TM 11-7025-214-30

TECHNICAL MANUAL .

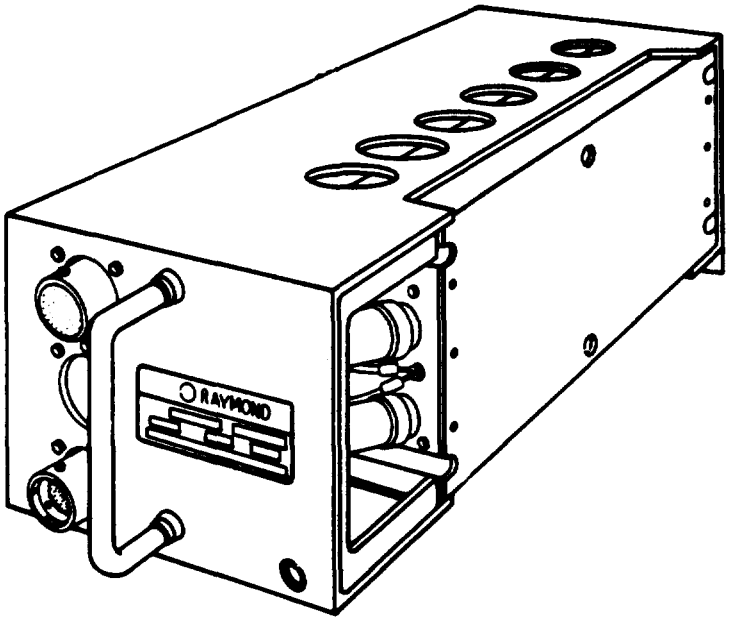
DIRECT SUPPORT MAINTENANCE MANUAL

PRINCIPLES OF OPERATION

MAINTENANCE INSTRUCTIONS

TROUBLE-SHOOTING

SUBJECT INDEX



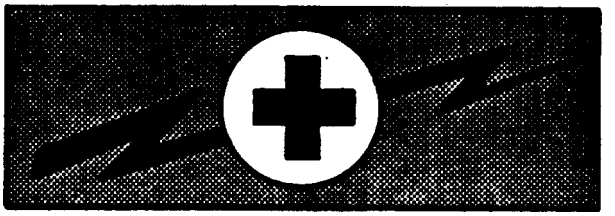
MAGNETIC TAPE SET AN/UYH-1 (NSN 7025-01-134-3338)

HEADQUARTERS, DEPARTMENT OF THE ARMY
29 JUNE 1984

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1. DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL
2. IF POSSIBLE , TURN OFF THE ELECTRICAL POWER
3. IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A WOODEN POLE OR A ROPE OR SOME OTHER INSULATING MATERIAL
4. SEND FOR HELP AS SOON AS POSSIBLE
5. AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

WARNING



HIGH VOLTAGE

is used in the operation of this equipment

DEATH ON CONTACT

may result if personnel fail to observe safety precautions

Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Whenever possible, the power supply to the equipment must be shut off before beginning work on the equipment. Take particular care to ground every capacitor likely to hold a dangerous potential. When working inside the equipment, after the power has been turned off, always ground every part before touching it.

Be careful not contact high-voltage connections or 115 volt ac input connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through the body.

Warning: Do not be misled by the term "low voltage". Potentials as low as 50 volts may cause death under adverse conditions.

WARNING
FLAMMABLE LIQUIDS

are used in cleaning the equipment

For Artificial Respiration, refer to FM 21-11.

Technical Manual

No. 11-7025-214-30

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 29 June 1984

Direct Supprt Maintenance Manual

MAGNETIC TAPE SET AN/UYH-1
(NSN 7025-01-134-3338)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help Improve this manual. If you find any mistakes or if you know of away 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, US Army Communications . Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703.
In either case, a reply will be furnished direct to you.

CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE

This manual Is for use In the peformance of maintenance on the Magnetic Tape set AN/UYH-1. The magnetic tape set initiates program loading and operational Program storage. It also can record processor outputs.

1-2. CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS

Refer to the latest issue of DA PAM 310-1 to determine whether there are new editions, changes or additional obligations pertaining to the equipment.

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750 is contained in Maintenance Management Update.

b. Report of Packaging and Handling Deficiencies. Fill out and forward SF364 (Report of Discrepancy Report (DISREP) (SF 351) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/-DLAR 4500.15.

c. Discrepancy in Shipment Report (DISREP) (SF 351), Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/-DLAR 4500.15.

1-3.. DESTRUCTION OF ARMY ELECTRONICS MATERIEL

Destruction of Army electronics material to prevent enemy use shall be in accordance with TM 750-244-2.

1-4. PREPARATION FOR STORAQE OR SHIPMENT

Refer to Chapter 2, Section V for storage and shipment instruction

1-5. NOMENCLATURE CROSS-REFERENCE LIST

Common Name	Official Nomenclature
Tape Memory Unit (TMU)	Magnetic Tape Set AN/UYH-1
TTU	Tape Transport Unit
ECU	Electronics Control Unit

14. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your tape memory unit needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications - Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703. We'll send you a reply.

Section II EQUIPMENT DESCRIPTION AND DATA

1-7. EQUIPMENT CHARACTERISTICS

Refer to TM 11-7021 -201-12, Chapter 1 for equipment data.

1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

a. Electronics Control Unit Refer to TM 11-7021-201-12, Chapter 1 for location and description of electronics control unit

b. Tape Transport Unit Refer to TM 11-7021-201-12, Chapter 1 for location and description of tape transport unit

1-9. EQUIPMENT DATA

Refer to TM 11-7021-201-12, Chapter 1 for equipment data.

1-10. SAFETY, CARE, AND HANDLING

a. Always use the handles when lifting or moving the tape memory unit

b. The tape memory unit cassetts is pressurized. Do not open the cassette at any time.

Section III. PRINCIPLES OF OPERATION

1-11. FUNCTIONAL DESCRIPTION OF EQUIPMENT

a. General. The TMU, under control of a processor, reads recorded date from or writes data onto the magnetic tape in the TTU. The TMU system is divided into the following five areas:

(1) Interface Circuits

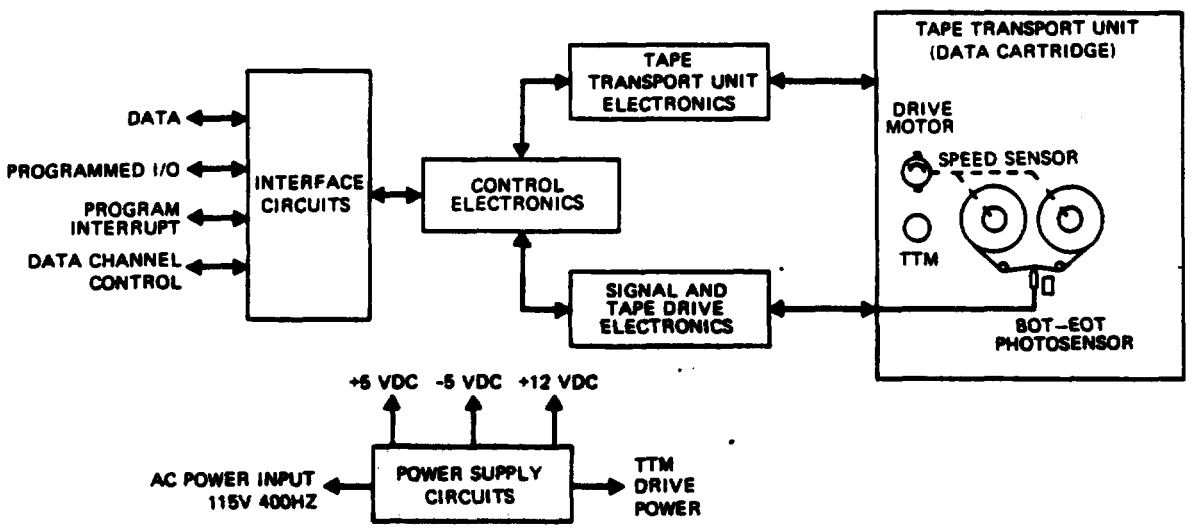
(2) Control Electronics

(3) Tape Transport Unit Electronics

(4) Signal and Tape Drive Electronics

(5) Power Supply Circuits

A block diagram of the overall system is shown below.



b. Interface Circuits. The interface circuits consist of four printed circuit boards, located in dots A1 through A4. These boards function to control circuitry for a 16-bit bidirectional data register. The interface circuits accept IS-bit words from the processor end tranefer themes two 8-bit bytes sequentially to the control electronics, The interface circuits also accept two 8-bit bytes sequentially from the control electronics and transfer 16-bit words to the processor.

c. Control Electronics. The control electronics consist of five printed circuit boards, located in dots A6 through A10. These boards control tape motion functions, accept an 8-bit byte from the interface circuits, and transfer two sequential 4-bit bytes to the signal and tape drive electronics. The control electronics also accept two sequential 4-bit bytes from the signal and tape drive electronics, and transfer an B-bit byte to the interface circuits.

d. Tape Transport Unit Electronics. The tape transport unit electronics consist of four printed circuit boards located in slots Al 1 through A14. These boards accept tape motion commands from the control electronics, beginning-of-tape (BOT) and end-of-tape (EOT) signals from the TTU, end provide the motor direction and drive voltages to the TTU.

e. Signal and Tape Drive Electronics. The signal and tape drive electronics consist of seven printed circuit boards, located in dots A 15 through A21. These boards a 4-bit byte and clock from the control electronics and convert it to four channel bi-phase-modulated writes signals applied to the TTU. For output the signal and tape drive electronics accept four channel read signals from the TTU, regenerate the clock, convert the reed signals from the TTU, again regenerate the clock, convert the read signals to a 4-bit byte end apply it to the control electronics. In the write mode, the TTU accepts four channel write signals and tapes motion signals to record the write signals on a moving magnetic tape. The manual write enable/ write inhibit switch in the TTU prevents inadvertent erasure of a loaded tape. In the read mode, the TTU accepts tape motion signals to provide four Channel read signals to the signal and tape drive electronics. sensors in the TTU detect EOT and BOT positions on the tape. The tape mows in the same direction for the read or write mode. The tape is moved forward or is reversed under external commend without transferring data A time totalizing meter, in the TTU, monitors its on-time.

f. Power Supply Circuits. The power supply circuits consist of two circuit boards located in slots A22 end A23. The power section receives 115 vac primary power through connector J3 and EM I line filters. The power frequency is 400 Hz. The power section supplies the dc voltages to operate the TMU; filtered ±18 vdc and regulated ±12 vdc, and -5 vdc for the tape transport electronics, end regulated +15 vdc for logic power.

g. Tape Transport Unit The TTU houses the magnatic, tape transport mechanism, drive motor, read/write head, RFI filters, end tape position sensors. The tape is moved by a mechanical drive system, and is powered by a dc motor. The tape is contained in two reels. One acts as the supply reel while the other acts as the takeup real, depending on the direction of tape motion. Each tape red rotates freely on a ball-bearing mounted shaft. The tape real shafts am free turning and transmit no drive or braking power. Tape driving power is transmitted from the drive motor to the drive bait and from the belt to the outermost layer of tape in each of the two reels. The tape reels are coupled together by the drive belt The directions of motion of belt end tape are from the left reel to the right reel. For tape travel in the opposite direction, all directional flow is reversed. The system is completely bidirectional. photoelectric BOT and EOT sensing is employed, using a single light source in combination with two phototransistors. Windows at each end of the tape allow light transmission through the tape to activate one or the other phototransistor.

CHAPTER 2

MAINTENANCE INSTRUCTIONS

Section I. REPAIR PART'S, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

2-1. TOOLS AND TEST EQUIPMENT .

Tools and test equipment required for direct support maintenance of the equipment are listed in the maintenance allocation chart (MAC) in TM 11-7021-201-12.

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

Special tools, TMDE, and support equipment are listed and illustrated in the repair parts and special tools list TM 11-7025-214-30P, covering direct support maintenance for this equipment

2-3. REPAIR PARTS

Repair parts are listed and illustrated in the repair parts and special tools list TM 11-7025-214-30P, covering direct support maintenance for this equipment.

Section II. SERVICE UPON RECEIPT

2-4. SERVICE UPON RECEIPT OF MATERIEL

a. Unpacking. The TMU is packed in its own shipping carton. Unpack the equipment as follows:

(1) Open shipping carton and remove equipment.

(2) Place equipment on a suitable clean and dry surface for inspection.

(3) Keep all shipping materials for use in repacking and reshipping.

b. Checking Unpacked Equipment

(1) Inspect the equipment for incurred during shipment. If the equipment has been damaged, report the damage on SF 364, Report of Discrepancy (ROD).

(2) Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of DA PAM 738-750.

(3) Check to see whether the equipment has been modified.

2-5. INSTALLATION INSTRUCTIONS

Refer to your applicable systems manual for installation instructions for the equipment.

Section III. TROUBLESHOOTING

2-6 SCOPE OF TROUBLESHOOTING

This section contains troubleshooting information for locating and correcting malfunctions in the TMU at the direct support level of maintenance. Included are checkout procedures, troublleshooting procedures, and procedures for running the diagnostics tests.

NOTE

The procedures contained in this section are in addition to the troubleshooting procedures found in Chapter 6 of the Operator's and organizational Maintenance Manual TM 11-7021-201-12.

2-7. GENERAL INSTRUCTIONS

a. The first step in servicing a defective TMU is to trace the fault to a major component. This is called SECTIONALIZATION, which is a series of checks and operational tests. These tests will help determine the exact nature of the fault. Operation tests can be made by following the preventive maintenance checks and services contained in TM 11-7021-201-12.

b. The second step is to trace the fault to a particular assembly. This is called LOCALIZATION.

c. The final step is to trace the fault to a defective part or assembly. This is called ISOLATION.

d. Localization and isolation of a fault are determined by visual inspection, voltage and resistance measurements, end use of the troubleshooting flowcharts. Visual inspection will locate many faults without testing the circuits. All visual signs should be observed and an attempt made to localiize the fault.

NOTE

In all tests, the possibility of intermittent troubles should be investigated. Jarring, or tapping the equipment, or jiggling a wire may epose this type of problem.

2-8 TMU TROUBLESHOOTING

The objective of direct support troubleshooting is the localization of a fault to a defective assembly or cable. Use the troubleshooting flowcharts and PMCS in the Operator's and Organizational Maintenance Manual TM 11-7021-201-12 as an aid in localizing the fault

2-9. USE OF TROUBLESHOOTING FLOWCHARTS

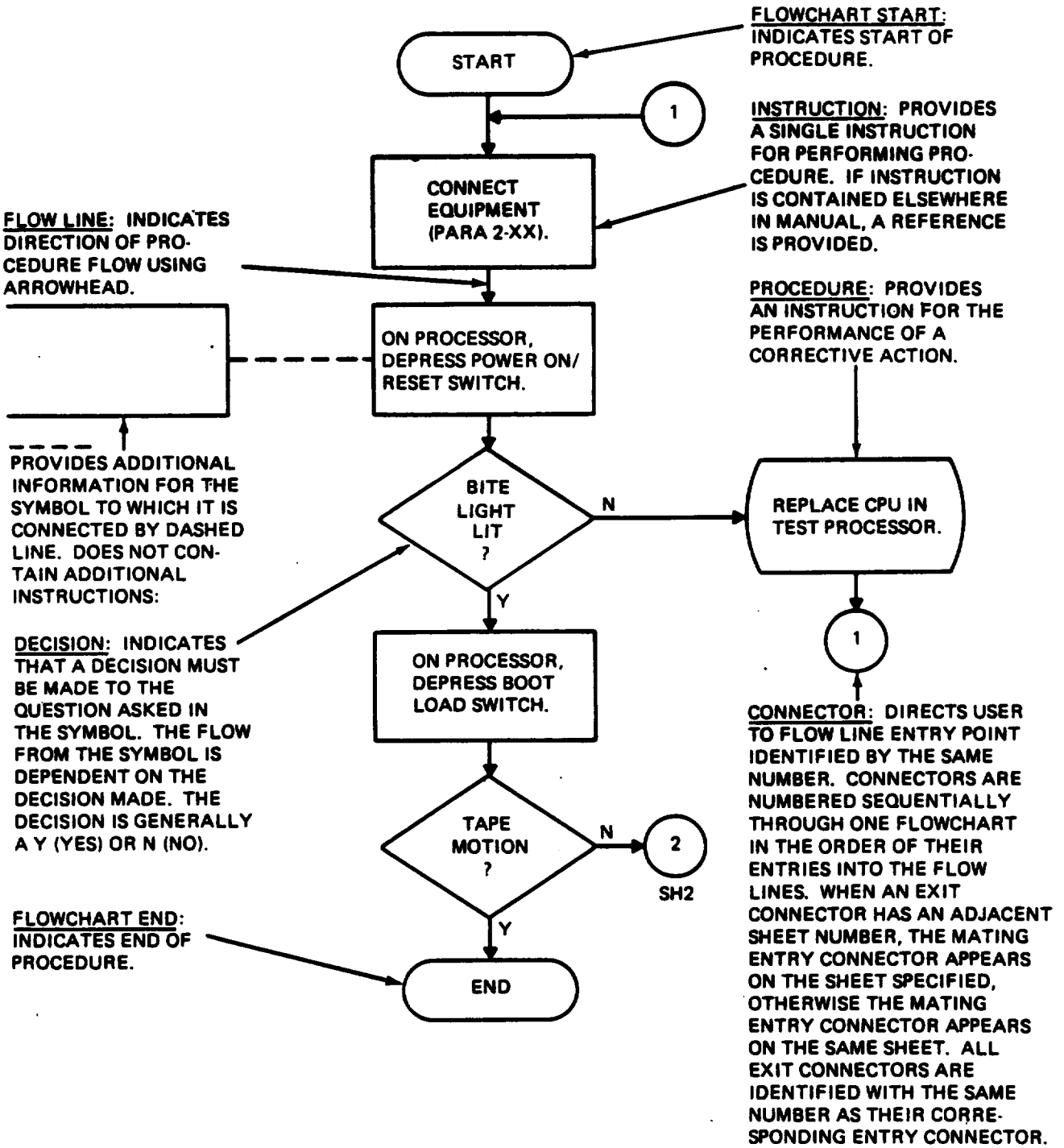
a. The troubleshooting flowcharts contained in this manuel supplement the operational procedures and troubleshooting information contained in TM 11-7021-201-12.

b. The troubleshooting flowcharts are indexed by malfunction/symptom. At the beginning of each procedure, all probable causes for that symptom are listed.

c. Operational checks or organizational maintenance may have designated a problem or defect Locate that malfunction in the symptom index.

d. Using the flowchart (pare 2-10) will familiarize users of this manual with the proper use of the troubleshooting flowcharts.

2-10. HOW TO USE THE FLOWCHART



2-11. TROUBLESHOOTING PROCEDURES

a. The first step in troubleshooting the TMU is to locate the symptom in the troubleshooting symptom index (para 2-12).

b. Next, go to the paragraph for that symptom.

e. After performing the troubleshooting procedures and making any repairs, perform the diagnostic procedure to make sure that all repairs have been properly made.

d. The following general rules apply while performing the troubleshooting procedures:

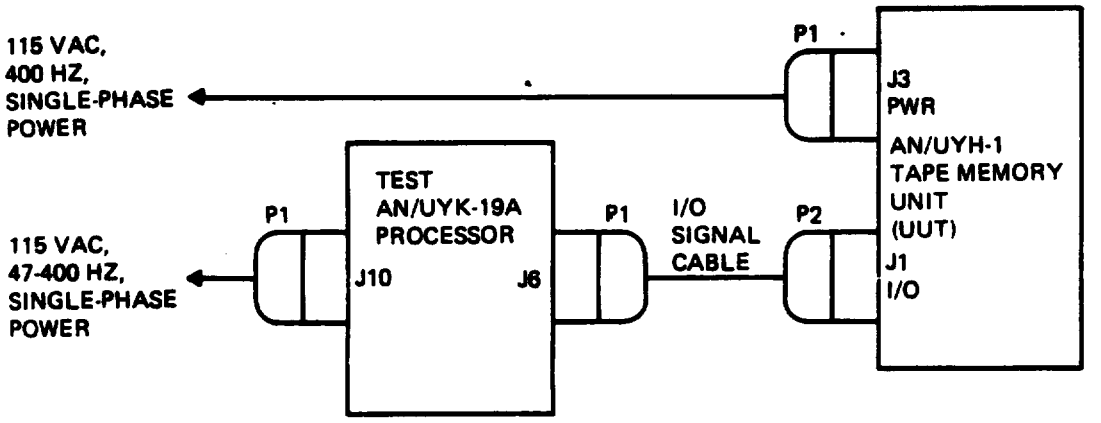
1. Follow the troubleshooting flowcharts in the order indicated by the flow arrows.
2. Perform only one instruction at a time.
3. Start at the beginning of the troubleshooting flowchart. Do not start in the middle.
4. When making repairs, replacing components, and performing continuity checks, always shut off power to the equipment.

2-12. SYMPTOM INDEX

Use this index to quickly find troubleshooting procedures.

2-13. NO TAPE MOTION

1. Connect the TMU unit under test (UUT) to processor with an 1/O signal cable.
2. Connect TMU UUT to a source of 115 vac, 400 Hz, single-phase power.
3. Connect processor to a source of 115 vac, 47-400 Hz, single-phase power.

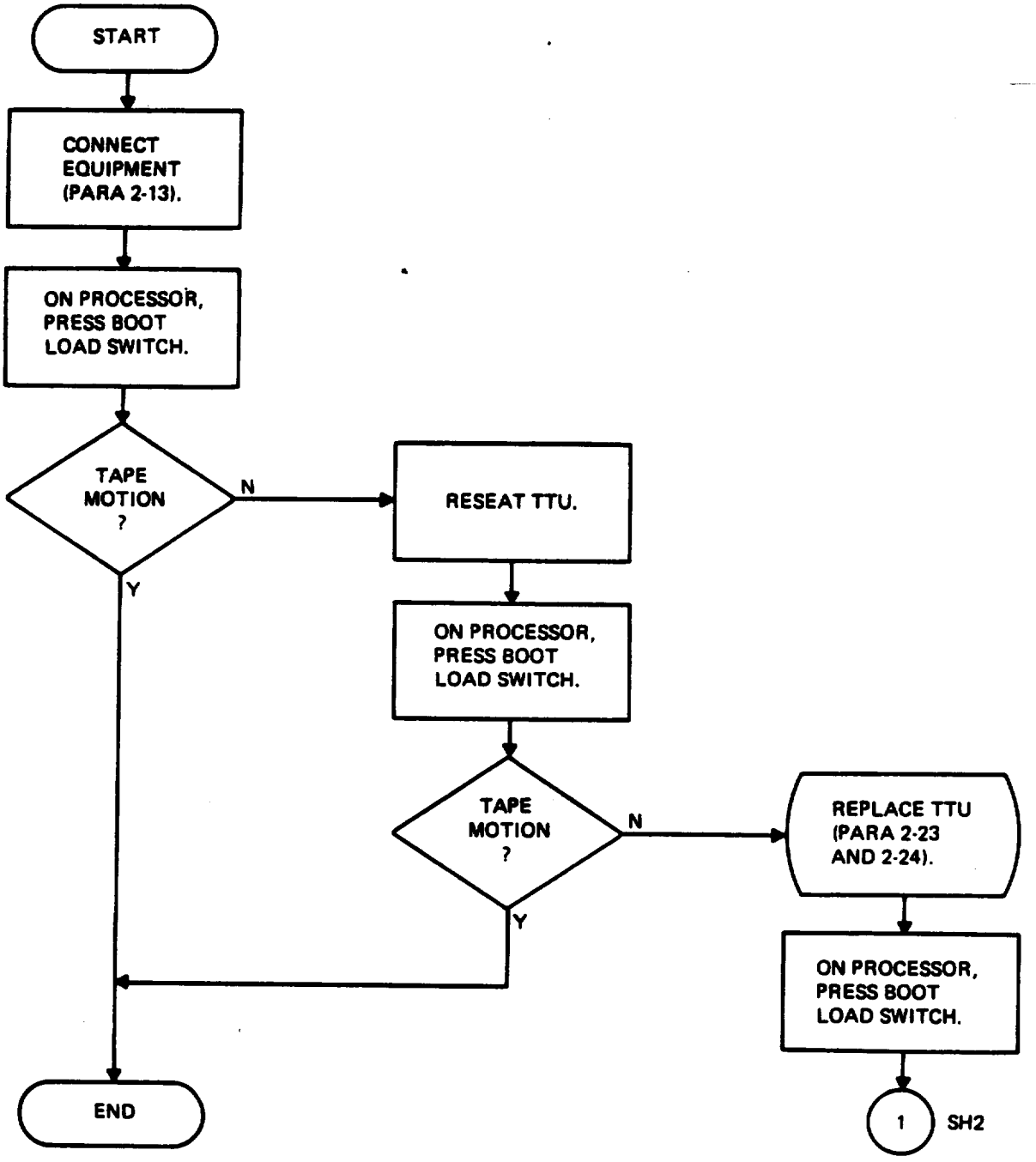


4. Perform the procedures contained in the troubleshooting flowchart for no tape motion.

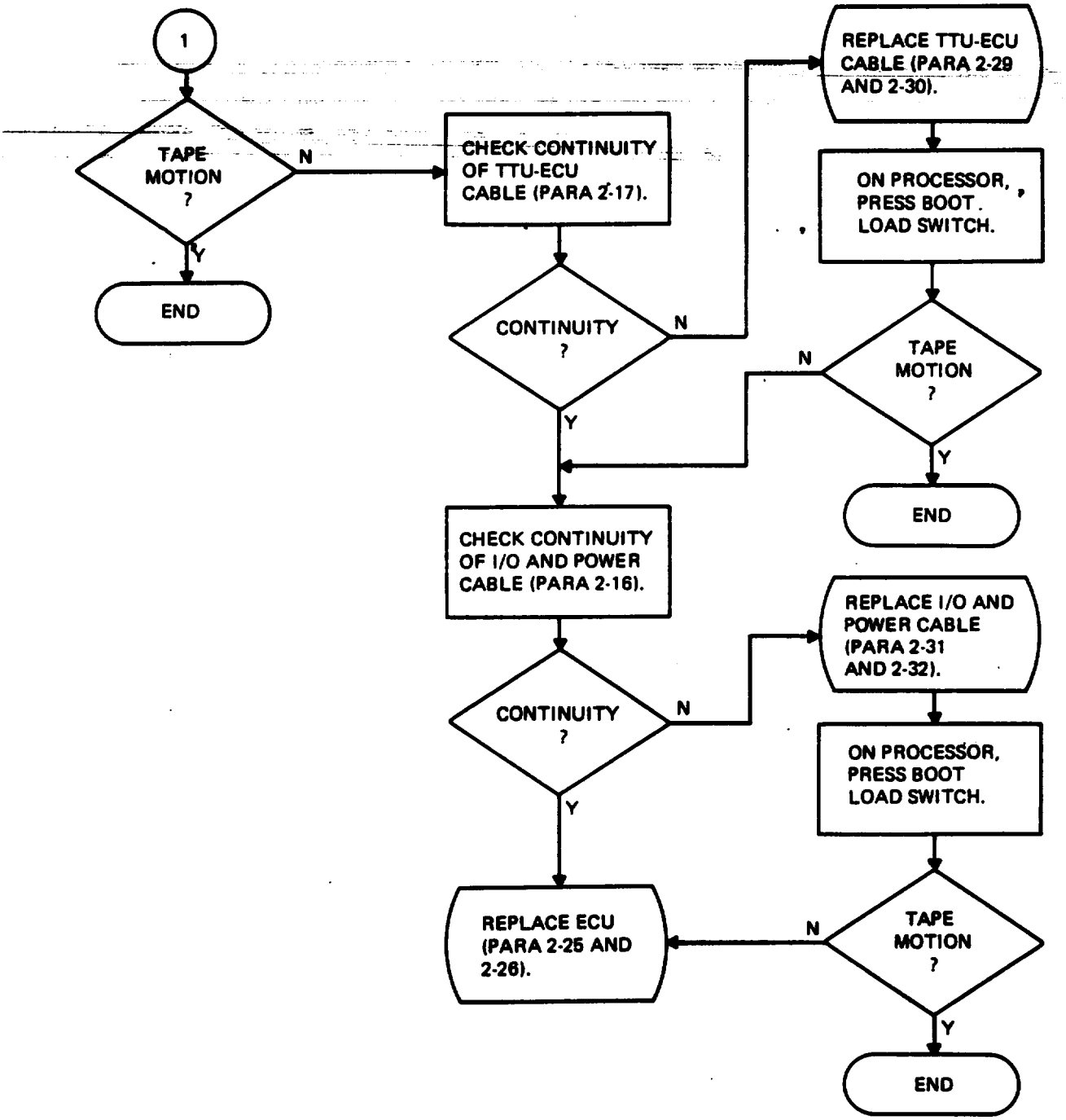
NOTE

If tape memory unit passes the first check, the fault may be in another equipment or cable within the system.

TROUBLESHOOTING FLOWCHART
NO TAPE MOTION (SHEET 10F 2)



TROUBLESHOOTING FLOWCHART
NO TAPE MOTION (SHEET 2 OF 2)



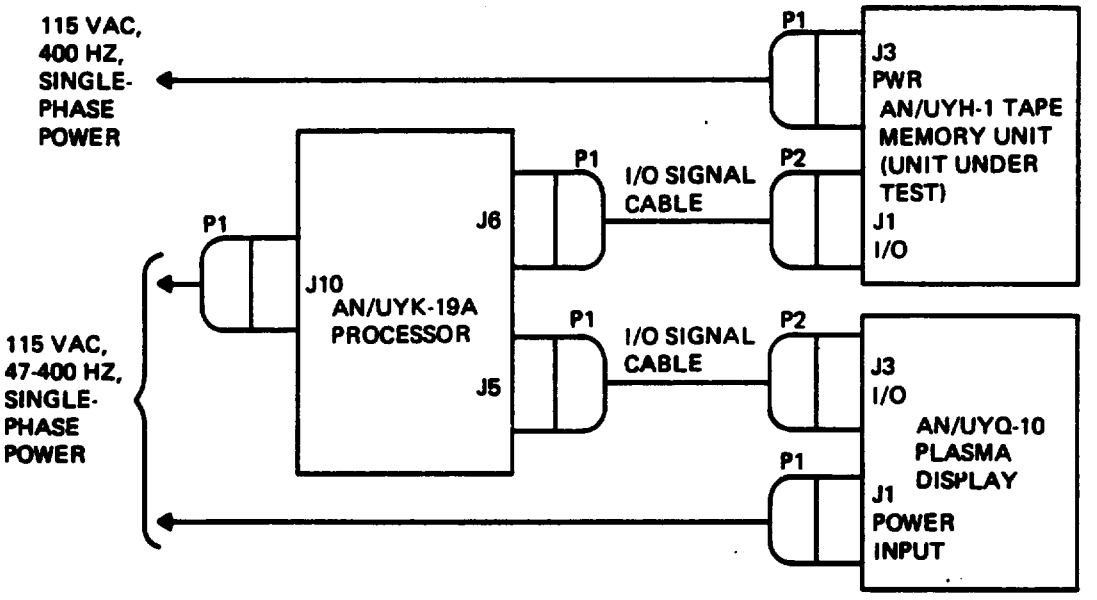
2-14. TAPE MOTION BUT NO OUTPUT

1. Connect TMU UUT to processor with an 1/O signal cable.

2. Connect plasma display to processor with an 1/0 signal cable.

3. Connect TMU UUT a source of 115 vac, 400 Hz, single-phase power

4. Connect porcessor and plasma display to a source of 115 vac, 47-400 Hz, single-phase power.

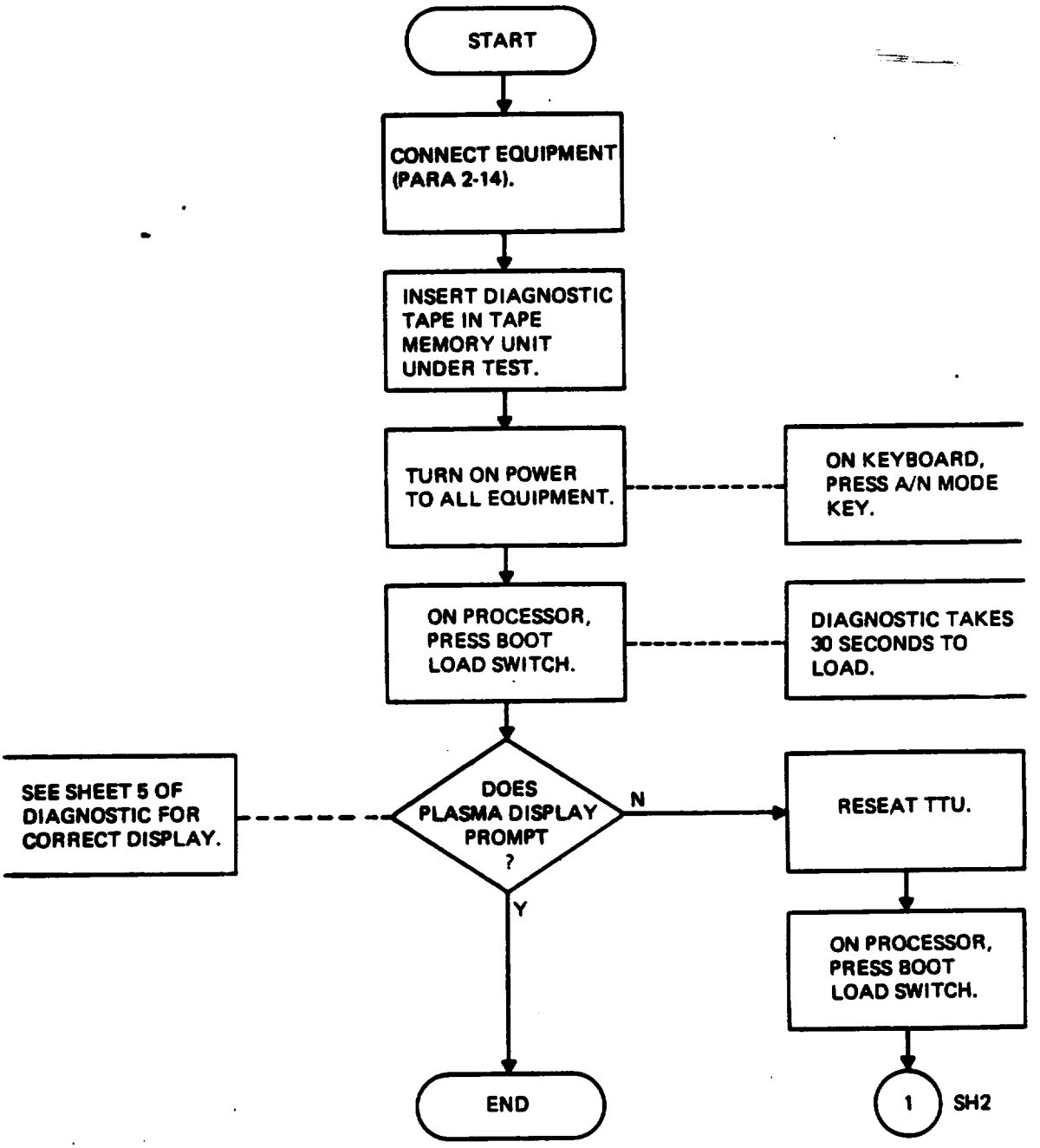


5. Perform the procedures contained in the troubleshooting flowchart for tape motion but no output.

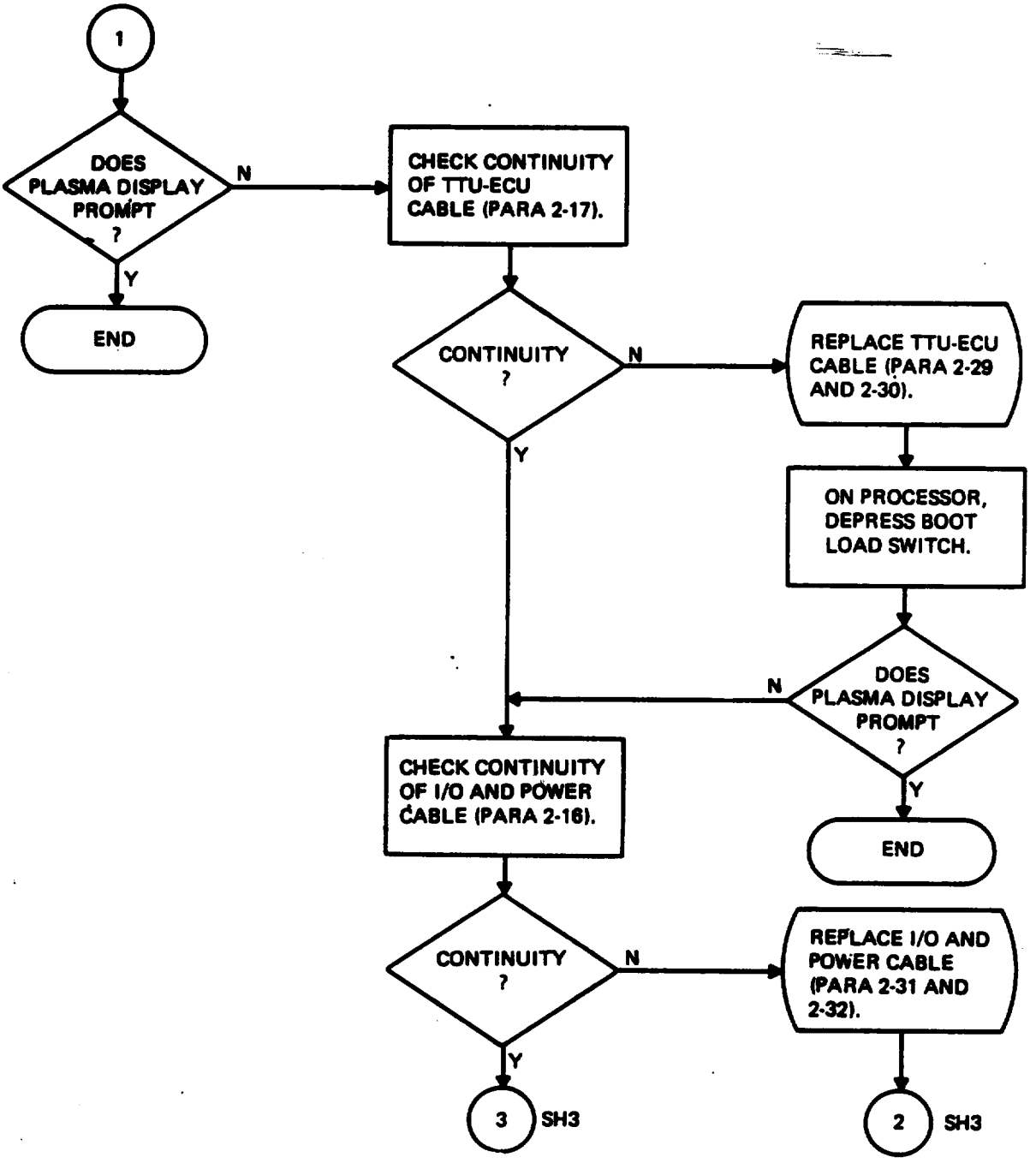
NOTE

If TMU passes the first check, the fault is in another equipment within the system.

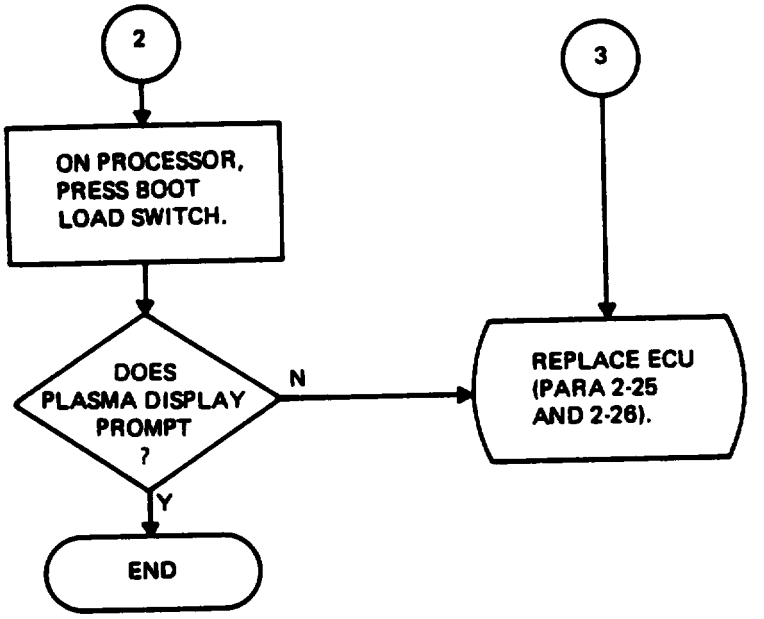
TROUBLESHOOTING FLOWCHART
TAPE MOTION BUT NO OUTFOOT (SHEET 1 OF 3)



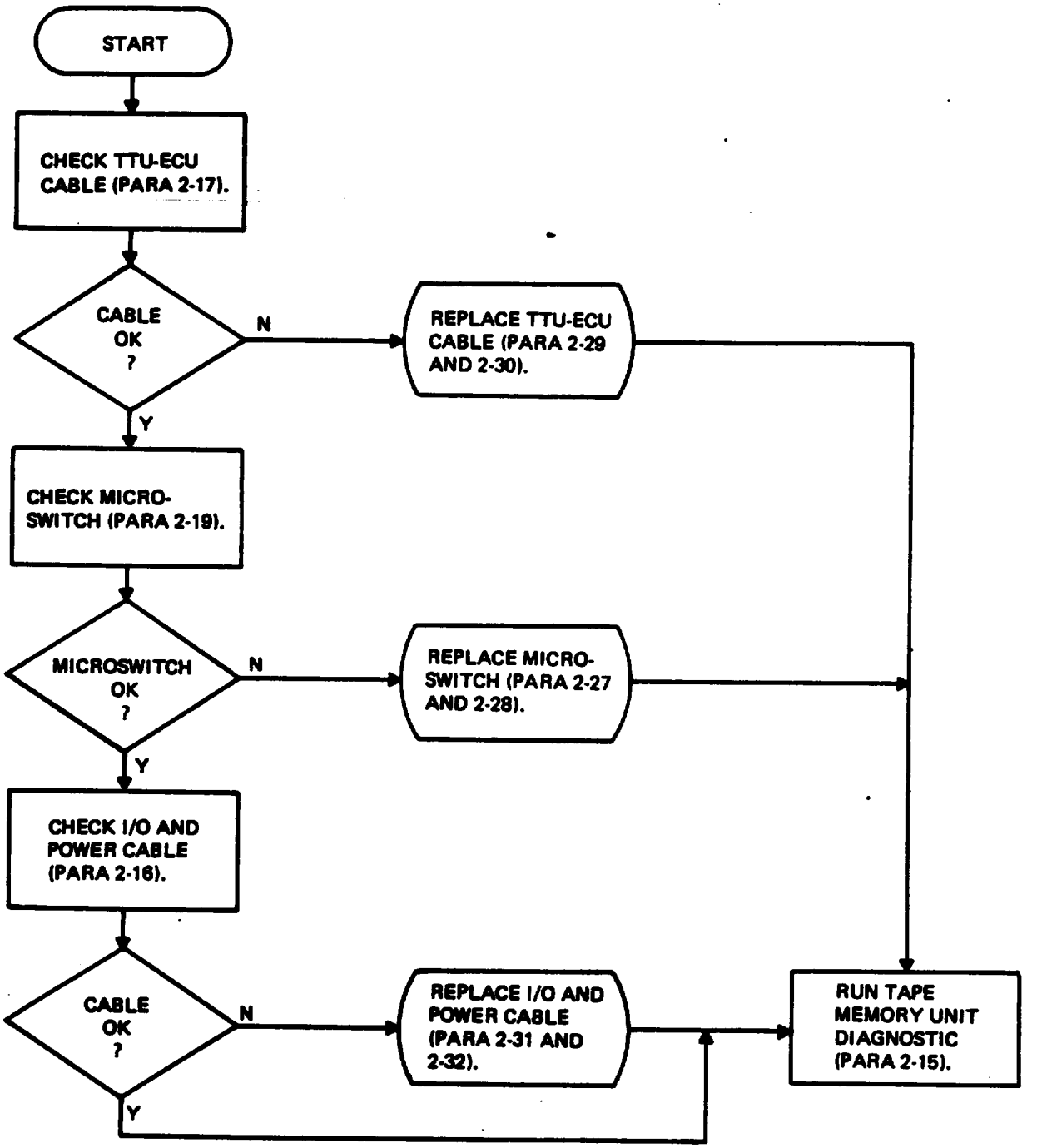
TROUBLESHOOTING FLOWCHART
TAPE MOTION BUT NO OUTPUT (SHEET 2 OF 3}



TROUBLSHOOTING FLOWCHART
TAPE MOTION BUT NO OUTPUT (SHEET 3 OF 3)



TROUBLESHOOTING FLOWCHART (1)
TAPE MOTION BUT DOES NOT WRITE

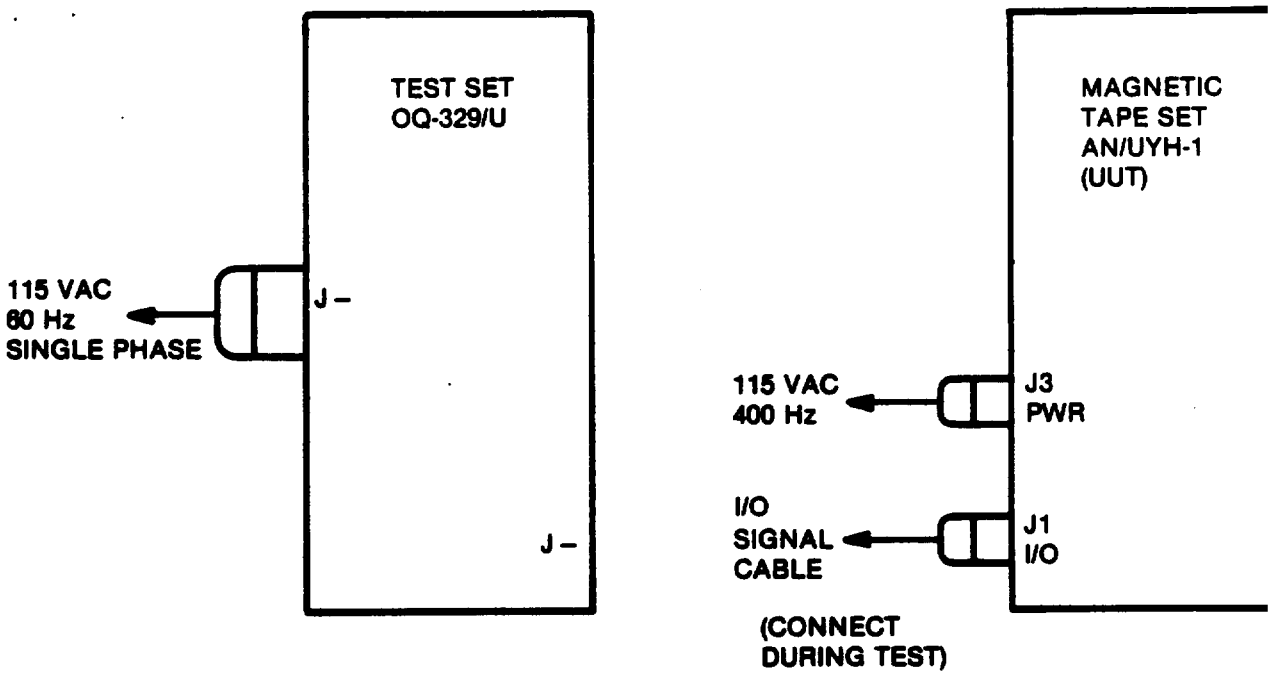


2.15. MAGNETIC TAPE SET DIAGNOSTIC

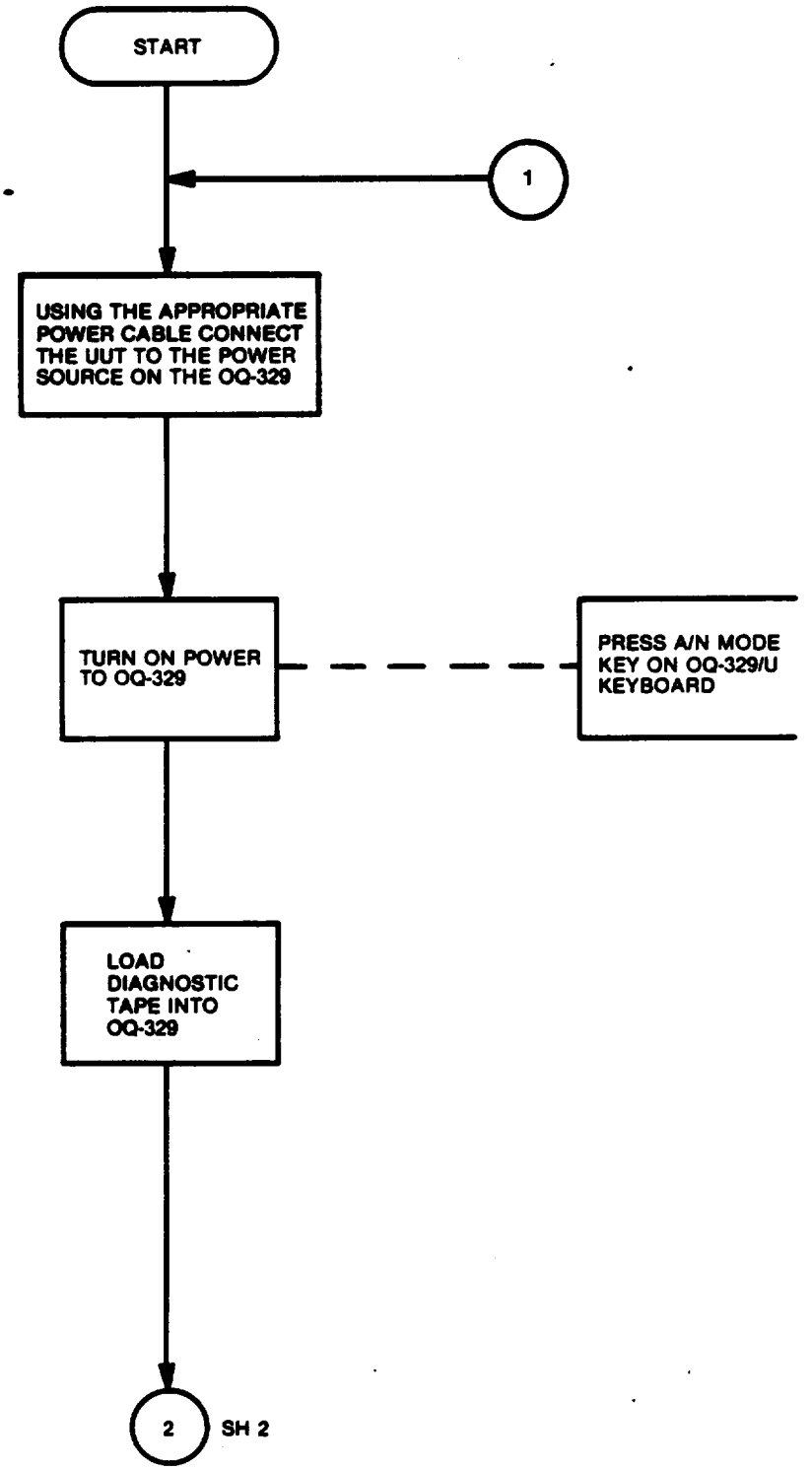
NOTE

The MTS diagnostic procedure should be run after completing any repairs to make sure the unit is operating properly.

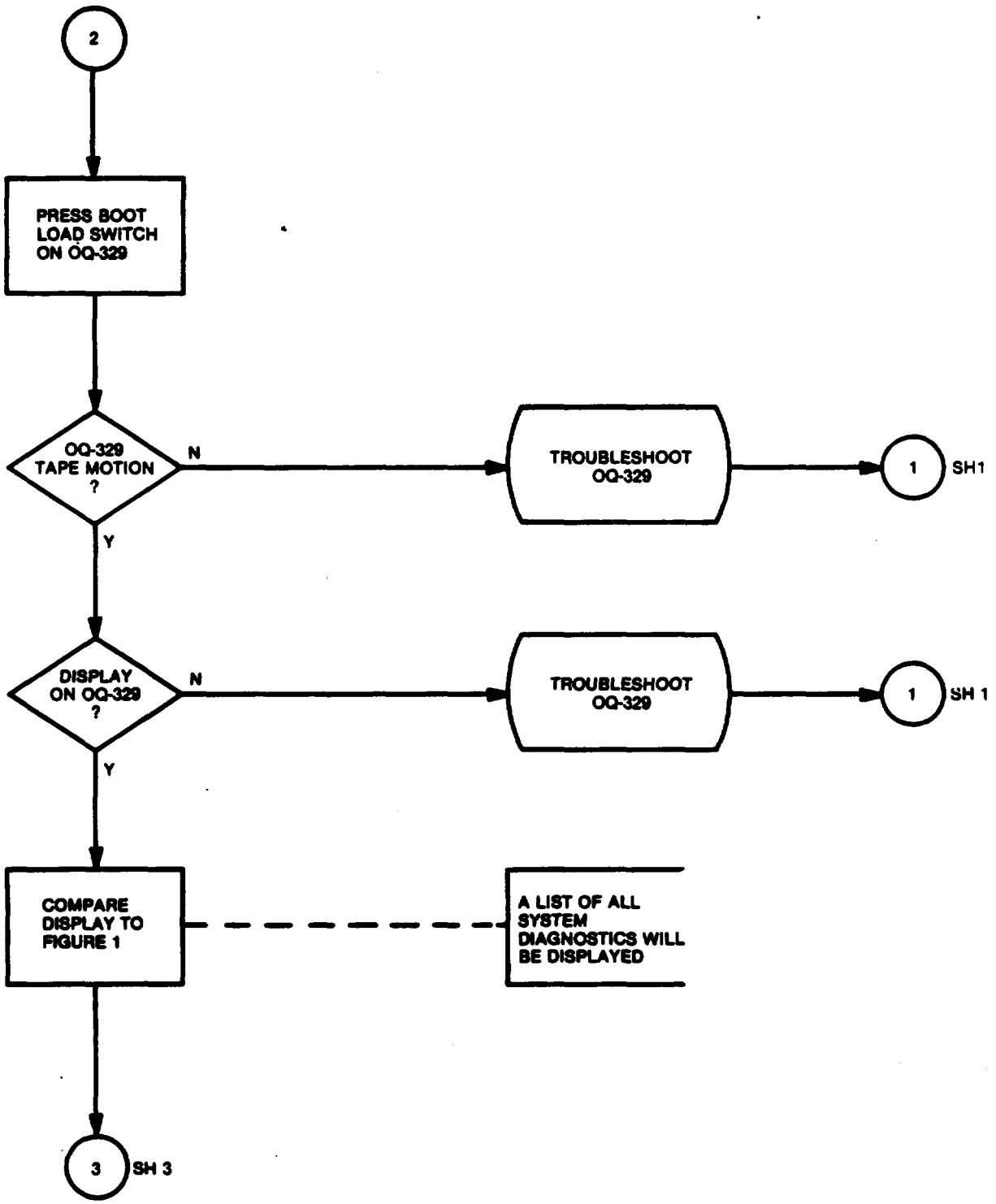
1. Connect TESTS SET OQ-329/U to the power source as indicated in the OQ-329 manual.
2. Select the proper cable for the UUT and connect It to the proper power source.
3. Select the I/O cable as indicated In the 00-329 manual. Connect cable when instructed by prompt in diagnostic.
4. Run diagnostic.



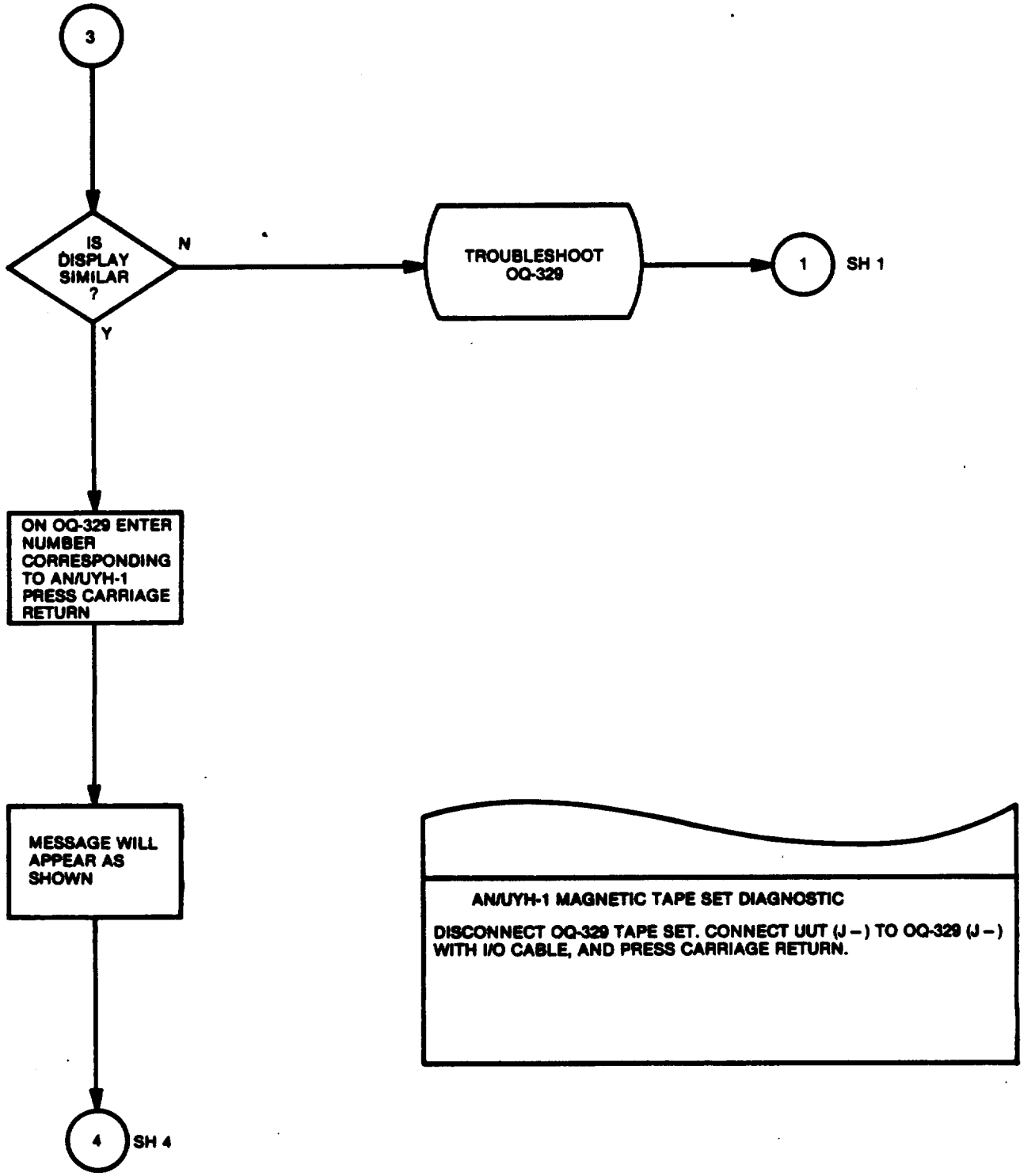
MAGNETIC TAPE SET DIAGNOSTIC FLOWCHART (1 OF 11)



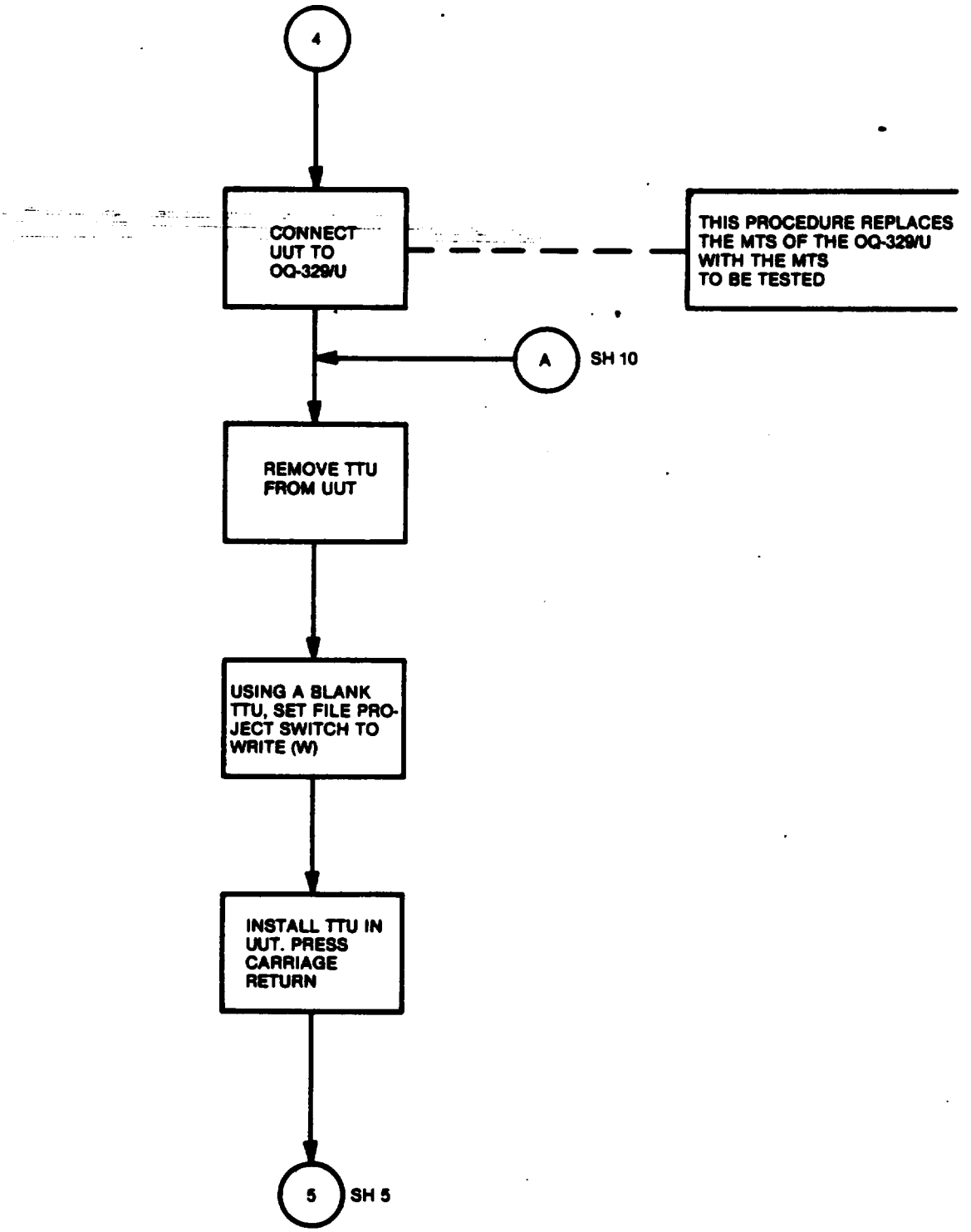
MAGNETIC TAPE SET DIAGNOSTIC FLOWCHART (2 OF 11)



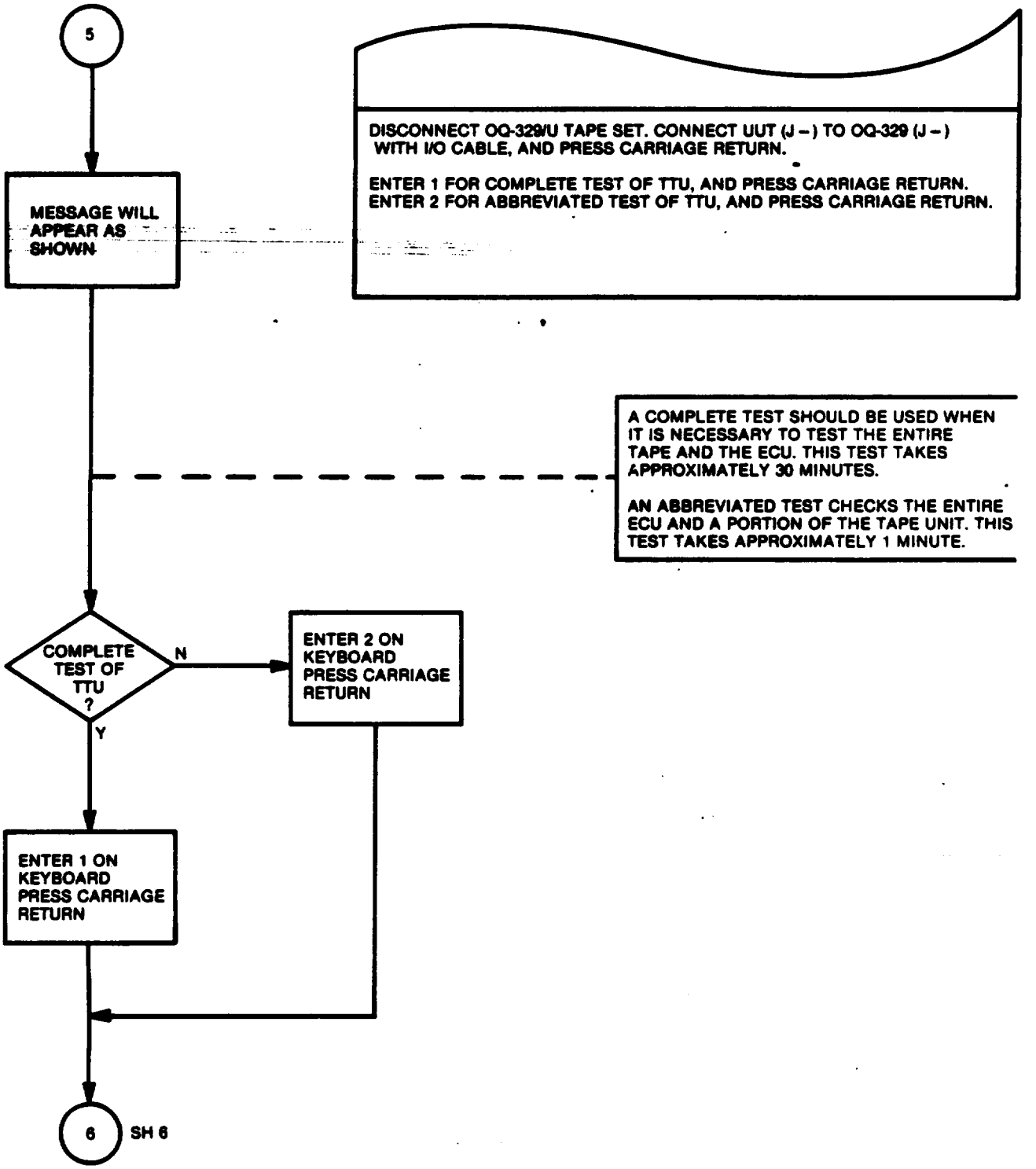
MAGNETIC TAPE SET DIAGNOSTIC FLOWCHART(3 OF 11)



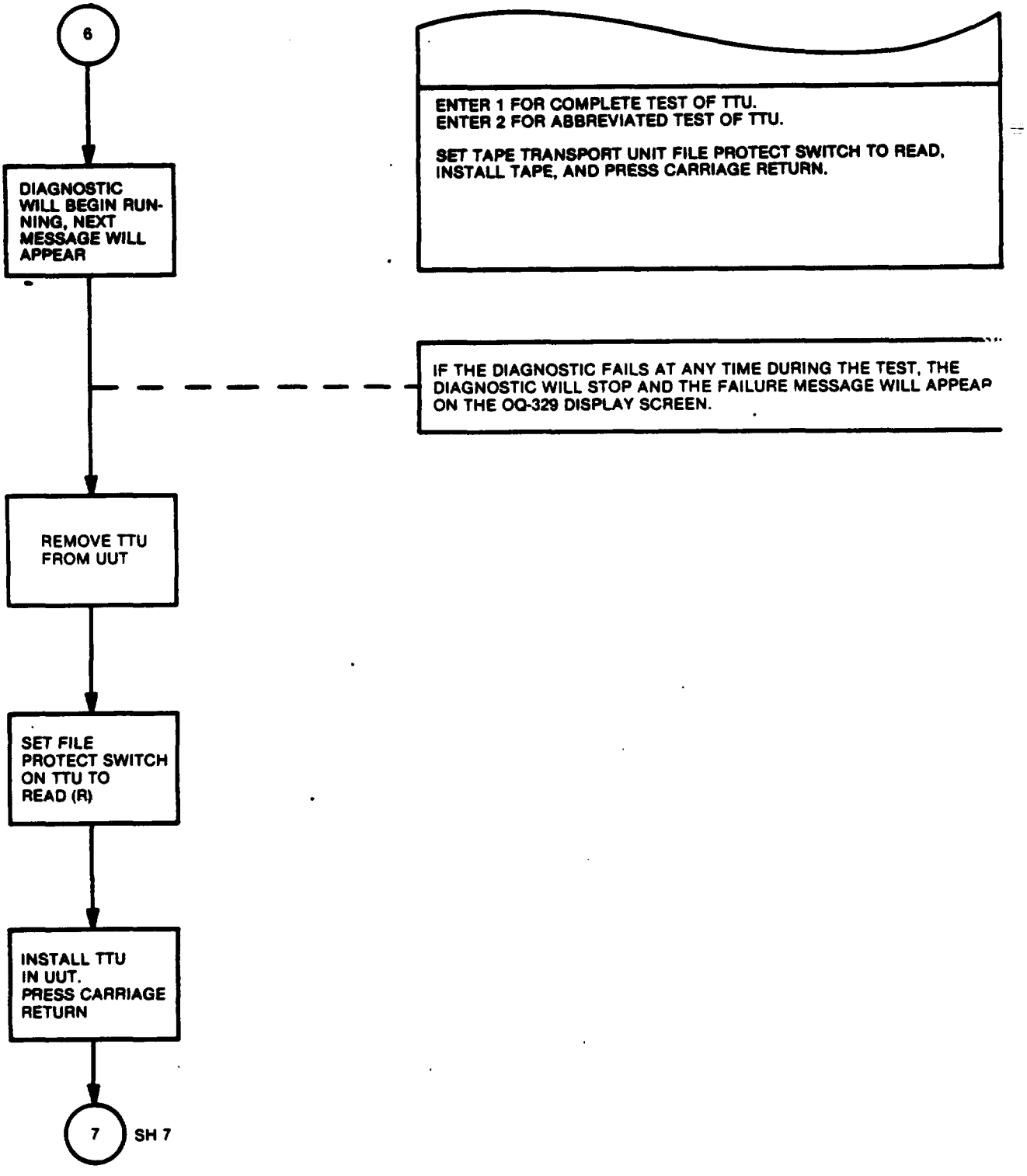
MAGNETIC TAPE SET DIAGNOSTIC FLOWCHART (4 OF 11)



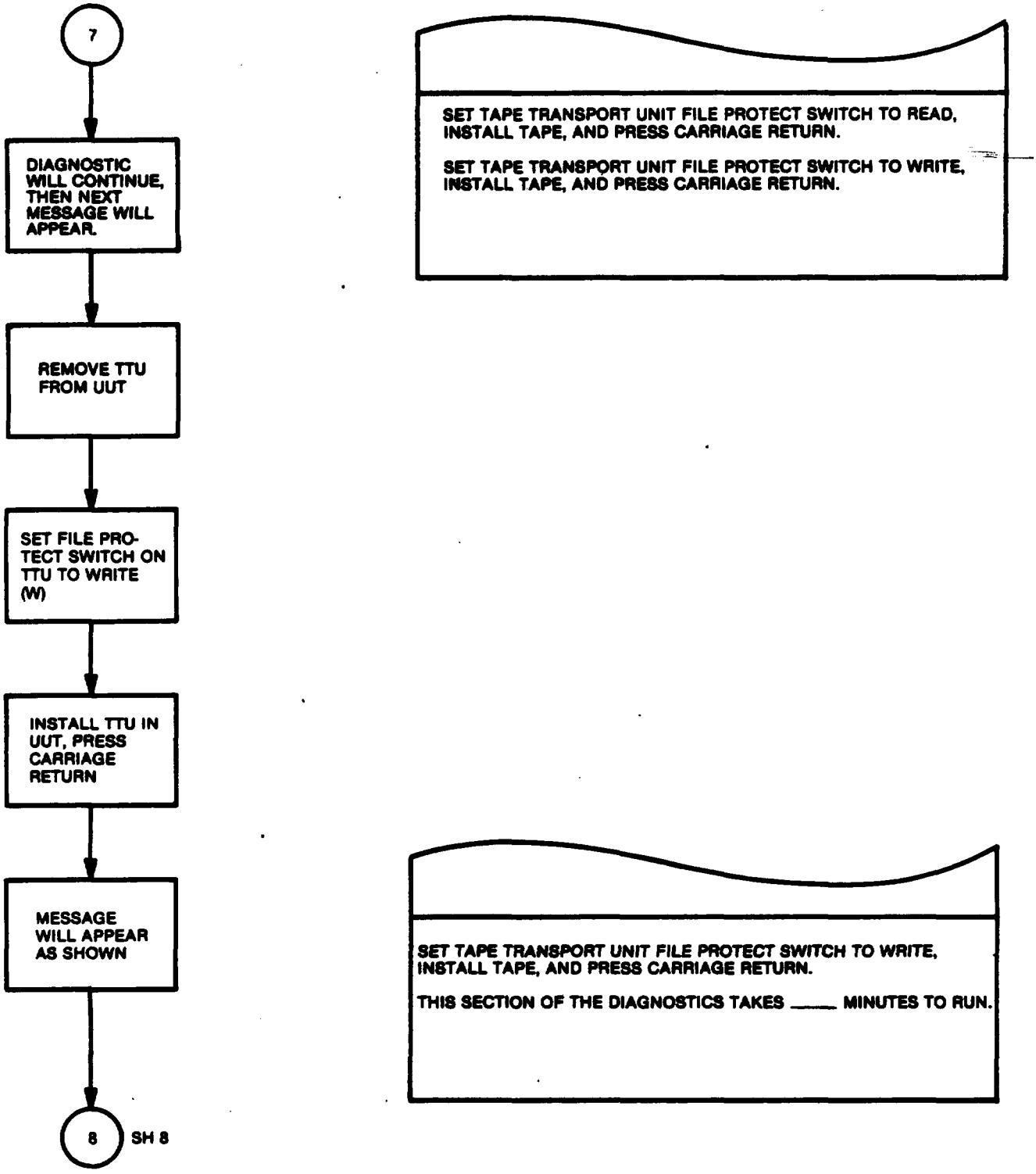
MAGNETIC TAPE SET DIAGNOSTIC FLOWCHART (5 OF 11)



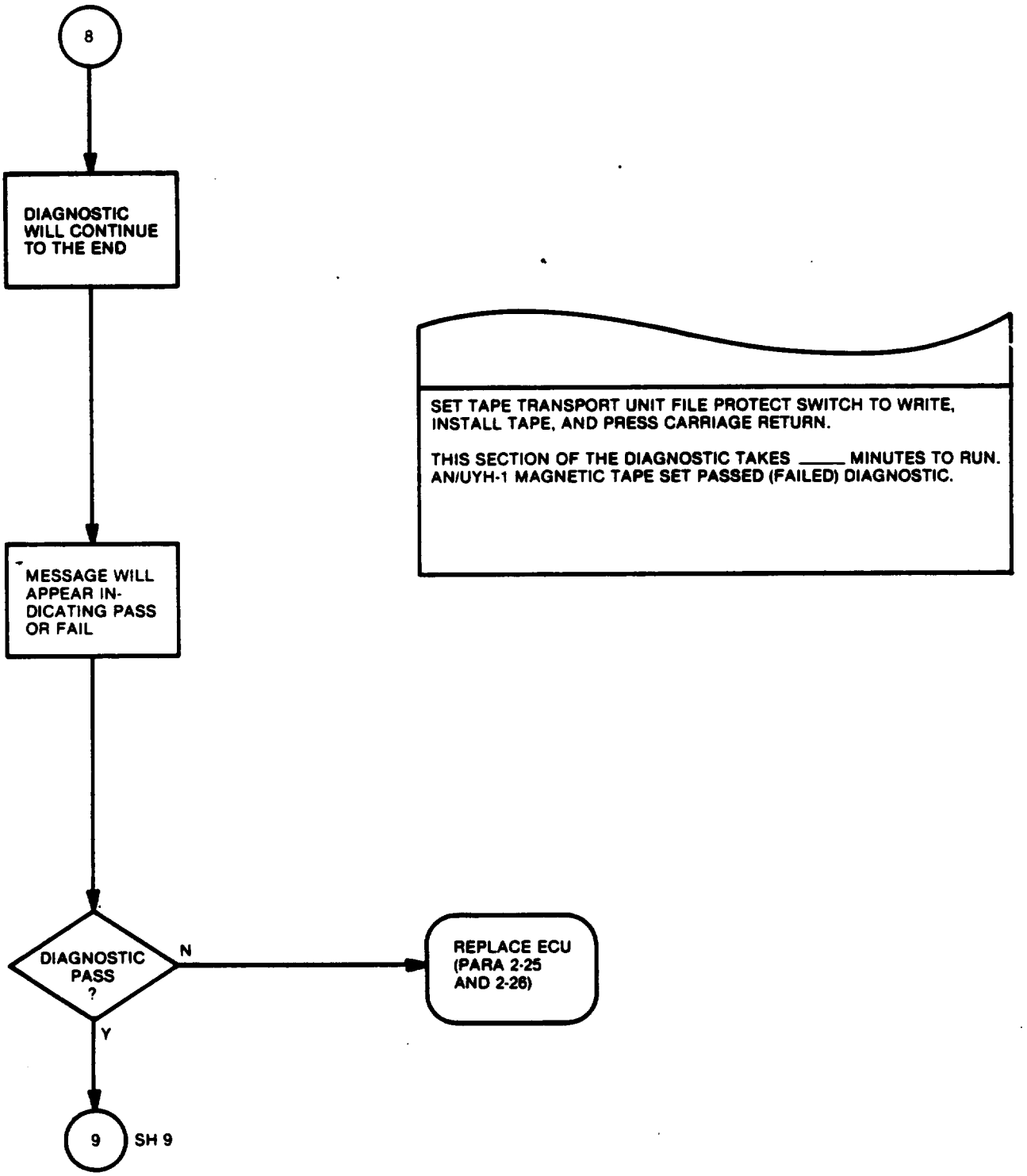
MAGNETIC TAPE SET DIAGNOSTIC FLOWCHART (6 OF 11)



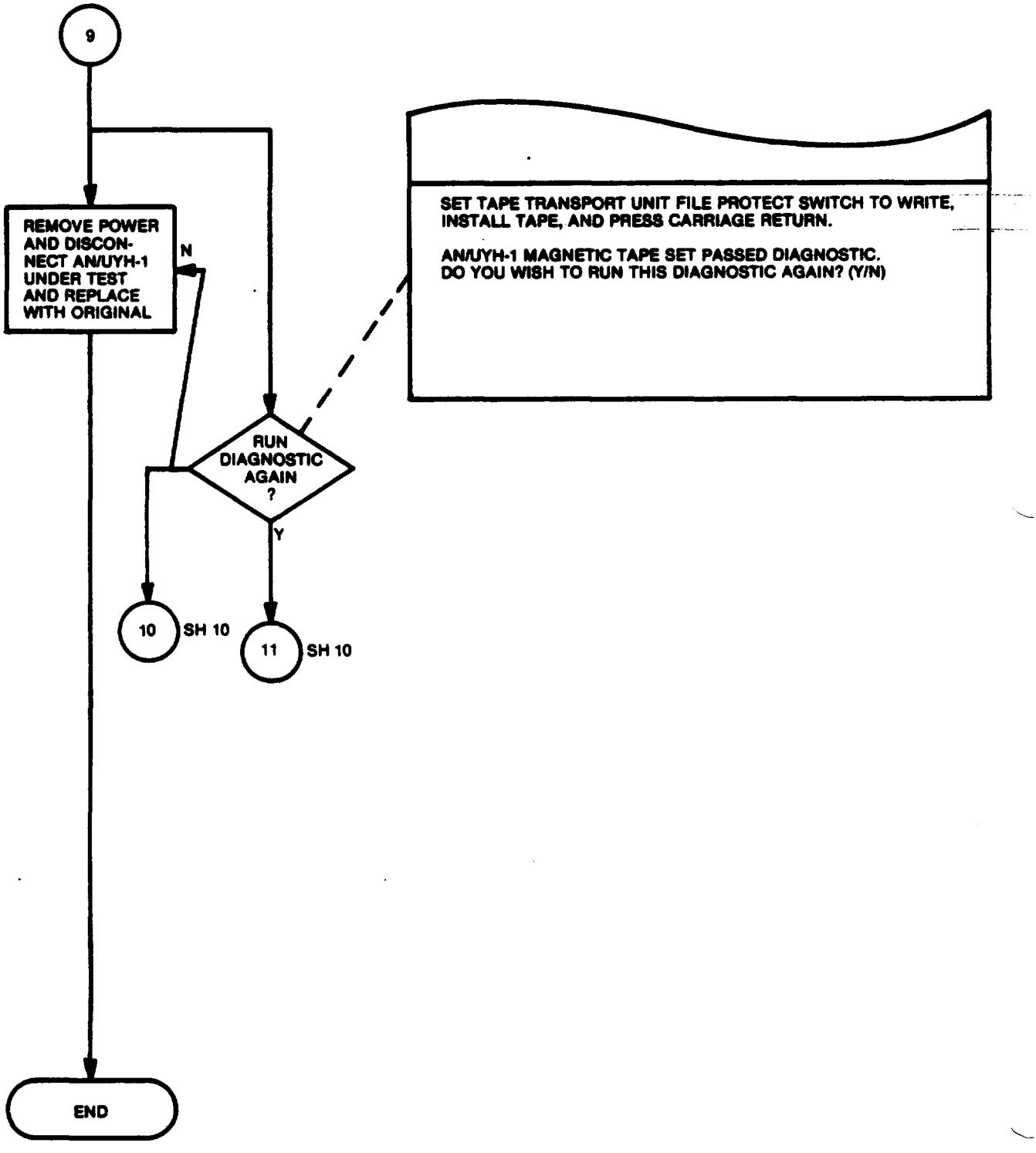
MAGNETIC TAPE SET DIAGNOSTIC FLOWCHART (7 OF 11)



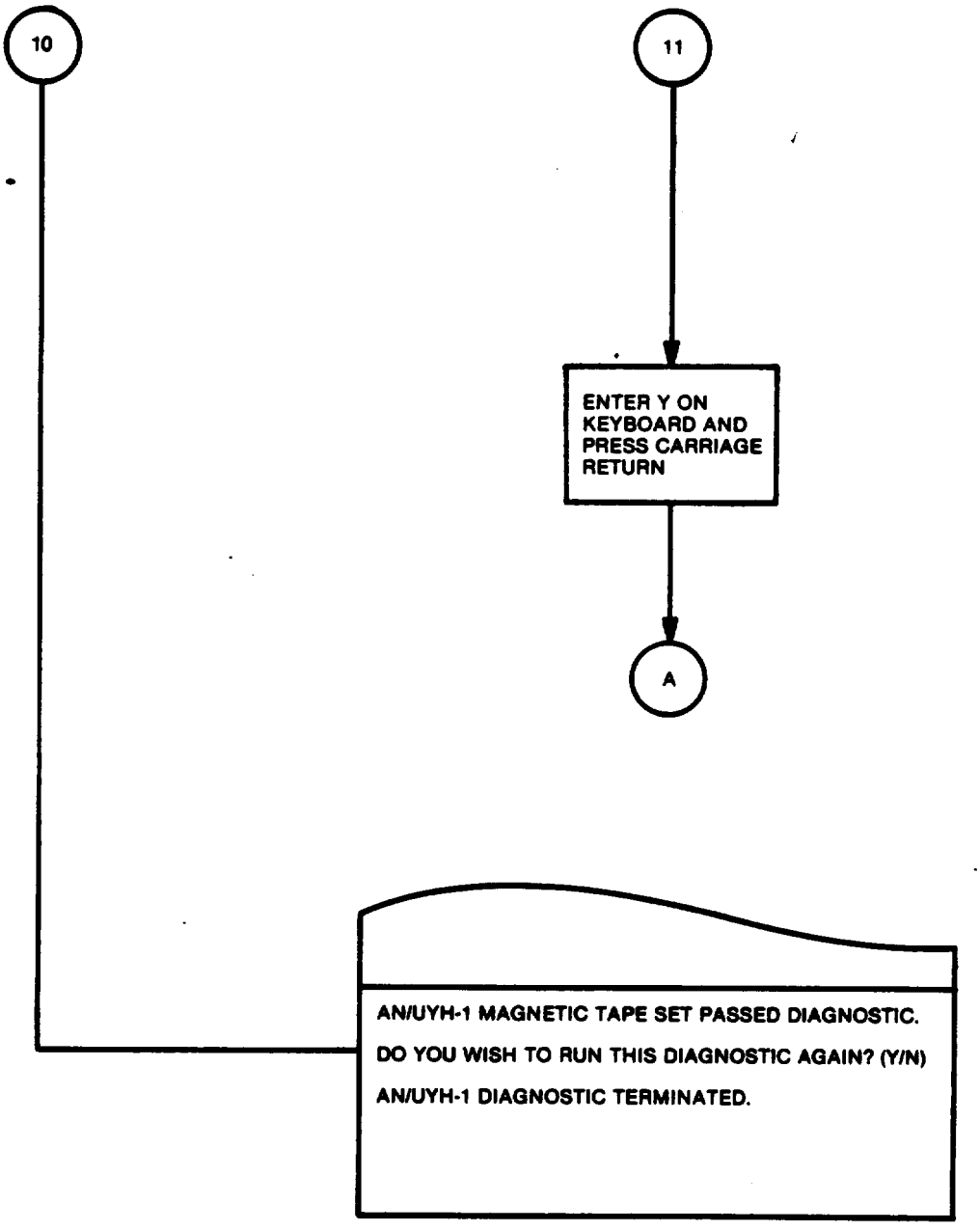
MAGNETIC TAPE SET DIAGNOSTIC FLOWCHART (8 OF 11)



MAGNETIC TAPE SET DIAGNOSTIC FLOWCHART (9 OF 11)



MAGNETIC TAPE SET DIAGNOSTIC FLOWCHART (10 OF 11)



MAGNETIC TAPE SET DIAGNOSTIC FLOWCHART (11 OF 11)

ADS SYSTEM (REVISION 1.0)

1. AN/MLQ-34 (TACJAM)
2. AN/MSQ-103A (TEAMPACK)
3. AN/TMQ-31 (MDS)
4. AN/TSC-99 RECEIVE SHELTER
5. AN/TSC-99 TRANSMIT SHELTER
6. AN/TSQ-84A SYSTEM
7. AN/TSQ-114A (TRAILBLAZER)
8. AN/TSQ-114B (TRAILBLAZER)
9. AN/ALQ-151 EH-1X (QUICKFIX)
10. AN/ALQ-151 EH-60A (OUICKFIX)
11. AN/ASN-132 (INS)
12. TT-772(P)/G
13. TT-773(P)/G
14. AN/UYH-1
15. AN/UYQ-10(V)
16. MU-768/G

NOTE

TEST SET OQ-329/U SUPPORTS MULTIPLE SYSTEM. THIS IS A SAMPLE SELECT THE SYSTEM BEING TESTED.

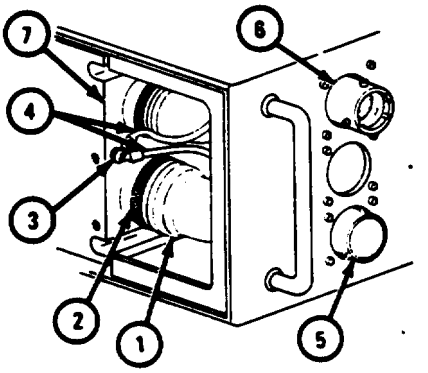
SELECT SYSTEM TO BE TESTED AND PRESS CARRIAGE RETURN,
(CR ONLY TERMINATES THE ADS).

FIGURE 1

2-16. I/O AND POWER CABLE ASSEMBLY CONTINUITY TEST

WARNING

Turn off power before working on equipment. Failure to do so can cause serious injury to personnel.

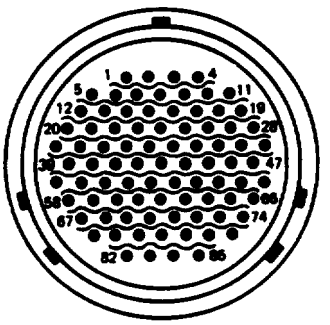


1. Remove power cable.
2. Disconnect connactor (1) by turning knurled ring (2) to the left
3. Remove screw (3) and two ground wires (4).

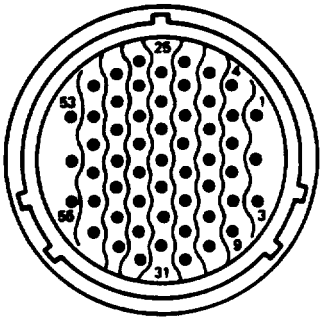
NOTE

Use spare connector pins as an aid when performing cable continuity test

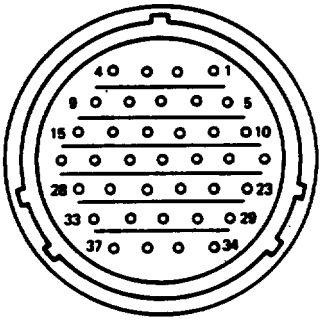
4. Measure continuity between connector W2P1 (1) and connectors W2J1 (5) and W2J3 (6). Refer to table 2-1.
5. If wiring problems exist, refer cable to next higher level of maintenance.
6. Install two ground wires (4) and screw (3).
7. Aline tabs on connector (1) with slots inside connector on ECU (7) and turn knurled ring (2) to the right until it clicks in place.



W2P1



W2J1



W2J3

TABLE 2-1. I/O AND POWER CABLE CONTINUITY TEST

From Connector W2P1 Pin No.	To Connector W2J1 Pin No.	To Connector W2J3 Pin No.
1.		34
2		
3		36
4		
5	40	
6	34	
7	37	
8	36	
9	46	
10	25	
11	39	
12	26	
13	52	
14	31	
15	32	
16	51	
17	35	
18	47	
19	50	
20	30	
21	4	

From Connector W2P1 Pin No.	To Connector W2J1 Pin No.	To Connector W2J3 Pin No.
22	13	–
23	16	–
24	24	–
25	49	–
26	45	–
27	28	–
28		–
29	10	–
30	15	–
31	11	–
32	21	–
33	20	–
34		–
35		–
36		–
37		–
38		–
39	3	–
40	9	–
41	2	–
42	1	–

TABLE 2-1. I/O AND POWER CABLE CONTINUITY TEST - Continued

From Connector W2P1 Pin No.	To Connector W2J1 Pin No.	To Connector W2J3 Pin No.
43		26
44		22
45		19
46		14
47		25
48	7	
49	8	
50	6	
51	5	
52	41	
53		24
54		21
55		23
56		20
57		18
58	27	
59	37	
60	34	
61	55	
62	53	
63	29	
64	44	

From Connector W2P1 Pin No.	To Connector W2J1 Pin No.	To Connector W2J3 Pin No.
66	23	
66	29	
67		27
68		10
69		11
70		12
71		13
72		16
73		17
74	12	
75		8
76		8
77		8
78		8
79	14	
80	33	
81	38	
82		1
83		2
84		3
85		4

2-17. TTU-ECU CABLE ASSEMBLY CONTINUITY TEST

1. Remove TTU-ECU cable assembly (para 2-29).

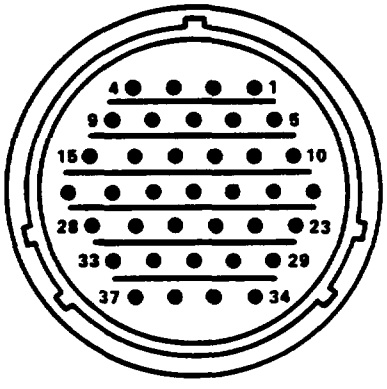
2. Measure continuity between connector W1P1 and connector W1XA1 or switch S1. Refer to table 2-2.

NOTE

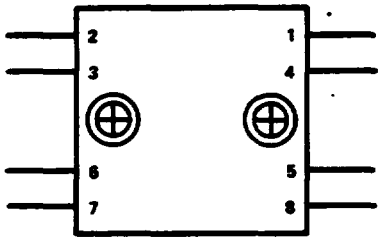
Use a spare connector pin as an aid when performing cable continuity test.

3. If wiring problems exist, refer cable to next higher level of maintanence.

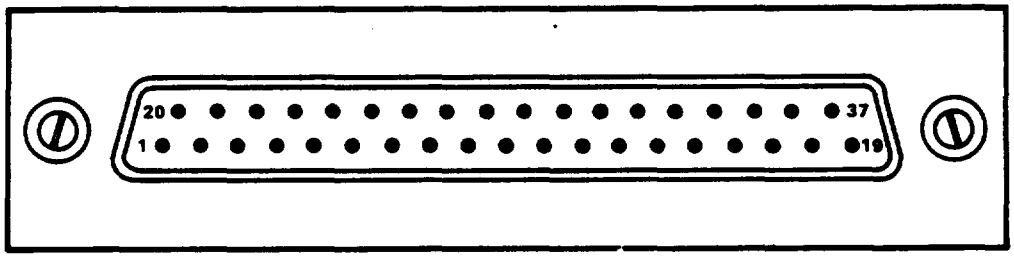
4. Install TTU-ECU cable assembly (para 2-30).



W1P1



S1



W1AX1

TABLE 2-2. TTU-ECU CABLE CONTINUITY TEST

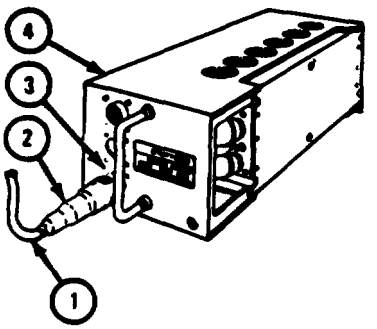
From Connector W1P1 Pin No.	To Connector W1XA1 or S1 Pin No.
1	
2	S1 pin 1
3	3
4	20
5	
6	14
7	S1 pin 2
8	22
9	2
10	10
11	
12	33
13	28
14	4
15	21
16	35
17	29
18	12
19	

From Connector W1P1 Pin No.	To Connector W1XA1 or S1 Pin No.
20	27
21	6
22	23
23	17
24	36
25	30
26	9
27	25
28	5
29	19
30	18
31	16
32	7
33	24
34	37
35	S1 pin 6
36	—
37	11
S1 pin 5	34

2-18. POWER CABLE CONTINUITY TEST

WARNING

Turn off power before working on equipment. Failure to do so can cause serious injury to personnel.



1. Disconnect power cable (1) from power source.
2. Disconnect connector (2) by turning knurled ring (3) to the left.
3. Measure continuity between connector (2) and leads. Refer to table 2-3.

NOTE

Use a spare connector pin as an aid when performing cable continuity test.

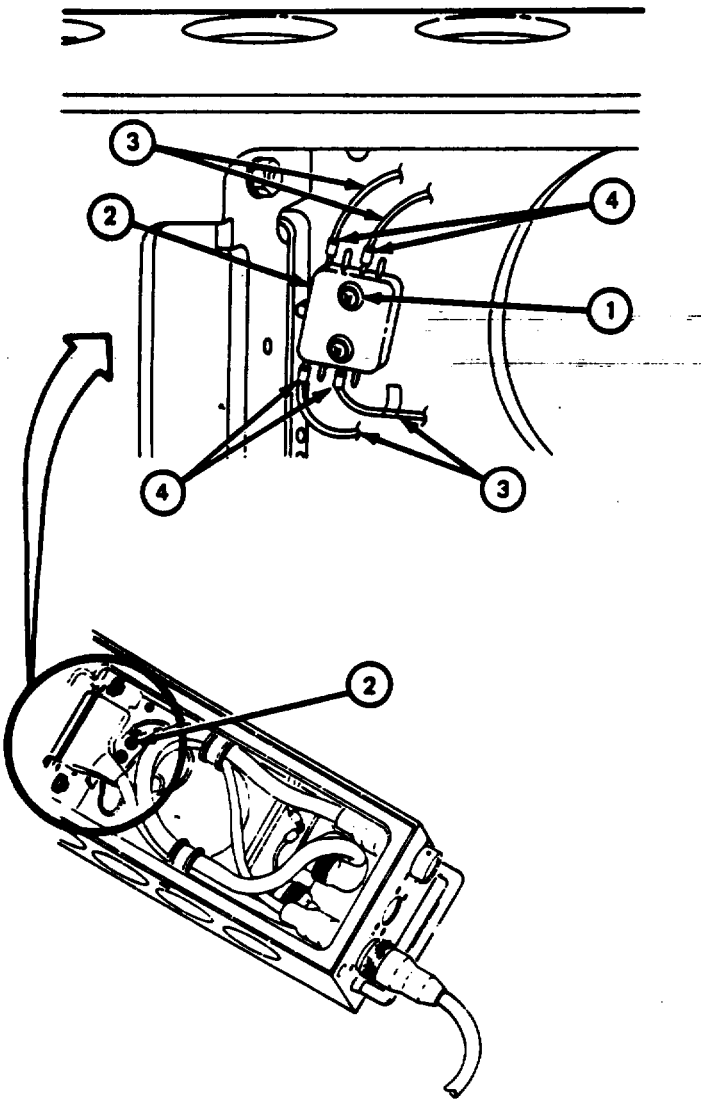
4. Repair any wiring problems (pare 2-37). If major wiring problems exxist, refer cable to next higher level of maintenance.

6. Aline tabs on connector (2) with slots on connector on chassis (4) and turn knurled ring (3) to the right until it clicks in place.

TABLE 2-3. POWER CABLE CONTINUITY TEST

From Connector Pin No.	To Lead
34	White lead
36	White lead
1	Black lead
2	Black lead
3	White lead
4	White lead
7	Red lead
8	Red lead

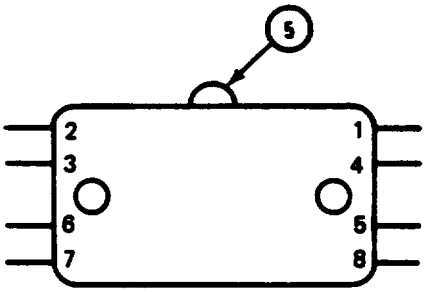
2-19. MICROSWITCH CONTINUITY TEST



1. Remove two screws end washers (1).
2. Carefully remove microswitch (2) to gain access to wires (3).
3. Slide back plastic sleeving (4) on wires (3).
4. Turn microswitch (2) over so that numbers on back are visible.
5. Perform continuity check of microswitch,

NOTE

To close microswitch, depress actuator (5).



From	To	Switch Open	Switch Closed
1	2	Open	Continuity
3	4	Continuity	Open
5	6	Open	Continuity
7	8	Continuity	Open

NOTE

Do not route microswitch wires over cables

6. Slide plastic sleeving (4) over wires (3).
7. Aline microswitch (2) with mounting holes and install two washers and screws (1). Microswitch actuator (5) must face front of TMU.

Section IV. MAINTENANCE PROCEDURES

2-20. SCOPE

This section contains instructions for direct support maintenance of the tape memory unit. Procedures are included for removal, cleaning, inspection, repair, and installation of the equipment, as authorized by the maintenance allocation chart.

2-21. CLEANING

All parts must be cleaned before inspection and after repair.

a. Remove dust and dirt from exterior of equipment, using warm water and a clean clot(item 2, App B).

b. Wipe equipment dry using a clean, lint-free cloth (item 2, App B).

c. Use a soft bristle brush (item 1, App B) to clean out dirt and dust from inaccessible interior areas on the equipment.

2-22 INSPECTION

There are no specific inspection procedures required for the tape memo unit. Upon completion of repair/replacemant procedures, visual inspection of the unit, as given in the following steps, will determine whether it is in a serviceable condition.

1. Check chassis for dents, cracks, or distortion.

2. Check that ITU is properly installed and locked in place.

3. Check wiring harness for breaks, cracks, and chafing.

4. Check connectors for secure installation, broken shells, and broken or bent pins.

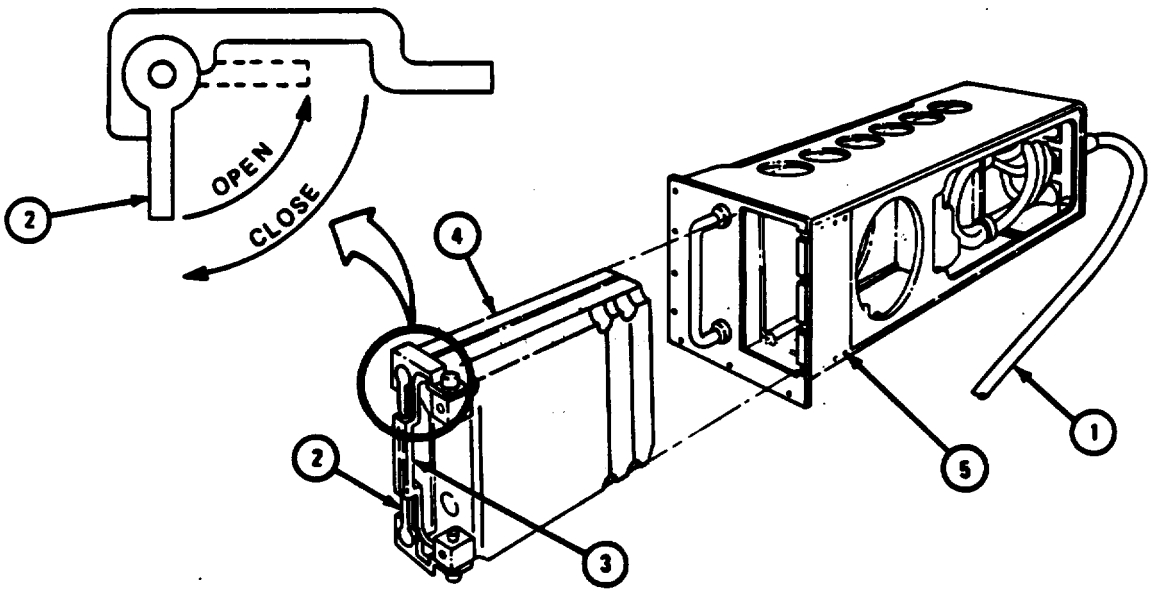
5. Check for missing or loose hardware.

2-23 REMOVING TAPE TRANSPORT UNIT

WARNING

Turn off power before working on equipment. Failure to do so can cause serious injury to personnel.

1. Disconnect power cable (1) from power source.
2. Turn two locks (2) to open position.
3. Pull handle {3) open and remove TTU (4).
4. Close handle (3) and turn two locks (2) to closed position.



2-24 INSTALLING TAPE TRANSFORT UNIT

1. Turn two locks {2) to open position and pull open handle (3).
2. Carefully slide TTU (4) into chassis (5).
3. Close handle (3) and turn two locks (2) to closed position.

2-25. REMOVING ELECTRONIC CONTROL UNIT

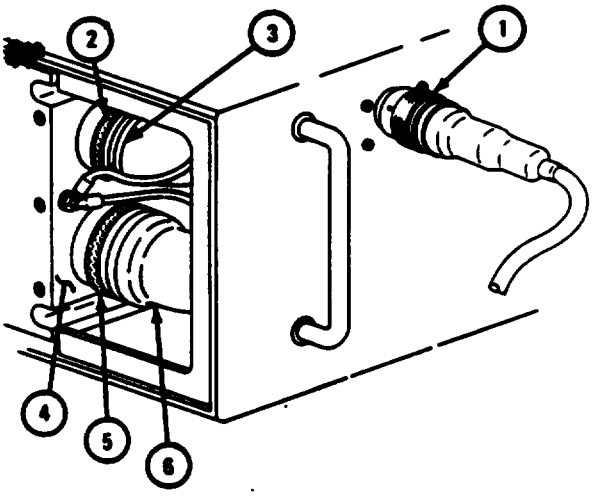
WARNING

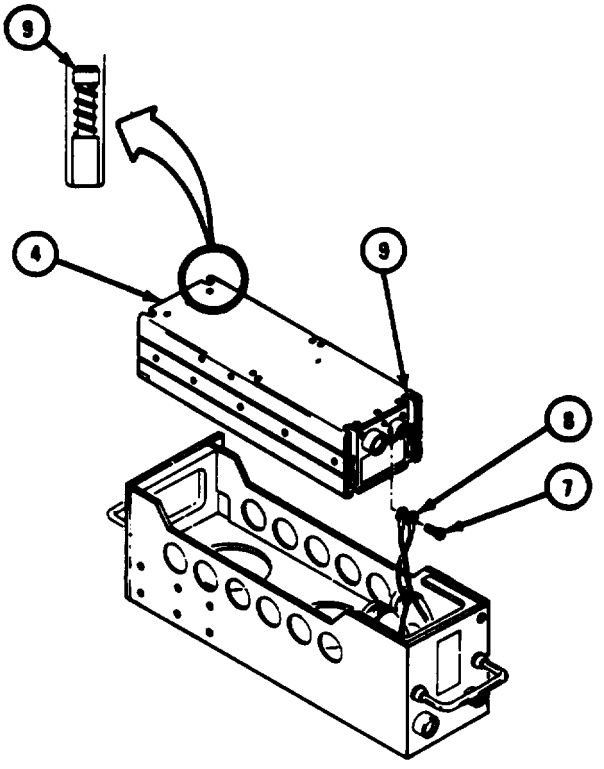
Turn off power before working on equipment Failure to do so can cause serious injury to personnel.

1. Disconnect power cable (1). from TMU.

2 Turn knurled ring (2) to the left and disconnect connector (3) from ECU (4).

3. Turn knurled ring (5) to the left and disconnect connector (6) from ECU (4).

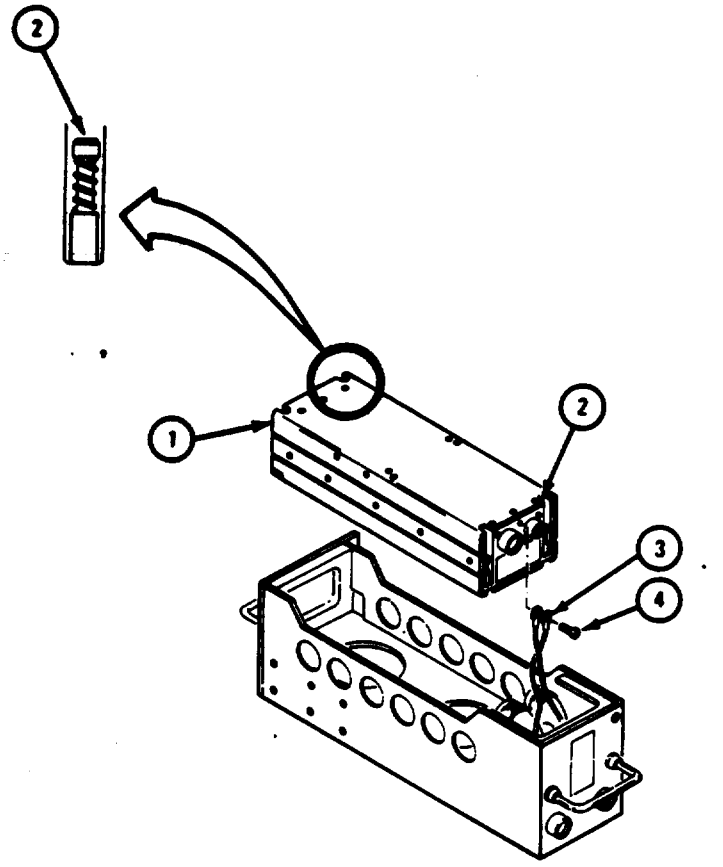




4. Remove screw (7) and two ground wires (8).

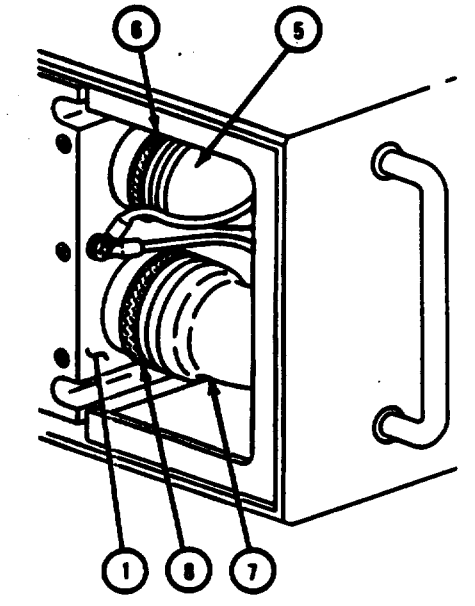
5. Loosen six hex head screws (9) and remove ECU (4).

2.26. iNSTALLING ELECTRONICS CONTOL UNIT



1. Put ECU (1) in place and tighten six captive screws (2).

2. Install two ground wires (3) and screw (4).



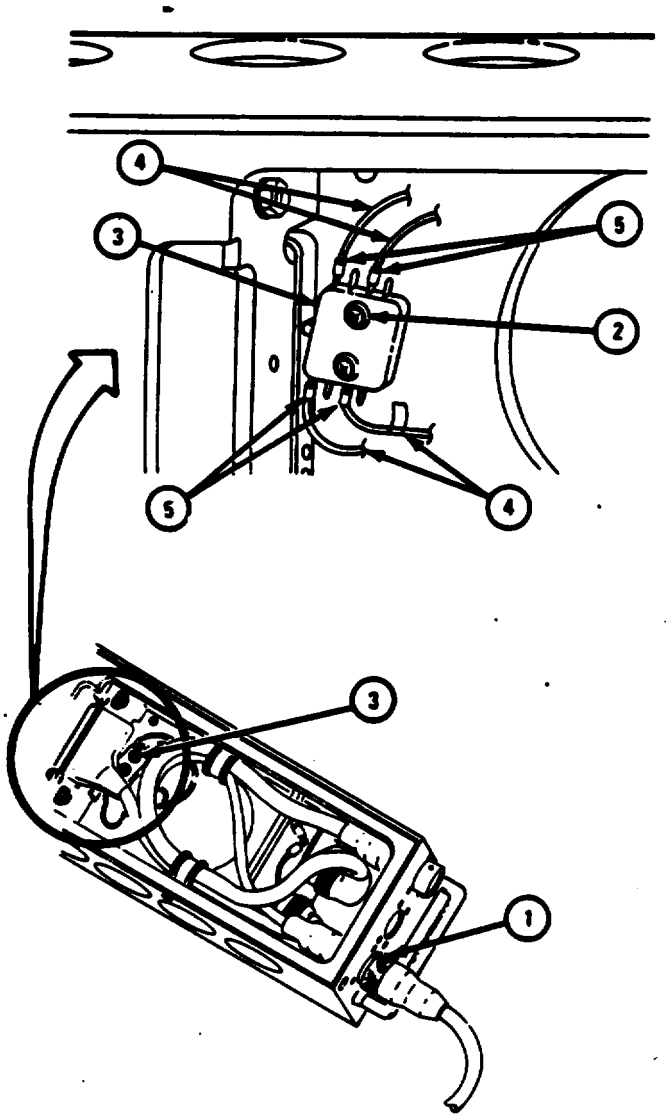
3. Aline tabs on connector (5) with slots inside connector on ECU (1) and turn knurled ring (6) to the right until it clicks in place.

4. Aline tabs on connector (7) with slots inside connector on ECU (1) and turn knurled ring (8) to the right until it clicks in place.

2-27. REMOVING MICROSWITCH

WARNING

Turn off power before working on equipment. Failure to do so can cause serious injury to personnel.



1. Disconnect power cable (1) from TMU.
2. Remove two screws and washers (2).
3. Carefully dremove microswitch (3) to gain access to wires (4).
4. Slide back plastic , sleeving (5) on wires (4).
5. Tag and unsolder wires. (4).
6. Remove microswitch (3).

2-28. INSTALLING MICROSWITCH

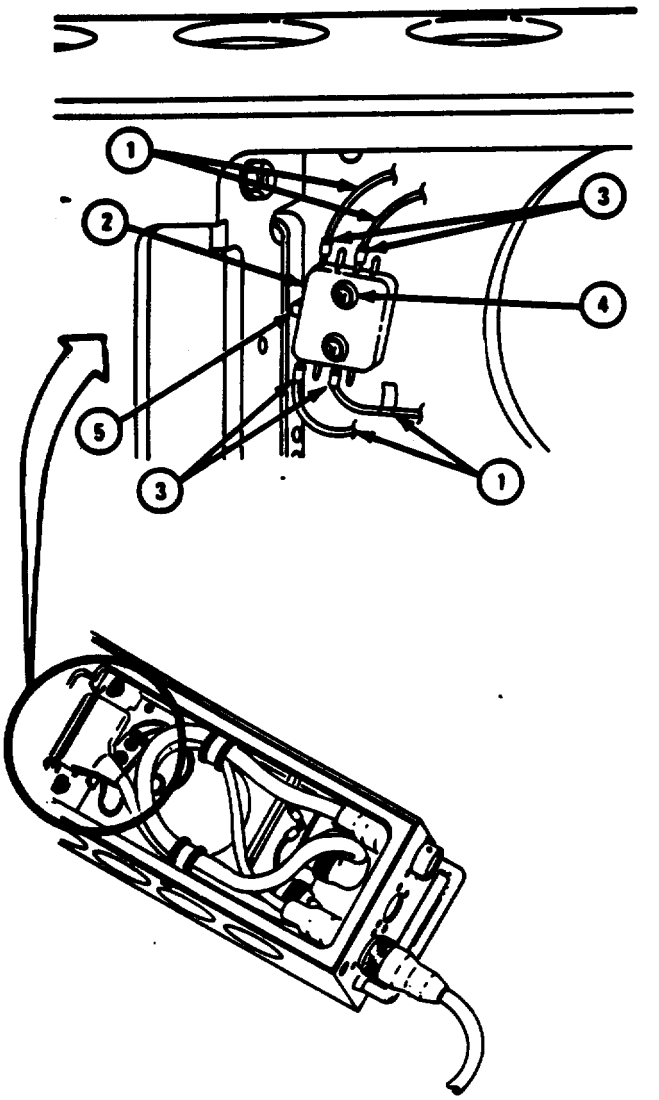
NOTE

Do not route microswitch wires and ground wire over cables.

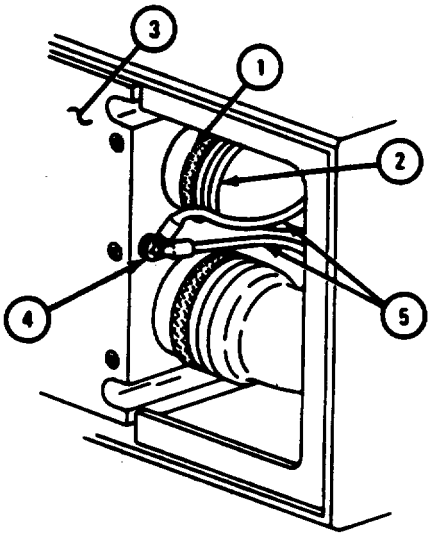
1. Solder wires (1) to microswitch (2) as tagged. Ramove tags

2. Slide plastic sleeving (3) over soldered connections.

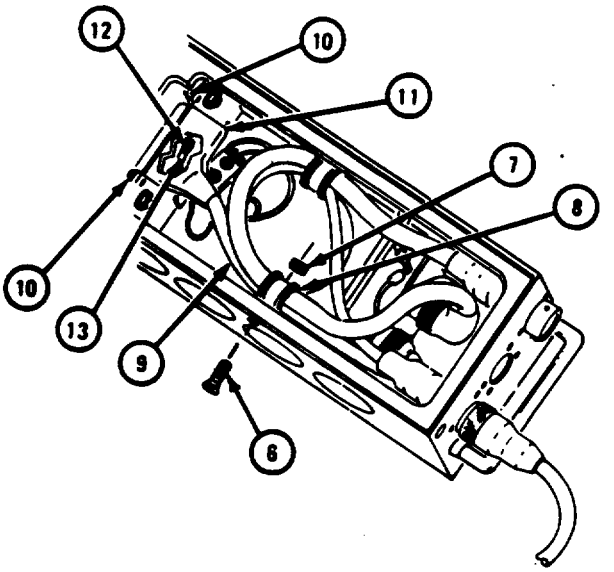
3. Aline microswitch (2) with mounting holes and install two washers and screws (4). Microswitch actuator (5) must face front of TMU.



2-29. REMOVING TTU-ECU CABLE ASSEMBLY

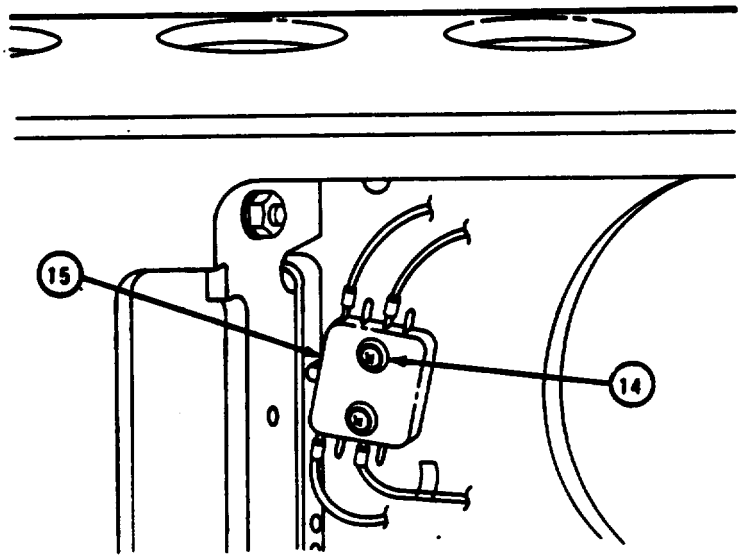


1. Remove TTU (para 2-23).
2. Turn knurled ring (1) to the left and disconnect connector (2) from ECU (3).
3. Remove screw (4) end two ground wires (5).



. 4. Remove screw (6) and nut (7).

5. Remove clamp (8) from cable assembly (9).
6. Remove two screws and washers (10) from connector (11).
7.. Remove connector (11).
8. Remove screw (12) and ground wire (13).



9. Remove two screws and washers (14) and remove microswitch (15).

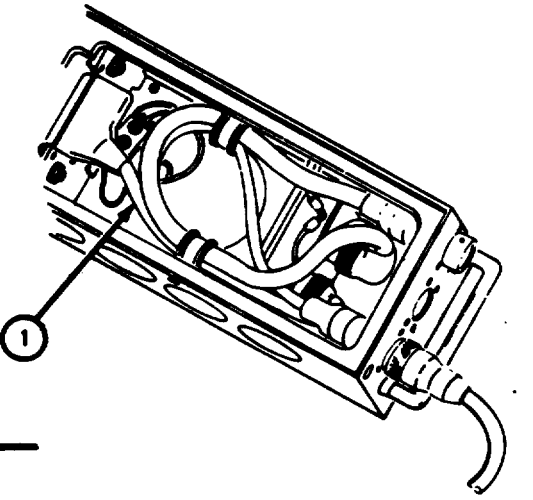
10. Remove TTU-ECU cable assembly.

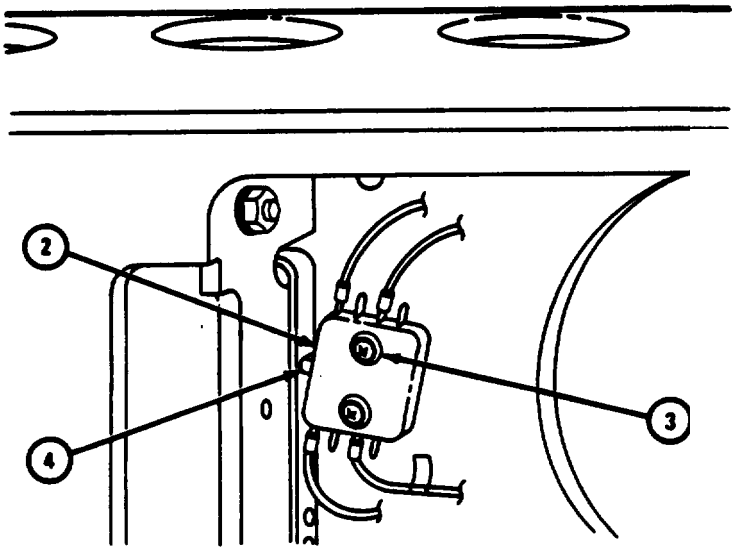
2-30 INSTALLING TTU-ECU CABLE ASSEMBLY

1. Insert TTU-ECU cable assembly (1) in TMU chassis. Make sure cable assembly goes on the bottom.

NOTE

Longer screws are for mounting microswitch.





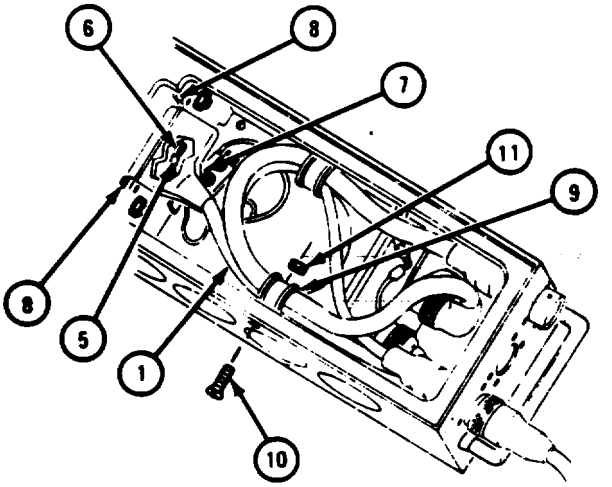
2. Install microswitch (2) with two screws and washers (3). Microswitch actuator (4) must face front of TMU.

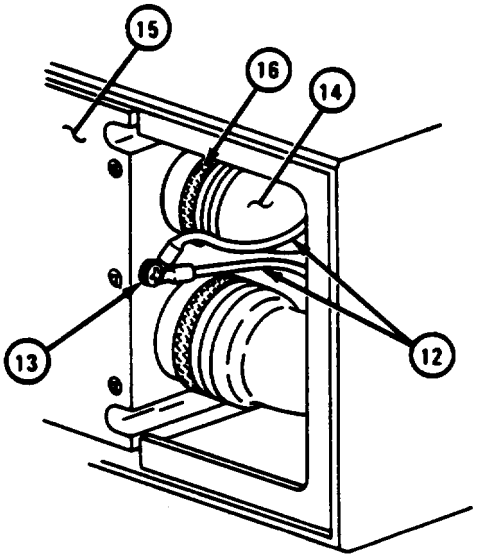
3. Install ground wire (5) and screw (6).

4. Install connector (7) with two screws and washers (8).

5. Install clamp (9) around TTU ECU cable assembly (1).

6. Secure clamp (9) with screw (10) and nut (11).





7. Install two ground wires (12) and screw (13).

8. Aline tabs on connector (14) with slots inside connector on ECU (15) and turn knurled ring (16) to the right until it clicks in place.

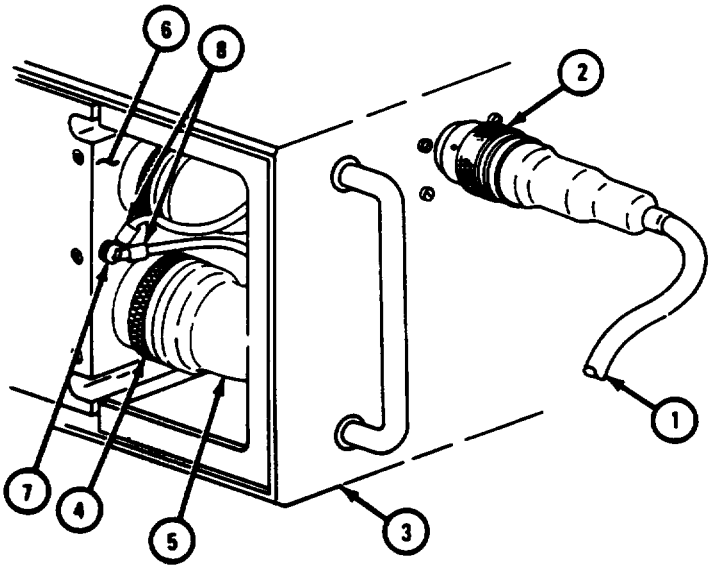
9. Install TTU (para 2-24),

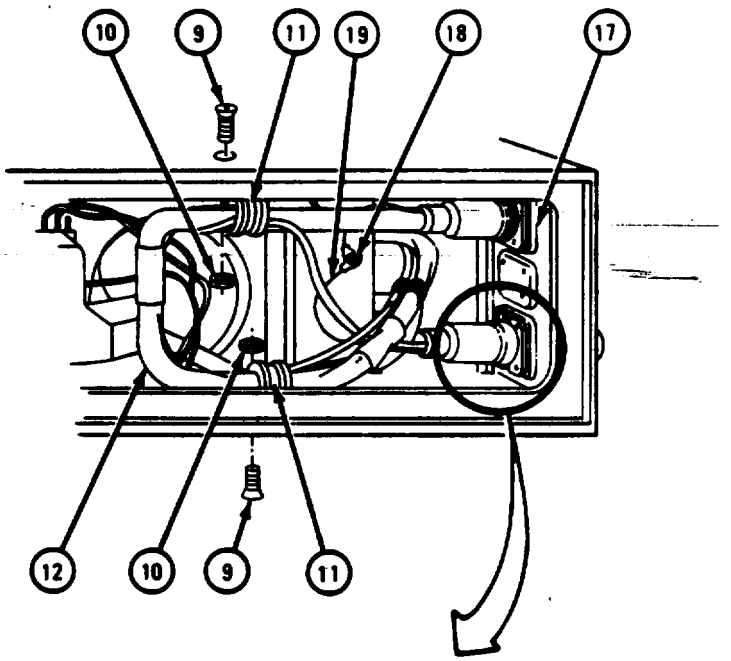
2-31. REMOVING I/O AND POWER CABLE ASSEMBLY

WARNING

Turn off power before working on equipment. Failure to do so can cause serious injury to personnel.

1. Disconnect power cable (1) from power source.
2. Turn knurled ring (2) to the left and disconnect power cable (1) from chassis (3).
3. Turn knurled ring (4) to the left and disconnect connector (5) from ECU (6).
4. Remove screw (7) and two ground wires (8).





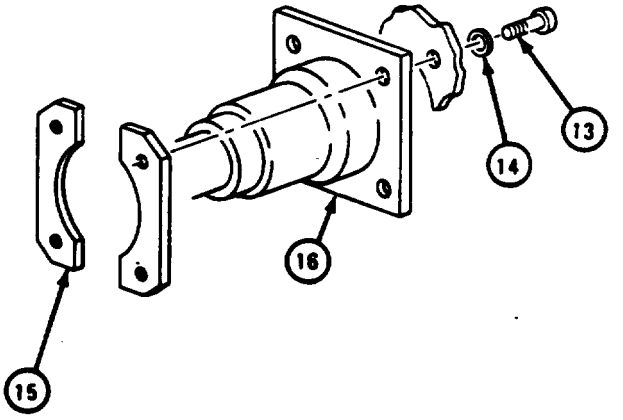
5. Remove two screws (9) and two nuts (10).

6. Remove two clamps (11) from cable assembly (12).

7. Remove four screws (13) and four washers (14), and remove two backing plates (15) from connector plate (16).

8 Repeat step 7 for I/O connector (17).

9. Remove screw (18) and two ground wires (19).



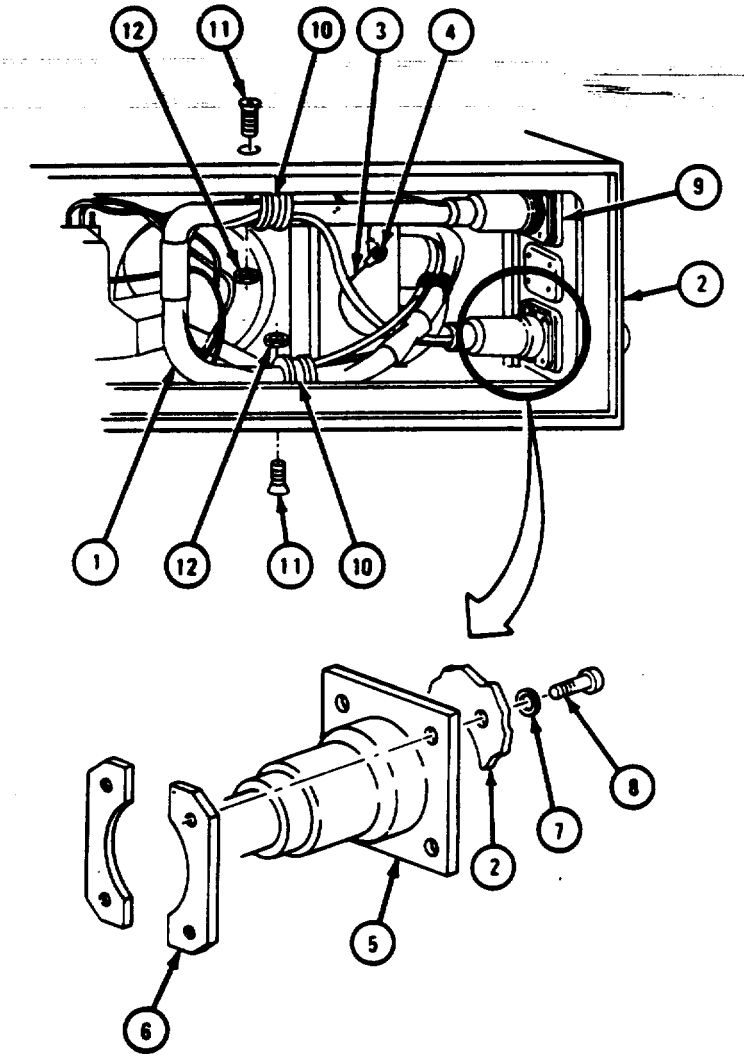
NOTE

Before removing I/O and power cable assembly, note how it is routed in chassis.

10. Remove cable assembly (12).

2-32. INSTALLING I/O AND POWER CABLE ASSEMBLY

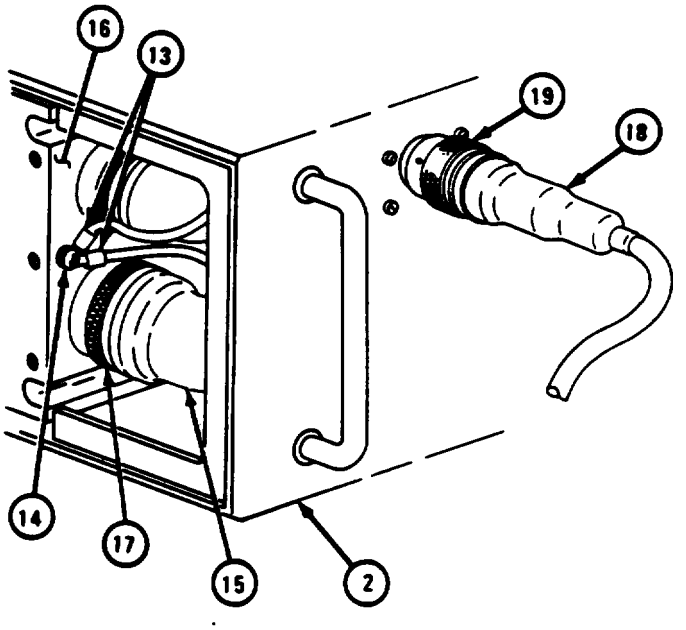
1. Route I/O and power cable assembly (1) through chassis (2).
2. Install two ground wires (3) and screw (4).
3. Aline holes in connector plate (5) with mounting holes in chassis (2).
4. Install two backing plates (6) and four washers (7) and screws (8).
5. Repeat steps 3 and 4 for I/O connector (9).
6. Install two clamps (10) on cable assembly (1).
7. Install two screws (11) and nuts (12).



8. Install two ground wires (13) and screw (14).

9. Aline tabs in connector (15) with slots inside connector on ECU (16) and turn knurled ring (17) to the right until it clicks in place.

10. Aline tabs in connector (18) with slots inside connector on TMU (2) and turn knurled ring (19) to the right until it clicks in place.



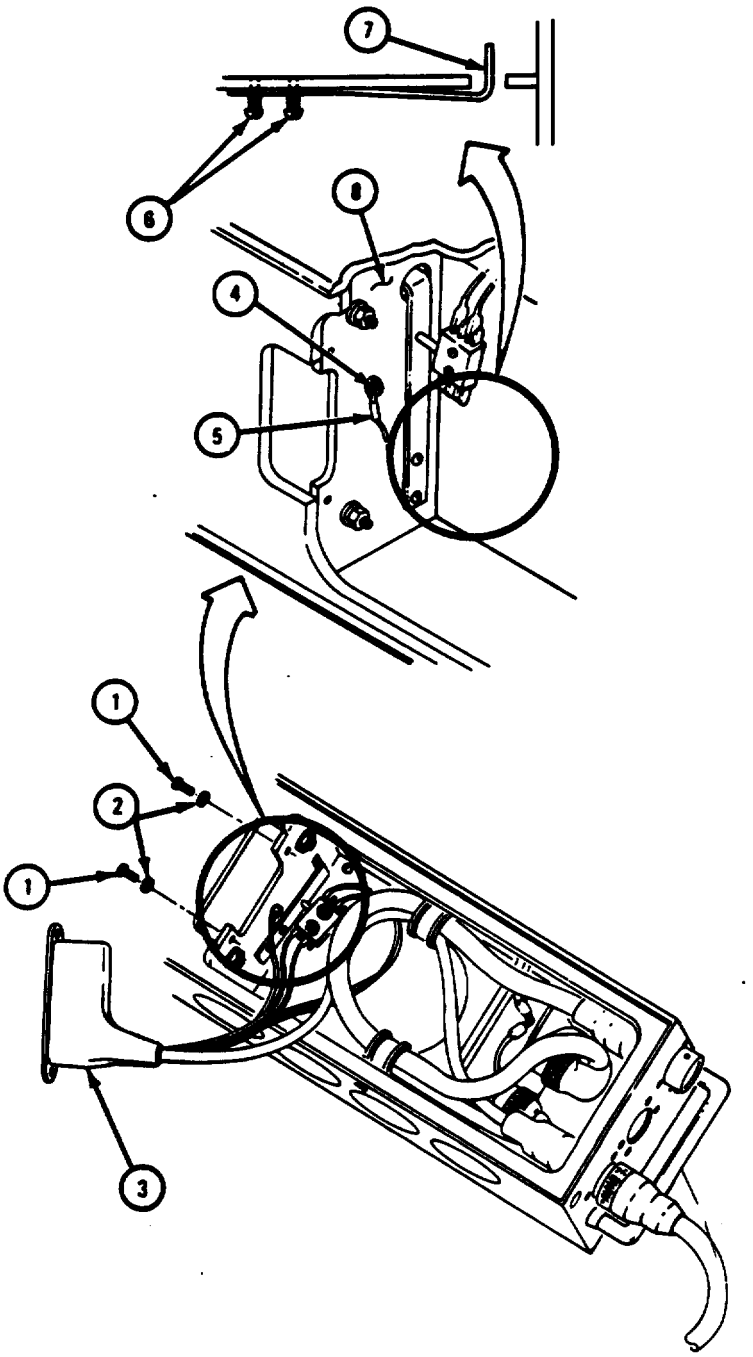
2-33. REMOVING LEAF SPRING ACTUATOR

1. Remove TTU (para 2-23).

2. Remove two screws (1), washers (2), and CONnector (3).

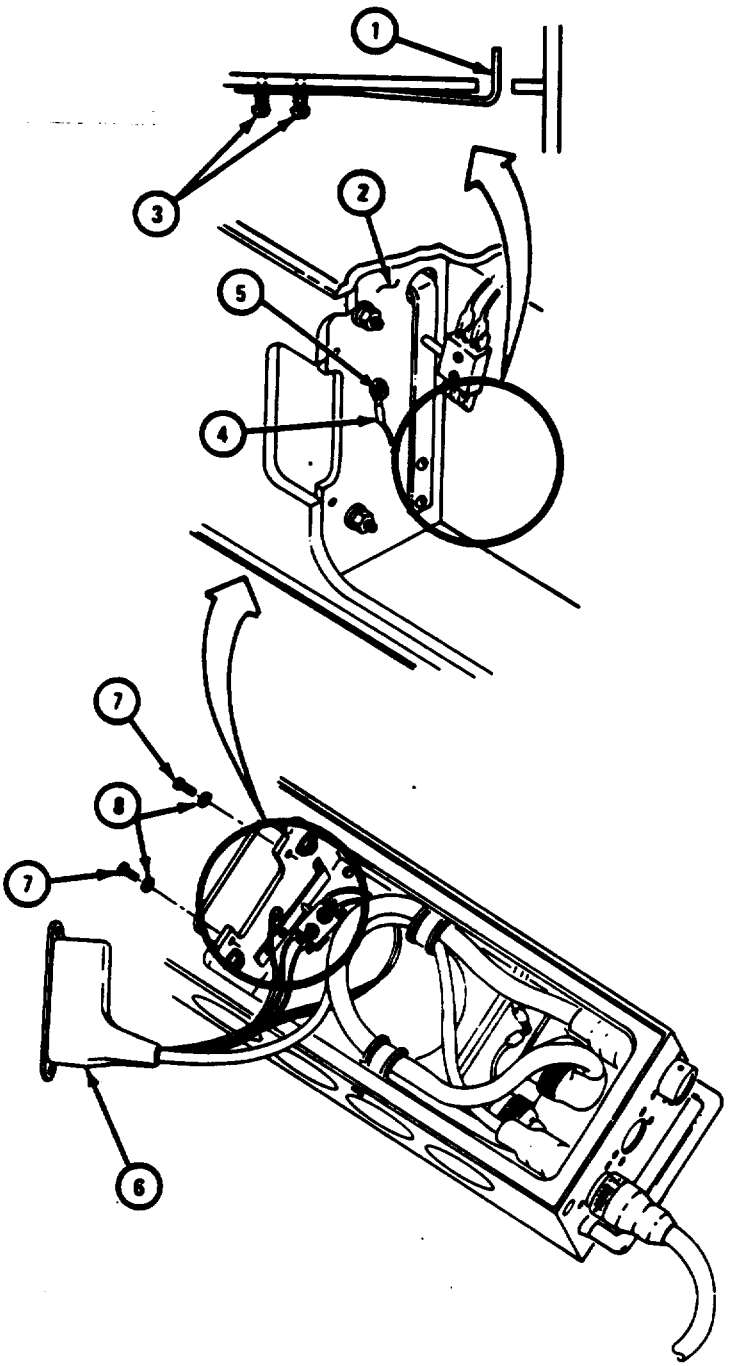
3. Remove screw (4) and ground wire (5).

4. Remove two screws (6) and leaf spring actuator (7) from chassis (8).



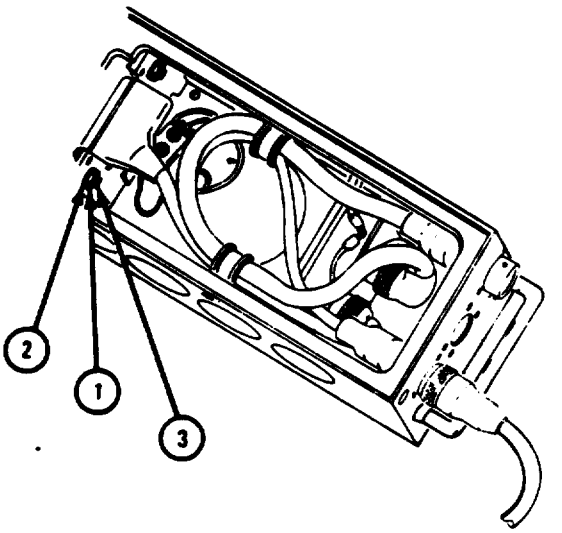
2-34. INSTALLING LEAF SPRING ACTUATOR

1. Aline leaf spring actuator (1) with mounting holes on chassis (2). Secure with two screws (3).
2. Install ground wire (4) end screw (5).
3. Aline connector (6) with mounting holes on chassis (2) and secure connector with screws (7) and washers (8).
4. Install TTU (pare 2-24).



2-35. REMOVING TTU GUIDE PINS

1. Remove TTU (para 2-23).
2. Remove two nuts (1) and washers (2).
3. Remove two guide pins (3).



2-36. INSTALLING TTU GUIDE PINS

CAUTION

Use care not to damage unthreaded ends of guide pins.

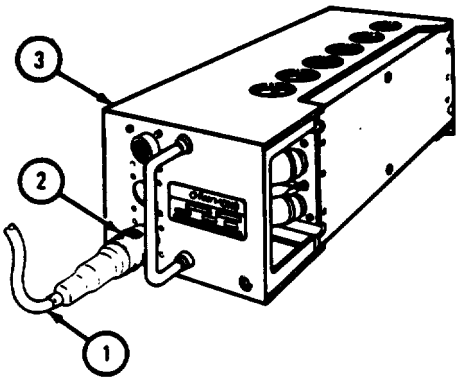
1. Put two guide pins (3) in place and install two washers (2) and nuts (1) hand tight.
2. Install TTU (para 2-24).
3. Tighten nuts (1).

2-37. POWER CABLE REPAIR

a. Removal.

WARNING

Turn off power before working on equipment Failure to do so can cause serious injury to personnal.

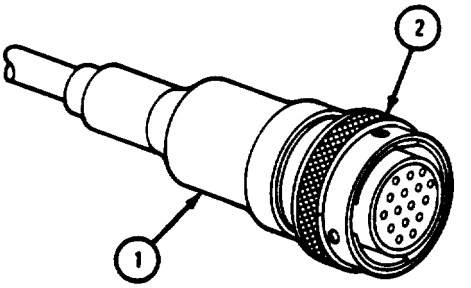


1. Disconnect power cable (1) from power source.
2. Turn knurled ring (2) to the left and remove power cable (1) from connector on chassis (3).

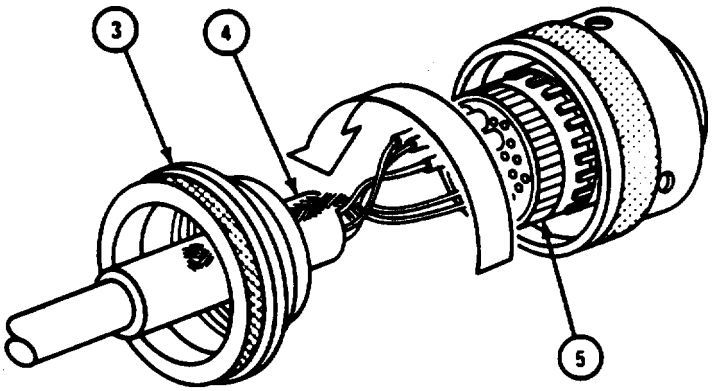
b. Repair

CAUTION

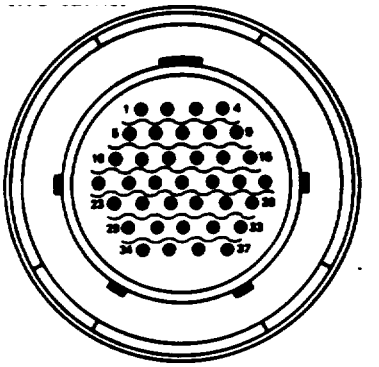
When removing shrink boot, use care not to cut wire leads underneath.



1. Cut and remove shrink boot (1) from connector (2).
2. Unscrew knurled ring (3) in direction of arrow and slide it back on cable (4).



3. Unscrew retaining ring (5) in direction of arrow approximately two turns.



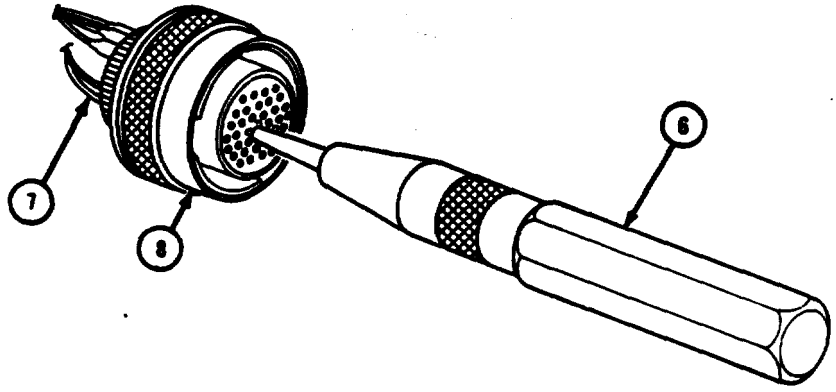
FRONT VIEW

4. Locate socket inserts to be replaced,

NOTE

Three wire leads going to connector have two socket inserts each. If one is to be replaced, both must be removed from the connector. If more than one wire lead is removed, tag each wire.

5. Insert tip of REMOVAL TOOL (6) into socket hole and push tool in to drive socket insert (7) out through the beck of connector (8).



6. Cut off damaged socket insert as close to crimped end as possible.

NOTE

Wire leads with two connectors already have insulation removed.

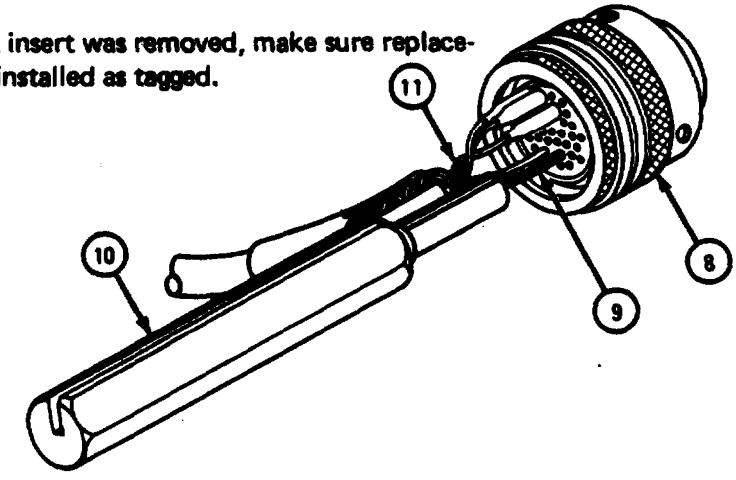
7. Strip 3/32 to 1/8 inch of insulation from end of wire.

8. Put replacement socket insert on and of wire.

9. Crimp socket insert onto wire.

NOTE

If more than one socket insert was removed, make sure replacement socket inserts are installed as tagged.



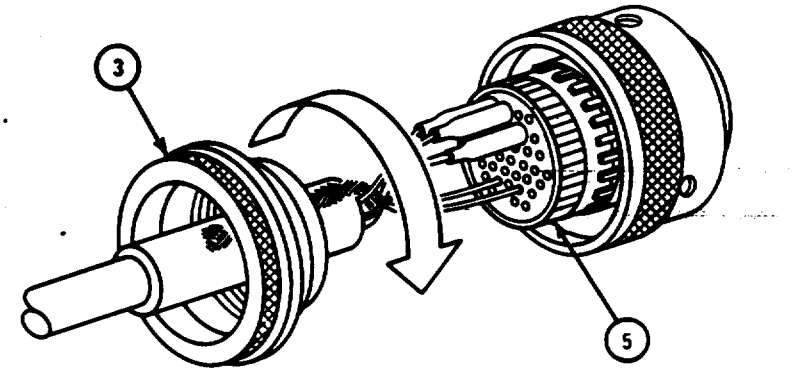
10. Aline crimped socket (9) with socket hole on connector (8).

11. Using INSTALLING TOOL (10), push socket insert (9) into connector (8).

12. Give wire (11) a slight pull to make sure socket insert is locked in place.

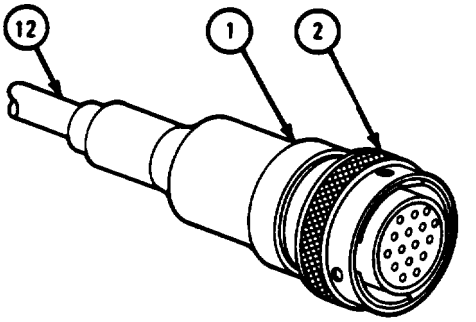
13. Turn retaining ring (5) in direction of arrow until it is tight.

14. Install knurled ring (3) on connector (2) and turn ring in direction of arrow to tighten.



15. Put shrink boot (1) over cable (12) and aline it on rear of connector (2).

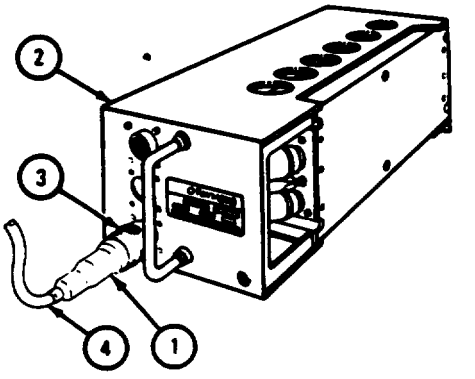
16. Apply heat to shrink boot(1).



c. Installation.

1. Aline tabs on connector (1) with dots on connector on chassis (2).

2. Install power cable (4) by turning knurled ring (3) to the right until it clicks in place.



Section V. PREPARATION FOR STORAGE OR SHIPMENT

2-38. STORAGE OR SHIPMENT PROCEDURES

a. Prior to packing tape memory unit for storage or shipment, the following procedures must be performed:

(1) Remove tape transport unit (para 2-23).

(2) Perform routine PMCS to TM 11-7021-201-12, Chapter 2.

b The tape memory unit and tape transport unit are repacked for storage or shipment in their originl packaging materials.

APPENDIX A

REFERENCES

A-1. SCOPE

This appendix lists all forms and technical manuals referenced in this manual.

A-2. FORMS

Discrepancy in Shipment Report (DISREP) . . . . . SF 361

Quality Deficiency Report . . . . . SF 368

Recommended Changes to Equipment Technical Publications . . . . . DA Form 2028

RecommendedChanges to Publications and Blank Form . . . . . DA Form 2028-2

Report of Discrepancy (ROD) . . . . . SF 364

A-3 TECHNICAL BULLETINS

Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelters . . . . . TB 43-0118

A-4 TECHNICAL MANUALS

Organizational Maintenance Repair Parts and Special Tools List, Magnetic Tape Set AN/UYH-1 . . . . . TM 11-7025-214-20P

Direct Support Maintenance Repair Parts and Special Tools List, Magnetic Tape Set AN/UYH-1 . . . . . TM 11-7025-214-30p

Operator's and Organizational Maintenance Manual, Processor AN/UYK-19A (NSN 7035-01-134-7148), Processor AN/UYK-19AX (NSN 7035-41-139-4434), Plasma Display Set AN/UYQ-10(V)l (NSN 7035—00-533-4464), Plasma Display Set AN/UYQ-10(V)2 (NSN 7035-01-158-7673), Magnetic Tape Set AN/UYH-l (NSN 7025-01-134-3338), Teleprinter, Electrographic TT-772(P)/G (NSN 5815-01-127+5868), Teleprinter, Electrographic TT-773(P)/G (NSN 5815-01-127-5867) . . . . . TM 11-7021-201-12

Procedures for Destruction of Electronics Material to Prevent Enemy Use (Electronics Command) . . . . . TM 750-244-2

The Army Maintenance Management System (TAMMS). . . . . DA PAM 738-750

A-5. MISCELLANEOUS PUBLICATIONS

Consolidated Index of Army Publications and Blank Forms . . . . . DA PAM 310-1

APPENDIX B

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I, INTRODUCTION

B-1. SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain the AN/UYH-1. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

B-2. EXPLANATION OF COLUMNS

a. Column(1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, App B).

b. Column(2) - Level. This column identifies the lowest level of maintenance that requires the listed item.

F - Direct Support

c. Column(3) - National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column(4) - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parenthesis followed by the part number.

e. Column(5) - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function, This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

B3. SPECIAL INFORMATION

National stock numbers (NSN) that are missing from section II have been applied for and will be added to this technical manual by future change/revision when they are entered in the Army Master Data File (AMDF). Until the NSN are established and published, submit exception requisitions to Commander, US Army Communications - Electronics Command and Fort Monmouth, ATTN: DRSEL-MM, Fort Monmouth, New Jersey 07703 for the part number to support your equipment.

SECTION II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM .NO	(2) LEVEL	(3) NATIONAL STOCK NUMBER	{4) DESCRIPTION PART NO. AND FSCM	(5) UNIT O F MEAS.
1	F	7920-00-358-4694	BRUSH, BRISTLE (81348)	EA
2	F	8306-00-287-3016	CLOTH, CHEESECLOTH, COTTON, LINTLESS (81348) CCC-440, Type II, Class 2	YD
3	F		DETERGENT, MILD, LIQUID	OZ

GLOSSARY

Bidirectional	A cable **or line that carries signals in both** directions.
Byte	**A single group of bits processed together that can consist of a variable number of bits. A sequence of adjacent binary digits usually shorter than a word, operated on as a unit**
Diagnostic	**A routine designed to locate a malfunction to a board or group of boards.**
Enable	**To place a piece of equipment or a component in operational Status.**
Erase mode	**Erases data on the magnetic tape from its present position to the end of the tape.**
Halt mode	**Mode tape memory unit is in when it is not in an active tape motion mode.**
Interface	**Connecting and making two pieces of equipment compatible.**
Operational program	**Set of stored instructions which allow for inputted data to be manipulated in a desired way.**
Photoelectric	**Relating to the electrical effect of light to generate a voltage or produce a change in resistance upon exposure to light**
Program	**A sequence of instructions that tell the processor how to receive, store, process, and provide information.**
Read mode	**Transfers data from the tape memory unit to program specified instructions to the processor.**
Read/Write chaining	**There are two types of read/write chaining. Command chaining causes the tape memory unit to read or write consecutive blocks of data without stopping at gaps between the blocks. Data chaining causes the tape memory unit to mad or write data into/from non-sequential memory locations.**

GLOSSARY - Continued

Spaceahead/Backspace mode	Moves the tape ahead or back one or more data blocks, transferring the skipped data.
Wind/Rewind mode	Moves the tape to the end or beginning of the tape without transferring any skipped over date.
Write mode	Transfers date from the processor to the tape.

INDEX

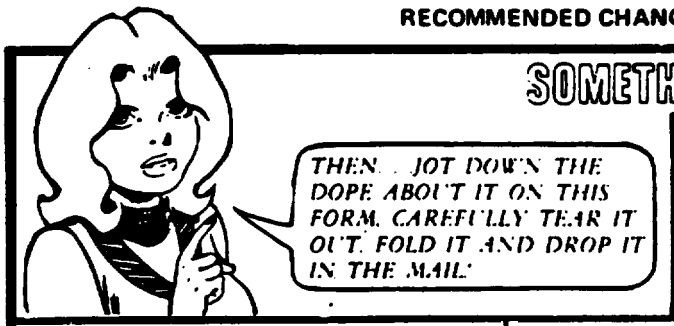
INDEX - Continued

INDEX - Continued

INDEX - Continued

TEAR ALONG PERFORATED LINE

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



SOMETHING WRONG WITH THIS PUBLICATION?

FROM (PRINT YOUR UNIT'S COMPLETE ADDRESS)
Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703

DATE SENT
10 July 1975

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-5840-340-12	23 Jan 74	Radar Set AN/PRC-76

BE EXACT PIN-POINT WHERE IT IS				IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	
2-25	2-28			Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°. **REASON:** Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.
3-10	3-3		3-1	Item 5, Function column . Change "2 db" to "3db." **REASON:** The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRAN POWER FAULT indicator.
5-6	5-8			Add new step f.1 to read, "Replace cover plate removed in step e.1, above." **REASON:** To replace the cover plate.
		FO 3		Zone C 3. On J1-2, change "+24 VDC to "+5 VDC." **REASON:** This is the output line of the S VDC power supply. +24 VDC is the input voltage.

PRINTED NAME GRADE OR TITLE AND TELEPHONE NUMBER
SSG I. M. DeSpiritof 999-1776

SIGN HERE

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