ARMY TM 5-6675-238-14
MARINE CORPS TM 08839A-14/1

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL

TEST SET, POSITION AND AZIMUTH DETERMINING SYSTEM AN/USM-427

PART NO. 877400-1

NSN 6675-01-081-9198

This manual supersedes TM 5-6675-238-14, 15 January 1982.

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WARNING

The signal processor unit contains 115 volts ac. DEATH OR SERIOUS INJURY may result from contact with 115 volts ac. Be especially alert when performing the signal processor unit self-test procedure.

The tape reader contains 115 volts ac. DEATH OR SERIOUS INJURY may result from contact with 115 volts ac. Be especially alert when performing the testing and troubleshooting procedure.

WARNING

The tape used in testing of the PADS test set is electrically conductive. DEATH OR SERIOUS INJURY, as well as damage to the tape may result if the tape is allowed to come into contact with 115 VAC.

WARNING

Do not be mislead by the terms "low voltage" or "28 VDC." DEATH OR SERIOUS INJURY can result under certain conditions if the 28 VDC amperage is high enough. Use EXTREME CAUTION when working around ANY hot circuits.

WARNING

Isopropyl alcohol is flammable and gives off harmful vapors. Use only in well-ventilated area away from open flames and sparks. Avoid prolonged or repeated inhalation of vapors.

TECHNICAL MANUAL
No. 5-6675-238-14 (ARMY)
No. 08839A-14/l (MARINE CORPS)

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Operator's, Organizational, Direct Support, and General Support Maintenance Manual

TEST SET, POSITION AND AZIMUTH DETERMINING SYSTEM AN/USM-427

PART NO. 877400-1
NSN 6675-01-081-9198

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You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Troop Support Command, ATTN: AMSTR-MCTS, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished directly to you.

Marine Corps users shall submit NAVMC Form 10772 (Recommended Changes to Technical Publications). Send to: Commanding General, Marine Corps Logistics Base (Code 850), Albany, GA 31704-5000.

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope. This manual covers maintenance instructions for Position and Azimuth Determining System Test Set AN/USM-427 (PADS test set). This equipment is operated and maintained at the general support level. Unpacking and installation instructions, operating instructions, and functioning of equipment are included.

1-2. Maintenance Forms and Records. Department of The Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS). Marine Corps personnel will prepare and maintain records and report forms as prepared by TM-4700-15/ 1, Equipment Record Procedures.

1-3. Destruction of Army Materiel to Prevent Enemy Use. Refer to TM 750-244-3 for procedures for destruction of equipment to prevent enemy use.

1-4. Administrative Storage. Refer to TM 740-90-1 for procedures, forms, records, and inspections required during administrative storage of the PADS test set. Marine Corps users shall refer to MCO 4450.7 for this information.

1-5. Calibration. No calibration of the PADS test set is required. Specific adjustment procedures are in chapter 8.

1-6. Reporting Equipment Improvement Recommendations (EIR). EIRs can and must be submitted by anyone who is aware of an unsatisfactory condition with the equipment design or use. It is not necessary to show a new design or list a better way to perform a procedure, just tell why the design is unfavorable or why a procedure is difficult, Army users may submit EIRs on SF (Standard Form) 368 (Quality Deficiency Report) to:

Commander, U.S. Army Troop
Support Command
ATTN: AMSTR-QX
4300 Goodfellow Blvd.
St. Louis, MO 63120-1798

Marine Corps users are encouraged to submit EIR's in accordance with MCO 1650.17. They shall submit Quality Deficiency Reports in accordance with MCO 4855.10. Mail directly to Commanding General, Marine Corps Logistics Base (P840), Albany, GA 31704-5000.

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Section II. DESCRIPTION AND DATA

1-7. Purpose and Use.

a *Purpose.* The PADS test set (figure 1-1) Provides testing and troubleshooting of the Position and Azimuth Determining System AN/USQ-70. Provision is made to automatically sequence test operations and operator actions. The PADS test set provides duplication of the PADS Control and Display Unit C-10164/USQ-70 on/ off, enter functions, and failure indicators. Provisions are incorporated in the PADS test set to control power turn-on to PADS. PADS Computer CP-1283/USQ-70, once checked out by the PADS test set, is then used to verifv PADS Inertial Measurement Unit MX-9832/ USQ-70 operation.

b. *Use.* The PADS test set is used to test all computer functions and load and verify the computer memory with an operational program or diagnostic program. Use of the PADS test set can isolate a malfunction to plug-in modules within the computer and control and display unit.

1-8. *Description.* The PADS test set consists of a Signal Processor Unit TS-3617/USM-427, Punched Tape Reader RF-239/USM-427, and Buffer Unit CV-3404/ USM-427. In addition, a Signal Processor Unit Case CY-7563/USM-427, Punched Tape Reader Case CY-7562/ USM-427, and Test Set Accessories Case CY-7609/ USM-427 are provided to house the equipment during transport. These cases are hereinafter referred to as transit cases.

a. ***Signal Processor Unit.*** The signal processor unit (also referred to as SPU) chassis consists of an open type welded frame with a heat exchanger, housed in an instrument case. All connectors and operating controls are located on the front panel. Input and output air ducts are also located on the front panel.

b. ***Punched Tape Reader.*** The punched tape reader (also referred to as tape reader) is housed in an instrument case. The operating control (or controls) is located on the front panel along with the tape spooler, time totalizing meter, two fuses, and a connector.

c. ***Buffer Unit.*** The buffer unit is contained in an aluminum housing with a sealed cover. Two connectors are installed in the housing. Left and right supports are attached to the housing.

d. ***Transit Cases.*** Three transit cases are provided for transporting the PADS test set or for storage during long periods of nonuse. These cases are watertight and dusttight and contain a pressure relief valve.

1-9. Differences Between Models. There is only one model of Position and Azimuth Determining System Test Set AN/USM-427. However, there are two models of the tape reader used in this test set. The earlier model tape reader part no. is 877406-1. The later model tape reader part no. is 877406-2. Whenever the tape reader is discussed and there are differences between the two tape readers, the part numbers will be included in the discussion as applicable.

1-10. System Application. The PADS test set may be utilized to check out the computer, inertial measurement unit, or control and display unit. When an inertial measurement unit (IMU) or control and display unit (CDU) is connected to the PADS test set for checkout, an operational computer must also be connected. In addition, an operational power supply must be connected to the computer. The PADS test set is also capable of loading the computer memory with the supplied IMU alignment tape. In addition, provisions are made for using a teletypewriter with the PADS test set during testing and troubleshooting of the PADS equipment.

1-11. Tabulated Data. PADS test set performance characteristics are given in table 1-1.

1-12. Items Comprising an Operable Equipment. Items comprising the operable PADS test set are illustrated in figure 1-1 and listed in tables 1-2, 1-3, and 1-4.

Legend for Figure 1-1

1. Signal Processor Unit TS-3617/USM-427
2. Signal Processor Unit Case CY-7563/USM-427
3. Punched Tape Reader RP-239/USM-427 (Part No. 877406-1)

3.1 Punched Tape Reader RP-239/USM-427 (Part No. 877406-2)

4. Punched Tape Reader Case CY-7562/USM-427
5. Buffer Unit CV-3404/USM-427
6. Test Set Accessories Case CY-7609/USM-427
7. Cable Assembly, Power Electrical, W201
8. Cable Assembly, Special Purpose, Electrical, W203
9. Cable Assembly, Special Purpose, Electrical, W204
10. Cable Assembly, Special Purpose, Electrical, W205
11. Cable Assembly, Special Purpose, Electrical, W212
12. Cable Assembly, Special Purpose, Electrical, W209
13. Cable Assembly, Special Purpose, Electrical, W210
14. Card Extractors
15. Self-Test Tape
16. Take-Up Reels (six reels)
17. Diagnostic Tape (two reels)
18. Operational Tape
19. Card Extender, Tape Reader (used on Part No. 877406-1)
20. Maintenance Manual: Army TM 5-6675-238-14 or Marine Corps TM 08839A-14/1
21. RPSTL: Army TM 5-6775-238-24P or Marine Corps TM 08839A-24P/2
22. Shorting Plug
23. Solid State Program Tape (three reels)
24. Cable Assembly, Special Purpose, Electrical, W211

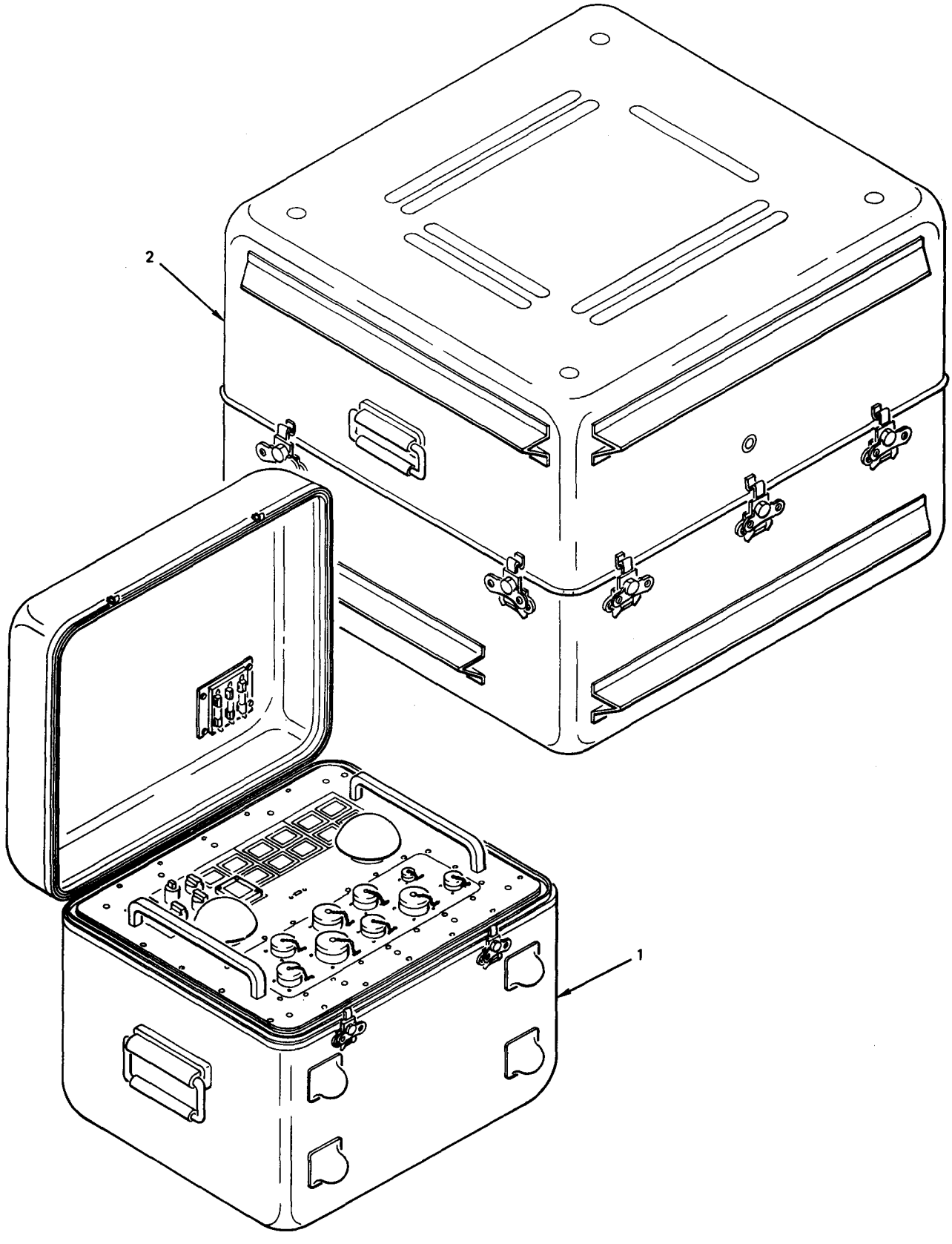


Figure 1-1. Position and Azimuth Determining System Test Set AN/USM-427 (Sheet 1 of 3)

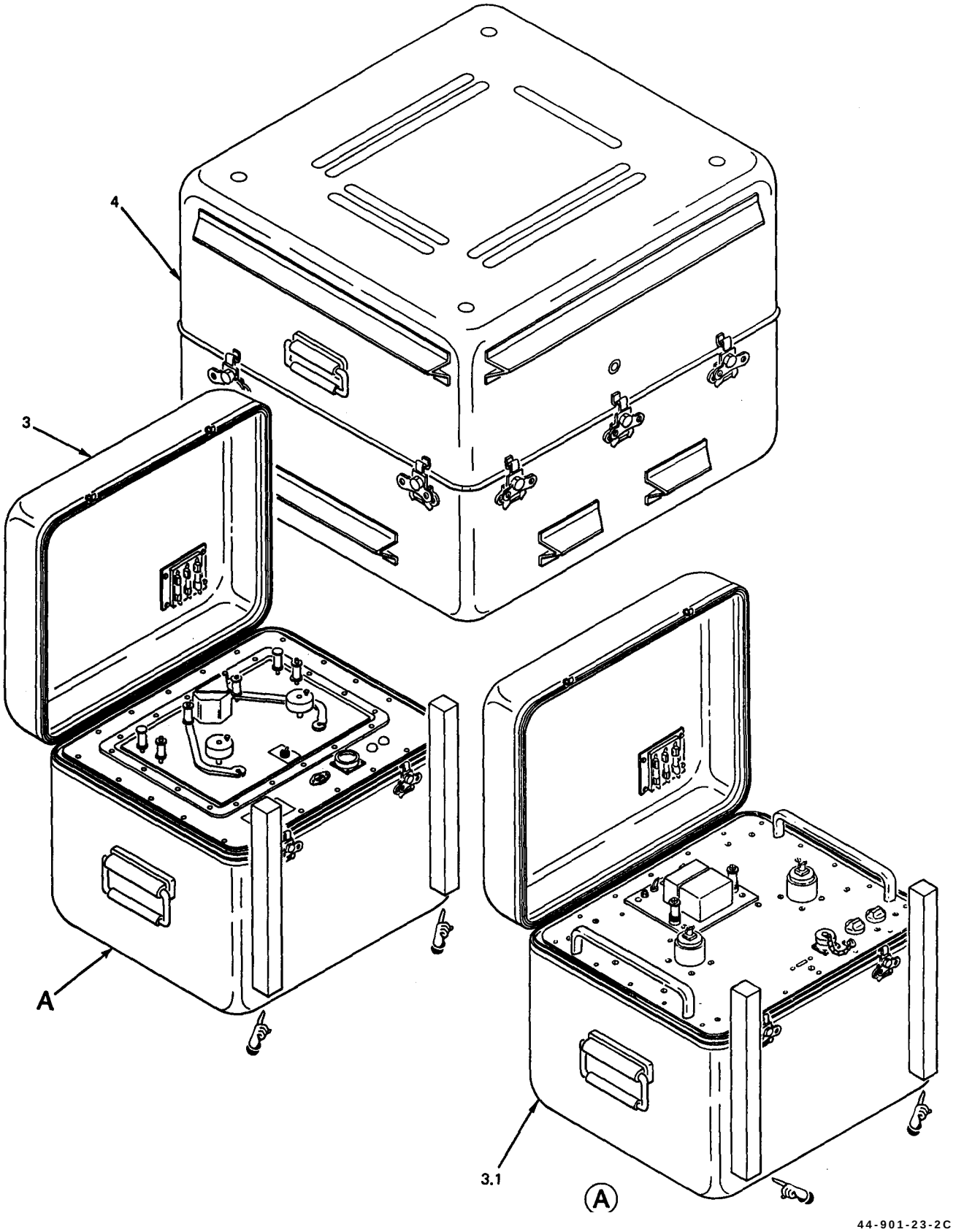


Figure 1-1. Position and Azimuth Determining System Test Set AN/USM-427 (Sheet 2 of 3)

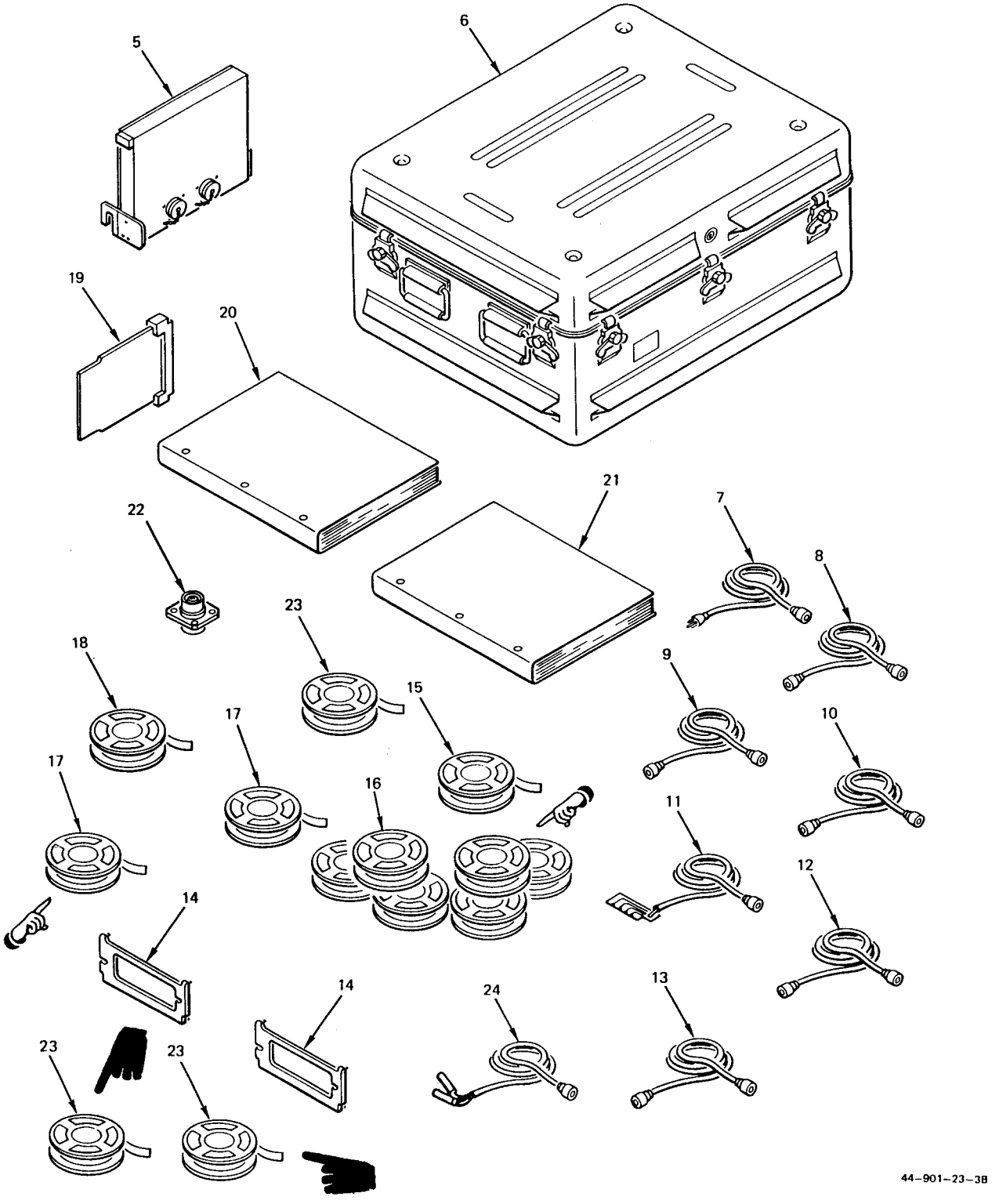


Figure 1-1. Position and Azimuth Determining System Test Set AN/USM-427 (Sheet 3 of 3)

Table 1-1. Performance Data

Item	Particulars
Signal Processor Unit	
Input power	115V, 50 to 400 Hz, single phase, 400 watts
Output power	115V, 50 to 400 Hz, 150 watts, single phase (to tape reader); + 28V regulated (to tape reader) + 5V regulated (to buffer unit)
Punched Tape Reader	
Input power	115V, 50 to 400 Hz, 150 watts, single phase (from SPU); + 28V regulated (from SPU)
Buffer Unit	
Input power	+ 5V regulated, 7 watts, (from SPU during self-test; from computer during testing of PADS)

Table 1-2. Major Components

NSN	Item	Qty	Dimensions MM (in,) Height	Depth	Width	Wt Kg (lbs.)
	Position and Azimuth Determining System Test Set AN/USM-427 consisting of:					
	Signal Processor Unit TS-3617/USM-427	1	25.4 (16.8)	368.3 (14.5)	510.5 (20.1)	34.0 (75)
	Punched Tape Reader RP-239/USM-427	1	398.8 (15.7)	226.1 (8.9)	482.6 (19)	20.4 (45)
	Buffer Unit CV-3404/ USM-427	1	241.3 (9.5)	63.5 (2.5)	297.2 (11.7)	2.3 (5)
	Case, Punched Tape Reader CY-7562/USM-427	1	434.3 (17.1)	660.4 (26.0)	660.6 (26.4)	18.7 (41.3)
	Case, Signal Processor Unit CY-7563/USM-427	1	548.6 (21.6)	609.6 (24.0)	660.4 (26.0)	20.6 (45.5)
	Case, Test Set Accessories CY-7609/USM-427	1	388.6 (15.3)	635.0 (25.0)	812.8 (32.0)	24.9 (55.0)

Table 1-3. Cable Assemblies

NSN	Item	Qty	Length MM (in.)
	Electrical Cable Assembly Set ON-161/USM-427		
	Cable Assembly, Power, Electrical, W201	1	2438.4 (96)
	Cable Assembly, Special Purpose, Electrical, W203	1	1524.0 (60)
	Cable Assembly, Special Purpose, Electrical, W204	1	1828.8 (72)
	Cable Assembly, Special Purpose, Electrical, W205	1	3048.0 (120)
	Cable Assembly, Special Purpose, Electrical, W212	1	4572.0 (180)
	Cable Assembly, Special Purpose, Electrical, W209	1	1828.8 (72)
	Cable Assembly, Special Purpose, Electrical, W210	1	355.6 (14)
	Cable Assembly, Special Purpose, Electrical, W211	1	3200.4 (126)

Table 1-4. Auxiliary Equipment

NSN	Item	Qty
	Diagnostic Tape	1
	Operational Tape	1
	Solid State Program Tape	1
	Self-Test Tape	1
	Take-Up Reel	1
	Card Extractors	2
	Card Extender, Tape Reader (used on part no. 877406-1)	1
	Shorting Plug	1

CHAPTER 2

SERVICE UPON RECEIPT AND INSTALLATION

Section I. SITE AND SHELTER REQUIREMENTS

2-1 General. This section describes site and shelter requirements for the PADS test set.

2-2. Site and Shelter Requirements. The PADS test set is designed for operation in a sheltered maintenance shop. The Semitrailer-Mounted Electronic Shop Set Number 5 or a permanent installation that has 115-volts, 50-to 400-Hertz power, can be utilized for PADS test set operation. The buffer unit is designed to operate in the ambient environment conditions existing outside the maintenance shop for IMU calibration.

Section II. SERVICE UPON RECEIPT OF MATERIEL

2-3. Unpacking Instmctions.

CAUTION

The PADS test set contains delicate electronic equipment. Be extremely careful when removing each item from container,

a. The items comprising the PADS test set are packaged in three containers: One container for the SPU and transit case; a second container for the tape reader and transit case; and a third container for the buffer unit, cables, card extractors, tape reel, and transit case, See figure 2-1 for a typical packaging diagram.

b. Unpack items from containers as shown in figure 2-1.

c. Press transit case pressure relief valve.

d. Remove equipment from transit cases.

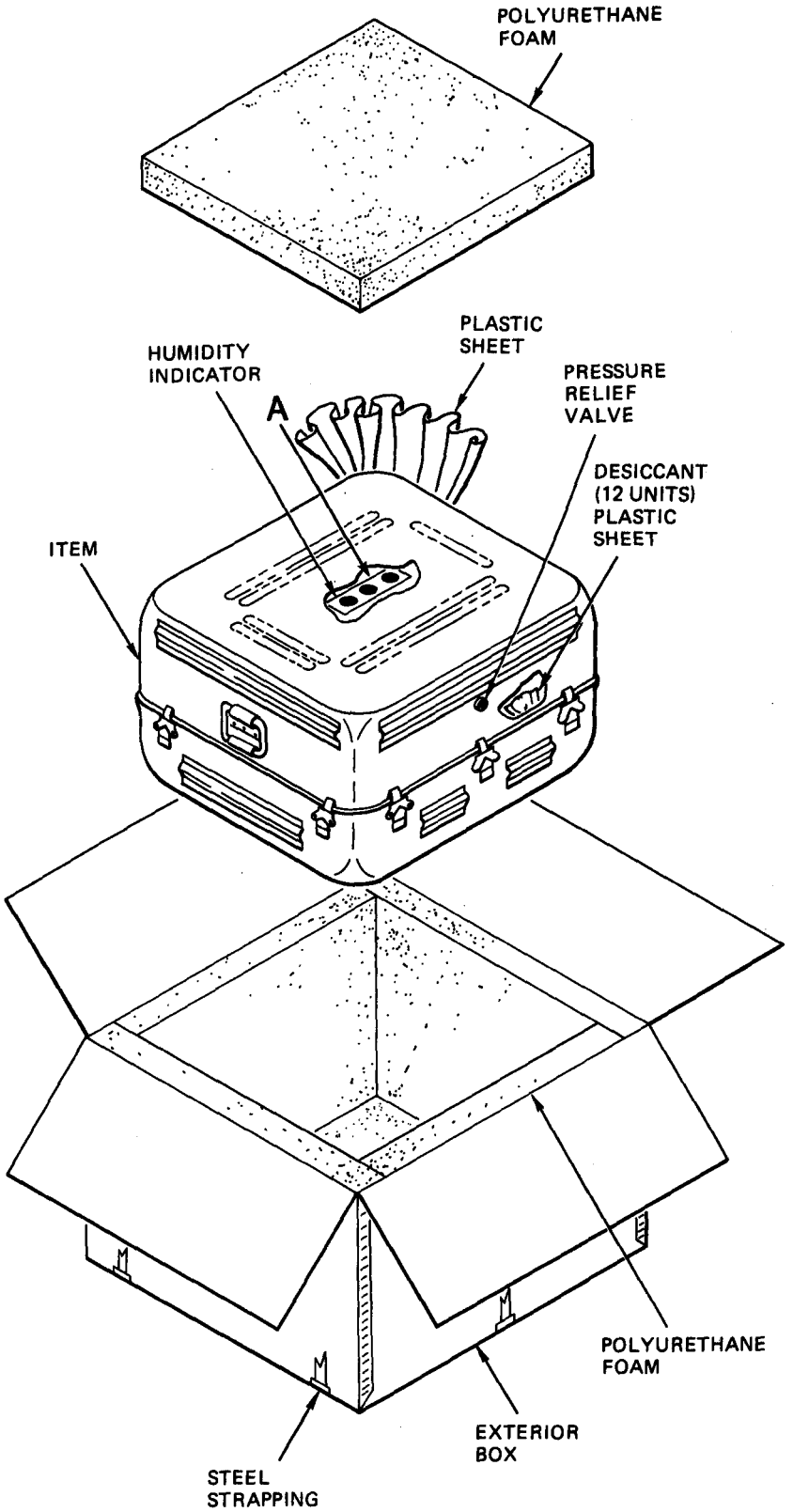
2-4. Checking Unpacked Equipment.

a. Inspect the equipment for damage incurred during shipment, If the equipment has been damaged, report the damage on DD Form 6 (Packaging Improvement Report).

b. Check the equipment against the component listing in appendix B and the packing slip to see if the shipment is complete. Report all discrepancies in accordance with paragraph 1-2. The equipment should be placed in service even though a minor assembly or part that does not affect proper functioning is missing.

c. Check to see whether the equipment has been modified. (Equipment which has been modified will have the MWO number on the front panel, near the nomenclature plate.) Check also to see whether all currently applicable MWO'S have been applied. (Current MWO'S applicable to the equipment are listed in DA PAM 310-7).

d. For dimensions, weights, and volume of packaged items, see SB 700-20.



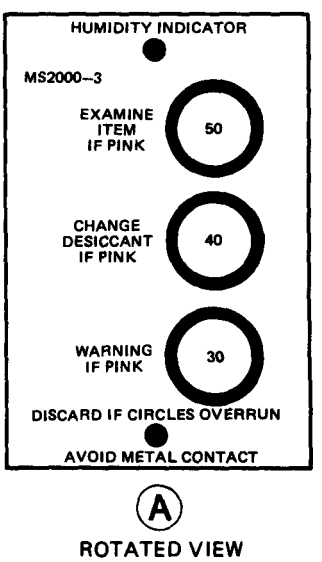


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Figure 2-1. Typical Packaging Diagram

Section III. INSTALLATION INSTRUCTIONS

2-5. Installation Instructions.

a. Press pressure relief valve on each transit case.

b. Remove SPU from transit case.

c. Remove tape reader from transit case.

d. Remove cables from transit case.

e. Press pressure relief valves and remove instrument case covers from SPU and tape reader.

f. Set test equipment on suitable work surface.

Section IV. PRELIMINARY ADJUSTMENT OF EQUIPMENT

2-6. General. The preliminary adjustments of the PADS test set consist of performing the self-test procedures described in paragraph 8-9.

CHAPTER 2

SERVICE UPON RECEIPT AND INSTALLATION

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a. The items comprising the PADS test set are packaged in three containers: one container for the SPU and transit case; a second container for the tape reader and transit case; and a third container for the buffer unit, cables, card extractors, tape reel, and transit case. See figure 2-1 for a typical packaging diagram.

b. Unpack items from containers as shown in figure 2-1.

c. Press transit case pressure relief valve.

d. Remove equipment from transit cases.

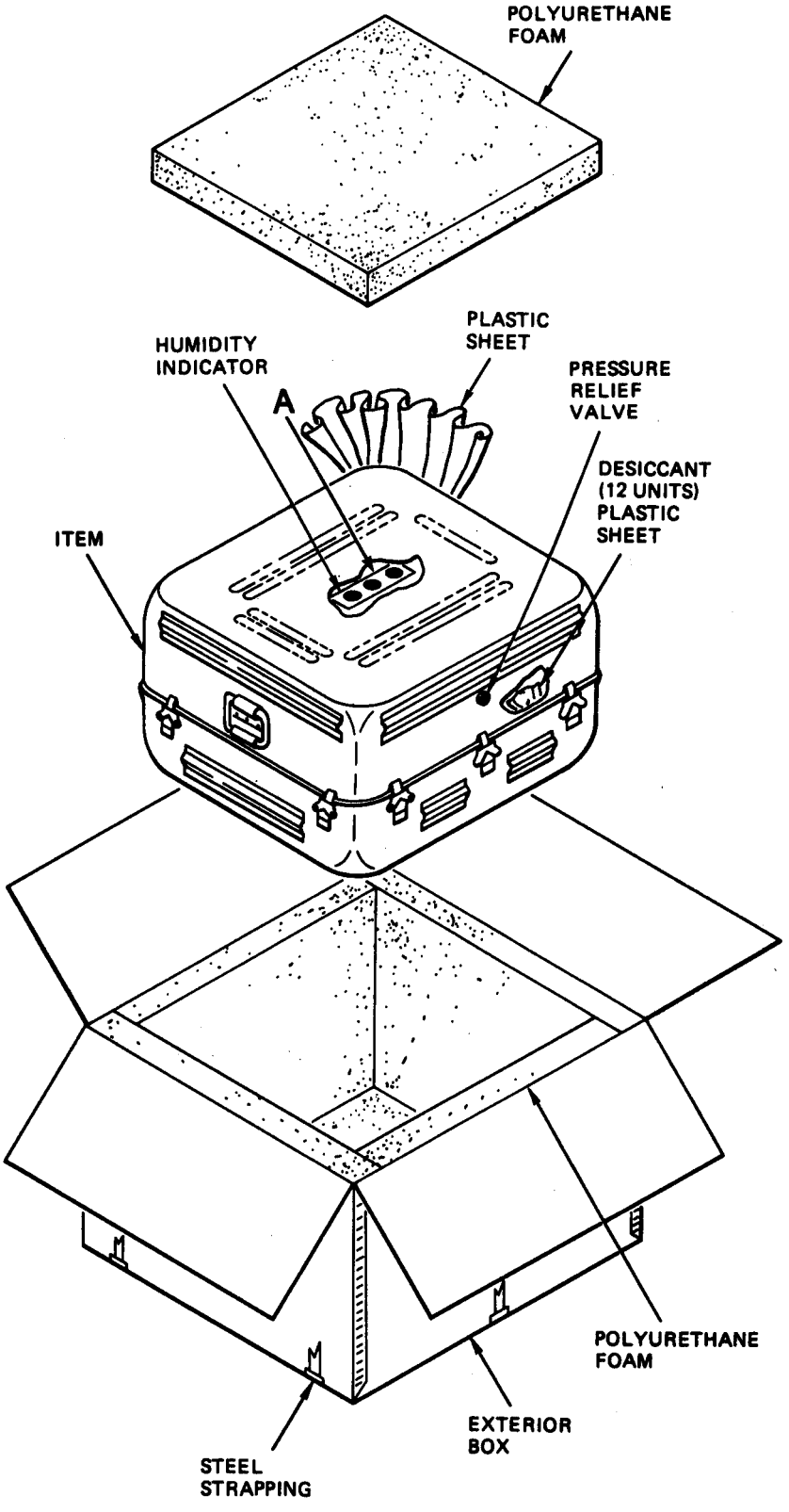
2-4. Checking Unpacked Equipment.

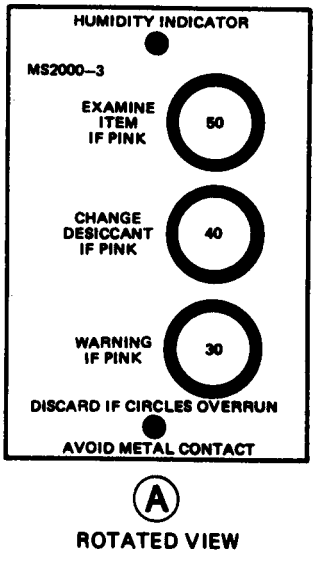
a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6 (Packaging Improvement Report). Marine Corps users will report damage on DD form 6 in accordance with MCO 4430.3, Report of Item and Packaging Discrepancies (ROD).

b. Check the equipment against the component listing in appendix B and the packing slip to see if the shipment is complete. Report all discrepancies in accordance with paragraph 1-2. The equipment should be placed in service even though a minor assembly or part that does not affect proper functioning is missing. Marine Corps personnel will submit SF 361, Discrepancy in Shipment Report (DISREP) as prescribed by MCO P4610.19C.

c. Check to see whether the equipment has been modified. (Equipment which has been modified will have the MWO number on the front panel, near the nomenclature plate.) Check also to see whether all currently applicable MWO'S have been applied. (Current MWO'S applicable to the equipment are listed in DA PAM 750-10, or for Marine Corps users in SLl-2/SLl-3).

d. For dimensions, weights, and volume of packaged items, see SB 700-20.





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ROTATED VIEW

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Figure 2-1. Typical Packaging Diagram

CHAPTER 3

OPERATING INSTRUCTIONS

Section I. CONTROLS AND INSTRUMENTS

3-1. General. This section describes the function of the PADS test set operator controls and indicators.

3-2. Damage from Improper Setting. No combination of control settings will cause damage to equipment or create hazard to personnel.

3-3. Controls and Indicators. The PADS test set controls, indicators, and connectors are illustrated in figures 3-1 thru 3-3. Table 3-1 lists the contros, indicators, and connectors with functional descriptions.

Section II. OPERATION UNDER USUAL CONDITIONS

3-4. General. The PADS test set is operated normally to test and troubleshoot the PADS computer, CDU, and IMU and to perform a self-test of the test set. Operation for performing test and troubleshooting procedures on the PADS equipment is contained in the PADS maintenance manual TM 5-6675-308-34 or TM 08837A-34/2). A teletypewriter is used with the PADS test set during testing and troubleshooting of the PADS. For complete operation of the teletypewriter, refer to chapter 9 and TM 11-5815-200-12. Under normal conditions, self-test of the PADS test set should be performed after installation, monthly when in continuous use, before each PADS test when used every other day, or when the PADS test set operational status is questionable. The following paragraphs contain operating procedures for preparing the PADS test set to run the self-test procedure contained in chapter 8.

3-5. Operating Procedure. Since the PADS test set is a special purpose test set, the operating procedures are included with the test procedures for the PADS computer, CDU, and IMU in TM 5-6675-308-34 or TM 08837A-34/2. In addition, turnon and turnoff of the PADS test set is included in the test procedures in this manual.

3-6. Tape Reader, Part No. 877406-1, Tape Loading. See figure 3-2 and perform the following:

CAUTION

Do not physically restrain the tape reader tape reel from turning. Do not use any kind of adhesive tape to hold the tape onto the reel being loaded. Do not use deformed tape reels. Severe damage to the tape reader servo cards may result.

a. Ensure that tape reader SPOOLING switch is set to DISABLE.

b. Install self-test tape (left) and take-up reel (right) and fasten reel locking clips.

c. Route self-test tape carefully as shown in figure 3-2.

3-6.1 Tape Reader, Part No. 877406-2, Tape Loading. See figure 3-2.1 and perform the following:

a. Lift read head cover to up position.

b. Load self-test tape on left side, thread tape through read head ensuring that tape is between LED's and read head, and sprocket teeth are aligned on both sides.

c. Manually move tape until arrows on tape are past read head.

d. Gently lower read head cover. Tape reader has now recorded this as HOME.

e. Wrap tape around take-up reel. Ensure that tape has been threaded as shown in figure 3-2.1.

3-7. IMU/Computer/CDU Testing Concepts. The PADS test set is utilized to check out the PADS on a system level as well as checking out the IMU, computer, and CDU on an individual basis with an operational PADS power supply and teletypewriter connected. To perform IMU and CDU checkout, an operational computer, power supply, and teletypewriter must be connected to the PADS test set. The computer is tested by loading a diagnostic program into the computer memory, then performing the necessary tests, the results of which are printed out on the teletypewriter. During computer testing a malfunction can be isolated to a plug-in module. In addition, the PADS test set is

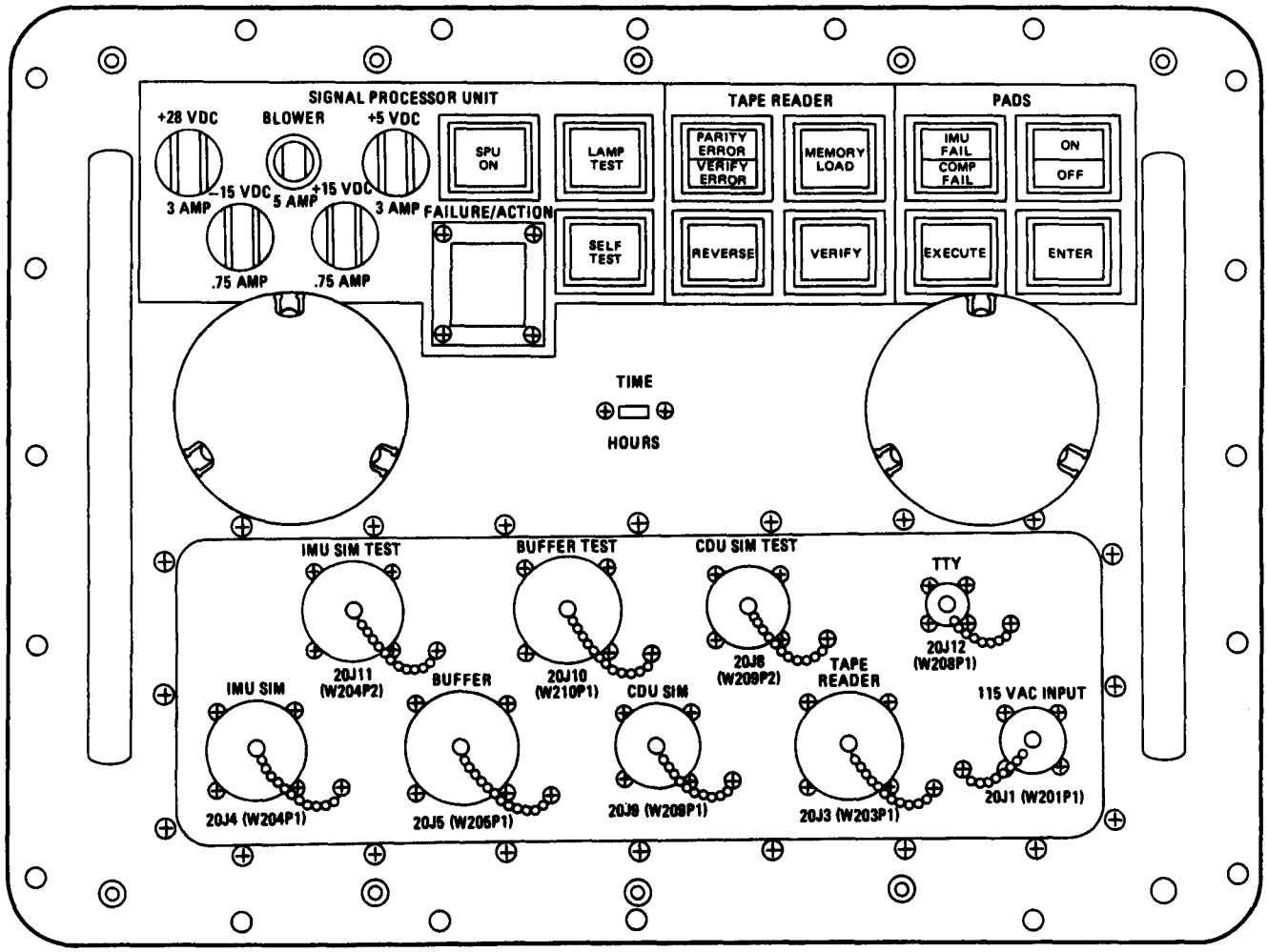

Figure 3-1. Signal Processor Unit Controls, Indicators, and Connectors

utilized to load an operational program and IMU alignment data into the computer memory. CDU testing involves loading the diagnostic program into the computer memory and then performing the required test, Malfunctions can be isolated to a CDU plug-in module or front panel assembly. An operational computer must also be connected to the PADS test set while performing CDU testing. For PADS testing, troubleshooting, and alignment procedures, refer to TM 5-6675-308-34 or TM 08837A-34/2

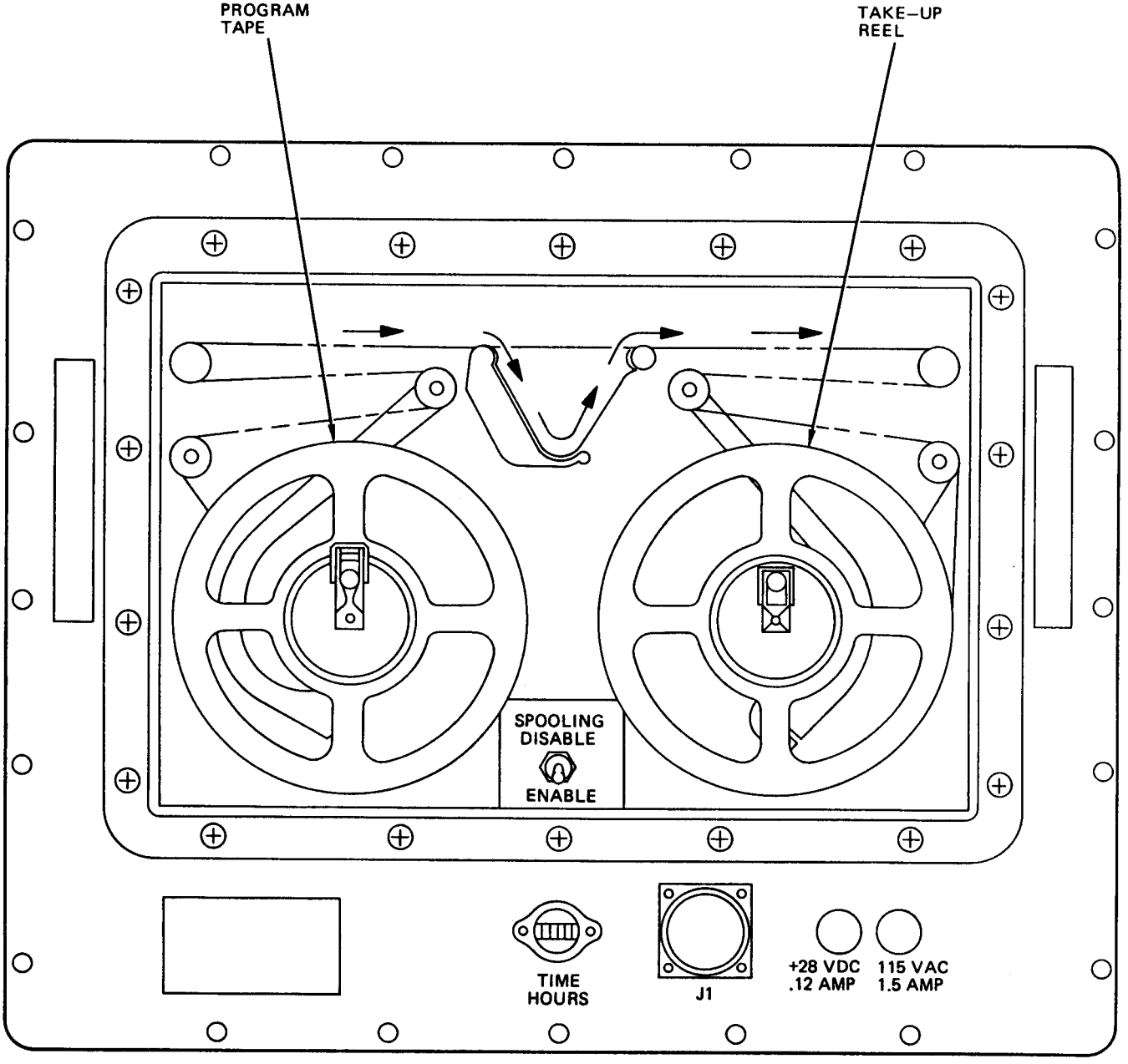

Figure 3-2. Tape Reader, Part No, 877406-1, Controls, Indicators, and Connectors

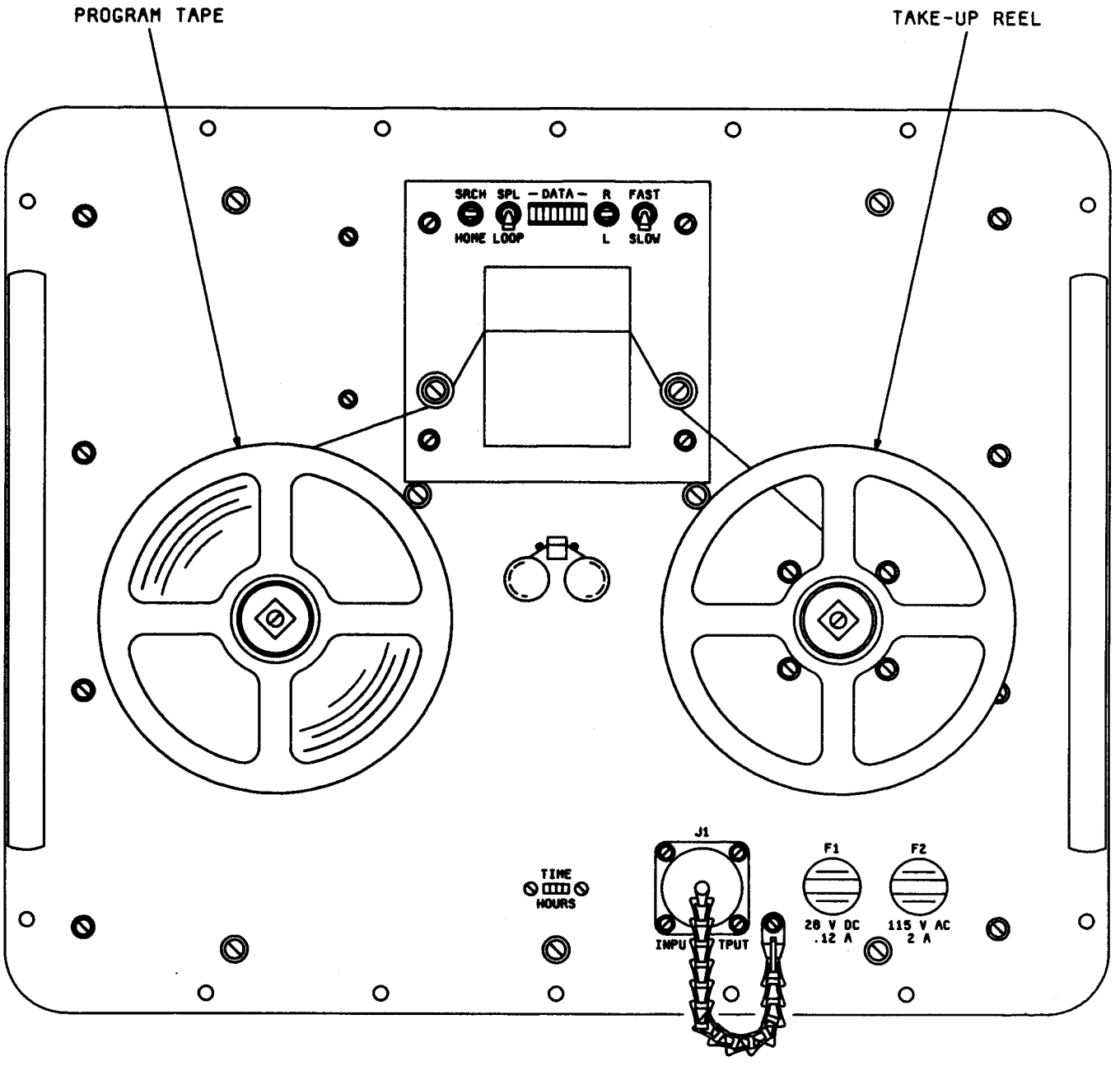

Figure 3-2.1 Tape Reader, Part No. 877406-2, Controls, Indicators, and Connectors

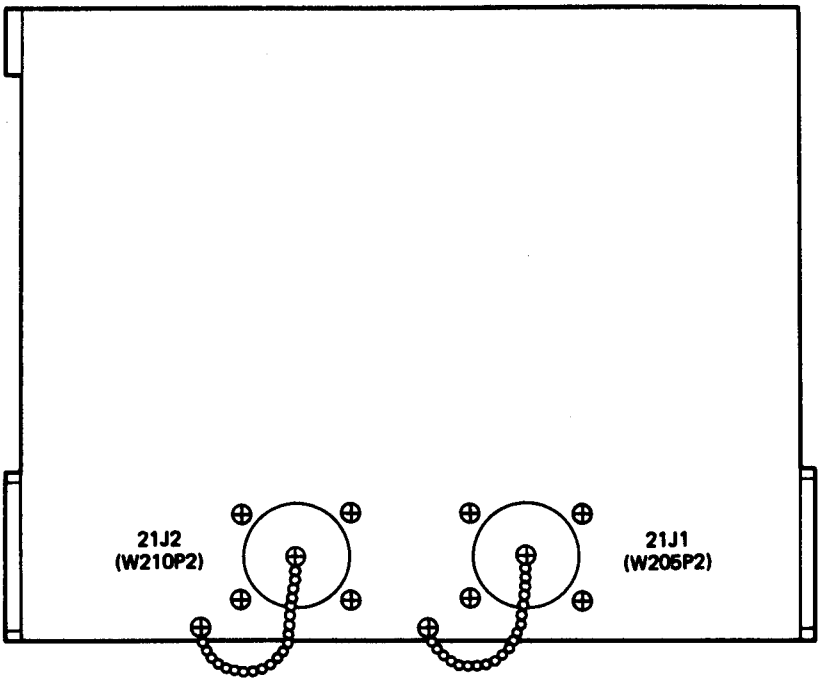

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Figure 3-3. Buffer Unit Connectors

Table 3-1. PADS Test Set Controls, Indicators, and Connectors

NOTE

This table covers only items used by the operator; items used by higher level maintenance personnel are covered in instructions for the appropriate maintenance level.

Control, indicator, or connector	Function
Signal processor unit (figure 3-1)	
+28 VDC fuse indicator	Lights when fuse in + 28V power supply AC line has blown
BLOWER fuse indicator	Lights when fuse in blower inverter power line has blown
+ 5 VDC fuse indicator	Lights when fuse in + 5V power supply AC line has blown
-15 VDC fuse indicator	Lights when fuse in -15V power supply AC line has blown
+15 VDC fuse indicator	Lights when fuse in + 15V power supply AC line has blown
SPU ON switch-indicator	Controls application of primary AC power to the SPU and lights when power is applied
FAILURE/ACTION indicator	Indicates the cause of a failure or operator action required during SPU self-test
LAMP TEST switch	Causes all front panel indicators to light when pressed and a sequence of numbers to be displayed on FAILURE/ ACTION indicator. Does not function when SELF TEST switch-indicator is activated
SELF TEST switch-indicator	Used to activate SPU self-test. Lights when activated. Does not function when in lamp test
PARITY ERROR/VERIFY ERROR indicator	PARITY ERROR lights if a parity error occurs while the SPU is reading tape or while being addressed by the computer serial data bus. A tape error will cause the tape reader to stop on the faulty character
	VERIFY ERROR lights if data loaded into computer memory did not verify correctly when checked against the tape data from which it was loaded. Such an error will cause the tape reader to stop on the character group which did not verify correctly
REVERSE switch-indicator	Used to reverse direction of tape on tape reader. Lights when activated
MEMORY LOAD switch-indicator	Causes tape reader control circuitry in SPU to be initialized and issues run command to tape reader, Lights when activated
VERIFY switch-indicator	Causes the computer to compare the data that was loaded into memory with the data being reread from the tape. The tape will stop on a character group that is not properly verified. Lights when activated
IMU FAIL/COMP FAIL indicator	Indicates a failure in the IMU and/or computer

Table 3-1. PADS Test Set Controls, Indicators, and Connectors - Continued

Control, indicator, or connector	Function
EXECUTE switch-indicator	Causes the computer to be reset to location zero, enables the computer clock, and releases the computer to start processing sequentially from memory location zero. Lights when computer is executing, Flashes when activated if computer does not execute
ON/OFF switch-indicator	Used to turn on computer. ON indicator lights when computer + 5V comes up. When pressed a second time it is used to turn off computer in conjunction with ENTER switch. Must be activated before the ENTER switch. OFF and ON indicator lights when OFF is pressed
ENTER switch	Used to turn off computer in conjunction with ON/OFF switch. Must be activated after ON/OFF switch-indicator is activated. Causes ON and OFF indicators to go out if computer + 5V goes down
TIME HOURS meter	Indicates total on time for SPU
115 VAC INPUT connector 20J1	Provides input connection for 115 VAC operating power
TTY connector 20J12	Provides control signal connection between TTY and SPU
TAPE READER connector 20J8	Provides control signal connection between tape reader and SPU
IMU SIM TEST connector 20J11	Provides control signal connection during SPU self-test
IMU SIM connector 20J4	Provides control signal connection between computer and SPU, and also used during SPU self-test
BUFFER TEST connector 20J10	Provides control signal connection between buffer unit and SPU during SPU self-test
BUFFER connector 20J5	Provides control signal connection between buffer unit and SPU
Tape reader, part no. 877406-1 (figure 3-2)	
SPOOLING switch	In ENABLE position allows tape reader to run upon command from SPU
	In DISABLE position tape reader will not run
TIME HOURS meter	Indicates total on time for tape reader
Connector J1	Provides power and control signal connection between tape reader and SPU
+28 VDC fuse indicator	Lights when fuse in + 28V line has blown
115 VAC fuse indicator	Lights when fuse in 115 VAC line has blown

Table 3-1. PADS Test Set Controls, Indicators, and Connectors — Continued

Control, indicator, or connector	Function
Tape reader, art no. 877406-2 (figure 3-2.1)	
SRCH/HOME switch	Momentary switch for both functions. SEARCH position allows return of tape to exact position of the character at the 1/0. This operation is functional only when tape reader has stopped. SEARCH mode automatically places tape reader in loop mode during character search. Tape reader will return to spool mode when search is complete. The HOME position returns the tape to the exact read start position, This function is operational in either direction and may be used for rewind. A HOME position is established by lifting read head cover and closing. The character under the read head at this time is the HOME character
SPL/LOOP switch	In SPL position, tape reader is ready for operation in the spooler mode. The LOOP position provides for tape reader operation with a loop or unspooled section of tape
LED display	A 10-segment indicator LED display provides both fault information and data monitoring. During normal operation, indicator 1 thru indicator 8 displays the data present at the 1/0. Indicator 10 indicates that the tape reader is ready for operation. This indicator will light after a short delay when the tape reader is turned on. If indicator 10 flashes after power is applied, a fault is indicated. Most right indicator is number 1 and most left indicator is number 10. Indicator 9 is not used
R/L switch	Provides manual drive right or manual drive left. Tape reader will drive in direction selected as long as switch is held
FAST/SLOW switch	Selects rate for tape reader operation. FAST position allows reader operation up to 600 characters per second. SLOW position allows tape reader operation of 125 characters per second
TIME/HOURS	Indicates total on time for tape reader
INPUT/OUTPUT connector J1	Provides power, control, and data signals connection between tape reader and SPU
+28 V DC fuse indicator	Lights when fuse in + 28V line has blown
115 V AC fuse indicator	Lights when fuse in 115 VAC line has blown
Buffer Unit (figure 3-3)	
Connector 21J1	Provides control signal connection between buffer unit and SPU
Connector 2112	Provides control signal connection between buffer unit and computer

Section III. OPERATION UNDER UNUSUAL CONDITIONS

3-8. Operation Under Emergency Conditions. There are no-operations under emergency conditions applicable to the PADS test set.

3-9 Operation at Temperature Extremes. Temperatures affecting operations of the PADS test set include both the operating temperature extremes and the nonoperating temperature extremes. The chart below lists the extremes for operation and exposure of the PADS test set without degradation in performance.

	Operating Temperatures	Nonoperating Temperatures
Minimum	0°C (+32ºF)	-46°C (-50°F)
Maximum	+50ºC (+125ºF)	+71°C (+160ºF)

Section IV. PREPARATION FOR MOVEMENT

3-10. General. Preparation for movement of the PADS test set consists of disconnecting the interconnecting cables and placing the equipment into their respective transit cases.

3-11. Preparation for Movement. Prepare the PADS test set for movement as follows:

NOTE

SPOOLING switch is only on tape reader, part no. 877406-1.

a. Check that equipment has been shut down by setting tape reader SPOOLING switch to DISABLE and pressing SPU ON switch-indicator to off.

b. Disconnect all interconnecting cables.

c. Place cables, buffer unit, card pullers, and tape reel into their transit case.

d. Place covers on SPU and tape reader instrument cases.

e. Place SPU into its transit case.

f. Place tape reader into its transit case.

CHAPTER 4

OPERATOR/CREW MAINTENANCE INSTRUCTIONS

Operator/crew maintenance of PADS is not authorized for the PADS test set.

CHAPTER 5

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Organizational maintenance for PADS is not authorized for the PADS test set.

CHAPTER 6

FUNCTIONING OF EQUIPMENT

Section I. HARDWARE DESCRIPTION

6-1. General. This section describes the function of the PADS test set. An overall general block diagram description is given, then detail descriptions are given for each functional section. A block diagram and functional block diagrams are included where necessary to support the text.

6-2. PADS Test Set Function. The PADS test set is capable of automatically testing the PADS computer input/output signals. A block diagram of the PADS test set is shown in figure FO-1. Communication with the computer is via the serial data bus, IMU simulation, CDU simulation, and direct memory access/CPU bus. The buffer unit is required between the SPU and computer for conditioning of the direct memory access and teletypewriter communication signals. The computer serial data bus has control over the SPU serial data bus control logic for decoding computer signals at the proper times. The serial data bus control logic has control over all loop closer circuits (except Δω ΔV). This activates these circuits for a transmit or receive mode of operation. When the serial data bus loop closer has been activated, it receives an address word from the computer. The address is decoded and transmitted back to the computer as an inverted address word. IMU simulation signals representing gyro torquing are sent from the computer to the Δω ΔV loop closer. These signals are converted to velocity signals and sent back to the computer. The clock generator in the Δω ΔV loop closer provides synchronization within this section. The clock generator also supplies a clock pulse to the computer to synchronize various functions. The Δω ΔV loop closer runs continuously in response to computer signals from the IMU simulation bus, and is not under serial data bus control. The computer sends a digital word to the digital/DC loop closer for conversion to an analog signal. This analog signal is routed back to the computer for a comparison check to ensure that the computer is functioning correctly in this area. An angle data word from the computer is sent to the digital/resolver and digital/synchro loop closer for conversion to a resolver or synchro signal. The converted signal is routed back to the computer where it is reconverted to digital and compared to the angle that was sent, The computer discrete loop closer is used to close the discrete line loop between the SPU and computer. This allows the computer to test the IMU discrete signals.

a. The SPU can be used with or without a CDU connected to the computer. For the SPU to perform the CDU functions, a fail discrete status and on/off-enter logic has been incorporated in the SPU. This logic circuit provides on/off, enter, and fail status for the computer in the absence of a CDU.

b. The SPU supplies all power and control functions to the tape reader. The tape reader is utilized for computer memory fill and verify. The memory fill and verify function processes data from the tape reader tape that is to be loaded into the computer memory via the direct memory access bus. The data is then verified to ensure that it was loaded into memory correctly. During self-test, the tape reader provides data from a self-test tape to exercise the various functions within the SPU.

c. The teletypewriter communicates with the computer via the SPU teletypewriter control circuitry and computer data bus. The teletypewriter control circuitry converts teletypewriter serial data to parallel data for transmission to the computer. Computer parallel data sent to the teletypewriter is converted to serial data by the teletypewriter control circuitry.

d. Provided within the SPU is a built-in test equipment (BITE) circuit permitting a self-test to be performed. When self-test is activated, the various functional sections in the SPU are exercised by data from a self-test tape.

e. Power supplies in the SPU generate +5, + 15, +28, and -15V. All these voltages are used in the SPU, + 28V is used in the tape reader, and + 5V is used in the buffer unit during self-test.

6-3. Signal Processor Unit Function. The SPU contains the following functional circuits: serial data bus control logic, serial data bus loop closer, Δω ΔV loop closer, digital/dc loop closer, digital/resolver and digital/synchro loop closer, computer discrete loop closer, fail discrete status and on/off-enter logic, tape reader control logic, memory load and verify logic, teletypewriter control logic, built-in test, and power supplies. The following paragraphs briefly describe each function.

a. ***Serial Data Bus Control Logic.*** The serial data bus control logic is functionally illustrated in figure FO-2 and is contained on logic no. 3 electronic component

assembly A3. Control over the SPU loop closer functions is via the computer serial data bus. The serial data bus consists of the signals listed in table 6-1. The computer addresses a specific section in the SPU. The address word is accumulated in a 17-bit register (16 bits plus parity) and is decoded by the timing and control logic. The timing and control logic sets up the signal to enable decoding at the proper times. Only the section whose fixed address corresponds to the address word just received will become active, See figure 6-1 for address word format, The section that is activated is one that corresponds to the main address, subaddress, and mode control bits of the address word. The addresses for the SPU are shown in table 6-2. Once a section is activated, it is put into a mode of operation for either receiving or transmitting data. When a section is activated, the data envelope control signal is sent from the computer, or the address alone is sufficient and no data follows. If the data word to the specific section in the SPU has a parity error, an error flag will be sent and the data will not be used. The parity error will be placed into an assigned bit position in the parity status word (see figure 6-1) by the timing and control logic. The parity status word will only be processed by the SPU upon request from the computer for parity status (see table 6-2). If any address word from the computer has a parity error, the SPU address parity error latch is set. This error is sent back to the computer via the status register as bit 5 of the parity status word. No section in the SPU is activated if an address word parity error occurs except for the parity-error indicator. Successive addresses without parity error will be processed normally. The computer must periodically check to ensure that no address parity has occurred; otherwise data sent to the SPU following an address parity error would be ignored. Once the computer checks for parity errors, all the data parity latches as well as the address parity error latch are reset and normal information flow is restored.

b. ***Serial Data Bus Loop Closer.*** The serial data bus loop closer is functionally illustrated in figure FO-3 and is contained on logic no, 3 electronic component assembly A3. The loop closer address word is received from the computer by differential line receivers, providing no parity error has occurred. The loop-around circuitry decodes the address word and transmits the inverted address word back to the computer as data. Logically, the bits are inverted, but, electrically, the transmitted word is identical to the address word. The computer sends out positive logic with odd parity and receives negative logic with even parity, The transmission is synchronized by the clock and data envelope signals from the computer. The bits in the address word which activate the loop closer function are bit 0 in state 1, bit 1 in state 0, bit 2 in state 0, and bit 15 in state 1. All other bit positions in the address will be variable under computer control.

c. ***Δω ΔV Loop Closer.*** The Δω ΔV loop closer is functionally illustrated in figure FO-4 and is contained on logic no. 3 electronic component assemblv A3. The $\Delta\omega_X$, $\Delta\omega_Y$, and $\Delta\omega_Z$ signals from the computer represent gyroscope torquing rates and are applied to differential line receivers in the SPU, The $\Delta\omega_X$, $\Delta\omega_Y$,,and $\Delta\omega_Z$, generator in the SPU convert these torquing rate signals into velocity signalsω_X, $\Delta\omega_Y$, and $\Delta\omega_Z$. These velocity signals are transmitted from differential line drivers to the computer, The differential line drivers are tristate devices and are operated in a continuous enable mode. A 2.4-kHz clock is generated in the SPU to synchronize the $\Delta\omega_X$, $\Delta\omega_Y$, and $\Delta\omega_Z$ generators, The 2.4-kHz clock is also sent to the computer to synchronize various functions. The Δω ΔY l loop closer circuitry operates continuously under computer program control and does not need any external control from the serial data bus,

d. ***Digital/DC Loop Closer.*** The digital/DC loop closer is functionally illustrated in figure FO-5 and is contained on logic no. 2 electronic component assembly A2. The computer sends a specific address via the serial data bus control logic to activate the digital/DC loop closer circuitry. The computer then sends the specific 14-bit digital word that will be converted to analog. Upon receipt of the correct address word with no parity errors, the active and receive enable lines from the serial data bus control logic are activated. In addition, bit 15 of the data word is utilized to select either the V lamp line from the computer or the digital/DC converter output for the lower gyro temperature signal to the computer. A relay is used to perform the switching of the selected signal. The 14-bit data word from the computer is converted to an analog signal and routed back to the computer for comparison. The computer compares the original data word with the data word just received and then activates a failure flag if a no-go condition is evident. V lamp is an analog signal that is compared to the returned analog signal within the computer, A no-go is flagged if the comparison is not correct, If all analog signals are within tolerance of the expected values, the computer is considered to be operating correctly in this area and the next test is started. For computer protection, no converter output can go to the computer until computer + 5V is detected,

e. ***Digital/Resolver and Digital/Synchro Loop Closer.*** The digital/resolver and digital/synchro loop closer is functionally illustrated in FO-6 and is contained on logic no, 2 electronic component assembly A2. The computer sends an address to activate the digital/resolver and digital/synchro loop closer circuitry, then sends a 4-bit angle which is to be used for the test. Upon receipt of the correct address with no parity errors, the active and the receive enable lines are activated. In addition, bits 10, 11, and 12 of the address word are decoded and used to select the phase of the 26-VAC reference signal. The data word is sent to the

Table 6-1. Serial Data Bus Signals

Signal name	Characteristic
Address/data	Two-wire serial lines carrying 16-bit serial addresses or 16-bit serial data are either received in the SPU by a differential receiver, or are sent from the SPU by a differential tri-state driver. Either a 16-bit serial address or 16-bit serial data can be received by the SPU. 16-bit serial data can be sent by the SPU. All sent or received information is gated with the clock signal
Clock	A differential 250-kHz signal from the computer. Used to synchronize all information and control lines
Data envelope	Differential control lines from the computer. When the data envelope signal is in the one state, the information on the address/data lines is interpreted by the SPU as data
Address envelope	Differential control lines from the computer. When the address envelope signal is in the one state, the address/data lines represent address information

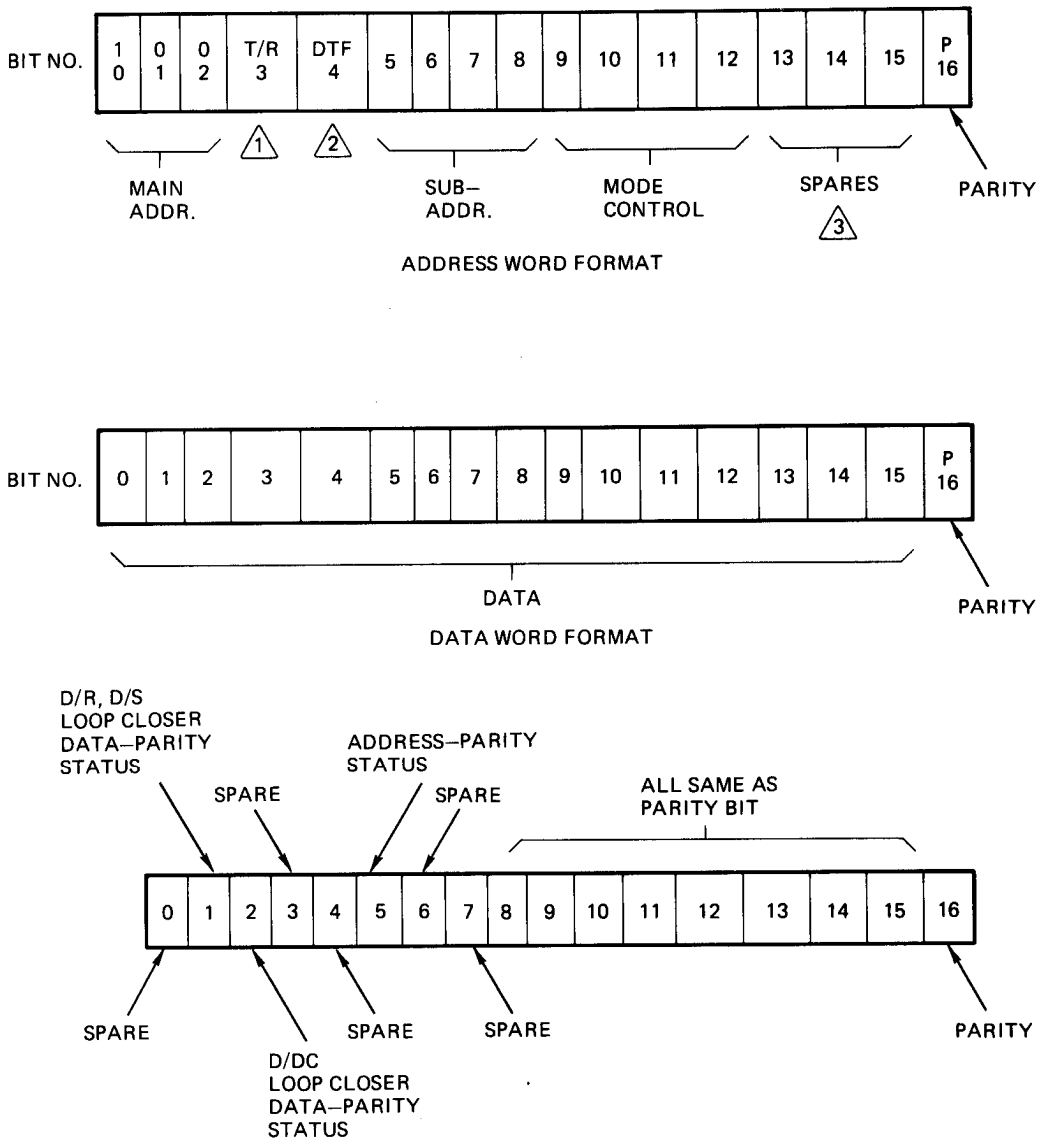
SPU by the computer immediately following the address word. The data word is converted into either resolver or synchro signals and routed back to the computer on parallel data lines.

f. ***Computer Discrete Loop Closer.*** The computer discrete loop closer is functionally illustrated in figure 6-2 and is contained on logic no.3 electronic component assembly A3. The IMU discrete signal lines are tested by the computer by loop closing logic in the SPU. Since there are more computer output discretes than input discretes, the output discretes must be multiplexed onto the input discrete lines for the test. Output discrete groups 1, 2, 3, and 4 (refer to table 6-3) are applied to line receivers, then multiplexed and sent back to the computer from line drivers as input discrete lines 1 through 8 (refer to table 6-3). The multiplexing is under control of the computer serial data bus. The status of the output discrete lines is entered into the computer as bits in the input discrete word. Each line is directly monitored by the computer. For computer protection, no SPU synchro or resolver outputs to the computer can be present until the computer +5V is detected.

g. ***Fail Discrete Status and On/OFF-Enter Logic.*** The fail discrete status and on/off-enter logic is functionally illustrated in figure FO-7 and is contained on logic no. 3 electronic component assembly A3 and the SPU front panel. The SPU takes the place of the CDU whenever a CDU is not present. Since the fail indicators must operate when all prime system power fails, they are powered by an auxiliary 24-VDC source in the PADS power supply. The 24-VDC is converted to V lamp in the computer and is then used in the CDU to power the COMP and IMU indicators. The SPU has its own power source during prime equipment checkout so drivers are used in the SPU to drive the COMP FAIL and IMU FAIL indicators. The ON/OFF and ENTER switches in the SPU are connected to simulate the ON/OFF and ENTER switches in the CDU. This enables the SPU to turn on the computer when a CDU is not present. These switches supply a momentary ground to circuitry in the computer. The switches have anti-bounce circuitry associated with them.

h. ***Tape Reader Control Logic.*** The SPU controls the tape reader with frent panel switches. The SPU also supplies all power to the tape reader via a front panel connector. The tape reader is bidirectional in operation, Forward and reverse direction of the tape reader is controlled by the SPU MEMORY LOAD and REVERSE switch-indicators respectively.

i. ***Memory Load and Verify Logic.*** The memory load and verify circuits are functionally illustrated in figure FO-8 and are contained on logic no. 1 electronic component assembly Al. The SPU utilizes the tape reader to fill and verify computer memory. The fill and verify functions are under hardware control in the SPU and are also under hardware control in the computer via the direct memory access (DMA) bus. Data is loaded into memory, a word at a time, and each word transfer is done via a complete DMA input cycle. The loaded data is then verified by comparing each word which is read back from memory, via a complete DMA output cycle, to the data being reread from the punched tape. Five tape American Standard Code for Information Interchange (ASCII) characters are required to load a single 16-bit memory word. The fifth tape character identifies the first four characters as being addresses or data information. Each character uses four data bits per character as information to be loaded sequentially into a 16-bit register. The remaining four bits per character



NOTE: PARITY–STATUS WORD TO COMPUTER

1. TRANSMIT/RECEIVE (T/R) BIT NO. 4
2. DATA–TO–FOLLOW (DTF) BIT NO. 5
3. SPARES EXCEPT FOR SERIAL DATA LOOP CLOSER

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Figure 6-1. Serial Data Bus Data Word Utilization

Table 6-2. SPU Serial Address Word and Data Word Bit Usage

Functional segment	Address bits Maj	T/R	DTR	Sub	Mode control bits in address word	Data in the data word which follows address word	Comments
Serial data loop closer	**100**	**NA**	**NA**	NA	Bits 3 thru 14 are used in various patterns. Bit 15 must be a 1	SPU sends back to computer exactly what was in the address	After sending this address word to SPU, the computer is required to input one word from SPU when the data envelope is present
IMU discretes loop closer	100	0	1	0010	0010 to 0111	NA	After sending each address word the computer reads its input discrete word (this is a parallel data word which receives status data from the input discrete lines). A total message consists of the computer sending four address words and accompanying discrete output data. The computer then reads the corresponding four groups of parallel discrete input data
D/S and D/R converter loop closer	100	0	0	0011	0001 to 0101	14 most significant bits are to be used. Also check parity	After sending each address word, the computer sends one data word. The computer must also read the appropriate IMU roll, pitch, and heading lines which correspond to the address and data word that was sent
D/DC converter loop closer	100	0	0	0100	NA	14 most significant bits are to be used. Also check parity. Bit 15 is 1 or 0 as desired	After sending each address word, the computer sends one data word. The computer must then read-in the analog parameter which corresponds to the address and data word that was sent
Parity status word	100	1	1	0101	NA	The 8 most significant bits are to be used for parity status as required	After sending the address word, the computer will read the parity status data word. This will be done periodically. Each functional segment will enter its status bit in a specific bit location in the data word

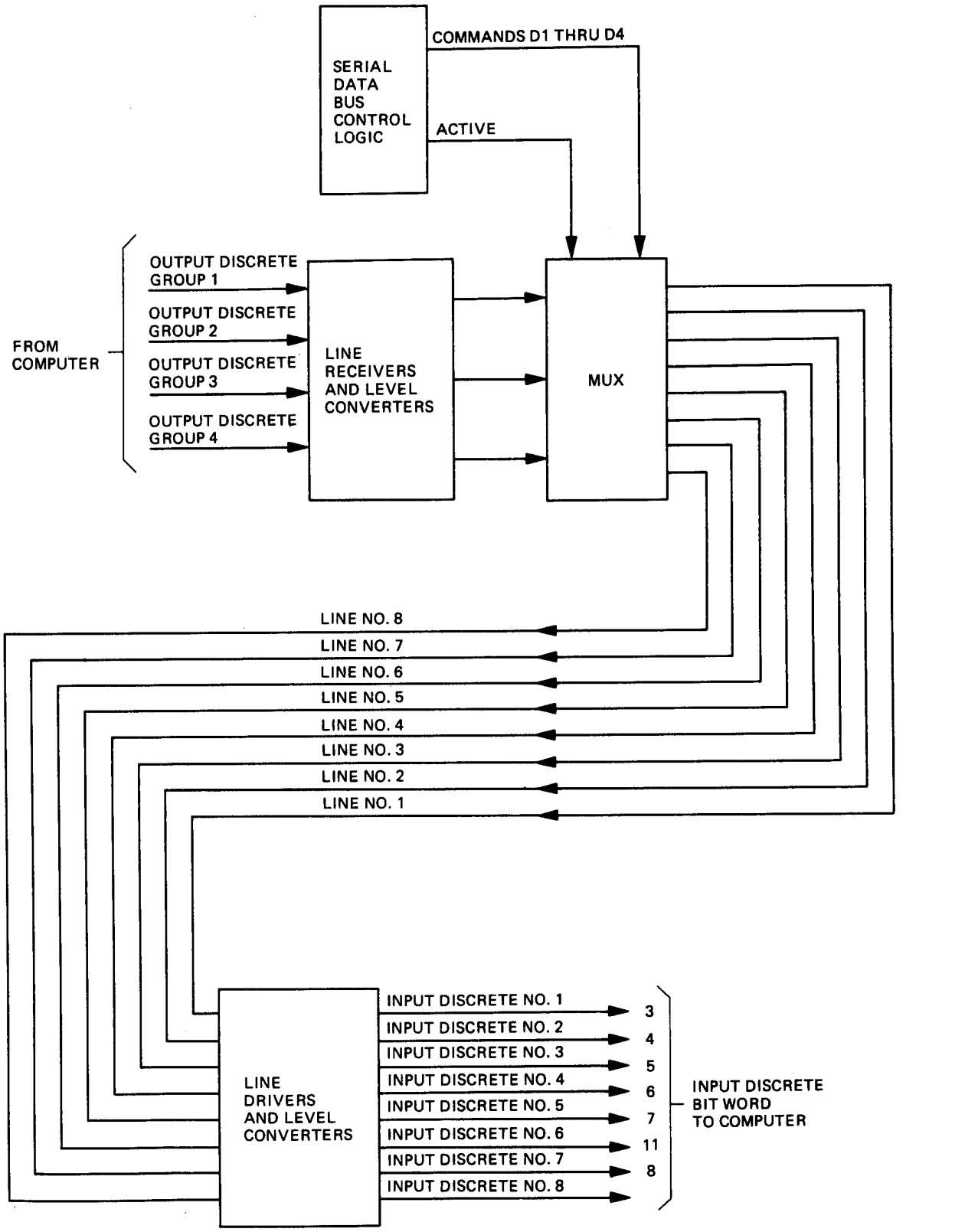

Figure 6-2. Computer Discrete Loop Closer Functional Block Diagram

Table 6-3. Input/Output Discrete Signals

Output group no.	Output discrete signal name	Bit in input discrete word	Input discrete signal name	Notes
1	IMU flag set	3	IMU ready	Each output discrete signal in this group (except spares) is directly under computer control (i.e., it is represented as a bit in the output discrete word); hence, this group of output signals is used to test the input discrete lines in both the 1 and 0 states
	CDU flag set	4	Accelerometer coarse heater on	
	IMU flag reset	5	Gyro coarse heater on	
	CDU flag reset	6	Gyro float to temperature	
	X and Y gyro fast slew	7	Spare no. 1	
	Z gyro fast slew	11	Spare no. 3	
	Spare	8	Spare no. 2	
	Spare	None	IMU fail (from IMU)	
2	Spare	3	IMU ready	The power on reset signal is a pulse and must be stored in a latch in the SPU
	Spare	4	Accelerometer coarse heater on	
	Power on reset	5	Gyro coarse heater on	
	Charge	6	Gyro float to temperature	
	Battery (to CDU)	7	Spare no. 1	
	Computer fail	11	Spare no. 3	
	Spare	8	Spare no. 2	
	Spare	None	IMU fail (from IMU)	

Table 6-3. Input/Output Discrete Signals - Continued

Output group no.	Output discrete signal name	Bit in input discrete word	Input discrete signal name	Notes
3	IMU (to CDU)	3	IMU ready	The + 5V and 115 VAC must be monitored to their own returns, The + 24V aux must be monitored relative to its common return. The IMU flag set signal is sent from the computer to the SPU, then sent back to the computer as the IMU fail (from IMU) signal, then sent back to the SPU as the IMU (to CDU) signal, then finally sent back to the computer as the IMU ready signal. The computer program must compare the IMU flag set signal that is sent from the computer with the IMU ready signal that is received from the SPU
	+ 5V	4	Accelerometer coarse heater on	
	115 VAC ∠ 90	5	Gyro coarse heater on	
	Spare	6	Gyro float to temperature	
	+ 24V aux	7	Spare no. 1	
	Spare	11	Spare no. 3	
	Spare	8	Spare	
	IMU flag set	None	IMU fail (from IMU)	
4	Spares (not presently used)			

are used for data control and for character parity. Parity is checked for each character. A parity error causes the tape reader to stop. The tape will stop on the character in error. The first four tape characters are multiplexed, four bits at a time, into the 16-bit data register. When the 16-bit data register is full, that data is used to preset a binary address counter if the data is an address word. The address word is then multiplexed into the DMA circuitry, If the data is not an address word, the 16-bit data register contents are multiplexed as data bits into the DMA control circuitry. At the end of the DMA request signal, the binary address counter is advanced by one count and the next DMA cycle is started. The contents of the binary address counter are used as the current memory address to be filled or verified. Each DMA cycle requires an address followed by 16 bits of data, If the current mode is one of filling memory, the data in the 16-bit data register will be loaded into memory. If the process is a memory verification, a memory read cycle will be initiated. Filling memory is initiated by activating the MEMORY LOAD switch-indicator on the SPU front panel. This switch assures that the read/input line to the DMA control circuits in the computer will be in the input condition. When the MEMORY LOAD switch-indicator is deactivated and the VERIFY switch-indicator is activated, the same sequence of events as described above occurs, except that the read/input line to the DMA is in the read condition. This causes the DMA control circuits in the computer to read from the computer memory and input the data to the SPU. In the SPU, each DMA input word is compared to the word reread from the tape. If the two words do not agree, the VERIFY ERROR indicator is activated and the tape reader is stopped.

j. ***Teletypewriter Control Logic.*** The teletypewriter control logic is functionally illustrated in figure FO-9 and is contained on logic no. 1 electronic component assembly Al. The SPU is directly compatible with Teletype Model ASR 32 (Baudot code), The teletypewriter must be internally wired for full duplex operation, making possible simultaneous two-way communication. Since the teletypewriter interface is serial, both serial-to-parallel and parallel-to-serial converters are

utilized. The actual conversion is accomplished by a universal asynchronous receiver/transmitter (UART) module. The UART communicates with the computer via the computer data bus. The teletypewriter is controlled from the SPU using the computer DMA channel in a programmed input/output mode. To complete a single programmed input/output operation to the teletypewriter, two input/output instructions are required in the program. The first instruction of the air will always be an output to device address (DA) 15 (17 octal). The data associated with the first instruction must be a command word and will be strobed into the UART control register. This control word initiates the UART send/receive cycle, and also enables the service interrupts if desired. The second instruction of a pair initiates the data transfer and is either an input or output, depending on the command previously loaded.

(1) The only operation that can be performed without executing two input/output instructions is INP MSR (status register interrogate), This is accomplished by executing an INP DA 15 at a time when the SPU is conditioned to expect the first of a pair of input/output instructions.

(2) To determine whether any given input/output instruction is the first or second of a pair, a flip-flop is utilized. When the flip-flop is set, it indicates that the current instruction is the first of a pair. Reset indicates second of a pair. The conditions for control of the first-second flip-flop are as follows: set if either the SPU has just gone through a power turnon, or the immediately preceding input/output instruction was an input (any type), or the immediately preceding input/output instruction was not the first of a pair; reset if the immediately preceding input/output instruction was the first of a pair. Clocking of the first-second flip-flop takes place at address time of the current input/output instruction.

(3) Typical programming sequence for the teletypewriter status operation is as follows:

Instruction	Function
INP 17	Get teletypewriter status from SPU

(4) For sending a character to the teletypewriter, the following sequence is used:

Instruction	Function
LDA CMD	Load either a 3 or 100003 into accumulator
OUT 17	Transfer accumulator contents to UART control register
LDA DATA	Load accumulator with ASCII character
OUT 17	Transfer ASCII character to UART, send to teletypewriter register

(5) After the second OUT 17 instruction, the UART will be activated to accomplish the parallel-to-serial conversion necessary to have the teletypewriter print or punch the character which was sent to it by the computer.

(6) For receiving a character from the teletypewriter, the following sequence is used:

Instruction	Function
LDA CMD IN	Load either 5000 or 105000 into accumulator
OUT 17	Put accumulator contents into UART control
INP 17	Read the UART receive from teletypewriter register contents

Upon completion of the above sequence, the ASCII character in the UART control register is received by the computer.

(7) Each of the above sequences depends on the receipt of a service interrupt by the computer. To assure that the SPU service interrupt is enabled, the following sequence is followed:

Instruction	Function
LDA CMD	Command is a value that enables the SPU service interrupt circuit
OUT 17	Actuates the SPU interrupt enable

(8) The SPU status register bits that are checked are:

Bit	Definition
0	Peripheral input /output operation complete
1	Teletypewriter on-line
2	Teletypewriter input ready
3	Teletypewriter transmitter not busy

Bit 0 will change from false to true logical state whenever bit 1, 2, or 3 change from the false to the true state, Bit 0 will change back to the false state on an INP status command.

(9) The UART serial-to-parallel or parallel-to-serial timing takes place after the proper command word has been received. On the send to teletypewriter cycle, the data in the send register is converted to serial form and given start code, stop code, and timing characteristics in accordance with the type of teletypewriter involved. The SPU timing is for a five level Baudot teletypewriter. On the receive from teletypewriter cycle, the serial output from the teletypewriter is accumulated in the receive register after having the start and stop codes stripped off.

k. *Built-In Test.* The SPU contains circuitry for self-test, During self-test, the SPU must be disconnected from all external devices except the tape reader. Three cables that normally connect to the computer must be looped back and connected to test connectors on the SPU. The buffer unit cable is not looped back for self-test until the SPU FAILURE/ACTION indicator indicates to do so. When the SELF TEST switch-indicator is activated, the SPU bit circuitry and FAILURE/ ACTION indicator are enabled. In the self test mode of operation, the tape reader is controlled by the SPU BITE circuitry and the self-test tape data is made to look like computer serial data bus address and data information. Once the SELF TEST switch-indicator is activated, the self-test tape is read automatically. Each functional segment of the SPU circuitry is tested by a corresponding segment of tape information. If a failure occurs at any test segment, the tape reader will stop. The address at which the failure occurred will be displayed as a two digit number on the FAILURE/ ACTION indicator. When the computer/buffer unit circuitry internal to the SPU has been tested without a failure occuring, the tape is not automatically restarted. Instead, a special code is displayed on the FAILURE/ ACTION indicator. This code instructs the operator to deactivate SPU and connect the buffer unit cable to a test connector on the SPU. Once connected the operator again turns SPU on and then reactivates the SELF TEST switch-indicator. This action causes the tape to restart and the buffer unit self-test is performed. All tests except the one requiring manual intervention are fully automatic and cause the tape reader to continue after each test has been completed and no failures have occurred.

(1) *Tape reader control logic self-test.* The tape reader control logic self-test is functionally illustrated in FO-10 and is contained on logic no. 1 electronic component assembly Al, The tape reader data is made to look like the computer serial data bus. Therefore all computer serial data bus control and data functions performed during normal computer operation will be performed by the tape reader. The tape reader is tested by monitoring in the SPU that the proper control signals have been sent to the tape reader and that proper data has been read. This is based upon known data existing on the self-test tape, Once the tape reader has been established as good, the next data on the self-test tape is used to load a 16-bit register in the SPU. Three bits of each tape reader character are used to control the set up and timing of the register, while the next four bits are used as data to be loaded, Therefore, four ASCII characters are required to load the register. The parity bit in each ASCII character is checked. If parity is incorrect, the test is halted and the PARITY ERROR indicator is lighted on the SPU panel. After the four ASCII characters have been loaded into the 16-bit register, they are verified to be correct by comparing the loaded data to the known value that should exist based upon the data on the self-test tape. Then the 16-bit data word is recessed by special SPU built-in-test equipment (BITE) circuitry. This BITE circuitry formats the data and generates timing signals so that the output of the circuitry looks like the computer serial data bus. This serial data bus information is sent to the serial data bus control logic to control the testing of all other functional segments of the SPU.

(2) *FAILURE/ACTION indicator test.* Before doing any self-testing, the FAILURE/ACTION indicator should be checked to ensure that it is operating properly. This is done by pressing the LAMP TEST switch, This switch forces the FAILURE/ACTION indicator to sequence through 30, 20, 88, 32, and 77, If any of these numbers are not displayed, the FAILURE/ACTION indicator or its immediate drive circuit is defective and must be replaced. The sequence does not function if the buffer unit is looped back for self-test, In addition, the LAMP test switch lights all other SPU indicators except ENTER and LAMP TEST.

(3) *SPU BITE start-up circuitry for the tape reader.* When the SPU SELF TEST switch-indicator is activated, the tape reader will be sent a run and forward signal. When these signals are sent to the tape reader, they will also be monitored by redundant circuitry in the SPU. Similarly, known test data read by the tape reader is monitored and compared to the expected values. The self-test tape will have test characters spaced periodically. Whenever a test character is read successfully (as determined by redundant monitoring circuitry), a time-out counter will be reset, and testing will continue. If the time-out counter is not reset, a malfunction will be indicated. By spacing test characters on the tape, a rewind to the start of tape is not necessary whenever self-test is stopped and then restarted, If both halves of the redundant monitoring circuitry in the SPU are not exactly the same, the SPU is bad and not the tape reader, If both halves indicate a failure, the tape reader is determined to be faulty. In such a case, a special code is displayed on the FAILURE/ACTION indicator on the SPU.

(4) ***SPU basic control logic test.*** Before the various functional segments in the SPU can be self-tested, it is necessary to test the basic logic in the SPU that controls the serial data bus circuitry. This basic logic includes registers and steering logic for self-test tape data. It also includes address decode logic and parity check logic which is common to all of the SPU functional segments. By reading known address and parity data from the self-test tape and comparing that decoded parity and address to the expected parity and address, the SPU basic control logic is determined to be operating properly, or else a failure has occurred, If the SPU basic control logic is operating properly, the self-test tape is advanced to the first functional segment test. If a failure occurs in the SPU basic control logic, a special code is displayed on the FAILURE/ACTION indicator.

(5) ***Δω ΔV loop closer self-test.*** **The Δω ΔV loop** closer self-test is functionally illustrated in figure FO-11 and is contained on logic no. 3 electronic component assembly A3. The tape reader supplies data that is used for all control functions. The 2.4-kHz clock is gated on or off by BITE circuitry control. The **±ΔV** differential line drivers are first tested statically with the clock off. Next the clock is gated on and the **±ΔV** differential line driver outputs are checked. The clock pulses should appear on all output lines, The clock circuitry is checked separately. The clock is tested for both correct amplitude and correct frequency.

(6) ***Serial dirts bus loop closer self-test.*** The serial data bus loop closer self-test is functionally illustrated in figure FO-12 and is contained on logic no. 1 electronic component assembly Al and logic no. 3 electronic component assembly A3. The tape reader sends the specific address to activate the serial data bus loop-around circuitry. The self-test tape data is used to duplicate the normal computer serial data bus data and control functions. BITE circuitry for the serial data bus loop-around circuitry are the self-test tape to serial data bus conversion logic, input data parity generation, check and store, and compare logic. The address word from the self-test tape is stored and decoded, then parity is checked. If parity is correct, a data envelope signal and a clock signal are received from the self-test tape. The data envelope signal causes the address word to be shifted out of the storage register. The address word is inverted as it shifts out and back in simultaneously. Parity is checked against the expected parity of the inverted address. If the parity of the output data from the address/data line receiver is opposite to the parity of the original address word, the serial data bus loop-around circuitry is considered good. However, if the serial data bus fails to perform certain tests, then the time-out counter is not reset causing a serial data bus failure indication. BITE circuitry then goes on to the next functional test.

(7) ***Teletypewriter control logic self-test.*** The teletypewriter control logic self-test is functionally illustrated in figure FO-13 and is contained on logic no. 1 electronic component assembly Al. BITE circuitry for the teletypewriter circuitry self-test are the self-test tape to DMA control and compare logic. The tape reader sends the specific address that activates the teletypewriter circuitry in the SPU. A universal asynchronous receiver/transmitter (UART) module is used for control of the teletypewriter. The UART normally communicates with the computer via the computer data bus. However, for SPU built-in-test, the DMA data lines that are common to the computer data bus are to communicate with the UART. After the teletypewriter circuitry has been activated via an address word from the self-test tape, a data word from the tape is loaded into the UART send register. Next, a command word from the tape is loaded into the UART control register. This control word initiates the UART send/receive cycle. On the send cycle the data in the send register is converted to serial form and given start code, stop code, and timing characteristics in accordance with the type of teletypewriter involved. For the built-in test, the serial data to the teletypewriter is wrapped back as an input to the serial data from the teletypewriter. Hence, a total SPU teletypewriter circuitry check is made without having to connect the teletypewriter to the SPU. The SPU teletypewriter self-test compares the parallel data from the UART receive register to the parallel data from the send register. If the comparison checks good, the SPU teletypewriter circuitry is considered good and the tape reader is advanced to the next SPU self-test. If the test is not successful, the FAILURWACTION indicator reads out the fault and the tape reader is halted. If the test is successful, the BITE circuitry will instruct the operator to hook up the teletypewriter. Echo checking of any character entered from the keyboard can now be made ensuring that the teletypewriter and the SPU current loops are good. If this echo-check mode is good, the next BITE test is started by pressing and repressing the SPU SELF TEST switch.

(8) ***Digital/resolver and digital/synchro loop closer self-test.*** The digital/resolver and digital/synchro loop closer self-test is functionally illustrated in figure FO-14 and is contained on logic no. 1 electronic component assembly Al. BITE circuitry for the digital/resolver and digital/synchro loop closer self-test are the self-test tape to serial data bus conversion logic, reference generator, amplifier and phase shift test circuit, precision amplifier-ratio test circuit, and overall test good or no good circuit. The tape reader sends a specific address to activate the digital/resolver and digital/synchro loop closer circuit. Then the tape reader sends the specific 14-bit angle which is used for the self-test. Since the self-test tape data is made to look like the computer serial data bus, the self-test exercises the loop closer circuitry in the same way as it

is normally operated. The output signals are wrapped back into the SPU by connecting cable W204 into SPU test connector J11. Special bit circuitry then checks the amplitude and phase shift of each signal for roll Xl, roll X8, heading Xl, heading X32, and pitch Xl. If the amplitudes and phase shifts are within tolerance, the loop closer circuitry is considered good. In addition, a precision amplitude-ratio self-test is performed on the heading Xl signals, Since the signals do not require any scaling in the driver circuits, they can be tested without using precision scaling components for self-test, Several amplitude-ratio tests are sufficient to assure that the digital/resolver and digital/synchro circuitry is operating properly and is within tolerance limits. A no-go on this test faults the entire digital/resolver and digital/synchro loop closer circuit. A local reference generator is used in the SPU to generate 26 VAC, 400 Hz for this self-test.

(9) *Digital/DC loop closer self-test.* The digital/DC loop closer self-test is functionally illustrated in figure FO-15 and in contained on logic no, 2 electronic component assembly A2. BITE circuitry for the digital/DC loop closer self-test are self-test tape to serial data bus conversion logic, V lamp analog voltage, compare logic, and voltage check circuit. The tape reader sends the specific address to activate the digital/DC loop closer circuits. The tape reader then sends the specific 14-bit digital word that is to be converted to analog, Since the self-test tape data is made to look like the computer serial data bus, the self-test exercises the loop closer circuitry in the same way as it is normally operated. The output signals are wrapped back to the SPU by connecting cable W204 into SPU test connector J11. Special bit circuitry then checks the voltage of each analog signal and compares it to the expected value, If all analog signals are within tolerance of the expected value, the loop closer circuitry is considered good. During self-test, command D1 signal causes a relay to energize, thereby connecting the lower gyro temperature signal to the output of the analog driver. This is to ensure that the relay is energizing properly. Command D2 signal energizes the compare logic for the V lamp signal. A comparison is made of the voltage on both sides of the relay. If they compare, the overall digital/DC loop closer circuit is considered operational and the tape reader is advanced to the next test.

(10) Computer discrete loop closer self-test. The computer discrete loop closer self-test is functionally illustrated in figure FO-16 and is contained on logic no. 3 electronic component assembly A3. BITE circuity for the computer discrete loop closer self-test are self-test tape to serial data bus conversion logic, SPU internal discrete voltage generator, and compare logic. The tape reader sends a specific address to activate the computer discrete loop closer circuits, When the SELF TEST switch-indicator is activated, the SPU internal discrete voltage generator signals are applied to the output discrete lines. The output discrete signals are listed in table 6-3. The SPU BITE logic applies the respective logic 1 signal to each of the output discrete lines. These lines are then multiplexed and looped back into the SPU and are checked by the compare logic to see that all lines are logic 1. For the voltage level checks, the rated value plus or minus 20 percent is considered to be a logic 1 condition. Voltages under 20 percent of the rated value are considered to be a logic 0 condition. If the logic 1 and 0 comparisons are correct, the computer discrete loop closer self-test is considered good,

1. *SPU Power Supply.* The SPU power supply generates the required dc voltages for operation of the SPU, tape reader and buffer unit (during self-test), The power supply is functionally illustrated in figure 6-3. When the SPU ON switch-indicator is pressed to on, 115 VAC turns on modular power supply PS1, The +28V generated by modular power supply PS1 energizes relay Kl, thus applying 115 VAC to modular power supplies PS2, PS3, and PS4 for turnon. To prevent damage from an overload condition, the output of each modular power supply is connected to an overvoltage protection circuit.

6-4. Buffer Unit Function. The buffer unit is functionally illustrated in figure 6-4. The buffer unit performs two main functions: first, conversion of the bidirectional single ended data bus from the computer to a bidirectional, differential, high drive capability data bus, suitable for transmission over a 10-foot cable to the SPU; second, synchronization and retiming of various control signals. The buffer unit performs the conversion of differential-to-single-ended and vice versa for the control signals but does not permit control signals to be bidirectional with the exception of the read/input signal.

6-5. Tape Reader, Part No. 877406-1, Function. The tape reader contains the following functional circuits: lamp assembly, photocell assembly, drive system and control, step/run control, forward/reverse control, and power supply, The tape reader is functionally illustrated in figure 6-5. The following paragraphs describe each functional circuit.

a. *Lamp Assembly .* The lamp assembly consists of nine special filament-aligned incandescent lamps. These lamps provide light for the photocells. One lamp is positioned over each bit position.

b. *Photocell Assembly.* Data prepunched into the tape in a single-line, 8-bit character format is read by conversion of the sensed light energy into electrical currents. The transmitted light is sensed through the nine punched holes by light-sensing photovoltiac silicon cells, The read head consists of nine photovoltaic cells used as current sinks when illuminated. These cells provide the input to an associated photocell amplifier on the photocell amplifier plug-in circuit card. For each light sensed (hole), the associated amplifier unit input

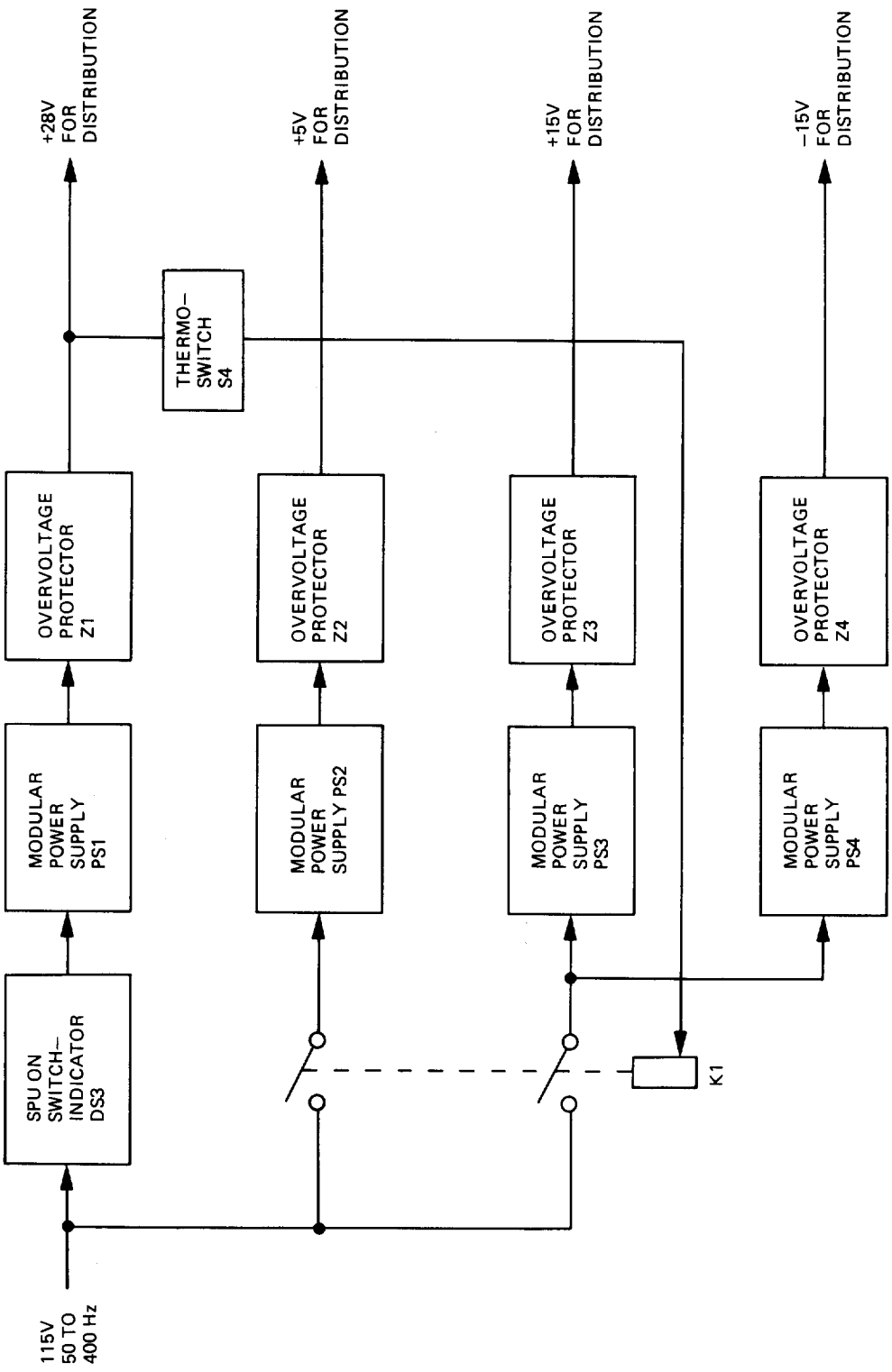

Figure 6-3. Signal Processor Unit Power Supply Functional Block Diagram

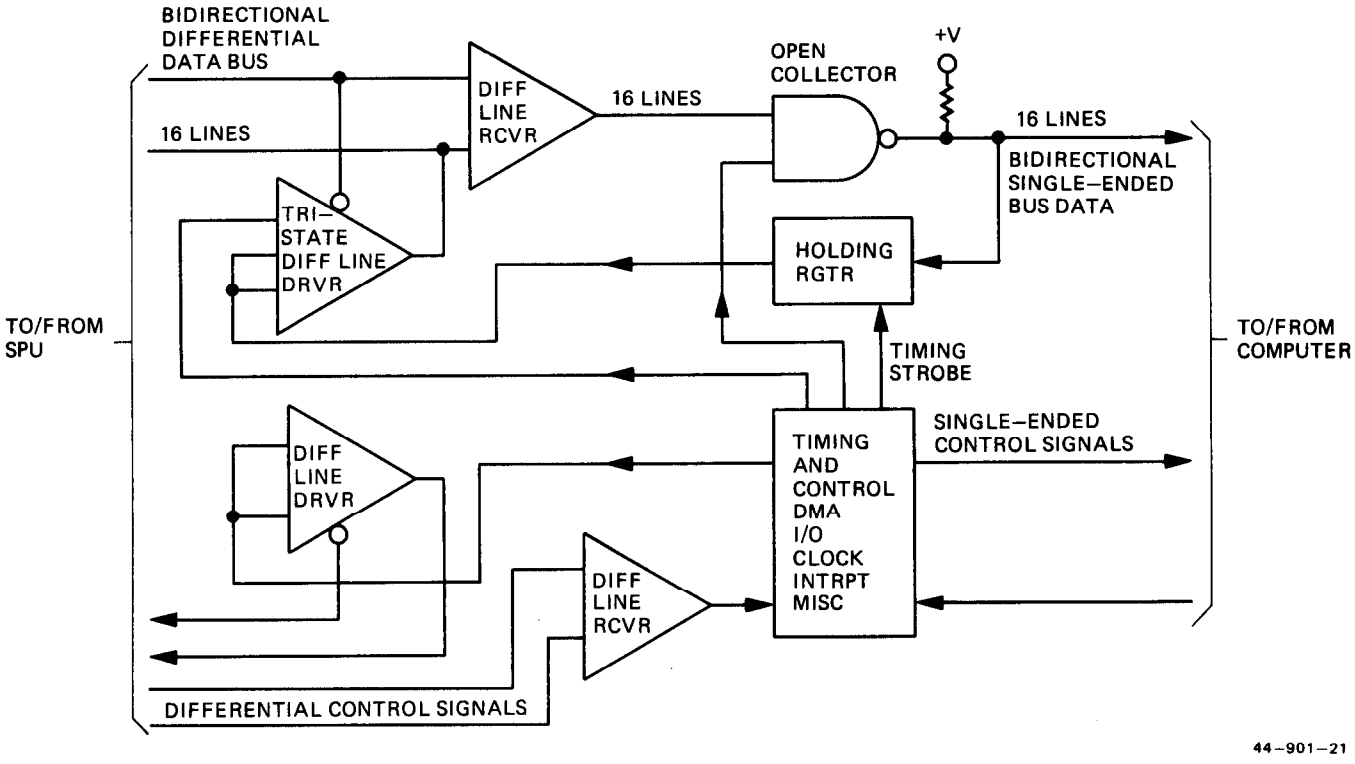

Figure 6-4. Buffer Unit Functional Block Diagram

transistor turns on, which causes the output transistor to be turned off, producing an output voltage level greater than +3.5V. For darkened inputs (no hole), the input transistor is turned off causing the output transistor to produce a voltage output of less than 0.8 VDE, The light level at which the photocell amplifier switches from off to on is determined by the setting of the input bias potentiometer for each amplifier input. The amplifier outputs are parallel transferred via connector J2 to external using equipment. Amplifier outputs are also made available at test points located on terminal board TB1.

c. ***Drive System and Control.*** The tape drive control system consists of pulse rate generator and logic plug-in circuit card, forward/reverse control plug-in circuit card, and two motor driver control plug-in circuit cards used for drive and control of step motor Bl. Also included is servo amplifier plug-in circuit card which accepts constantly varying DC inputs for bidirectional tape spooling control of spooling motors B2 and B3. Spooling disable is provided by a switch mounted on the front panel, This switch removes the +28V from all internal circuits, disabling the spooling and stopping functions. This allows removal and installation of the tape while external power is applied to the tape reader.

d. ***Step/Run Control.*** When a step command is applied to the pulse rate generator and logic plug-in circuit card, a negative-going output step trigger is generated. This action continues at the external step rate, provided the run input is at 0V. The step trigger is applied to both motor driver control plug-in circuit cards. In addition, a reverse signal is developed and imported to the forward/reverse control plug-in circuit card. When the external forward input control signal is at 0V, the output signal levels of the forward/reverse control logic are the same as the input, and the forward sequencing condition exists, When the input control signal is at + 5V, the output signal levels are inverted and the reverse sequencing condition exists. The alternating output levels are applied to the set and clear inputs of the flip-flops on each motor driver card, The flip-flops are constrained by the input gating action and provide the correct sequence of output pulses to step the stepping motor in the forward direction (counterclockwise sprocket rotation) or in the reverse direction. The flip-flop output from each motor driver card and the step trigger pulse provide control and drive to motor driver output circuits, The motor driver outputs are connected to the windings of step motor Bl.

e. ***Forward/Reverse Control.*** In the forward mode of operation, power is applied to servo feedback potentiometers R2 and R3 in a direction to supply a servo drive input voltage to an associated servo amplifier circuit on servo amplifier plug-in circuit card. The input is proportional to the amount of tape on the reels as controlled by the movement of each tape sensing

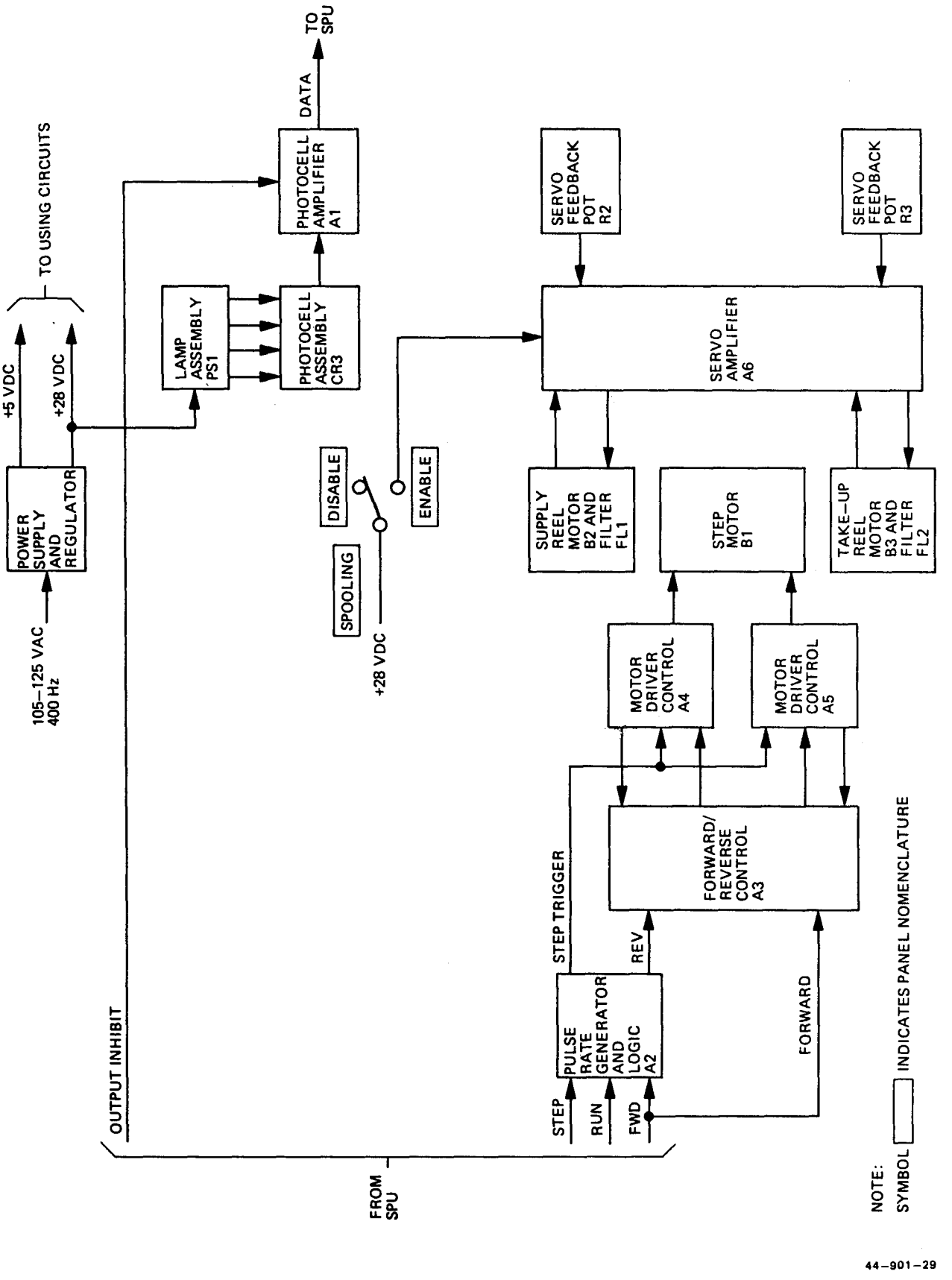

Figure 6-5. Tape Reader, Part No. 877406-1, Functional Block

arm. The corrected output voltage is within the range of 0 to + 28V and is used to drive supply reel motor B2 and takeup reel motor B3. In the reverse mode of operation, the power supplied to the spooling motors is reversed. The output from each motor driver control plug-in circuit card is reversed, step motor B1 windings are energized in reverse, and the motor advances in a clockwise direction causing tape advance from right to left.

f. *Power Supply.* Input ac voltage to the power supply is applied to a step-down transformer. The outputs of the transformer are full-wave rectified by diode bridge rectifiers. The rectified voltages are regulated to produce two + 5V and + 28V output voltages.

6-5.1. Tape Reader, Part No. 877406-2, Function. A functional description of the tape reader is contained in the following paragraphs. The tape reader is functionally illustrated in figure FO-16.1.

a. *Parallel Mode.* After all four S1 switches (accessible through rear of tape reader chassis) have been set to parallel mode of operation, the tape may be loaded and power turned on. The reader ready lamp will light after a delay of approximately 2 seconds. This delay is required to allow all slack to be removed from the tape before drive commands are applied. When the ready lamp is continuously lighted, the reader is ready for a run command.

b. *Run Operation.* A command for run operation will allow data to be read and processed to the I/O connector at a data rate dependent upon the position of the FAST/SLOW switch and the SPL/LOOP switch. When the SPL/LOOP switch is set to the LOOP position, the data process rate will be up to 200 characters per second, and is independent of the FAST/SLOW switch setting. When the SPL/LOOP switch is set to the SPL position, the data process rate will be up to 600 characters per second when the FAST/SLOW switch is set to the FAST position, and 125 characters per second when the FAST/SLOW switch is set to the SLOW position.

c. Read Direction Change. When a direction change is sensed by the reader during a run operation, a small time delay is initiated. During this delay the data buffer which may contain as many as 180 characters is emptied. The data buffer is then reloaded with data in the new direction selected. While the data buffer is being emptied and then reloaded, the microprocessor keeps track of the data load pointer which is incremented or decremented accordingly, ensuring that no character is dropped. In spool mode, the time delay involved in a direction change depends on the data buffer content and the spool inertia load.

d. *Stop-On-Character Timing.* During run operation, valid data is presented approximately 100 microseconds before the sprocket signal becomes true (positive). The leading edge of the sprocket signal is used to latch data. To stop-on-character, a run command must be removed within 750 microseconds after the sprocket signal becomes true. A run command not removed within 750 microseconds will cause the next character to be sent.

e. *Loop Mode.* The loop mode allows a short loop of tape to be read. When this mode is selected, the stepper motor is energized during a run operation while the spooling motors are disabled. Receiving a run command will cause data to be transferred at a rate of up to 200 characters per second. For each read direction change, a time delay of approximately 0.5 seconds is observed. During this delay, the sprocket signal is kept alive.

f. *Data Handling.* Two 8-bit registers (data fetch pointer and data load pointer) inside the microprocessor are used to maintain data flow continuity. The data fetch pointer register keeps track of the memory location where data was last fetched. Depending upon the reading direction, the register content will either be incremented or decremented. The data load pointer register maintains the memory location of the last character saved. The data buffer is full when it contains 180 characters. When the microprocessor senses a full data buffer, the spool motor drive signal is disabled and the dynamic brakes are applied which brings the motors to a smooth stop. When the data buffer holds 25 or less characters, the microprocessor generates a move command. This command moves the tape at a predetermined speed, filling the buffer. The speed is controlled by the program in the microprocessor.

g. *Interrupt Driven Logic.* Drive commands applied to the reader are processed on a priority interrupt basis. An interrupt polling routine is set up to establish a run right as having a higher priority than a run left operation. Whenever a system interrupt is sensed, the microprocessor scans drive lines according to priority to determine which causes the interrupt. This information is then saved in the flag register which is constantly updated for future references with every interrupt serviced.

h. *Sprocket Interrupt.* The sprocket signal derived from the moving tape is sensed by the microprocessor as an external interrupt. The leading edge of the sprocket signal sets a flip-flop, acknowledging the interrupt. Data appearing at the data bus is then read and stored in the data buffer at the memory location specified by data load pointer register. For every sprocket signal detected, the data load pointer register is either incremented or decremented, depending upon the read direction. Upon exit from the sprocket subroutine, the flip-flop is reset to accommodate the next sprocket interrupt. To improve data integrity, every datum will be read twice and compared for every sprocket detected. Data will be stored only if comparison is good.

i. ***Read/Write Interrupt.*** The read/write interrupt is produced by the run and direction signal. When this interrupt occurs, the sprocket signal is forced low. If the data buffer is not empty at this time, data is fetched from the buffer, saved in a temporary storage register, and the data fetch pointer register is decremented.

j. ***Bad Tape Detection.*** If the tape in use is torn, or sprocket holes are elongated beyond internal compensation, the reader will halt with LED 10 flashing. All output of data will stop regardless of data in memory.

Section II. SOFTWARE DESCRIPTION

6-6. Self-Test Program. The self-test program for the PADS test set is contained on a machine language punched tape that is loaded on the tape reader to perform a self-test of the PADS test set. Figure FO-17 illustrates a flow chart for the self-test program. The program in conjunction with hard wired logic, automatically detects failures in the SPU and the tape reader and diagnoses the cause of the failure. Failures are displayed as two-digit numbers on the SPU FAILURE/ ACTION indicator. The indicator also displays numbers which call for operator action at certain parts of the self-test as shown in figure FO-17.

CHAPTER 7

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

Direct support maintenance of PADS is not authorized for the PADS test set.

CHAPTER 8

GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. GENERAL

8-1. Scope of General Support Maintenance. General support maintenance consists of bench testing the SPU, tape reader, and cable assemblies; preventive maintenance checks and services; testing and troubleshooting the SPU and tape reader; removal and replacement of SPU and tape reader components; and repair of cable assemblies.

8-2. Signal Processor Unit Bench Testing. Bench testing of the SPU consists of performing continuity checks when broken or shorted wires or failing switch or relay contacts are suspected of causing a failure during performance of the self-test procedure. A schematic diagram of the SPU (figure FO-18) and wire lists (table 8-1 and 8-2) are provided for bench testing. Refer to paragraph 8-6 for an explanation of wire list format and notations,

8-3. Tape Reader Bench Testing. Bench testing of the tape reader consists of performing continuity checks when broken or shorted wires are suspected of causing a failure during performance of testing and troubleshooting. A schematic diagram of the tape reader (figure FO-19 or FO-20) is provided for bench testing.

8-4. Cable Assemblies Bench Testing. Bench testing of the cable assemblies consists of performing a Point-to-point continuity check. A wire list (table 8-3 is provided for bench testing. Refer to paragraph 8-6 for an explanation of wire list format and notations.

8-5. Preventive Maintenance Checks and Services. To ensure that the PADS test set is always ready for operation, the preventive maintenance checks and services must be performed as outlined in table 8-4.

8-6. Wire List Format and Notations. Tables 8-1 and 8-2 contain wire lists for the SPU and SPU front panel, respectively. Table 8-3 contains a wire list for the cable assemblies. The following paragraphs define wire list format and notations.

a. *Wire List Format.* The wire list column headings, from left to right, are listed with their respective entries defined as follows:

Column	Definition
Signal	Numbers or letters appearing in this column are used for logic terms and signal identification and are assigned per their respective circuit functions.
From Component Pin	Entries in this column denote point of origin.
To Component Pin	Entries in this column denote point of termination for items in the From Component Pin column.
Ref	The suffix letter A, B, C, etc. defines which of several wires attached to the same pin is intended. The suffix letter S defines the shield of wire connected to this pin.
AWG	Standard wire size for tables 8-1 and 8-2 are 24-gauge, except as noted, Standard wire size for table 8-3 is 22 gauge, except as noted.
Type	Symbols in this column specify configuration of a wire or wires. In the absence of a specific symbol, standard insulated wire is intended. For flexible printed wiring, this column is not applicable.
Color	Standard wire color is white except as specifically color-coded. Numbers are coded to a color as follows:

Number	Color
0	Black
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Violet

	8 Gray
	9 White
	Multiple wires within a shield or multiple wires twisted in a group are identified with a unique group number (Example: SG12 or TG15). For flexible printed wiring, this column is not applicable.
Route	Wires which contain unique letters shall be bundled and routed separately from all others. REF indicates jumper of circuit prewired at subassembly level, DIR indicates wire shall be routed separately from harness by shortest possible route between components. Minimum service loop.
Note	Not applicable.
Remark	Used for signal description of any other type of comments.
	Not used.

b. ***Wire List Notations.*** Notations used in the wire lists are defined as follows:

Symbol	Definition
Period	Period preceding capital letter indicates lowercase letter (Example: . A = a)
FL	Furnished lead supplied with component
HY	Hybrid splice configuration
NC	No connection; this terminal is reserved
SG	Shielded group
SL	Shield lead (wire connecting a shield to a termination point)
SP	Shielded pigtail
Spare	Indicates a terminal which is not wired and is not reserved for a specific function
S1	One conductor shielded
S2	Two conductor shielded
S3, etc.	Three conductor shielded, etc.
TG	Twisted group
T2	Two conductors twisted
T3	Three conductors twisted
T4, etc.	Four conductors twisted, etc.

Table 8-1. Signal Processor Unit Wire List

Signal	From Cmpnt	From Pin	From ef	To Cmpnt	To Pin	To ef	WG	Type	olor	Group	Route	Note	Remarks
PWRBLOWER1	B01 -	001		PS5 -	T01		22	T3		TG100		F1	
PWRBLOWER2	B01 -	003		PS5 -	T04		22	T3	00C	TG100		F1	
PWRBLOWER3	B01 -	004		PS5 -	T08		22	T3	222	TG100		F1	
P005+ A	HY01-	001		J20 -	001		22				*DIR	7	
P005+ B	HY01-	002		J22 -	083		22				*DIR	7	
P005+ C	HY01-	003		J25 -	001		22				*DIR	7	
P005+ D	HY01-	004		W05A-			16					8	
P005+ E	HY02-	001		J20 -	002		22				*DIR	7	
P005+ F	HY02-	002		J22 -	084		22				*DIR	7	
P005+ G	HY02-	003		J25 -	002		22				*DIR	7	
P005+ H	HY02-	004		W05A-			16					8	
P005+ J	HY03-	001		J20 -	022		22				*DIR	7	
P005+ K	HY03-	002		J22 -	103		22				*DIR	7	
P005+ L	HY03-	003		J25 -	022		22				*DIR	7	
P005+ M	HY03-	004		W05A-	---		16					8	
P005+ N	HY04-	001		J20 -	023		22				*DIR	7	
P005+ P	HY04-	002		J22 -	104		22				*DIR	7	
P005+ Q	HY04-	003		J25 -	023		22				*DIR	7	
P005+ R	HY04-	004		W05A-	---		16					8	
P005+ S	HY05-	001		J21 -	001		22				*DIR	7	
P005+ T	HY05-	002		J23 -	083		22				*DIR	7	
P005+ U	HY05-	003		J24 -	083		22				*DIR	7	
P005+ V	HY05-	004		W05A-	---		16					8	
P005+ W	HY06-	001		J21 -	002		22				*DIR	7	
P005+ X	HY06-	002		J23 -	084		22				*DIR	7	
P005+ Y	HY06-	003		J24 -	084		22				*DIR	7	
P005+ Z	HY06-	004		W05A-	---		16					8	
P005+ AA	HY07-	001		J21 -	022		22				*DIR	7	
P005+ AB	HY07-	002		J23 -	103		22				*DIR	7	
P005+ AC	HY07-	003		J24 -	103		22				*DIR	7	
P005+ AD	HY07-	004		W05A-	---		16					8	
P005+ AE	HY08-	001		J21 -	023		22				*DIR	7	
P005+ AF	HY08-	002		J23 -	104		22				*DIR	7	
P005+ AG	HY08-	003		J24 -	104		22				*DIR	7	
P005+ AH	HY08-	004		W05A-	---		16					8	
P0PG A	HY09-	001		J20 -	064		22		001		*DIR	7	
P0PG B	HY09-	002		J22 -	020		22		001		*DIR	7	
P0PG C	HY09-	003		J25 -	086		22		001		*DIR	7	
P0PG D	HY09-	004		W06A-	---		16		001			8	
P0PG E	HY10-	001		J20 -	065		22		001		*DIR	7	
P0PG F	HY10-	002		J22 -	021		22		001		*DIR	7	
P0PG G	HY10-	003		J25 -	064		22		001		*DIR	7	
P0PG H	HY10-	004		W06A-	---		16		001			8	
P0PG J	HY11-	001		J20 -	085		22		001		*DIR	7	
P0PG K	HY11-	002		J22 -	041		22		001		*DIR	7	
P0PG L	HY11-	003		J25 -	065		22		001		*DIR	7	
P0PG M	HY11-	004		W06A-	---		16		001			8	
P0PG N	HY12-	001		J20 -	086		22		001		*DIR	7	
P0PG P	HY12-	002		J22 -	042		22		001		*DIR	7	
P0PG Q	HY12-	003		J25 -	085		22		001		*DIR	7	
P0PG R	HY12-	004		W06A-	---		16		001			8	
P0PG S	HY13-	001		J21 -	064		22		001		*DIR	7	
P0PG T	HY13-	002		J23 -	021		22		001		*DIR	7	
P0PG U	HY13-	003		J24 -	020		22		001		*DIR	7	
P0PG V	HY13-	004		W06A-	---		16		001			8	
P0PG W	HY14-	001		J21 -	065		22		001		*DIR	7	
P0PG X	HY14-	002		J23 -	020		22		001		*DIR	7	
P0PG Y	HY14-	003		J24 -	021		22		001		*DIR	7	
P0PG Z	HY14-	004		W06A-	---		16		001			8	
P0PG AA	HY15-	001		J21 -	085		22		001		*DIR	7	
P0PG AB	HY15-	002		J23 -	042		22		001		*DIR	7	
P0PG AC	HY15-	003		J24 -	041		22		001		*DIR	7	
P0PG AD	HY15-	004		W06A-	---		16		001			8	
P0PG AE	HY16-	001		J21 -	086		22		001		*DIR	7	
P0PG AF	HY16-	002		J23 -	041		22		001		*DIR	7	
P0PG AG	HY16-	003		J24 -	042		22		001		*DIR	7	
P0PG AH	HY16-	004		W06A-	---		16		001			8	
P115VACRTN [	HY17-	001		W02 -	---		16	T2	001	TG11		9	

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks
	Cmpnt	Pin	Ref	Cmpnt	Pin	Ref							
P115VACRTN	HY17-	002		J03 -	D		16	T2	000	TG115		9	
P115VACRTN	HY17-	003		J19 -	018		22	T2	000	TG113		9	
P005+	HY18-	001		PS2 -	003		12					8	**
P005+	HY18-	002		W05B-	---		12					8	
P005+	HY18-	003		W05B-	---		12					8	
POPG	HY19-	001		PS2 -	006		12		000			8	**
POPG	HY19-	002		W06A-			12		000			8	
POPG	HY19-	003		W06A-			12		000			8	
P115VACRTN	J01 -	A		W02 -	---		16	T2	000	TG094		9	
POCG	J01 -	B		W10 -	---		16		000				
P115VAC	J01 -	C		W01 -	---		16	T2		TG094		9	
P028+	J03 -	A		W03 -	---		16	T2		TG099		8	
P028RTN	J03 -	B		W04 -	---		16	T2	000	TG099		8	
P115VAC-10	J03 -	C		K01 -	002		16	T2		TG115		9	**
P115VACRTN	J03 -	D		HY17-	002		16	T2	000	TG115		9	
POCG	J03 -	F		W10 -			16		000			6	
J20-031	J03 -	H		J20 -	031							6	
J20-032	J03 -	J		J20 -	032							6	
J20-033	J03 -	K		J20 -	033							6	
J20-034	J03 -	L		J20 -	034							6	
J20-036	J03 -	M		J20 -	036							6	
J20-037	J03 -	N		J20 -	037							6	
J20-038	J03 -	P		J20 -	038							6	
J20-039	J03 -	R		J20 -	039							6	
J20-042	J03 -	T		J20 -	042			T2		TG009		6	
J20-041	J03 -	U		J20 -	041			T2	000	TG009		6	
J20-061	J03 -	V		J20 -	061							6	
POCG	J03 -	Y		W10 -	---		18		000			6	
POCG	J03 -	Z		W10 -	---		18		000			6	
POCG	J03 -	.A		W10 -	---		18		000			6	
POCG	J03 -	.B		W10 -	---		18		000			6	
POCG	J03 -	.C		W10 -	---		18		000			6	
J20-004	J03 -	.E		J20 -	004							6	
J20-021	J03 -	.F		J20 -	021							6	
J20-062	J03 -	.Q		J20 -	062							6	
J20-063	J03 -	.R		J20 -	063							6	
J20-084	J03 -	.T		J20 -	084							6	
POCG	J03 -	SHD		W11 -	---		22		000		*DIR	6	
J26-049	J04 -	001		J26 -	049								
LOLVLCOSHI	J04 -	002		TB1 -	027			T4	000	TG055			
LOLVLCOSHI	J04 -	003		TB1 -	027			T4	000	TG056			
HILVLCOSHI	J04 -	004		TB1 -	023			T4	000	TG052			
HILVLSINHI	J04 -	005		TB1 -	021			T4		TG052			
J23-008	J04 -	006		J23 -	008								
J25-017	J04 -	007		J25 -	017			T2		TG092			
J25-018	J04 -	008		J25 -	018			T2	000	TG092			
J25-020	J04 -	009		J25 -	020			T2	000	TG093			
J26-017	J04 -	010		J26 -	017			T2		TG073			
J26-028	J04 -	011		J26 -	028			T2		TG077			
J26-023	J04 -	012		J26 -	023			T2	000	TG074			
J26-010	J04 -	013		J26 -	010			T2	000	TG087			
J26-024	J04 -	014		J26 -	024			T2		TG075			
J26-006	J04 -	015		J26 -	006			T2	000	TG085			
J26-033	J04 -	016		J26 -	033			T2	000	TG079			
J26-011	J04 -	017		J26 -	011			T2		TG081			
J26-014	J04 -	018		J26 -	014			T2	000	TG082			
J26-015	J04 -	019		J26 -	015			T2		TG083			
J26-016	J04 -	020		J26 -	016			T2	000	TG083			
J26-002	J04 -	021		J26 -	002								
J23-005	J04 -	022		J23 -	005								
J23-004	J04 -	023		J23 -	004								
POCG	J04 -	024		W10 -	---		22		000				
J23-010	J04 -	025		J23 -	010			S2		SG003			
J23-013	J04 -	026		J23 -	013			S2		SG004			
POSH-02	J04 -	026	S	J04 -	048	S		SP	000				
POSH-02	J04 -	026	S	J04 -	027	S		SP	000				
J23-016	J04 -	027		J23 -	016			S2		SG001			
POSH-02	J04 -	027	S	J04 -	026	S		SP	000				

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From Cmpnt	From Pin	From Ref	To Cmpnt	To Pin	To Ref	AWG	Type	Color	Group	Route	Note	Remarks
POSH-02 C	J04 -	027	S	W13 -	---			SL	000				
POCG N	J04 -	028		W10 -	---		22		000				
J23-047	J04 -	029		TB2 -	024								
LOLVLCOSLO	J04 -	030		TB1 -	028			T4	555	TG055			
LOLVLCOSLO	J04 -	031		TB1 -	028			T4	555	TG056			
HILVLCOSLO	J04 -	032		TB1 -	024			T4	555	TG052			
HILVLSINLO	J04 -	033		TB1 -	022			T4	222	TG052			
J26-008	J04 -	034		J26 -	008			T2	000	TG086			
J25-019	J04 -	035		J25 -	019			T2		TG093			
J26-018	J04 -	036		J26 -	018			T2	000	TG073			
J26-029	J04 -	037		J26 -	029			T2	000	TG077			
J26-022	J04 -	038		J26 -	022			T2		TG074			
J26-009	J04 -	039		J26 -	009			T2		TG087			
J26-025	J04 -	040		J26 -	025			T2	000	TG075			
J26-005	J04 -	041		J26 -	005			T2		TG085			
J26-032	J04 -	042		J26 -	032			T2		TG079			
J26-012	J04 -	043		J26 -	012			T2	000	TG081			
J26-013	J04 -	044		J26 -	013			T2		TG082			
J26-003	J04 -	045		J26 -	003								
J26-001	J04 -	046		J26 -	001								
POSH-02 D	J04 -	047		W13 -	---				000				
J23-011	J04 -	048		J23 -	011			S2	000	SG003			
POSH-02 A	J04 -	048	S	J04 -	026	S		SP	000				
J23-014	J04 -	049		J23 -	014			S2	000	SG004			
J23-017	J04 -	050		J23 -	017			S2	000	SG001			
LOLVLSINHI	J04 -	052		TB1 -	025			T4		TG055			
HILVLCOSHI	J04 -	053		TB1 -	023			T4	000	TG053			
HILVLCOSLO	J04 -	054		TB1 -	024			T4	555	TG053			
J26-007	J04 -	055		J26 -	007			T2		TG086			
J23-092	J04 -	056		J23 -	092			T2	000	TG060			
HILVLSINHI	J04 -	057		TB1 -	021			T4		TG053			
HILVLSINLO	J04 -	058		TB1 -	022			T4	222	TG053			
HILVLSINLO	J04 -	059		TB1 -	022			T3	222	TG054			
HILVLSINHI	J04 -	060		TB1 -	021			T3		TG054			
LOLVLSINHI	J04 -	061		TB1 -	025			T4		TG056			
J25-011	J04 -	062		J25 -	011			T2		TG090			
J25-015	J04 -	063		J25 -	015			T2	000	TG091			
J26-004	J04 -	064		J26 -	004								
POSH-02 E	J04 -	065		W13 -		S		SL	000				
POSH-02 F	J04 -	066		W13 -				SL	000				
J26-026	J04 -	067		J26 -	026			T2		TG076			
LOLVLSINLO	J04 -	068		TB1 -	026			T4	222	TG055			
J23-071	J04 -	070		J23 -	071			T2		TG060			
HILVLCOSHI	J04 -	072		TB1 -	023			T3	000	TG054			
LOLVLSINLO	J04 -	073		TB1 -	026			T4	222	TG056			
J25-012	J04 -	074		J25 -	012			T2	000	TG090			
J25-014	J04 -	075		J25 -	014			T2		TG091			
J26-027	J04 -	076		J26 -	027			T2	000	TG076			
J26-030	J04 -	077		J26 -	030			T2		TG078			
J26-031	J04 -	079		J26 -	031			T2	000	TG078			
POPG AL	J05 -	002		W06B-	---				000				
POPG-01 C	J05 -	004		J20 -	081				000				
POPG AM	J05 -	006		W06B-	---				000				
POPG-01 F	J05 -	007		J20 -	079				000				
POPG-01 H	J05 -	008		J20 -	082				000				
J20-096	J05 -	009		J20 -	096			T2		TG028			
J20-074	J05 -	012		J20 -	074			T2		TG034			
J20-104	J05 -	013		J20 -	104			T2		TG105			
J20-026	J05 -	014		J20 -	026			T2		TG007			
POPG A1	J05 -	015		W06B-	---				000				
POPG A2	J05 -	016		W06B-	---				000				
J20-097	J05 -	017		J20 -	097			T2	000	TG028			
J20-073	J05 -	020		J20 -	073			T2	000	TG034			
J20-103	J05 -	021		J20 -	103			T2	000	TG105			
POPG-01 L	J05 -	022		J20 -	059				000				
J20-027	J05 -	023		J20 -	027			T2	000	TG007			
POPG BC	J05 -	024		W06B-					000				
J20-098	J05 -	025		J20 -	098			T2		TG029			

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From Cmpnt	From Pin	From Ref	To Cmpnt	To Pin	To Ref	AWG	Type	Color	Group	Route	Note	Remarks
J20-099	J05 -	026		J20 -	099			T2	000	TG029			
POPG BB	J05 -	027		W06B-					000				
J20-068	J05 -	032		J20 -	068			T2		TG035			
J20-069	J05 -	033		J20 -	069			T2	000	TG035			
J20-008	J05 -	034		J20 -	008			T2		TG011			
POPG AQ	J05 -	035		W06B-					000				
POPG-01 B	J05 -	036		J20 -	057				000				
J20-018	J05 -	037		J20 -	018			T2		TG004			
J20-019	J05 -	038		J20 -	019			T2	000	TG004			
J20-028	J05 -	039		J20 -	028			T2		TG006			
J20-029	J05 -	040		J20 -	029			T2	000	TG006			
J20-006	J05 -	042		J20 -	006			T2		TG010			
POPG BA	J05 -	043		W06B-					000				
J20-009	J05 -	045		J20 -	009			T2	000	TG011			
J20-072	J05 -	046		J20 -	072			T2		TG033			
J20-071	J05 -	047		J20 -	071			T2	000	TG033			
J20-017	J05 -	049		J20 -	017			T2		TG003			
POPG-01 A	J05 -	050		J20 -	056				000				
J20-012	J05 -	051		J20 -	012			T2		TG00 1			
J20-007	J05 -	053		J20 -	007			T2	000	TG010			
POPG-01 E	J05 -	054		J20 -	078				000				
J24-081	J05 -	057		J24 -	081								
POPG AS	J05 -	059		W06B-					000				
J20-016	J05 -	060		J20 -	016			T2	000	TG003			
J20-011	J05 -	061		J20 -	011			T2	000	TG001			
J20-077	J05 -	062		J20 -	077			T2		TG032			
J20-076	J05 -	063		J20 -	076			T2	000	TG032			
POPG-01 C	J05 -	064		J20 -	058				000				
POPG BK	J05 -	065		W06A-	---				000				
P005+ AS	J05 -	066		W05B-								8	
POPG BD	J05 -	070		W06B-	---				000				
POPG AR	J05 -	071		W06B-	---				000				
J20-014	J05 -	072		J20 -	014			T2		TG002			
J20-013	J05 -	073		J20 -	013			T2	000	TG002			
J20-088	J05 -	075		J20 -	088			T2		TG005			
J20-089	J05 -	076		J20 -	089			T2	000	TG005			
POPG AV	J05 -	077		W06B-					000				
POPG AW	J05 -	078		W06B-	---				000				
POPG AX	J05 -	079		W06B-					000				
POPG AP	J05 -	082		W06B-	---				000				
J21-051	J05 -	083		J21 -	051			T2		TG012			
J21-053	J05 -	084		J21 -	053			T2		TG013			
J21-054	J05 -	085		J21 -	054			T2	000	TG013			
J21-057	J05 -	086		J21 -	057			T2		TG014			
J21-056	J05 -	087		J21 -	056			T2	000	TG014			
J21-059	J05 -	088		J21 -	059			T2		TG015			
J21-058	J05 -	089		J21 -	058			T2	000	TG015			
J21-071	J05 -	090		J21 -	071			T2		TG016			
J21-072	J05 -	091		J21 -	072			T2	000	TG016			
J21-052	J05 -	095		J21 -	052			T2	000	TG012			
J21-073	J05 -	096		J21 -	073			T2		TG017			
J21-074	J05 -	097		J21 -	074			T2	000	TG017			
J21-077	J05 -	098		J21 -	077			T2		TG018			
J21-079	J05 -	099		J21 -	079			T2		TG019			
J21-078	J05 -	100		J21 -	078			T2	000	TG019			
J21-081	J05 -	101		J21 -	081			T2		TG020			
J21-083	J05 -	102		J21 -	083			T2		TG021			
J21-084	J05 -	103		J21 -	084			T2	000	TG021			
J21-091	J05 -	106		J21 -	091			T2		TG022			
J21-092	J05 -	107		J21 -	092			T2	000	TG022			
J21-076	J05 -	108		J21 -	076			T2	000	TG018			
J21-093	J05 -	109		J21 -	093			T2		TG023			
J21-094	J05 -	110		J21 -	094			T2	000	TG023			
J21-082	J05 -	111		J21 -	082			T2	000	TG020			
J21-097	J05 -	112		J21 -	097			T2		TG024			
J21-096	J05 -	113		J21 -	096			T2	000	TG024			
J21-099	J05 -	116		J21 -	099			T2		TG025			

Table 8-1. *Signal Processor Unit Wire List – Continued*

Signal	From Cmpnt	From Pin	From Ref	To Cmpnt	To Pin	To Ref	AWG	Type	Color	Group	Route	Note	Remarks
J21-098	J05 -	117		J21 -	098			T2	000	TG025			
J21-101	J05 -	118		J21 -	101			T2		TG026			
J21-103	J05 -	119		J21 -	103			T2		TG027			
J21-104	J05 -	120		J21 -	104			T2	000	TG027			
POPG BE	J05 -	122		W06B-	---				000				
J20-046	J05 -	123		J20 -	046			T2		TG104			
J20-047	J05 -	124		J20 -	047			T2	000	TG104			
J21-102	J05 -	125		J21 -	102			T2	000	TG026			
POPG AY	J05 -	126		W06B-	---				000				
J25-008	J08 -	001		J25 -	008								
J08-002	J08 -	002		J08 -	023								
J21-011	J08 -	003		J21 -	011			T2	000	TG069			
POPG BN	J08 -	005		W06B-	---				000				
J21-012	J08 -	008		J21 -	012			T2		TG069			
J21-019	J08 -	009		J21 -	019			T2	000	TG067			
J25-097	J08 -	010		TB2 -	025	B		S1					
J20-043	J08 -	014		J20 -	043								
J26-054 F	J08 -	015		TB2 -	030								
J21-018	J08 -	016		J21 -	018			T2		TG067			
J08-002	J08 -	023		J08 -	002								
J21-016	J08 -	024		J21 -	016			T2		TG068			
J26-054 E	J08 -	030		TB2 -	030								
J21-017	J08 -	031		J21 -	017			T2	000	TG068			
J25-079	J08 -	035		J25 -	079								
J25-094	J08 -	038		TB1 -	005								
J25-093	J08 -	039		J25 -	093								
J25-094	J08 -	045		TB1 -	005								
J26-055	J08 -	046		J26 -	055								
J26-054 D	J08 -	049		TB2 -	029								
J21-013	J08 -	051		J21 -	013			T2	000	TG103			
J26-054 B	J08 -	052		TB2 -	029								
J26-054 C	J08 -	054		TB2 -	029								
J21-014	J08 -	055		J21 -	014			T2		TG103			
J25-010	J09 -	001		J25 -	010								
J19-034	J09 -	002		J19 -	034							10	
J24-001	J09 -	003		TB1 -	019			T2	000	TG111			
J19-033	J09 -	005		J19 -	033							10	
J24-002	J09 -	008		TB1 -	018			T2		TG111			
J24-009	J09 -	009		J24 -	009			T2	000	TG042			
J25-009	J09 -	010		J25 -	009								
J19-038	J09 -	014		J19 -	038							10	
J25-006	J09 -	015		J25 -	006								
J24-008	J09 -	016		J24 -	008			T2		TG042			
POSH-03	J09 -	020	S	W14 -				SL	000				
J25-084	J09 -	020		J25 -	084			S2		SG002			
J19-035	J09 -	023		J19 -	035							10	
J24-006	J09 -	024		TB1 -	020			T2		TG119			
J25-005	J09 -	030		J25 -	005								
J24-007	J09 -	031		TB1 -	040			T2	000	TG119			
J25-050	J09 -	034		J25 -	050			T2	000	TG088			
J25-083	J09 -	035		J25 -	083			S2	000	SG002			
J25-013	J09 -	038		J25 -	013								
J25-078	J09 -	039		J25 -	078								
J25-053	J09 -	040		J25 -	053								
J25-052	J09 -	042		J25 -	052			T2		TG088			
J25-016	J09 -	045		J25 -	016								
J25-029	J09 -	046		J25 -	029			T2	000	TG089			
J25-095	J09 -	047		J25 -	095								
J25-004	J09 -	049		J25 -	004								
J24-003	J09 -	051		TB1 -	039			T2	000	TG118			
J25-028	J09 -	052		J25 -	028			T2		TG089			
J25-003	J09 -	054		J25 -	003								
J24-004	J09 -	055		TB1 -	038			T2		TG118			
J24-016	J10 -	001		J24 -	016								
J24-017	J10 -	002		J24 -	017								
J24-018	J10 -	003		J24 -	018								
J24-046	J10 -	004		TB1 -	010								
J24-046	J10 -	005		TB1 -	010								

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks
	Cmpnt	Pin	Ref	Cmpnt	Pin	Ref							
J24-047	J10 -	006		TB1 -	011								
J24-048	J10 -	007		TB1 -	012								
J24-047	J10 -	010		TB1 -	011								
J24-048	J10 -	011		TB1 -	012								
J24-049	J10 -	012		TB1 -	013								
J24-049	J10 -	013		TB1 -	013								
J24-051	J10 -	014		TB1 -	014								
J24-052	J10 -	015		TB1 -	015								
J24-058	J10 -	016		TB2 -	023								
J24-053	J10 -	019		TB1 -	016								
J24-054	J10 -	020		TB1 -	017								
J24-051	J10 -	021		TB1 -	014								
J24-052	J10 -	022		TB1 -	015								
J24-053	J10 -	023		TB1 -	016								
J24-054	J10 -	024		TB1 -	017								
J26-092	J10 -	028		J26 -	092			T2		TG101			
J26-091	J10 -	029		J26 -	091			T2	000	TG101			
J21-036	J10 -	041		TB2 -	002								
J24-013	J10 -	042		J24 -	013								
J24-059	J10 -	045		J24 -	059								
J24-014	J10 -	050		J24 -	014								
J24-039	J10 -	055		J24 -	039								
J24-056	J10 -	056		TB2 -	021								
J24-057	J10 -	057		TB2 -	022								
J24-077	J10 -	058		J24 -	077								
J24-061	J10 -	059		J24 -	061								
J24-082	J10 -	060		J24 -	082								
P005+ AJ	J10 -	063		W05B-	---		22					8	
J24-056	J10 -	064		TB2 -	021								
J24-057	J10 -	065		TB2 -	022								
J24-076	J10 -	067		J24 -	076								
J24-058	J10 -	068		TB2 -	023								
J21-036	J10 -	069		TB2 -	002								
J24-019	J10 -	070		J24 -	019								
J24-036	J10 -	074		J24 -	036								
J24-037	J10 -	075		J24 -	037								
J24-038	J10 -	077		J24 -	038								
P005+ AK	J10 -	083		W05B-	---		22					8	
P005+ AL	J10 -	084		W05B-	---		22					8	
P005+ AM	J10 -	085		W05B-	---		22					8	
J24-012	J10 -	089		J24 -	012								
J24-074	J10 -	090		J24 -	074								
POPG AJ	J10 -	097		W06B-	---		22		000			8	
POPG AK	J10 -	098		W06B-	---		22		000			8	
POPG AL	J10 -	099		W06B-	---		22		000			8	
POPG AM	J10 -	100		W06B-	---		22		000			8	
J25-091	J11 -	001		J25 -	091								
J22-067	J11 -	003		J22 -	067			T4	000	TG049			
J11-079	J11 -	007		J11 -	079								
J11-077	J11 -	008		J11 -	077								
J11-042	J11 -	009		J11 -	042								
J24-099	J11 -	010		J24 -	099								
J11-011	J11 -	011		J11 -	020								
J11-012	J11 -	012		J11 -	062								
J25-090	J11 -	013		J25 -	090								
J11-014	J11 -	014		J11 -	018								
J25-075	J11 -	015		J25 -	075								
J11-016	J11 -	016		J11 -	035								
J26-019	J11 -	017		J26 -	019								
J11-014	J11 -	018		J11 -	014								
J11-037	J11 -	019		J11 -	037								
J11-011	J11 -	020		J11 -	011								
J25-071	J11 -	021		J25 -	071								
J25-097	J11 -	022		TB2 -	025	C		S1					
J23-002	J11 -	023		J23 -	002								
J22-069	J11 -	031		J22 -	069			T4	555	TG049			
J25-088	J11 -	034		J25 -	088								
J11-016	J11 -	035		J11 -	016								

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From			To			AWG	Type	Col	Group	Route	Note	Remarks
	Cmpnt	Pin	Ref	Cmpnt	Pin	Ref							
J11-037	J11 -	037		J11 -	019								
J11-038	J11 -	038		J11 -	074								
J25-089	J11 -	039		J25 -	089								
J11-040	J11 -	040		J11 -	044								
J25-074	J11 -	041		J25 -	074								
J11-042	J11 -	042		J11 -	009								
J26-020	J11 -	043		J26 -	020								
J11-040	J11 -	044		J11 -	040								
J25-072	J11 -	045		J25 -	072								
J25-070	J11 -	046		J25 -	070								
J22-071	J11 -	053		J22 -	071			T4		TG120			
J22-073	J11 -	054		J22 -	073			T4		TG120			
J25-087	J11 -	055		J25 -	087								
J23-069	J11 -	056		T01 -	002			T2		TG059			
J22-070	J11 -	057		J22 -	070			T4		TG120			
J22-072	J11 -	058		J22 -	072			T4		TG120			
J22-066	J11 -	061		J22 -	066			T4		TG049			
J11-012	J11 -	062		J11 -	012								
J11-067	J11 -	063		J11 -	067								
J25-073	J11 -	064		J25 -	073								
J11-067	J11 -	067		J11 -	063								
J23-070	J11 -	070		T01 -	001			T2		G059			
J22-068	J11 -	073		J22 -	068			T4		G049			
J11-038	J11 -	074		J11 -	038								
J11-076	J11 -	075		J11 -	076								
J11-076	J11 -	076		J11 -	075								
J11-077	J11 -	077		J11 -	008								
J11-079	J11 -	079		J11 -	007								
J20-091	J12 -	001		J20 -	091			T2		G031			
J20-092	J12 -	002		J20 -	092			T2		G031			
J20-093	J12 -	003		J20 -	093			T2		TG030			
J20-094	J12 -	004		J20 -	094			T2		TG030			
J21-069	J19 -	001		J21 -	069							10	
J21-068	J19 -	002		J21 -	068							10	
J21-067	J19 -	003		J21 -	067							10	
J24-096	J19 -	004		J24 -	096								
J21-088	J19 -	006		J21 -	088							10	
J21-089	J19 -	007		J21 -	089							10	
J21-046	J19 -	008		J21 -	046								
J21-047	J19 -	009		J21 -	047								
J25-056	J19 -	013		TB1 -	007							8	
J25-057	J19 -	014		TB1 -	008							8	
J25-055	J19 -	015		TB1 -	006							8	
J25-058	J19 -	016		TB1 -	009							8	
P115VACRTN C	J19 -	018		HY17-	003		22	T2		TG113		9	
P115VAC-10	J19 -	019		K01 -	002		22	T2		TG113		9	**
P115VACRTN G	J19 -	020		W02 -	---		22	T2		TG117		9	
P115VAC	J19 -	021		W01 -	---		22	T2		TG117		9	
J21-048	J19 -	022		J21 -	048							10	
J21-049	J19 -	023		J21 -	049							10	
J21-026	J19 -	026		J21 -	026							10	
J21-027	J19 -	027		J21 -	027							10	
J26-088	J19 -	028		TB2 -	008							10	
J26-087	J19 -	029		J26 -	087							10	
P005+ AR	J19 -	031		W05B-	---							8	
POPG BJ	J19 -	032		W06A-	---								
J19-033	J19 -	033		J09 -	005							10	
J19-034	J19 -	034		J09 -	002							10	
J19-035	J19 -	035		J09 -	023							10	
J26-047	J19 -	036		J26 -	047			T2		TG084		10	
J26-048	J19 -	037		J26 -	048			T2		TG084		10	
J19-038	J19 -	038		J09 -	014							10	
P115VACR-4	J19 -	040		PS4 -	002		22	T2		TG098		9	**
P115VAC-02	J19 -	041		RT2 -	E01		22	T2		TG095		9	**
P115VACR-1	J19 -	042		PS1 -	002		22	T2		TG095		9	**
J24-026	J19 -	043		J24 -	026								
J24-027	J19 -	044		J24 -	027								
J24-028	J19 -	046		J24 -	028								

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks
	Cmpnt	Pin	Ref	Cmpnt	Pin	Ref							
J24-029	J19 -	047		J24 -	029								
J24-031	J19 -	048		J24 -	031								
J24-032	J19 -	049		J24 -	032								
J24-033	J19 -	051		J24 -	033								
J24-034	J19 -	052		J24 -	034								
P028+V-02	J19 -	058		PS5 -	(+)		22	T2		TG116		8	
P028RTN-01	J19 -	059		PS5 -	(-)		22	T2	000	TG116		8	
P115VAC-08	J19 -	061		RT4 -	E07		22	T2		TG098		9	**
P115VACRTN	J19 -	062		W02 -	---		22	T2	000	TG112		9	
P115VAC-09	J19 -	063		K01 -	001		22	T2		TG112		9	**
J26-086	J19 -	064		J26 -	086								
P028RTN	J19 -	066		W04 -	---				000			8	
P028+	J19 -	067		W03 -	---							8	
P028RTN	J19 -	068		W04 -	---				000			8	
P028+	J19 -	069		W03 -	---							8	
P028+	J19 -	078		W03 -	---		22	T2		TG109		8	
P028RTN	J19 -	079		W04 -			22	T2	000	TG109		8	
P028+	J19 -	080		W03 -	---		22	T2		TG108		8	
P028+	J19 -	081		W03 -	---							8	
P115VAC-04	J19 -	083		RT1 -	E03		22	T2		TG096		9	**
P115VACR-2	J19 -	084		PS2 -	002		22	T2	000	TG096		9	**
J26-079	J19 -	086		J26 -	079								
J26-081	J19 -	087		J26 -	081								
J26-083	J19 -	088		J26 -	083								
J20-044	J19 -	089		TB2 -	020								
J20-102	J19 -	091		TB1 -	003							8	
J20-083	J19 -	092		TB1 -	004							8	
J26-082	J19 -	093		TB2 -	033								
J26-038	J19 -	097		J26 -	038								
J26-039	J19 -	098		J26 -	039								
P028RTN	J19 -	100		W04 -	---		22	T2	000	TG108		8	
P115VAC-06	J19 -	103		RT3 -	E05		22	T2		TG097		9	**
P115VACR-3	J19 -	104		PS3 -	002		22	T2	000	TG097		9	**
P005+	J20 -	001		HY01-	001		22				*DIR	7	
P005+	J20 -	002		HY02-	001		22				*DIR	7	
J20-003	J20 -	003		TB2 -	031			T2	000	TG008			
J20-004	J20 -	004		J03 -	.E							6	
J20-006	J20 -	006		J05 -	042			T2		TG010			
J20-007	J20 -	007		J05 -	053			T2	000	TG010			
J20-008	J20 -	008		J05 -	034			T2		TG011			
J20-009	J20 -	009		J05 -	045			T2	000	TG011			
J20-011	J20 -	011		J05 -	061			T2	000	TG001			
J20-012	J20 -	012		J05 -	051			T2		TG001			
J20-013	J20 -	013		J05 -	073			T2	000	TG002			
J20-014	J20 -	014		J05 -	072			T2		TG002			
J20-016	J20 -	016		J05 -	060			T2	000	TG003			
J20-017	J20 -	017		J05 -	049			T2		TG003			
J20-018	J20 -	018		J05 -	037			T2		TG004			
J20-019	J20 -	019		J05 -	038			T2	000	TG004			
J20-021	J20 -	021		J03 -	.F							6	
P005+	J20 -	022		HY03-	001		22				*DIR	7	
P005+	J20 -	023		HY04-	001		22				*DIR	7	
J20-024	J20 -	024		TB2 -	032			T2		TG008			
J20-026	J20 -	026		J05 -	014			T2		TG007			
J20-027	J20 -	027		J05 -	023			T2	000	TG007			
J20-028	J20 -	028		J05 -	039			T2		TG006			
J20-029	J20 -	029		J05 -	040			T2	000	TG006			
J20-031	J20 -	031		J03 -	H							6	
J20-032	J20 -	032		J03 -	J							6	
J20-033	J20 -	033		J03 -	K							6	
J20-034	J20 -	034		J03 -	L							6	
J20-036	J20 -	036		J03 -	M							6	
J20-037	J20 -	037		J03 -	N							6	
J20-038	J20 -	038		J03 -	P							6	
J20-039	J20 -	039		J03 -	R							6	
J20-041	J20 -	041		J03 -	U			T2	000	TG009		6	
J20-042	J20 -	042		J03 -	T			T2		TG009		6	
J20-043	J20 -	043		J08 -	014								

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks
	Cmpnt	Pin	Ref	Cmpnt	Pin	Ref							
J20-044	J20 -	044		TB2 -	020								
J20-046	J20 -	046		J05 -	123			T2		TG104			
J20-047	J20 -	047		J05 -	124			T2		TG104			
J24-091	J20 -	048		TB2 -	037			T2		TG039			
J24-092	J20 -	049		TB2 -	036			T2		TG039			
J21-021 E	J20 -	051		TB1 -	002								
J20-052	J20 -	052		TB2 -	028							10	
J20-053	J20 -	053		J24 -	068			T2		TG102			
J20-054	J20 -	054		J24 -	069			T2		TG102			
POPG-01 A	J20 -	056		J05 -	050								
POPG-01 B	J20 -	057		J05 -	036								
POPG-01 C	J20 -	058		J05 -	064								
POPG-01 D	J20 -	059		J05 -	022								
J20-061	J20 -	061		J03 -	V							6	
J20-062	J20 -	062		J03 -	.Q							6	
J20-063	J20 -	063		J03 -	.R							6	
POPG A	J20 -	064		HY09-	001		22				*DIF	7	
POPG E	J20 -	065		HY10-	001		22				*DIF	7	
J20-067	J20 -	067		J26 -	096								
J20-068	J20 -	068		J05 -	032			T2		TG035			
J20-069	J20 -	069		J05 -	033			T2		TG035			
J20-071	J20 -	071		J05 -	047			T2		TG033			
J20-072	J20 -	072		J05 -	046			T2		TG033			
J20-073	J20 -	073		J05 -	020			T2		TG034			
J20-074	J20 -	074		J05 -	012			T2		TG034			
J20-076	J20 -	076		J05 -	063			T2		TG032			
J20-077	J20 -	077		J05 -	062			T2		TG032			
POPG-01 E	J20 -	078		J05 -	054								
POPG-01 F	J20 -	079		J05 -	007								
J20-080	J20 -	080		J22 -	080			T2		TG047			
POPG-01 G	J20 -	081		J05 -	004								
POPG-01 H	J20 -	082		J05 -	008								
J20-083	J20 -	083		TB1 -	004							8	
J20-084	J20 -	084		J03 -	.T							6	
POPG J	J20 -	085		HY11-	001		22				*DIF	7	
POPG N	J20 -	086		HY12-	001		22				*DIF	7	
J26-042	J20 -	087		J26 -	042								
J20-088	J20 -	088		J05 -	075			T2		TG005			
J20-089	J20 -	089		J05 -	076			T2		TG005			
J20-091	J20 -	091		J12 -	001			T2		TG031			
J20-092	J20 -	092		J12 -	002			T2		TG031			
J20-093	J20 -	093		J12 -	003			T2		TG030			
J20-094	J20 -	094		J12 -	004			T2		TG030			
J20-096	J20 -	096		J05 -	009			T2		TG028			
J20-097	J20 -	097		J05 -	017			T2		TG028			
J20-098	J20 -	098		J05 -	025			T2		TG029			
J20-099	J20 -	099		J05 -	026			T2		TG029			
J20-100	J20 -	100		J22 -	100			T2		TG047			
J20-101	J20 -	101		J24 -	098								
J20-102	J20 -	102		TB1 -	003							8	
J20-103	J20 -	103		J05 -	021			T2		TG105			
J20-104	J20 -	104		J05 -	013			T2		TG105			
P005+ S	J21 -	001		HY05-	001		22				*DIF	7	
P005+ W	J21 -	002		HY06-	001		22				*DIF	7	
P015+ A	J21 -	003		W07 -	---							8	
J21-004	J21 -	004		J24 -	097								
P028+ R	J21 -	005		W03 -	---							8	
J21-006	J21 -	006		J24 -	071								
J21-007	J21 -	007		J24 -	072								
J21-008	J21 -	008		TB2 -	034			T2		TG064			
J21-009	J21 -	009		TB2 -	035			T2		TG064			
J21-011	J21 -	011		J08 -	003			T2		TG069			
J21-012	J21 -	012		J08 -	008			T2		TG069			
J21-013	J21 -	013		J08 -	051			T2		TG103			
J21-014	J21 -	014		J08 -	055			T2		TG103			
J21-016	J21 -	016		J08 -	024			T2		TG068			
J21-017	J21 -	017		J08 -	031			T2		TG068			
J21-018	J21 -	018		J08 -	016			T2		TG067			

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks
	Cmpnt	Pin	Ref	Cmpnt	Pin	Ref							
J21-019		J21 -		019		J08 -		009			T2	000	TG067
J21-021 A	J21 -	021		TB1 -	001								
P005+ AA	J21 -	022		HY07-	001		22				*DIR	7	
P005+ AE	J21 -	023		HY08-	001		22				*DIR	7	
P015RTN A	J21 -	024		W08 -	---				000			8	
J21-026	J21 -	026		J19 -	026							10	
J21-027	J21 -	027		J19 -	027							10	
J21-028	J21 -	028		J26 -	094			T2		TG062			
J21-029	J21 -	029		J26 -	093			T2	000	TG062			
J22-031	J21 -	031		J22 -	031			T2	000	TG045			
J22-032	J21 -	032		J22 -	032			T2		TG045			
J22-033	J21 -	033		J22 -	033			T2	000	TG046			
J22-034	J21 -	034		J22 -	034			T2		TG046			
J21-036	J21 -	036		TB2 -	002								
J24-063	J21 -	041		J24 -	063								
J21-042	J21 -	042		J24 -	101								
P015- A	J21 -	044		W09 -	---							8	
J21-046	J21 -	046		J19 -	008								
J21-047	J21 -	047		J19 -	009								
J21-048	J21 -	048		J19 -	022							10	
J21-049	J21 -	049		J19 -	023							10	
J21-051	J21 -	051		J05 -	083			T2		TG012			
J21-052	J21 -	052		J05 -	095			T2	000	TG012			
J21-053	J21 -	053		J05 -	084			T2		TG013			
J21-054	J21 -	054		J05 -	085			T2	000	TG013			
J21-056	J21 -	056		J05 -	087			T2	000	TG014			
J21-057	J21 -	057		J05 -	086			T2		TG014			
J21-058	J21 -	058		J05 -	089			T2	000	TG015			
J21-059	J21 -	059		J05 -	088			T2		TG015			
J21-061	J21 -	061		J26 -	053			T2	000	TG080			
J21-062	J21 -	062		J26 -	052			T2		TG080			
POPG S	J21 -	064		HY13-	001		22		000		*DIR	7	
POPG W	J21 -	065		HY14-	001		22		000		*DIR	7	
J21-067	J21 -	067		J19 -	003							10	
J21-068	J21 -	068		J19 -	002							10	
J21-069	J21 -	069		J19 -	001							10	
J21-071	J21 -	071		J05 -	090			T2		TG016			
J21-072	J21 -	072		J05 -	091			T2	000	TG016			
J21-073	J21 -	073		J05 -	096			T2		TG017			
J21-074	J21 -	074		J05 -	097			T2	000	TG017			
J21-076	J21 -	076		J05 -	108			T2	000	TG018			
J21-077	J21 -	077		J05 -	098			T2		TG018			
J21-078	J21 -	078		J05 -	100			T2	000	TG019			
J21-079	J21 -	079		J05 -	099			T2		TG019			
J21-081	J21 -	081		J05 -	101			T2		TG020			
J21-082	J21 -	082		J05 -	111			T2	000	TG020			
J21-083	J21 -	083		J05 -	102			T2		TG021			
J21-084	J21 -	084		J05 -	103			T2	000	TG021			
POPG AA	J21 -	085		HY15-	001		22		000		*DIR	7	
POPG AE	J21 -	086		HY16-	001		22		000		*DIR	7	
J21-088	J21 -	088		J19 -	006							10	
J21-089	J21 -	089		J19 -	007							10	
J21-091	J21 -	091		J05 -	106			T2		TG022			
J21-092	J21 -	092		J05 -	107			T2	000	TG022			
J21-093	J21 -	093		J05 -	109			T2		TG023			
J21-094	J21 -	094		J05 -	110			T2	000	TG023			
J21-096	J21 -	096		J05 -	113			T2	000	TG024			
J21-097	J21 -	097		J05 -	112			T2		TG024			
J21-098	J21 -	098		J05 -	117			T2	000	TG025			
J21-099	J21 -	099		J05 -	116			T2		TG025			
J21-101	J21 -	101		J05 -	118			T2		TG026			
J21-102	J21 -	102		J05 -	125			T2	000	TG026			
J21-103	J21 -	103		J05 -	119			T2		TG027			
J21-104	J21 -	104		J05 -	120			T2	000	TG027			
J24-001	J22 -	001		TB1 -	019			T2	000	TG070			
J24-002	J22 -	002		TB1 -	018			T2		TG070			

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks
	Cmpnt	Pin	Ref	Cmpnt	Pin	Ref							
J24-003	J22 -	003		TB1 -	039			T2	000	TG071			
J24-004	J22 -	004		TB1 -	038			T2		TG071			
J24-006	J22 -	006		TB1 -	020			T2		TG072			
J24-007	J22 -	007		TB1 -	040			T2	000	TG072			
J26-104	J22 -	008		J26 -	104								
J21-021 F	J22 -	011		TB1 -	002								
J22-013	J22 -	013		T01 -	005			T2	000	TG057			
J22-014	J22 -	014		T01 -	003			T2		TG057			
POPG B	J22 -	020		HY09-	002		22		000		*DIR	7	
POPG F	J22 -	021		HY10-	002		22		000		*DIR	7	
J24-022	J22 -	022		J24 -	022								
J24-023	J22 -	023		J24 -	023								
J24-024	J22 -	024		J24 -	024								
J26-040	J22 -	026		TB2 -	019							10	
J22-031	J22 -	031		J21 -	031			T2	000	TG045			
J22-032	J22 -	032		J21 -	032			T2		TG045			
J22-033	J22 -	033		J21 -	033			T2	000	TG046			
J22-034	J22 -	034		J21 -	034			T2		TG046			
POPG K	J22 -	041		HY11-	002		22		000		*DIR	7	
POPG P	J22 -	042		HY12-	002		22		000		*DIR	7	
J24-043	J22 -	043		J24 -	043								
J24-044	J22 -	044		J24 -	044								
J20-102	J22 -	061		TB1 -	003							8	
J20-083	J22 -	062		TB1 -	004							8	
J22-066	J22 -	066		J11 -	061			T4		TG049			
J22-067	J22 -	067		J11 -	003			T4	000	TG049			
J22-068	J22 -	068		J11 -	073			T4	222	TG049			
J22-069	J22 -	069		J11 -	031			T4	555	TG049			
J22-070	J22 -	070		J11 -	057			T4		TG120			
J22-071	J22 -	071		J11 -	053			T4	222	TG120			
J22-072	J22 -	072		J11 -	058			T4	555	TG120			
J22-073	J22 -	073		J11 -	054			T4	000	TG120			
J20-080	J22 -	080		J20 -	080			T2		TG047			
J20-044	J22 -	081		TB2 -	020								
J25-055	J22 -	082		TB1 -	006							8	
P005+ B	J22 -	083		HY01-	002		22				*DIR	7	
P005+ F	J22 -	084		HY02-	002		22				*DIR	7	
J24-086	J22 -	086		J24 -	086			T2		TG036			
J24-087	J22 -	087		J24 -	087			T2	000	TG036			
J24-088	J22 -	088		J24 -	088			T2		TG037			
J24-089	J22 -	089		J24 -	089			T2	000	TG037			
J21-009	J22 -	091		TB2 -	035			T2		TG066			
J21-008	J22 -	092		TB2 -	034			T2	000	TG066			
J24-093	J22 -	093		J24 -	093			T2	000	TG040			
J24-094	J22 -	094		J24 -	094			T2		TG040			
J25-056	J22 -	099		TB1 -	007							8	
J20-100	J22 -	100		J20 -	100			T2	000	TG047			
J25-057	J22 -	101		TB1 -	008							8	
J25-058	J22 -	102		TB1 -	009							8	
P005+ K	J22 -	103		HY03-	002		22				*DIR	7	
P005+ P	J22 -	104		HY04-	002		22				*DIR	7	
J23-002	J23 -	002		J11 -	023								
J23-003	J23 -	003		J25 -	051								
J23-004	J23 -	004		J04 -	023								
J23-005	J23 -	005		J04 -	022								
J23-008	J23 -	008		J04 -	006								
J23-010	J23 -	010		J04 -	025			S2		SG003			
J23-011	J23 -	011		J04 -	048			S2	000	SG003			
J23-013	J23 -	013		J04 -	026			S2		SG004			
J23-014	J23 -	014		J04 -	049			S2	000	SG004			
J23-016	J23 -	016		J04 -	027			S2		SG001			
J23-017	J23 -	017		J04 -	050			S2	000	SG001			
POPG X	J23 -	020		HY14-	002		22		000		*DIR	7	
POPG T	J23 -	021		HY13-	002		22		000		*DIR	7	
POPG AF	J23 -	041		HY16-	002		22		000		*DIR	7	
POPG AB	J23 -	042		HY15-	002		22		000		*DIR	7	
J24-092	J23 -	043		TB2 -	036			T2		TG106			
J24-091	J23 -	044		TB2 -	037			T2	000	TG106			

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks
	Cmpnt	Pin	Ref	Cmpnt	Pin	Ref							
J23-047	J23 -	047		TB2 -	024								
LOLVLSINHI	J23 -	064		TB1 -	025			T4		TG048			
LO LVLCOSHI	J23 -	065		TB1	027			T4	000	TG048			
LOLVLSINLO	J23 -	066		TB1 -	026			T4	222	TG048			
LOLV LCOS LO	J23 -	067		TB1 -	028			T4	555	TG048			
J23-069	J23 -	069		TO1 -	002			T2	000	TG058			
J23-070	J23 -	070		TO1 -	001			T2		TG058			
J23-071	J23 -	071		J04 -	070			T2		TG060			
P028RTN E	J23 -	079		W04 -	---				000			8	
P015RTN C	J23 -	081		W08 -	---				000			8	
P005+ T	J23 -	083		HY05-	002		22				*DIR	7	
P005+ X	J23 -	084		HY06-	002		22				*DIR	7	
HILVLSINHI	J23 -	085		TB1 -	021			T4		TG051			
HI LVLCOSHI	J23 -	086		TB1 -	023			T4	000	TG051			
HILVLSINLO	J23 -	087		TB1 -	022			T4	222	TG051			
HILVLCOSLO	J23 -	088		TB1 -	024			T4	555	TG051			
J23-092	J23 -	092		J04 -	056			T2	000	TG060			
P028+ E	J23 -	094		W03 -	---							8	
P015- C	J23 -	098		W09 -	---							8	
P015+ C	J23 -	100		W07 -	---							8	
P005+ AB	J23 -	103		HY07-	002		22				*DIR	7	
P005+ AF	J23 -	104		HY08-	002		22				*DIR	7	
J24-001	J24 -	001		TB1 -	019			T2	000	TG044			
J24-002	J24 -	002		TB1 -	018			T2		TG044			
J24-003	J24 -	003		TB1 -	039			T2	000	TG041			
J24-004	J24 -	004		TB1 -	038			T2		TG041			
J24-006	J24 -	006		TB1 -	020			T2		TG043			
J24-007	J24 -	007		TB1 -	040			T2	000	TG043			
J24-008	J24 -	008		J09 -	016			T2		TG042			
J24-009	J24 -	009		J09 -	009			T2	000	TG042			
J21-021 D	J24 -	011		TB1 -	002								
J24-012	J24 -	012		J10 -	089								
J24-013	J24 -	013		J10 -	042								
J24-014	J24 -	014		J10 -	050								
J24-016	J24 -	016		J10 -	001								
J24-017	J24 -	017		J10 -	002								
J24-018	J24 -	018		J10 -	003								
J24-019	J24 -	019		J10 -	070								
POPG U	J24 -	020		HY13-	003		22				*DIR	7	
POPG Y	J24 -	021		HY14-	003		22				*DIR	7	
J24-022	J24 -	022		J22 -	022								
J24-023	J24 -	023		J22 -	023								
J24-024	J24 -	024		J22 -	024								
J24-026	J24 -	026		J19 -	043								
J24-027	J24 -	027		J19 -	044								
J24-028	J24 -	028		J19 -	046								
J24-029	J24 -	029		J19 -	047								
J24-031	J24 -	031		J19 -	048								
J24-032	J24 -	032		J19 -	049								
J24-033	J24 -	033		J19 -	051								
J24-034	J24 -	034		J19 -	052								
J24-036	J24 -	036		J10 -	074								
J24-037	J24 -	037		J10 -	075								
J24-038	J24 -	038		J10 -	077								
J24-039	J24 -	039		J10 -	055								
POPG AC	J24 -	041		HY15-	003		22				*DIR	7	
POPG AG	J24 -	042		HY16-	003		22				*DIR	7	
J24-043	J24 -	043		J22 -	043								
J24-044	J24 -	044		J22 -	044								
J24-046	J24 -	046		TB1 -	010								
J24-047	J24 -	047		TB1 -	011								
J24-048	J24 -	048		TB1 -	012								
J24-049	J24 -	049		TB1 -	013								
J24-051	J24 -	051		TB1 -	014								
J24-052	J24 -	052		TB1 -	015								
J24-053	J24 -	053		TB1 -	016								
J24-054	J24 -	054		TB1 -	017								
J24-056	J24 -	056		TB2 -	021								

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From			To			AWG	Type	Color		Route	Note	Remarks
	Cmpnt	Pin	Ref	Cmpnt	Pin	Ref							
J24-057	J24 -	057		TB2 -	022								
J24-058	J24 -	058		TB2 -	023								
J24-059	J24 -	059		J10 -	045								
J24-061	J24 -	061		J10 -	059								
J24-063	J24 -	063		J21 -	041								
J21-021	J24 -	064		TB1 -	001								
J21-009	J24 -	066		TB2 -	035			T2					
J21-008	J24 -	067		TB2 -	034			T2	000				
J20-053	J24 -	068		J20 -	053			T2	000				
J20-054	J24 -	069		J20 -	054			T2					
J21-006	J24 -	071		J21 -	006								
J21-007	J24 -	072		J21 -	007								
J24-074	J24 -	074		J10 -	090								
J24-076	J24 -	076		J10 -	067								
J24-077	J24 -	077		J10 -	058								
J24-081	J24 -	081		J05 -	057								
J24-082	J24 -	082		J10 -	060								
P005+	J24 -	083		HY05-	003		22				*DIF	7	
P005+	J24 -	084		HY06-	003		22				*DIF	7	
J24-086	J24 -	086		J22 -	086			T2					
J24-087	J24 -	087		J22 -	087			T2	000				
J24-088	J24 -	088		J22 -	088			T2					
J24-089	J24 -	089		J22 -	089			T2	000				
J24-091	J24 -	091		TB2 -	037			T2	000				
J24-092	J24 -	092		TB2 -	036			T2					
J24-093	J24 -	093		J22 -	093			T2	000				
J24-094	J24 -	094		J22 -	094			T2					
J24-096	J24 -	096		J19 -	004								
J21-004	J24 -	097		J21 -	004								
J20-101	J24 -	098		J20 -	101								
J24-099	J24 -	099		J11 -	010								
J21-042	J24 -	101		J21 -	042								
J21-036	J24 -	102		TB2 -	002								
P005+	J24 -	103		HY07-	003		22				*DIF	7	
P005+	J24 -	104		HY08-	003		22				*DIF	7	
P005+	J25 -	001		HY01-	003		22				*DIF	7	
P005+	J25 -	002		HY02-	003		22				*DIF	7	
J25-003	J25 -	003		J09 -	054								
J25-004	J25 -	004		J09 -	049								
J25-005	J25 -	005		J09 -	030								
J25-006	J25 -	006		J09 -	015								
J25-008	J25 -	008		J08 -	001								
J25-009	J25 -	009		J09 -	010								
J25-010	J25 -	010		J09 -	001								
J25-011	J25 -	011		J04 -	062			T2					
J25-012	J25 -	012		J04 -	074			T2	000				
J25-013	J25 -	013		J09 -	038								
J25-014	J25 -	014		J04 -	075			T2		TG09			
J25-015	J25 -	015		J04 -	063			T2	000	TG09			
J25-016	J25 -	016		J09 -	045								
J25-017	J25 -	017		J04 -	007			T2		TG09			
J25-018	J25 -	018		J04 -	008			T2	000	TG09			
J25-019	J25 -	019		J04 -	035			T2		TG09			
J25-020	J25 -	020		J04 -	009			T2	000	TG09			
P005+	J25 -	022		HY03-	003		22				*DIF	7	
P005+	J25 -	023		HY04-	003		22				*DIF	7	
J25-028	J25 -	028		J09 -	052			T2		TG08			
J25-029	J25 -	029		J09 -	046			T2	000	TG08			
J25-050	J25 -	050		J09 -	034			T2	000	TG08			
J23-003	J25 -	051		J23 -	003								
J25-052	J25 -	052		J09 -	042			T2		TG08			
J25-053	J25 -	053		J09 -	040								
J25-055	J25 -	055		TB1 -	006							8	
J25-056	J25 -	056		TB1 -	007							8	
J25-057	J25 -	057		TB1 -	008							8	
J25-058	J25 -	058		TB1 -	009							8	
J20-052	J25 -	059		TB2 -	028							10	
POPG	J25 -	064		HY10-	003		22		000		*DIF	7	

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks
	Cmpnt	Pin	Ref	Cmpnt	Pin	Ref							
POPG L	J25 -	065		HY11-	003		22		000		*DIR	7	
J25-070	J25 -	070		J11 -	046								
J25-071	J25 -	071		J11 -	021								
J25-072	J25 -	072		J11 -	045								
J25-073	J25 -	073		J11 -	064								
J25-074	J25 -	074		J11 -	041								
J25-075	J25 -	075		J11 -	015								
J25-078	J25 -	078		J09 -	039								
J25-079	J25 -	079		J08 -	035								
P015RTN B	J25 -	080		W08 -	---				000			8	
P028+ D	J25 -	081		W03 -	---							8	
J25-083	J25 -	083		J09 -	035			S2	000	SG002			
J25-084	J25 -	084		J09 -	020			S2		SG002			
POPG Q	J25 -	085		HY12-	003		22		000		*DIR	7	
POPG C	J25 -	086		HY09-	003		22		000		*DIR	7	
J25-087	J25 -	087		J11 -	055								
J25-088	J25 -	088		J11 -	034								
J25-089	J25 -	089		J11 -	039								
J25-090	J25 -	090		J11 -	013								
J25-091	J25 -	091		J11 -	001								
J25-093	J25 -	093		J08 -	039								
J25-094	J25 -	094		TB1 -	005								
J25-095	J25 -	095		J09 -	047								
J25-097	J25 -	097		TB2 -	025	A		S1					
POSH-01 C	J25 -	097	S	J25 -	098			SL	000				
POSH-01 C	J25 -	098		J25 -	097	S		SL	000				
P015- B	J25 -	099		W09 -	---							8	
P028RTN D	J25 -	100		W04 -	---				000			8	
P015+ B	J25 -	101		W07 -	---							8	
J26-001	J26 -	001		J04 -	046								
J26-002	J26 -	002		J04 -	021								
J26-003	J26 -	003		J04 -	045								
J26-004	J26 -	004		J04 -	064								
J26-005	J26 -	005		J04 -	041			T2		TG085			
J26-006	J26 -	006		J04 -	015			T2	000	TG085			
J26-007	J26 -	007		J04 -	055			T2		TG086			
J26-008	J26 -	008		J04 -	034			T2	000	TG086			
J26-009	J26 -	009		J04 -	039			T2		TG087			
J26-010	J26 -	010		J04 -	013			T2	000	TG087			
J26-011	J26 -	011		J04 -	017			T2		TG081			
J26-012	J26 -	012		J04 -	043			T2	000	TG081			
J26-013	J26 -	013		J04 -	044			T2		TG082			
J26-014	J26 -	014		J04 -	018			T2	000	TG082			
J26-015	J26 -	015		J04 -	019			T2		TG083			
J26-016	J26 -	016		J04 -	020			T2	000	TG083			
J26-017	J26 -	017		J04 -	010			T2		TG073			
J26-018	J26 -	018		J04 -	036			T2	000	TG073			
J26-019	J26 -	019		J11 -	017								
J26-020	J26 -	020		J11 -	043								
J26-022	J26 -	022		J04 -	038			T2		TG074			
J26-023	J26 -	023		J04 -	012			T2	000	TG074			
J26-024	J26 -	024		J04 -	014			T2		TG075			
J26-025	J26 -	025		J04 -	040			T2	000	TG075			
J26-026	J26 -	026		J04 -	067			T2		TG076			
J26-027	J26 -	027		J04 -	076			T2	000	TG076			
J26-028	J26 -	028		J04 -	011			T2		TG077			
J26-029	J26 -	029		J04 -	037			T2	000	TG077			
J26-030	J26 -	030		J04 -	077			T2		TG078			
J26-031	J26 -	031		J04 -	079			T2	000	TG078			
J26-032	J26 -	032		J04 -	042			T2		TG079			
J26-033	J26 -	033		J04 -	016			T2	000	TG079			
J26-038	J26 -	038		J19 -	097								
J26-039	J26 -	039		J19 -	098								
J26-040	J26 -	040		TB2 -	019							10	
J26-042	J26 -	042		J20 -	087								
J23-047	J26 -	046		TB2 -	024								
J26-047	J26 -	047		J19 -	036			T2		TG084		10	
J26-048	J26 -	048		J19 -	037			T2	000	TG084		10	

Table 8-1. Signal Processor Unit Wire List – Continued

Signal		From	Pin		To Cmpnt	To Pin		AWG	Type		Group	Route	Note	Remarks	
J26-049		J26 -	049		J04 -	001									
J21-062		J26 -	052		J21 -	062			T2		TG080				
J21-061		J26 -	053		J21 -	061			T2		TG080				
J26-054	A	J26 -	054		TB2 -	029									
J26-055		J26 -	055		J08 -	046									
J20-024		J26 -	066		TB2 -	032			T2		TG110				
J20-003		J26 -	067		TB2 -	031			T2		TG110				
J26-079		J26 -	079		J19 -	086									
J26-081		J26 -	081		J19 -	087									
J26-082		J26 -	082		TB2 -	033									
J26-083		J26 -	083		J19 -	088									
J26-086		J26 -	086		J19 -	064									
J26-087		J26 -	087		J19 -	029							10		
J26-088		J26 -	088		TB2 -	008							10		
J26-091		J26 -	091		J10 -	029			T2		TG101				
J26-092		J26 -	092		J10 -	028			T2		TG101				
J21-029		J26 -	093		J21 -	029			T2		TG062				
J21-028		J26 -	094		J21 -	028			T2		TG062				
J20-067		J26 -	096		J20 -	067									
J20-102		J26 -	102		TB1 -	003							8		
J26-104		J26 -	104		J22 -	008									
P028+	S	J27 -	---		W03 -	---			T2		TG050		8		
P028RTN	A	J28 -	---		W04 -	---			T2		TG050		8		
P005+	AW	J29 -	---		W05A-	---			T2		TG061		8		
POPG	BP	J30 -	---		W06A-				T2		TG061		8		
P015+	G	J31 -	---		W07 -				T3		TG063		8		
P015RTN	N	J32 -			W08 -	---			T3		TG063		8		
P015-	K	J33 -			W09 -	---			T3		TG063		8		
P115VAC-09		K01 -	001		J19 -	063		22	T2		TG112		9		**
P115VAC-10		K01 -	002		J19 -	019		22	T2		TG113		9		**
P115VAC-10		K01 -	002		J03 -	C		16	T2		TG115		9		**
P115VAC		K01 -	003		W01 -			22	T2		TG112		9		**
P115VAC		K01 -	006		W01 -	---		16	T2		TG114		9		**
P028RTN	K	K01 -	007		W04 -			18	T2		TG107		8		**
P028+V-01		K01 -	008		S04 -	A		18	T2		TG107		8		**
P115VAC-01		P51 -	001		RT2 -	E02		22	T2		TG095		9		**
P115VACR-1		P51 -	002		J19 -	042		22	T2		TG095		9		**
P028+	F	P51 -	003		P51 -	004							8		**
P028+	G	P51 -	003		Z01 -	(+)		18					8		**
P028+	F	P51 -	004		P51 -	003							8		**
P028RTN	F	P51 -	005		P51 -	007							8		**
P028RTN	G	P51 -	005		P51 -	006							8		**
P028RTN	G	P51 -	006		P51 -	005							8		**
P028RTN	H	P51 -	006		Z01 -	(-)		18					8		**
P028RTN	F	P51 -	007		P51 -	005							8		**
POCG	H	P51 -	009		W10 -	---		18						**	
P115VAC-03		P52 -	001		RT1 -	E04		22	T2		TG096		9		**
P115VACR-2		P52 -	002		J19 -	084		22	T2		TG096		9		**
P005+	AN	P52 -	003		P52 -	004		16	B						
P005+	AP	P52 -	003		P52 -	004		16	B						
P005+	BA	P52 -	003		HY18-	001		12					8		**
P005+	AN	P52 -	004		P52 -	003		16	B						
P005+	AP	P52 -	004		P52 -	003		16	B						
P005+	AT	P52 -	004		Z02 -	(+)		12				*DIR	8		**
POPG	BF	P52 -	005		P52 -	006		16	B						
POPG	BG	P52 -	005		P52 -	006		16	B						
POPG	BI	P52 -	005		P52 -	007							8	**	
POPG	BL	P52 -	005		Z02 -	(-)		12				*DIR	8		**
POPG	BF	P52 -	006		P52 -	005		16	B						
POPG	BG	P52 -	006		P52 -	005		16	B						
POPG	BS	P52 -	006		HY19-	001		12					8		**
POPG	BI	P52 -	007		P52 -	005							8	**	
POCG	J	P52 -	009		W10 -			18						**	
P115VAC-05		P53 -	001		RT3 -	E06		22	T2		TG097		9		**
P115VACR-3		P53 -	002		J19 -	104		22	T2		TG097		9		**
P015+	D	P53 -	003		P53 -	004							8		**
P015+	E	P53 -	003		Z03 -	(+)		18					8		**
P015+	D	P53 -	004		P53 -	003							8		**

Table 8-1. Signal Processor Unit Wire List – Continued

Signal		From Cmpnt	From Pin	From Ref	To Cmpnt	To Pin	To Ref	AWG	Type	Color	Group	Route	Note	Remarks
P015RTN	D	PS3 -	005		PS3 -	006				000			8	**
P015RTN	M	PS3 -	005		PS3 -	007				000			8	**
P015RTN	D	PS3 -	006		PS3 -	005				000			8	**
P015RTN	E	PS3 -	006		Z03 -	(-)		18		000			8	**
P015RTN	M	PS3 -	007		PS3 -	005				000			8	**
POCG	K	PS3 -	009		W10 -	---		18		000				**
P115VAC-07		PS4 -	001		RT4 -	E08		22	T2		TG098		9	**
P115VACR-4		PS4 -	002		J19 -	040		22	T2	000	TG098		9	**
P015RTN	H	PS4 -	003		Z04 -	(+)		18		000			8	**
P015RTN	J	PS4 -	003		PS4 -	004				000			8	**
P015RTN	J	PS4 -	004		PS4 -	003				000			8	**
P015-	G	PS4 -	005		PS4 -	007							8	**
P015-	H	PS4 -	005		PS4 -	006							8	**
P015-	H	PS4 -	006		PS4 -	005							8	**
P015-	J	PS4 -	006		Z04 -	(-)		18					8	**
P015-	G	PS4 -	007		PS4 -	005							8	**
POCG	L	PS4 -	009		W10 -	---		18		000				**
P028+V-02		PS5 -	(+)		J19 -	058		22	T2		TG116		8	
P028RTN-01		PS5 -	(-)		J19 -	059		22	T2	000	TG116		8	
PWRBLOWER1		PS5 -	T01		B01 -	001		22	T3		TG100		F1	
PWRBLOWER2		PS5 -	T04		B01 -	003		22	T3	000	TG100		F1	
PWRBLOWER3		PS5 -	T08		B01 -	004		22	T3	222	TG100		F1	
P115VAC-04		RT1 -	E03		J19 -	083		22	T2		TG096		9	**
P115VAC-03		RT1 -	E04		PS2 -	001		22	T2		TG096		9	**
P115VAC-02		RT2 -	E01		J19 -	041		22	T2		TG095		9	**
P115VAC-01		RT2 -	E02		PS1 -	001		22	T2		TG095		9	**
P115VAC-06		RT3 -	E05		J19 -	103		22	T2		TG097		9	**
P115VAC-05		RT3 -	E06		PS3 -	001		22	T2		TG097		9	**
P115VAC-08		RT4 -	E07		J19 -	061		22	T2		TG098		9	**
P115VAC-07		RT4 -	E08		PS4 -	001		22	T2		TG098		9	**
P028+V-01		S04 -	A		K01 -	008		18	T2		TG107		8	**
P028+	M	S04 -	B		W03 -	---		18	T2		TG107		8	
J23-070		T01 -	001		J11 -	070			T2		TG059			
J23-070		T01 -	001		J23 -	070			T2		TG058			
J23-069		T01 -	002		J11 -	056			T2	000	TG059			
J23-069		T01 -	002		J23 -	069			T2	000	TG058			
J22-014		T01 -	003		J22 -	014			T2		TG057			
J22-013		T01 -	005		J22 -	013			T2	000	TG057			
J21-021	A	TB1 -	001		J21 -	021								
J21-021	B	TB1 -	001		J24 -	064								
J21-021	G	TB1 -	001		TB1 -	002								JUMPER
J21-021	D	TB1 -	002		J24 -	011								
J21-021	E	TB1 -	002		J20 -	051								
J21-021	F	TB1 -	002		J22 -	011								
J21-021	G	TB1 -	002		TB1 -	001								JUMPER
J20-102		TB1 -	003		J19 -	091							8	
J20-102		TB1 -	003		J20 -	102							8	
J20-102		TB1 -	003		J22 -	061							8	
J20-102		TB1 -	003		J26 -	102							8	
J20-083		TB1 -	004		J19 -	092							8	
J20-083		TB1 -	004		J20 -	083							8	
J20-083		TB1 -	004		J22 -	062							8	
J25-094		TB1 -	005		J08 -	038								
J25-094		TB1 -	005		J08 -	045								
J25-094		TB1 -	005		J25 -	094								
J25-055		TB1 -	006		J19 -	015							8	
J25-055		TB1 -	006		J22 -	082							8	
J25-055		TB1 -	006		J25 -	055							8	
J25-056		TB1 -	007		J19 -	013							8	
J25-056		TB1 -	007		J22 -	099							8	
J25-056		TB1 -	007		J25 -	056							8	
J25-057		TB1 -	008		J19 -	014							8	
J25-057		TB1 -	008		J22 -	101							8	
J25-057		TB1 -	008		J25 -	057							8	
J25-058		TB1 -	009		J19 -	016							8	
J25-058		TB1 -	009		J22 -	102							8	
J25-058		TB1 -	009		J25 -	058							8	

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From			To			AWG	Type	Color	Group	Route		
	Cmpnt	Pin	Ref	Cmpnt	Pin	Ref							
J24-046	TB1 -	010		J10 -	004								
J24-046	TB1 -	010		J10 -	005								
J24-046	TB1 -	010		J24 -	046								
J24-047	TB1 -	011		J10 -	006								
J24-047	TB1 -	011		J10 -	010								
J24-047	TB1 -	011		J24 -	047								
J24-048	TB1 -	012		J10 -	007								
J24-048	TB1 -	012		J10 -	011								
J24-048	TB1 -	012		J24 -	048								
J24-049	TB1 -	013		J10 -	012								
J24-049	TB1 -	013		J10 -	013								
J24-049	TB1 -	013		J24 -	049								
J24-051	TB1 -	014		J10 -	014								
J24-051	TB1 -	014		J10 -	021								
J24-051	TB1 -	014		J24 -	051								
J24-052	TB1 -	015		J10 -	015								
J24-052	TB1 -	015		J10 -	022								
J24-052	TB1 -	015		J24 -	052								
J24-053	TB1 -	016		J10 -	019								
J24-053	TB1 -	016		J10 -	023								
J24-053	TB1 -	016		J24 -	053								
J24-054	TB1 -	017		J10 -	020								
J24-054	TB1 -	017		J10 -	024								
J24-054	TB1 -	017		J24 -	054								
J24-002	TB1 -	018		J09 -	008			T2		TG111			
J24-002	TB1 -	018		J22 -	002			T2		TG070			
J24-002	TB1 -	018		J24 -	002			T2		TG044			
J24-001	TB1 -	019		J09 -	003			T2	000	TG111			
J24-001	TB1 -	019		J22 -	001			T2	000	TG070			
J24-001	TB1 -	019		J24 -	001			T2	000	TG044			
J24-006	TB1 -	020		J09 -	024			T2		TG119			
J24-006	TB1 -	020		J22 -	006			T2		TG072			
J24-006	TB1 -	020		J24 -	006			T2		TG043			
HILVLSINHI	TB1 -	021		J04 -	005			T4		TG052			
HILVLSINHI	TB1 -	021		J04 -	057			T4		TG053			
HILVLSINHI	TB1 -	021		J04 -	060			T3		TG054			
HILVLSINHI	TB1 -	021		J23 -	085			T4		TG051			
HILVLSINLO	TB1 -	022		J04 -	033			T4	222	TG052			
HILVLSINLO	TB1 -	022		J04 -	058			T4	222	TG053			
HILVLSINLO	TB1 -	022		J04 -	059			T3	222	TG054			
HILVLSINLO	TB1 -	022		J23 -	087			T4	222	TG051			
HILVLCOSHI	TB1 -	023		J04 -	004			T4	000	TG052			
HILVLCOSHI	TB1 -	023		J04 -	053			T4	000	TG053			
HILVLCOSHI	TB1 -	023		J04 -	072			T3	000	TG054			
HILVLCOSHI	TB1 -	023		J23 -	086			T4	000	TG051			
HILVLCOSLO	TB1 -	024		J04 -	032			T4	555	TG052			
HILVLCOSLO	TB1 -	024		J04 -	054			T4	555	TG053			
HILVLCOSLO	TB1 -	024		J23 -	088			T4	555	TG051			
LOLVLSINHI	TB1 -	025		J04 -	052			T4		TG055			
LOLVLSINHI	TB1 -	025		J04 -	061			T4		TG056			
LOLVLSINHI	TB1 -	025		J23 -	064			T4		TG048			
LOLVLSINLO	TB1 -	026		J04 -	068			T4	222	TG055			
LOLVLSINLO	TB1 -	026		J04 -	073			T4	222	TG056			
LOLVLSINLO	TB1 -	026		J23 -	066			T4	222	TG048			
LOLVLCOSHI	TB1 -	027		J04 -	002			T4	000	TG055			
LOLVLCOSHI	TB1 -	027		J04 -	003			T4	000	TG056			
LOLVLCOSHI	TB1 -	027		J23 -	065			T4	000	TG048			
LOLVLCOSLO	TB1 -	028		J04 -	030			T4	555	TG055			
LOLVLCOS LO	TB1 -	028		J04 -	031			T4	555	TG056			
LOLVLCOS LO	TB1 -	028		J23 -	067			T4	555	TG048			
J24-004	TB1 -	038		J09 -	055			T2		TG118			
J24-004	TB1 -	038		J22 -	004			T2		TG071			
J24-004	TB1 -	038		J24 -	004			T2		TG041			
J24-003	TB1 -	039		J09 -	051			T2	000	TG118			
J24-003	TB1 -	039		J22 -	003			T2	000	TG071			
J24-003	TB1 -	039		J24 -	003			T2	000	TG041			
J24-007	TB1 -	040		J09 -	031			T2	000	TG119			
J24-007	TB1 -	040		J22 -	007			T2	000	TG072			

Table 8-1. Signal Processor Unit Wire List – Continued

Signal	From Cmpnt	From Pin	From Ref	To Cmpnt	To Pin	To Ref	AWG	Type	Color	Group	Route	Note	Remarks
J24-007	TB1 -	040		J24 -	007			T2	000	TG043			
J21-036	TB2 -	002		J10 -	041								
J21-036	TB2 -	002		J10 -	069								
J21-036	TB2 -	002		J21 -	036								
J21-036	TB2 -	002		J24 -	102								
J26-088	TB2 -	008		J19 -	028							10	
J26-088	TB2 -	008		J26 -	088							10	
J26-040	TB2 -	019		J22 -	026							10	
J26-040	TB2 -	019		J26 -	040							10	
J20-044	TB2 -	020		J19 -	089								
J20-044	TB2 -	020		J20 -	044								
J20-044	TB2 -	020		J22 -	081								
J24-056	TB2 -	021		J10 -	056								
J24-056	TB2 -	021		J10 -	064								
J24-056	TB2 -	021		J24 -	056								
J24-057	TB2 -	022		J10 -	057								
J24-057	TB2 -	022		J10 -	065								
J24-057	TB2 -	022		J24 -	057								
J24-058	TB2 -	023		J10 -	016								
J24-058	TB2 -	023		J10 -	068								
J24-058	TB2 -	023		J24 -	058								
J23-047	TB2 -	024		J04 -	029								
J23-047	TB2 -	024		J23 -	047								
J23-047	TB2 -	024		J26 -	046								
J25-097	TB2 -	025	B	J08 -	010			S1					
J25-097	TB2 -	025	C	J11 -	022			S1					
J25-097	TB2 -	025	A	J25 -	097			S1					
POSH-01 A	TB2 -	025	AS	TB2 -	025	BS		SP	000				
POSH-01 A	TB2 -	025	BS	TB2 -	025	AS		SP	000				
POSH-01 B	TB2 -	025	BS	TB2 -	025	CS		SP	000				
POSH-01 B	TB2 -	025	CS	TB2 -	025	BS		SP	000				
J20-052	TB2 -	028		J20 -	052							10	
J20-052	TB2 -	028		J25 -	059							10	
J26-054 A	TB2 -	029		J26 -	054								
J26-054 B	TB2 -	029		J08 -	052								
J26-054 C	TB2 -	029		J08 -	054								
J26-054 D	TB2 -	029		J08 -	049								
J26-054 H	TB2 -	029		TB2 -	030								JUMPER
J26-054 E	TB2 -	030		J08 -	030								
J26-054 F	TB2 -	030		J08 -	015								
J26-054 H	TB2 -	030		TB2 -	029								JUMPER
J20-003	TB2 -	031		J20 -	003			T2	000	TG008			
J20-003	TB2 -	031		J26 -	067			T2	000	TG110			
J20-024	TB2 -	032		J20 -	024			T2		TG008			
J20-024	TB2 -	032		J26 -	066			T2		TG110			
J26-082	TB2 -	033		J19 -	093								
J26-082	TB2 -	033		J26 -	082								
J21-008	TB2 -	034		J21 -	008			T2	000	TG064			
J21-008	TB2 -	034		J22 -	092			T2	000	TG066			
J21-008	TB2 -	034		J24 -	067			T2	000	TG065			
J21-009	TB2 -	035		J21 -	009			T2		TG064			
J21-009	TB2 -	035		J22 -	091			T2		TG066			
J21-009	TB2 -	035		J24 -	066			T2		TG065			
J24-092	TB2 -	036		J20 -	049			T2		TG039			
J24-092	TB2 -	036		J23 -	043			T2		TG106			
J24-092	TB2 -	036		J24 -	092			T2		TG038			
J24-091	TB2 -	037		J20 -	048			T2	000	TG039			
J24-091	TB2 -	037		J23 -	044			T2	000	TG106			
J24-091	TB2 -	037		J24 -	091			T2	000	TG038			
P115VAC	W01 -	---		J01 -	C		16	T2		TG094		9	
P115VAC	W01 -	---		J19 -	021		22	T2		TG117		9	
P115VAC	W01 -	---		K01 -	003		22	T2		TG112		9	**
P115VAC	W01 -	---		K01 -	006		16	T2		TG114		9	**
P115VACRTN A	W02 -	---		J01 -	A		16	T2	000	TG094		9	
P115VACRTN D	W02 -	---		HY17-	001		16	T2	000	TG114		9	
P115VACRTN G	W02 -	---		J19 -	020		22	T2	000	TG117		9	
P115VACRTN H	W02 -	---		J19 -	062		22	T2	000	TG112		9	

Table 8-1. Signal Processor Unit Wire List – Continued

Signal		From Cmpnt	From Pin	From Ref	To	To Pin	To Ref	AWG	Type	Color	Group	Route	Note	Remarks
P028+	A	W03 -	---		J19 -	069							8	
P028+	B	W03 -	---		J19 -	067							8	
P028+	C	W03 -	---		J19 -	081							8	
P028+	D	W03 -	---		J25 -	081							8	
P028+	E	W03 -	---		J23 -	094							8	
P028+	H	W03 -	---		Z01 -	(+)		18					8	
P028+	J	W03 -	---		J19 -	080		22	T2		TG108		8	
P028+	K	W03 -	---		J19 -	078		22	T2		TG109		8	
P028+	M	W03 -	---		S04 -	B		18	T2		TG107		8	
P028+	N	W03 -	---		J03 -	A		16	T2		TG099		8	
P028+	R	W03 -	---		J21 -	005							8	
P028+	S	W03 -	---		J27 -	---			T2		TG050		8	
P028RTN	A	W04 -	---		J28 -	---			T2	00(	TG050		8	
P028RTN	B	W04 -	---		J19 -	068				00(			8	
P028RTN	C	W04 -	---		J19 -	066				00(			8	
P028RTN	D	W04 -	---		J25 -	100				00(			8	
P028RTN	E	W04 -	---		J23 -	079				00(			8	
P028RTN	I	W04 -	---		Z01 -	(-)		18		00(			8	
P028RTN	J	W04 -	---		J19 -	100		22	T2	00(	TG108		8	
P028RTN	K	W04 -	---		K01 -	007		18	T2	00(	TG107		8	**
P028RTN	M	W04 -	---		J03 -	B		16	T2	00(	TG099		8	
P028RTN	N	W04 -	---		J19 -	079		22	T2	00(	TG109		8	
P005+	D	W05A-	---		HY01-	004		16					8	
P005+	H	W05A-	---		HY02-	004		16					8	
P005+	M	W05A-	---		HY03-	004		16					8	
P005+	R	W05A-	---		HY04-	004		16					8	
P005+	V	W05A-	---		HY05-	004		16					8	
P005+	Z	W05A-	---		HY06-	004		16					8	
P005+	AD	W05A-	---		HY07-	004		16					8	
P005+	AH	W05A-	---		HY08-	004		16					8	
P005+	AW	W05A-	---		J29 -	---			T2		TG061		8	
P005+	AJ	W05B-	---		J10 -	063		22					8	
P005+	AK	W05B-	---		J10 -	083		22					8	
P005+	AL	W05B-	---		J10 -	084		22					8	
P005+	AM	W05B-	---		J10 -	085		22					8	
P005+	AR	W05B-	---		J19 -	031							8	
P005+	AS	W05B-	---		J05 -	066							8	
P005+	BB	W05B-	---		HY18-	002		12					8	
P005+	BC	W05B-	---		HY18-	003		12					8	
POPG	D	W06A-	---		HY09-	004		16		00(			8	
POPG	H	W06A-	---		HY10-	004		16		00(			8	
POPG	M	W06A-	---		HY11-	004		16		00(			8	
POPG	R	W06A-	---		HY12-	004		16		00(			8	
POPG	V	W06A-	---		HY13-	004		16		00(			8	
POPG	Z	W06A-	---		HY14-	004		16		00(			8	
POPG	AD	W06A-	---		HY15-	004		16		00(			8	
POPG	AH	W06A-	---		HY16-	004		16		00(			8	
POPG	BJ	W06A-	---		J19 -	032				00(				
POPG	BK	W06A-	---		J05 -	065				00(				
POPG	BP	W06A-	---		J30 -	---			T2	00(	TG061		8	
POPG	BT	W06A-	---		HY19-	002		12		00(			8	
POPG	BU	W06A-	---		HY19-	003		12		00(			8	
POPG	AJ	W06B-	---		J10 -	097		22		00(			8	
POPG	AK	W06B-	---		J10 -	098		22		00(			8	
POPG	AL	W06B-	---		J10 -	099		22		00(			8	
POPG	AM	W06B-	---		J10 -	100		22		00(			8	
POPG	AN	W06B-	---		J05 -	006				00(				
POPG	AP	W06B-	---		J05 -	082				00(				
POPG	AQ	W06B-	---		J05 -	035				00(				
POPG	AR	W06B-	---		J05 -	071				00(				
POPG	AS	W06B-	---		J05 -	059				00(				
POPG	AT	W06B-	---		J05 -	015				00(				
POPG	AU	W06B-	---		J05 -	002				00(				
POPG	AV	W06B-	---		J05 -	077				00(				
POPG	AW	W06B-	---		J05 -	078				00(				
POPG	AX	W06B-	---		J05 -	079				00(				
POPG	AY	W06B-	---		J05 -	126				00(				
POPG	AZ	W06B-	---		J05 -	016				00(				

Table 8-1. Signal Processor Unit Wire List – Continued

Signal		From Cmpnt	From Pin	From Ref	To Cmpnt	To Pin	To Ref	AWG	Type	Color	Group	Route	Note	Remarks
POPG	BA	W06B-	---		J05 -	043				000				
POPG	BB	W06B-	---		J05 -	027				000				
POPG	BC	W06B-	---		J05 -	024				000				
POPG	BD	W06B-	---		J05 -	070				000				
POPG	BE	W06B-	---		J05 -	122				000				
POPG	BN	W06B-	---		J08 -	005				000				
P015+	A	W07 -	---		J21 -	003							8	
P015+	B	W07 -	---		J25 -	101							8	
P015+	C	W07 -	---		J23 -	100							8	
P015+	F	W07 -	---		Z03 -	(+)		18					8	
P015+	G	W07 -	---		J31 -	---			T3		TG063		8	
P015RTN	A	W08 -	---		J21 -	024				000			8	
P015RTN	B	W08 -	---		J25 -	080				000			8	
P015RTN	C	W08 -	---		J23 -	081				000			8	
P015RTN	F	W08 -	---		Z03 -	(-)		18		000			8	
P015RTN	G	W08 -	---		Z04 -	(+)		18		000			8	
P015RTN	N	W08 -	---		J32 -	---			T3	000	TG063		8	
P015-	A	W09 -	---		J21 -	044							8	
P015-	B	W09 -	---		J25 -	099							8	
P015-	C	W09 -	---		J23 -	098							8	
P015-	F	W09 -	---		Z04 -	(-)		18					8	
P015-	K	W09 -	---		J33 -	---			T3	222	TG063		8	
POCG	A	W10 -	---		J01 -	B		16		000				
POCG	B	W10 -	---		J03 -	F		16		000			6	
POCG	C	W10 -	---		J03 -	.A		18		000			6	
POCG	D	W10 -	---		J03 -	.B		18		000			6	
POCG	E	W10 -	---		J03 -	.C		18		000			6	
POCG	F	W10 -	---		J03 -	Z		18		000			6	
POCG	G	W10 -	---		J03 -	Y		18		000			6	
POCG	H	W10 -	---		PS1 -	009		18		000				**
POCG	J	W10 -	---		PS2 -	009		18		000				**
POCG	K	W10 -	---		PS3 -	009		18		000				**
POCG	L	W10 -	---		PS4 -	009		18		000				**
POCG	M	W10 -	---		J04 -	024		22		000				
POCG	N	W10 -	---		J04 -	028		22		000				
POCG	P	W10 -	---		W13 -	---		22		000				
POCG	R	W11 -	---		J03 -	SHD		22		000		*DIR	6	
POSH-02	C	W13 -	---		J04 -	027	S			000				
POSH-02	D	W13 -	---		J04 -	047				000				
POSH-02	E	W13 -	---		J04 -	065				000				
POSH-02	F	W13 -	---		J04 -	066				000				
POCG	P	W13 -	---		W10 -	---		22		000				
POSH-03		W14 -	---		J09 -	020	S			000				
P028+	G	Z01 -	(+)		P51 -	003		18					8	**
P028+	H	Z01 -	(+)		W03 -	---		18					8	
P028RTN	H	Z01 -	(-)		P51 -	006		18		000			8	**
P028RTN	I	Z01 -	(-)		W04 -	---		18		000			8	
P005+	AT	Z02 -	(+)		PS2 -	004		12				*DIR	8	**
POPG	BL	Z02 -	(-)		PS2 -	005		12		000		*DIR	8	**
P015+	E	Z03 -	(+)		PS3 -	003		18					8	**
P015+	F	Z03 -	(+)		W07 -	---		18					8	
P015RTN	E	Z03 -	(-)		PS3 -	006		18		000			8	**
P015RTN	F	Z03 -	(-)		W08 -	---		18		000			8	
P015RTN	G	Z04 -	(+)		W08 -	---		18		000			8	
P015RTN	H	Z04 -	(+)		PS4 -	003		18		000			8	**
P015-	F	Z04 -			W09 -	---		18					8	
P015-	J	Z04 -			PS4 -	006		18					8	**

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Table 8-2. Signal Processor Unit Front Panel Wire List

Signal	From			To				Type	Color	Group	Route	Note	Remarks	Rev
	Component	Pin	Ref		Pin	Ref								
P028+V-03 E	DS02 -	A		DS05 -	G									
P028+V-03 F	DS02 -	A		DS02 -	B									
P028+V-03 F	DS02 -	B		DS02 -	A									
P028+V-03 G	DS02 -	B		DS02 -	C									
P028+V-03 G	DS02 -	C		DS02 -	B									
P028+V-03 H	DS02 -	C		DS02 -	D									
P028+V-03 H	DS02 -	D		DS02 -	C									
ON	DS02 -	G		P001 -	016									
OFF	DS02 -	H		P001 -	015									
P1-033	DS02 -	1C		P001 -	033							5		
P1-035	DS02 -	1NO		P001 -	035							5		
MEMLOAD-01 B	DS02 -	2C		DS13 -	1C							5		
ON-OFF*-02	DS02 -	2NC		P001 -	037			T2	000	TG001		5		
ON-OFF*-01	DS02 -	2NO		P001 -	036			T2		TG001		5		
SPU-ON-01 A	DS03 -	A		P001 -	080		22	T2		TG003		6		
SPU-ON-01 B	DS03 -	A		DS03 -	C		22					6		
SPU-ON-01 B	DS03 -	C		DS03 -	A		22					6		
SPU-ON-01 C	DS03 -	C		M001 -	+			T2		TG002		6		
SPU-ON-02 A	DS03 -	G		P001 -	100		22	T2	000	TG003		6		
SPU-ON-02 C	DS03 -	G		M00	-			T2	000	TG002		6		
P115-PS1-2	DS03 -	1C		XF0	TIP		22	T2		TG004		6		
P115-PS1-4	DS03 -	1NC		NC								6		
P115-PS1-1	DS03 -	1NO		P00	021		22	T2		TG004		6		
IMUFAIL-01	DS05 -	A		P00	013									
IMUFAIL-01 B	DS05 -	A		S00	D									
CMPFAIL-01	DS05 -	C		P00	014									
P028+V-03 A	DS05 -	G		P00	081									
P028+V-03 E	DS05 -	G		DS0	A									
PAR-ERR	DS09 -	A		P00	091									
PAR-ERR B	DS09 -	A		S00	A									
VER-ERR	DS09 -	C		P00	092									
P028+V-01 D	DS09 -	G		DS1	4NO									
P028+V-01 F	DS09 -	G		DS1	B									
FAILACT-11 A	DS10A-	001		P001 -	032									
FAILACT-11 B	DS10A-	001		DS10A-	003									
FAILACT-09 A	DS10A-	002		P001 -	004									
FAILACT-09 B	DS10A-	002		DS10B-	002									
FAILACT-11 B	DS10A-	003		DS10A-	001									
FAILACT-11 C	DS10A-	003		DS10A-	006									
FAILACT-03	DS10A-	004		P001 -	046									
FAILACT-02	DS10A-	005		P001 -	044									
FAILACT-11 C	DS10A-	006		DS10A-	003									
FAILACT-11 D	DS10A-	006		DS10B-	001									
FAILACT-01	DS10A-	007		P001 -	043									
FAILACT-04	DS10A-	008		P001 -	047									
FAILACT-10 A	DS10A-	010		P001 -	031									
FAILACT-10 C	DS10A-	010		DS10B-	010									
FAILACT-11 D	DS10B-	001		DS10A-	006									
FAILACT-11 E	DS10B-	001		DS10B-	003									
FAILACT-09 B	DS10B-	002		DS10A-	002									
FAILACT-11 E	DS10B-	003		DS10B-	001									
FAILACT-11 F	DS10B-	003		DS10B-	006									
FAILACT-07	DS10B-	004		P001 -	051									
FAILACT-06	DS10B-	005		P001 -	049									
FAILACT-11 F	DS10B-	006		DS10B-	003									
FAILACT-05	DS10B-	007		P001 -	048									
FAILACT-08	DS10B-	008		P001 -	052									
FAILACT-10 C	DS10B-	010		DS10A-	010									
P028+V-01 F	DS12 -	B		DS09 -	G									
P028+V-01 G	DS12 -	B		DS12 -	D									
P028+V-01 G	DS12 -	D		DS12 -	B									
SELFTST-03	DS12 -	G		P001 -	064									
MEMLOAD-01 J	DS12 -	1C		DS15 -	1C							5		
SELFTST-01 A	DS12 -	1NC		P001 -	027							5		
SELFTST-02 A	DS12 -	1NO		P001 -	026							5		
SELFTST-05	DS12 -	2C		P001 -	028							5		
LAMPTEST-2 A	DS12 -	2NC		S001 -	3NO							5		

Table 8-2. *ignal Processor Unit Front Panel Wire List - Continued*

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks	Rev
	Componen	Pin	Ref	Componen	Pin	Ref								
SELFTST-04	DS12 -	4C		P001	093									
LAMPTEST-1 A	DS12 -	4NC		S001 -	1NO									
LAMPLOAD-1	DS13 -	A		S001 -	B									
MEMLOAD-04 A	DS13 -	B		P001 -	086									
MEMLOAD-04 B	DS13 -	B		DS13 -	D									
MEMLOAD-04 B	DS13 -	D		DS13 -	B									
MEMLOAD-04 C	DS13 -	D		DS13	4C									
MEMLOAD-05 A	DS13 -	G		P001 -	066									
MEMLOAD-05 B	DS13 -	G		DS14 -	G									
MEMLOAD-01 A	DS13 -	1C		P001 -	003							5		
MEMLOAD-01 B	DS13 -	1C		DS02 -	2C							5		
MEMLOAD-01 C	DS13 -	1C		DS16 -	1C							5		
MEMLOAD-02 B	DS13 -	1NC		P001 -	001							5		
MEMLOAD-03 A	DS13 -	1NO		P001 -	002							5		
MEMLOAD-04 C	DS13 -	4C		DS13 -	D									
P028+V-02 A	DS13 -	4NO		P001 -	067									
P028+V-02 B	DS13 -	4NO		DS14 -	4NO									
P028+V-02 C	DS13 -	4NO		S001 -	1C									
P028+V-02 D	DS13 -	4NO		DS16 -	B									
VERIFY-02 A	DS14 -	B		P001 -	087									
VERIFY-02 B	DS14 -	B		DS14 -	D									
LAMPLOAD-2	DS14 -	C		S003 -	C									
VERIFY-02 B	DS14 -	D		DS14	B									
VERIFY-02 C	DS14 -	D		DS14	4C									
MEMLOAD-05 B	DS14 -	G		DS13 -	G									
MEMLOAD-01 E	DS14 -	1C		DS16 -	1C							5		
MEMLOAD-01 G	DS14 -	1C		DS15 -	1C							5		
VERIFY-03 A	DS14 -	1NC		P001 -	007							5		
VERIFY-01 A	DS14 -	1NO		P001 -	006							5		
VERIFY-02 C	DS14 -	4C		DS14 -	D									
P028+V-02 B	DS14 -	4NO		DS13 -	4NO									
REVERSE-03 A	DS15 -	B		P001 -	088									
REVERSE-03 B	DS15 -	B		DS15 -	D									
REVERSE-03 B	DS15 -	D		DS15 -	B									
REVERSE-03 C	DS15 -	D		DS15 -	4C									
REVERSE-04	DS15 -	G		P001 -	068									
MEMLOAD-01 G	DS15 -	1C		DS14 -	1C							5		
MEMLOAD-01 J	DS15 -	1C		DS12 -	1C							5		
REVERSE-02 A	DS15 -	1NC		P001 -	009									
REVERSE-01 A	DS15 -	1NO		P001 -	008									
REVERSE-03 C	DS15 -	4C		DS15 -	D									
P028+V-01 C	DS15 -	4NO		P001 -	069									
P028+V-01 D	DS15 -	4NO		DS09 -	G									
P028+V-01 H	DS15 -	4NO		S001 -	2C									
P028+V-02 D	DS16 -	B		DS13 -	4NO									
P028+V-02 F	DS16 -	B		DS16 -	D									
P028+V-02 F	DS16 -	D		DS16 -	B									
EXECUTE-03 A	DS16 -	G		P001 -	089									
MEMLOAD-01 C	DS16 -	1C		DS13 -	1C							5		
MEMLOAD-01 E	DS16 -	1C		DS14	1C							5		
EXECUTE-02 A	DS16 -	1NC		P001 -	023							5		
EXECUTE-01 A	DS16 -	1NO		P001 -	022							5		
P115PS3COM A	HY01 -	001		P001 -	018		22	T2	000	TG00				
P115PS3COM B	HY01 -	002		P001 -	040		22	T2	000	TG00				
P115PS3COM C	HY01 -	003		P001 -	104		22	T2	000	TG00				
P115-PS3-1 A	HY02 -	001		P001 -	019		22	T2		TG00				
P115-PS3-1 B	HY02 -	002		XF03 -	TIP		22	T2		TG00		6		
P115-PS3-1 C	HY02 -	003		XF04 -	TIP		22	T2		TG00		6		
SPU-ON-01 C	M001 -	+		DS03 -	C			T2		TG00		6		
SPU-ON-02 C	M001 -	-		DS03 -	G			T2	000	TG00		6		
MEMLOAD-02 B	P001 -	001		DS13 -	1NC							5		
MEMLOAD-03 A	P001 -	002		DS13 -	1NO							5		
MEMLOAD-01 A	P001 -	003		DS13 -	1C							5		
FAILACT-09 A	P001 -	004		DS10A-	002									
VERIFY-01 A	P001 -	006		DS14 -	1NO							5		
VERIFY-03 A	P001 -	007		DS14 -	1NC							5		
REVERSE-01 A	P001 -	008		DS15 -	1NO									

Table 8-2. 'gnal Processor Unit Front Panel Wire List - Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks	Ref
		Pin	Ref		Pin	Ref								
REVERSE-02 A	P001 -	009		DS15 -	1NC									
IMUFAIL-01	P001 -	013		DS05 -	A									
CMPFAIL-01	P001 -	014		DS05	C									
OFF	P001 -	015		DS02 -	H									
ON	P001	016		DS02 -	G									
P115PS3COM A	P001 -	018		HY01	001		22	T2	000	TG001				
P115-PS3-1 A	P001 -	019		HY02	001		22	T2		TG001				
P115PS1COM	P001 -	020		P001 -	042		22	T2	000	TG004				
P115-PS1-1	P001 -	021		DS03 -	1NC		22	T2		TG004		6		
EXECUTE-01 A	P001 -	022		DS16 -	1NC							5		
EXECUTE-02 A	P001 -	023		DS16	1NC							5		
SELFTST-02 A	P001 -	026		DS12 -	1NC							5		
SELFTST-01 A	P001 -	027		DS12 -	1NC							5		
SELFTST-05	P001 -	028		DS12 -	2C							5		
LAMPTEST-3 A	P001 -	029		S001	4C							5		
FAILACT-10 A	P001 -	031		DS10A-	010									
FAILACT-11 A	P001	032		DS10A-	001									
P1-033	P001 -	033		DS02 -	1C							5		
ENTER*2	P001 -	034		S003 -	1C							5		
P1-035	P001 -	035		DS02 -	1NO							5		
ON-OFF*-01	P001 -	036		DS02 -	2NO			T2		TG001		5		
ON-OFF*-02	P001 -	037		DS02 -	2NC			T2	000	TG001		5		
ENTER*-01	P001 -	038		S003 -	1NO							5		
P115PS3COM B	P001 -	040		HY01	002		22	T2	000	TG006				
P115-PS1-3	P001	041		XF01	LUG		22	T2		TG004		6		
P115PS1COM	P001 -	042		P001	020		22	T2	000	TG004				
FAILACT-01	P001 -	043		DS10A-	007									
FAILACT-02	P001 -	044		DS10A-	005									
FAILACT-03	P001 -	046		DS10A-	004									
FAILACT-04	P001 -	047		DS10A-	008									
FAILACT-05	P001 -	048		DS10B-	007									
FAILACT-06	P001 -	049		DS10B-	005									
FAILACT-07	P001 -	051		DS10B-	004									
FAILACT-08	P001 -	052		DS10B-	008									
P028-PS5-2 A	P001 -	058		XF05 -	LUG		22	T2		TG008				
P028PS5RTN	P001 -	059		P001 -	079		22	T2	000	TG008				
P115-PS4-2	P001 -	061		XF03 -	LUG		22	T2		TG006		6		
P115PS2COM	P001 -	062		P001 -	084		22	T2	000	TG005				
P115-PS2-1	P001 -	063		XF02	TIP		22	T2		TG005		6		
SELFTST-03	P001 -	064		DS12 -	G									
MEMLOAD-05 A	P001 -	066		DS13 -	G									
P028+V-02 A	P001 -	067		DS13 -	4NO									
REVERSE-04	P001 -	068		DS15 -	G									
P028+V-01 C	P001 -	069		DS15	4NO									
P028-PS5-1 A	P001 -	078		XF05 -	TIP		22	T2		TG008				
P028PS5RTN	P001 -	079		P001 -	059		22	T2	000	TG008				
SPU-ON-01 A	P001 -	080		DS03 -	A		22	T2		TG003		6		
P028+V-03 A	P001 -	081		DS05 -	G									
P115-PS2-2	P001 -	083		XF02 -	LUG		22	T2		TG005		6		
P115PS2COM	P001 -	084		P001	062		22	T2	000	TG005				
MEMLOAD-04 A	P001 -	086		DS13 -	B									
VERIFY-02 A	P001 -	087		DS14 -	B									
REVERSE-03 A	P001	088		DS15 -	B									
EXECUTE-03 A	P001 -	089		DS16 -	G									
PAR-ERR	P001 -	091		DS09 -	A									
VER-ERR	P001 -	092		DS09 -	C									
SELFTST-04	P001 -	093		DS12	4C									
ENTER*-01	P001 -	097		S003 -	1NO							5		
SPU-ON-02 A	P001 -	100		DS03 -	G		22	T2	000	TG003		6		
P115-PS3-2	P001	103		XF04 -	LUG		22	T2		TG007		6		
P115PS3COM C	P001 -	104		HY01 -	003		22	T2	000	TG007				
PAR-ERR B	S001 -	A		DS09 -	A									
LAMPLOAD-1	S001 -	B		DS13 -	A									
P028+V-02 C	S001 -	1C		DS13	4NO									
LAMPTEST-1 A	S001 -	1NO		DS12 -	4NC									
LAMPTEST-1 B	S001 -	1NO		S001 -	2NO									
P028+V-01 H	S001 -	2C		DS15 -	4NO									

Table 8-2. gnal Processor Unit Front Pa Wire List - Continued

Signal	From			To			AWG	Type	Color	Group	Route		Remarks	Rev
		Pin	Ref	Component	Pin	Ref								
LAMPTEST-1 B	S001 -	2NO		S001 -	1NO									
LAMPTEST-3 B	S001 -	3C		S001 -	4C							5		
LAMPTEST-2 A	S001 -	3NO		DS12 -	2NC							5		
LAMPTEST-2 B	S001 -	3NO		S001 -	4NO							5		
LAMPTEST-3 A	S001 -	4C		P001 -	029							5		
LAMPTEST-3 B	S001 -	4C		S001 -	3C							5		
LAMPTEST-2 B	S001 -	4NO		S001 -	3NO							5		
LAMPLOAD-2	S003 -	C		DS14 -	C									
IMUFAIL-01 B	S003 -	D		DS05 -	A									
ENTER*2	S003 -	1C		P001 -	034							5		
ENTER*-01	S003 -	1NO		P001 -	038							5		
ENTER*-01	S003 -	1NO		P001 -	097							5		
P115-PS1-3	XF01 -	LUG		P001 -	041		22	T2		TG004		6		
P115-PS1-2	XF01 -	TIP		DS03 -	1C		22	T2		TG004		6		
P115-PS2-2	XF02 -	LUG		P001 -	083		22	T2		TG005		6		
P115-PS2-1	XF02 -	TIP		P001 -	063		22	T2		TG005		6		
P115-PS4-2	XF03 -	LUG		P001 -	061		22	T2		TG006		6		
P115-PS3-1 B	XF03 -	TIP		HY02 -	002		22	T2		TG006		6		
P115-PS3-2	XF04 -	LUG		P001 -	103		22	T2		TG007		6		
P115-PS3-1 C	XF04 -	TIP		HY02 -	003		22	T2		TG007		6		
P028-PS5-2 A	XF05 -	LUG		P001 -	058		22	T2		TG008				
P028-PS5-1 A	XF05 -	TIP		P001 -	078		22	T2		TG008				

Table 8-3. Cable Assemblies Wire List

Signal	From			To			AWG	Type	Color	Group	Route	Note		
	Component	Pin	Ref	Component	Pin	Ref								
W212XMIT-	TTY -	A		W212P1-	004									
W21 XMIT+	TTY -	B		W212P1-	003									
W21 REC+	TTY -	C		W212P1-	002									
W21 REC-	TTY -	D		W212P1-	001									
W20 P1-A	W201P1-	A		W201P2-	A		16	FL				F1		
W20 P1-B	W201P1-	B		W201P2-	B		16	FL				F1		
W20 P1-C	W201P1-	C		W201P2-	C		16	FL				F1		
W20 P1-D	W201P1-	D		SPARE										
W20 P1-A	W201P2-	A		W201P1-	A		16	FL				F1		
W20 P1-B	W201P2-	B		W201P1-	B		16	FL				F1		
W20 P1-C	W201P2-	C		W201P1-	C		16	FL				F1		
W20 P1-A	W203P1-	A		W203P2-	A							12		
W20 P1-B	W203P1-	B		W203P2-	B							12		
W20 P1-C	W203P1-	C		W203P2-	C			T2		TG055		12		
W20 P1-D	W203P1-	D		W203P2-	D			T2	000	TG055		12		
W20 P1-E	W203P1-	E		W203P2-	E							12		
W20 P1-F	W203P1	F		W203P2-	F									
W20 P1-G	W203P1-	G		W203P2-	G									
W20 P1-H	W203P1	H		W203P2-	H									
W203P1-J	W203P1-	J		W203P2-	J									
W203P1-K	W203P1-	K		W203P2-	K									
W203P1-L	W203P1-	L		W203P2-	L									
W203P1-M	W203P1-	M		W203P2-	M									
W203P1-N	W203P1	N		W203P2-	N									
W203P1-P	W203P1-	P		W203P2-	P									
W203P1-R	W203P1-	R		W203P2-	R									
W203P1-S	W203P1-	S		W203P2-	S									
W203P1-T	W203P1-	T		W203P2-	T			T2		TG056				
W203P1-U	W203P1-	U		W203P2-	U			T2	000	TG056				
W203P1-V	W203P1	V		W203P2-	V									
W203P1-W	W203P1-	W		W203P2-	W									
W203P1-X	W203P1	X		W203P2-	X									
W203P1-Y	W203P1-	Y		W203P2-	Y									
W203P1-Z	W203P1-	Z		W203P2-	Z		16							
W203P1-.A	W203P1-	.A		W203P2-	.A		16							
W203P1-.B	W203P1-	.B		W203P2-	.B									
W203P1-.C	W203P1-	.C		W203P2-	.C		16							
W203P1-.D	W203P1-	.D		W203P2-	.D									
W203P1-.E	W203P1-	.E		W203P2-	.E		16							
W203P1-.F	W203P1-	.F		W203P2-	.F									
W203P1-.G	W203P1-	.G		W203P2-	.G		16							
W203P1-.H	W203P1-	.H		W203P2-	.H									
W203P1-.I	W203P1-	.I		W203P2-	.I		16							
W203P1-.J	W203P1-	.J		W203P2-	.J									
W203P1-.K	W203P1-	.K		W203P2-	.K		16							
W203P1-.M	W203P1-	.M		W203P2-	.M		16							
W203P1-.N	W203P1-	.N		W203P2-	.N		16							
W203P1-.P	W203P1-	.P		W203P2-	.P		16							
W203P1-.Q	W203P1-	.Q		W203P2-	.Q		16							
W203P1-.R	W203P1-	.R		W203P2-	.R		16							
W203P1-.S	W203P1-	.S		W203P2-	.S		16							
W203P1-.T	W203P1-	.T		W203P	.T		16							
W203P1-A	W203P2-	A		W203P	A							12		
W203P1-B	W203P2-	B		W203P	B							12		
W203P1-C	W203P2-	C		W203P	C			T2		G055		12		
W203P1-D	W203P2-	D		W203P	D			T2	000	G055		12		
W203P1-E	W203P2-	E		W203P	E							12		
W203P1-F	W203P2-	F		W203P	F									
W203P1-G	W203P2-	G		W203P	G									
W203P1-H	W203P2-	H		W203P	H									
W203P1-J	W203P2-	J		W203P	J									
W203P1-K	W203P2-	K		W203P	K									
W203P1-L	W203P2-	L		W203P	L									
W203P1-M	W203P2-	M		W203P	M									
W203P1-N	W203P2-	N		W203P	N									
W203P1-P	W203P2-	P		W203P	P									
W203P1-R	W203P2-	R		W203P	R									

Table 8-3. Cable Assen Wire List - Continued

Signal	From			To									Rev
	Componen	Pin	Ref	Componen	Pin	Ref	WC	Type	Color	Group	Route	Note	Remarks	
W203P1-S	W203P2-	S		W203P1-	S									
W203P1-T	W203P2-	T		W203P1-	T			T2		TG056				
W203P1-U	W203P2-	U		W203P1	U			T2	000	TG056				
W203P1-V	W203P2-	V		W203P1	V									
W203P1-W	W203P2-	W		W203P1-	W									
W203P1-X	W203P2-	X		W203P1-	X									
W203P1-Y	W203P2-	Y		W203P1-	Y									
W203P1-Z	W203P2-	Z		W203P1-	Z		16							
W203P1-.A	W203P2-	.A		W203P1-	.A		16							
W203P1-.B	W203P2-	.B		W203P1-	.B									
W203P1-.C	W203P2-	.C		W203P1-	.C		16							
W203P1-.D	W203P2-	.D		W203P1-	.D									
W203P1-.E	W203P2-	.E		W203P1-	.E		16							
W203P1-.F	W203P2-	.F		W203P1-	.F									
W203P1-.G	W203P2-	.G		W203P1-	.G		16							
W203P1-.H	W203P2-	.H		W203P1-	.H									
W203P1-.I	W203P2-	.I		W203P1-	.I		16							
W203P1-.J	W203P2-	.J		W203P1-	.J									
W203P1-.K	W203P2-	.K		W203P1-	.K		16							
W203P1-.M	W203P2-	.M		W203P1	.M		16							
W203P1-.N	W203P2-	.N		W203P1-	.N		16							
W203P1-.P	W203P2-	.P		W203P1-	.P		16							
W203P1-.Q	W203P2-	.Q		W203P1-	.Q		16							
W203P1-.R	W203P2-	.R		W203P1-	.R		16							
W203P1-.S	W203P2-	.S		W203P1-	.S		16							
W203P1-.T	W203P2-	.T		W203P1-	.T		16							
POSH-60 A	W204P1-	GND		W204P1-	036	S		SL		SG065				
POSH-60 C	W204P1-	GND		W204P1	024								GND RING	
W204P1-001	W204P1	001		W204P2-	001									
W204P1-002	W204P1-	002		W204P2-	002			T2		TG044				
W204P1-003	W204P1	003		W204P2-	003			T2		TG042				
W204P1-004	W204P1-	004		W204P2-	004			T2		TG040				
W204P1-005	W204P1-	005		W204P2-	005			T2		TG041				
W204P1-006	W204P1-	006		W204P2-	006									
W204P1-007	W204P1-	007		W204P2-	007			T2		TG035				
W204P1-008	W204P1-	008		W204P2-	008			T2	000	TG035				
W204P1-009	W204P1-	009		W204P2-	009			T2	000	TG034				
W204P1-010	W204P1-	010		W204P2-	010			S2		SG065				
W204P1-011	W204P1-	011		W204P2-	011			T2		TG032		11		
W204P1-012	W204P1-	012		W204P2-	012			T2	000	TG030		11		
W204P1-013	W204P1-	013		W204P2-	013			T2	000	TG048				
W204P1-014	W204P1-	014		W204P2-	014			T2		TG026		11		
W204P1-015	W204P1-	015		W204P2-	015			T2	000	TG047				
W204P1-016	W204P1-	016		W204P2-	016			T2	000	TG029		11		
W204P1-017	W204P1-	017		W204P2-	017			T2		TG028		11		
W204P1-018	W204P1-	018		W204P2-	018			T2	000	TG027		11		
W204P1-019	W204P1-	019		W204P2-	019			T2		TG025		11		
W204P1-020	W204P1-	020		W204P2-	020			T2	000	TG025		11		
W204P1-021	W204P1-	021		W204P2-	021									
W204P1 022	W204P1-	022		W204P2-	022									
W204P1 023	W204P1-	023		W204P2-	023									
POSH-6(C	W204P1-	024		W204P1-	GND								GND RING	
W204P1 025	W204P1-	025		W204P2-	025			S2		SG066				
W204P1 026	W204P1-	026		W204P2-	026			S2		SG067				
W204P1 027	W204P1-	027		W204P2-	027			S2		SG068				
W204P1 028	W204P1-	028		W204P2-	028									
W204P1 029	W204P1-	029		W204P2-	029									
W204P1 030	W204P1	030		W204P2-	030			T2	000	TG044				
W204P1-031	W204P1	031		W204P2-	031			T2	000	TG042				
W204P1-032	W204P1-	032		W204P2-	032			T2	000	TG040				
W204P1-033	W204P1	033		W204P2-	033			T2	000	TG041				
W204P1-034	W204P1-	034		W204P2-	034			T2	000	TG046				
W204P1-035	W204P1-	035		W204P2-	035			T2		TG034				
W204P1-036	W204P1-	036		W204P2-	036			S2	000	SG065				
POSH-60 A	W204P1-	036	S	W204P1-	GND			SL		SG065				
W204P1-037	W204P1-	037		W204P2-	037			T2	000	TG032		11		
W204P1-038	W204P1-	038		W204P2-	038			T2		TG030		11		

Table 8-3. Cable Assemblies Wire List - Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks	Rev
	Component	Pin	Ref		Pin	Ref								
W204P1-039	W204P1	039		W204P2-	039			T2		TG048				
W204P1-040	W204P1	040		W204P2-	040			T2	000	TG026		11		
W204P1-041	W204P1-	041		W204P2-	041			T2		TG047				
W204P1-042	W204P1-	042		W204P2-	042			T2		TG029		11		
W204P1-043	W204P1	043		W204P2-	043			T2	000	TG028		11		
W204P1-044	W204P1-	044		W204P2-	044			T2		TG027		11		
W204P1-045	W204P1	045		W204P2-	045									
W204P1-046	W204P1-	046		W204P2-	046									
POSH-61	W204P1-	047		W204P1-	048	S		SL	000	SG066				
W204P1-048	W204P1-	048		W204P2-	048			S2	000	SG066				
POSH-61	W204P1-	048	S	W204P1-	047			SL	000	SG066				
W204P1-049	W204P	049		W204P2-	049			S2	000	SG067				
POSH-62	W204P	049	S	W204P1-	065			SL	000	SG067				
W204P1-050	W204P	050		W204P2-	050			S2	000	SG068				
POSH-63	W204P	050	S	W204P1-	066			SL	000	SG068				
W204P1-051	W204P	051		W204P2-	051									
W204P1-052	W204P	052		W204P2-	052			T2		TG045				
W204P1-053	W204P	053		W204P2-	053			T2		TG038				
W204P1-054	W204P	054		W204P2-	054			T2	000	TG038				
W204P1-055	W204P	055		W204P2-	055			T2		TG046				
W204P1-056	W204P	056		W204P2-	056			T2	000	TG049				
W204P1-057	W204P	057		W204P2-	057			T2		TG039				
W204P1-058	W204P	058		W204P2-	058			T2	000	TG039				
W204P1-059	W204P	059		W204P2-	059			T3	222	TG050				
W204P1-060	W204P	060		W204P2-	060			T3		TG050				
W204P1-061	W204P	061		W204P2-	061			T2		TG043				
W204P1-062	W204P	062		W204P2-	062			T2		TG036				
W204P1-063	W204P	063		W204P2-	063			T2	000	TG037				
W204P1-064	W204P	064		W204P2-	064									
POSH-62	W204P	065		W204P1-	049	S		SL	000	SG067				
POSH-63	W204P	066		W204P1	050	S		SL	000	SG068				
W204P1-067	W204P	067		W204P2-	067			T2		TG033		11		
W204P1-068	W204P	068		W204P2-	068			T2	000	TG045				
W204P1-069	W204P	069		W204P2-	069									
W204P1-070	W204P	070		W204P2-	070			T2		TG049				
W204P1-071	W204P	071		W204P2-	071									
W204P1-072	W204P	072		W204P2-	072			T3	000	TG050				
W204P1-073	W204P	073		W204P2-	073			T2	000	TG043				
W204P1-074	W204P	074		W204P2-	074			T2	000	TG036				
W204P1-075	W204P	075		W204P2-	075			T2		TG037				
W204P1-076	W204P	076		W204P2-	076			T2	000	TG033		11		
W204P1-077	W204P1-	077		W204P2-	077			T2		TG031		11		
W204P1-078	W204P1-	078		W204P2-	078									
W204P1-079	W204P1-	079		W204P2-	079			T2	000	TG031		11		
POSH-60 B	W204P2-	GND		W204P2-	036	S		SL		SG065				
POSH-60 D	W204P2-	GND		W204P2-	024								GND RING	
W204P1-001	W204P2-	001		W204P1-	001									
W204P1-002	W204P2-	002		W204P1-	002			T2		TG044				
W204P1-003	W204P2-	003		W204P1-	003			T2		TG042				
W204P1-004	W204P2-	004		W204P1-	004			T2		TG040				
W204P1-005	W204P2-	005		W204P1-	005			T2		TG041				
W204P1-006	W204P2-	006		W204P1-	006									
W204P1-007	W204P2-	007		W204P1-	007			T2		TG035				
W204P1-008	W204P2-	008		W204P1-	008			T2	000	TG035				
W204P1-009	W204P2-	009		W204P1-	009			T2	000	TG034				
W204P1-010	W204P2-	010		W204P1-	010			S2		SG065				
W204P1-011	W204P2-	011		W204P1-	011			T2		TG032		11		
W204P1-012	W204P2-	012		W204P1-	012			T2	000	TG030		11		
W204P1-013	W204P2-	013		W204P1	013			T2	000	TG048				
W204P1-014	W204P2-	014		W204P1-	014			T2		TG026		11		
W204P1-015	W204P2-	015		W204P1-	015			T2	000	TG047				
W204P1-016	W204P2-	016		W204P1-	016			T2	000	TG029		11		
W204P1-017	W204P2-	017		W204P1-	017			T2		TG028		11		
W204P1-018	W204P2-	018		W204P1-	018			T2	000	TG027		11		
W204P1-019	W204P2-	019		W204P1-	019			T2		TG025		11		
W204P1-020	W204P2-	020		W204P1-	020			T2	000	TG025		11		
W204P1-021	W204P2-	021		W204P1-	021									

Table 8-3. *Cable Assem Wire List - Continued*

Signal	From	Pin	Ref	To	Pin	Ref	AWG	Type	Color	Group	Route	Note	Remarks	Rev
W204P1-022	W204P2-	022		W204P1-	022									
W204P1-023	W204P2-	023		W204P1-	023									
POSH-60 D	W204P2-	024		W204P2-	GND								GND RING	
W204P1-025	W204P2-	025		W204P1-	025			S2		SG066				
W204P1-026	W204P2-	026		W204P1-	026			S2		SG067				
W204P1-027	W204P2-	027		W204P1-	027			S2		SG068				
W204P1-028	W204P2-	028		W204P1-	028									
W204P1-029	W204P2-	029		W204P1-	029									
W204P1-030	W204P2-	030		W204P1-	030			T2	000	TG044				
W204P1-031	W204P2-	031		W204P1-	031			T2	000	TG042				
W204P1-032	W204P2-	032		W204P1-	032			T2	000	TG040				
W204P1-033	W204P2-	033		W204P1-	033			T2	000	TG041				
W204P1-034	W204P2-	034		W204P1-	034			T2	000	TG046				
W204P1-035	W204P2-	035		W204P1-	035			T2		TG034				
W204P1-036	W204P2-	036		W204P1-	036			S2	000	SG065				
POSH-60 B	W204P2-	036	S	W204P2-	GND			SL		SG065				
W204P1-037	W204P2-	037		W204P1-	037			T2	000	TG032		11		
W204P1-038	W204P2-	038		W204P1-	038			T2		TG030		11		
W204P1-039	W204P2-	039		W204P1-	039			T2		TG048				
W204P1-040	W204P2-	040		W204P1-	040			T2	000	TG026		11		
W204P1-041	W204P2-	041		W204P1-	041			T2		TG047				
W204P1-042	W204P2-	042		W204P1-	042			T2		TG029		11		
W204P1-043	W204P2-	043		W204P1-	043			T2	000	TG028		11		
W204P1-044	W204P2-	044		W204P1-	044			T2		TG027		11		
W204P1-045	W204P2-	045		W204P1-	045									
W204P1-046	W204P2-	046		W204P1-	046									
W204P1-048	W204P2-	048		W204P1-	048			S2	000	SG066				
W204P1-049	W204P2-	049		W204P1-	049			S2	000	SG067				
W204P1-050	W204P2-	050		W204P1-	050			S2	000	SG068				
W204P1-051	W204P2-	051		W204P1-	051									
W204P1-052	W204P2-	052		W204P1-	052			T2		TG045				
W204P1-053	W204P2-	053		W204P1	053			T2		TG038				
W204P1-054	W204P2-	054		W204P1-	054			T2	000	TG038				
W204P1-055	W204P2-	055		W204P1-	055			T2		TG046				
W204P1-056	W204P2-	056		W204P1-	056			T2	000	TG049				
W204P1-057	W204P2-	057		W204P1-	057			T2		TG039				
W204P1-058	W204P2-	058		W204P1-	058			T2	000	TG039				
W204P1-059	W204P2-	059		W204P1-	059			T3	222	G050				
W204P1-060	W204P2-	060		W204P1-	060			T3		G050				
W204P1-061	W204P2-	061		W204P1-	061			T2		G043				
W204P1-062	W204P2-	062		W204P1-	062			T2		G036				
W204P1-063	W204P2-	063		W204P1-	063			T2	000	G037				
W204P1-064	W204P2-	064		W204P1-	064									
W204P1-067	W204P2-	067		W204P1	067			T2		G033		11		
W204P1-068	W204P2-	068		W204P1	068			T2	000	G045				
W204P1-069	W204P2-	069		W204P1-	069									
W204P1-070	W204P2-	070		W204P1-	070			T2		TG049				
W204P1-071	W204P2-	071		W204P1-	071									
W204P1-072	W204P2-	072		W204P1-	072			T3	000	TG050				
W204P1-073	W204P2-	073		W204P1-	073			T2	000	TG043				
W204P1-074	W204P2-	074		W204P1-	074			T2	000	TG036				
W204P1-075	W204P2-	075		W204P1-	075			T2		TG037				
W204P1-076	W204P2-	076		W204P1-	076			T2	000	TG033		11		
W204P1-077	W204P2-	077		W204P1-	077			T2		TG031		11		
W204P1-078	W204P2-	078		W204P1-	078									
W204P1-079	W204P2-	079		W204P1-	079			T2	000	TG031		11		
W205P1-003 A	W205P1-	GND		W205P1-	003								GND RING	
POSH-54 A	W205P1-	001		W205P1-	029	S		SL	000	SG059				
POSH-39 A	W205P1-	002		W205P1-	017	S		SL	000	SG044				
W205P1-003 A	W205P1-	003		W205P1-	GND								GND RING	
POSH-52 A	W205P1-	004		W205P1-	053	S		SL	000	SG057				
POSH-43 A	W205P1-	005		W205P1-	020	S		SL	000	SG048				
POSH-34 A	W205P1	006		W205P1-	021	S		SL	000	SG039				
POSH-40 A	W205P1-	007		W205P1-	023	S		SL	000	SG045				
POSH-41 A	W205P1-	008		W205P1-	040	S		SL	000	SG046				
W205P1-009	W205P1-	009		W205P2-	009			S2		SG044				
W205P1-010	W205P1-	010		W205P2-	010			S1		SG035				

Table 8-3. Cable Assemblies Wire List - Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks	Rev
	Component	Pin	Ref	Component	Pin	Ref								
POSH-30 A	W205P1-	010	S	W205P1-	011			SL	000	SG035				
POSH-30 A	W205P1-	011		W205P1-	010	S		SL	000	SG035				
W205P1-0 2	W205P1-	012		W205P2-	012			S2		SG048				
W205P1-0 3	W205P1-	013		W205P2-	013			S2		SG039				
W205P1-0 4	W205P1-	014		W205P2-	014			S2		SG045				
POSH-38 A	W205P1-	015		W205P1-	026	S		SL	000	SG043				
POSH-48 A	W205P1-	016		W205P1-	019	S		SL	000	SG053				
W205P1-0 7	W205P1-	017		W205P2-	017			S2	000	SG044				
POSH-39 A	W205P1-	017	S	W205P1-	002			SL	000	SG044				
W205P1-0 8	W205P1-	018		W205P2-	018			S2		SG053				
W205P1-0 9	W205P1-	019		W205P2-	019			S2	000	SG053				
POSH-48 A	W205P1-	019	S	W205P1-	016			SL	000	SG053				
W205P1-020	W205P1-	020		W205P2-	020			S2	000	SG048				
POSH-43 A	W205P1-	020	S	W205P1	005			SL	000	SG048				
W205P1-021	W205P1-	021		W205P2-	021			S2	000	SG039				
POSH-34 A	W205P	021	S	W205P1-	006			SL	000	SG039				
POSH-46 A	W205P	022		W205P1-	033	S		SL	000	SG051				
W205P1-023	W205P	023		W205P2-	023			S2	000	SG045				
POSH-40 A	W205P	023	S	W205P1-	007			SL	000	SG045				
POSH-49 A	W205P	024		W205P1-	055	S		SL	000	SG054				
W205P1-025	W205P	025		W205P2-	025			S2		SG043				
W205P1-026	W205P	026		W205P2-	026			S2	000	SG043				
POSH-38 A	W205P	026	S	W205P1-	015			SL	000	SG043				
POSH-51 B	W205P	027		W205P1-	052	S		SL	000	SG056				
W205P1-028	W205P	028		W205P2-	028			S2		SG059				
W205P1-029	W205P	029		W205P2-	029			S2	000	SG059				
POSH-54 A	W205P	029	S	W205P1-	001			SL	000	SG059				
W205P1-030	W205P	030		W205P2-	030			S2		SG055				
W205P1-031	W205P	031		W205P2-	031			S2	000	SG055				
POSH-50 A	W205P	031	S	W205P1-	043			SL	000	SG055				
W205P1-032	W205P	032		W205P2-	032			S2		SG051				
W205P1-033	W205P	033		W205P2-	033			S2	000	SG051				
POSH-46 A	W205P	033	S	W205P1-	022			SL	000	SG051				
W205P1-034	W205P	034		W205P2-	034			S2		SG047				
POSH-42 A	W205P	035		W205P1-	045	S		SL	000	SG047				
POSH-32 A	W205P	036		W205P1-	038	S		SL	000	SG037				
W205P1-037	W205P	037		W205P2-	037			S2		SG037				
W205P1-038	W205P	038		W205P2-	038			S2	000	SG037				
POSH-32 A	W205P	038	S	W205P1-	036			SL	000	SG037				
W205P1-039	W205P	039		W205P2-	039			S2		SG046				
W205P1-040	W205P	040		W205P2-	040			S2	000	SG046				
POSH-41 A	W205P	040	S	W205P1-	008			SL	000	SG046				
W205P1-041	W205P	041		W205P2-	041			S2		SG056				
W205P1-042	W205P	042		W205P2-	042			S2		SG057				
POSH-50 A	W205P	043		W205P1-	031	S		SL	000	SG055				
W205P1-044	W205P	044		W205P2-	044			S2		SG054				
W205P1-045	W205P	045		W205P2-	045			S2	000	SG047				
POSH-42 A	W205P	045	S	W205P1-	035			SL	000	SG047				
W205P1-046	W205P	046		W205P2-	046			S2		SG052				
W205P1-047	W205P	047		W205P2-	047			S2	000	SG052				
POSH-47 A	W205P	047	S	W205P1	054			SL	000	SG052				
POSH-44 A	W205P	048		W205P1-	063	S		SL	000	SG049				
W205P1-049	W205P	049		W205P2-	049			S2		SG041				
POSH-31 A	W205P	050		W205P1	061	S		SL	000	SG036				
W205P1-051	W205P	051		W205P2-	051			S2		SG036				
W205P1-052	W205P1-	052		W205P2-	052			S2	000	SG056				
POSH-51 B	W205P1-	052	S	W205P1	027			SL	000	SG056				
W205P1-053	W205P1-	053		W205P2-	053			S2	000	SG057				
POSH-52 A	W205P1-	053	S	W205P1-	004			SL	000	SG057				
POSH-47 A	W205P1-	054		W205P1-	047	S		SL	000	SG052				
W205P1-055	W205P1-	055		W205P2-	055			S2	000	SG054				
POSH-49 A	W205P1-	055	S	W205P1-	024			SL	000	SG054				
POSH-58 A	W205P1-	056		W205P1-	069	S		SL	000	SG063				
W205P1-057	W205P1-	057		W205P2-	057			S2		SG060				
W205P1-058	W205P1-	058		W205P2-	058			S2	000	SG060				
POSH-55 A	W205P1-	058	S	W205P1-	070			SL	000	SG060				
POSH-36 A	W205P1-	059		W205P1-	060	S		SL	000	SG041				

*Table 8-3. **Cable Assemblies Wire List - Continued***

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks	Rev
	Component	Pin	Ref		Pin	Ref								
W205P1-060	W205P1-	060		W205P2-	060			S2	000	SG041				
POSH-36 A	W205P1-	060	S	W205P1-	059			SL	000	SG041				
W205P1-061	W205P1-	061		W205P2-	061			S2	000	SG036				
POSH-31 A	W205P1-	061	S	W205P1-	050			SL	000	SG036				
W205P1-062	W205P1-	062		W205P2-	062			S2		SG049				
W205P1-063	W205P1-	063		W205P2-	063			S2	000	SG049				
POSH-44 A	W205P1-	063	S	W205P1-	048			SL	000	SG049				
POSH-35 A	W205P1-	064		W205P1-	076	S		SL	000	SG040				
W205P1-065	W205P1-	065		W205P2-	065			S5		SG063				
W205P1-066	W205P1-	066		W205P2-	066			S5	000	SG063				
W205P1-067	W205P1-	067		W205P2-	067			S5	222	SG063				
W205P1-068	W205P1-	068		W205P2-	068			S5	555	SG063				
W205P1-069	W205P1-	069		W205P2-	069			S5	333	SG063				
POSH-58 A	W205P1-	069	S	W205P1-	056			SL	000	SG063				
POSH-55 A	W205P1-	070		W205P1-	058	S		SL	000	SG060				
POSH-37 A	W205P1-	071		W205P1-	072	S		SL	000	SG042				
W205P1-072	W205P1-	072		W205P2-	072			S2	000	SG042				
POSH-37 A	W205P1-	072	S	W205P1-	071			SL	000	SG042				
W205P1-073	W205P1-	073		W205P2-	073			S2		SG042				
W205P1-074	W205P1-	074		W205P2-	074									
W205P1-075	W205P1-	075		W205P2-	075			S2		SG040				
W205P1-076	W205P1-	076		W205P2-	076			S2	000	SG040				
POSH-35 A	W205P1-	076	S	W205P1	064			SL	000	SG040				
W205P1-077	W205P1-	077		W205P2-	077									
W205P1-078	W205P1	078		W205P2-	078									
W205P1-079	W205P1-	079		W205P2-	079									
W205P1-080	W205P1-	080		W205P2-	080			S2		SG058				
W205P1-081	W205P1-	081		W205P2-	081			S2	000	SG058				
POSH-[illegible]3 A	W205P1-	081	S	W205P1-	104			SL	000	SG058				
POSH-[illegible]3 A	W205P1-	082		W205P1-	105	S		SL	000	SG038				
W205P -083	W205P1-	083		W205P2-	083			T2		TG005		10		
W205P -084	W205P1-	084		W205P2-	084			T2		TG006		10		
W205P -085	W205P1-	085		W205P2-	085			T2	000	TG006		10		
W205P -086	W205P1-	086		W205P2-	086			T2		TG007		10		
W205P -087	W205P1-	087		W205P2-	087			T2	000	TG007		10		
W205P -088	W205P1-	088		W205P2-	088			T2		TG008		10		
W205P -089	W205P1-	089		W205P2-	089			T2	000	TG008		10		
W205P1-090	W205P1-	090		W205P2-	090			T2		TG009		10		
W205P1-091	W205P	091		W205P2-	091			T2	000	TG009		10		
W205P1-092	W205P	092		W205P2-	092			S2		SG061				
W205P1-093	W205P	093		W205P2-	093			S2	000	SG061				
POSH-56 A	W205P	093	S	W205P1-	114			SL	000	SG061				
W205P1-094	W205P	094		W205P2-	094			S2		SG038				
W205P1-095	W205P	095		W205P2-	095			T2	000	TG005		10		
W205P1-096	W205P	096		W205P2-	096			T2		TG010		10		
W205P1-097	W205P	097		W205P2-	097			T2	000	TG010		10		
W205P1-098	W205P	098		W205P2-	098			T2		TG011		10		
W205P1-099	W205P	099		W205P2-	099			T2		TG012		10		
W205P1-100	W205P	100		W205P2-	100			T2	000	TG012		10		
W205P1-101	W205P	101		W205P2-	101			T2		TG013		10		
W205P1-102	W205P	102		W205P2-	102			T2		TG014		10		
W205P1-103	W205P	103		W205P2-	103			T2	000	TG014		10		
POSH-53 A	W205P	104		W205P1-	081	S		SL	000	SG058				
W205P1-105	W205P	105		W205P2-	105			S2	000	SG038				
POSH-33 A	W205P1	105	S	W205P1-	082			SL	000	SG038				
W205P1-106	W205P1-	106		W205P2-	106			T2		TG015		10		
W205P1-107	W205P1-	107		W205P2-	107			T2	000	TG015		10		
W205P1-108	W205P1-	108		W205P2-	108			T2	000	TG011		10		
W205P1-109	W205P1-	109		W205P2-	109			T2		TG016		10		
W205P1-110	W205P1-	110		W205P2-	110			T2	000	TG016		10		
W205P1-111	W205P1-	111		W205P2-	111			T2	000	TG013		10		
W205P1-112	W205P1-	112		W205P2-	112			T2		TG017		10		
W205P1-113	W205P1-	113		W205P2-	113			T2	000	TG017		10		
POSH-56 A	W205P1-	114		W205P1-	093	S		SL	000	SG061				
W205P1-115	W205P1-	115		W205P2-	115									
W205P1-116	W205P1-	116		W205P2-	116			T2		TG018		10		
W205P1-117	W205P1-	117		W205P2-	117			T2	000	TG018		10		

Table 8-3. Cable Assemblies Wire List - Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks	Rev
	Component	Pin	Ref	Componen	Pin	Ref								
W205P1-118	W205P1-	118		W205P2-	118			T2		TG019		10		
W205P1-119	W205P1-	119		W205P2-	119			T2		TG020		10		
W205P1-120	W205P1-	120		W205P2-	120			T2	000	TG020		10		
POSH-57 A	W205P1-	121		W205P1-	124	S		SL	000	SG062				
W205P1-123	W205P1-	123		W205P2-	123			S2		SG062				
W205P1-124	W205P1-	124		W205P2-	124			S2	000	SG062				
POSH-57 A	W205P1-	124	S	W205P1-	121			SL	000	SG062				
W205P1-125	W205P1-	125		W205P2-	125			T2	000	TG019		10		
POSH-45 A	W205P1	126		W205P1-	128	S		SL	000	SG050				
W205P1-127	W205P1-	127		W205P2-	127			S2		SG050				
W205P1-128	W205P1-	128		W205P2-	128			S2	000	SG050				
POSH-45 A	W205P1-	128	S	W205P1-	126			SL	000	SG050				
W205P1-003 B	W205P2-	GND		W205P2-	003								GND RING	
POSH-54 B	W205P2-	001		W205P2-	029	S		SL	000	SG059				
POSH-39 B	W205P2-	002		W205P2-	017	S		SL	000	SG044				
W205P1-003 B	W205P2-	003		W205P2-	GND								GND RING	
POSH-52 B	W205P2-	004		W205P2-	053	S		SL	000	SG057				
POSH-43 B	W205P2-	005		W205P2-	020	S		SL	000	SG048				
POSH-34 B	W205P2-	006		W205P2-	021	S		SL	000	SG039				
POSH-40 B	W205P2-	007		W205P2-	023	S		SL	000	SG045				
POSH-41 B	W205P2-	008		W205P2-	040	S		SL	000	SG046				
W205P1-019	W205P2-	009		W205P1-	009			S2		SG044				
W205P1-020	W205P2-	010		W205P1-	010			S1		SG035				
POSH-30 B	W205P2-	010	S	W205P2-	011			SL	000	SG035				
POSH-30 B	W205P2-	011		W205P2-	010	S		SL	000	SG035				
W205P1-022	W205P2-	012		W205P1-	012			S2		SG048				
W205P1-023	W205P2-	013		W205P1-	013			S2		SG039				
W205P1-024	W205P2-	014		W205P1-	014			S2		SG045				
POSH-38 B	W205P2-	015		W205P2-	026	S		SL	000	SG043				
POSH-48 B	W205P2-	016		W205P2-	019	S		SL	000	SG053				
W205P1-017	W205P2-	017		W205P1-	017			S2	000	SG044				
POSH-39 B	W205P2-	017	S	W205P2-	002			SL	000	SG044				
W205P1-018	W205P2-	018		W205P1-	018			S2		SG053				
W205P1-019	W205P2-	019		W205P1-	019			S2	000	SG053				
POSH-48 B	W205P2-	019	S	W205P2-	016			SL	000	SG053				
W205P1-020	W205P2-	020		W205P1-	020			S2	000	SG048				
POSH-43 B	W205P2-	020	S	W205P2-	005			SL	000	SG048				
W205P1-021	W205P2-	021		W205P1-	021			S2	000	SG039				
POSH-34 B	W205P2-	021	S	W205P2-	006			SL	000	SG039				
POSH-46 B	W205P2-	022		W205P2-	033	S		SL	000	SG051				
W205P1-023	W205P2-	023		W205P1-	023			S2	000	SG045				
POSH-40 B	W205P2-	023	S	W205P2-	007			SL	000	SG045				
POSH-49 B	W205P2-	024		W205P2-	055	S		SL	000	SG054				
W205P1-025	W205P2-	025		W205P1-	025			S2		SG043				
W205P1-026	W205P2-	026		W205P1-	026			S2	000	SG043				
POSH-38 B	W205P2-	026	S	W205P2-	015			SL	000	SG043				
POSH-51 B	W205P2-	027		W205P2-	052	S		SL	000	SG056				
W205P1-028	W205P2-	028		W205P1-	028			S2		SG059				
W205P1-029	W205P2-	029		W205P1	029			S2	000	SG059				
POSH-54 B	W205P2-	029	S	W205P2-	001			SL	000	SG059				
W205P1-030	W205P2-	030		W205P1-	030			S2		SG055				
W205P1-031	W205P2-	031		W205P1-	031			S2	000	SG055				
POSH-50 A	W205P2-	031	S	W205P2-	043			SL	000	SG055				
W205P1-032	W205P2-	032		W205P1-	032			S2		SG051				
W205P1-033	W205P2-	033		W205P1-	033			S2	000	SG051				
POSH-46 B	W205P2-	033	S	W205P2-	022			SL	000	SG051				
W205P1-034	W205P2-	034		W205P1-	034			S2		SG047				
POSH-42 B	W205P2-	035		W205P2-	045	S		SL	000	SG047				
POSH-32 B	W205P2-	036		W205P2-	038	S		SL	000	SG037				
W205P1-037	W205P2-	037		W205P1	037			S2		SG037				
W205P1-038	W205P2-	038		W205P1-	038			S2	000	SG037				
POSH-32 B	W205P2-	038	S	W205P2-	036			SL	000	SG037				
W205P1-039	W205P2-	039		W205P1-	039			S2		SG046				
W205P1-040	W205P2-	040		W205P1-	040			S2	000	SG046				
POSH-41 B	W205P2-	040	S	W205P2-	008			SL	000	SG046				
W205P1-041	W205P2-	041		W205P1-	041			S2		SG056				
W205P1-042	W205P2-	042		W205P1-	042			S2		SG057				

Table 8-3. ***Cable Assemblies Wire List - Continued***

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks	
	Component	Pin	Ref	Component	Pin	Ref								
POSH-50 A	W205P2-	043		W205P2-	031	S		SL	000	SG055				
W205P1-044	W205P2-	044		W205P1-	044			S2		SG054				
W205P1-045	W205P2-	045		W205P1-	045			S2	000	SG047				
POSH-42 B	W205P2-	045	S	W205P2-	035			SL	000	SG047				
W205P1-046	W205P2-	046		W205P1-	046			S2		SG052				
W205P1-047	W205P2-	047		W205P1-	047			S2	000	SG052				
POSH-47 B	W205P2-	047	S	W205P2-	054			SL	000	SG052				
POSH-44 B	W205P2-	048		W205P2-	063	S		SL	000	SG049				
W205P1-049	W205P2-	049		W205P1-	049			S2		SG041				
POSH-31 B	W205P2-	050		W205P2-	061	S		SL	000	SG036				
W205P1-051	W205P2-	051		W205P1-	051			S2		SG036				
W205P1-052	W205P2-	052		W205P1-	052			S2	000	SG056				
POSH-51 B	W205P2-	052	S	W205P2-	027			SL	000	SG056				
W205P1-053	W205P2-	053		W205P1-	053			S2	000	SG057				
POSH-52 B	W205P2-	053	S	W205P2-	004			SL	000	SG057				
POSH-47 B	W205P2-	054		W205P2-	047	S		SL	000	SG052				
W205P1-055	W205P2-	055		W205P1-	055			S2	000	SG054				
POSH-49 B	W205P2-	055	S	W205P2-	024			SL	000	SG054				
POSH-58 B	W205P2-	056		W205P2-	069	S		SL	000	SG063				
W205P1-057	W205P2-	057		W205P1-	057			S2		SG060				
W205P1-058	W205P2-	058		W205P1-	058			S2	000	SG060				
POSH-55 B	W205P2-	058	S	W205P2-	070			SL	000	SG060				
POSH-36 B	W205P2-	059		W205P2-	060	S		SL	000	SG041				
W205P1-060	W205P2-	060		W205P1-	060			S2	000	SG041				
POSH-36 B	W205P2-	060	S	W205P2-	059			SL	000	SG041				
W205P1-061	W205P2-	061		W205P1-	061			S2	000	SG036				
POSH-31 B	W205P2-	061	S	W205P2-	050			SL	000	SG036				
W205P1-062	W205P2-	062		W205P1-	062			S2		SG049				
W205P1-063	W205P2-	063		W205P1-	063			S2	000	SG049				
POSH-44 B	W205P2-	063	S	W205P2-	048			SL	000	SG049				
POSH-35 B	W205P2-	064		W205P2-	076	S		SL	000	SG040				
W205P1-065	W205P2-	065		W205P1-	065			S5		SG063				
W205P1-066	W205P2-	066		W205P1-	066			S5	000	SG063				
W205P1-067	W205P2-	067		W205P1-	067			S5	222	SG063				
W205P1-068	W205P2-	068		W205P1-	068			S5	555	SG063				
W205P1-069	W205P2-	069		W205P1-	069			S5	666	SG063				
POSH-58 B	W205P2-	069	S	W205P2-	056			SL	000	SG063				
POSH-55 B	W205P2-	070		W205P2-	058	S		SL	000	SG060				
POSH-37 B	W205P2-	071		W205P2-	072	S		SL	000	SG042				
W205P1-072	W205P2-	072		W205P1-	072			S2	000	SG042				
POSH-37 B	W205P2-	072	S	W205P2-	071			SL	000	SG042				
W205P1-073	W205P2-	073		W205P1-	073			S2		SG042				
W205P1-074	W205P2-	074		W205P1-	074									
W205P1-075	W205P2-	075		W205P1-	075			S2		SG040				
W205P1-076	W205P2-	076		W205P1-	076			S2	000	SG040				
POSH-35 B	W205P2-	076	S	W205P2-	064			SL	000	SG040				
W205P1-077	W205P2-	077		W205P1-	077									
W205P1-078	W205P2-	078		W205P1-	078									
W205P1-079	W205P2-	079		W205P1-	079									
W205P1-080	W205P2-	080		W205P1-	080			S2		SG058				
W205P1-081	W205P2-	081		W205P1-	081			S2	000	SG058				
POSH-53 B	W205P2-	081	S	W205P2-	104			SL	000	SG058				
POSH-33 B	W205P2-	082		W205P2-	105	S		SL	000	SG038				
W205P1-083	W205P2-	083		W205P1-	083			T2		TG005		10		
W205P1-084	W205P2-	084		W205P1-	084			T2		TG006		10		
W205P1-085	W205P2-	085		W205P1-	085			T2	000	TG006		10		
W205P1-086	W205P2-	086		W205P1-	086			T2		TG007		10		
W205P1-087	W205P2-	087		W205P1-	087			T2	000	TG007		10		
W205P1-088	W205P2-	088		W205P1-	088			T2		TG008		10		
W205P1-089	W205P2-	089		W205P1-	089			T2	000	TG008		10		
W205P1-090	W205P2-	090		W205P1-	090			T2		TG009		10		
W205P1-091	W205P2-	091		W205P1-	091			T2	000	TG009		10		
W205P1-092	W205P2-	092		W205P1-	092			S2		SG061				
W205P1-093	W205P2-	093		W205P1-	093			S2	000	SG061				
POSH-56 B	W205P2-	093	S	W205P2-	114			SL	000	SG061				
W205P1-094	W205P2-	094		W205P1-	094			S2		SG038				
W205P1-095	W205P2-	095		W205P1-	095			T2	000	TG005		10		

Table 8-3. Cable Assem Wire List - Continued

Signal	Sgnl	From Componen	From Pin	From Ref	To Componen	To Pin	To Ref	AWG	Type	Color	Group		Note	Remarks	Rev
W205P1-096		W205P2-	096		W205P1	096			T2		TG010		10		
W205P1-097		W205P2-	097		W205P1-	097			T2	000	TG010		10		
W205P1-098		W205P2-	098		W205P1-	098			T2		TG011		10		
W205P1-099		W205P2-	099		W205P1-	099			T2		TG012		10		
W205P1-100		W205P2-	100		W205P1-	100			T2	000	TG012		10		
W205P1-101		W205P2-	101		W205P1-	101			T2		TG013		10		
W205P1-102		W205P2-	102		W205P1-	102			T2		TG014		10		
W205P1-103		W205P2-	103		W205P1-	103			T2	000	TG014		10		
POSH-53	B	W205P2-	104		W205P2-	081	S		SL	000	SG058				
W205P1-105		W205P2-	105		W205P1-	105			S2	000	SG038				
POSH-33	B	W205P2-	105	S	W205P2-	082			SL	000	SG038				
W205P1-106		W205P2-	106		W205P1-	106			T2		TG015		10		
W205P1-107		W205P2-	107		W205P1-	107			T2	000	TG015		10		
W205P1-108		W205P2-	108		W205P1-	108			T2	000	TG011		10		
W205P1-109		W205P2-	109		W205P1-	109			T2		TG016		10		
W205P1-110		W205P2-	110		W205P1-	110			T2	000	TG016		10		
W205P1-111		W205P2-	111		W205P1-	111			T2	000	TG013		10		
W205P1-112		W205P2-	112		W205P1-	112			T2		TG017		10		
W205P1-113		W205P2-	113		W205P1-	113			T2	000	TG017		10		
POSH-56	B	W205P2-	114		W205P2-	093	S		SL	000	SG061				
W205P1-115		W205P2-	115		W205P1-	115									
W205P1-116		W205P2-	116		W205P1-	116			T2		TG018		10		
W205P1-117		W205P2-	117		W205P1-	117			T2	000	TG018		10		
W205P1-118		W205P2-	118		W205P1-	118			T2		TG019		10		
W205P1-119		W205P2-	119		W205P1-	119			T2		TG020		10		
W205P1-120		W205P2-	120		W205P1-	120			T2	000	TG020		10		
POSH-57	B	W205P2-	121		W205P2-	124	S		SL	000	SG062				
W205P1-123		W205P2-	123		W205P1-	123			S2		SG062				
W205P1-124		W205P2-	124		W205P1	124			S2	000	SG062				
POSH-57	B	W205P2-	124	S	W205P2-	121			SL	000	SG062				
W205P1-125		W205P2-	125		W205P1-	125			T2	000	TG019		10		
POSH-45	B	W205P2-	126		W205P2-	128	S		SL	000	SG050				
W205P1-127		W205P2-	127		W205P1-	127			S2		SG050				
W205P1-128		W205P2-	128		W205P1-	128			S2	000	SG050				
POSH-45	B	W205P2-	128	S	W205P2-	126			SL	000	SG050				
W208REC-01		W208J1-	*		W208P1-	001								*=SLEEVE	
W208REC-02		W208J1-	TIP		W208P1-	002									
W208XMIT+		W208J2-	*		W208P1-	003								*=SLEEVE	
W208XMIT-		W208J2-	TIP		W208P1-	004									
W208REC-01		W208P1-	001		W208J1-	*								*=SLEEVE	
W208REC-02		W208P1-	002		W208J1-	TIP									
W208XMIT+		W208P1-	003		W208J2-	*								*=SLEEVE	
W208XMIT-		W208P1-	004		W208J2-	TIP									
W208SPARE1		W208P1-	005		SPARE								9		
W208SPARE2		W208P1-	006		SPARE								9		
W209P1-053	A	W209P1-	GND		W209P1-	053								GND RING	
W209P1-053	C	W209P1-	GND		W209P1-	031	S		SL		SG025			GND RING	
W209P1-053	E	W209P1-	GND		W209P1-	009	S		SL		SG026			GND RING	
W209P1-053	G	W209P1-	GND		W209P1-	051	S		SL		SG027			GND RING	
W209P1-053	J	W209P1-	GND		W209P1-	003	S		SL		SG028			GND RING	
W209P1-053	L	W209P1-	GND		W209P1-	046	S		SL		SG029			GND RING	
W209P1-053	N	W209P1-	GND		W209P1-	037	S		SL		SG030			GND RING	
W209P1-053	Q	W209P1-	GND		W209P1-	035	S		SL		SG031			GND RING	
W209P1-001		W209P1-	001		W209P2-	001									
W209P1-002		W209P1-	002		W209P2-	002									
W209P1-003		W209P1-	003		W209P2-	003			S2	000	SG028				
W209P1-053	J	W209P1-	003	S	W209P1-	GND			SL		SG028			GND RING	
W209P1-004		W209P1-	004		W209P2-	004									
W209P1-005		W209P1	005		W209P2-	005									
W209P1-006		W209P1-	006		W209P2-	006									
W209P1-007		W209P1-	007		W209P2-	007			T2		TG003				
W209P1-008		W209P1-	008		W209P2-	008			S2		SG028				
W209P1-009		W209P1-	009		W209P2-	009			S2	000	SG026				
W209P1-053	E	W209P1-	009	S	W209P1-	GND			SL		SG026			GND RING	
W209P1-010		W209P1-	010		W209P2-	010									
W209P1-011		W209P1-	011		W209P2-	011									
W209P1-012		W209P1-	012		W209P2-	012									

Table 8-3. Cable Assemblies Wire List - Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks	Rev
		Pin	Ref	Componen	Pin	Ref								
W209P1-013	W209P1-	013		W209P2-	013			T2	000	TG003				
W209P1-014	W209P1-	014		W209P2-	014									
W209P1-015	W209P1-	015		W209P2-	015									
W209P1-016	W209P1-	016		W209P2-	016			S2		SG026				
W209P1-017	W209P1-	017		W209P2-	017									
W209P1-018	W209P1-	018		W209P2-	018									
W209P1-019	W209P1-	019		W209P2-	019									
W209P1-020	W209P1-	020		W209P2-	020			S2		SG031				
W209P1-021	W209P1-	021		W209P2-	021									
W209P1-022	W209P1-	022		W209P2-	022			T2	000	TG002				
W209P1-023	W209P1-	023		W209P2-	023									
W209P1-024	W209P1-	024		W209P2-	024			S2		SG025				
W209P1-025	W209P1	025		W209P2-	025									
W209P1-026	W209P1	026		W209P2-	026									
W209P1-027	W209P1-	027		W209P2-	027									
W209P1-028	W209P1-	028		W209P2-	028									
W209P1-029	W209P1-	029		W209P2-	029			T2		TG002				
W209P1-030	W209P1-	030		W209P2-	030									
W209P1-031	W209P1-	031		W209P2-	031			S2	000	SG025				
W209P1-053 C	W209P1-	031	S	W209P1-	GND			SL		SG025			GND RING	
W209P1-032	W209P1-	032		W209P2-	032									
W209P1-033	W209P1-	033		W209P2-	033									
W209P1-034	W209P1-	034		W209P2-	034			T2	000	TG001				
W209P1-035	W209P1-	035		W209P2-	035			S2	000	SG031				
W209P1-053 Q	W209P1	035	S	W209P1-	GND			SL		SG031			GND RING	
W209P1-036	W209P1-	036		W209P2-	036									
W209P1-037	W209P1-	037		W209P2-	037			S2	000	SG030				
W209P1-053 N	W209P1-	037	S	W209P1-	GND			SL		SG030			GND RING	
W209P1-038	W209P1-	038		W209P2-	038									
W209P1-039	W209P1-	039		W209P2-	039									
W209P1-040	W209P1-	040		W209P2-	040									
W209P1-041	W209P1-	041		W209P2-	041									
W209P1-042	W209P1-	042		W209P2-	042			T2		TG001				
W209P1-043	W209P1-	043		W209P2-	043									
W209P1-044	W209P1-	044		W209P2-	044			S2		SG030				
W209P1-045	W209P1-	045		W209P2-	045									
W209P1-046	W209P1-	046		W209P2-	046			S2	000	SG029				
W209P1-053 L	W209P1-	046	S	W209P1-	GND			SL		SG029			GND RING	
W209P1-047	W209P1-	047		W209P2-	047									
W209P1-048	W209P1-	048		W209P2-	048									
W209P1-049	W209P1-	049		W209P2-	049									
W209P1-050	W209P1-	050		W209P2-	050									
W209P1-051	W209P1-	051		W209P2-	051			S2	000	SG027				
W209P1-053 G	W209P1-	051	S	W209P1-	GND			SL		SG027			GND RING	
W209P1-052	W209P1-	052		W209P2-	052			S2		SG029				
W209P1-053 A	W209P1-	053		W209P1-	GND								GND RING	
W209P1-054	W209P1-	054		W209P2-	054									
W209P1-055	W209P1-	055		W209P2-	055			S2		SG027				
W209P1-053 B	W209P2-	GND		W209P2-	053								GND RING	
W209P1-053 D	W209P2-	GND		W209P2-	031	S		SL		SG025			GND RING	
W209P1-053 F	W209P2-	GND		W209P2-	009	S		SL		SG026			GND RING	
W209P1-053 H	W209P2-	GND		W209P2-	051	S		SL		SG027			GND RING	
W209P1-053 K	W209P2-	GND		W209P2-	003	S		SL		SG028			GND RING	
W209P1-053 M	W209P2-	GND		W209P2-	046	S		SL		SG029			GND RING	
W209P1-053 P	W209P2-	GND		W209P2-	037	S		SL		SG030			GND RING	
W209P1-053 R	W209P2-	GND		W209P2-	035	S		SL		SG031			GND RING	
W209P1-001	W209P2-	001		W209P1-	001									
W209P1-002	W209P2-	002		W209P1-	002									
W209P1-003	W209P2-	003		W209P1-	003			S2	000	SG028				
W209P1-053 K	W209P2-	003	S	W209P2-	GND			SL		SG028			GND RING	
W209P1-004	W209P2-	004		W209P1-	004									
W209P1-005	W209P2-	005		W209P1-	005									
W209P1-006	W209P2-	006		W209P1-	006									
W209P1-007	W209P2-	007		W209P1-	007			T2		TG003				
W209P1-008	W209P2-	008		W209P1-	008			S2		SG028				
W209P1-009	W209P2-	009		W209P1-	009			S2	000	SG026				
W209P1-053 F	W209P2-	009	S	W209P2-	GND			SL		SG026			GND RING	

Table 8-3. Cable Assemblies Wire List - Contin ed

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks	Rev
	Component	Pin	Ref	Component	Pin	Ref								
W209P1-010	W209P2-	010		W209P1-	010									
W209P1-011	W209P2-	011		W209P1-	011									
W209P1-012	W209P2-	012		W209P1-	012									
W209P1-013	W209P2-	013		W209P1-	013			T2	000	TG003				
W209P1-014	W209P2-	014		W209P1-	014									
W209P1-015	W209P2-	015		W209P1	015									
W209P1-016	W209P2-	016		W209P1-	016			S2		SG026				
W209P1-017	W209P2-	017		W209P1-	017									
W209P1-018	W209P2-	018		W209P1-	018									
W209P1-019	W209P2-	019		W209P1-	019									
W209P1-020	W209P2-	020		W209P1-	020			S2		SG031				
W209P1-021	W209P2-	021		W209P1-	021									
W209P1-022	W209P2-	022		W209P1-	022			T2	000	TG002				
W209P1-023	W209P2-	023		W209P1-	023									
W209P1-024	W209P2-	024		W209P1-	024			S2		SG025				
W209P1-025	W209P2-	025		W209P1-	025									
W209P1-026	W209P2-	026		W209P1-	026									
W209P1-027	W209P2-	027		W209P1-	027									
W209P1-028	W209P2-	028		W209P1-	028									
W209P1-029	W209P2-	029		W209P1-	029			T2		TG002				
W209P1-030	W209P2-	030		W209P1-	030									
W209P1-031	W209P2-	031		W209P1-	031			S2	000	SG025				
W209P1-053 D	W209P2-	031	S	W209P2-	GND			SL		SG025			GND RING	
W209P1-032	W209P2-	032		W209P1-	032									
W209P1-033	W209P2-	033		W209P1-	033									
W209P1-034	W209P2-	034		W209P1-	034			T2	000	TG001				
W209P1-035	W209P2-	035		W209P1-	035			S2	000	SG031				
W209P1-053 R	W209P2-	035	S	W209P2-	GND			SL		SG031			GND RING	
W209P1-036	W209P2-	036		W209P1-	036									
W209P1-037	W209P2-	037		W209P1-	037			S2	000	SG030				
W209P1-053 P	W209P2-	037	S	W209P2-	GND			SL		SG030			GND RING	
W209P1-038	W209P2-	038		W209P1	038									
W209P1-039	W209P2-	039		W209P1-	039									
W209P1-040	W209P2-	040		W209P1-	040									
W209P1-041	W209P2-	041		W209P1-	041									
W209P1-042	W209P2-	042		W209P1-	042			T2		TG001				
W209P1-043	W209P2-	043		W209P1-	043									
W209P1-044	W209P2-	044		W209P1-	044			S2		SG030				
W209P1-045	W209P2-	045		W209P1-	045									
W209P1-046	W209P2-	046		W209P1-	046			S2	000	SG029				
W209P1-053 M	W209P2-	046	S	W209P2-	GND			SL		SG029			GND RING	
W209P1-047	W209P2-	047		W209P1	047									
W209P1-048	W209P2-	048		W209P1-	048									
W209P1-049	W209P2-	049		W209P1-	049									
W209P1-050	W209P2-	050		W209P1-	050									
W209P1-051	W209P2-	051		W209P1-	051			S2	000	SG027				
W209P1-053 H	W209P2-	051	S	W209P2-	GND			SL		SG027			GND RING	
W209P1-052	W209P2-	052		W209P1-	052			S2		SG029				
W209P1-053 B	W209P2-	053		W209P2-	GND								GND RING	
W209P1-054	W209P2-	054		W209P1-	054									
W209P1-055	W209P2-	055		W209P1-	055			S2		SG027				
W210P -001	W210P1-	001		W210P2-	001			S4		SG023				
W210P -002	W210P1-	002		W210P2-	002			S4	000	SG023				
W210P -003	W210P1-	003		W210P2-	003			S4	555	SG023				
POSH- 3 A	W210P1-	003	S	W210P1-	008			SL	000	SG023				
W210P -004	W210P1-	004		W210P2-	004			SA		SG022		8		
W210P -005	W210P1-	005		W210P2-	005			SA		SG022		8		
W210P -006	W210P1-	006		W210P2-	006			SA		SG022		8		
W210P -007	W210P1-	007		W210P2-	007			SA		SG022		8		
POSH- 3 A	W210P1-	008		W210P1-	003	S		SL	000	SG023				
W210P -009	W210P1-	009		W210P2-	009			S4	222	SG023				
W210P -010	W210P1-	010		W210P2-	010			SA		SG022		8		
W210P1-011	W210P1-	011		W210P2-	011			SA		SG022		8		
W210P1-012	W210P1-	012		W210P2-	012			SA		SG022		8		
W210P1-013	W210P1-	013		W210P2-	013			SA		SG022		8		
W210P1-014	W210P1-	014		W210P2-	014			SA		SG022		8		
W210P1-015	W210P1-	015		W210P2-	015			SA		SG022		8		

Table 8-3. Cable Assemblies Wire List - Continued

Signal	From			To				Type	Color		Route	Note	Remarks	Rev
	Component	Pin			Pin	Ref								
W210P1-016	W210P1-	016		W210P2-	016			S1		SG001				
POSH-01 A	W210P1-	016	S	W210P1-	017			SL	000	SG001				
POSH-01 A	W210P1-	017		W210P1-	016	S		SL	000	SG001				
POSH-22 A	W210P1-	018		W210P1-	024	S		SL	000	SG022				
W210P1-019	W210P1-	019		W210P2-	019			SA		SG022		8		
W210P1-020	W210P1-	020		W210P2-	020			SA		SG022		8		
W210P1-021	W210P1-	021		W210P2-	021			SA		SG022		8		
W210P1-022	W210P1-	022		W210P2-	022			SA		SG022		8		
W210P1-023	W210P1-	023		W210P2-	023			SA		SG022		8		
W210P1-024	W210P1-	024		W210P2-	024			SA		SG022		8		
POSH-22 A	W210P1-	024	S	W210P1-	018			SL	000	SG022				
W210P1-025	W210P1-	025		W210P2-	025			S1		SG008				
POSH-08 A	W210P1-	025	S	W210P1-	026			SL	000	SG008				
POSH-08 A	W210P1-	026		W210P1-	025	S		SL	000	SG008				
W210P1-027	W210P1-	027		W210P2-	027									
W210P1-028	W210P1-	028		W210P2-	028									
W210P1-029	W210P1-	029		W210P2-	029									
W210P1-030	W210P1-	030		W210P2-	030									
W210P1-031	W210P1-	031		W210P2-	031									
POSH-15 A	W210P1-	032		W210P1-	033	S		SL	000	SG015				
W210P1-033	W210P1-	033		W210P2-	033			S1		SG015				
POSH-15 A	W210P1-	033	S	W210P1-	032			SL	000	SG015				
W210P1-034	W210P1-	034		W210P2-	034									
W210P1-035	W210P1-	035		W210P2-	035									
W210P1-036	W2 0P	036		W210P2-	036									
W210P1-037	W2 0P	037		W210P2-	037									
W210P1-038	W2 0P	038		W210P2-	038									
W210P1-039	W2 0P	039		W210P2-	039									
W210P1-040	W2 0P	040		W210P2-	040									
W210P1-041	W2 0P	041		W210P2-	041			S1		SG003				
POSH-03 A	W2 0P	041	S	W210P1-	052			SL	000	SG003				
W210P1-042	W2 0P	042		W210P2-	042			S1		SG002				
POSH-02 A	W2 0P	042	S	W210P1-	053			SL	000	SG002				
W210P1-043	W2 0P	043		W210P2-	043									
W210P1-044	W2 0P	044		W210P2-	044									
W210P1-045	W2 0P	045		W210P2-	045			S1		SG009				
POSH-09 A	W2 0P	045	S	W210P1-	055			SL	000	SG009				
W210P1-046	W2 0P	046		W210P2-	046									
W210P1-047	W2 0P	047		W210P2-	047									
W210P1-048	W2 0P	048		W210P2-	048									
W210P1-049	W2 0P	049		W210P2-	049									
W210P1-050	W2 0P	050		W210P2-	050			S1		SG016				
POSH-16 A	W2 0P	050	S	W210P1-	051			SL	000	SG016				
POSH-16 A	W2 0P	051		W210P1-	050	S		SL	000	SG016				
POSH-03 A	W2 0P	052		W210P1-	041	S		SL	000	SG003				
POSH-02 A	W2 0P	053		W210P1-	042	S		SL	000	SG002				
W210P1-054	W2 0P1-	054		W210P2-	054									
POSH-09 A	W2 0P1-	055		W210P1-	045	S		SL	000	SG009				
W210P1-056	W2 0P1-	056		W210P2-	056			S1		SG010				
POSH-10 A	W2 0P1-	056	S	W210P1-	067			SL	000	SG010				
W210P1-057	W2 0P1-	057		W210P2-	057			S1		SG017				
POSH-17 A	W2 0P1-	057	S	W210P1-	058			SL	000	SG017				
POSH-17 A	W2 0P1-	058		W210P1-	057	S		SL	000	SG017				
W210P1-059	W2 0P1-	059		W210P2-	059			S1		SG004				
POSH-04 A	W2 0P1-	059	S	W210P1-	060			SL	000	SG004				
POSH-04 A	W2 0P1-	060		W210P1-	059	S		SL	000	SG004				
W210P1-061	W2 0P1-	061		W210P2-	061			S1		SG011				
POSH-11 A	W2 0P1-	061	S	W210P1-	071			SL	000	SG011				
W210P1-062	W210P1-	062		W210P2-	062									
W210P1-063	W210P1-	063		W210P2-	063									
W210P1-064	W210P1-	064		W210P2-	064			S1		SG018				
POSH-18 A	W210P1-	064	S	W210P1-	074			SL	000	SG018				
W210P1-065	W210P1-	065		W210P2-	065			S1		SG005				
POSH-05 A	W210P1-	065	S	W210P1-	075			SL	000	SG005				
W210P1-066	W210P1-	066		W210P2-	066			S1		SG012				
POSH-12 A	W210P1-	066	S	W210P1-	076			SL	000	SG012				
POSH-10 A	W210P1-	067		W210P1-	056	S		SL	000	SG010				

*Table 8-3. **Cable Assemblies Wire List - Continued***

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks	Rev
	Componen	Pin	Ref		Pin	Ref								
W210P1-068	W210P1-	068		W210P2-	068			S1		SG019				
POSH-19	W210P1-	068	S	W210P1-	077			SL	000	SG019				
W210P1-069	W210P1-	069		W210P2-	069			S1		SG006				
POSH-06	W210P1-	069	S	W210P1-	078			SL	000	SG006				
W210P1-070	W210P1-	070		W210P2-	070									
POSH-11	W210P1-	071		W210P1-	061	S		SL	000	SG011				
W210P1-072	W210P1-	072		W210P2-	072									
W210P1-073	W210P1-	073		W210P2-	073									
POSH-18	W210P1-	074		W210P1-	064	S		SL	000	SG018				
POSH-05	W210P1-	075		W210P1-	065	S		SL	000	SG005				
POSH-12	W210P1-	076		W210P1-	066	S		SL	000	SG012				
POSH-19	W210P1-	077		W210P1-	068	S		SL	000	SG019				
POSH-06	W210P1-	078		W210P1-	069	S		SL	000	SG006				
W210P1-079	W210P1-	079		W210P2-	079									
POSH-13	W210P1-	080		W210P1-	088	S		SL	000	SG013				
POSH-20	W210P1-	081		W210P1-	089	S		SL	000	SG020				
W210P1-082	W210P1-	082		W210P2-	082									
W210P1-083	W210P1-	083		W210P2-	083									
W210P1-084	W210P1-	084		W210P2-	084									
W210P1-085	W210P1-	085		W210P2-	085									
W210P1-086	W210P1-	086		W210P2-	086									
W210P1-087	W210P1-	087		W210P2-	087									
W210P1-088	W210P1-	088		W210P2-	088			S1		SG013				
POSH-13	W210P1-	088	S	W210P1-	080			SL	000	SG013				
W210P1-089	W210P1-	089		W210P2-	089			S1		SG020				
POSH-20	W210P1-	089	S	W210P1-	081			SL	000	SG020				
W210P1-090	W210P1-	090		W210P2-	090			S1		SG007				
POSH-07	W210P1-	090	S	W210P1-	091			SL	000	SG007				
POSH-07	W210P1-	091		W210P1-	090	S		SL	000	SG007				
W210P1-092	W210P1-	092		W210P2-	092			S1		SG014				
POSH-14	W210P1-	092	S	W210P1-	093			SL	000	SG014				
POSH-14	W210P1-	093		W210P1-	092	S		SL	000	SG014				
W210P1-094	W210P1-	094		W210P2-	094									
W210P1-095	W210P1-	095		W210P2-	095			S1		SG021				
POSH-21	W210P1-	095	S	W210P1-	096			SL	000	SG021				
POSH-21	W210P1-	096		W210P1-	095	S		SL	000	SG021				
W210P1-097	W210P1-	097		W210P2-	097									
W210P1-098	W210P1-	098		W210P2-	098									
W210P1-099	W210P1-	099		W210P2-	099									
W210P1-100	W210P1-	100		W210P2-	100									
W210P1-001	W210P2-	001		W210P1-	001			S4		SG023				
W210P1-002	W210P2-	002		W210P1-	002			S4	000	SG023				
W210P1-003	W210P2-	003		W210P1-	003			S4	555	SG023				
POSH-23	W210P2-	003	S	W210P2-	008			SL	000	SG023				
W210P1-004	W210P2-	004		W210P1-	004			SA		SG022		8		
W210P1-005	W210P2-	005		W210P1-	005			SA		SG022		8		
W210P1-006	W210P2-	006		W210P1-	006			SA		SG022		8		
W210P1-007	W210P2-	007		W210P1-	007			SA		SG022		8		
POSH-23	W210P2-	008		W210P2-	003	S		SL	000	SG023				
W210P1-009	W210P2-	009		W210P1-	009			S4	222	SG023				
W210P1-010	W210P2-	010		W210P1-	010			SA		SG022		8		
W210P1-011	W210P2-	011		W210P1-	011			SA		SG022		8		
W210P1-012	W210P2-	012		W210P1-	012			SA		SG022		8		
W210P1-013	W210P2-	013		W210P1-	013			SA		SG022		8		
W210P1-014	W210P2-	014		W210P1-	014			SA		SG022		8		
W210P1-015	W210P2-	015		W210P1-	015			SA		SG022		8		
W210P1-016	W210P2-	016		W210P1-	016			S1		SG001				
POSH-01	W210P2-	016	S	W210P2-	017			SL	000	SG001				
POSH-01	W210P2-	017		W210P2-	016	S		SL	000	SG001				
POSH-22	W210P2-	018		W210P2-	024	S		SL	000	SG022				
W210P1-019	W210P2-	019		W210P1-	019			SA		SG022		8		
W210P1-020	W210P2-	020		W210P1-	020			SA		SG022		8		
W210P1-021	W210P2-	021		W210P1-	021			SA		SG022		8		
W210P1-022	W210P2-	022		W210P1-	022			SA		SG022		8		
W210P1-023	W210P2-	023		W210P1-	023			SA		SG022		8		
W210P1-024	W210P2-	024		W210P1-	024			SA		SG022		8		
POSH-22	W210P2-	024	S	W210P2-	018			SL	000	SG022				

*Table 8-3. **Cable Assemblies Wire List - Continued***

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks	Rev
	Component	Pin	Ref		Pin	Ref								
W210P1-025	W210P2-	025		W210P1-	025			S1		SG008				
POSH-08 B	W210P2-	025	S	W210P2-	026			SL	000	SG008				
POSH-08 B	W210P2-	026		W210P2-	025	S		SL	000	SG008				
W210P1-027	W210P2-	027		W210P1-	027									
W210P1-028	W2 0P2-	028		W210P1-	028									
W210P -029	W2 0P2-	029		W210P1-	029									
W210P -030	W2 0P2-	030		W210P1-	030									
W210P -031	W2 0P2-	031		W210P1-	031									
POSH- 5 B	W2 0P2-	032		W210P2-	033	S		SL	000	SG0 5				
W210P -033	W2 0P2-	033		W210P1-	033			S1		SG0 5				
POSH- 5 B	W2 0P2-	033	S	W210P2-	032			SL	000	SG0 5				
W210P -034	W2 0P2-	034		W210P1-	034									
W210P -035	W2 0P2-	035		W210P1-	035									
W210P -036	W2 0P2-	036		W210P1-	036									
W210P -037	W2 0P2-	037		W210P1-	037									
W210P -038	W2 0P2-	038		W210P1-	038									
W210P -039	W2 0P2-	039		W210P1-	039									
W210P -040	W2 0P2-	040		W210P1-	040									
W210P -041	W2 0P2-	041		W210P1-	041			S1		SG003				
POSH- 3 B	W2 0P2-	041	S	W210P2-	052			SL	000	SG003				
W210P -042	W2 0P2-	042		W210P1-	042			S1		SG002				
POSH- 2 B	W2 0P2-	042	S	W210P2-	053			SL	000	SG002				
W210P -043	W2 0P2-	043		W210P1-	043									
W210P -044	W2 0P2-	044		W210P1-	044									
W210P -045	W2 0P2-	045		W210P1-	045			S1		SG009				
POSH- 9 B	W2 0P2-	045	S	W210P2-	055			SL	000	SG009				
W210P -046	W210P2-	046		W210P1-	046									
W210P -047	W210P2-	047		W210P1-	047									
W210P -048	W210P2-	048		W210P1-	048									
W210P -049	W210P2-	049		W210P1-	049									
W210P -050	W210P2-	050		W210P1-	050			S1		SG016				
POSH- 6 B	W210P2-	050	S	W210P2-	051			SL	000	SG016				
POSH- 6 B	W210P2-	051		W210P2-	050	S		SL	000	SG016				
POSH- 3 B	W210P2-	052		W210P2-	041	S		SL	000	SG003				
POSH- 2 B	W210P2-	053		W210P2-	042	S		SL	000	SG002				
W210P -054	W210P2-	054		W210P1-	054									
POSH- 9 B	W210P2-	055		W210P2-	045	S		SL	000	SG009				
W210P -056	W210P2-	056		W210P1-	056			S1		SG010				
POSH- 0 B	W210P2-	056	S	W210P2-	067			SL	000	SG010				
W210P -057	W210P2-	057		W210P1-	057			S1		SG017				
POSH- 7 B	W210P2-	057	S	W210P2-	058			SL	000	SG017				
POSH- 7 B	W210P2-	058		W210P2-	057	S		SL	000	SG017				
W210P -059	W210P2-	059		W210P1-	059			S1		SG004				
POSH- 4 B	W210P2-	059	S	W210P2-	060			SL	000	SG004				
POSH- 4 B	W210P2-	060		W210P2-	059	S		SL	000	SG004				
W210P -061	W210P2-	061		W210P1-	061			S1		SG011				
POSH- 1 B	W210P2-	061	S	W210P2-	071			SL	000	SG011				
W210P -062	W210P2-	062		W210P1-	062									
W210P -063	W210P2-	063		W210P1-	063									
W210P -064	W210P2-	064		W210P1-	064			S1		SG018				
POSH- 8 B	W210P2-	064	S	W210P2-	074			SL	000	SG018				
W210P -065	W210P2-	065		W210P1-	065			S1		SG005				
POSH- 5 B	W210P2-	065	S	W210P2-	075			SL	000	SG005				
W210P -066	W210P2-	066		W210P1-	066			S1		SG012				
POSH- 2 B	W210P2-	066	S	W210P2-	076			SL	000	SG012				
POSH- 0 B	W210P2-	067		W210P2-	056	S		SL	000	SG010				
W210P -068	W210P2-	068		W210P1-	068			S1		SG019				
POSH- 9 B	W210P2-	068	S	W210P2-	077			SL	000	SG019				
W210P -069	W210P2-	069		W210P1-	069			S1		SG006				
POSH-06 B	W210P2-	069	S	W210P2-	078			SL	000	SG006				
W210P1-070	W210P2-	070		W210P1-	070									
POSH-11 B	W210P2-	071		W210P2-	061	S		SL	000	SG011				
W210P1-072	W210P2-	072		W210P1-	072									
W210P1-073	W210P2-	073		W210P1-	073									
POSH-18 B	W210P2-	074		W210P2-	064	S		SL	000	SG018				
POSH-05 B	W210P2-	075		W210P2-	065	S		SL	000	SG005				
POSH-12 B	W210P2-	076		W210P2-	066	S		SL	000	SG012				

Table 8-3. Cable Assemblies Wire List - Continued

Signal	From	Pin	Ref	To	Pin	Ref	AWG	Type	Color	Group	Route	Note	Remarks	Rev
POSH-19 B	W210P2-	077		W210P2-	068	S		SL	000	SG019				
POSH-06 B	W210P2-	078		W210P2-	069	S		SL	000	SG006				
W210P1-079	W210P2-	079		W210P1-	079									
POSH-13 B	W210P2-	080		W210P2-	088	S		SL	000	SG013				
POSH-20 B	W210P2-	081		W210P2-	089	S		SL	000	SG020				
W210P1-082	W210P2-	082		W210P1-	082									
W210P1-083	W210P2-	083		W210P1-	083									
W210P1-084	W210P2-	084		W210P1-	084									
W210P1-085	W210P2-	085		W210P1-	085									
W210P1-086	W210P2-	086		W210P1-	086									
W210P1-087	W210P2-	087		W210P1-	087									
W210P1-088	W210P2-	088		W210P1-	088			S1		SG013				
POSH-13 B	W210P2-	088	S	W210P2-	080			SL	000	SG013				
W210P1-089	W210P2-	089		W210P1-	089			S1		SG020				
POSH-20 B	W210P2-	089	S	W210P2-	081			SL	000	SG020				
W210P1-090	W210P2-	090		W210P1-	090			S1		SG007				
POSH-07 B	W210P2-	090	S	W210P2-	091			SL	000	SG007				
POSH-07 B	W210P2-	091		W210P2-	090	S		SL	000	SG007				
W210P1-092	W210P2-	092		W210P1-	092			S1		SG014				
POSH-1 B	W210P2-	092	S	W210P2-	093			SL	000	SG014				
POSH-1 B	W210P2-	093		W210P2-	092	S		SL	000	SG014				
W210P1 094	W210P2-	094		W210P1-	094									
W210P1 095	W210P2-	095		W210P1-	095			S1		SG021				
POSH-2 B	W210P2-	095	S	W210P2-	096			SL	000	SG021				
POSH-2 B	W210P2-	096		W210P2-	095	S		SL	000	SG021				
W210P1 097	W210P2-	097		W210P1-	097									
W210P1 098	W210P2-	098		W210P1-	098									
W210P1 099	W210P2-	099		W210P1-	099									
W210P1 100	W210P	100		W21 P1-	100									
P028+	W211E	--		W21 P1-	A		12							
P028+	W211E	--		W21 P1-	B		12							
P028+	W211E			W21 P1-	C		12							
P028+	W211E	--		W21 P1-	D		12							
P028+	W211E			W21 P1-	E		12							
P028+	W211E			W21 P1-	F		16							
P028+	W211E			W21 P1-	S		12							
P028+	W211E			W21 P1-	T		12							
P028+	W211E			W21 P1-	U		16							
P028+	W211E1-			W21 P1-	Z		16							
P028+	W211E1-	---		W21 P1-	.A		.16							
P028RTN	W211E2-	--		W21 P1-	J		16							
P028RTN	W211E2-			W21 P1-	K		16							
P028RTN	W211E2-			W21 P1-	L		12							
P028RTN	W211E2-	---		W21 P1-	M		12							
P028RTN	W211E2-	---		W21 P1-	N		16							
P028RTN	W211E2-			W21 P1-	P		12							
P028RTN	W211E2-	--		W21 P1-	R		12							
P028RTN	W211E2-			W21 P1-	V		16							
P028RTN	W211E2-	---		W21 P1-	W		16							
P028RTN	W211E2-			W21 P1-	X		12							
P028RTN	W211E2-	--		W211'1-	Y		12							
P028+	W211P1-	A		W211:1-			12							
P028+	W211P1-	B		W211:1-			12							
P028+	W211P1-	C		W211:1-	---		12							
P028+	W211P1-	D		W211:1-			12							
P028+	W211P1-	E		W211:1-			12							
P028+	W211P1-	F		W211:1-	--		16							
P028RTN	W211P1-	J		W211:2-			16							
P028RTN	W211P1-	K		W211:2-			16							
P028RTN	W211P1-	L		W211:2-			12							
P028RTN	W211P1-	M		W211:2-	---		12							
P028RTN	W211P1-	N		W211:2-			16							
P028RTN	W211P1-	P		W211:2-	---		12							
P028RTN	W211P1-	R		W211:2-			12							
P028+	W211P1-	S		W211:1-			12							
P028+	W211P1-	T		W211:1-			12							
P028+	W211P1-	U		W211:1-			16							

Table 8-3. Cable Assemblies Wire List - Continued

Signal	From			To			AWG	Type	Color	Group	Route	Note	Remarks	Rev
	Component	Pin	Ref	Component	Pin	Ref								
P028RTN	W211P1 -	V		W211E2 -	- - -		16							
P028RTN	W211P1 -	W		W211E2 -	- - -		16							
P028RTN	W211P1 -	X		W211E2 -	- - -		12							
P028RTN	W211P1 -	Y		W211E2 -	- - -		12							
P028+	W211P1 -	Z		W211E1 -	- - -		16							
P028+	W211P1 -	.A		W211E1 -	- - -		16							
W212REC -	W212P1 -	001		TTY -	D									
W212REC+	W212P1 -	002		TTY -	C									
W212XMIT+	W212P1 -	003		TTY -	B									
W212XMIT -	W212P1 -	004		TTY -	A									
W212SPARE1	W212P1 -	005		SPARE								9		
W212SPARE2	W212P1 -	006		SPARE								9		

Table 8-4. PADS Test Set Preventive Maintenance Checks and Services

Interval	Procedure	Reference
30 days (or as required)	Self-test	Paragraph 8-9 Table 8-6 or 8-6.1

Section II. TOOLS AND EQUIPMENT

8-7. General.

a. Tools and equipment required for use at general support level are listed in table 8-5.

b. Expendable consumable maintenance supplies and materials are listed in Appendix F.

Table 8-5. Tools and Equipment Required for General Support Maintenance

Item	Purpose	NSN or specification
Crimping tool MS3191-4	Used for connector repair	5120-00-165-3912
Crimping tool MS3198-1	Used for connector repair	5120-00-165-3910
Cutters, diagonal, 4 1/2-inch	Used during various tape reader and SPU removal and replacement procedures	5110-00-240-6209
Extraction tools	Used for connector repair	
MS27495R12		5120-00-103-9708
MS27495R16		5120-00-409-5206
MS27495R20		5120-00-177-6966
MS27495R22		5120-00-146-6557
Gauge, thickness	Used for adjustment of photo cells and lamp cover assembly in tape reader	5120-00-274-2857
Insertion tools	Used for connector repair	
MS27495A12		5120-00-018-0531
MS27495A16		5120-00-018-0529
MS27495A20		5120-00-171-6967
MS27495A22		5120-00-137-9140
Key, sockethead, L-type handle, 1/16-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-198-5398
Key, sockethead, L-type handle, 3/32-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-242-7410
Key, sockethead, L-type handle, 5/64-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-224-2504
Multimeter AN/USM-223	Used during tape reader and SPU testing and troubleshooting	6625-00-999-7465
Oscilloscope	Used during tape reader and SPU testing and troubleshooting	
AN/USM-281A		6625-00-228-2201
AN/USM-273		6625-00-930-6637
Pliers, long nose, 6 1/2-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-293-3481
Positioner for MS3191-4 crimping tool MS3191-9T	Used for connector repair	5120-00-016-7582

Table 8-5. Tools and Equipment Required for General Support Maintenance - Continued

Item	Purpose	NSN or specification
Positioner for MS3198-1 crimping tool MS31198-6P	Used for connector repair	5120-00-017-3809
Screwdriver, cross-tip, no. 0, 4-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-060-2004
Screwdriver, cross-tip, no. 1, 3-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-240-8716
Screwdriver, cross-tip, no. 1, 8-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-529-3101
Screwdriver, cross-tip, no. 2, 4-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-234-8913
Screwdriver, cross-tip, no. 1 and 2, offset	Used during various tape reader and SPU removal and replacement procedures	5120-00-892-5931
Screwdriver, flat-tip, 3/32-inch, 3-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-720-4969
Screwdriver, flat-tip, l/8-inch, 2-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-236-2140
Screwdriver, flat-tip, 3/16-inch, 8-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-260-4837
Socket, 3/16-inch for 1/4-inch drive	Used during various tape reader and SPU removal and replacement procedures	5120-00-236-2262
Soldering/desoldering set	Used during various tape reader and SPU removal and replacement procedures	3439-00-460-7198
Wire stripper, crimper	Used during various tape reader and SPU removal and replacement procedures	5120-00-278-2423
Wrench, adjustable, 6-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-264-3795
Voltmeter, Digital, AN/CSM-64B	Used during tape reader and SPU testing and troubleshooting	6625-00-022-7894
Wrench, combination, 5/16-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-228-9503
Wrench, open end, 3/16-inch and 1/4-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-228-9527
Wrench, ratchet, reversible, 1/4-inch, square drive, 4 l/4-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-242-3256
Wrench, single socket spinner, 5/32-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-585-2149
Wrench, single socket spinner, 3/16-inch	Used during various tape reader and SPU removal and replacement procedures	5120-00-224-2599
Wrench, strap, TG-70 (or equivalent)	Used in removal and replacement of connector shells	

Section III. TROUBLESHOOTING

8-8. General. Troubleshooting of the PADS test set consists of performing the self-test procedure (table 8-6 or 8-6.1) and fulfilling the corrective action if a malfunction occurs during the procedure. Table 8-6 is performed using tape reader, part no. 877406-1, and table 8-6.1 is performed using tape reader, part no. 877406-2. During the self-test procedure, the tape reader is checked for proper operation, Paragraphs 8-10 and 8-11, and table 8-8 or 8-8.1 contain testing and troubleshooting information useful in isolating a tape reader malfunction.

8-9. PADS Test Set Self-Test Procedure. The PADS test set self-test procedure is contained in table 8-6 or 8-6.1 and is arranged in three columns. The first column contains the test operation procedures to be performed, The second column contains the normal indication to be observed when the procedure has been performed. The third column contains the corrective action to be taken if the normal indication is not obtained. When performing corrective actions, see the SPU schematic diagram (figure FO-18) and wire lists (tables 8-1 and 8-2) to determine where to make voltage measurements. See the SPU parts location diagram (figure 8-1) and SPU exploded view (figure 8-6) for location parts. Whenever a corrective action has been taken, the complete self-test procedure must be repeated. The self-test procedure must be followed in the order given.

a. ***Test Equipment and Materials.*** The only equipment required is the self-test tape 877417-1.

b. ***Test Connections and Conditions.*** Connect cable W201 as shown in figure 8-2.

c. ***Procedure.*** Perform self-test in accordance with table 8-6 or 8-6.1.

WARNING

The tape used in testing of the PADS test set is electrically conductive. DEATH OR SERIOUS INJURY, as well as damage to the tape may result if the tape is allowed to come into contact with 115 VAC.

NOTE

The PADS test set self-test procedure is semiautomatic. At various times throughout the test, different SPU indicators light and extinguish under the self-test tape control. A failure is indicated only by the FAILURE/ACTION indicator malfunction code (table 8-7) or incorrect SPU response as noted in the procedure's normal indication column. Make sure that tape reels are not deformed and that tape runs smoothly through tape reader head.

8-10. Tape Reader Testing and Troubleshooting. When the PADS self-test procedure has indicated that the tape reader has a malfunction, some initial checks should be made.

NOTE

Steps a and b apply to tape reader, part no. 877406-1 only.

a. Check all external controls, switches, and indicators and make certain that all plug-in circuit cards are properly seated. Check to ensure that the external ac-power source is normal and that the + 28V and + 5V power supply output voltages are normal. Check that all input and output connections are secure.

b. As an aid for checking waveforms and voltage, an extender card is furnished with the tape reader. The extender card allows a plug-in circuit card to be extended above the normal card checked at the card connector.

NOTE

Step c applies to tape reader, part no. 877406-2 only.

c. Check all external controls, switches, and indicators. Check to ensure that the external at-power source is normal and that the power supply output voltages are normal. Check that all input and output connections are secure.

Table 8-6. PADS Test Set Self- Test Procedure

Test procedure	Normal indication	Malfunction indication/ corrective action
NOTE This procedure uses tape reader, part no, 877406-1.		**WARNING** 115 VAC can be lethal. Use extreme care when measuring.
a. Check that cable W201 is connected as shown in figure 8-2		
b. Press SPU ON switch-indicator to on	SPU ON switch-indicator lights. OFF or ON portion of PADS ON/OFF lights, Blower is operating. TIME HOURS meter is operating by observation of comma oscillation	a. Check + 28V fuse and replace if defective b. Verify the 115-VAC primary power is properly connected and present between W 1 and W2 c. Check if 115 VAC is present at terminals 1 and 2 of PS1 d. If 115 VAC is not present, check R2, DS3 and input power wiring and repair as necessary e. If 115 VAC is present, check for + 28V between terminals 4(+) and 5 (-) of PSl f. If + 28V is present between terminals 4 and 5 of PS1, check wiring between terminals 4 and 5 of PS1 and W3 and W4 g. If + 28V is not present between terminals 4 and 5 of PS1, disconnect Z1 from PS1 h. Recheck + 28V between terminals 4 and 5 of PS1 i. If + 28V is present between terminals 4 and 5 of PS1, adjust Z1 according to procedure 8-23e j. If Z1 cannot be adjusted, replace Z1 k. If + 28V is not present at terminals 4 and 5 of PS1, replace PS1
c. Turn off any lighted switch-indicator, other than SPU ON or PADS ON/OFF, by pressing them	Any switch-indicator that is lighted will go off when pressed	No lighted switch-indicator goes off when pressed:

Table 8-6. PADS Test Set Self- Test Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
c. 1 Press SELF TEST switch-indicater to on then off	Observe that SELF TEST switch-indicator lights and goes off, accordingly	a. Check + 5V fuse; replace if necessary b. Check PS2 output voltage between W5 (+) and W6(-) for +5V c. If + 5V is present between W5 and W6, replace A3 then A1 d. If + 5V is not Present between WS and W6, check-115 VAC input between terminals 1 and 2 of PS2 e. If 115 VAC is not present, check K1 for being energized, S4 for being closed, and R1. Replace if necessary f. If 115 VAC is present, disconnect Z2 from PS2 g. Check for + 5V between terminals W5 (+) and W6 (–) of PS2 h. If + 5V is not present, replace PS2 i. If + 5V is present, adjust Z2 according to procedure 8-23f j If Z2 cannot be adjusted, replace Z2 Only one of the switch-indicators does not go off when pressed: Check switch that is affected for being defective
d. Press SPU ON switch-indicator to off	SPU ON switch-indicator goes off	SPU ON switch-indicator does not go off: Check for faulty DS3 and shorted wiring
e. Connect cables W203, W204, and W209 as shown in figure 8-2		
f. Check that tape reader SPOOLING switch is set to DISABLE		
g. Press SPU ON switch-indicator to on	SPU ON switch-indicator lights. IMU FAIL/COMP FAIL indicator may light. ON or OFF portion of PADS ON/OFF switch-indicator lights. Blower is operating. TIME HOURS meter is operating by observation of comma oscillation	Same as step b

Table 8-6. PADS Test Set Self-Test Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
h. Press and hold LAMP TEST switch to check indicators and switch-indicators, then release	All lamps illuminate except ENTER and LAMP TEST, and the FAILURE/ACTION indicator remains blank for at least 1.5 seconds. FAILUR/ACTION indicator sequentially displays the following within 15 seconds after pressing LAMP TEST switch: Indication Blank 30 20 Blank 88 Blank 32 Blank 77	No indicator or switch-indicator lights: a. Press SELF TEST switch-indicator b. Press and hold LAMP TEST switch to recheck if indicators light c. If none of the indicators light, check LAMP TEST switch (S1) and SELF TEST switch-indicator (DS12) and replace as necessary d. If S1 and DS12 are good, replace A3 Some indicators or switch-indicators do not light: Replace applicable indicator or indicator-switch bulb FAILURE/ACTION indicator does not remain blank for 1.5 seconds: a. Check +15V and –15V fuses, replace if necessary b. Check PS3 output voltage at W7 (+) and W8 (–) for + 15V c. If + 15V are not present, check for 115 VAC between terminals 1 and 2 of PS3 d. If 115 VAC is not present between terminals 1 and 2 of PS3, check K1 for being energized and check R3 and repair as necessary e. If 115 VAC is present and + 15V is not present at output of PS3 between W7 and W8, disconnect Z3 and recheck + 15V at W7 and W8 f. If + 15V is still not present, replace PS3 g If + 15V is present between W7 and W8, adjust Z3 according to procedure 8-23g h. If Z3 cannot be adjusted, replace Z3 i. Check PS4 output voltage at W8 (+) and W9 (–) for –15V

Table 8-6. PADS Test Set Self-Test Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
		j. If -15V is not present, check for 115 VAC between terminals 1 and 2 of PS4
		k. If 115 VAC is not present between terminals 1 and 2 of PS4, check R4 and replace as necessary
		l. If 115 VAC is present and -15V is not present at output of PS3 between W8 and W9, disconnect Z4 and recheck -15V at W8 and W9
		m. If -15V is still not present, replace PS4
		n. If -15V is not present between W8 and W9, adjust Z4 according to procedure 8-23g
		o. If Z4 cannot be adjusted, replace Z4
		FAILURE/ACTION indicator sequences numbers and blanks correctly but some of the displayed numbers are incorrect:
		a. If wrong numbers are displayed in either FAILUR/ACTION indicator module, switch connectors at bottom of DS10
		b. If after switching connectors on DS10, wrong numbers still displayed in same module, replace that module
		c. If after switching connectors, the wrong numbers are displayed in other module, replace A3 then A1
		FAILUR/ACTION indicator does not sequence properly: Replace A3
		FAILUR/ACTION indicator does not display:
		a. Replace FAILURE/ACTION indicator DS10
		b. If still no display, replace A3
i. Press EXECUTE switch-indicator to on	EXECUTE switch-indicator flashes	EXECUTE switch-indicator does not flash: Replace Al then A3

NOTE

It may be necessary to press EXECUTE switch-indicator twice.

Table 8-6. PADS Test Set Self-Test Procedure - Continued

Test procedure	Normal indication	Malfunction indication corrective action
j. Press EXECUTE switch-indicator to off	EXECUTE switch-indicator goes off	Same as i
k. Install the self-test tape on the tape reader per paragraph 3-6. Manually move tape until arrows on tape are past read head		
NOTE Do not use masking tape to secure diagnostic tape to the take-up reels. Wrap the free end of tape around the take-up spool hub until no slippage occurs		
l. Set tape reader SPOOLING switch to ENABLE		
m. Press the SELF TEST switch-indicator to on	SELF-TEST switch-indicator lights. Self-test tape runs forward and then stops. FAILURE/ACTION indicator displays 40 when tape stops and PARITY ERROR indicator lights	SELF TEST switch-indicator does not light but self-test tape runs forward and stops with a FAILUR/ACTION indication of 40: a. Check SELF TEST switch-indicator lamps (DS12) and replace if necessary
NOTE If the tape leader exceeds 20 inches or 3 seconds before data on the tape reaches the head, the tape reader will stop and it will be necessary to press SELF TEST switch-indicator again	**NOTE** Various lamps will cycle on and off during the self-test operation and are to be ignored unless specified in this procedure to be observed.	b. If lamps are OK, check lamp wiring
		SELF-TEST switch-indicator does not light and tape does not run forward a. Recheck step h because the self-test cannot proceed unless the sequence of step h was completed correctly
		b. Check SELF TEST switch-indicator (DS12) for proper operation by checking continually between pins A-C and A-NO when switch is pushed. Replace DS12 if necessary
		c. Replace A3
		SELF TEST switch-indicator lights and self-test tape does not run forward: a. Check that tape reader SPOOLING switch is set to ENABLE
		b. Observe FAILUR/ACTION indicator after 10 seconds. Take appropriate action if there is a FAILURE/ ACTION indication

Table 8-6. PADS Test Set Self-Test Procedure - Continued

Test Procedure	Normal indication	Malfunction indication corrective action
		c. If no FAILUR/ACTION indication, check tape reader fuses and cable W203 d. Replace A1 and then A3 e. Perform tape reader testing and troubleshooting (table 8-8). Recheck step g f. Check for faulty self-test tape
		Self-test tape runs forward but FAILURE/ACTION indicator does not display 40 when tape stops: Check number displayed for its definition in table 8-7 and perform action specified
		Self-test tape does not stop: a. Check for faulty self-test tape b. Replace A3, then A1, and then A2
n. Press SELF TEST switch-indicater to off	SELF TEST switch-indicator goes off. FAILURE/ACTION indicator displays 77	SELF TEST switch-indicator does not go off: a. Check SELF TEST switch-indicator for proper operation or shorted wiring b. Replace A3
o. Set tape reader SPOOLING switch to DISABLE		
p. Press SPU ON switch-indicator to off	SPU ON switch-indicator goes off	SPU ON switch-indicator does not go off: Check SPU ON switch-indicator for proper operation
q. Connect cable W205 as shown in figure 8-2		
r. Connect cable W210 as shown in figure 8-2		
s. Turn TTY keyboard MOTOR switch to OFF		
t. Connect TTY cable W212 as shown in figure 8-2. Refer to notes 2 and 3, figure 8-2		
u. Connect TTY power cable to 115 VAC, 60 Hz		
v. Press SPU ON switch-indicator to on	Same as step b	Same as step b
	EXECUTE switch-indicator lights. IMU FAIL/COMP FAIL indicator lights. OFF or portion of PADS ON/OFF switch-indicator lights	EXECUTE switch-indicator does not light: Replace buffer unit, then A1, and then A3

Table 8-6. PADS Test Set Self- Test Procedure - Continued

Test procedure	Normal indication	Malfunction indication corrective action
w. Set tape reader SPOOLING switch to ENABLE		
x. Press SELF TEST switch-indicator to on	SELF-TEST switch-indicator lights. Self-test tape runs forward and then stops. PADS ON switch-indicator lights. PADS OFF switch-indicator goes off	SELF-TEST indicator does not light: Recheck steps h and i because the self-test cannot proceed unless the sequence of steps h and i were completed correctly
	FAILUR/ACTION indicator displays 46 when tape stops. EXECUTE switch-indicator goes off. Ignore flashing lights	FAILURE/ACTION indicator does not display 46: Check number displayed for its definition in table 8-7 and perform action specified
NOTE If FAILURE/ACTION indicator displays 33 immediately after the switch is pressed, press SELF-TEST switch-indicator again		EXECUTE switch-indicator does not go off: Replace the buffer unit, then A1, and then A3
y. switch to ON		
z. Press each TTY key in turn	After each key is pressed, its character is printed correctly on TTY	TTY chatters and does not print out or prints out incorrectly a. Check cable W212 terminal board connections b. Perform the receive circuit bias current adjustment. Set up meter to read current. Remove jumper from E1 and E2 of the TEST BIAS MA binding posts located on the left side of the TTY. Put negative (-) lead of meter on El and positive (+) lead on E2. Adjust bias potentiometer on left side of TTY for maximum current not to exceed 20 mA c. If receive circuit bias current cannot be adjusted as outlined above, perform the following SPU short circuit current test. Set meter up to read current. Remove cable W212 P1 from the front of the SPU. Put positive (+) lead of meter on pin 3 of J12 (TTY connector on front of SPU) and negative (-) lead on pin 4 of J12. The meter should indicate 30 mA ±10 mA. If meter does not indicate 30 mA, replace A1. If meter does indicate 30 mA, replace or repair TTY TTY does not print out or prints out incorrectly:

Table 8-6. PADS Test Set Self- Test Procedure - Continued

Test procedure	Normal indication	Malfunction indication corrective action
		a. If the receive circuit bias current is correct or can be adjusted, perform the send circuit test, Remove cable W212 P1 from SPU and set meter u to read DC volts. Place positive (+) lead of meter on pin 2 of J12 (TTY connector on front of SPU) and negative (-) lead of meter on pin 1 of J12. Meter should indicate + 30V. If meter does not indicate + 30V, replace Al. If meter does indicate + 30V, set up meter to read current. Place positive (+) lead of meter on pin 2 of J12 (TTY connector on front of SPU) and negative (-) lead of meter on pin 1 of J12. Meter should indicate 39 mA ±3mA. If meter does not indicate 39 mA, replace A1. If meter does indicate 39 mA, proceed to next step b. Adjust the rangefinder mechanism located on the left side of the TTY by typing RY and observing the printout. Adjust the rangefinder clockwise until the TTY prints other than RY. Note the position of the rangefinder dial. Now turn rangefinder counterclockwise and observe correct RY printout and continue in a counterclockwise direction until other than RY is printed out. Note this position of the rangefinder dial. Set the rangefinder in the middle of the two extremes c. If TTY still does not print out correctly, replace or repair TTY
aa. Turn TTY keyboard MOTOR switch to OFF		
ab. Press SELF TEST switch-indicater to off	SELF TEST switch-indicator goes off. EXECUTE switch-indicator lights. FAILUR/ACTION indicator displays 77	SELF TEST switch-indicator does not go off: a. Check SELF TEST switch-indicator for proper operation or shorted wiring b. Replace A3 EXECUTE switch-indicator does not light: Replace buffer unit, then A1, and then A3

Table 8-6. PADS Test Set Self-Test Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
ac. Press SELF TEST switch-indicater to on	SELF TEST switch-indicator lights. IMU FAIL/COMP FAIL indicator remains on. Self-test tape runs forward and then stops FAILURE/ACTION indicator displays 48 when tape stops. On portion of PADS ON/OFF switch-indicator lights. EXECUTE switch-indicator goes off	SELF-TEST or PADS ON switch-indicator does not light: Recheck step h because the self-test cannot proceed unless the sequence of step h was completed correctly FAILURE/ACTION indicator does not display 48: Check number displayed for its definition in table 8-7 and perform action specified
ad. Press MEMORY LOAD, REVERSE, VERIFY and EXECUTE switch-indicators in order given	Each switch-indicator, except EXECUTE, lights	A switch-indicator does not light when pressed: Check the specific switch-indicator for continuity
ae. Press and release PADS ON/OFF and ENTER switch-indicaters simultaneously	OFF portion of PADS ON/OFF switch-indicator lights and ON portion goes off. Self-test tape runs forward and then stops. FAILURE/ACTION indicator displays 00 when tape stops	Self-test tape does not run forward: a. Check each switch-indicator or switch for proper operation, replace if defective b. Replace A3 c. Replace A1 d. Replace A2 FAILURE/ACTION indicator does not display 00 when tape stops: Check number displayed for its definition in table 8-7 and perform action specified
af. Press MEMORY LOAD, VERIFY, REVERSE, and EXECUTE switch-indicators in sequence above	EXECUTE switch-indicator may begin flashing when any of the other three switch-indicators is pressed. MEMORY LOAD, VERIFY. and REVERSE switch-indicators go off when pressed. EXECUTE switch-indicator remains off if already off, or goes off if flashing when pressed	A switch-indicator does not go off when pressed: Check specific switch-indicator for proper operation and shorted contacts
ag. Press SELF TEST switch-indicater to off	SELF TEST switch-indicator goes off. IMU FAIL/COMP FAIL and OFF indicators remain on. EXECUTE switch-indicator lights. FAILURE/ACTION indicator displays 77	SELF TEST switch-indicator does not go off: a. Replace A3 b. Replace buffer unit c. Replace A1 EXECUTE switch-indicator does not light: a. Replace A3 b. Replace A1

Table 8-6. PADS Test Set Self- Test Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
ah. Press REVERSE switch-indicater to on	Self-test tape rewinds and stops at tape beginning. REVERSE switch-indicator lights	Self-test tape does not rewind or does not stop rewinding: a. Check REVERSE switch-indicator for proper operation b. Replace Al c. Perform tape reader testing and troubleshooting (table 8-8)
ai. Press REVERSE switch-indicator to OFF	REVERSE switch-indicator goes off	REVERSE switch-indicator does not go off: Check REVERSE switch for proper operation and for shorts
aj. Set tape reader SPOOLING switch to DISABLE		
ak. Press SPU ON switch-indicator to off	SPU ON switch-indicator goes off	SPU ON switch-indicator does not go off: Check SPU ON switch-indicator for proper operation and for shorts
al. Disconnect test equipment and remove tape from tape reader		
TEST COMPLETED		

Table 8-6.1. PADS Test Set Self-Test Procedure Using Tape Reader, Part No. 877406-2

Test procedure	Normal indication	Malfunction indication/corrective action
a. Check that cable W201 is connected as shown in figure 8-2		**WARNING** 115 VAC can be lethal. Use extreme care when measuring.
b. Press SPU ON switch-indicator to on	SPU ON switch-indicator lights. OFF or ON portion of PADS ON/OFF switch-indicator lights. Blower is operating. TIME HOURS meter is operating by observation of comma oscillation	No normal indications: a. Check + 28V fuse and replace if defective b Verify the 155-VAC primary power is properly connected and present between W 1 and W2 c. Check if 115 VAC is present at terminals 1 and 2 of PSI d. If 115 VAC is not present, check R2, DS3 and input power wiring and repair as necessary e. If 115 VAC is present check for + 28V between terminals 4(+) and 5(-) of PS1 f. If + 28V is present between terminals 4 and 5 of PS1, check wiring between terminals 4 and 5 of PS1 and W3 and W4 g. If + 28V is not present between terminals 4 and 5 of PS1, disconnect Z1 from PS1 h. Recheck + 28V between terminals 4 and 5 of PS1 i. If + 28V is present between terminals 4 and 5 of PS1, adjust Z1 according to procedure 8-23e j. If Z1 cannot be adjusted, replace Z1 k. If + 28V is not present at terminals 4 and 5 of PS1, replace PS1
c. Turn off any lighted switch-indicator other than SPU ON or PADS ON/OFF, by pressing them	Any switch-indicator that is lighted will go off when pressed	No lighted switch-indicator goes off when pressed: a. Check + 5V fuse; replace if necessary b. Check PS2 output voltage between W5(+) and W6(-) for + 5V

Table 8-6.1. PADS Test Set Self-Test Procedure Using Tape Reader, Part No. 877406-2 - Continued

Test procedure	Normal indication	Malfunction indication/corrective action
d. Press SELF TEST switch-indicator to on, then off	Observe that SELF TEST switch-indicator lights and goes off, accordingly	c. If + 5V is present between W5 and W6, replace A3 then A1 d. If + 5V is not present between W5 and W6, check 115 VAC input between terminals 1 and 2 of PS2 e. If 115 VAC is not present, check K1 for being energized, S4 for being closed, and R1. Replace if necessary f. If 115 VAC is present, disconnect Z1 from PS2 g. Check for + 5V between terminals W5(+) and W6(-) of PS2 h. If + 5V is not present, replace PS2 i. If + 5V is present, adjust Z2 according to procedure 8-23f j. If Z2 cannot be adjusted, replace Z2 Only one of the switch-indicators does not go off when pressed: Check switch that is affected for being defective
e. Press SPU ON switch-indicator to off	SPU ON switch-indicator goes off	SPU ON switch-indicator does not go off: Check for faulty DS3 and shorted wiring
f. Connect cables W203, W204, and W209 as shown in figure 8-2		
g. Ensure that tape reader SPL/LOOP switch is set to LOOP		
h. Press SPU ON switch-indicator to on	SPU ON switch-indicator lights. IMU FAIL/COMP FAIL indicator mav light. ON or OFF portion of PADS ON/OFF switch-indicator lights. Blower is operating. TIME HOURS meter is operating by observation of comma oscillation	Same as step b

Table 8-6.1. PADS Test Set Self-Test Procedure Using Tape Reader, Part No. 877406-2 - Continued

Test procedure	Normal indication	Malfunction indication/corrective action
i. Press and hold LAMP TEST switch to check indicators and switch-indicators, then release	All lamps illuminate except ENTER and LAMP TEST, and the FAILURE/ACTION indicator remains blank for at least 1.5 seconds. FAILURE/ACTION indicator sequentially displays the following within 15 seconds after pressing LAMP TEST switch: INDICATION Blank 30 20 Blank 88 Blank 32 Blank 77	No indicator or switch-indicator lights: a. Press SELF TEST switch-indicator b. Press and hold LAMP TEST switch to recheck if indicators light c. If none of the indicators light, check LAMP TEST switch (S1) and SELF TEST switch-indicator (DS12) and replace as necessary Some indicators or switch-indicators do not light: Replace applicable indicator or indicator-switch bulb FAILURE/ACTION indicator does not remain blank for 1.5 seconds: a. Check + 15V and - 15V fuses, replace if necessary b. Check PS3 output voltage at W7(+) and W8(-) for + 15V c. If + 15V is not present, check for 115 VAC between terminals 1 and 2 of PS3 d. If 115 VAC is not present between terminals 1 and 2 of PS3, check K1 for being energized and check R3 and repair as necessary e. If 115 VAC is present and + 15V is not present at output of PS3 between W7 and W8, disconnect Z3 and recheck + 15V at W7 and W8 f. If + 15V is still not present, replace PS3

Table 8-6.1. PADS Test Set Self-Test Procedure Using Tape Reader, Part No. 877406-2 - Continued

Test procedure	Normal indication	Malfunction indication/corrective action
		g. If + 15V is present between W7 and W78, adjust Z3 according to procedure 8-23g
		h. If Z3 cannot be adjusted, replace Z3
		i. Check PS4 output voltage at W8(+) and W9(-) for -15V
		j. If -15V is not present, check for 115 VAC between terminals 1 and 2 of PS4
		k. If 115 VAC is not present between terminals 1 and 2 of PS4, check R4 and replace if necessary
		l. If 115 VAC is present and -15V is not present at output of PS3 between W8 and W9, disconnect Z4 and recheck -15V at W8 and W9
		m. If -15V is still not present, replace PS4
		n. If -15V is not present between W8 and W9, adjust Z4 according to procedure 8-23g
		o. If Z4 cannot be adjusted, replace Z4
		FAILURE/ACTION indicator sequences numbers and blanks correctly but some of the displayed numbers are incorrect:
		a. If wrong numbers are displayed in either FAILURE/ACTION indicator module, switch connectors at bottom of DS10
		b. If after switching connectors on DS10, wrong numbers still displayed in same module, replace that module
		c. If after switching connectors, the wrong numbers are displayed in other module, replace A3 then A1
		FAILURE/ACTION indicator does not sequence properly: Replace A3
		FAILURE/ACTION indicator does not display:

Table 8-6.1. PADS Test Set Self-Test Procedure Using Tape Reader, Part No. 877406-2 - Continued

Test procedure	Normal indication	Malfunction indication/corrective action
		a. Replace FAILURE/ACTION indicator DS10
		b. If still no display, replace A3
j. Press EXECUTE switch-indicator to on	EXECUTE switch-indicator flashes	EXECUTE switch-indicator does not flash: Replace Al then A3
NOTE It may be necessary to press EXECUTE switch-indicator twice.		
k. Press EXECUTE switch-indicator to off	EXECUTE switch-indicator goes off	Same as j
l. Install the self-test tape on the tape reader as follows:		
N O T E Check that tape reader head is clean before proceeding.		
Make sure that tape reels are not deformed and that tape runs smoothly through tape reader head.		
Lift read head cover to up position		
Clean tape reader head, if necessary		
Load program tape on left side, thread tape through read head, ensuring tape is between LED's and read head, and sprocket teeth are aligned on both sides		
Manually move tape until arrows on tape are past read head		
Gently lower read head cover	Tape reader no. 10 LED indicator lights steady	
NOTE Tape reader has now recorded this as HOME.		
Wrap the free end of tape around the take-up reel hub until no slippage occurs. Do not use masking tape to secure diagnostic tape to the take-up reel.		

Table 8-6.1. PADS Test Set Self-Test Procedure Using Tape Reader, Part No. 877406-2 - Continued

Test procedure	Normal indication	Malfunction indication/corrective action
m. Set tape reader SPL/LOOP switch to SPL and FAST/SLOW switch to SLOW		
n. Press the SELF TEST switch-indicator to on	SELF TEST switch-indicator lights. Self-test tape runs forward and then stops. FAILURE/ACTION indicator displays 40 when tape stops and PARITY ERROR indicator lights	Self TEST switch-indicator does not light but self-test tape runs forward and stops with a FAILURE/ ACTION indication of 40: a. Check SELF TEST switch-indicator lamps (DS12) and replace if necessary b. If lamps are OK, check lamp wiring
NOTE If the tape leader exceeds 20 inches or 3 seconds before data on the tape reaches the head, the tape reader will stop and it will be necessary to press SELF TEST switch-indicator again.	**NOTE** Various lamps will cycle on and off during the self-test operation and are to be ignored unless specified in this procedure to be observed.	SELF TEST switch-indicator does not light and tape does not run forward: a. Recheck step i because the self-test cannot proceed unless the sequence of step i was completed correctly b. Check SELF TEST switch-indicator (DS12) for proper operation by checking continually between pins A-C and A-NO when switch is pushed. Replace DS12 if necessary c. Replace A3
		SELF TEST switch-indicator lights and self-test tape does not run forward: a. Observe FAILURE/ACTION indicator after 10 seconds. Take appropriate action if there is a FAILURE/ACTION indication b. If no FAILURE/ACTION indication, check tape reader fuses and cable W203 c. Replace Al and then A3 d. Perform tape reader testing and troubleshooting. Recheck step h e. Check for faulty self-test tape

Table 8-6.1. PADS Test Set Self-Test Procedure Using Tape Reader, Part No. 877406-2 - Continued

Test procedure	Normal indication	Malfunction indication/corrective action
		Self-test tape runs forward but FAILURE/ACTION indicator does not display 40 when tape stops: Check number displayed for its definition in table 8-7 and perform action specified Self-test tape does not stop: a. Check for faulty self-test tape b. Replace A3, then A1, and then A2
o. Set tape reader SRCH/HOME switch momentarily to SEARCH; wait until tape stops		
p. Press SELF TEST switch-indicator to off	SELF TEST switch-indicator goes off. FAILURE/ACTION indicator displays 77	SELF TEST switch-indicator does not go off: a. Check SELF TEST switch-indicator for proper operation or shorted wiring b. Replace A3
q. Set tape reader SPL/LOOP switch to LOOP		
r. Press SPU ON switch-indicator to off	SPU ON switch-indicator goes off	SPU ON switch-indicator does not go off: Check SPU ON switch-indicator for proper operation
NOTE If SPU is turned off to connect W205, then turned on, tape reader registers this tape position as HOME		
s. Connect cable W205 as shown in figure 8-2		
t. Connect cable W210 as shown in figure 8-2		
u. Turn TTY keyboard MOTOR switch to OFF		
v. Connect TTY cable W212 as shown in figure 8-2. Refer to notes 2 and 3, figure 8-2		
w. Connect TTY power cable to 115 VAC, 60 Hz		

Table 8-6.1. PADS Test Set Self-Test Procedure Using Tape Reader, Part No. 877406-2 - Continued

Test procedure	Normal indication	Malfunction indication/corrective action
x. Press SPU ON switch-indicator to on	Same as step b	Same as step b
	EXECUTE switch-indicator lights. IMU FAIL/COMP FAIL indicator lights. OFF or ON portion of PADS ON/OFF switch-indicator lights	EXECUTE switch-indicator does not light: Replace buffer unit, then A1, and then A3
y. Set tape reader SPL/LOOP switch to SPL		
z. Press SELF TEST switch-indicator to on	SELF TEST switch-indicator lights. Self-test tape runs forward and then stops. PADS ON switch-indicator lights. PADS OFF switch-indicator goes off	SELF TEST indicator does not light: Recheck steps i and j because-the self-test cannot proceed unless the sequence of steps i and j were completed correctly
NOTE If FAILURE/ACTION indicator displays 33 immediately after the switch is pressed, press SELF TEST switch-indicator off and back on again	FAILURE/ACTION indicator displays 46 when tape stops. EXECUTE switch-indicator goes off. Ignore flashing lights	FAILURE/ACTION indicator does not display 46: Check number displayed for its definition in table 8-7 and perform action specified EXECUTE switch-indicator does not go off: Replace the buffer unit, then Al, and then A3
aa. Turn TTY keyboard MOTOR switch to ON		
ab. Press each TTY key in turn	After each key is pressed, its character is printed correctly on TTY	TTY chatters and does not print out or prints out incorrectly: a. Check cable W212 terminal board connections b. Perform the receive circuit bias current adjustment. Set up meter to read current. Remove jumper from El and E2 of the TEST BIAS MA binding posts located on the left side of the TTY. Put negative (-) lead of meter on E1 and positive (+) lead on E2. Adjust bias potentiometer on left side of TTY for maximum current not to exceed 20mA

Table 8-6.1. PADS Test Set Self- Test Procedure Using Tape Reader, Part No. 877406-2 - Continued

Test procedure	Normal indication	Malfunction indication/corrective action
		c. If receive circuit bias current cannot be adjusted as outlined above, perform the following SPU short circuit current test. Set meter up to read current. Remove cable W212 P1 from the front of the SPU. Put positive (+) lead of meter on pin 3 of J12 (TTY connector on front of SPU) and negative (-) lead on pin 4 of J12. The meter should indicate 30 mA ±10 mA. If meter does not indicate 30 mA, replace Al. If meter does indicate 30 mA, replace or repair TTY
		TTY does not print out or prints out incorrectly:
		a. If the receive circuit bias current is correct or can be adjusted, perform the send circuit test. Remove cable W212 P1 from SPU and set meter up to read DC volts. Place positive (+) lead of meter on pin 2 of J12 (TTY connector on front of SPU) and negative (-) lead of meter on pin 1 of J12. Meter should indicate + 30V. If meter does not indicate + 30V, replace Al. If meter does indicate + 30V, set up meter to read current. Place positive (+) lead of meter on pin 2 of J12 (TTY connector on front of SPU) and negative (-) lead of meter on pin 1 of J12. Meter should indicate 39 mA ±3 mA. If meter does not indicate 39 mA, replace A1. If meter does indicate 39 mA, proceed to next step

Table 8-6.1. PADS Test Set Self-Test Procedure Using Tape Reader, Part No. 877406-2 - Continued

Test procedure	Normal indication	Malfunction indication/corrective action
		b. Adjust the rangefinder mechanism located on the left side of the TTY by typing RY and observing the printout, Adjust the rangefinder clockwise until the TTY prints other than RY. Note the position of the rangefinder dial. Now turn rangefinder counterclockwise and observe correct RY printout and continue in a counterclockwise direction until other than RY is printed out. Note this position of the rangefinder dial. Set the rangefinder in the middle of the two extremes c. If TTY still does not print out correctly, replace or repair TTY
ac. Turn TTY keyboard MOTOR switch to OFF		
ad. Press SELF TEST switch-indicator to off	SELF TEST switch-indicator goes off. EXECUTE switch-indicator lights. FAILURE/ACTION indicator displays 77	SELF TEST switch-indicator does not go off: a. Check SELF TEST switch-indicator for proper operation or shorted wiring b. Replace A3 EXECUTE switch-indicator does not light: Replace buffer unit, then Al, and then A3
ae. Press SELF TEST switch-indicator to on	SELF TEST switch-indicator lights. IMU FAIL/COMP FAIL indicator remains on. Self-test tape may or may not move forward. ON portion of PADS ON/OFF switch-indicator lights. EXECUTE switch-indicator goes off	SELF TEST or PADS ON switch-indicator does not light: Recheck step i because the self-test cannot proceed unless the sequence of step i was completed correctly
af. Press MEMORY LOAD, REVERSE, VERIFY and EXECUTE switch-indicators in order given	Each switch-indicator, except EXECUTE, lights	A switch-indicator does not light when pressed: Check the specific switch-indicator for continuity
ag. Press and release PADS ON/OFF and ENTER switch-indicators simultaneously	OFF portion of PADS ON/OFF switch-indicator lights and ON portion goes off. Self-test tape runs forward and then stops. FAILURE/ACTION indicator displays 00 when tape stops	Self-test tape does not run forward: a. Check each switch-indicator or switch for proper operation, replace if defective b. Replace A3 c. Replace A1 d. Replace A2

Table 8-6.1. PADS Test Set Self-Test Procedure Using Tape Reader, Part No. 877406-2 - Continued

Test procedure	Normal indication	Malfunction indication/corrective action
		FAILURE/ACTION indicator does not display 00 when tape stops: Check number displayed for its definition in table 8-7 and perform action specified
ah. Press MEMORY LOAD, VERIFY, and REVERSE, and EXECUTE switch-indicators in order given	EXECUTE switch-indicator may begin flashing when any of the other three switch-indicators is pressed: MEMORY LOAD, VERIFY, and REVERSE switch-indicators go off when pressed. EXECUTE switch-indicator remains off if already off, or goes off if flashing when pressed	A switch-indicator does not go off when pressed: Check specific switch-indicator for proper operation and shorted contacts
ai. Press SELF TEST switch-indicator to off	SELF TEST switch-indicator goes Off. IMU FAIL/COMP FAIL and OFF indicators remain on. EXECUTE switch-indicator lights. FAILURE/ACTION indicator displays 77	SELF TEST switch-indicator does not go off: a. Replace A3 b. Replace buffer unit c. Replace A1 EXECUTE switch-indicator does not light: a. Replace A3 b. Replace A1
aj. Set tape reader FAST/SLOW switch to FAST		
ak. Press REVERSE switch-indicator to on	Self-test tape rewinds and stops at tape beginning. REVERSE switch-indicator lights After self-test tape stops, observe that there is no subsequent forward motion of self-test tape and tape reader LED display lamps 3, 8, and 10 are lighted	Self-test tape does not rewind, does not stop rewinding, has forward motion after stopping, or LED display does not light as indicated: a. Check REVERSE switch-indicator for proper operation b. Replace A1 c. Perform tape reader testing and troubleshooting
al. Press REVERSE switch-indicator to OFF	REVERSE switch-indicator goes off	REVERSE switch-indicator does not go off: Check REVERSE switch for proper operation and for shorts
am. Set tape reader SPL/LOOP switch to LOOP		
an. Press SPU ON switch-indicator to off	SPU ON switch-indicator goes off	SPU ON switch-indicator does not go off: Check SPU ON switch-indicator for proper operation and for shorts

Table 8-6.1. PADS Test Set Self-Test Procedure Using Tape Reader, Part No. 877406-2 - Continued

Test procedure	Normal indication	Malfunction indication/corrective action
ao. Discomect test equipment and remove tape from tape reader		
TEST COMPLETED		

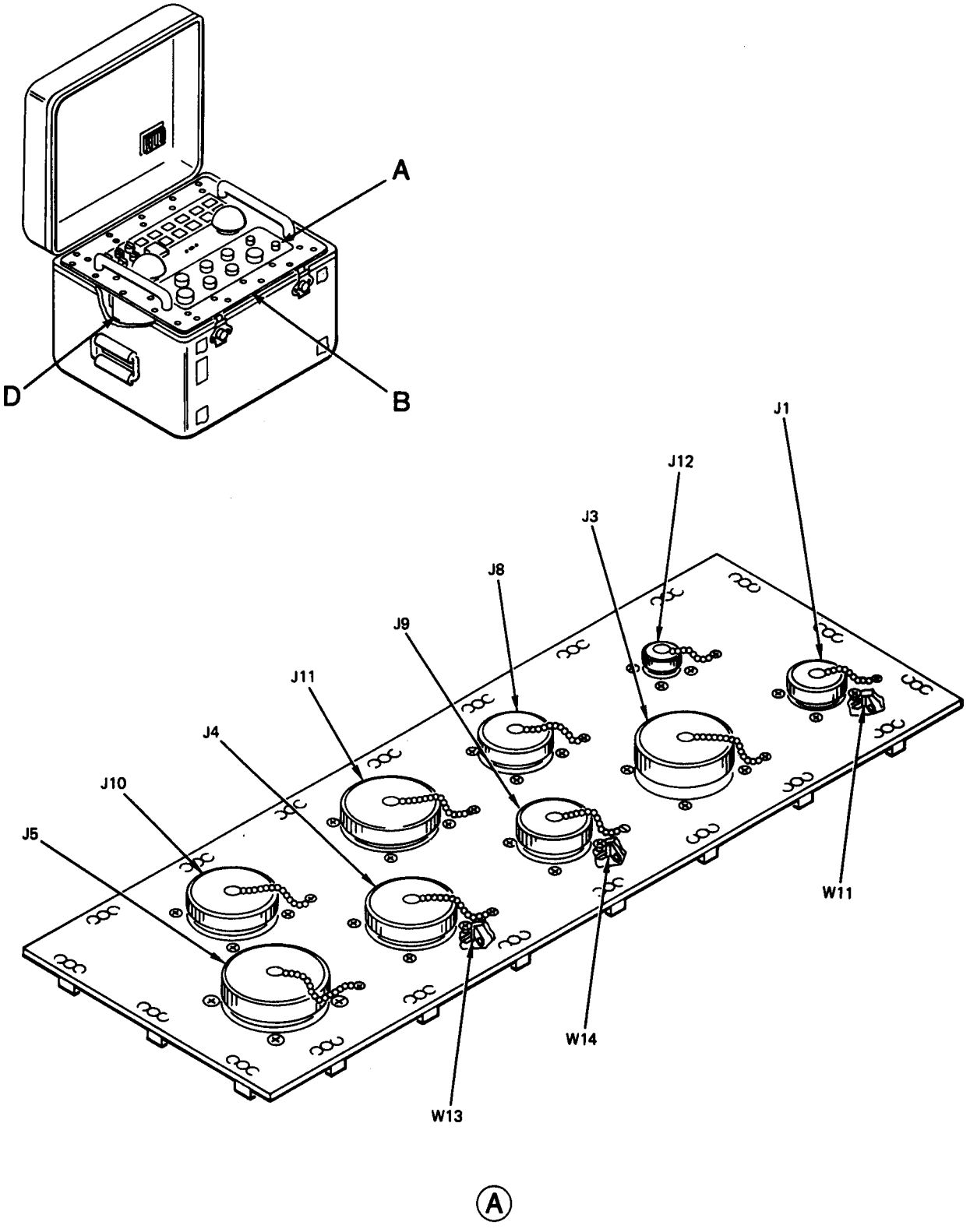

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Figure 8-1. Signal Processor Unit Parts Location Diagram (Sheet 1 of 5)

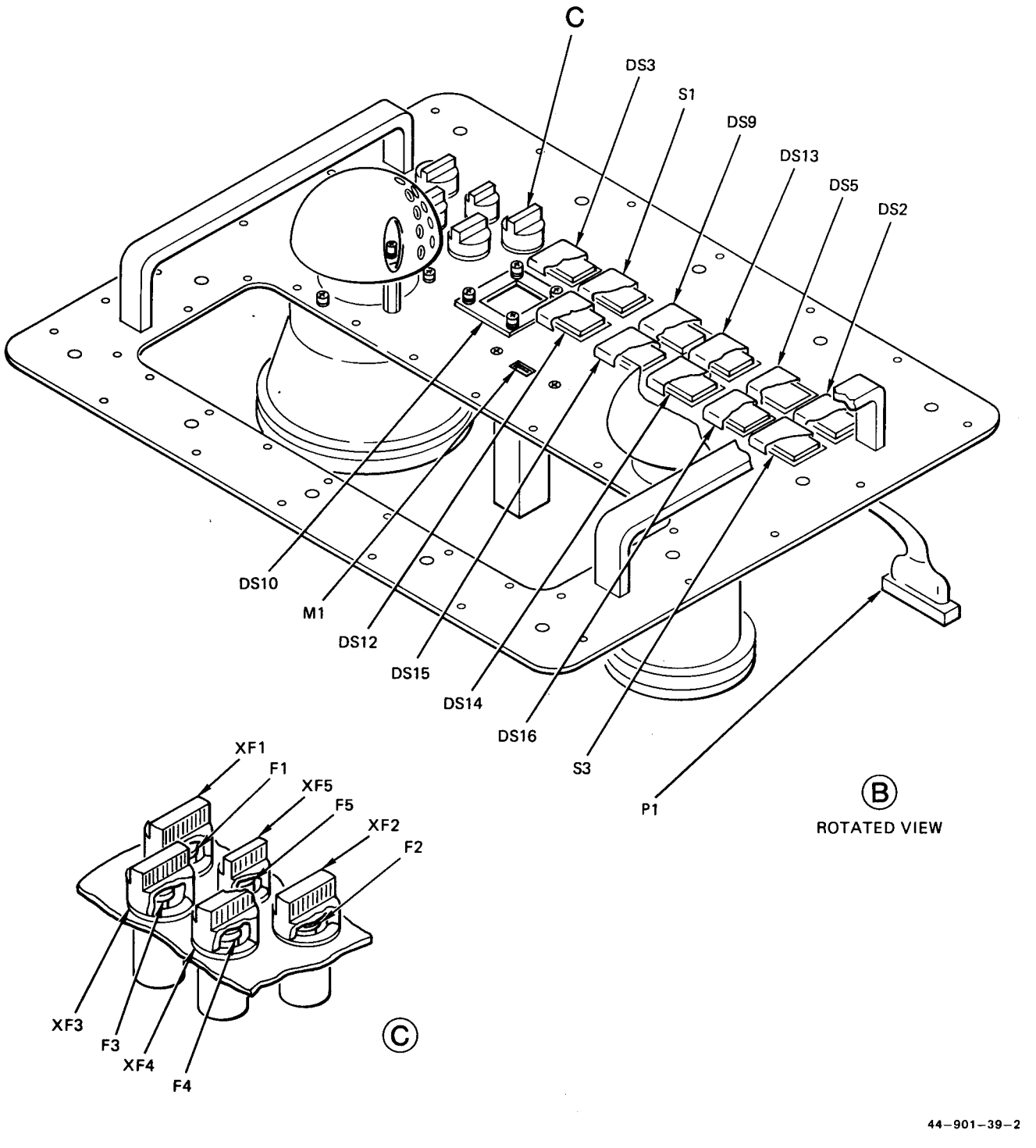

Figure 8-1. Signal Processor Unit Parts Location Diagram (Sheet 2 of 5)

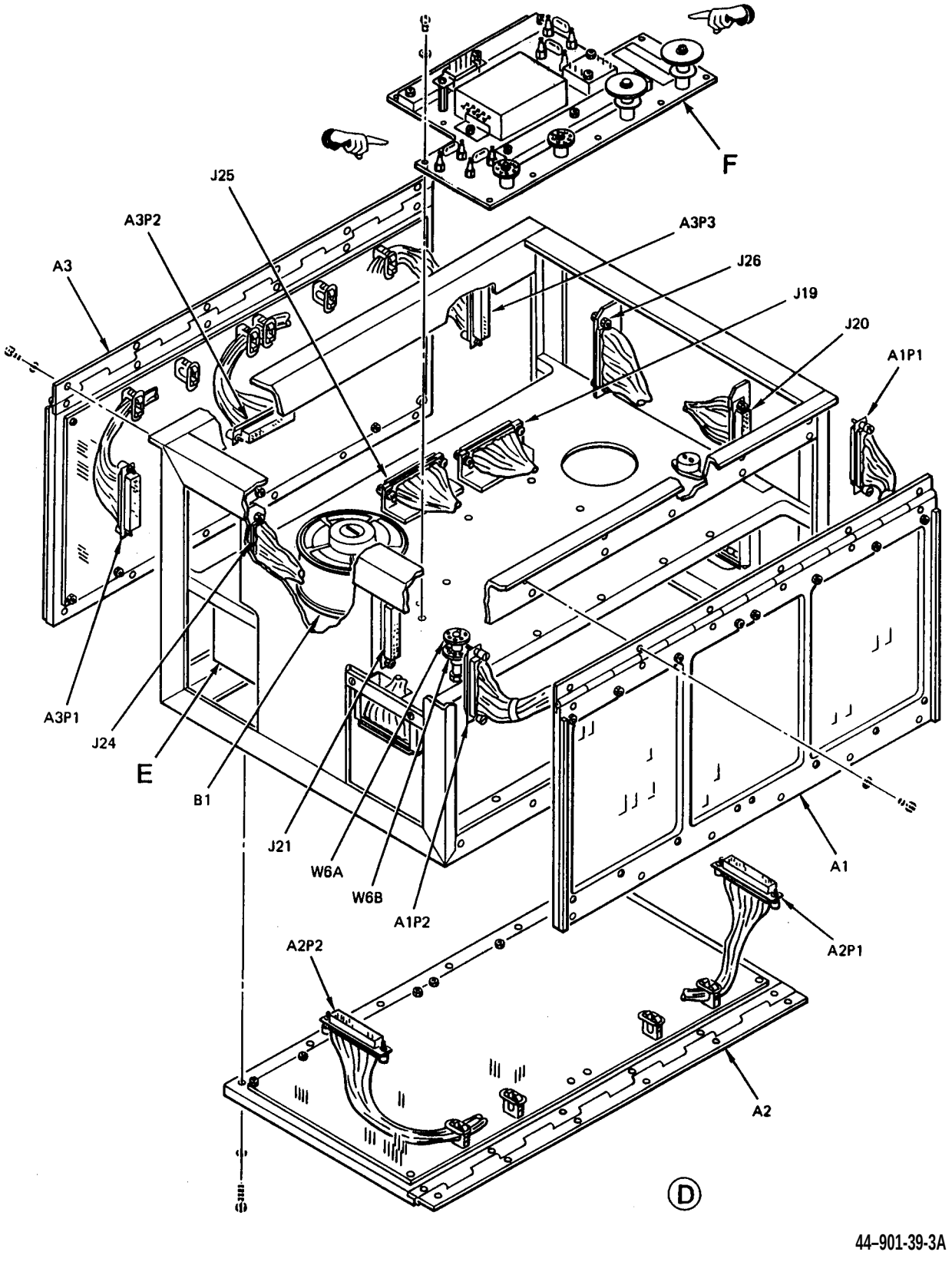

Figure 8-1. Signal Processor Unit Parts Location Diagram (Sheet 3 of 5)

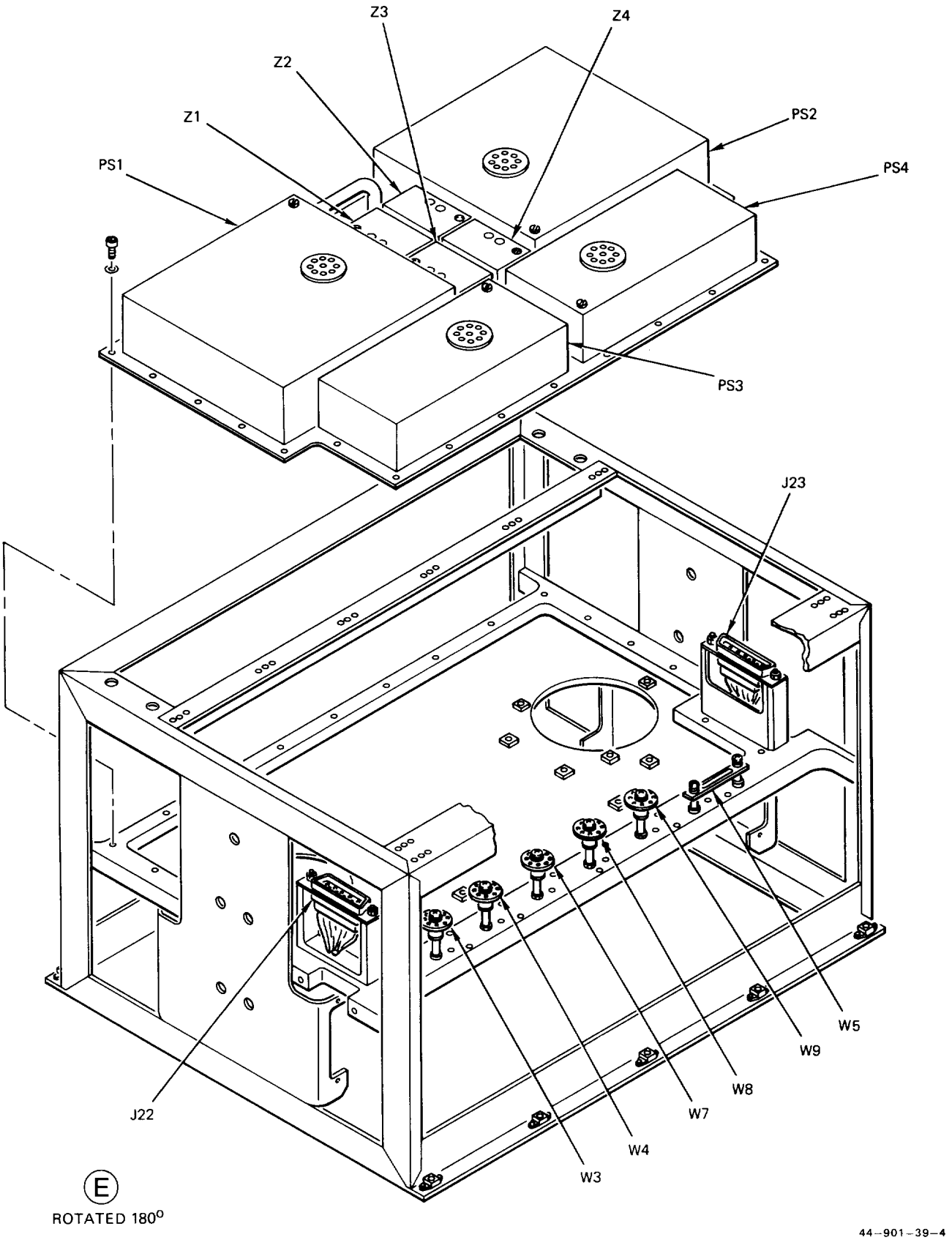

Figure 8-1. Signal Processor Unit Parts Location Diagram (Sheet 4 of 5)

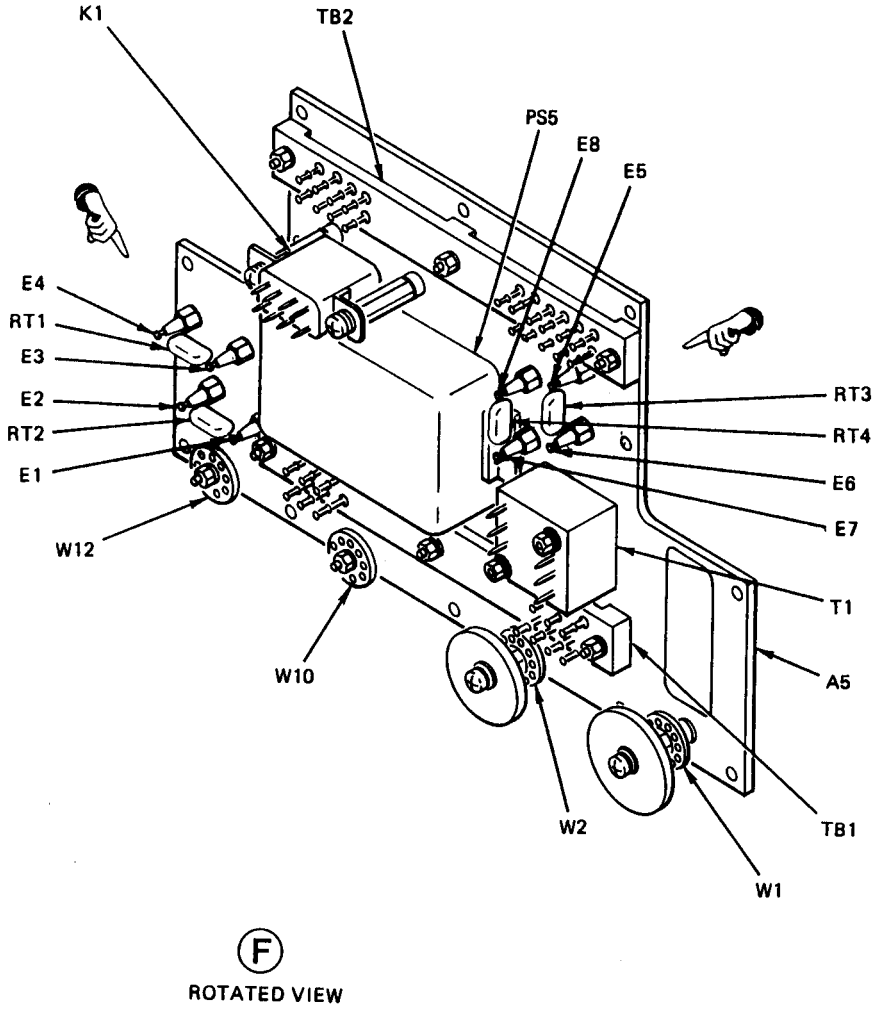

Figure 8-1. Signal Processor Unit Parts Location Diagram (Sheet 5 of 5)

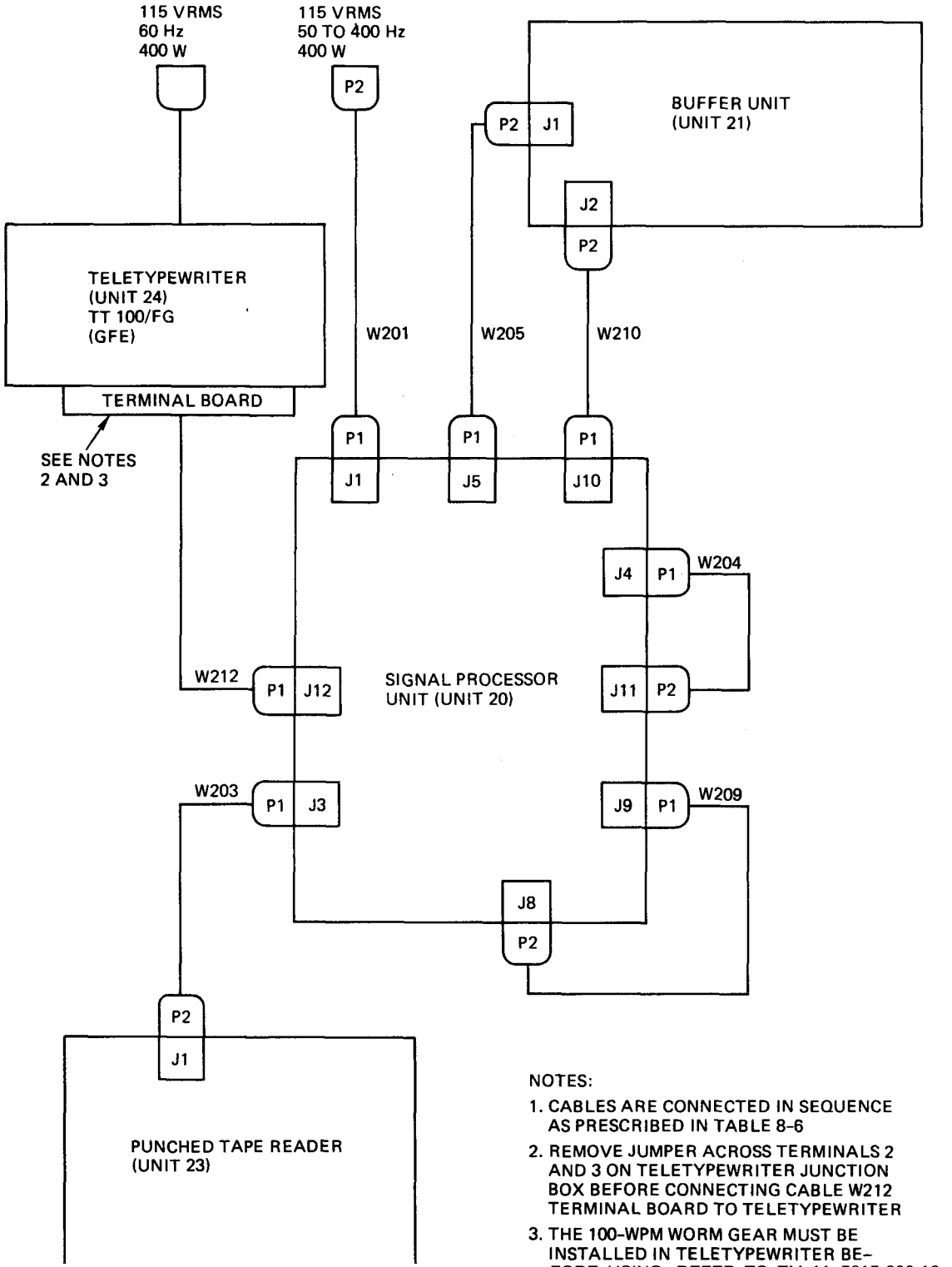

Figure 8-2. PADS Test Set Self-Test Interconnection Diagram

Table 8-7. FAILURE/ACTION Indicator Number Definition

FAILURE/ ACTION number	Definition	Action
	NOTE	
For any number other than those listed below, first check cable connections as per figure 8-2. If still fails, replace A3, then A1, and then A2.		
00	Action indication	Requires operator to turn off SPU SELF TEST switch-indicator
20	SPU + 15V failure	Check + 15V. If not present, replace +15 VDC fuse, PS3, and/or Z3. If still failure, replace A3
21	SPU -15V failure	Check -15V. If not present, replace -15 VDC fuse, PS4, and/or Z4. If still failure, replace A3
28	SPU + 15V failure	Check + 15V. If not present, replace +15 VDC fuse, PS3, and/or Z3. If still failure, replace A3
29	SPU -15V failure	Check -15V. If not present, replace -15 VDC fuse, PS4, and/or Z4. If still failure, replace A3
30	SPU time-out-counter (TOC) failure	Replace A1; if still failure, replace A3; then check tape reader as per paragraph 8-10 and table 8-8 (lamps, photocells, and amplifier A1 have highest probability of being the problem areas)
	NOTE	
	When TOC failure occurs, turn power off and rerun tests.	
32	SPU comparator, execute, reverse, or load function failure. SPU teletypewriter control circuitry failure	Check that the cables to the SPU are connected as per figure 8-2. Special emphasis should be given to insure that cable W209 is connected properly and that cable W212 is not connected during the first part of the SPU self-test procedure. Also, be certain that power to the SPU was cycled off via the SPU ON switch-indicator at least once prior to the start of the SPU self-test procedure. If this was not performed, then reverse the self-test tape to the beginning of self-test and cycle SPU power via the SPU ON switch-indicator before performing self-test again. If still fails, replace A1, then A3, and then A2
38	SPU time-out-counter failure	Replace A3; if still failure, replace A1, then A2
40	Action indication	Requires operator to connect TTY and buffer unit and to check that the EXECUTE indicator is on. If indicator is not on, replace buffer unit, If still not on, replace A1, then A3
41	Cables improperly connected	Remove cables W205 and W210 from the SPU (the buffer unit is not to be connected during the first part of self-test)
46	Action indication	Requires operator to check that EXECUTE switch-indicator is out. If EXECUTE switch-indicator is not out, replace A1, then A3. If TTY echo-back does not work properly, replace TTY. If still a failure, replace A1

Table 8-7. FAILURE/ACTION Indicator Number Definition - Continued

FAILURE/ ACTION number	Definition	Action
48	Action indication	Requires operator to press all SPU switch-indicators for self-test of these switch-indicators
68	Serial data bus error, or (digital) d/DC error, or discrete loop closer error	Repeat step h of table 8-6. Check that the cables to the SPU are connected as per figure 8-2. Special emphasis should be given to insure that cable W204 is connected properly. If cables are connected properly, replace A3. If still failure, replace A2, then A1
68	Buffer unit not properly connected	Check cabling. If cabling is good, replace A3. If still a failure, replace Al. If still a failure, replace buffer unit
70	SPU digital/DC and digital/ synchrodigital/resolver (gross magnitude) circuitry failure	Check SPU adjustments per paragraph 8-23. If adjusted and still failure, replace A2, then A3, and then A1
72	SPU serial data bus decode and parity circuitry failure. SPU discrete test circuitry and lamp driver circuitry failure	Replace A3; if still failure, replace A1, then A2
74	Buffer unit verify function failure	Replace buffer unit; if still failure, replace A3, then A1
76	Buffer unit load function, or input/ output failure	Replace buffer unit; if still failure, replace A1, then A3
77	Normally a computer power status failure. If it occurs at the end of self-test, it represents a tape reader time-out-counter failure	Replace A3. If a failure still occurs, replace A1, then buffer unit. If failure still occurs, perform tape reader testing in accordance with table 8-8
	NOTE 77 will always be present when not in self-test and the computer is not connected to the SPU.	
78	SPU digital/synchrodigital/ resolver angle and phase circuitry failure	Replace A2; if still failure, replace A1, then A3
88	Normally a tape reader time-out-counter failure. However, if it occurs at end of self-test it represents a buffer power failure	Replace tape reader or perform tape reader testing and troubleshooting (table 8-8); if still a failure, replace Al, then A3. If it occurs at end of self-test, replace buffer unit. If still a failure, replace A3, then A1
	NOTE After the required operation action has been performed (including switching power on and off where required), the testing will continue.	

8-11. Tape Reader Testing and Troubleshooting Procedure.

a. General. Testing and troubleshooting of the tape reader consists of performing the procedures in table 8-8 or 8-8.1. Table 8-8 uses tape reader, part no. 877406-1, and table 8-8.1 uses tape reader, part no. 877406-2. The procedure is arranged in three columns, The first column contains the test operation procedures to be performed. The second column contains the normal indication to be observed when the procedure has been performed, The third column contains the corrective action to be taken if the normal indication is not obtained, As an aid in performing the test procedure, see the tape reader schematic contained in figure FO-19 or FO-20. See figure 8-3 for location of tape reader test points and figure 8-4 for location of plug-in circuit card adjustments. Figures 8-3 and 8-4 apply to tape reader, part no. 877406-1, See the tape reader exploded view (figure 8-10 or 8-10.1) for location of parts.

b. ***Test Equipment and Materials (Tape Reader, Part No. 877406-1).***

(1) Signal processor unit

(2) Digital Voltmeter AN/GSM-64B

(3) Oscilloscope AN/USM-281A or AN/USM-273

(4) Self-test tape

(5) Take-up reel

(6) Multimeter AN/USM-223

c. Test Equipment and Materials (Tape Reader, Part No. 877406-2).

(1) Signal processor unit

d. ***Test Connection and Conditions (Tape Reader, Part No. 877406-1).***

CAUTION

When working on the tape reader, remove from case and use extreme care to avoid damage to components and cables.

(1) Remove tape reader from instrument case (3, figure 8-10, sheet 1) by removing 20 screws (1) and washers (2).

(2) Connect cable W201 as shown in figure 8-2.

(3) Connect cable W203 as shown in figure *8-2.*

e. Test Connections and Conditions (Tape Reader, Part No. 877406-2).

(1) Remove tape reader from instrument case (3, fire 8-10.1, sheet 1) by removing 20 screws (l) and washers (2).

(2) Connect cable W201 as shown in figure 8-2.

(3) Connect cable W203 as shown in figure 8-2.

f. Procedure (Tape Reader, Part No. 8774M-1).

Perform tape reader testing and troubleshooting in accordance with table 8-8.

NOTE

Except for SPOOLING switch S1 (DISABLE/ENABLE) located on the tape reader (unit 23), all other switches are located on the SPU (unit 20).

WARNING

The tape reader contains 115 VAC; be especially careful when working around F2 and T1. DEATH OR SERIOUS INJURY may result from contact with 115 VAC.

B1 is extremely hot to the touch.

The tape used in testing of the tape reader is electrically conductive. DEATH OR SERIOUS INJURY, as well as damage to the tape may result if the tape is allowed to come into contact with 115 VAC.

NOTE

Check that the tape reader head is clean before proceeding with procedures in table 8-8.

If any component is replaced during testing, table 8-8 tests 1, 2, and 5 must be performed.

Unless otherwise indicated, the replacement of any tape reader component requires that testing be restarted.

Make sure that tape reels are not deformed and that the tape runs smoothly through tape reader head.

g. Procedure (Tape Reader, Part No. 877406-2).

Perform tape reader testing and troubleshooting in accordance with table 8-8.1.

WARNING

The tape reader contains 115 VAC; be especially careful when working around

F2 and T1. DEATH OR SERIOUS INJURY may result from contact with 115 VAC.

The tape used in testing of the tape reader is electrically conductive. DEATH OR SERIOUS INJURY, as well as damage to the tape may result if the tape is allowed to come into contact with 115 VAC.

NOTE

Check that tape reader head is clean before proceeding with procedures in table 8-8.1.

Unless otherwise indicated, the replacement of any tape reader component requires that testing be restarted.

Table 8-8. Tape Reader Testing and Troubleshooting Procedure

Test procedure	Normal indication	Malfunction indication/ corrective action
1. PRELIMINARY TESTS.		

CAUTION

None of the circuit cards are keyed; therefore, any card will fit into any card slot. Refer to side of card cage for proper orientation of cards. Failure to comply may result in damage to the equipment.

NOTE

This procedure is for tape reader, part no. 877406-1.

At any time during testing when resistance measurements are to be made, or when cards and card extenders are to be removed or installed, remove power to the tape reader by pressing the SPU ON switch-indicator to off. When ready to resume testing, reapply power to the tape reader by pressing the SPU ON switch-indicator to on. Any switch-indicator that is on (REVERSE MEMORY LOAD) should be pressed off and then back on again (function needs to be restored after power is cycled). Resume testing.

la. Turn two reels, two tape sensing arms, and stepping motor sprocket by hand	Reels, tape sensing arms, and stepping motor sprocket move freely	Replace defective part
lb. Set tape reader SPOOLING switch to DISABLE		
lc. Press SPU ON switch-indicator to on	Reels do not rotate	If reels rotate, replace S1
ld. Observe tape reader TIME HOURS meter	TIME HOURS meter is operating by observation of comma oscillation	If meter is not operating, check + 28V fuse. If fuse is good, or keeps blowing out when replaced, check the meter wiring
		If the wiring is good, replace meter
le. Set tape reader SPOOLING switch to ENABLE	The supply (left) reel rotates counterclockwise	If all four indications fail, check 115-VAC fuse
	The take-up (right) reel rotates clockwise	If fuse is good, perform test 2; if fuse keeps blowing, check for shorts (see FO-19)
	All nine bulbs on lamp assembly DS1 light	If both reel tests fail, perform tests 2 and 3. If the supply reel test fails, perform tests 2 and 3.1
	The stepping motor sprocket does not rotate freely (cannot be turned by hand)	If the take-up reel test fails, perform tests 2 and 3.2
		If no bulbs on lamp assembly DS1 light, check R1. If R1 is good or if at least one bulb lights, but others (one to eight), do not light, replace lamp assembly DS1
		If stepping motor sprocket turns easily by hand, perform tests 2 and 4. If tests pass, replace B1

Table 8-8. Tape Reader Testing and Troubleshooting Procedure-Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
1f. Move supply tape sensing arm (left) to the far left (away from reading head)	The supply (left) reel rotates clockwise	If reel does not operate properly, perform tests 2 and 3.1

Table 8-8. Tape Reader Testing and Troubleshooting Procedure - Continued

Test procedure	Normal indication	Malfunction indication corrective action
1g. Move take-up tape sensing arm (right) to extreme right (away from reading head)	The take-up (right) reel rotates counterclockwise	If reel does not operate properly, perform tests 2 and 3.2
1h. Press SPU MEMORY LOAD switch-indicator to on	The stepping motor sprocket rotates counterclockwise	**NOTE** Record and save results of step lj
1i. Press SPU MEMORY LOAD switch-indicator to off		
1j. Press SPU REVERSE switch-indicator to on	The stepping motor sprocket rotates clockwise	**NOTE** If either test failed (step 1j or 1j), perform tests 2 and 4
1k. Remove A1 from card cage. Install A1 on card extender and insert into A1 card cage position		See note at beginning of test 1
11. Press SPU ON switch-indicator to on position. Connect digital voltmeter (DVM) negative test lead to ground (TB2 terminal 10; TP5), and positive test lead to TB2 terminals 1 through 9 (TP16 through TP24) in order, See figure 8-3, sheet 2, for locations of test points	DVM indicates -0.2V or more negative on all terminals	Voltage out of tolerance: Perform teat 2
1m. Set tape reader SPOOLING switch S1 to DISABLE position	Reels stop rotating and lamp assembly bulbs go off	Same as step 1c
1n. Press SPU ON switch-indicator to off	SPU ON switch-indicator goes off	Refer to table 8-6
10. Press SPU ON switch-indicator to on	SPU ON switch-indicator lights	Refer to table 8-6
1p. Set tape reader SPOOLING switch S1 to ENABLE		
lq. Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to Al connector pins E, H, M, P, R, S, W, X, and 2, one at a time	DVM indicates +3.0 to + 5.5V at each pin	Any voltage out of tolerance Insure that the lamp assembly is lighted; then perform tests 2 and 5
1r. Press SPU ON indicator to off		

NOTE

If the tape reader appears to function properly mechanically and passes steps 11 and 1q, but does not pass the SPU self-test (88 appears on FAILURE/ACTION indicator), then perform tests 2 and 5; otherwise, proceed to step 3.

2. POWER SUPPLY.

Table 8-8. Tape Reader Testing and Troubleshooting Procedure - Continued

Test procedure	Normal indication	Malfunction indication corrective action
	NOTE	
Any time a component or card is replaced in power supply testing, resistance measurements shall be made (see figure FO-19, sheet 1) to ensure that a shorted component less than 50 ohms) did not create the failure (if a short is detected, reverse multimeter test leads to ensure that a diode is not being measured).		
2a. Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to Al pin 6. (A1 installed on card extender)	DVM indicates +4.5 to + 5.5V	**NOTE** Record results and save for test step 2e. If OV, continue to step 2e and test Q1, CR1, and CR2
2b. Remove A1 from card extender and reinstall A1 in card cage		
2c. Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to A2 card cage pin 6 (card extender must be used; see note at beginning of test 1)	DVM indicates +4.5 to + 5.5V	Same as step 2a
2d. Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to SPOOLING switch S1 common termnal (TP9). See figure 8-3, sheet L Switch top terminal	DVM indicates +27 to + 29V	Same as step 2a
2e. Test results	**NOTE** If tests 2a, 2c, and 2d all had normal indications, test 2 is completed. Proceed as defined in test 1.	Steps 2a, 2c, and 2d all failed: Replace T1 Steps 2a and 2C both failed: Remove A7 and repeat step 2a; if now passes, replace A7. If still fails, measure less than 50 ohms (see note at beginning of test 1) between T1 pin 3 (TP3) and T1 pin 4 (TP4); if good, replace CR2 and C1. If still fails, check for shorts Step 2a passed but step 2C failed: Replace C3 and AR1 Step 2C passed but step 2a failed: Replace A7 Step 2d failed: Go to test step 2f

Table 8-8. Tape Reader Testing and Troubleshooting Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
2f. Remove A2 from card extender and reinstall A2 in card cage		
2g. Install A7 on card extender and insert card extender into A7 card cage		
2h. Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to SPOOLING switch S1 common terminal (TP9). See figure 8-3, sheet 1 of 2 Switch top terminal	DVM indicates +27 to + 29V	Voltage out of tolerance: Adjust A7R6 until voltage is in tolerance. If still out of tolerance, remove A7 and measure greater than + 46V between A7 card cage pin D and ground (TP5). If greater than + 46V, check Q1 (use A7 card cage pins D, C, and S; see. figure FO-19); if good, replace A7. If less than + 46V (see note at beginning of test 1), check R4 for less than 5 ohms between pins 5 (TP1) and 6 (TP2) on T1. (See figure 8-3, sheet 2); if good replace CR1 and CR2
2i. Remove A7 from card extender and reinstall in A7 card cage		
3. SERVO CIRCUITS.		
3.1 SENSE ARMS and REEL DRIVERS		
3.1a. Remove A6 from card cage and install card extender in A6 position		
3.1b. Measure resistance between A6 card extender pins L and M	Multimeter indicates 20 to 200 ohms	Resistance out of tolerance: Replace FL1 and B2
3.1c. Measure resistance between pins A and E of A6 card extender	Multimeter indicates 0.2 to 200 ohms	Resistance out of tolerance: Replace FL2 and B3
3.1d. Install A6 card into card extender		
3.1e. Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to A6 card pin R		

Table 8-8. Tape Reader Testing and Troubleshooting Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
3. If. While observing DVM, manually move tape reader supply (left front tape sensing arm to its extreme left position (away from read head)	DVM indication varies continuously from 0 (-0/ + 4)V (low end) to +28 (-4/ + 0)V (high end)	Voltage range out of tolerance: Adjust R2 as follows: Loosen R2 body clamp. Hold supply tape sensing arm approximately midway between its extreme positions. Adjust R2 body for + 14V DVM indication. Tighten R2 body clamp. Repeat this test procedure step; if voltage still out of tolerance, replace R2. Voltage does not vary continuously Replace R2
3.1g. Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to A6 card cage pin D		
3.1h. While observing DVM, manually move tape reader take-up (right front) tape sensing arm to its extreme right position (away from read head)	DVM indication varies continuously from 0 (-0/ + 4)V (low end) to +28 (-4/ + 0)V (high end)	Voltage range out of tolerance. Adjust R3 as follows: Loosen R3 body clamp. Hold supply tape sensing arm approximately midway between its extreme positions. Adjust R3 body for + 14V DVM indication. Tighten R3 body clamp and repeat this test procedure step; if voltage still out of tolerance, replace R3. Voltage does not vary continuously Replace R3
3.li. Remove card extender and reinstall A6 card in card cage.		
4. STEPPING MOTOR CIRCUITRY.		
4.1 CONTROL INTERFACE CHECK		
4.1a. Remove A2, A3, A4, and AS from card cage and mark appropriate cards using masking tape for identification during reinstallation; also, cards are identified in figure FO-19 and on side of card cage. Set tape reader SPOOLING switch S1 to ENABLE position		

Table 8-8. Tape Reader Testing and Troubleshooting Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
4.1b. Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to A2 card cage pin W (card extender may be helpful)	DVM indicates +3.0 to + 5.5V. (Check that REVERSE switch-indicator is pressed to on by cycling the switch)	Voltage out of tolerance: Perform tests in table 8-6; if still fails, replace SPU board A1
4.lc. Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to A2 card cage pin z	DVM indicates +3.0 to + 5.5V. (Check that REVERSE switch-indicator is pressed to on by cycling the switch)	Same as step 4.1.b
4.1d. Press SPU REVERSE switch-indicator to off	REVERSE switch-indicator goes off and DVM indicates -0.3 to + 0.5V	Same as step 4.1.b
4. le. Press SPU MEMORY LOAD switch-indicator to on	MEMORY LOAD switch-indicator goes on and DVM indicates +3.0 to + 5.5V	Same as step 4.1.b
4.1f. Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to A2 card cage pin W	DVM indicates -0.3 to + 0.5V	Same as step 4.1.b
4.2 PULSE RATE GENERATOR.		
4.2a. Reinstall A2 on card extender		
4.2b. Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to A2 card pin Y	DVM indicates +3.0 to +5.5V	Voltage out of tolerance: Replace A2
4.2c. Press SPU MEMORY LOAD switch-indicator to off	MEMORY LOAD switch-indicator light goes off	Refer to table 8-6
4.2d. Press SPU REVERSE switch-indicator to on	REVERSE switch-indicator lights and DVM indicates -0.3 to + 0.5V	Voltage out of tolerance: Replace A2. REVERSE switch-indicator does not light: Refer to table 8-6
4.2e. Insert card extender in A5 card cage position and reinstall A2 into card cage position		
4.2f. Connect 10:1 probe to channel A input of the oscilloscope		

Table 8-8. Tape Reader Testing and Troubleshooting Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
4.2g. Connect oscilloscope channel A probe ground return to ground (TB2 terminal 10, TP5) and connect same channel A probe to A5 card pin A, (Check that SPU REVERSE switch-indicator is on by cycling the switch)	Oscilloscope displays waveform A shown in figure 8-5	Voltage out of tolerance: Replace A2 Period T1 out of tolerance: Replace A2 Period T2 out of tolerance: Perform calibration procedure listed in test step 5.1b. If cannot calibrate, replace A2
4.2h. Set SPOOLING switch S1 to DISABLE position		
4.3 STEPPING MOTOR.		
4.3a. Use multimeter to measure resistance between A4 card cage pins D and V (card extender must be used)	Multimeter indicates 10 to 200 ohms	Resistance out of tolerance: Replace B1
4.3b. Use multimeter to measure resistance between A5 card cage pins D and V (place card extender in card cage position A5)	Multimeter indicates 10 to 200 ohms	Resistance out of tolerance: Replace B1
4.4 DIRECTION AND MOTOR DRIVE CONTROL		
4.4a. Reinstall A3 and A4 into card cage		
4.4b. Jumper A5 card cage pins B and C together. (Suggestion: 20 AWG solid wire into card extender slot)		
4.4c. Jumper A5 card cage pins E and H. Verify that SPU. REVERSE switch-indicator is on (switch-indicator must be lighted) Also, check that tape reader SPOOLING switch S1 is in the ENABLE position		
4.4d. Connect oscilloscope thannel A probe ground return to ground (TB2 terminal 10, TP5) and connect same channel A probe to either side of R9 on TB1 (TP35). Refer to figure 8-3, sheet 2 of 2	Oscilloscope disdays waveform B shown in figure 8-5	Record and save test results for step 4.4n

Table 8-8. Tape Reader Testing and Troubleshooting Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
4.4e. Connect oscilloscope channel A probe ground return to ground (TB2 terminal 10, TP5) and connect same channel A probe to either side of R10 on TB1 (TP33). Refer to figure 8-3, sheet 2 of 2	Oscilloscope displays waveform B shown in figure 8-5	Same as step 4.4d
4.4f. Remove A4 and place AS into A4 card cage position		
4.4g. Connect oscilloscope channel A probe ground return to ground (TB2 terminal 10, TP5) and connect same channel A probe to either side of R10 on TB1 (TP33). Refer to figure 8-3, sheet 2 of 2	Oscilloscope displays waveform B shown in figure 8-5	Same as step 4.4d
4.4h. Connect oscilloscope channel A probe ground return to ground (TB2 terminal 10, TP5) and connect same channel A probe to either side of R9 on TB1 (TP35). Refer to figure 8-3, sheet 2 of 2	Oscilloscope displays waveform B shown in figure 8-5	Same as step 4.4d
4.4i. Press SPU REVERSE switch-indicator to off	REVERSE switch-indicator light goes off	Refer to table 8-6
4.4j. Press SPU MEMORY LOAD switch-indicator to on	MEMORY LOAD switch-indicator lights	Refer to table 8-6
4.4k. Connect oscilloscope channel A probe ground return to ground (TB2 terminal 10, TP5) and connect same channel A probe to either side of R9 on TB1 (TP35). Refer to figure 8-3, sheet 2 of 2	Oscilloscope displays waveform B shown in figure 8-5	Same as step 4.4d
4.4l. Connect oscilloscope channel A probe ground return to ground (TB2 terminal 10, TP5) and connect same channel A probe to either side of R10 on TB1 (TP33). Refer to figure 8-3, sheet 2 of 2	Oscilloscope displays waveform B shown in figure 8-5	Same as step 4.4d
4.4m. Set tape reader SPOOLING switch S1 to DISABLE position		

Table 8-8. Tape Reader Testing and Troubleshooting Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
4.4n. Test results		All test steps (4.4d through 4.4l) had normal indications: Replace B1 if stepping motor does not drive All test steps (4.4d thru 4.4) failed: Replace A3. If all tests still fail, replace A4 and A5 Test steps 4.4g and 4.4h both passed but 4.4k and 4.4l both failed, or vice versa: Replace A3 Test step 4.4d passed but 4.4e failed or vice versa: Replace A4 Test step 4.4g passed but 4.4h failed or vice versa: Replace A5 Any combination of failures not listed above: Replace B1. If still fails, replace A3
4.4o. Reinstall A4 and A5 in proper card cage positions		
5. TIMING CALIBRATION.		
5.1 STEP RATE CALIBRATION (Run mode).		
5.1a. Connect 10:1 probe to oscilloscope channel A input		
5.1b. Connect oscilloscope thannel A probe ground return to ground (TB2 terminal 10, TP5) and connect same probe to pin 1 of card A2. Use card extender. Verify that SPU REVERSE switch-indicator is on (switch-indicator must be lighted)	Oscilloscope displays waveform A shown in figure 8-5	Voltage out of tolerance: Perform test 4 Period T2 out of tolerance: Alternately adjust A2R5 and A2R6 until the period is correct. If it will not adjust to proper tolerance, then perform test 4 Period T1 out of tolerance: Replace A2
5.1c. Remove A2 from card extender and reinstall in card cage		**NOTE** If this test was performed as a part of step 4.2g, return to step 4.2g
5.2. STEPPING MOTOR ALIGNMENT.		
5.2a. Press SPU REVERSE or MEMORY LOAD switch-indicator to off (if on). Set SPOOLING switch to ENABLE position	SPU REVERSE switch-indicator light goes off	Refer to table 8-6

Table 8-8. Tape Reader Testing and Troubleshooting Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
5.2b. Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to A1 card cage pin M. (Install A1 in card extender)	DVM indicates +3.0 to + 5.5V	Voltage out of tolerance: If voltage is + 1.0 to + 3.0V, redate A1. If still fails, replace SPU board A1. If voltage is less than + 1.0V, adjust A1R3 counterclockwise (no more than 10 turns) until the voltage is in tolerance and then make one more complete turn, If voltage is still out of tolerance, replace A1
5.2c. Set SPOOLING switch to DISABLE position	DS1 tape reader head lamps go off and DVM indicates less than + 0.5V	Lamps fail to go off: Replace S1
5.2d. Install SPU Self-test tape on tape reader in any area of the tape that contains sprocket holes. Also, install take-up reel		
5.2e. Set SPOOLING switch to ENABLE (if not already set)		
WARNING Stepping motor is extremely hot to the touch.		
5.2f. Loosen three clampdown screws on stepping motor B1 (two access holes alongside Q1 are provided for this purpose) and slowly turn B1 clockwise (not more than 1/10 turn). Then, turn counterclockwise until the DVM indicates less than + 0.5V in each direction. Center B1 between the two extremes	DVM indicates (for sprocket hole) +3.0 to + 5.5V then indicates O to 0.5V for each extreme (clockwise and counterclockwise) and finally indicates +3.0 to + 5.5V.	Voltage out of tolerance: Return to step 5.1a and continue. If this fails, replace A1
5.3. PHOTOCELL AMPLIFIER ADJUSTMENT.		
5.3a. With SPU self-test tape installed on the tape reader, advance tape to area that contains all holes (toward end of tape, after SPU self-test and immediately before SPU calibration)		

Table 8-8. Tape Reader Testing and Troubleshooting Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
5.3b. Connect oscilloscope channel A probe ground return to ground (TB2 terminal 10; TP5) and connect same channel A probe to Al card cage in M. (Use card extender)		
5.3c. Slowly adjust A1R3 clockwise (not more than 10 turns) until the positive pulse period just starts to decrease or the pulse disappears; adjust counterclockwise until the pulse period stops increasing	**N O T E** If pulse is within tolerance, but will not adjust, turn resistor clockwise 12 turns, then counterclockwise 6 turns. Oscilloscope indicates waveform C of figure 8-5	Voltage out of tolerance: Replace A1 Period T3 out of tolerance: Perform steps 5.2e and 5.2f again, then repeat this step. If still fails, replace A1. If still fails, replace B1
	N O T E Waveform C and D in figure 8-5 should only be observed when the tape reader is running either forward or reverse (use MEMORY LOAD or REVERSE switch-indicator) in the all-holes area of the punched tape. Each waveform must be checked in both the forward and the reverse direction.	
5.3d. For each of the A1 card resistors listed in this step, adjust as follows: Slowly adjust A1 resistors clockwise not more than 10 turns) until the positive pulse period just starts to decrease; then, adjust resistors counterclockwise until the positive pulse period stops increasing; then, turn the resistors one-quarter turn clockwise	Waveform D in figure 8-5 (refer to note in step 5.3c)	Waveform not in tolerance: Replace A1 For each waveform measured and found to be out of tolerance, adjust the corresponding resistor to bring the waveform into tolerance. If this is not possible, replace A1

Table 8-8. Tape Reader Testing and Troubleshooting Procedure - Continued

Test procedure	Normal indication	Malfunction indication/ corrective action
A1 Card Cage Pin / A1 Resistor		
E — R1		
H — R8		
P — R2		
R — R5		
S — R4		
W — R6		
X — R7		
2 — R16		
M — R3		
(Oscilloscope channel A probe ground return to A1 card pin 5 and probe to pin listed above.)		
5.3e. Remove A1 from card extender and reinstall in card cage		
5.4 SENSE ARM POT ADJUSTMENT.		
5.4a. Remove A6 from card cage		
5.4b. Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to A6 card cage pin R (use card extender)		
5.4c. Hold supply (left front tape sensing arm midway between its extreme positions	DVM indicates +12 to +16V	Voltage out of tolerance: Perform test 3.1; also perform R2 adjustment listed in the malfunction column of step 3. If
5.4d Connect DVM negative test lead to ground (TB2 terminal 10; TP5) and positive test lead to A6 card cage pin D (use card extender)		
5.4e. Hold take-up (right front) tape sensing arm midway between its extreme positions	DVM indicates +12 to +16V	Voltage out of tolerance: Perform R3 adjustment listed in the malfunction column of step 3.1g
5.4f. Reinstall A6 in card cage		
5.4g. Remove tape from tape reader		
5.4h. Remove power from equipment		
5.4i. Disconnect all equipment		
5.4j. Reinstall tape reader in case		
TEST COMPLETED		

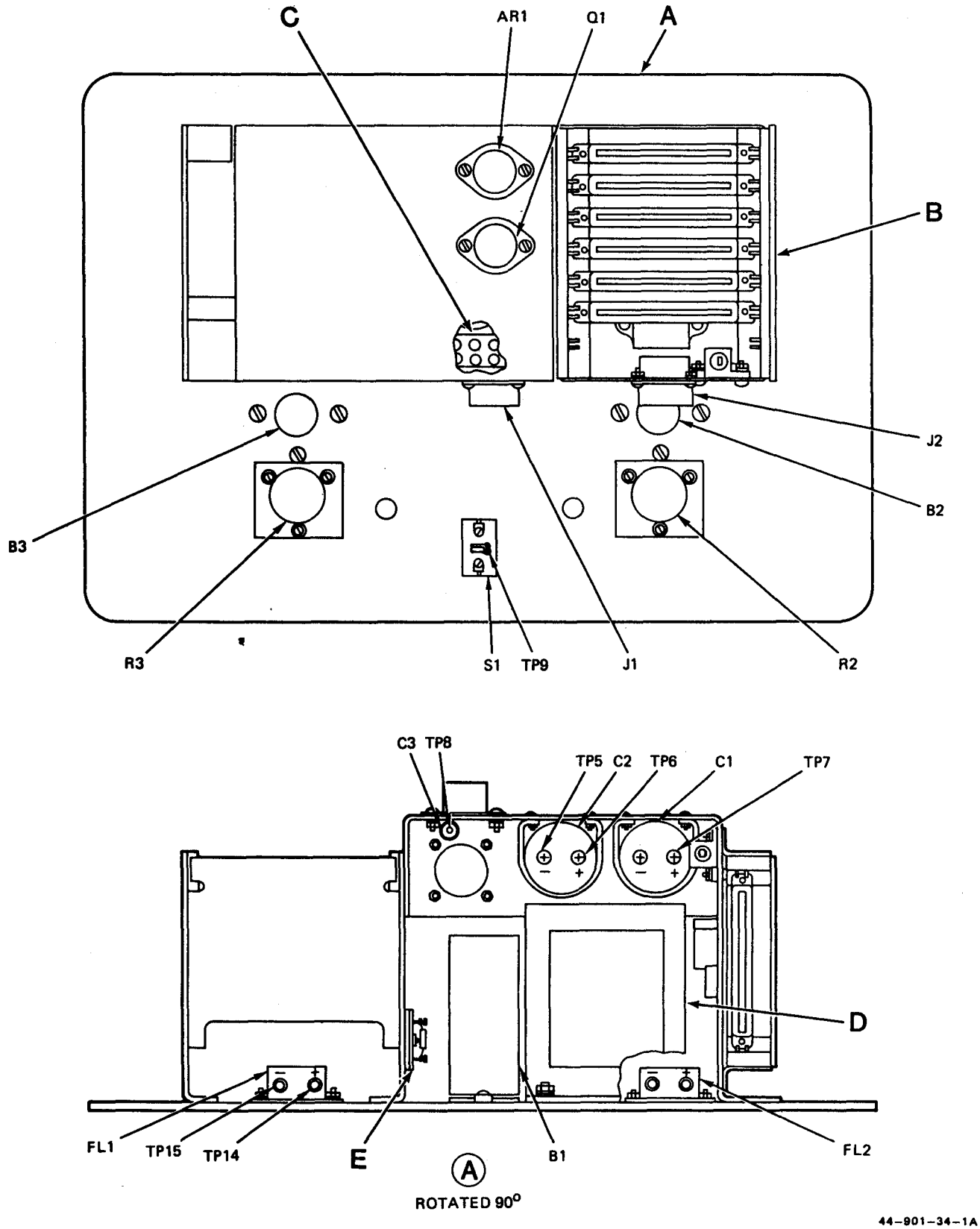

Figure 8-3. Tape Reader, Part No. 877406-1, Test Point Locations (Sheet 1 of 2)

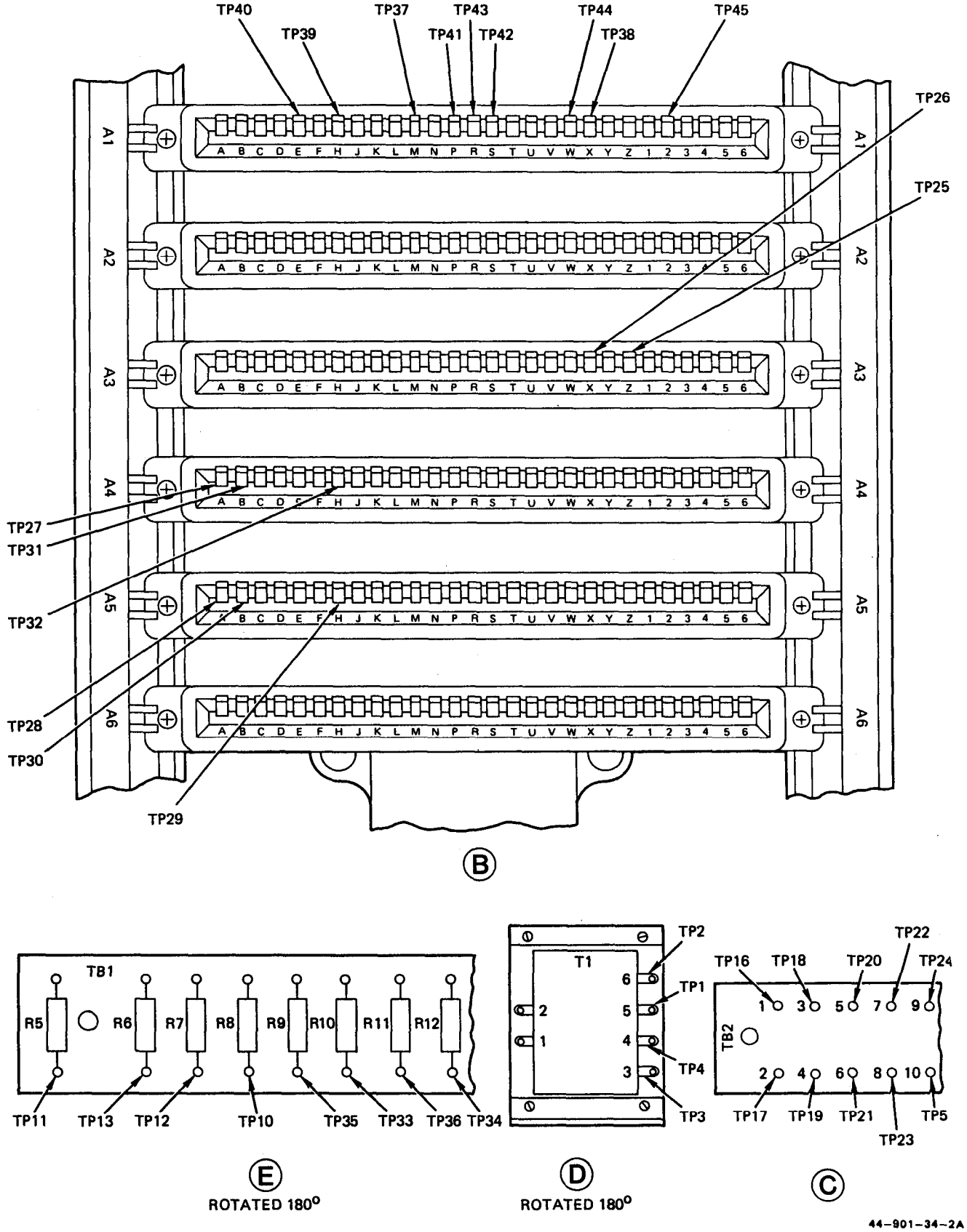

Figure 8-3. Tape Reader, Part No. 877406-1, Test Point Locations (Sheet 2 of 2)

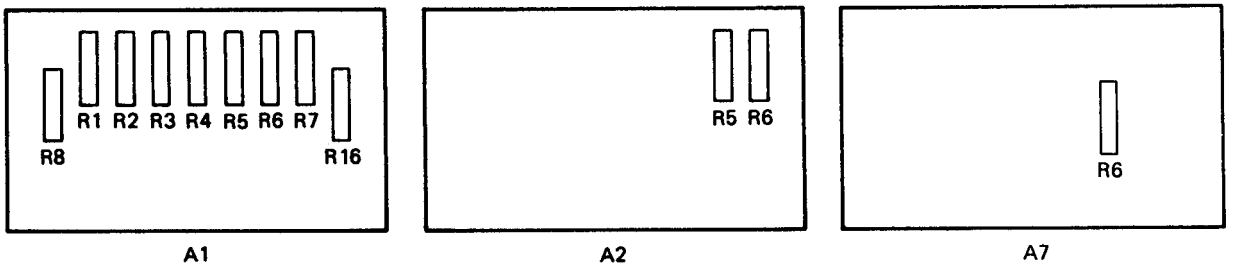

Figure 8-4. Tape Reader, Part No. 877406-1, Plug-in Circuit Card Adjustments

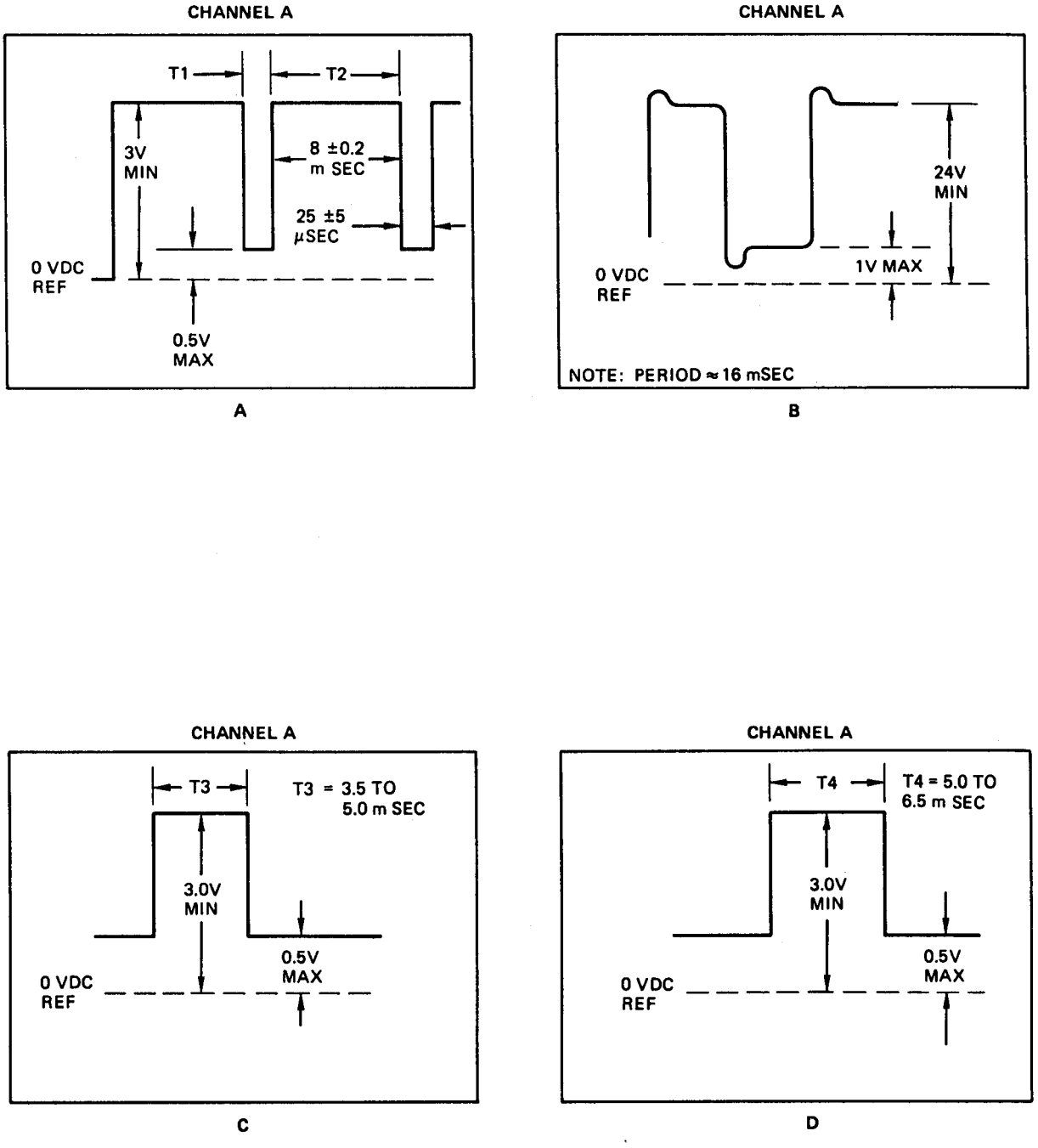

Figure 8-5. Tape Reader, Part No. 877406-1, Waveforms

Table 8-8.1. Tape Reader Testing and Troubleshooting Procedure for Tape Reader Part No. 877406-2

Test procedure	Normal indication	Malfunction indication/ Corrective Action
a. Ensure that spools and tape are removed from tape reader		
b. Set switch S1 to self-test mode as shown in figure 8-5.1. Switch is accessible through back of tape reader chassis		
c. Press SPU ON switch-indicator to on		
d. Observe tape reader TIME HOURS meter	TIME HOURS meter is operated by observation of comma oscillation	If meter is not operating, check +28V fuse. If fuse is good, or keeps blowing out when replaced, check the meter wiring
		If the wiring is good, replace meter
e. Observe tape reader LED display indicators	Indicators 1, 2, 3 and 10 light continuously	If no indicators light, check 115 VAC fuse. If fuse keeps blowing out when replaced, check for shorts (see figure FO-20)
		If fuse is good, check line filter
		If line filter is good, check transformer
		If transformer is good, replace power supply
		If indicator 10 and indicator 1 or 2 flash, replace read head module
		If indicators 10 and 3 flash, replace interface module, then main logic module
f. Press SPU ON switch-indicator to off		
g. Set tape reader switch S1 to parallel mode as shown in figure 8-5.1		
h. Set SPL/LOOP switch to SPL		
i. Ensure that read head cover is closed		
j. Press SPU ON switch-indicator to on	Left motor rotates counterclockwise approximately 1 revolution per second	Left motor does not rotate counterclockwise approximately 1 RPM. Adjust servo module resistor RV2. (See figure 8-5.2 for location of resistors.)
	Right motor rotates clockwise approximately 1 revolution per second	Right motor does not rotate clockwise approximately 1 RPM. Adjust servo module resistor RV1
Momentarily hold tape reader R/L switch in R position	Right motor increases in speed clockwise then stops	If right motor does not increase in speed, replace servo module, then right motor

Table 8-8.1. Tape Reader Testing and Troubleshooting Procedure for Tape Reader Part No. 877406-2-Continued

Test procedure	Normal indication	Malfunction indication/ Corrective Action
l. Lift and close read head cover		
m. Momentarily hold tape reader R/L switch in L position	Left motor increases in speed counterclockwise then stops	If left motor does not increase in speed, replace servo module, then left motor
n. Press SPU ON switch-indicator to off		
o. Disconnect all equipment		
p. Reinstall tape reader in case		
TEST COMPLETED		

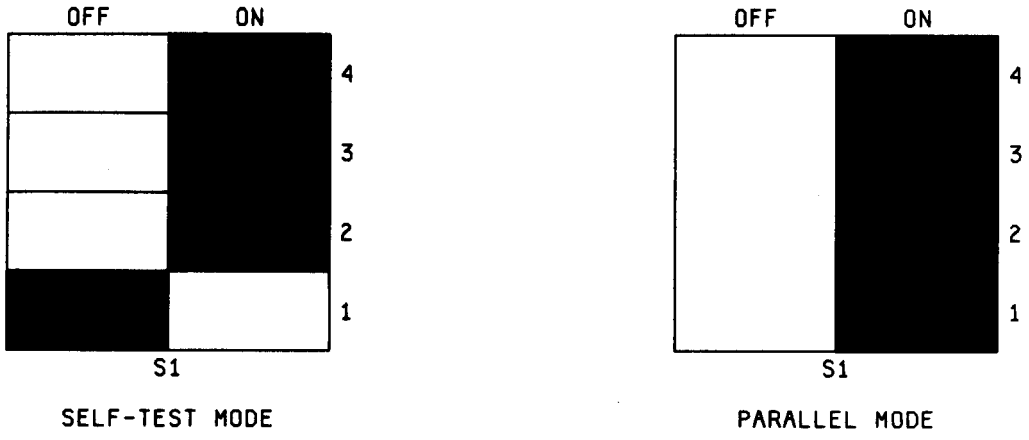

Figure 8-5.1. Tape Reader, Part No. 877406-2, Switch S1 Setting

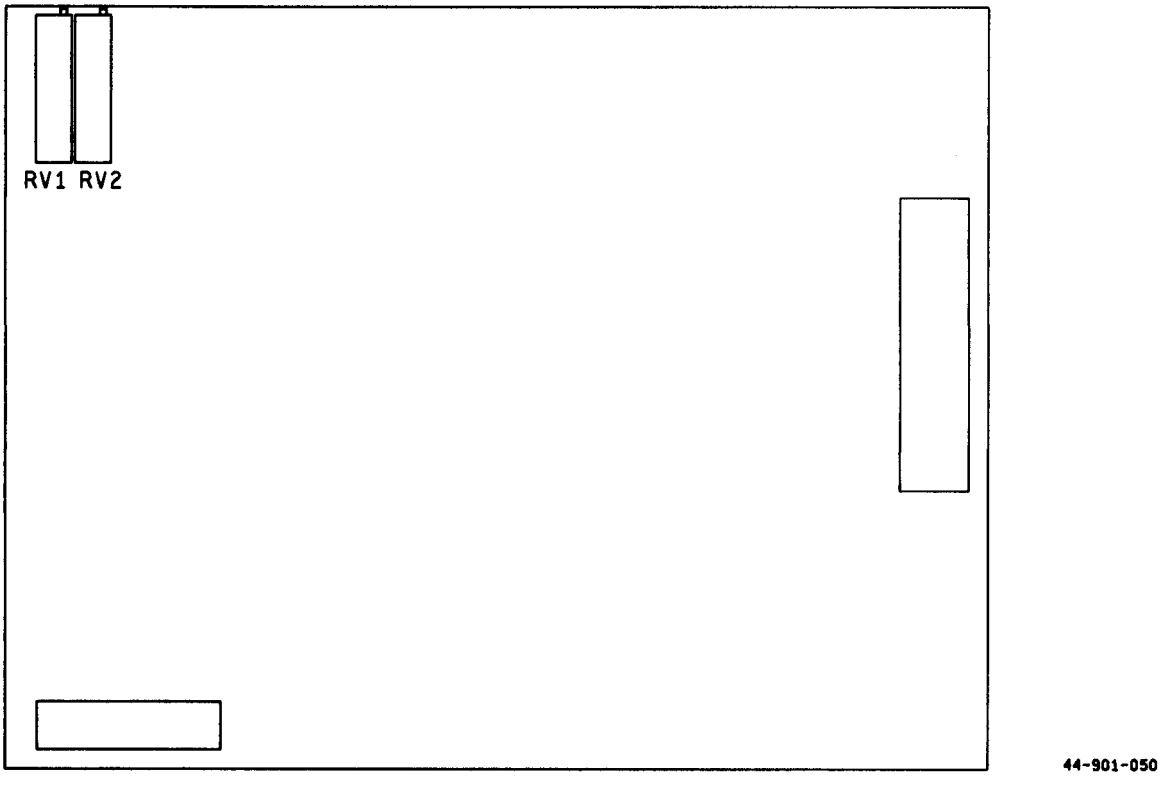

Figure 8-5.2. Tape Reader, Part No. 877406-2, Servo Module Adjustments

Section IV. MAINTENANCE OF PADS TEST SET

8-12. General. Repairable items of the PADS test set consist of the SPU, tape reader, and cable assemblies. The buffer unit at this level of maintenance is to be replaced if defective.

NOTE

The SPU requires adjustments every 90 days or sooner if indicated by the self-test procedure. The tape reader does not require any periodic adjustment unless procedure fails.

8-13. Signal Processor Unit Maintenance. SPU maintenance consists of removal and replacement of instrument case, panel assembly, panel components, chassis components, logic planes, and power supply components, and adjustments every 90 days or sooner if indicated by the self-test procedure. All SPU maintenance (except for lamp removal and replacement) requires removal and replacement of instrument case which is described, once only, in paragraph 8-15. Where similar components are removed and replaced by identical procedures, one typical procedure will be given. If applicable, tag and unsolder, or disconnect, wires prior to removing components. If applicable, replace heat-shrinkable tubing and shrink in place.

8-14. Lighted Pushbutton Switch Assembly, or Indicator, Lamp Removal and Replacement. See figure 8-6 and remove and replace lamp from typical lighted pushbutton switch assembly, or indicator, as follows:

a. ***Removal.***

(1) Remove seal (21, figure 8-6, sheet 2) covering front of lighted pushbutton switch assembly DS2 (25) by peeling away from indicator housing.

(2) Using fingernail slots, pull out lens assembly (22) to the limit of its travel. Rotate lens assembly 90 degrees.

(3) Push lens assembly in to release tension on index keys; then pull out lens assembly and lamp board (23).

(4) Remove failed lamp (24) from lamp board, from the rear.

b. ***Replacement.***

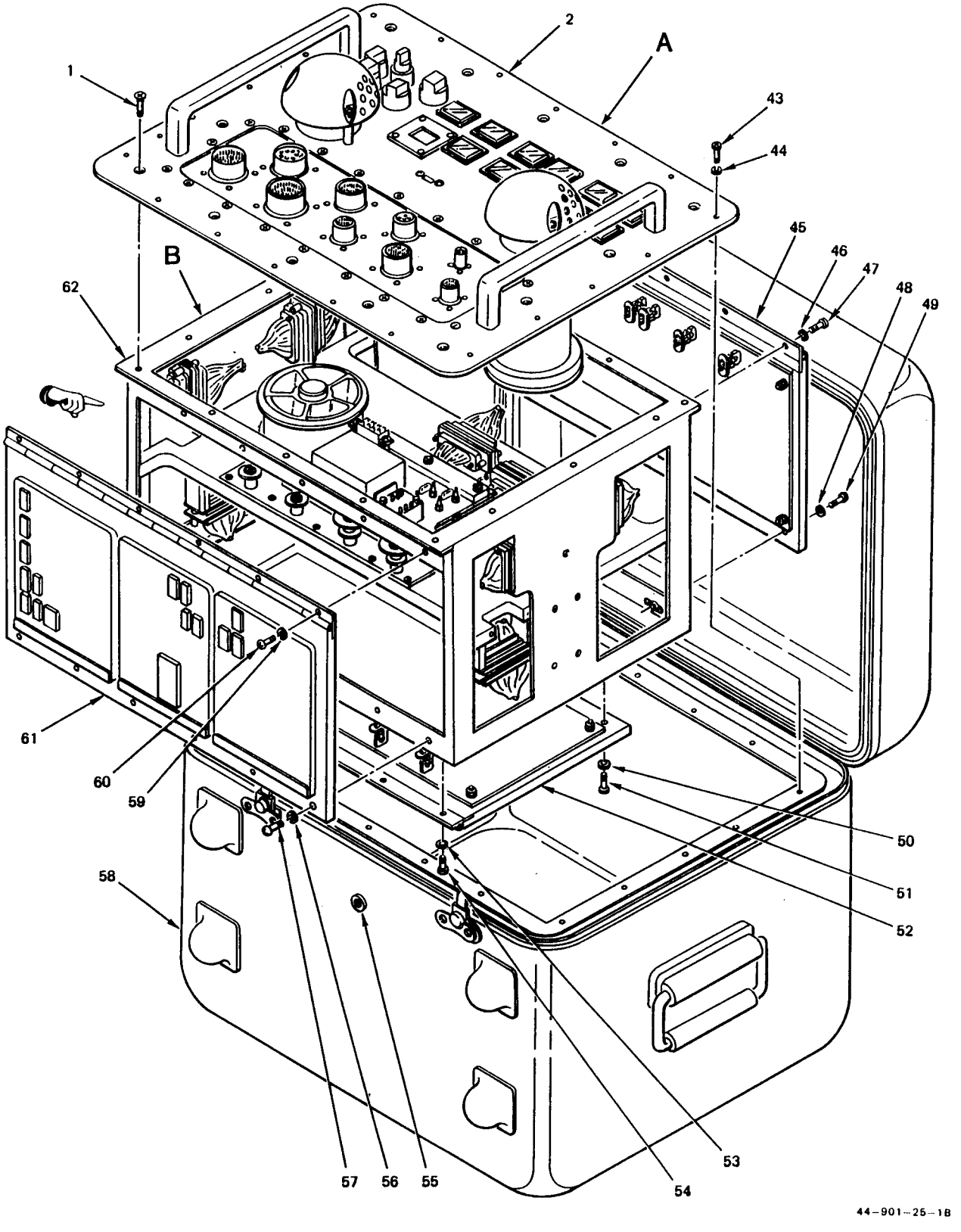

Figure 8-6. Signal Processor Unit Exploded View (Sheet 1 of 4)

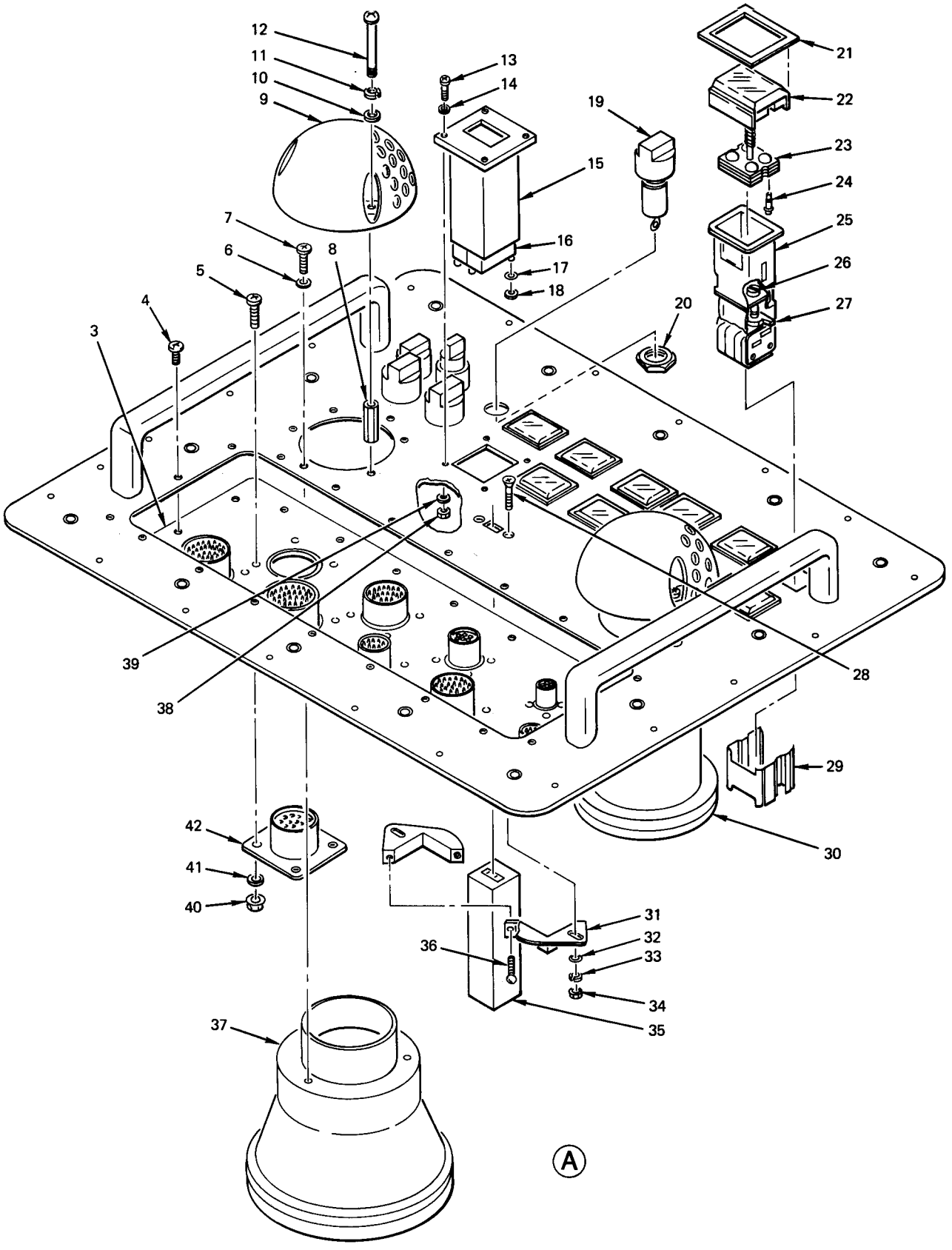

Figure 8-6. Signal Processor Unit Exploded View (Sheet 2 of 4)

44-901-25-2A

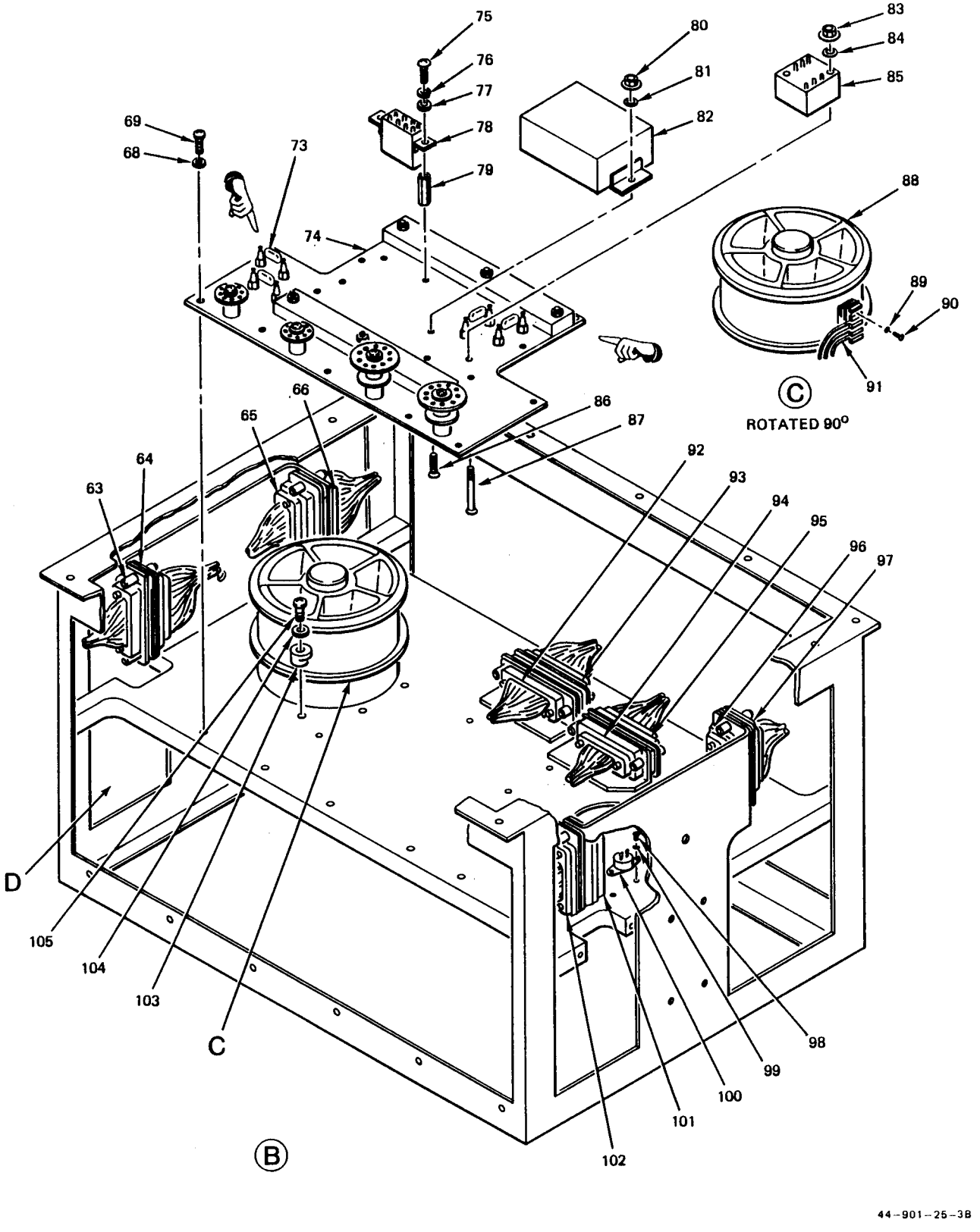

Figure 8-6. Signal Processor Unit Exploded View (Sheet 3 of 4)

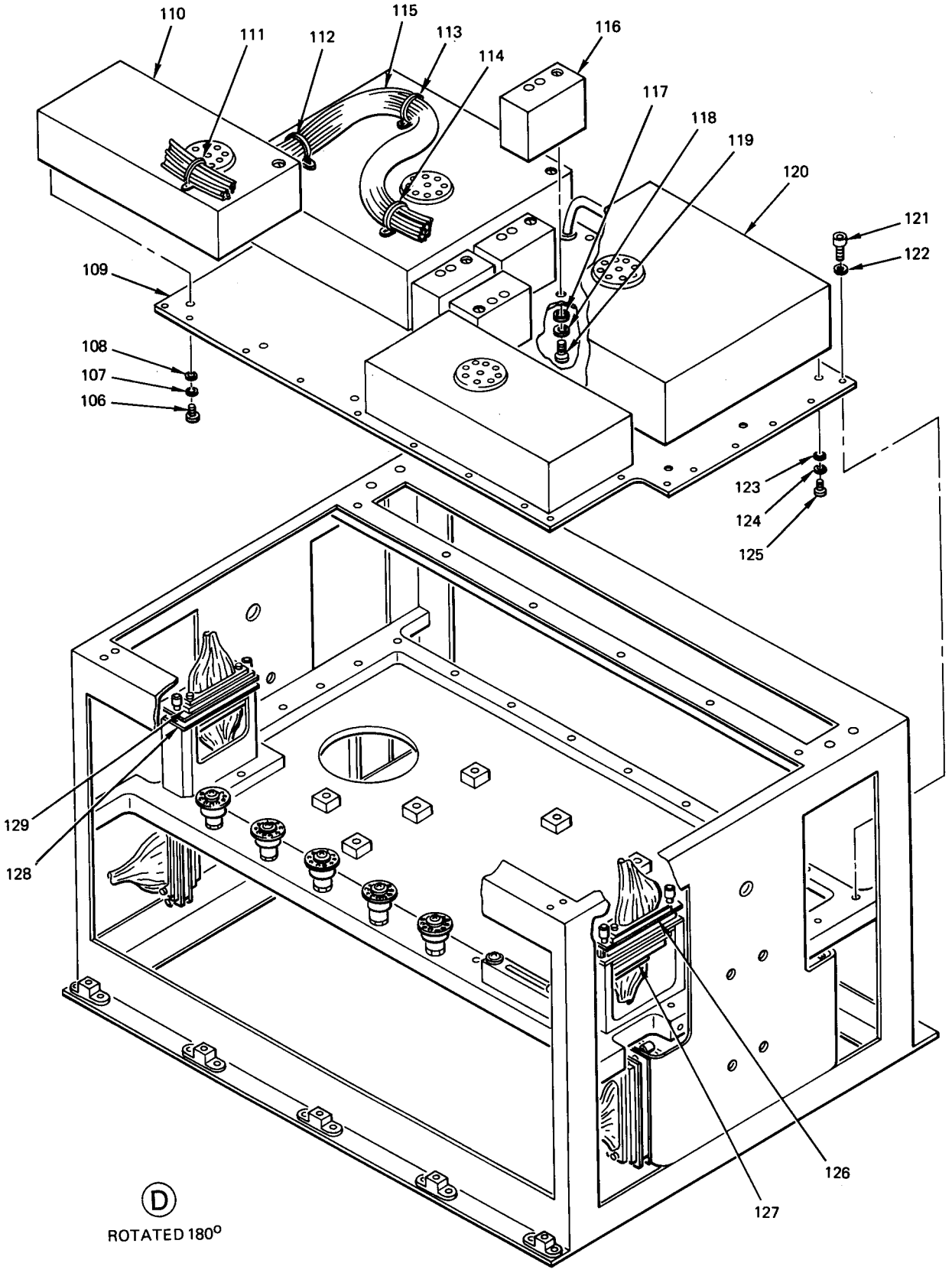

Figure 8-6. Signal Processor Unit Exploded View (Sheet 4 of 4)

Legend for figure 8-6

1. Screw
2. Panel assembly
3. Connector mounting panel
4. Screw
5. Screw
6. Washer
7. Screw
8. Spacer
9. Cover
10. Washer
11. Lockwasher
12. Screw
13. Screw
14. Washer
15. Segmented readout DS10
16. Connector
17. Washer
18. Nut
19. Fuseholder XF1
20. Nut
21. Seal
22. Lens assembly
23. Lamp board
24. Lamp
25. Lighted pushbutton switch assembly DS2
26. Captive mounting screw
27. Mounting screw nut
28. Screw
29. Switch assembly cover
30. Air inlet adapter
31. Flange
32. Washer
33. Lockwasher
34. Nut
35. Time totalizing meter M1
36. Flange screw
37. Air outlet adapter
38. Nut
39. LockWasher
40. Nut
41. Washer
42. Connector J10
43. Screw
44. Washer
45. Logic no. 3 electronic component assembly A3
46. Washer
47. Screw
48. Washer
49. Screw
50. Washer
51. Screw
52. Logic no. 2 electronic component assembly A2
53. Washer
54. Screw
55. Pressure relief valve
56. Washer
57. Screw
58. Instrument case
59. Washer
60. Screw
61. Logic no. 1 electronic component assembly Al
62. Chassis
63. Connector A1P1
64. Connector J20
65. Connector J24
66. Connector A3P1
67. Deleted
68. Washer
69. Screw
70. Deleted
71. Deleted
72. Deleted
73. Resistor RT1
74. Front subassembly
75. Screw
76. LockWasher
77. Washer
78. Relay K1
79. Spacer
80. Nut
81. Washer
82. Inverter PS5
83. Nut
84. Washer
85. Transformer T1
86. Screw
87. Screw
88. Fan B1
89. Washer
90. Screw
91. Terminal lug
92. Connector J25
93. Connector A3P2
94. Connector J19
95. Connector A4P1
96. Connector J26
97. Connector A3P3
98. Screw
99. Washer
100. Switch S4
101. Connector J21
102. Connector A1P2

Legend for figure 8-6 - Continued

103. Clamp
104. Washer
105. Screw
106. Screw
107. LockWasher
108. Washer
109. Power supply assembly
110. Modular power supply PS3
111. Clamp
112. Clamp
113. Clamp
114. Clamp
115. Cable
116. Overvoltage protector Z2
117. Washer
118. LockWasher
119. Screw
120. Modular power supply PS1
121. Screw
122. Washer
123. Washer
124. LockWasher
125. Screw
126. Connector A2P2
127. Connector J23
128. Connector J22
129. Connector A2P1

(1) Install lamp (24) in lamp board (23), from the rear.

(2) Install lamp board and lens assembly (22), aligning index slot in lamp board with index in lighted pushbutton switch assembly DS2 (25).

(3) Rotate lens assembly (22) 90 degrees until lens assembly index slot is at top. Push lens assembly into switch assembly to secure in place.

(4) Install seal (21), covering front of switch assembly.

8-15. Instrument Case Removal and Replacement. See figure 8-6 and remove and replace instrument case (58, figure 8-6, sheet 1) as follows:

a. ***Removal.*** Press pressure relief valve (55) on bottom of instrument case; then remove 20 screws (43) and washers (44) securing instrument case (58) to panel assembly (2). Remove SPU from instrument case.

b. ***Replacement.*** Install SPU in instrument case (58) and secure to panel assembly (2) with 20 screws (43) and washers (44).

NOTE

For ease of working on the SPU, and to prevent damage to a logic electronic component assembly, it is recommended that the logic electronic component assembly be removed near the area where the work is performed.

8-16. Panel Assembly Removal and Replacement. Panel assembly is removed to gain access to subassemblies, components, and wiring. See figure 8-6 and remove and replace panel assembly (2, figure 8-6, sheet 1) as follows:

a. ***Removal.***

(1) Press pressure relief valve (55) on bottom of instrument case; then remove 20 screws (43) and washers (44) securing instrument case (58) to panel assembly (2). Remove SPU from instrument case.

(2) Place unit on its right side.

(3) Remove six screws (49) and washers (48) and swing logic no. 3 electronic component assembly A3 (45) away from chassis (62).

(4) Loosen jackscrews and disconnect connector A4P1 (95, figure 8-6, sheet 3) from connector J19 (94).

(5) Place unit on its back.

(6) Remove 20 screws (4, figure 8-6, sheet 2) securing connector mounting panel (3) to panel assembly (2, figure 8-6, sheet 1).

(7) Remove 14 screws (1) and carefully move panel assembly a few inches away from chassis (62). Remove panel assembly (2) from chassis. (Connector assembly is not removed.)

b. ***Replacement.***

(1) Carefully position panel assembly (2) in front of chassis (62).

(2) Partially secure connector mounting panel (3, figure 8-6, sheet 2) to panel assembly with four screws (4), one screw in center of each side.

(3) Secure panel assembly to chassis with 14 screws (1, figure 8-6, sheet 1).

(4) Install 16 screws (4, figure 8-6, sheet 2) to complete securing of connector mounting panel (3) to panel assembly.

(5) Connect connector A4P1 (95, figure 8-6, sheet 3) to connector J19 (94) within chassis, and tighten connector jackscrews.

(6) Secure logic no, 3 electronic component assembly A3 (45, figure 8-6, sheet 1) with six screws (49) and washers (48).

(7) Install SPU in instrument case (58) and secure to panel assembly (2) with 20 screws (43) and washers (44).

8-17. Panel Component Removal and Replacement. Remove panel assembly (2, figure 8-6, sheet 1) as described in paragraph 8-16a. After replacing applicable component, replace panel assembly as described in paragraph 8-16b. See figure 8-6, remove and replace panel components as follows:

a. ***Air Outlet Adapter or Air Inlet Adapter.*** Remove and replace air outlet adapter (37, figure 8-6, sheet 2) or air inlet adapter (30) as follows:

(1) ***Removal.***

(a) Remove three screws (12), washers (10), and lockwashers (11) securing cover (9) to spacers (8); remove cover.

(b) Remove three screws (7) and washers (6) securing air outlet adapter (37) to panel assembly (2, figure 8-6, sheet 1); remove air outlet adapter.

(2) ***Replacement.***

(a) Install air outlet adapter (37, figure 8-6, sheet 2) and secure to panel assembly (2, figure 8-6, sheet 1) with three washers (6) and screws '(7).

(b) Install cover (9) and secure with three lockwashers (11), washers (10), and screws (12).

b. ***Fuseholder XF1, XF2, XF3, XF4, or XF5.*** Remove and replace fuseholder XFl (19, figure 8-6, sheet 2) as follows:

(1) ***Removal.***

(a) Tag and unsolder wires to fuseholder XF1 (19).

(b) Remove nut (20) securing fuseholder XF1 (19) to panel assembly (2, figure 8-6, sheet 1); remove fuseholder.

(2) ***Replacement.***

(a) Install fuseholder XF1 (19, figure 8-6, sheet 2) and secure to panel assembly (2, figure 8-6, sheet 1) with nut (20, figure 8-6, sheet 2).

(b) Solder wires to fiseholder XF1 (19).

c. Lighted Pushbutton Switch Assembly S1, S3, DS2, DS3, DS5, DS9, DS12, DS13, DS14, DS15, or DS16. Remove and replace lighted pushbutton assembly DS2 (25, figure 8-6, sheet 2) as follows:

(1) ***Removal.***

(a) Remove seal (21) by pulling away from DS2 housing.

(b) Using fingernail slots, pull out lens assembly (22) to the limit of its travel. Rotate lens assembly 90 degrees.

(c) Push lens assembly in to release tension on index keys; then pull lens assembly and lamp board (23) out of DS2 housing.

(d) Release two captive mounting screws (26) securing DS2 switch assembly cover (29). Remove cover from rear of panel assembly (2, figure 8-6, sheet 1). Remove lighted pushbutton switch assembly DS2 from front of panel assembly.

(2) ***Replacement.***

NOTE

If new switch is to be installed, perform steps (a) and (b), otherwise proceed to step (c).

(a) Remove lens assembly (22, figure 8-6, sheet 2) and lamp board (23) from lighted pushbutton switch assembly DS2 (25) by performing steps (b) and (c) of removal procedure in substep 8-17c(1).

(b) Rotate two captive mounting screws (26) to drive two mounting screw nuts (27) to rear limit of their travel range. Remove DS2 switch assembly cover (29).

(c) Insert main body of lighted pushbutton switch assembly DS2 (25) from front of panel assembly (2, figure 8-6, sheet 1).

(d) Place cover (29, figure 8-6, sheet 2) on DS2 (25) from rear of panel assembly.

(e) Tighten two screws (26) securing cover (29) to DS2 (25).

(f) Install lamp board (23) and lens assembly (22), aligning slot in lamp board with index

(g) Rotate lens assembly 90 degrees until lens assembly index slot is at top. Push lens assembly into DS2 to secure in place.

(h) Install seal (21).

d. ***Time Totalizing Meter M1.*** Remove and replace time totalizing meter (35, figure 8-6, sheet 2) as follows:

(1) ***Removal.***

(a) Loosen two screws (28), washers, (32), lockwashers (33), and nuts (34) securing flange (31) and meter to panel assembly (2).

(b) Loosen two flange screws (36) securing meter (35) to flange (31); remove meter.

(2) ***Replacement.***

(a) Install meter (35) into flange (31), tight against back of panel assembly (2), and using two flange screws (36), secure flange to meter,

(b) Center meter in panel assembly opening and secure with two screws (28), washers (32), lockwashers (33), and nuts (34).

e. Segmented Readout DS10. Remove and replace segmented readout (15, figure 8-6, sheet 2) as follows:

(1) ***Removal.***

(a) Remove four nuts (18) and washers (17) from back of segmented readout DS10 (15), and disconnect connectors (16).

(b) Remove four screws (13), eight washers (14), four lockwashers (39), and four nuts (38); remove segmented readout DS10.

(2) ***Replacement.***

(a) Install segmented readout DS10 (15) on panel assembly (2, figure 8-6, sheet 1) and secure with four screws (13, figure 8-6, sheet 2) eight washers (14), four lockwashers (39), and four nuts (38).

(b) Secure connectors (16) to back of segmented readout DS10 with four nuts (18) and washers (17).

8-18. Chassis Component Removal and Replacement. Remove panel assembly (2, figure 8-6, sheet 1) as described in paragraph 8-16a. After replacing applicable component, replace panel assembly as described in paragraph 8-16b. See figure 8-6, and remove and replace chassis mounted components as follows:

a. ***Fan B1.*** Remove and replace fan (88, figure 8-6, sheet 3) as follows:

(1) ***Removal.***

(a) Tag wires and remove three screws (90) and washers (89) securing terminal lugs (91) to fan.

(b) Remove three screws (105), washers (104), and clamps (103) securing fan (88) to chassis (62, figure 8-6, sheet 1); remove fan.

(2) ***Replacement.***

(a) Secure fan 88, figure 8-6, sheet 3) to chassis (62, figure 8-6, sheet 1) with three washers (104, figure 8-6, sheet 3), clamps (103), and screws (105).

(b) Secure terminal lugs (91) to fan with three screws (90) and washers (89).

b. ***SPU Front Subassembly.*** Remove and replace SPU front subassembly (74,figure 8-6, sheet 3) as follows:

NOTE

SPU front subassembly must be released in order to replace chassis components in paragrpah d through g.

(1) Removal. Remove 14 screws (69) and washers (68) securing SPU front subassembly (74) to chassis (62). Move SPU front subassembly a few inches away from its mounted position so that a screwdriver can reach screws on its back side,

(2) ***Replacement.*** After replacement of applicable SPU front subassembly component (paragraphs d through f below), reinstall SPU front subassembly and secure with 14 washers (68) and screws (69).

c. ***Relay K1.*** Remove and replace relay K1 (78, figure 8-6, sheet 3) as follows:

(1) Removal

(a) Tag and unsolder wires from relay K1 (78).

(b) Remove two screws (75), washers (77), and lockwashers (76), (without removing spacers (79)), securing relay K1 to SPU front subassembly (74); remove relay K1.

(2) ***Replacement.***

(a) Secure relay K1 (78) to SPU front subassembly (74) with two lockwashers (76), washers (77), and screws (75).

(b) Solder wires to relay K1 (78).

d. ***Inverter PS5.*** Remove and replace inverter PS5, (82, figure 8-6, sheet 3) as follows:

(1) ***Removal.***

(a) Tag and unsolder wires from inverter PS5 (82).

(b) Remove two screws (86), washers (81), and nuts (80) securing inverter PS5 (82) to SPU front subassembly (74); remove inverter PS5.

(2) Replacement.

(a) Secure inverter PS5 (82) to SPU front subassembly (74) with two washers (81), screws (86), and nuts (80).

(b) Solder wires to inverter PS5 (82).

e. ***Suppression Resistor RT1, RT2, RT3, or RT4.*** Remove and replace suppression resistor RT1 (73, figure 8-6, sheet 3) as follows:

(1) Removal.

(a) Tag, and unsolder wires from suppression resistor RT1 (73).

(b) Unsolder suppression resistor RT1 (73) from terminals; remove suppression resistor RT1.

(2) ***Replacement.***

(a) Solder suppression resistor RT1 to terminals.

(b) Solder wires to suppression resistor RT1 (73).

f. ***Transformer T1.*** Remove and replace transformer T1 (85, figure 8-6, sheet 3) as follows:

(1) ***Removal.***

(a) Tag and unsolder wires from transformer T1 (85).

(b) Remove two screws (87), washers (84), and nuts *(83)* securing transformer T1 (85) TO SPU front subassembly (74); remove transformer T1 .

(2) ***Replacement.***

(a) Secure transformer T1 (85) to SPU front subassembly (74) with two washers (84), screws (87), and nuts (83).

(b) Solder wires to transformer T1 (85).

g. ***Switch S4.*** Remove and replace switch S4 (100, figure 8-6, sheet 3) as follows:

(1) ***Removal.***

(a) Tag and unsolder wires from switch S4 (100).

(b) Remove one screw (98) and washer (99); loosen one screw (98); remove switch S4.

(2) ***Replacement.***

(a) Secure switch S4 with two screws (98) and washers (99).

(b) Solder wires to switch S4 (100).

h. ***Conector J1, J3, J4, J5, J8, J9, J10, J11, or J12.*** Remove and replace connector J10 (42, figure 8-6, sheet *2)* as follows:

(1) ***Removal.***

(a) Tag and remove wires from connector J 10 (42).

(b) Remove four nuts (40), washers (41), and screws (5) securing connector J10 (42) to connector mounting panel (3); remove connector.

(2) ***Replacement.***

(a) Secure connector J 10 (42) to connector mounting panel (3) with four screws (5), washers (41), and nuts (40).

(b) Replace wires on connector J10 (42).

8-19. Logic No. 1 Electronic Component Assembly A1 Removal and Replacement. See figure 8-6 and remove and replace logic No. 1 electronic component assembly A1 (61, figure 8-6, sheet 1) (referred to in this paragraph as assembly A1) as follows:

NOTE

When SPU is placed on its side, block up back end.

a. ***Removal.***

(1) Press pressure relief valve (55) on bottom of instrument case; then remove 20 screws (43) and washers (44) securing instrument case (58) to panel assembly (2). Remove SPU from instrument case.

(2) Position SPU so that hinge of assembly Al (61) is vertical; remove six screws (57) and washers (56) securing assembly A1 to chassis (62) on side away from hinge; swing assembly Al out on hinge.

(3) Loosen jackscrews and disconnect connector A1P1 (63, figure 8-6, sheet 3) from connector J20 (64).

(4) Loosen jackcrews and disconnect connector A1P2 (102) from connector J21 (101).

(5) Remove six screws (60, figure 8-6, sheet 1) and washers (59) securing assembly Al (61) to chassis (62) on hinged side; remove assembly Al.

a. ***Replacement.***

(1) Position SPU so that hinge of assembly A1 (61) is horizontal when assembly A1 is in position to be installed; install assembly A1

and secure hinged side to chassis (62) with six screws (60) and washers (59).

(2) Connect connector A1P2 (102, figure 8-6, sheet 3) to connector J21 (101) and tighten jackscrews.

(3) Connect connector A1P1 (63) to connector J20 (64) and tighten jackscrews.

(4) Swing assembly A1 (61, figure 8-6, sheet 1) to closed position; install six screws (57) and washers (56) to secure side away from hinge to chassis (62).

(5) Install SPU in instrument case (58) and secure to panel assembly (2) with 20 screws (43) and washers (44).

8-20. Logic No. 2 Electronic Component Assembly A2 Removal and Replacement. See figure 8-6 and remove and replace logic no. 2 electronic component assembly A2 (52, figure 8-6, sheet 1) (referred to an this paragraph as assembly A2) as follows:

N O T E

When SPU is placed on its side, block up back end.

a. *Removal.*

(1) Press pressure relief valve (55) on bottom of instrument case; then remove 20 screws (43) and washers (44) securing instrument case (58) to panel assembly (2). Remove SPU from instrument case.

(2) Position SPU so that hinge of assembly A2 (52) is vertical; remove six screws (51) and washers (50) securing assembly A2 to chassis (62) on side away from hinge; swing assembly A2 out on hinge.

(3) Loosen jackscrews and disconnect connector A2P1 (129, figure 8-6, sheet 4) from connector J22 (128).

(4) Loosen jackscrews and disconnect connector A2P2 (126) from connector J23 (127).

(5) Remove six screws (54, figure 8-6, sheet 1) and washers (53) securing Assembly A2 (52) to chassis (62) on hinged side; remove assembly A2.

b. *Replacement.*

(1) Position SPU so that hinge of assembly A2 (52) will be horizontal when assembly A2 is in position to be installed; install assembly A2 and secure hinged side to chassis (62) with six screws (60) and washers (59).

(2) Connect connector A2P2 (126, figure 8-6, sheet 4) to connector J23 (127) and tighten jackscrews.

(3) Connect connector A2P1 (129) to connector J22 (128) and tighten jackscrews.

(4) Swing assembly A2 (52, figure 8-6, sheet 1) to closed position: install six screws (51) and washers' to secure side away from hinge to chassis (62).

(5) Install SPU in instrument case (58) and secure to panel assembly (2) with 20 screws (43) and washers (44).

8-21. Logic No. 3 Electronic Component Assembly A3 Removal and Replacement. See figure 8-6 and remove and redate logic no. 3 electronic component assembly A3 (45, figure 8-6, sheet 1) (referred to in this paragraph as assembly A3) as follows:

N O T E

When SPU is placed on its side, block up back end.

a. *Removal.*

(1) Press pressure relief valve (55) on bottom of instrument case; then remove 20 screws (43) and washers (44) securing instrument case (58) to panel assembly (2). Remove SPU from instrument case.

(2) Position SPU so that hinge of assembly A3 (45) is vertical; remove six screws (49) and washers (48) securing assembly A3 to chassis (62) on side away from hinge; swing assembly A3 out of hinge.

(3) Loosen jackscrews and disconnect connector A3P1 (66, figure 8-6, sheet 3) from connector J24 (65).

(4) Loosen jackscrews and disconnect connector A3P2 (93) from connector J25 (92).

(5) Loosen jackscrews and disconnect connector A3P3 (97) from connector J26 (96).

(6) Remove six screws (47, figure 8-6, sheet, 1) and washers (46) securing assembly A3 (45) to chassis (62) on hinged side; remove assembly A3.

b. *Replacement.*

(1) Position SPU so that hinge of assembly A3 (45) will be horizontal when assembly A3 is in position to be installed; install assembly A3 and secure hinged side to chassis (62) with six screws (47) and washers (46).

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(2) Connect connector A3P3 (97, figure 8-6, sheet 3) to connector J26 (96) and tighten jackscrews.

(3) Connect connector A3P2 (93) to connector J25 (92) and tighten jackscrews.

(4) Connect connector A3P1 (66) to connector J24 (65) and tighten jackscrews.

(5) Swing assembly A3 (45, figure 8-6, sheet 1) to closed position; install six screws (49) and washers (48) to secure side away from hinge to chassis (62).

(6) Install SPU in instrument case (58) and secure to panel assembly (2) with 20 screws (43) and washers (44).

8-22. Power Supply Component Removal and Replacement. Before attempting to remove individual power supply components, remove individual power supply components, remove power supply assembly composed of power supply mounting plate and installed components, as described in subparagraph a(1) below. After replacing applicable component, replace power supply assembly as described in subparagraph a(2) below. See figure 8-6 and remove and replace power supply assembly and components as follows:

a. *Power Supply Assembly.* Remove and replace power supply assembly (109, figure 8-4, sheet 4) as follows:

(1) *Removal.*

(a) Press pressure relief valve (55, figure 8-6, sheet 1) on bottom of instrument case; then remove 20 screws (43) and washers (44) securing instrument case (58) to panel assembly (2). Remove SPU from instrument case.

(b) Carefully place SPU face down.

(c) Swing out logic no. 2 electronic component assembly A2 (52) and logic no. 3 electronic component assembly A3 (45) to the open position.

(d) Loosen jackscrews and disconnect connector A2P1 (129, figure 8-6, sheet 4) from connector J22 (128).

(e) Loosen jackscrews and disconnect connector A2P2 (126) from connector J23 (127).

(f) Remove 27 screws (121) and washers (122).

(g) Open clamps (111, 112, 113, and 114), as required, securing cable (115). (If clamps are opened, they have to be replaced.)

(h) Carefully move power supply assembly (109) out of chassis (62, figure 8-4, sheet 1) through A3 side, while tethered by cable, far enough to use a screwdriver on back of power supply assembly.

(2) *Replacement.*

(a) Carefully move power supply assembly (109, figure 8-6, sheet 4) into chassis (62, figure 8-6, sheet 1) and route cable (115, figure 8-6, sheet 4) as in figure 8-6.

(b) Install power supply assembly on chassis and secure with 27 screws (121) and washers (122).

NOTE

If clamp(s) are replaced, bond to power supply assembly using epoxy adhesive, Item 9, app. F.

(c) Clamp cables as shown in figure 8-6.

(d) Connect connector A2P2 (126) to connector J23 (127) and tighten jackscrews.

(e) Connect connector A2P1 (129) to connector J22 (128) and tighten jackscrews.

(f) Swing logic no. 2 electronic component assembly A2 (52, figure 8-6, sheet 1) and logic no. 3 electronic component assembly A3 (45) to the closed position.

(g) Install SPU in instrument case (58) and secure to panel assembly (2) with 20 screws (43) and washers (44).

b. *Modular Power Supply PS1 or PS2.* Remove and replace power supply PS1 (120, figure 8-6, sheet 4) as follows:

(1) *Removal.*

(a) Tag and unsolder wires from PS1 (120) terminals.

(b) Remove six or eight screws (125) (as applicable), washers (123), and lockwashers (124); remove power supply PS1 (120) from power supply assembly (109).

(2) *Replacement.*

NOTE

When replacing PS1, remove cable clamp from removed PS1 and bond to new PS1 using adhesive.

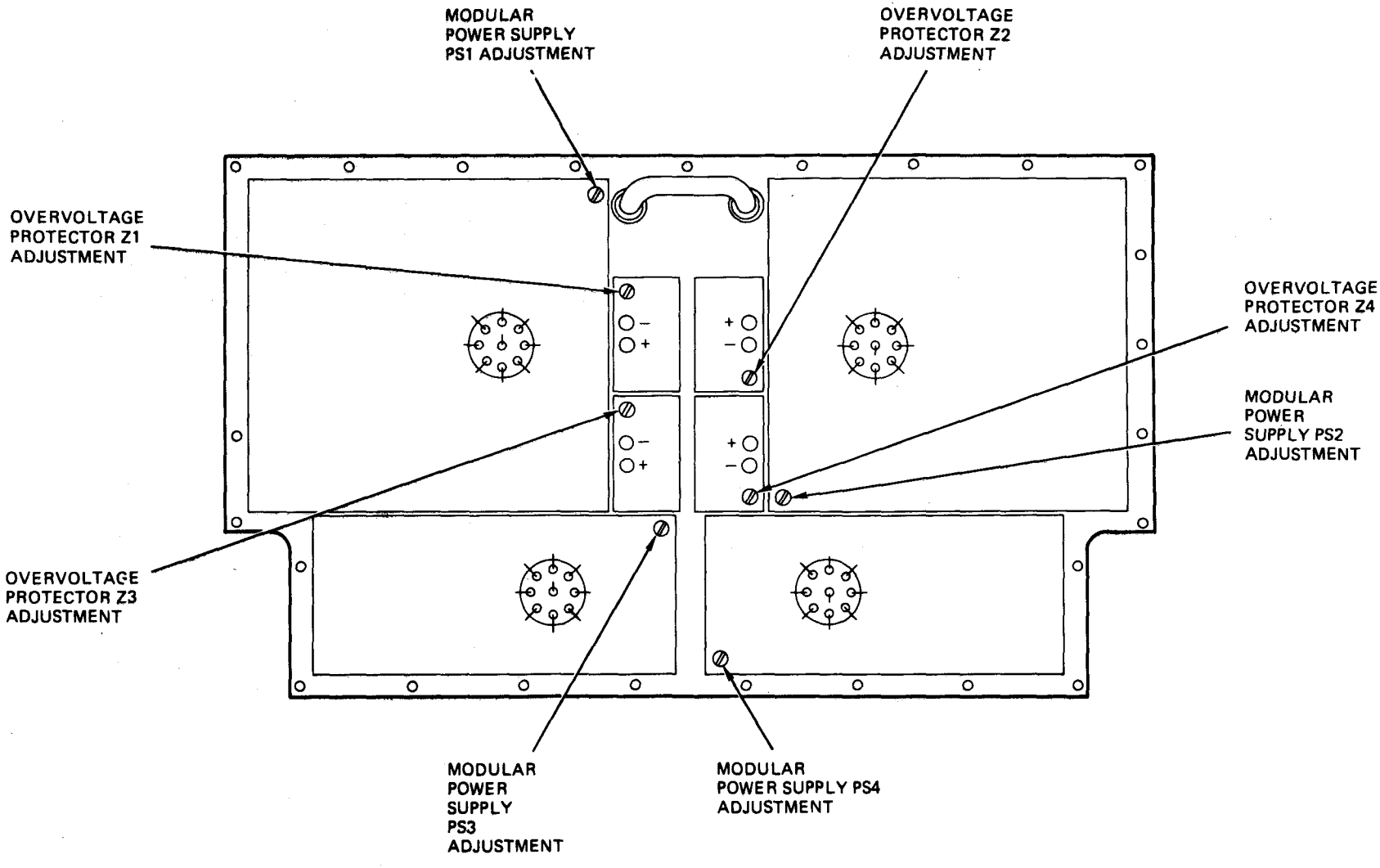
Spread heat conductive sealing compound (340 or G641) on back of power supply before installing.

(a) Install power supply PS1 (120) on power supply assembly (109) and secure with six or eight screws (125) (as applicable), washers (123), and lockwashers (124).

(b) Solder wires to PS1 (120) terminals.

c. *Modular Power Supply PS3 or PS4.* Remove and replace power supply PS3 (110, figure 8-6, sheet 4) as follows:

(1) *Removal.*



44-901-27

Figure 8-7. Signal Processor Unit Power Supply Voltage-Adjustment Locations Diagram

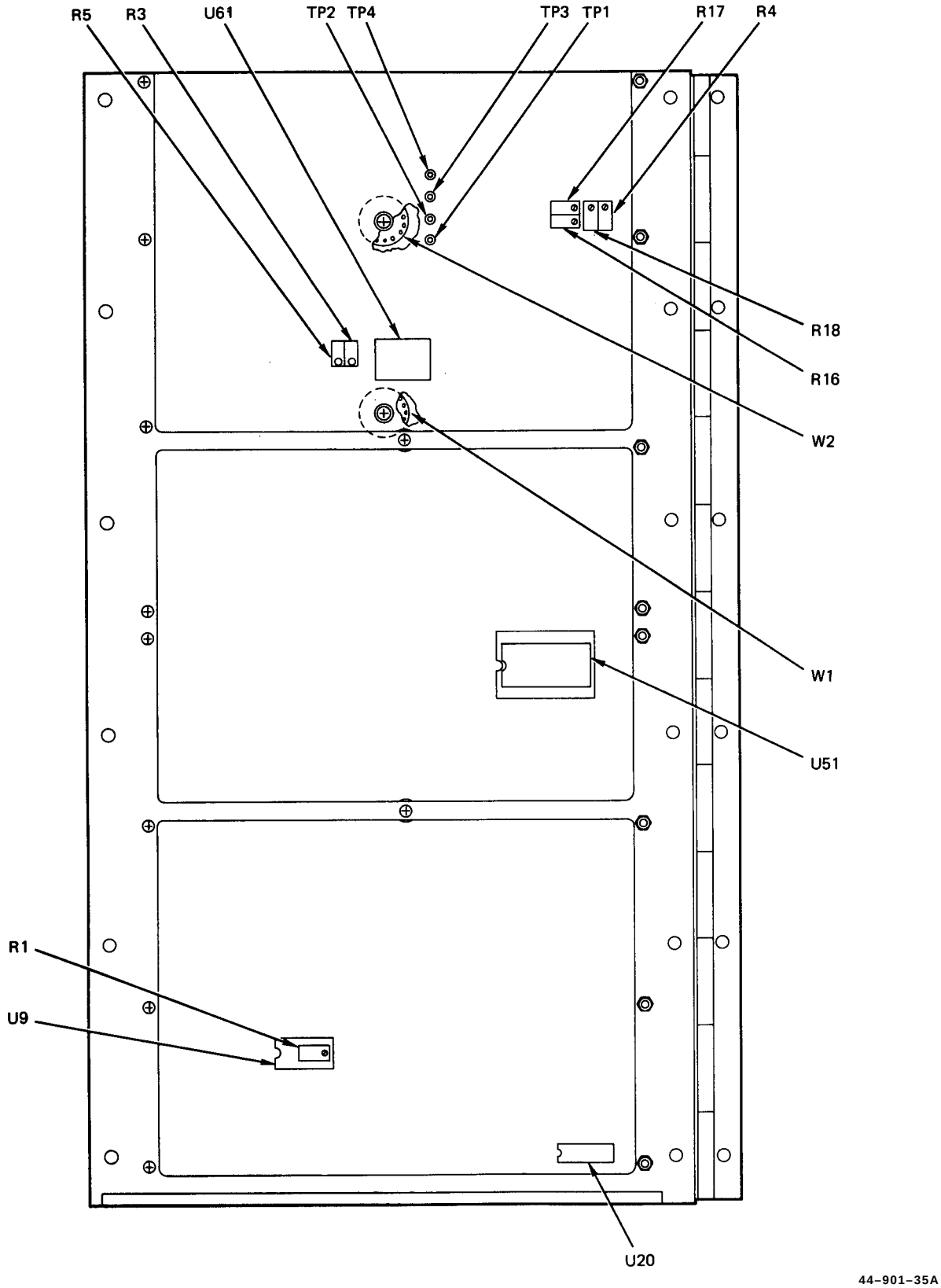


Figure 8-8. Logic No. 2 Electronic Component Assembly A2 Adjustment Locations Diagram

(a) Tag and unsolder wires from power supply PS3 (110) terminals.

(b) Remove six screws (106), washers (108), and lockwashers (107); remove power supply PS3 (110) from power supply assembly (109),

NOTE

Spread heat conductive sealing compound (340 or G641) on back of power supply before installing.

(2) ***Replacement.***

(a) Install power supply PS3 (110) on power supply assembly (109) and secure with six screws (106), washers (108), and lockwashers (107).

(b) Solder wires to power supply PS3 (110) terminals.

d. ***Overvoltage Protector Z1, Z2, Z3, or Z4.*** Remove and replace overvoltage protector Z2 (116, figure 8-6, sheet 4) as follows:

(1) ***Removal.***

(a) Tag and unsolder wires from overvoltage protector Z2 (116) terminals.

(b) Remove two screws (119), washers (117), and lockwashers (118); remove overvoltage protector Z2 (116) from power supply assembly (109).

NOTE

Spread heat conductive sealing compound (340 or G641) on back of overvoltage protector before installing.

(2) ***Replacement.***

(a) Install overvoltage protector Z2 (116) on power supply assembly (109) and secure with screws (119), washers (117), and lockwashers **(118).**

(b) Solder wires to overvoltage protector Z2 (116) terminals.

8-23. Signal Processor Unit Adjustments. The SPU adjustments consist of adjusting four modular power supplies to their specified trip voltage, and logic no. 2 electronic component assembly A2 adjustments, Adjustments of the modular power supplies and logic no. 2 electronic component assembly A2 should be checked every 90 days or sooner if indicated by the self-test procedure. The overvoltage protectors are normally not adjusted unless a malfunction is suspected. If an overvoltage protector is replaced, the new one must be adjusted before the SPU wires are soldered to its terminals. Connect cable W201 to 115-VAC power, cable W203 to the tape reader, cable W204, and cable W209 as shown in figure 8-2. See figures 8-7, 8-8, and 8-9 for location of adjustments and test jacks and perform adjustment procedures in accordance with the following paragraphs.

WARNING

Blue bus terminals W1 and W2 contain 115-VAC.

a. ***Modular Power Supply PSI Voltage Adjustment.*** Perform voltage adjustment of modular power supply PS1 as follows:

(1) Connect digital voltmeter (DVM) test leads to +28V and RTN test jacks,

(2) Press SPU ON switch-indicator to on (switch-indicator lights).

NOTE

Prior to making voltage adjustments, take cover off the adjustment screw.

(3) Adjust modular power supply PS1 voltage adjustment for +28 (±1)V.

(4) Place cover back on adjustment screw and disconnect DVM test leads.

(5) Press SPU ON switch-indicator to off (switch-indicator goes out).

b. ***Modular Power Supply PS2 Voltage Adjustment.*** Perform voltage adjustment of modular power supply PS2 as follows:

(1) Connect DVM test leads to + 5V and RTN test jacks.

(2) Press SPU ON switch-indicator to on (switch-indicator lights).

(3) Adjust modular power supply PS2 voltage adjustment for + 5 (±0.04)V.

(4) Press SPU ON switch-indicator to off (switch-indicator goes out),

(5) Disconnect DVM test leads,

c. ***Modular Power Supply PS3 Voltage Adjustment.*** Perform voltage adjustment of modular power supply PS3 as follows:

(1) Connect DVM test leads to + 15V and COM test jacks.

(2) Press SPU ON switch-indicator to on (switch-indicator lights).

(3) Adjust modular power supply PS3 voltage adjustment for + 15 (±0.04)V.

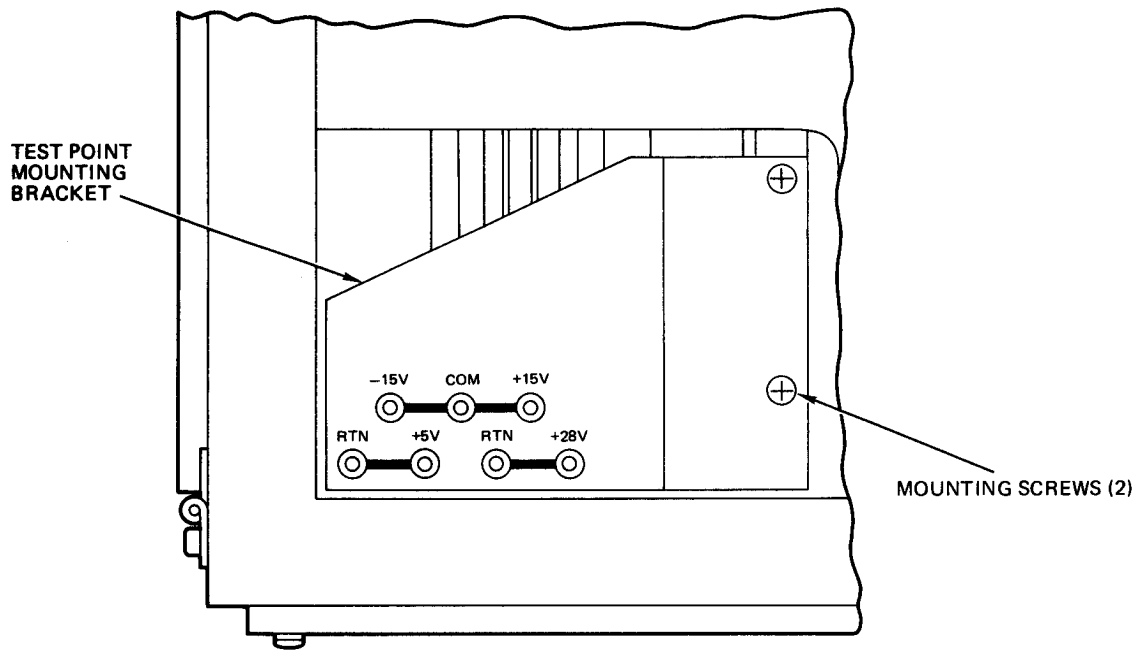


Figure 8-9. Power Supply Test-Jack Locations

(4) press SPU ON switch-indicator to off (switch. indicator goes out).

(5) Disconnect DVM test leads.

d. ***Modular Power Supply* PS4 *Voltage Adjustment.*** Perform voltage adjustment of modular power supply PS4 as follows:

(1) Connect DVM test leads to -15V and COM test jacks.

(2) Press SPU ON switch-indicator to on (switch-indicator lights).

(3) Adjust modular power supply PS4 voltage adjustment for -15 (0.04)V.

(4) Press SPU ON Switch-indicator to off (switch-indicator goes out).

(5) Disconnect DVM test leads.

e. Overvoltage Protector Z1 Voltage Adjustment. Perform voltage adjustment of overvoltage protector Z1 as follows:

(1) Check that SPU ON switch-indicator is off (switch-indicator is not lighted).

(2) Check that SPU wires are not soldered to overvoltage protector Z1.

(3) Connect an adjustable DC power supply to overvoltage protector Z1 with a 150- to 400-ohm, 10-watt resistor in series with the positive side of the power supply.

(4) Connect a DVM across overvoltage protector Z1.

(5) Slowly adjust power supply until digital voltmeter indication suddenly drops, designating trip-point voltage. Overvoltage protector Z1 trip-point voltage should be +30.8 (±0.6)V, If necessary adjust voltage adjustment to obtain a +30.8 (±0.6)V trip-point voltage.

(6) Disconnect DVM and power supply.

(7) Solder SPU wires to overvoltage protector Z1.

f. ***Overvoltage Protector Z2 Voltage Adjustment.*** Perform voltage adjustment of overvoltage protector Z2 as follows:

(1) Check that SPU ON switch-indicator is off (switch-indicator is not lighted).

(2) Check that SPU wires are not soldered to overvoltage protector Z2.

(3) Connect an adjustable DC power supply to overvoltage protector Z2 with a 150- to 400-ohm, 10-watt resistor in series with the positive side of the power supply.

(4) Connect a DVM across overvoltage protector Z2.

(5) Slowly adjust power supply until digital voltmeter indication suddenly drops, designating trip-point voltage. Overvoltage protector Z2 trip-point voltage should be +7 (±0.14)V, If necessary, adjust voltage adjustment to obtain a + 7 (±0.14)V trip-point voltage.

(6) Disconnect digital multimeter and power sup-

(7) Solder SPU wires to overvoltage protector Z2.

g. Overvoltage Protectors Z3 and Z4 Voltage Adjustment. Voltage adjustment of overvoltage protectors Z3 and Z4 are identical. Peform adjustment of overvoltage protector Z3 or Z4 as follows:

(1) Check that SPU ON switch-indicator is off (switch-indicator is not lighted).

(2) Check that SPU wires are not soldered to overvoltage protector Z3 or Z4.

(3) Connect an adjustable DC power supply to overvoltage protector Z3 or Z4 with a 150- to 400-ohm, 10-watt resistor in series with the positive side of the power supply.

(4) Connect a DVM across overvoltage protector,

(5) Slowly adjust power supply until voltmeter indication suddenly drops, designating trip-point voltage. Overvoltage protectors Z3 and Z4 trip-point voltage should be + 17 (±0.34)V. If necessary, adjust voltage adjustment to obtain a + 17 (±0.34)V trip-point voltage,

(6) Disconnect DVM and power supply.

(7) Solder SPU wires to overvoltage protector.

h. ***Logic No. 2 Electronic Component Assembly Adjustment.*** Perform logic no. 2 electronic component assembly adjustments as follows:

(1) Connect cable W201 to 115-VAC power, cable W203 to the tape reader and cables W204 and W209 as shown in figure 8-2.

(2) Set multimeter to measure ac volts and connect positive test lead to A2TP-1 and negative test lead to COM test jack (figure 8-9). See figure 8-8 for location of components and controls.

(3) Press SPU ON switch-indicator to on (switch-indicator lights).

(4) Check that multimeter indicates 25 to 27 VAC. If not, adjust resistor A2U9R1.

(5) Set DVM to read DC and connect DVM positive test lead to A2TP-3 and negative test lead to A2TP-4,

NOTE

Check that tape reader head is clean.

(6) Set tape reader SPOOLING switch to DISABLE:

(7) Install self-test tape on tape reader, Set tape reader SPOOLING switch to ENABLE,

NOTE

The first section of the self-test tape is the SPU self-test sequence. It is then followed by 50 feet of rubout (all holes), then followed by the calibration section.

(8) Press MEMORY LOAD switch-indicator to advance tape to calibration section of tape. When the last 10 inches of rubout appears, press MEMORY LOAD switch-indicator to off.

NOTE

In the following steps, the tape can be rewound at any time by pressing the SELF TEST switch-indicator to off, then pressing the REVERSE switch-indicator to on. Press the REVERSE switch-indicator to off when desired location is reached.

(9) Press SELF TEST switch-indicator to on. The tape will advance and the FAILURE/ACTION indicator displays 50.

(10) Verify that DVM indicates -9.995 to -10.005V. If not, adjust resistor A2R5.

(11) Press SELF TEST switch-indicator to off.

(12) Press SELF TEST switch-indicator to on. The tape will advance and the FAILURE/ACTION indicator displays 52.

(13) Verify that DVM indicates +9.990 to + 10.000V. If not, adjust resistor A2R3.

(14) Press SELF TEST switch-indicator to off,

(15) Press SELF TEST switch-indicator to on. The tape will advance and FAILURE/ACTION indicator displays 54.

(16) Verify that DVM indicates 0 (+0.005)V. If out of tolerance, replace A2.

(17) Press SELF TEST switch-indicator to off.

(18) Press SELF TEST switch-indicator to on. Tape will advance and FAILURE/ACTION indicator displays 56.

(19) Verify that DVM indicates -4.995 to -5.005V. If out of tolerance, replace A2.

(20) Press SELF TEST switch-indicator to off.

(21) Press SELF TEST switch-indicator to on, Tape will advance and FAILURE/ACTION indicator displays 58.

(22) Verify that DVM indicates -7.495 to -7.505V. If out of tolerance, replace A2.

(23) Press SELF TEST switch-indicator to off.

(24) Repeat steps. h(9) through h(23) to adjust for any interaction between adjustments. The tape contains the same information a second time.

(25) Connect DVM positive test lead to A2TP-2.

(26) Press SELF TEST switch-indicator to on. Tape will advance and FAILURE/ACTION indicator displays 42.

(27) Verify that DVM indicates -9.975 to -9.985V. If not, adjust resistor A2R18.

(28) Press SELF TEST switch-indicator to off.

(29) Press SELF TEST switch-indicator to on. Tape will advance and FAILURE/ACTION indicator displays 44.

(30) Verify that DVM indicates -4.975 to -4.985V. If not, adjust resistor A2R4.

(31) Press SELF TEST switch-indicator to off.

(32) Press SELF TEST switch-indicator to on. Tape will advance and FAILURE/ACTION indicator displays 46.

(33) Verify that DVM indicates +4.975 to + 4.985V. If not, adjust resistor A2R17.

(34) Press SELF TEST switch-indicator to off,

(35) Press SELF TEST switch-indicator to on. Tape will advance and FAILURE/ACTION indicator displays 48.

(36) Verify that DVM indicates + 9.975 to + 9.985V. If not, adjust resistor A2R16.

(37) Press SELF TEST switch-indicator to off.

(38) Disconnect DVM.

(39) Press REVERSE switch-indicator to rewind tape.

(40) Perform self-test procedure in accordance with paragraph 8-9.

8-24. Tape Reader, Part No. 877406-1, Maintenance. Tape reader maintenance consists of removal and replacement of the lamp assembly, photocell assembly, instrument case, plug-in circuit cards, front panel components, and chassis components. All removal and replacement procedures (except lamp assembly) require removal and replacement of the instrument case which is described, once only, in paragraph 8-26. Where similar components are removed and replaced by identical procedures, one typical procedure will be given. If applicable, tag and unsolder, or disconnect, wires prior to removing components. Before performing any maintenance, the tape reels should be removed from the tape reader. In addition, cleaning of the tape reader head and tapes is included.

8-25. Lamp Assembly DS1 Removal and Replacement. See figure 8-10, sheet 1, and remove and replace lamp assembly DS1 (10) as follows:

a. *Removal.*

(1) Open lamp assembly cover (5).

(2) Remove two screws (11) securing lamp assembly (10) to lamp support (12).

(3) Carefully raise lamp assembly up and away from lamp support. When lamps are clear of retaining slots, withdraw lamp assembly until soldered wire ends are accessible.

(4) Tag and unsolder wires from lamp assembly; remove lamp assembly.

b. *Replacement.*

(1) Solder wires to lamp assembly.

(2) Carefully guide lamp assembly (10) lamps into retaining slots and onto lamp support (12).

CAUTION

To avoid stripping threads, do not overtighten plastic screws.

(3) Secure lam assembly to lamp support with two screws (11).

(4) Close lamp assembly cover (5).

8-26. Instrument Case Removal and Replacement. See figure 8-10, sheet 1, and remove and replace instrument case (3) as follows:

a. *Removal.* Press pressure relief valve; then remove 20 screws (1) and washers (2) securing tape reader to instrument case (3). Remove tape reader from instrument case.

b. *Replacement.* Install tape reader in instrument case (3) and secure with 20 screws (1) and washers (2).

8-27. Photocell Assembly CR3 Removal and Replacement. See figure 8-10, sheet 1, and remove and replace photocell assembly CR3 (4) as follows:

CAUTION

Do not attempt to repair or resolder wires at the photocell. If damage occurs, replace entire photocell assembly.

a. *Removal.*

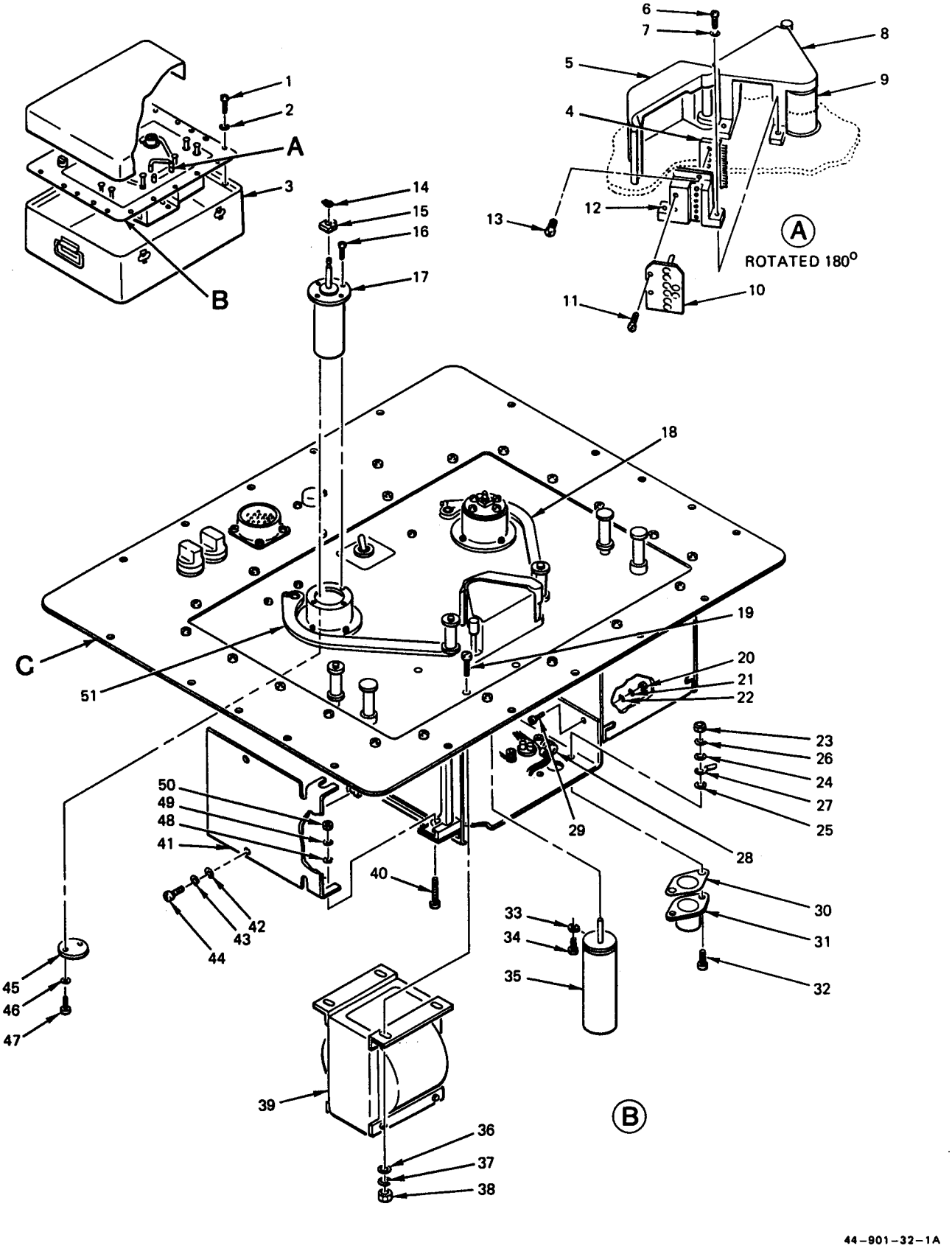


Figure 8-10. Tape Reader, Part No. 877406-1, Exploded View (Sheet 1 of 2)

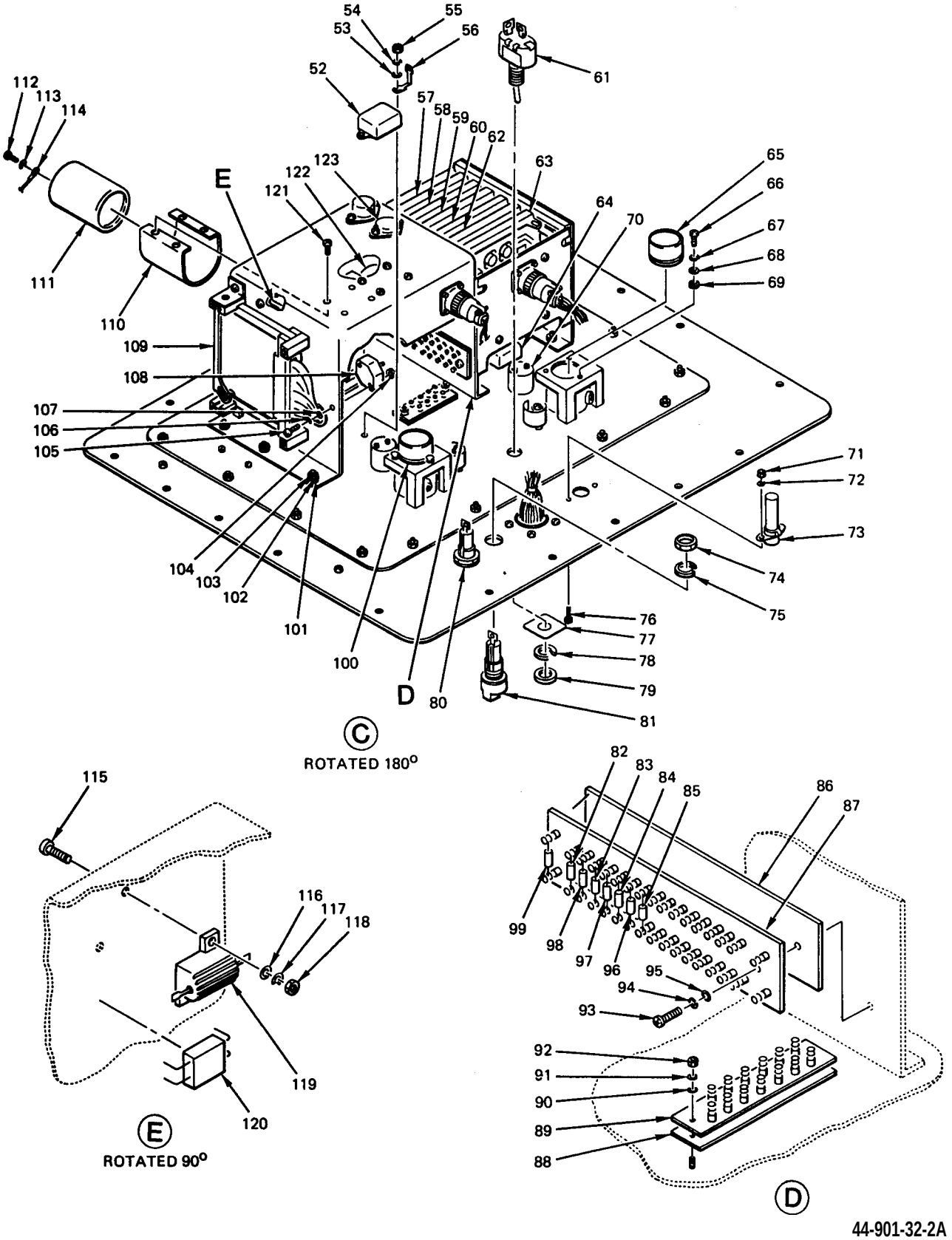


Figure 8-10. Tape Reader, Part No. 877406-1, Exploded View (Sheet 2 of 2)

Legend for figure 8-10

1. Screw
2. Washer
3. Instrument case
4. Photocell assembly CR3
5. Lamp assembly cover
6. Screw
7. Washer
8. Photocell mounting base
9. Sprocket
10. Lamp assembly DS1
11. Screw
12. Lamp Support
13. Screw
14. Lockring
15. clamp
16. Screw
17. Takeup reel motor B3
18. Supply tape sensing arm
19. Screw
20. Nut
21. LockWasher
22. Washer
23. Nut
24. Washer
25. Insulating washer
26. Lockwasher
27. Terminal lug
28. Capacitor C3
29. Screw
30. Insulator
31. Regulator AR1
32. Screw
33. Clamp
34. Screw
35. Step motor B1
36. Washer
37. LockWasher
38. Nut
39. Transformer T1
40. Screw
41. End plate
42. Washer
43. Lockwasher
44. Screw
45. Cover
46. Washer
47. Screw
48. Washer
49. Lockwasher
50. Nut
51. Take-up sensing arm
52. Filter FL2
53. Washer
54. Lockwasher
55. Nut
56. Terminal lug
57. Photocell amplifier A1
58. Pulse rate generator and logic A2
59. Forward/reverse control A3
60. Motor driver control A4
61. Switch S1
62. Motor driver control AS
63. Servo amplifier A6
64. Filter FL1
65. Servo feedback potentiometer R2
66. Screw
67. Lockwasher
68. Washer
69. clamp
70. Supply reel motor B2
71. Nut
72. Lockwasher
73. Time totalizing meter TT1
74. Nut
75. Lockwasher
76. Screw
77. Plate
78. LockWasher
79. Nut
80. Fuseholder XF2
81. Fuseholder XF1
82. Resistor R6
83. Resistor R8
84. Resistor R10
85. Resistor R12
86. Insulator
87. Terminal board TB1
88. Insulator
89. Terminal board TB2
90. Washer
91. Lockwasher
92. Nut
93. Screw
94. Lockwasher
95. Washer
96. Resistor R11
97. Resistor R9
98. Resistor R7
99. Resistor R5
100. servo feedback potentiometer R3
101. Lockwasher
102. Washer
103. Nut
104. Nut
105. Screw

Legend for figure 8-10 - Continued

106.	Lockwasher	115.	Screw
107.	Washer	116.	Washer
108.	Rectifier CR1	117.	LockWasher
109.	Voltage regulator A7	118.	Nut
110.	clamp	119.	Resistor R4
111.	Capacitor C1	120.	Rectifier CR2
112.	Screw	121.	Screw
113.	Lockwasher	122.	Capacitor
114.	Terminal lug	123.	Transistor Q1

(1) Open lamp assembly cover (5).

(2) Remove two screws (6) and washers (7) securing lamp support (12); allow lamp support to hang loosely.

(3) Identify and unsolder each photocell small color-coded wire from terminal board TB2 (89, figure 8-10, sheet 2) terminals 1 thru 10.

(4) Remove two screws (13, figure 8-10, sheet 1) securing photocell assembly (2) to lamp support; remove photocell assembly,

b. *Replacement.*

(1) Carefully install photocell assembly (4) on lamp support (12) and secure with two screws (13).

(2) Identify and solder each photocell color-coded wire to terminal board TB2 (89, figure 8-10, sheet 2). See tape reader schematic diagram (figure FO-19) for location of each color-coded wire on terminal board TB2.

(3) Secure lamp support (12, figure 8-10, sheet 1) with two screws (6) and washers (7). Visually align lamps with photocell assembly, Position lamp support so that clearance from lamp assembly to photocell assembly is 0.035 to 0.045 inch.

(4) Close lamp assembly cover (5).

(5) Perform photocell amplifier A1 bias adjustments in accordance with procedure in table 8-8, test 5.3.

8-28. Plug-In Circuit Card A1, A2, A3, A4, A5, A6, or A7 Removal and Replacement. See figure 8-10, sheet 2, and remove and replace photocell amplifier Al (57) as follows:

a. *Removal* Carefully pull photocell amplifier A1 (57) out of the card cage using handle on top of photocell amplifier A1.

CAUTION

When installing a plug-in circuit card, check that it is the proper card for the respective receptacle. Check that the card is properly aligned during installation or damage to connector or receptacle may result.

b. *Replacement.* Install photocell amplifier A1 (57) in card guides and slide inward to engage connector.

8-29. Servo Feedback Potentiometer R2 or R3 Removal and Replacement. See figure 8-10, sheet 2, and remove and replace servo feedback potentiometer R2 (65) as follows:

a. *Removal.*

(1) Tag and unsolder wires from servo feedback potentiometer R2 (65).

(2) Loosen two setscrews securing servo feedback potentiometer R2 shaft to sensing arm drum assembly.

(3) Remove three screws (66), washers (68), lockwashers (67), and clamps (69) securing servo feedback potentiometer R2 (65) to bracket support; remove potentiometer R2.

b. *Replacement.*

(1) Secure servo feedback potentiometer R2 (65) to bracket support with three screws (66), washers (68), lockwashers (67), and clamps (69). Align position of potentiometer for free movement of bearings allowing tape sensing arm to swing parallel to the front panel.

(2) Tighten two setscrews securing servo feedback potentiometer R2 shaft to sensing arm drum assembly.

(3) Solder wires to potentiometer.

(4) Adjust servo feedback potentiometer R2 in accordance with procedure in table 8-8, test 3.

8-30. Supply Reel Motor B2 or Take-Up Reel Motor B3 Removal and Replacement. See figure 8-10, sheet 1, and remove and replace take-up reel motor B3 (17) as follows:

a. *Removal.*

(1) Remove two screws (47) and washers (46) securing cover (45) on rear of take-up reel motor B3 (17). Allow cover to hang loosely.

(2) Carefully hold red and black take-up reel motor B3 input leads while pushing cover back from motor. This compresses the braided shielding slightly and provides extra lead length.

(3) Carefully slide sleeving on each wire toward rear cover for access to solder connection. Tag and unsolder wires from take-up reel motor B3.

(4) Remove lock ring (14) from take-up reel motor B3 shaft.

(5) Loosen setscrew on clamp (15), Remove clamp from take-up reel motor B3 shaft.

(6) While holding take-up reel motor B3. remove four screws (16); remove motor.

b. *Replacement.*

(1) Install take-up reel motor B3 (17) through front panel and secure with four screws (16).

(2) Install clamp (15) on take-up reel motor B3 shaft and secure with setscrew in clamp. Allow approximately 1/16-inch clearance between clamp and motor flange.

(3) Install lock ring (14) on take-up reel B3 shaft.

(4) Solder wires to terminals on rear of take-up reel motor B3. Slide sleeving over solder connections.

(5) Secure cover (45) to rear of take-up reel motor B3 with two screws (47) and washers (46).

8-31. Step Motor B1 Removal and Replacement. See figure 8-10, sheet 1, and remove and replace step motor B1 (35) as follows:

a. *Removal.*

(1) Tag and unsolder step motor B1 (35) blue, yellow, brown, and orange wires from terminal board TB1 (87, figure 8-10, sheet 2) (top side of resistors R9, R10, R11, and R12, respectively),

(2) Loosen sprocket (9, figure 8-10, sheet 1) setscrew to disengage sprocket from step motor B1 shaft.

(3) Remove three screws (34) and clamps (33) securing step motor B1 (35) to front panel; remove step motor B1 and sprocket (9).

b. *Replacement.*

(1) Install step motor B1 (35) shaft through front panel with sprocket (9) in place so shaft of motor goes through sprocket. Secure motor to front panel with three screws (34) and clamps (33).

(2) Secure sprocket (9) to step motor B1 shaft with setscrew in sprocket, Center sprocket teeth in head groove.

(3) Solder step motor B1 wires to terminal board TB1 (87, figure 8-10, sheet 2). See tape reader schematic diagram (figure FO-19) for location of each color-coded wire on terminal board TB1.

(4) Adjust step motor B1 in accordance with procedre in table 8-8, test 5.2.

8-32. Transformer T1 Removal and Replacement. See figure 8-10, sheet 1, and remove and replace transformer T1 (39) as follows:

a. *Removal.*

(1) Tag and unsolder wires from transformer T1 (39).

(2) Remove four screws (19), washers (36), lockwashers (37), and nuts (38) securing transformer T1 (39) to front panel; remove transformer T1.

b. *Replacement.*

(1) Secure transformer T1 (39) to front panel with four screws (19), washers (36), lockwashers (37), and nuts (38).

(2) Solder wires to transformer T1 (39).

8-33. Regulator AR1 or Transistor Q1 Removal and Replacement. See figure 8-10, sheet 1 and remove and replace regulator AR1 (31) as follows:

a. *Removal.* Remove two screws (32), insulating washers (25) washers (24), lockwashers (26), one terminal lug (27), and two nuts (23) securing regulator AR1 (31) to chassis. Pull regulator AR1 from its socket and remove along with insulator (30).

b. *Replacement.* Cover insulator and regulator with head conductive sealing compound (960004-1). Place insulator (30) under regulator AR1 (31) and plug regulator AR1 into its socket. Secure regulator AR1 to chassis with two screws (32), insulating washers (25), washers (24), lockwashers (26), one terminal lug (27), and two nuts (23).

8-34. Capacitor C1 or C2 Removal and Replacement. See figure 8-10, sheet 2, and remove and replace capacitor C1 (111) as follows:

a. *Removal.*

(1) Remove two screws (112) and lockwashers (113) securing two terminal lugs (114) to capacitor Cl (111) terminals; tag and remove terminal lugs.

(2) Loosen four screws (121) securing clamp (110) around capacitor C1; remove capacitor C1 from clamp.

b. *Replacement.*

(1) Install capacitor Cl (111) in clamp (110).

(2) Tighten four screws (121) to secure clamp around capacitor CL

(3) Secure two terminal lugs (114) to capacitor Cl terminals with two screws (112) and lockwashers (113). Orange wire connects to positive terminal of capacitor C1.

8-35. Filter FL1 or FL2 Removal and Replacement. See figure 8-10, sheet 2, and remove and replace filter FL2 (52) as follows:

a. *Removal.*

(1) Remove two screws (47, figure 8-10, sheet 1) and washers (46) securing cover (45) on rear of motor B3 (17).

(2) Carefully hold red and black motor B3 input leads while pushing cover back from motor B3. This compresses the braided shielding slightly and provides extra lead length.

(3) Carefully slide sleeving on each wire toward rear cover for access to-solder connection. Tag and unsolder wires from motor B3.

NOTE

The following two steps apply only to filter FL2.

(4) Remove photocell amplifier A1 (57, figure 8-10, sheet 2) and pulse rate generator and logic A2 (58).

(5) Remove three nuts (103), washers (102), and lockwashers (101), and two screws (29, figure 8-10, sheet 1), nuts (20), lockwashers (21), and washers (22) securing frame to front panel and card cage. Move frame aside to gain access to filter FL2 (52, figure 8-10, sheet 2) hardware.

NOTE

The following step applies only to filter FL1.

(6) Remove servo amplifier A6 (63) to gain access to filter FL1 (64) hardware.

(7) Remove two nuts (55), lockwashers (54), washers (53), and one terminal lug (56) securing filter FL2 (52) to front panel; remove filter FL2.

b. *Replacement.*

(1) Secure filter FL2 (52) to front panel with two washers (53), lockwashers (54), nuts (55), and one terminal lug (56).

(2) Place sleeving on wires that connect to motor B3 (17, figure 8-10, sheet 1).

(3) Solder wires to terminals on rear of motor B3. Slide sleeving over solder connections.

(4) Secure cover (45) to rear of motor B3 with two screws (47) and washers (46).

NOTE

The following step applies only to filter FL1.

(5) Replace servo amplifier A6 (63, figure 8-10,

NOTE

The following two steps apply only to filter FL2.

(6) Secure frame to front panel and card cage with two screws (29, figure 8-10, sheet 1), nuts *(20)*, lockwashers (21), and washers (22), and three nuts (103, figure 8-10, sheet 2), washers (102), and lockwashers (101).

(7) Replace photocell amplifier A1 (57) and pulse rate generator and logic A2 (58).

8-36. Terminal Board TB1 Removal and Replacement. See figure 8-10, sheet 2, and remove and replace terminal board TB1 (87) as follows:

a. *Removal.*

(1) Tag and unsolder wires from terminal board

(2) Remove two screws (93), lockwasher (94) and washer (95) securing terminal board TB1 (87) and insulator (86) to chassis; remove terminal board and insulator.

b. *Replacement.*

(1) Secure terminal board TB1 (87) and insulator (86) to chassis with two screws (93), lockwashers (94) and washers (95).

(2) Solder wires to terminal board TB1 (87).

8-37. Terminal Board TB2 Removal and Replacement. See figure 8-10, sheet 2, and remove and replace terminal board TB2 (89) as follows:

a. *Removal.*

(1) Tag and unsolder wires from terminal board

(2) Remove two nuts (92), lockwashers (91), and washers (90) securing terminal board TB2 (89) and insulator (88) to front panel; remove terminal board and insulator,

b. *Replacement.*

(1) Secure terminal board TB2 (89) and insulator (88) to front panel with two washers (90), lockwashers (91), and nuts (92).

(2) Solder wires to terminal board TB2 (89).

8-38. Resistor R4 Removal and Replacement. See figure 8-10, sheet 2, and remove and replace resistor R4 (119) as follows:

a. *Removal.*

(1) Remove voltage regulator A7 (109).

(2) Remove two screws (44, figure 8-10, sheet 1), lockwashers (43), and washers (42), and two screws (40), lockwashers (49), washers (48), and nuts (50) securing end plate (41) to chassis; remove end plate.

(3) Remove two screws (115, figure 8-10, sheet 2), lockwashers (117), washers (116), and nuts (118) securing resistor R4 (119) to chassis; remove resistor and tag and unsolder wires.

b. *Replacement.*

(1) Solder wires to resistor R4 (119),

(2) Secure resistor R4 (119) to chassis with two screws (115), lockwashers (117), washers (116), and nuts (118).

(3) Secure end plate (41, figure 8-10, sheet 1) to chassis with two screws (44), lockwashers (43), and washers (42), and two screws (40), lockwashers (49), washers (48), and nuts (50).

(4) Install voltage regulator A7 (109, figure 8-10,

8-39. Rectifier CR1 Removal and Replacement. See figure 8-10, sheet 2, and remove and replace rectifier CR1 (108) as follows:

a. *Removal.*

(1) Tag and unsolder wires from rectifier CR1

(2) Remove voltage regulator A7 (109),

(3) Remove two screws (44, figure 8-10, sheet 1), lockwashers (43), and washers (42). and two screws (40), lockwashers (49), washers (48), and nuts (50) securing end plate (41) to chassis; remove end plate.

(4) Remove two screws (105, figure 8-10, sheet 2), lockwashers (106), washers (107), and nuts (104) securing rectifier CR1 (108) to chassis; remove rectifier CR1.

b. *Replacement.*

(1) Secure rectifier CR1 (108) to chassis with two screws (105), lockwasher (106), washer (107), and nuts (104).

(2) Secure end plate (41, figure 8-10, sheet 1) to chassis with two screws (44), lockwashers (43), and washers (42), and two screws (40), lockwashers (49), washers (48), and nuts (50).

(3) Install voltage regulator A7 (109, figure 8-10, sheet 2).

(4) Solder wires to rectifier CR1 (108).

8-40. Switch S1 Removal and Replacement. See figure 8-10, sheet 2, and remove and replace switch S1 (61) as follows:

a. *Removal.*

(1) Tag and unsolder wires from switch S1 (61).

(2) Remove nut (79), plate (77), and lockwasher (78) securing switch S1 (61) to front panel; remove switch S1.

b. *Replacement.*

(1) Secure switch S1 (61) to front panel with nut (79), plate (77), and lockwasher (78).

(2) Solder wires to switch S1 (61).

8-41. Time Totalizing Meter TTl Removal and Replacement. See figure 8-10, sheet 2 and remove and replace time totalizing meter TTl (73) as follows:

a. *Removal.*

(1) Tag and unsolder wires from time totalizing meter TTl (73).

(2) Remove two screws (76), lockwashers (72), and nuts (71) securing time totalizing meter TTl (73) to front panel; remove time totalizing meter.

b. *Replacement.*

(1) Secure time totalizing meter TTl (73) to front panel with two screws (76), lockwashers (72), and nuts (71).

(2) Solder wires to time totalizing meter TT1

8-42. Fuseholder XF1 or XF2 Removal and Replacement. Refer to figure 8-10, sheet 2, and remove and replace fuseholder XF1 (81) as follows:

a. *Removal.*

(1) Tag and unsolder wires from fuseholder XF1 (81).

(2) Remove nut (74) and Lockwasher (75) securing fuseholder XF1 (81) to front panel; remove fuseholder.

b. *Replacement.*

(1) Secure fuseholder XF1 (81) to front panel with nut (74) and lockwasher (75).

(2) Solder wires to fuseholder XF1 (81).

8-43. Capacitor C3, Rectifier CR2, Resistor R5, R6, R7, R8, R9, R10, R11, or R12 Removal and Replace. ment. Refer to figure 8-10, sheet 2, and remove and replace rectifier CR2 (120) as follows:

a. *Removal.*

(1) Tag and unsolder rectifier CR2 (120) leads from terminals on chassis; remove rectifier CR2.

(2) Remove capacitor C3 and resistors R5, R6, R7, R8, R9, R10, R11, and R12 using standard shop practices.

b. *Replacement.*

(1) Solder rectifier CR2 (120) leads to terminals on chassis.

(2) Replace capacitor C3 and resistors R5, R6, R7, R8, R9, R10, R11, and R12 using standard shop practices.

8-43.1. Tape Reader, Part No. 877406-2, Maintenance. Tape reader maintenance consists of removal and replacement of the instrument case, modules, front panel components, and chassis components. All removal and replacement procedures require removal and replacement of the instrument case which is described once only, in paragraph 8-43.2. Where similar components are removed and replaced by identical procedures, one typical procedure will be given. If applicable, tag and unsolder, or disconnect wires prior to removing components. Before performing any maintenance, the tape reels should be removed from the tape reader. In addition, cleaning of the tape reader head and tapes is included.

8-43.2. Instrument Case Removal and Replacement. See figure 8-10.1, sheet 1, and remove and replace instrument case (3) as follows:

a. *Removal.* Press pressure valve; then remove 20 screws (1) and washers (2) securing tape reader to instrument case (3). Remove tape reader from instrument case.

b. *Replacement.* Install tape reader in instrument case (3) and secure with 20 screws (1) and washers (2).

8-43.3 Input/Output Board A1 Removal and Replacement. See figure 8-10.1, sheet 2, and remove and replace input /output board (18) as follows:

a. *Removal.*

(1) Remove four screws (4, figure 8-10.1, sheet 1), two screws (5), and two washers (6) securing cover (7) to front panel (28) and chassis (72); remove cover.

(2) Disconnect connector P4 (8, figure 8-10.1, sheet 2) from connector J2 (9).

(3) Remove two screws (10), washers (11), and stand-offs (12) securing input /output board (18) to logic board (38).

(4) Remove three screws (13), Lockwashers (14), washers (15). spacers (16), and nuts (17) securing input/out board (18) to chassis (72); remove input /output board.

b. *Replacement.*

(1) Secure input/output board (18) to chassis (72) with three screws (13), lockwashers (14), washers (15), spacers (16) and nuts (17).

(2) Secure input/output board (18) to logic board (38) with two screws (10), washers (11), and stand-offs (12).

(3) Connect connector P4 (8) to connector J2 (9).

(4) Secure cover (7, figure 8-10.1, sheet 1) to front panel (28) and chassis (72) with four screws (4), two screws (5), and two washers (6).

8-43.4. Logic Board A2 Removal and Replacement. See figure 8-10.1, sheet 2, and remove and replace logic board (38) as follows:

a. *Removal.*

(1) Remove input/output board (18) in accordance with paragraph 8-43.3a.

(2) Tag and disconnect wires from FAST/SLOW switch.

(3) Remove ty-rap (19) from logic board (38) connectors J6 (20)and J7 (21).

(4) Disconnect cable W1 (22) connector from logic board (38) connector J7 (21).

(5) Disconnect cable W2 (23) connector from logic board (38) connector J6 (20).

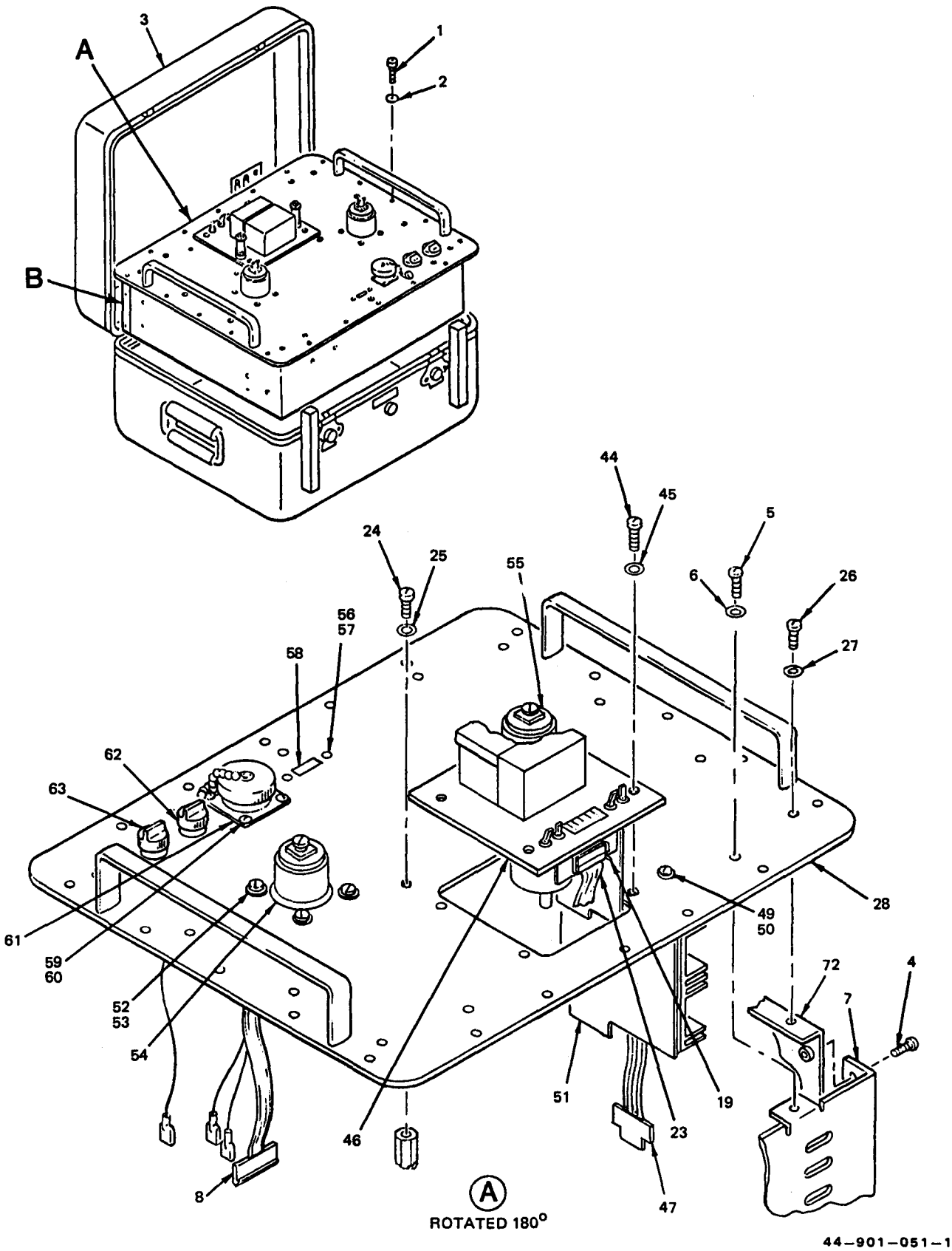


Figure 8-10.1. Tape Reader, Part No. 877406-2, Exploded View (Sheet 1 of 2)

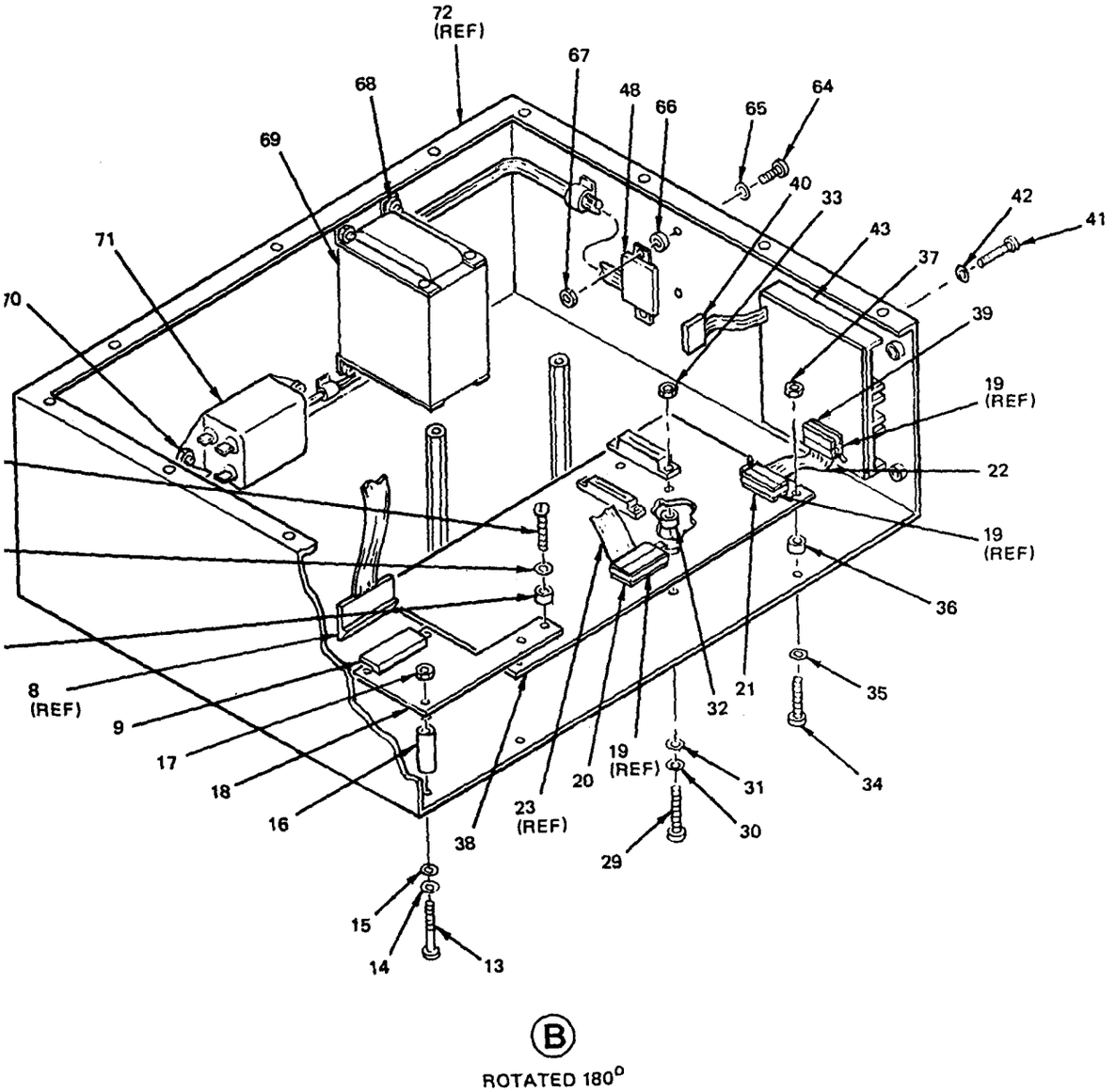


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Figure 8-10.1. Tape Reader, Part No. 877406-2, Exploded View (Sheet 2 of 2)

Legend for figure 8-10.1

1. Screw
2. Washer
3. Instrument case
4. Screw
5. Screw
6. Washer
7. Cover
8. Connector P4
9. Connector J2
10. Screw
11. Washer
12. Stand-off
13. Screw
14. Lockwasher
15. Washer
16. Spacer
17. Nut
18. Input/output board A1
19. Ty-rap
20. Connector J6
21. Connector J7
22. Cable W1
23. Cable W2
24. Screw
25. Washer
26. Screw
27. Washer
28. Front panel
29. Screw
30. Washer
31. Washer
32. Stand-off
33. Nut
34. Screw
35. Washer
36. Spacer
37. Nut
38. Logic board A2
39. Connector J8
40. Connector P3
41. Screw
42. Washer
43. Servo board A3
44. Screw
45. Washer
46. Tape reader module A4
47. Connector P2
48. Connector P1
49. Screw
50. Washer
51. Power supply PS1
52. Screw
53. Washer
54. Right spooler motor B2
55. Left spooler motor B1
56. Screw
57. Nut
58. Time totalizing meter M1
59. Screw
60. Washer
61. Connector J1 and I/0 cable
62. Fuseholder XF1
63. Fuseholder XF2
64. Screw
65. Washer
66. Fiber washer
67. Nut
68. Nut
69. Transformer T1
70. Nut
71. Filter FL1
72. Chassis

(6) Remove two screws (24, figure 8-10.1, sheet 1) and washers (25) securing front panel (28) to two posts.

(7) Remove 11 screws (26) and washers (27) securing front panel (28) to chassis (72).

(8) Carefully move front panel (28) away from chassis (72) just far enough to disengage power supply (51) connector and tape reader module (46) connector from logic board (38, figure 8-10.1, sheet 2) connectors.

(9) Remove four screws (29), washers (30), washers (31), stand-offs (32), nuts, (33), screws (34), washers (35), spacers (36), and nuts (37) securing logic board (38) to chassis (72); remove logic board.

h Replacement.

(1) Secure logic board (38) to chassis (72) with four screws (29), washers (30), washers (31), stand-offs (32), nuts (33), screws (34), washers (35), spacers (36), and nuts (37).

(2) Carefully move front panel (28, figure 8-10.1, sheet 1) toward chassis (72) to engage power supply (51) connector and tape reader module (46) connector with logic board (38, figure 8-10.1, sheet 2) connectors.

(3) Secure front panel (28, figure 8-10.1, sheet 1) to chassis (72) with 11 screws (26) and washers (27).

(4) Secure front panel (28) to posts with two screws (24) and washers (25).

(5) Connect cable W2 (23, figure 8-10.1, sheet 2) connector to logic board (38) connector J6 (20).

(6) Connect cable W1 (22) connector to logic board (38) connector J7 (21).

(7) Install ty-rap (19) on logic board (38) connectors J6 20) and J7 (21).

(8) Connect wires to FAST/SLOW switch; remove tags.

(9) Install input/output board (18) in accordance with paragraph 8-43.3b.

8-43.5 Servo Board A3 Removal and Replacement. See figure 8-10.1, sheet 2, and remove and replace servo board (43) as follows:

a. *Removal.*

(1) Remove four screws (4, figure 8-10.1, sheet 1) two screws (5), and two washers (6) securing cover (7) to front panel (28) and chassis (72) ; remove cover.

(2) Remove ty-rap (19, figure 8-10.1, sheet 2) from servo board (43) connector J8 (39).

(3) Disconnect cable W1 (22) connector from servo board (43) connector J8 (39).

(4) Disconnect connector P3 (40) from power supply (51, figure 8-10.1, sheet 1).

(5) Remove two screws (41, figure 8-10.1, sheet 2) and washers (42) securing-servo board (43) to chassis (72); remove servo board.

b. *Replacement.*

(1) Secure servo board (43) to chassis (72) with two screws (41) and washers (42).

(2) Connect connector P3 (40) to power supply (51, figure 8-10.1, sheet 1).

(3) Connect cable W1 (22, figure 8-10.1, sheet 2) connector to servo board (43) connector J8 (39).

(4) Install ty-rap (19) on servo board (43) connector J8 (39).

(5) Secure cover (7, figure 8-10.1, sheet 1) to front panel (28) and chassis (72) with four screws (4), two screws (5), and two washers (6).

8-43.6. Tape Reader Module A4 Removal and Replacement. See figure 8-10.1, sheet 1, and remove and replace tape reader module (46) as follows:

a. *Removal.*

(1) Remove four screws (4), two screws (5), and two washers (6) securing cover (7) to front panel (28) and chassis (72); remove cover.

(2) Remove ty-rap (19) from tape reader module (46) connector.

(3) Disconnect cable W2 (23) connector form tape reader module (46) connector.

(4) Remove two screws (24) and washers (25) securing front panel (28) to two posts.

(5) Remove 11 screws (26) and washers (27) securing front panel (28) to chassis (72).

(6) Carefully move front panel (28) away from chassis (72) just far enough to disengage power supply (51) connector and tape reader module (46) connector from logic board (38, figure 8-10.1, sheet 2) connectors.

(7) Remove four screws (44, figure 8-10.1, sheet 1) and washers (45) securing tape reader module (46) to front panel (28); remove tape reader module.

b. *Replacement.*

(1) Secure tape reader module (46) to front panel (28) with four screws (44) and washers (45).

(2) Carefully move front panel (28) toward chassis (71) to engage power supply (51) connector and tape reader module (46) connector with logic board (38, figure 8-10.1, sheet 2) connectors.

(3) Secure front panel (28, figure 8-10.1, sheet 1) to chassis (72) with 11 screws (26) and washers (27).

(4) Secure front panel (28) to posts with two screws (24) and washers (25).

(5) Connect cable W2 (23) connector to tape reader module (46) connector.

(6) Install ty-rap (19) on tape reader module (46) connector.

(7) Secure cover (7) to front panel (28) and chassis (72) with four screws (4), two screws (5), and two washers (6).

8-43.7. Power Supply PS1 Removal and Replacement. See figure 8-10.1, sheet 1, and remove and replace power supply (51) as follows:

a. *Removal.*

(1) Remove four screws (4), two screws (5), and two washers (6) securing cover (7) to front panel (28) and chassis (72) ; remove cover.

(2) Disconnect connector P2 (47) from connector P1 (48, figure 8-10.1, sheet 2).

(3) Disconnect connector P3 (40) from power supply (51, figure 8-10.1, sheet 1).

(4) Disconnect left and right spooler motor cables from power supply (51).

(5) Remove two screws (24) and washers (25) securing front panel (28) to two posts.

(6) Remove 11 screws (26) and washers (27) securing front panel (28) to chassis (72).

(7) Carefully move front panel (28) away from chassis (72) just far enough to disengage power supply (51) connector and tape reader module (46) connector from logic board (38, figure 8-10.1, sheet 2) connectors.

(8) Remove two screws (49, figure 8-10.1, sheet 1) and washers (50) securing power supply (51) to front panel (28); remove power supply.

b. *Replacement.*

(1) Secure power supply (51) to front panel (28) with two screws (49) and washers (50).

(2) Carefully move front panel (28) toward chassis *(72)* to engage power supply (51) connector and tape reader module (46) connector with logic board (38, figure 8-10.1, sheet 2) connectors.

(3) Secure front panel (28, figure 8-10.1, sheet 1) to chassis (72) with 11 screws (26) and washers (27).

(4) Secure front panel (28) to posts with two screws (24) and washers (25).

(5) Connect left and right spooler motor cables to power supply (51),

(6) Connect connector P3 (40, figure 8-10.1, sheet 1) to power supply (51, figure 8-10.1).

(7) Connect connectors P2 (47) to connector P1 (48, figure 8-10.1, sheet 2).

(8) Secure cover (7, figure 8-10.1, sheet 1) to front panel (28) and chassis (72) with four screws (4), two screws (5), and two washers (6).

8-43.8. Left Spooler Motor B1 or Right Spooler Motor B2 Removal and Replacement. See figure 8-10.1, sheet 1, and remove right spooler motor B2 (54) as follows:

a. *Removal.*

(1) Remove four screws (4), two screws (5), and two washers (6) securing cover (7) to chassis (72); remove cover.

(2) Disconnect right spooler motor B2 (54) cable from power supply (51).

(3) Remove four screws (52) and washers (53) securing right spooler motor B2 (54) to front panel (28); remove right spooler motor B2.

b. *Replacement.*

(1) Secure right spooler motor B2 (54) to front panel (28) with four screws (52) and washers (53).

(2) Connect right spooler motor B2 (54) cable to power supply (51).

(3) Secure cover (7) to front panel (28) and chassis (72) with four screws (4), two screws (5), and two washers (6).

8-43.9. Time Totalizing Meter M1 Removal and Replacement. See figure 8-10.1, sheet 1, and remove time totalizing meter Ml (58) as follows:

a. *Removal.*

(1) Remove four screws (4), two screws (5), and two washers (6) securing cover (7) to front panel (28) and chassis (72) ; remove cover.

(2) Tag and disconnect wires from time totalizing meter Ml (58).

(3) Remove two screws (56) and nuts (57) securing time totalizing meter M1 (58) to front panel (28); remove time totalizing meter Ml.

b. *Replacement.*

(1) Secure time totalizing meter M1 (58) to front panel (28) with two screws (56) and nuts (57).

(2) Connect wires to time totalizing meter M1 (58); remove tags.

(3) Secure cover (7) to front panel (28) and chassis (72) with four screws (4), two screws (5), and two washers (6).

8-43.10. Connector J1 and I/O Cable Removal and Replacement. See figure 8-10.1, sheet 1 and remove and replace connector J1 and I/O cable (61) as follows:

a. *Removal.*

(1) Remove four screws (4), two screws (5), and two washers (6) securing cover (7) to front panel (28) and chassis (72) ; remove cover.

(2) Tag and disconnect I/0 cable wires from filter FL1 (71, figure 8-10.1, sheet 2), fuseholders XF1 and XF2 (62 and 63, figure 8-10.1, sheet 1), and time totalizing meter Ml (58).

(3) Disconnect connector P4 (8, figure 8-10.1, sheet 2) from connector J2 (9).

(4) Remove four screws (59, figure 8-10.1, sheet 1) and washers (60) securing connector J1 and I/O cable (61) to front panel (28); remove connector J1 and I/O cable.

h Replacement.

(1) Secure connector J1 and I/O cable (61) to front panel (28) with four screws (59) and washers (60).

(2) Connect connector P4 (8, figure 8-10.1, sheet 2) to connector J2 (9).

(3) Connect 1/0 cable wires to filter FL1 (71, figure 8-10.1, sheet 2), fuseholders XF1 and XF2 (62 and 63, figure 8-10.1, sheet 1), and time totalizing meter Ml (58); remove tags.

(4) Secure cover (7) to front panel (28) and chassis (72) with four screws (4) two screws (5), and two washers (6).

8-43.11 Fuseholder XF1 or XF2 Removal and Replacement. See figure 8-10.1, sheet 1 and remove and replace fuseholder XF1 (62) as follows:

a. *Removal.*

(1) Remove four screws (4), two screws (5), and two washers (6) securing cover (7) to front panel (28) and chassis (72) ; remove cover.

(2) Tag and unsolder wires from fuseholder XF1 (62).

(3) Remove fuseholder XF1 (62) mounting hardware; remove fuseholder XF1 from front panel (28).

b. *Replacement.*

(1) Secure fuseholder XF1 (62) to front panel (28) with its mounting hardware.

(2) Solder wires to fuseholder XF1 (62); remove tags.

(3) Secure cover (7) to front panel (28) and chassis (72) with four screws (4), two screws (5), and two washers (6).

8-43.12. Transformer T1 Removal and Replacement. See figure 8-10.1, sheet 2, and remove and replace transformer T1 (69) as follows:

a. *Removal.*

(1) Remove four screws (4, figure 8-10.1, sheet 1), two screws (5), and two washers (6) securing cover (7) to front panel (28) and chassis (72) ; remove cover.

(2) Disconnect connector P2 (47) from connector P1 (48, figure 8-10.1, sheet 2).

(3) Remove two screws (64), washers (65), fiber washers (66), and nuts (67) securing connector P1 (48) to chassis (72).

(4) Tag and disconnect transformer T1 (69) wires from filter FL1 (71).

(5) Remove four nuts (68) securing transformer T1 (69) to chassis (72); remove transformer T1 along with connector P1.

b. *Replacement.*

(1) Secure transformer T1 (69) to chassis (72) with four nuts (68).

(2) Connect transformer T1 (69) wires to filter FL1 (71); remove tags.

(3) Secure connector P1 (48) to chassis (72) with two screws (64), washers (65), fiber washers (66), and nuts (67).

(4) Connect connector P2 (47, figure 8-10.1, sheet 1) to connector P1 (48, figure 8-10.1, sheet 2).

(5) Secure cover (7, figure 8-10.1, sheet 1) to front panel (28) and chassis (72) with four screws (4), two screws (5), and two washers (6).

8-43.13. Filter FL1 Removal and Replacement. See figure 8-10.1, sheet 2 and remove and replace filter FL1 (71) as follows:

a. *Removal.*

(1) Remove four screws (4, figure 8-10.1, sheet 1), two screws (5), and two washers (6) securing cover (7) to front panel (28) and chassis (72) ; remove cover.

(2) Tag and disconnect wires from filter FL1 (71, figure 8-10.1, sheet 2).

(3) Remove two nuts (70) securing filter FL1 to chassis (72); remove filter.

b. *Replacement.*

(1) Secure filter FL1 (71) to chassis (72) with nuts

(2) Connect wires to filter FL1 (71); remove tags.

(3) Secure cover (7, figure 8-10.1, sheet 1) to front panel (28) and chassis (72) with four screws (4), two screws (5), and two washers (6).

8-44. Tape Reader, Part No. 877406-1, Head Cleaning. The glass surfaces of the tape reader head must be cleaned to prevent excessive accumulation of dirt. Clean the tape reader head as follows:

CAUTION

Do not use sharp tools or volatile solvents. Avoid excessive pressure on glass. Failure to comply may result in damage to equipment.

a. Open lamp assembly cover.

b. Using a dry strip of clean, lint-free cloth, wipe the two glass surfaces and surrounding area of head.

NOTE

If glass cannot be cleaned thoroughly with a dry lint-free cloth, proceed with steps c thru g.

c. Prepare a cleaning solution of water and mild liquid detergent.

d. Wipe glass surfaces with clean, lint-free cloth moistened with cleaning solution. Use cleaning solution sparingly and do not saturate area.

e. Rinse area with clean, lint-free cloth moistened with clean water.

f. Wipe dry with clean, lint-free cloth.

g. Inspect glass surfaces for cleanliness making certain that no residue is present. If further cleaning is required, repeat steps c thru g.

h. Close lamp assembly cover.

8-44.1. Tape Reader, Part No. 877406-2, Head Cleaning. The glass surfaces of the tape reader head must be cleaned to prevent excessive accumulation of dirt. Clean the tape reader head as follows:

NOTE

A cleaning kit part no. PL20598 is available from Decitek Corp. (33275). This kit consists of a brush and rectangular strips of lint-free plastic wiper material.

a. Use the brush to remove visible dust from both inside and outside the tape reader cover housing.

WARNING

Trichloroethane 1,1,1-stabilized is toxic and caustic. Use only in a well-ventilated area and avoid physical contact.

b. Saturate approximately one inch of the center of a plastic wiper strip with trichloroethane 1,1,1-stabilized.

c. Stretch the plastic wiper strip to decrease its thickness so that it fits between the phototransistor array and the fiber optic termination plate.

d. Decrease the stretch to a point where the plastic wiper strip contacts the upper and lower surfaces with a wiping action.

e. Move the plastic wiper strip back and forth in the direction of tape travel approximately 30 to 40 passes. Movement should be relatively easy. If movement is difficult, stretch the plastic wiper strip a little more.

f. Remove plastic wiper strip and inspect for excessive dirt.

g. Saturate the center section of another plastic wiper strip with trichloroethane 1,1,1-stabilized. Stretch strip and insert and move back and forth for approximately 10 to 20 passes.

h. Remove plastic wiper strip and inspect it for dirt. If no dirt has been collected, consider the tape reader head clean. If dirt is evident, repeat step g until clean.

8-45. Self-Test, Operational, and Diagnostic Tape Cleaning Using Tape Reader, Part No. 877406-1.

a. Connect tape reader to SPU as shown in figure 8-2.

b. Set tape reader SPOOLING switch to DISABLE.

c. Place tape reel on left tape reader spindle and lock in place.

d. Unwind about four feet of leader, then thread tape around tape guides and tension arms. Manually wind a portion of the tape onto take-up reel. Do not thread tape through tape head.

e. Press SPU ON switch-indicator to on,

f. Set tape reader SPOOLING switch to ENABLE.

WARNING

Isopropyl alcohol is flammable and gives off harmful vapors. Use only in well-ventilated area away from open flames and sparks. Avoid prolonged or repeated inhalation of vapors.

NOTE

If the tape is excessively dirty, several cleaning cycles (steps g thru i) should be made, the first with the cloth moistened with isopropyl alcohol.

g. While holding a piece of clean, lint-free cloth to both surfaces of the tape above the read head, advance the tape by pressing the take-up tension arm (51, figure 8-10, sheet 1) toward the read head.

h. Stop the tape near its end by releasing the take-up tension arm.

i. While still holding the tape in the cloth, rewind the tape by pressing the supply tension arm (18, figure 8-10, sheet 1) toward the read head.

j. Remove tape from tape reader,

k. Set SPOOLING switch to DISABLE.

l. Press SPU ON switch-indicator to off.

8-45.1. Self-Test, Operational, and Diagnostic Tape Cleaning Using Tape Reader, Part No. 877406-2.

a. Connect tape reader to SPU as shown in figure 8-2.

b. Load tape on left side and route tape directly to the take-up reel.

c. Wrap the free end of the tape around the take-up reel hub until no slippage occurs. Do not use masking tape to secure diagnostic tape to the take up reel.

d. Press SPU ON switch-indicator to on,

e. Set tape reader SPL/LOOP switch to SPL and FAST/SLOW switch to FAST.

WARNING

Isopropyl alcohol is flammable and gives off harmful vapors. Use only in well ventilated area away from open flames and sparks. Avoid prolonged or repeated inhalation of vapors.

NOTE

If the tape is excessively dirty, several cleaning cycles (steps f thru h) should be made, the first with the cloth moistened with isopropyl alcohol.

f. While holding a piece of clean, lint-free cloth to both surfaces of the tape, advance the tape by holding R/L switch in the R position.

g. Stop the tape near its end by releasing the R/L switch,

h. While still holding the tape in the cloth, rewind the tape by holding the R/L switch in the L position,

i. Remove tape from tape reader.

j. Press SPU ON switch-indicator to off.

Section V. GENERAL SUPPORT TESTING PROCEDURES

8-46. General. General support testing of the PADS test set consists of performing the self-test procedure contained in table 8-6, Refer to paragraph 8-9 for an explanation on the use of table 8-6.

Section VI. CABLE AND CONNECTOR REPAIR

8-47. Cable and Connector Repair.

a. *General.* Cable repair consists of connector pin replacement, terminal lug replacement, and repair of broken wires by substituting wires. Connectors are repaired by pin replacement.

(1) Connector pins are replaced from the connector rear, Remove the appropriate covers and panels to obtain access to chassis-mounted connectors. The backshell must be disassembled for cable connectors.

(2) After access is obtained, remove the defective pin and cut off the wire. Prepare the new wire and crimp a new pin on the wire. If the newly prepared wire is too short, use a spare wire; usually available in cables. Insert the new pin into the connector and reassemble the equipment.

(3) Procedures for backshell disassembly/assembly, pin removal and replacement, crimping tool operation, and lug replacement are given in the following paragraphs.

b. *Backshell Disassembly/Assembly.* Several styles of backshells are used with PADS test set cables and are illustrated in figures 8-12 and 8-13. Cables may differ in minor details such as use of shields, etc. Adapt the procedure as appropriate for the particular connection.

CAUTION

Use a strap wrench (figure 8-11) to loosen or tighten backshell components which do not have wrench flats. Use of pliers, pipe wrench, etc., may damage the connectors.

NOTE

To loosen or tighten backshell components, mate the connector to a chassis-mounted connector.

Use of the strap wrench is shown in figure 8-11.

(1) ***Straight Backshell Disassembly.*** See figure 8-12 and disassemble backshell as follows:

(a) Slide cable marker away from connector to allow clearance for disassembly.

(b) Loosen two screws securing cable clamps to cable. Remove any tape, etc., which may prevent ring from sliding.

(c) Unscrew cable clamp ring from backshell. Slide cable clamp ring away from connector.

(d) Carefully pull ring, rubber grommet, and washer out of backshell and slide away from connector.

(e) Unscrew backshell from adapter ring and slide away from connector. Slide locking ring away from connector.

CAUTION

Different shield terminations are used with different backshells. Do not damage shield,

(f) Slide RFI ring away from connector.

(g) Carefully manipulate the shield and slide the RFI sleeve a short distance away from adapter ring.

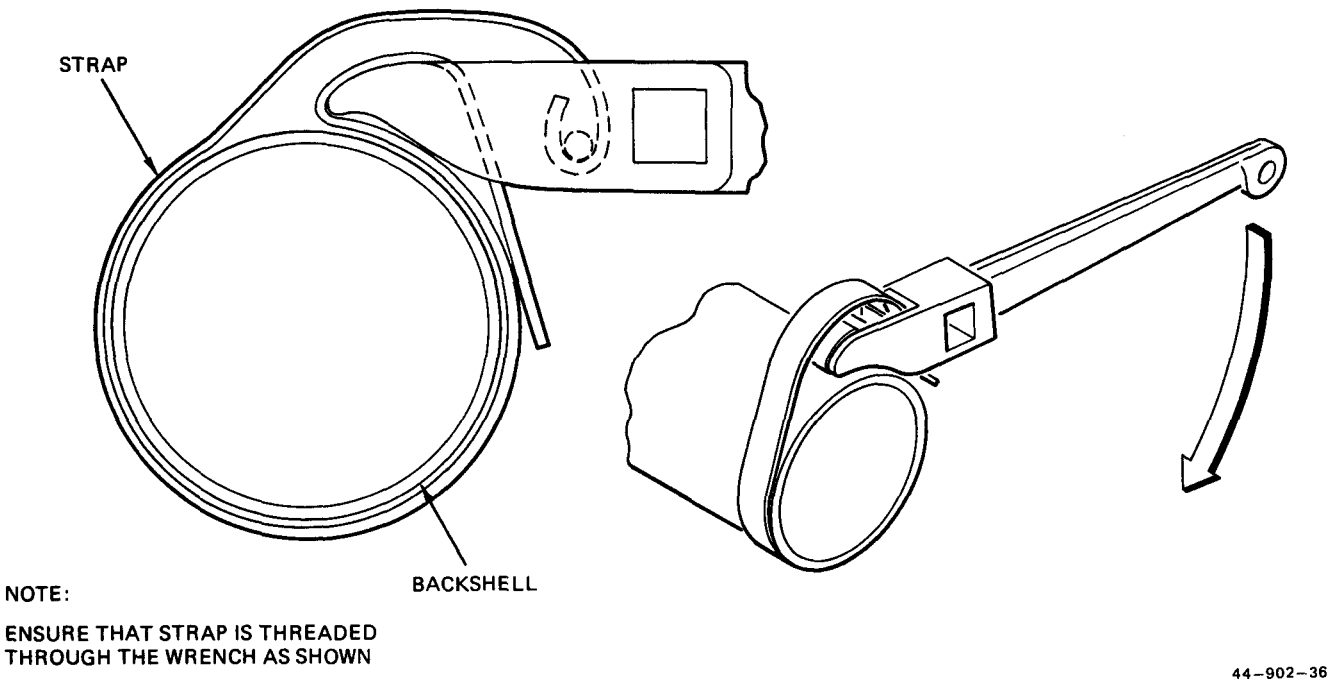

Figure 8-11. Backshell Strap Wrench

(h) Unscrew adapter ring from connector and expose rear of connector for pin replacement.

(2) ***Straight Backshell Assembly.*** See figure 8-12 and assemble backshell as follows:

(a) Slide locking ring onto rear of connector and/or screw adapter ring onto connector.

(b) Slide RFI sleeve against rear of adapter ring.

NOTE

Shields originally terminated differently than shown may be regerminated as they were originally or as shown.

There may be ground wires from the connector which must be terminated with the shield.

Different shield terminations are shown for the different RFI sleeves and rings. The shield should be spot tied around the RFI sleeve or cable as appropriate.

(c) Terminate shield against RFI sleeve with RFI ring,

(d) Slide backshell over RFI sleeve and screw onto adapter ring.

(e) Slide washer, rubber grommet, and ring into end of backshell.

(f) Screw cable clamp ring onto rear of backshell. Tighten enough to compress rubber grommet.

(g) Tighten screws to tighten cable clamp around cable.

(3) ***Right Angle Backshell Disassembly. See*** figure 8-13 and disassemble backshell as follows:

(a) Slide cable marker away from connector to allow clearance for disassembly,

(b) Loosen two screws securing cable clamps to cable. Remove any tape, etc., which may prevent ring from sliding.

(c) Unscrew cable clamp ring from backshell. Slide cable clamp ring, grommet ferrule, grommet, and RFI ferrule away from connector.

(d) Carefully manipulate the shield so adapter can slide over it.

(e) Remove safety wire securing backshell to retaining ring.

(f) Remove setscrews securing backshell to retaining ring.

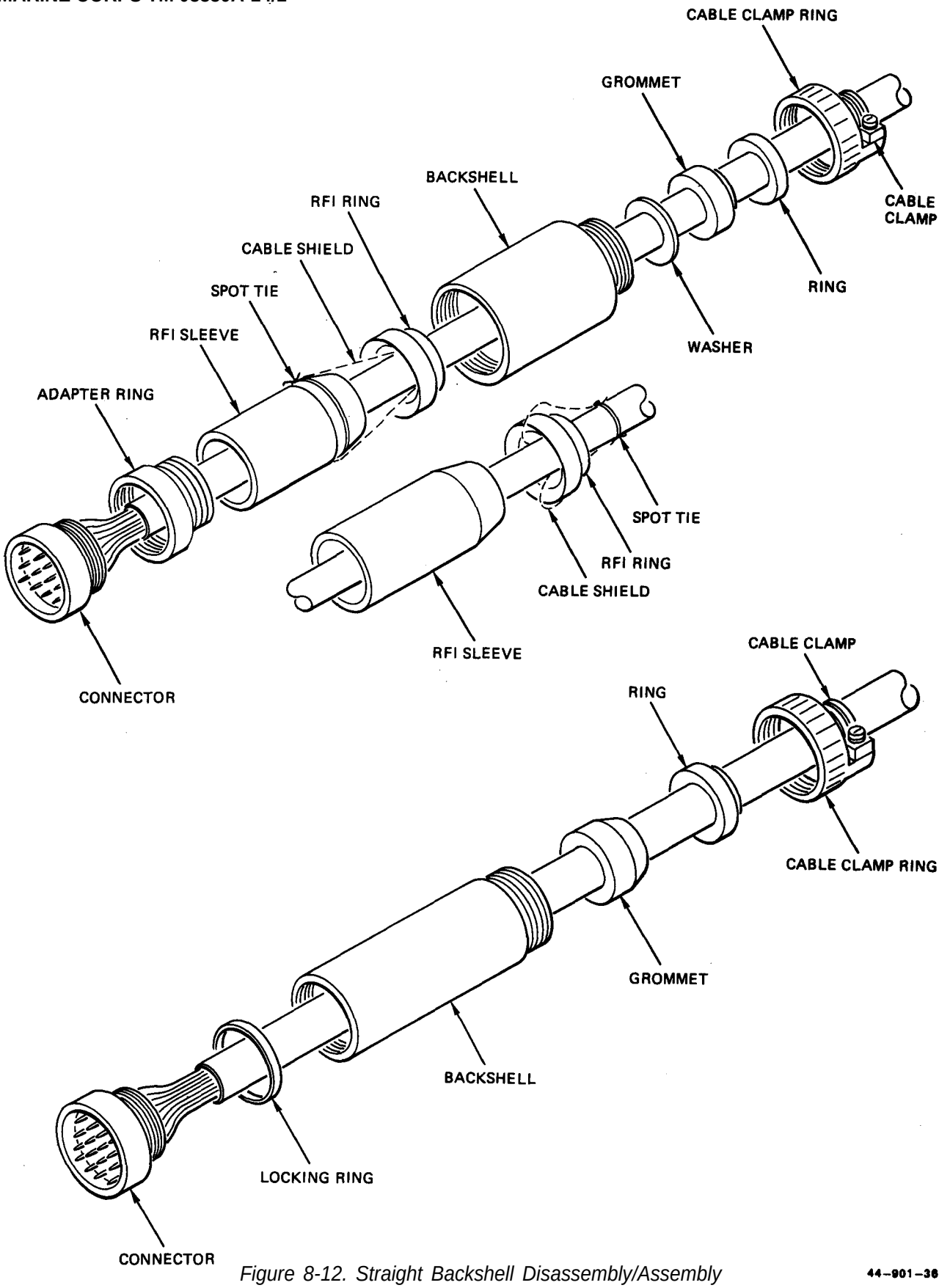

Figure 8-12. Straight Backshell Disassembly/Assembly

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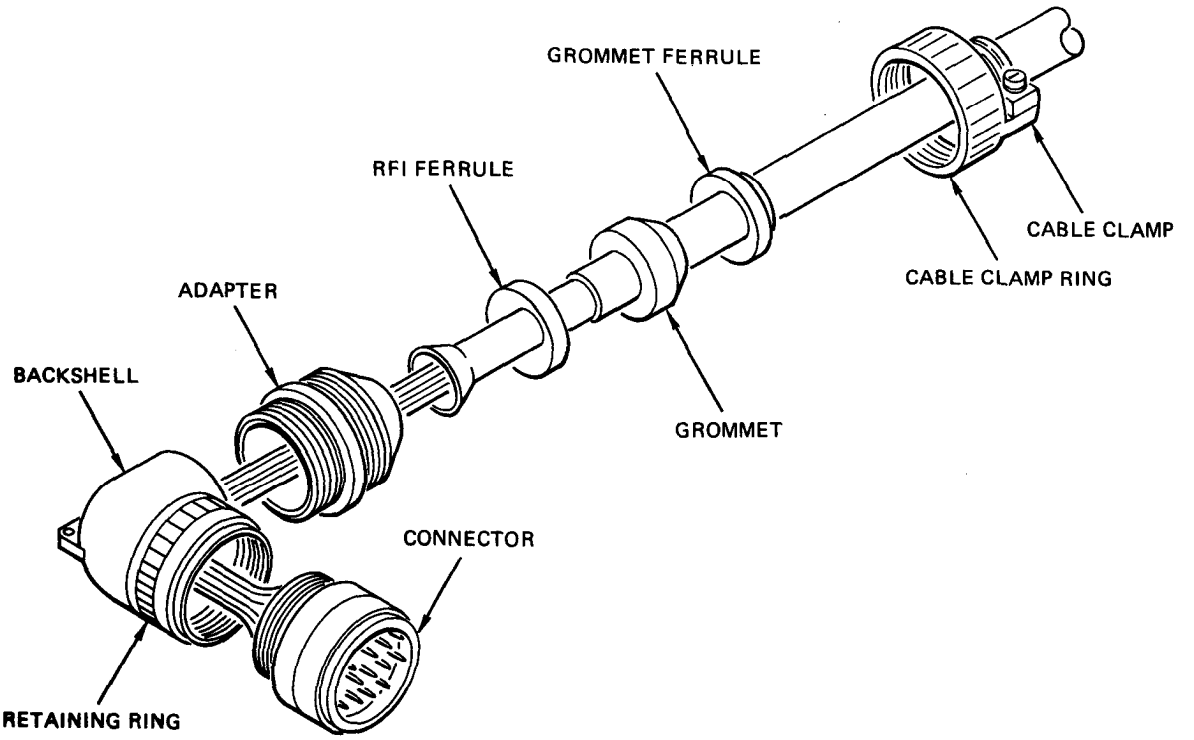


Figure 8-13. Right Angle Backshell Disassembly/Assembly

NOTE

If may be necessary to unscrew adapter from backshell to aid in sliding backshell along cable.

(g) Unscrew retaining ring from connector, taking care to not twist wires. Slide backshell away from connector. The connector rear is now exposed for pin replacement.

(4) ***Right Angle Backshell Assembly.*** See figure 8-13 and assembly backshell as follows:

WARNING

Isopropyl alcohol is flammable and gives off harmful vapors. Use only in well-ventilated area away from open flames and sparks. Avoid prolonged or repeated inhalation of vapors.

(a) Clean threads of connector and retaining ring with isopropyl alcohol.

CAUTION

Application of excess thread sealant may prevent future disassembly of the connector.

(b) Apply one drop, only, of sealing compound (MIL-S-22473, grade C) to threads of connector.

(c) Screw and tighten retaining ring to connector.

(d) Apply sealing compound (MIL-S-22473, grade C) to threads of setscrews,

(e) Turn backshell to the proper orientation and secure to retaining ring with setscrews.

(f) Screw adapter into backshell as required.

NOTE

Shields originally terminated differently than shown may be regerminated as they were originally or as shown.

There may be ground wires from the connector which must be terminated with the shield.

Some shields may be terminated with a wire and terminal lug which is connected to a cable clamp screw.

(g) Flare shield and terminate against rear or adapter with RFI ferrule.

(h) Slide grommet, grommet ferrule, and cable clamp ring against RFI ferrule. Screw cable clamp ring onto adapter.

(i) Tighten screws securing cable clamps to cables.

(j) Secure backshell to retaining ring with safety wire.

c. ***Pin Removal/Insertion.***

(1) ***Tools and Contact Pins.*** Refer to table 8-9 for correct size and sex contact pin and the correct insertion and removal tools, The contact pins and two types of insertion and removal tools are shown in figure 8-14.

CAUTION

Use of wrong insertion or removal tool may damage the connector beyond repair.

(2) ***Removal.***

NOTE

Bent pins must be straightened before removal.

(a) Clip removal tool around wire connected to pin to be removed. See figure 8-15.

(b) Slide tool down wire until it enters the connector grommet.

(c) Carefully work the tool over the contact barrel until it hits the contact shoulder,

(d) Simultaneously pull the tool and wire out the rear of the connector.

(e) Disengage the tool from the contact pin.

(3) ***Insertion.***

(a) Clip insertion tool around wire and slide tool against contact shoulder. See figure 8-16, view A.

(b) Guide the contact into the correctly numbered grommet hole in the rear face of the insert and feed the contact carefully into the hole. See figure 8-16, view B.

(c) Push the tool straight in at right angles to the grommet surface until contact is fully seated and you feel the contact retention clip snap into place on the contact with a slight audible click.

CAUTION

Do not attempt to reseat a contact once the insertion tool has been removed. Remove contact and start over again.

(d) Withdraw the tool, keeping it perpendicular to the grommet face. Check the contact by pulling on wire lightly to assure contact is firmly locked.

d. ***Crimping Tool Operation.***

(1) ***General.*** Two types of crimping tools and positioners are used depending on contact pin size. (See figures 8-17 and 8-18,) Refer to table 8-9 for the correct contact size, crimping tool, and positioner.

(2) ***Crimping Tool MS3198-1, Positioner MS3198-6P Assembly.***

NOTE

The tool handle must be fully opened when inserting the positioner, and when changing the selector position.

(a) To install the positioner, place positioner in bayonet socket at the back of the tool.

(b) Push positioner in and rotate 90 degrees clockwise until locked in position.

(3) ***Crimping Tool MS9191-4, Positioner MS3191-9T Assembly.***

NOTE

The tool handle must be fully opened when inserting the positioner and when changing the selector position.

(a) To install the positioner, press the trigger to release turret to the indexing position.

(b) Position the positioner over the retaining ring on the back of the tool. Make certain the positioner is seated on the tool; then secure the 9/64-inch sockethead screws with a sockethead screw key. Turret should now index easily without binding.

(c) Press trigger and spring-loaded turret will snap out to indexing position.

(d) The turret has three positions which are color coded and marked with the applicable contact size. Rotate the turret until the correct position is lined up with the index mark on the positioner,

(e) Push the turret into the positioner until it snaps into the locked position.

(4) ***Crimping.*** See figure 8-19 and perform crimping operation as follows:

Table 8-9. Cable and Connector Tooling and Contact Identification

Cable	W	Conn ref	Connector part no.	Contact part no.	Crimping tool	Positioner	Insertion tool	Extraction tool
875753-1	201	P1 P2	MS27484T12B4S 952586-4	MS27491-16	MS3191-4	MS3191-9T	MS27495-A16	MS27495-R16
875753-2	203	P1	MS3126F22-41P	MS27493-16 MS27493-22	MS3191-4 MS3198-1	MS3191-9T MS3198-6P	MS27495-A16 MS27495-A22	MS27495-R16 MS27495-R22
		P2	MS3126F22-41S	MS27491-16 MS27491-22	MS3191-4 MS3198-1	MS3191-9T MS3198-6P	MS27495-A16 MS27495-A22	MS27495-R16 MS27495-R22
875753-3	204	P1 P2	MS27484T20B35SC MS27484T20B35PA	MS27491-22D MS27493-22D	MS3198-1	MS3198-6P	MS27495-A22	MS27495-R22
875753-4	205	P1 P2	MS27484T24B35S MS27484T24B35P	MS27491-22D MS27493-22D				
875753-6	209	P1 P2	MS27484T16B35SB MS27484T16B35P	MS27491-22D MS27493-22D				
875753-7	210	P1 P2	MS27473T22B35SA MS27484T24B35S	MS27491-22D MS27491-22D				
875753-9	212	P1	MS27484T8B35PA	MS27491-16 MS27491-12				
		J1	MS27508E12B4P	MS27493-16	MS3191-4	MS3191-9T	MS27495-A16	MS27495-R16
		J3	MS3122E22-41S	MS27491-22D MS27491-16	MS3198-1 MS3191-4	MS3198-6P MS3191-9T	MS27495-A22 MS27495-A16	MS27495-R22 MS27495-R16
		J4	MS27508E20B35PC	MS27493-22D	MS3198-1	MS3198-6P	MS27495-A22	MS27495-R22
		J5	MS27508E24B35P	MS27493-22D	MS3198-1	MS3198-6P	MS27495-A22	MS27495-R22
		J8	MS27508E16B35S	MS27491-22D	MS3198-1	MS3198-6P	MS27495-A22	MS27495-R22
		J9	MS27508E16B35PB	MS27493-22D	MS3198-1	MS3198-6P	MS27495-A22	MS27495-R22
		J10	MS27508E22B35PA	MS27493-22D	MS3198-1	MS3198-6P	MS27495-A22	MS27495-R22
		J11	MS27508E20B35SA	MS27491-22D	MS3198-1	MS3198-6P	MS27495-A22	MS27495-R22
		J12	MS27508E8B35SA	MS27491-22D	MS3198-1	MS3198-6P	MS27495-A22	MS27495-R22

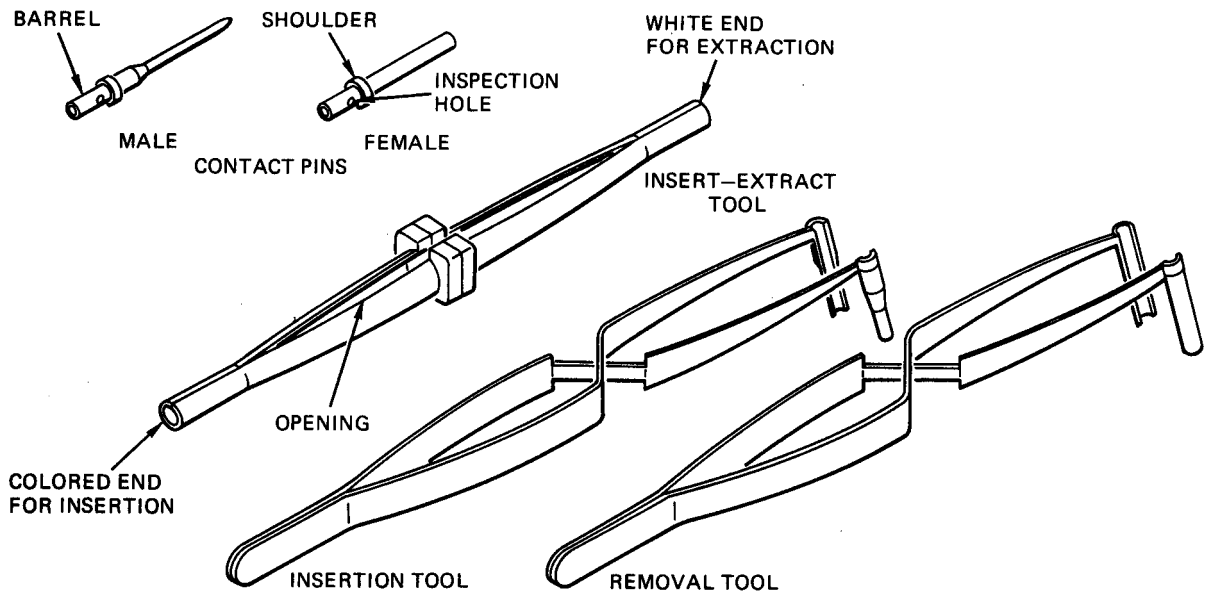


Figure 8-14. Contact Pins and Insertion and Removal Tools

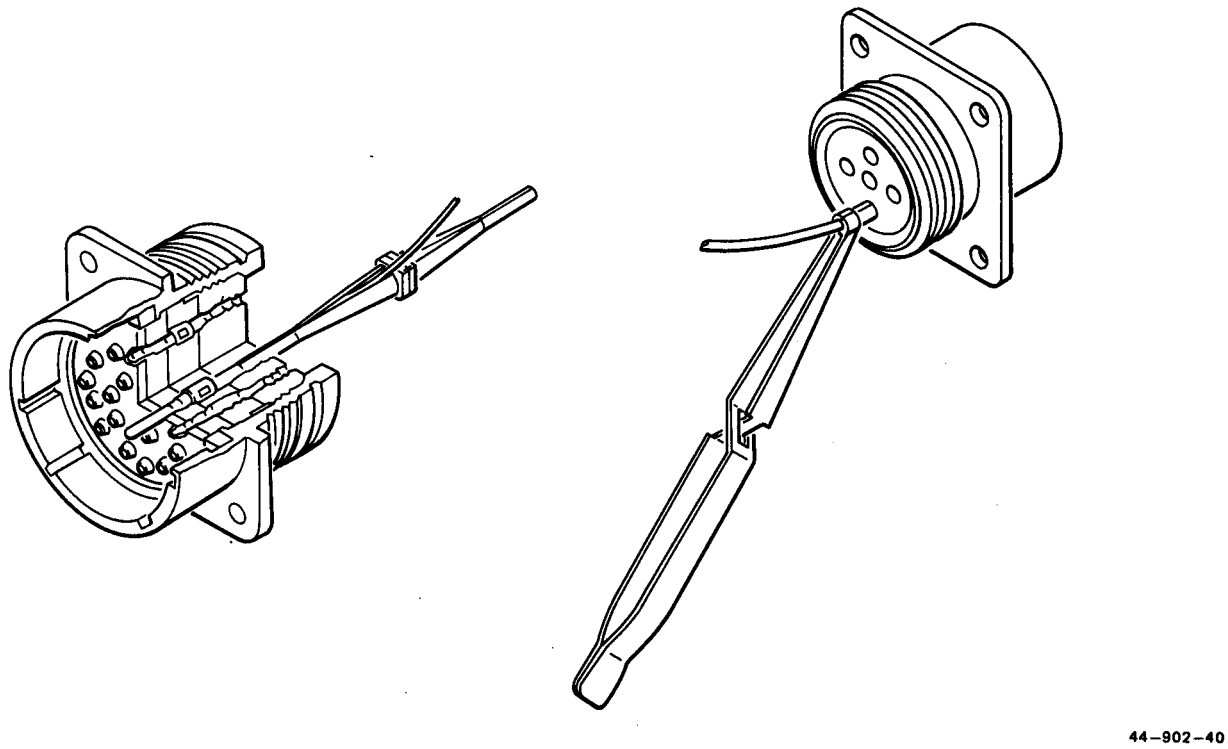


Figure 8-15. Contact Pin Removal

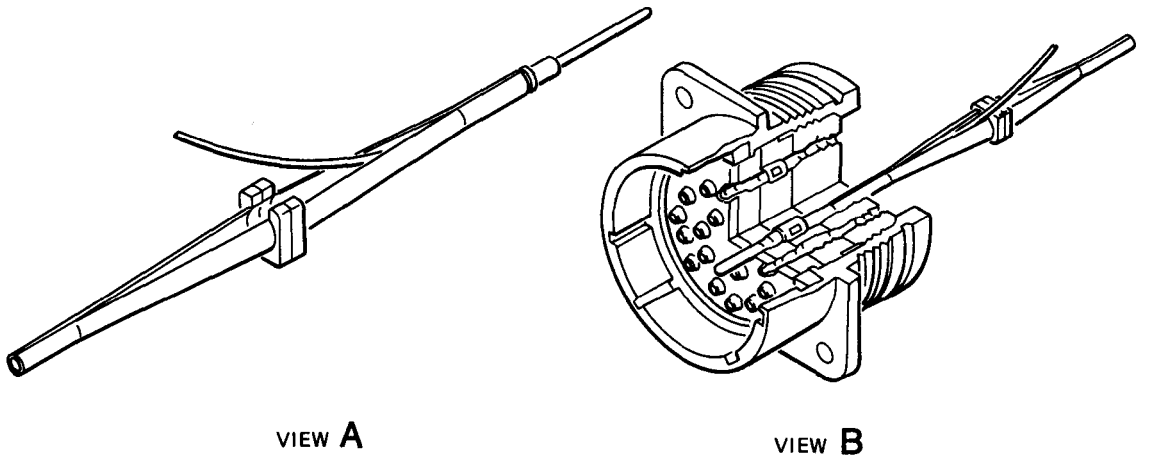


Figure 8-16. Contact Pin Insertion Tool Loading

(a) Tool must be in open position. Close handles to trip ratchet and then release pressure.

(b) Remove safety clip wire from selector control.

(c) Turn selector control in complete revolutions until correct selector number is visible in the selector number window.

(d) Tool is now ready for use. Replace safety clip wire.

(e) Insert the stripped wire into the contact until end of wire can be seen through the inspection hole. Turn the tool around so the front is facing you, then insert wire and contact through the indentor opening until it bottoms in the positioner.

(f) Squeeze handles together until the positive stop is reached. Tool will then released the return to fully open position. Remove crimped contact and wire. Make sure the wire strands are visible through the inspection hole in the contact.

e. Lug Replacement. Large terminal lugs, used on the end of power cables, etc., may be replaced using crimping tool MY28-4 (figure 8-20) and replace lugs as follows:

(1) Remove any insulating tubing from terminal and use hacksaw to cut off old lug at the point where cable just enters lug barrel.

(2) Strip cable insulation to the depth of the lug barrel. Clean cable as required. See figure 8-21.

(3) See figure 8-20 and adjust crimping tool as follows:

(a) Loosen nest die lock screw.

(b) Turn knurled screw until index line on nest die is aligned with proper cable size on cable scale,

(c) Lock nest die by tightening nest die lock screw.

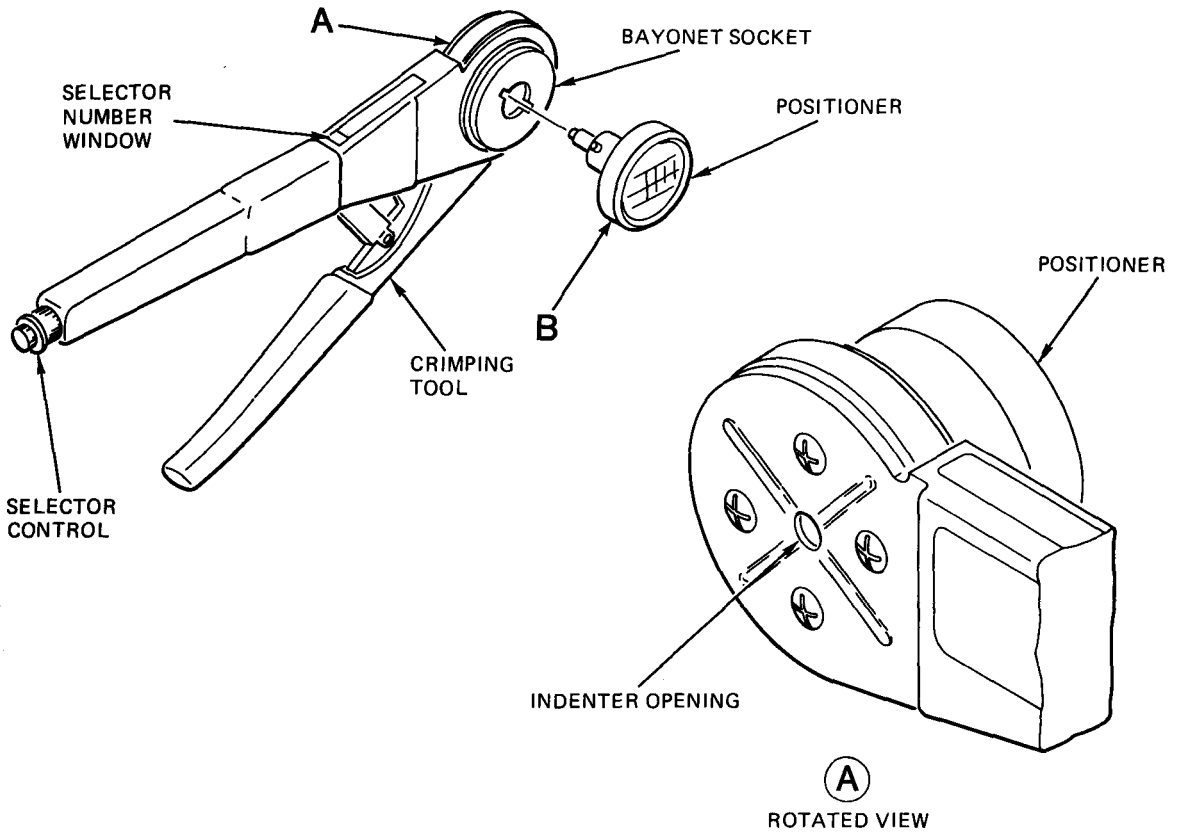
(4) Insert stripped end of cable into lug barrel.

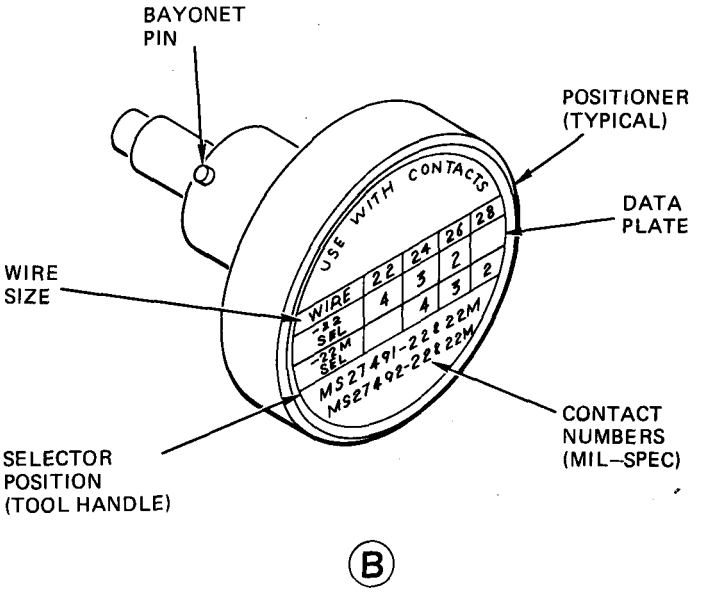
(5) Insert cable and terminal assembly into the open nest die so the terminal barrel is centered in the die, See figure 8-22.

(6) Close crimping tool handles until stop hits the other handle.

(7) Open crimping tool handles and remove crimped terminal. Tug on terminal to make sure it is firmly crimped.

(8) Replace insulating tubing as required.



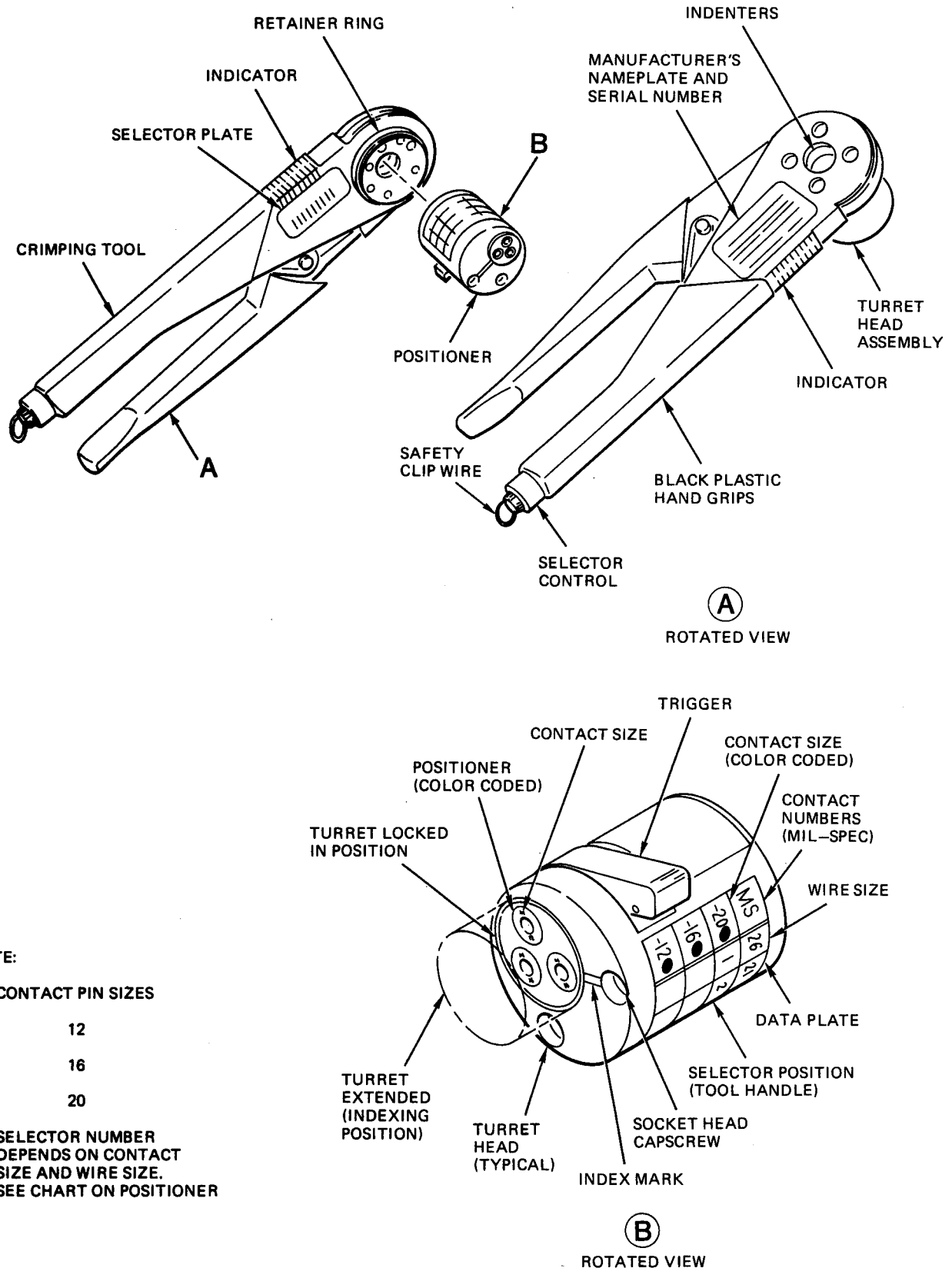


NOTE:

1. CONTACT PIN SIZE 22. SELECTOR NUMBER 4
2. THE TOOL HANDLES MUST BE FULLY OPENED WHEN INSERTING THE POSITIONER AND WHEN CHANGING THE SELECTOR POSITION

44-902-42

Figure 8-17. Crimping Tool MS3198-1 with Positioner MS3198-6P



NOTE:

1. CONTACT PIN SIZES

   12

   16

   20

2. SELECTOR NUMBER DEPENDS ON CONTACT SIZE AND WIRE SIZE. SEE CHART ON POSITIONER

44–902–43

Figure 8-18. Crimping Tool MS3191-4 with Positioner MS3191-9T

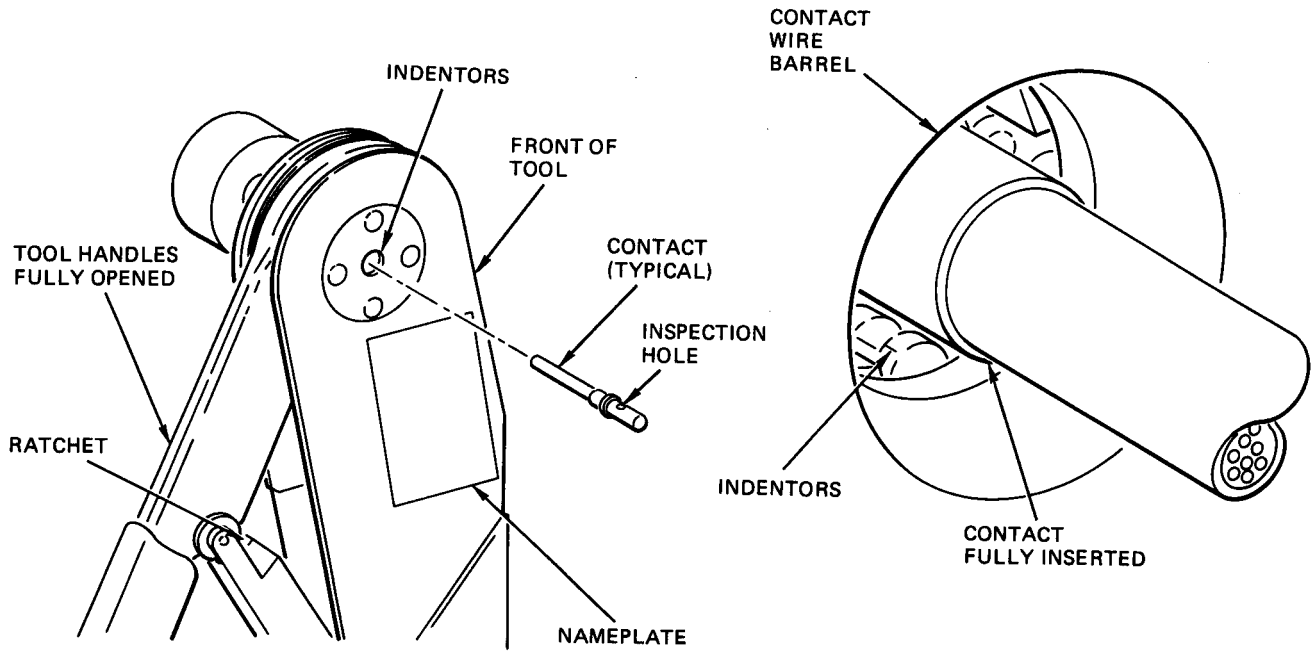


Figure 8-19. Contact Pin Crimping Tool Operation

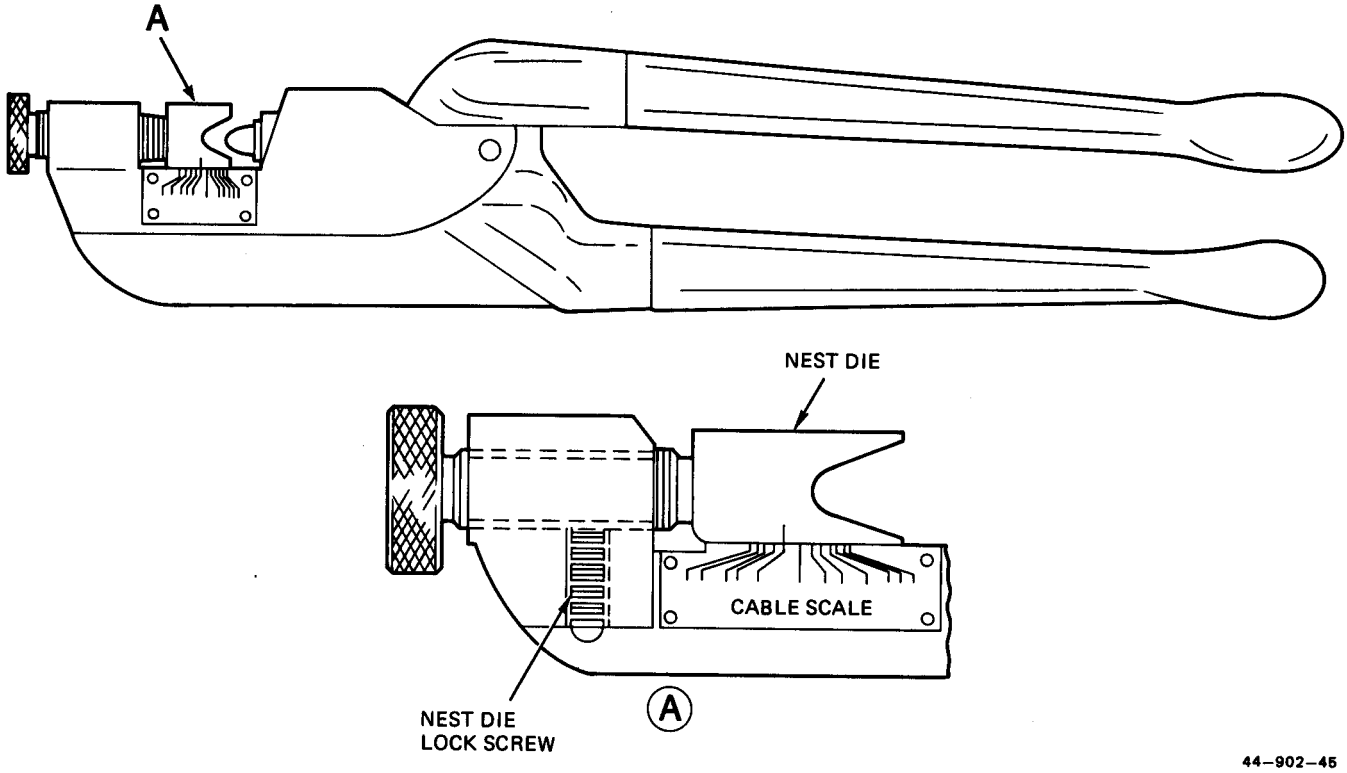


Figure 8-20. Crimping Tool MY28-4

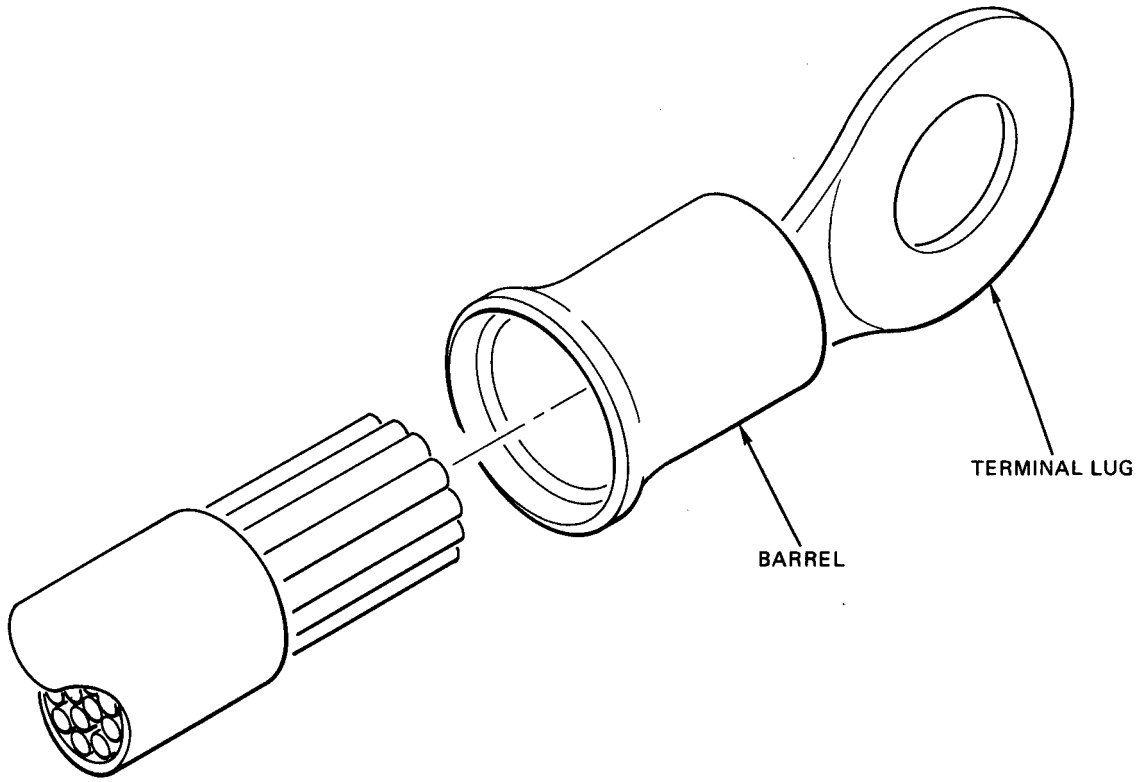


Figure 8-21. Terminal Lug and Wire Preparation

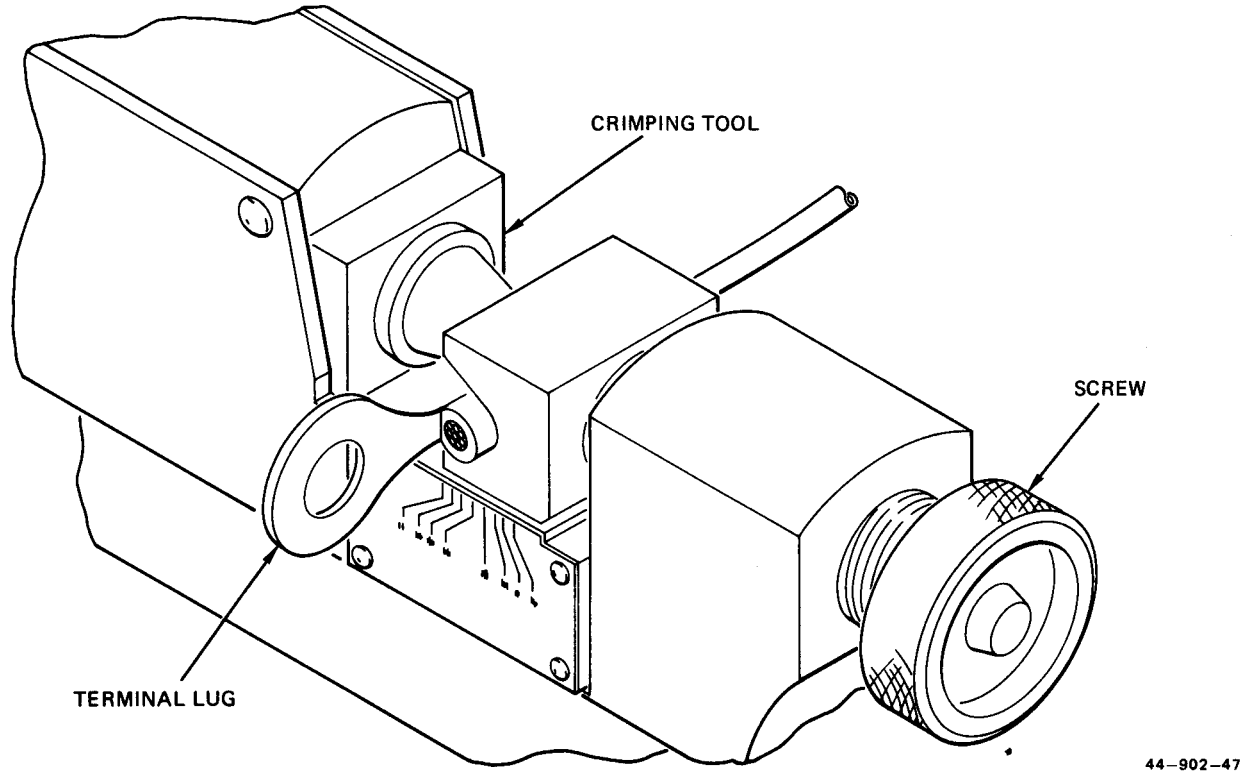


Figure 8-22. Cable and Terminal Assembly Crimping

CHAPTER 9

MATERIEL USED IN CONJUNCTION WITH MAJOR ITEM

9-1. General. A Teletypewriter TT-100/FG is used with the PADS test set during testing and troubleshooting of the PADS. The teletypewriter must be set up for full duplex operation at a 75 baud rate (600 OPM drive gear set). The reperforator-transmitter is used solely to provide power to the keyboard-transmitter. The correct teletypewriter set up is as follows:

a. Connect reperforator and keyboard power cables to 115 VAC power.

b. Connect keyboard/perforator primary interconnect cable (P10) together.

c. Connect SPU cable W212 terminal board to teletypewriter.

d. Set reperforator MOTOR switch to OFF and POWER switch to ON.

e. Ensure that keyboard LINE/BREAK switch is set to LINE.

f. Ensure that SEND/LOCK switch is set to SEND.

g, Ensure that POWER switch is set to ON.

h. Set MOTOR switch to OFF (later set to ON when specified in table 8-6).

NOTE

For complete operation of the teletypewriter, refer to TM 11-5815-200-12. For operation of the teletypewriter during testing and troubleshooting of the PADS, refer to TM 5-6675-308-34 or TM 08837A-34/2.

APPENDIX A
REFERENCES

A-1. Painting

TM 43-0139	Painting Instructions for Field Use

A-2. Shipment and Storage

TB 740-97-2	Preservation of USATROS COM Mechanical Equipment for Shipment and Storage
TM 740-90-1	Administrative Storage of Equipment
MCO 4450.7	Marine Corps Warehousing Manual

A-3. Maintenance

DA PAM 738-750 or TM 4700-15/1	The Army Maintenance Management System (TAMMS)
TM 5-6675-238-24P TM 08839A-24P/2	Organizational, Direct Support, General Support, and Depot Maintenance Repair Parts and Special Tools List for Test Set, Position and Azimuth Determining System, AN/USM-427
TM 5-6675-308-24P TM 08837A-24P/2	Organizational, Direct Support, General Support, and Depot Maintenance Repair Parts and Special Tools List, Position and Azimuth Determining System AN/USQ-70
TM 5-6675-308-34 TM 08837A-34/2	Direct Support and General support Maintenance Manual for Position and Azimuth Determining System AN/USQ-70
TM 5-6675-308-12 TM 08837A-12/1	Operator's and Organizational Maintenance Manual for Position and Azimuth Determining System AN/USQ-70
TM 5-6675-309-14 TSM 08840A-14/l	Operator's, Organizational, Direct Support, and General Support Maintenance Manual for Test Set, Power Supply, PADS AN/USM-428
TM 5-6675-309-24P TM 08840A-24P/2	Organizational, Direct Support, General Support, and Depot Maintenance Repair Parts and Special Tools List for Test Set, Power Supply AN/USM-428

A-4. Demolition

TM 750-244-3	Destruction of Equipment to Prevent Enemy Use

A-5. Forms

NAVMC Form 10772	Recommended Changes to Technical Publications
DA Form 2028	Recommended Changes to Publications and 'Blank Forms
DA Form 2028-2	Recommended Changes to Equipment Technical Publications
DA Form 12-25A	Requirements for Technical Publications for Army Mobility Support Equipment
DD Form 6	Packaging Improvement Report
SF 361	Discrepancy in Shipment Report (DISREP)
SF 368	Quality Deficiency Report

A-6. Miscellaneous

CTA 50-970	Expendable/Durable Items (Except: Medical, Class V, Repair Parts, and Heraldic Items)
MCO 1650.17	Marine Corps Military Incentive Awards Program
MCO 4430.3	Report of Item and Packaging Discrepancies (ROD)

MCO 4610.19C	Transportation and Travel Report of Transportation Discrepancies and Shipment
MCO 4855.10	Quality Deficiency Report
DA Pam 750-10 SL 1-2/SL 1-3	U.S. Army Equipment Index of Modification Work Orders
SB 700-20	Army Adapter/Other Items Selected for Authorization List of Portable Items
TM-4700-15/l	Equipment Record Procedures
TM 11-5815-200-12	Operator's and Organizational Maintenance Manual: Teletypewriter Sets and Teleprinter

APPENDIX B
COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

B-1. Scope. This appendix lists integral components of and basic issue items for the PADS test set to help you inventory items required for safe and efficient operation.

B-2. General. The Components of End Item List is divided into the following sections:

a. ***Section II. Integral Components of the End Item.*** These items, when assembled, comprise the PADS test set and must accompany it whenever it is transferred or turned in. These illustrations will help you identify these items.

b. ***Section III. Basic Issue Items.*** These are minimum essential items required to place the PADS test set in operation, to operate it, and to perform emergency repairs. Although shipped separately packed, they must accompany the PADS test set during operation and whenever it is transferred between accountable officers. The illustrations will assist you with hard-to-identify items. This manual is your authority to requisition replacement BII, based on Table(s) of Operation and Equipment (TOE)/Modification Table of Organization and Equipment (MTOE) authorization of the end item.

B-3. Explanation of Columns.

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

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

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

b. ***National Stock Number (NSN).*** Indicates the National stock number assigned to the item and which will be used for requisitioning.

c. ***Part Number (PIN).*** Indicates the primary number used by the manufacturer, 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.

d. ***Description.*** Indicates the Federal item name and, if required, a minimum description to identfy the item.

e. ***Location.*** The physical location of each item listed is given in this column. The lists are designed to inventory all items in one area of the major item before moving on to an adjacent area.

f. ***Usable on Code.*** "USABLE ON codes" are included to help you identify which component items are used on the different models. Identification of the codes used in these lists are:

Code	Used on
DED	AN/USM-427

g. ***Quantity Required (Qty Reqd).*** This column lists the quantity of each item required for a complete major item.

h. ***Quantity.*** This column is left blank for use during inventory. Under the Rcv'd column, list the quantity you actually receive on your major item. The Date columns are for your use when you inventory the major item at a later date, such as for shipment to another site.

Section II. INTEGRAL COMPONENTS OF END ITEM

(1) Illustration (a) Figure no.	(1) Illustration (b) Item no.	(2) National stock number	(3) Part no. & FSCM	(4) Description	(5) Location	(6) Usable on code	(7) Qty reqd	(8) Quantity Rcvd	(8) Quantity Date	(8) Quantity Date	(8) Quantity Date
1-1	1		877450-2 (06481)	Signal Processor Unit TS-3617/ USM-427		DED	1				
1-1	2		877427-1 (06481)	Signal Processor Unit Case CY-7563/USM-427		DED	1				
1-1	3		877406-1 or 877406-2 (06481)	Punched Tape Reader RP-239/ USM-427		DED	1				
1-1	4		877407-1 (06481)	Punch Tape Reader Case CY-7562/ USM-427		DED	1				
1-1	5		877440-2 (06481)	Buffer Unit CY-3404/ USM-427		DED	1				
1-1	6		877428-1 (06481)	Test Set Accessory Case CY-7609/ USM-427		DED	1				
1-1	7		875753-1 (06481)	Cable Assembly, Power, 96 inch, W201		DED	1				
1-1	8		875753-2 (06481)	Cable Assembly, Special Purpose, 60 inch, W203		DED	1				

Section II. INTEGRAL COMPONENTS OF END ITEM - Continued

(1) Illustration (a) Figure no.	(1) Illustration (b) Item no.	(2) National stock number	(3) Part no. & FSCM	(4) Description	(5) Location	(6) Usable on code	(7) Qty reqd	(8) Quantity Rcvd	(8) Quantity Date	(8) Quantity Date	(8) Quantity Date
1-1	9		875753-3 (06481)	Cable Assembly, Special Purpose, 72 inch, W204		DED	1				
1-1	10		875753-4 (06481)	Cable Assembly, Special Purpose, 120 inch, W205		DED	1				
1-1	11		875753-9 (06481)	Cable Assembly, Special Purpose, 180 inch, W212		DED	1				
1-1	12		875753-6 (06481)	Cable Assembly, Special Purpose, 72 inch, W209		DED	1				
1-1	13		875753-7 (06481)	Cable Assembly, Special Purpose, 14 inch, W210		DED	1				
1-1	14		877490-1 (06481)	Card Extractor		DED	1				
1-1	14		877435-1 (06481)	Card Extractor		DED	1				
1-1	15		877417-1 (06481)	Self-Test Tape		DED	1				
1-1	16		951332-1 (06481)	Take-up Reel		DED	6				

Section II. INTEGRAL COMPONENTS OF END ITEM - Continued

(1) Illustration		(2)	(3)	(4)	(5)	(6)	(7)	(8) Quantity			
(a) Figure no.	(b) Item no.	National stock number	Part no. & FSCM	Description	Location	Usable on code	Qty reqd	Rcvd	Date	Date	Date
1-1	17		877418-5 (06481)	Diagnostic Tape		DED	1				
1-1	18		877419-8 (06481)	Operational Tape		DED	1				
1-1	19		E116-01 (97525)	Card Extender, Tape Reader		DED	1				

Section III. BASIC ISSUE ITEMS—Continued

(1) ILLUSTR ION		(2)	(3)	(4)	(5)	(6)	(7)	(8) QUANTITY			
(a) FIGURE NO.	(b) ITEM NO.	NATIONAL STOCK NUMBER	PART NO. & FSCM	DESCRIPTION	LOCATION	USABLE ON CODE	QTY REQ'D	REC'D	DATE	DATE	DATE
1-1	20			TM 5-6675-238-14 or TM 08839A-14/		DED	1				
1-1	22		875738-2 (06481)	Shorting Plug		DED	1				
1-1	23		868182-4	Solid State Program Tape		DED	1				
1-1	24		875753-8 (06481)	Cable Assembly, Special Purpose 126 inch, W211		DED	1				

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APPENDIX C
ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

C-1. Scope. This appendix lists additional items you are authorized for the support of the PADS test set.

C-2. General. This list identifies items that do not have to accompany the PADS test set and that do not have to be turned in with it. These items are authorized to you by CTA, MTOE, TDA, or JTA.

C-2. Explanation of Listing. National stock number, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. Usable on codes are identified as follows:

Code	Used on
DED	AN/USM-427

Section II. ADDITIONAL AUTHORIZATION LIST

(1) National stock number	(2) Part number and FSCM	Description	Usable on code	(3) U/M	(4) Qty auth
	F028125V3A (81349)	Fuse	DED	EA	1
	F02A25V3/4A (81349)	Fuse	DED	EA	1
	F02A2505A (81349)	Fuse	DED	EA	1
	F02A250V1/8A (81349)	Fuse	DED	EA	1
	F02A250V11/2A (81349)	Fuse	DED	EA	1

APPENDIX D
MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

D-1. General.

a. This appendix lists the maintenance operations for the PADS Test Set, AN/USM-427, LIN T83225, NSN 6675-01-081-9198. It authorizes categories of maintenance functions for specific maintenance functions on repairable items and components, and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

b. The Maintenance Allocation Chart (MAC) in Section II designates the overall responsibility for the performance of maintenance functions on each item or component. Implementation of the maintenance formations will be consistent with the assigned maintenance functions.

c. Section III lists the special tools and test equipment required for each maintenance function as referenced in Section II.

d. Section IV contains supplemental instructions and explanatory notes for particular maintenance functions.

D-2. Maintenance Functions. Maintenance functions will be limited to and defined as follows:

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

b. *Test.* To verify serviceability and detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. *Service.* Operations required periodically to keep an item in proper operating condition, i.e., to clean (decontaminate); to preserve; to drain; to paint; or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. *Adjust.* To maintain within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. *Align.* To adjust specified variable elements of an item to bring about optimum or desired performance.

f. *Calibrate.* To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement, Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. *Replace.* The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. *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 or assembly), end item, or system,

j. *Overhaul.* That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards, i.e., DMWR, in appropriate 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.

k. *Rebuild.* Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles etc.) considered in classifying Army equipment/components.

D-3. Maintenance Allocation Chart Column Entries, Section II.

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

b. *Column 2: Component/Assembly.* Column 2 lists the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. *Column 3: Maintenance Functions.* Column 3 lists functions to be performed on the items listed in Column 2.

d. *Column 4: Maintenance Category.* Column 4 specifies, by listing of a "work-time" figure in the appropriate column(s), the lowest level of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate "work-time" figures will be shown for each category. The number of man-hours specified by the work-time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operation conditions, Subcolumns of the maintenance category are as follows:

C	Operator/Crew
O	Organizational
F	Direct Support
H	General Support
D	Depot

e. *Column 5: Tools and Equipment.* Column 5 specifies by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

f. *Column 6: Remarks.* Column 6 contains an alphabetic code referring to Section IV, Remarks, which is pertinent to the item opposite the particular code.

D-4. Tools and Test Equipment Requirements, Section III.

a. *Column 1: Reference Code.* The numbers in this column coincide with the numbers used in the tools and equipment column of the Maintenance Allocation Chart.

b. *Column 2: Maintenance Category.* The codes in this column indicate the maintenance categories allocated.

c. *Column 3: Nomenclature.* This column lists tools, tests, and maintenance equipment required to perform the maintenance functions.

d. *Column 4: National/NATO Stock Number.* This column lists the National/NATO Stock Number of the specific tool or test equipment.

e. *Column 5: Tool Number.* This column lists manufacturing part number and Federal Supply Code for Manufacturers (FSCM).

Section II. MAINTENANCE ALLOCATION CHART

(1) Group number	(2) Component/assembly	(3) Maintenance function	(4) Maintenance level C	O	F	H	D	(5) Tools and equipment	(6) Remarks
01	Signal Processor Unit	Test				0.1			
		Adjust				0.4			
		Repair				1.0			
		Overhaul					**		
	Case, instrument	Inspect				0.1			
		Replace				0.2		9	
		Repair				0.2			
	Logic assemblies	Test				0.1			
		Replace				0.3		9,10,30	
		Repair					**		
	Wiring	Inspect				0.5		6	
		Repair				0.5		7,15,25	
	Fan	Test				0.1		6	
		Replace				0.1		12,28	
0101	Front panel assembly	Replace				0.2			
	Lamps and fuses	Test				0.1		6	
		Replace				0.1			
	Indicator, elapsed time	Test				0.1		6	
		Replace				0.2		7,12,16,20,28	
	Air adapters	Inspect				0.1			
		Replace				0.2		12	
	Switch assembly pushbutton	Test				0.1		6	
		Replace				0.2		7,16,26	
	Fuse holder	Test				0.1			
		Replace				0.1		7,16,19	
	Segment readout	Test				0.1		6	
		Replace				0.3		7,12,15,20	
0102	Front subassembly	Replace				0.2		7,9	
	Inverter	Test				0.1		6	
		Replace				0.3		7,12,16,21	

* *Worktime is included in DMWR.

Section II. MAINTENANCE ALLOCATION CHART - Continued

(1) Group number	(2) Component/assembly	(3) Maintenance function	(4) Maintenance level c	o	F	H	D	(5) Tools and equipment	(6) Remarks
0102 (cent)	Relays	Test				0.1		6	
		Replace				0.2		7,12,16	
	Resistors	Test				0.1		6	
		Replace				0.2		2,7,11,16,27	
	Transformers	Test				0.2		6,22	
		Replace				0.5		2,12,16,20, 21,27	
0103	Power Supply	Test				0.5		6,22	
		Replace				0.3		1,2,7,10,16, 27	
	Overvoltage protector	Test				0.2		22	
		Replace				0.4		2,7,9,16,27	
	Power Supply	Test				0.2		22	
		Adjust				0.2		22,26	
		Replace				0.5		2,7,9,16,27	
02	Buffer unit	Test				0.1			
		Replace				0.1			
		Repair					**		
03	Tape reader	Test				0.5		18	
		Adjust				0.1		6,22,23	
		Repair				0.4			
		Overhaul					**		
	Case, tape, reader	Inspect				0.1			
		Replace				0.1		9	
		Repair				0.2	**		
0301	Front panel assembly								
	Photo cell assembly	Test				0.1			
		Alignment				0.1		6,23,24	
		Replace				0.5		2,3,4,7,12, 16,27	

Section II. MAINTENANCE ALLOCATION CHART - Continued

(1)	(2)	(3)	(4)					(5)	(6)
			Maintenance level						
Group number	Component/assembly	Maintenance function	c	o	F	H	D	Tools and equipment	Remarks
0301 (cent)	Fuses	Test				0.1		6	
		Replace				0.1			
	Lamp assembly cover	Inspect				0.1			
		Replace				0.2		2,3,4,7,12, 16,24	
	Servo pot	Test				0.1		6,22	
		Replace				0.5		2,3,7,12,16, 27	
	Motors, supply take up and step	Test				0.1		6,22	
		Replace				0.2		2,5,7,9,10,11, 12,16,26,27, 28	
	Transformers	Test				0.1		6,22	
		Replace				0.4		2,7,9,16,21, 27	
	Regulators	Test				0.1		6,22	
		Replace				0.1		9,20	
	Capacitors	Test				0.1		6,22	
		Replace				0.2		2,7,9,12,16, 27	
	Filters	Test				0.1		6,27	
		Replace				0.6		7,8,10,14,16	
	Resistors	Test				0.1		6,22	
		Replace				0.4		2,7,9,11,12, 16,20,27	
	Wiring	Inspect				0.5		6,22	
		Replace				0.4		2,7,16,25,27	
04	Cables								
	Power	Test				0.2		6,22	
		Repair				0.5		7,10,15,25,26	
		Replace				0.1			

Section Il. MAINTENANCE ALLOCATION CHART - Continued

(1) Group number	(2) Component/assembly	(3) Maintenance function	(4) Maintenance level C	O	F	H	D	(5) Tools and equipment	(6) Remarks
04 (cent)	Interconnecting	Test				0.2		6,22	
		Repair				0.1		7,10,16,25,26	
		Replace				0.1			
	Connectors	Test				0.1		6,22	
		Repair				0.1		2,7,10,25,27, 29	
05	Cases								
	Case, transit	Inspect				0.1			
		Replace				0.1			
		Repair				0.2	**		
06	Accessories								
	Card extractors	Inspect				0.1			
		Replace				0.1			
	Tapes	Inspect				0.1			
		Replace				0.1			
	Reels	Inspect				0.1			
		Replace				0.1			

* *Worktime is included in DMWR

Section Ill. TOOLS AND TEST EQUIPMENT REQUIREMENTS

Reference code	Maintenance category	Nomenclature	National/NATO stock number	Tool number
1	H	Screwdriver, cross-tip no. 1, 8-inch	5120-00-529-3101	
2	H	Wire stripper	5120-00-278-2423	
3	H	Key, sockethead, L-type handle, l/16-inch	5120-00-198-5398	
4	H	Key, sockethead, L-type handle, 3/32-inch	5120-00-242-7410	
5	H	Key, socketheaad, L-type handle, 5/64-inch	5120-00-224-2504	
6	H	Multimeter	6625-00-999-7465	AN/USM-223
7	H	Pliers, long-nose, 6-1/2-inches	5120-00-293-3481	
8	H	Wrench, ratchet, reversible, l/4-inch sq dr, 4-1/4-inch	5120-00-242-3256	
9	H	Screwdriver, cross-tip no. 2, 4-inch	5120-00234-8913	
10	H	Screwdriver, flat-tip, 3/16-inch, 8-inch	5120-00260-4837	
11	H	Screwdriver, cross-tip no. 0, 4-inch	5120-00-060-2004	
12	H	Screwdriver, cross-tip no. 1, 3-inch	5120-00-240-8716	
13	H	Screwdriver, cross-tip no. 1 and 2, offset	5120-00-892-5931	
14	H	Socket, 3/16-inch for 1/4-inch drive	5120-00-236-2262	
15	H	Wrench, single socket spinner, 5/32-inch	5120-00-585-2149	
16	H	Soldering/desoldering set	3439-00-460-7198	
17	H	Wrench, single socket spinner, 3/16-inch	5120-00-224-2599	
18	H	Teletypewriter	5915-00-503-2763	
19	H	Wrench, adjustable, 6-inch	5120-00-264-3795	
20	H	Wrench, open end, 3/16-inch and 1/4-inch	5120-00-228-9527	
21	H	Wrench, combination, 5/16-inch	5120-00-228-9503	
22	H	Voltmeter, digital	6625-00-022-7894	AN/GSM-64B
23	H	Oscilloscope	6625-00-228-2201	AN/USM-281A
			6625-00-930-6637	AN/USM-273
24	H	Gauge, thickness	5120-00-274-2857	
25	H	Crimping tool	5120-00-165-3912	MS3191-4

Section III. TOOLS AND TEST EQUIPMENT REQUIREMENTS - Continued

Reference code	Maintenance category	Nomenclature	National/NATO stock number	Tool number
		Crimping tool	5120-00-165-3910	MS3198-1
		Insertion tool	5120-00-018-0529	MS27495A16
		Insertion tool	5120-00-137-9140	MS27495A22
		Insertion tool	5120-00-018-0531	MS27495A12
		Insertion tool	5120-00-171-6967	MS27495A20
		Extraction tool	5120-00-409-5206	MS27495R16
		Extraction tool	5120-00-146-6557	MS27495R22
		Extraction tool	5120-00-103-9708	MS27945R12
		Extraction tool	5120-00-177-6966	MS27495R20
		Positioner for MS3191-4 crimping tool	5120-00-016-7482	MS3191-9T
26	H	Screwdriver, flat-tip, 1/8-inch and 2-inches	5120-00-236-2140	
27	H	Pliers, diagonal cutting, 4-1 /2 inches	5110-00-240-6209	
28	H	Screwdriver, flat-tip, 3/32-inch and 3-inch	5120-00-720-4969	
29	H	Wrench, strap		TG-70
30	H	Wrench, 11/32 open-end		

APPENDIX E
REPAIR PARTS AND SPECIAL TOOLS LIST

Refer to TM 5-6675-238-24P or TM 08839A-24P/2, Organizational, Direct Support, General Support, and Depot Maintenance Repair Parts and Special Tool List for Test Set, Position and Azimuth Determining System, AN/USM-427.

APPENDIX F
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

Scope. This appendix lists expendable supplies and materials you will need to operate and maintain the

CTA 50-970, Expendable Items (except Medical, Class V, Repair Parts, and Heraldic Items).

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. F).

b. *Column 2. Level.* This column identifies the lowest level of maintenance that requires the listed item (enter as applicable):

C	Operator/Crew
O	Organizational Maintenance
F	Direct Support Maintenance
H	General Support Maintenance

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

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

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

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) Item number	(2) Level	(3) National stock number	(4) Description	(5) U/M
1	H,D	6810-00-753-4993	Alcohol, Isopropyl, MIL-I-10428	PT
2	H,D		Cloth, Lint-Free, FED SPEC CCC-O-721	BX
3	H		Sealing Compound, Heat Conductive 340 (71984) or C641 (01139)	QT
4	H	3439-00-555-4629	Solder, Resin Core	SP
5	H		Primer, Thread Sealant, MIL-S-22473	QT
6	H		Sealing Compound, MIL-S-22473, Grade C	QT
7	H		Trichloroethane 1,1, l-stabilized, MIL-T-81533	PT
8	H		Cleaning Kit, Part No. PL20598 (33275)	BX
9	H		Adhesive, Epoxy, EC2216 B/A Clear (04633)	T B

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GLOSSARY

Section I. NONSTANDARD ABBREVIATIONS

ASCII – American Standard Code for Information Interchange

CDU – Control and display unit

COMP – Computer

DA – Device address

D/DC -Digital to dc

DMA – Direct memory access

D/R – Digital to resolver

D/S – Digital to synchro

ENT – Enter

IMU – Inertial measurement unit

I/0 – Input/output

PADS – Position and Azimuth Determining system

RPSTL – Repair parts and special tools list

SDB – Serial data bus

SPU – Signal processor unit

TOC – Time-out counter

UART – Universal asynchronous receiver/transmitter

Section II. SYMBOLS

ΔV Incremental velocity

$\Delta\omega$ – Incremental angular motion

ΔV_X – Incremental velocity in the east-west direction; along the x-axis

ΔV_Y – Incremental velocity in the north-south direction; along the y-axis

ΔV_Z – Incremental vertical velocity; along the z-axis

$\Delta\omega_X$ Incremental angular velocity about the x-axis; gyro y-axis torquing signal

$\Delta\omega_Y$ – Incremental angular velocity about the y-axis; gyro x-axis torquing signal

$\Delta\omega_Z$ – Incremental angular velocity about the z-axis; gyro y-axis torquing signal

^{0} – Negative logic

< – Horizontal Angle

INDEX

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6	2-1 a			In line 6 of paragraph 2-1a the manual states the engine has 6 Cylenders. The engine on my set only has 4 Cylenders. Change the manual to show 4 Cylenders.
B1		4-3		Callout 16 on figure 4-3 is pointing at a bolt. In key to figure 4-3, item 16 is called a shim - Please correct one or the Other.
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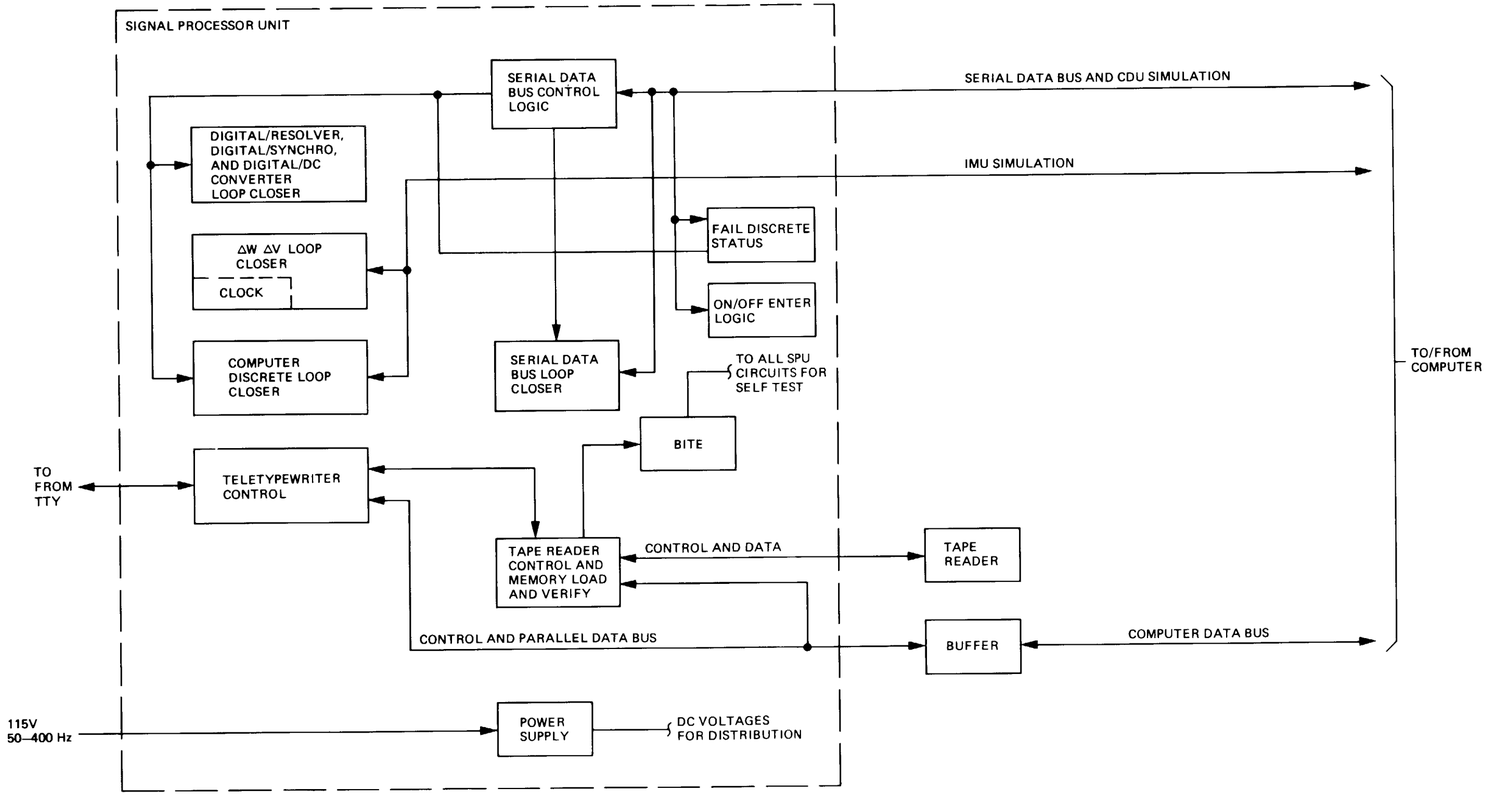

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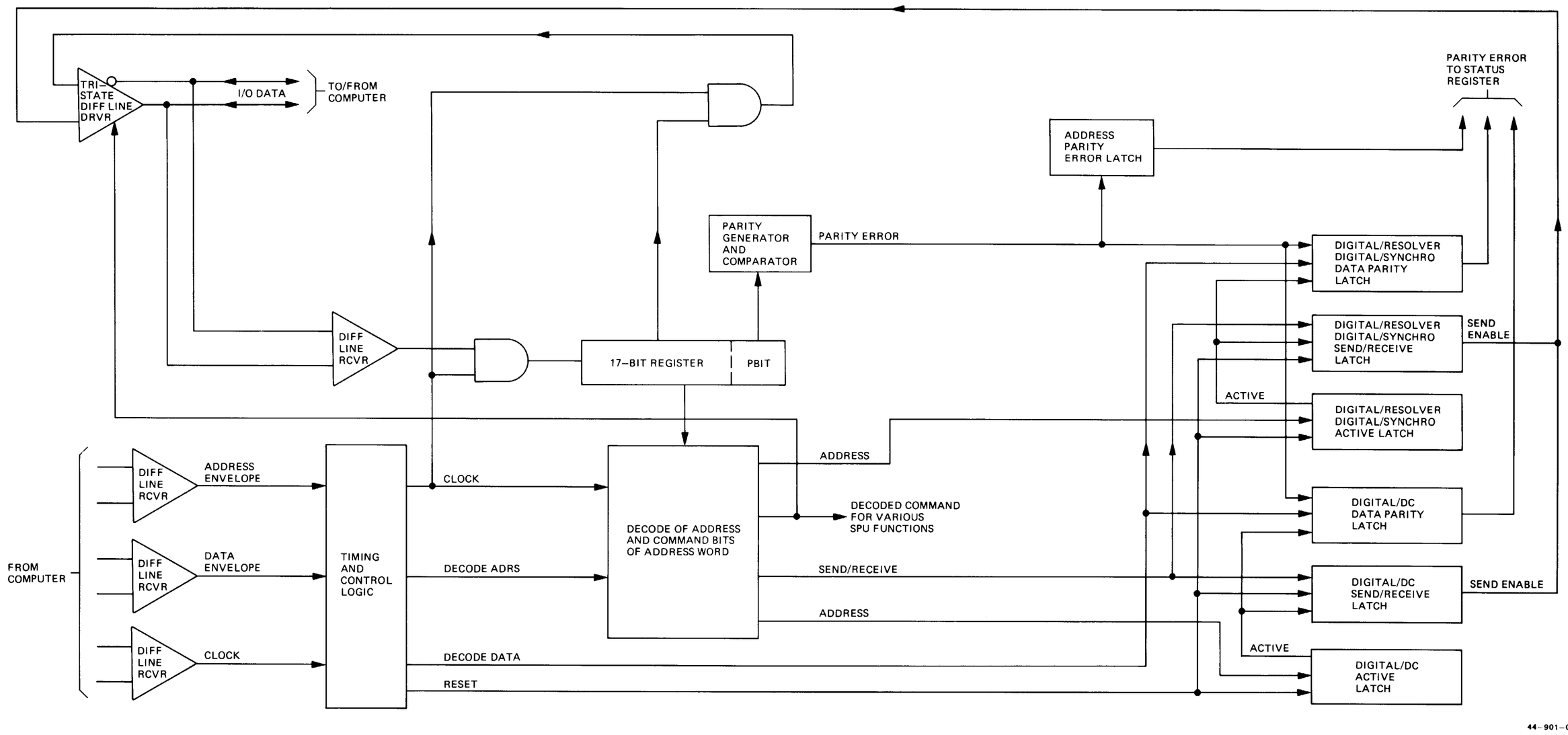
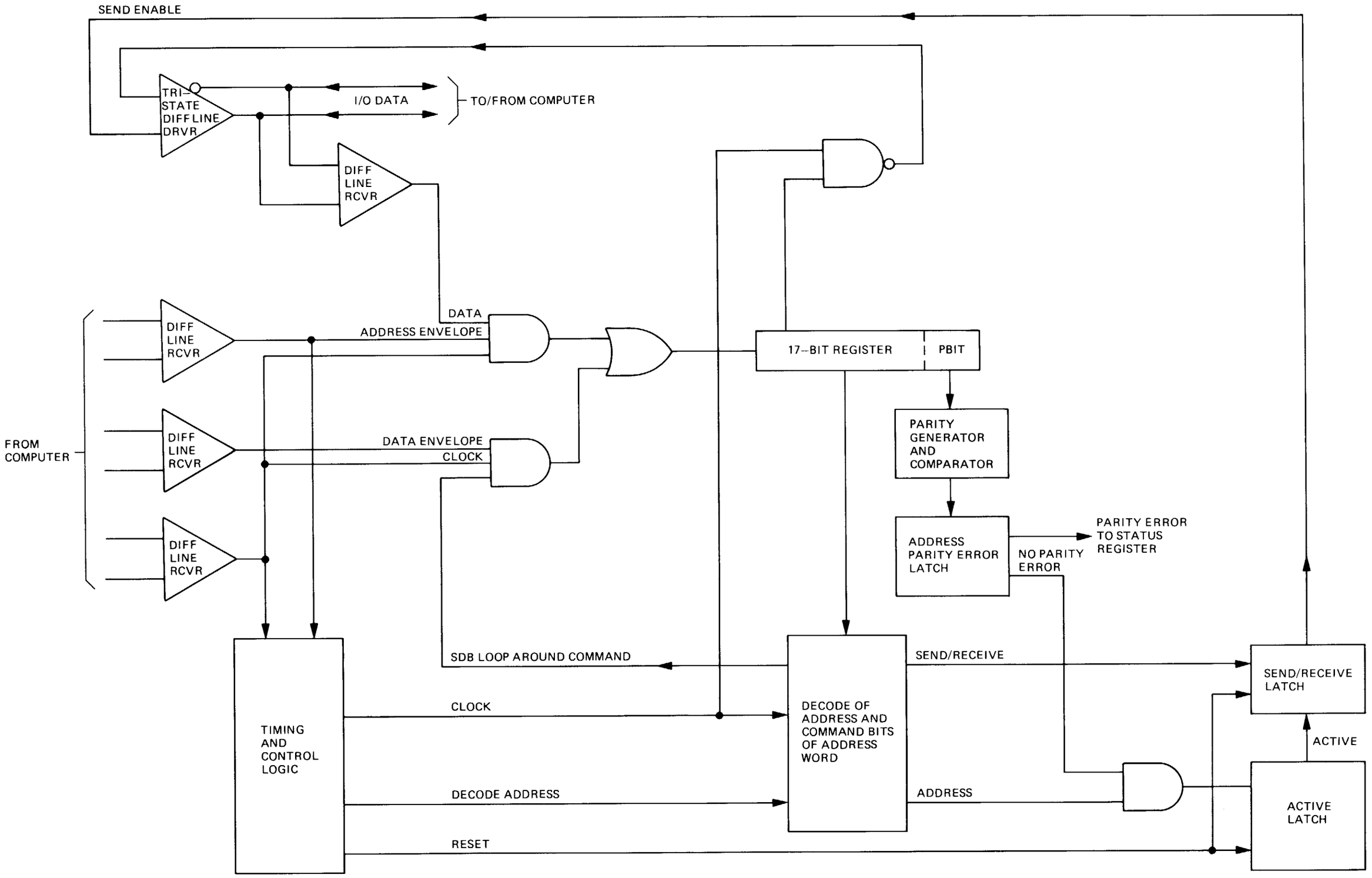
FO-1. PADS Test Set Block Diagram



FO-2. Serial Data Bus Control Logic Functional Block Diagram



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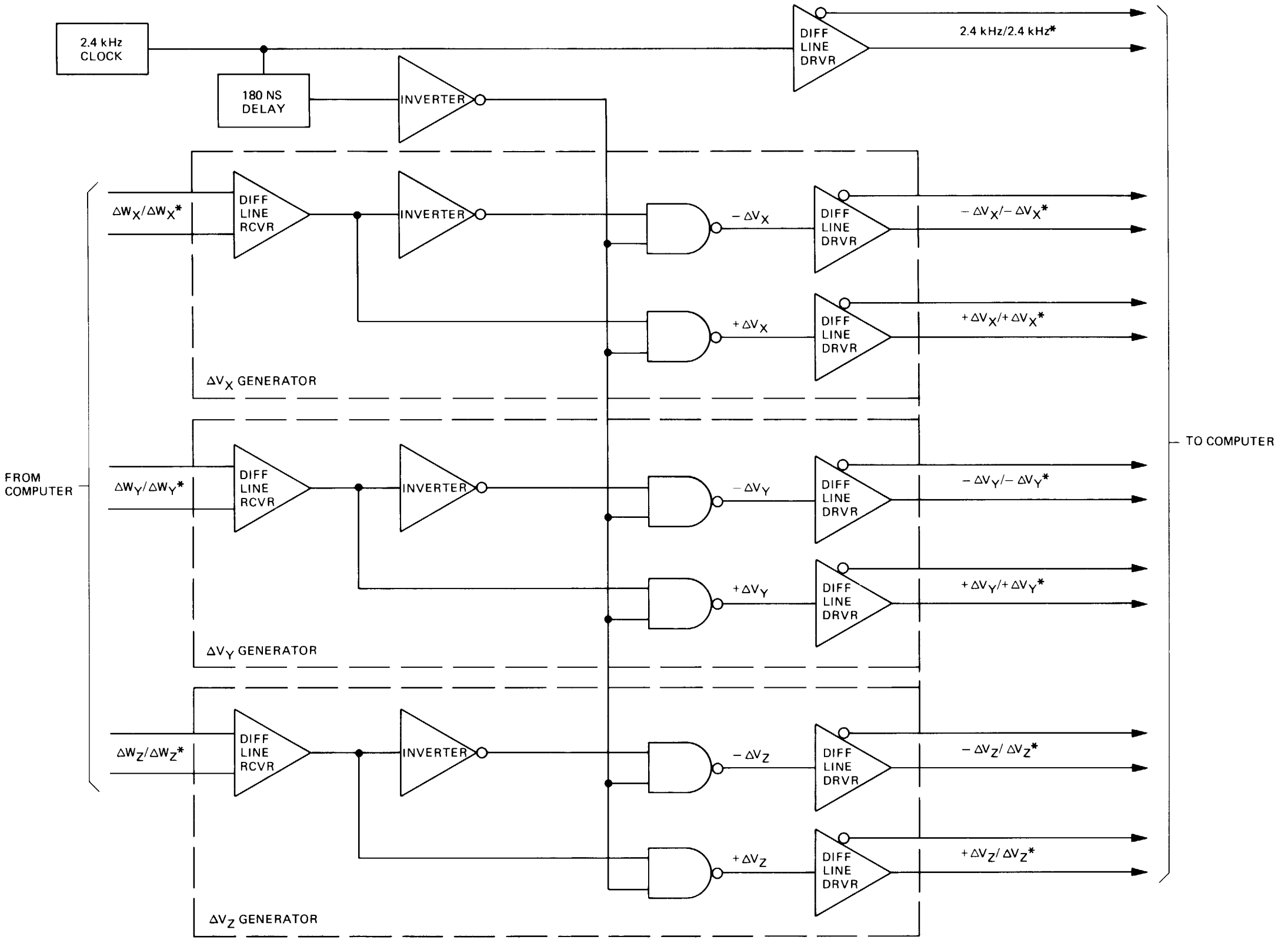
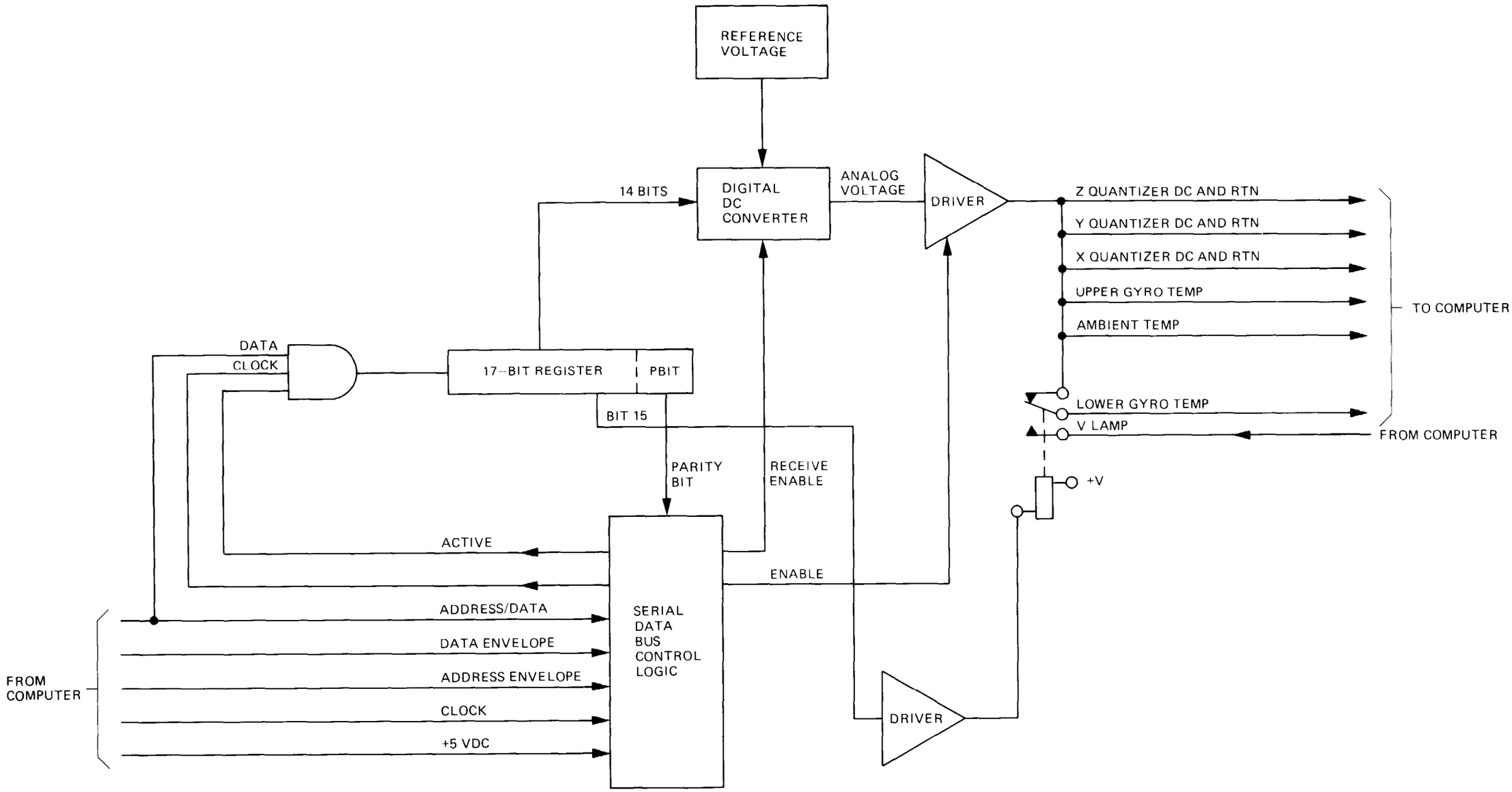
FO-3. Serial Data Bus Loop Closer Functional Block Diagram



44–901–05

FO-4. Δ ω Δ V Loop Closer Functional Block Diagram



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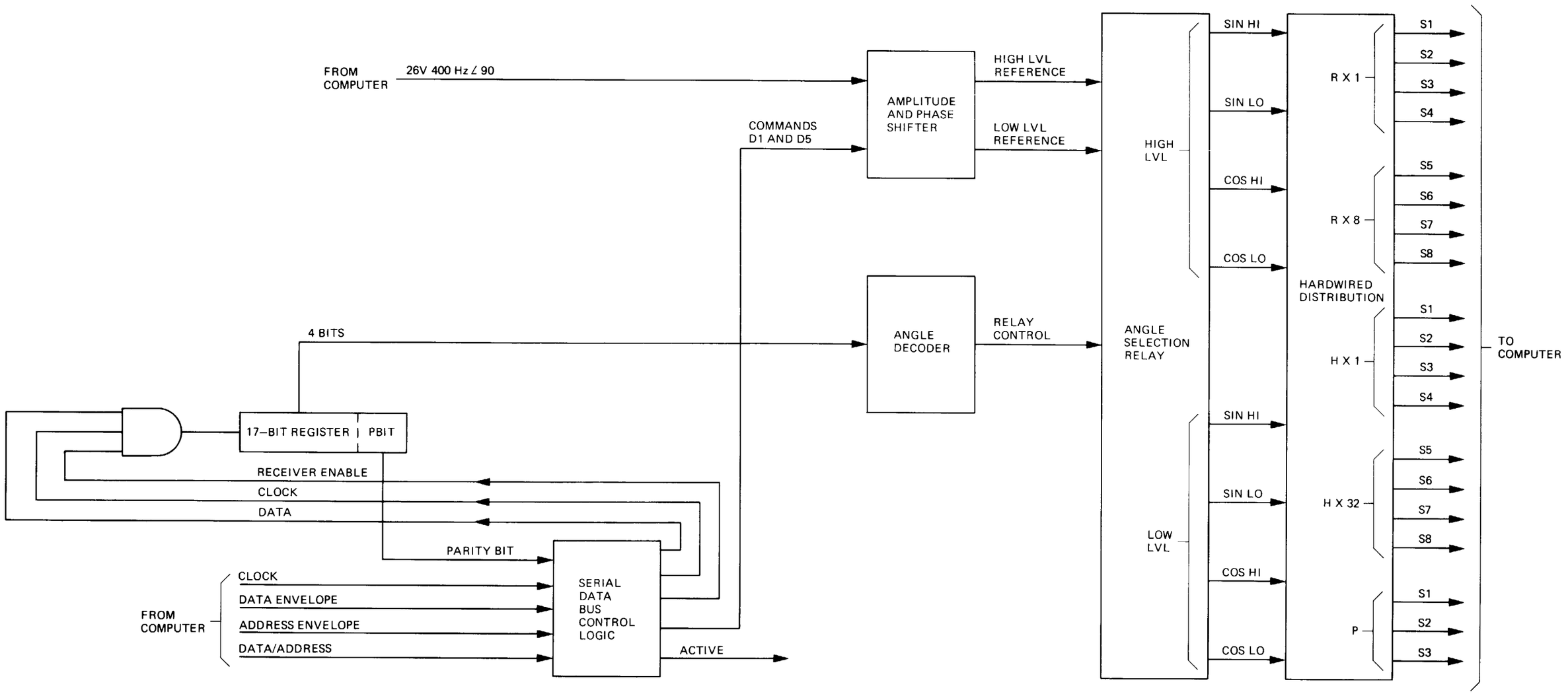
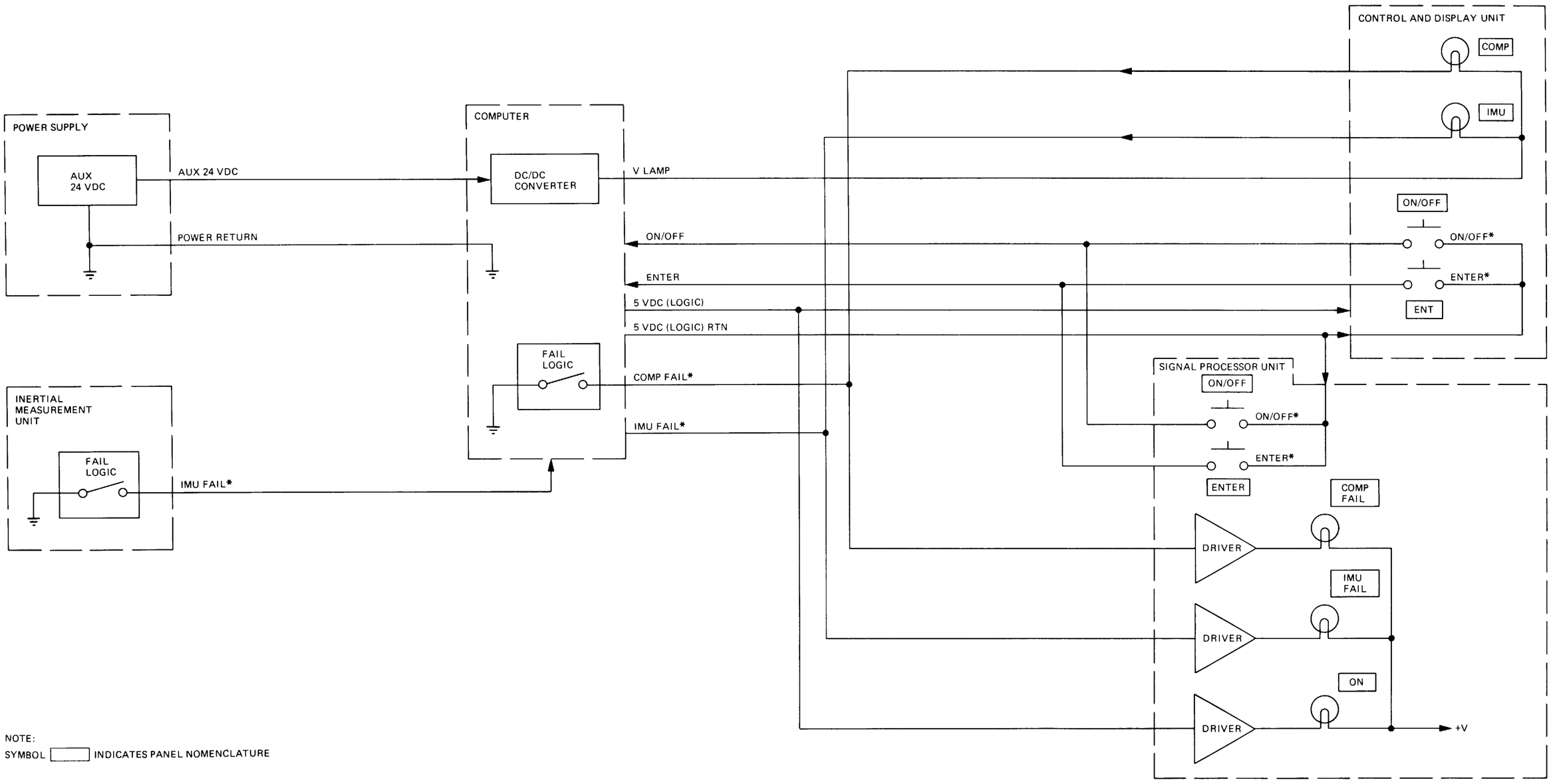
FO-5. Digital/DC Loop Closer Functional Block Diagram



44–901–08A

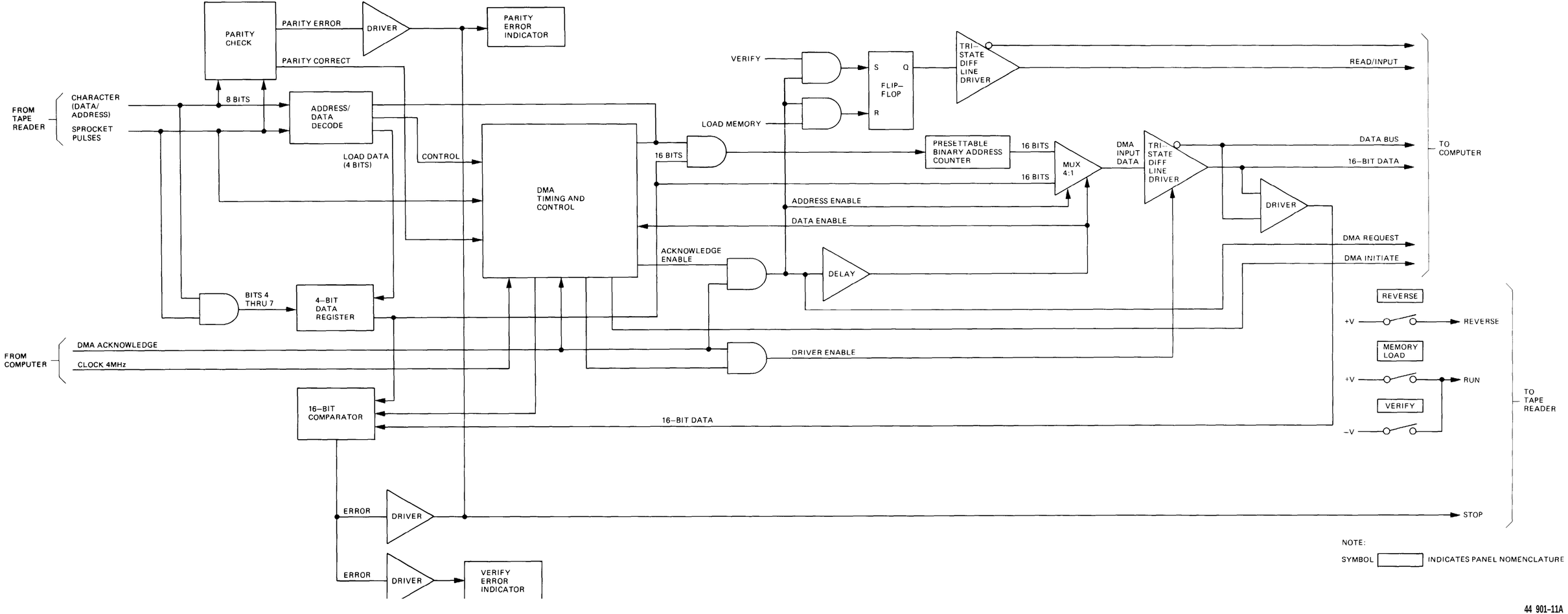
FO-6. Digital/Resolver and Digital/Synchro Loop Closer Functional Block Diagram



NOTE:
SYMBOL [ ] INDICATES PANEL NOMENCLATURE

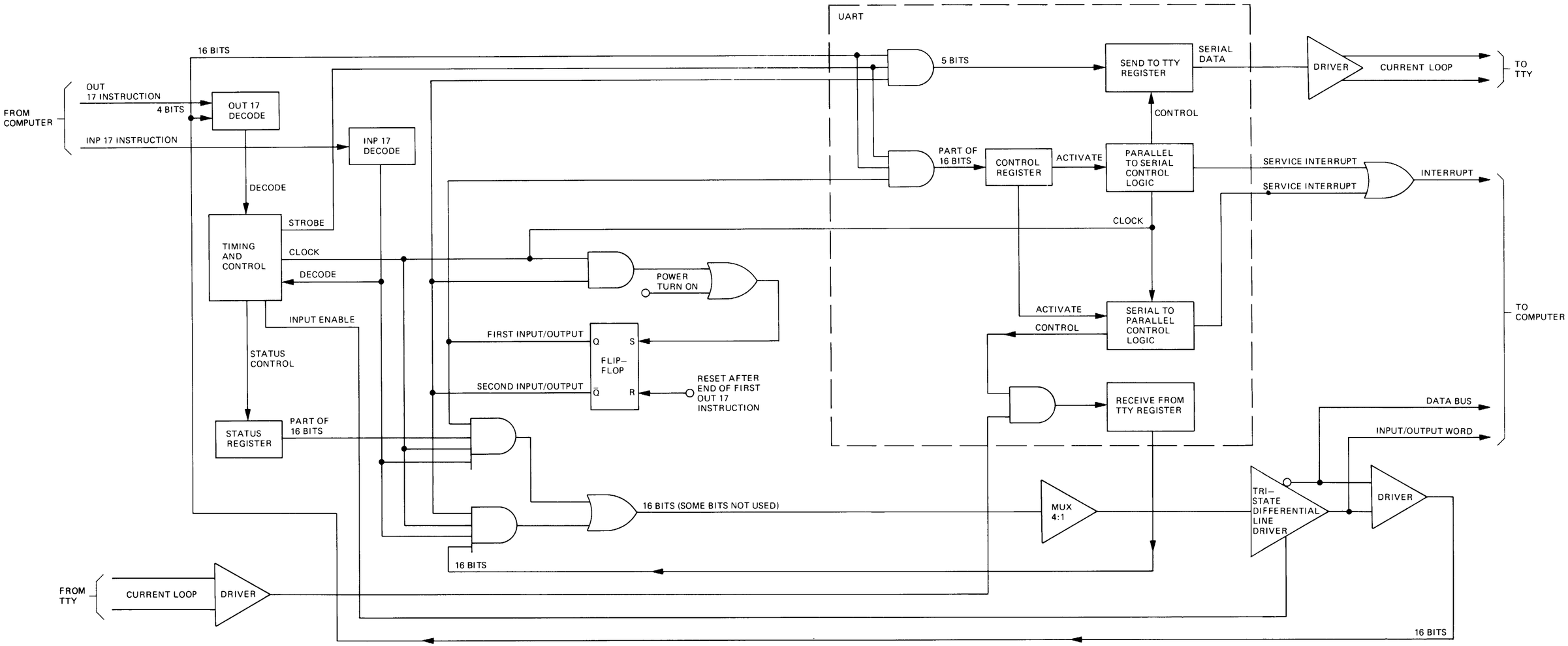
44-901-10

FO-7. Fail Discrete Status and On/Off-Enter Logic Functional Block Diagram



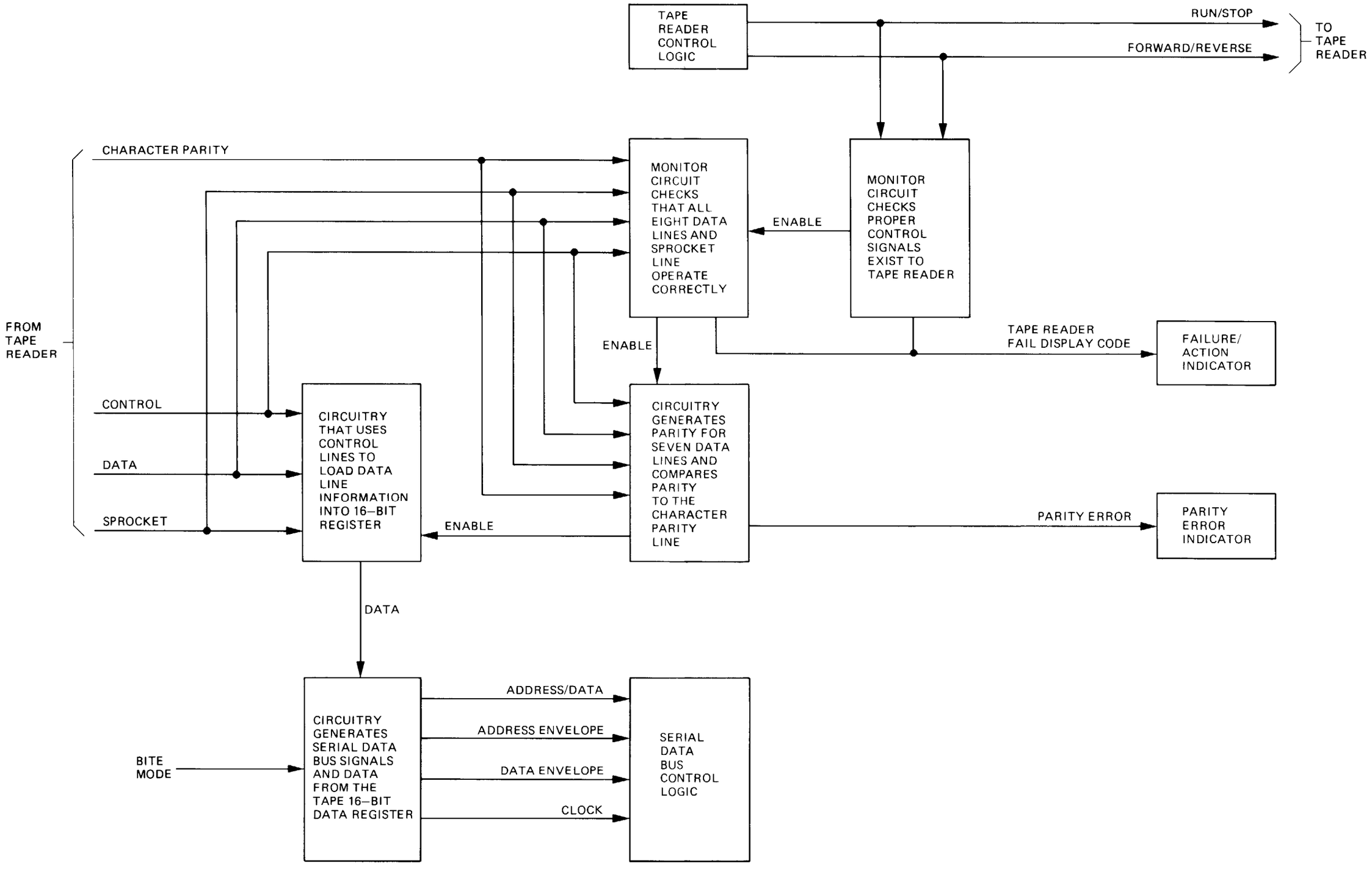
44 901-11A

FO-8. Memory Load and Verify Functional Block Diagram



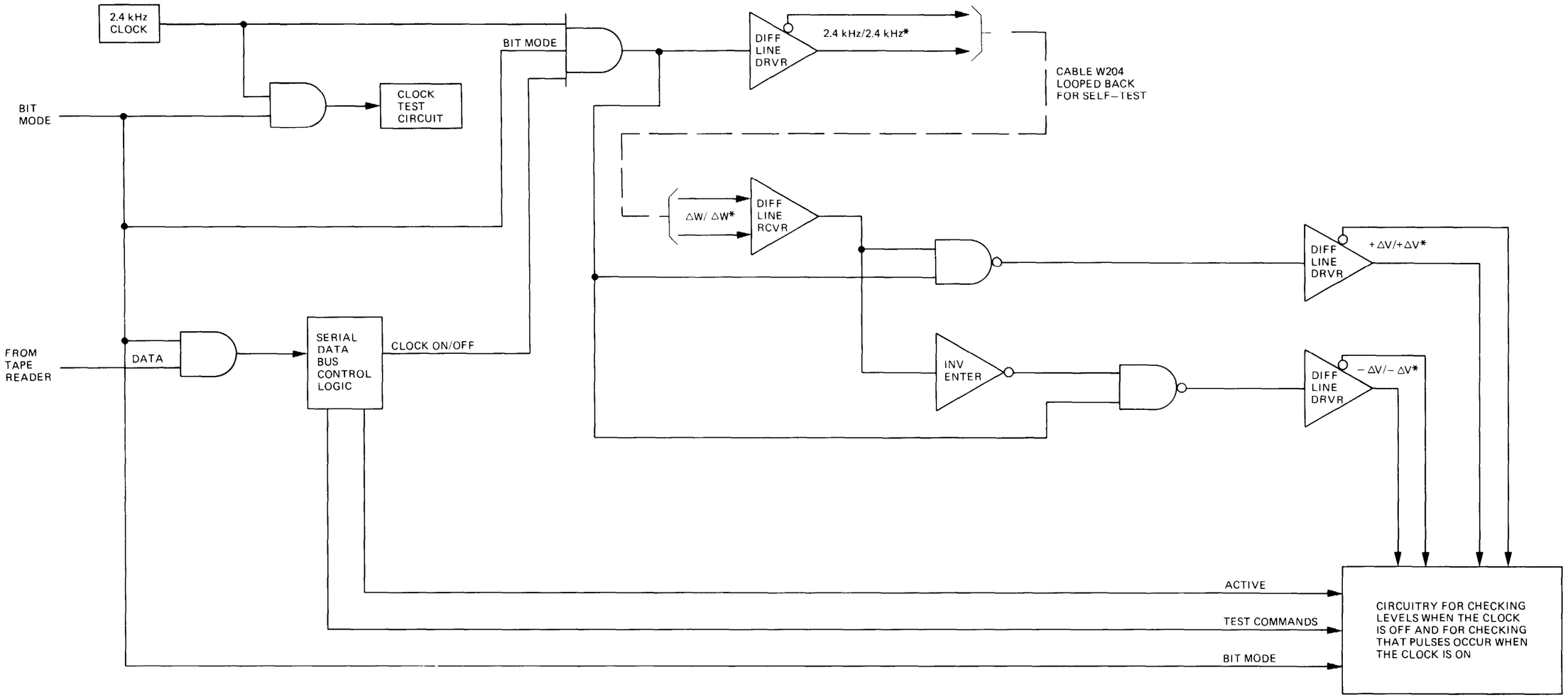
44–901–12

FO-9. Teletypewriter Control Logic Functional Block Diagram



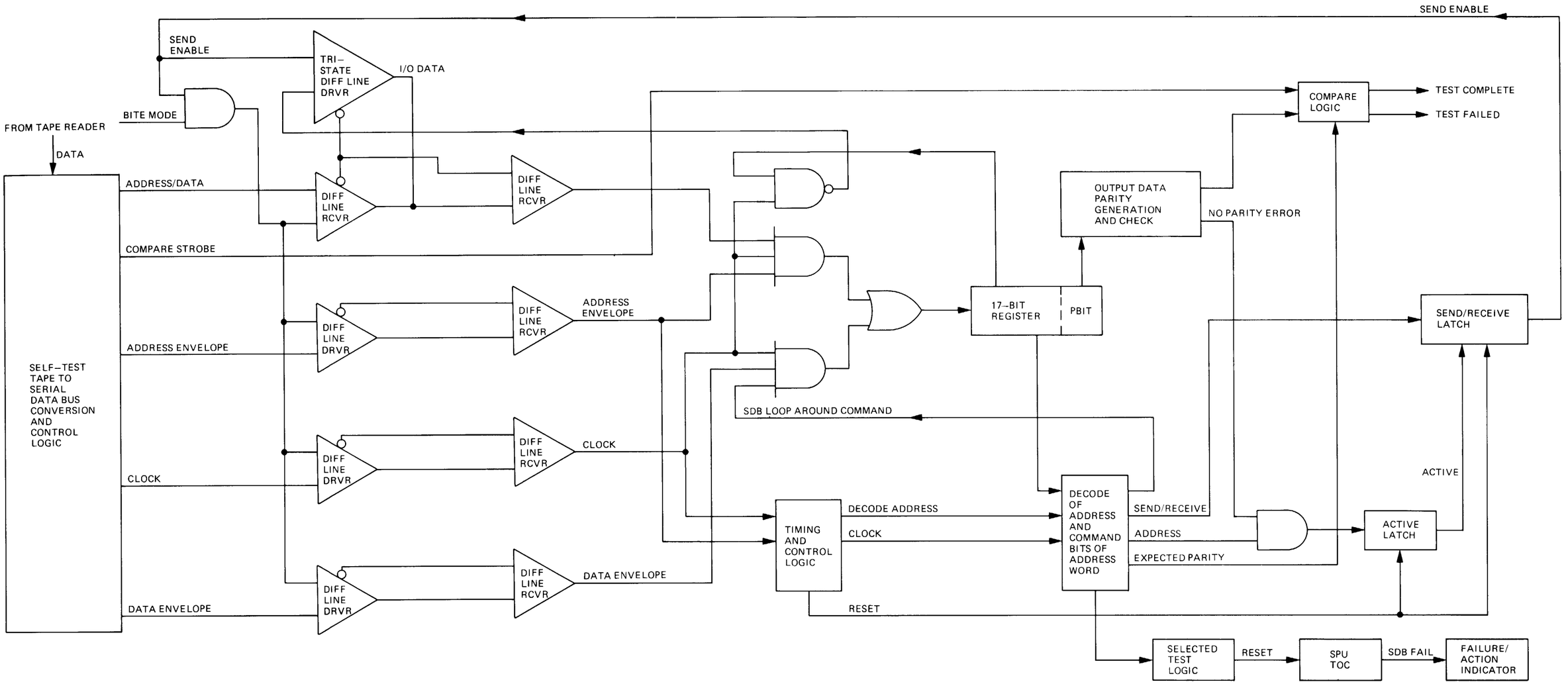
44–901–13A

FO-10. Tape Reader Control Logic Self-Test Functional Block Diagram



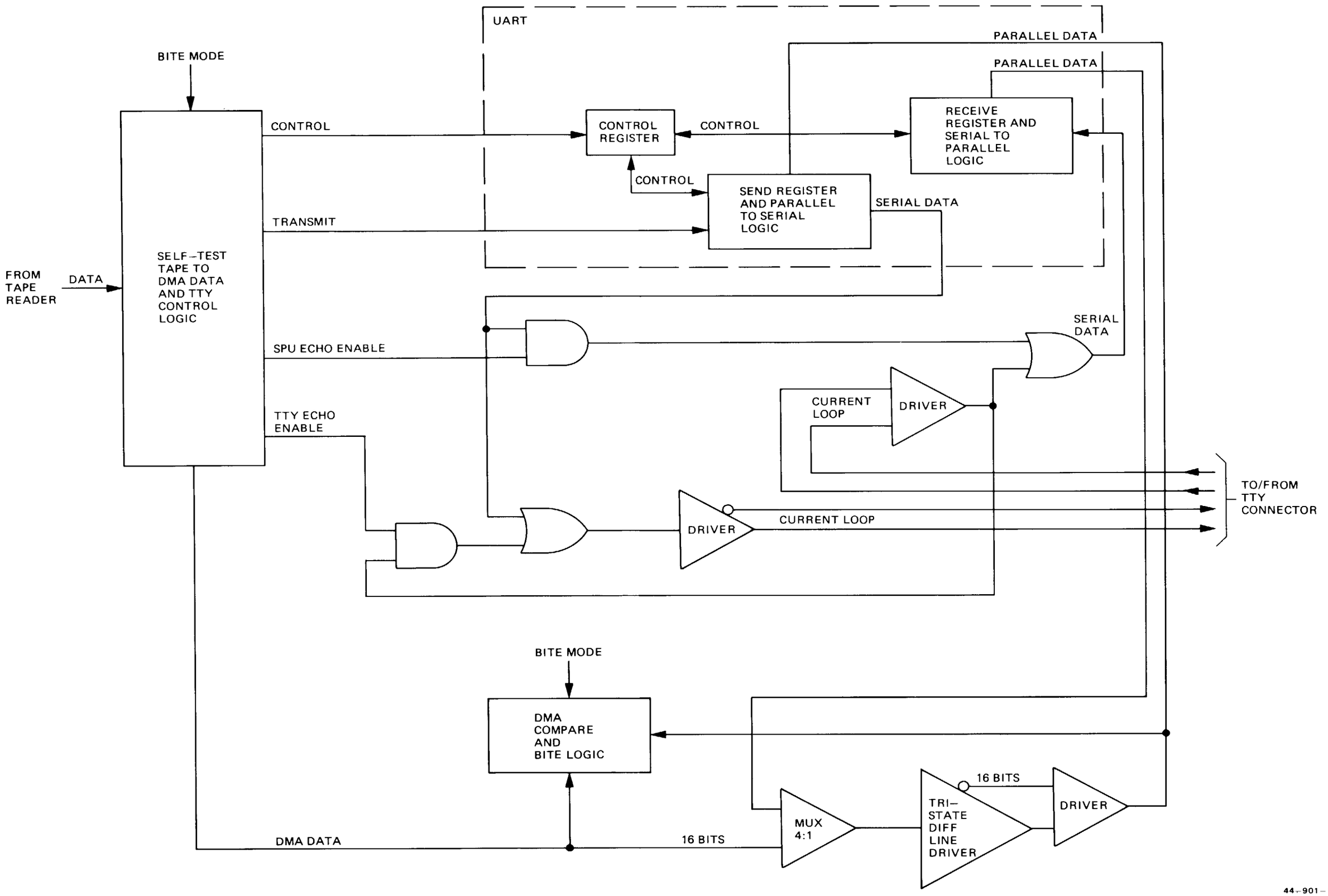
44-901-14

FO-11. $\Delta\omega\Delta V$ Loop Closer Self-Test Functional Block Diagram



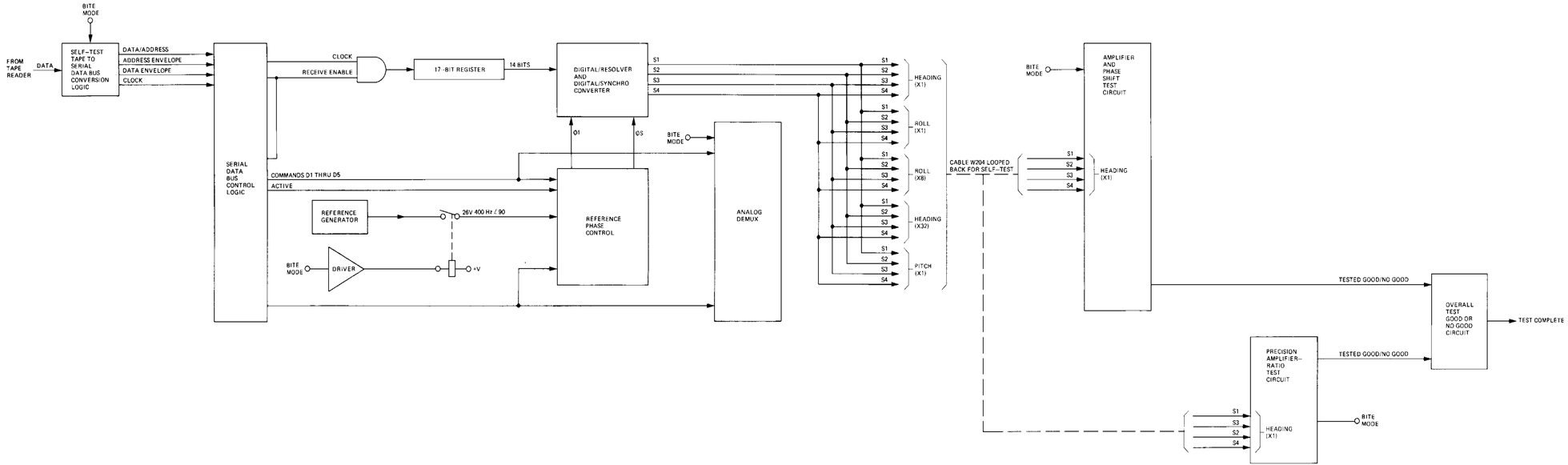
44-901-15

FO-12. Serial Data Bus Loop Closer Self-Test Functional Block Diagram



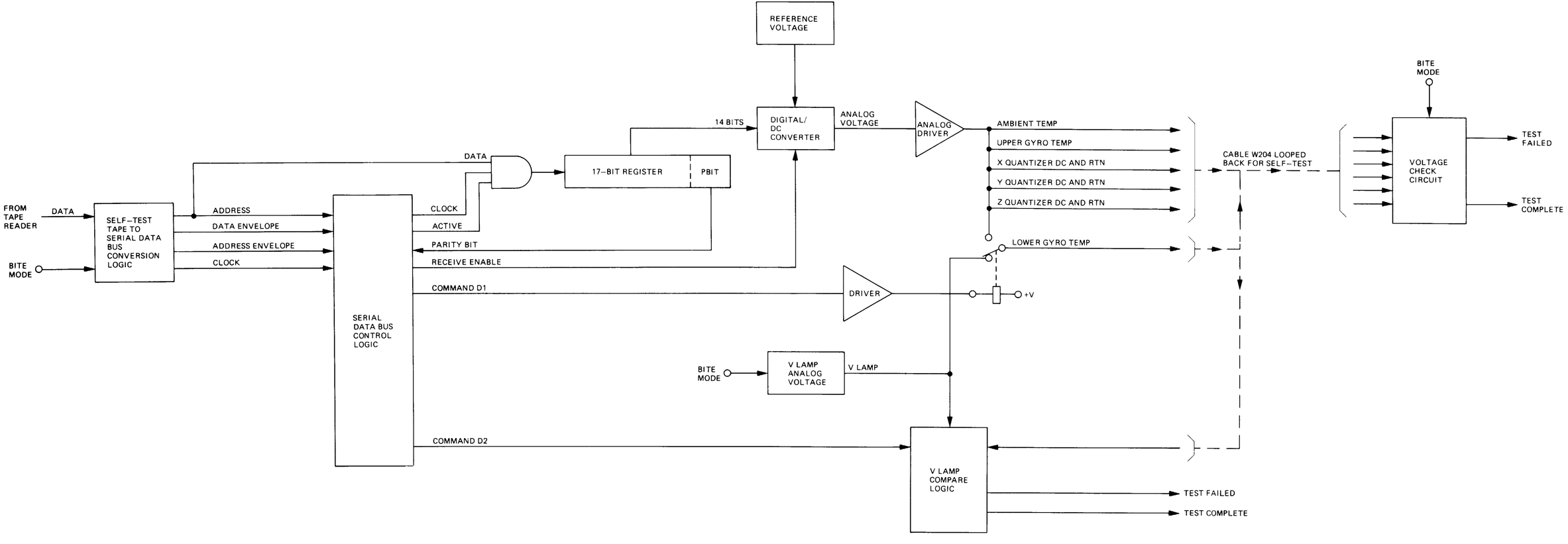
44-901-16

FO-13. Teletypewriter Control Logic Self-Test Functional Block Diagram



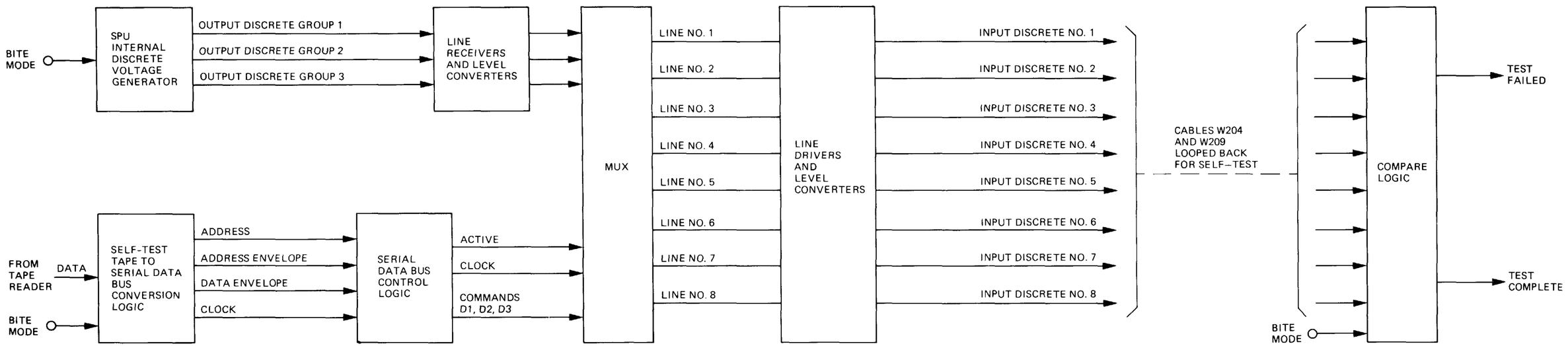
44 901 17

FO-14. Digital/Resolver and Digital/Synchro Loop Closer and Self-Test Functional Block Diagram



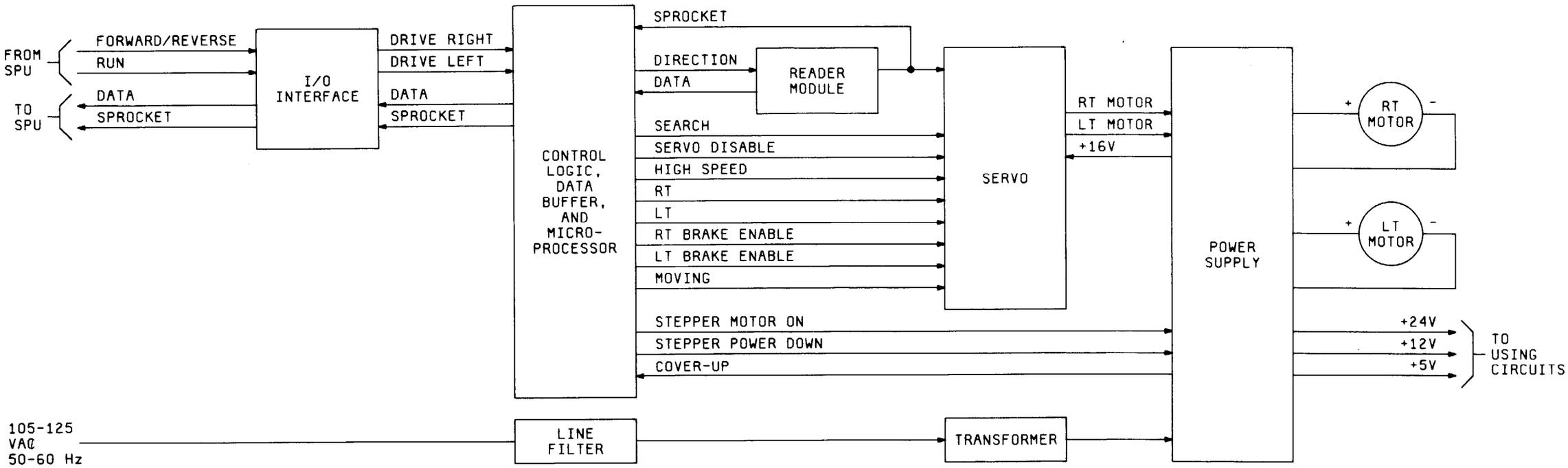
44 901 18A

FO-15. Digital/DC Loop Closer Self-Test Functional Block Diagram



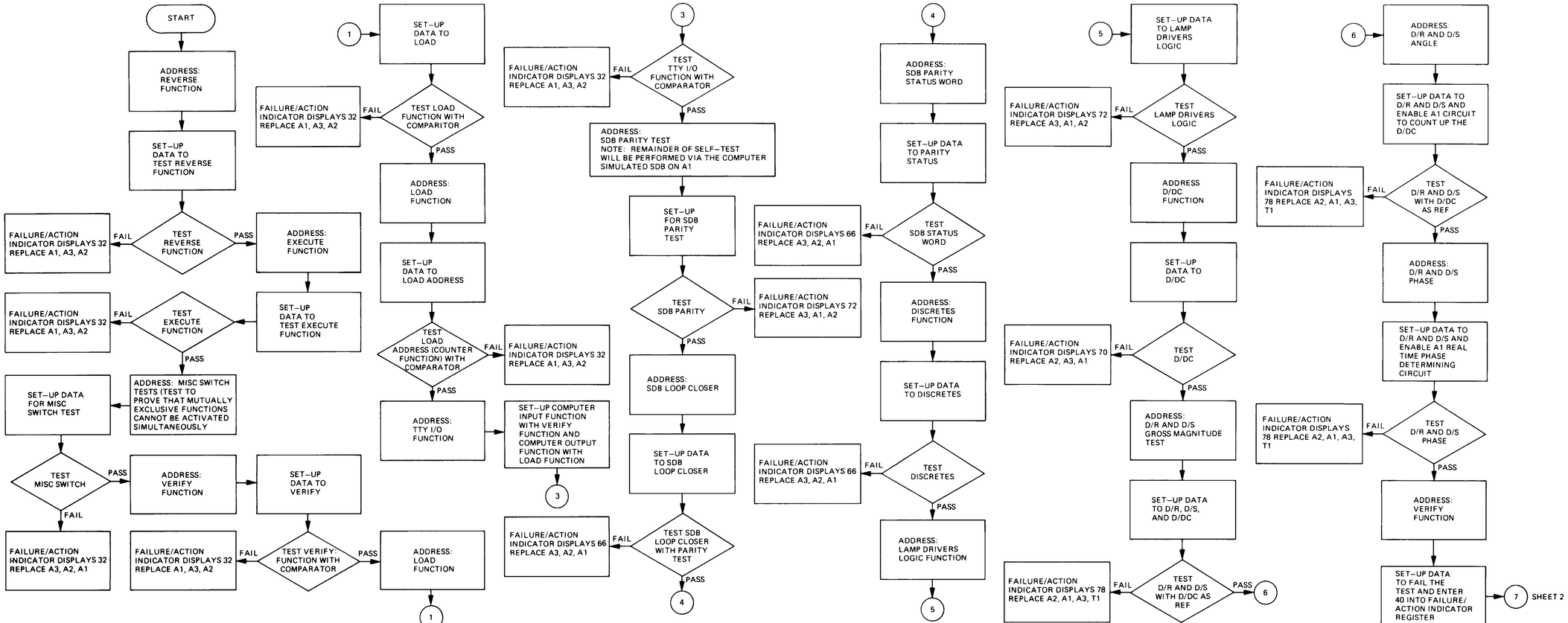
44-901-19

FO-16. Computer Discrete Loop Closer Self-Test Functional Block Diagram



44-901-500A

Figure FO-16.1. Tape Reader, Part No. 877406-2, Functional Block Diagram



NOTE:

1. IF THE TAPE DOES NOT STOP AND FAILURE/ACTION INDICATOR DOES NOT DISPLAY 40, 46, OR 48, REPLACE A3, A1, A2
2. THE FOLLOWING FAILURES ARE HARDWIRED AND MONITORED AT ALL TIMES WITHIN THE SPU:

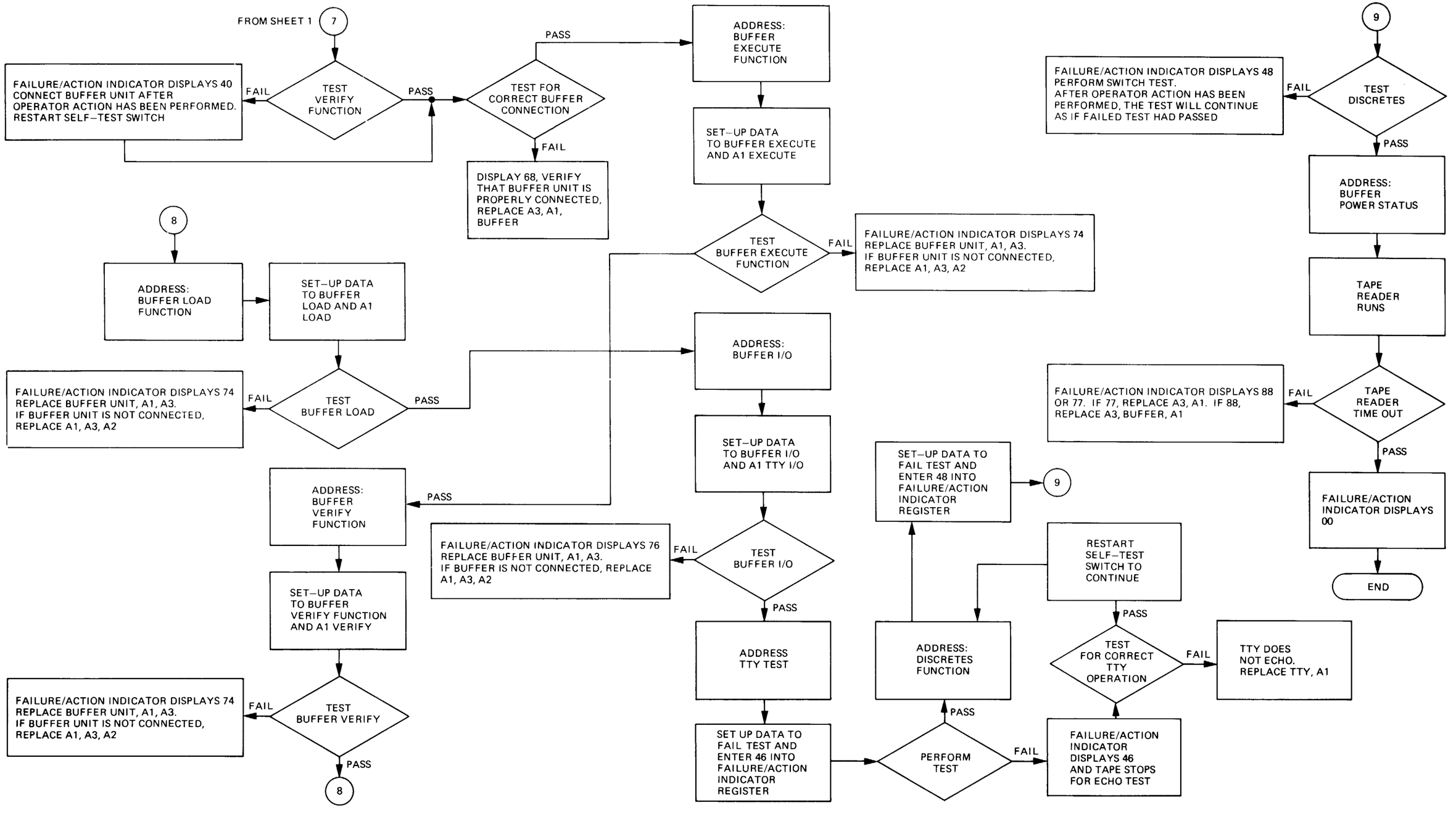
FAILURE/ACTION INDICATOR	FAILURE
20	+15V
28	+15V
21	−15V
29	−15V
77	COMPUTER POWER STATUS

3. THE FOLLOWING FAILURES ARE HARDWIRED AND ARE MONITORED ONLY DURING SELF−TEST:

FAILURE/ACTION INDICATOR	FAILURE
30	A1, A3, A2
38	A3, A1, A2
88	TAPE READER

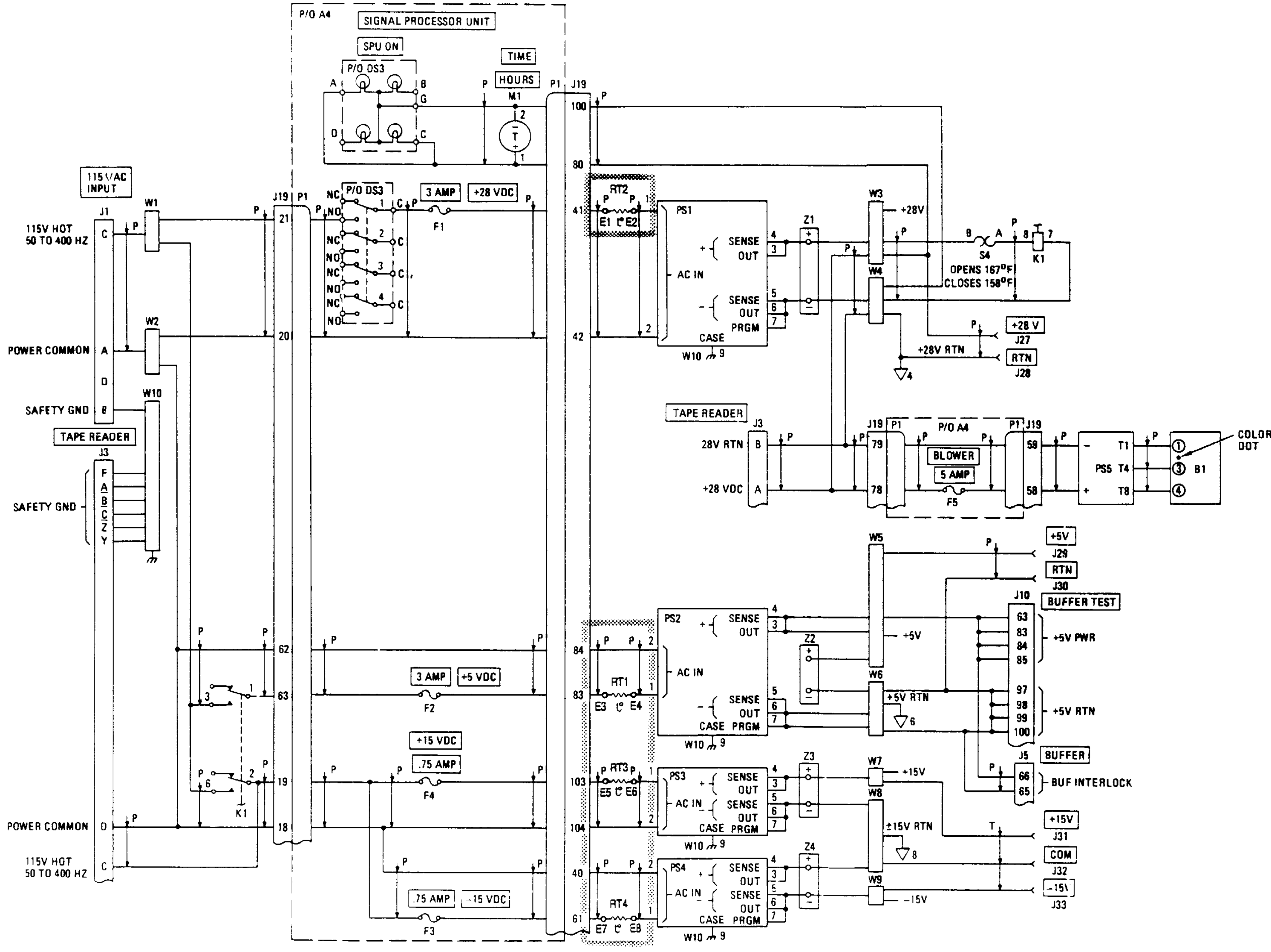
44-901-26-1A

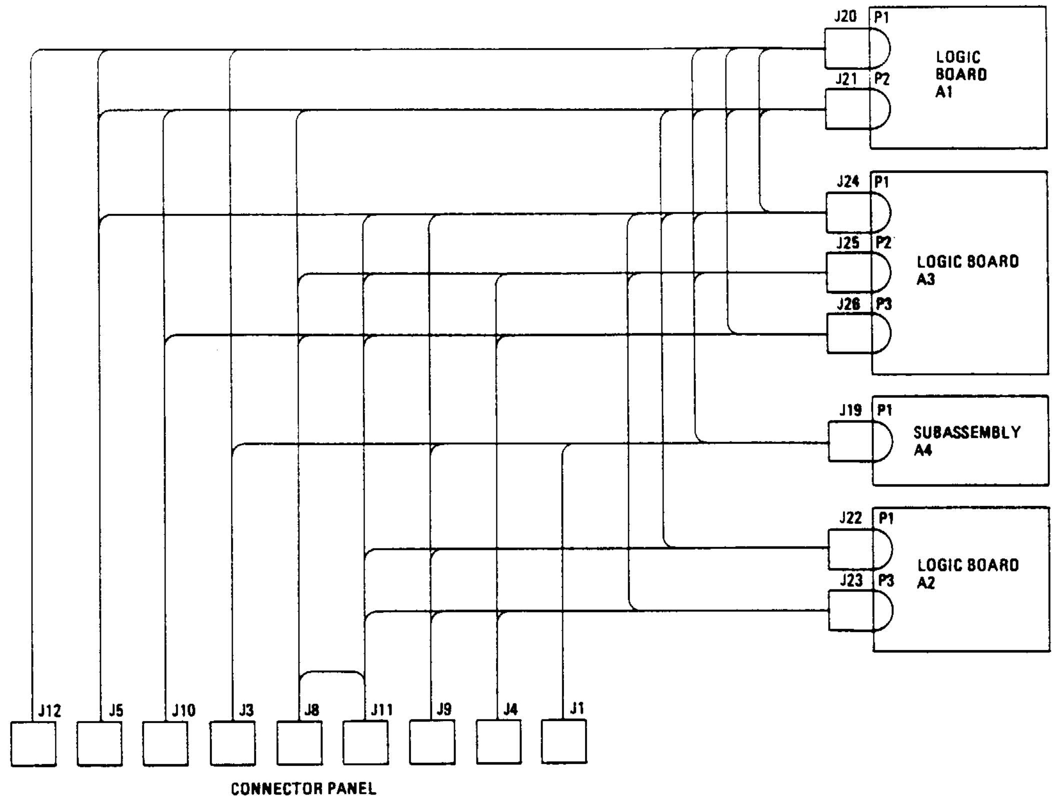
FO-17. PADS Test Set Self-Test Flow Chart (Sheet 1 of 2)



44–901–26–2A

FO-17. PADS Test Set Self- Test Flow Chart (Sheet 2 of 2)





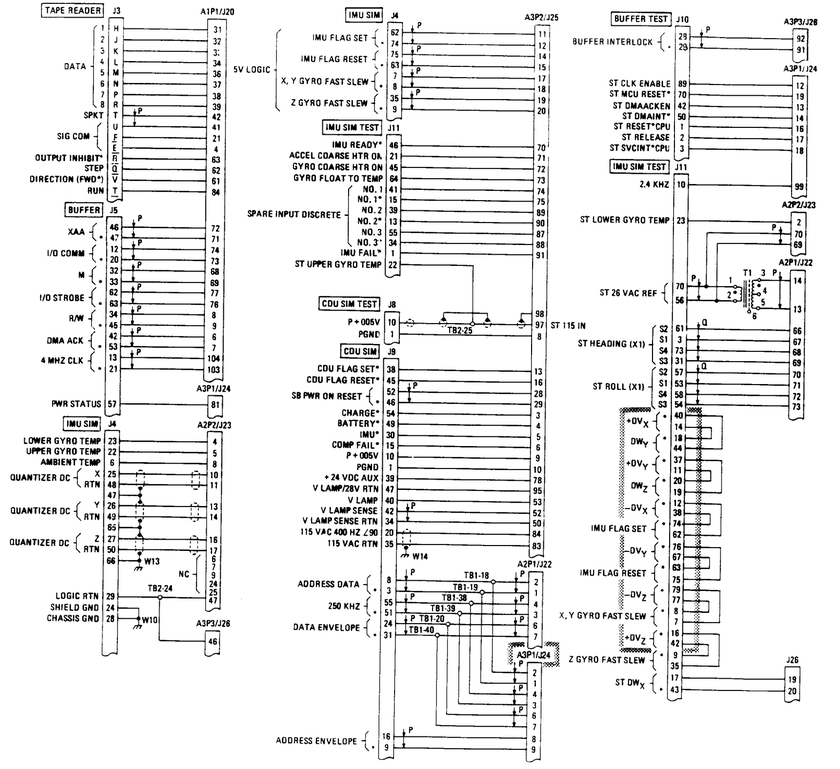
LAST REFERENCE DESIGNATION USED															
A4	B1	A4DS16	A4F5	J33	K1	A4M1	A4P1	PS5	RT4	A4S3	S4	T1	TB2	W14	Z4
REFERENCE DESIGNATIONS NOT USED															
		A4DS1 A4DS4 A4DS6 A4DS7 A4DS8 A4DS11		J2 J6 J7 J13 J14 J15 J16 J17 J18						A4S2	S1 S2 S3			W12	

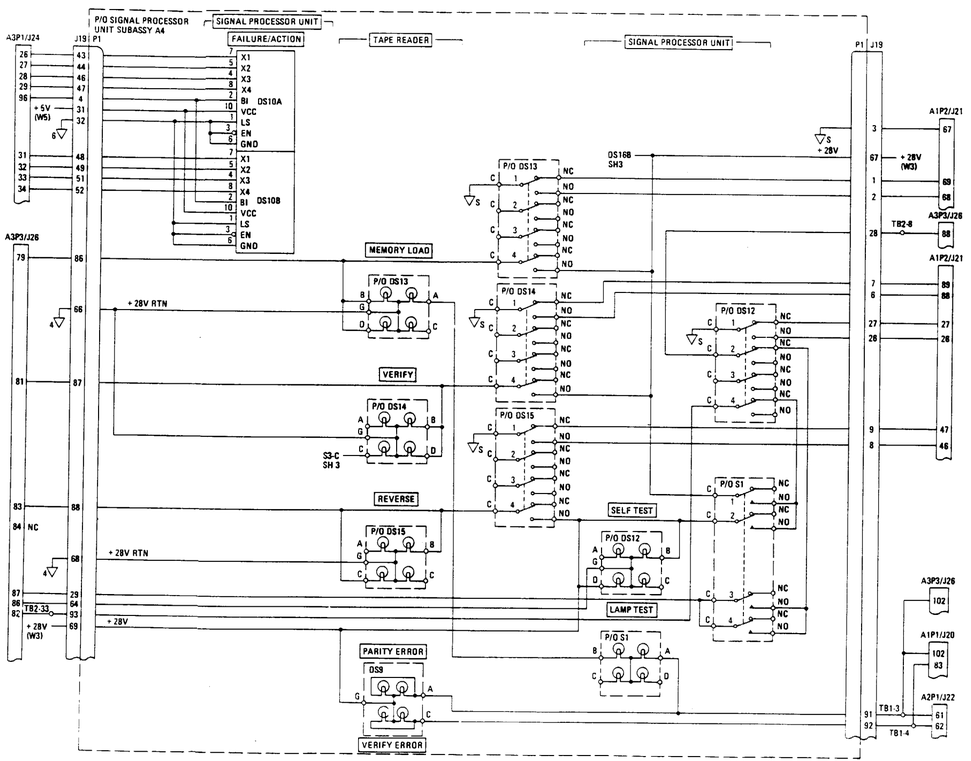
SPARE PINS																					
J1	J3	J4	J5	J8	J9	J10		J11	J12	J19	J20	J21	J22		J23		J24	J25		J26	
D	E G S W X Q H I J K M N P S	51 69 71 78	1 3 5 10 11 18 19 28 29 30 31 41 44 48 52 55 56 58 67 68 69 74 80 81 92 93 94 104 105 114 115 121	4 6 7 11 12 13 17 18 19 20 21 22 25 26 27 28 29 32 33 34 36 37 40 41 42 43 44 48 50 53 47	4 6 7 11 12 13 17 18 19 21 22 25 26 27 28 29 32 33 36 37 41 43 44 48 50 53	8 9 17 18 25 26 27 30 31 32 33 34 35 36 37 38 39 40 43 44 46 47 48 49 51 52 53 54 61 62 66 71 72 73 76 78 79 80	81 82 86 87 88 91 92 93 94 95 96	2 4 5 6 24 25 26 27 28 28 29 30 32 33 36 47 48 49 50 51 52 59 60 65 66 68 69 71 72 78	5 6	5 10 11 12 17 24 25 30 33 39 45 50 53 54 55 56 57 60 65 70 71 72 73 74 75 76 77 82 85 90 94 95 96 99 101 102	5 10 15 20 25 30 35 40 45 50 55 60 66 70 75 90 95	10 15 20 25 30 35 37 38 39 40 43 45 50 55 60 63 66 70 75 80 87 90 95 100	5 9 10 12 15 16 17 18 19 25 29 30 35 36 37 38 39 40 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 63 64 65 74	75 76 78 79 85 90 95 96 97 98 77	1 12 15 18 19 22 23 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 45 46 48 49 50 51 52 53 54 55 56	57 58 59 60 61 62 63 68 72 73 74 75 76 77 78 80 82 89 90 91 93 95 96 97 99 101 102	5 10 15 25 30 35 40 45 50 55 60 62 65 70 73 75 78 79 80 85 90 95 100	7 21 24 25 26 27 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 54 60 61 62 63 66 67 68 69 76 77 82	92 96 102 103 104	21 34 35 36 37 41 43 44 45 50 51 56 57 58 59 60 61 62 63 64 65 68 69 70 71 72 73 74 75 76 77 78 80 84 85 89 90 95	97 98 99 100 101 103

6. SYMBOL ▭ INDICATES PANEL NOMENCLATURE
5. SYMBOL * INDICATES SIGNAL IS IN ITS TRUE STATE WHEN IT IS LOW.
4. INDIVIDUALLY UNDERLINED LETTERS TO BE CONSTRUED AS LOWER CASE.
3. RESISTANCE VALUES ARE IN OHMS.
2. PARENTHETICAL NOTES AT END OF INTERRUPTED LINES DENOTE LOCATION OF CONNECTION POINT. FIRST LETTER INDICATES THE GENERAL AREA. NUMBER AND SECOND LETTER INDICATE THE GRID LOCATION WITHIN THAT AREA.
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATIONS, PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION(S).

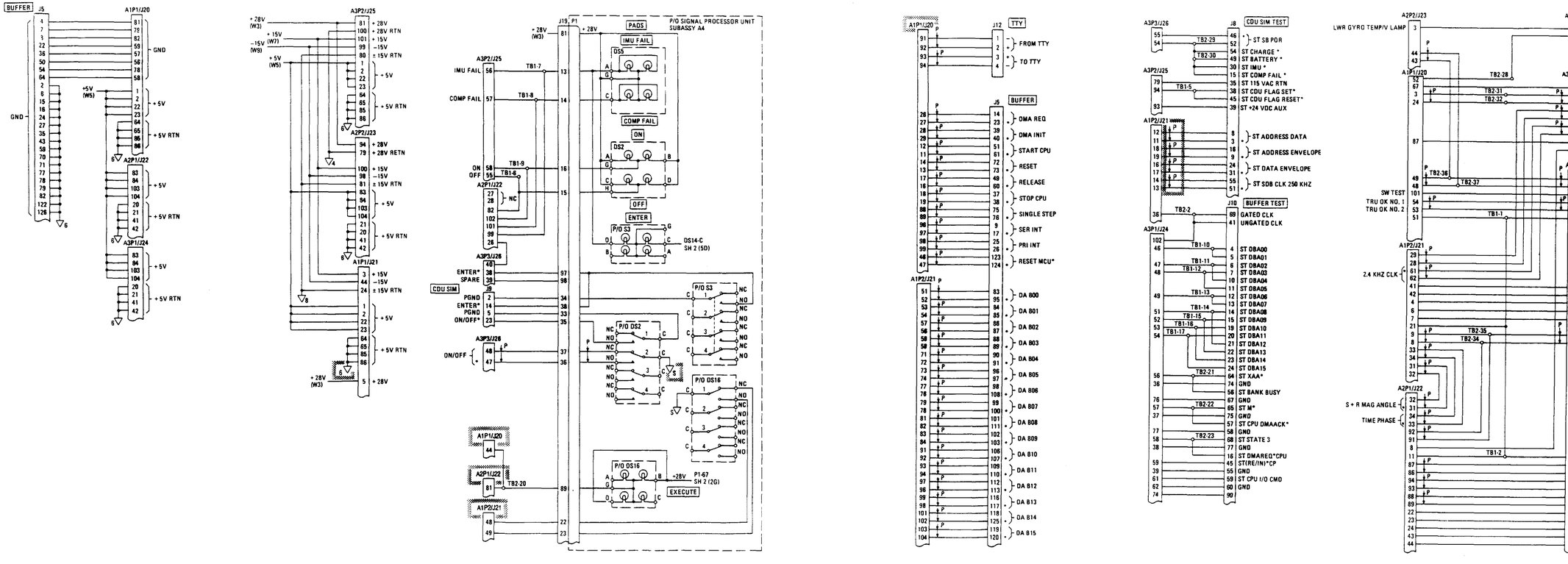
NOTES: UNLESS OTHERWISE SPECIFIED

FO-18. Signal Processor Unit Schematic Diagram (Sheet 1 of 3)



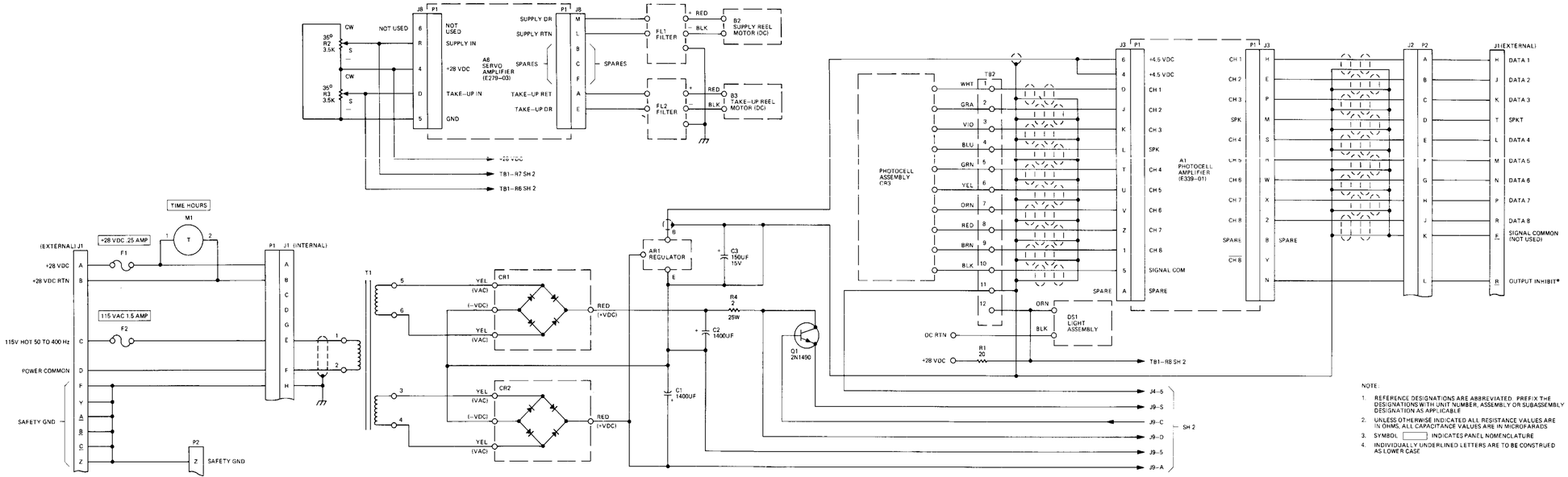


FO-18. Signal Processor Unit Schematic Diagram (Sheet 2 of 3)



44-001-HO-38

FO-18. Signal Processor Unit Schematic Diagram (Sheet 3 of 3)

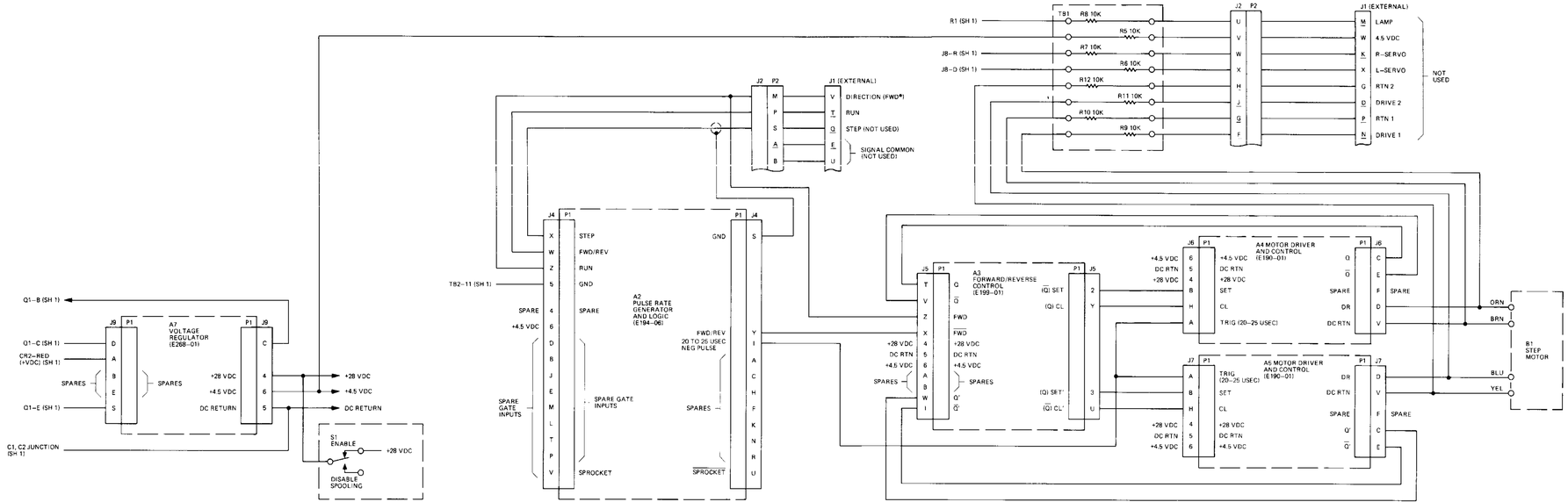


NOTE:

1. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATIONS WITH UNIT NUMBER, ASSEMBLY OR SUBASSEMBLY DESIGNATION AS APPLICABLE
2. UNLESS OTHERWISE INDICATED ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN MICROFARADS
3. SYMBOL [ ] INDICATES PANEL NOMENCLATURE
4. INDIVIDUALLY UNDERLINED LETTERS ARE TO BE CONSTRUED AS LOWER CASE

44-901-30-1A

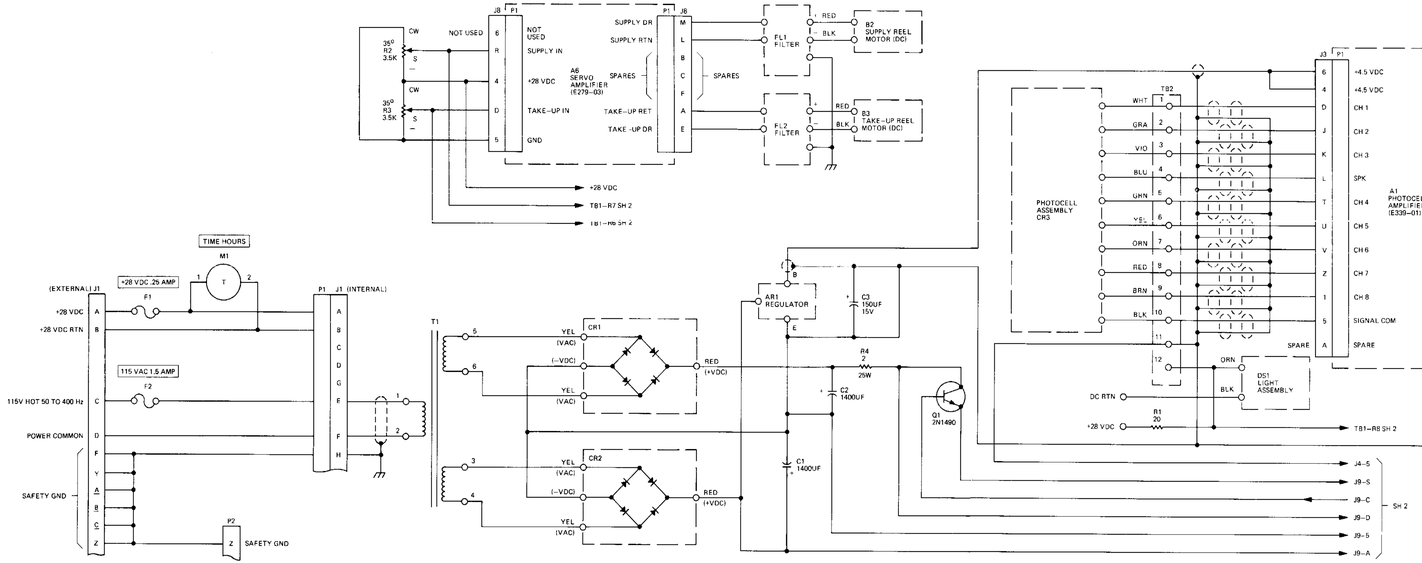
FO-19. Tape Reader Schematic Diagram (Sheet 1 of 2)



* U.S. GOVERNMENT PRINTING OFFICE: 1985-564-030/20103

44-901-35-2

FO-19. Tape Reader Schematic Diagram (Sheet 2 of 2)



NOTE:

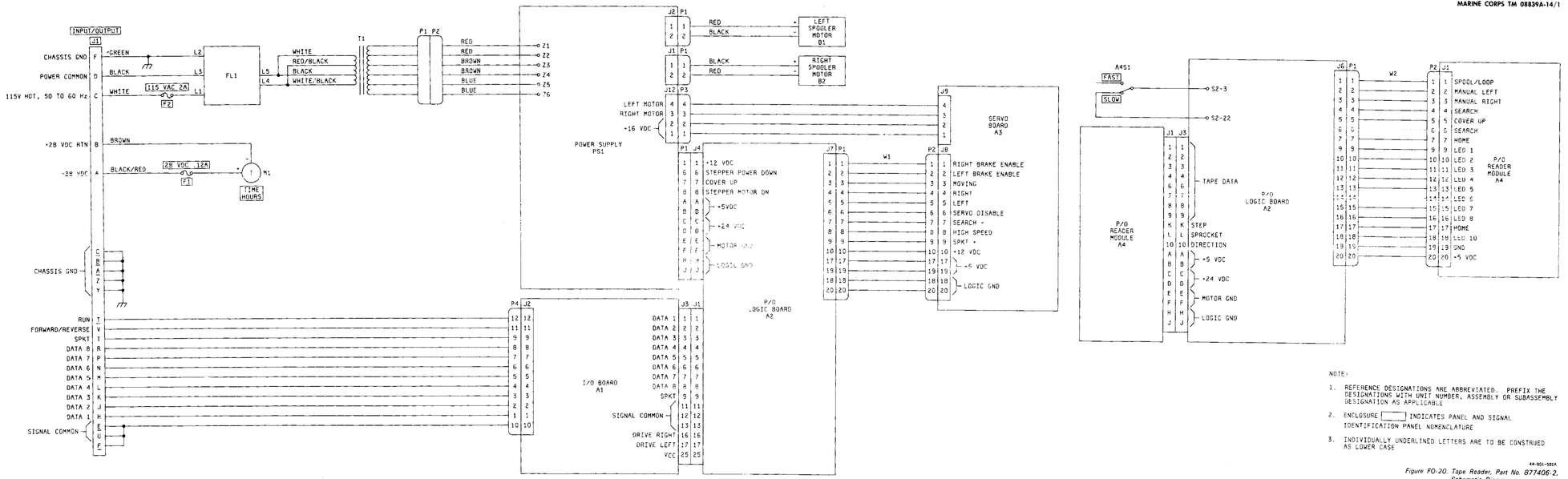
1. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATIONS WITH UNIT NUMBER, ASSEMBLY OR SUBASSEMBLY DESIGNATION AS APPLICABLE.
2. UNLESS OTHERWISE INDICATED ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN MICROFARADS.
3. SYMBOL [ ] INDICATES PANEL NOMENCLATURE.
4. INDIVIDUALLY UNDERLINED LETTERS ARE TO BE CONSTRUED AS LOWER CASE.

44-901-33-1A

Figure FO-19-1. Tape Reader, Part No. 877406-1, Schematic Diagram (Sheet 1 of 2)

FP-47/FP-48

Figure FO-19-2. Tape Reader, Part No. 877406-1, Schematic Diagram (Sheet 2 of 2)



NOTE:

1. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATIONS WITH UNIT NUMBER, ASSEMBLY OR SUBASSEMBLY DESIGNATION AS APPLICABLE.
2. ENCLOSURE [ ] INDICATES PANEL AND SIGNAL IDENTIFICATION PANEL NOMENCLATURE
3. INDIVIDUALLY UNDERLINED LETTERS ARE TO BE CONSTRUED AS LOWER CASE

44-501-501A

Figure FO-20. Tape Reader, Part No. 877406-2, Schematic Diagram

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = .00 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C