODUCTION

## B-1. GENERAL.

- a. This section provides a general explanation of all maintenance and repair functions authorized at the various maintenance levels.
- 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.
- 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 will be 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. i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.
- d. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or exact 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, measuring, and diagnostic equipments used in precision measurement. Consists of comparisons 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 finding 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 is shown as the third position of the SMR code.
- *i.* Repair. The application of maintenance services, including fault location/troubleshooting. removal/installation, and disassembly/assembly procedures. and maintenance actions to identify troubles and restore serviceability to an hem 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 materiel maintenance applied to Army equipment. The rebuild operation Includes the act of returning to zero those age measurements (hours/miles, etc.) 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. End item group number shall be '00.
- b. Column 2, Component/lAssembly. Column 2 contains the names of components, assemblies, sub-assemblies, and modules for which maintenance is authorized.
- *c. Column 3*, Maintenance Function. Column 3 lists the functions to be performed on the item listed in Column 2. (For a detailed explanation of these functions, see paragraph B-2.)
- d. Column 4, Maintenance Level. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the level of maintenance authorized to perform the function listed in Column 3. This 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 will 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. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control 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
0	Organizational Maintenance
F	Direct Support Maintenance
H	General Support Maintenance
D	Depot Maintenance

- *e.* Column 5, Tools and Equipment. Column 5 specifies. by code, those common tool sets (not Individual tools) and special tools, TMDE, and support equipment required to perform the designated function.
- *f.* Column 6, Remarks. This column shall, when applicable. contain a letter code. In alphabetic order, which shall be keyed to the remarks contained in Section IV.

#### B-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION II.

- a. Column 1, Tool or Test Equipment 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/NATO Stock Number. The National or NATO Stock Number of the tool or test equipment.
  - a. Column 5, Tool Number. The manufacturer's pan number.

#### B-4. EXPLANATION OF COLUMNS IN REMARKS, SECTION IV.

- a. Column 1, Reference Code. The code recorded In Column 6, Section I.
- b. Column 2, Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

(1) GROUP	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE	UN		(4) ITENAN INTERMED	(5) TOOLS AND	(6)		
NUMBER		FUNCTION	C		F	H	DEPOT D	EQUIPMENT	REMARKS
06	ELECTRICAL SYSTEM								
0608	Miscellaneous Items Circuit Breakers	Test Replace		0.3 1.6				1 thru 5	
	Switch, Sensitive	Test Adjust Replace		0.3 0.1 0.4				1 thru 5	
0609	Lights Lights, Marker, Clearance, Red and Amber	Inspect Replace Repair	0.1	0.5 0.5				1 thru 5 1 thru 5	
	Clearance Lights	Inspect Replace	0.1	0.5				1 thru 5	
0613	Chassis Wiring Harness Wiring and Cable Assemblies	Inspect Replace Repair		0.2 1.0 2.0				1 thru 5 1 thru 5 1 thru 5	
18	BODY, CAB, HOOD AND HULL								
1802	Fenders Tri Axle Fender	Replace Repair		0.5 0.5					
22	BODY, CHASSIS, AND HULL ACCESSORY ITEMS								
2201	Canvas, Rubber, or Plastic Items Tarpaulin	Repair Replace	1.0	1.0				1 thru 5	
2202	Accessory Items Reflectors	Inspect Replace		0.2 0.5					

(1)	(2)	(3)	MAIN	(4) NTENANCE L	(5)	(6)	
ROUP IUMBER	COMPONENT ASSEMBLY	MAINTENANCE FUNCTION	C O	INTERMEDIATE F H		TOOLS AND EQUIPMENT	REMARKS
2210	Data Plates and Instruction Holders						
	Decals. Plates and Markers	Replace	0.2				
24	HYDRAULIC AND FLUID SYSTEMS						
2401	Pump and Motor						
	Pump Assembly. Oil	Replace Repair	0.5 1.0			6 thru l1 6 thru 11	
	Belts, Drive	Adjust Inspect	0.2 0.1 0.5			1 thru 5 1 thru 5	
	Motor. Hydraulic	Replace Replace Repair	0.5			1 thru 5 6 thru 11	
2402	Manifold and/or Control Valves						
	Safety Relief Valve	Test Replace	0.5 0.5			1 thru 5 1 thru 5	
	Control Valve Assembly	Repair Replace Repair	1.0 1.5 1.0			1 thru 5 6 thru 11	
2406	Strainer, Filters, Lines and Fittings Oil	Replace	1.0			1 thru 5	
	Hose Assemblies, Tubes and Fitting	Repair Inspect Replace	1.0 0.1 0.4			1 thru 5 1 thru 5	
2408	Liquid Tanks or Reserviors						
	Tank Assembly	Replace inspect	2.0 0.1			1 thru 5	
		Repair	1.0			1 thru 5	

(1)	(2)	(3)			(4) NTENAN		(5)	(6)	
GROUP NUMBER	COMPONENT ASSEMBLY	MAINTENANCE FUNCTION	- UN	<del>IT 0</del>	INTERME F	DIATE H	DEPOT D	TOOLS AND EQUIPMENT	REMARKS
43	GAS AIR, AND VAC- UUM SYSTEMS								
4316	Assembled Hose, Fitting, Lines, Breathers, Filters and Traps								
	Filter, Fluid. Pressure,	Inspect Replace	0.1 0.5					1 thru 5	
	Air System	Service Repair	0.3					1 thru 5	
	Lubricator, Air System	Inspect Service Replace	0.1 0.1 0.5					1 thru 5	
	Hose Assemblies and Fittings	Repair Inspect Replace	1.0 0.1 0.2					1 thru 5 1 thru 5	
4317	Manifold and/or Control Valves								
	Valves, Air, Automatic	Inspect Replace Repair	0.1 0.2 0.3					1 thru 5 1 thru 5	
47	GAGES (NONELECTRI- CAL), WEIGHING AND MEASURING DEVICES								
4701	Instruments (Speed and Distance)								
	Tachometer Assembly	Replace	0.3					1 thru 5	
	Casing, Flexible, Shaft, Tachometer	Service Replace Repair	0-3 0.5 1.0					1 thru 5 1 thru 5 1 thru 5	
4702	Gages, Mounting, Lines, and Fittings								
	Counter, Rotating, Cement Meter Coupling and Casing Shafts	Service Replace Replace Repair		0.2 0.5 0.5 1.0				1 thru 5 1 thru 5 1 thru 5 1 thru 5	

(1)	(2)	(3)			(4)			(5)	(6)
GROUP		MAINTENANCE		NTENAN			OOLS AN		
NUMBER	COMPONENT ASSEMBLY	FUNCTION	С	0	F	Н	D	EQUIPMENT	REMARKS
4702	Gages, Mounting, Lines, and Fittings (Con't)								
	Gage, Pressure, Dial,	Replace		0.5				1 thru 5	
	Liquid Admixture Tanks								
4705	Flow Meters and Regula- tors								
	Valve Assembly, Flow Control	Replace Repair		0.5 1.0				1 thru 5 1 thru 5	
	Flow Meters	Adjust Replace Repalr	0.2	1.0 1.0				1 thru 5 1 thru 5	
73	CONCRETE AND AS- PHALT EQUIPMENT COMPONENTS								
7301	Power Loader Skip								
	Winch. Electric	Inspect Service Replace Repair	0.1	0.2 1.5	2.0			1 thru 5 1 thru 5 6 thru 11	
	Gear Case - Motor Assembly	Service Replace Repair	0.2	1.0	2.0			1 thru 5 1 thru 5 6 thru 11	
	Cable Assembly. Power	Inspect Service Replace 1	0.1	0.2				1 thru 5 1 thru 5	
7303	Control (Machinery)								
	Throttle Cabs Universal Joints Dials	Replace Replace Adjust Replace		1.2 0.5 0.3 1.0				1 thru 5 1 thru 5 1 thru 5	

(1)	(2)	(3)			(4)			(5)	(6)
GROUP NUMBER	COMPONENT ASSEMBLY	MAINTENANCE FUNCTION	MA C	INTENAI	NCE LEV	EL TO	DOLS AN	D EQUIPMENT	REMARKS
7304	Send and Stone Bin As- sembly and Related Parts	Tokonok			•			Egon MENT	KEMAKKO
	Sand and Stone Bins	Inspect Service Replace Repair	0.2 0.4		12.0 3.0			6 thru 11 6 thru 11	
	Hopper Concrete, Dry Admixuture	Inspect Test Replace Repair	0.1 0.5	1.0 2.0				1 thru 5 1 thru 5	
	Guides and Guides Extensions	Adjust Replace		0.5 1.0				1 thru 5 1 thru 5	
	Gates	Inspect Service Adjust Replace	0.1 0.2 0.2	2.0				1 thru 5	
	Agitator. Dry Admixture Bin	Inspect Replace		0.1 0.5				1 thru 5	
7305	Main Drive								
	Drive Shaft Telescope Main Drive	Replace Repair		1.0 2.0				1 thru 5 1 thru 5	
	Universal Joints	Inspect Service Replace Repair	0.1	0.2 5.0 1.0				1 thru 5 1 thru 5 1 thru 5	
	Angle Drive Gear Box  Belts. Drive	Service Replace Repair Inspect Adjust Replace	0.2	2.0 0.2 0.5	4.0			1 thru 5 6 thru 11 1 thru 5 1 thru 5	
	Transmission, Mechanical	Service Replace Repair		0.2 2.0	3.0			1 thru 5 1 thru 5 1 thru 5 6 thru 11	

(1)	(2)	(3)			(4)			(5)	(6)
GROUP NUMBER	COMPONENT ASSEMBLY	MAINTENANCE FUNCTION	MA C	INTENAI	NCE LEV	EL TO	OOLS AN	D EQUIPMENT	REMARKS
7305	Main Drive (Con't)								
	Clutch Assembly, Friction	Service Adjust Replace Repair		0.3	0.5	2.0 4.0		1 thru 5 6 thru 11 6 thru 11	
	Shafts and Sprockets	Replace	1.0					1 thru 5	
7308	Reciprocating and Vibrat- ing Feeders or Conveyors								
	Hopper, Vibrating	Replace Repair	2.0 3.0					1 thru 5 1 thru 5	
7309	Vane or Screw Feeders or Conveyors								
	Cement Bin Assembly	Inspect Service Replace Repair	0.2 0.4			8.0 3.0		6 thru 11 6 thru 11	
	Screens	Inspect Replace	0.1	0.5				1 thru 5	
	Air Pad. Concrete	Inspect Replace	0.1	0.5				1 thru 5	
	Cement Feeder	Test Service Replace Repair	3.0 0.5		4.0 4.0			12 and 13 12 and 13	
	Belt Assembly , Conveyor	Inspect Adjust Replace Repalr		0.2	0.5 8.0 1.5			1 thru 5 1 thru 1 thru 5	
	Vibrator. Concrete	Replace			1.0			1 thru 5	
	Lacing, Belt. Pin	Replace Repair			1.5 2.0		,	1 thru 5 1 thru	
	Belt Wiper Assembly	Inspect Adjust Replace Repair	0.1	0.5 0.7 1.5				1 thru 5 1 thru 5 1 thru 5	

(1)	(2)	(3)			(4)			(5)	(6)
GROUP NUMBER	COMPONENT ASSEMBLY	MAINTENANCE FUNCTION	MA C	NTEN/	ANCE LE	VEL TO	OOLS AI	ND EQUIPMENT	REMARKS
7309	Vane or Screw feeders or Conveyors (Con't)								
	Belt Wipers, Sand and Stone	Inspect Adjust Replace	0.1	0.5 0.7				1 thru 5 1 thru 5	
	Chain, Conveyor	Replace		0.5				1 thru 5	
	Oiler, Self-Feeder	Inspect Service Adjust Replace	0.1	0.2 0.5				1 thru 5 1 thru 5	
7312	Feeder or Conveyor DIs- charge								
	Mixing Trough Assembly	Inspect Test Service Replace Repalr	0.4 0.4 0.5	2.0 4.0				1 thru 5 1 thru 5	
	Auger Assembly	Replace Repalr Replace		2.0 4.0 2.0				1 thru 5 1 thru 1 thru 5	
	Auger Wear Plates	Inspect Replace	0.2	2.0				1 thru 5	
	Trough Assembly,	Inspect Replace Repair	0.1	2.0 1.0				1 thru 5 1 thru 5	
	Chutes	Inspect Replace	0.1	0.5				1 thru 5	
	Swivel Ring	Inspect Service Replace	0.1	0.5 0.6				1 thru 5 1 thru 5	
	Shield Assembly. Dust	Replace Repair		1.0 2.0				1 thru 5 1 thru 5	
7318	Tanks, Valves, Formed Hoses, Lines, Fittings	Ropali		2.0				1 11114 5	
	Tank Mixer, Concrete	Inspect Service Replace Repair	0.2 0.2	2.0 1.0				1 thru 5 1 thru 5	

(1)	(2)	(3)			(4)			(5)	(6)
GROUP NUMBER	COMPONENT ASSEMBLY	MAINTENANCE FUNCTION	MA C	INTEN	ANCE I	EVEL H	D	TOOLS AND EQUIPMENT	REMARKS
7318	Tanks, Valves, Formed Hoses, Lines, Fittings	FONCTION			-	П	<u> </u>	LACILIMENT	KLINIAKNO
	Tank, Lo-Flow	Inspect Service Replace	0.2	0.2 2.0				1 thru 5	
	Valves	Adjust Replace	0.1	0.5				1 thru 5	
	Strainer Body. Sediment  Fittings Hose Assemblies and	Inspect Service Replace Replace Inspect	0.1 0.2 0.5 0.1	0.5		1 thru 5		1 thru 5	
7319	Water System	, i							
	Water Tank Assembly	Service	0.2 Replac Repair		4.0 2.0				1 thru 5 1 thru 5
	Hoses, Pipes and	Inspect Replace	0.1	0.6				1 thru 5	
	Pump. Centrifugal	Replace Repair		0.5 1.5				1 thru 5 1 thru 5	
	Valves	Adjust calibrate Replace	0.2 0.2	1.0				1 thru 5	
	Strainer, Water Tank	Inspect Service Replace	0.1	0.2 0.2				1 thru 5 1 thru 5	
	Strainer Body, Sediment	Inspect Service Replace Repair	0.1	0.2 0.2 1.0				1 thru 5 1 thru 5 1 thru 5	
	Water Pump Belts	Inspect Adjust Replace	0.1	0.2 0.5				1 thru 5 1 thru 5	
7326.	Screens	1.05.000		0.0					
	Screens Vibrator, Screen	Replace Replace		1.0 1.0				1 thru 5 1 thru 5	

Change 1 B-10

## Section III TOOL AND TEST EQUIPMENT REQUIREMENTS

(1) TOOL OR TEST	(2)	(3)	(4)	(5)	
EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER	
1	С	Tool Kit, General Mechanic	5180-00-177-7033	SC51 80-90-CL-N26	
2	С	Shop Equipment	4910-00-754-0654	SC4910-95CLA74	
3	С	Shop Equipment	4910-00-754-0650	SC4910-95CLA72	
4	С	Shop Equipment	4940-00-294-9516	SC4940-93CLE04	
5	С	Shop Equipment	4910-00-754-0653	SC4910-95CLA73	
6	F	Tool Kit, Auto Fuel and Electrical System	4910-00-754-0655	SC4910-95CLA50	
7	F	Welding Shop		LIN-Y48323	
8	F	Tool Kit, Master	5180-00-699-5273	SC5180-90-CL-NOS	
9	F	Shop Equipment	4940-00-294-9518	SC4940-97CLE05	
10	F	Shop Equipment	4940-00-287-4894	SC4940-97CLE03	
11	F	Wrench, Torque 100-500 Ft	5120-00-542-5577	6017F	

## Section IV. REMARKS

Not Applicable.

Change 1 B-11/(B-12 Blank)

#### **APPENDIX C**

#### **EXPENDABLE SUPPLIES AND MATERIALS LIST**

## **Section I INTRODUCTION**

#### C-1. SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain the M919 Concrete Mobile Mixer Truck.

These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

## C-2. EXPLANATION OF COLUMNS.

- a. Column I Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, App. C").
  - b. Column 2 Level. This column identifies the lowest level of maintenance that requires the listed item.
    - C- Operator/Crew
    - O- Organizational Maintenance
    - F Direct Support Maintenance
    - H General Support Maintenance
- c. Column 3 National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.
- d. Column 4 Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if applicable.
- e. Column 5 Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

## SECTION II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1)	(2)	(3)	(4)	(5)
ITEM NUMBER	LEVEL	NATIONAL STOCK NUMBER	DESCRIPTION	U/M
1	С		Grease, Automotive and Artillery GAA (MI L-G-10924C)	
		9150-00-065-0029 9150-00-935-1017 9150-00-190-0904 9150-00-190-0905 9150-00-190-0907	2%-oz tube 14-oz cartridge 1-lb can 5-lb can 35-lb can	oz oz Ib Ib
2	С		Oil, Lubricating, Exposed Gear, CW (VV-L-751C)	
		9150-00-234-5197 9150-00-261-7891	5-lb can 35-lb pail	lb lb
3	0	9150-00-261-7904 9150-00-257-5440 9150-00-257-5443	Oil, Lubricating, Gear Subzero, GOS (MI L-L-10324) I qt can 5gal drum 551al drum gal	qt gal
4	С		Oil, Lubricating, OE/DHO 10 (MI L-L-2104C)	
		9150-00-265-9425 9150-00-265-9428 9150-00-265-9429 9151-00-265-9430	1-t can 5-gal drum 55gal drum, 16 gage 55gal drum, 18 gage	qt gal g-l gm
5	С	9150-00-265-9433 9150-00-265-9435 9150-00-265-9436 9150-00-265-9437	Oil, Lubricating, OE/HDO 30 (MIL-L-2104C) 1it can 5gal drum 55-al drum, 16 gage 55al drum, 18 gage	qt gal gal gal

## Section II. SECTION II. EXPENDABLE SUPPLIES AND MATERIALS LIST (Continued)

(1)	(2)	(3)	(4)	(5)
ITEM NUMBER	LEVEL	NATIONAL STOCK NUMBER	DESCRIPTION	U/M
6	С		Oil, Lubricating, OE/HDO 50 (MI L-L-2104C)	
		9150-00-265-9440 9150-00-265-9442 9150-00-265-9441	1-qt can 5gal drum 55-gal drum, 16 gage	qt gal gal
7	0		Oil, Lubricating, OHT, (MI L-H-6083)	
8	0		Oil, Lubricating, OES, ICE, Subzero, (MI L-L-10295)	
9	0		Lubricant, Gear, Universal, (MI L-L-2106)	
10	0		Oil, Hydraulic (HO) (MIL-H46001B)	
11	0		Lubricant, Gear, Universal (GO) (MIL-L-2105C) 140	
12	С		Oil, Fuel, Diesel DF-1 Winter (VV-F-800)	
		9140-00-286-5286 9140-000286-5287 9140-00-286-5288 9140-00-286-5289	Bulk 5gal can 55-gal drum, 16 gage 55-gal drum, 18 gage	gal gal gal gal
13	С		Oil, Fuel, Diesel DF-2 Regular (VV-F-800)	
		9140-00-286-5294 9140-00-286-5295 9140-00-286-5296 9140-00-286-5297	Bulk 5gal can 55gal drum, 16 gage 55-gal drum, 18 gage	gal gal gal gal

## Section II. SECTION II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1)	(2)	(3)	(4)	(5)
ITEM NUMBER	LEVEL	NATIONAL STOCK NUMBER	DESCRIPTION	U/M
			MISCELLANEOUS	
14	С		Solvent, Dry Cleaning, SD-2 (P-D-680)	
		6850-00-664-5685 6850-00-281-1985	1-qt can 1gal can	qt gal
15	С	6850-00-243-1992	Antifreeze, Permanent, Glycol, Inhibited (MIL-A-46153)	1 gal
16	0		Liquid Teflon	
17	0		Soap Solution	
18	0		Lubriplate	
19	0		Alcohol (for evaporator)	
20	0		Penetrating Oil	
21	0		No. 320 Emery Paper	
22	0		Lube Oil, Ice, Arctic,	

## **APPENDIX D**

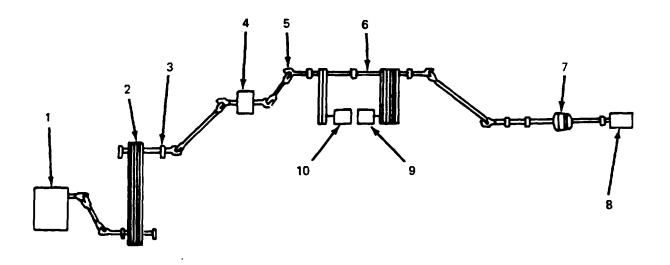
#### **SCHEMATIC DIAGRAMS**

#### **Section I INTRODUCTION**

## D-1. SCOPE.

This appendix provides you with main drive, water, air, and electrical system schematic diagrams.

## D-2. SCHEMATIC DIAGRAMS.

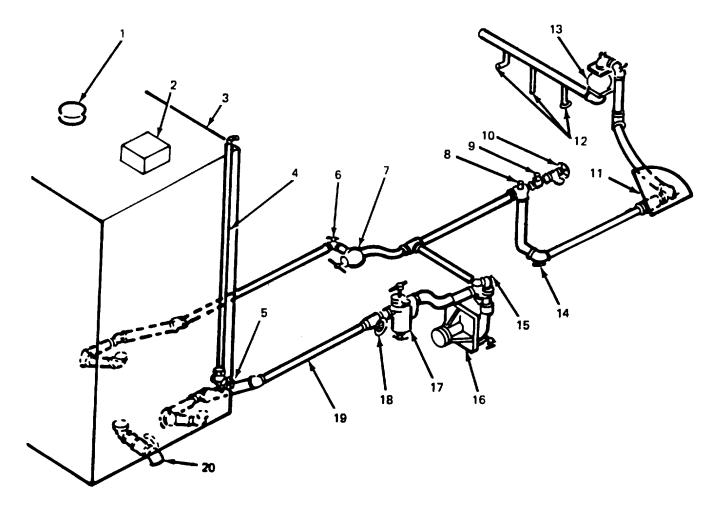


## LEGEND:

- 1. POWER TAKEOFF (PTO)
- 2. PTO V-BELTS (5)
- 3. BEARING BLOCKS (10)
- 4. REVERSING GEAR BOX
- 5. UNIVERSAL JOINTS (8)
- 6. MAIN DRIVE SHAFT
- 7. MAIN CLUTCH
- 8. ANGLE DRIVE GEAR BOX
- 9. HYDRAULIC OIL PUMP
- 10. WATER PUMP

Figure D-1. Main Drive System.

## D-2. SCHEMATIC DIAGRAMS (Continued).

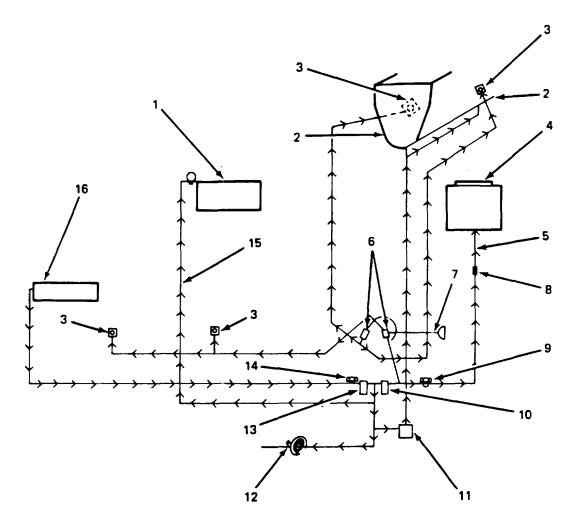


## EGEND.

1	FILLERCAPS	11.	WATER CONTROL VALVE
2.	INLET WATER STRAINER	12.	SPRAY NOZZLES
3.	WATER TANK	13.	QUICK-OPENING VALVE
4.	SIGHT GAGE	14.	DRAIN COCKS
5	GAGE VALVE	15	AIR FITTING
6	WATER RETURN LIN	Е	<ol><li>WATER PUMP</li></ol>
7.	PRESSURE RELIEF VALVE	17.	SCREEN STRAINER
8.	AIR FITTING	18.	SHUTOFF VALVE
9.	VENT	19.	WATER SUPPLY LINE
10.	HOSE VALVE	20.	DRAIN VALVE

Figure D-2. Water System.

## D-2. SCHEMATIC DIAGRAMS (Continued).



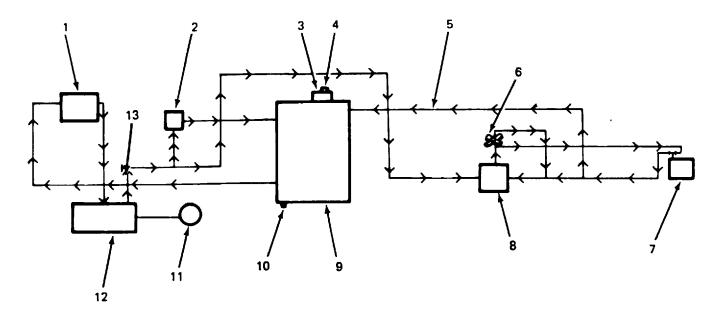
## LEGEND:

- 1. LIQUID ADMIX
- 2. AIR PAD (2)
- 3. VIBRATOR (4)
- 4. QUICK LOADING HOPPER
- 5. CEMENT SCREEN VIBRATOR AIR LINE
- 6. VIBRATOR AIR VALVE (2)
- 7. MANUAL VIBRATOR CONTROL
- 8. OUICK DISCONNECT

- 9. HOPPER AIR GATE VALVE
- 10. AIR LUBRICATOR
- 11. FLUFFER CONTROL VALVE
- 12. AUXILIARY AIR HOSE
- 13. AIR FILTER
- 14. GATE VALVE
- 15. LIQUID ADMIX AIR SUPPLY LINE
- 16. MAIN AIR SUPPLY

Figure D-3. Air System

## D-2. SCHEMATIC DIAGRAMS (Continued).



## LEGEND:

- 1. OIL FILTER
- 2. RELIEF VALVE
- 3. FILLER CAP
- 4. BREATHER
- 5. RETURN LINE
- 6. BYPASS VALVE
- 7. HYDRAULIC MOTOR

- 8. CONTROL VALVE
  - 9. HYDRAULIC OIL RESERVOIR
- 10. DRAIN PLUG
- 11. TACHOMETER
- 12. HYDRAULIC PUMP
- 13. GAGE POINT

Figure D-4. Hydraulic System.

#### **APPENDIX E**

#### **ILLUSTRATED LIST OF MANUFACTURED ITEMS**

#### Section I INTRODUCTION

## E-1. GENERAL.

This appendix contains all the information you need to assemble, manufacture or fabricate the items that appear in TM 5-3895-372-20P which are source coded MO or MF; that is, the items authorized to be manufactured by Organizational maintenance personnel.

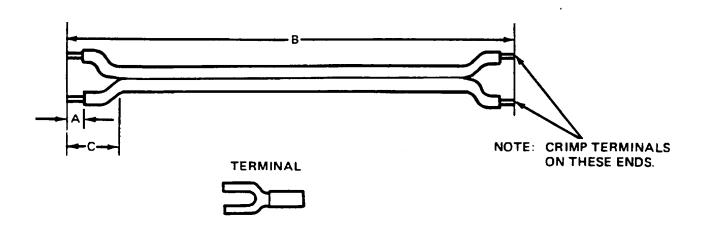
#### E-2. CONTENTS.

- a. This appendix includes complete instructions for making items authorized to be manufactured or fabricated at organizational level.
- b. A part number index in alphanumeric order provided for cross-referencing the part number of the item to be manufactured to the figure number which covers fabrication criteria.
- c. All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration.

## E-3. MANUFACTURED ITEM PART NUMBER INDEX.

PART NUMBER	FIG. NO
MA207-22910 MA207-2291 MA207-22912 MA207-22978 MA366-21006 MA366-21007 MA366-21008 MA366-21010 MA366-21010	E-6 E-6 E-2 E-5 E-5 E-1 E-3 E4
MA366-21013 MA366-21014 MA366-21015 MA366-21016 MA366-21017	E-4 E-4 E-1 E-5

#### Section II ILLUSTRATED MANUFACTURING INSTRUCTIONS.



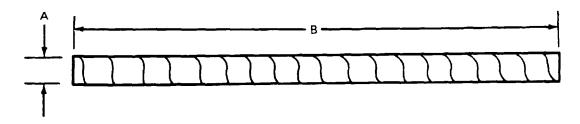
WIRE NUMBER	MANUFACTURE FROM	DIME Inche	NSION A es (mm)		NSION s (mm)B		NSION C s (mm)	TERMINAL PIN FSCM
MA366-21008	MA366-21011	25	6350	108	27432	1.0	254	N/A
MA366-21016	MA366-21011	.5	12.700	48	12192	.5	12.700	MS20659104

<sup>\*</sup>Quantity of two required.

## **NOTES:**

- 1. Cut wire squarely to specified length (Dimension B).
- Separate wires on both ends to specified length (Dimension C).
- 3. Strip wire covering back on both ends of specified length (Dimension A).
- 4. Twist wire ends to keep from fraying.
- 5. If applicable, crimp two terminals on wire ends with a suitable crimping tool. TA 0717

Figure E-1. Wire.



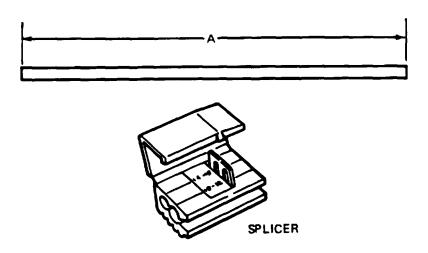
ROPE NUMBER	MANUFACTURE FROM NSN	DIMENSION A Inches (mm)	DIMENSION B Feet Meters
MA207-22978	4020-00-928-3438	.250 6.35	75 22.88

#### **NOTES:**

- 1. Cut rope squarely to specified length.
- 2. If desired, ends may be taped or tied off to keep from fraying.

TA076468

Figure E-2. Rope.

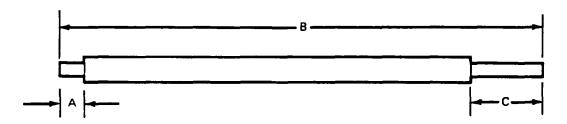


WIRE NUMBER	MANUFACTURE FROM NSN	DIMENSION A Inches (mm)	SPLICER P/N FSCM	QUANTITY PER
MA36&621010	6145-00542-6834	84" 2133.6	558 20999	AS REQUIRED

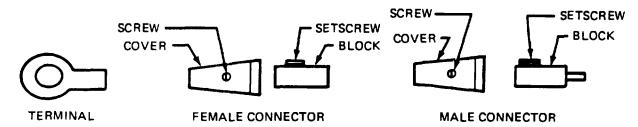
### **NOTES:**

- 1. Cut wire squarely to desired length (Dimension A).
- 2. Include quantity of splicers required with wire. Do not crimp or attach splicer to wire. This will be done at installation.

Figure E-3. Wire Splicer.



NOTE: DIMENSIONS ARE NOT TO SCALE.



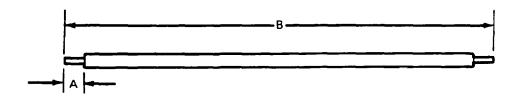
CABLE ASSY NUMBER	MFR CABLE FROM NSN	DIMENSION A Inches (mm)	DIMENSION B Feet Meters	DIMENSION C Inches (mm)	TERMINAL FSCM	CONNECTOR FEMALE	CONNECTOR MALE
MA366-21012	6145-00- 538- 8219	5 12.700	1' 0305	.5 12.700	NP5021019 50663	N/A	N/A
MA366-21013	6145-00-538 8219	5 12.700	19' 580	.75 19050	NP5021019 50663	MA68-21001	N/A
MA366-21014	6145-00- 538- 8219	5 12.700	1' 0305	.75 19.50	NP5021019 50663	N/A	MA68-21002
MA366-21015	6145-00- 538- 8219	.5 12.700	1' 0305	.5 12.700	NP5021019 50663	N/A	N/A

• Quantity of two (2) required.

#### NOTES:

- 1. Cut wire to desired length (Dimension B).
- 2. Strip wire cover back on each end to desired lengths (Dimension A and B).
- 3. Select the proper terminal(s) or connector(s) for the cable assembly in the table above.
- 4. To attach terminal, crimp on wire end using a suitable crimping tool.
- 5. To attach female or male connectors. loosen screw in cover end remove block from cover.
- 6. Slide cover over cable end.
- 7. Loosen setscrew in block and insert cable into block. Tighten setscrew.
- 8. Slide cover over block and tighten screw.

Figure E4. Cable Assembly.



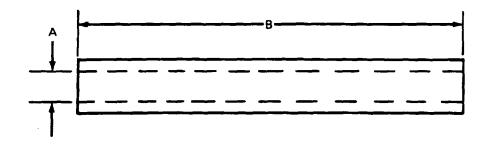


WIRE	MANUFACTURE	DIMENS	SION A	DIMENS	SION B	TERMINAL	TERMINAL	
NUMBER	FROM NSN	Inches	(mm)	Inches	(mm)	Qty	P/N FSCM	
MA366-21017	6145-00-542-6834	.25	6350	9	228.6	1	MS20659104 9	96906
MA366-21006	6145-00-542-6834	.25	6.350	6	152.4	N/A	N/A	
MA366-21007	6145-00542-6834	.25	6.350	3	76.2	N/A	N/A	

## **NOTES:**

- Cut wire to desired length (Dimension B).
   Strip wire covering off of wire (Dimension A).
- Twist wire ends to keep from fraying.
- 4. If applicable, crimp terminal on wire end using a suitable crimping tool.

Figure E-5. Single Strand Wire.



LOOM	MANUFACTU	JRE FROM	DIMENSION A		DIMENSION B	
NUMBER	P/N	FSCM	INCHES	(MM)	FEET	METERS
MA207-22910	MA207-22919	34623	.375	9.525	19	5.80
MA207-22911	MA207-22919	34623	.375	9.525	4	1.22
MA207-22912	MA207-22919	34623	.375	9.525	6	1.83

## NOTES:

1. Cut loom squarely to specified length

Figure E-6. Loom.

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XYZ

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#### LINEAR MEASURE

- 1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
- 1 Meter = 100 Centimeters = 1.000 Millimeters = 39.37 Inches
- 1 Kilometer = 1.000 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 **CUBIC MEASURE**
- 1 Cu Centimeter = 1.000 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 = 1.000 Milliters = 33.82 Fluid Ounces

#### **TEMPERATURE**

5/9 (°+ -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°

#### WEIGHTS

- 1 Gram = 0.001 Kilograms = 1,000 Milligrams = 0.035 Ounces
- 1 Kilogram = 1.000 Grams = 2.2 1 b.
- I Metric Ton = 1,000 Kilograms = 1 Megagram =

		1.1 Short Tons	<del></del>
APPROXIMAT	TE CONVERSION FACT	TORS	0
TO CHANGE	то	MULTIPLY BY	CENTIMETERS
Inches	Centimeters	2.540	1 = 3
Feet	Meters	0.305	NTIMET
Yards	Meters	0.914	
Miles	Kilometers	1.609	】 S 二種 - 一
Square Inches	Square Centimeters	6.451	<b>1</b>
Square Feet	Square Meters	0.093	
Square Yards	Square Meters	0.836	~ <del>-}</del>
Square Miles	Square Kilometers	2.590	1 ω
Acres	Square Hectometers	0.405	<b></b>
Cubic Feet	Cubic Meters	0.02×	] <del>-}</del>
Cubic Yards	Cubic Meters	0.765	1 -1
Fluid Ounces	Millaliters	29.573	1 -
Pints	Liters	0.473	<b>│ -</b>
Quarts	Liters	0.946	<b>∤</b> - <b>₹</b>
Gallons	Liters	3.785	N -15
Ounces	Grams	28.349	<b>1</b> − <b>3</b> −
Pounds	Kilograms	0.454	} <del></del> }
Short Tons	Metric Tons	0.907	<del>-</del> <b>--</b> •
Pound-Feet	Newton-Meters	1.356	<b>-</b> - <b>E</b> _
Pounds Per Square Inch	Kilopascals	6.895	<b>-</b> ∰:
Miles Per Gallon	Kilometers Per Liter	0.425	i <del>-</del>
Miles Per Hour	Kilometers Per Hour	1.609	
TO CHANGE	TO	MULTIPLY BY	ω —
Centimeters	Inches	0.394	
Meters	Feet	3.280	<b>│</b> ─ <b>∄</b>
Meters	Yards	1.094	, - TE
Kilometers	Miles	0.621	
Square Centimeters	Square Inches	0.155	<b>-</b>
Square Meters	Square Feet	10.764	
Square Meters	Square Yards	1.196	. <b>1</b> 5
Square Kilometers	Square Miles	0.386	1 *
Square Hectometers	Acres	2.471	
Cubic Meters	Cubic Feet	35.315	TEL
Cubic Meters	Cubic Yards	1.308	1 1
Milliliters	Fluid Ounces	0.034	
Liters	Pints	2.113	
Liters	Quarts	1.057	~
Liters	Gallons	0.264	1 -
Grams	Ounces	0.035	S =   =
Kilograms	Pounds	2.205	- ω · · · · · · · · · · · · · · · · · ·
Metric Tons	Short Tons	1.102	· · · · · · · · · · · · · · · · · · ·
Newton-Meters	Pound-Feet	0.738	1 3 -
Kilopascals	Pounds Per Square Inch	0.145	
Kilometers Per Liter	Miles Per Gallon	2.354	]
Kilometers Per Hour	Miles Per Hour	0.621	
			1 6 1
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PIN: 047010-000