

**TECHNICAL MANUAL**

**ORGANIZATIONAL AND**

**DIRECT SUPPORT MAINTENANCE MANUAL**

**(Including Repair Parts List)**

**FOR**

**TEST SET, ELECTRICAL CIRCUIT, BOMB DISPENSER:**

**A/E 24T-80 (NSN 4925-00-339-1059)**

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**HEADQUARTERS, DEPARTMENT OF THE ARMY**  
**APRIL 1975**

### **WARNING**

**Avoid breathing methylethylketone vapors and allowing liquid to come into contact with skin. Use in a well-ventilated area. Failure to heed this warning may cause serious injury or death.**

CHANGE

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, DC, 21 November 1980

NO 2

**ORGANIZATIONAL AND DIRECT SUPPORT MAINTENANCE MANUAL  
(INCLUDING REPAIR PARTS LIST)  
FOR  
TEST SET, ELECTRICAL CIRCUIT, BOMB DISPENSER: A/E 24T-80  
NSN 4925-00-339-1059**

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To be distributed in accordance with DA Form 12-40, Organizational maintenance requirements for Mine Dispersing Subsystem Aircraft M56.

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No. 1

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**Organizational and Direct Support Maintenance Manual**  
**(Including Repair Parts List)**  
**FOR TEST SET, ELECTRICAL CIRCUIT, BOMB DISPENSER: A/E 24T-80**  
**(NSN 4925-00-339-1059)**

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Technical Manual

No. 9-4925-228-23

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, DC, 14 April 1975

# ORGANIZATIONAL AND DIRECT SUPPORT

## MAINTENANCE MANUAL

### (INCLUDING REPAIR PARTS LIST)

#### FOR

#### TEST SET, ELECTRICAL CIRCUIT,

#### BOMB DISPENSER: A/E24T-80

(NSN 4925-00-339-1059)

(Current as of 11 February 1975)

		Paragraph	Page
CHAPTER	1. INTRODUCTION		
Section	I. General		
	Scope.....	1-1	1-1
	Forms, records, and reports .....	1-2	1-1
	II. Description and Data		
	Description .....	1-3	1-1
	Tabulated data .....	1-4	1-1
CHAPTER	2. ORGANIZATIONAL MAINTENANCE INSTRUCTIONS		
Section	3. DIRECT SUPPORT MAINTENANCE INSTRUCTIONS		
	I. Functioning of Equipment		
	General .....	3-1	3-1
	Electrical power .....	3-2	3-1
	Test arrangement .....	3-3	3-3
	Operation .....	3-4	3-4
	II. Field Maintenance		
	General .....	3-5	3-8
	Checkout .....	3-6	3-9
	Troubleshooting .....	3-7	3-10
	Lamp and fuse replacement .....	3-8	3-10
	III. Direct Support Functional Repair Companies Overhaul Procedures		
	Test Set Disassembly .....	3-9	3-10
	Inspection .....	3-10	3-10
	Cleaning .....	3-11	3-11
	Repair or replacement .....	3-12	3-11
	Wiring .....	3-13	3-11
	Indicators .....	3-14	3-11
	Lubrication .....	3-15	3-11
	Reassembly .....	3-16	3-11
APPENDIX	A. REFERENCES .....		A-1
	B. DIRECT SUPPORT REPAIR PARTS LIST (INCORPORATING BASIC ISSUE ITEMS LIST) .....		B-1
	C. MAINTENANCE ALLOCATION CHART .....		C-1

## LIST OF ILLUSTRATIONS

Figure	Title	Page
3-1	Test set schematic .....	3-2
3-2	Bench test diagram .....	3-3
3-3	Munitions test diagram .....	3-3
3-4	Test set No. 2 power cable assembly schematic .....	3-4
3-5	Power input circuit schematic.....	3-5
3-6	Intervalometer SAFE position schematic.....	3-5
3-7	MANUAL ADVANCE circuit schematic.....	3-5
3-8	Fire indication circuit schematic .....	3-7
3-9	Reset indication circuit schematic .....	3-7
3-10	35-39 and 40 indicator circuits schematic.....	3-8
B-1	Bomb dispenser electrical circuit test set A/E 24T-80 .....	B-5
B-2	Panel assembly.....	B-6
B-3	Test set (No. 1) power cable assembly.....	B-7
B-4	Test set (No. 2) power cable assembly.....	B-7
B-5	Test set assembly cable.....	B-8
B-6	Electrical cable assembly switch .....	B-8

## CHAPTER 1

### INTRODUCTION

#### Section I. GENERAL

##### 1-1. Scope

a. This manual is for use by personnel responsible for the maintenance of the Test Set, Electrical Circuit, Bomb Dispenser: A/E 24T-80. It contains information on the care, handling, inspection, testing, and maintenance of the test set. This publication also contains a repair parts list.

b. All units operating under these instructions are no lower than Direct Support level. However, for clarity, Direct Support/General Support (DS/GS) Ammunition Company personnel are considered operators of this equipment. Therefore, Organizational Maintenance instructions contained herein are intended for those DS/GS units authorized this equipment but having limited maintenance capabilities.

c. The lowest maintenance level assigned responsibility to repair this test set and its support equipment (other than minor repairs) is the DS level (designated TOE 29 series) repair companies. When direct support (DS) repair companies are not available, or when there is more work than can be accomplished by DS personnel in the allotted time, general support (GS) personnel will perform the functions specified for DS personnel.

##### 1-2. Forms, Records, and Reports

a. *General.* Department of the Army maintenance forms and reporting procedures are prescribed in TM 38-750. Accidents involving injury to personnel or damage to materiel will be reported on DA Form 285 (Accident Report) in accordance with AR 385-40. All shipments received in damaged or otherwise unsatisfactory condition because of deficiencies in preservation, packaging, marking, storage, or handling shall be reported on DD Form 6 (Report of Packaging and Handling Deficiencies) in accordance with AR 700-58. Reports of improper shipment or damage caused by transportation discrepancies shall be reported on SF 361 (Discrepancy in Shipment Report) in accordance with AR 55-38.

b. *Reporting of Errors.* The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded direct to Commander, Picatinny Arsenal, ATTN: SARPA-AD-M-F, Dover, NJ 07801.

#### Section II. DESCRIPTION AND DATA

##### 1-3. Description

a. *Use.* The Bomb Dispenser Electrical Circuit Test Set A/E 24T-80, as used with the Aircraft Mine Dispersing Subsystem M56, is used to check the operation of the SUU-13D/A dispenser intervalometer and intervalometer adapter, and to assure electrical circuit continuity.

b. *General.* The test set A/E 24T-80 (fig. B-1) is a portable, electrically operated testing device that is housed within a compact fiberglass carrying case. The test set includes four cable assemblies (figs. B-3, B-4, B-5, and B-6), stored in the hinged case cover, for various test hookups and power supply. The test set operates from a 24-to 28-volt d. c. (v.d.c.) external power supply.

##### 1-4. Tabulated Data

Test Set, Electrical Circuit, Bomb Dispenser: A/E 24T-80:	
Electrical Power Input.....	24 to 28 v.d.c, 3 amp
Electrical Power Output.....	24 to 28 v.d.c, 3 amp
Dimensions:	
Outside Case Size:	
Length.....	14 in.
Width .....	12 in.
Height .....	6 ¼ in.
Front Panel:	
Length.....	13 in.

Width ..... 0.125-in. stock aluminum  
 Height ..... 10L, in.  
 Printed Circuit Board:  
     Length..... 11 in.  
     Width ..... .094 in., fiberglass  
     Height ..... 2 in.

Relay Bracket:  
     Length..... 11 in.  
     Width ..... 0.125 in., stock aluminum  
     Height ..... 2 in.  
 Paint ..... Olive drab



## **CHAPTER 2**

### **ORGANIZATIONAL MAINTENANCE INSTRUCTIONS**

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For Organizational Maintenance Instructions, refer to chapter 3, section II, paragraph 3-8. Refer to Maintenance Allocation Chart (appendix C) for authorized maintenance functions.

## CHAPTER 3

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

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## Section I. FUNCTIONING OF EQUIPMENT

**3-1. General**

The test set A/E 24T-80, using an external 24 to 28-v.d.c. power supply, provides a method for electrically functioning and checking the Aircraft Mine Dispersing Subsystem M56.

**3-2. Electrical Power**

External power for the test set may be obtained from either a storage battery or an a.c.-to-d.c.

converter. Electrical power through the FIRE switch of the test set cycles the dispenser intervalometer through its normal 40 firing positions. Intervalometers that have been operated or functioned on an aircraft do not return to the SAFE position automatically. It is necessary to depress the MANUAL ADVANCE switch seven times in order to return the intervalometer to the SAFE (or home) position.

This illuminates the SAFE light. See figure 3-1 for a complete test set schematic.

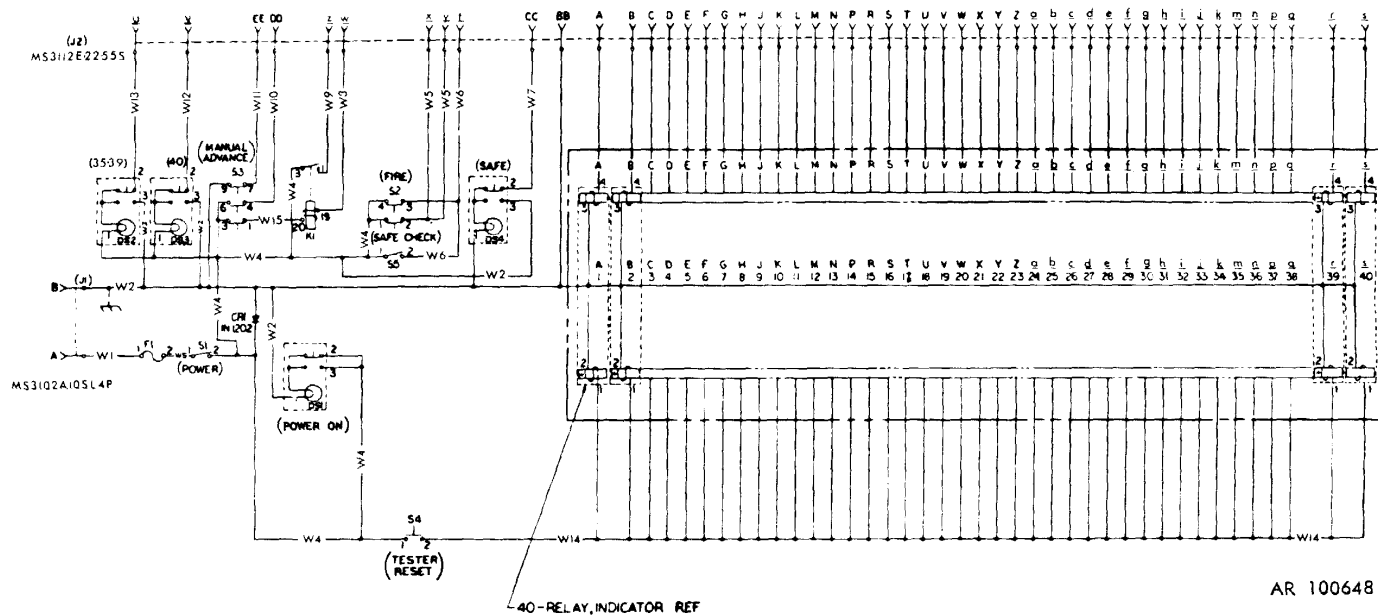


Figure 3-1. Test set schematic.  
3-2

### 3-3. Test Arrangement

The test set is used by selecting the proper cable assemblies for the function to be accomplished and connecting them in accordance with figures 3-2 or 3-3. The test set (No. 1) power cable assembly (fig. B-3) is a two-conductor cable that is used between the external power source and connector J1 on the test set for bench test of an intervalometer. The test set (No. 2) power cable assembly (fig. B-4) is a two-conductor cable that

is used between the munition and connector J1 on the test set for a test of the intervalometer within the munition. The test assembly cable (fig. B-5) is a 51-conductor cable that is used between connector J2 on the test set and the intervalometer (with intervalometer adapter) for both the bench and the munitions test arrangements. The electrical cable assembly-switch (fig. B-6) is a two-conductor cable that is used for conducting 24 to 28 v.d.c. to subsystem M56 circuitry.

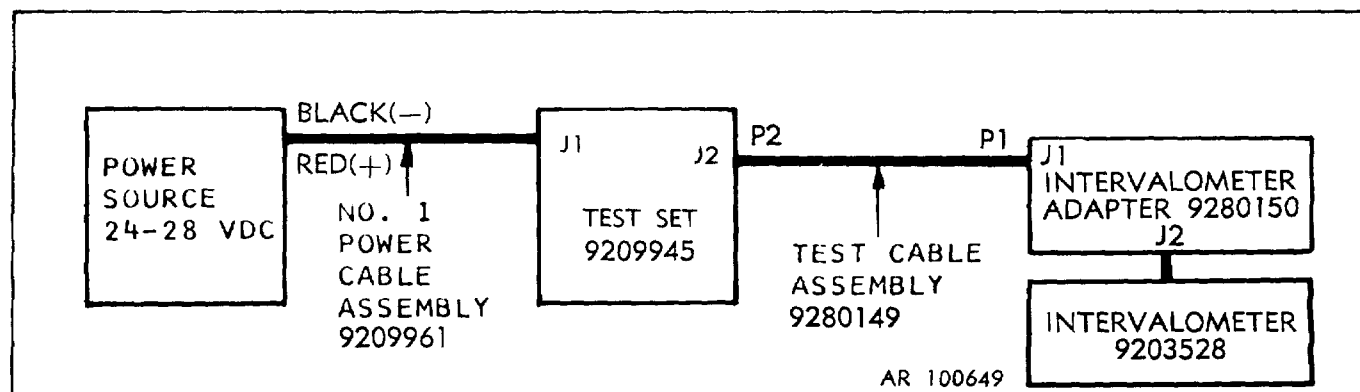


Figure 3-2. Bench test diagram.

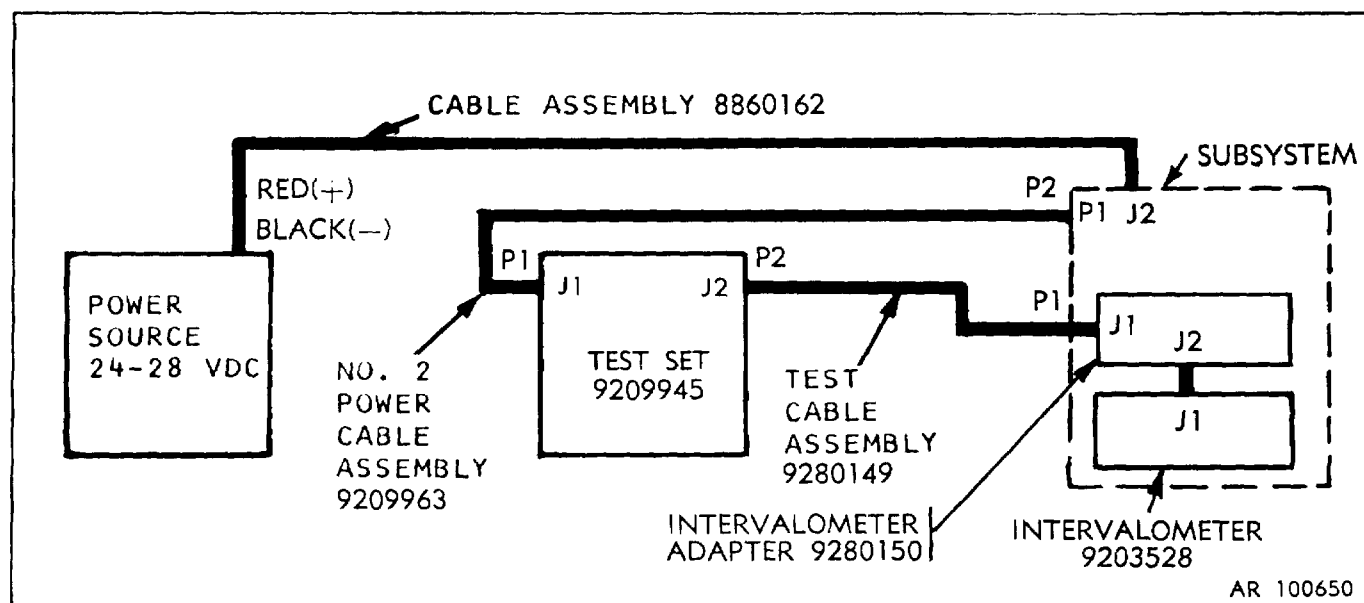


Figure 3-3. Munitions test diagram.

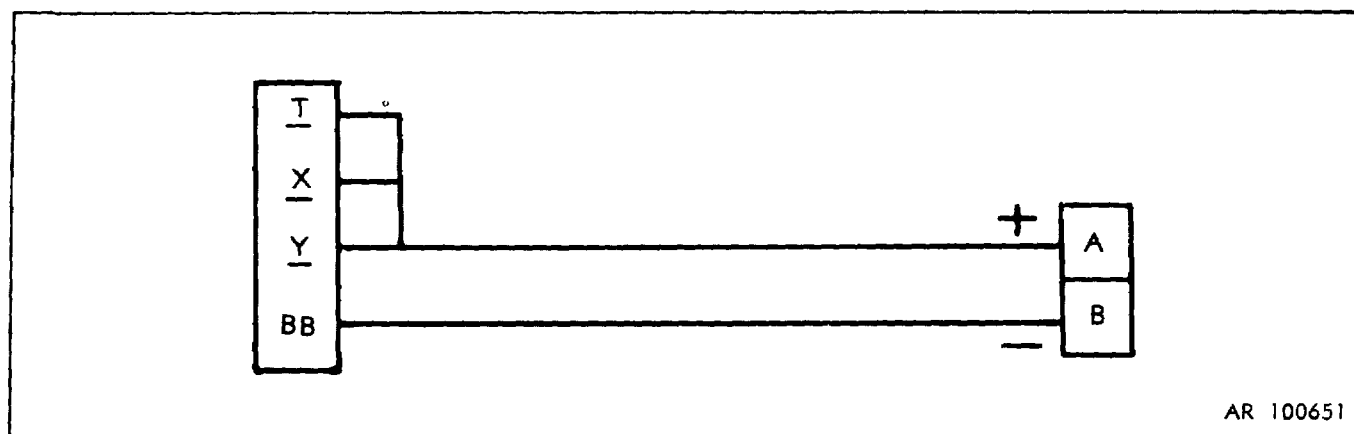


Figure 3-4. Test set (No. 2) power cable assembly schematic.

### 3-4. Operation

a. When the POWER switch on the test set panel assembly is placed in the ON (up) position and the FIRE switch is held in the depressed position, the intervalometer cycles through its 40 firing positions. Indicators numbered 1 through 40 change from red to white in proper sequence. When the firing stage progression reaches indicator 40, it illuminates the green light 40 at the top of the panel assembly. The MANUAL ADVANCE switch is then depressed seven times and the intervalometer returns to the SAFE position, illuminating the SAFE light.

b. The power input circuit (fig. 3-5) of the test set consists of the POWER switch IS1), POWER ON light (DS1), diode (CR1), fuse IF1), and corresponding wiring. When the POWER switch is placed in the ON (up) position, electrical power flows to the circuit from an external source, and the POWER ON light, wired across both legs of the input circuit, glows. The diode, also wired across both legs of the input circuit, provides a direct path to ground if accidental reverse polarity should occur. The fuse, wired in series with the POWER switch and the diode, provides protection for both the test set and the intervalometer against excessive voltage and reverse polarity. If reverse polarity should be applied to connector J1, the current will flow through the diode directly to ground and the fuse will blow.

c. The fire circuit (fig. 3-6) consists of the FIRE switch (S2), SAFE light (DS4), SAFE CHECK switch (5S5), and corresponding wiring. The FIRE switch is wired between the positive line and applicable terminals

of connector J2. When the FIRE switch is depressed, current flows to terminals x, y, and t of connector J2 (fig. 3-6). An integral intervalometer timing circuit for US Air Force systems is activated by current through terminal x. When the intervalometer adapter, 9280150, is installed on the intervalometer and tested with assembly test set cable, 9280149, the timing circuit is not used. The current through terminal y operates the solenoid drive for the intervalometer switch wafers, with the ground return within the intervalometer. The current through terminal t flows to the resistor R1, relay contact K1-1, and switch wafers. The current then returns to the test set negative line through terminal CC and the SAFE light or through terminals A through S and the corresponding relay indicators (fig. 3-1). Besides being wired to terminal CC, the PRESS-TO-TEST SAFE light is also wired directly across the test set positive and negative lines. The lamp under the light glows only when the FIRE switch or the SAFE CHECK switch is closed with the intervalometer in the SAFE position. The SAFE CHECK switch is wired between the test set positive line and terminal t. When the SAFE CHECK switch is closed and the intervalometer is in the SAFE position, current flows from the test set positive line through terminal t to the intervalometer and returns to the test set negative line through terminal CC and the SAFE light.

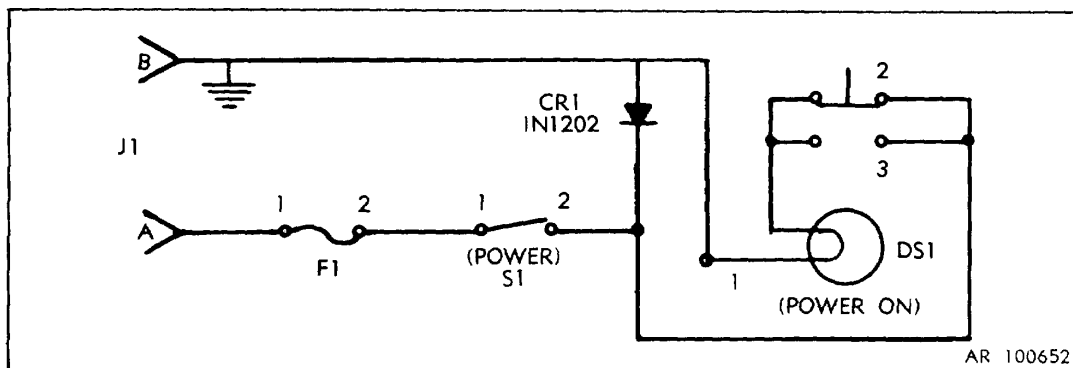


Figure 3-5. Power input circuit schematic.

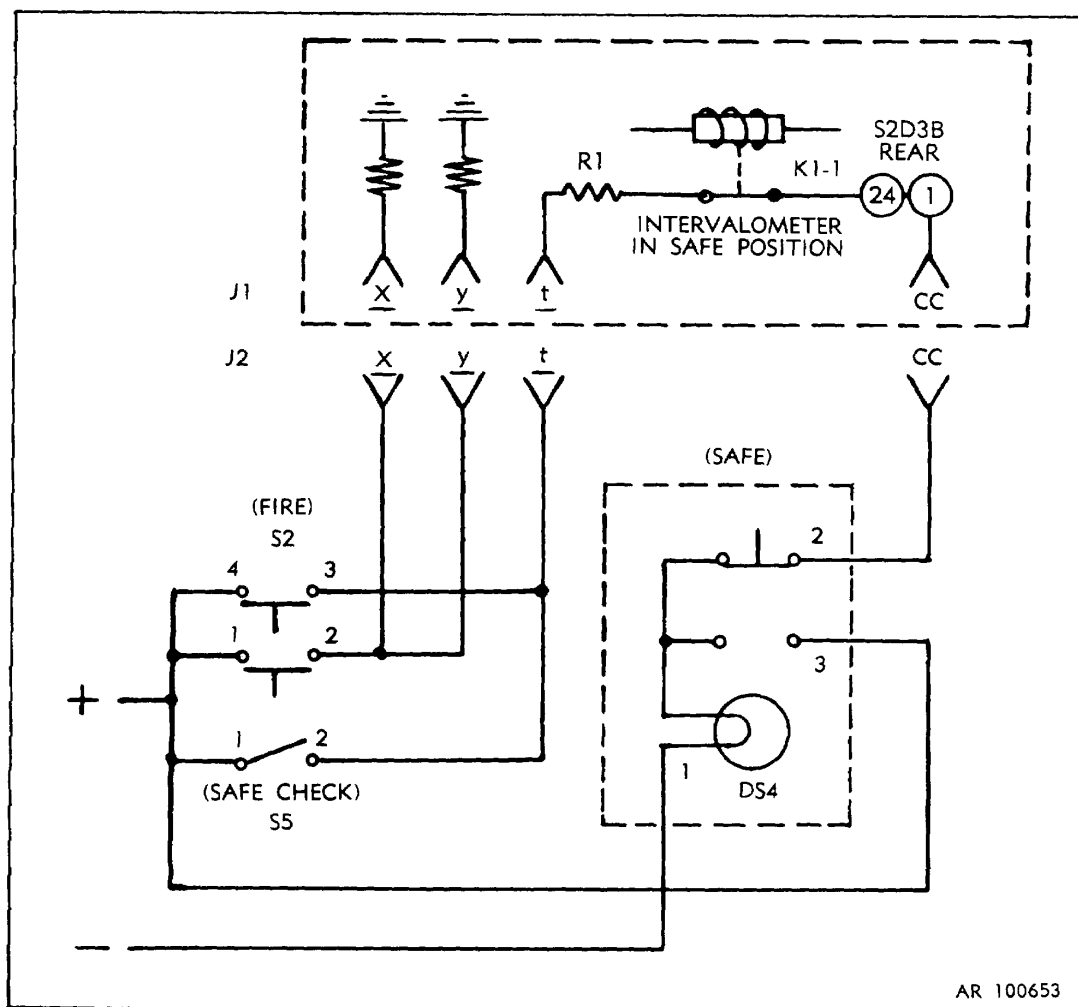


Figure 3-6. Intervalometer SAFE position schematic.

d. The manual advance circuit (fig. 3-7) consists of the MANUAL ADVANCE switch (S3), the relay (K1), and corresponding wiring. The three-pole MANUAL ADVANCE switch is wired to applicable terminals of connector J2, the relay, and to both positive and negative lines within the test set. When the MANUAL ADVANCE switch is depressed, current flows to terminal DD and into the intervalometer to operate the solenoid mechanical drive for the intervalometer switch wafers, and returns to the tester negative line through terminal EE. The switch is pressed seven times. Each

activation indexes the intervalometer one step. During the first six activations of the switch, no current flows to terminal W, as there is no ground in the intervalometer. On the seventh activation of the switch, a ground is present in the intervalometer, completing a circuit to the relay in the test set. Activation of this relay causes a current flow to terminal Z and into the intervalometer. This current flow resets a relay within the intervalometer which removes the ground connected to terminal W.

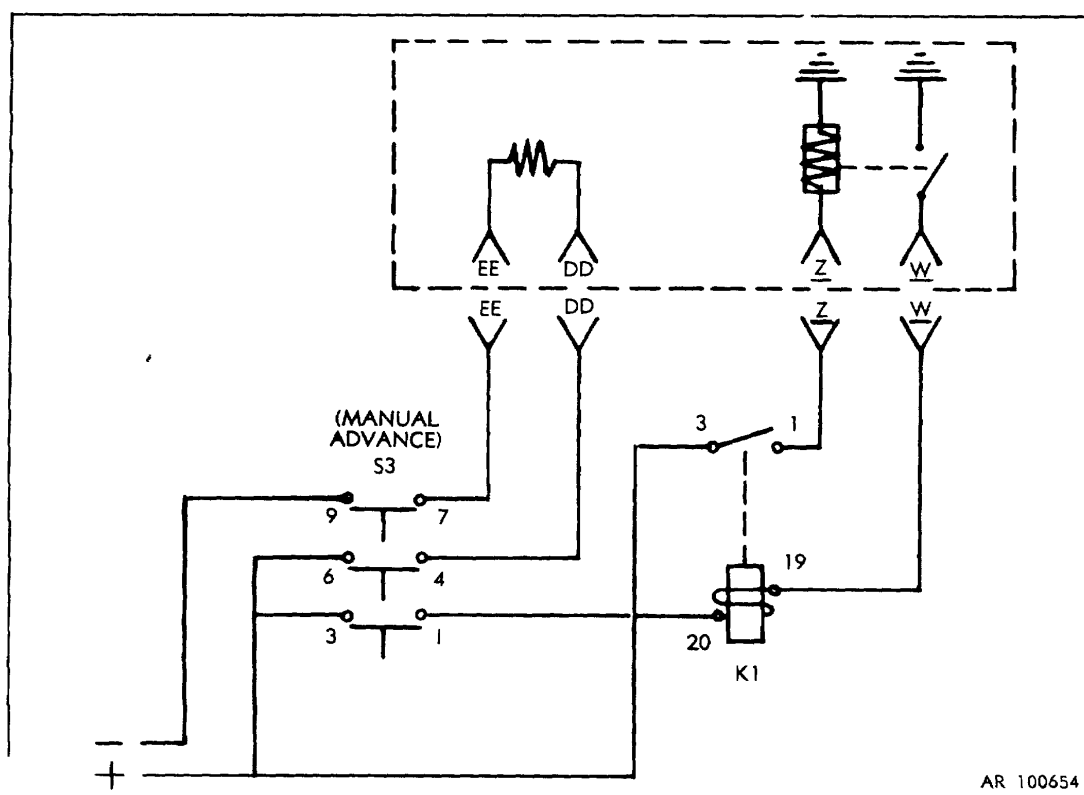


Figure 3-7. MANUAL ADVANCE circuit schematic.

e. Each of the 40 relay magnetic-type indicators has two sets of electrical coils which are utilized in two separate circuits within the test set the fire indication circuit (fig. 3-8) and the reset indication circuit (fig. 3-9)). These indicators are small spheres, each one of which is white on one half and red on the other half. The spheres give indication of fire or reset by rolling to one side or the other as they align with the circuit that is energized. The fire indication circuit consists only of the 40 relay indicators and corresponding wiring. The fire

side of each relay indicator is wired to corresponding terminals A through S of connector J2 and the opposite side to the test set negative line. This circuit operates in conjunction with the fire circuit and the intervalometer. When the FIRE switch is depressed or the SAFE CHECK switch is placed in the ON (up) position, current flows from the test set through terminal T, through the intervalometer switch wafers, and

back to the test set negative line through terminals A through S and corresponding relay indicators. This activates the indicators, turning them from red to white. The reset indication circuit consists of the TESTER RESET switch (S4), the same 40 indicators, and corresponding wiring. The TESTER RESET switch (S4) is wired from the positive test set line to the reset sides

of the 40 relay indicators. The other side of the indicator is wired to the test set negative line. When the TESTER RESET switch (S4) is depressed, current flows through the 40 indicators to the test set negative line, energizing the reset indicator coils and returning each of the indicators to the red position.

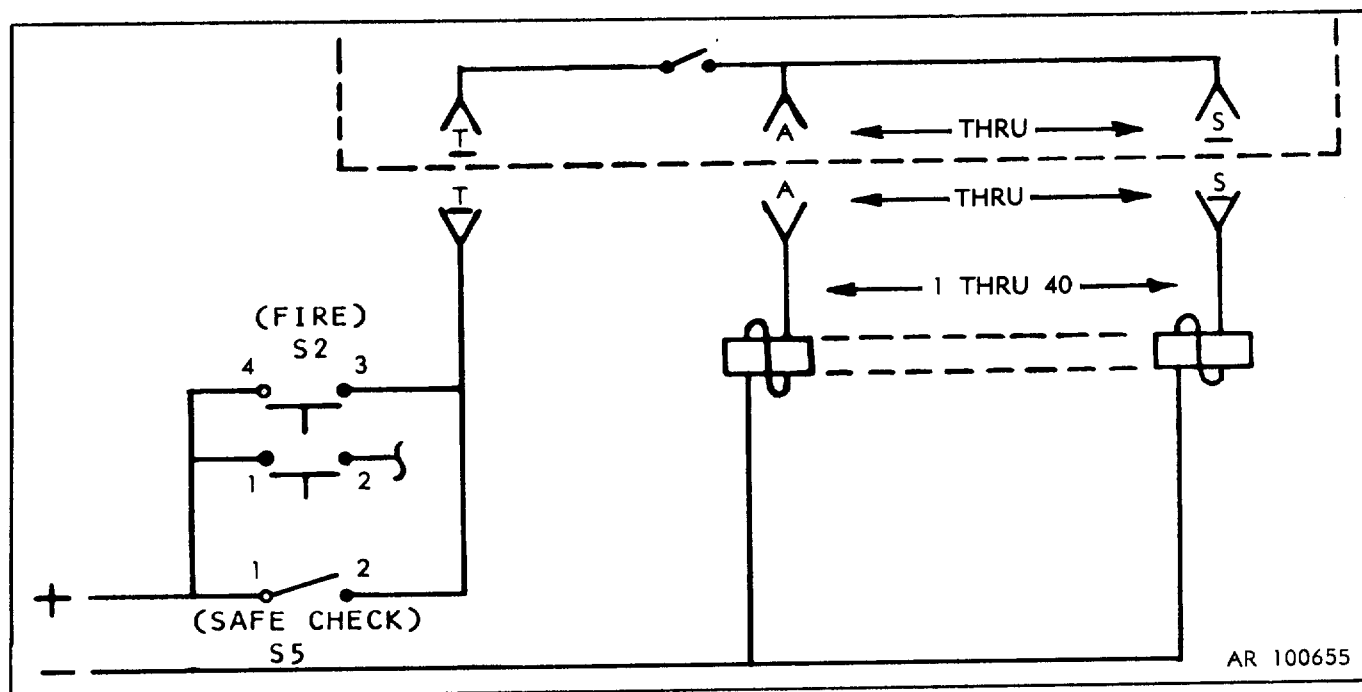


Figure 3-8. Reset indication circuit schematic.

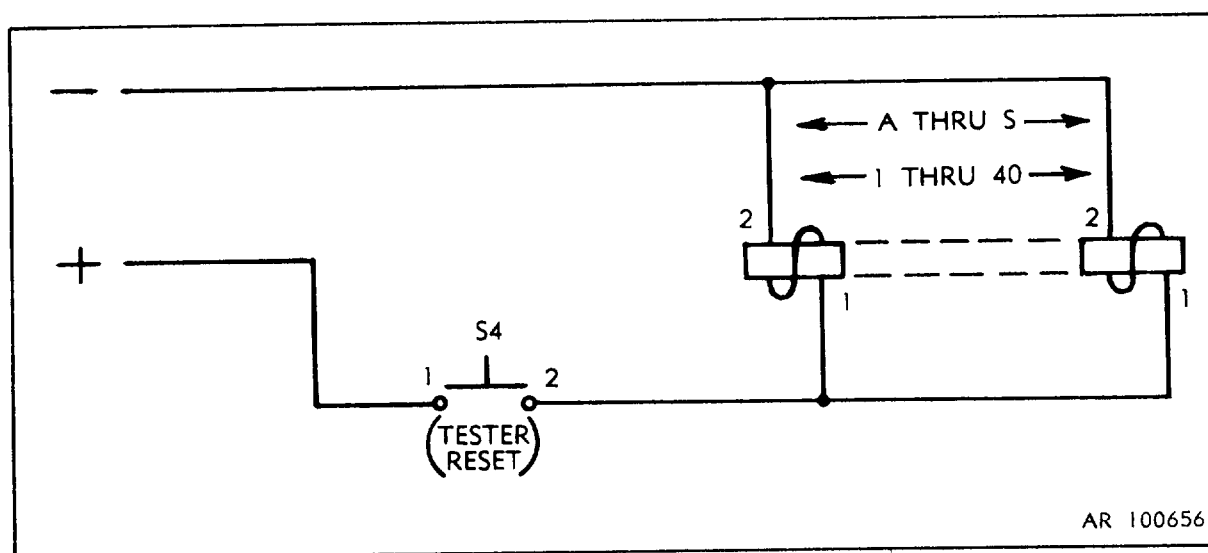


Figure 3-9. Reset indication circuit schematic.

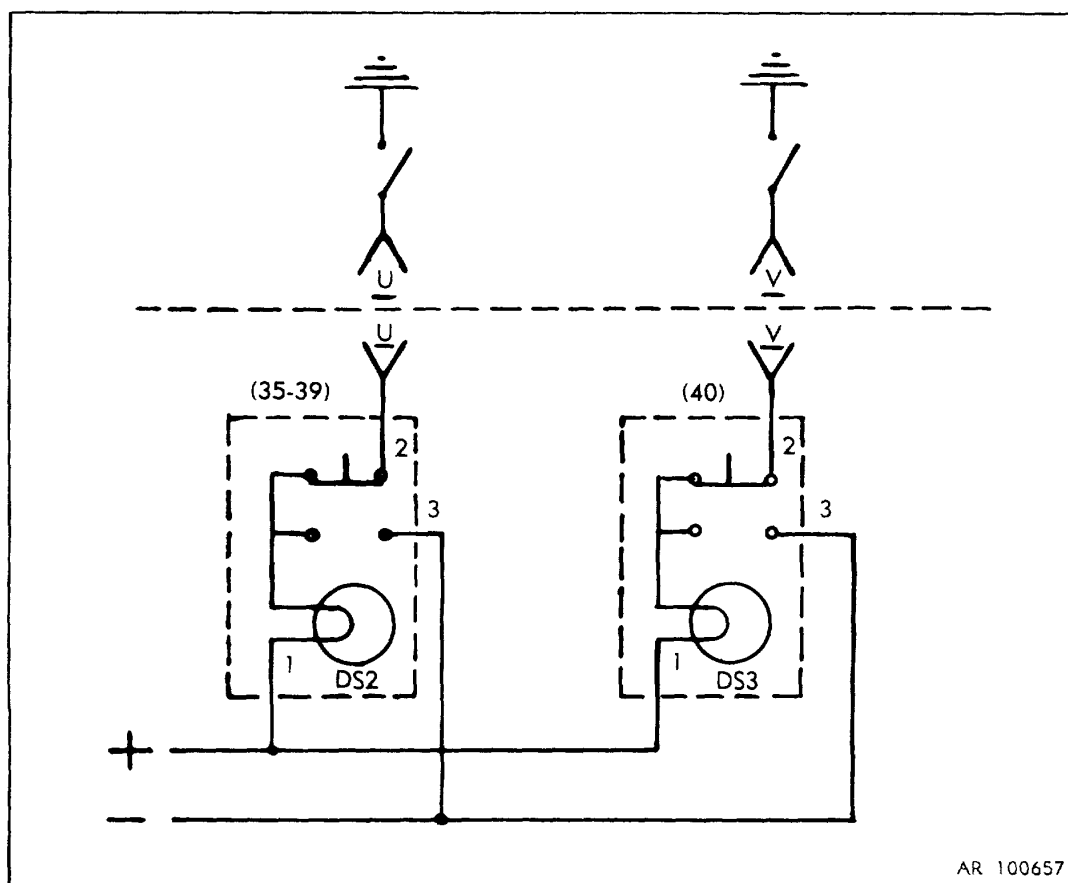


**NOTE**

**Disregard light marked 35 through 39, as this has no function with the subsystem M56.**

f. The 35-39 indicator circuit (fig. 3-10) consists only of the 35-39 indicator light (DS2) and corresponding wiring. This PRESS-TO-TEST indicator

light is wired to terminal U of connector J2 and directly across the test set positive and negative lines. The 35-39 indicator circuit operates only with the intervalometer or when the light is pressed to test. When the intervalometer is activated through positions 35 to 39, ground is made within the intervalometer and the current illuminates the lamp and flows through terminal U to ground.



**Figure 3-10. 35-39 and 40 indicator circuits schematic.**

g. The 40 indicator circuit (fig. 3-10) consists only of the 40 indicator light (DS3) and corresponding wiring. This PRESS-TO-TEST indicator light is wired to terminal V of connector and directly across the test set positive and negative lines. The 40 indicator circuit operates only in conjunction with the intervalometer or

when the light is pressed to test. When the intervalometer is activated to position 40, ground is made within the intervalometer and the current illuminates the lamp and flows through terminal V to ground.

## **Section II. Field Maintenance**

### **3-5. General**

This section provides instructions for determining if the test set meets minimum performance

standards, and for identifying and locating causes of malfunctions.

### 3-6. Checkout

a. *Functional Check.* Perform the following steps to determine the minimum performance standards of each function of the test set:

(1) Visually inspect exterior of test set for broken switches, connectors, lights, or indicators; bent or cracked case; or missing parts.

(2) Check switches for tightness, alignment, and smoothness of operation.

(3) Check inspection and service tag to determine whether test set has been inspected within specified time limits.

b. *Continuity Checks.* Using a multimeter, check continuity and resistance as described in the following steps: NOTE The following steps are accomplished with no external power applied to the test set to prevent damage to the test equipment.

(1) Place POWER switch in ON (up) position.

(2) Check diode direction as follows:

(a) Place positive probe on pin A of connector J1 and negative probe on pin B of connector J1. A resistance reading of  $190 \pm 10$  ohms should be present.

(b) Reverse probes in (a) above. Continuity should exist with a resistance of  $10 \pm 3$  ohms.

(3) Check MANUAL ADVANCE switch as follows:

(a) Place positive probe on pin A of connector J1.

(b) Place negative probe on pin DD of connector J2.

(c) Depress MANUAL ADVANCE switch and read continuity.

(d) Place positive probe on pin B of connector J1.

(e) Place negative probe on pin EE of connector J2.

(f) Depress MANUAL ADVANCE switch and read continuity.

(4) Check FIRE switch as follows: (a) Place positive probe on pin A of connector J1.

(b) Place SAFE CHECK switch in OFF (down) position.

(c) Depress FIRE switch and read continuity by placing negative probe at pins x, y, and t of connector J2.

(5) Check SAFE CHECK switch as follows:

(a) Place positive probe on pin A of connector J1.

(b) Place negative probe on pin t of connector J2.

(c) Place SAFE CHECK switch in ON (up) position and read continuity.

(6) Check TESTER RESET switch as follows:

(a) Place positive probe on pin A of connector J1.

(b) Place negative probe on pin B of connector J1.

(c) Depress TESTER RESET switch and read approximately 21 ohms resistance.

(7) Check No. 1 power cable assembly as follows:

(a) Place positive probe on socket pin A of connector P1.

(b) Place negative probe on red banana plug and read continuity.

(c) Place positive probe on socket pin B of connector P1.

(d) Place negative probe on black banana plug and read continuity.

(8) Check No. 2 power cable assembly as follows:

(a) Place positive probe on socket pin A of connector P1.

(b) Place negative probe alternately on pins t, x, and y of connector J5, reading continuity as probe is placed on each pin.

(c) Place positive probe on socket pin B of connector P1.

(d) Place negative probe on pin BB of connector J5 and read continuity.

(9) Check test set assembly cable by placing positive probe on each of socket pins A through EE of connector P1 and corresponding pins A through EE of connector P2 reading continuity between each corresponding pair of pins.

(10) Check electrical cable assembly-switch as follows:

(a) Place the line cable toggle switch to ON position.

(b) Place positive probe on socket pin D of the five-pin connector.

(c) Place negative probe on red alligator clip and read continuity.

(d) Place the line cable toggle switch to OFF position. No deflection (infinite resistance) of the meter should be observed.

(e) Place positive probe on socket pin E of the five-pin connector.

(f) Place negative probe on black alligator clip and read continuity.

(g) Place positive probe on black alligator clip.

(h) Place negative probe on socket pin E of the five-pin connector. No deflection (infinite resistance) of the meter should be observed.

### 3-7. Troubleshooting

Troubleshooting procedures for the test set appear in table 3-1 below.

**Table 3-1. DS Functional Repair Companies Troubleshooting Procedures**

Trouble	Remedy	Probable cause	Isolation procedure
1. POWER ON light fails to illuminate.	a. Defective fuse.	a. Perform continuity check of fuse.	a. Replace fuse.
2. SAFE: light fails to illuminate.	b. Defective lamp. Defective lamp.	b. Press to test light. Press to test light.	b. Replace lamp. Replace lamp.
3. SAFE light fails to go out when FIRE switch is pressed.	Defective FIRE switch.	Perform continuity check of switch.	Replace switch. Refer to paragraph 3-12.
4. Indicators fail to change from white to red.	a. Defective TESTER RESET switch. b. Defective indicator connectors or defective indicators.	a. Perform continuity check of switch. b. Perform continuity check of connectors or indicators.	a. Replace switch. Refer to paragraph 3-12. b. Refer to paragraphs 3-12 and 3-14.
5. Light 35-39 fails to illuminate at proper time.	Defective lamp.	Press to test light.	Replace lamp.
6. Light 40 fails to illuminate at proper time.	Defective lamp.	Press to test light.	Replace lamp.
7. SAFE light fails to illuminate.	Defective MANUAL ADVANCE switch.	Perform continuity check of switch.	Replace switch. Refer to paragraph 3-12.

### 3-8. Lamp and Fuse Replacement

Replace lamps and fuses as follows:

#### a. Indicator Lamps.

(1) Unscrew light indicator lens from front panel of test set.

(2) Remove lamp by depressing light, rotating it counterclockwise one-quarter turn, and pulling it out of indicator light assembly.

(3) Replace unserviceable lamp with 28-v.d.c. incandescent lamp No. 313.

(4) Reinstall lens on indicator light assembly.

#### b. Fuse.

(1) Remove fuse cap by depressing cap, rotating it counterclockwise, and pulling it off the fuse assembly on the face of the test set panel.

(2) Remove fuse.

(3) Replace unserviceable fuse with one from spare fuse assembly on test set panel.

(4) Reinstall fuse cap.

## Section III. DIRECT SUPPORT FUNCTIONAL REPAIR COMPANIES OVERHAUL PROCEDURES

### 3-9. Test Set Disassembly

Disassemble the test set, as follows:

a. Position test set with panel assembly facing up.

b. Remove eight machine screws (8, fig. B-2) from face of panel assembly.

c. Vertically remove panel assembly with attached components from case and place panel assembly on work bench.

#### NOTE

**Removal of the electrical components mounted on the control panel, except indicators, is obvious and therefore disassembly procedures are omitted. Do not remove indicators except**

**for replacement. Refer to paragraph 3-14 for indicator replacement.**

### 3-10. Inspection

a. Visual Inspection. Visually inspect disassembled components as follows:

(1) Inspect wiring and cables for corrosion, breaks in insulation, or loose or cold solder connections.

(2) Inspect components for discoloration due to overheating, for improperly soldered connections, for security of mounting, or for breaks or corrosion.

**NOTE**

**No extensive visual inspection of sealed components is required. Discolored, bent, or suspected components will be checked electrically.**

b. Electrical Inspection. Perform electrical inspection as follows:

(1) Isolate switches and diodes suspected of faulty operation by unsoldering leads (only if necessary), and checking for continuity.

(2) Test relay for its specific function as described in paragraph 3-3e.

**3-11. Cleaning**

Clean disassembled components as follows:

**WARNING**

**Avoid breathing methylethylketone vapors and allowing liquid to come into contact with skin. Use in a well-ventilated area. Failure to heed this warning may cause serious injury or death.**

a. Apply methylethylketone, Federal Specification TT-M-261, to all exposed connections and contacts of electrical parts with a clean brush or cloth.

**NOTE**

**Methylethylketone is volatile and does not need to be removed after application.**

b. Wipe parts clean with lint-free cloth or brush to remove dirt dislodged by cleaning agent.

**3-12. Repair or Replacement**

Repair of test set consists entirely of replacement of components. Replacement of electrical components, except wiring and indicators, is obvious. Paragraphs 3-13 and 3-14 contain replacement information on wiring and indicators.

**3-13. Wiring**

To replace wiring, perform the following:

a. Replace defective wiring with wire of same gauge and color-code.

b. Retie lacings damaged or cut for maintenance, using lacing twine, Military Specification MIL-T-713, type P, class 2 or equivalent.

c. Replace insulation sleeving with same size insulation sleeving, Military Specification MIL-I7444 or equivalent.

**3-14. Indicators**

To replace an indicator, perform the following:

a. Clip four leads about halfway between end of indicator and printed circuit board.

b. Slide indicator out through panel face.

c. Remove solder and lead remnants from circuit board.

d. Insert new indicator through panel face.

e. Assure that indicator is oriented to properly locate four leads. Insert four leads through printed circuit board and solder.

**3-15. Lubrication**

No lubrication is required.

**3-16. Reassembly**

Reassembly is the reverse of disassembly.

## APPENDIX A

## REFERENCES

**A-1. Indexes**

Index of Administrative Publications .....	DA Pam 310-1
Index of Blank Forms .....	DA Pam 310-2
Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders .....	DA Pam 310-4
Index of Supply Catalogs and Supply Manuals (excluding types 7, 8, and 9) .....	DA Pam 310-6
Military Publications US Army Equipment Index of Modification Work Orders .....	DA Pam 310-7

**A-2. Forms**

Accident Report .....	DA Form 385
Recommended Changes to Publications and Blank Forms .....	DA Form 2028
Equipment Maintenance Log (Consolidated) .....	DA Form 2409
Report of Packaging and Handling Deficiencies .....	DD Form 6
Discrepancy in Shipment Report .....	SF 361

**A-3. Regulations**

Reporting of Transportation Discrepancies in Shipments .....	AR 55-38
Military Traffic Management Regulation .....	AR 55-355
Publications, Blank Forms, and Printing Management .....	AR 310-1
Dictionary of United States Army Terms .....	AR 310-25
Authorized Abbreviations and Brevity Codes .....	AR 310-50
Department of the Army Supplement to DOD 5200.1-R (DODISPR) .....	AR 380-5
Accident Reporting and Records .....	AR 385-40
Preservation-Packaging, Packing and Marking of Items of Supply .....	AR 700-15
Classification, Reclassification, Maintenance, Issuance and Reporting of Maintenance Training Aircraft .....	AR 700-42
Requisitioning, Receipt and Issue System .....	AR 725-50
Army Materiel Maintenance Concepts and Policies .....	AR 750-1
Defense Disposal Manual .....	DOD 4160.21-M

**A-4. Technical Bulletins**

Calibration Requirements for the Maintenance of Army Material .....	TB 43-180
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**A-5. Technical Manuals**

Use and Care of Handtools and Measuring Tools .....	TM 9-243
Direct Support Maintenance Manual (Including Repair Parts and Special Tools List): Mine Dispersing Subsystem, Aircraft: M56 .....	TM 9-1345-201-30&P
Organizational & Direct Support Maintenance Manual (Including Repair Parts & Special Tools List) for Dispenser Control Panel .....	TM 9-1345207-23&P
Direct Support Maintenance Manual (Including Repair Parts List) for Test Set, Electrical Circuit, Bomb Dispenser: A/E 24T-79 .....	TM 9-4925227-30
Organizational & Direct Support Maintenance Manual (Including Repair Parts & Special Tools List) for Test Set Dispenser Control Panel .....	TM 9-4925-229-23&P

Test Set, Electrical Circuit, Bomb Dispenser: A/E 24T-79	TM 9-4925-227-30
Preservation, Packaging, and Packing of Military Supplies and Equipment, Preservation and Packaging (Volume I)	TM 38-230-1
Preservation, Packaging, and Packing of Military Supplies and Equipment, Packing (Volume II)	TM 38-230-2
The Army Maintenance Management System (TAMMS)	TM 38-750
<b>A-6. Supply Catalogs</b>	
FSC Group 49, Maintenance and Repair Shop Equipment Class 4935, Ammunition Maintenance and Repair Shop Specialized Equipment .	SC 4925-IL
Federal Supply Catalog Identification List: Miscellaneous Hardware	SC 5340-IL
Stock List of End Items-FSC Group 81, Container, Packaging, and Packing Supplies - Class 8140 - Ammunition Boxes, Packages, and -special Containers	SC 8140-IL

## APPENDIX B

### DIRECT SUPPORT REPAIR PARTS LIST (INCORPORATING BASIC ISSUE ITEMS LIST)

#### Section I. INTRODUCTION

##### B-1. Scope

This appendix lists repair parts and special purpose test equipment required for performance of direct support maintenance of the Bomb Dispenser Electrical Circuit Test Set A/E 24T-80. (No special tools are required for this test set.).

##### B-2. General

The repair parts list is divided into the following sections:

a. Section II of this appendix provides the list of repair parts authorized for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending numerical sequence, with the parts in each group listed in figure and item number sequence. Bulk materials are listed in National Stock Number (NSN) sequence.

b. Section III of this appendix is the Special Purpose Test Equipment List.

##### B-3. Explanation of Columns

The following provides an explanation of columns found in the tabular listings:

a. *Illustration*. This column is divided as follows:

(1) *Figure number*. Indicates the figure number of the illustration in which the item is shown.

(2) *Item number*. The number used to identify each item called out in the illustration.

b. *Source, Maintenance, and Recoverability Codes (SMR)*.

(1) *Source code*. Source codes are assigned to support items to indicate the manner of acquiring support items for maintenance, repair, or overhaul of end items. Source codes are entered in the first and second positions of the Uniform SMR Code format as follows:

Code	Definition
PA .....	Item procured and stocked for anticipated or known usage.
PF .....	Support equipment which will not be stocked but which will be centrally procured on demand.

##### NOTE

**Cannibalization or salvage may be used as a source of supply for any items source coded**

**above, and aircraft support items as restricted by AR 700-42.**

(2) *Maintenance code*. Maintenance codes are assigned to indicate the levels of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the Uniform SMR Code format as follows:

(a) The maintenance code entered in the third position will indicate the lowest maintenance level authorized to remove, replace, and use the support item. The maintenance code entered in the third position will indicate the following level of maintenance:

Code	Application/Explanation
F .....	Support item is removed, replaced, used at the direct support level.

(b) The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). This position will contain one of the following maintenance codes:

Code	Application/Explanation
F .....	The lowest maintenance level capable of complete repair of the support item is the direct support
Z .....	Nonreparable. No repair is authorized

(3) *Recoverability code*. Recoverability codes are assigned to support items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the Uniform SMR Code format as follows:

Code	Definition
Z .....	Nonreparable item. When unserviceable condemn and dispose at the level indicated in position 3.
F .....	Nonreparable item. When uneconomically repairable, condemn and dispose at the direct support level.

c. *National Stock Number.* Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

d. *Part Number.* Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements, to identify an item or range of items.

#### NOTE

**When a stock numbered item is requisitioned, the repair part received may have a different part number than the part being replaced.**

e. *Federal Supply Code for Manufacturer (FSCM).* The FSCM is a 5-digit numeric code listed in SB 708-42 which is used to identify the manufacturer, distributor, or Government agency, etc.

f. *Description.* Indicates the Federal item name, and, if required, a minimum description to identify the item. Items that are included in kits are listed below the name of the kit with the quantity of each item in the kit indicated in the quantity incorporated in unit column.

g. *Unit of Measure (U/M).* Indicates the standard of the basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two character alphabetical

abbreviation (e.g., ea., in., pr, etc.). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned .

h. *Quantity Incorporated in Unit.* Indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that no specific quantity is applicable, (e.g., shims, spacers, etc.).

#### B-4. Abbreviations

cd.....	cadmium
thk.....	thick
hd .....	head
hex.....	hexagon
i.d.....	inside diameter
o.d. ....	outside diameter
pan.....	panhead
phos.....	phosphorus
pltd.....	plated
S .....	steel
UNC.....	Unified National Coarse Thread
UNF .....	Unified National Fine Thread
v .....	volt



## Section III. REPAIR PARTS LIST

(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION	(7) U/M	(8) QTY INC IN UNIT
(a) FIG NO.	(b) ITEM NO.							
			4925-00-339-1059	9280146	19203	GROUP 01 --TEST SET, ELECTRICAL CIRCUIT, BOMB (MINE) DISPENSER: A/E 24T-80 0101-- CASE ASSEMBLY:		
B-1	1	PFFZZ	4925-01-020-5650	9219839	19203	CASE ASSEMBLY:	ea	1
B-1	2	PFFZZ	*NNA	9211017	19203	DECAL:	ea	1
		PFFFF	NNA	9219840	19203	0102- PANEL ASSEMBLY	ea	1
B-2	1	PAFZZ	5935-00-927-9045	MS3102R10SLAP	96906	CONNECTOR, RECEPTACLE ELECTRICAL: J1	ea	1
B-2	2	PAFZZ	5305-00-889-2997	MS35206-215	96906	SCREW, MACHINE: pan-hd, cross-recessed, carbon S, cd-pltd, No. 4-40 UNF-2A x 0.375	ea	8
B-2	3	PAFZZ	5310-00-559-0070	MS35333-38	96906	WASHER, LOCK: flat-internal tooth, i. d. 0.176, o.d. 0.340, thk 0.023	ea	8
B-2	4	PAFZZ	5310-00-934-9739	MS35649-242	96906	NUT, PLAIN, HEXAGON: machine screw, carbon S, cd-pltd, No. 4-40-UNC-2B	ea	8
B-2	5	PAFZZ	5935-00-827-1547	MS3112D2255S	96906	CONNECTOR, RECEPTACLE ELECTRICAL: J2	ea	1
B-2	6	XBFZZ	NNA	9219842	19203	PLATE, IDENTIFICATION:	ea	1
B-2	7	XAFZZ	NNA	9219841	19203	PANEL:	ea	1
B-2	8	PAFZZ	5305-00-993-1848	MS35207-265	19203	SCREW, MACHINE: pan-hd, cross-recessed, carbon S, cd-pltd, No. 10-32 UNF-2A x 0.780	ea	8
B-2	9	PAFZZ	6240-00-155-7836	MS25237-327	96906	LAMP, INCANDESCENT: No. 313, 28-v.d.c.	ea	V
B-2	10	PAFZZ	6210-00-900-6744	MS25041-7-327	96906	LIGHT, INDICATOR: press-to-test, small, green (DS2, DS3, DS4), 28 v.	ea	3
B-2	11	PAFZZ	5930-00-615-7896	MS25098-22	96906	SWITCH, TOGGLE: 1 pole, sealed toggle (SI, S5)	ea	2
B-2	12	PAFZZ	5920-01-028-5727	F028250V3A	81349	FUZE, CARTRIDGE: (F1)(MIL-F-15160/2)	ea	2
B-2	13	PAFZZ	5920-00-627-3717	FHL18G1-2	96906	FUSEHOLDER: (MIL-F-19207/9)	ea	1
B-2	14	PAFZZ	6210-00-782-5606	MS25041-8-327	96906	LIGHT, INDICATOR: press-to-test, small, yellow (DS1), 28v.	ea	1
B-2	15	PAFZZ	5920-00-087-6332	FHN19G	19203	FUSEHOLDER: (Spare)(MI L-F-19207/10)	ea	1
B-2	16	PAFZZ	NNA	9209953	19203	SWITCH, PUSH BUTTON, DOUBLE POLE: (S2): (91929) P/N 2PB11-T2	ea	1
B-2	17	PAFZZ	5930-00-606-4867	9209952	19203	SWITCH, PUSH BUTTON: (S3) (91929) P/N 3PB11-T2	ea	1
B-2	18	PAFZZ	5940-00-504-6223	MS25089-4C	96906	SWITCH, PUSH: 10 amperes, dust-type (S4)	ea	1
B-2	19	PFFZZ	NNA	9219847	19203	BOARD: printed circuit	ea	1
B-2	20	PAFZZ	5305-00-988-1167	MS35206-204	96906	SCREW, MACHINE: pan-hd, cross-recessed, carbon S, cd-pltd, No. 2-56 UNF-2A x 0.312	ea	6
B-2	21	PAFZZ	6625-00-373-7630	9219846	19203	RELAY INDICATOR FAULT: (07479) P/N BHGD21-24 v.d.c.	ea	40
B-2	22	PAFZZ	5305-00-834-2818	MS35277-30	96906	SCREW, MACHINE: drill, fillister hd, slotted, aluminum alloy, 0.138-32 UNF-2Ax 0.500	ea	4
B-2	23	PAFZZ	5310-00-011-5547	MS35333-6	96906	WASHER, LOCK: flat, internal tooth, 0.267 id, 0.478 o.d., 0.028 thk	ea	4
B-2	24	PAFZZ	5310-00-934-9747	MS35649-262	96906	NUT, PLAIN, HEXAGON: machine screw, carbon S, cd-pltd, No. 6-32 UNC-2B	ea	4
B-2	25	PAFZZ	NNA	9219845	19203	SPACER: Stand off(06540)P/N 8224-A-0632	ea	6
B-2	26	PAFZZ	NNA	9219844	19203	PLATE: relay mounting	ea	1
B-2	27	PAFZZ	5961-00-935-0138	1N1202	96906	DIODE (CR1): (MIL-S-19500/260)	ea	1
B-2	28	PAFZZ	5310-00-934-9751	MS35650-302	96906	NUT, PLAIN HEX: machine screw, carbon S, cd-pltd, No. 10-32 UNF-2B	ea	1

Change 2 B-3

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION	U/M	QTY INC IN UNIT
B-2	29	PAFZZ	5945-00-988-7948	9220239	19203	BOMB (MINE) DISPENSER: A/E 24T-80--Continued	ea	1
B-2	30	XBFZZ	NNA	9219848	19203	RELAY(KI): (02289)	ea	1
B-2	31	PAFZZ	5940-00-156-7345	MS77067-2	96906	BRACKET: relay	ea	1
B-3		PAFZZ	6625-00-449-4148	9209961	19203	TERMINAL LUG: solder-type, phos bronze stamping, locking type 30°, one hole	ea	1
B-4		PAFZZ	6625-00-433-7095	9209963	19203	GROUP 22- TEST SET (NO. 1) POWER CABLE ASSEMBLY:	ea	1
B-5		PAFZZ	4925-00-370-3598	9280149	19203	GROUP 03 -TEST SET (NO. 2) POWER CABLE ASSEMBLY:	ea	1
B-6		PAFZZ	4925-00-874-8672	8860162	19203	GROUP 04 - CABLE, TEST SET, ASSEMBLY:	ea	1
						GROUP 05 - CABLE ASSEMBLY SWITCH ELECTRICAL:	ea	1

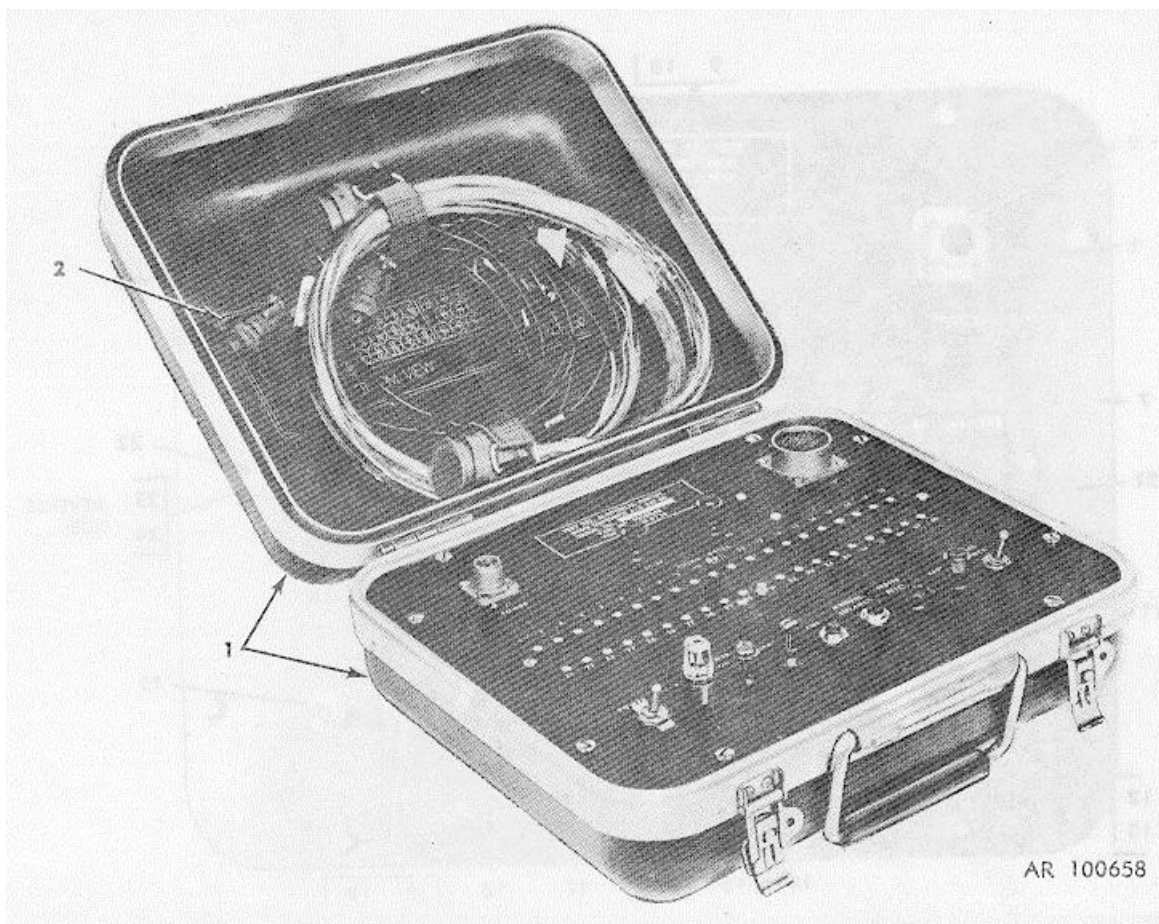


Figure B-1. Bomb dispenser electrical circuit test set A/E 24T-80.

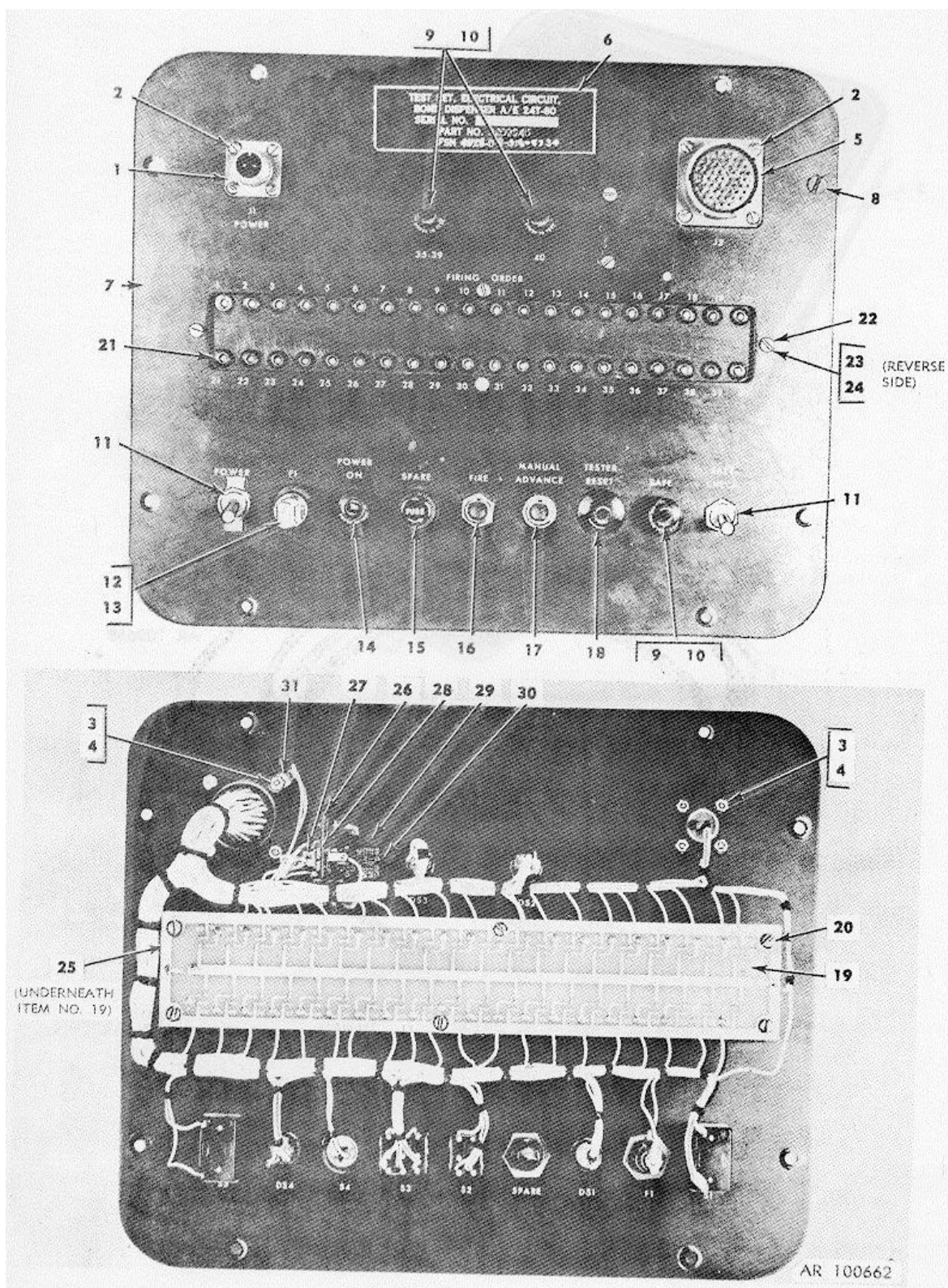


Figure B-2. Panel assembly.



Figure B-3. Test set (No. 1) power cable assembly.

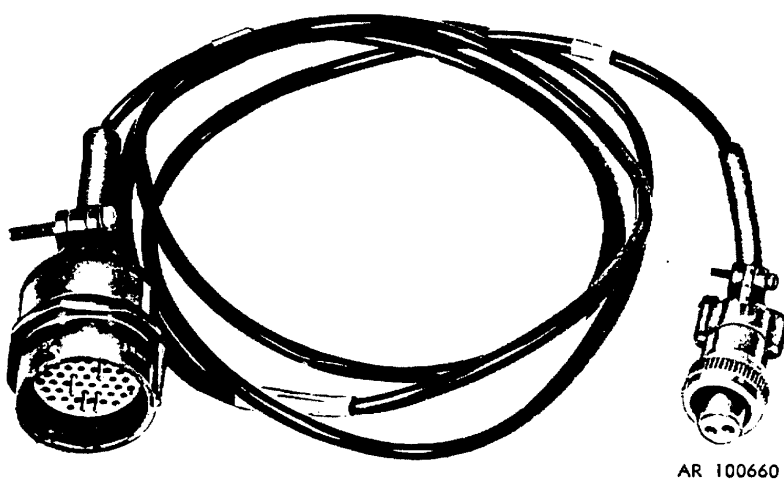


Figure B-4. Test set (No. 2) power cable assembly.

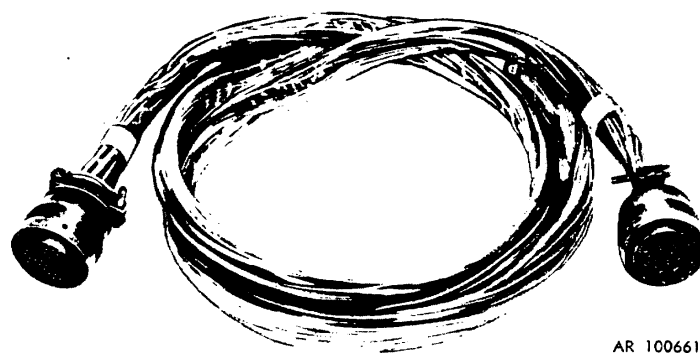


Figure B-5. Test assembly cable.



Figure B-6. Electrical cable assembly-switch.

Section III. SPECIAL PURPOSE TEST EQUIPMENT LIST

B-5. Special Tools

No special tools are required for the test set.

B-6. Test Equipment List

Test equipment used with the test set is listed in table B-1.

Table B-1. Test Equipment

Type designation	Alternate type designation	Nomenclature	Use
Model 260 NSN 1325906-7953 P/N 9280150	Or equivalent ..... .....	Multimeter (Simpson) Intervalometer Intervalometer adapter	Continuity and resistance checks Functional check Functional check

## APPENDIX C

## MAINTENANCE ALLOCATION CHART

## Section I. INTRODUCTION

**C-1. General**

Section II of this appendix contains the maintenance allocation chart for the test set A/E 24T80. The chart assigns maintenance functions to the lowest appropriate level of maintenance based on past experience with similar items, and the following considerations:

- a. Skills available.
- b. Time required.
- c. Tools and test equipment required and/or available.

**C-2. Maintenance Functions**

Maintenance functions will be limited to and defined as follows:

a. *Inspect.* To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.

b. *Test.* To verify serviceability and to detect electrical or mechanical failure by use of test equipment.

c. *Service.* To clean, to preserve, to charge, and to add fuel, lubricants, cooling agents, and air. If it is desired that elements, such as lubricating, be defined separately, they may be so listed.

(1) *Unpack.* To remove item from packing box for service or when required for the performance of other maintenance operations.

(2) *Repack.* To return item to packing box after service and other maintenance operations.

(3) *Clean.* To rid the item of contamination.

(4) *Touch up.* To spot paint scratched or blistered surfaces.

(5) *Mark.* To restore obliterated identification.

d. *Adjust.* To rectify to the extent necessary to bring into proper operating range.

e. *Aline.* To adjust specified variable elements of an item to bring to optimum performance.

f. *Calibrate.* To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparison to 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 with the certified standard.

g. *Install.* To set up for use in the operational environment such as an emplacement, site, or vehicle.

h. *Replace.* To replace unserviceable items with serviceable assemblies, subassemblies, or parts.

i. *Repair.* To restore an item to serviceable condition. This includes, but is not limited to, inspection, cleaning, preserving, adjusting, replacing welding, riveting and strengthening.

j. *Overhaul.* To restore an item to a completely serviceable condition as prescribed by maintenance serviceability standards using the Inspect and Repair Only as Necessary technique.

k. *Rebuild.* To restore an item to a standard as nearly as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements (items) using original manufacturing tolerances and specifications, and subsequent reassembly of the item.

**C-3. Explanation of Format**

Purpose and use of the format are as follows:

a. *Column 1, Group Number.* Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies and modules with the next higher assembly.

b. *Column 2, Functional Group.* Column 2 lists the noun names of components, assemblies, subassemblies, and modules on which maintenance is authorized.

c. *Column 3, Maintenance Function.* Lists the various categories of maintenance to be performed on the test set. The active repair time (manhours) required to perform the maintenance function is included directly below the symbol identifying the category of maintenance.

d. *Use of Codes.* Explanation of the use of the code in maintenance column (3) is as follows:

Code	Explanation
F.....	Direct Support Maintenance

e. *Column 4. Tools and Equipment.* This column will be used to specify those tools required to perform the designated function.

f. *Column 5, Remarks.* Self-explanatory.



**Section II. MAINTENANCE ALLOCATION CHART FOR TEST SET,  
CIRCUIT, BOMB (MINE) DISPENSER: A/ E24T-80**

(1) G R O U P  N U M B E R	(2) CAD/PAD Functional group	(3) Maintenance functions														(4) Tools and equipment	(5) Remarks	
		I N S P E C T	T E S T	SERVICE					A D J U S T	A L I N E	C A L I B R A T E	I N S T A L L	R E P L A C E	R E P A I R	O V E R H A U L			R E B U I L D
				U N P A C K	R E P A C K	C L E A N	T O U C H U P	M A R K										
01	TEST SET, ELECTRICAL CIRCUIT, BOMB (MINE) DISPENSER: A/E 24t-80	F .08	F .25										F					
0101	Case Assembly	F .08				F .08							F					
0102	Panel Assembly Exterior Inspection	F .08											F					
	Lamps												F*.08					
	Fuzes												F* .08					
	Continuity and Resistance (Test set and cable)		F 1.0										F					
	Troubleshooting		F .3										.F					
	Disassembly			F .08									F					
	Visual Interior Inspection	F .16											F					
	Electrical Inspection	F .3											F					
	Cleaning					F .08							F					
	Repair/Replacement of Components												F					
	Wiring												F					
	Replacement of Indicators												.25 F					
	Reassembly				F .08								F					
02	TEST SET (NO. 1) POWER CABLE ASSEMBLY	F .08	F .08										F					
03	TEST SET (NO. 2) POWER CABLE ASSEMBLY	F .08	F .1										F					
04	CABLE, TEST SET ASSEMBLY:	F .08	F .5										F					
05	CABLE ASSEMBLY-SWITCH ELEC- TRICAL	F .08	F .1										F					

\*Replacement is Organizational Maintenance performed by Ammunition companies.

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<div style="border: 1px solid black; padding: 5px;"> <b>PAGE NO.</b> </div>	<div style="border: 1px solid black; padding: 5px;"> <b>PARA- GRAPH</b> </div>	<div style="border: 1px solid black; padding: 5px;"> <b>FIGURE NO.</b> </div>	<div style="border: 1px solid black; padding: 5px;"> <b>TABLE NO.</b> </div>	
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