

TECHNICAL MANUAL

**OPERATOR, ORGANIZATIONAL,
DIRECT SUPPORT, AND GENERAL SUPPORT
[INTERMEDIATE SUPPORT] MAINTENANCE MANUAL
AND REPAIR PARTS AND SPECIAL TOOLS LIST
[INCLUDING DEPOT MAINTENANCE REPAIR
PARTS AND SPECIAL TOOLS]**

**RF PROCESSOR TEST SET
AN/USM-434**

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HEADQUARTERS, DEPARTMENT OF THE ARMY

NOVEMBER 1981

WARNING

High voltage is used in the operation of this equipment. Avoid contacting high-voltage connections when installing or operating this equipment. Injury or death may result if personnel fail to observe safety precautions.

Adequate ventilation should be provided while using trichlorotrifluoroethane. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since trichlorotrifluoroethane dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use heavy duty rubber gloves that the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

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Washington, DC, 31 January 1985

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FOR

**RF PROCESSOR TEST SET
AN/USM434**

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REPORTING OF ERRORS

You can improve this manual by recommending improvements using DA Form 2028 (Recommended Changes to Publications and Blank Forms) or 2028-2 located in the back of the manual. Mail your form direct to Commander, US Army Electronics Materiel Readiness Activity, Vint Hill Farms Station, Warrenton, Virginia, 22186, ATTN: SELEM-ME-E.

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope.

This manual provides organizational and intermediate support maintenance information for RF Processor Test Set AN/USM-434, here-in after referred to as the RF processor test set (see figure 1-1). In addition, the manual contains general descriptions and data, operating instructions, and theory of operation.

1-2. Maintenance Forms and Records.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (TAMMS).

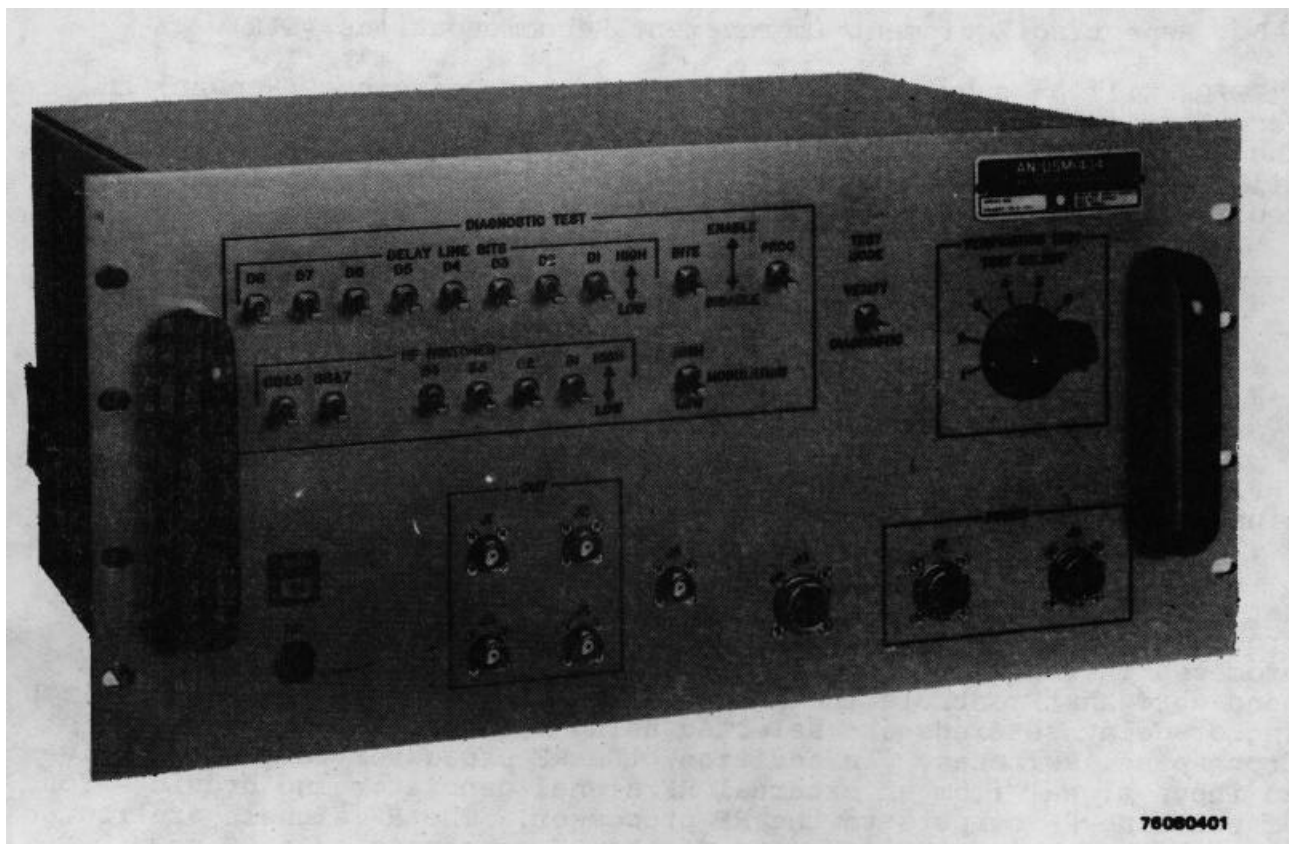


Figure 1-1. RF Processor Test Set AN/USM-434

1-3. Destruction of Army Materiel To Prevent Enemy Use.

Procedures for the destruction of Army materiel are contained in TM 750-244-2, Procedures for Destruction of Electronics Materiel To Prevent Enemy Use (Electronics Command).

1-4. Administrative Storage.

Refer to TM 740-90-1, Administrative Storage of Equipment, for test: procedures, forms and records, and inspections required during administrative storage of this equipment.

1-5. Reporting of Errors.

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded directly to the Commander, U.S. Army Electronic Materiel Readiness Activity, Vint Hill Farms Station, Warrenton, Virginia 22186, Attn: SELEM-ME-E.

1-6. Reporting Equipment Improvement Recommendations (EIR).

EIRs will be submitted on SF 368 (Quality Deficiency Report) in accordance with TM 38-750 (TAMMS). EIRs should be mailed directly to the Commander, U.S. Army Electronic Materiel Readiness Activity, Vint Hill Farms Station, Warrenton, Virginia 22186, Attn: SELEM-ME-I. A reply will be furnished directly to you.

Section II. DESCRIPTION AND DATA**1-7. Purpose and Use.**

The purpose of the RF processor test set is to test radio frequency (RF) processor units, which contain digitally selectable transmission line-type delay elements.

In a typical application (see figure 1-2), the RF processor test set receives 115-V ac power from an external source. In turn, the RF processor test set supplies all required ac and dc power for the RF processor. The RF processor test set also generates the digital command word that controls the RF processor. Desired RF processor switching or delay settings are selected using the RF processor test set's front-panel switches. In addition, the RF processor test set receives an input signal from an external RF signal generator and provides four df baseline RF outputs to the RF processor. The RF signals are routed through the various RF circuits of the RF processor. An RF power meter is used at the RF processor df or intercept output to measure the overall insertion loss between the RF processor inputs and outputs.

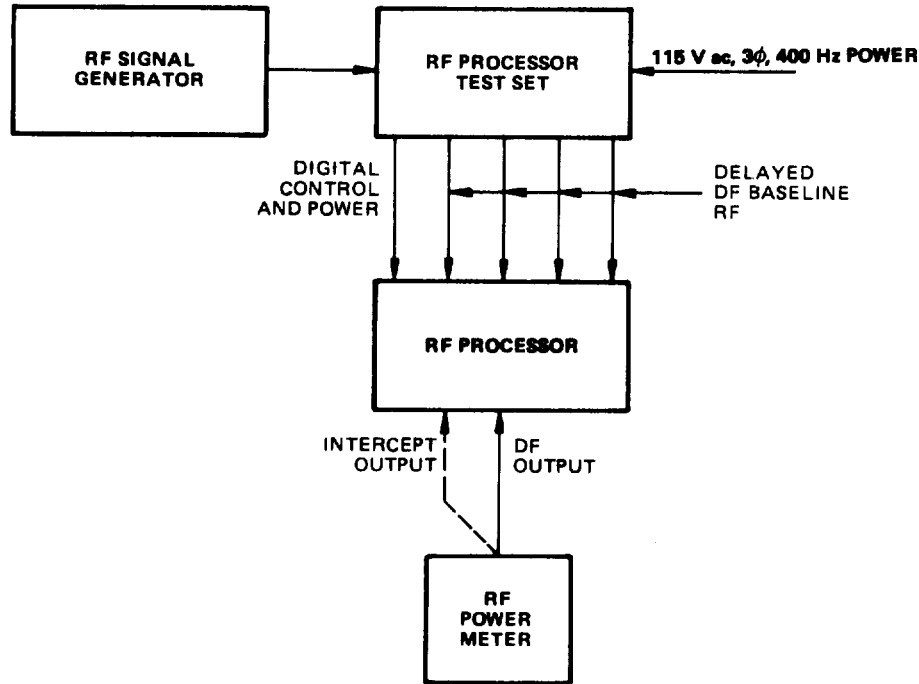


Figure 1-2. Typical RF Processor Test Set Application

1-8. Description.

The RF processor test set is a portable unit requiring no installation. The RF processor test set contains a power divider, phase-calibrated time delay reference cables, and a parallel-to-serial converter circuit card assembly (CCA). The unit also contains power supplies that operate from 115-V ac, 3-9, 400-Hz line voltage. Power and input/output connections are made at the front panel (see table 1-1).

1-9. Tabulated Data.

Power requirements.....	115 V ac \pm 11.5 V, 3 ϕ 400 Hz \pm 57 Hz 65 W (running) 170 W (testing)
Operating temperature range	-40° to +55° C (-40° to +133° F)
Physical characteristics:	
Height	8.75 inches (22.2 cm)
Width	19 inches (48.3 cm)
Depth	12 inches (30.5 cm)
Weight	23 pounds (10.5 kg)

Table 1-1. RF Processor Test Set Power and Signal Connections

Origin		Function/remarks
Connector ref des	Pin	
J1	TNC	RF OUTPUT
J2	TNC	RF OUTPUT
J3	TNC	RF OUTPUT
J4	TNC	RF OUTPUT
J5	TNC	RF INPUT
J6	3	<u>DT MOD OUT</u>
↑	4	DT MOD OUT
↑	5	<u>DT CLK OUT</u>
↑	6	DT CLK OUT
↑	7	<u>DT DATA OUT</u>
↑	8	DT DATA OUT
↑	9	<u>DT STROBE OUT</u>
↓	10	DT STROBE OUT
J6	22	GND
J7	A	+5 VDC
↑	B	+5 VDC
↑	C	+15 VDC
↑	D	GND
↑	E	-15 VDC
↓	F	GND
J7	K	GND LUG
J8	A	115 VAC ø1
↑	B	115 VAC ø2
↑	C	115 VAC ø3
↑	D	NEUTRAL
↑	E	INTERLOCK
↓	F	INTERLOCK
J8	H	GND LUG
J9	A	115 VAC ø1
↑	B	115 VAC ø2
↑	C	115 VAC ø3
↓	D	NEUTRAL
J9	E	GND

CHAPTER 2**SERVICE UPON RECEIPT AND INSTALLATION****Section I. SERVICE UPON RECEIPT OF MATERIAL****2-1. Unpacking.**

When packed for shipment, the RF processor test set is wrapped with plastic and placed in a cardboard container. Fiberboard blocking material is provided to minimize shock during transport. The procedure for unpacking the unit is obvious upon inspection.

2-2. Checking Unpacked Equipment.

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on SF Form 364 Report of Discrepancy (ROD) as prescribed in AR 735-11-2.

b. Check the equipment against the component listing in the packing slip to see if the equipment is complete. 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 that has been modified will have the MWO number on the front panel, near the nomenclature plate.) Check also to see whether all currently applicable MWOs have been applied. (Current MWOs applicable to the equipment are listed in DA PAM 310-4).

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

Section II. INSTALLATION INSTRUCTIONS**2-3. Tools, Test Equipment, and Materials Required for Installation.**

No tools, test equipment, or materials are required for installation of the RF processor test set.

2-4. Installation Instructions.

The RF processor test set is a portable unit requiring no installation.

2-5. Interconnections.

Interconnection details for the RF processor test set are provided in the appropriate RF processor maintenance manual.

CHAPTER 3

OPERATING INSTRUCTIONS

Section I. CONTROLS AND INDICATORS

3-1. General.

This section lists and describes the functions of the operator controls, indicators, and connectors on the RF processor test set.

3-2. Operator Controls and Indicators.

Operator controls, indicators, and connectors are shown in figure 3-1 and described in table 3-1.

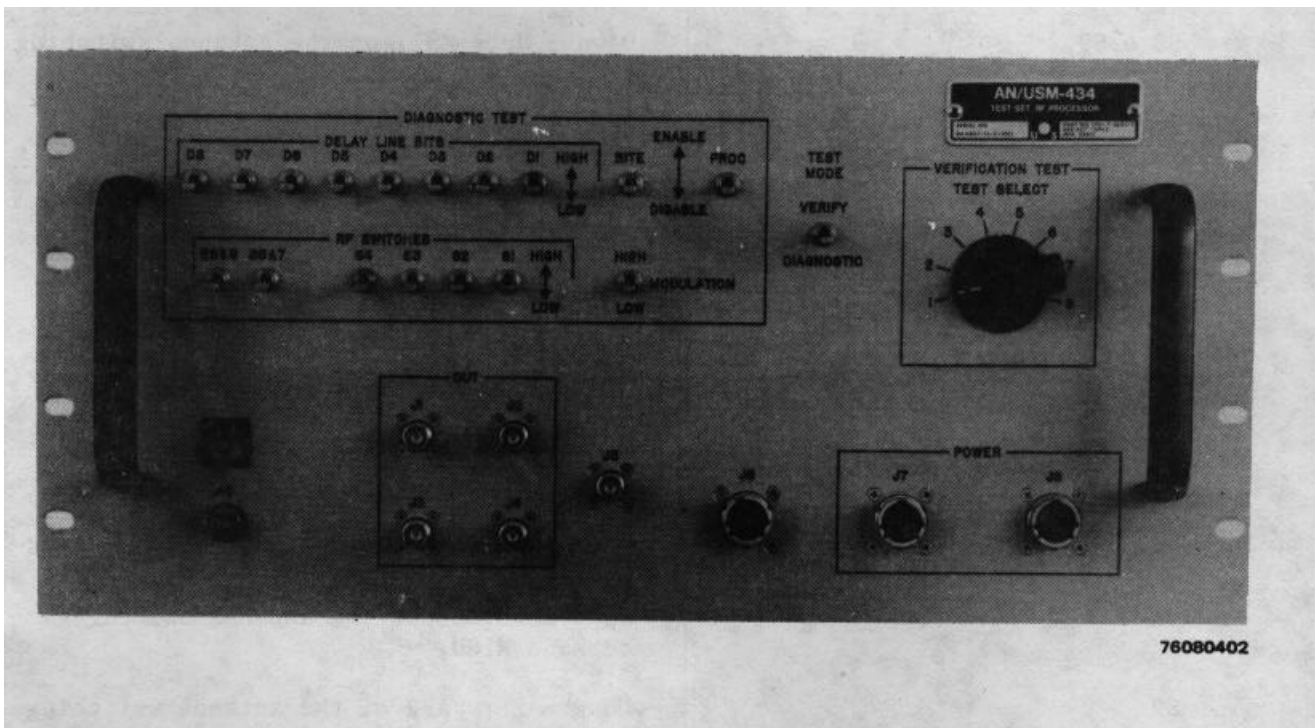


Figure 3-1. RF Processor Test Set Controls, Indicators, and Connectors

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

Control, indicator, or connector	Function
POWER ON (push-button)	Turns on or off the RF processor test set's primary power. An internal indicator lamp lights when power is on.
DIAGNOSTIC TEST	
DELAY LINE BITS (D1 thru D8) (toggle switches)	Down - Sets the respective bit of the delay line preset command word to the RF processor LOW. Up - Sets the respective bit of the delay line preset command word to the RF processor HIGH.
RF SWITCHES (toggle switches)	
S8 & S9	Down - Sets AS11 of the antenna switching command LOW. Up - Sets AS11 of the antenna switching command HIGH.
S6 & S7	Down - Sets AS7 of the antenna switching command LOW. Up - Sets AS7 of the antenna switching command HIGH.
S4	Down - Sets AS4 of the antenna switching command LOW. Up - Sets AS4 of the antenna switching command HIGH.
S3	Down - Sets AS3 of the antenna switching command LOW. Up - Sets AS3 of the antenna switching command HIGH.
S2	Down - Sets AS2 of the antenna switching command LOW. Up - Sets AS2 of the antenna switching command HIGH.

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

Control, indicator, or connector	Function
S1	<p>Down - Sets AS1 of the antenna switching command LOW.</p> <p>Up - Sets AS1 of the antenna switching command HIGH.</p>
MODULATION (toggle switch)	<p>Down - Sets the RF processor MODULATION switch LOW.</p> <p>Up - Sets the RF processor MODULATION switch HIGH.</p>
BITE (toggle switch)	<p>Down - Turns off (DISABLE) the RF processor internal BITE signal source.</p> <p>Up - Turns on (ENABLE) the RF processor internal BITE signal source.</p>
PROC (Toggle switch)	<p>Down - Turns off (DISABLE) the RF processor.</p> <p>Up - Turns on (ENABLE) the RF processor.</p>
TEST MODE (toggle switch)	<p>Down - Places the RF processor test set in the DIAGNOSTIC mode. The DIAGNOSTIC TEST switches are enabled and the VERIFICATION TEST switch is disabled.</p> <p>Up - Places the RF processor test set in the VERIFY mode. The VERIFICATION TEST switch is enabled and the DIAGNOSTIC TEST switches are disabled.</p>
VERIFICATION TEST-TEST SELECT (rotary switch)	<p>Position 1 - Causes the RF processor test set to adjust the delay line setting of the RF processor to 000 bits. The RF processor selects 000 bit delay line offset in the RF processor test set. The RF processor MODULATION switch is set HIGH, and the df and intercept amplifiers are inserted.</p> <p>Position 2 - Same as position 1 except that the RF processor MODULATION switch is set LOW.</p>

**Table 3-1. RF Processor Test Set Controls, Indicators,
and Connectors - Continued**

Control, indicator, or connector	Function
VERIFICATION TEST-TEST SELECT (rotary switch) (cont)	<p>Position 3 - Causes the RF processor test set to adjust the delay line setting of the RF processor to 255 bits. The RF processor selects the 255-bit delay line offset in the RF processor test set. The MODULATION switch of the RF processor is set HIGH, and the df and intercept amplifiers are inserted.</p> <p>Position 4 - same as position 3 except that the RF processor MODULATION switch is set LOW.</p> <p>Position 5 - Causes the RF processor test set to adjust the delay line setting of the RF processor to 128 bits. The RF processor selects the 128-bit delay line offset in the RF processor test set. The MODULATION switch of the RF processor is set HIGH, and the df and intercept amplifiers are inserted.</p> <p>Position 6 - Same as position 5 except that the MODULATION switch is set LOW.</p> <p>Position 7 - Same as position 5 except that the df and intercept amplifiers in the RF processor are bypassed.</p> <p>Position 8 - Same as position 5 except that the df and intercept amplifiers are bypassed and the MODULATION switch is set LOW.</p>
AC (circuit breaker)	<p>In - Indicates ac power is applied to the power supplies of the test set.</p> <p>Out - Indicates ac power has been disconnected from the power supplies due to an overload condition. The power may be reset by pressing the button to the in position.</p>
OUT J1 thru J4	<p>Routes RF signal outputs to the unit under test.</p>
J5	<p>Develops RF signal input for routing to the unit under test.</p>

**Table 3-1. RF Processor Test Set Controls, Indicators,
and Connectors - Continued**

Control, indicator, or connector	Function
J6	Routes control signals to the unit under test.
POWER	
J7	Routes output dc power to the unit under test.
J8	Outputs ac power to the unit under test.
J9 (back panel)	Inputs ac power for the RF processor test set and unit under test.

Section II. OPERATION UNDER USUAL CONDITIONS

3-3. General.

This section describes the operating procedures for the RF processor test set.

3-4. Operating Procedures.

See the appropriate RF processor manual for specific applications, operating procedures, switch settings, and display indications for the RF processor test set.

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CHAPTER 4**ORGANIZATIONAL MAINTENANCE INSTRUCTIONS****Section I. GENERAL REQUIREMENTS****4-1. Scope.**

This chapter provides instructions covering organizational maintenance of the RF processor test set. For the purposes of this technical manual, organizational maintenance consists of preventive maintenance. Included in the chapter are lists of the required tools and test equipment, preventive maintenance checks and services, and trouble- shooting procedures.

Section II. TOOLS AND EQUIPMENT**4-2. General.**

This section lists tools and equipment required to perform organizational maintenance.

4-3. Tools and Equipment Required.

- a. Tools. No special tools are required.
- b. Test equipment. No test equipment is required.
- c. Materials.
 - (1) Cleaning compound (trichlorotrifluoroethane)
 - (2) Cleaning cloth
 - (3) Sandpaper no. 000

Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES**4-4. General.**

Preventive maintenance is the systematic care, inspection, and servicing of equipment to maintain it in a serviceable condition, prevent breakdowns, and assure maximum operational capability. Preventive maintenance checks and services of the RF processor test set at the organizational maintenance level are performed at daily, weekly, and monthly intervals, unless otherwise directed by the commanding officer. Maintenance forms and records to be used and maintained on this equipment are specified in TM 38-750 (TAMMS).

4-5. Daily and Weekly Preventive Maintenance.

The daily and weekly preventive maintenance checks and services are listed and described in tables 4-1 and 4-2. Follow the steps in the order given. Defects discovered during operation will be noted for corrections to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noted that would damage the equipment. Record all defects and the corrective action taken on the form specified in TM 38-750 (TAMMS).

Table 4-1. Daily Preventive Maintenance Checks and Services

Step	Item	Procedure
1	Cables	<p>Inspect all exterior cables for kinks and strained, cut, frayed, or otherwise damaged insulation.</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;">Report any abnormal conditions to direct support maintenance personnel.</p>
2	Cleanliness	<p>Make sure exterior surfaces of the unit are clean. If necessary, clean exterior surfaces as follows:</p> <ul style="list-style-type: none"> a. Remove dust and loose dirt with a clean, soft cloth. b. Remove dust or dirt from plugs and jacks with a brush. <p style="text-align: center;">WARNING</p> <p>Adequate ventilation should be provided while using trichlorotrifluoroethane. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since trichlorotrifluoroethane dissolves natural oils, prolonged contact with skin should be avoided. When necessary use heavy duty rubber gloves that the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.</p> <ul style="list-style-type: none"> c. Remove grease, fungus, and ground-in dirt using a cloth dampened (not wet) with trichlorotrifluoroethane.

4-6. Monthly Preventive Maintenance.

Perform all the preventive maintenance checks and services listed in table 4-3 once each month in the sequence listed. A month is defined as approximately 30 calendar days of eight-hour-per-day-operation. If the equipment is operated 16 hours a day, the monthly preventive maintenance checks and services should be performed at 15-day intervals. Adjustment of the maintenance interval must be made to compensate for any unusual operating schedule.

Table 4-2. Weekly Preventive Maintenance Checks and Services

Step	Item	Procedure
1	Corrosion	Make sure exterior surfaces of the unit are free of rust and corrosion.

Table 4-3. Monthly Preventive Maintenance Checks and Services

Step	Item	Procedure
1	Cleanliness	Make sure exterior surfaces of the unit are clean. If necessary, proceed as directed in table 4-1, step 2.
2	Preservation	Inspect exterior surfaces of the unit for chipped paint or corrosion. If necessary, spot-paint surfaces as follows: <ul style="list-style-type: none"> a. Remove rust and corrosion from metal surfaces by sanding them with sandpaper. b. Brush two coats of light gray enamel, MIL-E-15090 class 2 type III color number 26307 IAW FED standard 595, on bare metal to protect it from further corrosion. c. Refer to the applicable cleaning and refinishing practices specified in TB 43-0118.
3	Interconnecting cables	Inspect unit interconnecting cables for loose, broken, or otherwise damaged connections. <p style="text-align: center;">NOTE</p> <p>Higher category maintenance is required for repair or replacement of all cables.</p>

Section IV. TROUBLESHOOTING

4-7. Troubleshooting.

Organizational troubleshooting consists of verifying any defects noted during normal operation. Once a unit is determined to be defective, intermediate support maintenance personnel will be notified. Organizational maintenance personnel will remove a defective unit from service and replace it with one of known quality.

Section V. ORGANIZATIONAL MAINTENANCE

4-8. General.

Organizational maintenance of the RF processor test set is not required.

CHAPTER 5

FUNCTIONING OF EQUIPMENT

Section I. GENERAL

5-1. Scope.

This chapter provides theory of operation for the RF processor test set at simplified block diagram, detailed block diagram, and detailed schematic diagram levels. The purpose of this chapter is to explain the circuit operation of this equipment to organizational and intermediate support maintenance personnel.

5-2. Organization.

In addition to the general section, this chapter contains a functional description section and a detailed theory of operation section.

Section II. FUNCTIONAL DESCRIPTION

5-3. General.

The RF processor test set contains an ac line filter, power supplies, digital command logic, an RF power divider, and time delay elements (see figure 5-1). The input 115-V ac, 3- ϕ , 400-Hz line power is received by the filter and routed to the power supplies. The filter removes any stray RF that might be present on the input ac line. The power supplies provide dc power for the RF processor test set and for an RF processor under test. The digital command logic receives dc power from the power supplies and generates TTL-level RF processor command data, under control of the front-panel-mounted DIAGNOSTIC TEST or VERIFICATION TEST switches. The RF power divider and time-delay elements receive a signal from an external RF signal generator and provide four RF outputs to the RF processor. The RF processor under test selects the outputs. Depending upon the particular pair of outputs selected, a time-delay offset of 000, 128, or 255 bits is provided by the RF processor test set.

The RF processor test set uses two modes to test RF processors. The first mode is the verification test mode, used to verify that the RF processor is within its prescribed operating parameters. The second mode is the diagnostic test mode, used to set and reset the various switches of the RF processor in order to identify specific faulty assemblies. Figure 5-2 shows a functional block diagram of the RF processor test set.

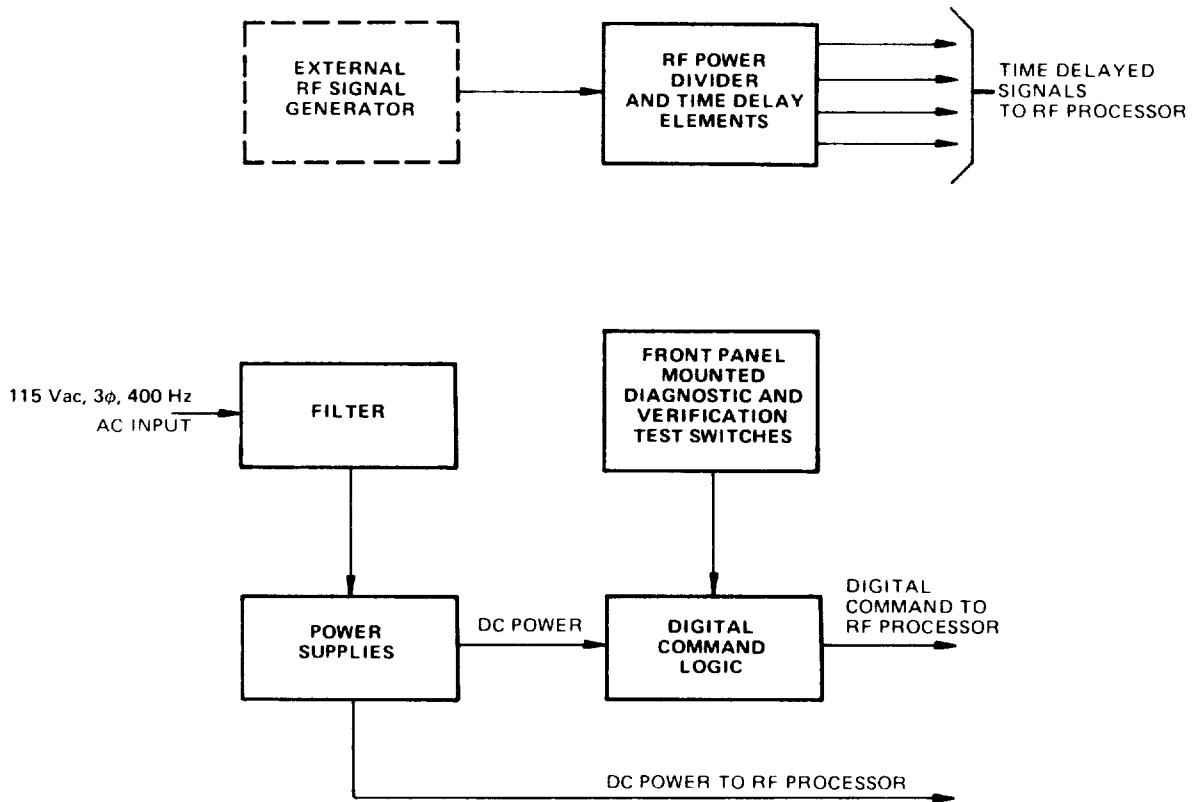


Figure 5-1. RF Processor Test Set Simplified Block Diagram

5-4. Parallel-to-Serial Converter CCA A1.

Parallel-to-serial converter CCA A1 contains a multiplexer that selects either the logic states set on DIAGNOSTIC TEST switches S1 thru S17 and S19 or the logic states set in VERIFICATION TEST switch S18. During the diagnostic test mode of the RF processor test set, the DIAGNOSTIC TEST switch inputs are selected for output from the multiplexer. During the verification mode, the VERIFICATION TEST switch inputs are selected. The logic inputs selected by the multiplexer are routed to a parallel-to-serial converter in the CCA. In turn, the CCA outputs a 24-bit serial RF processor command word and associated clock to the RF processor under test. The output command word, shown in figure 5-3, is used to set the switches and delay lines of the RF processor to the conditions chosen on the front-panel DIAGNOSTIC TEST or VERIFICATION TEST switches.

5-5. RF Power Divider CP1.

RF power divider CP1 receives a signal from an external RF signal generator and provides four equal-amplitude nondelayed outputs. Two of the outputs are routed to front-panel connectors J1 and J2 through transmission-line-type time-delay elements. These elements

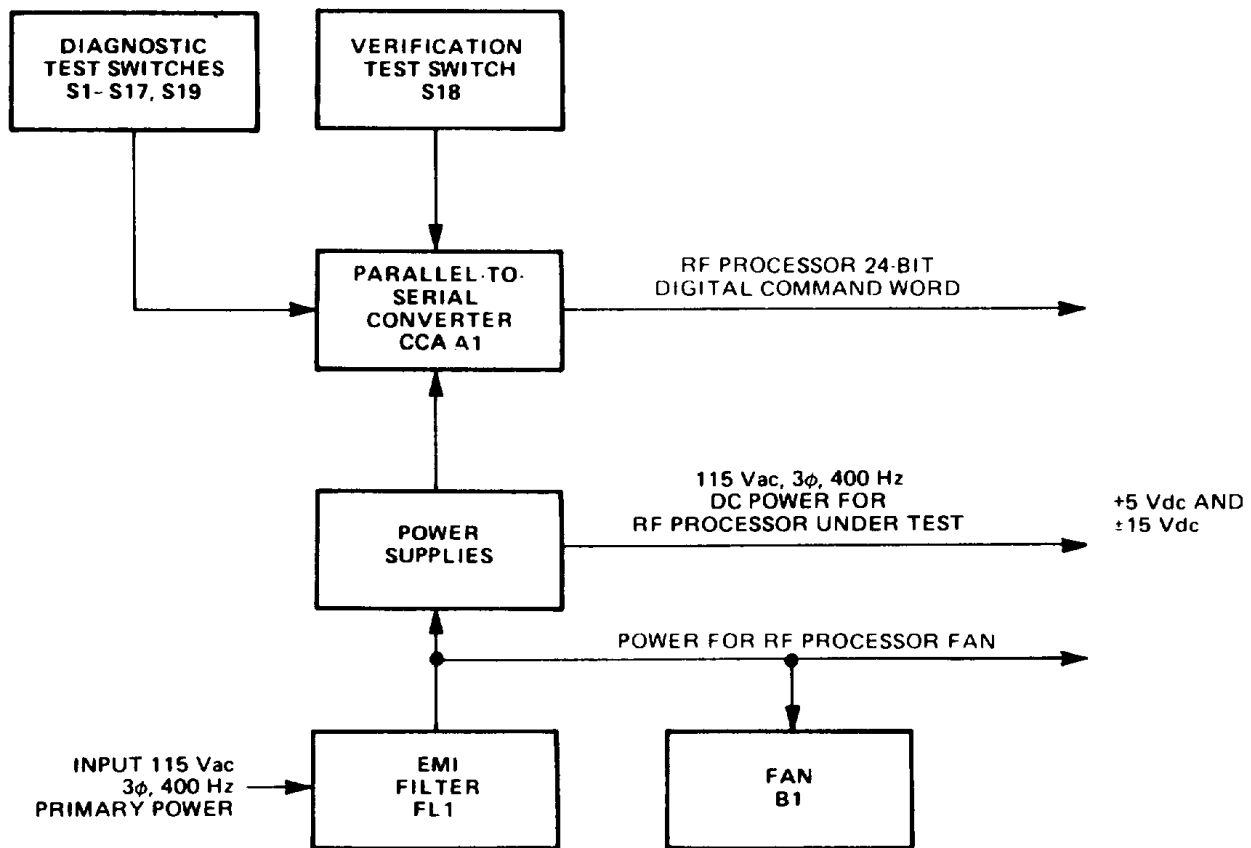
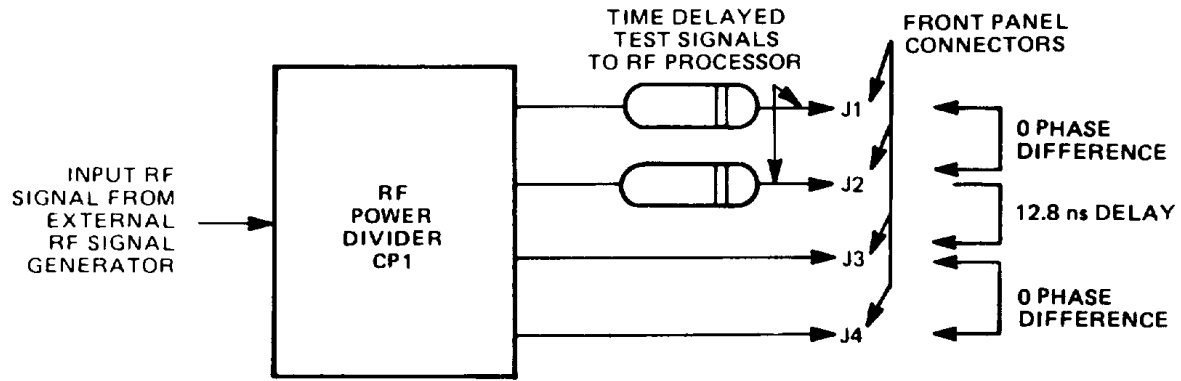


Figure 5-2. RF Processor Test Set Functional Block Diagram

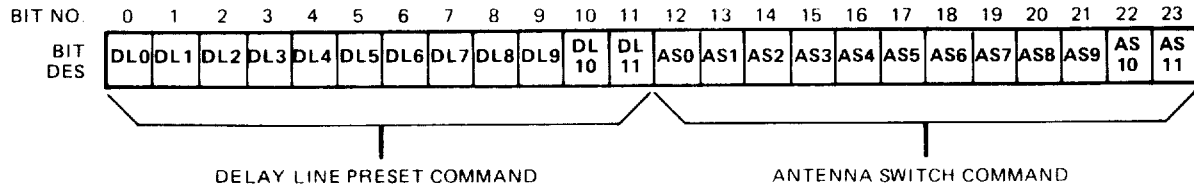


Figure 5-3. RF Processor Test Set Output Command Word

introduce 128 bits (12.8 ns) of delay into each line. The two remaining outputs of the power divider are routed directly (without time-delay elements) to the RF processor under test through front-panel connectors J3 and J4. The RF processor baseline select switches select specific time-delay offsets. The delay offsets are 000 bits, 128 bits, or 255 bits.

The RF processor test set does not provide a measurable offset of 255 bits. Rather, it supplies two pairs of in-phase signals, where each signal in one pair is 128 bits out of phase when compared to each signal in the other pair. The RF processor under test responds to test commands from the RF processor test set. It selects a pair of RF processor power-divider outputs and sets its own internal delay lines. Each power-divider output selected is fed to one RF processor internal processor delay line. The processes internal to the RF processor then result in offsets of 000 bits, 128 bits, or 255 bits of delay.

5-6. Power Supplies.

The power supplies contain electromagnetic interference (emi) filter FL1, which receives the RF processor test set 115-V ac, 3-ø, 400-Hz primary input power. FL1 filters out unwanted electromagnetic interference from the input ac primary-power lines. The filtered 115-V ac power is routed from the filter to the power supplies. When activated by the front-panel-mounted POWER switch, the power supplies output regulated +5-V dc and ±15-V dc supply voltages to the RF processor under test. The +5-V dc power supply output also powers the various circuitry within the RF processor test set. The 115 V ac, 3 ø, 400 Hz from emi filter FL1 is also used to power fan B1 in the RF processor test set. In addition, the 115-V ac power is routed to the RF processor under test.

Section III. DETAILED THEORY OF OPERATION

5-7. General.

This section provides detailed circuit theory for the RF processor test set.

5-8. Parallel-to-Serial Converter CCA A1.

(See figure FO-1.) Parallel-to-serial converter CCA A1 receives the logic states set in DIAGNOSTIC TEST switches S1 thru S17 via signal lines DDL0 thru DDL8, SAS1 thru SAS5, SAS7, SAS11, and MOD. The CCA also receives the logic states wired into rotary VERIFICATION TEST switch S18.

A multiplexer consisting of U13 thru U19 selects between the diagnostic test inputs and the verification test inputs in response to the setting of TEST MODE switch S19 via the mode-select signal line (edge card connector, XA1 pin 61). When switch S19 is high, the verification test inputs are selected. When switch S19 is low, the diagnostic test inputs are selected. The multiplexer outputs are routed to a 24-bit parallel-to-serial converter consisting of U10 thru U12.

Dual voltage-controlled multivibrator U7A generates the 500-kHz clock signal used to clock the parallel-to-serial converter, and the CCAs control flip-flops U3A and U3B and counter U9. The parallel-to-serial converter's load pulse is generated from the U7A clock output by flip-flops U3B, U3A, and U2B. Once the parallel-to-serial converter (U10 thru U12) is loaded with data from the multiplexer (U13 thru U19), serial data are clocked out of the converter and routed to data driver U6B. Driver U6B then outputs the data to the RF processor under test via the DT DATA OUT and DT DATA OUT signal lines. As the data are clocked out of the converter, counter U9 counts the clock pulses.

At the end of the data board transmission, U2A and U3B are cleared. The U3B pin 8 high output is applied to U3A and U2B clear inputs, enabling these flip-flops to be clocked. U3A pin 6 goes low then high, causing U2B pin 8 to be clocked low. This low clears U1B (thereby enabling U2A and U3B), and places the 24-bit shift register in the load parallel inputs mode of operation, and clears counter U9. The shift register loads the switch data from multiplexer U13 thru U19. Clocked by the 500-kHz signal, U3A generates a second low-then-high transition at pin 6, causing U2B pin 8 to be clocked high. The U2B pin 8 high transition clocks U2A pin 5 high, places the shift register in the shift mode of operation, and enables counter U9. The next 500-kHz clock pulse clocks U3B pin 9 high and pin 8 low. The U3B pin 9 high transition enables clock output gate U6A and the ENAP input of counter U9, thereby enabling U9 to count clock pulses. The U3B pin 8 low transition clears U3A and U2B, holding the shift register in the shift mode of operation, and enables the shift register clock input, allowing data to be clocked out by the 500-kHz clocks, disabling the strobe output of U5A.

The eighth clock pulse counted by counter U9 causes U9 pin 11 to go high. The high is applied to U4A and, inverted by U8C, to the clock input of U1B as a high-to-low transition. The low output of U1B pin 9 disables U4A.

The 16th clock pulse counted by counter U9 causes U9 pin 11 to go low. The low is applied to U4A, which disables the gate, and, inverted by U8C, the low is applied to the U1B clock input as a low-to-high transition, which causes U1B pin 9 to go high.

The 24th clock pulse counted by counter U9 causes U9 pin 11 to go high. The U9 pin 11 high input to U4A, combined with the high U1B pin 9 input, causes gate U4A to clear flip-flops U2A and U3B. When cleared, the U3B pin 9 low output disables clock gate U6A and counter U9. The U3B pin 8 high output enables U3A and U2B, disables the shift register clock input, and causes U5A and U2B, disables load pulse on the DT STROBE OUT and **DT STROBE OUT** lines.

While clock gate U6A is enabled, U6A outputs 24 500-kHz clock pulses on the DT CLK OUT and **DT CLK OUT** lines. Twenty-four command data bits are outputted through gate U6B on the DT DATA OUT and DT DATA OUT lines.

Multiplexer output U13 pin 4 is routed to gate U5B to generate the modulation signal on the **DT MODE OUT** and DT MODE OUT lines.

5-9. Power Supplies.

(See figures FO-2 and FO-3.) The power supplies of the RF processor test set consist of emi filter FL1, power switch S20, circuit breaker CB1, interlock relays K1, K2, and power relay K3, ac fan B1, and various power modules.

Input 115-V ac, 3- ϕ , 400-Hz power is routed through emi filter FL1 to power relay K3. When switch S20 is set to the POWER ON position, power relay K3 is energized and the ac input is routed through circuit breaker CB1 to the RF processor under test and to the RF processor test set power supply fan. With relay K3 energized, relays K1 and K2 energize and dc voltage from the power supply is supplied (via J7) to the RF processor being tested. Since the POWER ON indicator lamps are connected between the +15-V and -15-V outputs of the power supply (via dropping resistor R1), the POWER ON indicator provides a rough indication of the status of these voltages.

The power supplies receive their ac power input from CB1. They consist of switching preregulator modules 80ASP12S1 and 80ASP12S2, HF generator module 80G90W40, and output modules 5TR50 and 15TR13. The switching preregulator receives the 115-V ac, 1- ϕ , 400-Hz input voltage from circuit breaker CB1 and provides an 80-V dc output voltage to the HF generator. The HF generator accepts the 80-V dc input and provides a 40-V ac output voltage to drive the various output modules. The 5TR50 output module accepts the 40-V ac input voltage and produces a +5-V dc output for use by the RF processor under test and the circuitry of the RF processor test set. The 15TR13 output modules provide +15 V dc and -15 V dc for use by the RF processor under test. The indicator lamp contained in power switch S20 is activated by the +15-V dc and -15-V dc module outputs.

CHAPTER 6

INTERMEDIATE SUPPORT MAINTENANCE INSTRUCTIONS

Section I. GENERAL REQUIREMENTS

6-1. Scope.

This chapter provides intermediate support maintenance procedures for the RF processor test set. Included in the chapter are lists of the required tools and equipment, troubleshooting procedures, and test procedures.

Section II. TOOLS AND EQUIPMENT

6-2. General.

This section lists the tools and equipment required to perform intermediate support maintenance.

6-3. Tools and Equipment Required.

a. Tools.

<u>Army standard</u>	<u>Commercial alternate</u>	<u>Common name</u>
TK-105/G	N/A	Tool kit
N/A	CV5700	Heat gun
N/A	DMC331	Wire/cable tool kit
N/A	PRC350C	Solder repair center

b. Test Equipment.

<u>Army standard</u>	<u>Commercial alternate</u>	<u>Common name</u>
N/A	8600A-01	Multimeter
TS-3793/U	436A009,022	RF power meter
N/A	8482A	Power sensor
SG-1112(V)/U	8640B004	Signal generator
MK-1896/U	N/A	DTC 4800 cards kit
N/A	010-6062-15	Oscilloscope probes
N/A	20020P/C	50- Ω termination
TNC/OSM	21060A	50- Ω adapter

<u>Army standard</u>	Commercial alternate	Common name
AN-6880/U	7A18	Dual trace amp
TD-1159/U	7B53A	Time base
OS-262(P)/U	7623A	Storage oscilloscope
AN/USM-460	DTC-4800	Automatic digital test set

c. Materials. None required.

Section III. TROUBLESHOOTING

6-4. General.

This section provides troubleshooting procedures for the RF processor test set to isolate a malfunction to one of the reparable CCAs or chassis-mounted parts within the unit. The 4800 automatic digital test set then is used to troubleshoot the CCAs that are within the scope of intermediate support maintenance. Any trouble beyond the scope of intermediate support maintenance will be referred to depot level maintenance personnel.

6-5. Troubleshooting Procedures.

The trouble sectionalization chart, table 6-1, lists the trouble- shooting procedures for the RF processor test set.

CAUTION

CMOS components can be damaged by static discharge. When handling hardware containing CMOS do not touch connect pins and component leads unless properly grounded. During test and repair of circuitry containing CMOS use the static grounding kit (MK-1962/ TSQ Maintenance Kit) and ionized blower.

Section IV. MAINTENANCE OF THE RF PROCESSOR TEST SET

6-6. General.

This section provides maintenance procedures that are the responsibility of intermediate support maintenance personnel. The section includes inspection and cleaning of the RF processor test set.

6-7. Maintenance Procedures.

The following items should be performed along with intermediate support maintenance operations:

Change 1 6-2

Table 6-1. RF Processor Test Set Trouble Sectionalization Chart

Item no.	Item of check	Test conditions	Test equipment connections and settings	Normal indication	If indication is abnormal
1	Parallel-to-serial converter CCA A1		Perform control signal test per paragraph 6-10a.	As indicated in paragraph 6-10a.	Test/repair parallel-to-serial converter CCA A1 on 4800 automatic digital test set and repeat test.
2	RF power divider OP1		Perform RF loss calibration test per paragraph 6-10b.	As indicated in paragraph 6-10b.	
3	Power supplies		Perform power supply output voltage test per paragraph 6-10c.	As indicated in paragraph 6-10c.	Proceed to item 4. If indication is still abnormal, replace appropriate output module (STR50) for +5-V dc failure; 15TR13 modules for +15-V dc or -15-V dc failure.
4	Power supplies	Item 3 has been performed with an abnormal indication resulting	Perform the following: a. Monitor switching preregulator module 80ASP12S2 terminals 4 and 6 using digital voltmeter. b. Monitor HF generator module 80G90W40 terminals 4 and 6 using digital voltmeter.	a. Terminals 4 and 6 have +80 to +85 V dc present. b. Terminals 4 and 6 have 40 V ac present.	a. Replace switching preregulator modules 80ASP12SI and 80ASP12S2, and repeat item 3. b. Replace HF generator module 80G90W40, and repeat item 3.

a. Inspection.

- (1) Inspect all interior cables for kinks and strained, cut, frayed, or otherwise damaged insulation. Check cable connectors for correct pin depths and make sure they are securely mounted to cables. The repair and replacement of cables and connectors will be performed by depot level maintenance personnel only.
- (2) Inspect exterior surfaces of the unit for dust, chipped paint, and corrosion. If necessary, spot paint surfaces as follows:
 - (a) Remove rust and corrosion from metal surfaces by lightly sanding them with no. 000 sandpaper.
 - (b) Brush two coats of light gray enamel, MIL-E-15090 class 2 type III color number 26307 IAW FED standard 595, on bare metal to protect it from further corrosion.
 - (c) Refer to the applicable cleaning and refinishing practices specified in TB 43-0118.

b. Cleaning. Make sure exterior surfaces of the unit are clean. If necessary, clean exterior surfaces as follows:

- (1) Remove dust and loose dirt with a clean, soft cloth.
- (2) Remove dust and dirt from plugs and jacks with a brush.

WARNING

Adequate ventilation should be provided while using trichlorotrifluoroethane. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since trichlorotrifluoroethane dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use heavy duty rubber gloves that the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

- (3) Remove grease, fungus, and ground-in dirt using a cloth dampened (not wet) with trichlorotrifluoroethane.

6-8. Disassembly/Assembly Procedures.

The following paragraphs provide step-by-step instructions for disassembling and assembling the RF processor test set.

- a. Disassembly. RF processor test set disassembly consists of removing the blower and front-panel switch.
 - (1) Blower removal.
 - (a) Remove top and bottom covers.
 - (b) Remove heat sink cover (from top side).
 - (c) Remove and tag blower wires.
 - (d) Loosen three screws (on bottom side) holding blower until nuts release (on top side). Remove blower from RF processor test set.
 - (2) Front-panel switch removal.
 - (a) Remove top cover.
 - (b) Remove and tag switch wires.
 - (c) Loosen ring nut securing switch to front panel.
 - (d) Remove ring nut and pull switch from rear of front panel.
- b. Assembly. RF processor test set assembly consists of installing the blower and front-panel switch.
 - (1) Blower installation.
 - (a) Position blower in chassis and install three mounting screws.
 - (b) Connect tagged blower wires as indicated.
 - (c) Reinstall top and bottom covers.
 - (2) Front-panel switch installation.
 - (a) Position switch to mounting hole and tighten ring nut by hand.
 - (b) Tighten ring nut with pliers.
 - (c) Connect tagged wires to switch as indicated.
 - (d) Reinstall top cover.

Section V. INTERMEDIATE SUPPORT TEST PROCEDURES

6-9. General.

This section provides intermediate support test procedures for the RF processor test set. The test procedures indicate whether a new or repaired unit is capable of performing its assigned mission.

6-10. Test Procedures.

WARNING

High voltage is used in the operation of this equipment. Avoid contacting high-voltage connections when installing or operating this equipment. Injury or death may result if personnel fail to observe safety precautions.

Three test procedures are used to verify the proper functioning and calibration of the RF processor test set. They are the control signal test, RF loss calibration test, and the power supply output voltage test.

Equipment test setups in the following figures (see figures 6-1 thru 6-4) use the special test equipment cables (indicated by WXXX), standard coaxial test cables (such as RG58/U with appropriate connectors or adapters), and flexible meter leads as required.

a. Control Signal Test. This test checks the proper operation of the command-generating circuitry of the RF processor test set. To perform the test, proceed as follows:

- (1) Connect RF processor test set as shown in figure 6-1. Connect channel 1 of oscilloscope to pin 5 of J6, and connect channel 2 of oscilloscope to pin 10 of J6 (positive trigger channel 1, negative trigger channel 2).
- (2) Push POWER ON push-button of RF processor test set to on position (lamp lights). Verify that DATA CLOCK OUT and DATA STROBE OUT signals appear as shown in figure 6-2 waveforms A and B.
- (3) Set TEST MODE switch to DIAGNOSTIC position. Set DIAGNOSTIC TEST switches to HIGH position (BITE should be set to ENABLE). Connect oscilloscope channel 1 to pin 7 of J6 and verify that waveform shown on oscilloscope is the same as waveform C in figure 6-2.
- (4) Set DIAGNOSTIC TEST PROC switch to DISABLE position and verify that oscilloscope waveform is the same as waveform shown in figure 6-2.

Change 1 6-6

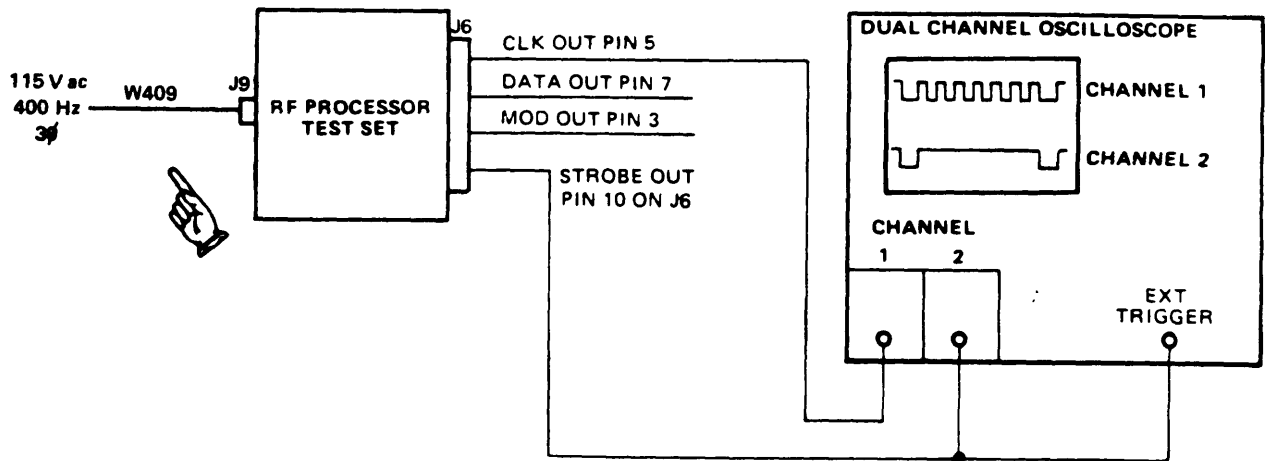


Figure 6-1. Control Signal Test Setup

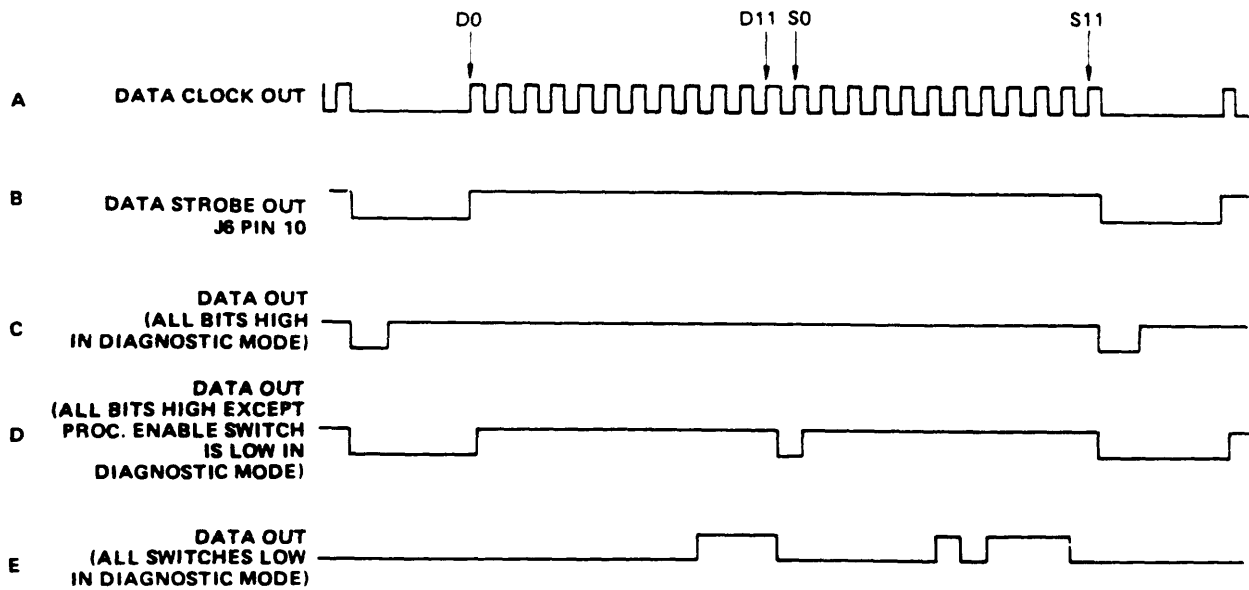


Figure 6-2. Typical Waveforms for Control Signal Test

- (5) Set all DIAGNOSTIC TEST switches LOW, and verify that oscilloscope waveform is the same as waveform E shown in figure 6-2.
- (6) Connect oscilloscope channel 1 probe to RF processor test set connector J6 pin 3. Alternately set MODULATION switch HIGH and LOW. Verify that oscilloscope shows a positive dc level greater than 2 V with MODULATION switch HIGH and a dc level of less than 0.8 V with MODULATION switch LOW.
- (7) Connect oscilloscope channel 1 probe to RF processor test set connector J6 pin 7. Set RF processor test set VERIFICATION TEST rotary switch to position 1. Set DIAGNOSTIC TEST switches as shown in table 6-2 under rotary switch position 1. Alternately set TEST MODE switch to VERIFY and DIAGNOSTIC. Verify that oscilloscope waveforms for the two positions are identical.
- (8) Repeat step (7) for VERIFICATION TEST rotary switch positions 2 thru 8.
- (9) Connect channel 1 of oscilloscope to RF processor test set connector J6 pin 3. Set VERIFICATION TEST rotary switch to position 1, and set TEST MODE toggle switch to VERIFY. Verify that oscilloscope waveform agrees with logic state indicated in table 6-3 for rotary switch position 1.
- (10) Repeat step (9) for VERIFICATION TEST rotary switch positions 2 thru 8.

b. RF Loss Calibration Test. This test measures the RF signal loss of each test set internal delay reference path. To perform the test, proceed as follows:

- (1) Connect PRF processor test set as shown in figure 6-3.
- (2) Set RF signal generator to output a 20-MHz signal at a 0-dBm level.
- (3) Connect RF power meter to RF processor test set connector J1, and measure RF output power level. The level should be as indicated in table 6-4.
- (4) Repeat step (3) using connector J2 instead of J1.
- (5) Repeat step (3) using connector J3 instead of J1.
- (6) Repeat step (3) using connector J4 instead of J1.
- (7) Repeat steps (1) thru (6) for a RF signal generator frequency of 50 MHz at 0-dBm level.

Table 6-2. DIAGNOSTIC TEST Switch Settings

VERIFI- CATION TEST-TEST SELECT	RF SWITCHES					DELAY LINE BITS									BITE	PROC
	S8 &9	S6 &7	S4	S3	S2	S1	D8	D7	D6	D5	D4	D3	D2	D1		
1	H	H	L	H	H	H	L	L	L	L	L	L	L	L	L	H
2	H	H	L	H	H	H	L	L	L	L	L	L	L	L	L	H
3	H	H	H	L	L	L	H	H	H	H	H	H	H	H	L	H
4	H	H	H	L	L	L	H	H	H	H	H	H	H	H	L	H
5	H	H	H	L	H	L	H	L	L	L	L	L	L	L	L	H
6	H	H	H	L	H	L	H	L	L	L	L	L	L	L	L	H
7	H	L	H	L	H	L	H	L	L	L	L	L	L	L	L	H
8	H	L	H	L	H	L	H	L	L	L	L	L	L	L	L	H

Table 6-3. Logic States

VERIFICATION TEST-TEST SELECT position	MODULATION (Pin 3 of J6)
1	H
2	L
3	H
4	L
5	H
6	L
7	H
8	L

Table 6-4. RF Loss Calibration Test Performance Standards

RF Processor Test set Connection	RF Power Level (all test frequencies)
J1	-19 dBm \pm 1dB
J2	-19 dBm \pm 1dB
J3	-19 dBm \pm 1dB
J4	-19 dBm \pm 1dB

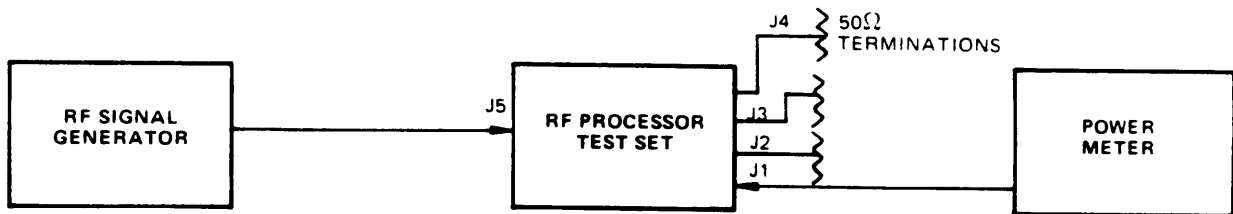


Figure 6-3. RF Loss Calibration Setup

Change 1 6-10

(8) Repeat steps (1) thru (6) for a RF signal generator frequency of 80 MHz at a 0-dBm level.

c. Power Supply Output Voltage Test. This test checks the proper operation of the RF processor test set power supplies. To perform the test, proceed as follows:

- (1) Disconnect W409 from J9.
- (2) Connect connector J8 pins E and F together to enable ac interlock circuit.
- (3) Connect IJ409 to J9.
- (4) Push RF processor test set POWER ON pushbutton to on position (lamp lights).
- (5) Monitor front-panel connector pins shown in table 6-5 for voltages shown using a digital voltmeter. Figure 6-4 shows test setup for this operation.

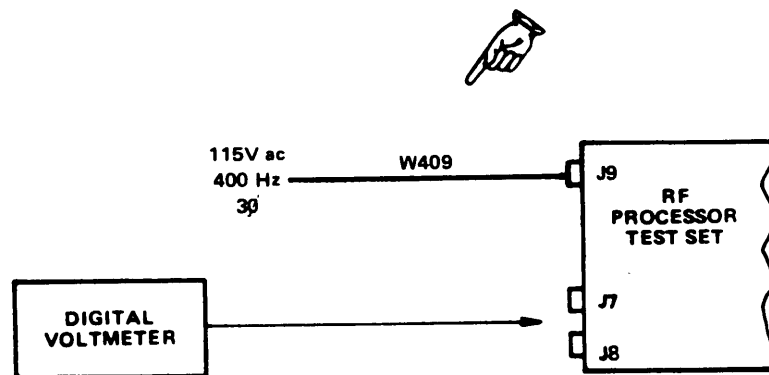


Figure 6-4. Power Supply Output Voltage Test Setup

Table 6-5. Power Supply Output Voltage Test Standards

Connector	Pin	Output voltage
J7	A	+5 V dc
J7	C	+15 V dc
J7	E	-15 V dc
J7	B	0 V
J7	D	0 V
J7	F	Ref. gnd (0 V)
J8	A	115 V ac
J8	B	115 V ac
J8	C	115 V ac
J8	D	Ac neutral

Note: Measurements at J7 pins A thru E are in reference to J7 pin F.
 Measurements at J8 pins A thru C are in reference to J8 pin D.

Section VI. ALIGNMENT PROCEDURES

6-11. General.

No alignment is required for the RF processor test set.

CHAPTER 7

INTEGRATED CIRCUIT DATA

This chapter contains vendor catalog sheets which describe the integrated circuits referenced in the functioning of equipment section and in the supporting schematic diagrams. The following data sheets are provided:

<u>Part no.</u>	<u>Name</u>	<u>Page</u>
DM7830	Dual Differential Line Driver	7-2
MC4324	Dual Voltage-Controlled Multivibrator	7-3
S54165	Parallel-Load 8-Bit Shift Register	7-4

general description

The DM7830/DM8830 is a dual differential line driver that also performs the dual four-input NAND or dual four-input AND function.

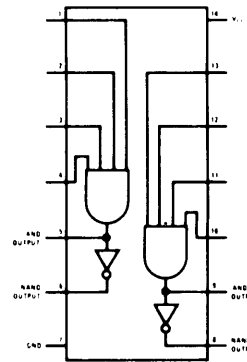
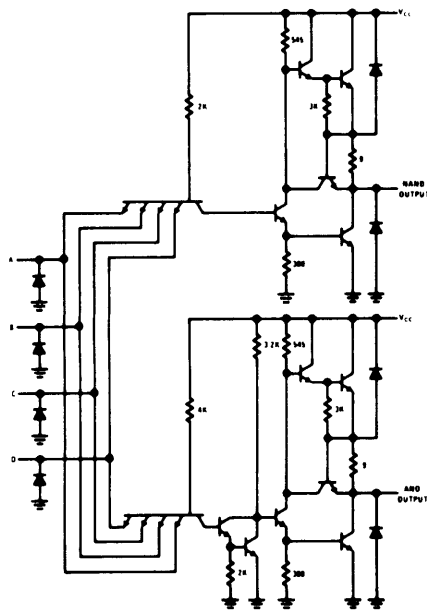
TTL (Transistor-Transistor-Logic) multiple emitter inputs allow this line driver to interface with standard TTL or DTL systems. The differential outputs are balanced and are designed to drive long lengths of coaxial cable, strip line, or twisted pair transmission lines with characteristic impedances of 50Ω to 500Ω. The differential feature of the output eliminates troublesome ground-loop errors

normally associated with single-wire transmissions.

Key Features:

- Single 5 volt power supply
- Diode protected outputs for termination of positive and negative voltage transients
- Diode protected inputs to prevent line ringing
- High Speed
- Short Circuit Protection

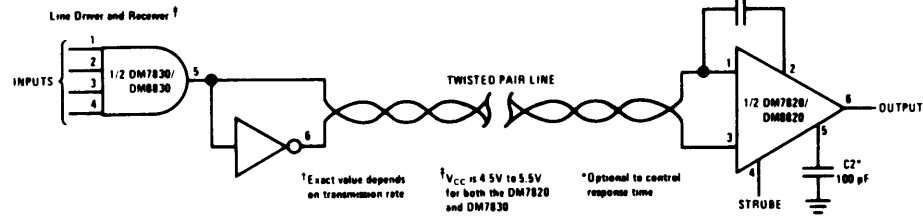
schematic* and connection diagram



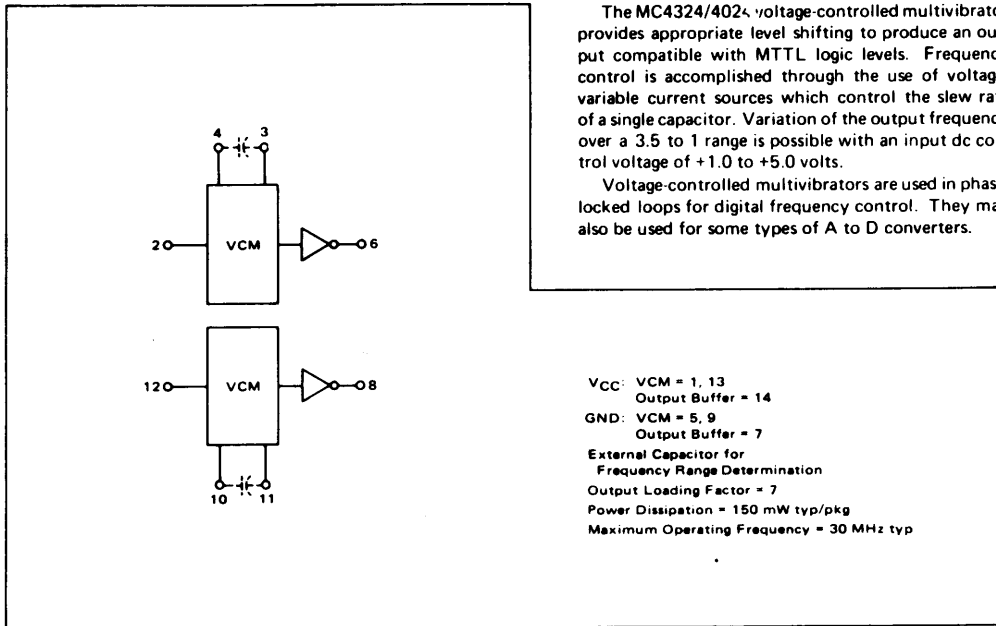
typical application

Digital Data Transmission

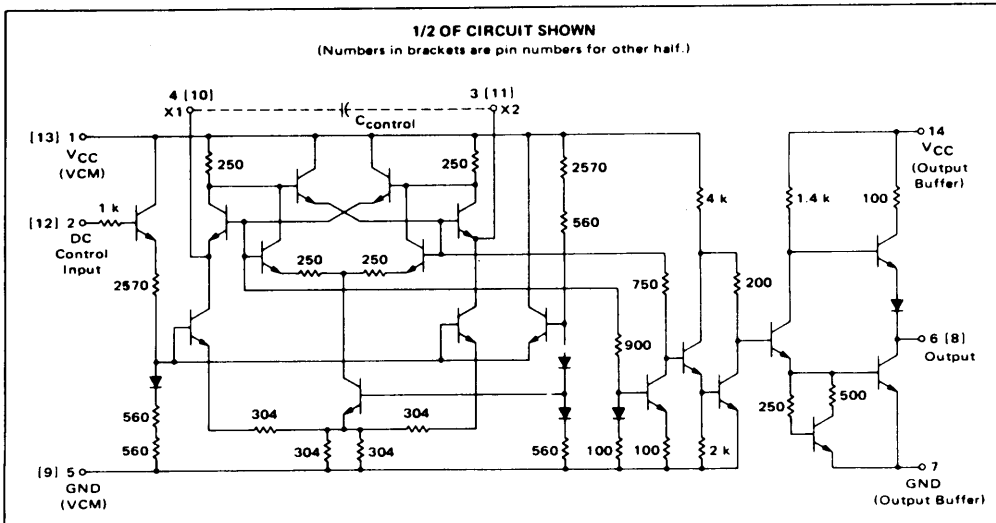
*2 per package



DM7830 Dual Differential Line Driver



CIRCUIT SCHEMATIC



F suffix = TO-86 ceramic flat package (Case 607).
L suffix = TO-116 ceramic dual in-line package (Case 632).
P suffix = TO-116 plastic dual in-line package (Case 605).

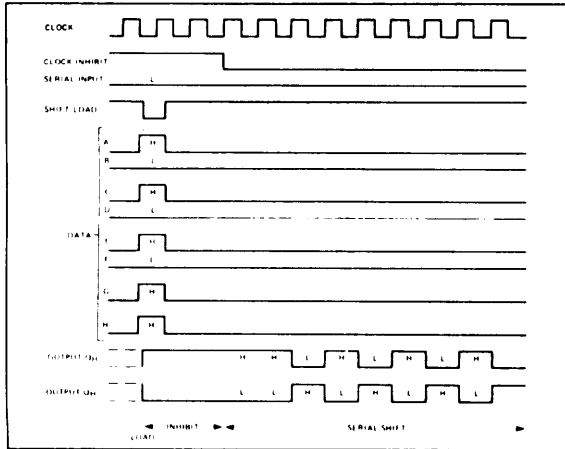
MC4324 Dual Voltage-Controlled Multivibrator

PARALLEL-LOAD 8-BIT SHIFT REGISTER

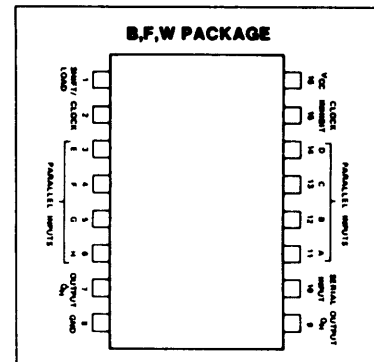
54/74165

SPEED/PACKAGE AVAILABILITY
 54 F.W 74 B

TYPICAL SHIFT, LOAD & INHIBIT SEQUENCES



PIN CONFIGURATION



TRUTH TABLE

INPUTS				PARALLEL A...H	INTERNAL		OUTPUT QH
SHIFT/ LOAD	CLOCK INHIBIT	CLOCK	SERIAL		QA	QB	
L	X	X	X	a...h	a	b	h
H	L	L	X	X	QA0	QB0	QH0
H	L	↑	H	X	H	QAn	QGn
H	L	↑	L	X	L	QAn	QGn
H	H	↑	X	X	QA0	QB0	QH0

H - high level (steady state), L - low level (steady state)
 X - irrelevant (any input, including transitions)
 † - transition from low to high level
 a - h - the level of steady-state input at inputs A thru H, respectively
 QA0, QB0, QH0 - the level of QA, AB, or QH, respectively, before the indicated steady-state input conditions were established. QAn, QOn - the level of QA or QG, respectively, before the most recent † transition of the clock

S54165 Parallel-Load 8-Bit Shift Register

CHAPTER 8

INTERCONNECT WIRING LIST

This chapter contains the wire lists for the RF processor test set. The lists are used to determine point-to-point wiring. Each point's origin (from) and destination (to) are listed. When a point listed in the FROM column is routed to more than one point, the FROM point is listed only once and the rest are left blank and only the TO point is listed. Points that are not connected are not listed. Pin-for-pin cables are not listed. (Pin-for-pin cables are cables that have identical plugs at both ends and each pin connected has the same pin number at both ends.) All other connections are listed. Wiring interconnections shown in figures FO-2 and FO-3 have not been repeated in this chapter.

Wire lists and wiring diagrams take precedence over schematic diagrams due to unused circuit card connector pins.

The following wire lists are provided:

<u>Wire list</u>	<u>Page</u>
PWB mounting plate A2	8-2
Test cable W406	8-4
Test cable W409	8-5

FROM	TO	FROM	TO
RF PROCESSOR TEST SET AN/USM-434			
RF PROCESSOR TEST SET PWB MOUNTING PLATE A2			
J1-A0	XA1-26	J1-C4	XA1-74
J1-A1	XA1-3	J1-C5	XA1-35
J1-A2	XA1-4	J1-C6	XA1-49
J1-A3	XA1-18	J1-C7	XA1-56
J1-A4	XA1-58	J1-C8	XA1-75
J1-A5	XA1-17	J1-C9	XA1-57
J1-A6	XA1-19	J1-D1	XA1-90
J1-A7	XA1-20	J1-D2	XA1-90
J1-A8	XA 1-21	J1-D3	XA1-90
J1-A9	XA1-24	J1-D6	XA1-68
J1-B0	XA1-59	J1-D7	XA1-69
J1-B1	XA1-89	J1-D8	XA1-62
J1-B2	XA1-90	J1-D9	XA1-64
J1-B3	XA1-23	J1-N1	XA1-46
J1-B4	XA1-33	J1-N2	XA1-55
J1-B5	XAI-63	J1-N3	XA1-77
J1-B6	XA1-51	J1-N4	XA1-73
J1-B7	XA1-53	J1-N5	XA1-67
J1-88	XA1-54	J1-N6	XA1-71
J1-89	XAI-60	J1-N7	XA1-43
J1-C	XA1-80	J1-N8	XA1-45
J1-C1	XA1-65	J1-P1	XA1-1
J1-C2	XA1-61	J1-P2	XA1-2
J1-C3	XA1-22	J1-P3	XA1-91

FROM	TO	FROM	TO
J1-P4	XA1-P2	XA1-57	J1-C9
XA1-1	J1-P1	XA1-58	J1-A4
XA1-2	J1-P2	XA1-59	J1-B0
XA1-3	J1-A1	XA1-60	J1-B9
XA1-4	J1-A2	XA1-61	J1-C2
XA1-11	XA1-79	XA1-62	J1-D8
XA1-17	J1-A5	XA1-63	J1-B5
XA1-18	J1-A3	XA1-64	J1-D9
XA1-19	J1-A6	XA1-65	J1-C1
XA1-20	J1-A7	XA1-67	J1-N5
XA1-21	J1-A8	XA1-68	J1-D6
XA1-22	J1-C3	XA1-69	J1-D1
XA1-23	J1-B3	XA1-71	J1-N6
XA1-24	J1-A9	XA1-73	J1-N4
XA1-26	J1-A0	XA1-74	J1-C4
XA1-33	J1-B4	XA1-75	J1-C8
XA1-35	J1-C5	XA1-77	J1-N3
XA1-43	J1-N7	XA1-79	XA1-1
XA1-45	J1-N8	XA1-80	J1-C0
XA1-46	J1-N1	XA1-89	J1-B1
XA1-49	J1-C6	XA1-90	J1-D1
XA1-51	J1-B6		J1-D2
XA1-53	J1-B7		J1-D3
XA1-54	J1-B8		J1-B2
XA1-55	J1-N2	XA1-91	J1-P3
XA1-56	J1-C7	XA1-92	J1-P4

FROM	TO	FROM	TO
RF PROCESSOR TEST CABLE W406			
P1-1	P2-1	P2-3	PI-3
P1-2	P2-2	P2-4	P1-4
P1-3	P2-3	P2-5	P1-5
P1-4	P2-4	P2-6	P1-6
P1-5	P2-5	P2-7	P1-7
P1-6	P2-6	P2-8	P1-8
P1-7	P2-7	P2-9	P1-9
P1-8	P2-8	P2-10	P1-10
P1-9	P2-9	P2-11	P1-11
P1-10	P2-10	P2-12	P1-12
P1-11	P2-11	P2-13	P1-13
P1-12	P2-12	P2-14	P1-14
P1-13	P2-13	P2-15	P1-15
P1-14	P2-14	P2-16	P2-17
P1-15	P2-15	P2-17	P2-16
P1-20	P2-20	P2-18	P2-19
P1-21	P2-21	P2-19	P2-18
P1-22	P2-22	P2-20	P1-20
P2-1	P1-I	P2-21	P1-21
P2-2	PL-2	P2-22	P1-22

FROM	TO
RF PROCESSOR TEST CABLE W409	

GND	P1-E
NTRL	P1-D
P1-A	PHASE-1
P1-B	PHASE-2
P1-C	PHASE-3

FROM	TO
P1-D	NTRL
P1-E	GND
PHASE-1	P1-A
PHASE-2	P1-B
PHASE-3	P1-C

APPENDIX A**REFERENCES****A-1. Technical Manuals.**

TM 38-750	The Army Maintenance Management System (TAMMS)
TM 740-90-1	Administrative Storage of Equipment
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command)
TM 750-245-4	Inspection Criteria, Inspectors Quality Control
TM 43-0139	Painting, Instructions for Field Use
TM 9-237	Welding, Theory and Application
TM 38-230-2	Packaging of Materiel: Preservation
TM 38-260	Preparation of Industrial Plant Equipment for Storage or Shipment

A-2. Technical Bulletins.

TB 32-5811-019-34-1	Intermediate Maintenance Test Programs and Procedures for Testing AN/ALQ-151 and AN/TSQ-114 Electronic Circuit Cards
TB SIG 222	Solder and Soldering
TB SIG 355-1	Depot Inspection Standards for Repaired Signal Equipment
TM SIG 355-2	Depot Inspection Standard for Refinishing Repaired Signal Equipment
TB SIG 355-3	Depot Inspection Standard for Moisture and Fungus Resistant Treatment
TR 43-0118	Field Instructions for Painting and Preserving Electronics Command Equipment

A-3. Supply Bulletins.

SB 38-100

**Preservation, Packaging and Packing
Materials, Supplies and Equipment
Used by the Army**

SB 11-30

FSC Class 6135: Dry Battery Management Data

SB 11-573

**Painting and Preservation Supplies
Available for Field Use for Elec-
tronics Command Equipment**

CTA 50-970

Expendable Items

SB 708-41/42

**Federal Supply Code for Manufac-
turers, United States and Canada,
Code to Name, Cataloging Handbook
H4-2**

A-4. Pamphlets.

DA PAM 310-1

Index of Administrative Publications

DA PAM 310-2

Index of Blank Forms

DA PAM 310-3

**Index of Doctrinal, Training and
Organizational Publications**

DA PAM 310-4

Index of Technical Publications (Includes:
Equipment Identification Lists, Lubrication
Order, Modification Work Orders, Supply
Bulletins, Supply Catalog, Supply Manuals
and Technical Bulletins.

A-5. Army Regulations.

AR 310-25	Dictionary of United States Army Terms
AR 310-50	Authorized Abbreviations and Brevity Codes
AR 700-42	Classification, Reclassification, Maintenance, Insurance, and Reporting of Maintenance Training Aircraft
AR 55-38	Reporting of Transportation Discrepancies in Shipment

A-6. Forms.

DA Form 3803	Decontamination Tag
DA Form 2028	Recommended Changes to DA Technical Manuals, Parts Lists or Supply Manual 7, 8, or 9
DA Form 2404	Equipment Inspection and Maintenance Work Sheet
DA Form 2407	Maintenance Request
DA Form 2408	Equipment Log Book Assembly Instructions for General Equipment
DA Form 2408-1	Equipment Daily or Monthly Log
DA Form 2408-5	Equipment Modification Record
DA Form 2408-7	Equipment Transfer Record
SF Form 364	Report of Discrepancy (ROD)
SF 368	Quality Deficiency Report

APPENDIX B**MAINTENANCE ALLOCATION CHART****Section I. INTRODUCTION****B-1. General.**

This appendix provides a summary of the maintenance operations covered in the preceding chapters for the RF processor test set. It authorizes categories of maintenance for specific maintenance functions on reparable items, components, tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

B-2. Maintenance Functions.

Maintenance functions will be limited to and defined as follows:

- a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.
- b. Test. To verify serviceability and to 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, preserve, drain, paint, or replenish fuel/lubricants/hydraulic fluids, or compressed air supplies.
- d. Adjust. 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 equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust a 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 the equipment/system.

h. Replace. The act of substituting a serviceable like-type part, subassembly, or module/component/assembly in a manner to allow the proper functioning of an equipment/system.

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/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 (e.g., DMWR) in pertinent technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like-new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like-new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc) considered in classifying Army equipment/components.

l. Fault Locate. The act of finding the cause of a malfunction. When applicable to a system the problem is traced to a piece of equipment. When applicable to a piece of equipment the problem is traced to an assembly or circuit card assembly (CCA) within the equipment. And when applicable to an assembly or CCA the problem is traced to a component or sealed module.

m. Program. The act of transferring data from a source such as paper tape into an electrically erasable, programmable, read-only memory (EPROM or commonly referred to as ROM) CCA.

n. Disassemble. Removal of modules/components from the equipment for the purpose of performing maintenance tasks, i.e., inspect, test, service, repair, etc.

B-3. Explanation of Format.

a. Column 1, Group Number. Column 1 lists reference designators (group numbers), the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly. The reference designators are applied to all items appearing on the MAC and are similarly applied to the same item in the repair parts and special tools list (RPSTL).

b. Column 2, Component/Assembly. Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in Column 2.

d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a "work time" figure in the appropriate sub 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 task within the listed maintenance function vary at different maintenance categories, appropriate "work time" figures will be shown for each category. The number of manhours 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. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The maintenance category subcolumns 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.

MAINTENANCE ALLOCATION CHART

for

RF PROCESSOR TEST SET AN/USM-434

(1) Group Number	(2) Component/ Assembly	(3) Maintenance Function	(4) Maintenance Category					(5) Tools and Equipment
			C	O	F	H	D	
01	TEST SET, RF PROCESSOR AN/USM-434	INSPECT				.20		1-4,13, 14 1-4,13 14 5 2-4, 12-17 2-4, 12-17 5 5 5,7,8 5,7,8, 18-20 6 1-20
		INSPECT					.75	
		TEST				.50		
		TEST				.50		
		SERVICE				.16		
		FAULT LOCATE				.50		
		FAULT LOCATE					.50	
		DISASSEMBLE				.30		
		DISASSEMBLE					.75	
		REPAIR				2.00		
REPAIR					5.51			
0101	CCA, PARALL SER CONV A1	INSPECT				.20	9,10 9,10,12, 15-17 11	
		TEST				.25		
		REPLACE				.01		
		FAULT LOCATE				.75		
		REPAIR				.50		
0102	POWER SUPPLY A3	INSPECT				.10	1 5 5	
		TEST				.10		
		REPLACE				.75		
		REPAIR				.25		
02	CABLE KIT, RF PROCESSOR							
0201	CABLE ASSY, RF W401	INSPECT				.02	1 5	
		TEST				.03		
		REPLACE				.01		
		REPAIR				.50		
0202	CABLE ASSY, RF W402	REPLACE				.01		
0203	CABLE ASSY, RF W403	REPLACE				.01		

MAINTENANCE ALLOCATION CHART

for

RF PROCESSOR TEST SET AN/USM-434
(Continued)

(1) Group Number	(2) Component/ Assembly	(3) Maintenance Function	(4) Maintenance Category					(5) Tools and Equipment
			C	O	F	H	D	
0204	CABLE ASSY, RF W404	REPLACE				.01		
0205	CABLE ASSY, RF W405	REPLACE				.01		
0206	CABLE ASSY, SP W406	INSPECT TEST REPLACE REPAIR				.02 .80 .01 .75		1 5,8
0207	CABLE ASSY, SP W407	INSPECT TEST REPLACE REPAIR				.02 .80 .01 .75		1 5,8
0208	CABLE ASSY, SP W408	INSPECT TEST REPLACE REPAIR				.02 .80 .01 .75		1 5,8
0209	CABLE ASSY, SP W409	INSPECT TEST REPLACE REPAIR				.02 .80 .01 .75		1 5,8

RF PROCESSOR TEST SET AN/USM-434

TOOL AND TEST EQUIPMENT REQUIREMENTS

Tool or Test Equipment Ref Code	Maintenance Category	Nomenclature	National/NATO Stock Number	Tool Number
1	H D	MULTIMETER	6625-01-031-0708	8600A-01
2	H D	POWER METER, RF TS-3793/U	6625-01-033-5050	436A009,022
3	H D	POWER SENSOR	6625-01-015-4412	8482A
4	H D	SIGNAL GENERATOR SG-1112(V)1/U	6625-01-566-3067	8640B004
5	H D	TOOL KIT	5180-00-610-8177	TK-105/G
6	D	NETWORK ANALYZER		8505A
7	H D	HEAT GUN		CV5700
8	H D	TOOL KT, WIRE/CABLE		DMC331
9	H D	TEST SET, ELEC CKT AN/USM-460	6625-01-038-5215	DTC-4800
10	H D	KIT, DTC 4800 CARDS	6625-01-068-1664	MK-1896/U
11	H D	REPAIR CENTER, SLDR	3439-00-196-0703	PRC350C
12	H D	PROBES, OSCILLOSCOPE	6625-01-044-4537	010-6062-15
13	H D	50 OHM TERMINATION	5985-00-163-2288	2002OP/C
14	H D	50 OHM ADAPTER TNC/OSM	5935-00-927-6745	21060A
15	H D	DUAL TRACE AMP AN-6880/U	6625-00-185-7817	7A18
16	H D	TIME BASE TD-1159/U	6625-00-261-5139	7B53A
17	H D	OSCILLOSCOPE, STORAGE OS-262(P)/U	6625-01-007-9416	7623A
18	D	INSERTION TOOL		600-0001-000
19	D	INSERTION TOOL		600-0004-000
20	D	EXTRACTION TOOL		600-0005-000

APPENDIX C

BASIC ISSUE ITEMS LIST, ITEMS TROOP INSTALLED OR AUTHORIZED LIST, AND REPAIR PARTS AND SPECIAL TOOLS LIST

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Section	I	INTRODUCTION	C-3	
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	III	ITEMS TROOP INSTALLED OR AUTHORIZED LIST (Not Applicable).....	C-11	
	IV	REPAIR PARTS LIST	C-13	
Group	01	RF Processor Test Set AN/USM-434.....	C-13	C-1
		Electrical Plug Connector P3.....	C-27	C-5
		RF Cable Assembly W1	C-29	C-6
		RF Cable Assembly W2.....	C-31	C-7
		RF Cable Assembly W3.....	C-33	C-8
		Mounting Plate Assembly A2.....	C-35	C-9
		Electrical Equipment Chassis.....	C-37	C-10
	0101	Parallel/Serial Converter CCA A1	C-19	C-2
		Electrical Plug Connector A1P1	C-22	C-3
	0102	Power Supply A3.....	C-24	C-4
	02	RF Processor Test Set Cable Kit.....	C-39	C-10A
	0201	RF Cable Assembly W401.....	C-41	C-11
	0202	RF Cable Assembly W402.....	C-43	C-12
	0203	RF Cable Assembly W403.....	C-45	C-13
	0204	RF Cable Assembly W404.....	C-47	C-14
	0205	RF Cable Assembly W405.....	C-49	C-15
	0206	Special Purpose Cable Assy W406.....	C-51	C-16
	0207	Special Purpose Cable Assy W407.....	C-53	C-17
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	VI	NATIONAL STOCK NUMBER AND PART NUMBER INDEX	C-61	

C-1/(C-2 blank)

Section I. INTRODUCTION

C-1. Scope.

This appendix lists basic issue items; items troop installed or authorized, repair parts; special tools; test, measurement, and diagnostic equipment (TMDE); and other support equipment required for operation and performance of organizational, direct support, and general support maintenance of the RF processor test set.

C-2. General.

This Basic Issue Items, Items Troop Installed or Authorized, Repair Parts and Special Tools List is divided into the following sections:

- a. Section II. Basic Issue Items List. Not applicable.
- b. Section III. Items Troop Installed or Authorized List. Not applicable.
- c. Section IV. Repair Parts List. A list of repair parts authorized for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending numerical sequence, with the parts in each group listed in figure and item number sequence. Bulk materials are listed in NSN sequence.
- d. Section V. Special Tools List. A list of special tools, TMDE, and support equipment authorized for the performance of maintenance at the organizational, direct support, and general support level.
- e. Section VI. National Stock Number and Part Number Index. A list, in ascending numerical sequence, of all National stock numbers appearing in the listings, followed by a list, in alphanumeric sequence, of all part numbers referenced to each illustration figure and item number appearance.

C-3. Explanation of Columns.

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

- a. Illustration. This column is divided as follows:
 - (1) Figure Number. Indicates the figure number of the illustration in which the item is shown.
 - (2) Item Number. The number used to identify each item called out in the illustration.

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

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

<u>Code</u>	<u>Definition</u>
PA	Item procured and stocked for anticipated or known usage.
PB	Item procured and stocked for insurance purpose because essentiality dictates that a minimum quantity be available in the supply systems.
PC	Item procured and stocked and which otherwise would be coded PA except that it is deteriorative in nature.
PD	Support item, excluding support equipment, procured for initial issue or outfitting and stocked only for subsequent or additional initial issues or outfittings. Not subject to automatic replenishment.
PE	Support equipment procured and stocked for initial issue or outfitting to specified maintenance repair activities.
PF	Support equipment which will not be stocked but which will be centrally procured on demand.
PG	Item procured and stocked to provide for sustained support for the life of the equipment. It is applied to an item peculiar to the equipment which, because of probable discontinuance or shutdown of production facilities, would prove uneconomical to reproduce at a later time.
KD	An item of a depot overhaul/repair kit and not purchased separately. Depot kit defined as a kit that provides items required at the time of overhaul or repair.
KF	An item of a maintenance kit and not purchased separately. Maintenance kit defined as a kit that provides an item that can be replaced at organizational or intermediate levels of maintenance.
KB	Item included in both a depot overhaul/repair kit and a maintenance kit.

Code	Definition
MO	Item to be manufactured or fabricated at organizational level.
MF	Item to be manufactured or fabricated at the direct support maintenance level.
MH	Item to be manufactured or fabricated at the general support maintenance level.
MD	Item to be manufactured or fabricated at the depot maintenance level.
AO	Item to be assembled at organizational level.
AF	Item to be assembled at direct support maintenance level.
AH	Item to be assembled at general support maintenance level.
AD	Item to be assembled at depot maintenance level.
XA	Item is not procured or stocked because the requirements for the item will result in the replacement of the next higher assembly.
XB	Item is not procured or stocked. If not available through salvage, requisition.
XD	A support item that is not stocked. When required, item will be procured through normal supply channels.

NOTE

Cannibalization or salvage may be used as a source of supply for any items source coded above except those coded XA, XD, and aircraft support items as restricted by AR 700-42.

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

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

<u>Code</u>	<u>Application/Explanation</u>
C	Crew or operator maintenance performed within organizational maintenance.
O	Support item is removed, replaced, used at the organizational level.
I	Support item is removed, replaced, used by the direct support element of integrated direct support maintenance.
F	Support item is removed, replaced, used at the direct support level.
H	Support item is removed, replaced, used at the general support level.
D	Support items that are removed, replaced, used at depot, mobile depot, specialized repair activity only.

NOTE

Codes "I" and "F" will be considered the same by direct support units.

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

<u>Code</u>	<u>Application/Explanation</u>
O	The lowest maintenance level capable of complete repair of the support item is the organizational level.
F	The lowest maintenance level capable of complete repair of the support item is the direct support level.
H	The lowest maintenance level capable of complete repair of the support item is the general support level.
D	The lowest maintenance level capable of complete repair of the support item is the depot level, performed by the Materiel Support Command Depot Activity.
L	Repair restricted to designated specialized repair activity.

<u>Code</u>	<u>Application/Explanation</u>
Z	Nonreparable. No repair is authorized.
B	No repair is authorized. The item may be reconditioned by adjusting, lubricating, etc., at the user level. No parts or special tools are procured for the maintenance of this item.

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

<u>Recoverability Codes</u>	<u>Definition</u>
Z	Nonreparable item. When unserviceable, condemn and dispose at the level indicated in position 3.
O	Reparable item. When uneconomically repairable, condemn and dispose at organizational level.
F	Reparable item. When uneconomically repairable, condemn and dispose at the direct support level.
H	Reparable item. When uneconomically repairable, condemn and dispose at the general support level.
D	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal not authorized below depot level.
L	Reparable item. Repair, condemnation, and disposal not authorized below depot/specialized repair activity level.
A	Item requires special handling or condemnation procedures because of specific reasons (i.e., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

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

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

NOTE

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

e. Federal Supply Code for Manufacturer (FSCM). The FSCM is a 5-digit numeric code listed in SB 708-42 which is used to identify the manufacturer, distributor, or Government agency, etc. For BIIL and ITIAL, see explanation of description column, paragraph f.

f. Description. Indicates the Federal item name and, if required, a minimum description to identify the item. (In BIIL and ITIAL only, the following will be used: "The last line for each item in the BIIL and ITIAL indicates the part number with the FSCM in parentheses.") Items that are included in kits and sets are listed below the name of the kit or set with the quantity of each item in the kit or set indicated in the quantity incorporated in unit column. When the part to be used differs between serial numbers of the same model, the effective serial numbers are shown as the last line of the description. In the Special Tools List, the initial Basis of Issue (BOI) appears as the last line in the entry for each special tool, TMDE, and support equipment. When density of equipments supported exceeds density spread indicated in the basis of issue, the total authorization is increased accordingly.

g. Unit of Measure (U/M). Indicates the standard of the basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr, etc.). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

h. Quantity Furnished with Equipment (Basic Issue Items Only). Indicates the quantity of the basic issue item furnished with the equipment.

i. Quantity Authorized (Items Troop Installed or Authorized Only). Indicates the quantity of the item authorized to be used with the equipment.

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

C-4. Special Information.

a. Repair parts kits and gasket sets are listed at the end of the repair parts listing for the last figure containing parts of the kit.

b. (Applicable to revisions or changes only.) Action change codes indicated in the left-hand margin of the listing page denote the following:

- N - Indicates an added item
- C - Indicates a change in data
- R - Indicates a change in NSN only

c. NSN's that are missing from P source coded items have been applied for and will be added to this TM by future change or revision when they are entered in the Army Master Data File (AMDF). Until the NSN's are established and published, submit exception requisition to Commander, Vint Hill Farms Station, Warrenton, Virginia, Attn: Electronics Materiel Readiness Activity (NICP).

d. The AN/TSQ-114 uses three levels of maintenance: organizational, general support, and depot. All direct support is considered general support.

C-5. How to Locate Repair Parts.

a. When National Stock Number or Part Number is Unknown.

(1) First. Using the table of contents, determine the assembly or subassembly within which the repair part belongs. This is necessary since illustrations are prepared for assemblies or subassemblies, and listings are divided into the same groups.

(2) Second. Find the illustration covering the assembly or subassembly to which the repair part belongs.

(3) Third. Identify the repair part on the illustration and note the illustration figure and item number of the repair part.

(4) Fourth. Using the Repair Parts Listing, find the figure and item number noted on the illustration.

b. When National Stock Number or Part Number is Known.

(1) First. Using the Index of National Stock Numbers and Part Numbers, find the pertinent National stock number or part number. This index is in ascending NSN sequence followed by a list of part numbers in ascending alphanumeric sequence, cross-referenced to the illustration figure number and item number.

(2) Second. After finding the figure and item number, locate the figure and item number in the repair parts list.

C-6. Abbreviations.

AbbreviationsExplanation

ADPTR	Adapter
BD	Board
BR	Branched
CAP	Capacitor
CCA	Circuit Card Assembly [also called Printed Wiring Assembly (PWA)]
CER	Ceramic
CG	Cage
CHAS	Chassis
CKT	Circuit
CL	Clinch
CLP	Clamp
CMPNT	Component
CMPSN	Composition
DGTL	Digital
DSPL	Display
DVC	Device
DWR	Drawer
ELCTLT	Electrolytic
ELEK	Electronic
EJCTR	Ejector
EXT	External
FSTNR	Fastener
FXD	Fixed
GEN	Generator
HF	High Frequency
LIN	Linear
MICROCKT	Microcircuit
MTG	Mount
NTWK	Network
PL	Plate
PRERGLTR	Preregulator
PTD	Printed
RD	Round
RDR	Reader
RES	Resistor
RGLTD	Regulated
RTNR	Retainer
SCND	Semiconductor
SGL	Signal
SKT	Socket
SLFLKG	Self-Locking
SP	Special Purpose
SPRT	Support
SW	Switch
THD	Thread
WRG	Wiring

Section II. BASIC ISSUE ITEMS LIST

NOT APPLICABLE

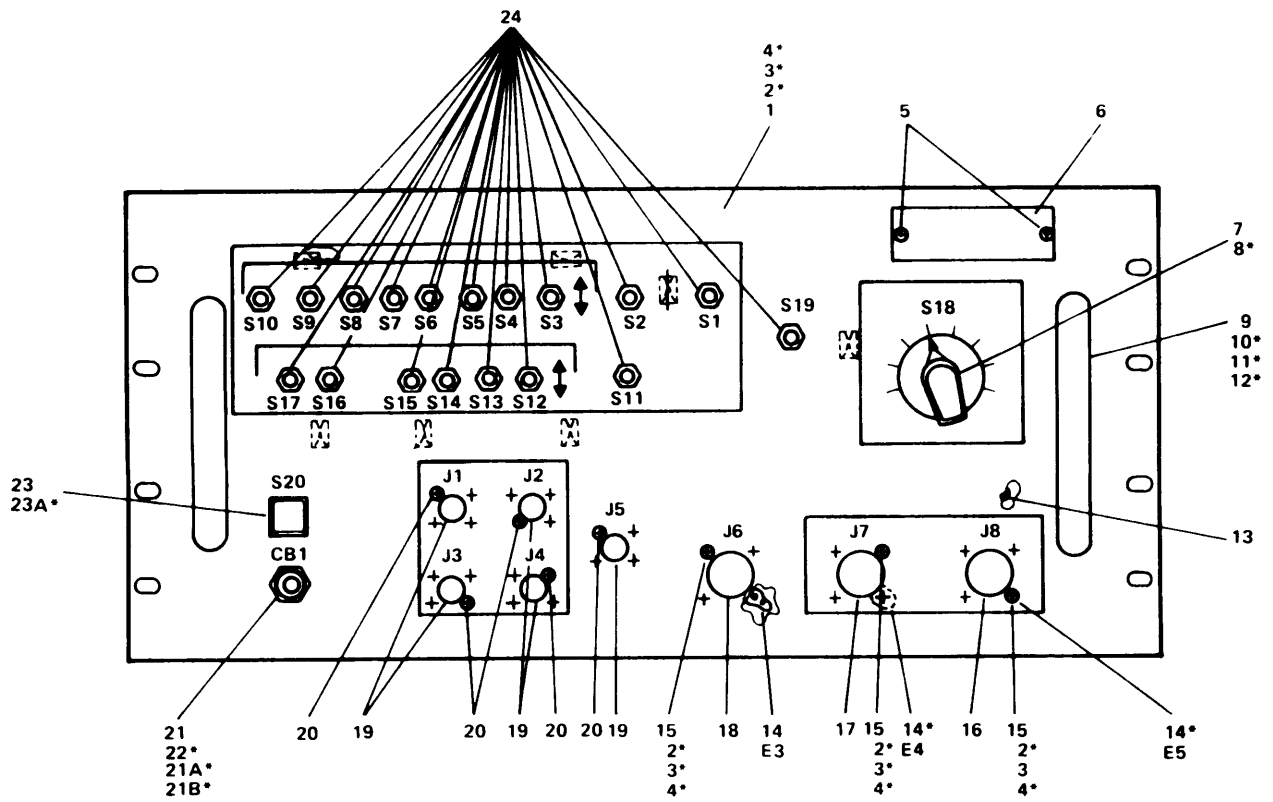
Section III. ITEMS TROOP INSTALLED OR AUTHORIZED LIST

NOT APPLICABLE

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
						GP 01 - RF PROCESSOR TEST SET AN/USM-434		
C-1		XBFDD	5865-01-071-1803	1951-14603-1	15942	TEST SET,PRCSR	EA	1
C-1	1	XBFZZ		1951-1-5071-1	15942	PANEL, FRONT	EA	1
C-1	2	XBFZZ	5310-00-933-8118	NS35338-135	96906	WASHER,LOCK	EA	56
C-1	3	XBFZZ	5310-00-595-6211	MS15795-803	96906	WASHER, FLAT	EA	138
C-1	4	XBFZZ	5310-00-810-7785	NAS671-4	80205	NUT,PLAIN,HEX	EA	33
C-1	5	XBFZZ	5305-01-051-2717	NASL190EO4P3L	80205	SCREW, SLFLKG	EA	2
C-1	6	XBFZZ		1951-1-3314-2	15942	PLATE, IDENT	EA	1
C-1	7	PAFZZ		1951-1-3305-1	15942	KNOB	EA	1
C-1	8	PAFZZ		9M30-07-1-8N	81073	SWITCH,ROTARY	EA	1
C-1	9	XBFZZ		VPC241	08730	HANDLE, BOW	EA	2
C-1	10	XBFZZ	5305-00-059-3660	MS51958-64	96906	SCREW, MACHINE	EA	4
C-1	11	XBFZZ	5310-00-619-1148	MS15795-808	96906	WASHER,FLAT	EA	4
C-1	12	XBFZZ	5310-00-933-8120	MS35338-138	96906	WASHER,LOCK	EA	4
C-1	13	XBFZZ	5307-00-486-3376	CFHC440-6	46384	STUD,PLAIN, THD	EA	22
C-1	14	XBFZZ	5940-00-557-1629	MS25036-149	96906	TERMINAL,LUG	EA	3
C-1	15	XBFZZ	5305-01-047-6239	1MS24693-2	96906	SCREW, MACHINE	EA	22
C-1	16	PAFZZ	5935-01-065-8000	NS27508E12F8S	96906	CONN,RCPT,ELEC	EA	1
C-1	17	PAFZZ	5935-01-065-6390	MS27508E12F98S	96906	CONN,RCPT,ELEC	EA	1
C-1	18	PAFZZ	5935-01-042-2410	MS27508E12F35SA	96906	CONN,RCPT,ELEC	EA	1
C-1	19	PAFZZ	5935-00-402-1153	21051	16179	ADAPTER,CONN	EA	5
C-1	20	XBFZZ		A145 82308LL	70318	SCR EW,MACHINE	EA	20
C-1	21	PAFZZ	5925-00-264-5649	1526-005-105	76374	CIRCUIT BREAKER	EA	1
C-1	21A	XBFZZ	5940-00-143-4774	MS25036-153	96906	TERMINAL,LUG	EA	6
C-1	21B	XBFZZ	5940-00-204-8966	MS25036-102	96906	TERMINAL,LUG	EA	7
C-1	22	XBFZZ		1951-1-2039-1	15942	PLATE, INSTR	EA	6
C-1	23	PAFZZ		10648EL5-1	08719	SWITCH,PUSH	EA	1
C-1	23A	XBFZZ	5999-00-137-5066	N39029-1-16-20	81349	CONTACT,ELEC	EA	7
C-1	24	PAFZZ		LFH123E	31356	SWITCH, TOGGLE	EA	18
C-1	25	PAFFD	5865-01-071-4304	1951-1-816-1	15942	POWER SUPPLY (SEE FIG 4)	EA	1
C-1	26	XBFZZ	5305-00-205-3674	NAS1189E06P4L	80205	SCREW,SLFLKG	EA	5
C-1	27	XBFZZ	5305-00-054-5641	S51957-13	96906	SCREW,MACHINE	EA	53

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
C-1	28	XBFFF		1951-1-4733-1	15942	COVER,ACCESS	EA	1
C-1	29	XBFZZ	5320-00-117-6938	MS20426A03-4	96906	RIVET, SOLID	EA	102
C-1	30	XBFZZ	5999-00-234-1997	20-12115	07700	SHLD GSKT,ELEC	EA	2
C-1	31	PAFZZ	5325-00-601-7292	557-12	71286	STUD,TURNLOCK	EA	48
C-1	32	PAFZZ	5310-00-849-1984	5S3-2	71286	WASHER, SPLIT	EA	48
C-1	33	XBFFF		1951-1-4753-1	15942	PLATE,END	EA	1
C-1	34	XBFFF		1951-1-2440-1	15942	BRACKET,ANGLE	EA	3
C-1	35	PAFZZ	5945-00-038-5823	MS27401-4	96906	RELAY ARMATURE	EA	2
C-1	36	PAFZZ		SO-1049-8772	35344	SKT,ELEK CNPNT	EA	2
C-1	37	PAOZZ		1951-1-4865-1	15942	CABLE ASSYORF (SEE FIG 6)	EA	1
C-1	38	XBFFF		1951-1-2441-1	15942	CLAMP CABLE	EA	6
C-1	39	XBFFF		1951-1-4763-1	15942	PLATE,MOUNTING	EA	1
C-1	40	XBFZZ		NAS679-4	80205	NUT,SLFLKG,HEX	EA	22
C-1	41	XBFZZ	5310-00-589-7962	FE440	46384	NUT, SLFLKG, CL	EA	31
C-1	42	PAFZZ		PD4 055	12457	DIVIDER,PWR,RF	EA	1
C-1	43	XBFZZ	5305-00-054-6651	MS51957-27	96906	SCREW, ACHINE	EA	10
C-1	44	XBFZZ	5310-00-722-5998	MS15795-805	96906	WASHER,FLAT	EA	14
C-1	45	PADZZ		1951-1-3230-1	15942	CABLE ASSY,RF (SEE FIG 8)	EA	1
C-1	46	PADZZ	5985-00-159-7977	20600-6	16179	ATTENUATOR,FXD	EA	5
C-1	47	PADZZ		1951-1-4865-2	15942	CABLE ASSY,RF (SEE FIG 7)	EA	1
C-1	48	XBFZZ		10-100-00000	31413	CONN,PLUG,ELEC (SEE FIG 5)	EA	1
C-1	49	PAFZZ	5999-01-042-7771	001-6500-513	31413	CONTACT, ELEC	EA	49
C-1	50	PAFZZ	5945-00-509-2831	MS27400-4	96906	RELAY, ARMATURE	EA	1
C-1	51	XBFZZ	5305-00-054-6650	MS51957-26	96906	SCREW,MACHINE	EA	7
C-1	52	XBFZZ		1951-1-244-1	15942	SPACER,PLATE	EA	3
C-1	53	PAFZZ	5935-01-049-3172	451116-041	03743	SKT,ELEK CMPNT	EA	1
C-1	54	XBFFF		1951-1-3250-1	15942	BRACKET,RELAY	EA	1
C-1	55	XBFZZ		1951-1-3290-1	15942	PLATE ASSY,MTG (SEE FIG 9)	EA	1
C-1	56	XBFZZ	5305-00-054-5648	MS51957-14	96906	SCREW,MACHINE	EA	9
C-1	57	XBFZZ	5310-00-929-6395	MS35338-136	96906	WASHER,LOCK	EA	4
C-1	58	PAFZZ	5310-00-589-8028	FE632	46384	NUT,SLFLKG,CL	EA	2

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
C-1	59	XBFZZ		06-0302-1886	28817	PANEL, INTK, IR	EA	1
C-1	60	XBFZZ	5305-00-210 -5162	NAS 189E04P4L	80205	SCREW, SLFLKG	EA	20
C-1	61	PAFFD	5865-01-066-7385	195-1-1-4607-1	15942	CKT CARD ASSY (SEE FIG 2)	EA	1
C-1	62	XBFZZ		1951-1-2373-1	15942	SUPPORT,CD GO	EA	4
C-1	63	PAFZZ	5999-00-759-0618	1450	23880	GUIDE,CARD	EA	8
C-1	64	XBFZZ	5999-00-406-2054	3000	23880	TAB,LOCKING	EA	16
C-1	65	XBFZZ		1951-1-3238-1	15942	BRACKET,NTG	EA	1
C-1	66	XBFZZ	5930-00-615-673i	MS2S171-1S	96906	NIPPLE,CBL ELEC	EA	5
C-1	67	PAFZZ		LF1BB88	29098	FILTER,RFI	EA	1
C-1	68	XBFZZ	5305-01-029-8891	NAS1189E06P6L	80205	SCR E, SLFLKG	EA	4
C-1	69					NOT USED		
C-1	70	XBFZZ	5305-00-054-5652	S5 1957-18	96906	SCREW,MACHINE	EA	2
C-1	71	XBFZZ	5310-00-058-3599	MS35335-57	96906	WASHER,LOCK	EA	1
C-1	72	XBFZZ	5970-01-043-5759	N276	08863	INSULATOR	EA	2
C-1	73	XBFZZ	5940-00-839-0828	SE26XF01	81349	TERM INALSTUO	EA	2
C-1	74	PAFZZ		045870	10003	SLIDE DWR, EXT	EA	2
C-1	75	XBFZZ		MS24583-42	96906	SCREW,MACHINE	EA	8
C-1	76	PAFZZ	5935-01-066-1933	NS27484T14F5PA	96906	CONN,RCPT,ELEC	EA	1
C-1	77	PAFZZ	5935-01-06-1594	MS27484T14F5P	96906	CONN,PLUG,ELEC	EA	1
C-1	76	XBFFF		1951-1-4735-1	15942	COVER,ACCESS	EA	1
C-1	79	XBFZZ	5865-00-984-6629	06-0302-2133	28817	FILTER,AIR	EA	1
C-1	80	PAFZZ	5905-00-116-8561	RCR2OG2?OJP	81349	RES,FXD,CMPSN	EA	1
C-1	81	XBFZZ		2174-185-1	17117	TERMINAL,LUG	EA	2
C-1	82	XBFZZ	5310-00-812-4294	NAS671C2	80205	NUT,PLAIN,HEX	EA	2
C-1	83	XBFZZ	5310-00-595-6761	1MS15795-802	96906	WASHER,FLAT	EA	2
C-1	84	XBFZZ	5310-00-928-2690	MS35338-134	96906	WASHER,LOCK	EA	2
C-1	85	PAFZZ		TC342	59730	SPRT,ELEC CABLE	EA	11
C-1	86	PAFZZ	4920-00-110-5317	TC817	59730	SPRT, ELEC CABLE	EA	2
C-1	87	XBFFF		1951-1-5080-1	15942	CHAS, ELEC EQPT (SEE FIG 10)	EA	1

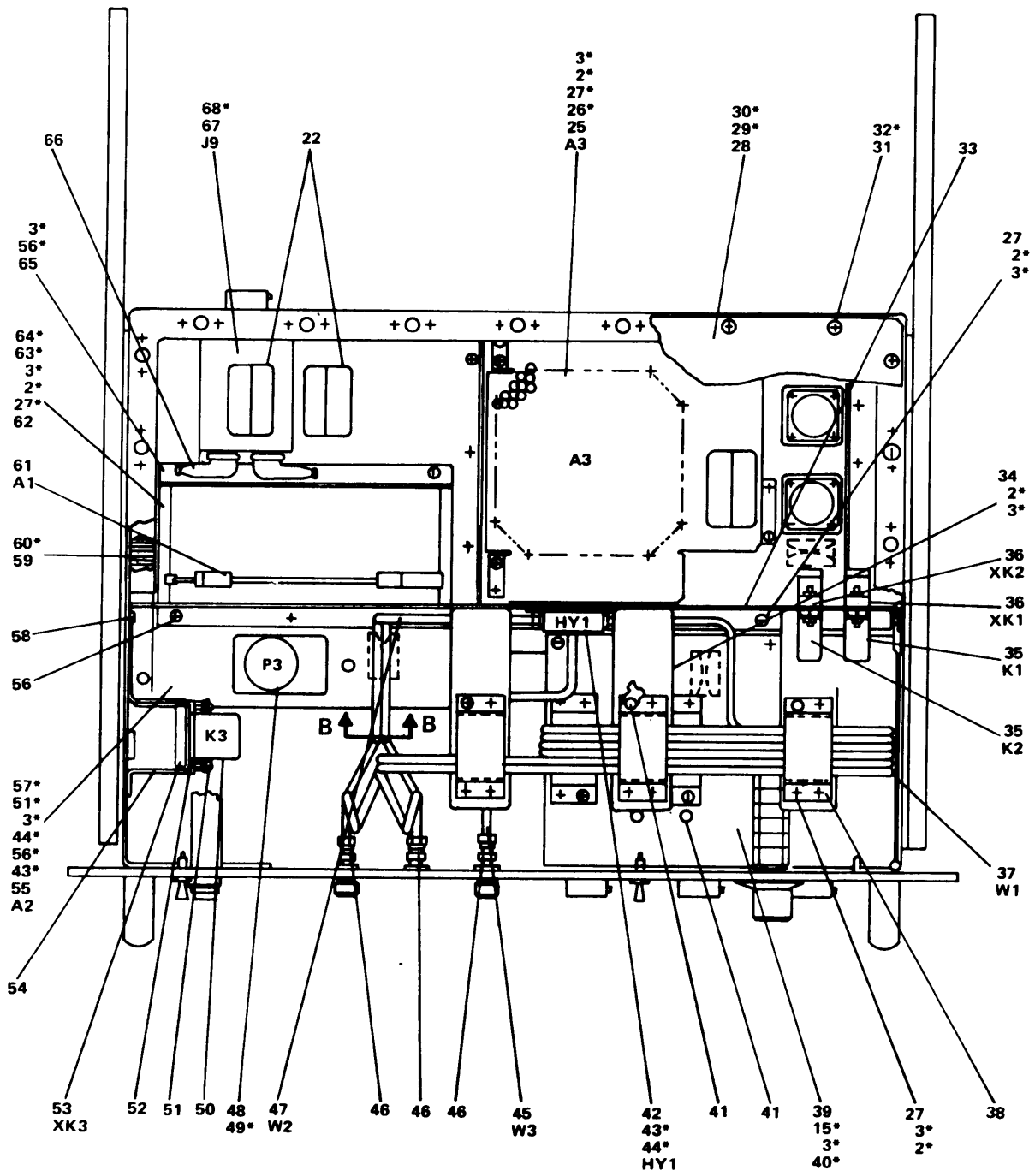


*DENOTES HIDDEN PART

FRONT VIEW

BDR 130
1951 1 4603 1

Figure C-1. RF Processor Test Set AN/USM-434 (Sheet 1 of 3)



TOP VIEW

*DENOTES HIDDEN PART

BDR-131
1951-1-4603-1

Figure C-1. RF Processor Test Set AN/USM-434 (Sheet 2-of 3)

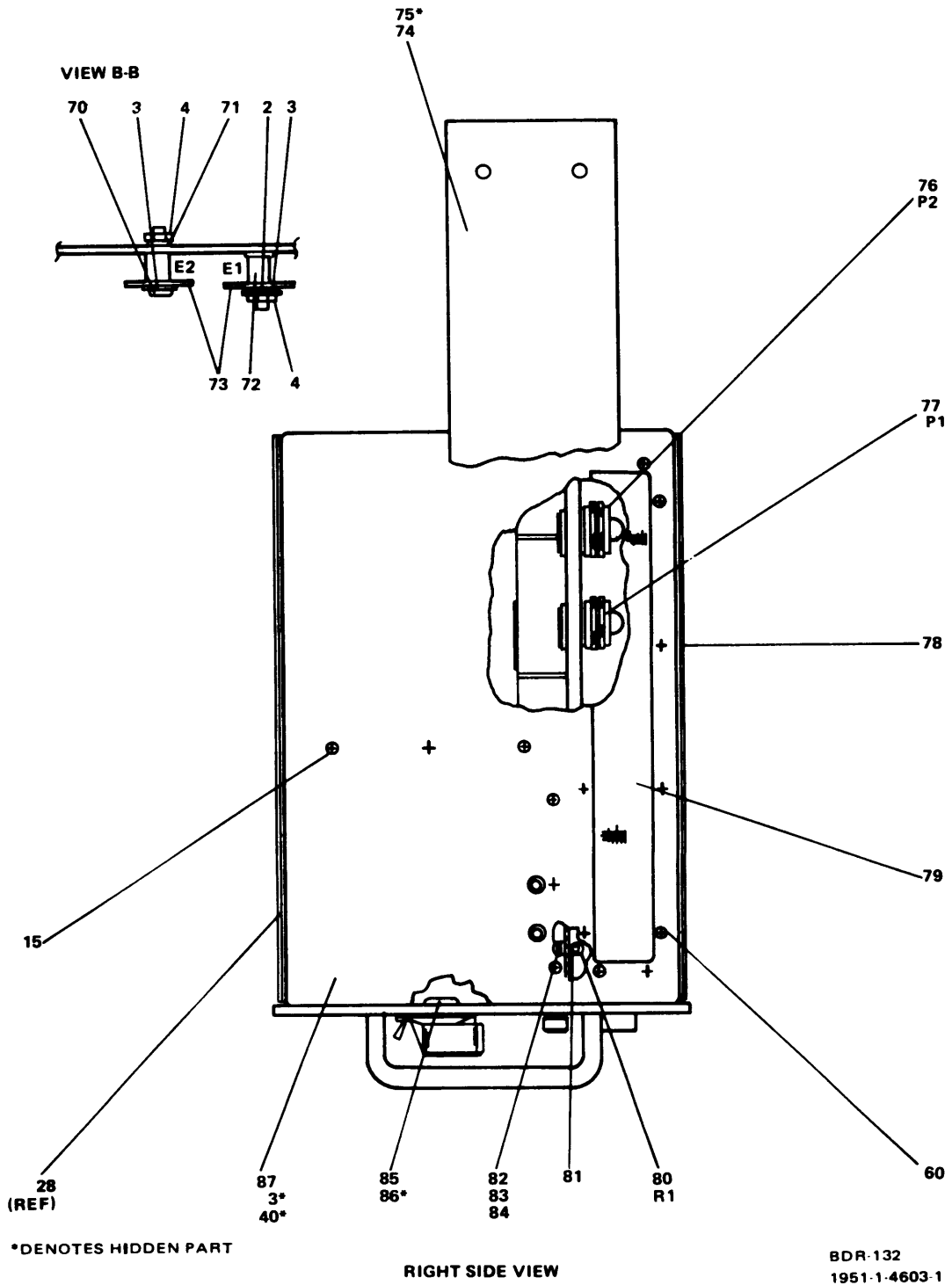
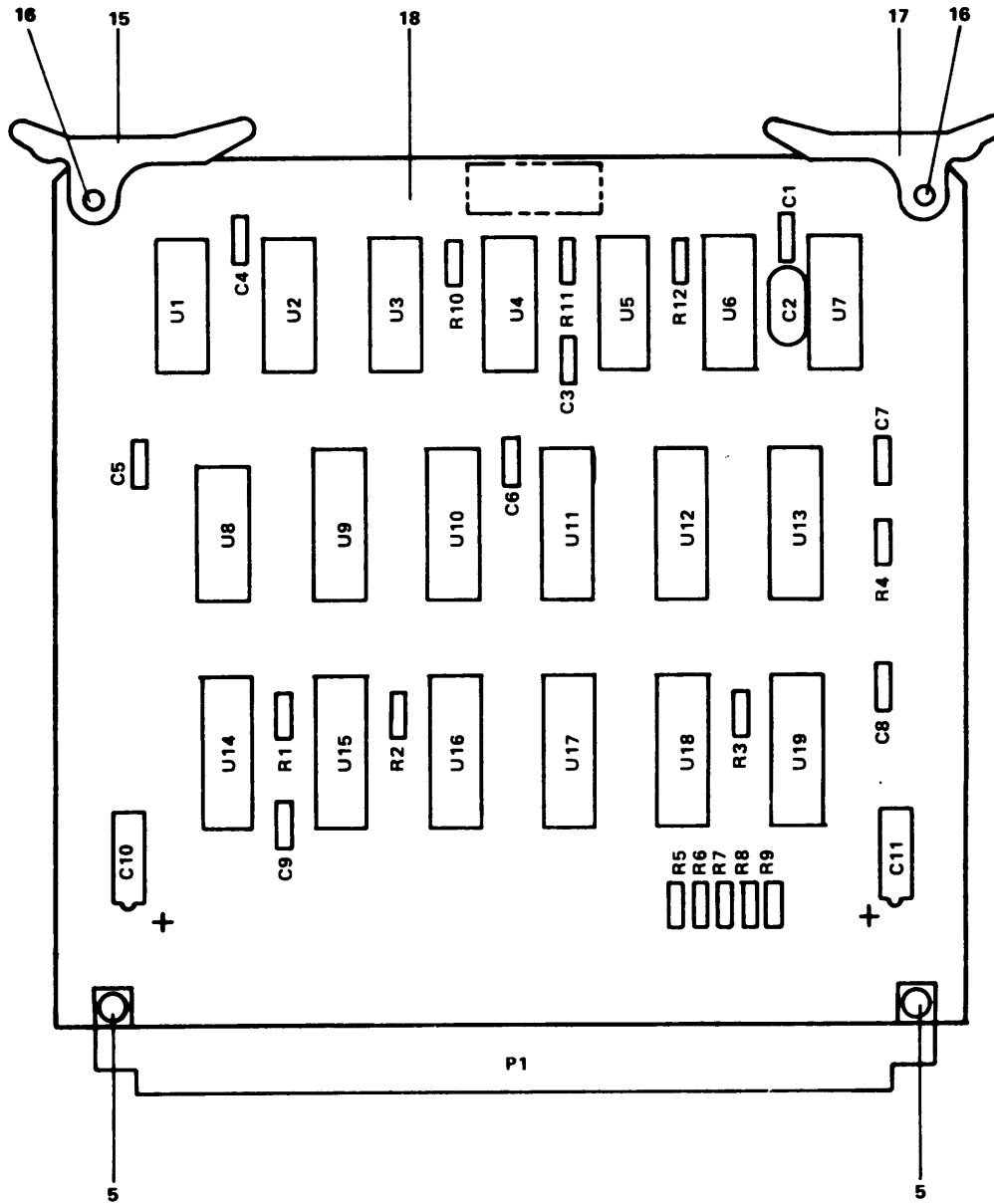


Figure C-1. RF Processor Test Set AN/USM-434 (Sheet 3 of 3)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
						GP 0101 - PARRALLEL/SERIAL CONVERTER CCA A1		
C-2	1	PAFZZ	5910-00-113-5499	M39014-02-1270	81349	CAP FXDOCER	EA	8
C-2	2	PAFZZ		CMR04F201J0DP	81349	CAP,FXD,MICA	EA	1
C-2	3	PAFZZ	5910-00-996-0667	M39003-01-2511	81349	CAP,FXD,ELCTLT	EA	2
C-2	4	PAFZZ		M10001-00844AE	31413	CONN,PLUG ELEC (SEE FIG 3)	EA	1
C-2	5	XBFZZ	5320-00-243-8357	MS20470A02-5	96906	RIVET,SOLID	EA	2
C-2	6	PAFZZ	5905-00-110-7620	RCR07G102JP	81349	RES FXD,CMP SN	EA	12
C-2	7	PAFZZ	5962-00-348-2541	M38510-002058C8	81349	MICROCKT,DGTL	EA	3
C-2	8	PAFZZ	5962-00-318-2223	M38510-001048C8	81349	MICROCKT,DGTL	EA	1
C-2	9	PAFZZ	5962-00-064-1798	DS7830J8838	27014	MICROCKT,LIN	EA	2
C-2	10	PAFZZ	5962-01-008-9563	MC43248CBS	04713	MICROCKT,DGTL	EA	1
C-2	11	PAFZZ	5962-00-341-0544	38510-00105BCB	81349	MICROCKT,DGTL	EA	1
C-2	12	PAFZZ	5962-00-369-7641	M38510-01306BEB	81349	MICROCKT,DGTL	EA	1
C-2	13	PAFZZ		S54165F8838	18324	MICROCKT,DGTL	EA	3
C-2	14	PAFZZ	5962-00-430-2641	38510-01405 BEB	81349	MICROCKT,DGTL	EA	7
C-2	15	PAFZZ	5999-01-028-6070	14009-1P14	91506	RTNR-EJCTR,CARD	EA	1
C-2	16	XBFZZ	5999-01-068-9564	14007-1P4	91506	PIN,SPRING	EA	2
C-2	17	PAFZZ	5999-00-605-7936	14009-1P12	91506	RTNR-EJCTR CARD	EA	1
C-2	18	XAFZZ		1951-1-4606-1	15942	PRINTED MRG BD	EA	1



BDR-126
1951-1-4607-1

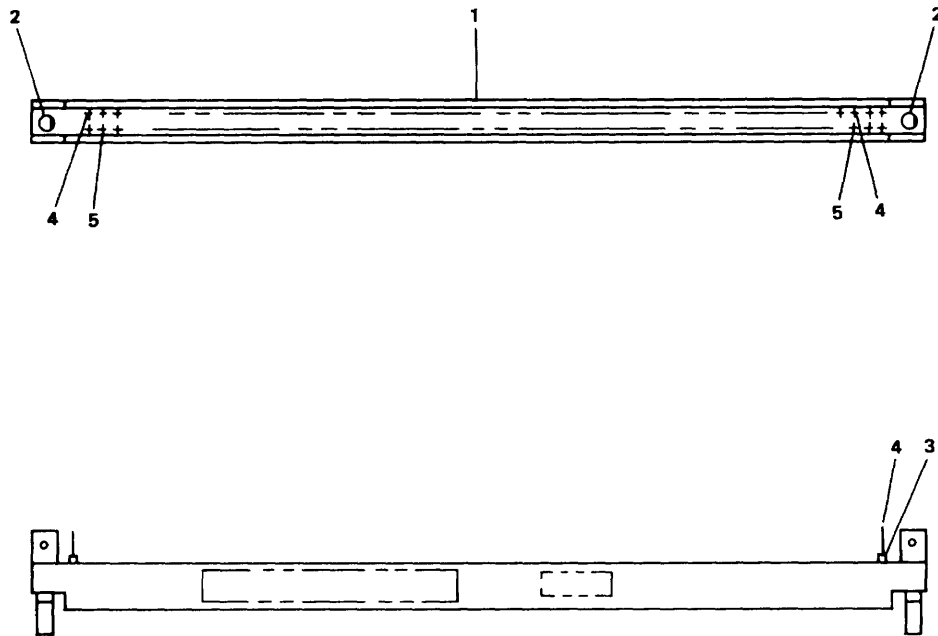
Figure C-2. Parallel/Serial Converter CCA A1 (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
C1	1										
C2	2										
C3	1										
C4	1										
C5	1										
C6	1										
C7	1										
C8	1										
C9	1										
C10	3										
C11	3										
P1	4										
R1	6										
R2	6										
R3	6										
R4	6										
R5	6										
R6	6										
R7	6										
R8	6										
R9	6										
R10	6										
R11	6										
R12	6										
U1	7										
U2	7										
U3	7										
U4	8										
U5	9										
U6	9										
U7	10										
U8	11										
U9	12										
U10	13										
U11	13										
U12	13										
U13	14										
U14	14										
U15	14										
U16	14										
U17	14										
U18	14										
U19	14										

Figure C-2. Parallel/Serial Converter CCA A1 (Sheet 2 of 2)

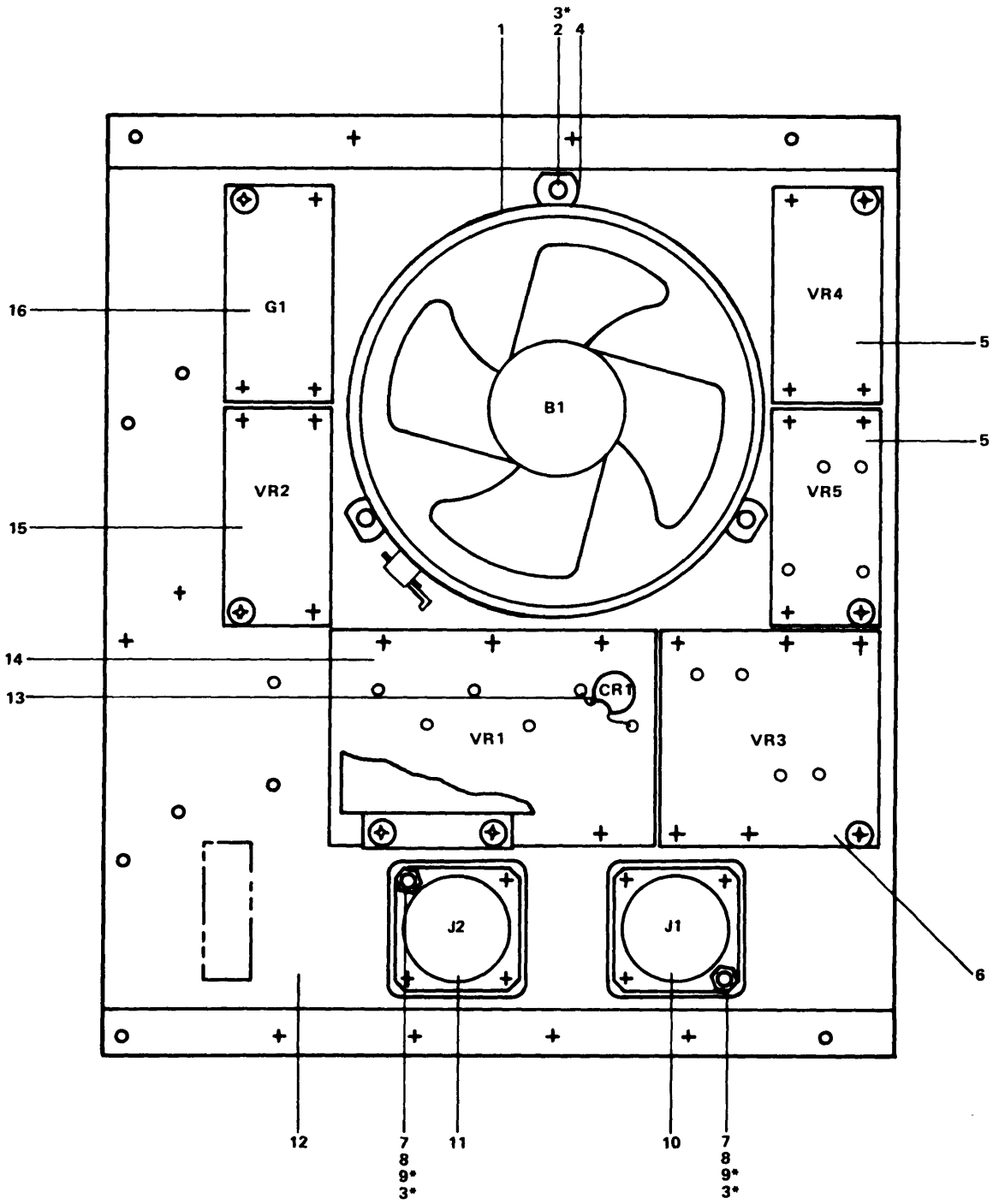
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
C-3	1	XAFZZ		613-0001-505	31413	EXTRUSION,ADPTR	EA	1
C-3	2	PAFZZ	5935-01-016-1241	536-0012-000	31413	KEY,POLARIZING	EA	2
C-3	3	XAFZZ	5970-00-355-8018	304-0001-002	31413	INSULATOR ADPTR	EA	92
C-3	4	PAFZZ	5999-01-016-0253	001-1805-509	31413	CONTACT ELEC	EA	46
C-3	5	PAFZZ	599-901-016-0254	001-1802-509	31413	CONTACT,ELEC	EA	46



BDR-043
16-124186
16-001069

Figure C-3. Electrical Plug Connector A1P1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
						GP 0102 - POWER SUPPLY A3		
C-4	1	PAFZZ	4140-01-064-6473	027143	82871	FAN, VANEAXIAL	EA	
C-4	2	XBFZZ	5305-00-054-5647	MS5195-13	96906	SCREW, MACHINE	EA	1
C-4	3	XBFZZ	5310-00-595-6211	MS15795-803	96906	WASHER FLAT	EA	4
C-4	4	XBFZZ	5340-00-984-669	271166	82877	CLP, RIM CLENCH	EA	
C-4	5	PAFZZ	6130-00-005-7882	5TR13	31557	POWER SUPPLY	EA	
C-4	6	PAFZZ	6130-01-065-6070	5TR50	31557	POWER SUPPLY	EA	
C-4	7	XBFZZ	5310-00-810-7785	NAS671-4	80205	NUT, PLAIN, HEX	EA	
C-4	8	XBFZZ	5305-00-056-9961	MS24693C4	96906	SCREW, MACHINE	EA	
C-4	9	XBFZZ	5310-00-933-8118	MS35338-135	96906	WASHER, LOCK	EA	4
C-4	10	PAFZZ	5935-01-066-3036	MS27508E14FSS	96906	CONN, RCPT, ELEC	EA	
C-4	11	PAFZZ	5935-01-065-6400	MS27508E14FSSA	96906	CONN, RCPT, ELEC	EA	
C-4	12	XBFZZ		1951-1-4769-1	15942	HEATSINK	EA	
C-4	13	PAFZZ	5905-00-255--950	V130LA10A	09019	RES, VOLTAGE SE	EA	
C-4	14	PAFZZ	6130-01-015-6265	80ASPL2S1	31557	POWER SUPPLY	EA	
C-4	15	PAFZZ	6110-01-015-6835	80ASP12S2	31557	POWER SUPPLY	EA	
C-4	16	PAFZZ	5895-01-037-0968	80G90W40	31557	GEN, HF, DC INPUT	EA	
C-4	17	XBFFF		1951-1-4785-1	15942	COVER, POWER SPLY	EA	
C-4	18	XBFZZ	5305-00-054-5656	SS551957-22	96906	SCREW, MACHINE	EA	2
C-4	19	XBFZZ		12-124317-1	28815	CONE, DEFLECTOR	EA	
C-4	20					NOT USED		
C-4	21	XBFFF		1951-1-4782-1	15942	COVER, HEATSINK	EA	
C-4	22	XBFZZ	5320-00-117-6938	MS20426A03-4	96906	RIVETESOLID	EA	

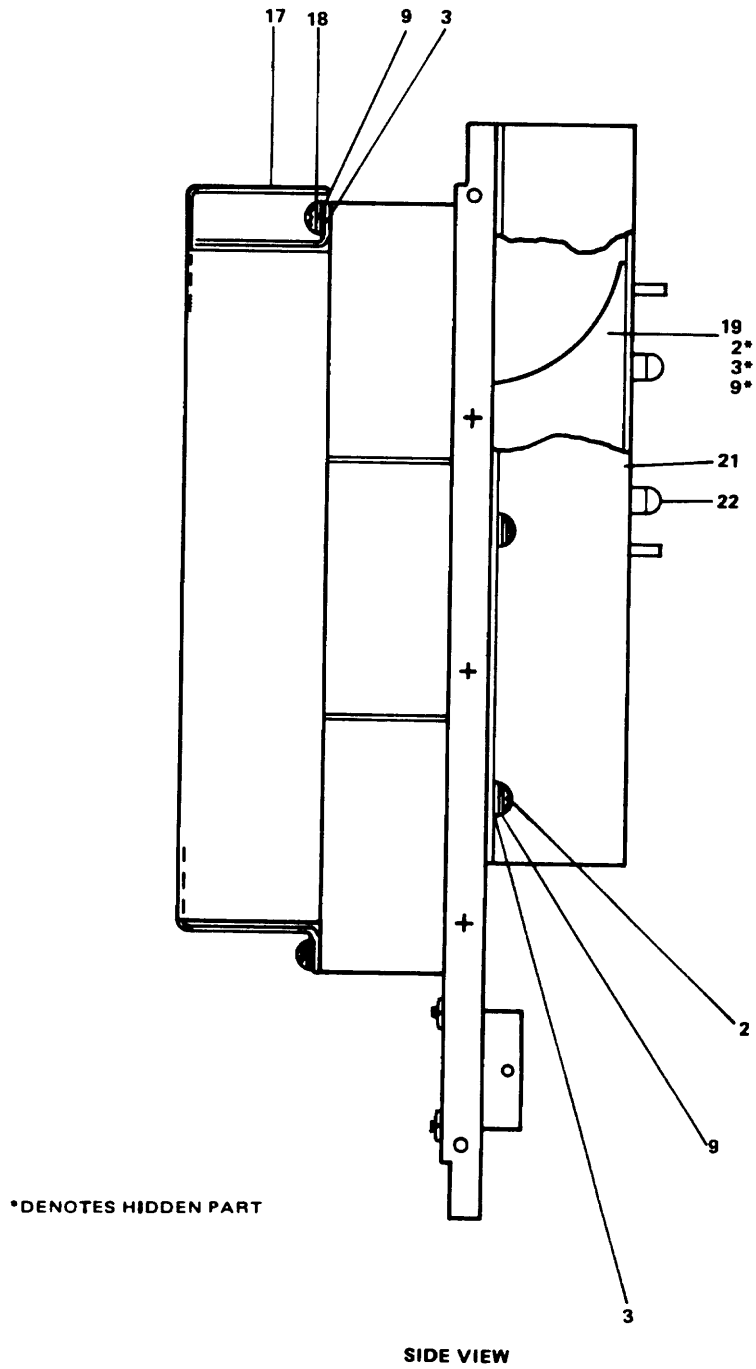


FRONT VIEW

*DENOTES HIDDEN PART

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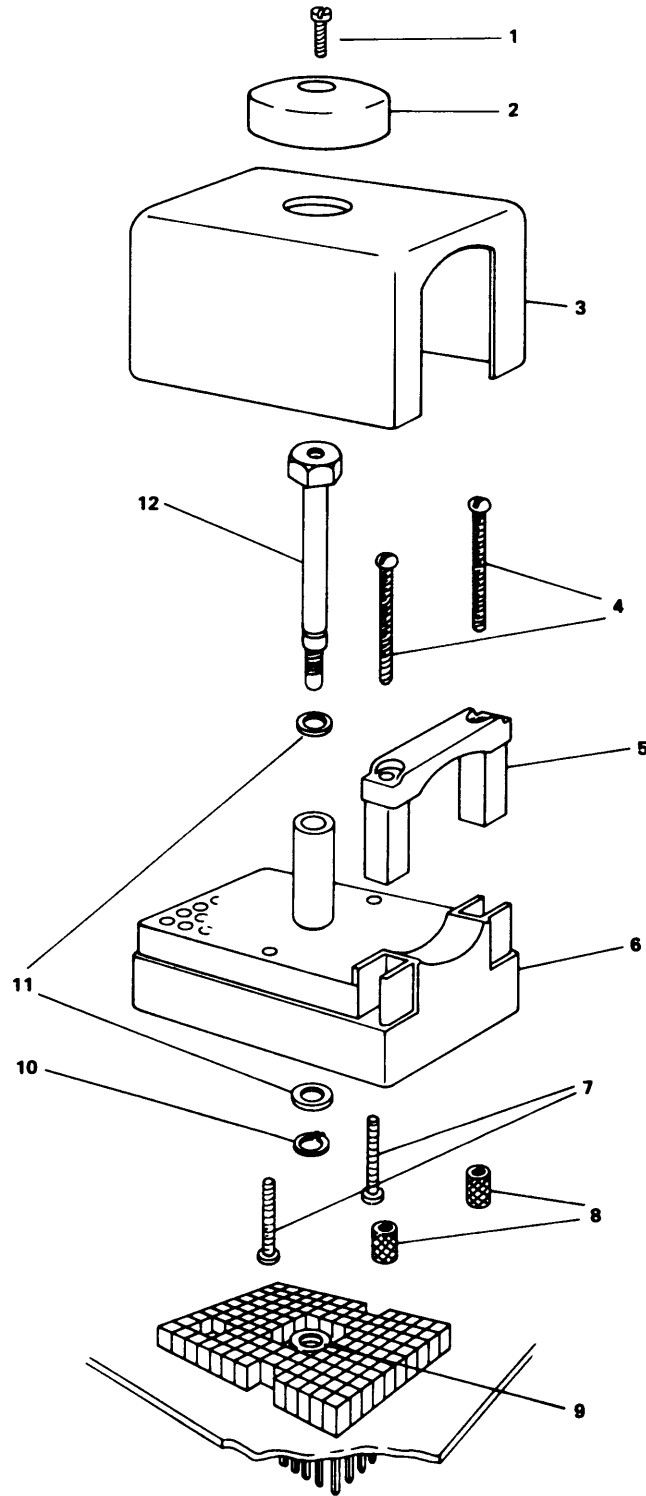
Figure C-4. Power Supply A3 (Sheet 1 of 2)



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Figure C-4. Power Supply A3 (Sheet 2 of 2)

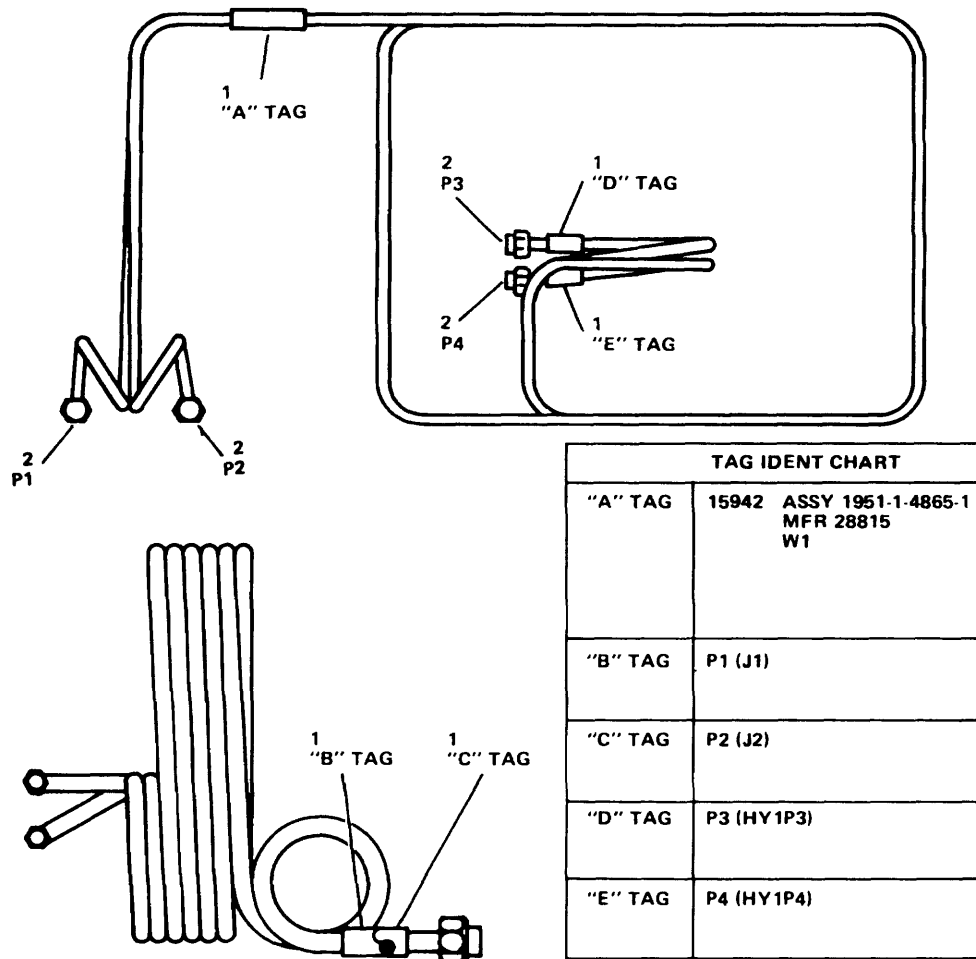
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
C-5	1	XBFZZ	5305-00-301-6203	800-0159-000	31413	SCREW, MACHINE	EA	1
C-5	2	XBFZZ		545-0000-000	31413	KNOB	EA	1
C-5	3	XBFZZ	5935-01-032-5441	525-0000-000	31413	COVER ELEC CONN	EA	1
C-5	4	XAFZZ		800-0156-000	31413	SCREW, MACHINE	EA	2
C-5	5	XAFZZ	5935-01-021-7829	522-0000-000	31413	CLAMP, CABLE	EA	1
C-5	6	XAFZZ	5970-00-135-0006	313-0000-000	31413	INSULATOR, PLATE	EA	1
C-5	7	XAFZZ	5305-00-301-6215	800-0157-000	31413	SCREWNMACHINE	EA	2
C-5	8	XAFZZ		599-0000-000	31413	INSERT, SCR THD	EA	2
C-5	9	XAFZZ	5325-01-039-7460	516-0027-000	31413	NUT, SLFLKG, RD	EA	1
C-5	10	XAFZZ		800-0155-000	31413	WASHER, LOCK	EA	1
C-5	11	XAFZZ	5310-00-301-5887	800-0161-000	31413	MASHER, FLAT	EA	2
C-5	12	XBFZZ	5305-00-301-6218	512-0000-000	31413	BOLT*NACHIN E	EA	1



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Figure C-5. Electrical Plug Connector P3

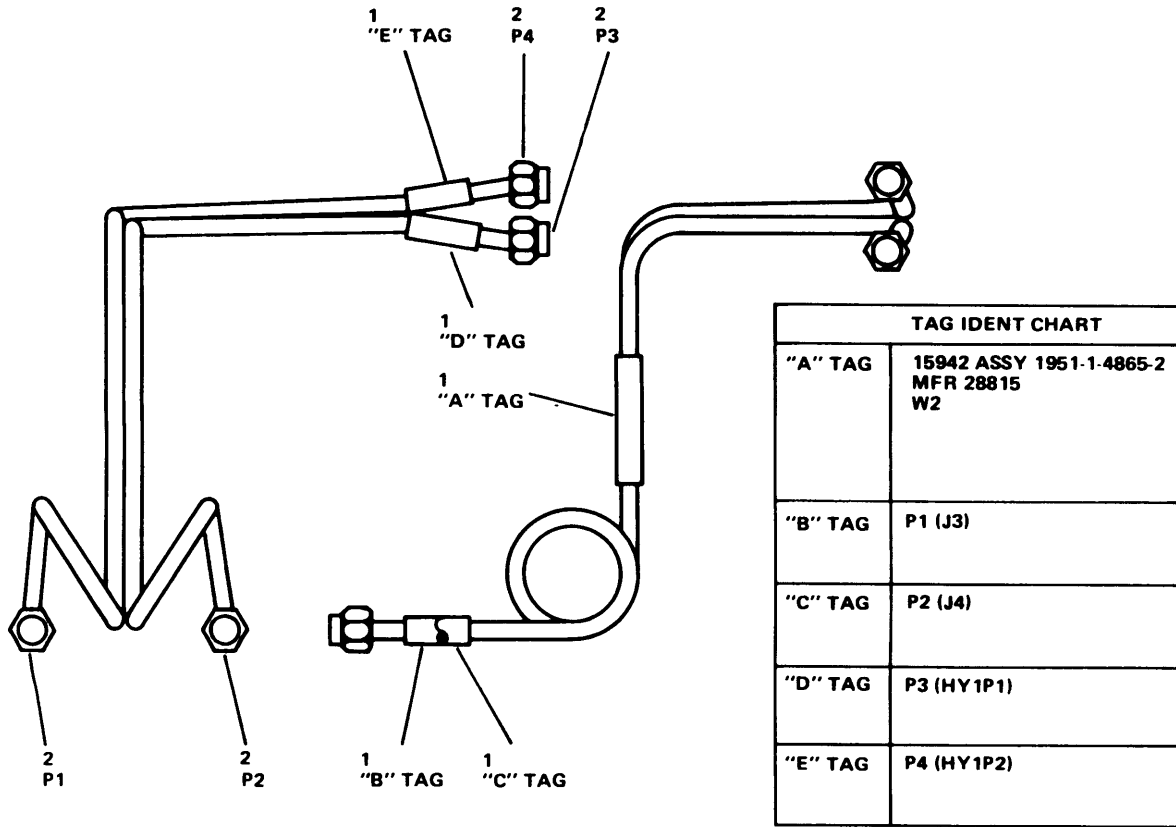
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
C-6	1	XBFZZ	5935-00-945-7352	WTW1334	59730	BAND, MARKER CONN, PLUG, ELEC	EA	5
C-6	2	XAFZZ		OSM201-1	16179		EA	4



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Figure C-6. RF Cable Assembly W1

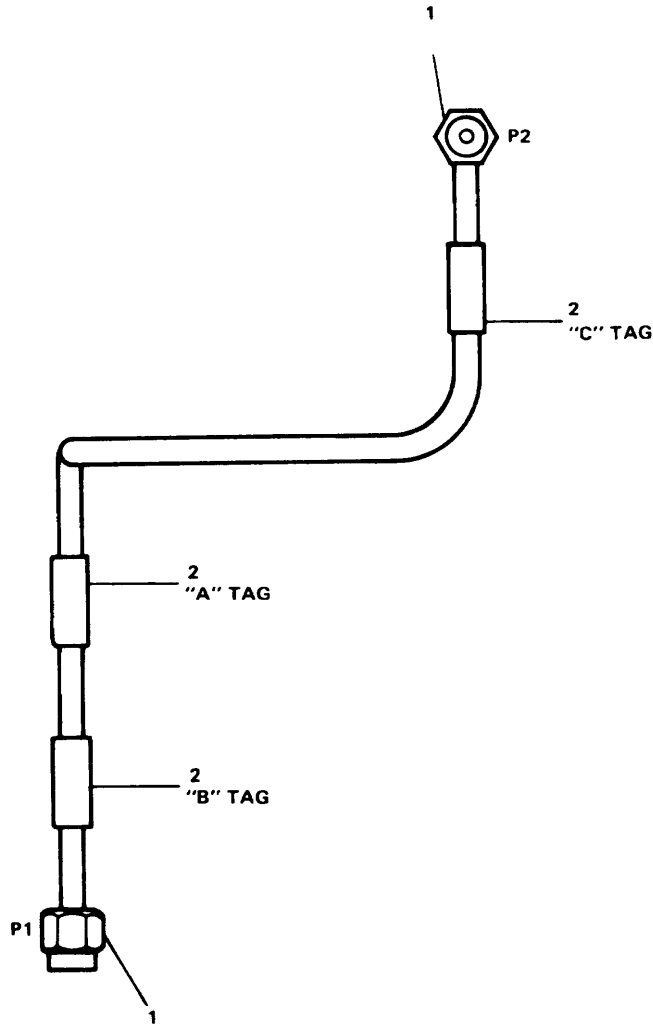
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
C-7	1	XBFZZ	5935-00-945-7352	WTW1334	59730	BAND, NARKER CONN, PLUG, ELEC	EA	5
C-7	2	XAFZZ		OSM201-1	16179		EA	4



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Figure C-7. RF Cable Assembly W2

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
C-8	1	XAFZZ	5935-00-945-7352	OSM201-1	16179	CONN, PLUG, ELEC	EA	2
C-8	2	XBFZZ		WTW1334	59730	BAND, MARKER	EA	3



TAG IDENT CHART		
"A" TAG	"B" TAG	"C" TAG
15942 ASSY 1951-1-3230-1 MFR 28815 W3	P1 (J5)	P2 (HY1 INPUT)

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Figure C-8. RF Cable Assembly W3

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
C-9	1	XBFFF		1951-1-4740-1	15942	PLATE, MTG, CONN	EA	1
C-9	2	XAFZZ	5325-01-039-7460	516-0027-000	31413	NUT, SLFLKG RD	EA	1
C-9	3	PAFZZ	5999-01-051-3735	010-8509-502	31413	CONTACT, ELEC	EA	488
C-9	4	PAFZZ	5970-00-275-5242	302-0002-002	31413	INSULT FEEDTHRU	EA	468
C-9	5	XBFZZ	5999-01-049-8327	516-0014-505	31413	BUSHING	EA	20
C-9	6	PAFZZ	5970-00-464-0465	516-0018-000	31413	SKT, POLARIZING	EA	8
C-9	7	XBFZZ	5310-00-589-7962	FE-40	46384	NUT, SLFLKG, CL	EA	6

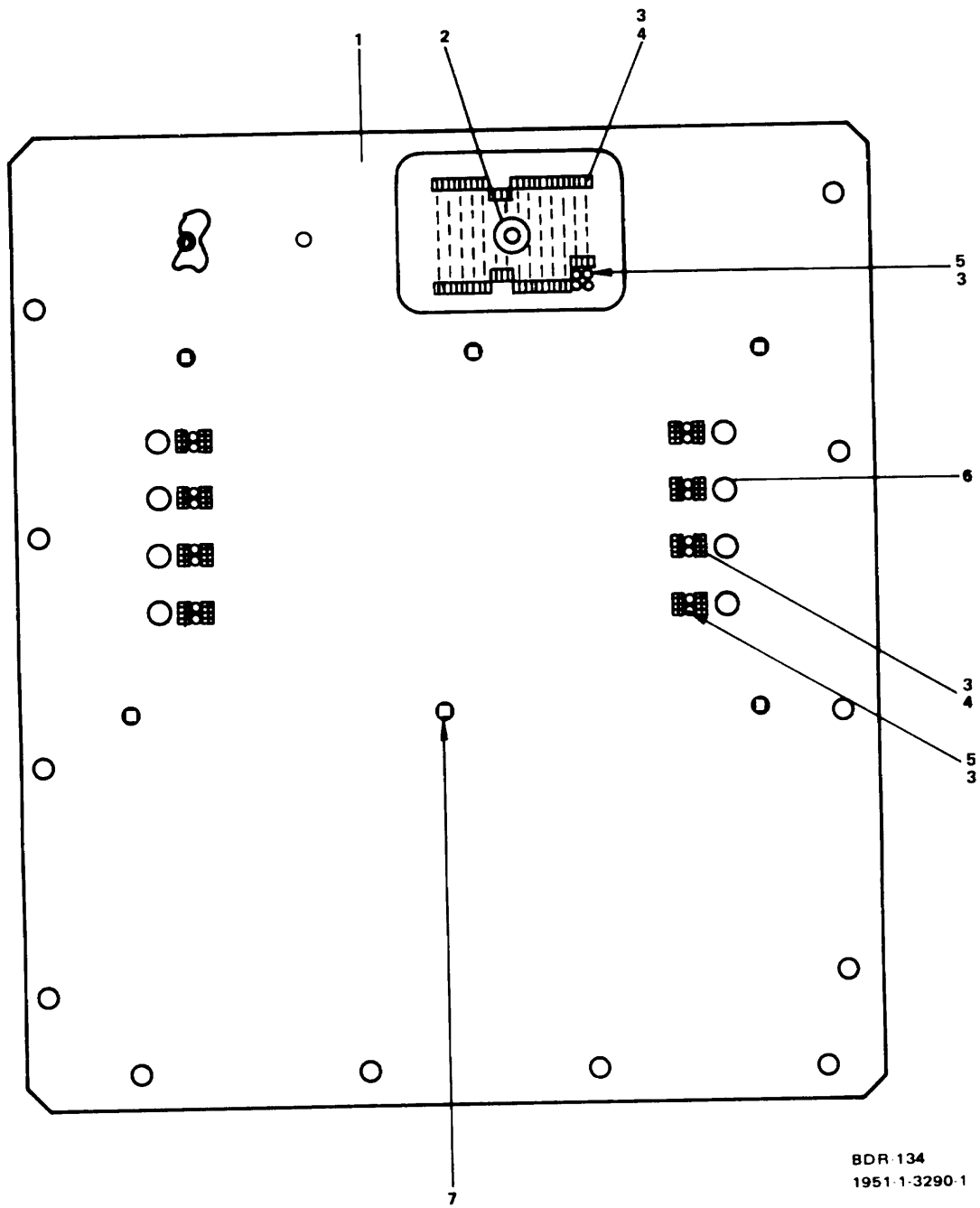
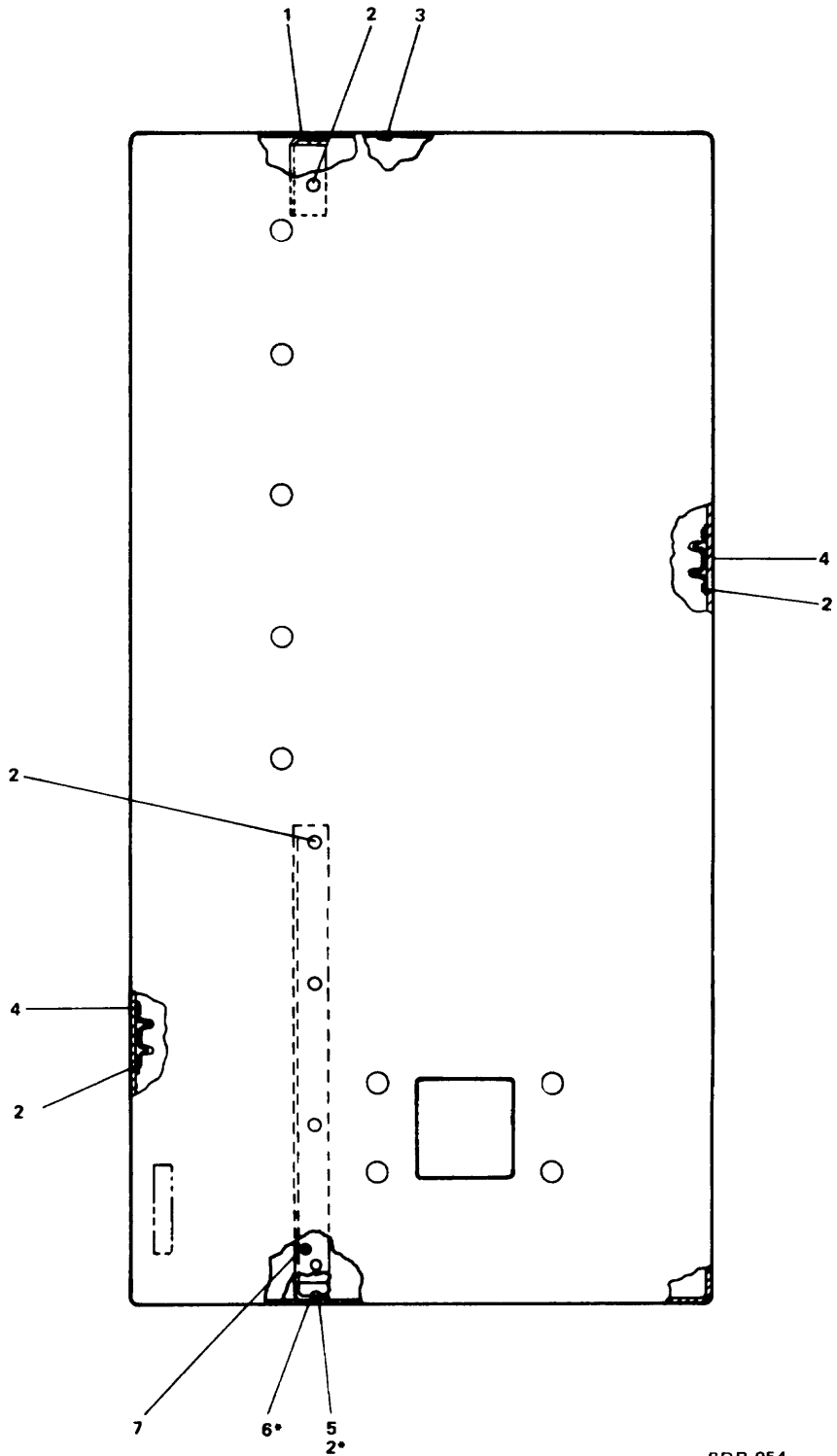


Figure C-9. Mounting Plate Assembly A2

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
C-10	1	XBFZZ		1951-1-3276-1	15942	BRACKET1ANGLE	EA	1
C-10	2	XBFZZ	5320-00-117-6938	NS20426A03-4	96906	RIVET SOLID	EA	109
C-10	3	PAFZZ	5340-00-759-6438	FEB32	46384	NUT, SLFLKG, PL	EA	8
C-10	4	PAFZZ	5325-00-758-0113	5R2-3	71268	RCPT, TURNLOCK	EA	48
C-10	5	XBFZZ		1951-1-3278-1	15942	BRACKET1ANGLE	EA	1
C-10	6	PAFZZ	5310-00-589-8028	FE632	46384	NUT, SLFLKG CL	EA	8
C-10	7	XBFZZ		1951-1-1-3277-1	15942	BRACKET, ANGLE	EA	1

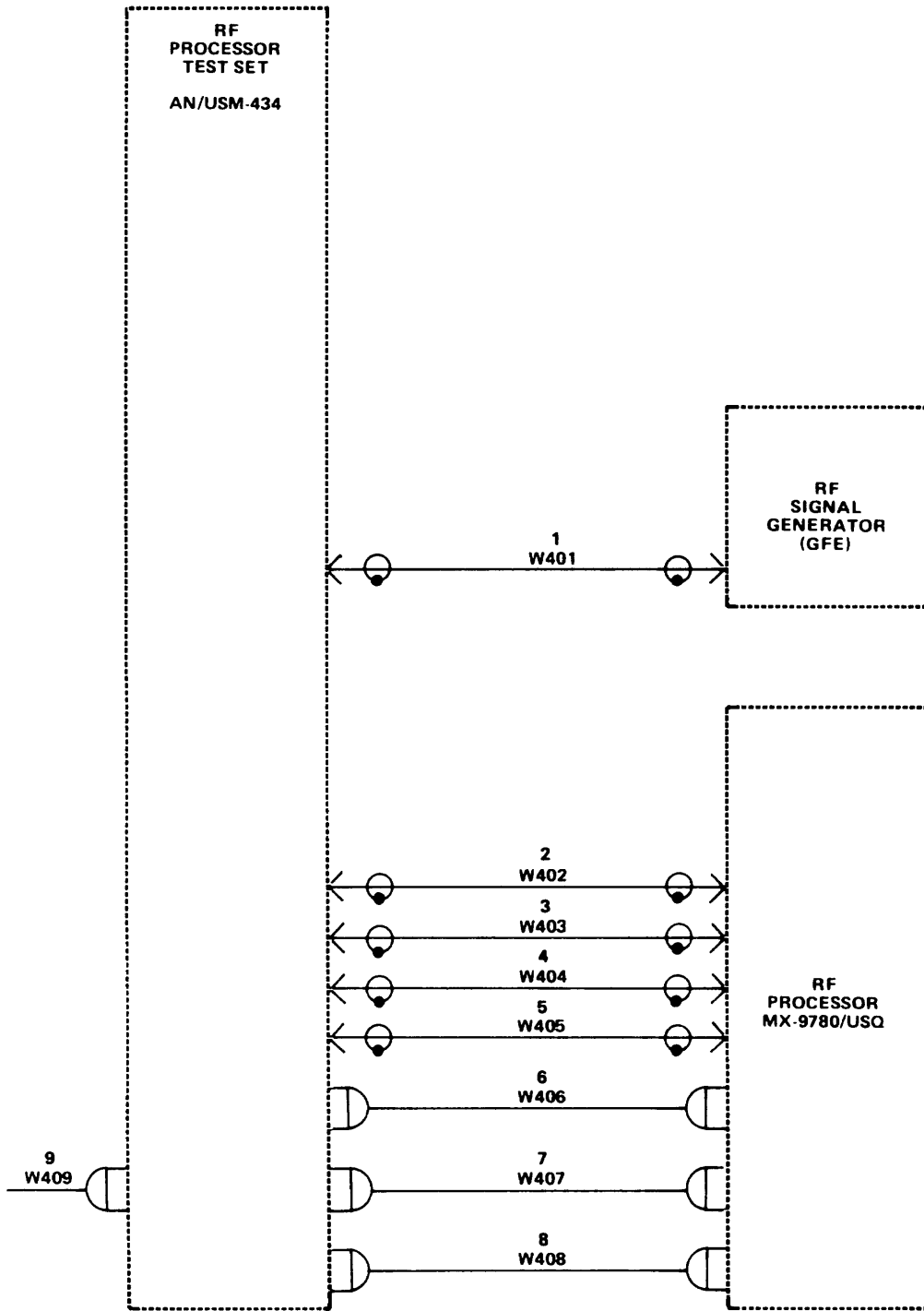


*DENOTES HIDDEN PART

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1951-1 5080-1

Figure C-10. Electrical Equipment Chassis

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
						GP 02 - RF PROCESSOR TEST SET CABLE KIT		
C-10A			5865-01-070-6586	1951-1-1114-1	15942	CABLE ASSY SET	EA	1
C-10A	1	XBFFF		1951-1-4689-1	15942	CABLE ASSY, RF (SEE FIG 11)	EA	1
C-10A	2	XBFFF		1951-1-4690-1	15942	CABLE ASSY, RF (SEE FIG 12)	EA	1
C-10A	3	XBFFF		1951-1-4691-1	15942	CABLE ASSY, RF (SEE FIG 13)	EA	1
C-10A	4	XBFFF		1951-1-4692-1	15942	CABLE ASSYVRF (SEE FIG 14)	EA	1
C-10A	5	XBFFF		1951-1-4693-1	15942	CABLE ASSY, RF (SEE FIG 15)	EA	1
C-10A	6	XBFFF		1951-1-4694-1	15942	CABLE ASSY, SP (SEE FIG 16)	EA	1
C-10A	7	XBFFF		1951-1-4695-1	15942	CABLE ASSY, SP (SEE FIG 17)	EA	1
C-10A	8	XBFFF		1951-1-4696-1	15942	CABLE ASSY, SP (SEE FIG 18)	EA	1
C-10A	9	XBFFF		1951-1-4691-1	15942	CABLE ASSY, SP (SEE FIG 19)	EA	1

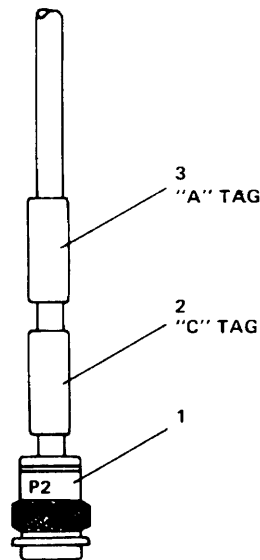
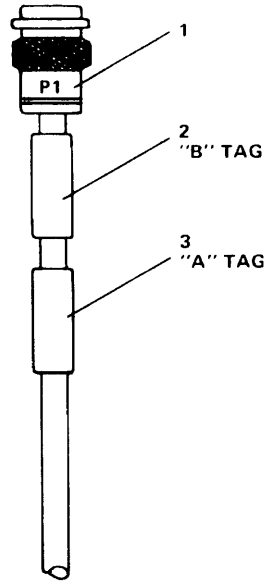


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Figure C-10A. RF Processor Test Set Cable Kit

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
C-11	1	PAFZZ	5935-00-400-4775	39012-26-0001	81349	GP 0201 - RF CABLE ASSEMBLY W401	EA	2
C-11	2	XBFZZ		WTW1334	59730	CONN, PLUG, ELEC	EA	2
C-11	3	XBFZZ	769001-052-4T55	WTW2334	59730	BAND, MARKER	EA	2

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4689-1 MFR 28815 W401
"B" TAG	W401P1 AN/USM-434 (J5)
"C" TAG	W401P2

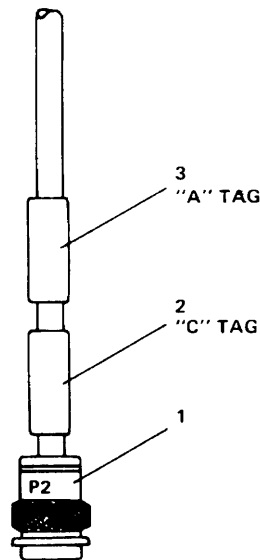
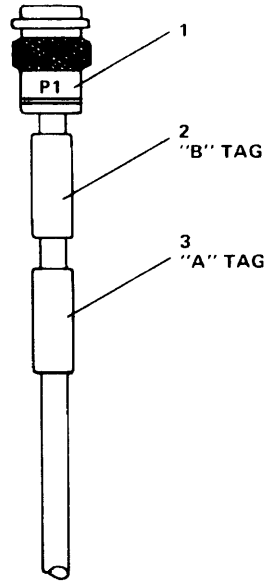


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Figure C-11. RF Cable Assembly W401

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
C-12	1	PAFZZ	5935-00-400-4775	M39012-26-0001	81349	GP 0202 - RF CABLE ASSEMBLY W402		
C-12	2	XBFZZ		WTW1334	59130	CONN, PLUG, ELEC	EA	2
C-12	3	XBFZZ	7690-00-052-4155	WTW 2334	59730	BAND, MARKER	EA	2
						BAND, MARKER	EA	2

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4689-1 MFR 28815 W401
"B" TAG	W401P1 AN/USM-434 (J5)
"C" TAG	W401P2

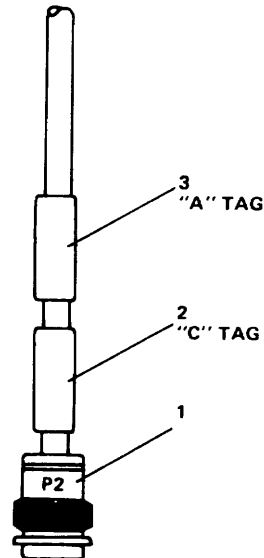
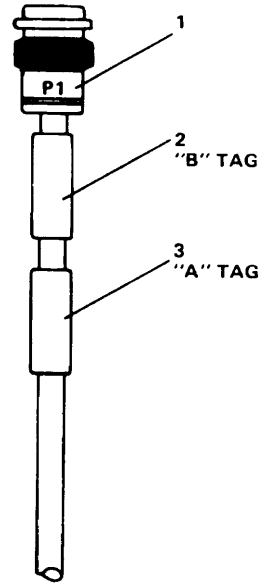


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1951 1 4689 1

Figure C-12. RF Cable Assembly W402

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
C-13	1	PAFZZ	5935-00-400-4775	M39012-26-0001	81349	GP 0203 - RF CABLE ASSEMBLY W403	EA	2
C-13	2	XBFZZ		WTW1334	59730	CONN, PLUG, ELEC	EA	2
C-13	3	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2

TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4691-1 MFR 28815 W403
"B" TAG	W403P1 AN/USM-434 (J2)
"C" TAG	W403P2 MX-9780/USQ (J2)

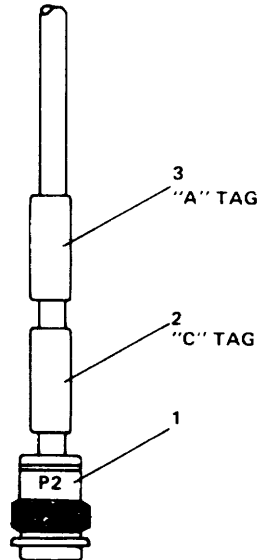
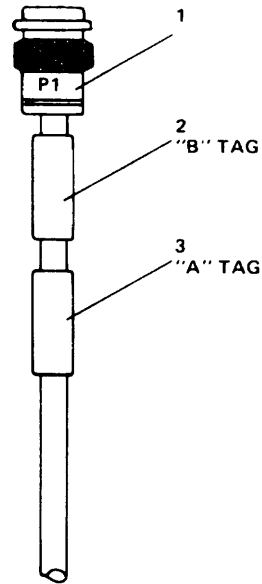


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Figure C-13. RF Cable Assembly W403

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
C-14	1	PAFZZ	5935-00-400-4775	1439012-26-0001	81349	GP 0204 - RF CABLE ASSEMBLY W404	EA	2
C-14	2	XBFZZ		WTW1334	59730	CONN, PLUG, ELEC	EA	2
C-14	3	XBFZZ	769001-052-4755	WTW2334	59730	BAN DI ARKER BAND, MARKER	EA	2

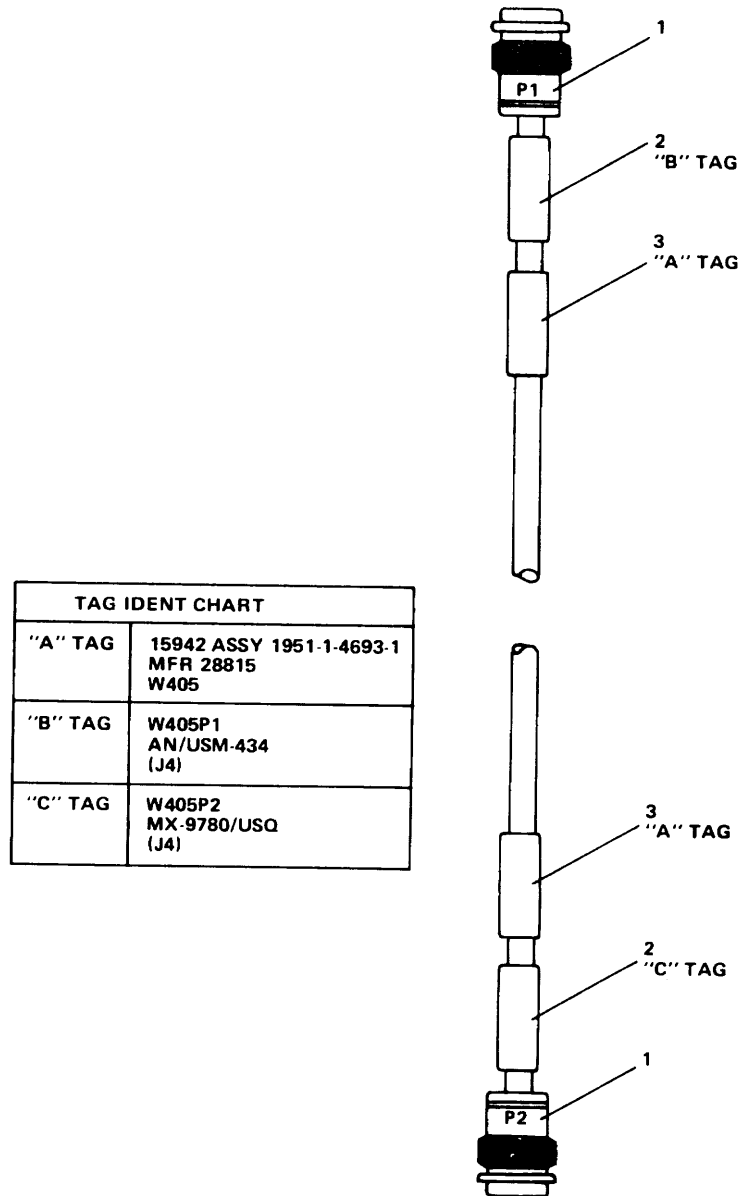
TAG IDENT CHART	
"A" TAG	15942 ASSY 1951-1-4692-1 MFR 28815 W404
"B" TAG	W404P1 AN/USM-434 (J3)
"C" TAG	W404P2 MX-9780/USQ (J3)



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Figure C-14. RF Cable Assembly W404

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
						GP 0205 - RF CABLE ASSEMBLY W405		
C-15	1	PAFZZ	5935-00- 00-4775	N39012-26-0001	81349	CONN, PLUG, ELEC	EA	2
C-15	2	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-15	3	XBFZZ	7690-01-O52-4755	WTW2334	59730	BAND, MARKER	EA	2

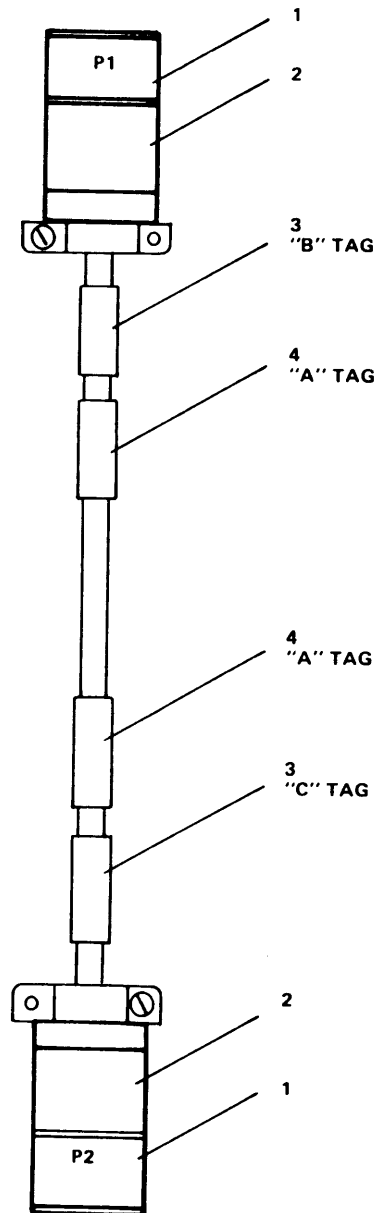


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Figure C-15. RF Cable Assembly W405

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
						GP 0206 - SPECIAL PURPOSE CABLE ASSY W406		
C-16	1	PAFZZ	5935-01-06-5691	MS27484T 12F35PA	96906	CONN, PLUG, ELEC	EA	2
C-16	2	XBFZZ		SE9F0908 1A-5-12	0T418	CLAMP CABLE	EA	2
C-16	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-16	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2

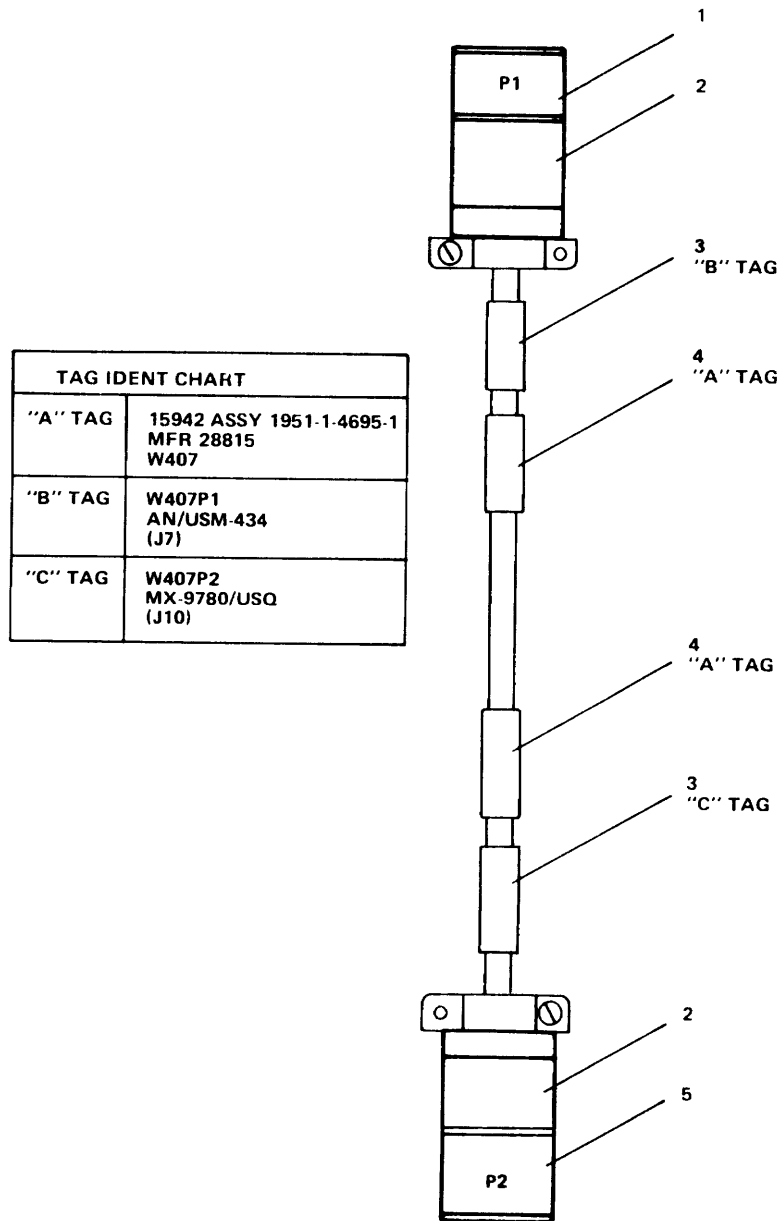
TAG IDENT CHART	
"A" TAG	15942 ASSY 1941-1-4694-1 MFR 28815 W406
"B" TAG	W406P1 AN/USM-434 (J6)
"C" TAG	W406P2 MX-9780/USQ (J11)



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Figure C-16. Special Purpose Cable Assembly W406

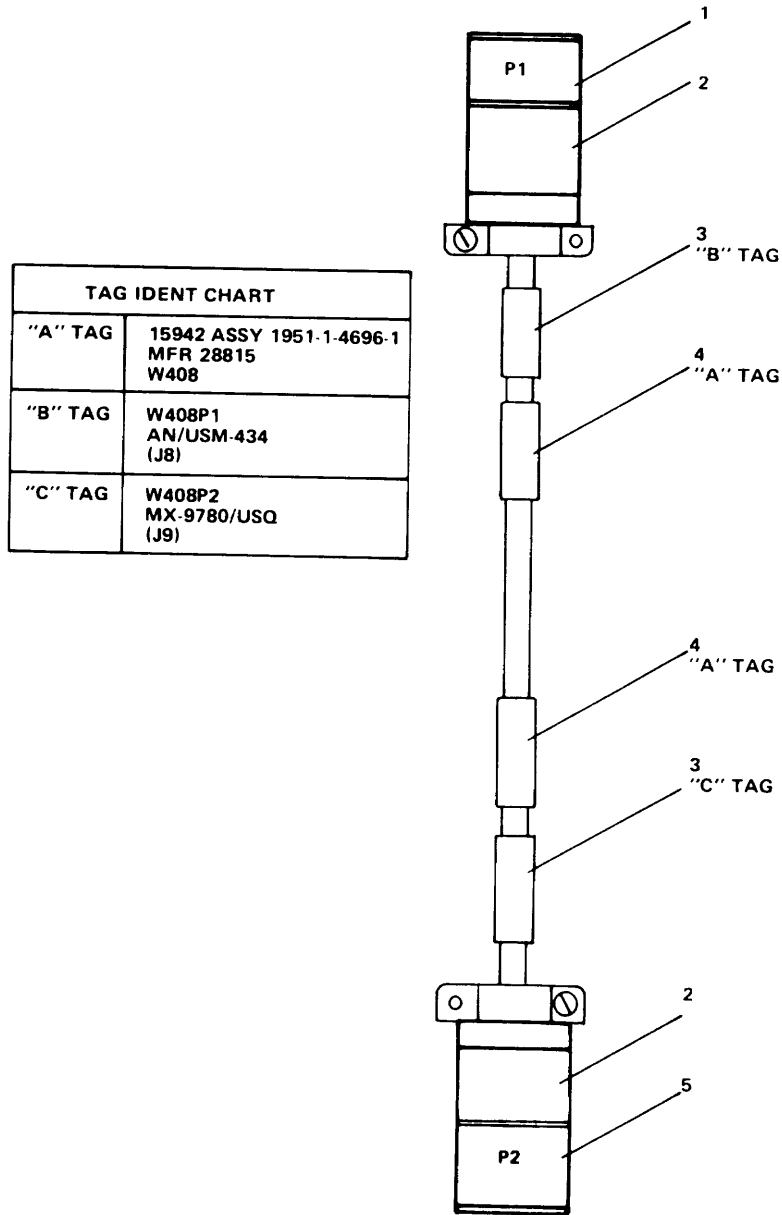
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
						GP 0207 - SPECIAL PURPOSE CABLE ASSY W407		
C-17	1	PAFZZ	5935-01-064-5701	S27484T 12F98P	96906	CONN, PLUG, ELEC	EA	1
C-17	2	XBFZZ		SE9F0908A1-5-12	01418	CLAMP, CABLE	EA	2
C-17	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-17	4	XBFZZ	7690-01-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-17	5	PAFZZ	5935-01-066-0830	NS27484T 12F98S	96906	CONN, PLUG ELEC	EA	1



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Figure C-17. Special Purpose Cable Assembly W407

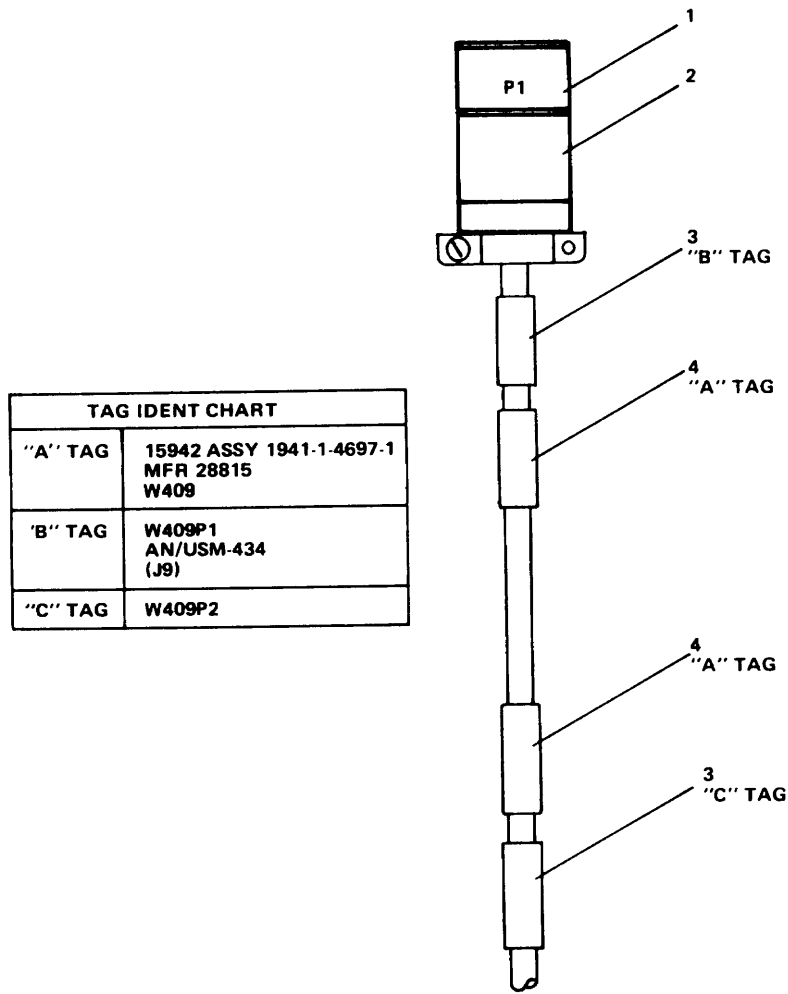
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
						GP 0208 - SPECIAL PURPOSE CABLE ASSY W408		
C-18	1	PAFZZ	5935-01-064-5705	1MS27484T12F8P	96906	CONN, PLUG, ELEC	EA	1
C-18	2	XBFZZ		SE9 F0908 A1-5-12	07418	CLAMP CABLE	EA	2
C-18	3	XBFZZ		WTW1334	59730	BAND, MARKER	EA	2
C-18	4	XBFZZ	7690-00-052-4755	WTW2334	59730	BAND, MARKER	EA	2
C-18	5	PAFZZ	5935-01-064-5686	MS274847T12F8S	96906	CONN, PLUG ELEC	EA	1



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Figure C-18. Special Purpose Cable Assembly W408

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U/M	QTY INC IN UNIT
						GP 0208 - SPECIAL PURPOSE CABLE ASSY W409		
C-19	1	PAFZZ	593501-064-5692	NS27484T14FSS	96906	CONN, PLUG, ELEC	EA	1
C-19	2	XBFZZ		SE9F1208/01-5-12	07418	CLAMP, CABLE	EA	1
C-19	3	XBFZZ		WTW1334	59730	BANDMARKER	EA	2
C-19	4	XBFZZ	769001-052-4755	WTW2334	59730	BAND, MARKER	EA	2



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Figure C-19. Special Purpose Cable Assembly W409

Section V. SPECIAL TOOLS LIST

(Not Applicable)

C-59/(C-60 blank)

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER	FIGURE NUMBER	ITEM NO.	NATIONAL STOCK NUMBER	FIGURE NUMBER	ITEM NO.
	C-1	1	4140-01-064-6473	C-4	1
	C-1	6	4920-00-110-5317	C-1	86
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	C-1	8	5305-00-054-5647	C-4	2
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	C-15	2	5910-00-996-0667	C-2	3
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	C-18	2	5935-00-400-4775	C-13	1
	C-18	3	5935-00-400-4775	C-14	1
	C-19	2	5935-00-400-4775	C-15	1
	C-19	3	5935-00-402-1153	C-1	19
	C-10A	1	5935-00-945-7352	C-6	2
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	C-10A	3	5935-00-945-7352	C-8	1
	C-10A	4	5935-01-016-1241	C-3	2
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5999-00-234-1997	C-1	30			
5999-00-406-2054	C-1	64			
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OS7830J 883B	27014	C-2	9	N276	08863	C-1	72
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FE632	46384	C-1	58	RCR20G270JP	81349	C-1	80
FE632	463e4	C-10	6	SE26XFOI	81349	C-1	73
FE832	46384	C-10	3	SE9F0908A1-5-12	07418	C-16	2
10-100-00000	31413	C-1	48	SE9F0908AI-5-12	01418	C-17	2
LFH123E	31356	C-1	24	SE9F0908A1-5-12	07418	C-18	2
LMF188	29098	C-1	67	SE9F1208, 1-5-12	07418	C-19	2
nC4324.C8S	04713	C-2	10	SO-1049-8772	35344	C-1	36
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MS15795-803	96906	C-1	3	TC342	59730	C-1	85
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MS15195-805	96906	C-1	44	VPC241	08730	C-1	9
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MS24583-42	96906	C-1	75	WTW1334	59730	C-12	2
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MS24693C4	96906	C-4	8	W1.1334	59730	C-14	2
MS25036-102	96906	C-1	216B	ITW1334	59730	C-1S	2
MS25036-149	96906	C-1	14	WTH1334	59730	C-16	3
MS25036-153	96906	C-1	21A	WTW1334	59730	C-17	3
MS25171-1S	96906	C-1	66	WTW1334	59730	C-18	3
MS271400-4	96906	C-1	50	WTW1334	59730	C-19	3
MS27401-4	96906	C-1	35	WTW2334	59730	C-11	3
MS27484T12F35PA	96906	C-16	1	WTW2334	59130	C-12	3
MS27484T12F8P	96906	C-18	1	WTW2334	59730	C-13	3
MS27484T12F8S	96906	C-18	5	WTW2334	59730	C-14	3
MS21484IT12F98P	96906	C-17	1	WTW2334	59730	C-15	3
MS27484T12F98S	96906	C-17	5	WTW2334	59130	C-16	4
MS2748414TF5P	96906	C-1	77	WTW2334	59730	C-17	4
MS27484T11F5PA	96906	C-1	76	WTW 2334	59730	C-18	4
MS27484714F5S	96906	C-19	1	WTW2334	59730	C-19	4
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MS27508E12F8S	969C6	C-1	16	OSM201-1	16179	C-7	2
MS27508E12F985	96906	C-1	17	OSM201-1	16179	C-8	1
MS27508E14F5 S	969C6	C-4	10	001-1802-509	31413	C-3	5
MS27508E14F5SA	96906	C-4	11	001-1805-509	31413	C-3	4
MS35335-57	96906	C-1	71	001-6500-513	31413	C-1	49
MS35338-134	96906	C-1	84	010-8509-502	31413	C-9	3
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M38510-001058C8	81349	C-2	11	1951-1-2373-1	15942	C-1	62
M3e510-00205BC8	81349	C-2	7	1951-1-2440-1	15942	C-1	34
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M39003-01-2511	81349	C-2	3	1951-1-3230-1	15942	C-1	45
M39012-26-0001	81349	C-11	1	1951-1-3238-1	15942	C-1	65
M39012-26-0001	81349	C-12	1	1951-1-3250-1	15942	C-1	54
M39012-26-0001	81349	C-13	1	1951-1-3276-1	15942	C-10	1
M39012-26-0001	81349	C-14	1	1951-1-3277-1	15942	C-10	7
M39012-26-0001	81349	C-15	1	1951-1-3278-1	15942	C-10	5
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1951-1-5071-1	15942	C-1			1
1951-1- 50O-1	15942	C-1			87
20-12115	07700	C-1			30
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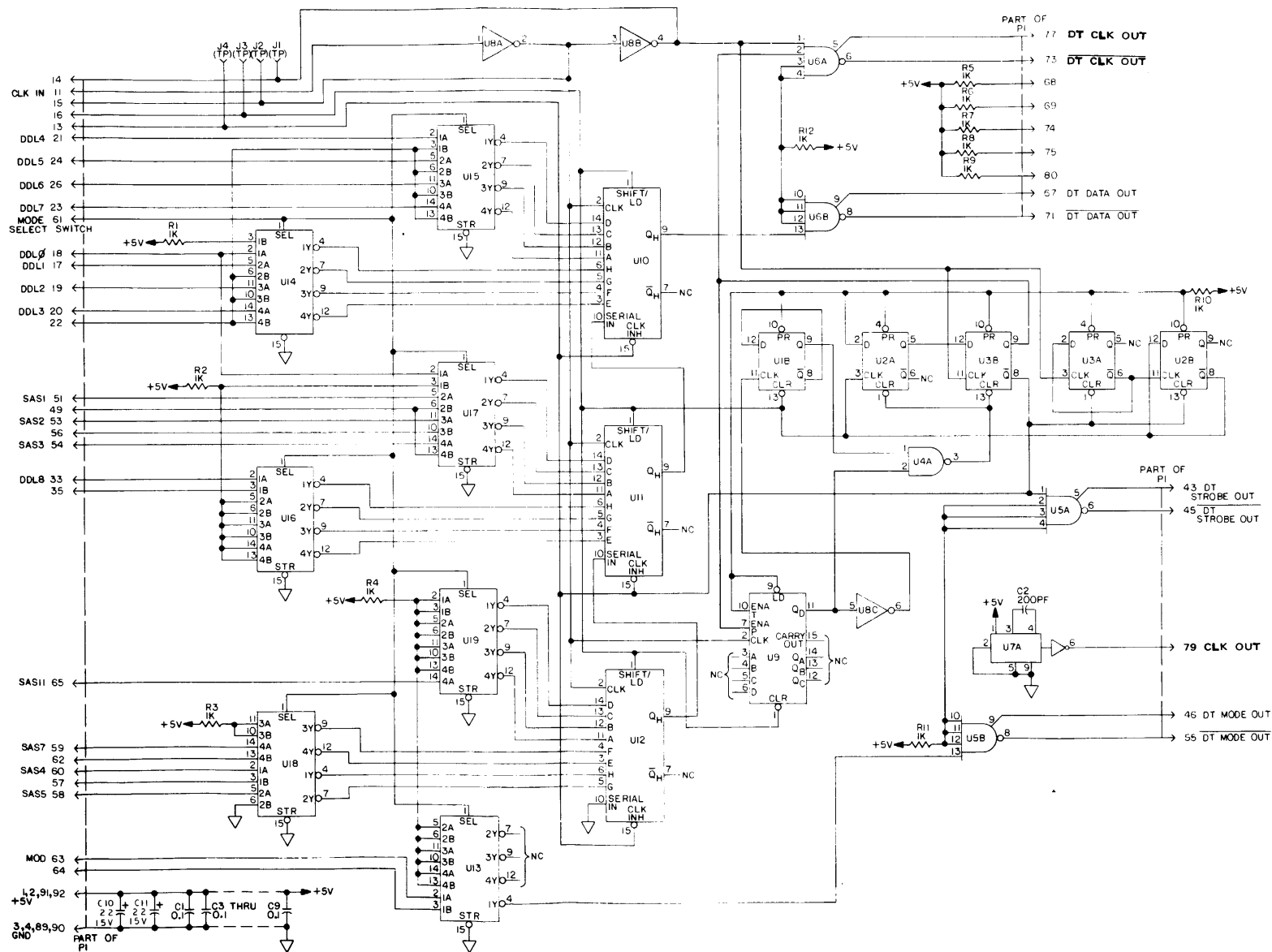
By Order of the Secretary of the Army:

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

E. C. MEYER
General, United States Army
Chief of Staff

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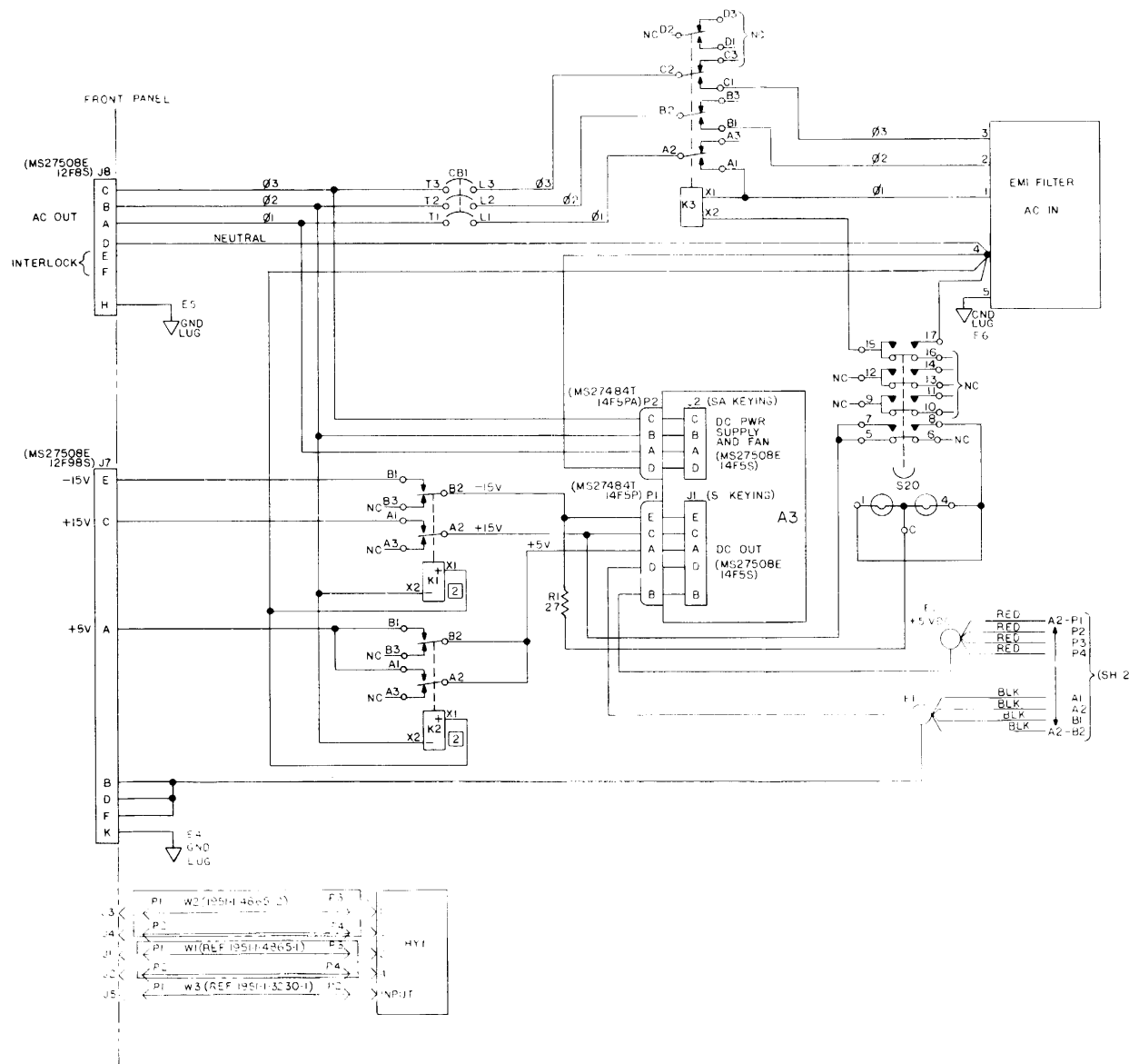


HIGHEST REFERENCE DESIGNATIONS				
CI1	J4	PI	R12	U9
REFERENCE DESIGNATIONS NOT USED				

MICROCIRCUIT IDENT.				
REF DES	TYPE	VCC	GND	SPARES
U1-3	5474	14	7	U1A
U4	5400	14	7	U4B,C,D
U5,6	7830	14	7	
U7	MC4324	14	7	U7B
U8	5404	14	7	U8D,E,F
U9	5416	16	8	
U10-12	54165	16	8	
U13-19	54157	16	8	

NOTES: UNLESS OTHERWISE SPECIFIED
 1. RESISTANCE VALUES ARE IN OHMS, ± 5%, 1/4 WATT.
 2. CAPACITANCE VALUES ARE IN μF.
 3. DELETED

Figure FO-1. Parallel-to-Serial Converter CCA A1 Schematic Diagram.



HIGHEST REFERENCE DESIGNATIONS				
CB1	E1	K2	R1	S20
REFERENCE DESIGNATIONS NOT USED				

- NOTES: UNLESS OTHERWISE SPECIFIED
1. RESISTANCE VALUES ARE IN OHMS $\pm 5\%$, 1/2 WATT.
 2. RELAYS K1 AND K2 ARE IDENTICAL MS27401-4 OR COMMERCIAL; DAF-002 SHOWN IS SOCKET WHICH PLUGS INTO RELAY.
 3. THIS DIAGRAM FOR EXTERNAL WIRING; NOT FOR WIRE WRAP SIDE OF CONNECTOR.
 4. USE IN CONJUNCTION WITH W.R. LISTS 1951-1-426 AND 1951-1-431.

Figure FO-2. RF Processor Test Set Wiring Diagram (Sheet 1 of 2).

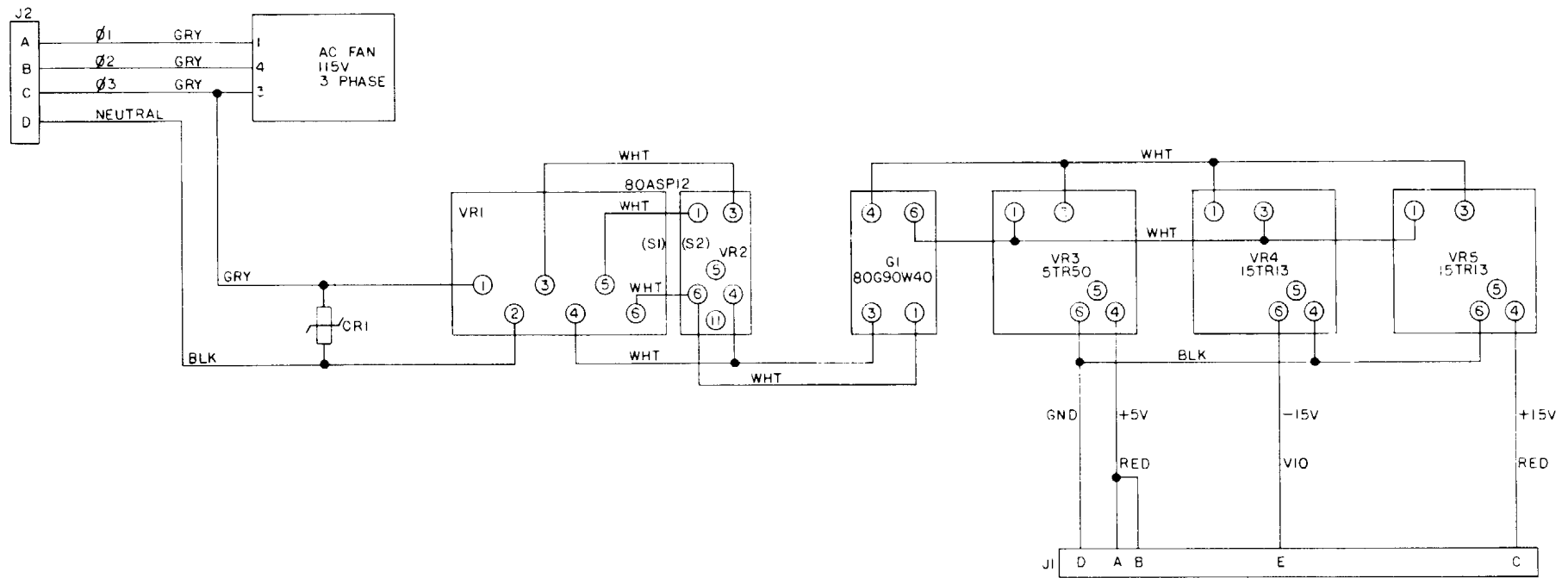


Figure FO-3. RF Processor Test Set Power Supply Wiring Diagram.

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 decigrams = .035 ounce
 1 decagram = 10 grams = .35 ounce
 1 hectogram = 10 decagrams = 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) = 100 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

<i>To change</i>	<i>To</i>	<i>Multiply by</i>	<i>To change</i>	<i>To</i>	<i>Multiply by</i>
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
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