TECHNICAL MANUAL

OPERATOR'S ORGANIZATIONAL, DS AND GS

MAINTENANCE MANUAL

INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST

FOR

TESTER, EXHAUST GAS TEMPERATURE

MODEL BH112JA-36

(FSN 4920-673-5514)

This copy is a reprint which includes current pages from Changes 1 through 4.

This manual superseded TM 53-4920-244-15, 23 February 1965, including all changes.

HEADQUARTERS, DEPARTMENT OF THE ARMY

28 February 1974

WARNING

Personnel performing operations, procedures, and practices which are included or implied in this technical manual shall observe the following warnings. Disregard of these warnings and precautionary information can cause serious injury, death, or destruction of material.

Ground the tester with the pigtail ground wire in the power inlet cable before using the tester.

Use trichloroethylene only in an adequately ventilated area. Avoid prolonged or repeated breathing of vapor. Avoid prolonged or repeated contact with the skin.

Stop operation immediately if a defect is noted that could cause damage to the tester by continuing operation.

Never use an ohmmeter or voltmeter to check the potentiometer circuit for continuity as damage to the galvanometers (GALVO-1) will result.

Detonate explosives from a safe distance. Keep blasting caps, detonating cords, and safety fuses separated from the explosive charges until required for use.

Do not tow the tester behind a vehicle, use as a step, or place it under aircraft dump valve.

CHANGE NO. 4

HEADQUARTERS
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Technical Manual

Operator's Organizational, DS and GS Maintenance Manual
Including Repair Parts and Special Tools List

for

TESTER, EXHAUST GAS TEMPERATURE
MODEL BH112JA-36
(NSN 4920-00-673-5514)

TM 55-4920-244-14, 28 February 1974, is changed as follows:

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages	Insert pages
i	i/ii
1-1 and 1-2	1-1 and 1-2
2-3 and 2-4	2-3 and 2-4
4-1 through 4-6	4-1 through 4-3/4-4
4-27 through 4-30	4-27 through 4-30
A-1	A-1/A-2
B-1 and B-2	B-1 through B-3/B-4
C-1 through C-13, I-1 through I-4	C-1 through C-7-1, I-1 through I-14

2. Retain this sheet in front of manual for reference purposes.

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Operator's Organizational, DS and GS Maintenance Manual
Including Repair Parts and Special Tools List
for

TESTER, EXHAUST GAS TEMPERATURE
MODEL BH112JA-36
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1-1 and 1-2	1-1 and 1-2
2-5 and 2-6	2-5 and 2-6
2-11 and 2-12	2-11 and 2-12

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CHANGE
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OPERATOR'S ORGANIZATIONAL, DS AND GS MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST
FOR

TESTER, EXHAUST GAS TEMPERATURE
MODEL BH112JA-36
(FSN 4920-673-5514)

TM 55-4920-244-14, 28 February 1974, is changed as follows:

1. Remove and insert pages as indicated below.

	Remove pages	Insert pages
Table of Contents	i	i
Chapter 1	1-1 and 1-2	1-1 and 1-2
Chapter 2	2-7 and 2-8	2-7 and 2-8
	2-15	2-15
Chapter 3	3-5 and 3-6	3-5 and 3-6
Appendix A	A-1	A-1

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TM 55-4920-244-14
C 1

CHANGE
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC., *25 July 1975*

Operator's Organizational, DS and GS
Maintenance Manual
Including Repair Parts and Special Tools List

FOR

TESTER, EXHAUST GAS TEMPERATURE
MODEL BH112JA-36
(FSN 4920-673-5514)

TM 55-4920-244-14, 28 February 1974, is changed as follows:

1. Remove and insert pages as indicated below.

	Remove pages	Insert pages
Chapter 4, section II	4-3 thru 4-6	4-3
	4-7 thru 4-10	4-7 thru 4-10
section IV	4-31 and 4-32	4-31 and 4-32
	4-33 and 4-34	4-34
section IV - V	4-35 thru 4-38	4-35 thru 4-38
	4-47 thru 4-49	4-47 thru 4-49

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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistake 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 Aviation Systems Command, ATTN: AMSAV-MMD, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished directly to you.

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1. SCOPE.

a. General. These instructions are published for the use of personnel who operate the exhaust gas temperature tester, part number BH112JA-36, and for personnel responsible for organizational, direct support, and general support of the tester. The instructions provide information on the description, operation, maintenance, shipment, storage, and demolition of the tester.

b. Appendix A. Appendix A provides a standard list of all publications applicable to this manual and available to the operator and maintenance personnel.

c. Appendix B. Appendix B contains the Maintenance Allocation Chart. The chart assigns to the lowest appropriate echelon the maintenance functions and repair operations to be performed.

d. Appendix C. Appendix C contains Repair Parts and Special Tools.

e. Recommendations. Report 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 forwarded direct to Commander, U.S. Army Aviation Systems Command, Attn: AMSAV-MMD, 4300 Goodfellow Blvd., St. Louis, Missouri 63120-1798.

1-2. RECORD AND REPORT FORMS.

The following record and report forms are used by the operator and maintenance personnel for recording and reporting operations and maintenance activities. For instructions as to the use of listed forms, refer to DA PAM 738-751.

a. DA Form 2402, Exchange Tag

b. DA Form 2404, Equipment Inspection and Maintenance Worksheet

c. DA Form 2405, Maintenance Request Register

d. DA Form 2406, Material Readiness Report

e. DA Form 2407, Maintenance Request

f. DA Form 2409, Equipment Maintenance Log (Consolidated)

g. DD Form 314, Preventive Maintenance Schedule and Record

Section II. DESCRIPTION AND DATA

1-3. DESCRIPTION.

The exhaust gas temperature tester (fig l-l) is used to determine the accuracy of the aircraft exhaust gas temperature (egt) system without running the engine and to read engine rpm and egt accurately during engine run. The major components of the tester are the exhaust gas temperature indicator; resistance, insulation, and rpm check circuit; potentiometer; voltage regulator meters; switches; and the the necessary probes, cables, and adapters for performing all tests. Storage is provided within the tester for all probes, cables, and adapters. The tester operates on any 95 to 135 volts, 50 to 400 Hertz, ac power source in temperatures ranging from -54° to +71° Celsius (-65° to + 160° Fahrenheit).

1-4. IDENTIFICATION.

a. Nameplate. The tester nameplate is located on the outside of the probe storage compartment between the latches. The nameplate identifies the tester by name, manufacturer's part number and serial number, and Federal Stock Number.

b. Instruction Plate. The instruction plate is mounted on the bottom of the probe storage compartment, and gives the step-by-step operating instructions for the tester.

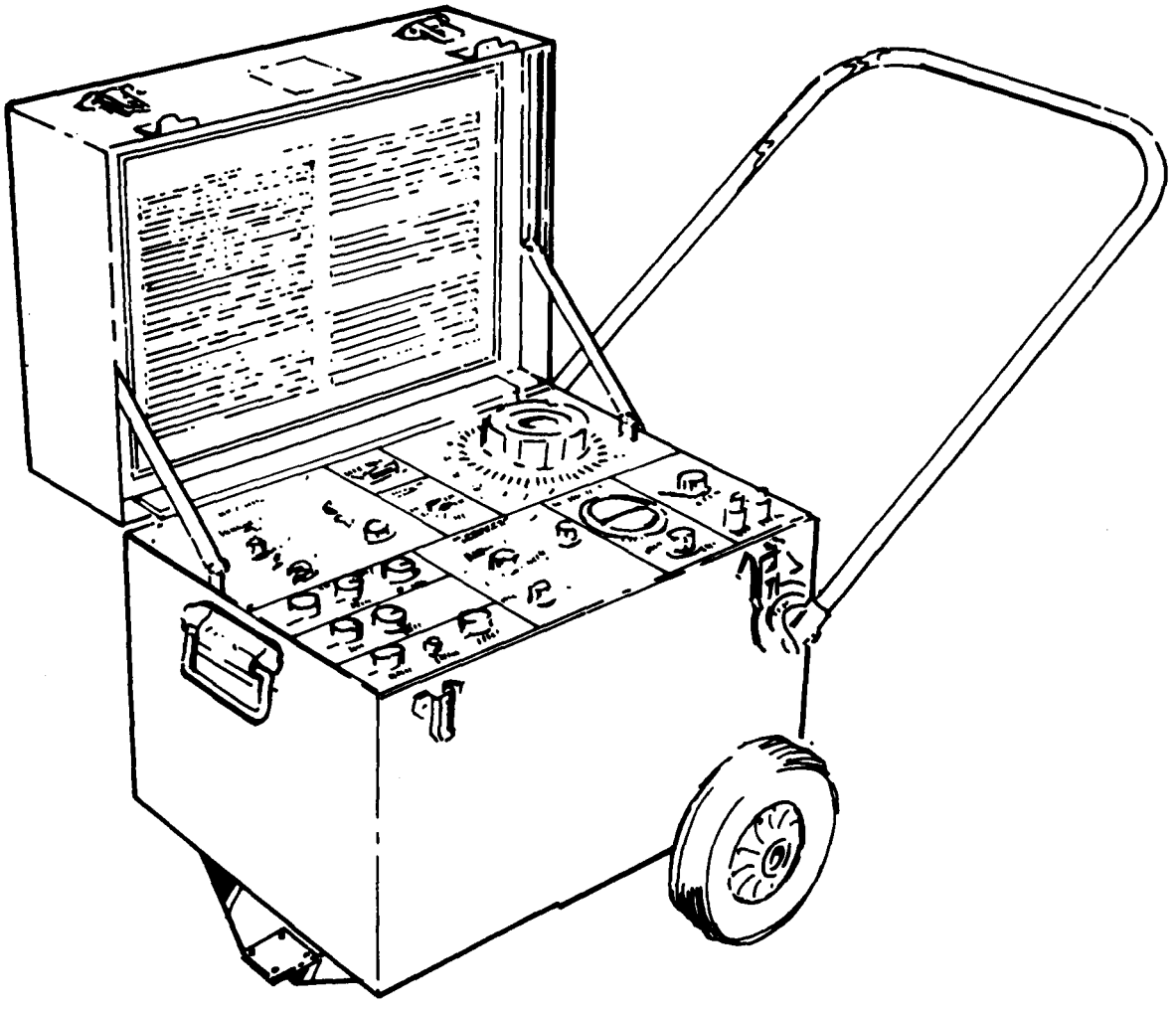


Figure 1-1. Exhaust gas temperature tester.

c. Wiring Diagram Plate. The wiring diagram plate is mounted on the bottom of the lid of the probe storage compartment, and gives a complete wiring diagram of the tester.

1-5. DIFFERENCES IN MODELS.

This manual covers only the exhaust gas temperature tester, part number BH112JA-36.

1-6. TABULATED DATA.

a. General:

Manufacturer	Howell Instruments, Inc.
Model	BH112JA-36
Weight (without probes and accessories)	110 lbs (approx)
Power Requirements	95 to 135 volts, 50 to 400 Hertz
Fuses	one 2 amp, one amp (external); one 1 amp (internal)

b. Overall Dimensions

Length--------25-1/2 inches

Width--------22 inches

Height-------23 inches

c. Operating Conditions

Operating temperature limits---------- -54°to +71° Celsius (-65 to +160 °Fahrenheit)

Section III. TEST EQUIPMENT AND SPECIAL TOOLS

1-7. Special Tools and Equipment.

No special tools or test equipment required.

Table 1-1. Consumable materials.

Item Number		Federal or Military Specification
1	dry cleaning solvent	P-D-680
2	trichloroethylene	SO-T-634
3	abrasive paper	P-P-101
4	zinc chromate primer	TT-P-600
5	sealing compound	MIL-S-1103OD
6	silver solder	QQ-B-654
7	rosin flux	MIL-F-20329
8	rosin core solder	QQ-S-571
9	oil	MIL-L-7870
10	grease	MIL-G-81322
11	desiccant	MIL-D-3464
12	indicator	MIL-I-8835
13	tape	PPP-T-60

Table 1-1. Consumable Materials - Continued

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. CONTROLS AND INSTRUMENTS

2-1. General.

This section describes, locates, and furnishes the operator sufficient information pertaining to the various controls and instruments provided for the proper operation of the tester.

WARNING

Careless operation or improper setting of the controls will cause damage to the tester. For this reason, it is important that the operator know the function of every control and instrument.

Controls and instruments necessary for operation of the tester are located in the instrument compartment (fig. 1-1) beneath the probe storage compartment.

2-2. Operator's Controls (Figure 2-1).

a. Temperature Regulator Knob. The temperature regulator knob (4) is used to adjust a brush-type variable voltage regulator. The volt age regulator has a 20-ampere capacity and a maximum voltage output of approximately 130 percent of the input voltage.

b. Switch SW-8. Switch SW-8 (9) is a ratio selector switch used when making an insulation check.

c. Temperature Selector Knob. The temperature selector knob (10) is used to zero the galvanometer (12) when heating heater probes.

d. Mechanical Zero Knob. The mechanical zero knob (13) is used to mechanically zero the galvonometer (12), when switch SW-6 is in MECH. ZERO position.

e. Switch SW-6. Switch SW-6 (14) is a two position switch. It is placed in MECH. ZERO position when mechanically zeroing galvanometer (12) and in RANGE position when taking temperature readings.

f. Switch SW-2. Switch SW-2 (16) connects either the heater cable (heater probe thermocouples) or the check cable (engine thermocouples) into the potentiometer circuit.

g. Switch SW-3. Switch SW-3 (19) is used to place the proper aircraft circuit resistance in the bridge circuit when performing the resistance test or adjusting the resistance of the engine thermocouple harness.

h. Switch SW-4. Switch SW-4 (21) is used to place the resistance matching the aircraft egt indicator into the test circuit.

i. Potentiometer R-1. Potentiometer R-1 (22) is a variable resistor used to zero the galvanometers (12) during the egt indicator check.

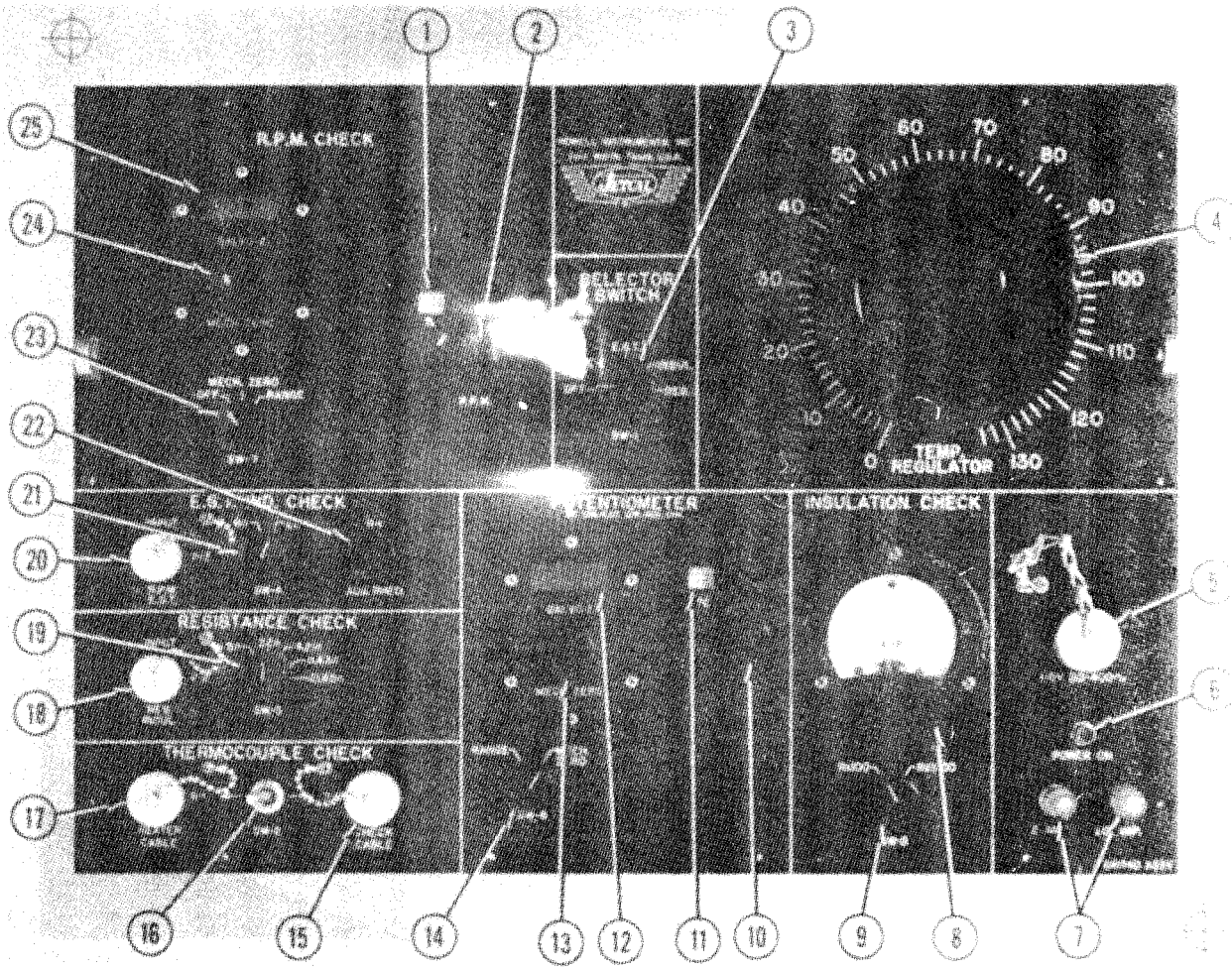
j. Switch SW-7. Switch SW-7 (23) is a three-position switch, marked OFF, MECH. ZERO, and RANGE. The OFF position shuts off the power to the R.P.M. CHECK circuit, the MECH. ZERO position is used when mechanically zeroing the galvanometers (25), and the RANGE position is used when taking an RPM reading.

k. Mechanical Zero Knob. The mechanical zero knob (24) is used to mechanically zero the galvanometer (25) when switch SW-7 is in MECH. ZERO position.

l. RPM KNOB. The RPM knob (2) is used to adjust the percent scale of the R.P.M. CHECK circuit to the percent RPM signal output of the engine tachometer generator.

m. Switch SW-1. Switch SW-1 (3) is a five-pcsition switch used to select the proper circuit of the tester to make the T/C (thermocouple), E.G.T. (egt indicator, INSUL. (insulation), or RES. (Resistance) checks, and OFF (power still applied to heater probe circuit).

n. Switch SW-5. Switch SW-5 is located on the switch box (fig. 2-8). Switch SW-5 is a



Key to figure 2–1.

1. Percent Scale
2. RPM Knob
3. Switch SW–1
4. Temperature Regulator Knob
5. Connector P–1
6. Power On Light
7. Fuses
8. Insulation Checkmeter
9. Switch SW–8
10. Temperature Selector Knob
11. Degree Scale
12. Galvanometer
13. Mechanical Zero Knob
14. Switch SW–6
15. Connector
16. Switch SW–2
17. Connector
18. Connector P–2
19. Switch SW–3
20. Connector P–3
21. Switch SW–4
22. Potentiometer R–1
23. Switch SW–7
24. Mechanical Zero Knob
25. Galvanometer

Figure 2–1. Operator's controls and instruments.

two-position switch used to put the aircraft egt indicator in the circuit and to carry the indication of the engine thermocouple harness back to the tester.

2-3. Operator's Instruments (Figure 2-1).

a. Insulation Check Meter. The insulation check meter (8) indicates the resistance of the thermocouple circuit. The scale is calibrated from 0 to 500.

b. Degree Scale. The potentiometer is calibrated in degrees Celsius (in 1° increments) and is read on the °C scale (11).

c. Galvanometers. Galvanometer (12) is a light beam galvanometers used during all tests other than RPM and insulation checks . Galvnometer (25) is also a light beam galvanometers used during RPM checks.

d. Percent Scale. The % scale (1) shows the reading of the RPM check circuit. The percent scale is calibrated in increments of 0.2 percent from 0 to 110 percent RPM, and is read when switch SW-7 is in RANGE position.

Section II. OPERATION UNDER USUAL CONDITIONS

2-4. General.

a. This section provides instructions for normal testing operations and basic capabilities of the tester, as well as coordinating these capa bilities to perform the specific tasks for which the tester is designed.

b. It is essential that the operator know how to perform every operation of which the tester is capable. Since nearly every testing asment presents a different problem, it may be necessary to vary the given teat procedure to fit a specific testing assignment.

c. No special tools or equipment are needed by the operator to maintain or operate the tester.

2-5. Preparing the Tester for EGT Circuit Check (Figure 2-2).

NOTE

To check an engine not installed in an aircraft, follow the procedures listed below, except that the check cable must be connected to the engine junction box and the temperature of the engine thermocouple harness is read on the tester °C scale. Refer to engine manual for applicable check cable adapter.

a. Place switch SW-1 in OFF position.

b. Place TEMP REGULATOR knob in zero position.

WARNING

Ground the tester with the pigtail ground wire in the power inlet cable before using the tester.

c. Connect power inlet cable to connector P-1 and to a 110 volt, 50 to 400 Hertz, ac power source.

d. Connect heater cable to junction box and to tester at HEATER CABLE connector.

e. Connect one heater probe over each engine thermocouple in engine thermocouple harness.

f. As each heater probe is placed over engine thermocouple, connect it to junction box to keep cables straight on engine. Push heater probes completely on engine thermocouples and lock firmly in place.

2-6. EGT System Circuit Check (Figure 2-3).

CAUTION

If a heater probe fails or is defective before the start of a test, there is a possibility that the remaining heater probes can be burned out during increase of voltage regulator temperature. Check heater probes per paragraph 3-13.

a. With heater probes connected to engine thermocouples, place switch SW-1 in T/C position and switch SW-2 in S-1 position.

b. Place switch SW-6 in MECH. ZERO position and zero galvanometers by turning MECH. ZERO knob.

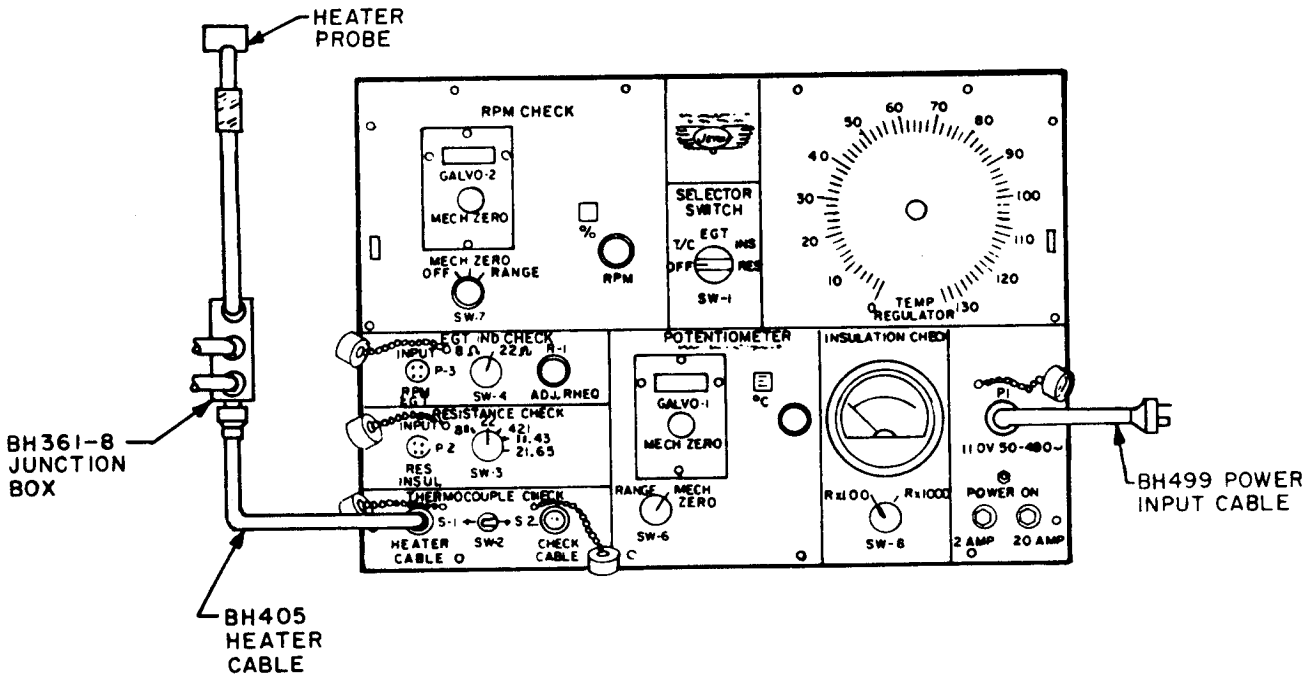


Figure 2-2. EGT circuit check.

c. Place switch SW-6 in RANGE position.

d. Perform temperature adjustments as outlined below.

NOTE

The following procedure will aid the operator in making rapid adjustment of the temperature of the heater probes and tester temperature readings. With practice the operator will be capable of making rapid adjustments of the heater probes.

(1) Turn TEMP. REGULATOR knob to maximum and allow heater probes to heat to test temperature.

(2) Adjust TEMP. REGULATOR knob back to allow temperature of heater probes to stabilize at test temperature (approximately 96 to 108 volts for 700° Celsius). Observe galvanometers for deflection and TEMP. REGULATOR knob for voltage setting.

(3) Turn TEMP. REULATOR knob well above or below voltage setting, according to galvanometers deflection, for a few seconds.

(4) Continue TEMP. REGULATOR knob adjustments until heater probes are stabilized at test temperature.

NOTE

If testing in high wind or cold weather, it is advisable to place a cover over tail cone to reduce heat dissipation. A tail cone cover should always be used when testing engines equipped with sampling-type thermocouples to maintain true temperature over the entire length of thermocouple.

(5) With heater probes stabilized at engine test temperature, read °C scale and aircraft EGT indicator. Difference between these readings is indicated error of egt system and should not exceed applicable aircraft/engine technical manual tolerance.

(6) Place switch SW-6 in MECH. ZERO position.

(7) Return TEMP. REGULATOR knob to zero.

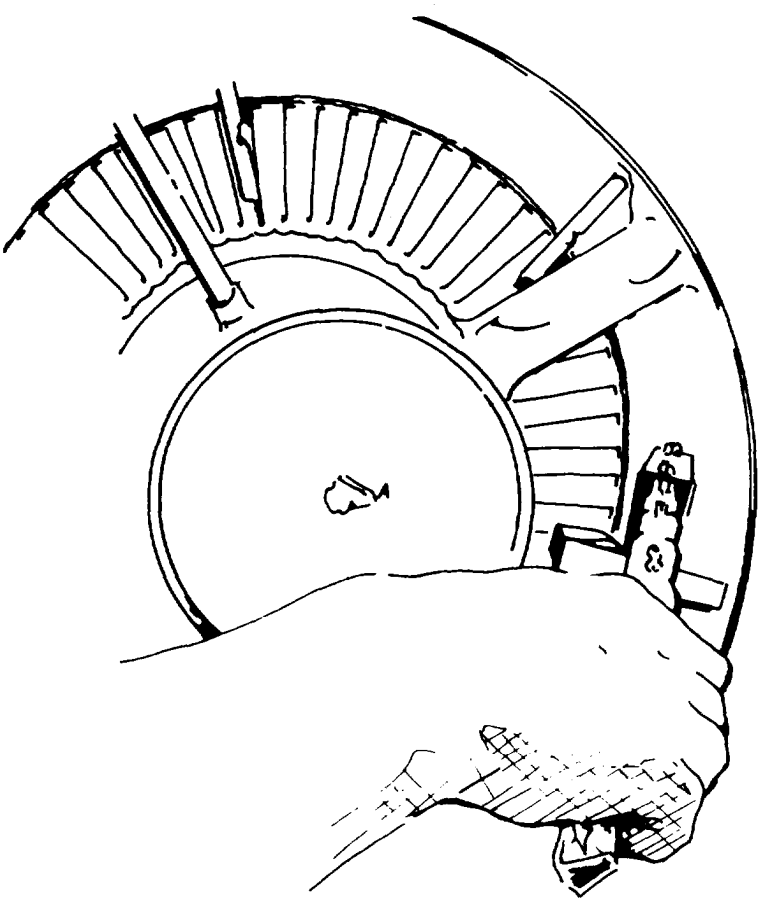


Figure 2-3. Installation of heater probes in engine (sheet 1 of 2).

(8) If system is within tolerances, secure tester in accordance with paragraph 2-14.

2-7. USING TESTER TO TROUBLESHOOT EGT SYSTEM.

If the egt system error exceeds applicable technical manual tolerance, one or more of the causes listed below will probably be the source of trouble. The complete egt system and all of its components must be correct before the egt system can be used for reliable exhaust gas temperature pickup. The possible sources of trouble are:

a. EGT indicator error (para. 2-8).

b. Resistance of circuit out of tolerance (para. 2-9),

c. Shorts to ground (para. 2-10).

d. Shorts between leads (para. 2-11).

e. One or more engine thermocouples inoperative in engine paralleling harness (para. 2-16).

f. Engine thermocouple harness errors (para. 2-15).

g. Transpositions (crossing of lead wires) (para. 2-13).

h. Engine thermocouples out of calibration (para. 2-16).

2-8. EGT INDICATOR CHECK (Figure 2-4).

a. Connect egt indicator check adapter to instrument cable and instrument cable to connector P-3.

b. Before removing EGT indicator from instrument panel, install slippage mark from indicator case to panel to insure correct reinstallation position. Adjust EGT indicator in normal operating position while in instrument panel.

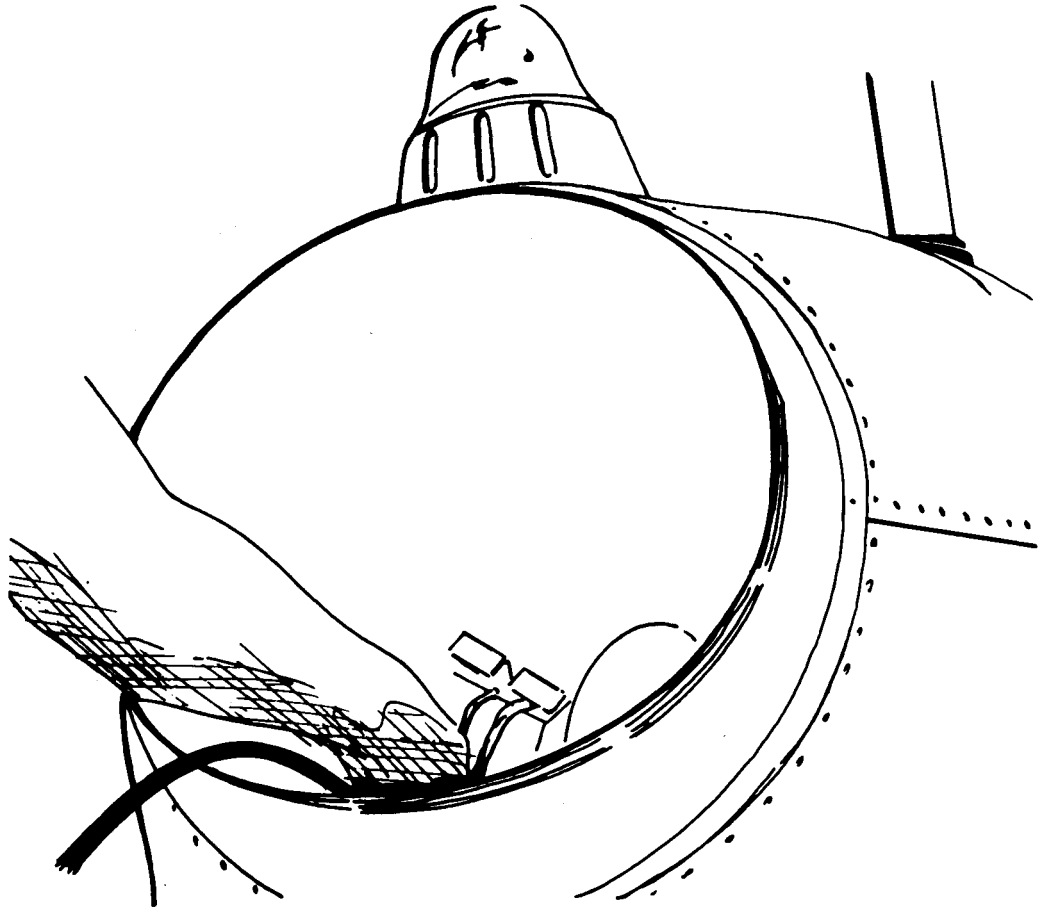


Figure 2-3. Installation of Heater Probes in Engine (Sheet 2 of 2)

c. Connect egt indicator check adapter to proper terminal posts on aircraft EGT indicator, observing correct polarity.

d. Place switch SW-1 in E.G.T. position

e. Place switch SW-6 in MECH. ZERO position and zero galvanometers by turning MECH. ZERO knob.

f. Set °C scale to indicate test temperature.

g. Turn switch SW-4 aircraft circuit resistance matching aircraft EGT indicator being tested (either 8° or 22° position).

h. Place switch SW-6 in RANGE position.

i. Turn potentiometer R-1 until galvanometers reads zero.

NOTE

The difference between temperature readings of °C scale and aircraft EGT indicator is error of aircraft EGT indicator and should not exceed applicable aircraft/engine technical manual tolerance.

j. Place switch SW-6 in MECH. ZERO position.

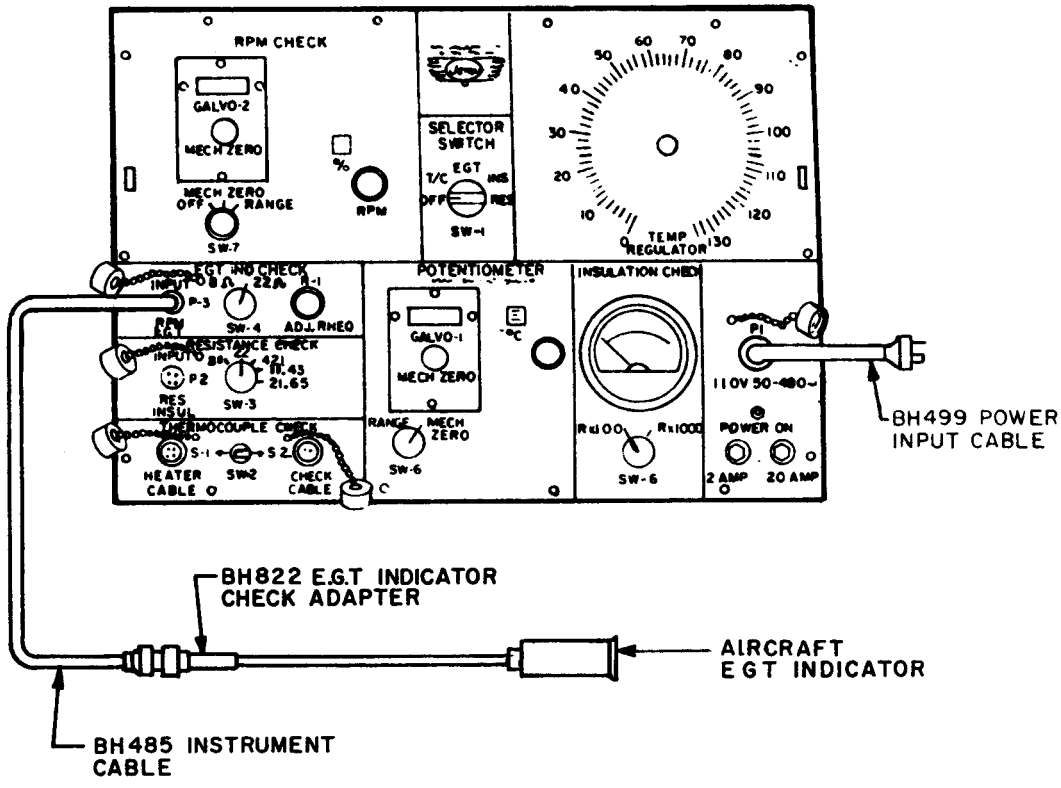


Figure 2-4. EGT indicator check.

k. Disconnect egt indicator check adapter from aircraft EGT indicator and instrument cable.

l. Disconnect instrument cable from connector P-3.

m. Properly stow instrument cable and egt indicator check adapter in cable storage compartment.

NOTE

Connect a copper wire jumper across terminal posts if EGT indicator is not reinstalled.

2-9. Resistance of Circuit Out of Tolorance (Figure 2-5).

CAUTION

A high resistance condition is dangerous because the aircraft EGT indicator will read low and the engine will be operating above indicated temperature.

NOTE

Since the resistors in the tester and the aircraft circuit are chromel-alumel, resistance test s are made with both the tester and the aircraft at the same ambient temperature.

a. Connect resistance check adapter to instrument cable and instrument cable to connector P-2.

b. Disconnect thermocouple leads from aircraft EGT indicator.

c. Connect resistance check adapter to proper thermocouple leads.

d. Place switch SW-6 in MECH. ZERO position and zero galvanometers by turning MECH. ZERO knob.

NOTE

Galvanometer must be zeroed before each resistance check.

e. Turn switch SW-3 to proper aircraft circuit resistance (either 8Ω, 22w, or 4.21Ω position.

f. Place switch SW-1 in RES. position.

g. Place switch SW-6 in RANGE position.

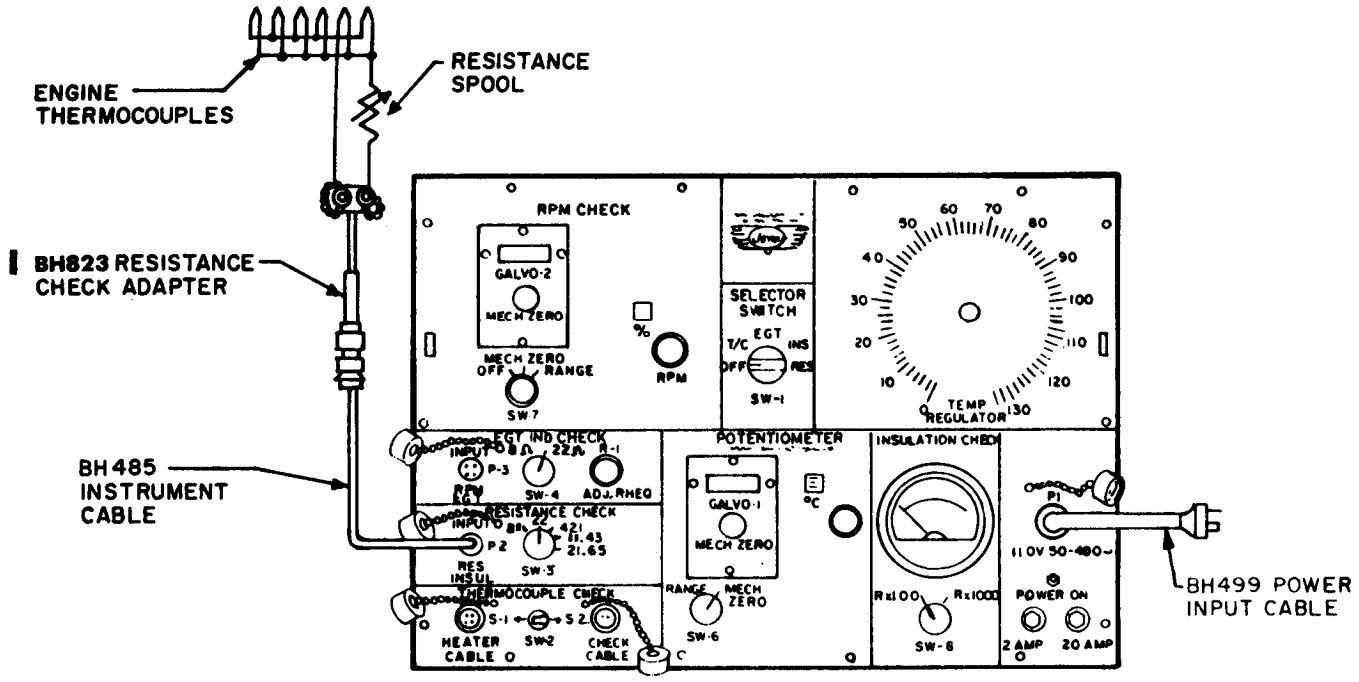


Figure 2-5. Resistance check.

NOTE

Clean and tighten all thermocouple harness connections before adjusting resistance spool.

h. Adjust resistance spool in aircraft until galvanometers reads zero plus or minus applicable tolerances (one division of galvanometers equals approximately 0.05 ohm). A deflection to the right indicates an increase in resistance.

i. Place switch SW-6 in MECH. ZERO position.

j. Disconnect resistance check adapter from thermocouple leads and from instrument cable.

k. Disconnect instrument cable from connector P-2.

l. Properly stow instrument cable and resistance check adapter in cable storage compartment.

2-10. Insulation Resistance Check (Shorts to Ground) (Figure 2-6).

a. Connect insulation check adapter to instrument cable and instrument cable to connector P-2.

b. Place switch SW-1 in INSUL. position.

c. Place switch SW-8 in Rx1000 position.

d. Short insulation check adapter leads together. INSULATION CHECK meter should read zero.

e. Place one lead of insulation check adapter on bare thermocouple lead in aircraft and one lead on aircraft ground. Insulation check meter should read the resistance specified for the aircraft being checked.

f. Place switch SW-1 in OFF position.

g. Disconnect insulation check adapter from instrument cable.

h. Disconnect instrument cable from connector P-2.

i. Properly stow instrument cable and insulation check adapter in cable storage compart ment.

2-11. Shorts Between Leads (Using Insulation Resistance Check Circuit (Figure 2-6).

a. Remove thermocouple leads from EGT indicator.

b. Remove thermocouple leads from engine thermocouple harness at parallel points.

c. Connect insulation check adapter to instrument cable and instrument cable to connector P-2.

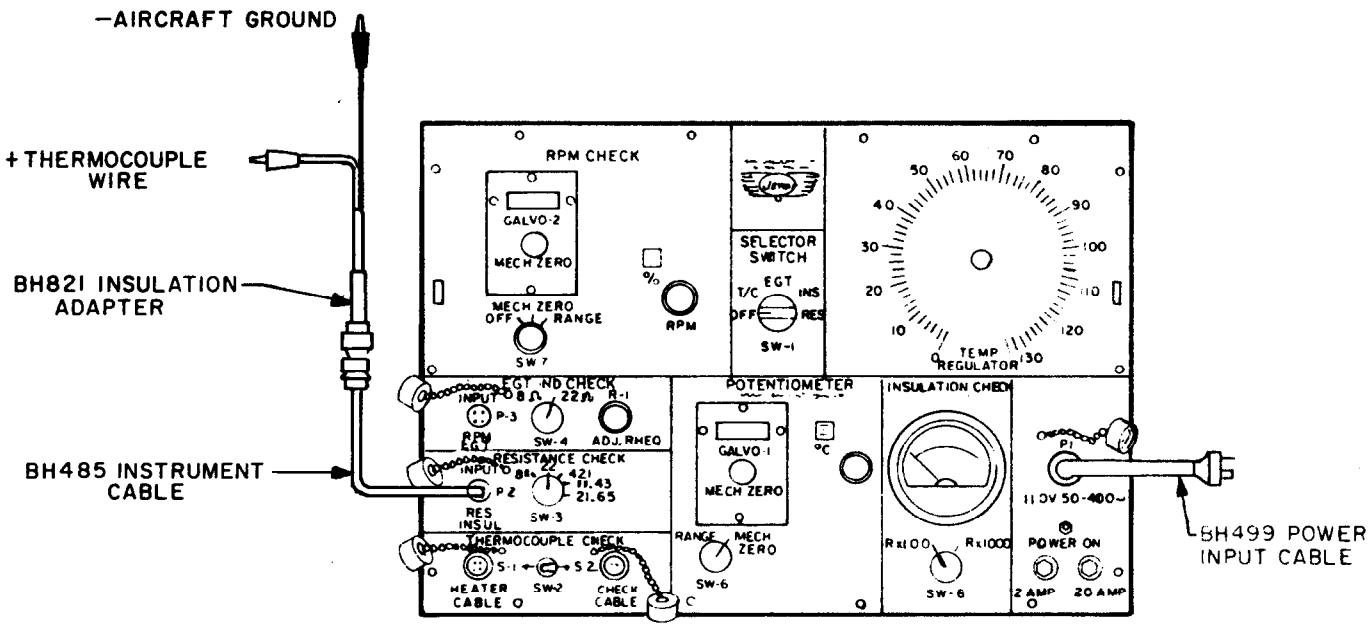


Figure 2-6. Insulation resistance check.

d. Place switch SW-1 in INSUL. position.

e. Place switch SW-8 in Rx1000 position.

f. Place insulation check adapter leads on both thermocouple leads at aircraft EGT indicator terminals or at parallel point. Insulation check meter should read the infinite (∞ resistance.

g. Place switch SW-1 in OFF position.

h. Disconnect insulation check adapter from instrument cable and aircraft EGT indicator terminals.

i. Disconnect instrument cable from connector P-2.

j. Properly stow instrument cable and insulation check adapter in cable storage compartment.

2-12. Continuity Check of Thermocouple and Harness (Figure 2-7).

NOTE

Indicator must be installed.

a. Connect continuity probe to heater cable.

b. Connect heater cable to HEATER CABLE connector on tester.

c. Place switch SW-1 in T/C position and switch SW-2 in S-1 position.

CAUTION

Never allow continuity check probe temperature to go above 800° Celsius (1472° Fahrenheit). Damage to probe could result.

d. Turn TEMP. REGULATOR knob to maximum and bring continuity check probe to a temperature within a range of 500° to 800° Celsius (932° to 1472° Fahrenheit) as read on °C scale.

e. Place switch SW-6 in MECH. ZERO position and zero galvanometers by turning MECH. ZERO knob.

f. Place switch SW-6 in RANGE position to take temperature readings. Adjust temperature selector knob until galvanometers reads zero. Temperature reading appears on the °C scale.

g. Check each engine thermocouple to eliminate any error due to one or more engine thermocouples being inoperative. When using continuity check probe, touch end of loop or twisted-type thermocouple; check sampling-type thermocouples by holding V-section of continuity check probe against case of sampling-type thermocouple end. In either case, aircraft EGT indi-

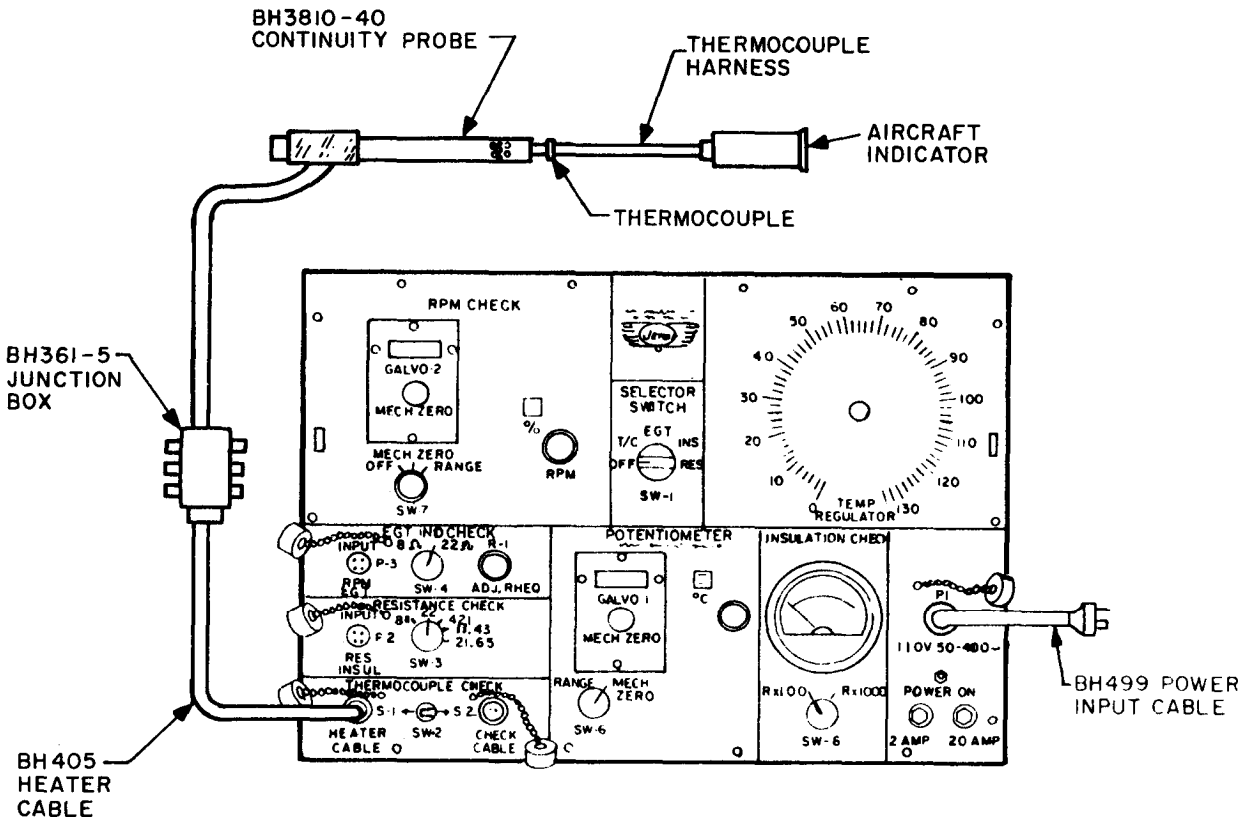


Figure 2-7. Continuity probe and sampling thermocouple.

cater must show a temperature rise as each engine thermocouple is checked.

h. Place switch SW- 6in MECH. ZERO position.

2-13. Transpositions (Crossing of Lead Wires).

An odd number of crossed lead wires (1, 3, etc) can be easily detected, since the aircraft EGT indicator will read backwards upon application of heat to the engine thermocouples. An even number of crossed lead wires (2, 4, etc), while much more difficult to detect, can be found by several methods:

a. The simplest method is with an ohmmeter. Chromel wire has approximately two and one-half times the resistance of alumel wire. To have a transposition, the chromel wire would have to be connected to the alumel wire. The resistance reading would be different than the 2-1/2 to 1 ratio.

b. Where possible, make a normal engine thermocouple test with tester connected to a hot engine (shortly after being run). When engine has cooled to ambient temperature, make another test. If there is a transposition, the difference in the readings will probably be large because of the thermals that were present in the first test.

c. Disconnect and check each terminal with a magnet. Chromel (+) is nonmagnetic; alumel (-) is magnetic.

d. Touch a hot soldering iron to each terminal. A temperature rise or fall on the aircraft EGT indicator indicates a transposition when the crossed terminal is touched.

2-14. Securing the Tester (Figure 2-2).

a. Place switch SW-1 in OFF position.

b. Place TEMP. REGULATOR knob in OFF position.

c. Remove heater probes from engine thermocouples and disconnect from outlets of junction box.

NOTE

If continuity check probe is connected, remove in accordance with *c* above.

d. Disconnect heater cable from junction box and connector.

e. Disconnect power inlet cable from power source and connector P-1.

f. Properly stow heater probes in probe storage compartment.

NOTE

Hot heater probes may be stowed in the probe storage compartment without damage to the heater probes or tester.

g. Properly stow heater cable, power inlet cable, and junction box in cable storage compartment.

2-15. Operational Check (Figure 2-8).

a. Disconnect engine thermocouple leads at aircraft EGT indicator.

b. Connect engine thermocouple leads to proper terminals of switch box and connect jumper leads of switch box to proper terminals of aircraft EGT indicator.

NOTE

With the switch box in the aircraft circuit and switch SW-5 on switch box in E.G.T. position, the aircraft EGT indicator is in the aircraft circuit. With switch SW-5 in JETCAL position, the indication of the engine thermocouple harness is carried back to the tester.

c. Connect check cable to switch box and to CHECK CABLE connector.

d. Connect rpm check adapter to instrument cable and instrument cable to connector P-3.

e. Disconnect aircraft tachometer cable from aircraft tachometer indicator.

f. Connect matching connectors of rpm check adapter to aircraft tachometer cable and air craft tachometer indicator.

g. Place switch SW-5 on switch box in E.G.T. position (Aircraft EGT indicator must be used on initial runup to be able to detect a hot start.)

h. Place switch SW-1 in T/C position.

i. Place switch SW-2 in S-2 position.

j. Set up galvanometers as follows:

(1) Place switch SW-6 in MECH. ZERO position and zero galvanometers with MECH. ZERO knob.

(2) Place switch SW-6 in RANGE position to take temperature readings. Adjust temperature selector knob until galvanometers reads zero. Temperature is shown on °C scale.

k. Place switch SW-7 in MECH. ZERO position and zero galvanometers with MECH. ZERO knob.

l. Place switch SW-7 in RANGE position.

m. Adjust R.P.M. knob until galvanometer reads zero. Read engine RPM on % scale.

n. Run up and stabilize engine according to applicable technical manual for engine.

o. Monitor engine RPM during engine runup.

NOTE

The reading shown on % scale is correct RPM of engine. The difference between % scale reading and aircraft tachometer indicator reading is indicated error of aircraft tachometer system and should not exceed tolerance specified in applicable technical manual.

p. Place switch SW-5 on switch box in JETCAL position.

q. Adjust temperature select knob until galvanometers reads zero.

r. Read temperature of engine thermocouples on °C scale. Difference between Jetcal and EGT indicator is indicator error and should not exceed system tolerance.

s. Disconnect rpm check adapter at aircraft tachometer cable and aircraft tachometer indicator. Connect aircraft tachometer cable at aircraft tachometer indicator.

t. Disconnect RPM check adapter from instrument cable.

u. Disconnect instrument cable from connector P-3.

v. Disconnect check cable from switch box and CHECK CABLE connector.

w. Disconnect engine thermocouple leads from switch box and jumper leads of switch box from aircraft EGT indicator. Connect engine thermocouple leads at aircraft EGT indicator.

x. Properly stow check cable, instrument cable, switch box, and rpm check adapter in cable storage compartment.

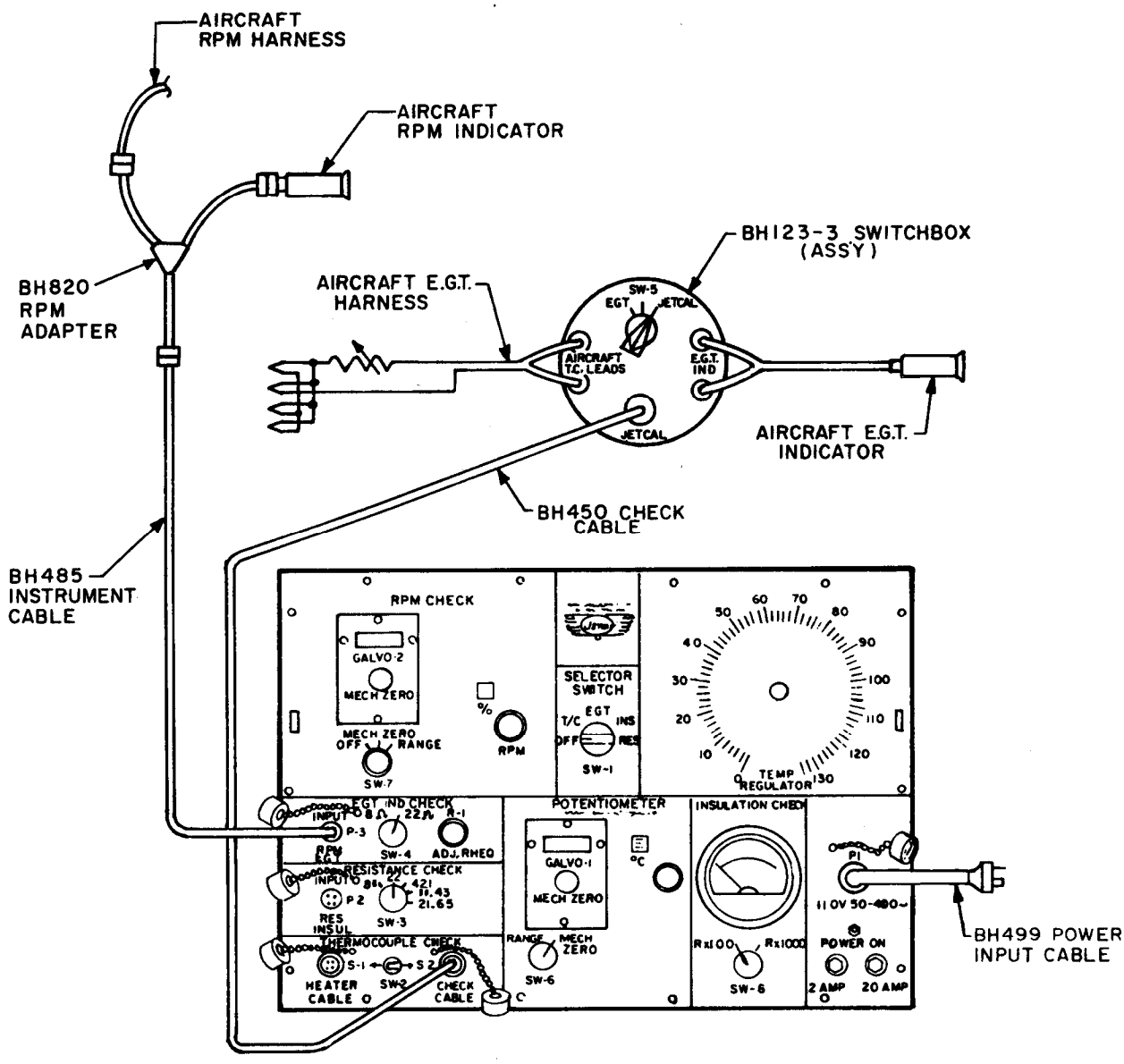


Figure 2-8. Operational check.

y. Secure tester after operation in accordance with paragraph 2-14.

2-16. One or More Engine Thermocouples Inoperative or Out of Calibration in Engine Paralleling Harness.

a. Engine Thermocouples Inoperative. This error is found in the regular testing of engine thermocouples with the continuity check probe (para. 2-12) and will be either a broken lead wire in the engine paralleling harness or a short to ground. If the trouble is a short to ground, the thermocouple current can leak off and never show on the aircraft EGT indicator. However, this grounded condition can be found by using the insulation resistance check described in paragraph 2-10.

b. Engine Thermocouples Out of Calibration. When the engine thermocouples are subjected to strong reducing or oxidizing atmospheres for a period of time, they will drift appreciably from their original calibration. On engine parrallel harnesses when individual engine thermocouples can be removed, the engine thermocouples may be bench checked individually using one heater probe connected to the tester in accordance with paragraph 2-17. On engines where individual thermocouples can not be removed, the entire thermocouple harness should be removed for bench check.

NOTE

A spacer of the same thickness as the wall of the exhaust duct and the thermocouple mounting boss is required to properly position the probe on the thermocouple.

Replace engine thermocouples not within specified manufacturer's tolerance.

2-17. Thermocouple Bench Check (Figure 2-9).

a. Remove thermocouple harness to be bench checked and place in suitable jig.

b. Prepare tester for operation per paragraphs **2-5***a* through *d.*

c. Connect the same number of heater probes to the junction box as thermocouples in harness to be tested. Place probes properly on thermocouples.

d. Connect check cable to tester at CHECK CABLE connector and to thermocouple harness. Use check cable adapter if necessary.

e. Place switch SW-1 in T/C position and switch SW-2 in S-1 position.

f. Place switch SW-6 in MECH. ZERO position and zero galvanometers by turning MECH. ZERO knob.

g. Place switch SW-6 in RANGE position and adjust TEMP. REGULATOR until heater probes reach test temperature.

h. With heater probes stabilized at test temperature, place SW-2 in S-2 position and read output of thermocouples.

i. The difference between the test temperature and the thermocouple output is the thermocouple error and should not exceed system tolerance.

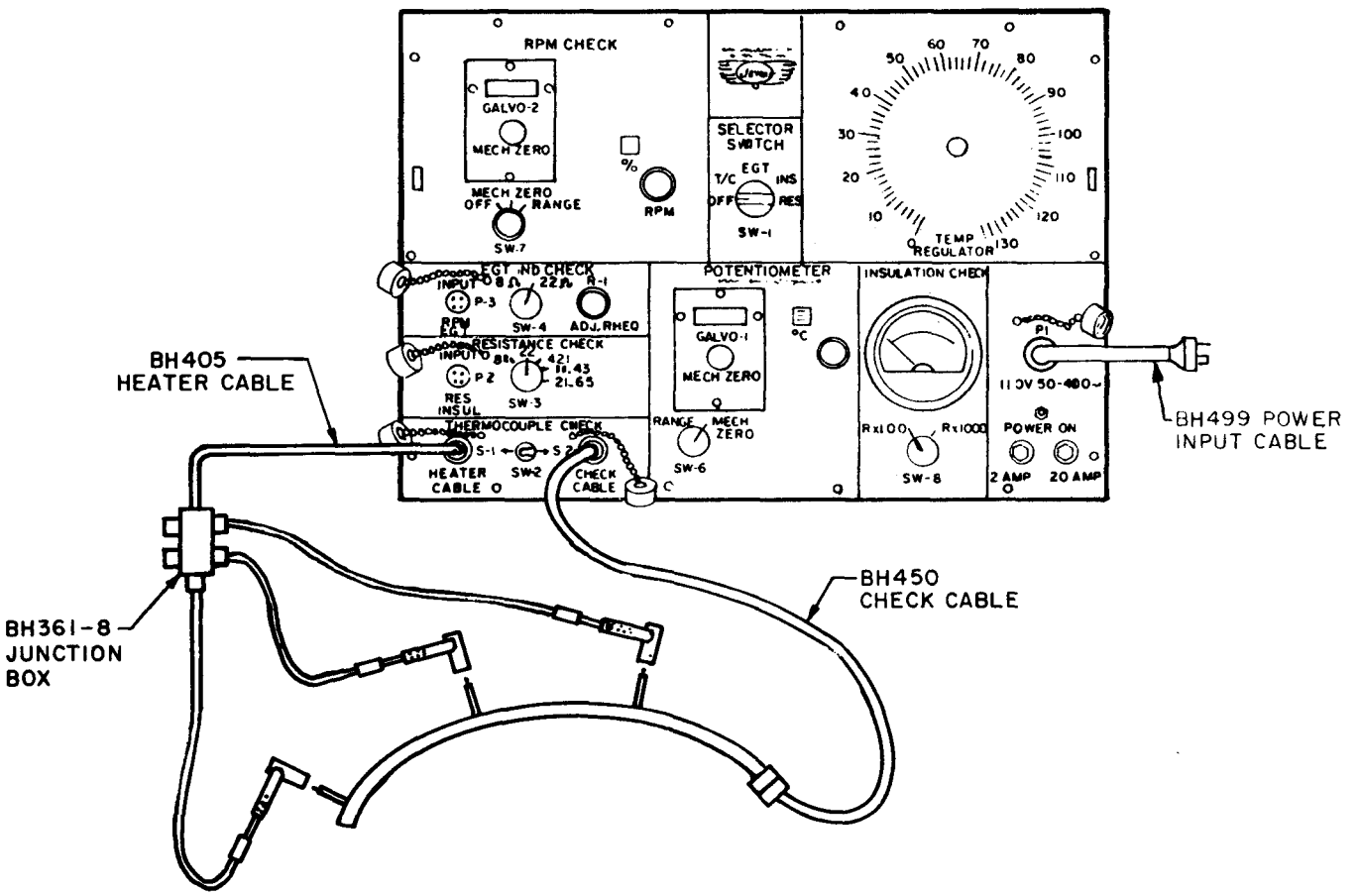


Figure 2-9. Thermocouple bench check.

2-18. Using Tester Potentiometer (°C Scale) for Auxiliary Temperature Measurements.

To use potentiometer (°C scale) to read the emf output of chromel-alumel thermocouple, prepare tester for operation in accordance with paragraph 2–5*a* through *c*. With switch SW-2 in the S-1 position, make chromel-alumel connection at pins D (+) and C (-), respectively. With switch SW-2 in the S-2 position, make chromel-alumel connection at pins B (+) and A (-), respectively. Secure tester after operation in accordance with paragraph 2-14.

Section III. OPERATION UNDER UNUSUAL CONDITIONS

2-19. General.

This section contains special instructions which are necessary to insure proper functioning of the tester under unusual conditions. The following special operating instructions are to be used in conjunction with operating instructions outlined in paragraphs 2-4 through 2-15.

2-20. Operation in Extreme Cold.

a. If possible, perform operation of tester in a properly heated, sheltered area.

b. When operating in an unsheltered area, provide best available temporary shelter to protect tester from freezing rain, sleet, or snow.

c. When not in use, keep tester under a protective cover if shelter is not available.

2-21. Operation in Extreme Heat.

a. If possible, perform operation of tester in a shaded and well-ventilated area.

b. When operating tester in an unsheltered area, provide best available temporary shelter to protect tester from direct rays of sun.

c. When not in use, keep tester in a shaded, protected area.

2-22. Operation in Dusty or Sandy Areas.

a. If possible, perform operation of tester in a sheltered, well-protected area.

b. Reduce inspection and servicing intervals and keep tester wiped clean as much as possible

c. Provide best available shelter and operate only when wind is at a minimum.

d. When not in use, keep tester under a protective cover, in a sheltered, well-protected area.

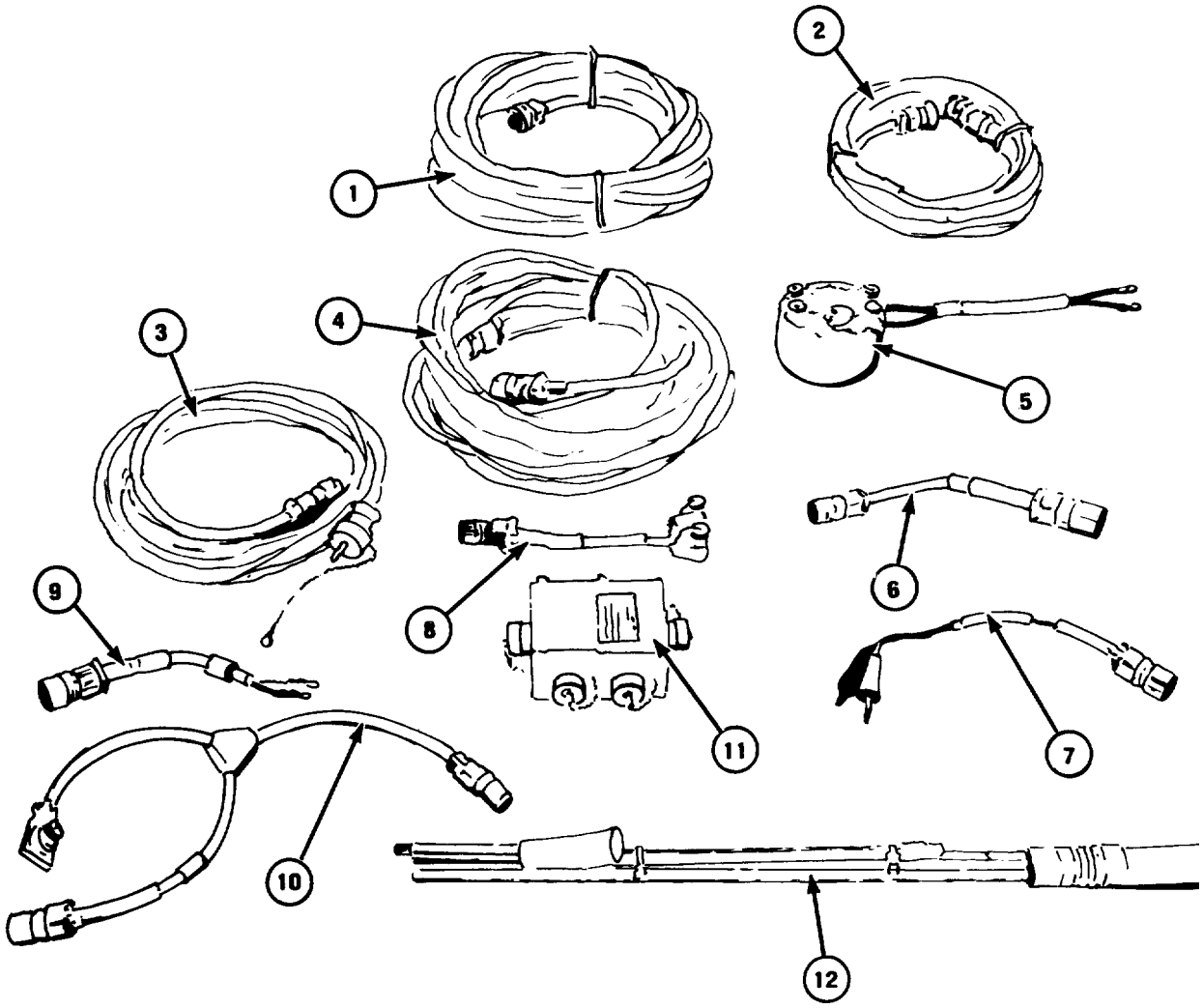
2-23. Operating in High Humidity Areas.

a. If possible, perform operation of tester in a sheltered, well-ventilated area.

b. Reduce inspection and servicing intervals and keep tester as dry as possible.

c. When operating in an unsheltered area, provide beat available protective shelter and operate as weather conditions permit.

d. When not in use, keep tester under a protective cover, in a sheltered area.



Key to Figure 2–10.

1. Heater Cable
2. Check Cable
3. Power Inlet Cable
4. Instrument Cable
5. Switch Box
6. Check Cable Adapter
7. Insulation Check Adapter
8. Resistance Check Adapter
9. EGT Indicator Check Adapter
10. RPM Check Adapter
11. Junction Box
12. Extension Handle

Figure 2-10. Cable storage compartment.

CHAPTER 3

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. PREPARATION FOR INSTALLATION, STORAGE AND SHIPMENT

3-1. General.

This section provides a description of the inspections, servicing, and preparations necessary before the tester is placed in operation. When a new or reconditioned tester is received, maintenance personnel must determine if the tester is in condition to perform any mission within its intended capabilities. The failure to perform the initial inspections and servicing will affect the future operation of the tester. For this reason, it is necessary to adhere closely to the following instructions.

The destruction of Army material shall be accomplished in accordance with the technical manual covering the destruction of Army material to prevent enemy use.

3-2. Unloading and Unpacking Equipment.

a. Unloading.

(1) Remove chock blocks and/or lines which secure tester to its carrier.

(2) Using a fork lift or suitable hoist, carefully lower tester onto a suitable cleared area.

b. Unpacking. (Figure 3-1)

(1) Remove teeter from packing crate.

(2) Remove all barrier material and tape from tester.

(3) Unlatch and open door (16) of cable storage compartment. Remove any packing material from inside cable storage compartment and properly stow cables. Close and latch door.

(4) Unlatch and raise lid (5) of probe storage compartment (14). Remove any packing material from inside probe storage compartment and properly stow heater probes. Lower and latch lid.

(5) Unlatch and raise probe storage compartment. Remove any packing material from instrument compartment. Lower and latch probe storage compartment.

Section II. INSTALLATION

3-3. Installation of Separately Packed Components. (Figure 3-1)

If the handle assembly, support post, wheels, and wheel mounts have been removed for shipment, reassemble the tester as follows:

a. Handle Assembly. Install handle assembly as follows:

(1) Place pivot sockets (4) on handle (1).

(2) Position handle assembly on tester by springing handle (1) over bolts (3).

(3) Install wing nuts (2) on bolts (3).

b. Support Post. Install support post (23) as follows:

(1) Place support post (23) in position on bottom of base assembly (31).

(2) Attach support post (23) to base assembly (31) using screws (24) and locknuts (25).

c. Wheel Mounts. Install wheel mounts (28) as follows:

(1) Place wheel mounts (28) in position on bottom of base assembly (31).

(2) Attach wheel mounts (28) to base assembly (31) using screws (29) and locknuts (30).

d. Wheels. Install wheels (26) as follows:

(1) Place wheels (26) in position on wheel mounts (28).

(2) Secure wheels (26) on wheel mounts (28) using retaining rings (27).

Section III. INSPECTIONS AND SERVICING

3-4. Inspection After Uncrating.

a. Inspect exterior of tester for condition of paint, evidence of corrosion, cracks, and deep dents.

b. Inspect instrument compartment (fig. 2-1) for legibility of markings and security.

c. Inspect insulation check meter for cracked lens and security in instrument compartment.

d. Inspect for broken or otherwise damaged knobs, receptacles, and switches in instrument compartment.

e. Insure that instruction plate, nameplate, and wiring diagram plate are legible and properly secured.

f. Inspect heater probes (2, fig. 3-2) for dents, deterioration, and proper stowage in probe storage compartment (3).

g. Visually inspect wheels for breaks, deep cuts, and other defects.

h. Ascertain that all cables, switch box, junction box, and adapters have been shipped with tester and are stowed in cable storage compartment.

3-5. Service After Uncrating.

a. Clean tester, components, and accessories with dry cleaning solvent (item 1, table 1-1) .

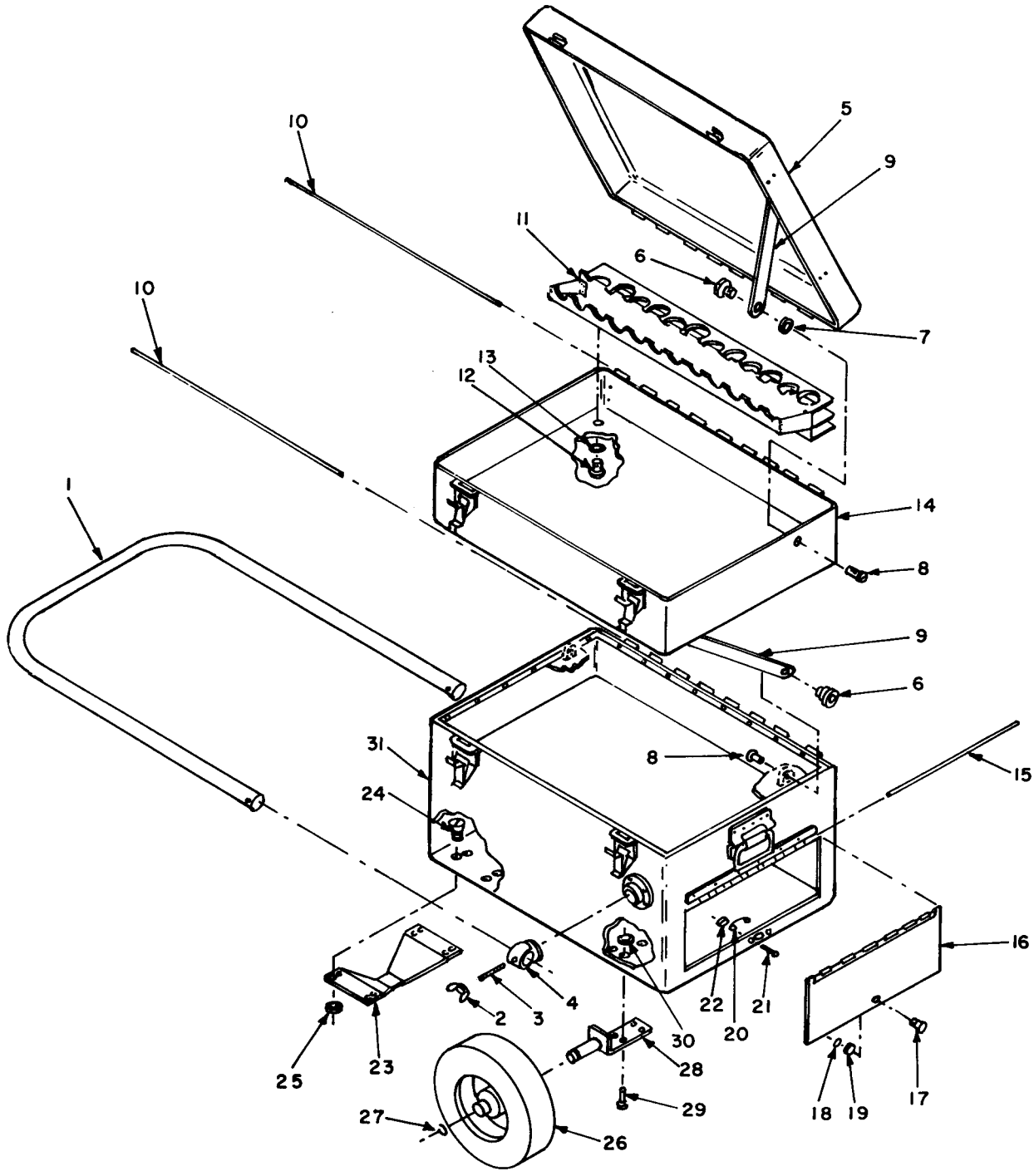
b. Lubricate tester as outlined in paragraph 3-11.

3-6. Daily Inspection.

The operational preventive maintenance services are performed before operation, during operation, and after operation. These preventive maintenance services are listed in Table 3-1, Inspection Requirements.

CAUTION

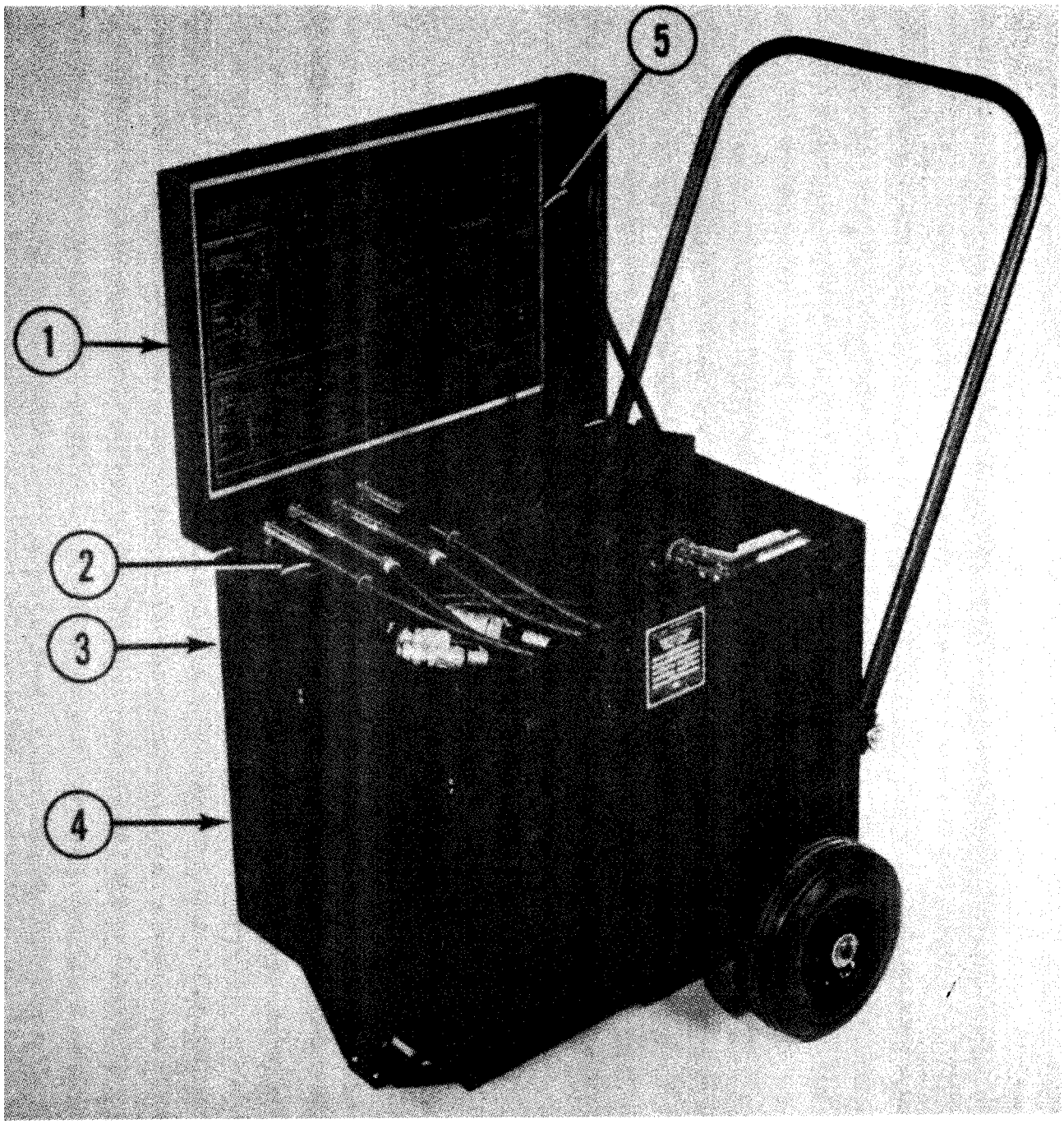
Stop operation immediately if a defect is noted that could cause damage to the tester by continuing the operation.



Key to Figure 3-1

1. Handle
2. Wing Nut
3. Bolt
4. Pivot Socket
5. Lid
6. Stop Arm Support
7. Spacer
8. Screw
9. Stop Arm
10. Hinge Pin
11. Rack
12. Screw
13. Washer
14. Probe Storage Compartment
15. Hinge Pin
16. Door
17. Fastener
18. Snap Ring
19. Grommet
20. Spring
21. Screw
22. Lock Nut
23. Support Post
24. Screw
25. Lock Nut
26. Wheel
27. Retaining Ring
28. Wheel Mount
29. Screw
30. Lock Nut
31. Base Assembly

Figure 3-1. Box assembly.



Key to Figure 3-2

1. Lid
2. Heater Probes
3. Probe Storage Compartment
4. Base Assembly
5. Wiring Diagram Plate

Figure 3-2. Probe storage compartment.

Section IV. PREVENTIVE MAINTENANCE

3-7. Organizational Preventive Maintenance Services.

Preventive maintenance procedures are performed periodically by organizational maintenance personnel. The weekly interval will be equivalent to a maximum of 10 operations. The monthly interval will be equivalent to a maximum of 25 operations. These maintenance services and inspections are listed in the organizational preventive maintenance chart.

Table 3-1. Inspection Requirements

Procedures	Reference Applicable to Each Item
BEFORE OPERATION	
Inspect tires for breaks and deep cuts..	para. **3–4*g***
Inspect instruction plate and deck assembly for legibility of markings.	para. 3-4g and **3–4*e***
Inspect tester for condition of paint, evidence of corrosion, and dents.	para. **3–4*a***
Inspect check adapters, cable assemblies, and heater probes for breaks, cuts, cracks, or other damage.	para. **3–4*g*** and **3–4*h***
Inspect insulation check meter for broken lens and security in deck assembly.	para. **3–4*c***
Inspect knobs and switches for proper operation and security in deck assembly.	para. **3–4*d***
Inspect connectors for cracks, bent or broken pins, and missing dust covers.	para. **3–4*d***
DURING OPERATION	
Procedures	Reference Applicable to Each Item
Insure that check adapters, cable assemblies, and heater probes are properly installed and secured.	para. 2-5 through 2-18
Insure that instruments are operating normally and with minimum fluctuations.	para. 2-5 through 2-18
Be alert for unusual conditions indicating tester malfunction.	
AFTER OPERATION	
Inspect check adapters, cable assemblies, and heater probes for breaks, cracks, and other damage.	para. **3–4*f*** and **3–4*h***
Insure that check adapters, cable assemblies, and heater probes are clean and properly stowed.	
Inspect insulation check meter for broken lens and security in deck assembly.	para. **3–4*c***
Inspect knobs and switches for proper operation and security in deck assembly.	para. **3–4*d***
Inspection connectors for cracks, bent or broken pins, and dust covers installed.	para. **3–4*d***
Record all deficiencies and corrective action taken on DA Form 2404.	

Table 3-1. Inspection Requirements - Continued

AFTER OPERATION - Continued

Procedures	Reference Applicable to Each Item
Protect against damage and tampering, by parking tester in a protected area.	

3-8. General.

To insure that the tester is in operational readiness at all times, it must be systematically inspected so that defects may be discovered and corrected before resulting in serious damage to, or failure of, equipment. Systematic preventive maintenance services are based on scheduled inspections and services to be accomplished by operators and organizational maintenance personnel. The preventive maintenance inspections will be recorded in accordance with procedures outlined in the inspection worksheets listed in paragraph 1-2. Each form covers a specific inspection period, providing a system of progressive preventive maintenance. These forms are available through normal supply channels.

3-9. Cleaning.

Clean the tester, components, and accessories with dry cleaning solvent (item 1, table 1-1).

3-10. General Lubrication Information.

Paragraph 3-11 contains lubrication information useful for the proper care of the tester. Due to the construction of the tester electrical system and component parts, only minor lubrication is required. The hinges and wheels of the tester are to be lubricated as necessary for ease of operation and movement and to prevent corrosion.

3-11. Detailed Lubrication Information.

a. Hinges. Using an oil can, apply a few drops of oil (item 9, table 1-2) to hinges. Wipe excess oil from hinges with a suitable cloth.

b. Wheels. With wheels removed, apply a light coating of grease (item 10, table 1-1) to wheel mount axles.

3-12. Extreme Environmental Maintenance.

a. Cold. Provide best possible shelter to protect tester from freezing rain, sleet, or snow.

b. Heat. Provide best possible shelter to protect tester from direct rays of sun.

c. Dust and Sand. If possible, perform all maintenance in a sheltered, well protected area.

(1) Reduce inspection and servicing intervals and keep tester wiped clean.

(2) Keep tester under a protective cover.

d. Humidity. If possible, perform all maintenance in a well ventilated or dry area.

Section V. OPERATIONAL CHECKOUT OF TESTER AND ACCESSORIES

3-13. Heater Probe Circuit Operation Check. (Figure 3-3)

After 10 test operations, the heater probes, heater cable, junction box, and galvanometers (GALVO-1) shall be operationally checked as follows.

NOTE

All heater probes shall be checked after every 10 test operations since a defective heater or thermocouple in a heater probe can indicate errors greater than 10° Celsius (50° Fahrenheit) when checking an engine thermocouple harness.

a. Place switch SW-1 in OFF position.

b. Place TEMP. REGULATOR knob in 0 position.

WARNING

Ground tester with pigtail ground wire in power inlet cable before using tester.

c. Connect power inlet cable to connector P-1 and to a 110-volt, 50 to 400 Hertz, ac power source.

d. Connect heater cable to junction box and to tester at HEATER CABLE connector.

e. Attach one heater probe to junction box.

f. Turn TEMP. REGULATOR knob to maximum and observe galvanometers for deflection which indicates heater probe is operating and

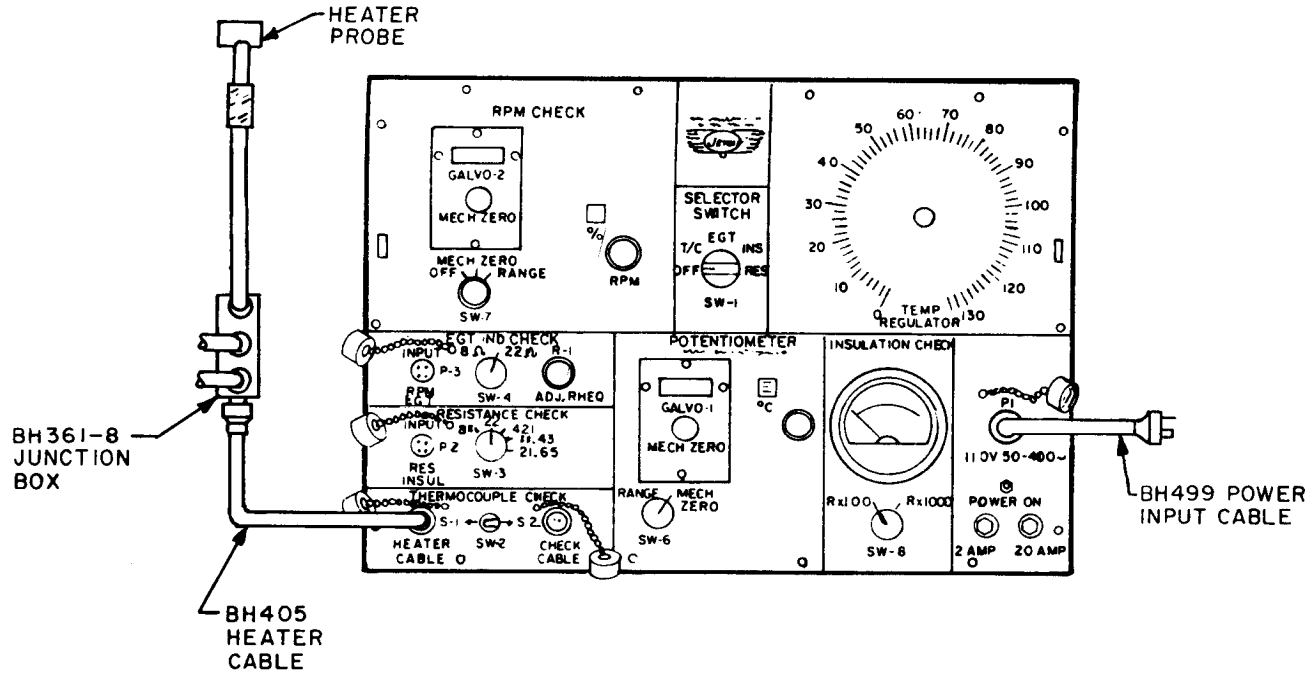


Figure 3-3. Heater probe circuit operation check.

that there is continuity from junction box, through heater cable, and galvanomeer.

g. Place TEMP. REGULATOR knob in 0 position and switch SW-1 in OFF position. Disconnect heater probe at junction box.

h. Repeat *f* and *g* above and test remaining healer probes and junction box outlets.

i. Replace any heater probe that does not indicate a temperature rise on galvanometers. Replace junction box if any outlet does not indicate continuity.

j. Place SW-6 in MECH. ZERO position.

3-14. Check Cable Circuit Continuity Check. (Figure 3-4)

After 10 test operations, the check cable circuit shall be operationally checked as follows.

a. Connect check cable to CHECK CABLE connector.

b. Insert a replacement thermocouple of known quality in terminals A-, B+) of check cable.

c. Place switch SW-1 in T/C position.

d. Place switch SW-2 in S-2 position.

e. Place switch SW-6 in MECH. ZERO position and zero galvanometers with mechanical zero knob.

f. Place switch SW-6 in RANGE position.

g. Note galvanometers for deflection which indicates continuity through check cable to galvanometers.

NOTE

If no deflection is noted, make sure indication on °C scale is not equal to ambient temperature.

h. Replace check cable if galvanometers does not indicate continuity.

i. Place switch SW-6 in MECH. ZERO position.

j. Place switch SW-2 in SW-1 position and remove replacement thermocouple from check cable.

k. Remove check cable from CHECK CABLE connector.

l. Properly stow check cable in cable storage compartment.

m. Secure tester after operation.

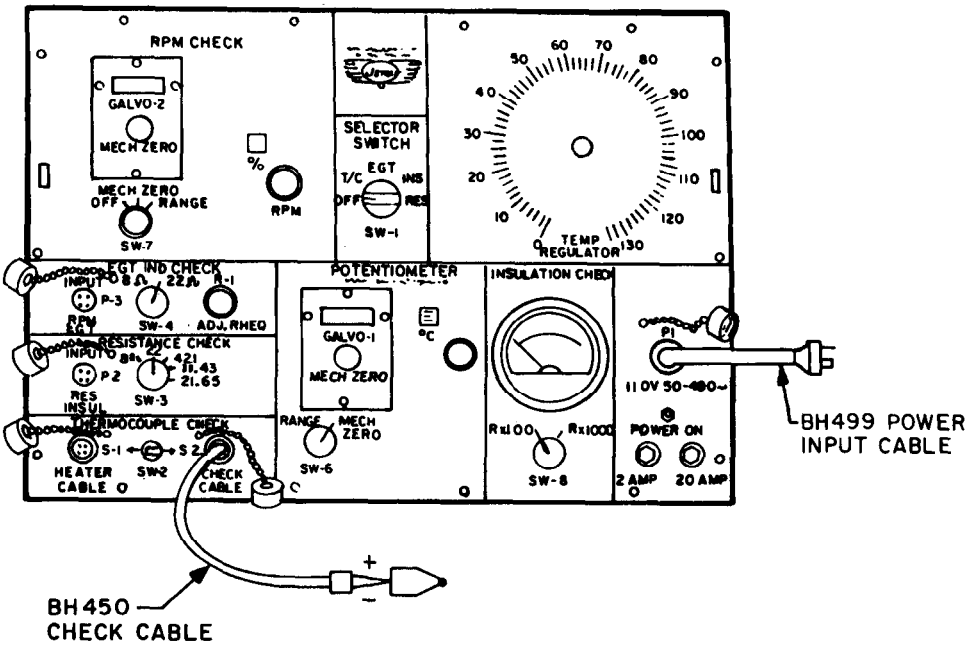


Figure 3-4. Check cable circuit continuity check.

3-15. Potentiometer Continuity Check. (Figure 3-4)

After 10 test operations, the POTENTIOMETER circuit shall be operationally checked as follows:

CAUTION

Never use an ohmmeter or voltmeter to check the potentiometer circuit for continuity as damage to galvanometers will result.

a. Insert a replacement thermocouple of known quality in A (-) and B (+) sockets of CHECK CABLE connector.

b. Place switch SW-1 in T/C position.

c. Place switch SW-2 in S-2 position.

d. Place switch SW-6 in MECH. ZERO position and zero galvanometers with mechanical zero knob.

e. Place switch SW-6 in RANGE position.

f. Apply heat to the replacement thermocouple.

g. With replacement thermocouple heating, note galvanometers for deflection which indicates continuity of the potentiometer circuit.

h. If potentiometer circuit does not indicate continuity, refer to Table 3-2 to locate defects.

i. Place switch SW-6 in MECH. ZERO position.

j. Place switch SW-2 in S-1 position and remove replacement thermocouple from CHECK CABLE connector.

k. Secure tester after operation.

3-16. EGT Indicator Circuit Operation Check. (Figure 3-5)

After 25 test operations, the EGT indicator circuit shall be functionally checked as follows:

a. Prepare tester for operation in accordance with paragraph **3-13***a* through *c.*

b. Connect instrument cable to egt indicator check adapter and instrument cable to connector P-3.

c. Place switch SW-1 in EGT position.

d. Place switch SW-6 in MECH. ZERO position and zero galvanometers with mechanical zero knob.

e. Place switch SW-6 in RANGE position.

f. Connect terminals of egt indicator check adapter together.

g. Place switch SW-4 in 8Ω position.

h. Turn potentiometer R-1 and note galvanometers which indicates egt indicator circuit continuity.

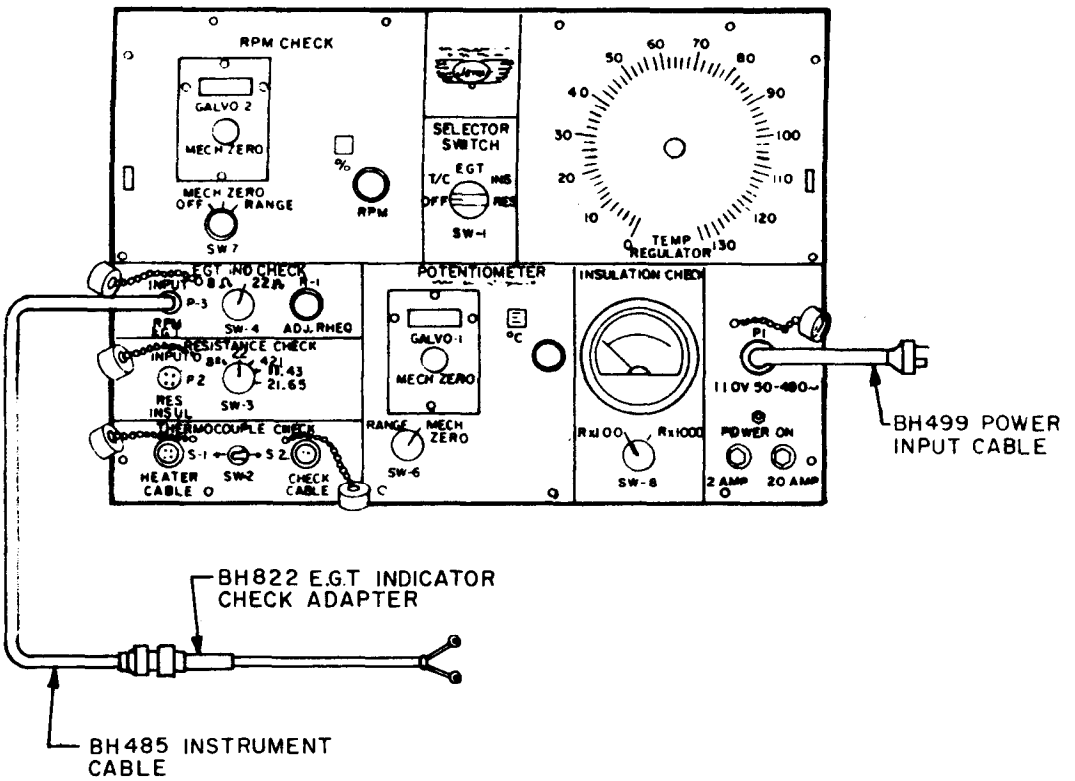


Figure 3-5. EGT indicator circuit operation check.

i. If galvanometers does not deflect with switch SW-4 in 8Ω position, place switch SW-4 in 22Ω position.

j. Repeat *h* above.

k. If galvanometers does not deflect in either position of switch SW-4, refer to Table 3-2 to locate defects in egt indicator circuit.

l. Place switch SW-6 in MECH. ZERO position.

m. Disconnect egt indicator check adapter from instrument cable.

n. Disconnect instrument cable from connector P-3.

o. Properly stow instrument cable and egt indicator check adapter in cable storage compartment.

p. Secure tester after operation in accordance with paragraph 2-14.

3-17. Troubleshooting.

Table 3-2 provides information useful in diagnosing and correcting unsatisfactory operation of the tester. Each trouble symptom stated is followed by a list of probable causes . The possible remedy recommended is described opposite the probable cause. The use of conventional troubleshooting and corrective methods will enable organizational maintenance personnel to maintain the tester in operational readiness. In table 3-2, assume that the tester is properly connected to a 110-volt, 50 to 400 Hertz, ac power source and that cable connections, switch positions, etc, have been accomplished in accordance with paragraphs 2-5 through 2-18.

NOTE

Always recheck test setup thoroughly before assuming the tester is at fault.

Table 3-2. Troubleshooting

Malfunction	Probable cause	Corrective action
Entire tester circuit inoperative with power source connected switch SW-1 in any position except OFF).	*a.* No input voltage.	*a.* Check power source and inlet cable.
	b. Both fuses blown.	*b.* Replace fuses (4-35).
	c. Defective power inlet cable.	*c.* Replace power inlet cable.

Table 3-2. Troubleshooting-Continued

Malfunction	Probable cause	Corrective action
2. Power source connected to tester, but power on light does not indicate.	*a*. Lamp burned out. *b*. Defective power inlet cable.	*a*. Replace lamp (para. 4-34). *b*. Replace power inlet cable.
3. Switch SW-1 in T/C position; no light beam in galvanometer (GALVO-1).	*a*. Lamp burned out. *b*. Defective power inlet cable.	*a*. Replace lamp (para. 4-33). *b*. Replace power inlet cable.
4. Heater probes will not heat with switch SW-1 in T/C position.	*a*. Blown fuse (20 amp). *b*. Defective heater cable. *c*. No input voltage.	*a*. Replace fuse (para. 4-35). *b*. Replace heater cable. *c*. Check power source and inlet cable.
5. Switch SW-1 in E.G.T. position; no light beam in galvanometers (GALVO-1).	*a*. Lamp burned out. *b*. Defective power inlet cable.	*a*. Replace lamp (para. 4-33). *b*. Replace power inlet cable.
6. Heater probes will not heat with switch SW-1 in E.G.T. position.	*a*. Blown fuse (20 amp). *b*. Defective heater cable. *c*. No input voltage.	*a*. Replace fuse (para. 4-35). *b*. Replace heater cable. *c*. Check power source and power inlet cable.
7. Galvanometers (GALVO-1) will not zero with switch SW-1 in RES. position.	*a*. Improper connections to circuit being tested. *b*. Defective instrument cable or check adapter.	*a*. Make proper connections (para. 2-5 through 2-18). *b*. Replace defective instrument cable or check adapter.
8. INSULATION CHECK meter will not zero with input shorted and switch SW-1 in INSUL. position.	*a*. Defective instrument cable or check adapter.	*a*. Replace defective instrument cable or check adapter.
9. Switch SW-7 in RANGE position; no light beam in galvanometers (GALVO-2).	*a*. Lamp burned out. *b*. Blown fuse (2 amp).	*a*. Replace lamp (para. 4-33). *b*. Replace fuse (para. 4-35).
10. Galvanometers (GALVO-2) will not zero with switch SW-7 in RANGE position; relay (RLY-1) inoperative.	*a*. Defective tube V1.	*a*. Replace tube V1 (para 4-36).
11. Galvanometers (GALVO-2) will not zero with switch SW-7 in RANGE position; relay (RLY-1) operating.	*a*. Defective tube V1, V2, or V3.	*a*. Replace tube V1, V2, or V3 (para. 4-36).
12. R. P. M. CHECK CIRCUIT operative, all other circuits inoperative.	*a*. BH1766 fuse blown out.	*a*. Replace fuse (13, fig. 4-7).

CHAPTER 4

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. PREPARATION FOR MAINTENANCE, STORAGE, AND RESHIPMENT

4-1. General.

This section provides a description of the inspections, servicing, and preparations necessary before the tester is placed in operation. When a new or reconditioned tester is received, maintenance personnel must determine if the tester is in condition to perform any mission within its intended capabilities. The failure to perform the initial inspections and servicing will affect the future operation of the tester. For this reason, it is necessary to adhere closely to the following instructions.

4-2. Unloading and Unpacking Equipment.

a. Unloading.

(1) Remove chock blocks and/or lines which secure tester to its carrier.

(2) Using a fork lift or suitable hoist, carefully lower tester onto a suitable cleared area.

b. Unpacking. (Figure 3-1)

(1) Remove tester from packing crate.

(2) Remove all barrier material and tape from tester.

(3) Unlatch and open door (16) of cable storage compartment. Remove any packing material from inside cable storage compartment and properly stow cables. Close and latch door.

(4) Unlatch and raise lid (5) of probe storage compartment (14). Remove any packing material from inside probe storage compartment and properly stow heater probes. Lower and latch lid.

(5) Unlatch and raise probe storage compartment. Remove any packing material from instrument compartment. Lower and latch probe storage compartment.

4-3. Inspection and Servicing.

a. Inspection.

(1) Inspect exterior of tester for condition of paint, evidence of corrosion, cracks, and deep dents.

(2) Inspect instrument copartment (fig. 2-1) for legibility of markings and security.

(3) Inspect insulation check meter for cracked lens and security in instrument compartment.

(4) Inspect for broken or otherwise damaged knobs, receptacles, and switches in instrument compartment.

(5) Insure that instruction plate, nameplate, and wiring diagram plate are legible and properly secured.

(6) Inspect heater probes (2, fig. 3-2) for dents, deterioration, and proper stowage in probe storage compartment (3).

(7) Visually inspect wheels for breaks, deep cuts, and other defects.

(8) Ascertain that all cables, switch box, junction box, and adapters have been shipped with tester and are stowed in cable storage compartment (16, fig. 3-1).

b. Servicing.

(1) Clean tester, components, and accessories with dry cleaning solvent (item 1, table 1-1).

(2) Lubricate tester as outlined in paragraph 3-10.

4-4 Installation of Separately Packed Components. (Figure 3-1)

If the handle assembly, support post, wheels, and wheel mounts have been removed for shipment, reassemble the tester as follows:

a. Handle Assembly. Install handle assembly as follows:

(1) Place pivot sockets (4) on handle (1).

(2) Position handle assembly on tester by springing handle (1) over bolts (3).

(3) Install wing nuts (2) on bolts (3).

b. Support Post. Install support post (23) as follows:

(1) Place support post (23) in position on bottom of base assembly (31).

(2) Attach support post (23) to base assembly (31) using screws (24) and locknuts (25).

c. Wheel Mounts. Install wheel mounts (28) as follows:

(1) Place wheel mounts (28) in position on bottom of base assembly (31).

(2) Attach wheel mounts (28) to base assembly (31) using screws (29) and locknuts (30).

d. Wheels. Install wheels (26) as follows:

(1) Place wheels (26) in position on wheel mounts (28).

(2) Secure wheels (26) on wheel mounts (28) using retaining rings (27).

4-5. Preparation for Storage.

Paragraphs 4-6 and 4-7 provide instructions for the limited storage of equipment and inspection of equipment in storage.

4-6. Limited Storage

a. Inspection.

(1) Perform operational preventive maintenance services (para. 3-6).

(2) Perform organizational preventive maintenance services (para. 3-7).

(3) Make sure all cables and accessories are present and in good condition.

b. Preservation.

(1) Correct any deficiencies noted in a(1) and (2) above.

(2) Touch up painted surfaces in accordance with TM 43-0139.

(3) Properly stow all accessories in probe and cable storage compartments.

(4) Place four fresh bags of desiccant (item 11, table 1-1) and one humidity indicator (item 12, table 1-1) in each of the following areas:

(a) Probe storage compartment.
(b) Deck assembly compartment.
(c) Cable storage compartment.

(5) Secure all latches and fasteners securely and provide an airtight seal for each compartment using pressure sensitive tape (item 13, table 1-1). Pay particular attention to hinges and all attaching hardware.

(6) Store tester in a dry warehouse or other area protected against weather and extremes of temperature and humidity. Position handle of tester over front of tester to conserve space and place tester on blocks.

NOTE

If suitable storage facilities are not available, prepare tester as for shipment (para. 4-8) and store under suitable cover.

4-7. In Storage Inspection and Maintenance.

a. Inspect tester externally for signs of corrosion, damage, and pilferage.

b. Open tester monthly and inspect humidity indicators. Replace desiccant bags if indicated and reseal compartments (para. 4-6).

4-8. Preparation for Reshipment.

The exact methods by which the tester is prepared may vary, but the instructions outlined in this section may be applied to any general preparation of equipment for domestic shipment. The following method requires no disassembly of the tester.

Prepare the tester for reshipment in accordance with the following instructions:

a. Remove all foreign matter from tester and its accessories using dry cleaning solvent (item 1, table 1-1). Do not allow dry cleaning solvent to come in contact with electrical wiring.

b. A shipping pallet (figure 4-1) can be prepared and used for more stability within the shipping container.

c. When step b above is used, strap the tester to the pallet with strapping material. Four holes are provided in pallet.

d. Preserve, wrap, and crate tester as described in method IIb of Military Specification MIL-P-116.

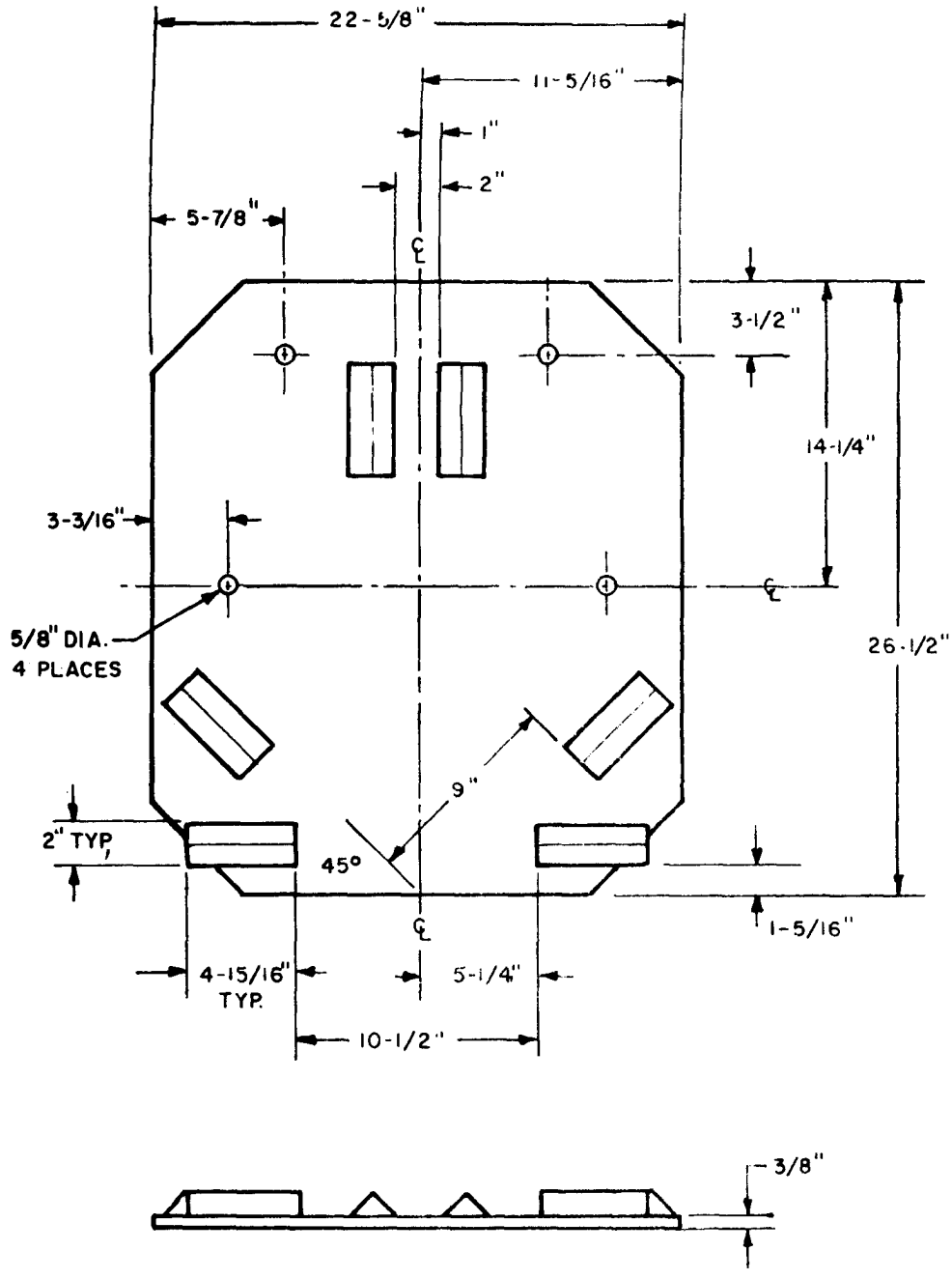


Figure 4-1. Shipping pallet.

Section II. CHECKOUT AND ANALYSIS

4-9. General.

This section contains information for testing various functions of the tester. This information, together with troubleshooting information, contained in table 4-1, will enable maintenance personnel to rapidly localize tester malfunctions.

Testers will be referred to direct support unit by using units for performance of the following tests after 25 operations, or monthly, whichever occurs first, or at the request of responsible orgzational maintenance personnel if improper operation is suspected.

Page 4-4 thru 4-6 and figure 4-2 thru 4-4 deleted.

4-14. Trouble Analysis.

Table 4-1 provides information useful in diagnosing and correcting unsatisfactory operation or failure of the tester or any of its components. Each trouble symptom is followed by a list of probable causes of trouble. The possible remedy recommended is described opposite the probable cause. Subsequent paragraphs in this section assume that the tester is properly connected to a 110 volt, 50 to 400 Hertz, ac power source and that switch positions, cable connections, etc, have been accomplished in accordance with paragraphs 2-4 through 2-18 for mode of operation attempted.

NOTE

The expression "no temperature indication" as used herein will indicate that galvanometers (GALVO-1) responds properly to applicable mechanical zero knob (para 2-2*d*). When switch SW-6 is placed in RANGE position, galvanometers (GALVO-1) does not respond to changes of setting on temperature selector knob. The expression "no rev per min indication" indicates the same circumstances regarding galvanometers (GALVO-2), switch SW-7, and R.P.M. knob.

NOTE

Always recheck test setup thoroughly before assuming tester is at fault.

All data on pages 4-4 thru 4-6 including figures 4-2, 4-3, 4-4, and 4-5 deleted.

Table 4-1. Troubleshooting

Malfunction	Probable cause	Corrective action.
1. Galvanometers (GALVO-1) does not respond to temperature selector knob adjustments with switch SW-6 in RANGE position (all applicable modes of operation).	*a.* Defective switch SW-6.	*a.* Replace switch.
	b. Defective potentiometer.	*b.* Replace potentiometer (para. 4-42).
	c. Incorrect reference voltage to potentiometer.	*c.* See figure 4-25 and test following components of cable and printed circuit board assembly. Part No. BH1766; T2, CR8, CR9, CR10, CR11, CR12, CR13, C9, R14, R16, and R18. Replace defective components (para. 4-17).
2. Tester inoperative in all modes of operation.	*a.* Defective power inlet connector.	*a.* Replace power inlet connector (para. 4-47).
3. POWER ON light inoperative.	*a.* Defective transformer T2.	*a.* Replace transformer (para. 4-39*a*(2)).
	b. Defective cable and printed circuit board assembly, part no. BH1766.	*b.* Replace cable and printed circuit board assembly (para. 4-39).
	c. Defective wiring or connections.	*c.* Repair or replace wiring (para. 4-18*e*(5)
4. Switch SW-1 in T/C position; no light beam in galvanometers (GALVO-1).	*a.* Defective transformer T2.	*a.* Replace transformer (para. 4-39*a*(2)).
	b. Defective cable and printed circuit board assembly, part no. BH1766.	*b.* Redate cable and printed circuit board assembly (para. 4-39).
	c. Defective wiring or connections.	*c.* Repair or replace wiring (para. 4-18*e*(5)
	d. Defective switch SW-1.	*d.* Replace switch .
	e. Defective power lead cable to cable and printed circuit board assembly, part no. BH1766.	*e.* Repair or replace power lead. cable (para. 4-17*e* and (9)).
5. Galvanometers (GALVO-1) cannot be set to zero with mechanical zero knob.	*a.* Defective galvanometers.	*a.* Replace galvanometers (para. 4-41).
6. Galvanometers (GALVO-1) deflects erratically when reading in RANGE position.	*a.* Defective potentiometer.	*a.* Replace potentiometer (para. 4-42).
7. Heater probes will not heat; 20 amp fuse blown.	*a.* Temporary power line overvoltage.	*a.* Replace fuse and excite heater probes with TEMP REGULATOR knob. Continue operation if fuse does not blow.
	b. Heater cable connector defective or short in wiring.	*b.* Replace connector (para. 4-47).
	c. Defective voltage regulator.	*c.* Replace voltage regulator (para. 4-38).

Table 4-1. Troubleshooting-Continued

Malfunction	Probable cause	Corrective action
8. Heater probes will not heat; 20 amp fuse not blown.	*a.* Defective voltage regulator.	*a.* Replace voltage regulator (para. 4-38).
	b. Defective heater probe or heater cable.	*b.* Replace heater probe or heater cable.
9. No temperature indication with switch SW-2 in S-1 position.	*a.* Defective switch SW-2.	*a.* Replace switch (para. 4-46).
	b. Defective wiring in thermocouple circuit.	*b.* Repair or replace wiring (para, **4–18*e*(2)**
	c. Heater cable connector defective.	*c.* Replace heater cable.
10. No temperature indication with switch SW-2 in S-2 position.	*a.* Defective wiring in check cable thermocouple circuit,	*a.* Repair or replace wiring (para. **4–18*e*(2)**
	b. Defective switch SW-2.	*b.* Replace switch (para. 4-46).
11. Galvanometers (GALVO-1) cannot be set to zero with potentiometer R-1.	*a.* Defective switch SW-1.	*a.* Replace switch.
	b. Open potentiometer (°C scale).	*b.* Replace potentiometer (para. 4-42).
	c. Defective potentiometer R-1.	*c.* Replace potentiometer (para. 4-44).
	d. Incorrect EGT indicator circuit reference voltage.	*d.* See figure 4-15 and test following components of cable and printed circuit board assembly, part no. BH1766; T2, CR1, CR2, CR3, CR4, CR5, CR6, CR7, CR8, R2, R3, R13, and R19. Replace defective components (para. 4-17).
12. Galvanometers (GALVO-1) cannot be set to zero by adjusting resistance spool in aircraft.	*a.* Defective reference resistor.	*a.* See figure 4-15 and test following components: R28, R29, R30, R31, R32, and R45. Replace defective components (para. 4-17).
	b. Defective printed circuit board assembly, part no. BH1760.	*b.* Replace printed circuit board assembly.
	c. Defective cable and printed circuit board assembly, part no. BH1766.	*c.* Replace cable and printed circuit board assembly (para. 4-39).
	d. Defective switch SW-3.	*d.* Replace switch.
13. INSULATION CHECK meter will not zero with insulation check adapter leads shorted and switch SW-8 in either position.	*a.* Defective insulation check meter,	*a.* Replace meter (para. 4-43).
	b. Defective switch SW-8.	*b.* Replace switch .
	c. Defective printed circuit board assembly, part no. BH1760.	*c.* Replace printed circuit board assembly.
	d. Circuit out of adjustment.	*d.* Adjust circuit.
	e. Defective adjustment potentiometer.	*e.* See figure 4-15 and test R38, R40, R42, and R44. Replace defective components (para. **4–18*e*).**

Table 4-1. Troubleshooting-Continued

Malfunction	Probable cause	Corrective action
	f. Defective resistor.	*f.* See figure 4-15 and test R33, R34, R35, R36, R39, R41, R42, and R43. Replace defective components (para. **4–18*e*).**
	g. Defective switch SW-1.	*g.* Replace switch.
	h. Incorrect reference voltage.	*h.* See figure 4-15 and test following components: C7, C8, CR1, CR2, CR3, CR4, CR5, CR6, CR7, R2, R3, R13, R19, and T2. Replace defective components (para. **4–17*d*)**
14. No light beam in galvanometers (GALVO-2).	*a.* Defective switch SW-7.	*a.* Replace switch.
	b. Defective wiring or connections.	*b.* Repair or replace wiring (para. **4–18*e*(5)**
	c. Defective winding on transformer.	*c.* Replace transformer (para. 4-27).
15. Galvanometers (GALVO-2) cannot be set to zero with mechanical zero knob.	*a.* Defective galvanometers (GALVO-2).	*a.* Replace galvanometers (para. 4-20).
16. No RPM indication with switch SW-7 in RANGE position.	*a.* Defective relay.	*a.* See figure 4-15 and test relay RLY1. Replace if defective (para. **4–27*b*).**
	b. Defective capacitor.	*b.* See figure 4-15 and test capicators C3, C4A, C4B, and C6. Replace defective components (para. **4–27*e***
	c. Defective resistor.	*c.* See figure 4-15 and test resistors R6, R7, R8, R11, R12, R17, R20, R21, R22, and R37. Replace defective components (para. **4–27*e*** (6)).

Section III. REPAIR PROCEDURES

4-15. General.

This section contains descriptions of components and instructions for authorized field repair or replacement. Refer to Section IV for alignment that might be necessary before reassembly.

WARNING

Remove power from the tester before any disassembly procedure.

4-16. Voltage Regulator. (Figure 4-6).

The voltage regulator (7) provides a means for regulating the voltage to the heaters in the heater probes. The voltage regulator is a brush-type autotransformer. The voltage regulator has a 20-ampere rating with a voltage output variable from zero volts to approximately 130 percent of line (input) voltage available at the power inlet connector P-1.

a. Removal.

(1) Remove deck assembly (para 4-32*a*).

(2) Disconnect wiring at rear of voltage regulator (7).

(3) Remove bolts (8) and lockwashers (9). Remove voltage regulator (7) from box assembly (18).

b. Disassembly. Disassembly of voltage regulator is not required.

c. Cleaning.

(1) Use a soft brush or a stream of clean, dry compressed air (30 psi maximum) to remove dust or dirt.

CAUTION

Do not allow dry cleaning solvent to run into the interior of voltage regulator. Damage to phenolic and other insulating compounds will result.

(2) Use a clean, lint-free cloth lightly dampened with dry cleaning solvent (item 1, table 1-1) to remove accumulations of grease or other foreign matter.

d. Inspection and Repair.

(1) Inspect phenolic boards for cracks, loose terminals, and stripped terminal screws. Replace terminal screws if stripped or damaged. Replace voltage regulator if terminal board is damaged to a degree where operation is impossible or hazardous, or if threaded terminals are stripped.

(2) Rotate control shaft through its normal range of operation and check for smooth operation. Replace voltage regulator if sticking or binding is observed or if control shaft will not make its full travel of approximately 335 degrees.

(3) Observe windings for obvious damage, cracks in core materials, and short circuits between adjacent windings. Replace voltage regulator if any of these conditions exist.

(4) Replace voltage regulator if control shaft is broken or scored so that knob (3) will not fit properly without play or slippage.

4-17. BH1766 Printed Circuit Board Assembly and Cable (Figure 4-6).

The printed circuit board (16) with cable provides reference voltages utilized by the potentiometer, resistance check, and insulation check circuits. Reference voltages supplied are regulated within $\pm$ 0.4 volts by zener diode circuitry. Secondary windings on the transformer supply ac voltages for conversion to dc and power for the POWER ON light and the GALVO-1 galvanometers light.

a. Removal.

(1) Remove deck assembly (para. 4-32*a*).

(2) Disconnect wiring from voltage regulator (7).

(3) Remove screws (17) and remove cable and printed circuit board assembly (16) from box assembly (18).

b. Disassembly (Figure 4-7)

(1) Remove rectifiers (2) and fuse (13) from fuse and rectifier holders.

(2) Remove transformer (11) by removing nuts (23) from bottom of printed circuit board (24) and unplugging transformer.

(3) Unsolder one lead of the following components (fig. 4-15):

(a) R2 or C7 at common junction.

(b) C9 or CR10, and CR13 at common junction.

(c) R13, CR1 and R3.

NOTE

Normal disassembly procedures do not go beyond this point. Remaining components can be tested in place by contacting accessible terminals with test equipment. Replace defective components on an as required basis.

c. Cleaning.

(1) Use a soft brush to remove accumulations of dust and dirt.

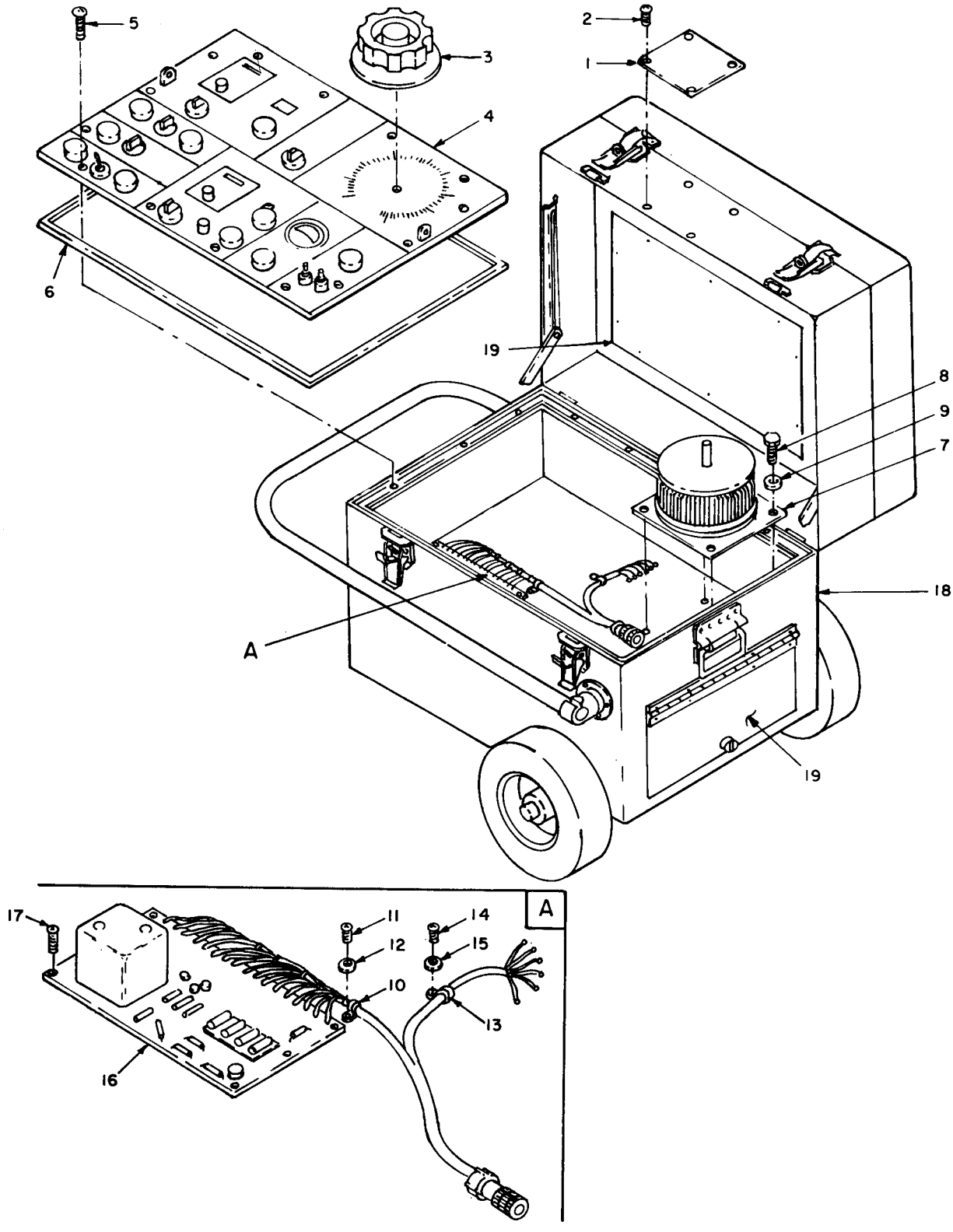
(2) Use a cloth dampened in dry cleaning solvent (item 1, table 1-1) to remove foreign matter.

d. Inspection and Testing.

(1) Inspect transformer for signs of external damage, bent or broken pins on connector, paint discoloration, and potting compound leakage.

(2) Inspect printed circuit board for cracks, separation, carbonized paths between elements, and security of component mounting. Inspect for cold solder joints and corrosion.

(3) Inspect components on printed circuit board for mounting security, damage, broken leads, or signs of overheating.



Key to figure 4–6

1. Nameplate
2. Screw
3. Knob
4. Deck Assembly
5. Screw
6. Gasket
7. Voltage Regulator
8. Bolt
9. Washer

Figure 4-6. Tester major components.

10. Clamp
11. Screw
12. Washer
13. Clamp
14. Screw
15. Washer
16. Printed Circuit Board
17. Screw
18. Box Assembly
19. Instruction Plate

Figure 4-6-Continued.

(4) Inspect fuse and rectifier holders for damage, mounting security, and proper tension of clips.

(5) Inspect wiring harness for breaks in insulation or conductors, shrinking of insulation or other signs of overheating in wiring, and damage to connector.

(6) Use a suitable tester to test zener diodes and rectifiers. Replace any defective components.

(7) Use a decade resistance bridge or other precision resistance checker and make sure all resistors are within tolerance.

(8) Check capacitors with a capacitor checker.

(9) Use a suitable continuity checker to test for continuity of windings and check insulation resistance between windings and transformer case with a megger.

e. Repair.

(1) Straighten connector pins on transformer with needle nose pliers or suitable tube pin straightener. Replace transformer if pins are broken or show signs of shearing after straightening. External damage is permissible providing case remains sealed, proper mounting is not affected, and/or windings are not damaged as described in *d*(9) above.

(2) Replace transformer if paint is scorched (brown or yellowish areas) or if potting compound is leaking at seams or openings.

(3) Replace printed circuit board if any of the following conditions exist:

(a) Separation of plies in board material.

(b) Cracks, over 1/8 inch in length, or extending into component mounting area or extending into a printed conductor path.

(c) Carbonized paths between components, printed conductors, or mounting areas.

(d) More than one printed conductor cut, damaged, or separated from board.

(e) Separation of terminals from board.

(4) Single printed conductors may be replaced with point-to-point wiring if terminals at each end of defective printed conductor will accommodate additional wire. Use No. 20 AWG or larger insulated copper wiring for replacement purposes.

(5) Separate all component at cold soldered or corroded joints. Clean terminals and conductors of all solder and corrosion. Tin all surfaces to be soldered and resolder joint.

CAUTION

Provide a heat sink on conductors between end of lead of zener diode and precision resistor bodies to prevent damage from overheating when soldering.

(6) Replace any component on printed circuit board with broken or scored leads. Any component showing definite signs of overheating should be replaced regardless of test indication.

CAUTION

Install rectifier holders facing in proper direction. Negative (-) end of outside rectifier holders face cable side of printed circuit board; positive (+) end of inside rectifier holders also face the cable side.

(7) Replace fuse and rectifier holders if damaged. Resolder terminals if corroded or hose. Clips may be carefully pinched together if required to restore tension. Replace rectifier holders if worn or damaged to prevent rectifiers being installed facing in wrong direction.

(8) Replace power lead cable if connector is damaged or if wiring shows deterioration of insulation.

(9) Single wires may be replaced in power lead cable. Use same size and type of wire. Use white wire if proper color is not available and color code insulation terminal with color(s) of original wire.

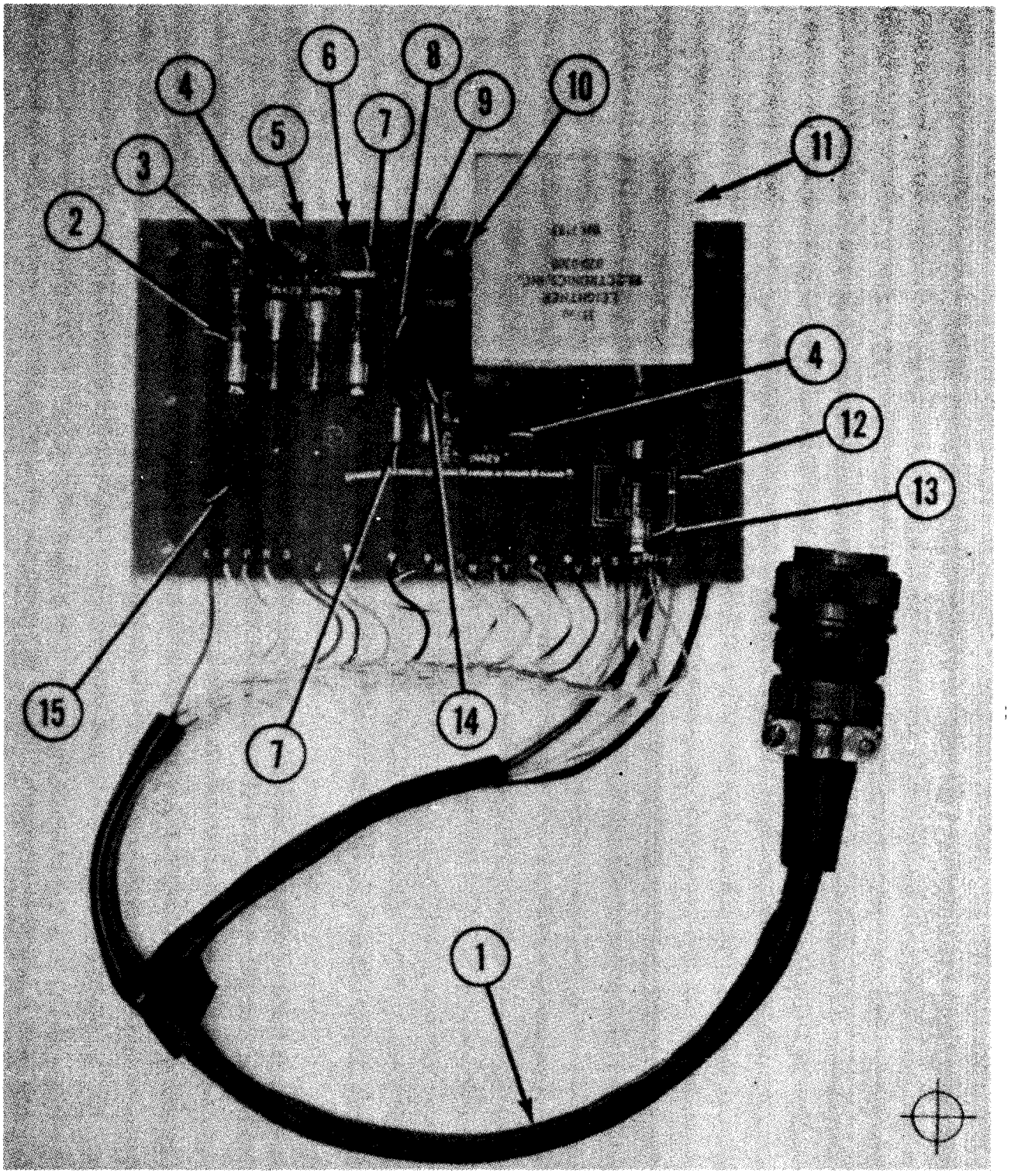
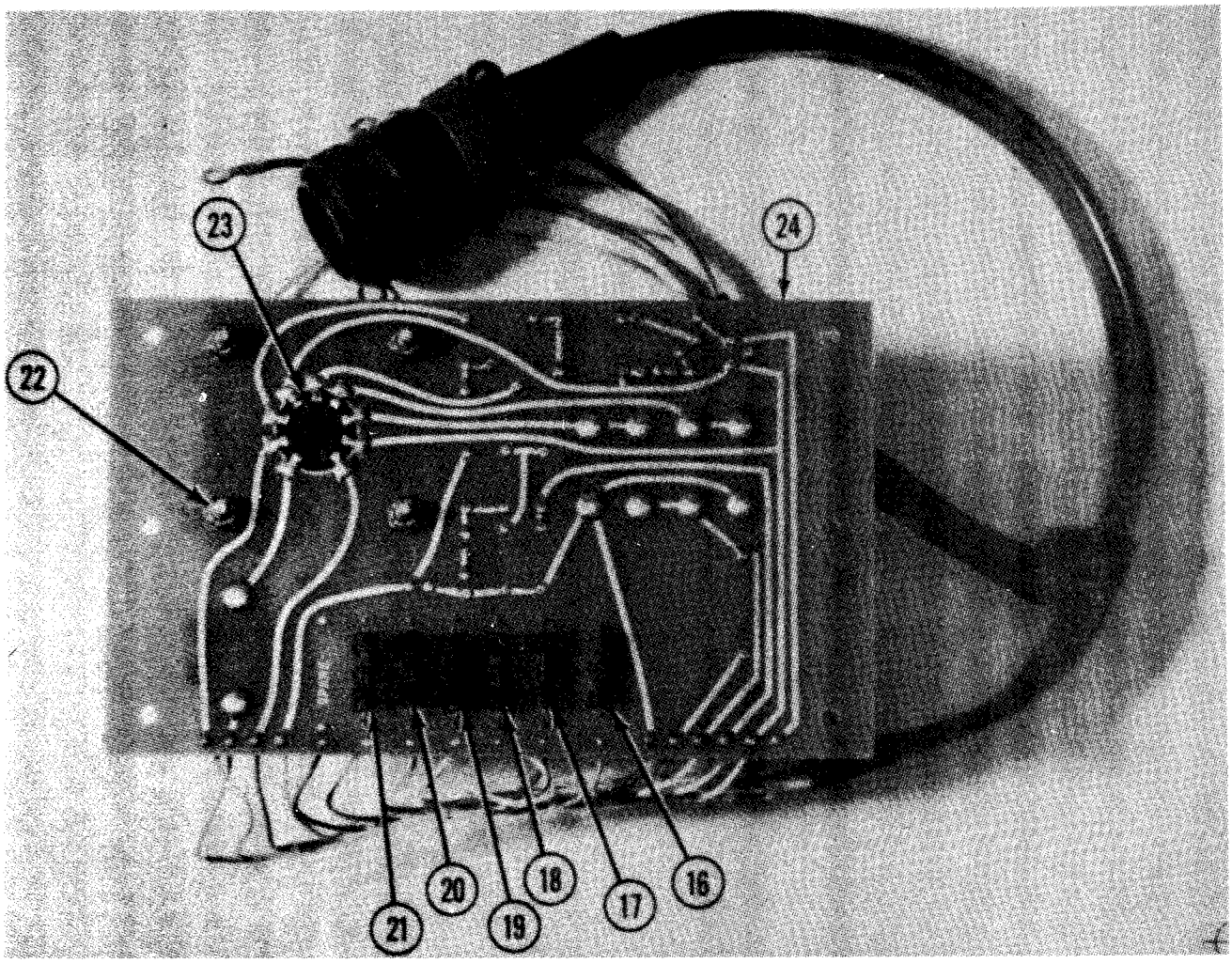


Figure 4-7. BH1766 circuit board assembly (sheet 1 of 2).



Key to Figure 4–7

1. Power Lead Cable
2. Rectifier
3. Zener Diode
4. Zener Diode
5. Resistor
6. Resistor
7. Capacitor
8. Resistor
9. Resistor
10. Zener Diode
11. Transformer
12. Holder
13. Fuse
14. Resistor
15. Resistor
16. Resistor
17. Resistor
18. Resistor
19. Resistor
20. Resistor
21. Resistor
22. Nut
23. Socket
24. Printed Circuit Board

Figure 4-7. BH1766 circuit board assembly (sheet 2 of 2).

CAUTION

Provide a heat sink on leads between terminal and case of zener diodes when soldering to prevent damage to diode.

(10) Replace zener diodes and rectifiers if testing proves them defective.

CAUTION

Provide a heat sink on leads between terminal and resistor when soldering to prevent damage to resistor.

(11) Replace any circuit board resistors not within tolerance.

(12) Replace capacitors with broken or damaged leads and any capacitor which shows excessive leakage or shorted condition. Replace capacitor if capacity shown on tester is below rated value.

(13) Replace transformer if any winding is open, shorted to another winding, or shorted to the case.

4-18. BH1760 Printed Circuit Board Assembly (Figure 4-8).

The circuit board assembly contains adjustable potentiometers used for adjusting the insulation check circuit and precision resistors used in the insulation check circuit and other circuits in the tester.

a. Removal.

(1) Remove deck assembly (para. 4-32).

(2) On printed circuit board assembly (49) locate terminal designators adjacent to solder terminals and make sure connecting wire attached to solder terminals is marked with a corresponding number or letter. Identify and tag any unmarked wires.

(3) Unsolder all connecting wiring from printed circuit board assembly.

(4) Remove attaching screws (50) and spacers (53) and remove printed circuit board assembly from deck (128).

b. Disassembly. No disassembly of the printed circuit board assembly is required. Individual components can be tested in place by con-

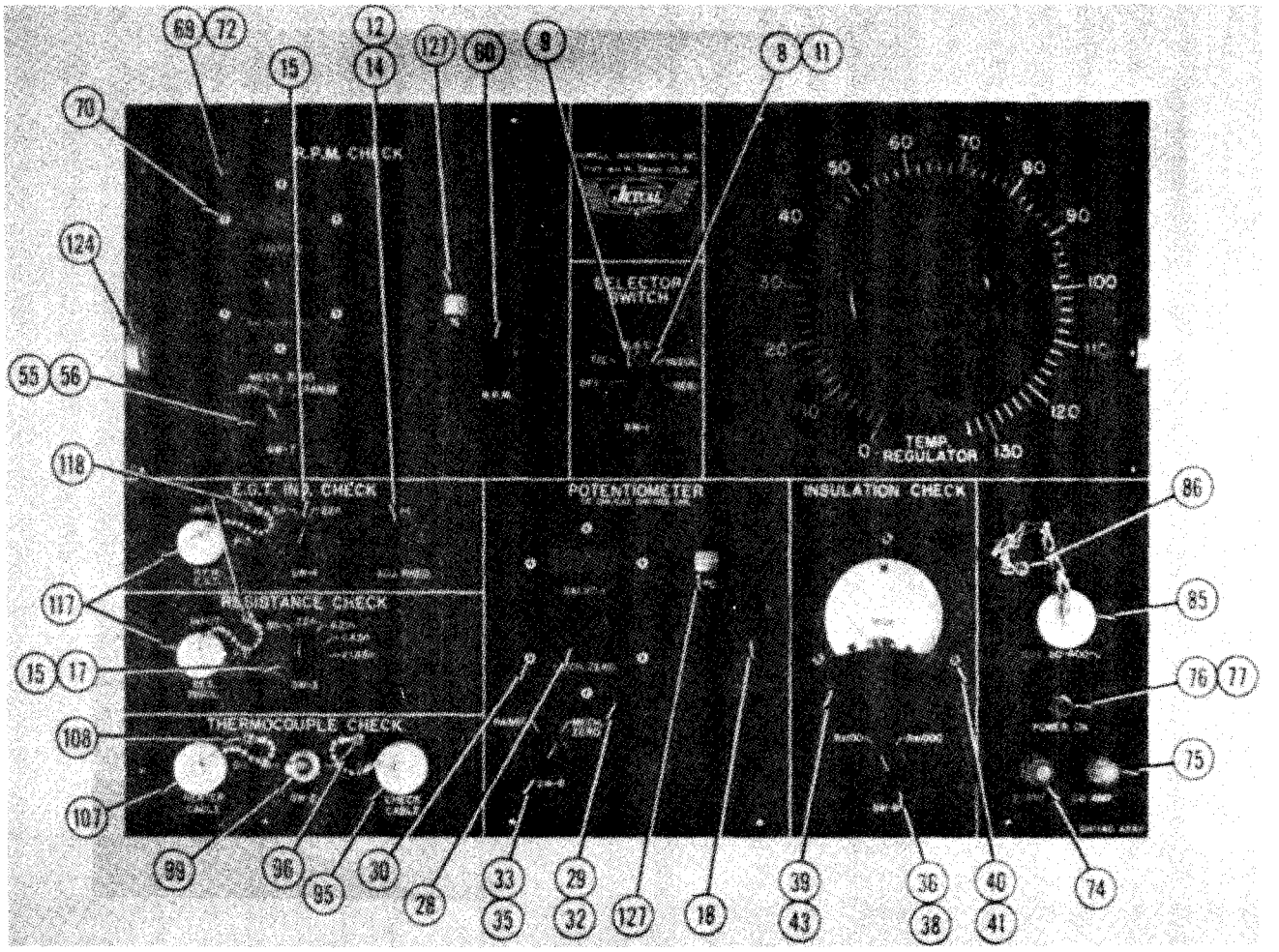


Figure 4-8. Deck Assembly (sheet 1 of 4).

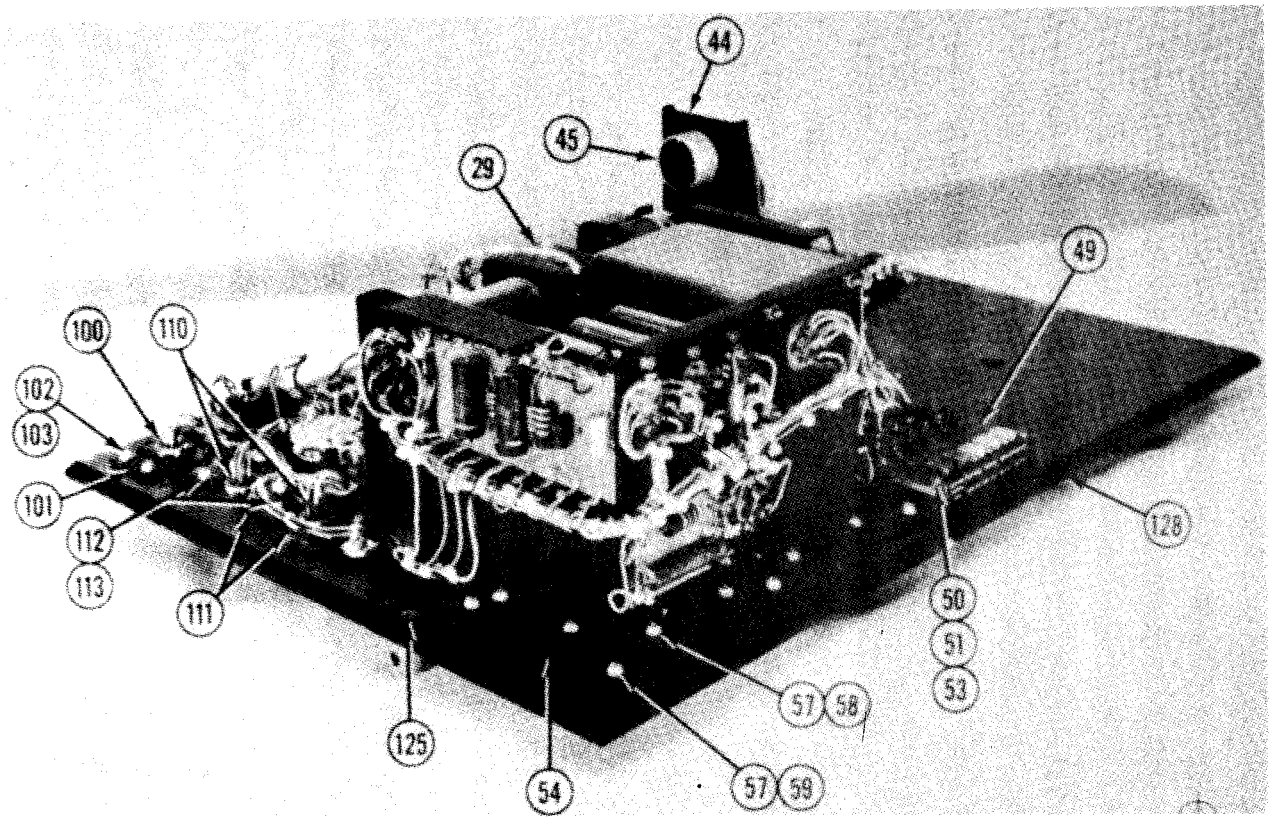


Figure 4-8. Deck Assembly (sheet 2 of 4).

tacting accessible terminals and replaced on an as required basis.

c. Cleaning.

(1) Use a soft brush to remove accumulations of dust and dirt.

(2) Use a cloth dampened with dry cleaning solvent (item 1, table 1-1) to remove foreign matter.

d. Inspection and Testing.

(1) Inspect printed circuit board for cracks, separation, carbonized paths between elements, and security of components.

(2) Inspect for cold solder joints and corrosion at all solder terminals and resistor leads.

(3) Inspect all components for damage, broken leads, or signs of overheating.

(4) Use a decade resistance bridge or other precision resistance checker to make sure all resistors are within tolerance.

(5) Inspect attaching cable harness on deck assembly for broken wires and condition of insulation. Inspect insulation for signs of overheating in cable harness.

e. Repair.

(1) Replace printed circuit board if any of the following conditions exist:

(a) Separation of plies in board material.

(b) Cracks, over 1/8 inch in length, or extending into component mounting area or extending into a printed conductor path.

(c) Carbonized paths between components, printed conductors, or mounting areas.

(d) More than one printed conductor cut, damaged, or separated from board.

(e) Separation of terminals from board.

(2) Single printed conductors may be replaced with point to point wiring if terminals at each end of defective printed conductor will accommodate additional wire. Use No. 20 AWG or larger insulated copper wiring for replacement purposes.

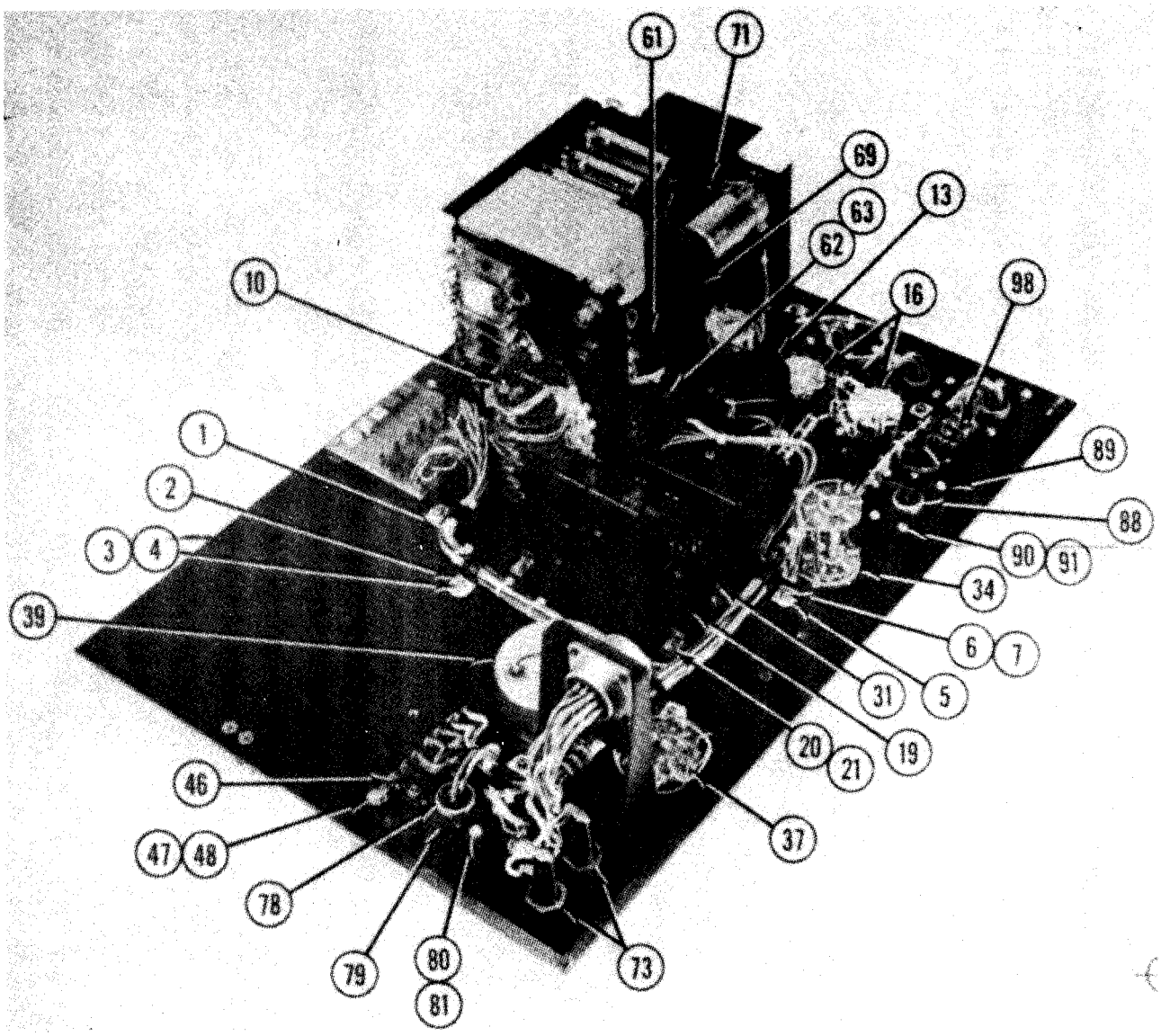


Figure 4-8. Deck Assembly (sheet 3 of 4).

(3) Separate all components at cold soldered or corroded joints. Clean terminals and conductors of all solder and corrosion. Tin all surfaces to be soldered and resolder joint.

CAUTION
Provide a heat sink on conductors between end of lead and precision resistor bodies to prevent damage from overheating when soldering.

(4) Replace resistors with nicked, scored, or broken leads. Any precision resistor showing signs of overheating should be replaced and source of trouble determined

(5) Repair broken wiring in cable harness as follows:

(a) If slack in wire beyond end of cable harness permits, bare 1/4 inch of wire at break and install in terminal in place of broken end.

(b) If insufficient slack is present, splice a suitable length of same size and color wire at break and cover splice with 3/32- or 1/8-inch plastic tubing or an approved electrical tape. If same color wire is not available, use white wiring and color code insulation on terminal end with color(s) of original wire.

(c) If wiring break is detected within cable harness and is readily located, repair as in (b) above. Do not splice more than once in any conductor.

(d) If wiring break is detected within cable harness and not readily located, replace wire as outlined in (6) below.

(e) Cover any minor damage to wiring insulation by covering individual wires with 3/32- or 1/8-inch plastic tubing.

(6) Wiring having burned or withered insulation will be repaired as follows:

(a) Trace affected wire to its origin. Unclamp and untie cable harness along entire length of affected wire.

(b) Examine other wires in cable harness for heat damage to insulation.

(c) Replace entire length of all damaged wiring, using same size and color wire. If same color wire is not available, use white wiring and color code insulation on both ends with color(s) of original wire.

(d) Bundle wiring along original path of cable harness and lace in accordance with TM 55-1500-323-25 at 1-inch intervals.

(7) Replace potentiometers if erratic action is noted as adjusting screw is turned.

4-19. Galvanometers (GALVO-1) (Figure 4-8).

a. Removal.

(1) Remove screws which secure galvanometer (29) in deck (128).

(2) Carefully remove galvanometer from opening in deck as far as attached wiring will permit.

CAUTION

Do not strain or break wiring at rear of galvanometer.

(3) Remove screw and dust cover from rear of galvanometer. Provide several thicknesses of cloth or other suitable cover for top of deck.

CAUTION

Failure to provide cover for deck may result in damage from melted solder or hot soldering iron.

(4) Identify and tag wiring. Unsolder and remove wiring from terminals in galvanometer. Remove galvanometer and dust cover.

b. Disassembly and Repair. No disassembly or repair is required. Replace on an as required basis.

4-20. Galvanometer (GALVO-2) (Figure 4-8).

a. Removal. Remove galvanometer (69) in accordance with paragraph 4–19*a*.

b. Disassembly and Repair. Refer to paragraph 4–19*b*.

4-21. Potentiometer (°C) (Figure 4-8).

a. Removal.

(1) Remove deck assembly (para. 4-32*a*.

(2) Loosen setscrew and remove knob from potentiometer (19).

(3) Identify and tag wiring. Unsolder and remove wiring from potentiometer.

(4) Remove screws (30) which secure potentiometer to deck (128). Remove potentiometer.

NOTE

Remove gasket (O ring) only if damaged.

b. Disassembly and Repair. No disassembly or repair is required. Replace on an as required basis.

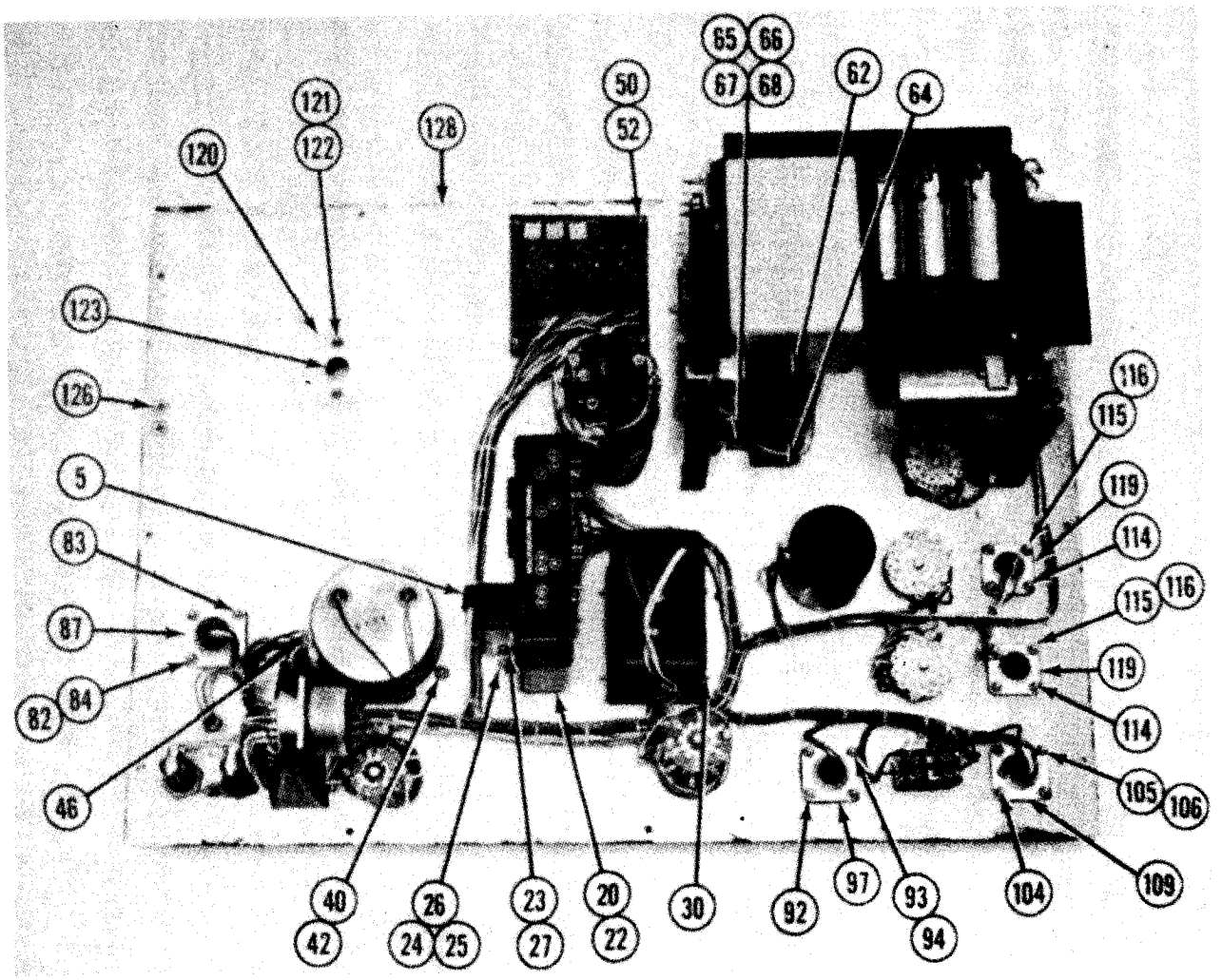
4-22. Insulation Check Meter (Figure 4-8).

a. Removal.

(1) Remove screws which secure meter (39) to deck (128).

CAUTION

Failure to provide cover for deck may result in damage from melted solder or hot holdering iron.



Key to Figure 4–8

1. Wiring Loom
2. Clamp
3. Screw
4. Washer
5. Clamp
6. Screw
7. Washer
8. Knob
9. Mount
10. Switch
11. Boot
12. Knob
13. Potentiometer Resistor
14. Boot
15. Knob
16. Switch
17. Boot
18. Knob
19. Potentiometer
20. Screw
21. Washer
22. Spacer
23. Seal Plate
24. Seal Screw
25. Seal Screw
26. Nut
27. Packing
28. Knob
29. Galvanometer
30. Screw
31. Nut
32. Gasket
33. Knob
34. Switch
35. Boot
36. Knob
37. Switch
38. Boot
39. Meter
40. Screw
41. Washer
42. Nut
43. Gasket
44. Bracket
45. Connector
46. Terminal Board
47. Screw
48. Washer

Figure 4-8. Deck Assembly (sheet 4 of 4).

49. Printed Circuit Board
50. Screw
51. Washer
52. Nut
53. Spacer
54. RPM Check Assembly
55. Knob
56. Boot
57. Screw
58. Nut
59. Lockwasher
60. Knob
61. Potentiometer
62. Screw
63. Washer
64. Spacer
65. Seal Plate
66. Seal Screw
67. Nut
68. Packing
69. Galvanometers
70. Seal Screw
71. Nut
72. Gasket
73. Fuseholder
74. Fuse
75. Fuse
76. Lampholder
77. Lamp
78. Connector
79. Connector Mount
80. Screw
81. Washer
82. Seal Screw
83. Seal Screw
84. Nut
85. Dust Cover
86. Screw
87. Gasket
88. Connector
89. Connector Mount
90. Screw
91. Washer
92. Seal Screw
93. Seal Screw
94. Nut
95. Dust Cover
96. Gasket
98. Switch
99. Boot
100. Connector
101. Connector
102. Screw
103. Washer
104. Seal Screw
105. Seal Screw
106. Nut
107. Dust Cover
108. Screw
109. Gasket
110. Connector
111. Connector Mount
112. Screw
113. Washer
114. Seal Screw
115. Seal Screw
116. Nut
117. Dust Cover
118. Screw
119. Gasket
120. Seal Plate
121. Seal Screw
122. Nut
123. Packing
124. Stop Arm Support
125. Screw
126. Screw
127. Window
128. Machined Deck

Figure 4-8-Continued

(2) Remove meter from deck as far as attached wiring will permit. Identify and tag wiring. Provide several thicknesses of cloth or other cover for top of deck.

(3) Unsolder and remove wiring from rear of meter. Remove meter (39).

b. Disassembly and Repair. No disassembly or repair is necessary. Replace on an as required basis.

4-23. Potentiometer (R-1) (Figure 4-8).

The potentiometer (13) is a wirewound, continuously variable potentiometer with a value of 0 to 50 ohms. The potentiometer is used in determining error in the EGT indicator circuit of the aircraft system. Resistance tolerance of the potentiometer is $\pm$ 5 percent and variation from linear adjustment tolerance is $\pm$ 0.3 percent.

a. Removal.

(1) Remove deck assembly (para. 4-32).

(2) Identify and tag wiring. Unsolder and remove wiring from rear of potentiometer (13).

(3) Loosen setscrew and remove knob (18) from potentiometer.

(4) Remove seal nut, which secures potentiometer to deck (128). Remove potentiometer.

b. Disassembly. No disassembly is required.

c. Cleaning.

(1) Clean exterior of potentiometer with cloth or soft brush.

(2) Remove any foreign matter with a cloth dampened with dry cleaning solvent (item 1, table 1-1).

d. Inspection and Testing.

(1) Inspect terminals for corrosion.

(2) Inspect case for cracks or other damage.

(3) Rotate shaft to one extreme of its travel.

(4) Rotate shaft to other extreme of its travel, counting number of turns necessary to complete travel. Ten complete turns should be required, less no more than 15 degrees.

(5) Connect an ohmmeter across CW and CCW terminals of potentiometer. Reading should be 50 ohms ± 5 percent.

(6) Turn shaft to extreme counterclockwise position. Connect ohmmeter across CCW and SLIDER terminals.

(7) Turn shaft slowly through its range to extreme clockwise position, simultaneously observing ohmmeter. Replace potentiometer if ohmmeter shows open circuit at any time or if any indication is given other than a smooth flow from minimum to maximum value. Sudden jumps to higher values of resistance followed by a return to lower value indicates dirt or corrosion on element or slider. A fairly consistent reading on ohmmeter over a large range of shaft rotation indicates a short circuit over that portion of the element.

e. Repair.

(1) Remove small areas of corrosion with a fine file and tin area after all evidence of corrosion has been removed. Replace potentiometer if corrosion has weakened terminal or extends into body of potentiometer.

(2) Replace potentiometer if conditions outlined in *d* above exist.

4-24. Rotary Switches (Figure 4-8).

The rotary switches are SW-1 (10), SW-3 (16), SW-4 (16), SW-6 (34), SW-7 (12, fig 4-9), and SW-8 (37, fig. 4-8). With the exception of SW-1, all rotary switches are phenolic wafer, open construction type. Switch SW-1 is enclosed construction. All rotary switches have positive detent action in contact positions and are break-before-make type.

a. Removal.

(1) Remove deck assembly (para. 4-32) .

(2) Identify and tag wiring. Unsolder and remove wiring from rotary switch.

(3) Loosen setscrew and remove knob from rotary switch.

(4) Remove seal nut which secures rotary switch to deck. Remove switch.

b. Disassembly. No disassembly is required. Replace entire rotary switch if defective.

c. Cleaning.

(1) Use a fine camel's hair brush to remove foreign matter from rotary switches.

NOTE

Steps (2) through (4) do not apply to SW-1.

WARNING

Use trichloroethylene only in adequately ventilated area. Avoid prolonged or repeated breathing of vapor. Avoid prolonged or repeated contact with skin.

(2) Use a cotton swab or camel's hair brush dipped in trichloroethylene (item 2, table 1-1) or other suitable solvent on contacts and wipers.

CAUTION

Do not apply any pressure to spring-type contacts. Any weakening of tension will cause premature failure of rotary switch.

(3) Place a drop or two of trichloroethylene (item 2, table 1-1) between jaws of contacts and rotate rotary switch through its entire range several times to free any foreign matter in contacts.

(4) Use a dry cotton swab or pipe cleaner to remove any residue from wiper.

d. Inspection and Testing.

NOTE

Steps (1) and (2) do not apply to SW-1.

(1) Make sure all terminals are attached firmly to phenolic wafer and will not turn.

(2) Make sure detent action is positive at each position and that wiper is securely attached to rotating portion of wafer.

(3) Using an ohmmeter capable of accurately reading values of 1 ohm, check all contacts for a closed circuit value of less than 1 ohm and an open circuit value of at least 100 megohms.

e. Repair. Replace rotary switch if any of the conditions described in *d* above exist.

4-25. Toggle Switch (Figure 4-8).

Selector switch (SW-2) (98) is a double pole, double throw toggle switch used to transfer the thermocouple input of the potentiometer circuit between heater cable and check cable connectors.

a. Removal.

(1) Remove deck assembly (para. 4-32).

(2) Identify and tag wiring. Unsolder and remove wiring from toggle switch (98).

(3) Unscrew and remove seal nut (99) from toggle switch. Remove toggle switch from bottom of deck (128).

b. Disassembly. No disassembly is required.

c. Cleaning.

(1) Clean switch with a soft brush.

(2) Use a cloth moistened in dry cleaning solvent (item 1, table 1-1) to remove foreign matter.

d. Inspection and Testing.

(1) Operate toggle switch several times. Toggle action should be positive with an audible click as toggle switch operates.

(2) Make sure terminals and attaching rivets are secure and will not turn or move.

(3) Inspect switch terminals for corrosion.

(4) Using an ohmmeter capable of accurately reading values of 1 ohm, check switch contacts for a closed circuit value of less than 1 ohm and an open circuit value of at least 100 megohms.

(5) Inspect shank of toggle switch and attaching hardware for damaged threads.

e. Repair. Replace toggle switch if any of the conditions described in *d* above exist.

4-26. Connectors. (Figure 4-8)

NOTE

Except for location of the connectors in the deck and the number of solder terminals, removal procedures are identical.

a. Removal.

(1) Remove deck assembly (para. 4-32).

(2) Identify and tag wiring. Unsolder and remove wires from connector (78).

(3) Remove screws and lockwashers that secure mount (9) (if applicable) and connector to deck. Remove mount and connector.

NOTE

Remove gasket only if damaged.

(4) Remove connectors (88, 100, and 110) as outlined in (2) and (3) above.

b. Disassembly. No disassembly is required.

c. Repair. No repair is required except to straighten bent pins.

4-27. RPM Check Assembly (Figure 4-9).

The RPM check assembly provides a pulsating dc output independent of voltage variations in tachometer output, but proportional to frequency of tachometer output. The RPM check assembly consists of a resistance-capacitance coupled, two-stage, low-frequency amplifier used to drive a sensitive relay at the engine tachometer generator frequency. As the tachometer generator shaft rotates, the relay contacts open and close, providing pulsating dc to a galvanometer (GALVO-2) proportional to the engine tachometer generator frequency. As the frequency increases, the average dc component of the pulsating dc increases. The potentiometer connected to the RPM knob provides an adjustable dc voltage to a galvanometers (GALVO-2) used to balance the output signal from the RPM check assembly. When zero indication is obtained on GALVO-2, percent RPM can be read on the % scale.

a. Removal.

(1) Remove deck assembly (para.4-32).

(2) Remove galvanometers (69, fig. 4-8) (para. 4–19*a*).

(3) On RPM check assembly (54, fig. 4-8), locate terminal designations adjacent to solder terminals and make sure attached wiring is coded to correspond with terminal designations. Identify and tag any unmarked wiring.

(4) Unsolder all connecting wiring from RPM check assembly.

(5) Loosen setscrews and remove knobs from potentiometer (61) and selector switch (12, fig. 4-9). Remove seal nut from selector switch.

(6) Remove screws (57, fig. 4-8) and lockwashers (59 which secure RPM check assembly (54) to deck (128). Remove RPM check assembly.

b. Disassembly (Figure 4-9).

(1) Unlatch clamp (19) and remove relay (1) by unplugging from socket.

(2) Remove tube shields and tubes (para. 4-36).

NOTE

Normally, disassembly beyond this point is not accomplished except on an as required basis. Com-

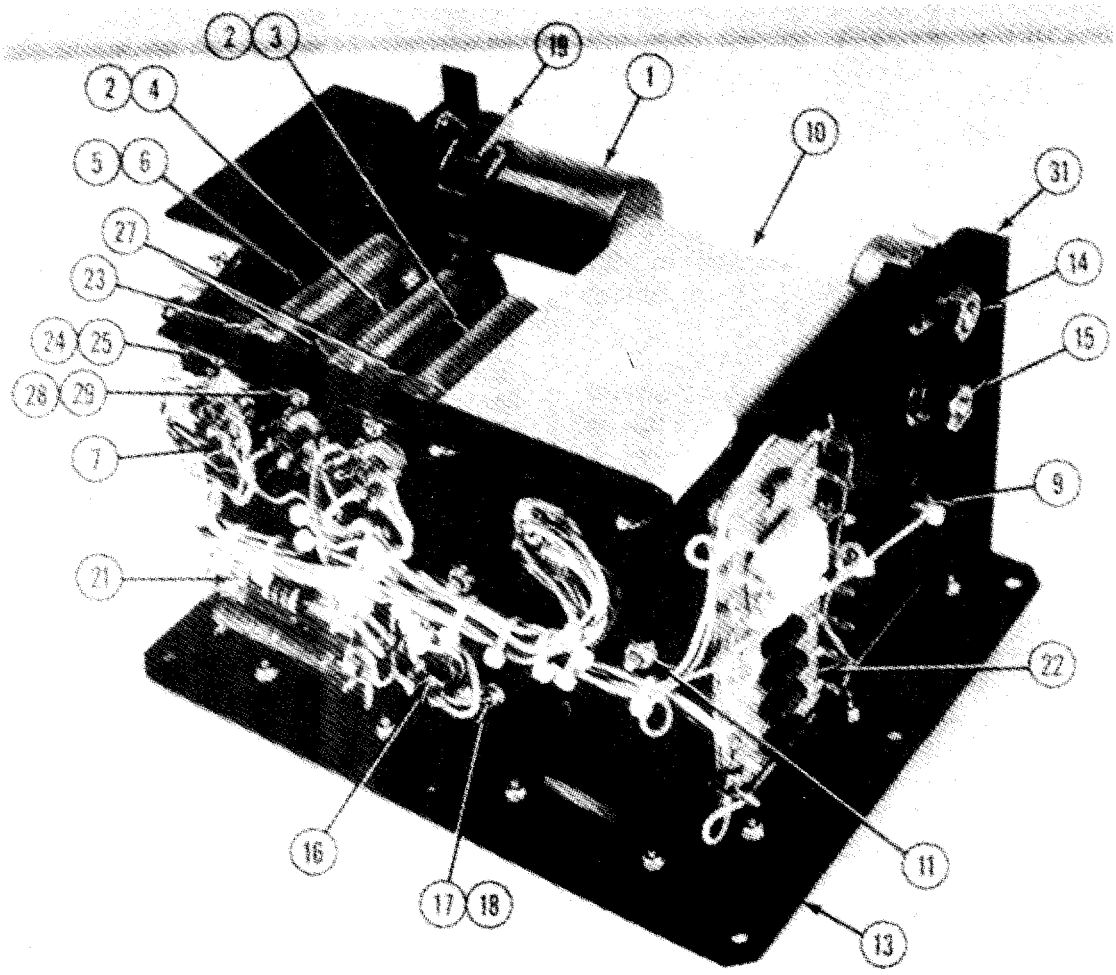


Figure 4–9. BH146 Takcal assembly (sheet 1 of 2).

ponents can be tested in place by isolating terminals or leads of component from the circuit to which they are connected and testing with suitable test equipment.

(3) Remove remaining components as required by unsoldering wires and removing attaching hardware.

c. Cleaning.

(1) Use a camel's hair or other suitable soft brush to remove dust and dirt from components.

(2) Use a cloth or swab dampened in dry cleaning solvent, (item 1, table 1-1), or other approved solvent to remove adhering foreign matter.

d. Inspection and Testing.

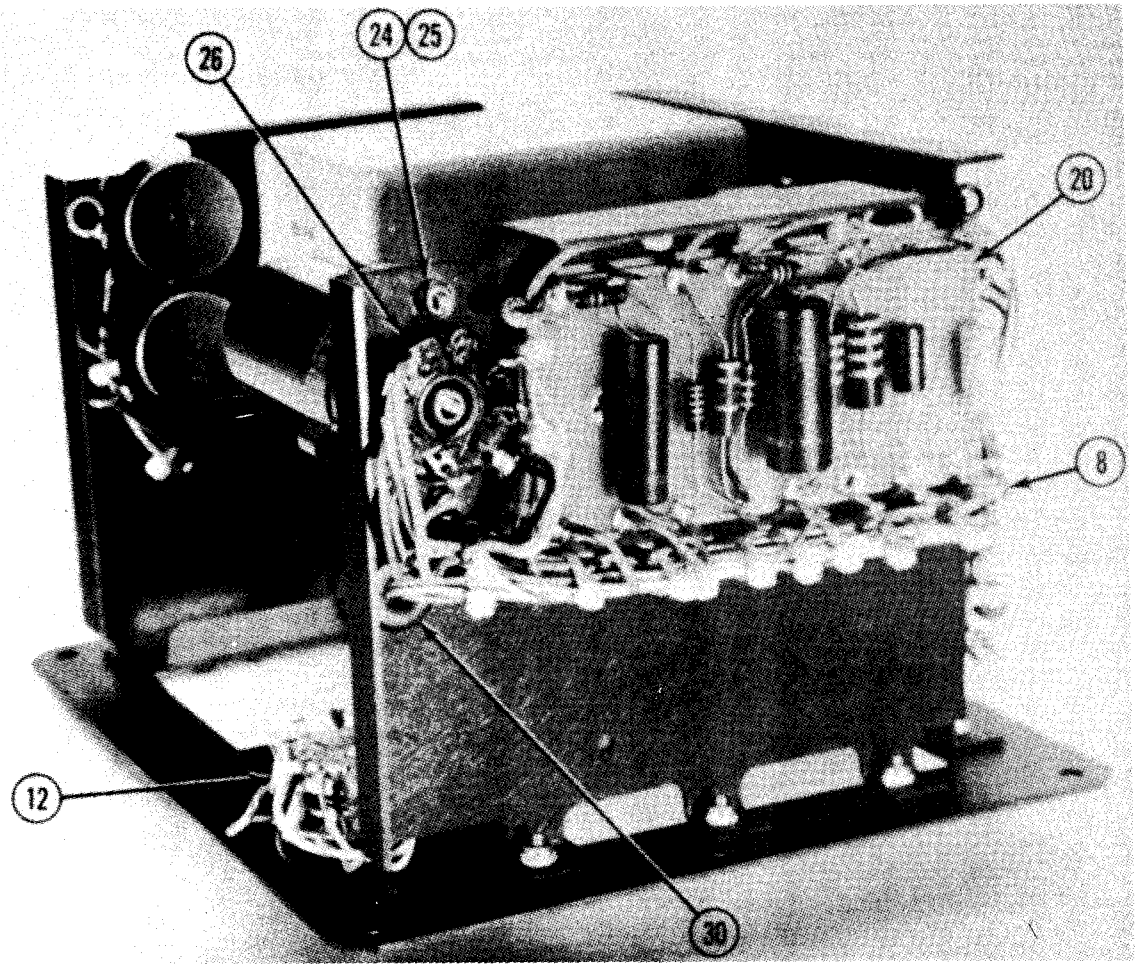
(1) Inspect terminal boards for cracks, separation, and carbonized paths between elements or to chassis, and security of terminals and components.

(2) Inspect for cold solder joints and corrosion at all solder terminals.

(3) Inspect all components for damage and signs of overheating. Inspect components with leads (resistors, etc) for corrosion at point where leads join body.

(4) Inspect tube and relay sockets for broken terminals and other damage. Inspect for carbonized paths between terminals and between terminals and ground. Inspect for loose or missing attaching hardware.

(5) Test tubes, using a suitable tube tester.



Key To Figure 4-9

1. Relay
2. Cover
3. Tube, 6202
4. Tube, OA2
5. Cover
6. Tube, 12BH7
7. Socket
8. Wiring Loom
9. Grommet
10. Transformer
11. Nut
12. Selector Switch
13. Subdeck
14. Rheostat
15. Rheostat
16. Condenser
17. Screw
18. Nut
19. Clamp
20. Terminal Board
21. Terminal Board
22. Terminal Board
23. Socket
24. Screw
25. Nut
26. Socket
27. Socket
28. Screw
29. Nut
30. Grommet
31. Chassis Assembly

Figure 4-9. BH146 Takcal assembly (sheet 2 of 2).

(6) Use a decade resistance bridge or other precision resistance checker to make sure all resistors are within tolerance.

NOTE

Unsolder one lead of resistor under test to isolate from circuit.

(7) Use a suitable capacitor checker to test all capacitors for leakage and capacity.

(8) Inspect cable harness and all wiring for broken wires and condition of insulation.

(9) Inspect all wiring for shrinking of insulation or other signs of overheating.

(10) Inspect electrolytic (polarized) capacitors for leakage of electrolyte.

(11) Use an ohmmeter or suitable continuity checker to test transformer for open windings, continuity between windings, or continuity between windings and case.

e. Repair.

(1) Replace any of the printed circuit boards if any of the following conditions exist:

(a) Separation of plies in board material.

(b) Cracks over 1/8 inch in length, or extending into a terminal mounting.

(c) Carbonized paths between terminals or between terminals and ground.

(d) Loose, separated, or broken terminal lugs.

(2) Separate all components at cold soldered or corroded joints. Clean terminal and conductors of all corrosion and excess solder. Tin all surfaces to be soldered and remake joint.

CAUTION

Provide a heat sink on precision resistor leads between body of resistor and point being soldered or tinned to prevent damage from overheating when soldering.

(3) Replace nicked or scored components or components with broken leads. Replace any component showing signs of overheating and determine cause.

(4) Replace tube or relay sockets if damaged or if carbonized paths are found. Replace or tighten missing or loose attaching hardware.

(5) Replace defective tubes (para. 4-36.)

(6) Replace resistors not within tolerance indicated on body.

(7) Replace any capacitors not within tolerance or showing excessive leakage.

(8) Repair broken wiring in cable harness as follows:

(a) If slack in wire beyond end of cable permits, bare 1/4 inch of wire at break and install in terminal in place of broken end.

(b) If insufficient slack is present, splice a suitable length of same size and color wire at break and cover splice with 3/32- or 1/8-iinch plastic tubing or an approved electrical tape. If same color wire is not available, use white wiring and color code insulation on terminal end with color(s) of original wire.

(c) If wiring break is detected within cable harness and is readily located, repair as in (b) above. Do not splice more than once in any conductor.

(d) If wiring break is detected within cable harness and not readily located, replace wire as outlined in (9) below.

(e) Cover any minor damage to wiring insulation by covering individual wires with 3-32- or 1/8-inch plastic tubing.

(9) Repair wiring having burnt or shrunken insulation as follows:

(a) Trace affected wire to its origin. Unclamp and untie cable harness along entire length of affected wire.

(b) Examine other wires in cable harness for heat damage to insulation.

(c) Replace entire length of all damaged wiring, using same size and color wire. If same color wire is not available, use white wiring and color code insulation on both ends with color(s) of original wire.

(d) Bundle wiring along original path of cable harness and lace in accordance with instructions contained in TM 55-1500-323-25 at 1-inch intervals.

(10) Replace potentiometer if erratic action is noted as adjusting screw is turned.

(11) Replace electrolytic (polarized) capacitors if swollen or signs of electrolyte leakage are noted at seams or terminals.

(12) Replace relay clamp if defective.

(13) Replace transformer if conditions in *d(* above exist.

4-28. Potentiometer (%RPM) (Figure 4-8).

a. Removal.

(1) Remove deck assembly (para. 4-32*a*).

(2) Remove rpm check assembly (para. 4–27*a*).

(3) Identify and tag wiring. Unsolder and remove wiring from potentiometer (61).

(4) Remove screws (62) and lockwashers (63) which secure potentiometer to deck. Remove potentiometer.

NOTE

Remove gasket (0 ring) only if damaged.

b. Disassembly and Repair. No disassembly or repair is required. Replace on an as required basis.

4-29. Probe Storage Compartment Assembly (Figure 3-1).

The probe storage compartment assembly provides compact storage facilities for the heater probes. The interior of the probe storage compartment and the probe rack allows storage of hot heater probes without prior cooling. Two trunk-type latches and a stop arm are provided to secure the lid in either the closed or open position.

a. Removal.

(1) Unlatch and raise probe storage compartment (6).

(2) Properly support probe storage compartment (6) and remove screws (30) and stop arm supports (9) from stop arms (8).

CAUTION

Before removing the probe storage compartment (6), insure that it is properly supported to prevent damage to the base assembly (29).

(3) Remove stop arms (8) from tracks.

(4) Remove hinge pin (32) from probe storage compartment hinge and lift probe storage compartment (6) from base assembly (29).

b. Disassembly.

(1) Remove screws (8), stop arm support (6), and spacer (7). Remove stop arm (9) from track in lid (5).

(2) Remove hinge pin (10) and remove lid.

(3) Remove rack (11) by removing attaching screws and washers.

c. Cleaning. Clean all parts of probe storage compartment assembly with dry cleaning solvent (item 1, table 1-1).

d. Inspection and Repair.

(1) Inspect interior and exterior of probe storage compartment (14) and lid (5) for dents, misalignment, condition of paint, and corrosion.

(2) Inspect hinge pin (10) for corrosion, deep scoring, and damage. Replace if defective.

(3) Inspect stop arm (9) for misalignment and excessive wear.

(4) Inspect rack (11) for damage, misalignment, condition of paint, and corrosion.

(5) Dents in lid, probe storage compartment, stop arm, and rack are permissible, providing they do not affect the alignment, rigidity, or utility of the component. Remove dents and restore alignment using an arbor press or other suitable equipment.

(6) Remove corrosion and scratched, peeling, or deteriorated paint with a suitable abrasive such as abrasive paper (item 3, table 1-1). Coat exposed surfaces to be painted with zinc chromate primer (item 4, table 1-1), and allow to dry. Repaint in accordance with TM 43-0139. Mask off loops in hinges, threaded holes, and other working surfaces.

(7) Replace stop arm if slide on upper end is damaged or worn so that it will not operate properly.

(8) Replace screw and spacer if thread damage or other condition is evident that would cause improper operation.

(9) Replace hinges, latches, or tracks that are defective or damaged beyond economical repair.

4-30. Handle Assembly.

The handle assembly is constructed of rigid metal tubing and is attached to the tester with a ratchet-type pivot socket at each side to provide positive locking at regular intervals. The handle is locked in the desired position by tightening wing nuts located at the pivot axis.

a. Removal. (Figure 3-1)

(1) Remove wing nuts (25) from bolts (26).

(2) Remove handle assembly from tester by springing handle (31) over bolts (26).

(3) Remove pivot sockets (27) from handle (31).

b. Disassembly. Disassembly is accomplished by removal.

c. Cleaning. Clean all components with dry cleaning solvent (item 1, table 1-1).

d. Inspection and Repair.

(1) Inspect all painted surfaces for general condition.

(2) Inspect handle for misalignment, elongated mounting holes, dents, and scoring.

(3) Inspect pivot socket mating parts for broken or excessively worn teeth.

(4) Inspect attaching hardware for thread damage, elongated mounting holes, and overall condition.

(5) Misalignment of handle can be corrected with a suitable press. Inspect curved portions of handle carefully after alignment is corrected for cracks, kinking, or other signs of weakening. Replace handle if these conditions exist.

(6) Dents and scoring are permissible provided overall rigidity is not affected. Burnish off any burrs or rough spots.

(7) Elongation of all mounting holes is permissible providing longest dimension of elongation does not exceed diameter of bolt by approximately one-third.

(8) Replace complete pivot socket assembly if either part has broken teeth or if wear allows slippage when assembled and wing nuts are hand tight.

(9) Remove any corrosion and scratched, peeling, or deteriorated paint with a suitable abrasive such as abrasive paper, (item 3, table 1-1). Coat exposed surfaces with zinc chromate primer, (item 4, table 1-1), and allow to dry. Repaint in accordance with TM 43-0139.

4-31. Base Assembly (Figure 3-1).

The base assembly provides rolling support and a cable storage compartment for the tester. Wheels and a support post on the bottom of the base assembly are provided for ease in transporting the tester to operating locations. The base assembly is sectionalized to provide an upper compartment containing electronic components and a lower compartment used for cable storage. A hinged door is provided in the base assembly for access to the cable storage compartment.

a. Removal.

(1) Remove probe storage compartment.

(2) Remove handle assembly.

(3) Remove voltage regulator (para. **4–16*a*).**

(4) Remove cable and printed circuit board assembly, part number BH1766 (para. **4–17*a*).**

b. Disassembly.

(1) Unfasten fastener (17) and remove hinge pin (15). Remove door (16). Remove snap ring (18), grommet (19), and fastener (17) from door.

(2) Remove spring (20), locknut (22), and screw (21) from bottom lip of compartment.

(3) Provide several thicknesses of cloth or packing and invert base assembly (31) to gain access to components on bottom.

(4) Remove locknuts (25), screws (24), and support post (23).

(5) Remove retaining rings (27) and slide wheels (26) off axle of wheel mount (28).

(6) Remove locknuts (30), screws (29), and wheel mounts (28).

c. Cleaning. Clean all parts of base assembly with dry cleaning solvent (item 1, table 1-1).

d. Inspection and Repair.

(1) Inspect interior and exterior of base assembly for dents, misalignment, condition of paint, and corrosion.

(2) Inspect hinge pin for corrosion, deep scoring, and damage. Replace if defective.

(3) Inspect all attaching hardware for shearing, stripped threads, and corrosion.

(4) Inspect support posts and wheel mounts for excessive wear, misalignment, scoring, and corrosion.

(5) Inspect wheels for misalignment. Inspect tires for cuts, gouges, and cracks or other signs of deterioration.

(6) Dents in base assembly are permissible providing they do not affect its alignment, rigidity, or utility. Restore alignment and remove dents with an arbor press or other suitable equipment.

(7) Remove corrosion and scratched, peeling, or deteriorated paint with a suitable abrasive such as abrasive paper (item 3, table 1-2). Coat exposed surfaces to be painted with zinc chromate primer (item 4, table 1-2), and allow to dry. Repaint in accordance with TM 43-

0139. Mask off loops in hinges, mounting holes, and other working surfaces.

(8) Cuts and gouges in wheels are permissible on wheels if rigidity and utility of wheel is not affected. Cut off any loose ends if rubber shows cracks or other signs of deterioration.

(9) Replace any remaining components with like serviceable items if defective.

4-32. Deck Assembly (Figure 4-6).

The deck assembly (4) provides a mounting base for the tester control knobs, instruments, connectors, and switches. The deck assembly is constructed of machined black plastic or metal painted black with the markings recessed and painted white for legibility. Two stop arm supports are screw-mounted in the deck assembly for attachment of the probe storage compartment stop arms. A power source is connected to the tester. A lamp is provided in both galvanometers (GALVO-1 and GALVO-2) to obtain an accurate reading during test operations. Two fuses are provided in the deck assembly to protect the tester electrical system against electrical overload. Each fuseholder cap incorporates a light fixture to indicate when a fuse has blown.

a. Removal.

(1) Remove probe storage compartment from tester.

(2) Loosen setscrews which secure knob (3) to shaft of voltage regulator (7). Remove knob.

CAUTION

Knob (3) must be removed before attempting to raise the deck assembly.

(3) Remove screws (5) which secure deck assembly (4) to box assembly (18).

CAUTION

The power lead cable must be disconnected at the deck assembly to prevent damage to the tester electrical components.

(4) Raise deck assembly (4) on its edge and disconnect power lead cable at bottom of deck assembly.

CAUTION

Do not set the deck assembly so that electrical components on the bottom will be damaged.

(5) Remove deck assembly (4) from box assembly (18) and place on a suitable test bench.

NOTE

The deck assembly may be removed with the probe storage compartment installed; however, the probe storage compartment must be properly supported until the deck assembly has been installed and the probe compartment stop arms reconnected.

(6) Remove deck gasket (6) from box assembly (18).

NOTE

The deck gasket should be replaced at each removal; however, if a new deck gasket is not available, exercise care to preserve the original deck gasket.

b. Installation.

CAUTION

Carefully inspect interior of box assembly to insure that all foreign matter has been removed.

NOTE

If a new deck gasket is not available, carefully examine the original deck gasket for damage or deterioration. Apply sealing compound (item 5, table 1-1) as necessary to obtain a good seal.

(1) Seat deck gasket (6) in flange of box assembly (18).

(2) Carefully position deck assembly (4) on box assembly (18) and properly support on its side.

(3) Connect power lead cable at bottom of deck assembly (4) and carefully lower deck assembly on flange of box assembly (18).

(4) Secure deck assembly (4) to box assembly (18) with screws (5).

(5) Turn shaft of voltage regulator (7) to its extreme counterclockwise travel.

(6) Carefully position knob (3) on shaft of voltage regulator with pointer aligned on zero and tighten setscrews.

NOTE

Insure that shaft of voltage regulator remains at its extreme counterclockwise travel with pointer of knob (3) aligned on zero while tightening setscrews.

(7) Install probe storage compartment.

4-33. Replacement of Galvanometer (GALVO-1 and GALVO-2) Lamps.

a. Perform steps (1) through (3) of paragraph **4–32*a*.**

CAUTION

Knob (3, fig. 4-6) must be removed before attempting to raise deck assembly.

b. Raise deck assembly (4, fig. 4-6) on its edge and properly support.

c. Remove dust cover from bottom of galvanometers (29, fig. 4-8) and/or galvanometers (69).

d. Press in on lamp, rotate 90 degrees counterclockwise, and lift from lampholder.

NOTE

Replace galvanometer lamps with Tungsol TS-55 lamps, or equivalent. If light beam pointer is not bright enough or there is a double image, use another lamp to obtain proper filament focus, or loosen the setscrew that holds the lampholder in place with a 0.050" hex key. Rotate and move the lampholder until a sharp even pointer is obtained. Tighten setscrew and recheck pointer image.

e. Insert replacement lamp in lampholder, press in, and rotate 90 degrees clockwise.

f. Reinstall dust cover on bottom of galvanometer.

g. Carefully lower deck assembly (4, fig. 4-6) on flange of box assembly (18).

NOTE

The deck gasket should be replaced at each removal; however, if a new deck gasket is not available, exercise care to preserve the original deck gasket.

h. Perform steps (4) through (7) of paragraph **4–32*b*.**

4-34. Replacement of POWER ON Lamp (Figure 4-8).

a. Unscrew and remove cover from POWER ON light (6, fig. 2-1).

b. Press in on lamp, rotate 90 degrees counterclockwise, and lift from lampholder (76). (Figure 4-8).

c. Insert replacement lamp (77) in lampholder (76), press in, and rotate 90 degrees clockwise.

d. Reinstall cover on POWER ON light (6, fig. 2-1).

4-35. Replacement of Fuses (Figure 4-8).

NOTE

A blown fuse is indicated by a light fixture incorporated in the fuseholder cap.

a. Rotate fuseholder cap counterclockwise until it springs up slightly from fuseholder (73).

b. Lift fuseholder cap from fuseholder.

c. Remove fuse (74 and 75) from fuseholder cap.

d. Insert replacement fuse firmly in fuseholder cap.

e. Position fuseholder cap on fuseholder.

f. Press fuseholder cap in slightly and rotate clockwise to tighten.

4-36. Replacement of RPM Check Assembly Tubes (Takcal Unit.)

The RPM check assembly is provided with a 12BH7, nine-pin base, twin-triode tube; an OA2, seven-pin base, gas-filled voltage regulator tube; and a 6202, seven-pin base, full wave rectifier tube. The 12BH7 tube (6, fig. 4-9) is used as a resistance coupled amplifier. The OA2 tube (4, fig. 4-9) is used to maintain power used by the 12BH7 tube circuit at 150 volts. The 6202 tube (3, fig. 4-9) is used to transform ac power to dc power.

a. Perform steps (1) through (3) of paragraph 4–32*a*.

CAUTION

Knob (3, fig. 4-6) must be removed before attempting to raise deck assembly.

b. Raise deck assembly (4, fig. 4-6) on its edge and properly support.

c. Remove tube shield and defective tube from RPM check assembly.

CAUTION

Use only ruggedized tubes for replacement.

d. Install proper replacement tube and tube shield in RPM check assembly.

e. Carefully lower deck assembly (4) on flange box assembly (18).

NOTE

The deck gasket should be replaced at each removal; however, if a new deck gasket is not available, exercise care to preserve the original deck gasket.

Section IV. REASSEMBLY AND ALIGNMENT

4-37. General.

This section contains instructions for authorized reassembly and/or installation and adjustment procedures for the potentiometer, resistance check, insulation check, and RPM check circuits of the tester.

NOTE

No adjustment procedures for the egt indicator check circuit are necessary The circuit will be properly adjusted if the potentiometer circuit is in adjustment. Refer to Table 4-1 for egt indicator check circuit troubleshooting.

4-38. Voltage Regulator (Figure 4-6).

a. Reassembly. No reassembly of voltage regulator is required.

b. Installation.

(1) Install voltage regulator (7) on box assembly (18) and secure with lockwashers (9) and bolts (8).

(2) Using figure 4-15 as a guide, connect wiring to rear of voltage regulator (7), (Figure 4-6).

(3) Install deck assembly (para. 4-32*a*).

c. Alignment. The only alignment necessary is that the knob pointer be at 0 when the voltage regulator is against its counterclockwise stop.

4-39. BH1766 Printed Circuit Board Assembly and Cable (Figure 4-6).

a. Reassembly.

(1) Connect and solder all component leads removed in paragraph 4–17*b* (3).

(2) Plug transformer (11, fig. 4-7) into socket on printed circuit board (24) and align mounting studs with mating holes in printed circuit board. Carefully work studs through holes until printed circuit board is flush with transformer housing. Install nuts.

(3) Install rectifiers (2) and fuse (13) in fuse and rectifier holders.

NOTE

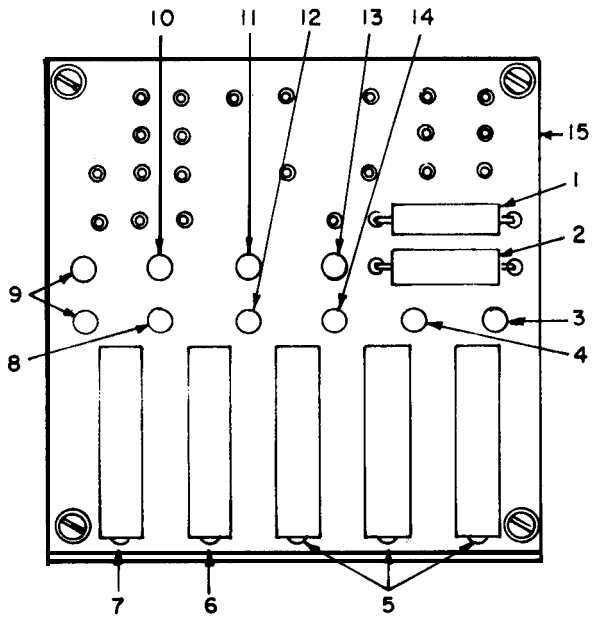
Observe polarity when installing rectifiers. Arrowhead of diode symbol on rectifier should point toward positive (+) terminal. Rectifier holders are polarized.

b. Installation. (Figure 4-6).

(1) Connect wiring to voltage regulator (7).

(2) Install cable and printed circuit board assembly (16) on box assembly (18) and secure with screws (17).

(3) Install deck assembly (para. 4-32



Key to Figure 4–10

1. Resistor
2. Resistor
3. Resistor
4. Resistor
5. Potentiometer
6. Potentiometer
7. Potentiometer
8. Resistor
9. Resistor
10. Resistor
11. Resistor
12. Resistor
13. Resistor
14. Resistor
15. Printed Circuit Board

Figure 4-10. BH1760 printed circuit board assembly.

4-40. BH1760 Printed Circuit Board Assembly (Figure 4-10).

a. Reassembly. No reassembly of the printed circuit board assembly is required.

b. Installation.

(1) Position printed circuit board assembly (49, fig. 4–8) on deck (128) and secure with spacers (53) and screws (50).

(2) Solder wiring in bundle to corresponding terminals on printed circuit board assembly.

(3) Install deck assembly (para. 4-32*b*).

c. Deleted.

Figure 4-11. Deleted.

4-41. Galvanometers (GALVO-1 and GALVO-2) (Figure 4-8).

a. Reassembly. No reassembly is required except step *b*(2) below.

b. Installation.

CAUTION

Failure to provide cover for the deck may result in damage from melted solder or hot soldering iron.

(1) Feed wiring through openings in dust cover and connect to proper terminals in galvanometers (29) and 69). Provide several thicknesses of cloth or other suitable cover for top of deck (128).

All data on page 4-33 deleted.

(2) Solder wiring to terminals in galvanometers. Install dust cover and screw at rear of galvanometer.

(3) Install galvanometers through opening in deck, taking care not to damage wiring or nearby components.

(4) Install screws which secure galvanometers in deck.

4-42. Potentiometer (°C) (Figure 4-12).

a. *Reassembly.* No reassembly is required.

b. Installation.

NOTE

If removed, install new gasket (O ring) on potentiometer.

(1) Install potentiometer (19, fig. 4-8) in deck (128). Install screws which secure potentiometer in deck.

(2) Connect and solder wiring to proper terminals on potentiometer.

(3) Install knob on potentiometer and tighten setscrew.

(4) Install voltage regulator and BH-1766 printed circuit board assembly (para. **4–38*b*** and **4–39**

(5) Install deck assembly (para. 4-**32*b*).**

4-43. Insulation Check Meter (Figure 4-8).

a. Reassembly. No reassembly is required.

b. Installation.

CAUTION

Failure to provide cover for top of deck may result in damage from melted solder or hot soldering iron.

(1) Connect and solder wiring to proper terminals of meter (39). Provide several thicknesses of cloth or other suitable cover for top of deck (128).

(2) Install meter through opening in deck, taking care not to damage wiring or nearby components.

(3) Install screws which secure meter in deck.

4-44. Potentiometer (R-1) (Figure 4-8).

a. Reassembly. No reassembly is required.

b. Installation.

(1) Install shaft of potentiometer (13) through opening in deck (128). Install grommet and nut which secure potentiometer in deck.

(2) Install knob (12) on potentiometer and tighten setscrew.

(3) Connect and solder wiring to proper terminals of potentiometer.

(4) Install deck assembly (para. 4-**32**

4-45. Rotary Switches (Figure 4-8).

a. Reassembly. No reassembly is required

b. Installation.

(1) Install shaft of rotary switches (10, 16, 34, and 37) through opening in deck (128). Install seal nut which secures rotary switch in deck.

(2) Install knobs on rotary switches and tighten setscrews.

(3) Connect wiring to proper terminals of selector switches and secure with screws or solder.

(4) Install deck assembly (para. 4-**32*b*).**

4-46. Toggle Switch (Figure 4-8).

a. Reassembly. No reassembly is required.

b. Installation.

NOTE

If removed, install new grommet over switch handle of toggle switch.

(1) Install toggle switch (98) through opening in deck (128). Secure toggle switch in deck with knurled retaining cap.

(2) Connect and solder wiring to proper terminals on toggle switch. Tin chromel-alumel wire as follows if required:

(a) Carefully clean all dust, grease, and insulation from section to be joined.

(b) Silver solder stripped section, using silver solder, (item 6, table 1-2), and rosin flux, (item 7, table 1-1).

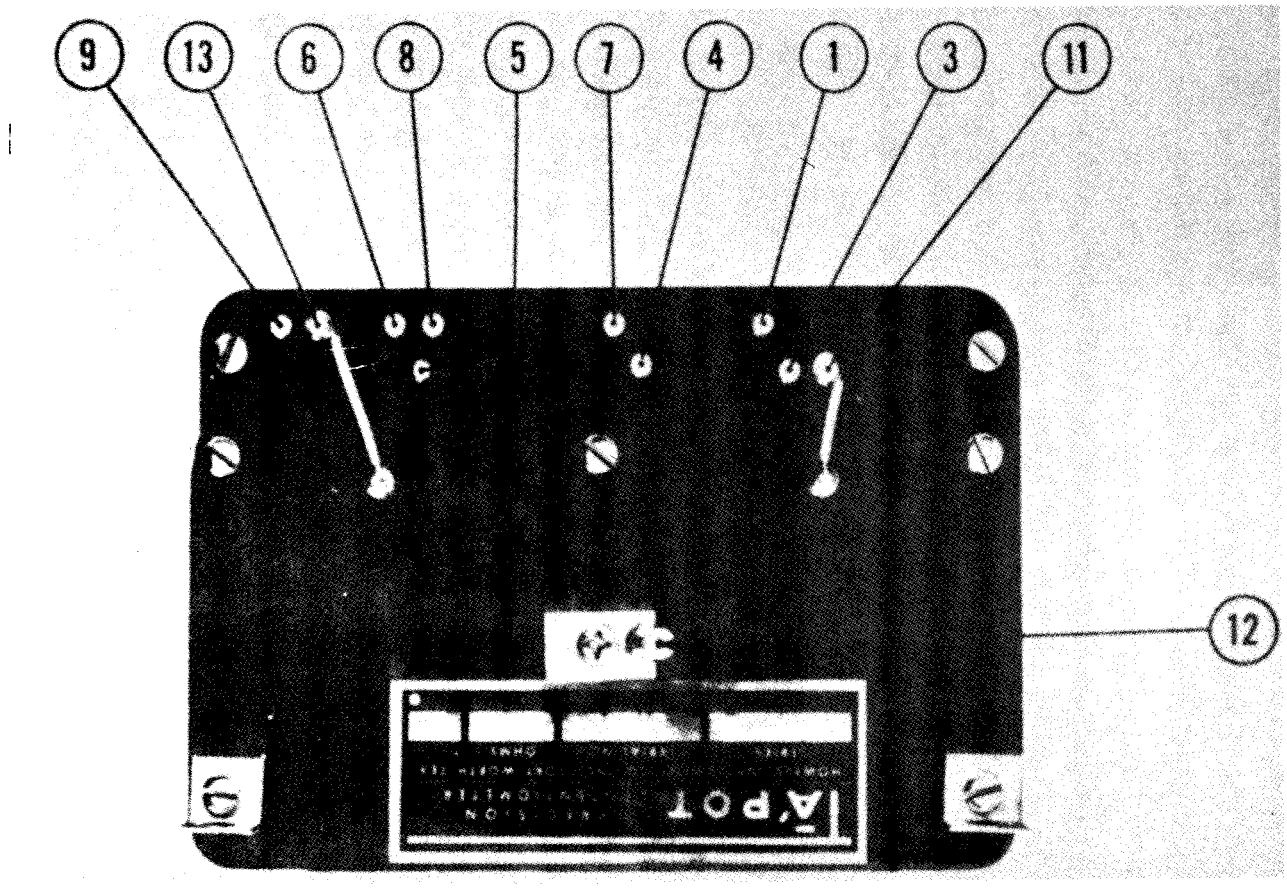


Figure 4-12. Terminal locations, potentiometer °C.

(c) Break off hard flux formed over silver solder.

(d) Make connection using rosin core solder, (item 8, table 1-2).

(3) Install deck assembly (para, 4-32

4-47. Connectors (Figure 4-8).

a. Reassembly. No reassembly is required.

b. Installation.

NOTE

Install new gasket if removed.

(1) Install connector (78) through opening in deck (128). Align mount (9) on deck and secure with screws and lockwashers.

(2) Connect and solder wiring to proper terminals on connector.

(3) Install connectors (88, 100, and 110) as outlined in (1) and (2) above.

NOTE

On connectors (88 and 100), tin chromel-alumel leads, if required.

(4) Install deck assembly (para. 4-32b).

4-48. RPM check assembly.

a. Reassembly.

(1) Install relay (1, fig. 4-9) in socket and engage clamp (19).

(2) Install tubes and tube shields (para. 4-36).

(9) Install all other parts removed in paragraph 4-27b.

b. Installation.

(1) Position RPM check assembly (54, fig. 4-8) on deck (128) and secure with screws (57) and lockwashers (59).

(2) Install seal nut on selector switch (12, fig. 4-9). Install knobs on selector switch and potentiometer (61, fig. 4-8) and tighten setscrews.

(9) Connect and solder wiring to proper terminals of RPM check assembly (54).

(4) Install galvanometers (69) (para. 4-41

(5) Install deck assembly (para. 4 32b).

c. Deleted.

4-49. Potentiometer (%RPM) (Figure 4-8).

a. Reassembly. No reassembly is required.

b. Installation.

(1) Position potentiometer (61) in RPM check assembly (54) and secure with screws and lockwashers.

(2) Connect and solder wiring to proper terminals of potentiometer.

(3) Install RPM check assembly.

(4) Install deck assembly (para. 4-32b).

4-50. Probe Storage Compartment Assembly (Figure 3-1).

a. Reassembly.

(1) Install rack (11) and secure with screws and washers.

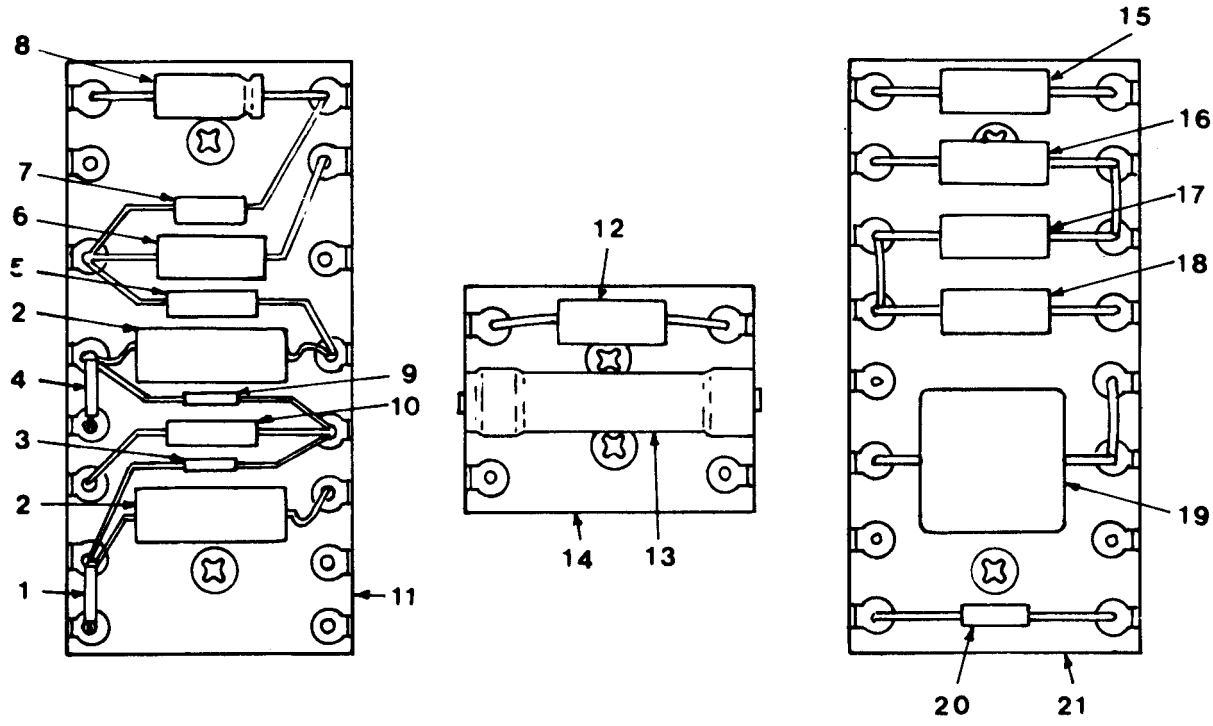
(2) Install lid (5) on probe storage compartment (14) and properly align mating hinge halves. Install hinge pin (10).

CAUTION

Do not drop or rest lid in full open position. Possible damage to hinges or misalignment may result.

(3) Raise lid and install strip arm (9) in track in lid. Align lower end of stop arm with mounting flange in bottom of probe storage compartment and secure with screw (8), stop arm support (6) and spacer (7).

b. Installation. Install probe storage compartment.



Key to Figure 4–13

1. Resistor	8. Condenser	15. Resistor
2. Capacitor	9. Resistor	16. Resistor
3. Resistor	10. Resistor	17. Resistor
4. Resistor	11. Terminal Board	18. Resistor
5. Condenser	12. Resistor	19. Capacitor
6. Resistor	13. Resistor	20. Resistor
7. Resistor	14. Terminal Board	21. Terminal Board

Figure 4-13. Terminal board assemblies.

4-51. Handle Assembly.

a. Reassembly. Reassembly is accomplished by installation.

b. Installation. Install handle assembly (para. **3–3*a*).**

4-52. Base Assembly (Figure 3-1).

a. Reassembly.

(1) Install wheel mounts (28) and secure with screws (29) and locknuts (30).

(2) Install wheels (26) on axle of wheel mounts (28) and secure with retaining rings (27).

(3) Install support post (23) and secure with screws (24) and locknuts (25).

(4) Set base assembly (31) in an upright position.

(5) Install spring (20), screw (21), and locknut (22) in proper position on bottom lip of compartment.

(6) Install fastener (17), grommet (19), and snap ring (18) on door (16). Align hinge half on door properly with hinge half on base assembly (31) and install hinge pin (15).

b. Installation.

(1) Install cable and printed circuit board assembly, part No. BH1766 (para. **4–38*b*).**

(2) Install voltage regulator (para. **4–39**

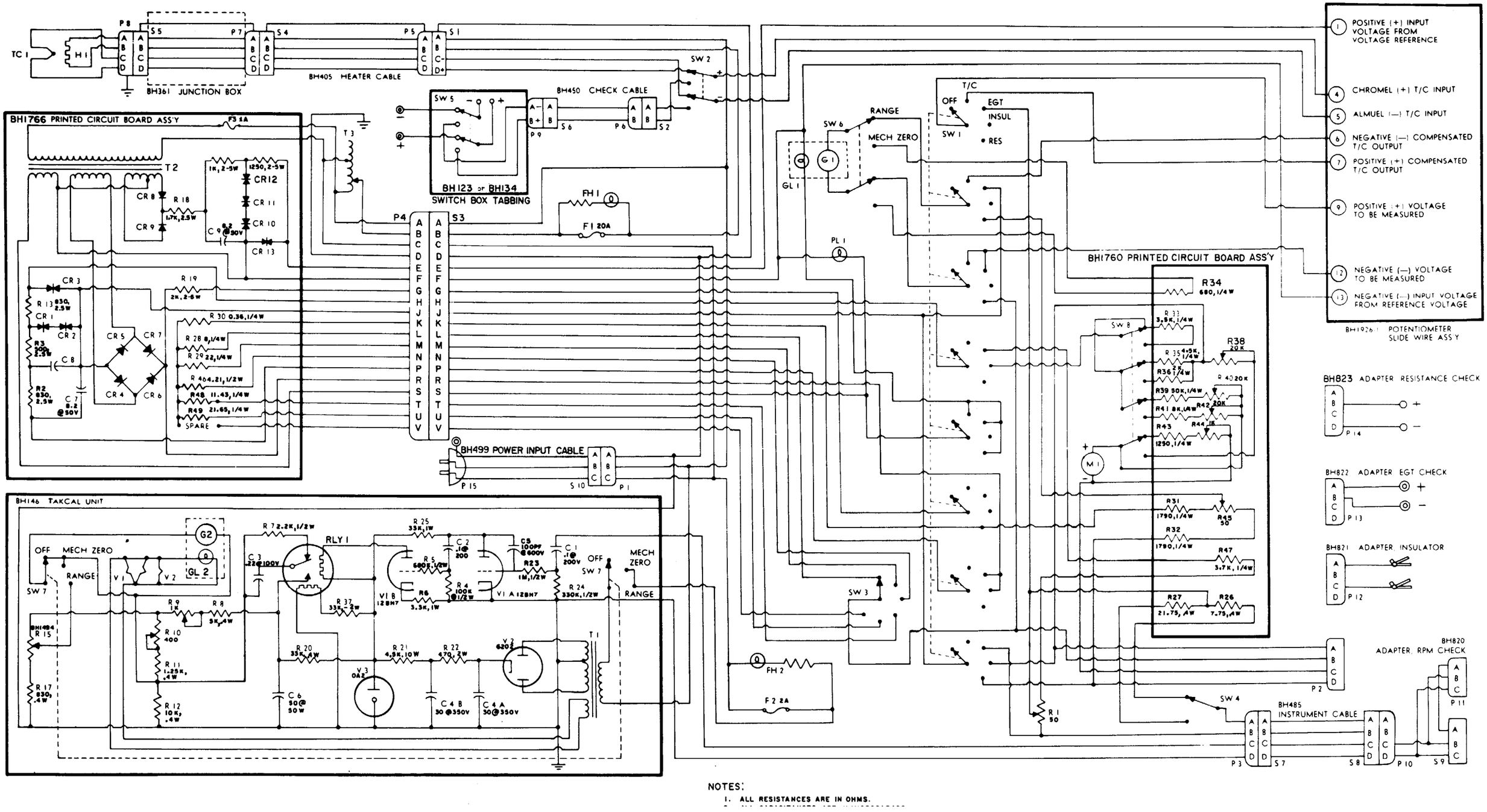
(3) Install handle assembly (para. **3–3*a*).**

(4) Install probe storage compartment (para. **3–18*d*).**

Figure 4-14. **Deleted**

Section V. ALPHA-NUMERIC PARTS LIST AND PROBE REFERENCE TABLE

This Section contains Table 4-2, Alphanumeric Parts List and Table 4-3, Probe Reference Table.



NOTES:

1. ALL RESISTANCES ARE IN OHMS.

Figure 4–15.

Table 4-2. Alpha-numeric Parts List.

Reference no.	Mfg code	Fig. no.	Item no.
ANCH4A	88044	3–6	8
AN253–2–1187	88044	4–10	15
AN253–2–1812	88044	4–10	10
AN3027–3	88044	4–8	98
AN500C6–8	88044	4–8	50
AN6227–10	88044	4–8	123
AN6227–5	88044	4–8	27
		4–8	68
AN931–4–7	88044	4–9	30
BH112JA–36		1–1	
BH1185		4–7	19
BH1194		4–8	44
BH123–3		B–1	5
BH1401		4–9	10
BH1428		4–14	19
BH1430		4–8	15
		4–8	33
		4–8	36
		4–8	55
BH1431		4–14	18
BH1433		4–14	7
BH1443		4–14	23
BH1444		4–14	15
BH1445		4–14	
BH1446		4–14	
BH1452		4–14	11
BH1455			
BH146		4–8	54
BH1468		4–9	21
BH1475		4–9	22
BH1476		4–14	20
BH1477		4–14	17
BH1479		4–9	20
BH1480–1		4–9	8
BH1480–2		4–9	9
BH1481		4–9	13
BH1484		4–9	31
BH1486		4–9	12
BH1494		4–8	61
BH1498		4–9	1
BH1504			
BH15158		4–8	23
		4–8	65
BH15159		4–8	120
BH15161		4–8	128
BH15164		4–8	22
		4–8	64
BH1569		4–7	6
BH1570		4–7	9
BH1571		4–7	5

Table 4-2. Alpha-numeric Parts List-Continued.

Reference no.	Mfg code	Fig. no.	Item no.
BH15913		4-7	12
BH165			
BH165-1			
BH1720			
BH1721		3-2	5
BH1722		4-12	1
BH1724		4-8	13
BH1726		4-10	
BH1726-2		4-10	
BH1727		4-10	31
BH1727-1		4-10	91
BH1732		4-10	14
BH1740			
BH1740-1			
BH1744		4-8	128
BH1751		4-8	34
BH1752		4-8	10
BH1753		4-8	37
BH1760		4-8	49
BH1760-1			
BH1761		4-11	15
BH1765		4-8	1
BH1766		3-6	16
BH1768		4-7	24
BH1768		4-7	1
BH1770		4-11	3
BH1771		4-11	4
BH1772		4-11	14
BH1773		4-11	12
BH1774		4-11	8
BH1775		4-11	9
BH1776		4-11	10
BH1777		4-11	11
BH1778		4-11	13
BH1780		4-7	8
BH1781		4-7	14
BH1782		4-7	15
BH1785		4-7	11
BH1795		4-10	11
BH1926-1		4-8	19
BH274		4-11	2
BH275		4-11	1
BH277			
BH3506		4-10	26
BH361-5		B-1	11
BH3670		4-7	3
BH3717		4-7	2
BH405		B-1	1
BH437		4-10	6
BH450		B-1	2

Table 4-2. Alpha-numeric Parts List.

Reference no.	Mfg code	Fig. no.	Item no.
ANCH4A	88044	3-6	8
AN253-2-1187	88044	4-10	15
AN253-2-1812	88044	4-10	10
AN3027-3	88044	4-8	98
AN500C6-8	88044	4-8	50
AN6227-10	88044	4-8	123
AN6227-5	88044	4-8	27
		4-8	68
AN931-4-7	88044	4-9	30
BH112JA-36		1-1	
BH1185		4-7	19
BH1194		4-8	44
BH123-3		B-1	5
BH1401		4-9	10
BH1428		4-14	19
BH1430		4-8	15
		4-8	33
		4-8	36
		4-8	55
BH1431		4-14	18
BH1433		4-14	7
BH1443		4-14	23
BH1444		4-14	15
BH1445		4-14	
BH1446		4-14	
BH1452		4-14	11
BH1455			
BH146		4-8	54
BH1468		4-9	21
BH1475		4-9	22
BH1476		4-14	20
BH1477		4-14	17
BH1479		4-9	20
BH1480-1		4-9	8
BH1480-2		4-9	9
BH1481		4-9	13
BH1484		4-9	31
BH1486		4-9	12
BH1494		4-8	61
BH1498		4-9	1
BH1504			
BH15158		4-8	23
		4-8	65
BH15159		4-8	120
BH15161		4-8	128
BH15164		4-8	22
		4-8	64
BH1569		4-7	6
BH1570		4-7	9
BH1571		4-7	5

Table 4-2. *Alpha-numeric Parts List*—Continued.

Reference no.	Mfg code	Fig. no.	Item no.
GH4	72794	4–10	19
H–1022	02799	4–14	21
HKLW	71400	4–8	73
MBO–2	71400	4–8	74
MBO–20	71400	4–8	75
MDL–1	71400	4–7	13
MPY2P1	09023	4–14	2
MS20365–440A	96906	4–8	26
		4–8	31
		4–8	58
		4–8	71
		4–8	67
		4–8	84
		4–8	94
		4–8	106
		4–8	116
		4–8	122
		4–9	18
		4–9	29
		4–10	22
MS20365–632A	96906	4–8	42
		4–8	52
		4–9	11
		4–9	25
MS20365–832A	96906	4–7	22
MS20365–1032A	96906	4–10	13
MS20365–1032A	96906	4–10	25
		4–10	30
MS21318–1	96906		
MS24630–1	96906		
MS25043–12C	96906	4–8	117
MS25043–14C	96906	4–8	95
		4–8	107
MS25043–16C	96906	4–8	85
MS35190–239	96906	4–8	
MS35201–53	96906	4–8	126
MS35201–56	96906	4–8	125
MS35333–70	96906	4–8	21
MS35333–71	96906	3–6	12
		3–6	15
		4–8	4
		4–8	7
		4–8	41
		4–8	48
		4–8	51
		4–8	59
		4–8	63
		4–8	81
		4–8	91
		4–8	103
		4–8	113

Table 4-2. *Alpha-numeric Parts List*—Continued.

Reference no.	Mfg code	Fig. no.	Item no.
MS35338–139	96906	3–6	9
MS51957–12	96906	4–8	86
		4–8	96
		4–8	108
		4–8	118
MS51957–13	96906	4–8	20
		4–9	17
		4–9	28
MS51957–17	96906	4–8	30
MS51957–26	96906	4–8	47
		4–8	57
		4–8	62
		4–8	80
		4–8	90
		4–8	102
		4–8	112
MS51957–27	96906	3–6	11
		3–6	14
		4–8	3
		4–8	6
		4–9	24
MS51957–31	96906	4–8	40
MS51957–46	96906	3–6	17
MS51957–64	96906	4–10	12
		4–10	24
MS51957–65	96906	4–10	29
MS51958–62	96906	4–10	
MS51958–63	96906	4–10	8
MS51959–15	96906	4–10	21
MS51959–28	96906		
N–1030–B	97539	4–8	11
		4–8	99
N–9030x1/4	97539	4–8	14
		4–8	35
		4–8	38
		4–8	56
OA2	86684	4–9	4
PC–9	00629	4–7	23
RC20GF104K	81349	4–14	9
RC20GF105K	81349	4–14	1
RC20GF222K	81349	4–14	22
RC20GF334K	81349	4–14	3
RC20GF684K	81349	4–14	4
RC32GF331K	81349	4–14	10
RC32GF333K	81349	4–14	5
RC42GF333K	81349	4–14	6
RC42GF471K	81349	4–14	13
SEAL SCREW, 4–40x3/8, pan head, cross recessed	13861	4–8	30
		4–8	70
SEAL SCREW, 4–40x7/16, pan head, cross recessed	13861	4–8	25
		4–8	57

Table 4-2. *Alpha-numeric Parts List*—Continued.

Reference no.	Mfg code	Fig. no.	Item no.
		4-8	66
SEAL SCREW, 4-40x1/2, pan head, cross recessed	13861	4-8	82
		4-8	92
		4-8	104
		4-8	114
		4-8	121
SEAL SCREW, 4-40x9/16, pan head, cross recessed	13861	4-8	24
		4-8	83
		4-8	93
		4-8	105
		4-8	115
SEAL SCREW, 6-32x3/8, pan head, cross recessed	13861	4-8	20
		4-8	62
SEAL SCREW, 6-32x1/2, pan head, cross recessed	13861	4-8	40
SEAL SCREW, 6-32x3/4, pan head, cross recessed	13861	4-8	50
S4-225	72794	4-10	20
VPR10F	71482	4-14	14
W-20	24655	3-6	7
WIN NUT, 5/16-24, stainless steel		4-10	2
1N429	04713	4-7	4
1N5059	03508	4-7	10
062-0375MDK	00287	4-8	9
10 36675 12	77820	4-8	119
10 36675 14	77820	4-8	97
		4-8	109
10 36675 16	77820	4-8	87
12BH7	86684	4-9	6
1475	72512	4-8	12
		4-8	18
		4-8	60
1500	72512	4-8	8
22B2	07387	4-9	19
301-00-1KΩ	80294	4-11	6
301-00-20KΩ	80294	4-11	5
301-00-50Ω	80294	4-11	7
328	71744	4-8	77
4	72794	4-10	18
43C2-1000Ω	12697	4-9	15
43C2-400Ω	12697	4-9	14
5/16-6	95987	3-6	13
		4-8	2
5100-62	79136	4-10	27
56A	71785	4-8	46
6202	86684	4-9	3
7/16-6	95987	3-6	10
		4-8	5
77-MIP-8	02660	4-9	26
855-SI-R-2-STD	08717	4-8	76
9702	00629	4-9	2

Table 4–2. *Alpha-numeric Parts List*—Continued.

Reference no.	Mfg code	Fig. no.	Item no.
9710	00629	4–9	5
9718	00629	4–9	23
9736	00629	4–9	27

Table 4-3. Probe Reference Table.

Engine	Aircraft	Probe P/N	Qty	Check Cable Adapter	RPM Adapter
T53-L-1A	UH-1A	BH996-40	3	BH1504	BH820
T53-L-9A	UH-1B, UH-1D	BH996-40	3	BH1504	BH820
T53-L-11B, C, D	UH-1B	BH996-40	3	BH1504	BH820
T53-L-11B, C, D	UH-1C	BH996-40	3	BH1504	BH820
T53-L-11B, C, D	UH-1D	BH996-40	3	BH1504	BH820
*T53-L-13A, B	UH-1H	BH7434L-40	3	BH4352	BH820
		BH7434R-40	3		
*T53-L-13A, B	UH-1M	BH7434L-40	3	BH4352	BH820
		BH7434R-40	3		
*T53-L-13A, B	AH-1G, TH-1G	BH7434R40	3	BH1504	BH820
		BH7434L40	3		
T53-L-7, 7A	OV-1A, -1B, -1C	BH996-40	3	BH1504	BH820
*T53-L-15	OV-1C	BH7434R-40	3	BH8009	BH820
		BH7434L-40	3		
*T53-L-701	OV-1D	BH7434R-40	3	BH8009	BH820
		BH7434L-40	3		
*T63-A-5A	OH-6A	BH7413-40	4	BH7424	BH820
*T63-A-700	OH-58A	BH7413-40	4	BH7424	BH820
T55-L-5	CH-47A	BH996-40	3	BH4548	BH820
T55-L-7	CH-47A	BH996-40	4	BH4548	BH820
T55-L-7, B, C	CH-47B, C	BH996-40	4	BH4548	BH820
*T55-L-11	CH-47C	BH7415-40	5	BH10456	BH820
**T55-L-11A	CH-47C	BH7454AA-40	5		BH820
		BH7454BB-40	5		
***T73-P-1	CH-54A	BH7448-40	3	BH2913	BH820
T73-P-700	CH-54B	BH7448-40	6	BH2913	BH820

Table 4–3. Probe Reference Table—Continued.

Aircraft	Engine	Probe P/N	Qty	Check Cable Adapter	RPM Adapter

**Bench test only.
***T/C must be removed from engine to test.
*Probe and check cable adapter not issued with BH112JA36 tester

APPENDIX A

REFERENCES

A-1. Dictionaries of Terms and Abbreviations.

AR 310-25	Dictionary of United States Army Terms
AR 310-50	Authorized Abbreviations and Brevity Codes
H 4-1 and H 4-2	Federal Supply Code for Manufacturers
MIL-STD-12C	Abbreviations for Use on Drawings, Specifications, Standards and in Technical Documents

A-2. Publication Indexes

DA PAM 25-30	Consolidated Index of Army Publications and Blank Forms

A-3. Logistics and Storage

TM 740-90-1	Administrative Storage of Equipment
TM 743-200-1	Storage and Materials Handling

A-4. Maintenance of Supplies and Equipment

AR 750-1	**Army Material Maintenance Concepts and Policies**
DA PAM 738-751	Functional Users Manual for The Army Maintenance Management System Aviation (TAMMS-A)
TM 43-0139	Painting Operations Instructions for Field Use

A-5. Other Publications

AR 420-90	Fire Prevention and Protection
AR 55-38	Reporting of Transportation Discrepancies in Shipments
AR 700-58	Packaging Improvement Report
DA PAM 310-13	Military Publications Posting and Filing
FM-21-11	First Aid for Soldiers
TB 43-180	Calibration Requirements for the Maintenance of Army Materiel
TM 750-244-1-4	Procedures for the Destruction of Aviation Ground Support Equipment (FSC 4920) to Prevent Enemy Use
TM 55-1500-204-25/1	General Aircraft maintenance Manual
TM 55-1500-323-25	Organizational Direct Support and General Support and Depot Maintenance Manual Installation Practices for Aircraft Electric and Electric Wiring

APPENDIX B

MAINTENANCE ALLOCATION CHART

B-1. General.

The purpose of the Maintenance Allocation Chart is to assign maintenance functions and repair operations to be performed by the lowest appropriate maintenance echelon.

B-2. Maintenance Functions.

Maintenance functions shall be limited to and defined as follows:

a. Adjust. Maintain within prescribed limits by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

b. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

c. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipment 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.

d. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

e. Install. The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment/system.

f. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (e.g., DMWR) in pertinent technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

g. 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.

h. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module/component/assembly, end item or system.

i. Replace. The act of substituting a serviceable like-type part, subassembly, module (component or assembly) in a manner to allow the proper functioning of an equipment/system.

j. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean, preserve, drain, paint, or to replenish fuel/lubricants/hydraulic fluids or compressed air supplies.

k. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristic of an item and comparing those characteristics with prescribed standards.

l. Symbols. The uppercase letter placed in the appropriate column indicates the lowest level at which that particular maintenance function is to be performed.

B-3. Explanation of Format.

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

b. Column 2, Functional Group. Column 2 lists the next higher assembly group and the item names of components, assemblies, subassemblies and modules within the group for which maintenance is authorized.

c. Column 3, Maintenance Function. Column 3 lists the twelve maintenance functions defined in B-2 above. Each maintenance function required for an item shall be specified by the symbol among those listed in *d* below which indicates the level responsible for the required maintenance. Under this symbol there shall be listed an appropriate work measurement time value determined as indicated in *e* below.

d. Use of Symbols. The following symbols shall be used to prescribe work function responsibility:

O - Organization
F - Direct Support
H - General Support
D - Depot

The higher level of maintenance has the authority to determine:

(1) If the lower level is capable of performing the work.
(2) If the lower level will require assistance or technical supervision and on-site inspection.
(3) If the authorization will be granted.

e. Work Measurement Time. The active rep air time required to perform the maintenance function.

f. Column 4, Tools and Equipment. This column used to specify, by code, those tools and test equipment required to preform the designated function.

g. Column 5, Remarks. Self-explanatory.

MAINTENANCE ALLOCATION CHART
for
Tester, Exhaust Gas Temperature, Part Number BH112JA–36,
FSN 4920–673–5514

(1) Group No	(2) FUNCTIONAL GROUP	(3) MAINTENANCE FUNCTION											(4) TOOLS AND EQUIPMENT	(5) REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
00	Tester, Exhaust Gas Temperature	O	F	F	F		*		O	H				
	Cables and Connectors	O	F						F	F				
01	Box Assembly	O		O						F				
	Handle Assembly	O		O						F				
	Wheel Assembly	O		O						F				
02	Circuit Board (Circuit Checks)	F	F						F	H				
	Switches and Circuit Breakers	O							F					
03	Deck Assembly	O		O					F	F				
	Power On Lamp	O		O										
	Galvo Lamps	O		O										
04	RPM Check Assembly	F	F						F	H				
	Voltage Regulator	O	F						F	F				
	Vacuum Tubes	O	F						F					
05	Potentiometer (Circuit Board)	F	F						F	H				
	Insulation Check Meter	O	F		F				F	H				
06	Galvanometers (Circuit Board Deck Assembly)	F	F						F	H				

*TB 750-236

APPENDIX C

REPAIR PARTS AND SPECIAL TOOLS LIST

SECTION I. INTRODUCTION

C-1. Scope. This RPSTL lists and authorizes spares and repair parts, special tools special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of Aviation Unit and Aviation Intermediate maintenance of the Exhaust Gas Temperature Tester. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance and recoverability (SMR) codes.

C-2. General. In addition to Section I, Introduction, this Repair Parts and Special Tools List is divided into the following sections:

a. Section II. Repair Parts List. A list of spares and repair parts authorized by this RPSTL 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 alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Bulk materials are listed in item name sequence. Repair parts kits are listed separately in their own functional group within Section II. Repair parts for repairable special tools are also listed in this section. Items listed are shown on the associated illustration(s)/figure(s).

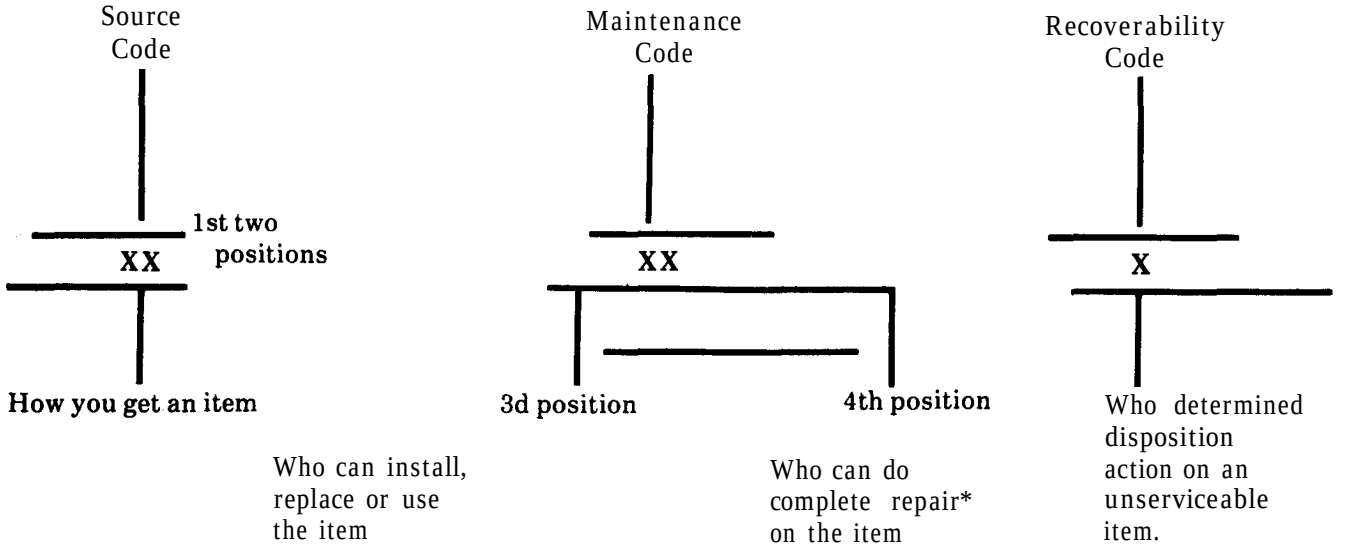
b. Section III. Special Tools List. A list of special tools, special TMDE, and other special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in DESCRIPTION AND USUABLE ON CODE column) for the performance of maintenance. (Not applicable).

c. Section IV. National Stock Number and Part Number Index. A list, in National Item Identification Number (NIIN) sequence, of all National stock numbered items appearing in the listing, followed by a list in alphanumeric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance.

C-3. Explanation of Columns (Sections II and III).

a. Item No. (Column (1)). Indicates the number used to identify items called out in the illustration.

b. SMR Code (Column (2)). The Source, Maintenance, and Recoverability (SMR) code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instruction, as shown in the following breakout:



*Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

(1) Source Code. The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item equipment. Explanations of source codes follows:

Code	Explanation
PA PB PC** PD PE PF PG	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3d position of the SMR code. **NOTE: Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated in the 3d position of the SMR code. The complete kit must be requisitioned and applied.

CODE	Explanation
MO- (Made at org/AVUM Level) MF- (Made at DS/AVUM Level) MH- (Made at GS Level) ML- (Made at Specialized Repair Act (SRA)) MD- (Made at Depot)	Items with these codes are not to be requested requisitioned individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the Bulk Material group of the repair parts list in this RPSTL. If the item is authorized to you by the 3d position code of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.
AO- (Assembled by org/AVUM Level) AF- (Assembled by DS/AVIM Level) AH- (Assembled by GS Category) AL- (Assembled by SRA) AD- (Assembled by Depot)	Items with these codes are not to be requested requisitioned individually. The parts that make up these assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3d position code of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.

XA- Do not requisition an "XA"-coded item. Order its next higher assembly. (Also, refer to the NOTE below.)

XB- If an "XB" item is not availabe from salvage, order it using the FSCM and part number given.

XC- Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.

XD- Item is not stocked. Order an "XD"-coded item through normal supply channels using the FSCM and part number given, if no NSN is available.

NOTE: Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA" or those aircraft support items restricted by requirements of AR 700-42.

(2) Maintenance Code. Maintenance codes tells you the level(s) of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the SMR Code as follows:

(a) The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to one of the following levels of maintenance.

Code	Application/Explanation
C	-Crew or operator maintenance done within organizational or aviation unit maintenance.
O	-Organizational or aviation unit category can remove, replace, and use the item.
F	-Direct support or aviation intermediate level can remove, replace, and use the item.
H	-General support level can remove, replace, and use the item.
L	-Specialized repair activity can remove, replace, and use the item.
D	-Depot level can remove, replace, and use the item.

(b) The maintenance code entered in the fourth position tells whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (i.e., perform all authorized repair functions). (NOTE: Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.) This position will contain one of the following maintenance codes.

CODE	Application/Explanation
O	-Organizational or (aviation unit) is the lowest level that can do complete repair of the item.
F	-Direct support or aviation intermediate is the lowest level that can do complete repair of the item.
H	-General support is the lowest level that can do complete repair of the item.
L	-Specialized repair activity (designate the specialized repair activity) is the lowest level that can do complete repair of the item.
D	-Depot is the lowest level that can do complete repair of the item.
Z	-Nonreparable. No repair is authorized.
B	-No repair is authorized. (No parts or special tools are authorized for the maintenance of a "B" coded item). However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

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

Recoverability Codes	Application/Explanation
Z	-Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in 3d position of SMR Code.
O	-Reparable item. When uneconomically reparable, condemn and dispose of the item at organizational or aviation unit level.
F	-Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support or aviation intermediate level.
H	-Reparable item. When uneconomically reparable, condemn and dispose of the item at the general support level.
D	-Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item not authorized below depot level.
L	-Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).
A	-Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. ***FSCM (Column (3)).*** The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

d. ***PART NUMBER (Column (4)).*** 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 you use a NSN to requisition an item, the item you receive may have a different part number from the part ordered.

e. ***DESCRIPTION AND USABLE ON CODE (UOC) (Column (5)).*** This column includes the following information:

(1) The Federal item name and, when required, a minimum description to identify the item.

(2) The physical security classification of the item is indicated by the parenthetical entry (insert applicable physical security classification abbreviation, e.g., Phy Sec Cl (C) -Confidential, Phy Sec Cl (S) -Secret, Phy Sec Cl -Top Secret).

(3) Items that are included in kits and sets are listed below the name of the kit or set.

(4) Spare/repair parts that make up an assembled item are listed immediately following the assembled item line entry.

(5) Part numbers for bulk materials are referenced in this column in the line item entry for the item to be manufactured/fabricated.

(6) When the item is not used with all serial numbers of the same model, the effective serial numbers are shown on the last line(s) of the description (before UOC).

(7) The usable on code, when applicable (see paragraph C-5, Special information).

(8) In the Special Tools List section, the basis of issue (BOI) appears as the last line(s) in the entry for each special tool, special TMDE, and other special support equipment. When density of equipments supported exceeds density spread indicated in the basis of issue, the total authorization is increased proportionately.

(9) The statement "END OF FIGURE" appears just below the last item description in Column 5 for a given figure in both Section II and Section III.

f. QTY(Column (6). The QTY (quantity per figure column) indicates the quantity of the item used in the breakdown 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 the quantity is variable and the quantity may vary from application to application.

C-4. Explanation of Columns (Sect. IV).

a. ***NATIONAL STOCK NUMBER (NSN) INDEX.***

(1) STOCK NUMBER Column. This column lists the NSN by National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN (i.e., 5305-01-674-1467). When using this column to locate an item, ignore the first 4 digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

NSN
NIIN

(2) FIG. column. This column lists the number of the figure where the item is identified /located. The figures are in numerical order in Section II and Section III.

(3) ITEM column. The item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.

b. PART NUMBER INDEX. Part numbers in this index are listed by part number in ascending alphanumeric sequence (i.e., vertical arrangement of letter and number combination which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

(1) FSCM column. The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

(2) PART NUMBER column. Indicates the primary number used by the manufacturer (individual, 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.

(3) STOCK NUMBER column. This column lists the NSN for the associated part number and manufacturer identified in the PART NUMBER and FSCM columns to the left.

(4) FIG. column. This column lists the number of figure where the item is identified/located in Section II and III.

(5) ITEM column. The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

C-5. Special Information. Use the following subparagraphs as applicable:

a. USABLE ON CODE. The usable on code appears in the lower left corner of the Description column heading. Usable on codes are shown as "UOC:..." in the Description Column (justified left) on the first line applicable item description/nomenclature. Uncoded items are applicable to all models. Identification of the usable on codes used in the RPSTL are:

Code	Used On	
PAA	Model M114	
PAB	Model M114A	(These codes and model numbers are
PAC	Model M114B	examples only)

b. Index Numbers. Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-areference between the Naitonal Stock Number/Part Number Index and the bulk material list in Section II.

c. Associated Publications. The publication(s) listed below pertain to (insert applicable equipment nomenclature) and its components:

Publication	Short Title
N/A	N/A

NOTE: Associated publications shall not be listed here in combined narrative and RPSTL manuals.

C-6. How to locate Repair Parts.

a. When National Stock Number or Part Number is Not Known.

(1) First. Using the table of contents, determine the assembly group or subassembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and listings are divided into the same group.

(2) Second. Find the figure covering the assembly group or subassembly group to which the item belongs.

(3) Third. Identify the item on the figure and note the item number.

(4) Fourth. Refer to the Repair Parts Lists for the figure to find the part number for the item number noted on the figure.

(5) Fifth. Refer to the Part Number Index to find the NSN, if assigned.

b. When National Stock Number or Part Number is Known:

(1) First. Using the Index of National Stock Numbers and Part Numbers, find the pertinent National Stock Number or Part Number. The NSN index is in National Item Identification Number (NIIN) sequence (see C-4.a.(l)). The part numbers in the Part Number index are listed in ascending alphanumeric sequence (see C-4.b.). Both indexes cross-reference you to the illustration figure and item number of the item you are looking for.

(2) Second. After finding the figure and item number, verify that the item is the one you're looking for, then locate the item number in the repair parts list for the figure.

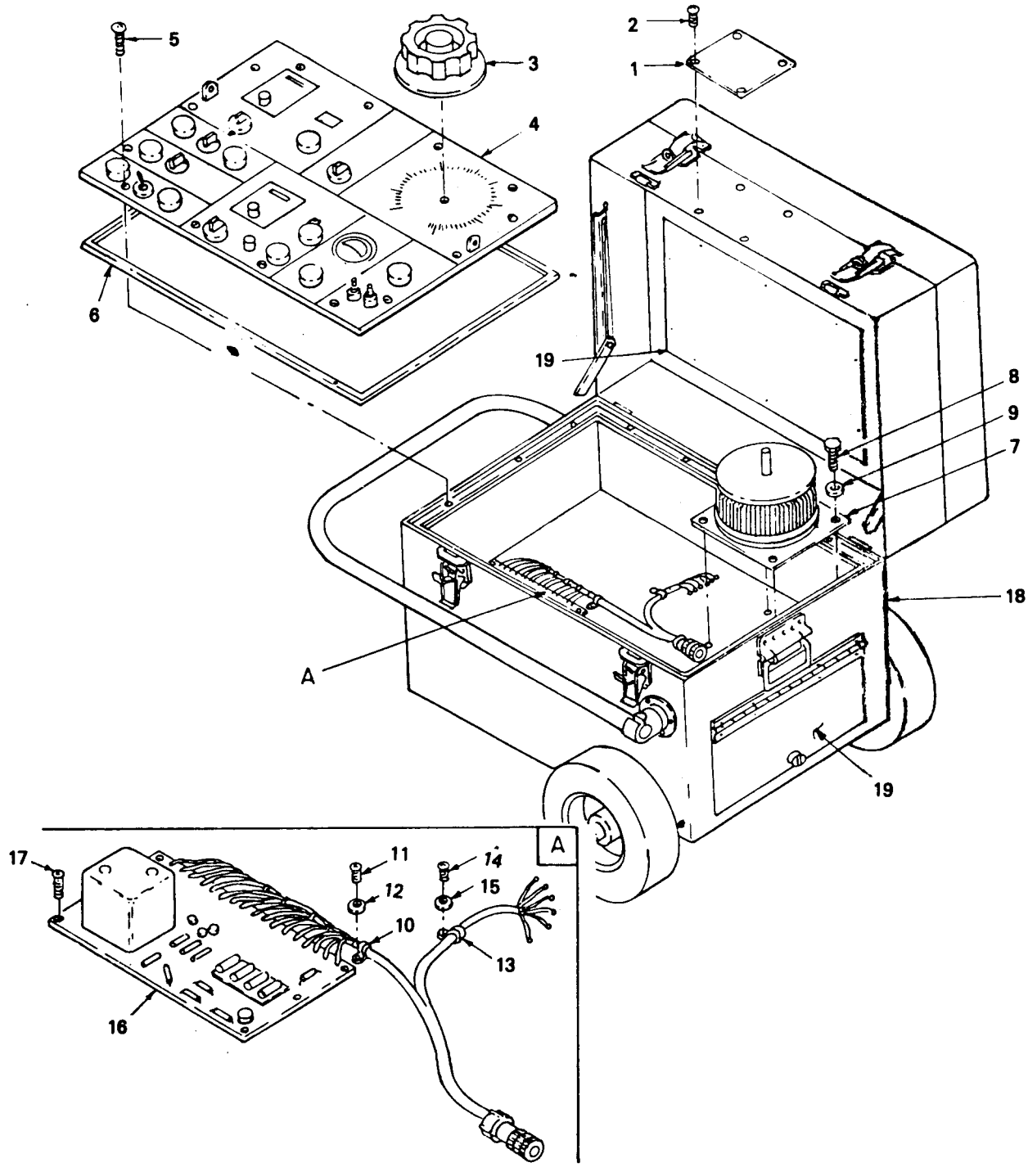


Figure C-1. Tester Assembly (Sheet 1 of 2)

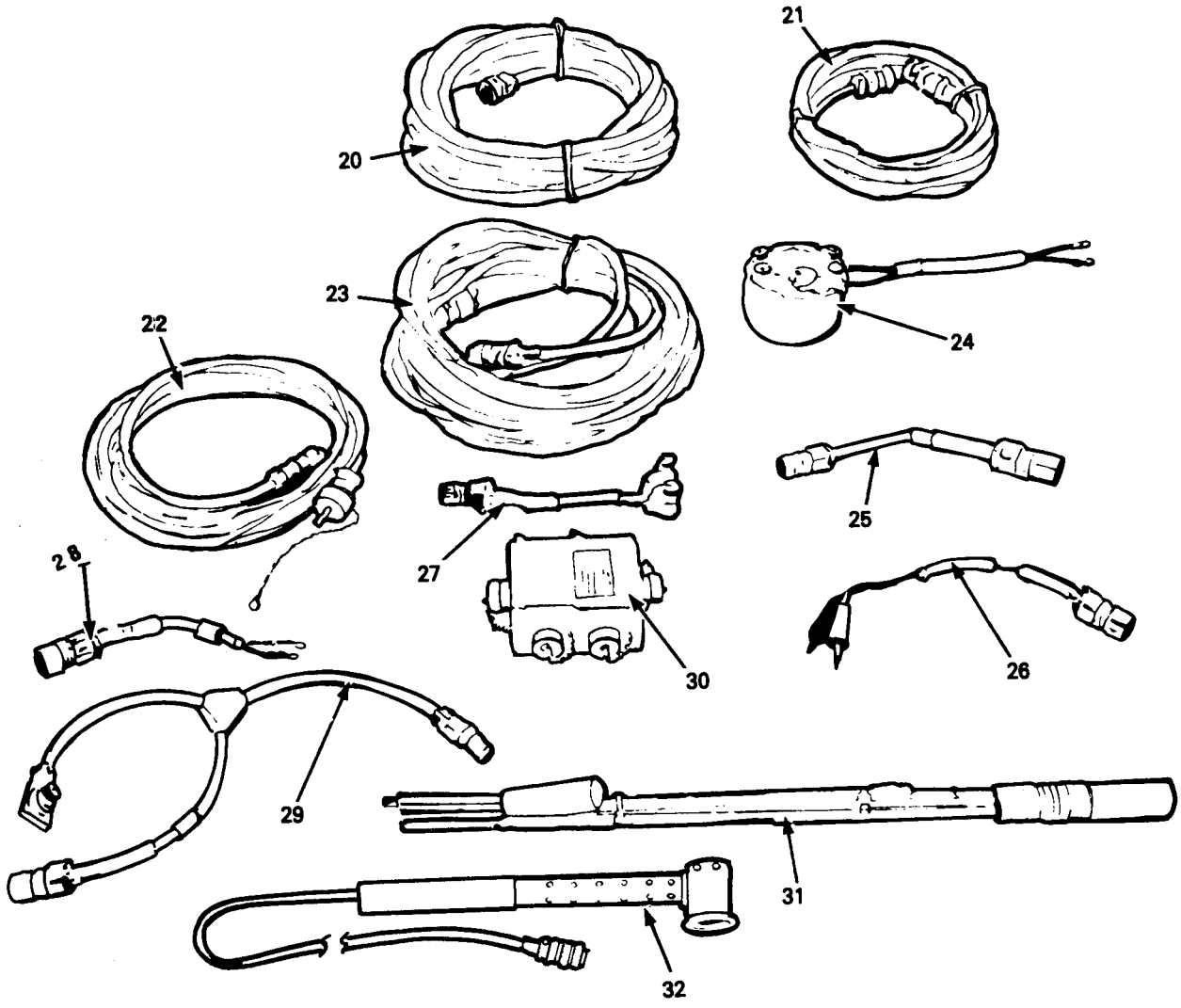


Figure C-1. Tester Assembly (Sheet 2 of 2)

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 00. TESTER,EXHAUST GAS TEMPERATURE	
				FIGURE C-1. TESTER ASSEMBLY	
1	XDFZZ	98869	BH1726-1	NAMEPLATE	1
2	XDFZZ	96906	MS21318-1	SCREW,DRIVE	2
3	PAFZZ	24655	5530-4300	KNOB	1
4	XDFDD	98869	BH1740	DECK ASSEMBLY,COMP. (SEE FIGURE C-4 FOR BREAKDOWN)	1
5	PAFZZ	96906	MS35190-239	SCREW,MACHINE	14
6	XDFZZ	98869	BH824	GASKET	1
7	PBFZF	13850	W20	TRANSFORMER,POWER	1
8	PBFZZ	88044	AN4CH4A	BOLT,MACHINE	3
9	PAFZZ	96960	MS35338-139	WASHER,LOCK	3
10	PBFZZ	81349	M85049/41-10A	CLAMP,CABLE,ELECTRI	1
11	PBFZZ	96906	MS51957-27	SCREW,MACHINE	4
12	PBFZZ	96906	MS35333-37	WASHER,LOCK	4
13	PBFZZ	81349	M85049/41-12A	CLAMP,CABLE,ELECTRI	1
14	PBFZZ	96906	MS51957-27	SCREW,MACHINE	1
15	PBFZZ	96906	MS35333-37	WASHER,LOCK	1
16	PBFZZ	98869	BH1766	PRINTED CIRCUIT BOA (SEE FIGURE C-3 FOR BREAKDOWN)	1
17	PAFZZ	96906	MS51957-46	SCREW,MACHINE	6
18	XDFDD	98869	BH1726	BOX ASSY TESTER (SEE FIGURE C-2 FOR BREAKDOWN)	1
19	XDFZZ	98869	BH1720	INSTRUCTION PLATE	1
20	PBFZZ	98869	BH405	CABLE ASSEMBLY,SPEC	1
21	PBFZZ	98869	BH450	CABLE ASSEMBLY,SPEC	1
22	PBFZZ	98869	BH499	CABLE ASSEMBLY,POWE	1
23	PBFZZ	98869	BH485	CABLE ASSEMBLY,SPEC	1
24	PBFZZ	98869	BH123-3	SWITCH BOX	1
25	PBFZZ	98869	BH1504	CABLE ASSEMBLY,SPEC	1
25	PBFZZ	98869	BH4548	CABLE ASSEMBLY,SPEC	1
26	PBFZZ	98869	BH821	CABLE ASSEMBLY,POWE	1
27	PBFZZ	98869	BH823	CABLE ASSEMBLY,POWE	1
28	PBFZZ	98869	BH822	CABLE ASSEMBLY,SPEC	1
29	PBFZZ	98869	BH820	CABLE ASSEMBLY,POWE	1
30	XDFZL	98869	BH361-5	INTERCONNECTING BOX	1
31	XDFZZ	98869	BH492B-3	HANDLE,EXTENSION	1
32	PBFZZ	98869	BH996-40	PROBE ASSY,HEATER	3

END OF FIGURE

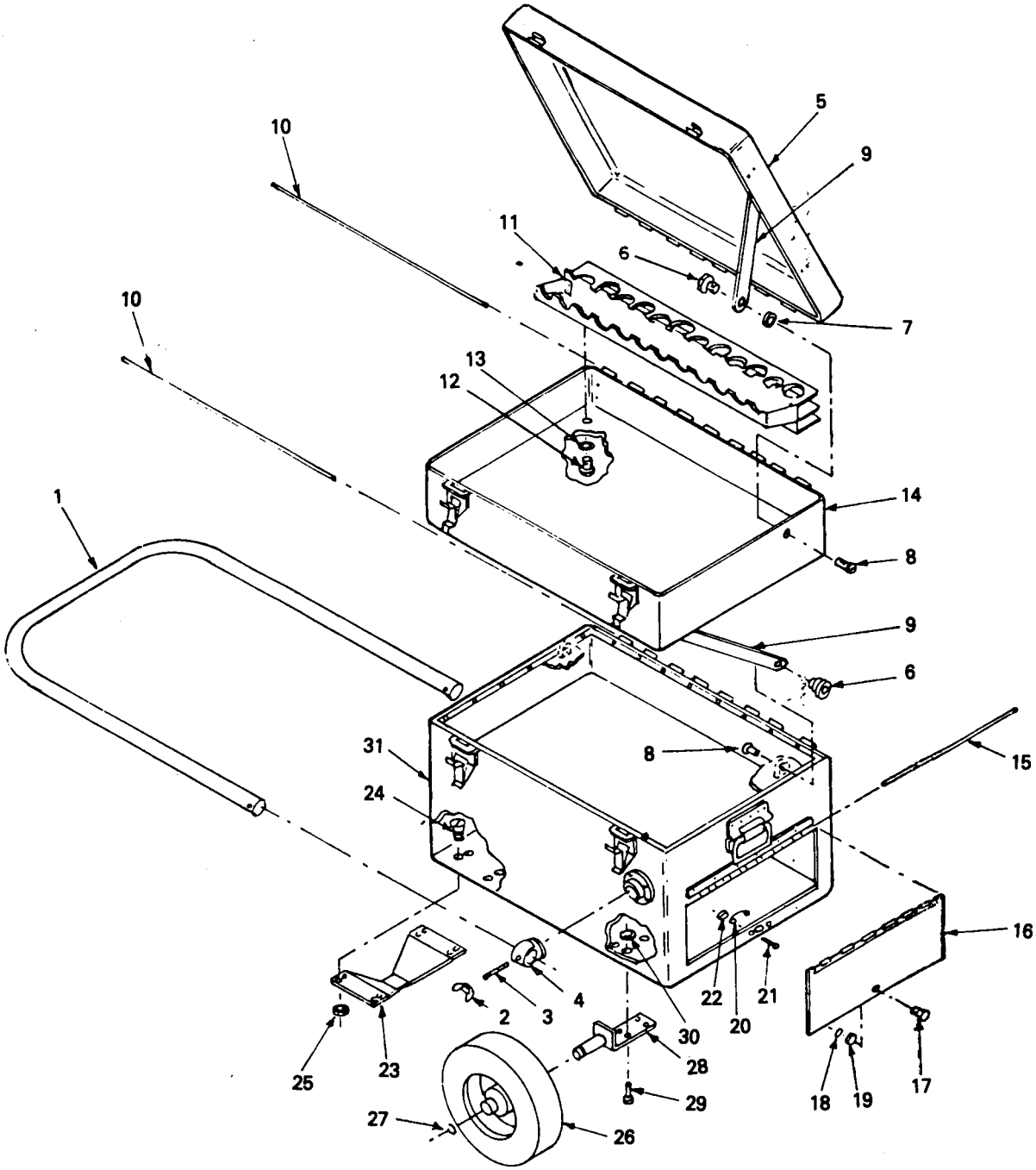


Figure C-2. Box Assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 01. BOX ASSEMBLY	
				FIGURE C-2. BOX ASSEMBLY	
	XDFDD	98869	BH1726	BOX ASSY TESTER (SEE FIGURE C-1 FOR NHA)	REF
1	XDFZZ	98869	BH769	.HANDLE ASSY	1
2	PAFZZ	96906	MS35426-15	.NUT,PLAIN,WING	2
3	PAFZZ	96906	MS35308-341	.BOLT,MACHINE	2
4	PBFZZ	98869	BH727	.SOCKET,PIVOT	2
5	XDFZZ	98869	BH659	.LID ASSY	1
6	XDFZZ	98869	BH437	.STOP ARM SUPPORT	2
7	XDFZZ	98869	BH723	.SPACER,SLEEVE	1
8	PAOZZ	96906	MS51958-62	.SCREW,MACHINE	2
9	XDFZZ	98869	BH796	.STOP,ARM,ASSEMBLY	3
10	XDFZZ	96906	MS20253-2-2400	.ROD,STRAIGHT,HEADLE	2
11	XDFZZ	98869	BH1795	.PROBE RACK ASSY	1
12	PBFZZ	96906	MS51958-63	.SCREW,MACHINE	9
13	PBFZZ	96906	MS35333-39	.WASHER,LOCK	1
14	XDFZZ	98869	BH1732	.COMPARTMENT PROB	1
15	PBFZZ	96906	MS20253-2-1200	.ROD,STRAIGHT,HEADLE	1
16	XDFZZ	98869	BH838	.DOOR ASSY	1
17	XDFZZ	72794	BJ4-40-28X388	.FASTENER	1
18	PAFZZ	72794	SR4	.SNAPRING	1
19	PAFZZ	72794	GH-4	.EYELET,TURNLOCK FAS	1
20	PAFZZ	72794	S4-225	.LOCKSPRING,TURNLOCK	1
21	PBFZZ	96906	MS51959-15	.SCREW,MACHINE	2
22	PAOZZ	96906	MS21044D04	.NUT,SELF-LOCKING,HE	2
23	XDFZZ	98869	BH834-1	.MOUNT,SUPPORT	1
24	PBFZZ	96906	MS51958-64	.SCREW,MACHINE	4
25	PAFZZ	96906	MS21044D3	.NUT,SELF-LOCKING,HE	4
26	PBFZZ	98869	BH3506	.WHEEL,SOLID RUBBER	2
27	PBFZZ	96906	MS16624-62	.RING,RETAINING	2
28	PBFZZ	98869	BH835	.MOUNT,WHEEL	2
29	PBFZZ	96906	MS51958-64	.SCREW,MACHINE	8
30	PBOZZ	96906	MS21044D3	.NUT,SELF-LOCKING,HE	16
31	XDFZZ	98869	BH1727	.BASE ASSY	1
				END OF FIGURE	

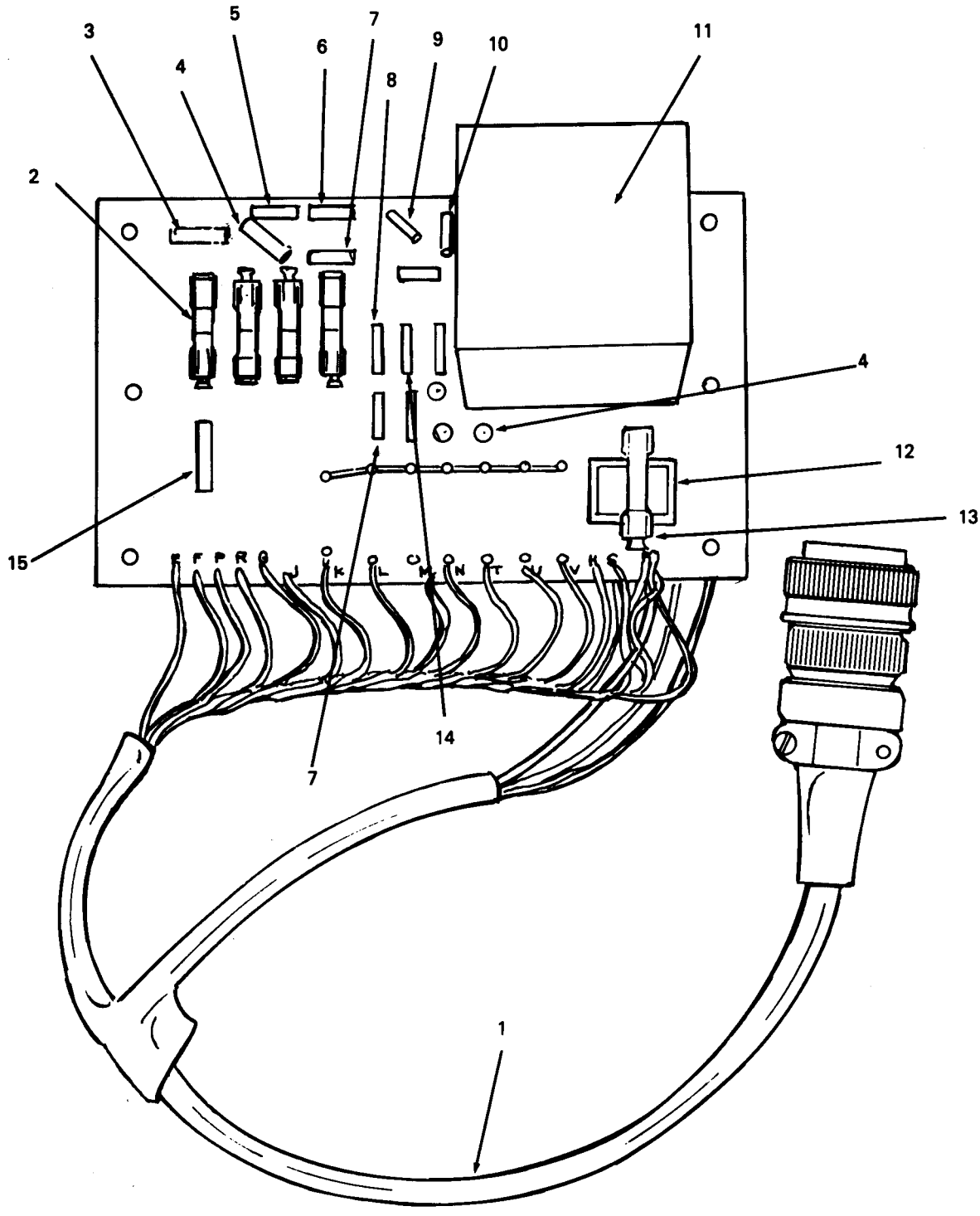


Figure C-3. Circuit Board Assembly (Sheet 1 of 2)

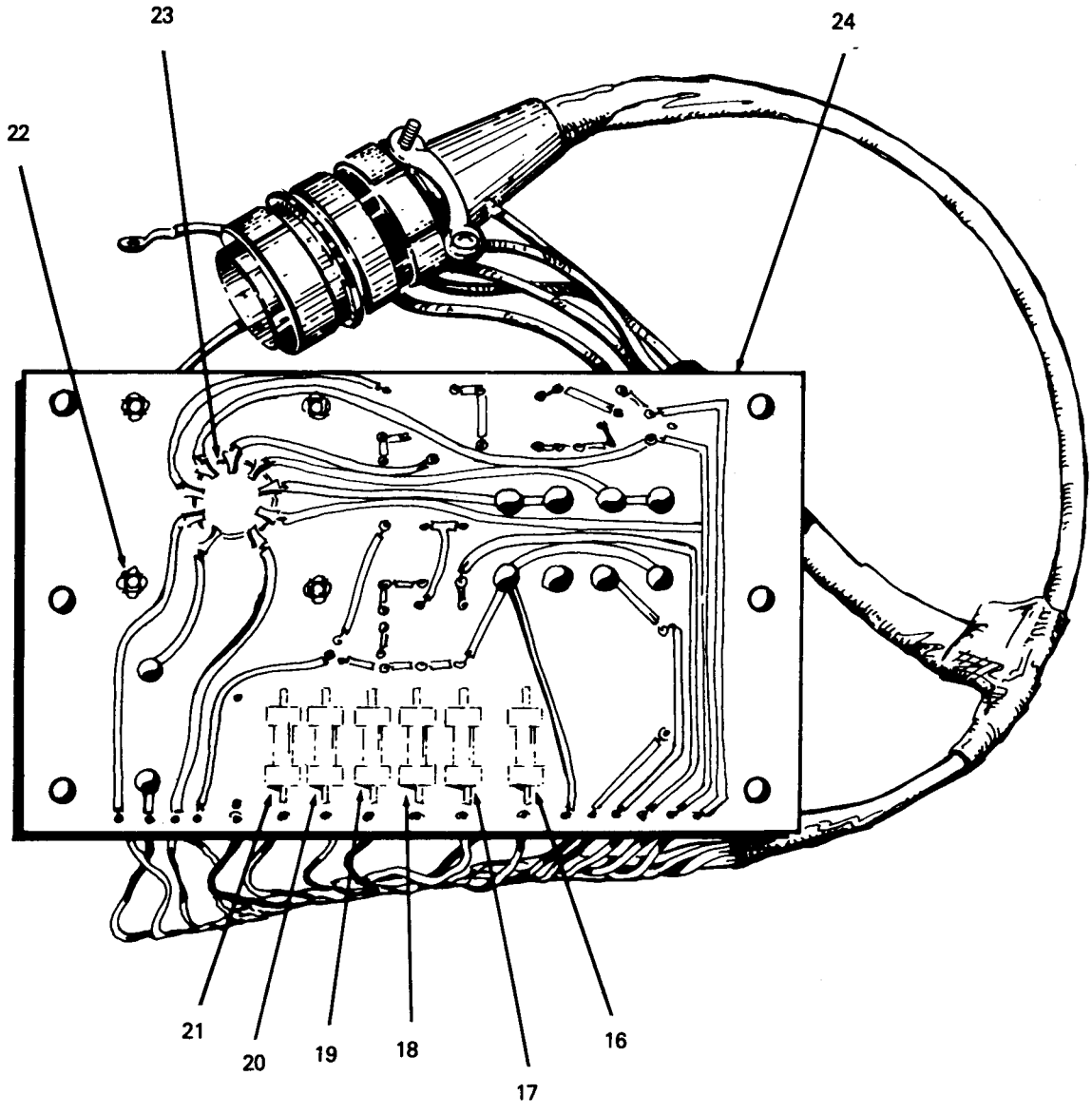


Figure C-3. Circuit Board Assembly (Sheet 2 of 2)

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 02. CIRCUIT BOARD (CIRCUIT CHECKS)	
				FIGURE C-3. CIRCUIT BOARD ASSEMBLY	
	PBFZZ	98869	BH1766	PRINTED CIRCUIT BOA (SEE FIGURE C-1 FOR NHA)	1
1	XDFZZ	98869	BH1768	.CABLE,POWER	1
2	PBFZZ	98869	BH3717	.SEMICONDUCTOR DEVIC	4
3	XDFZZ	98869	BH3670	.DIODE	1
4	XDFZZ	04713	IN429	.DIODE	1
5	PBFZZ	98869	BH1571	.RESISTOR,FIXED,WIRE	1
6	XDFZZ	98869	BH1569	.RESISTOR,FIXED,WIRE	1
7	PBFZZ	81349	M39006/22-585	.CAPACITOR,FIXED,ELE	3
8	XDFZZ	98869	BH1780	.RESISTOR,FIXED,WIRE	2
9	XDFZZ	98869	BH1570	.RESISTOR,FIXED,WIRE	1
10	PBFZZ	81349	JAN1N4003	.SEMICONDUCTOR DEVIC	2
11	PBFZZ	98869	BH1785	.TRANSFORMER,POWER	1
12	PAFZZ	81349	FH21AM	.FUSEHOLDER,BLOCK	1
13	PAFZZ	81349	F02B250V1A	.FUSE,CARTRIDGE	1
14	XDFZZ	98869	BH1781	.RESISTOR,FIXED,WIRE	2
15	XDFZZ	98869	BH1782	.RESISTOR,FIXED,WIRE	1
16	PBFZZ	81349	RB17CE10002D	.RESISTOR,FIXED,WIRE	1
17	XDFZZ	98869	BH804	.RESISTOR,FIXED,WIRE	1
18	PBFZZ	98869	BH805	.RESISTOR,FIXED,WIRE	1
19	PBFZZ	98869	BH1185	.RESISTOR,FIXED,WIRE	1
20	PBFZZ	98869	BH755	.RESISTOR,FIXED,WIRE	1
21	XDFZZ	98869	BH5033	.RESISTOR	1
22	PBFZZ	96906	MS21044N08	.NUT,SELF-LOCKING,HE	4
23	XDFZZ	00629	PC-9	.SOCKET,TUBE	1
24	XDFZZ	98869	BH1767	.PRINTED CIRCUIT BOA	1

END OF FIGURE

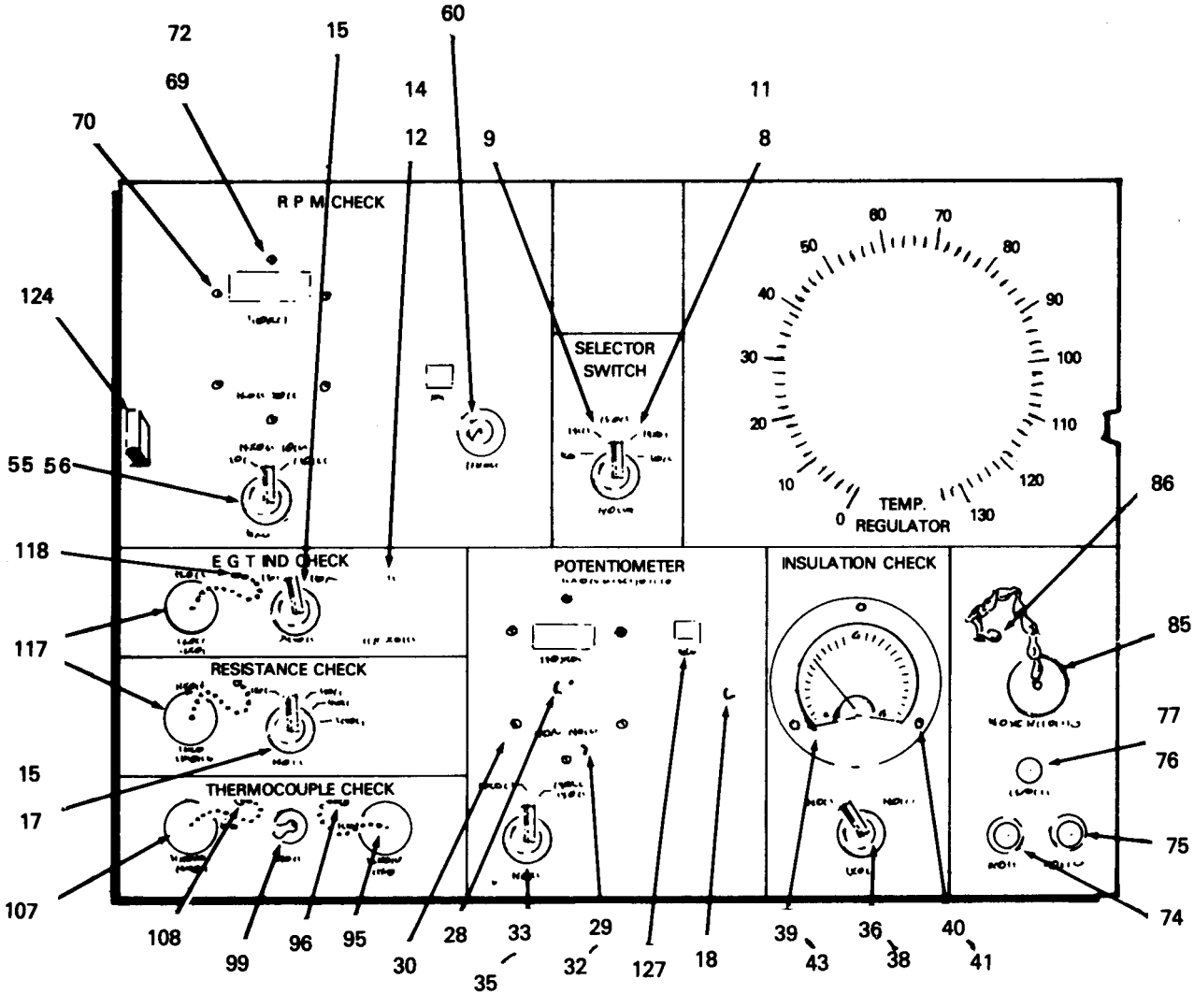


Figure C-4. Deck Assembly (Sheet 1 of 4)

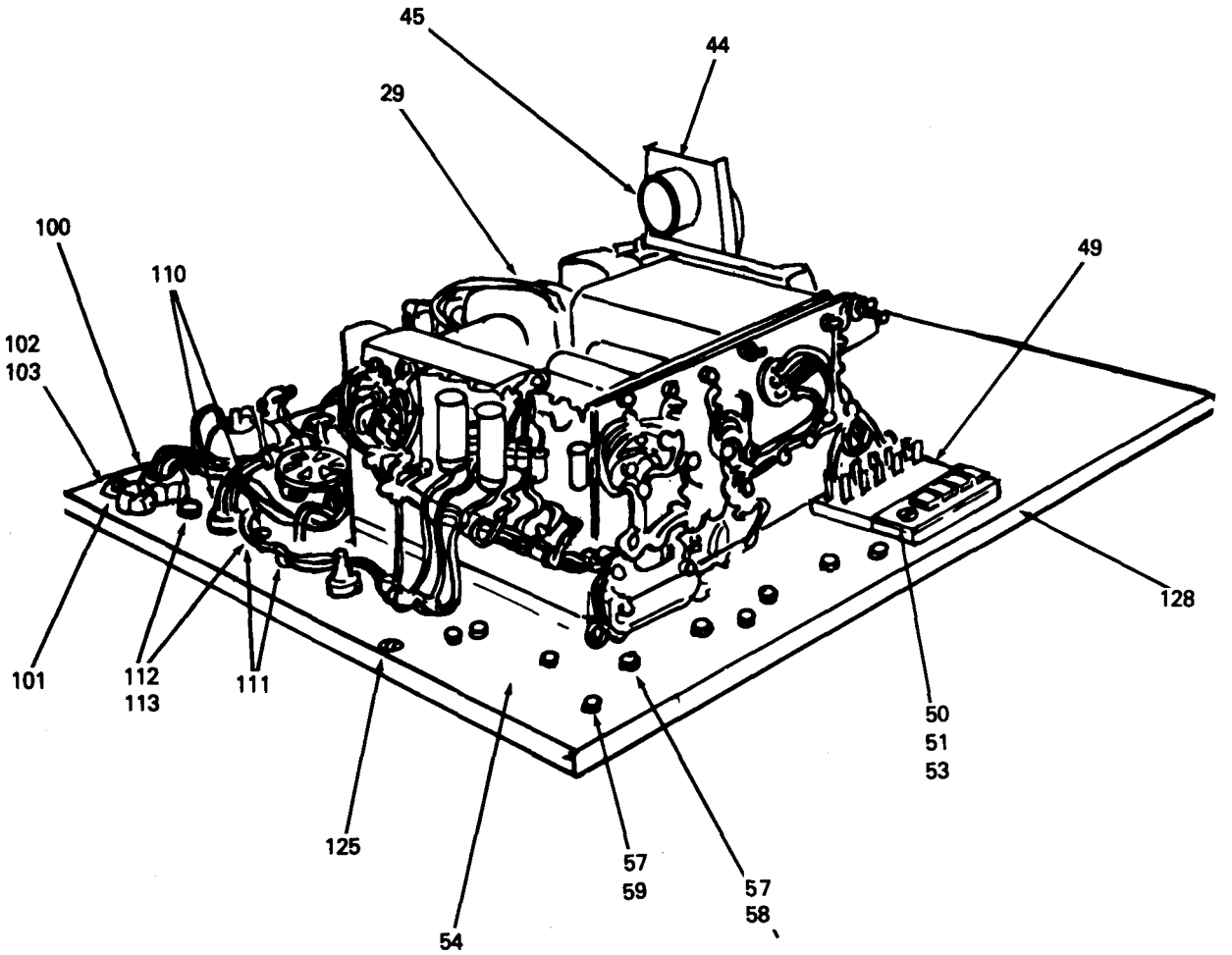


Figure C-4. Deck Assembly (Sheet 2 of 4)

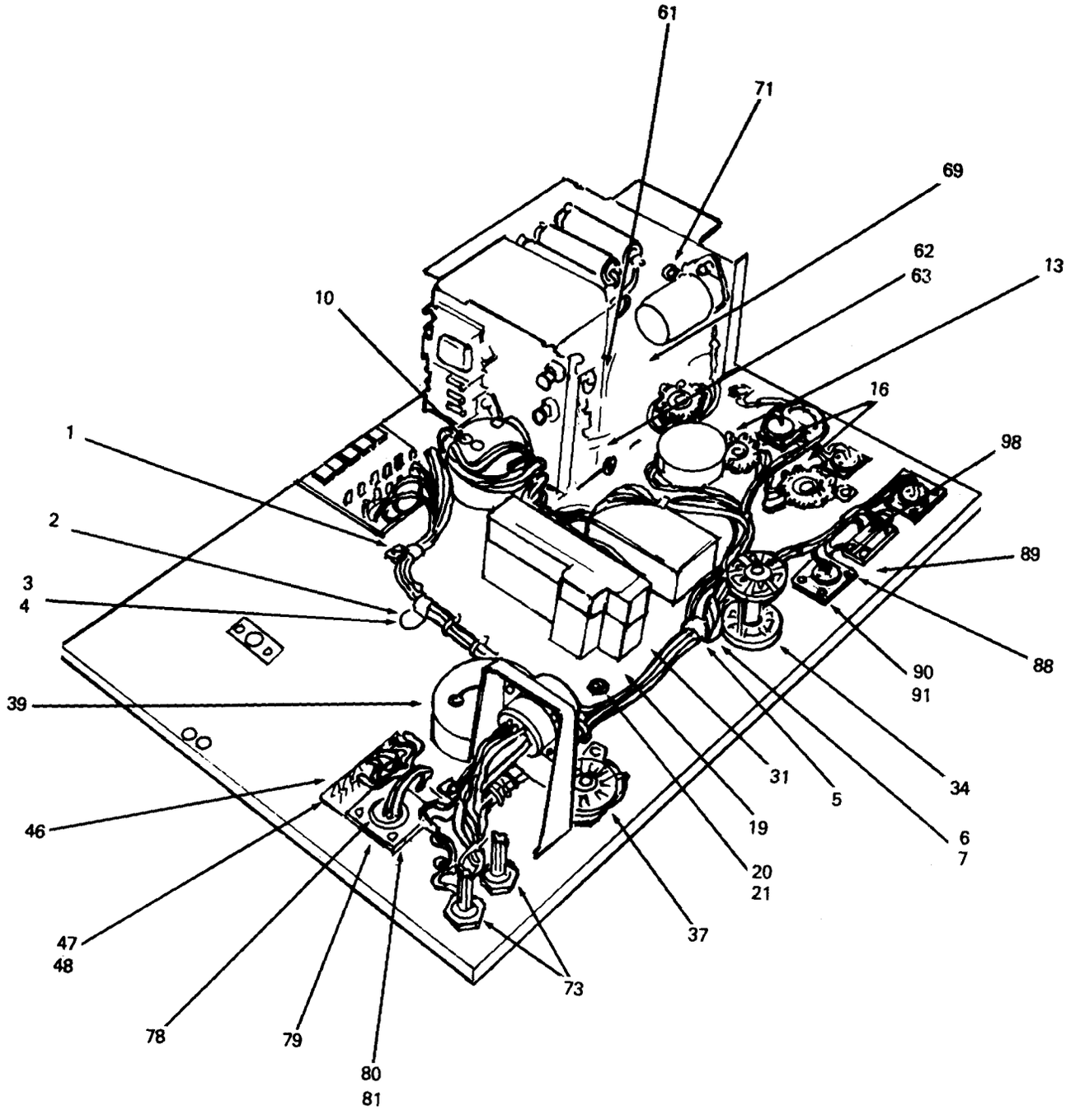


Figure C-4. Deck Assembly (Sheet 3 of 4)

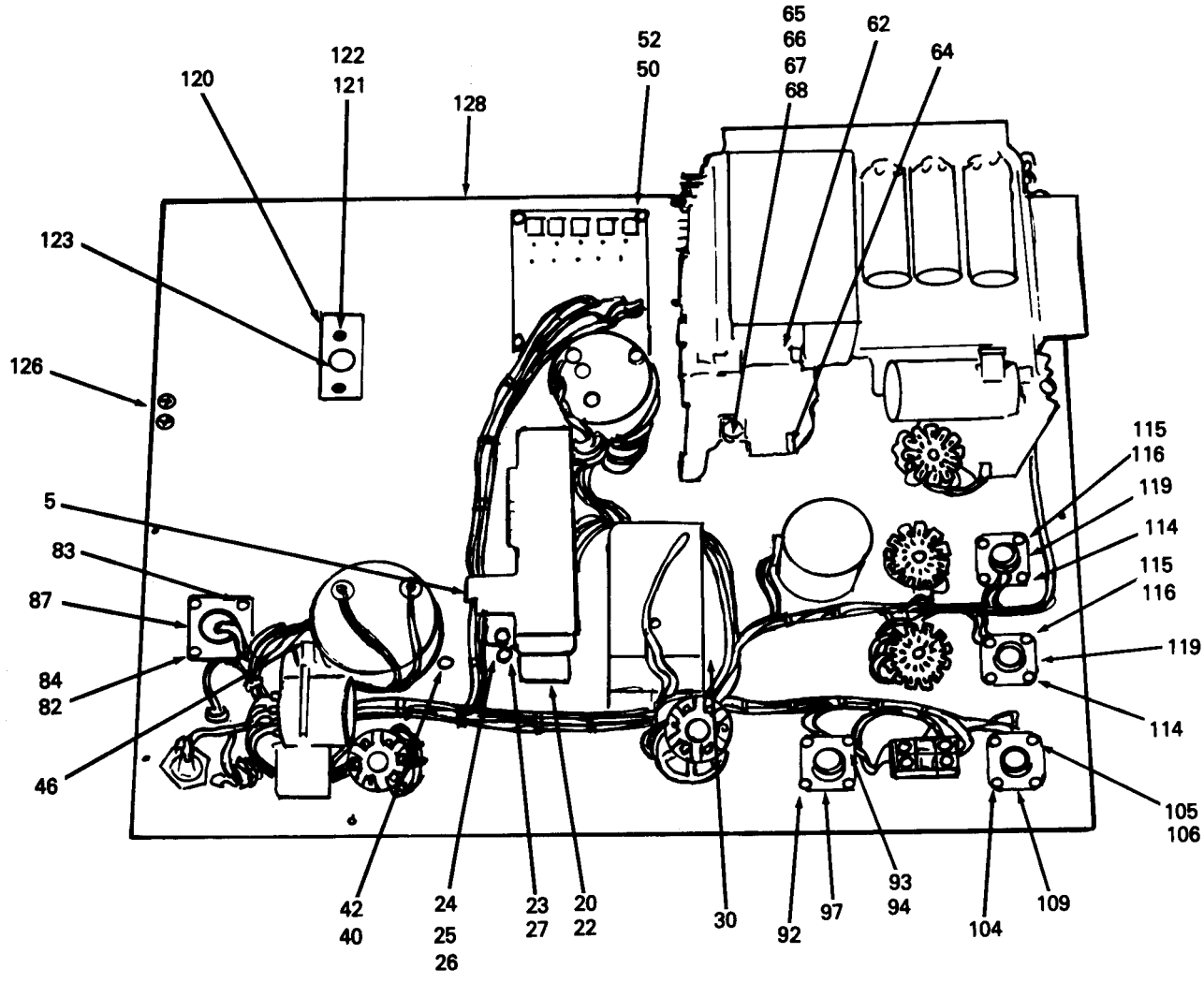


Figure C-4. Deck Assembly (Sheet 4 of 4)

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 03. DECK ASSEMBLY	
				FIGURE C-4. DECK ASSEMBLY	
	XDFDD	98869	BH1740	DECK ASSEMBLY,COMP. (SEE FIGURE C-4 FOR NHA)	REF 1
1	XDFZZ	98869	BH1765	.WIRELOOM	12
2	XDFZZ	95987	7/16-6	.CLAMP	5
3	PBFZZ	96906	MS51957-27	.SCREW,MACHINE	5
4	PAFZZ	96906	MS35333-37	.WASHER,LOCK	4
5	XDFZZ	95987	5/16-6	.CLAMP	5
6	PBFZZ	96906	MS51957-27	.SCREW,MACHINE	2
7	PBFZZ	96906	MS35333-37	.WASHER,LOCK	16
8	PBOZZ	72512	1500	.KNOB	3
9	XDFZZ	49673	H4348	.SEALNUT	6
10	PBFZZ	98869	BH1752	.SWITCH,ROTARY	1
11	PBFZZ	81349	M5423/02-01	.BOOT,DUSTANDMOIST	1
12	PBOZZ	72512	1475	.KNOB	3
13	XDFZZ	98869	BH1724	.RESISTOR,VARIABLE,W	1
14	PBFZZ	81349	M5423-09-02	.BOOT,DUSTANDMOIST	1
15	PBFZZ	72512	1475	.KNOB	2
16	PBFZZ	98869	BH815	.SWITCH,ROTARY	2
17	PBFZZ	81349	M5423-09-02	.BOOT,DUSTANDMOIST	2
18	PBFZZ	72512	1475	.KNOB	1
19	PBFZZ	98869	BH1926-1	.POTENTIOMETER,SLIDE (SEE FIGURE C-6 FOR BREAKDOWN)	1
20	PBFZZ	96906	MS51957-13	.SCREW,MACHINE	8
21	PBFZZ	88044	AN936A6	.WASHER,LOCK	1
22	XDFZZ	98869	BH1438	.SPACER	1
23	XDFZZ	49673	H1268	.SEALNUT	1
24	XDFZZ	88044	AN515CR6-4	.SEAL,SCREW	1
25	XDFZZ	88044	AN515C6R5	.SEAL,SCREW	1
26	PBFZZ	96906	MS21044N04	.NUT,SELF-LOCKING,HE	2
27	PBFZZ	88044	AN6227-5	.PACKING,PREFORMED	1
28	PBOZZ	98869	BH1430	.KNOB	1
29	PBFZZ	98869	BH951	.GALVANOMETER	1
30	PBFZZ	96906	MS51957-17	.SCREW,MACHINE	2
31	PBFZZ	96906	MS21044N04	.NUT,SELF-LOCKING,HE	6
32	XDFZZ	98869	BH580	.GASKET	1
33	PBOZZ	98869	BH1430	.KNOB	1
34	PBFZZ	98869	BH1751	.SWITCH,ROTARY	1
35	PBFZZ	81349	M5423-09-02	.BOOT,DUSTANDMOIST	1
36	PBOZZ	98869	BH1430	.KNOB	1
37	PBFZZ	98869	BH1753	.SWITCH,ROTARY	12
38	PBFZZ	81349	M5423-09-02	.BOOT,DUST AND MOIST	1
39	PBFZZ	98869	BH819A	.OHMMETER	1
40	PBFZZ	96906	MS51957-31	.SCREW,MACHINE	3
41	PBFZZ	96906	MS35338-41	.WASHER,LOCK	36
42	PBFZZ	96906	MS21044N06	.NUT,SELF-LOCKING,HE	3
43	XDFZZ	98869	BH581	.GASKET,INSUL,METER	1
44	XDFZZ	98869	BH1194	.BRACKETCONNECTOR	1
45	XDFZZ	98869	BH9041S	.CONNECTOR	1

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
46	XDFZZ	71758	56A	.TERMINAL BOARD	1
47	PBFZZ	96906	MS51957-26	.SCREW,MACHINE	4
48	PBFZZ	96906	MS35333-37	.WASHER,LOCK	11
49	XDFZZ	98869	BH1760	.CIRCUIT, BOARD ASSY (SEE FIGURE C-6 FOR BREAKDOWN)	1
50	XDFZZ	88044	AN505C6R6	.SCREW,MACHINE	2
51	PBFZZ	96906	MS35333-71	.WASHER,LOCK	4
52	PBFZZ	96906	MS21044N06	.NUT,SELF-LOCKING,HE	4
53	XDFZZ	98869	BH625-4	.SPACER	4
54	PBFDD	98869	BH146	.TERMINAL BOARD ASSE (SEE FIGURE C-5 FOR BREAKDOWN)	1
55	PBOZZ	98869	BH1430	.KNOB	1
56	PBFZZ	81349	M5423-09-02	.BOOT,DUST AND MOIST	1
57	PBFZZ	96906	MS51957-26	.SCREW,MACHINE	11
58	PAFZZ	96906	MS21044D04	.NUT,SELF-LOCKING,HE	10
59	PBFZZ	96906	MS35333-37	.WASHER,LOCK	7
60	PBOZZ	72512	1475	.KNOB	1
61	PBFZZ	98869	BH1494	.RESISTOR,VARIABLE,N	5
62	PBFZZ	96906	MS51957-26	.SCREW,MACHINE	32
63	PBFZZ	96906	MS35333-37	.WASHER,LOCK	4
64	XDFZZ	98869	BH1438	.SPACER	4
65	XDFZZ	02799	H1268	.SEAL NUT	2
66	XDFZZ	88044	AN515C6R5	.SEAL,SCREW	4
67	PBFZZ	96906	MS21044N04	.NUT,SELF-LOCKING,HE	4
68	PBFZZ	88044	AN6227-5	.PACKING,PREFORMED	1
69	PBFZZ	98869	BH950A	.GALVANOMETER	1
70	XDFZZ	88044	AN515C6R5	.SEAL,SCREW	1
71	PBFZZ	96906	MS21044N04	.NUT,SELF-LOCKING,HE	6
72	XDFZZ	98869	BH580	.GASKET	1
73	PBFZZ	81349	FHL17G1	.FUSEHOLDER,EXTRACTO	2
74	PBOZZ	71400	MB02	.FUSE,CARTRIDGE	1
75	PBOZZ	81349	F03A125V20A	.FUSE,CARTRIDGE	1
76	XDFZZ	08717	855-SMI-RED-2	.LAMPHOLDER	1
77	PBFZZ	96906	MS25237-328	.LAMP,INCANDESCENT	1
78	XDFZZ	98869	BH9048P	.CONNECTOR	1
79	XDFZZ	98869	BH937-3	.CONNECTOR MOUNT	1
80	PBFZZ	96906	MS51957-26	.SCREW,MACHINE	4
81	PBFZZ	96906	MS35333-37	.WASHER,LOCK	4
82	XDFZZ	88044	AN515CR6-4	.SEAL,SCREW	4
83	XDFZZ	88044	AN515C6R5	.SEAL,SCREW	4
84	PBFZZ	96906	MS21044N04	.NUT,SELF-LOCKING,HE	4
85	PAOZZ	96906	MS25043-16DA	.CAP ASSEMBLY	1
86	PBFZZ	96906	MS51957-12	.SCREW,MACHINE	5
87	PBFZZ	97820	10-36675-16	.GASKET	1
88	XDFZZ	98869	BH9047S	.CONNECTOR	1
89	XDFZZ	98869	BH937-2	.CONNECTOR MOUNT	2
90	PBFZZ	96906	MS51957-26	.SCREW,MACHINE	4
91	PBFZZ	96906	MS35333-37	.WASHER,LOCK	4
92	XDFZZ	88044	AN515CR6-4	.SEAL,SCREW	4
93	XDFZZ	88044	AN515C6R5	.SEAL,SCREW	4
94	PBFZZ	96906	MS21044N04	.NUT,SELF-LOCKING,HE	4
95	PBOZZ	96906	MS25043-14D	.COVER,ELECTRICAL CO	2

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
96	PBFZZ	96906	MS51957-12	.SCREW,MACHINE	1
97	XDFZZ	98869	BH580	.GASKET	1
98	PBFZZ	96906	MS35059-23	.SWITCH,TOGGLE	1
99	PBFZZ	81349	M5423-02-01	.BOOT,DUST AND MOIST	1
100	XDFZZ	98869	BH937-2	.CONNECTOR MOUNT	1
101	XDFZZ	98869	BH9046S	.CONNECTOR	1
102	PBFZZ	96906	MS51957-26	.SCREW,MACHINE	4
103	PBFZZ	96906	MS35333-37	.WASHER,LOCK	4
104	XDFZZ	88044	AN514CR6-4	.SEAL,SCREW	4
105	XDFZZ	88044	AN515C6R5	.SEAL,SCREW	4
106	PBFZZ	96906	MS21044N04	.NUT,SELF-LOCKING,HE	4
107	PBFZZ	MS250	43-14D	.COVER,ELECT	1
108	PBFZZ	96906	MS51957-12	.SCREW,MACHINE	2
109	XDFZZ	98869	BH580	.GASKET	1
110	XDFZZ	98869	BH9044P	.CONNECTOR	2
111	XDFZZ	98869	BH937-1	.CONNECTOR MOUNT	2
112	PBFZZ	96906	MS51957-26	.SCREW,MACHINE	8
113	PBFZZ	96906	MS35333-37	.WASHER,LOCK	8
114	XDFZZ	88044	AN515CR6-4	.SEAL,SCREW	8
115	XDFZZ	88044	AN515C6R5	.SEAL,SCREW	8
116	PBFZZ	96906	MS21044N04	.NUT,SELF-LOCKING,HE	8
117	PBOZZ	71468	2209-3	.DUST COVER	2
118	PBFZZ	96906	MS51957-25	.SCREW,MACHINE	4
119	XDFZZ	98869	BH580	.GASKET	1
120	XDFZZ	49673	H1268	.SEAL,NUT	1
121	XDFZZ	88044	AN515C6R5	.SEAL,SCREW	1
122	PBFZZ	96906	MS21044N04	.NUT,SELF-LOCKING,HE	4
123	PBFZZ	88044	AN6227-10	.PACKING,PREFORMED	1
124	XDFZZ	98869	BH799	.STOP ARM SUPPORT	2
125	PBFZZ	96906	MS51960-62	.SCREW,MACHINE	4
126	PBFZZ	96906	MS51960-66	.SCREW,MACHINE	4
127	XDFZZ	98869	BH6555	.WINDOW	2
128	XDFZZ	98869	BH1744	.DECK,MACHINED	1

END OF FIGURE

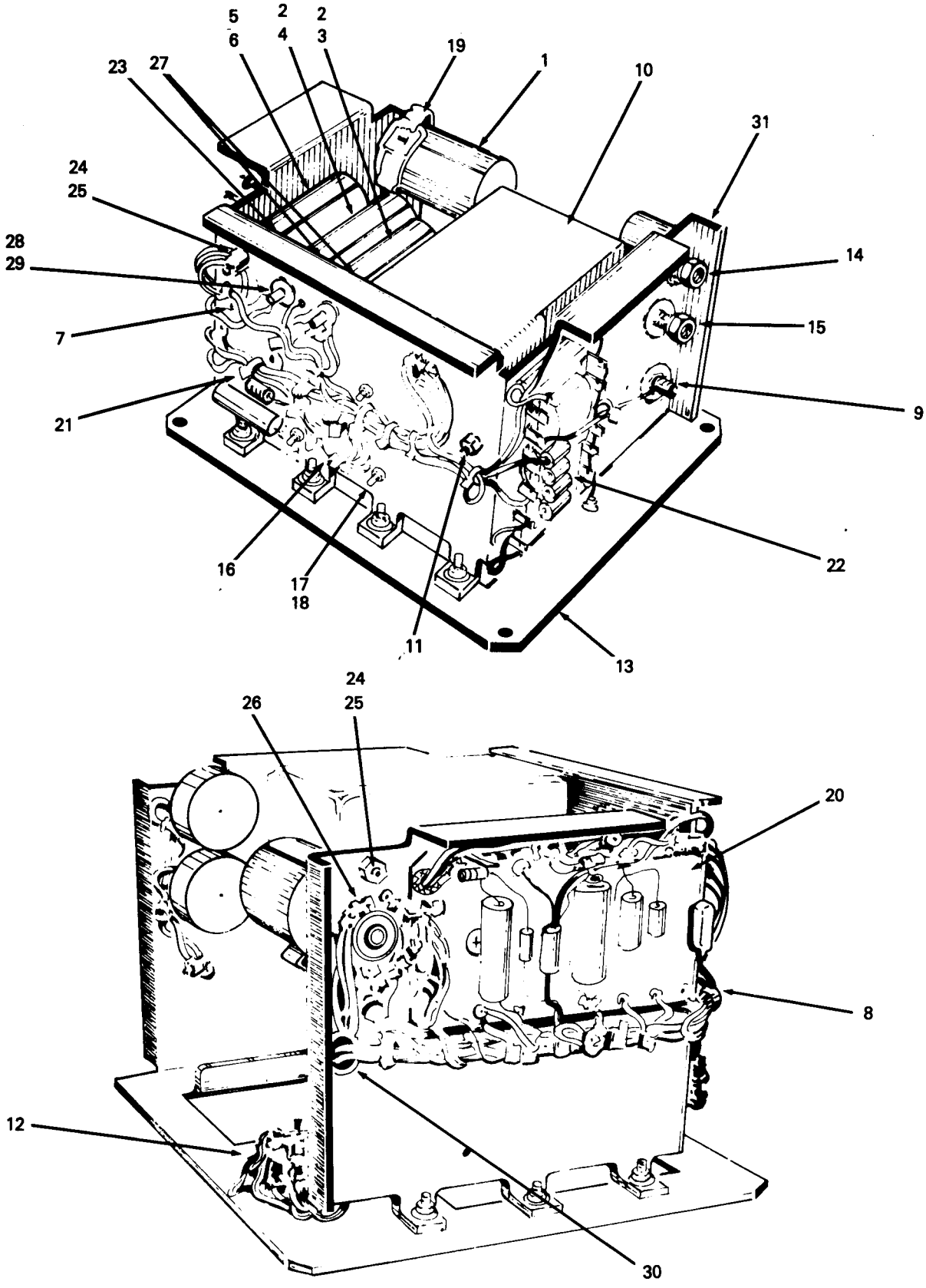


Figure C-5. BH146 Takcal Assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 04. RPM CHECK ASSEMBLY	
				FIGURE C-5. BH146 TAKCAL ASSEMBLY	
	PBFDD	98869	BH146	TERMINAL BOARD ASSE (SEE FIGURE C-4 FOR NHA).....	1
1	PBFZZ	98869	BH1498	.RELAY,ELECTROMAGNET.....	1
2	XDFZZ	00629	9702	.COVER.....	2
3	PBFZZ	81349	6X4WA	.ELECTRON TUBE.....	1
4	XDFZZ	98869	0A2	.TUBE,ELECTRON.....	1
5	XDFZZ	00629	9710	.COVER.....	1
6	PBFZZ	80131	12BH7A	.ELECTRON TUBE.....	1
7	XDFZZ	00629	9718	.SOCKET.....	1
8	XDFZZ	98869	BH1480-1	.LOOM WIRING.....	1
9	XDFZZ	88044	AN931-4-7	.GROMMET,NONMETALLIC.....	1
10	PBFZZ	83003	952-0032-000	.TRANSFORMER,POWER.....	1
11	PBFZZ	96906	MS21044D3	.NUT,SELF-LOCKING,HE.....	1
12	PBFZZ	98869	BH1486	.SWITCH,ROTARY.....	1
13	XDFZZ	98869	BH1481	.SUB DECK.....	1
14	PBFZZ	81349	RA20LASB501A	.RESISTOR,VARIABLE,W.....	1
15	PBFZZ	81349	RA20LASB102A	.RESISTOR,VARIABLE,W.....	1
16	XDFZZ	98869	B0-310	.CONDENSER.....	1
17	PBFZZ	96906	MS51959-28	.SCREW,MACHINE.....	2
18	PBFZZ	96906	MS21044D04	.NUT,SELF-LOCKING,HE.....	4
19	XDFZZ	98869	BH1489	.RETAINER,ELECTRONT.....	1
20	PBFZZ	98869	BH1479	.ELECTRONIC COMPONEN (SEE FIGURE C-7 FOR BREAKDOWN).....	1
21	XDFDD	98869	BH1468	.TERMINAL BOARD ASSY.....	1
22	PBFZZ	98869	BH1475	.TERMINAL BOARD ,ASSE.....	1
23	PBFZZ	98869	9718	.SOCKET.....	1
24	PBFZZ	96906	MS51957-27	.SCREW,MACHINE.....	2
25	PAFZZ	96906	MS21044D3	.NUT,SELF-LOCKING,HE.....	1
26	XDFZZ	02660	77-MIP-8	.SOCKET TUBE.....	1
27	PBFZA	81349	M12883/02-01	.SOCKET,PLUG-IN ELEC.....	1
28	PBFZZ	96906	MS51959-28	.SCREW,MACHINE.....	2
29	PBFZZ	96906	MS21044D3	.NUT,SELF-LOCKING,HE.....	6
30	PAOZZ	96906	MS35489-6	..GROMMET,NONMETALLIC.....	3
31	XDFZZ	98869	BH1485	.CHASSIS ASSY MECH.....	1

END OF FIGURE

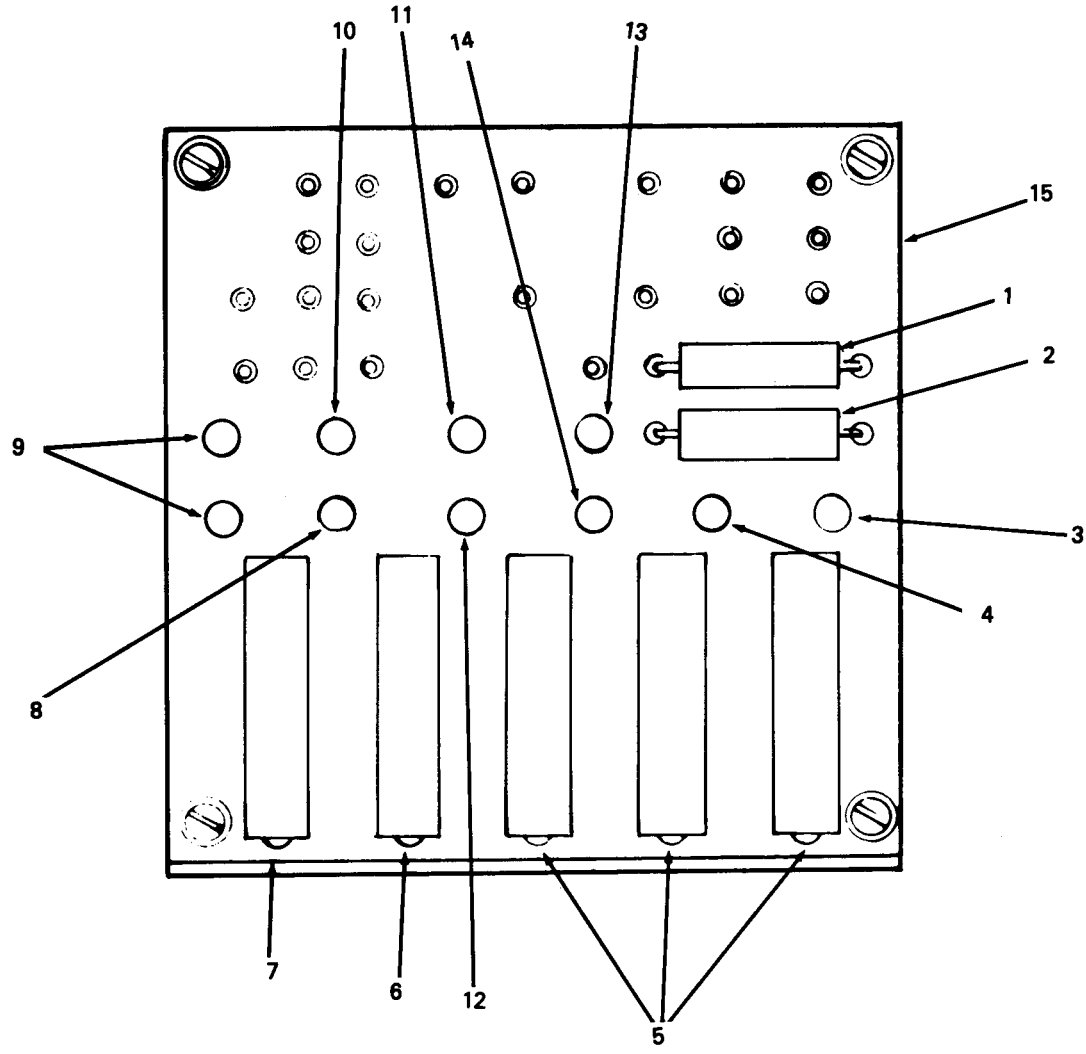


Figure C-6. BH1760 Printed Circuit Board

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 05. CIRCUIT BOARD (POTENTIO-METER	
				FIGURE C-6. BH1760 PRINTED CIRCUIT BOARD	
	XDFDD	98869	BH1760	CIRCUIT BOARD ASSY (SEE FIGURE C-4 FOR NHA)	1
1	PBFZZ	98869	BH275	.RESISTOR,FIXED,WIRE	1
2	PBFZZ	98869	BH274	.RESISTOR,FIXED,WIRE	1
3	PBFZZ	98869	BH1770	.RESISTOR,FIXED,WIRE	1
4	XDFZZ	98869	BH1771	.RESISTOR,FIXED,WIRE	1
5	XDFZZ	80294	MOD-301-00-20K	.POT,20K	3
6	XDFZZ	80294	MOD-301-00-1K	.POT1K	1
7	XDFZZ	80294	MOD-301-00-500HM	.POT-500HM	1
8	XDFZZ	98869	BH1774	.RESISTOR	1
9	PBFZZ	98869	BH1775	.RESISTOR,FIXED,WIRE	1
10	XDFZZ	98869	BH1776	.RESISTOR,FIXED,WIRE	2
11	XDFZZ	98869	BH1777	.RESISTOR,FIXED,WIRE	2
12	PBFZZ	98869	BH1773	.RESISTOR,FIXED,WIRE	1
13	XDFZZ	98869	BH1778	.RESISTOR,FIXED,WIRE	1
14	XDFZZ	98869	BH1772	.RESISTOR,FIXED,WIRE	1
15	XDFZZ	98869	BH1761	.PRINTED,CURCUIT,BOA	1

END OF FIGURE

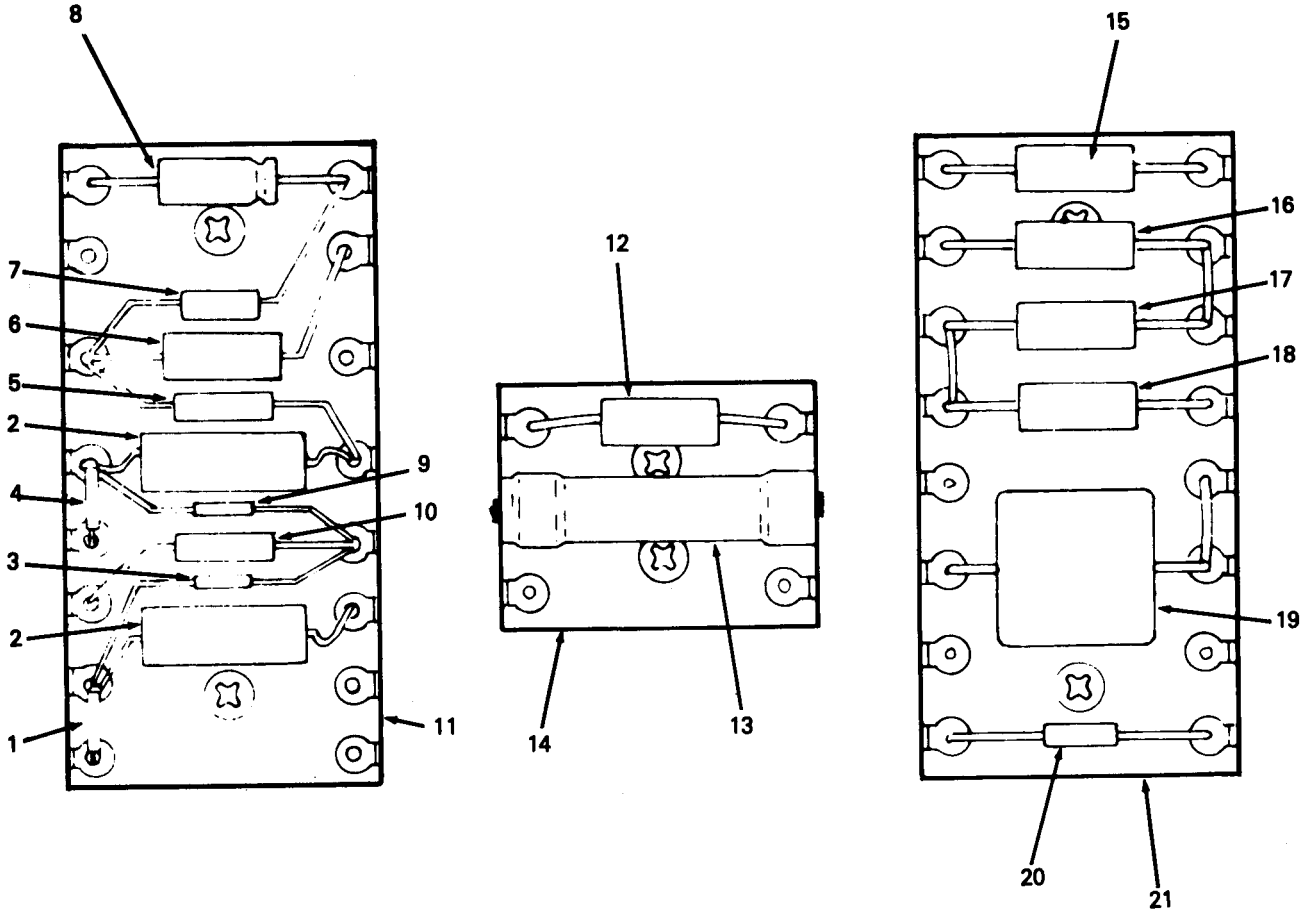


Figure C-7. Terminal Board Assemblies

(1) ITEM NO	(3) SMR CODE	FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 06. CIRCUIT BOARD-DECK ASSEMBLY	
				FIGURE C-7. TERMINAL BOARD ASSEMBLIES	
	PBFZZ	98869	BH1479	ELECTRONIC COMPONEN (SEE FIGURE C-5 FOR NHA)	1
1	PBFZZ	81349	RCR20G105JS	.RESISTOR,FIXED,COMP	1
2	PBFZZ	81349	CQR09A1KC104J3P	.CAPACITOR,FIXED,PLA	2
3	PBFZZ	81349	RCR20G334JS	.RESISTOR,FIXED,COMP	1
4	PBFZZ	81349	RCR20G684JS	.RESISTOR,FIXED,COMP	1
5	PBFZZ	81349	CK60BX101K	.CAPACITOR,FIXED,CER	1
6	XDFZZ	98869	BH1434	.RESISTOR	1
7	XDFZZ	98869	BH1433	.RESISTOR,FIXED,WIRE	1
8	XDFZZ	98869	BH1499	.CONDENSER	1
9	PBFZZ	81349	RCR20G104JS	.RESISTOR,FIXED,COMP	1
10	XDFZZ	98869	BH1436	.RESISTOR	1
11	XDFZZ	98869	BH1452	.BOARD TERMINAL	1
12	XDFZZ	98869	BH1437	.RESISTOR	1
13	XDFZZ	98869	BH1439	.RESISTOR	1
14	XAFZZ	98869	BH1444	.BOARD TERMINAL	1
15	XDFZZ	98869	BH1477	.RESISTOR	1
16	XDFZZ	98869	BH1431	.RESISTOR,FIXED,WIRE	1
17	XDFZZ	98869	BH1428	.RESISTOR,FIXED,WIRE	1
18	XDFZZ	98869	BH1476	.RESISTOR,FIXED,WIRE	1
19	PBFZZ	98869	BH1478	.CAPACITOR,FIXED,MIC	1
20	PBFZZ	81349	RCR20G222JS	.RESISTOR,FIXED,COMP	1
21	XAFZZ	98869	BH1443	.BOARD TERMINAL	1

END OF FIGURE

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
5310-00-045-4007	C-4	41
5305-00-054-5646	C-4	86
	C-4	96
	C-4	108
5305-00-054-5647	C-4	20
5305-00-054-5651	C-4	30
5305-00-054-6649	C-4	118
5305-00-054-6650	C-4	47
	C-4	57
	C-4	62
	C-4	80
	C-4	90
	C-4	102
	C-4	112
5305-00-054-6651	C-1	11
	C-1	14
	C-4	3
	C-4	6
	C-5	24
5305-00-054-6655	C-4	40
5305-00-054-6671	C-1	17
5305-00-059-3658	C-2	8
5305-00-059-3659	C-2	12
5305-00-059-3660	C-2	24
	C-2	29
5305-00-059-5433	C-4	125
5905-00-059-9903	C-3	16
5310-00-063-6717	C-2	2
5305-00-071-1323	C-4	126
5306-00-080-0680	C-2	3
5310-00-081-8087	C-4	42
	C-4	52
5310-00-088-0551	C-4	26
	C-4	31
	C-4	67
	C-4	71
	C-4	84
	C-4	94
	C-4	106
	C-4	116
	C-4	122
5920-00-089-4130	C-4	73
5905-00-104-5756	C-7	1
5905-00-104-8336	C-7	9
5905-00-104-8346	C-7	3
5905-00-114-5456	C-7	4
5935-00-137-4669	C-4	95
5905-00-141-1168	C-7	20
5325-00-141-4003	C-2	19
6240-00-155-7857	C-4	77
5306-00-180-2778	C-1	8
4920-00-204-6457	C-1	29
5935-00-232-3758	C-5	27
5325-00-263-6632	C-5	30
5960-00-272-9182	C-5	3
5310-00-274-8682	C-4	21
5355-00-284-5184	C-4	12
5920-00-284-9220	C-3	13
5325-00-285-3371	C-2	20
5920-00-296-1931	C-4	74
5365-00-298-6563	C-2	27
5930-00-338-2591	C-1	24
5330-00-350-9013	C-4	123
5905-00-502-2839	C-3	18
4920-00-503-1889	C-1	20
4920-00-503-1890	C-1	21
4920-00-504-3191	C-1	22
4920-00-504-3192	C-1	27
5905-00-538-5324	C-3	19
5930-00-539-7013	C-4	11
	C-4	99
6625-00-539-9153	C-4	29
4920-00-539-9260	C-1	28
4920-00-548-7118	C-1	23
6150-00-549-6093	C-1	26
5930-00-552-1143	C-5	12
5920-00-557-6057	C-4	75
5905-00-565-3695	C-4	61
4920-00-565-3702	C-2	4
4920-00-565-3714	C-2	28
5310-00-576-5752	C-2	13
5310-00-579-0079	C-1	12
	C-1	15
	C-4	4
	C-4	7
	C-4	48
	C-4	59
	C-4	63
	C-4	81
	C-4	91
	C-4	103
	C-4	113
4920-00-589-8409	C-2	26
6625-00-600-1920	C-4	39
5910-00-615-4865	C-7	19
5310-00-616-3555	C-4	51
6625-00-626-3499	C-4	69
5355-00-646-5583	C-4	28
	C-4	33
	C-4	36

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
5355-00-646-5583	C-4	55
5950-00-646-5586	C-5	10
5930-00-655-1582	C-4	98
5905-00-660-3641	C-5	14
5905-00-660-7830	C-3	5
5905-00-660-7831	C-6	3
5905-00-660-7834	C-6	12
5905-00-660-7836	C-6	9
5355-00-668-5420	C-4	8
5960-00-669-8921	C-5	6
4920-00-670-9379	C-1	32
6150-00-670-9410	C-1	25
5945-00-673-1720	C-5	1
5905-00-679-3250	C-4	19
5905-00-681-1197	C-5	15
5930-00-682-9237	C-4	10
5930-00-682-9238	C-4	34
5930-00-685-9995	C-4	37
5950-00-686-0789	C-3	11
5930-00-699-5704	C-4	16
5330-00-727-9486	C-4	27
	C-4	68
4920-00-734-8314	C-1	16
	C-3	
5905-00-739-7789	C-3	20
5305-00-763-6963	C-5	17
	C-5	28
5305-00-770-2579	C-2	21
6120-00-800-2482	C-1	7
5310-00-811-3494	C-3	22
5910-00-822-3765	C-7	5
5930-00-823-0482	C-4	14
	C-4	17
	C-4	35
	C-4	38
	C-4	56
5920-00-841-9928	C-3	12
5961-00-852-2537	C-3	2
5310-00-857-5548	C-2	22
	C-4	58
	C-5	18
5905-00-865-7319	C-6	2
5905-00-865-7320	C-6	1
5310-00-877-5798	C-2	25
	C-2	30
	C-5	11
	C-5	25
	C-5	29
6150-00-953-2370	C-1	25
5961-00-957-6865	C-3	10
5305-00-958-5451	C-1	5
5340-00-966-2391	C-2	15
5910-01-008-4722	C-7	2
5940-01-081-2947	C-5	22
5940-01-081-2948	C-4	54
	C-5	
5990-01-087-8548	C-5	20
	C-7	
5910-01-119-4304	C-3	7
5340-01-147-8152	C-4	117
5935-01-167-6148	C-1	13
5935-01-184-7188	C-4	85
5935-01-201-9223	C-1	10

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
88044	AN4CH4A	5306-00-180-2778	C-1	8
88044	AN505C6R6		C-4	50
88044	AN514CR6-4		C-4	104
88044	AN515CR6-4		C-4	24
			C-4	82
			C-4	92
			C-4	114
88044	AN515C6R5		C-4	25
			C-4	66
			C-4	70
			C-4	83
			C-4	93
			C-4	105
			C-4	115
			C-4	121
88044	AN6227-10	5330-00-350-9013	C-4	123
88044	AN6227-5	5330-00-727-9486	C-4	27
			C-4	68
88044	AN931-4-7		C-5	9
88044	AN936A6	5310-00-274-8682	C-4	21
98869	BH1185	5905-00-538-5324	C-3	19
98869	BH1194		C-4	44
98869	BH123-3	5930-00-338-2591	C-1	24
98869	BH1428		C-7	17
98869	BH1430	5355-00-646-5583	C-4	28
			C-4	33
			C-4	36
			C-4	55
98869	BH1431		C-7	16
98869	BH1433		C-7	7
98869	BH1434		C-7	6
98869	BH1436		C-7	10
98869	BH1437		C-7	12
98869	BH1438		C-4	22
			C-4	64
98869	BH1439		C-7	13
98869	BH1443		C-7	21
98869	BH1444		C-7	14
98869	BH1452		C-7	11
98869	BH146	5940-01-081-2948	C-4	54
			C-5	
98869	BH1468		C-5	21
98869	BH1475	5940-01-081-2947	C-5	22
98869	BH1476		C-7	18
98869	BH1477		C-7	15
98869	BH1478	5910-00-615-4865	C-7	19
98869	BH1479	5990-01-087-8548	C-5	20
			C-7	
98869	BH1480-1		C-5	8
98869	BH1481		C-5	13
98869	BH1485		C-5	31

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
98869	BH1486	5930-00-552-1143	C-5	12
98869	BH1489		C-5	19
98869	BH1494	5905-00-565-3695	C-4	61
98869	BH1498	5945-00-673-1720	C-5	1
98869	BH1499		C-7	8
98869	BH1504	6150-00-670-9410	C-1	25
98869	BH1569		C-3	6
98869	BH1570		C-3	9
98869	BH1571	5905-00-660-7830	C-3	5
98869	BH1720		C-1	19
98869	BH1724		C-4	13
98869	BH1726		C-1	18
			C-2	
98869	BH1726-1		C-1	1
98869	BH1727		C-2	31
98869	BH1732		C-2	14
98869	BH1740		C-1	4
			C-4	
98869	BH1744		C-4	128
98869	BH1751	5930-00-682-9238	C-4	34
98869	BH1752	5930-00-682-9237	C-4	10
98869	BH1753	5930-00-685-9995	C-4	37
98869	BH1760		C-4	49
			C-6	
98869	BH1761		C-6	15
98869	BH1765		C-4	1
98869	BH1766	4920-00-734-8314	C-1	16
			C-3	
98869	BH1767		C-3	24
98869	BH1768		C-3	1
98869	BH1770	5905-00-660-7831	C-6	3
98869	BH1771		C-6	4
98869	BH1772		C-6	14
98869	BH1773	5905-00-660-7834	C-6	12
98869	BH1774		C-6	8
98869	BH1775	5905-00-660-7836	C-6	9
98869	BH1776		C-6	10
98869	BH1777		C-6	11
98869	BH1778		C-6	13
98869	BH1780		C-3	8
98869	BH1781		C-3	14
98869	BH1782		C-3	15
98869	BH1785	5950-00-686-0789	C-3	11
98869	BH1795		C-2	11
98869	BH1926-1	5905-00-679-3250	C-4	19
98869	BH274	5905-00-865-7319	C-6	2
98869	BH275	5905-00-865-7320	C-6	1
98869	BH3506	4920-00-589-8409	C-2	26
98869	BH361-5		C-1	30
98869	BH3670		C-3	3
98869	BH3717	5961-00-852-2537	C-3	2

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
98869	BH405	4920-00-503-1889	C-1	20
98869	BH437		C-2	6
98869	BH450	4920-00-503-1890	C-1	21
98869	BH4548	6150-00-953-2370	C-1	25
98869	BH485	4920-00-548-7118	C-1	23
98869	BH492B-3		C-1	31
98869	BH499	4920-00-504-3191	C-1	22
98869	BH5033		C-3	21
98869	BH580		C-4	32
			C-4	72
			C-4	97
			C-4	109
			C-4	119
98869	BH581		C-4	43
98869	BH625-4		C-4	53
98869	BH6555		C-4	127
98869	BH659		C-2	5
98869	BH723		C-2	7
98869	BH727	4920-00-565-3702	C-2	4
98869	BH755	5905-00-739-7789	C-3	20
98869	BH769		C-2	1
98869	BH796		C-2	9
98869	BH799		C-4	124
98869	BH804		C-3	17
98869	BH805	5905-00-502-2839	C-3	18
98869	BH815	5930-00-699-5704	C-4	16
98869	BH819A	6625-00-600-1920	C-4	39
98869	BH820	4920-00-204-6457	C-1	29
98869	BH821	6150-00-549-6093	C-1	26
98869	BH822	4920-00-539-9260	C-1	28
98869	BH823	4920-00-504-3192	C-1	27
98869	BH824		C-1	6
98869	BH834-1		C-2	23
98869	BH835	4920-00-565-3714	C-2	28
98869	BH838		C-2	16
98869	BH9041S		C-4	45
98869	BH9044P		C-4	110
98869	BH9046S		C-4	101
98869	BH9047S		C-4	88
98869	BH9048P		C-4	78
98869	BH937-1		C-4	111
98869	BH937-2		C-4	89
			C-4	100
98869	BH937-3		C-4	79
98869	BH950A	6625-00-626-3499	C-4	69
98869	BH951	6625-00-539-9153	C-4	29
98869	BH996-40	4920-00-670-9379	C-1	32
72794	BJ4-40-28X388		C-2	17
98869	BO-310		C-5	16
81349	CK60BX101K	5910-00-822-3765	C-7	5
81349	CQR09A1KC104J3P	5910-01-008-4722	C-7	2

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
81349	FHL17G1	5920-00-089-4130	C-4	73
81349	FH21AM	5920-00-841-9928	C-3	12
81349	F02B250V1A	5920-00-284-9220	C-3	13
81349	F03A125V20A	5920-00-557-6057	C-4	75
72794	GH-4	5325-00-141-4003	C-2	19
49673	H1268		C-4	23
			C-4	65
			C-4	120
49673	H4348		C-4	9
04713	IN429		C-3	4
81349	JAN1N4003	5961-00-957-6865	C-3	10
71400	MB02	5920-00-296-1931	C-4	74
80294	MOD-301-00-1K		C-6	6
80294	MOD-301-00-20K		C-6	5
80294	MOD-301-00-500HM		C-6	7
96906	MS16624-62	5365-00-298-6563	C-2	27
96906	MS20253-2-1200	5340-00-966-2391	C-2	15
96906	MS20253-2-2400		C-2	10
96906	MS21044D04	5310-00-857-5548	C-2	22
			C-4	58
			C-5	18
96906	MS21044D3	5310-00-877-5798	C-2	25
			C-2	30
			C-5	11
			C-5	25
			C-5	29
96906	MS21044N04	5310-00-088-0551	C-4	26
			C-4	31
			C-4	67
			C-4	71
			C-4	84
			C-4	94
			C-4	106
			C-4	116
			C-4	122
96906	MS21044N06	5310-00-081-8087	C-4	42
			C-4	52
96906	MS21044N08	5310-00-811-3494	C-3	22
96906	MS21318-1		C-1	2
96906	MS25043-14D	5935-00-137-4669	C-4	95
96906	MS25043-16DA	5935-01-184-7188	C-4	85
96906	MS25237-328	6240-00-155-7857	C-4	77
96906	MS35059-23	5930-00-655-1582	C-4	98
96906	MS35190-239	5305-00-958-5451	C-1	5
96906	MS35308-341	5306-00-080-0680	C-2	3
96906	MS35333-37	5310-00-579-0079	C-1	12
			C-1	15
			C-4	4
			C-4	7
			C-4	48
			C-4	59

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
96906	MS35333-37	5310-00-579-0079	C-4	63
			C-4	81
			C-4	91
			C-4	103
			C-4	113
96906	MS35333-39	5310-00-576-5752	C-2	13
96906	MS35333-71	5310-00-616-3555	C-4	51
96960	MS35338-139		C-1	9
96906	MS35338-41	5310-00-045-4007	C-4	41
96906	MS35426-15	5310-00-063-6717	C-2	2
96906	MS35489-6	5325-00-263-6632	C-5	30
96906	MS51957-12	5305-00-054-5646	C-4	86
			C-4	96
			C-4	108
96906	MS51957-13	5305-00-054-5647	C-4	20
96906	MS51957-17	5305-00-054-5651	C-4	30
96906	MS51957-25	5305-00-054-6649	C-4	118
96906	MS51957-26	5305-00-054-6650	C-4	47
			C-4	57
			C-4	62
			C-4	80
			C-4	90
			C-4	102
			C-4	112
96906	MS51957-27	5305-00-054-6651	C-1	11
			C-1	14
			C-4	3
			C-4	6
			C-5	24
96906	MS51957-31	5305-00-054-6655	C-4	40
96906	MS51957-46	5305-00-054-6671	C-1	17
96906	MS51958-62	5305-00-059-3658	C-2	8
96906	MS51958-63	5305-00-059-3659	C-2	12
96906	MS51958-64	5305-00-059-3660	C-2	24
			C-2	29
96906	MS51959-15	5305-00-770-2579	C-2	21
96906	MS51959-28	5305-00-763-6963	C-5	17
			C-5	28
96906	MS51960-62	5305-00-059-5433	C-4	125
96906	MS51960-66	5305-00-071-1323	C-4	126
81349	M12883/02-01	5935-00-232-3758	C-5	27
81349	M39006/22-585	5910-01-119-4304	C-3	7
81349	M5423-02-01	5930-00-539-7013	C-4	99
81349	M5423-09-02	5930-00-823-0482	C-4	14
			C-4	17
			C-4	35
			C-4	38
			C-4	56
81349	M5423/02-01	5930-00-539-7013	C-4	11
81349	M85049/41-10A	5935-01-201-9223	C-1	10
81349	M85049/41-12A	5935-01-167-6148	C-1	13

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
00629	PC-9		C-3	23
81349	RA20LASB102A	5905-00-681-1197	C-5	15
81349	RA20LASB501A	5905-00-660-3641	C-5	14
81349	RB17CE10002D	5905-00-059-9903	C-3	16
81349	RCR20G104JS	5905-00-104-8336	C-7	9
81349	RCR20G105JS	5905-00-104-5756	C-7	1
81349	RCR20G222JS	5905-00-141-1168	C-7	20
81349	RCR20G334JS	5905-00-104-8346	C-7	3
81349	RCR20G684JS	5905-00-114-5456	C-7	4
72794	SR4		C-2	18
72794	S4-225	5325-00-285-3371	C-2	20
13850	W20	6120-00-800-2482	C-1	7
98869	0A2		C-5	4
97820	10-36675-16		C-4	87
80131	128H7A	5960-00-669-8921	C-5	6
72512	1475	5355-00-284-5184	C-4	12
			C-4	15
			C-4	18
			C-4	60
72512	1500	5355-00-668-5420	C-4	8
71468	2209-3	5340-01-147-8152	C-4	117
MS250	43-14D		C-4	107
95987	5/16-6		C-4	5
24655	5530-4300		C-1	3
71758	56A		C-4	46
81349	6X4WA	5960-00-272-9182	C-5	3
95987	7/16-6		C-4	2
02660	77-MIP-8		C-5	26
08717	855-SMI-RED-2		C-4	76
83003	952-0032-000	5950-00-646-5586	C-5	10
00629	9702		C-5	2
00629	9710		C-5	5
00629	9718		C-5	7
			C-5	23

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
C-1	1		98869	BH1726-1
C-1	2		96906	MS21318-1
C-1	3		24655	5530-4300
C-1	4		98869	BH1740
C-1	5	5305-00-958-5451	96906	MS35190-239
C-1	6		98869	BH824
C-1	7	6120-00-800-2482	13850	W20
C-1	8	5306-00-180-2778	88044	AN4CH4A
C-1	9		96960	MS35338-139
C-1	10	5935-01-201-9223	81349	M85049/41-10A
C-1	11	5305-00-054-6651	96906	MS51957-27
C-1	12	5310-00-579-0079	96906	MS35333-37
C-1	13	5935-01-167-6148	81349	M85049/41-12A
C-1	14	5305-00-054-6651	96906	MS51957-27
C-1	15	5310-00-579-0079	96906	MS35333-37
C-1	16	4920-00-734-8314	98869	BH1766
C-1	17	5305-00-054-6671	96906	MS51957-46
C-1	18		98869	BH1726
C-1	19		98869	BH1720
C-1	20	4920-00-503-1889	98869	BH405
C-1	21	4920-00-503-1890	98869	BH450
C-1	22	4920-00-504-3191	98869	BH499
C-1	23	4920-00-548-7118	98869	BH485
C-1	24	5930-00-338-2591	98869	BH123-3
C-1	25	6150-00-670-9410	98869	BH1504
C-1	25	6150-00-953-2370	98869	BH4548
C-1	26	6150-00-549-6093	98869	BH821
C-1	27	4920-00-504-3192	98869	BH823
C-1	28	4920-00-539-9260	98869	BH822
C-1	29	4920-00-204-6457	98869	BH820
C-1	30		98869	BH361-5
C-1	31		98869	BH492B-3
C-1	32	4920-00-670-9379	98869	BH996-40
C-2			98869	BH1726
C-2	1		98869	BH769
C-2	2	5310-00-063-6717	96906	MS35426-15
C-2	3	5306-00-080-0680	96906	MS35308-341
C-2	4	4920-00-565-3702	98869	BH727
C-2	5		98869	BH659
C-2	6		98869	BH437
C-2	7		98869	BH723
C-2	8	5305-00-059-3658	96906	MS51958-62
C-2	9		98869	BH796
C-2	10		96906	MS20253-2-2400
C-2	11		98869	BH1795
C-2	12	5305-00-059-3659	96906	MS51958-63
C-2	13	5310-00-576-5752	96906	MS35333-39
C-2	14		98869	BH1732
C-2	15	5340-00-966-2391	96906	MS20253-2-1200
C-2	16		98869	BH838
C-2	17		72794	BJ4-40-28X388

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
C-2	18		72794	SR4
C-2	19	5325-00-141-4003	72794	GH-4
C-2	20	5325-00-285-3371	72794	S4-225
C-2	21	5305-00-770-2579	96906	MS51959-15
C-2	22	5310-00-857-5548	96906	MS21044D04
C-2	23		98869	BH834-1
C-2	24	5305-00-059-3660	96906	MS51958-64
C-2	25	5310-00-877-5798	96906	MS21044D3
C-2	26	4920-00-589-8409	98869	BH3506
C-2	27	5365-00-298-6563	96906	MS16624-62
C-2	28	4920-00-565-3714	98869	BH835
C-2	29	5305-00-059-3660	96906	MS51958-64
C-2	30	5310-00-877-5798	96906	MS21044D3
C-2	31		98869	BH1727
C-3		4920-00-734-8314	98869	BH1766
C-3	1		98869	BH1768
C-3	2	5961-00-852-2537	98869	BH3717
C-3	3		98869	BH3670
C-3	4		04713	IN429
C-3	5	5905-00-660-7830	98869	BH1571
C-3	6		98869	BH1569
C-3	7	5910-01-119-4304	81349	M39006/22-585
C-3	8		98869	BH1780
C-3	9		98869	BH1570
C-3	10	5961-00-957-6865	81349	JAN1N4003
C-3	11	5950-00-686-0789	98869	BH1785
C-3	12	5920-00-841-9928	81349	FH21AM
C-3	13	5920-00-284-9220	81349	F02B250V1A
C-3	14		98869	BH1781
C-3	15		98869	BH1782
C-3	16	5905-00-059-9903	81349	RB17CE10002D
C-3	17		98869	BH804
C-3	18	5905-00-502-2839	98869	BH805
C-3	19	5905-00-538-5324	98869	BH1185
C-3	20	5905-00-739-7789	98869	BH755
C-3	21		98869	BH5033
C-3	22	5310-00-811-3494	96906	MS21044N08
C-3	23		00629	PC-9
C-3	24		98869	BH1767
C-4			98869	BH1740
C-4	1		98869	BH1765
C-4	2		95987	7/16-6
C-4	3	5305-00-054-6651	96906	MS51957-27
C-4	4	5310-00-579-0079	96906	MS35333-37
C-4	5		95987	5/16-6
C-4	6	5305-00-054-6651	96906	MS51957-27
C-4	7	5310-00-579-0079	96906	MS35333-37
C-4	8	5355-00-668-5420	72512	1500
C-4	9		49673	H4348
C-4	10	5930-00-682-9237	98869	BH1752
C-4	11	5930-00-539-7013	81349	M5423/02-01

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
C-4	12	5355-00-284-5184	72512	1475
C-4	13		98869	BH1724
C-4	14	5930-00-823-0482	81349	M5423-09-02
C-4	15		72512	1475
C-4	16	5930-00-699-5704	98869	BH815
C-4	17	5930-00-823-0482	81349	M5423-09-02
C-4	18		72512	1475
C-4	19	5905-00-679-3250	98869	BH1926-1
C-4	20	5305-00-054-5647	96906	MS51957-13
C-4	21	5310-00-274-8682	88044	AN936A6
C-4	22		98869	BH1438
C-4	23		49673	H1268
C-4	24		88044	AN515CR6-4
C-4	25		88044	AN515C6R5
C-4	26	5310-00-088-0551	96906	MS21044N04
C-4	27	5330-00-727-9486	88044	AN6227-5
C-4	28	5355-00-646-5583	98869	BH1430
C-4	29	6625-00-539-9153	98869	BH951
C-4	30	5305-00-054-5651	96906	MS51957-17
C-4	31	5310-00-088-0551	96906	MS21044N04
C-4	32		98869	BH580
C-4	33	5355-00-646-5583	98869	BH1430
C-4	34	5930-00-682-9238	98869	BH1751
C-4	35	5930-00-823-0482	81349	M5423-09-02
C-4	36	5355-00-646-5583	98869	BH1430
C-4	37	5930-00-685-9995	98869	BH1753
C-4	38	5930-00-823-0482	81349	M5423-09-02
C-4	39	6625-00-600-1920	98869	BH819A
C-4	40	5305-00-054-6655	96906	MS51957-31
C-4	41	5310-00-045-4007	96906	MS35338-41
C-4	42	5310-00-081-8087	96906	MS21044N06
C-4	43		98869	BH581
C-4	44		98869	BH1194
C-4	45		98869	BH9041S
C-4	46		71758	56A
C-4	47	5305-00-054-6650	96906	MS51957-26
C-4	48	5310-00-579-0079	96906	MS35333-37
C-4	49		98869	BH1760
C-4	50		88044	AN505C6R6
C-4	51	5310-00-616-3555	96906	MS35333-71
C-4	52	5310-00-081-8087	96906	MS21044N06
C-4	53		98869	BH625-4
C-4	54	5940-01-081-2948	98869	BH146
C-4	55	5355-00-646-5583	98869	BH1430
C-4	56	5930-00-823-0482	81349	M5423-09-02
C-4	57	5305-00-054-6650	96906	MS51957-26
C-4	58	5310-00-857-5548	96906	MS21044D04
C-4	59	5310-00-579-0079	96906	MS35333-37
C-4	60		72512	1475
C-4	61	5905-00-565-3695	98869	BH1494
C-4	62	5305-00-054-6650	96906	MS51957-26

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
C-4	63	5310-00-579-0079	96906	MS35333-37
C-4	64		98869	BH1438
C-4	65		02799	H1268
C-4	66		88044	AN515C6R5
C-4	67	5310-00-088-0551	96906	MS21044N04
C-4	68	5330-00-727-9486	88044	AN6227-5
C-4	69	6625-00-626-3499	98869	BH950A
C-4	70		88044	AN515C6R5
C-4	71	5310-00-088-0551	96906	MS21044N04
C-4	72		98869	BH580
C-4	73	5920-00-089-4130	81349	FHL17G1
C-4	74	5920-00-296-1931	71400	MBO2
C-4	75	5920-00-557-6057	81349	F03A125V20A
C-4	76		08717	855-SMI-RED-2
C-4	77	6240-00-155-7857	96906	MS25237-328
C-4	78		98869	BH9048P
C-4	79		98869	BH937-3
C-4	80	5305-00-054-6650	96906	MS51957-26
C-4	81	5310-00-579-0079	96906	MS35333-37
C-4	82		88044	AN515CR6-4
C-4	83		88044	AN515C6R5
C-4	84	5310-00-088-0551	96906	MS21044N04
C-4	85	5935-01-184-7188	96906	MS25043-16DA
C-4	86	5305-00-054-5646	96906	MS51957-12
C-4	87		97820	10-36675-16
C-4	88		98869	BH9047S
C-4	89		98869	BH937-2
C-4	90	5305-00-054-6650	96906	MS51957-26
C-4	91	5310-00-579-0079	96906	MS35333-37
C-4	92		88044	AN515CR6-4
C-4	93		88044	AN515C6R5
C-4	94	5310-00-088-0551	96906	MS21044N04
C-4	95	5935-00-137-4669	96906	MS25043-14D
C-4	96	5305-00-054-5646	96906	MS51957-12
C-4	97		98869	BH580
C-4	98	5930-00-655-1582	96906	MS35059-23
C-4	99	5930-00-539-7013	81349	M5423-02-01
C-4	100		98869	BH937-2
C-4	101		98869	BH9046S
C-4	102	5305-00-054-6650	96906	MS51957-26
C-4	103	5310-00-579-0079	96906	MS35333-37
C-4	104		88044	AN514CR6-4
C-4	105		88044	AN515C6R5
C-4	106	5310-00-088-0551	96906	MS21044N04
C-4	107		MS250	43-14D
C-4	108	5305-00-054-5646	96906	MS51957-12
C-4	109		98869	BH580
C-4	110		98869	BH9044P
C-4	111		98869	BH937-1
C-4	112	5305-00-054-6650	96906	MS51957-26
C-4	113	5310-00-579-0079	96906	MS35333-37

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
C-4	114		88044	AN515CR6-4
C-4	115		88044	AN515C6R5
C-4	116	5310-00-088-0551	96906	MS21044N04
C-4	117	5340-01-147-8152	71468	2209-3
C-4	118	5305-00-054-6649	96906	MS51957-25
C-4	119		98869	BH580
C-4	120		49673	H1268
C-4	121		88044	AN515C6R5
C-4	122	5310-00-088-0551	96906	MS21044N04
C-4	123	5330-00-350-9013	88044	AN6227-10
C-4	124		98869	BH799
C-4	125	5305-00-059-5433	96906	MS51960-62
C-4	126	5305-00-071-1323	96906	MS51960-66
C-4	127		98869	BH6555
C-4	128		98869	BH1744
C-5		5940-01-081-2948	98869	BH146
C-5	1	5945-00-673-1720	98869	BH1498
C-5	2		00629	9702
C-5	3	5960-00-272-9182	81349	6X4WA
C-5	4		98869	0A2
C-5	5		00629	9710
C-5	6	5960-00-669-8921	80131	12BH7A
C-5	7		00629	9718
C-5	8		98869	BH1480-1
C-5	9		88044	AN931-4-7
C-5	10	5950-00-646-5586	83003	952-0032-000
C-5	11	5310-00-877-5798	96906	MS21044D3
C-5	12	5930-00-552-1143	98869	BH1486
C-5	13		98869	BH1481
C-5	14	5905-00-660-3641	81349	RA20LASB501A
C-5	15	5905-00-681-1197	81349	RA20LASB102A
C-5	16		98869	B0-310
C-5	17	5305-00-763-6963	96906	MS51959-28
C-5	18	5310-00-857-5548	96906	MS21044D04
C-5	19		98869	BH1489
C-5	20	5990-01-087-8548	98869	BH1479
C-5	21		98869	BH1468
C-5	22	5940-01-081-2947	98869	BH1475
C-5	23		98869	9718
C-5	24	5305-00-054-6651	96906	MS51957-27
C-5	25	5310-00-877-5798	96906	MS21044D3
C-5	26		02660	77-MIP-8
C-5	27	5935-00-232-3758	81349	M12883/02-01
C-5	28	5305-00-763-6963	96906	MS51959-28
C-5	29	5310-00-877-5798	96906	MS21044D3
C-5	30	5325-00-263-6632	96906	MS35489-6
C-5	31		98869	BH1485
C-6			98869	BH1760
C-6	1	5905-00-865-7320	98869	BH275
C-6	2	5905-00-865-7319	98869	BH274
C-6	3	5905-00-660-7831	98869	BH1770

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
C-6	4		98869	BH1771
C-6	5		80294	MOD-301-00-20K
C-6	6		80294	MOD-301-00-1K
C-6	7		80294	MOD-301-00-500HM
C-6	8		98869	BH1774
C-6	9	5905-00-660-7836	98869	BH1775
C-6	10		98869	BH1776
C-6	11		98869	BH1777
C-6	12	5905-00-660-7834	98869	BH1773
C-6	13		98869	BH1778
C-6	14		98869	BH1772
C-6	15		98869	BH1761
C-7		5990-01-087-8548	98869	BH1479
C-7	1	5905-00-104-5756	81349	RCR20G105JS
C-7	2	5910-01-008-4722	81349	CQR09A1KC104J3P
C-7	3	5905-00-104-8346	81349	RCR20G334JS
C-7	4	5905-00-114-5456	81349	RCR20G684JS
C-7	5	5910-00-822-3765	81349	CK60BX101K
C-7	6		98869	BH1434
C-7	7		98869	BH1433
C-7	8		98869	BH1499
C-7	9	5905-00-104-8336	81349	RCR20G104JS
C-7	10		98869	BH1436
C-7	11		98869	BH1452
C-7	12		98869	BH1437
C-7	13		98869	BH1439
C-7	14		98869	BH1444
C-7	15		98869	BH1477
C-7	16		98869	BH1431
C-7	17		98869	BH1428
C-7	18		98869	BH1476
C-7	19	5910-00-615-4865	98869	BH1478
C-7	20	5905-00-141-1168	81349	RCR20G222JS
C-7	21		98869	BH1443

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

Official:

VERNE L. BOWERS
Major General, United States Army,
The Adjutant General.

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