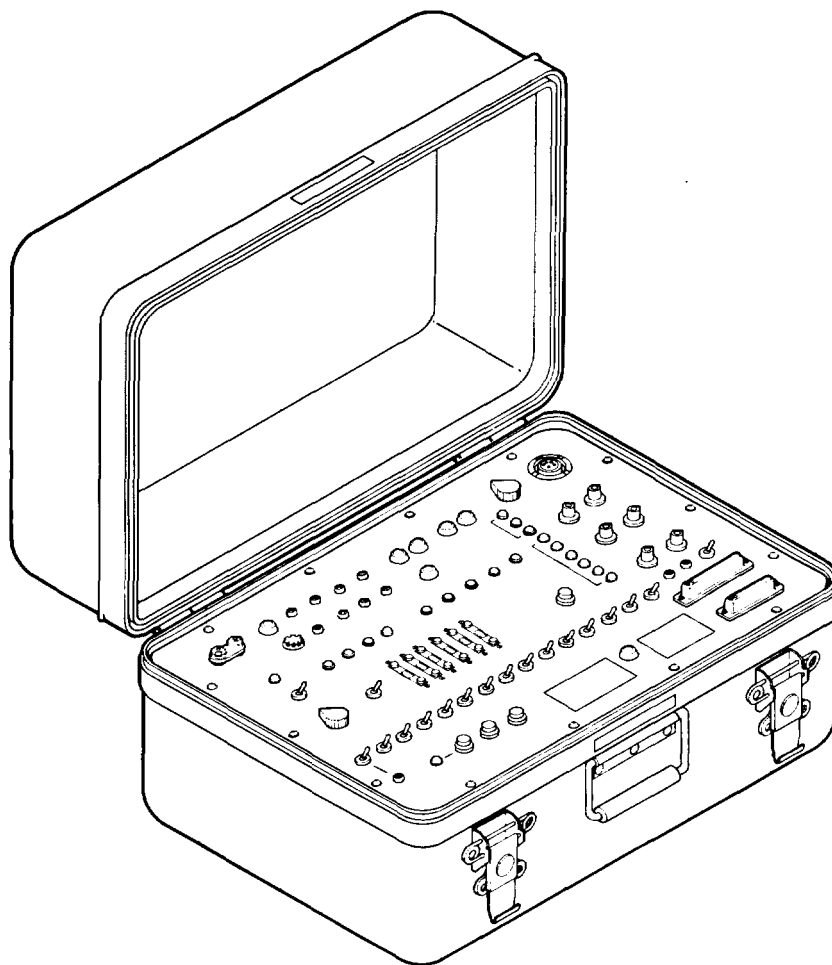


ARMY TM 11-6625-3213-14&P  
NAVY ET900-AB-OMP-010/TS-4255-GRC 215  
AIR FORCE TO 33D7-29-80-1

**OPERATOR'S, UNIT,  
DIRECT SUPPORT AND GENERAL SUPPORT  
MAINTENANCE MANUAL INCLUDING  
REPAIR PARTS AND SPECIAL TOOLS LIST**

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**TEST SET, MANPACK  
TS-4255/GRC-21 5  
(NSN 6625-01-267-4402)**

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**DEPARTMENTS OF THE ARMY, THE NAVY, AND THE AIR FORCE  
15 JUNE 1990**

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# 5

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

**1**

DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL

**2**

IF POSSIBLE, TURN OFF THE ELECTRICAL POWER

**3**

IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A DRY WOODEN POLE OR A DRY ROPE OR SOME OTHER INSULATING MATERIAL

**4**

SEND FOR HELP AS SOON AS POSSIBLE

**5**

AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

A/(B Blank)

Technical Manual  
No. 11-6625-3213-14&P  
Technical Manual  
No. ET900-AB-OMP-010/TS-4255-GRC-215  
Technical Order  
TO 33D7-29-87-1

DEPARTMENTS OF THE ARMY,  
THE NAVY, AND THE AIR FORCE

Washington, DC, 15 June 1990

**OPERATOR'S, UNIT, DIRECT SUPPORT  
AND GENERAL SUPPORT MAINTENANCE MANUAL  
INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST**

**TEST SET, MANPACK TS-4255/GRC-215  
(NSN 6625-01-267-4402)**

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA-Form 2028-2 located in back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-ME-PS, Fort Monmouth, New Jersey 07703-5000.

For Air Force, submit AFTO Form 22 (Technical Order System Publication Improvement Report and Reply) in accordance with paragraph 6-5, Section VI, T.O. 00-5-1. Forward direct to prime ALC/MST.

For Navy, mail comments to the Commander, Space and Naval Warfare Systems Command, ATTN: SPAWAR 8122, Washington, DC, 20363-5100.

In either case a reply will be furnished direct to you.

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SECTION I.

INTRODUCTION

1-1. SCOPE.

This manual contains operation and maintenance instructions for the Manpack R/E Test Set TS-4255/GRC-215 as shown in Figure 1-1. The material includes operating instructions, functional descriptions, maintenance and troubleshooting procedures, Repair Parts and Special Tools Lists, and instructions for preparation for use, storage and shipment.

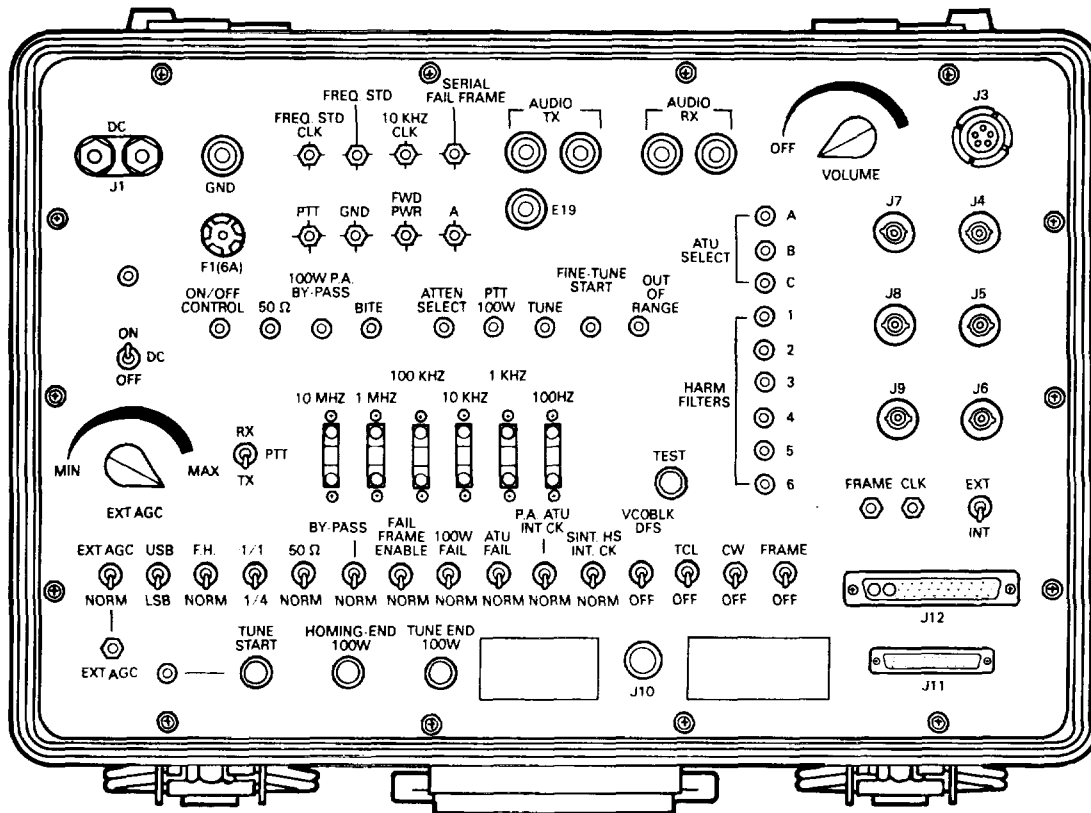


Figure 1-1. Manpack R/E Test Set

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, as contained in Maintenance Management Update. Air Force personnel will use AFR 66-1 for maintenance reporting and TO-00-35D54 for unsatisfactory equipment reporting. Navy personnel will report maintenance performed utilizing the Maintenance Data Collection Subsystem (MDCS) IAW OPNAVINST 4790.2, Vol 3 and unsatisfactory material/conditions (UR submissions) IAW OPNAVINST 4790.2, Vol 2, chapter 17.

**1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS (Cont.)**

b. Reporting of Item and Packaging Discrepancies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/SECNAVINST 4355.18/AFR 400-54/MCO 4430.3J.

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

**1-3. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)**

a. Army. If your Manpack R/E Test Set needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-PA-MA-D, Fort Monmouth, New Jersey 07703-5000. We'll send you a reply.

b. Navy. Navy personnel are encouraged to submit EIR's through their local Beneficial Suggestion Program.

c. Air Force. Air Force personnel are encouraged to submit EIR's in accordance with AFR 900-4.

**1-4. DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE**

a. Army. The destruction of Army electronic materiel to prevent enemy use shall be in accordance with TM 750-244-2.

b. Navy. Navy Personnel comply with the local Command Material Destruction Plan.

c. Air Force. Air Force personnel comply with TM 750-244-2 or the local Emergency Destruction plan.

**1-5. EQUIPMENT DATA**

a. Electrical Characteristics

Power Source: +24 VDC 0.2 Amps  
Power Output: +24 VDC

b. Physical Characteristics

Width: 17 in.            Height: 10.25 in.  
Depth: 12 in.           Weight: 20 lbs.

**1-6. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT**

Special tools, TMDE, and support equipment are listed in the Maintenance Allocation Chart (MAC), Appendix B.

**SECTION II.  
FUNCTIONAL DESCRIPTION**

**2-1. GENERAL**

This section contains a general description and purpose for the Manpack R/E Test Set TS-4255/GRC-215, listings of controls, functional descriptions of major components and block diagrams.

**2-2. DESCRIPTION**

The Manpack R/E Test Set tests the Receiver-Transmitter RT-1511/GRC-215 output power and VSWR, BITE circuits, synthesizer tuning time, and remote control functions of frequency and transmission mode to verify operation. Front-panel switches create test signals that simulate control and status signals from the 100-W power amplifier (PA) and external antenna tuning unit (ATU), select the frequency and mode of operation, select active or bypass mode of operation of both the ATU and PA, and control the power to the Unit Under Test (UUT). Front-panel test points allow monitoring of serial data and clock reference signals while front-panel LEDs verify UUT operation by indicating BITE status, harmonic filter selection, as well as power to the UUT.



2-3. CONTROLS AND INDICATORS

Figures 2-1 through 2-4 illustrate the locations of front panel controls. Table 2-1 lists the controls by callout number and gives a description of each control.

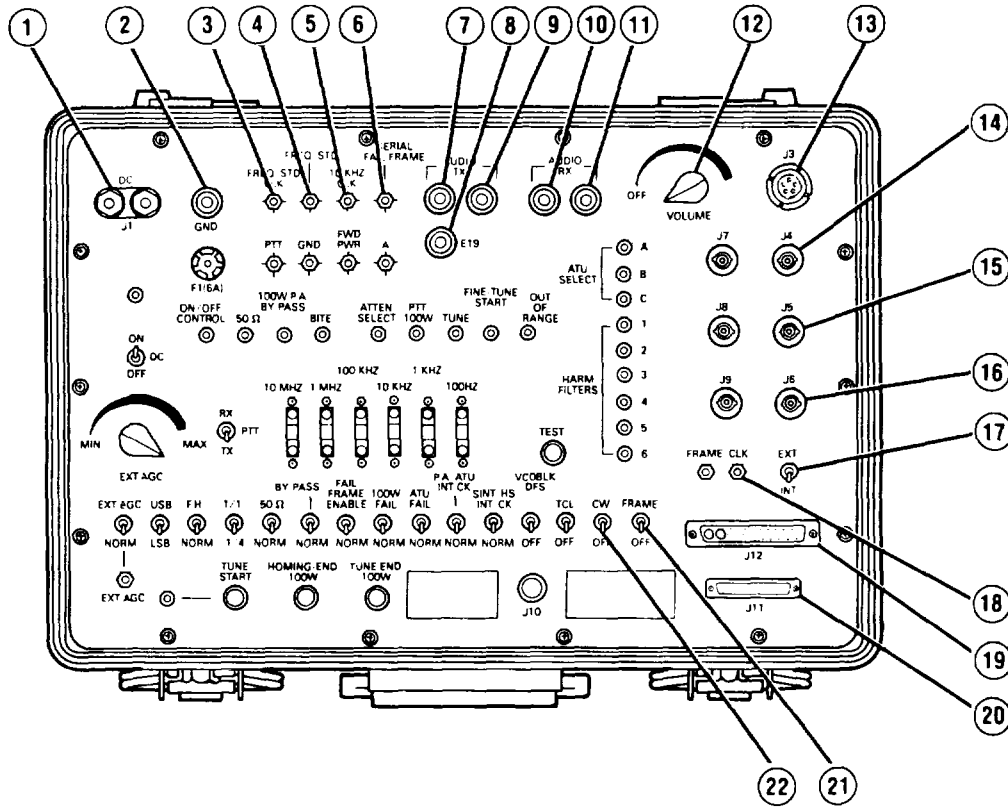


Figure 2-1. Manpack R/E Test Set Front Panel

Table 2-1. Manpack R/E Test Set Controls and Indicators (1 of 8)

Fig. and Index No.	Name	Purpose
2-1 (1)	J1	Connects +24.0 VDC from power supply to test set.
(-2)	(TP2)	Chassis ground.
(-3)	(TP8)	Freq. SD clock
(-4)	(TP7)	Serial data output from microprocessor (Freq. SD).
(-5)	(TP6)	10 KHz clock from R/E.
(-6)	(TP5)	Serial Fail Frame signal from R/E.

2-3. CONTROLS AND INDICATORS (Cont.)

Table 2-1. Manpack R/E Test Set  
Controls and Indicators (2 of 8)

Fig. and Index No.	Name	Purpose
2-1 (-7)	(E3)	Input for Audio TX to R/E.
(-8)	E19	Amplified audio from handset. (not used)
(-9)	(E2)	Chassis ground.
(-10)	(E4)	Audio RX output from R/E.
(-11)	(E5)	Chassis ground.
(-12)	(R1)	Volume control for Audio RX to headset.
(-13)	J3	Connects handset to test set. (not used)
(-14)	J4	Connects Voltage Controlled Oscillator (VCO) to R/E through pin A1C of J12 to simulate fast synthesizer of Vehicular Adapter Assembly (77.0 to 104.99 MHz).
(-15)	J5	Connects VCO to R/E through pin A2C of J12 to simulate fast synthesizer of Vehicular Adapter Assembly (74.5 to 75.5 MHz).
(-16)	J6	Connects VCO to R/E through pin 27 of J12 to simulate fast synthesizer of Vehicular Adapter Assembly (500 KHz).
(-17)	(S28)	Selects internal or external Serial Data Frame to UUT.
(-18)	TP12	Input for external data clock.
(-19)	J12	Connects control and status signals between UUT and test set.
(-20)	J11	Connects control and status signals between UUT and test set.
(-21)	(S13)	When set to FRAME the microprocessor is enabled to send serial data continuously for test purposes.
(-22)	(S12)	Grounds pin 3 of IC AIU15 to set the UUT in CW mode.

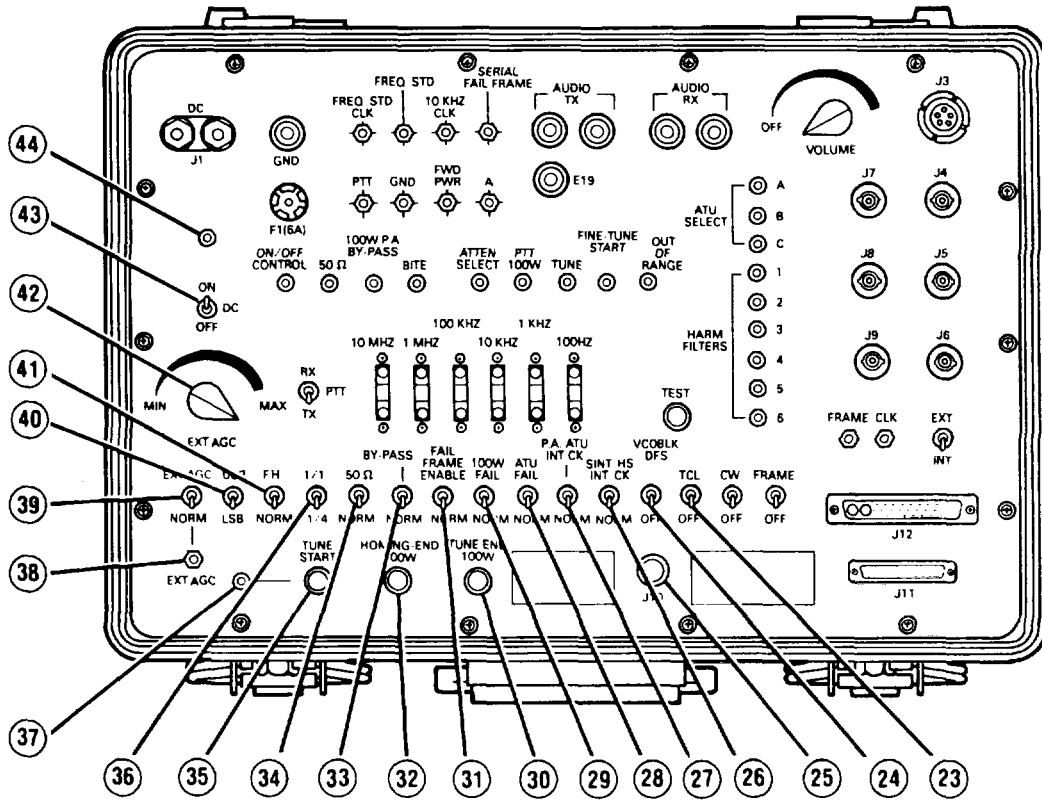


Figure 2-2. Manpack R/E Test Set Front Panel

Table 2-1. Manpack R/E Test Set Controls and Indicators (3 of 8)

Fig. and Index No.	Name	Purpose
2-2 (23)	(S14)	Sets R/E ECCM Timing to either 10 kHz (OFF) or 50 Hz (TCL (tone converter logic)).
(24)	(S5)	Grounds pins 12 and 7 of J11 to blank the VCO and select dual filter operation in ECCM mode.
(25)	J10	RF input to test set dummy load for VSWR test.
(26)	(S10)	Grounds pin 41 of J12 to enable the fast synthesizer.
(27)	(S9)	Grounds pin 24 of J12 to interlock the Vehicular Adapter.

2-3. CONTROLS AND INDICATORS (Cont.)

Table 2-1. Manpack R/E Test Set  
Controls and Indicators (4 of 8)

Fig. and Index No.	Name	Purpose
2-2 (-28)	(S8)	Grounds pin 23 of J12 to simulates Fail signal from ATU to R/E.
(-29)	(S7)	Connects +5 VDC to pin 3 of J12 to simulate Fail signal from PA .
(-30)	(S19)	Momentary switch simulates end of tune phase signal to R/E.
(-31)	(S2)	Connects +5 VDC to pin 21 of J11 to enable the Frame Fail function.
(-32)	(S20)	Momentary switch simulates end of homing phase signal to R/E.
(-33)	(S1)	Grounds pin 20 of J11 to place PA in bypass mode.
(-34)	(S3)	Grounds pin 18 of J11 to connect RF signal to Dummy Load through ATU.
(-35)	(S18)	Momentary switch begins homing phase of ATU.
(-36)	(S4)	Grounds pin 17 of J11 to select 25% output power.
(-37)	(DS1)	Indicates homing phase of ATU in progress.
(-38)	(TP3)	External AGC voltage.
(-39)	(S16)	Grounds pin 15 of J11 to set R/E for external AGC and connects potentiometer R2 to pin 16 of J11.
(-40)	(S15)	Selects upper or lower sideband (USB or LSB) mode of operation by R/E.
(-41)	(S6)	Grounds pin 4 of J11 to set R/E for Frequency Hopping (FH) mode.
(-42)	(R2)	Adjusts external Automatic Gain Control (AGC) voltage to R/E.
(-43)	(S11)	Connects +24 VDC supply voltage to test set and UUT.
(-44)	(DS3)	Indicates presence of +24 VDC from UUT to the test set.

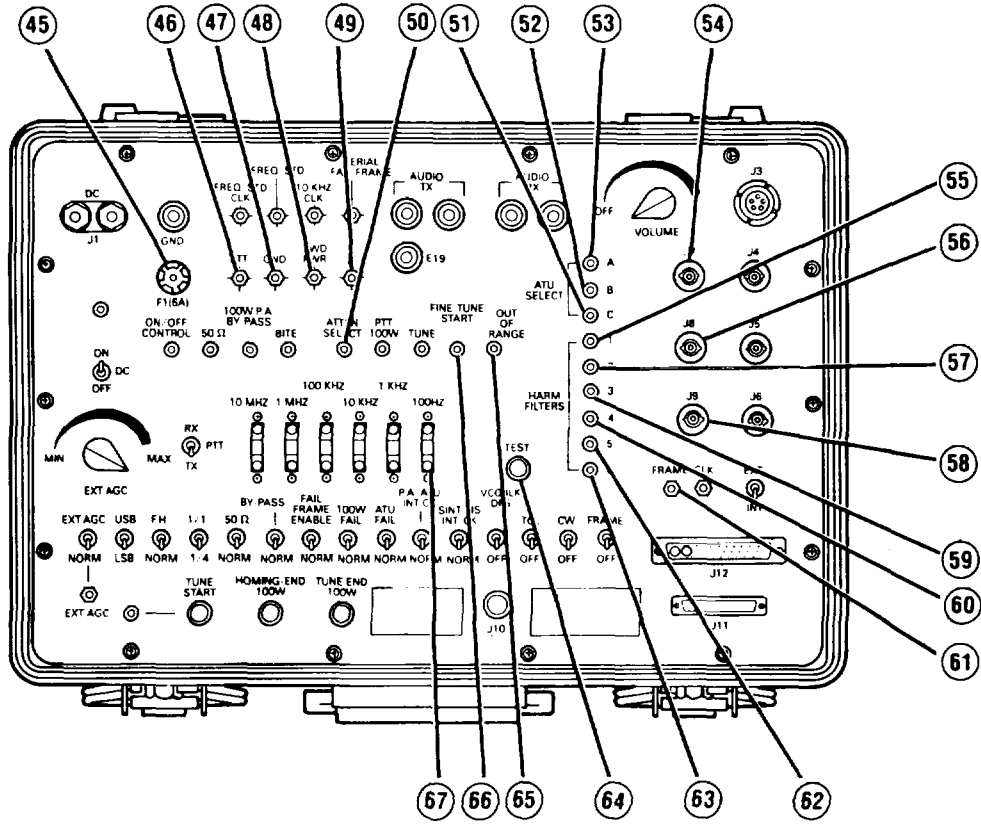


Figure 2-3. Manpack R/E Test Set Front Panel

Table 2-1. Manpack R/E Test Set Controls and Indicators (5 of 8)

Fig. and Index No.	Name	Purpose
2-3-45	F1	6 amp fuse.
-46	(TP9)	PTT signal.
-47	(TP1)	Chassis ground.
-48	(TP4)	Detected forward power level.
-49	(TP10)	Test point for bit A of VSWR Reducer code.
-50	(DS6)	Indicates the 6dB attenuator of the PA is inserted.
-51	(DS10)	Indicates logic level of bit C of VSWR Reducer code.

2-3. CONTROLS AND INDICATORS (Cont.)

Table 2-1. Manpack R/E Test Set  
Controls and Indicators (6 of 8)

Fig. and Index No.	Name	Purpose
2-3-52	(DS9)	Indicates logic level of bit B of VSWR Reducer code.
-53	(DS8)	Indicates logic level of bit A of VSWR Reducer code.
-54	J7	Local oscillator input to synthesizer test circuits. (not used)
-55	(DS15)	Indicates Filter FL1 (2.0 to 2.99 MHz) of PA selected.
-56	J8	RF input to synthesizer test circuits from UUT. (not used)
-57	(DS16)	Indicates Filter FL2 (3.0 to 4.99 MHz) of PA selected.
-58	J9	Output from synthesizer test circuits. (not used)
-59	(DS17)	Indicates Filter FL3 (5.0 to 7.99 MHz) of PA selected.
-60	(DS18)	Indicates Filter FL4 (8.0 to 11.99 MHz) of PA selected.
-61	(TP11)	Input for external serial data frame.
-62	(DS19)	Indicates Filter FL5 (12.0 to 18.99 MHz) of PA selected.
-63	(DS20)	Indicates Filter FL6 (19.0 to 29.99 MHz) of PA selected.
-64	(S21)	Momentary switch connects +5 VDC to JK flip-flop A1U17 causing a test of the R/E.
-65	(DS14)	Indicates that selected frequency is out of range for R/E.
-66	(DS11)	Indicates ATU, internal or external, is in the RF Tune phase.
-67	(S27)	Selects operating frequency of R/E in increments of 100 Hz.

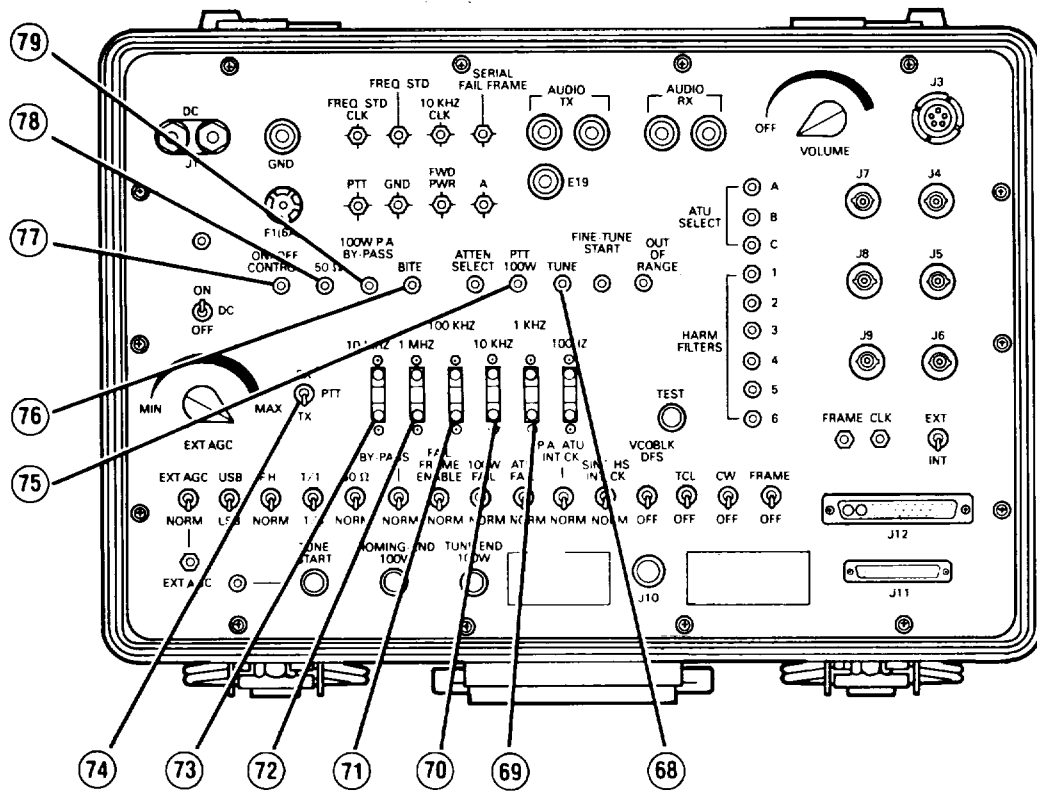


Figure 2-4. Manpack R/E Test Set Front Panel

Table 2-1. Manpack R/E Test Set Controls and Indicators (7 of 8)

Fig. and Index No.	Name	Purpose
2-4-(68)	(DS13)	Indicates ATU, internal or external, is in the homing or tuning phase.
(-69)	(S26)	Selects operating frequency of R/E in increments of 1 KHz.
(-70)	(S25)	Selects operating frequency of R/E in increments of 10 KHz.
(-71)	(S24)	Selects operating frequency of R/E in increments of 100 KHz.
(-72)	(S23)	Selects operating frequency of R/E in increments of 1 MHz.

**2-3. CONTROLS AND INDICATORS (Cont.)**

Table 2-1. Manpack R/E Test Set Controls and Indicators (8 of 8)

Fig. and Index No.	Name	Purpose
2-4-73	(S22)	Selects operating frequency of R/E in increments of 10 MHz.
74	(S17)	Grounds pin 23 of J11 to simulate PTT signal to UUT.
75	(DS12)	Indicates Push-To-Talk (PTT) signal to PA.
76	(DS2)	Indicates BITE status of R/E.
77	(DS7)	Indicates +24 VDC to the UUT.
78	(DS4)	Indicates the RF signal is routed to the 50 ohm dummy load by the ATU.
79	(DS5)	Indicates the PA is in bypass mode.

Table 2-2. Manpack R/E Test Set Cable Assemblies

Cable	Part Number	Title
W1	569712-801	DC Power Cable
W67	3-94310//B	None
W68	3-94311//B	None

**2-4. FUNCTIONAL DESCRIPTION OF MANPACK R/E TEST SET**

The Manpack R/E Test Set is powered by an external power supply providing +24.0 VDC operating voltage through DC power cable W1 to connector J1. Switch S11 connects the voltage through fuse F1, a 6-amp fuse, to connector J12 with pins 4, 28, and 29 supplying power to the UUT and the test set. A ground is applied to pin 33 of connector J12 to light LED DS7, indicating the R/E is in a power-on condition. (See FO-1.) The +24.0 VDC connects back to the test set by the UUT through pin 3 of connector J11. The voltage connects through diode CR1 to LED DS3, which lights when switch S11 closes. The +24.0 VDC also connects through diode CR1 to voltage regulator U1, which regulates the voltage to +5.0 VDC for use by circuits on CCA A1.



**2-4. FUNCTIONAL DESCRIPTION OF MANPACK R/E TEST SET (Cont.)**

R/E remote control is a function of the test set. The frequency and mode information is converted from parallel to serial data so that it can be applied to the R/E. The CPU A1U4 receives its instruction set from the EPROM A1U5. It interfaces with external circuitry through peripheral interface assemblies (PIA) A1U13 and A1U14. Upon power up, the reset circuit A1U1 and NAND gate A1U2 initialize the CPU. Frequency codes to be sent to the R/E are selected by digit switches S22 through S27, each of which generate a 4-bit binary code to be stored in latches A1U6 through A1U11, respectively. The latches are enabled individually by IC A1U12, a Binary Code Decimal (BCD)-to-decimal converter that decodes the BCD address code generated by the PIA A1U13 at pins 14 through 17. The low enable signal causes the addressed latch to place the 4-bit number onto the data bus to input pins 10 through 13 of A1U13. If the frequency selected is out of range, a high logic-level signal at pin 9 of A1U13 is generated to forward-bias transistor A1Q3, effectively connecting the cathode of LED DS14 to ground to indicate an out-of-range condition. A1U15 debounces the inputs of switches S12 (CW) and S15 (USB/LSB). It relays this MODE information to A1U14.

Another switch debounced by A1U15 is switch S14 (TCL). The function of switch S14 is to set the microprocessor in the same state as the microprocessor located in the remote control set. Switch S13 (FRAME) is applied through A1U15 to pin 6 of A1U14 to enable the serial data output of A1U14 for testing. The serial data is buffered by A1U16 and connects to front-panel TP7 and pin 5 of connector J11. The serial data frame consists of six data frames, each made up of 48 bits. The data frames alternate between a valid frame and a nonvalid frame, the latter of which is composed of all 48 bits at a high logic level. The data frame may be verified using a data analyzer connected to TP7. The following table contains the serial data sequence generated by the microprocessor A1U14.

Table 2-3. Frequency Serial Data Bit Sequence

Bit Number	Information	Bit Number	Information
1	Low	13	FL 5
2	Low	14	FL 6
3	High	15	LSB
4	High	16	USB
5	Low	17 through 41	Not used
6	A	42	Test
7	B	43	CW mode
8	C	44	Low
9	FL 1	45	High
10	FL 2	46	High
11	FL 3	47	Low
12	FL 4	48	Low

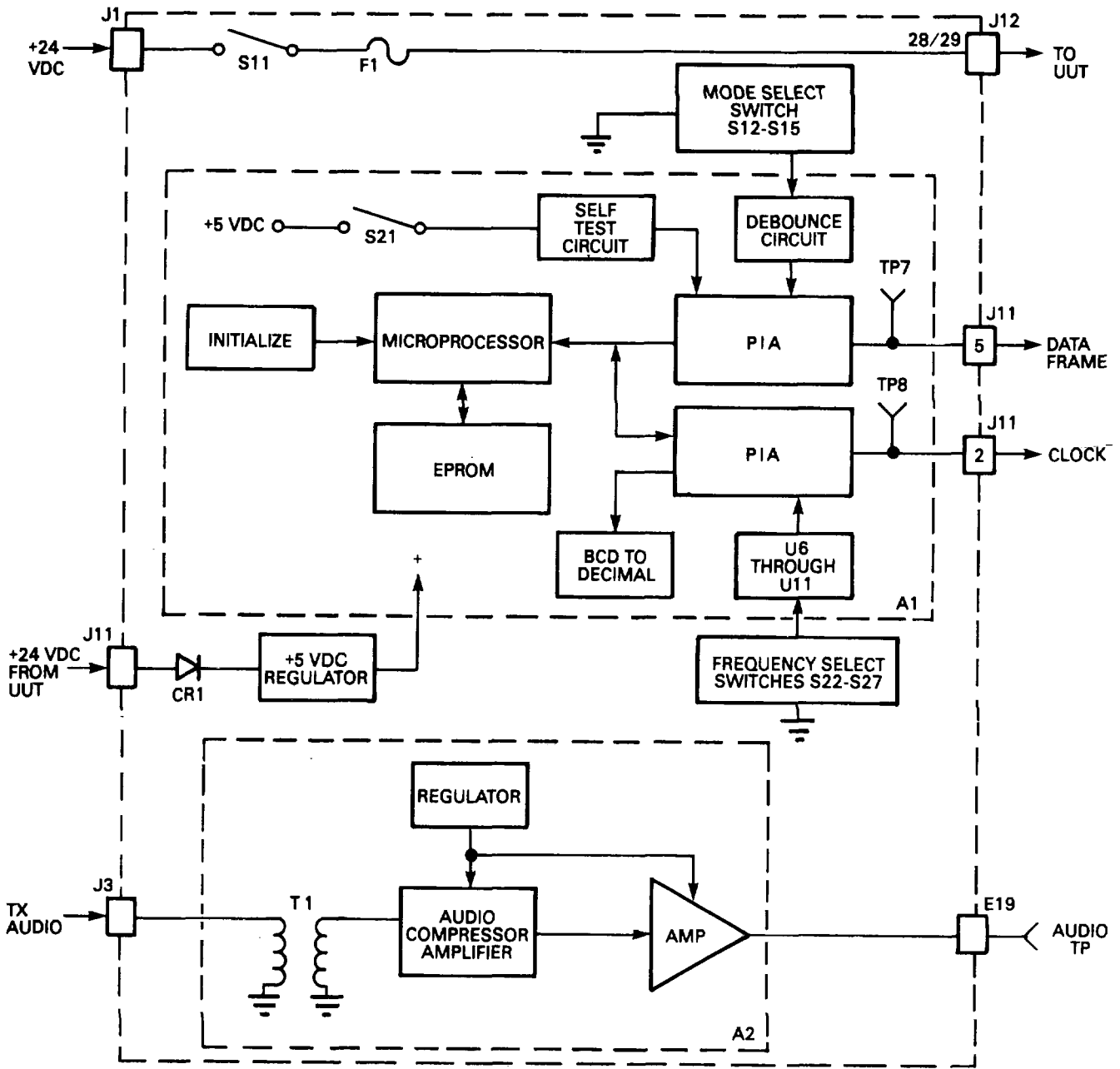


Figure 2-5. Block Diagram

The clock signal that drives the microprocessor is derived from a 4.0 MHz crystal Y1 and is divided down by A1U4 to the clock reference frequency. The TCL reference clock signal is made available at TP8 and pin 2 of connector J11 through the buffers of A1U16. The frequency will be either 10 kHz or 50 Hz, depending on whether switch S14 is to TCL or OFF. Switch S28, in the EXT position, allows connection of the external clock and data sources through TP11 and TP12 so that an external data generator can drive the R/E.

#### 2-4. FUNCTIONAL DESCRIPTION OF MANPACK R/E TEST SET (Cont.)

A self-test of the R/E can be performed when switch S21 is pressed. This applies a leading edge to pin 3, the clock input of A1U17, causing the output Q (pin 1) to go high. The high signal is applied to pin 7 of A1U14 to initiate the test sequence. The inverse Q output (pin 2) of the flip-flop goes low and holds the J input (pin 6) low so that the flip-flop will not respond to switch S21 until it is reset. The K input (pin 5) is grounded preventing a second pulse to the clock input (pin 3) from resetting the flip-flop. At the end of the test phase, a reset signal is applied to pin 4 of the flip-flop by pin 19 of A1U14.

Audio test signals to the R/E can be applied by a handset connected to front panel connector J3. The audio is connected through pin A and B to a 600-ohm matching impedance transformer T1, then to A2U3, an amplifier and audio compressor that amplifies the audio level to about 100 mV. The signal is further amplified by the operational amplifier A2U2 and connected to the front panel by binding post E19. This signal connects by a jumper to the red binding post of the Audio TX connector and in turn to pin 24 of connector J11 at a level of 0 dBm (770 mV) into 600 ohms. The audio compressor A2U3 and the operational amplifier are supplied +6 VDC by regulator A2U1. Variable resistor A2R8 provides overall gain control for the op-amp. The PTT signal from the microtelephone connects from pin C of connector J3 to pin 23 of connector J11 and to TP9 of the front panel. Switch S17 is used to simulate a PTT signal by grounding pin 23 of connector J11. LED DS12 indicates the PTT signal applied by the R/E to the PA when +5 VDC is connected to pin 15 of connector J12 by the R/E, and inverted by IC A1U18. Audio RX from the R/E is connected through pin 8 of connector J11 to potentiometer R1, which is used to control the On/Off function as well as volume level to the external headset through pin E of connector J3. The Audio RX signal also connects to front panel jack Audio RX (red).

A dummy load is built into the test set to allow measurement of the VSWR. The load is made up of four 50-ohm 150-watt resistors in parallel. This presents a load impedance of 12.5 ohms, a VSWR of 4:1, to the R/E which is connected through front-panel connector J10.

The test set can simulate signals from an ATU, either internal to the R/E or external. The signals simulated are Tune Start, Homing End 100W, Tune End 100W, and ATU Fail. Momentary switch S18 begins the homing phase of the R/E ATU or the external ATU by grounding pin 11 of connector J11. The R/E returns a ground signal to pin 11 of connector J11 to signal the homing phase. This ground signal causes transistor Q2 to cut off, which in turn means that the +5 VDC is applied to the base of transistor Q1, causing it to saturate. With transistor Q1 turned on the cathode of LED DS1 (Tune Start) connects to ground causing LED DS1 to light, indicating the ATU is in homing phase. Before the homing phase can begin, however, switch S9 must be in the interlock position which grounds pin 24 of J12. This interlocks the operation of the R/E with the Vehicular Adapter. Switch S20 generates the Homing End signal by grounding pin 39 of connector J12, which is otherwise held at +5 VDC through pull-up

**2-4. FUNCTIONAL DESCRIPTION OF MANPACK R/E TEST SET (Cont.)**

resistor R30. With PTT switch S17 set to TX, the tuning phase begins. The R/E returns a Fine Tune Start signal through pin 40 of J12 to IC A1U19, which in turn connects a low logic signal to LED DS11, causing it to light. A1U19 acts as a buffer to Fine Tune Start and the ATU select codes from the R/E. The ATU select codes indicate which filter of the VSWR reducer is selected due to the setting of the frequency-code switches.

The code is connected to A1U19 through pins 5, 6, and 7 of connector J12 for bits A, B, and C, respectively. LEDs DS8, DS9, and DS10 are driven by A1U19 to display the codes as follows:

Table 2-4. Harmonic Filter Codes

Filter	Frequency Bandwidth (MHz)	DS8 (A)	DS9 (B)	DS10 (C)
1	2.0 to 2.499	1	0	0
2	2.5 to 3.499	0	1	0
3	3.5 to 4.99	1	1	0
4	5.0 to 7.499	0	0	1
5	7.5 to 13.99	1	0	1
6	14.0 to 30.0	0	0	0

A1U18 serves to interface the CMOS logic levels of the R/E with the TTL logic level of the test set. CMOS logic level signals include Tune, which indicates the overall tuning time (Homing and RF Tune), and PTT 100 W to pins 34 and 15 of J12, respectively. The Tune condition is indicated by LED DS13. The end of the overall tune phase signal is simulated by momentary switch S19 (Tune End 100 W) which connects a +5 VDC pulse of at least 100 mSec duration to the R/E through pin 39 of connector J12. Switch S8 simulates the ATU Fail signal by grounding pin 23 of connector J12 and switch S3 grounds pin 18 of J11, normally held high by pull-up resistor A1R3, to bypass the ATU and apply the RF signal to the dummy load. In bypass mode, the R/E returns a ground signal to pin 18 of connector J12, causing LED DS4 (50 ohms) to light.

Connectors J4, J5, and J6 connect the Fast Synthesizer of the Vehicular Adapter to the R/E for use in Electronic Counter-Counter Measures (ECCM) Mode. Connector J4 is the input for the 77-to-104.99 MHz signal of the VCO and connects to pin A1C of J12 through a shielded cable. Connector J5 connects 74.5/75.5 MHz to pin A2C of connector J12, and J6 connects 500 KHz to pin 27 of connector J12. In ECCM mode, using the fast synthesizer requires using dual intermediate frequency (IF) filters alternately. Switch S5 grounds pins 7 and 12 of connector J11 to set the R/E to VCO Blank; this provides 40 dB of attenuation and sets the R/E for dual filter operation. Switch S10 applies ground to the fast synthesizer

**2-4. FUNCTIONAL DESCRIPTION OF MANPACK R/E TEST SET (Cont.)**

interlock signal line by grounding pin 41 of connector J12. Switch S6 grounds pin 4 of connector J11 to enable the audio compressor of the R/E.

The R/E Test Set also functions to simulate the presence of the 100-W PA. Switch S1 simulates the bypass condition of the PA by grounding pin 20 of connector J11. The R/E returns a CMOS level signal to pin 8 of connector J12. This signal is buffered by A2U4 which acts as a CMOS to TTL interface. The signal then connects to buffer A2U5, which drives LED DS5 (100 W PA By-Pass). LEDs DS15 through DS20 indicate which of the 6 harmonic filters is inserted in the PA as a response to the frequency-code setting. A ground signal from the R/E connects to the cathode of the appropriate LED through one of pins 9 through 14 of connector J12. Switch S4 grounds pin 17 of connector J11 to simulate control from the ECCM module to select 25% operating power by the PA. LED DS6 indicates insertion of the 6dB attenuator in the PA, reducing power to 25 W. The signal from the R/E connects to pin 17 of connector J12 and then converts from CMOS to a TTL level signal by A2U4 and the LED driven by A2U5. Switch S7 simulates the 100-W PA Fail signal to the R/E by applying +5 VDC to pin 3 of J12.

Other signals from the R/E that may be monitored at the front panel include the detected forward power level, which is connected to pin 19 of connector J11 and brought up on TP4. The Serial Fail Frame connects to TP5 via pin 14 of connector J11. The 10 KHz clock signal, used for synchronization of the ECCM module, is connected to TP6 through resistor A1R2 from pin 6 of J11. LED DS2 indicates the BITE condition of the R/E with +5 VDC applied to pin 9 of J11 from the R/E.

Switch S2 connects +5 VDC to pin 21 of connector J11 sending a Frame Fail Enable signal to the Bite module of the R/E. Switch S16, when set to EXT. AGC, connects potentiometer R2 to pin 16 of connector J11 and connects a ground to pin 15 of connector J1 to set the R/E for external AGC. R2 is used to set the level of gain by the R/E by setting the AGC voltage between 0 and +5 VDC. The EXT. AGC voltage also connects to TP3 of the test set for measurement. Circuit Card Assembly A3 is not used for maintenance or testing of the Regency Net system.

### SECTION III.

#### PREPARATION FOR USE

##### 3-1. GENERAL

This section contains instructions for preparation for use of Manpack R/E Test Set TS-4255/GRC-215. These include instructions for unpacking, if any special procedures are required, inspecting unpacked equipment for damage, and any preliminary servicing procedures required to prepare the equipment for operation.

##### 3-2. UNPACKING

No special procedures are required for removing the test set from its shipping container. Use normal care in handling electronic equipment. Avoid jarring test set during removal.

##### 3-3. CHECKING UNPACKED EQUIPMENT

a. Reporting of Item and Packaging Discrepancies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/SECNAVINST 4355.18/AFR 400-54/MCO 4430.3J.

b. Transportation Discrepancy Report (TDR) (SF 361). Fill out and forward Transportation Discrepancy Report (TDR) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15.

c. Refer to DA Pam 25-30 to see if your equipment has had any Modification Work Orders (MWO) applied.

##### 3-4. PRELIMINARY SERVICING OF EQUIPMENT

Prior to placing the test set in service, perform the following visual inspection procedures. Do not connect unit to primary power source or any other equipment during these procedures.

a. Check all front panel connectors for broken, bent or missing pins.

b. Check all front panel mounted switches, lamps, or other hardware for damage.

**3-1/(3-2 Blank)**

**SECTION IV.**

**OPERATION**

**4-1. GENERAL**

This section contains operating procedures for the Manpack R/E Test Set TS-4255/GRC-215.

**4-2. INITIAL POSITION OF CONTROLS**

Table 4-1 lists the initial positions of the front-panel controls prior to operating the equipment. See Figures 2-1 through 2-4 for location of front-panel controls.

Table 4-1. Initial Position of Controls

Fig. and Index No.	Control Name	Position
2-1-17 (S28) EXT/IN	INT.	
- (21)	(S13) Frame	OFF
- (22)	(S12) CW	OFF
2-2-23 (S14) TCL	OFF	
- (24)	(S5) VCOBLK DFS	OFF
- (26)	(S10) SINT HS INT. CK.	NORM
- (27)	(S9) PA ATU INT. CK.	NORM
- (28)	(S8) ATU Fail	NORM
- (29)	(S7) 100W Fail	NORM
- (31)	(S2) Fail Frame Enable	NORM
- (33)	(S1) Bypass/Norm	NORM
- (34)	(S3) 50 ohm/Norm	NORM
- (36)	(S4) 1/1 1/4	1/1
- (39)	(S16) EXT. AGC	NORM
- (40)	(S15) USB/LSB	LSB

**4-2. INITIAL POSITION OF CONTROLS (Cont.)**

Table 4-1. Initial Position of Controls (Cont.)

Fig. and Index No.	Control Name	Position
2-2 - (41)	(S6) FH	NORM
- (43)	(S11) ON/OFF DC	OFF
2-4 - (74)	(S17) PTT	TX

**4-3. OPERATING INSTRUCTIONS**

Position the initial control settings as shown in Table 4-1. The test set lid stores the cable assemblies. Connect cable W1 to connector J1 on the test fixture and connect to the PP-8202/G power supply, adjust the power supply to +24.0 (+23.0 to +25.0) VDC. Follow the test procedures in the technical manual for the UUT. When the test procedures are completed, switch S11 to OFF, and return all other switches to their initial positions.



**SECTION V.**  
**MAINTENANCE**

**5-1. GENERAL**

This section contains operational check procedures, the symptom index, troubleshooting flowcharts, and removal/replacement procedures for Manpack R/E Test Set TS-4255/GRC-215.

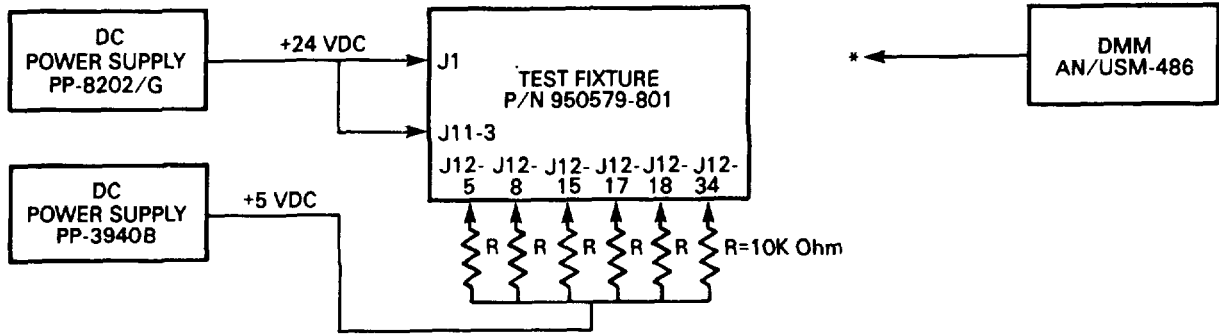
General Support maintenance is authorized complete repair of the Test Set.

The operational check is performed using the following test equipment.

Test Equipment

Digital Multimeter, AN/USM-486  
Oscilloscope, AN/USM-488  
Power Supply, PP-8202/G  
Power Supply, PP-3940B  
Resistor, 620 ohm 20% 1/4 W

Resistor (6), 10K ohm 20%  
1/4 W  
Frequency Counter, AN/USM-459  
W1 DC Power Cable, 569712-801  
(P/O TS-4255/GRC-215)



\*CONNECT AS REQUIRED.

*Figure 5-1. Operational Test Setup*

**5-2. OPERATIONAL CHECK OF MANPACK R/E TEST SET**

a. Continuity and Resistance Check

1. Disconnect power cable W1 from J1 and the PP-3940B from the 6 10-Kohm resistors. Measure for continuity (less than 1.5 ohms of resistance) between the following points:

<u>FROM</u>	<u>TO</u>
J11 pin 8	RX Audio Red (E4)
J11 pin 23	J3 pin C
J11 pin 23	TP9 (PTT)
J11 pin 19	TP4 (Forward Power)
J11 pin 24	TX Audio Red (E3)
J11 pin 14	TP5 (Serial Fail Frame)
J11 pin 12	J11 pin 7
J11 pin 1	GND
J11 pin 25	GND
J12 pin 30	J12 pin 16
J12 pins 1, 26, and 31	GND
RX Audio-Black	GND
Chassis Ground	GND
TP2 (GND)	TP1 (GND)
TX Audio-Black	GND
J12 pin 4	J12 pins 28 and 29
J4 conductor	J12 pin A1conductor
J5 conductor	J12 pin A2 conductor
J6 conductor	J12 pin 27
J12 pin A1 shield	GND
J12 pin A2 shield	GND
J1-Black	GND
J3 pin D	GND

2. Set switches as listed below and measure for continuity (less than 1.5 ohms) or an open circuit (more than 20 Mohms) between the following points:

<u>SET-UP</u>	<u>FROM</u>	<u>TO</u>	<u>CONDITION</u>
PTT (S17) to TX	J11 pin 23	J11 pin 25	continuity
PTT (S17) to RX	J11 pin 23	J11 pin 25	open circuit
EXT AGC (S16) to AGC	J11 pin 16	TP3 (EXT AGC)	continuity
EXT AGC (S16) to NORM	J11 pin 16	TP3 (EXT AGC)	open circuit
VCO BLK (S5) to VCO DFS	J11 pin 12	GND	continuity
VCO BLK (S5) to OFF	J11 pin 12	GND	open circuit
FH (S6) to FH	J11 pin 4	GND	continuity
FH (S6) to NORM	J11 pin 4	GND	open circuit
PA ATU INT CK (S9) to ATU	J12 pin 24	GND	continuity
PA ATU INT CK (S9) to NORM	J12 pin 24	GND	open circuit

**5-2. OPERATIONAL CHECK OF MANPACK R/E TEST SET (Cont.)**

<u>SET-UP</u>	<u>FROM</u>	<u>TO</u>	<u>CONDITION</u>
ATU Fail (S8) to FAIL	J12 pin 23	GND	continuity
ATU Fail (S8) to NORM	J12 pin 23	GND	open circuit
SINT HS (S10) to SINT	J12 pin 41	GND	continuity
SINT HS (S10) to NORM	J12 pin 41	GND	open circuit

3. Set switches as listed below and measure for continuity (less than 1.5 ohms) or an open circuit (more than 20 Mohms) between the following points:

<u>SET-UP</u>	<u>FROM</u>	<u>TO</u>	<u>CONDITION</u>
Bypass (S1) to BYPASS	J11 pin 20	GND	continuity
50 OHM (S3) to 50 OHM	J11 pin 18	GND	continuity
1/1 and 1/4 (S4) to 1/4	J11 pin 17	GND	continuity
Tune Start (S18) pressed	J11 pin 11	GND	continuity
EXT/INT (S28) to EXT	J11 pin 2	TP11 (Frame)	continuity
EXT/INT (S28) to EXT	J11 pin 5	TP12 (CLK)	continuity
EXT/INT (S28) to INT	J11 pin 2	TP11 (Frame)	open circuit
EXT/INT (S28) to INT	J11 pin 5	TP12 (CLK)	open circuit

4. Switch 100W Fail (S7) to NORM and measure for the listed resistance values between the following points:

<u>FROM</u>	<u>TO</u>	<u>RESISTANCE</u>
J12 pin 3	GND	10.0 (9.5 to 10.5) Kohms
J12 pin 39	GND	100.0 (95.0 to 105.0) Kohms
J11 pin 6	10 kHz CLK (TP6)	3.0 (2.85 to 3.15) Kohms
J10 conductor	GND	12.5 (11.2 to 13.8) ohms

5. Turn the volume control R1 counter-clockwise to OFF and verify an open circuit between J11 pin 8 and J3 pin E. Slowly rotate the control clockwise and verify that the resistance decreases from 4.7 Kohms to less than 10 ohms.

**5-2. OPERATIONAL CHECK OF MANPACK R/E TEST SET (Cont.)**

b. Functional Checks

1. Reconnect the test set as shown in Figure 5-1 and adjust the PP-8202/G power supply to +24.0 (+23.0 to +25.0) VDC. Observe that DS3 is lit. Verify that switch S11 (ON/OFF) is set to OFF and measure between J12 pin 4 and GND for less than +0.2 VDC.
2. Set switch S11 to ON and verify that LEDs DC ON (DS3), PTT 100W (DS12) and Tune (DS13) light while 50 OHM (DS4), 100W PA Bypass (DS5), and Atten. Select (DS6) remain off.
3. Set the following switches to the positions listed and verify the voltages by measuring between GND and the following points:

<u>SET-UP</u>	<u>Test Point</u>	<u>VOLTAGE</u>
Bypass/NORM (S1) to NORM	J11 pin 20	+5.0 (+4.75 to +5.25) VDC
Bypass/NORM (S1) to Bypass	J11 pin 20	less than +0.2 VDC
Fail Frame Enable (S2) to ENABLE	J11 pin 21	+5.0 (+4.75 to +5.25) VDC
Fail Frame Enable (S2) to NORM	J11 pin 21	less than +0.2 VDC
50 OHM/NORM (S3) to NORM	J11 pin 18	+5.0 (+4.75 to +5.25) VDC
50 OHM/NORM (S3) to 50 D	J11 pin 18	less than +0.2 VDC

4. Set the following switches to the positions listed and verify the voltages by measuring between GND and the following points:

<u>SET-UP</u>	<u>Test Point</u>	<u>VOLTAGE</u>
1/1 1/4 (S4) to 1/1	J11 pin 17	+5.0 (+4.75 to +5.25) VDC
1/1 1/4 (S4) to 1/4	J11 pin 17	less than +0.2 VDC
EXT AGC (S16) to NORM	J11 pin 15	+2.5 (2.0 to 3.0) VDC
EXT AGC (S16) to AGC	J11 pin 15	less than +0.2 VDC
100W Fail (S7) to FAIL	J12 pin 3	+5.0 (+4.75 to +5.25) VDC
100W Fail (S7) to NORM	J12 pin 3	less than +0.2 VDC
Tune End (S19) pressed	J12 pin 38	+5.0 (+4.75 to +5.25) VDC
None	J12 pin 38	less than +0.2 VDC

**5-2. OPERATIONAL CHECK OF MANPACK R/E TEST SET (Cont.)**

<u>SET-UP</u>	<u>Test Point</u>	<u>VOLTAGE</u>
Homing End (S20) pressed	J12 pin 39	+5.0 (+4.75 to +5.25) VDC
None	J12 pin 39	less than +0.2 VDC

5. Measure for less than +0.2 VDC between A (TP10) and GND. Ground J12 pin 5 and measure +3.5 to 4.95 VDC between TP10 and GND.
6. Set switch EXT AGC (S16) to EXT AGC. Slowly rotate EXT AGC (R2) clockwise, and verify that the voltage increases from less than +0.2 VDC to +5.0 (+4.75 to +5.25) VDC at EXT AGC test point (TP3).
7. Ground the following connector pins and observe that the following LEDs light.

<u>SET-UP</u>	<u>LED</u>
J12 pin 5 grounded	LED ATU Select A (DS8)
J12 pin 6 grounded	LED ATU Select B (DS9)
J12 pin 7 grounded	LED ATU Select C (DS10)
J12 pin 8 grounded	LED 100-W PA Bypass (DS5)
J12 pin 9 grounded	LED Harm. FL1 (DS15)
J12 pin 10 grounded	LED Harm. FL2 (DS16)
J12 pin 11 grounded	LED Harm. FL3 (DS17)
J12 pin 12 grounded	LED Harm. FL4 (DS18)
J12 pin 13 grounded	LED Harm. FL5 (DS19)
J12 pin 14 grounded	LED Harm. FL6 (DS20)
J12 pin 17 grounded	LED Atten. Select (DS6)
J12 pin 18 grounded	LED 50 Ohm (DS4)
J12 pin 33 grounded	LED ON/OFF (DS7)
J12 pin 40 grounded	LED Fine Tune Start (DS11)

8. Ground pins 15 and 34 of J12 and observe that LEDs PTT (DS12) and Tune (DS13) respectively extinguish.
9. Press Tune Start switch (S18) and verify that LED DS1 (EXT AGC) lights.

5-2. OPERATIONAL CHECK OF MANPACK R/E TEST SET (Cont.)

c. Test of Data Generation

1. Connect the Test Set as shown below in Figure 5-2. Adjust the PP-8202/G power supply for +24.0 (+23.0 to +25.0) VDC and set switch USB/LSB (S15) to LSB, CW (S12) and FRAME (S13) to OFF, TCL (S14) to TCL. Set the frequency control to 18.2507 mHz.

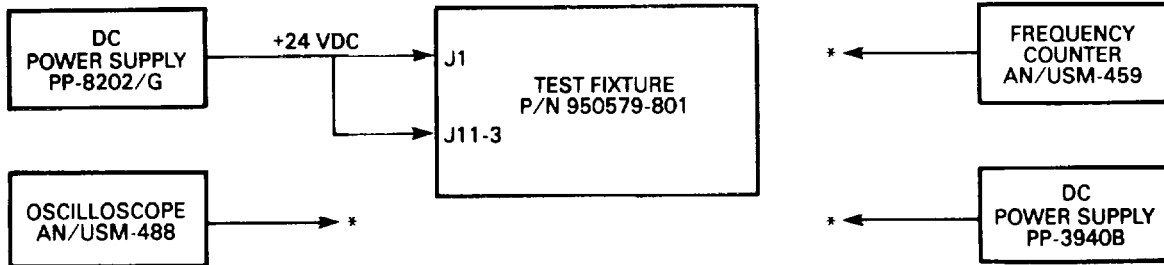


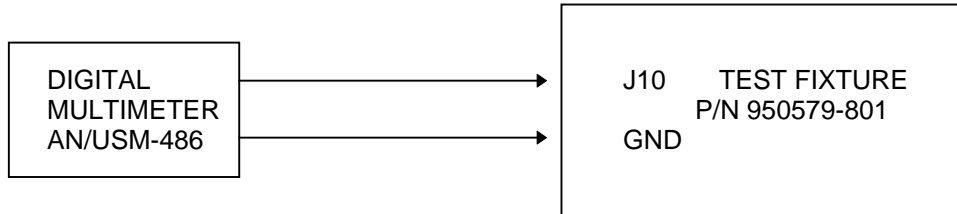
Figure 5-2. 100 W Tune Start Pulse Test Setup

2. Set DC (S11) to ON, using oscilloscope connect one channel to FRAME FREQ. S.D. (TP7) and the other channel to FRAME S.D. CLK (TP8). Verify on TP7 a continuous data frame of about 2 seconds and on TP8 a clock signal of 50 (45 to 55) Hz. Set FRAME (S13) to ON and verify the FRAME and clock pulse duration of 6 seconds (5 to 7) at every change of switches relevant to frequency and/or mode selection.
3. Return switches FRAME (S13) and TCL (S14) to OFF, EXT/INT (S28) to INT. Connect the oscilloscope to pins 2 and 5 of J11 and verify the presence of the Serial Frame and Clock signals. Switch EXT/INT (S28) to EXT. and verify that the Serial Frame and Clock signals are no longer present.
4. Connect the scope probe to FREQ S.D. CLK (TP8) and verify the presence of the Serial Data Frame.
5. Set the frequency switches for 1.9999 MHz and observe that Out of Range LED (DS14) lights. Set the frequency for 18.0000 MHz and observe that Out of Range LED (DS14) extinguishes.
6. Adjust the PP-3940B power supply to +2.0 (+1.75 to 2.25) VDC. Connect the positive lead to J11 pin 9 and the negative lead to GND and verify that BITE LED (DS2) lights.

**5-2. OPERATIONAL CHECK OF MANPACK R/E TEST SET (Cont.)**

d. Test of Dummy Load.

1. Disconnect all power to set. Connect DMM to the test set J10 and GND.



*Figure 5-3. Load Test Setup*

2. The resistance should be 12.5 ohms (11.875 to 13.125).

e. Continuity Testing of Associated Cables.

1. Test continuity of each cable (UUT), W1, W67, and W68 for less than 0.5 ohms resistance with DMM.

**5-3. SYMPTOM INDEX**

The following chart is intended to assist in rapid identification and replacement of faulty components.

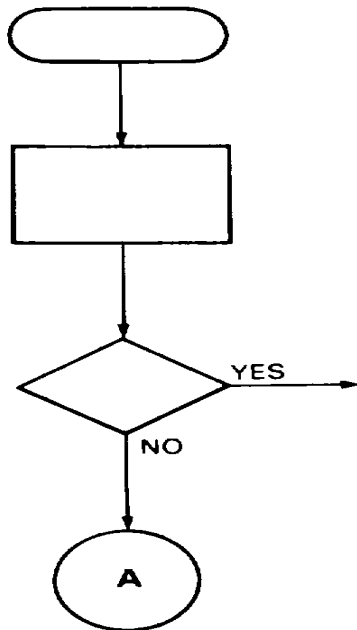
SYMPTOM	TROUBLESHOOTING FLOWCHART PARAGRAPH
+24 or +5 VDC Missing	5-6
A (DS8), B (DS9), C (DS10), or Fine Tune Start (DS11) LEDs Do Not Light or Stay Lit	5-7
PTT 100W (DS12) or Tune (DS13) Do Not Light or Stay Lit	5-8
50 Ohm (DS4), 100W PA Bypass (DS5), or Atten Select (DS6) LEDs Do Not Light or Stay Lit	5-9
Clock or Serial Data Signal Missing	5-10
R/E Bite Test Function Does Not Operate	5-11
Out of Range LED (DS14) Faulty	5-12

**5-4. FLOWCHARTS AND HOW TO USE THEM**

The flowcharts make troubleshooting easier and give maintenance personnel a clear path to follow.

To use the flowchart begin at start and follow the path indicated by the arrow. Perform the task given by the symbol block and then follow the arrow to the next block. At the decision symbol be sure to follow the correct path indicated by YES or NO.

**SYMBOL**



**MEANING**

Start and finish symbol indicates starting and finishing points.

Task symbol indicates what to do and where to do it.

Decision symbol (yes or no) indicates that a decision must be made. The direction to go from the decision symbol depends on the decision made.

Continuation symbol indicates that the path continues to or comes from another flowchart.



5-5. TROUBLESHOOTING

INITIAL SETUP

Test Equipment

Digital Multimeter, AN/USM-486  
 Power Supply, PP-8202/G  
 Oscilloscope, AN/USM-488  
 Function Generator, SG-1133/U  
 W1 DC Power Cable, 569712-801  
 (P/O TS-4255/GRC-215)

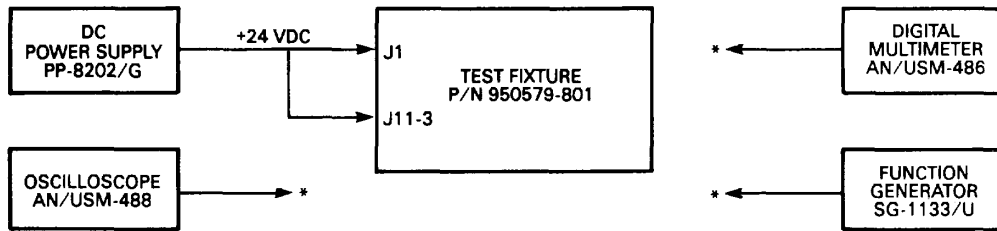
Equipment Condition

PP-8202/G adjusted to +28.0  
 (+27.0 to +29.0) VDC.  
  
 PP-3940B adjusted to +5.0  
 (+4.5 to +5.5) VDC.  
  
 Test Set tuned to 2.0 mHz.

Tools

Tool Kit TK-17

Test Set Switches:  
 S1, S2, S3, to NORM  
 S4 to 1/1  
 S5, S11 thru S14 to OFF  
 S6 thru S10, S16 to NORM  
 S15 to LSB  
 S17 to TX  
 S28 to INT

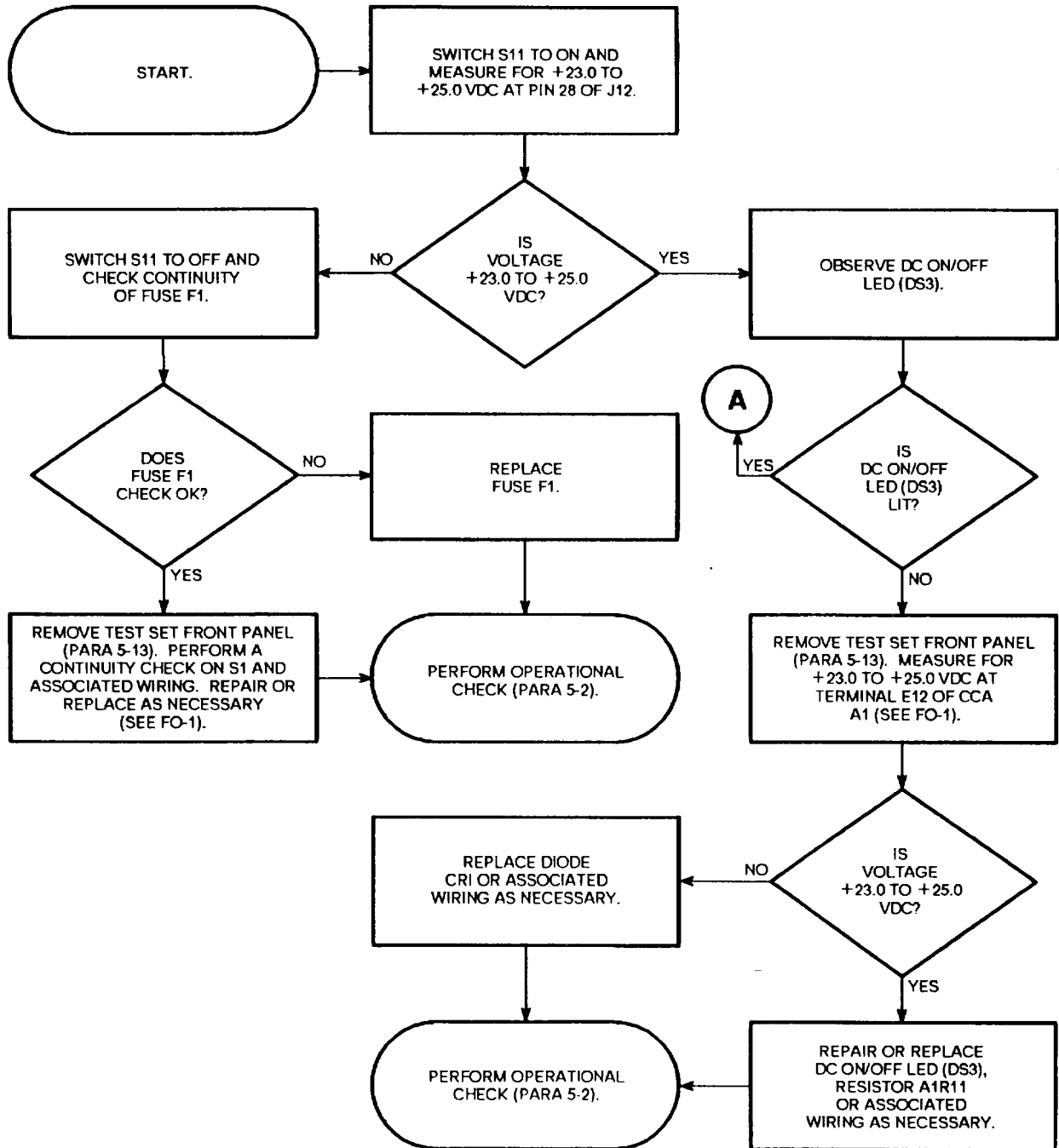


\*CONNECT AS REQUIRED.

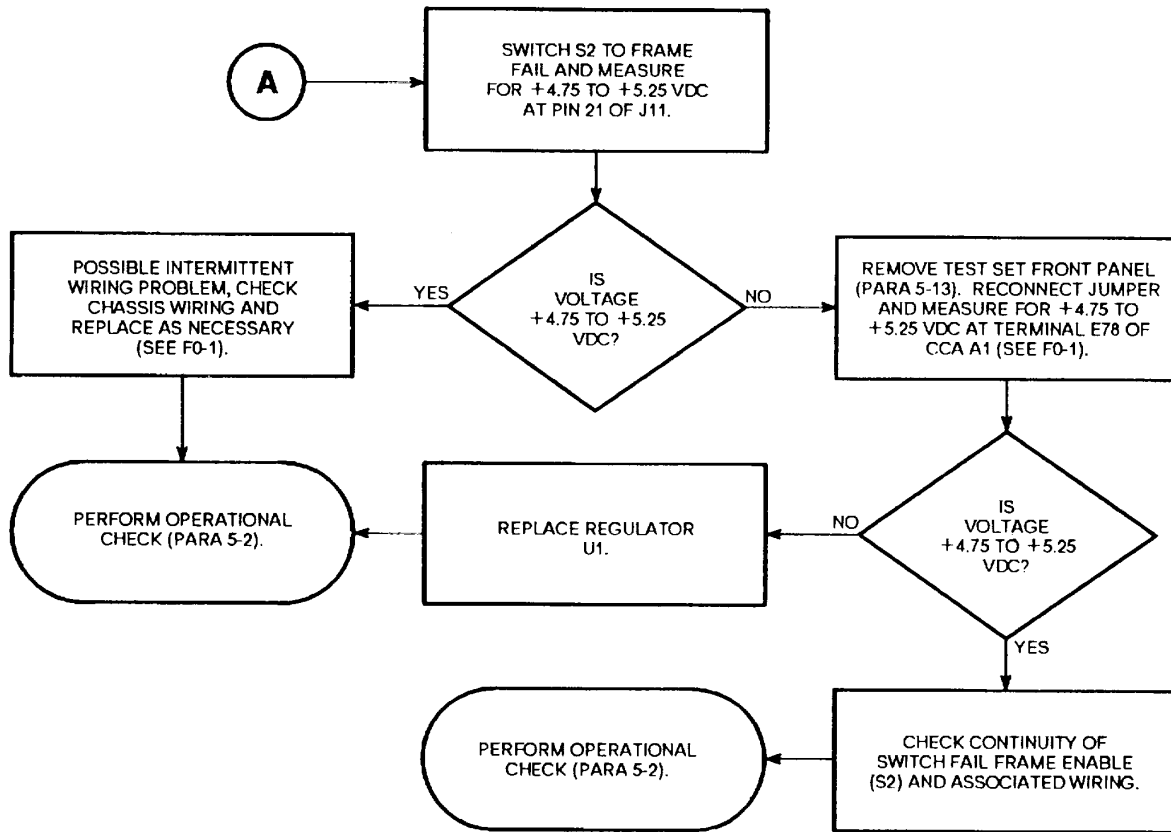
Figure 5-4. Initial Setup

5-6. +24 OR +5 VDC MISSING

Refer to paragraph 5-5 for initial setup illustration and test equipment listing.

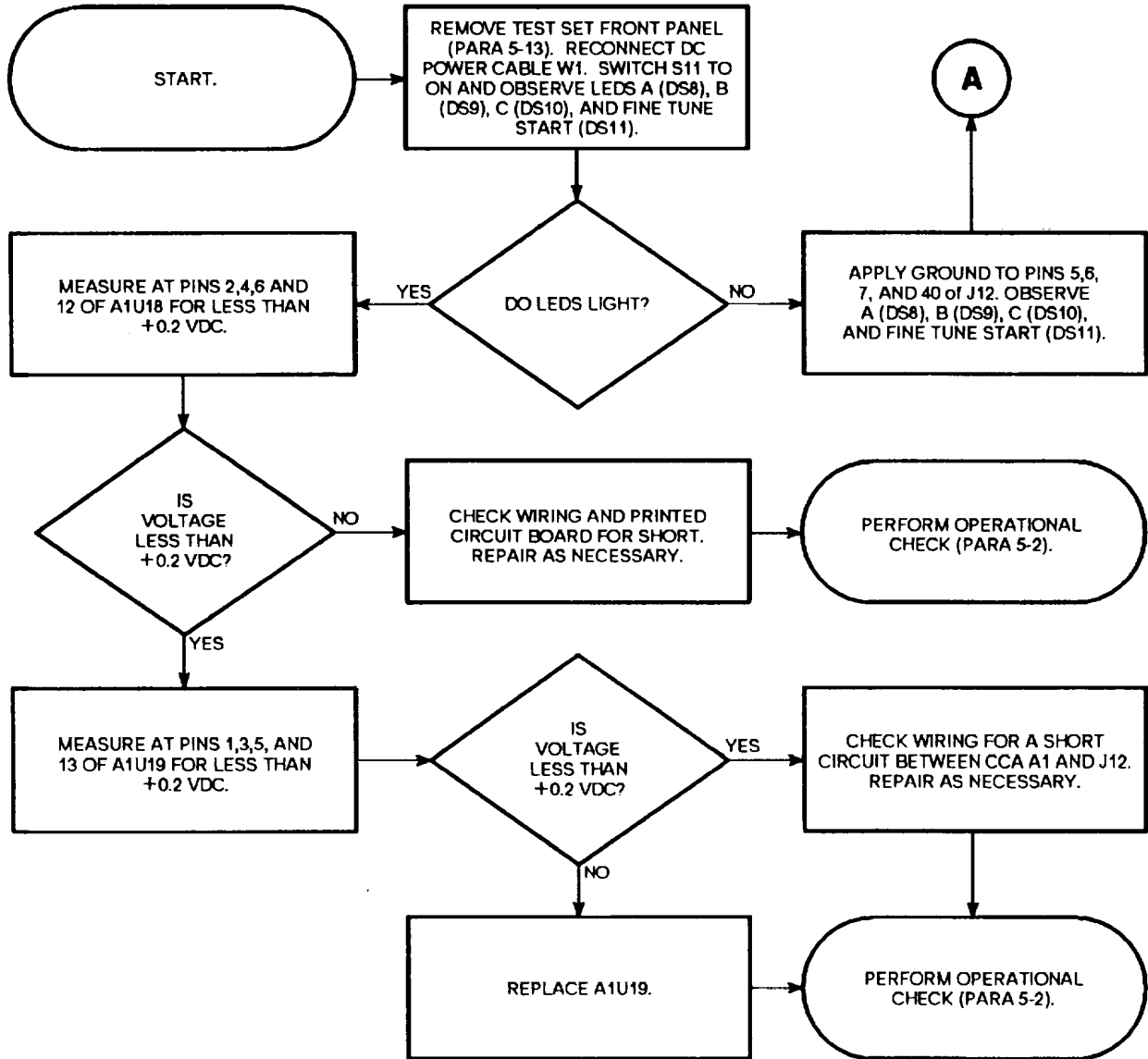


5-6. +24 OR +5 VDC MISSING (Cont.)

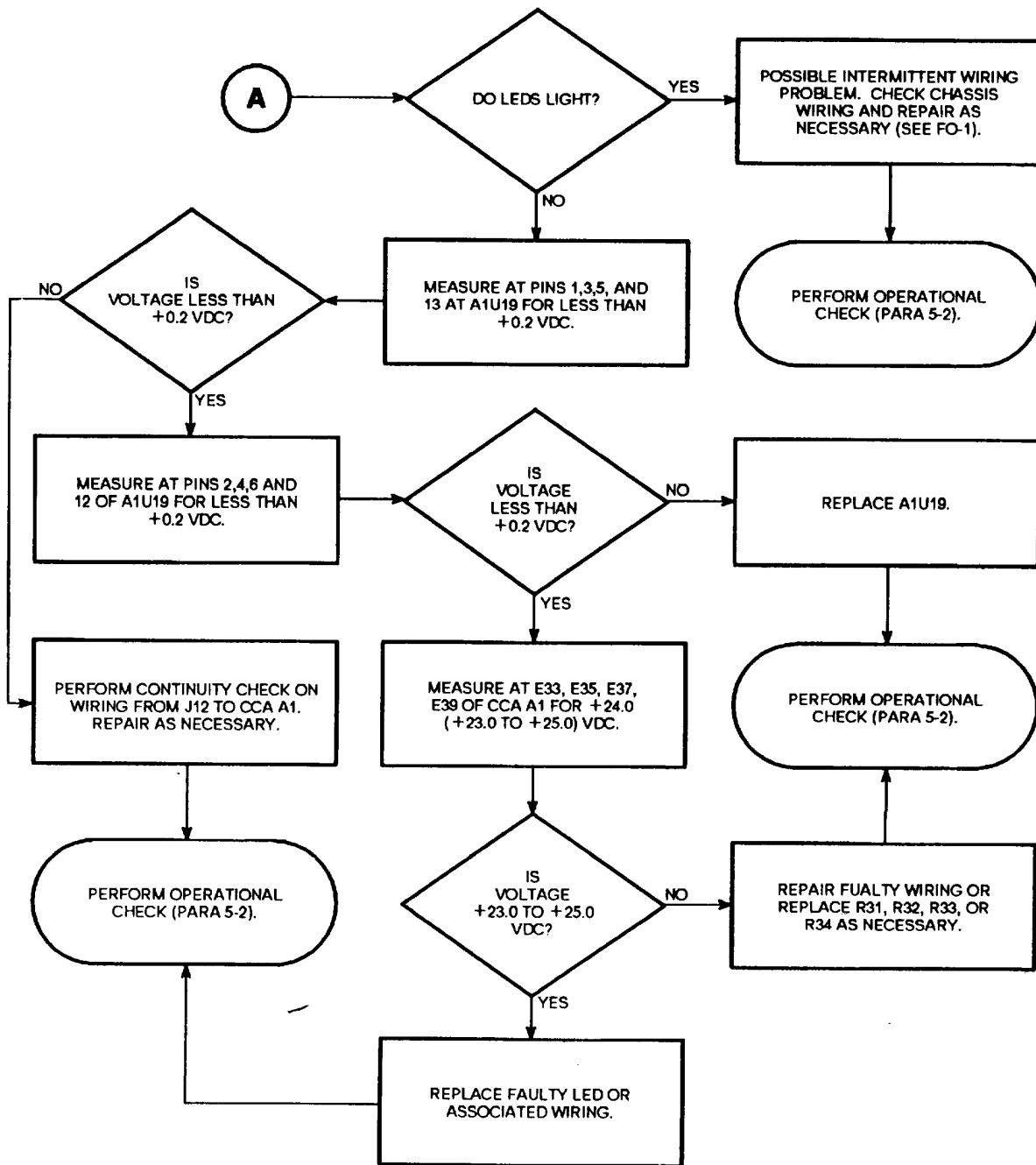


5-7. A (DS8), B (DS9), C (DS10), OR FINE TUNE START (DS11) LEDS DO NOT LIGHT OR STAY LIT

Refer to paragraph 5-5 for initial setup illustration and test equipment listing.

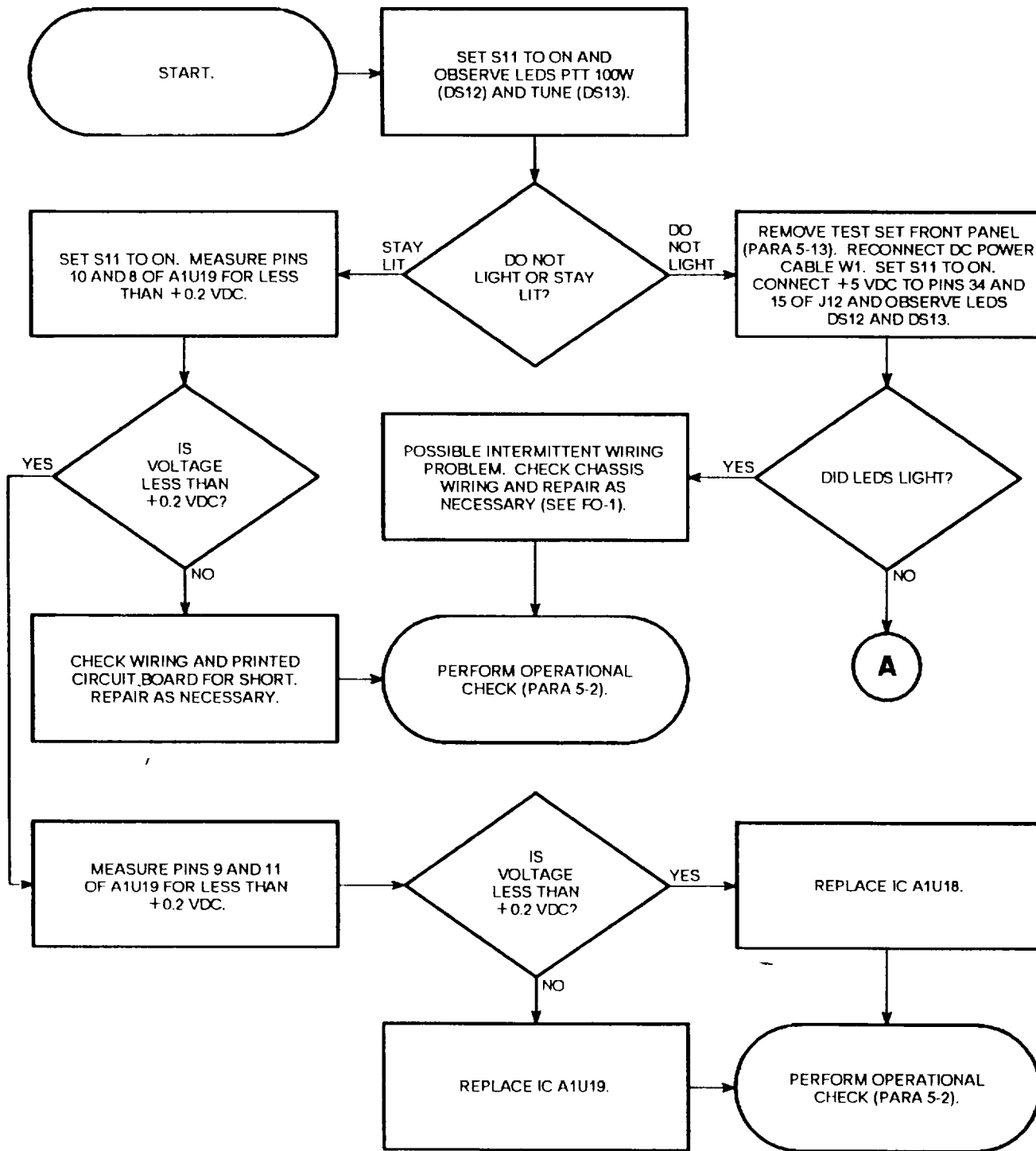


5-7. A (DS8), B (DS9), C (DS10), OR FINE TUNE START (DS11) LEDS DO NOT LIGHT OR STAY LIT (Cont.)

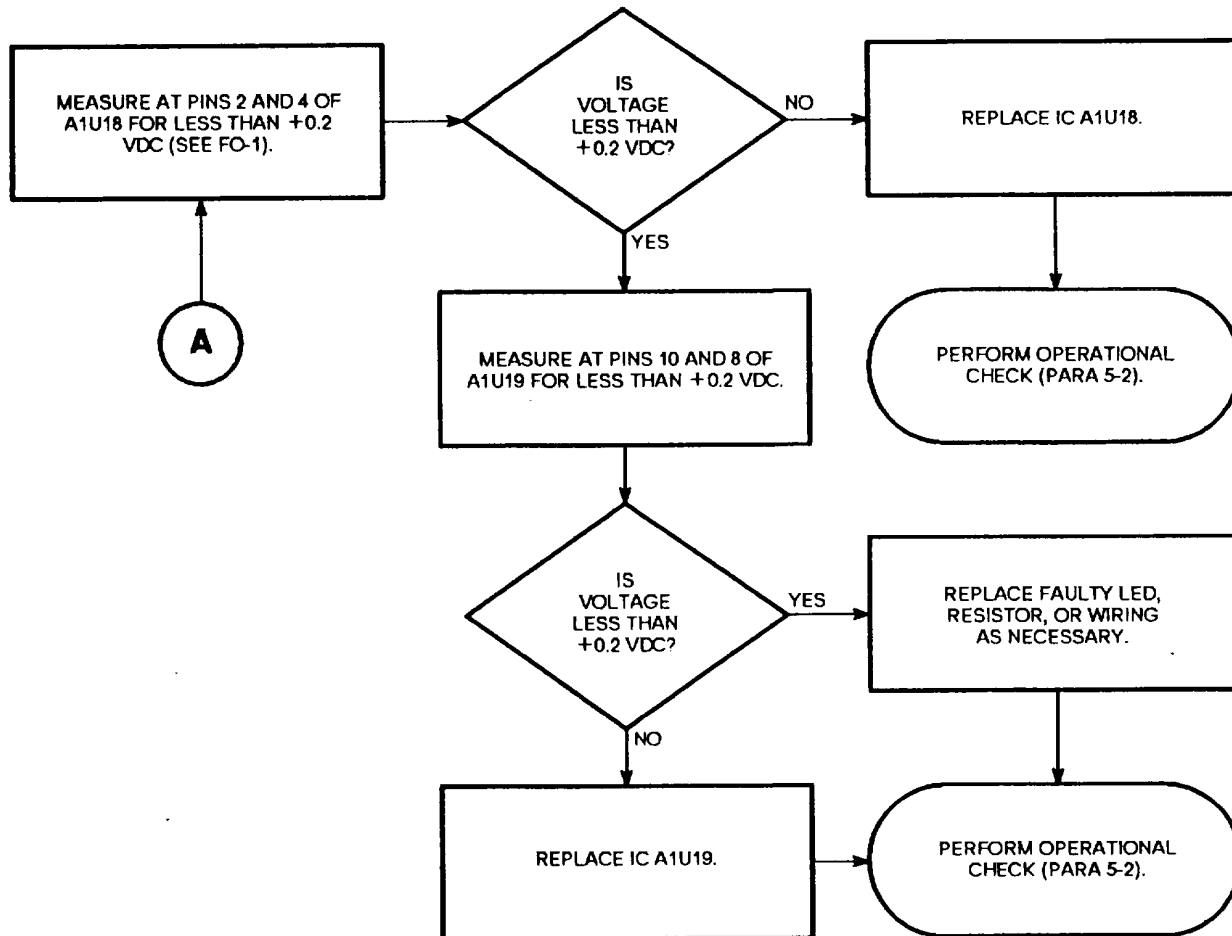


5-8. PTT 100W (DS12) OR TUNE (DS13) LEDS DO NOT LIGHT OR STAY LIT

Refer to paragraph 5-5 for initial setup illustration and test equipment listing.

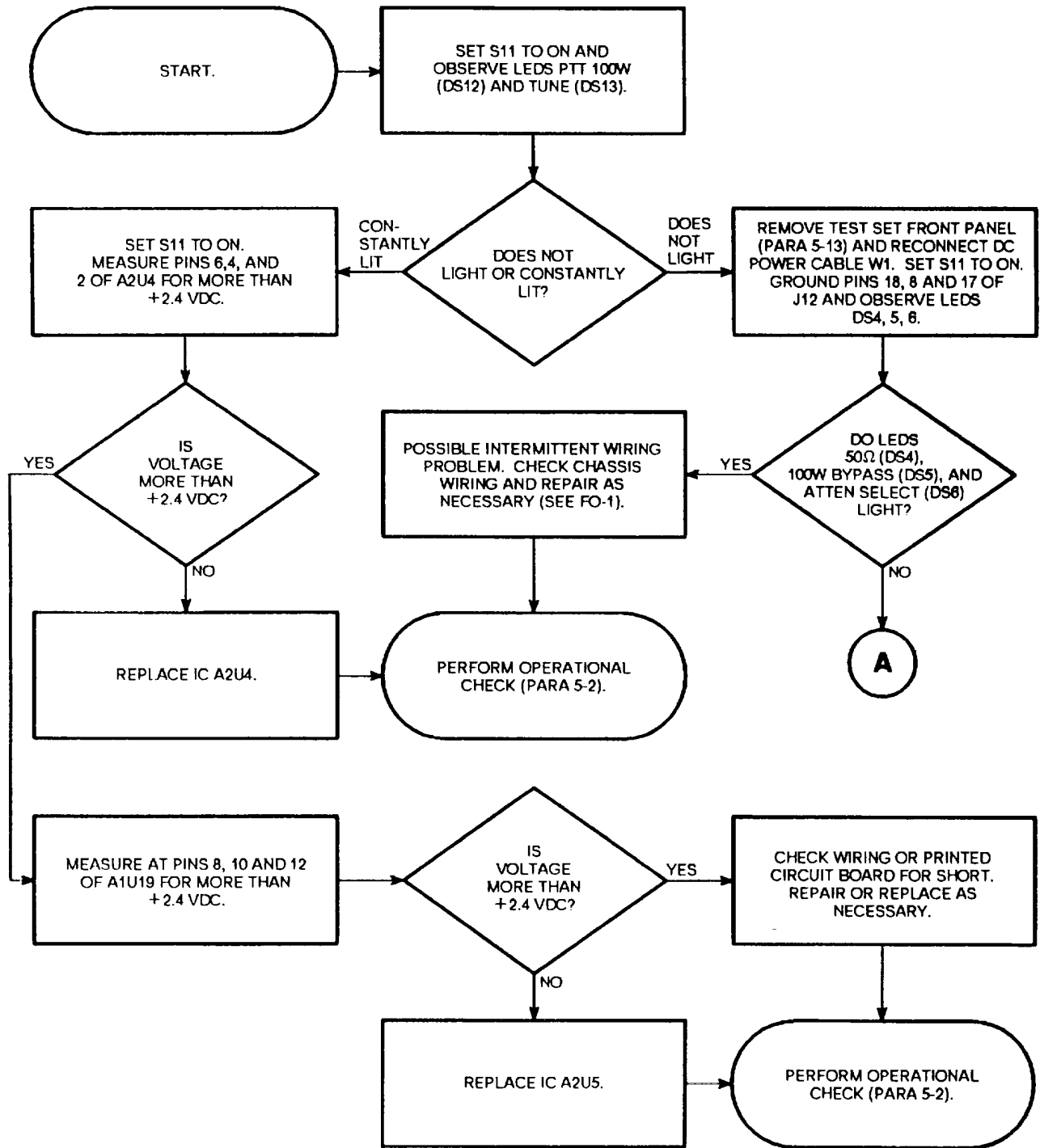


5-8. PTT 100W (DS12) OR TUNE (DS13) LEDS DO NOT LIGHT OR STAY LIT (Cont.)



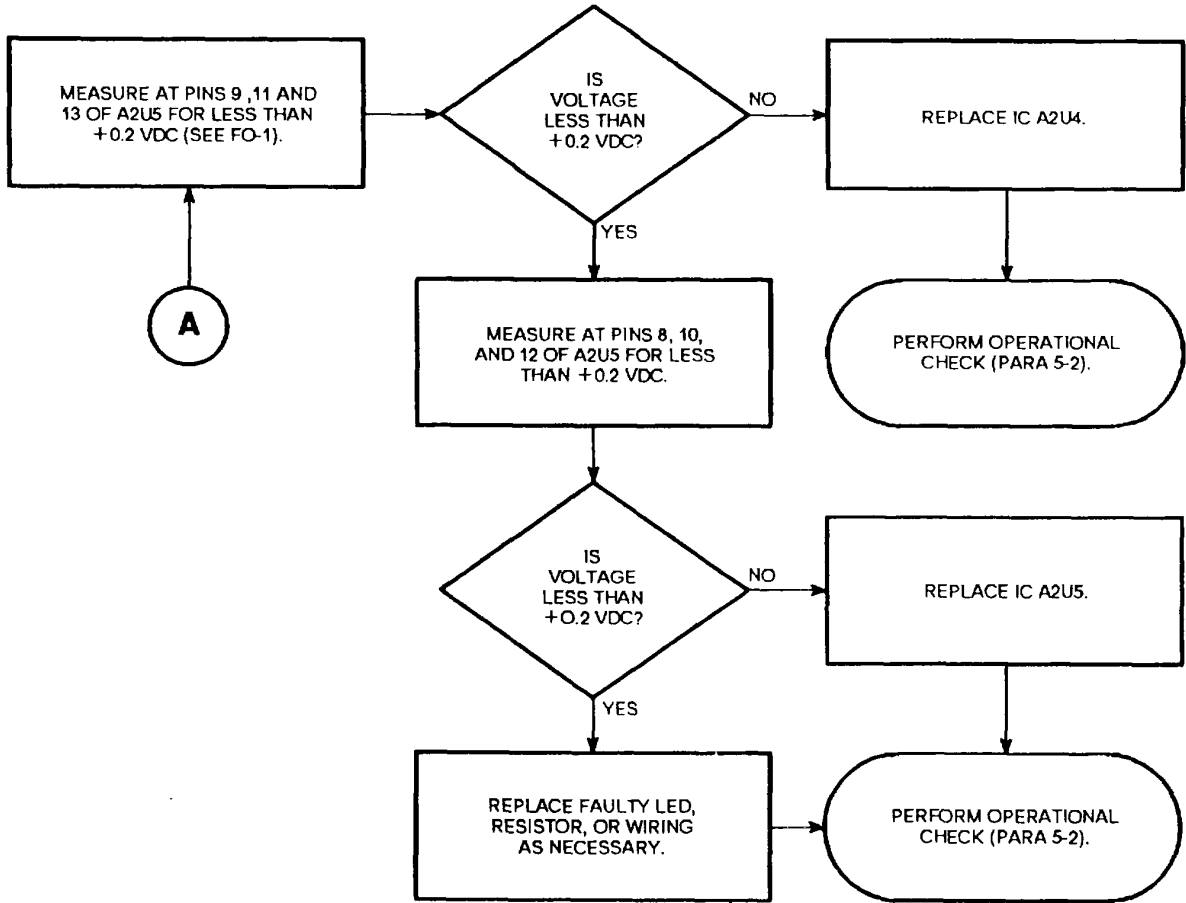
5-9. 50 OHM (DS4), 100W PA BYPASS (DS5), OR ATTEN SELECT (DS6) LEDS DO NOT LIGHT OR STAY LIT

Refer to paragraph 5-5 for initial setup illustration and test equipment listing.





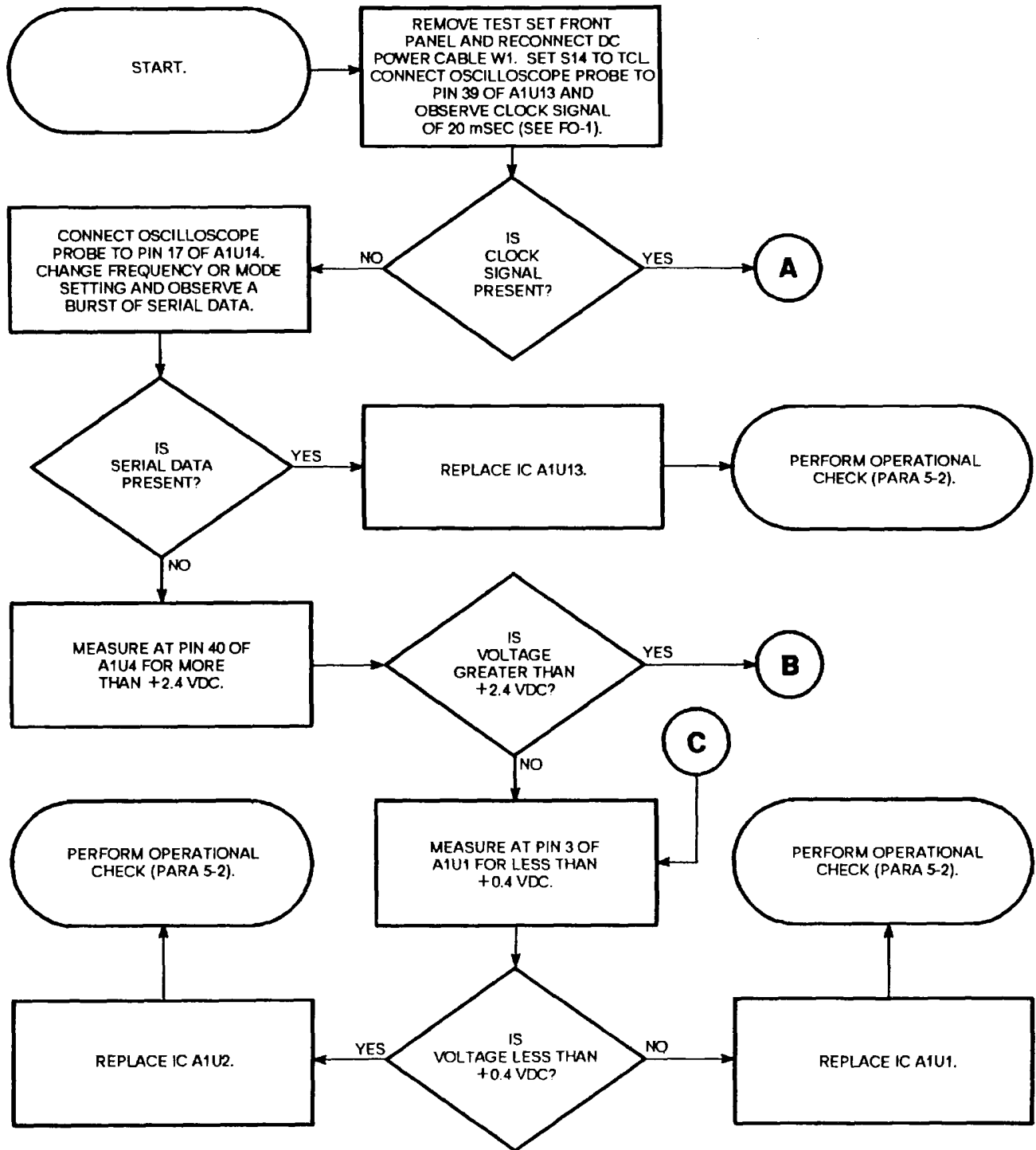
5-9. 50 OHM (DS4), 100W PA BYPASS (DS5), OR ATTEN SELECT (DS6) LEDS DO NOT LIGHT OR STAY LIT (Cont.)



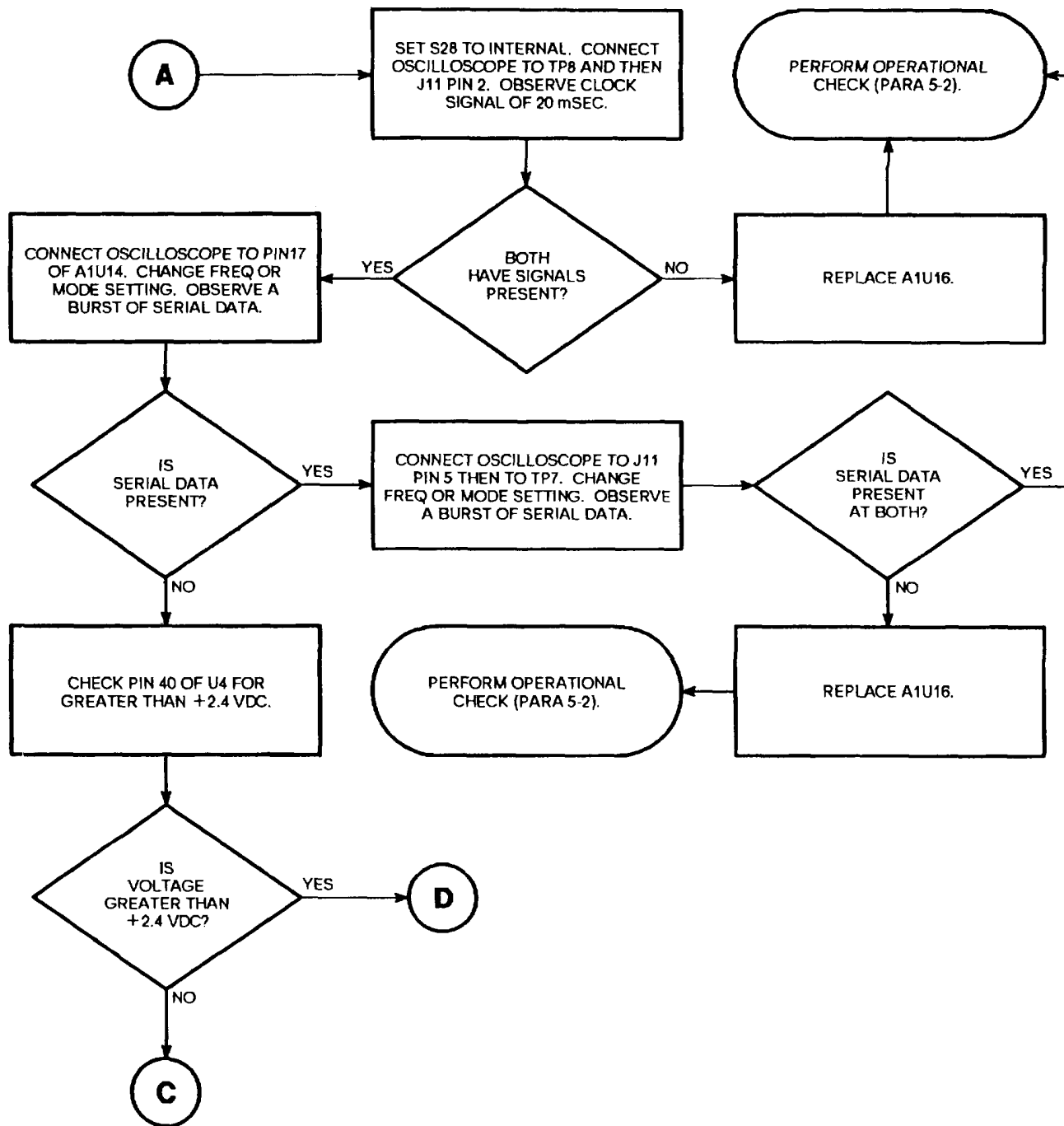
5-10. CLOCK OR SERIAL DATA SIGNAL MISSING

Refer to paragraph 5-5 for initial setup illustration and test

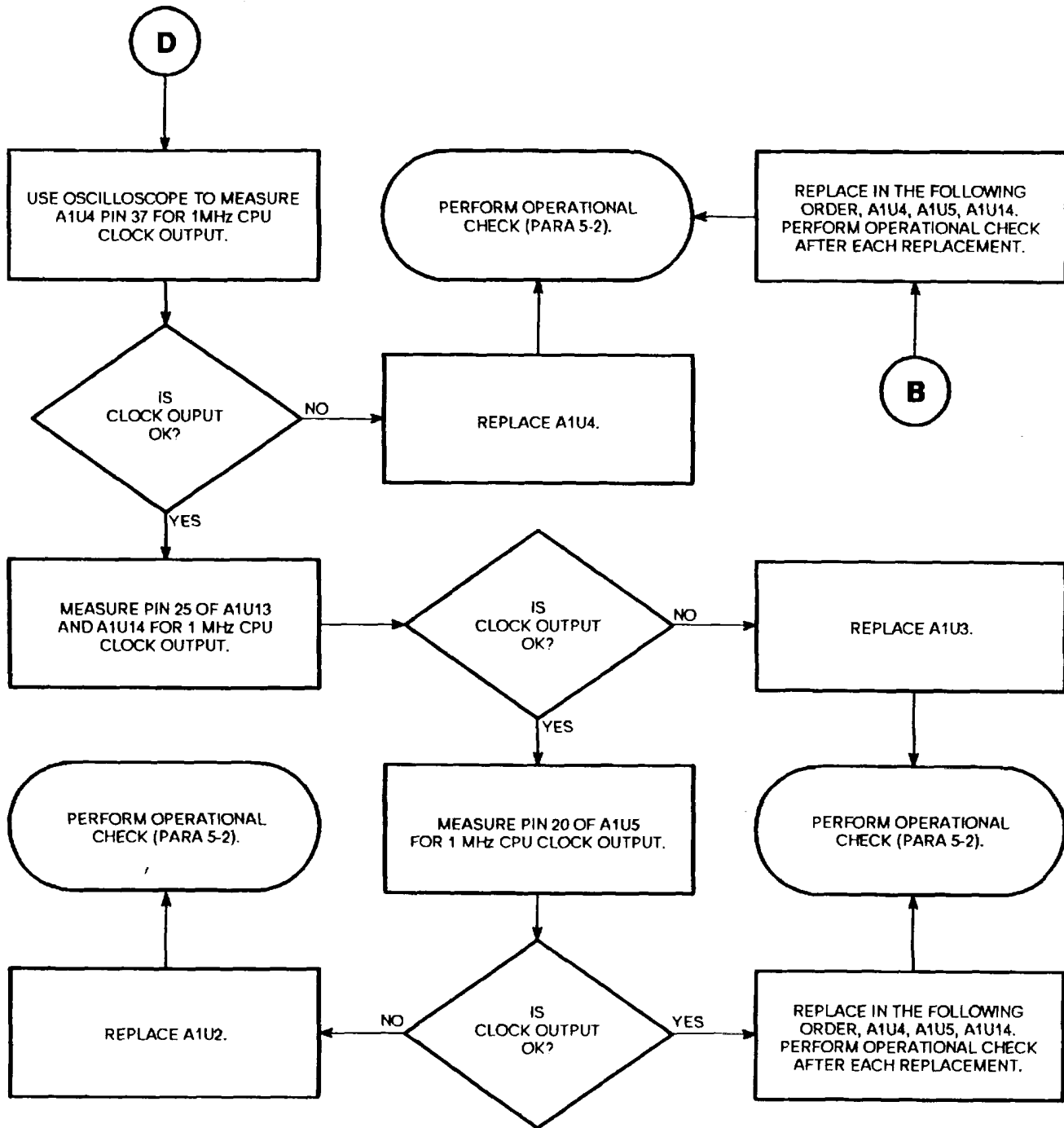
equipment listing.



5-10. CLOCK OR SERIAL DATA SIGNAL MISSING (Cont.)

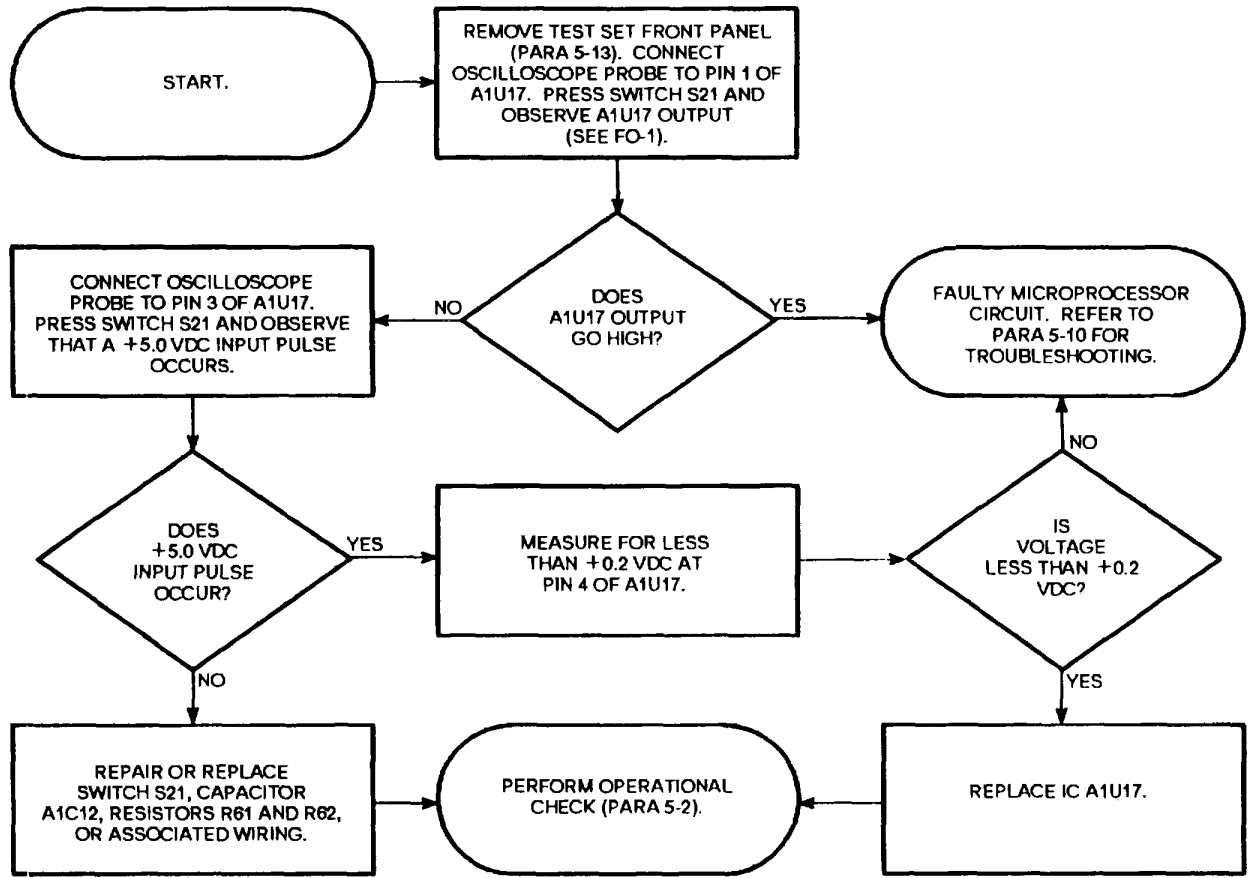


5-10. CLOCK OR SERIAL DATA SIGNAL MISSING (Cont.)



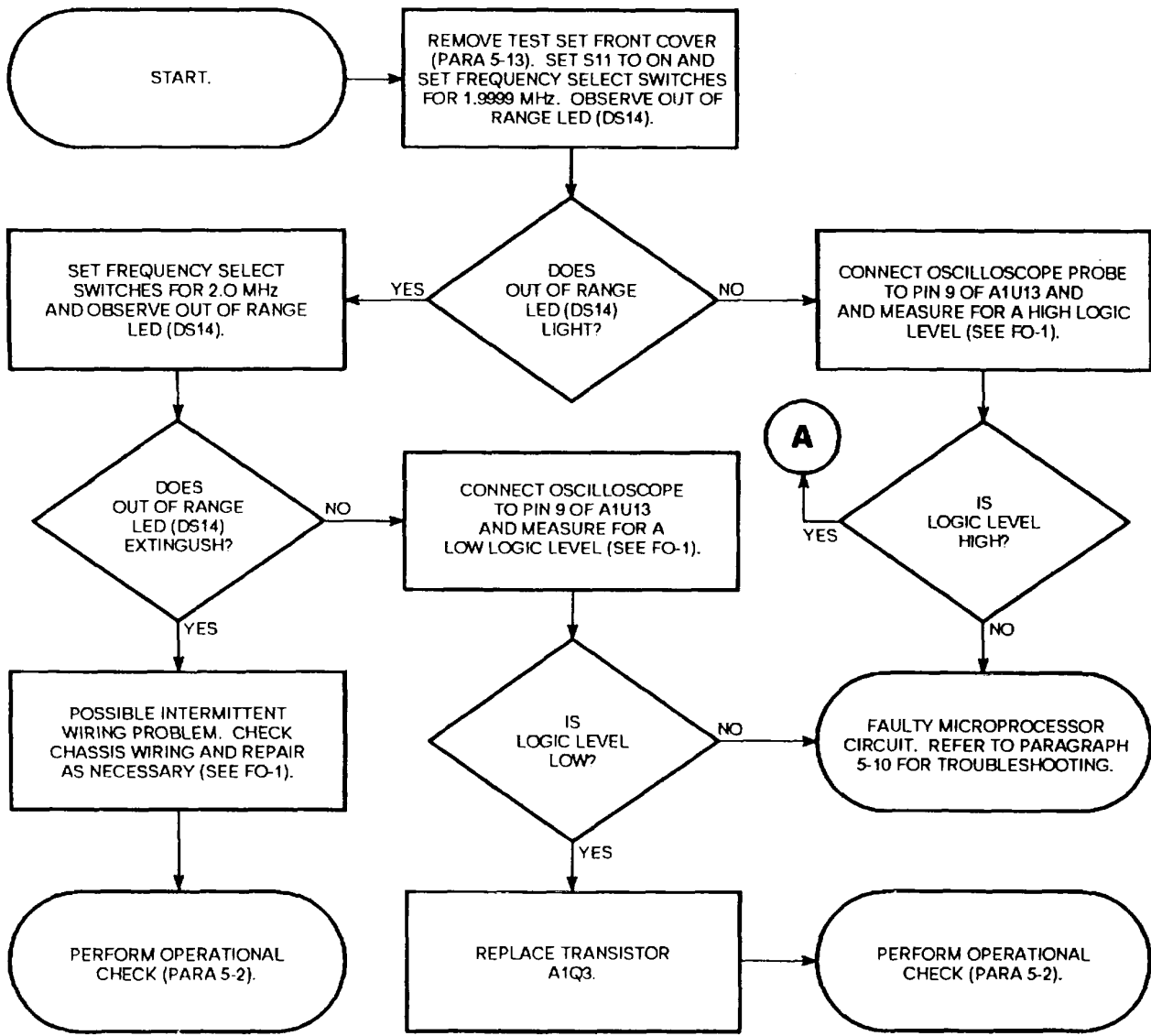
5-11. R/E BITE TEST FUNCTION DOES NOT OPERATE

Refer to paragraph 5-5 for initial setup illustration and test equipment listing.

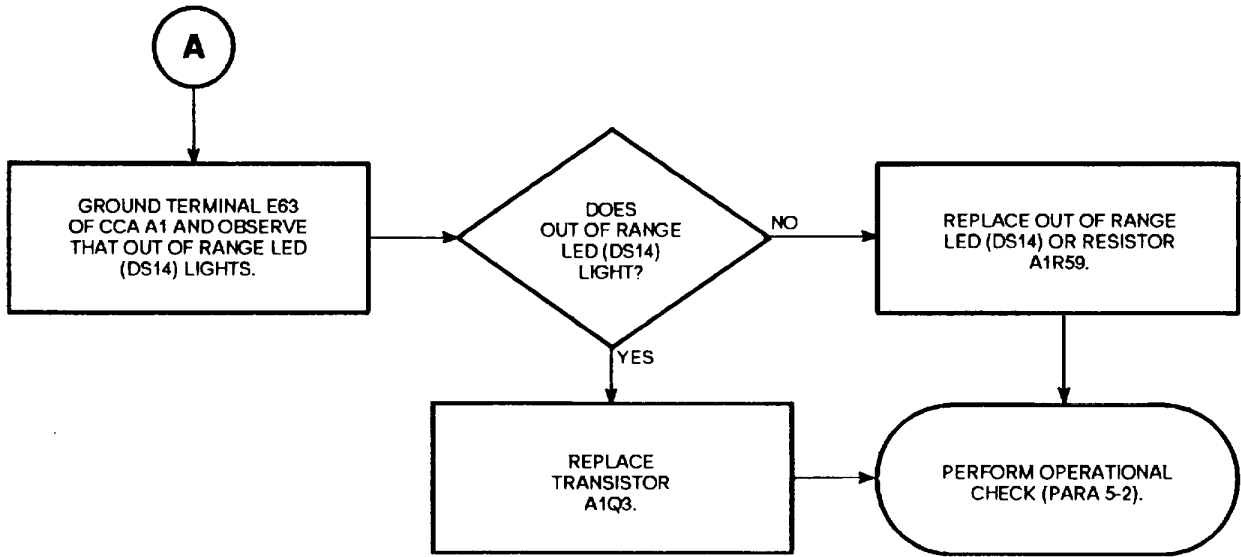


5-12. OUT OF RANGE LED (DS14) FAULTY

Refer to paragraph 5-5 for initial setup illustration and test equipment listing.



5-12. OUT OF RANGE LED (DS14) FAULTY (Cont.)



### 5-13. REMOVAL/REPLACEMENT OF FRONT PANEL AND COMPONENTS

<b>WARNING</b>
----------------

All Removal/Replacement procedures are performed with power removed. For safety purposes disconnect power cables before beginning procedures.

#### REMOVAL:

1. Remove 14 cross-tip screws (1) and flatwashers (2) securing front panel (3) to case (4).
2. Lift front panel (3) away from case (4).
3. Position front panel so component to be replaced is accessible.
4. Tag and unsolder wires from components being replaced.
5. Loosen and remove any hardware securing component to front panel and remove component.

#### REPLACEMENT:

1. Position component in front panel.
2. Replace and tighten any hardware that secures component to front panel.
3. Solder wires to replacement component and remove tags.
4. Position front panel (3) in case (4).
5. Tighten 14 cross-tip screws (1) and flatwashers (2) that attach front panel (3) to case (4).
6. Perform Operational Check (para. 5-2).



5-13. REMOVAL/REPLACEMENT OF FRONT PANEL AND COMPONENTS (Cont.)

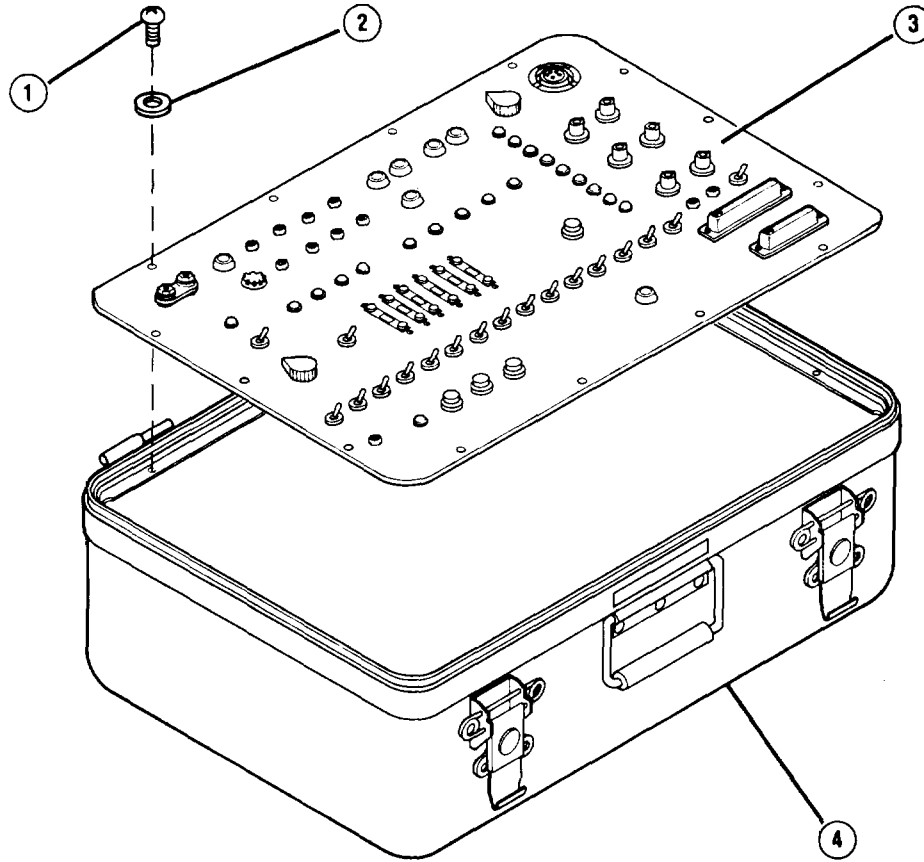


Figure 5-5. Front Panel Removal/Replacement

5-25/(5-26 Blank)

**SECTION VI.**

**PREPARATION FOR STORAGE OR SHIPMENT**

**6-1. GENERAL**

a. Army. Administrative storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the PMCS charts before storing. When removing the equipment from administrative storage the PMCS should be performed to assure operational readiness.

b. Navy. Refer to NAVSUP PUB 503.

c. Air Force. Refer to AFM 66-267 (storage) and AFR 67-31 (shipment).

**6-2. MARKING**

The marking on the exterior of the container shall be in accordance with MIL-STD-129H.

**6-1/(6-2 Blank)**

APPENDIX A

REFERENCES

A-1. SCOPE

This appendix lists publications that are referenced in this manual that contain information applicable to the maintenance of the Manpack R/E Test Set TS-4255/GRC-215.

A-2. PUBLICATIONS

Air Force Suggestion Program ..... AFR 900-4

Consolidated Index of Army Publications and Blank Forms..... DA Pam 25-30

First Aid for Soldiers ..... FM 21-11

Maintenance Management Policy ..... AFR 66-1

Marking for Shipment and Storage..... MIL-STD-129H

Procedures for Destruction of Electronics  
 Materiel to Prevent Enemy Use  
 (Electronics Command) ..... TM 750-224-2

Product Quality Deficiency Report..... SF 368

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

Reporting of Item and Packaging Discrepancies .....SECNAVINST 4355.18

Reporting of Transportation Discrepancies in Shipment..... NAVSUPINST 4610.33C

Ships Maintenance and Material Management (3-M)  
 Manual, Promulgation of ..... OPNAVINST 4790.2A

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

Transportation Discrepancy Report (TDR)..... SF 361

Unit, Intermediate Direct Support, and  
 General Support Maintenance Manual For  
 Receiver-Transmitter, Radio RT-1511/GRC-215  
 (NSN 5895-01-205-6180)..... TM 11-5895-1318-24  
 Navy EE150-LS-MMI-010/WI10-RT1511  
 Air Force TO 31R2-2GRC215-42

Unsatisfactory Equipment Reporting.....TO-00-35D54

A-1/(A-2 Blank)

## APPENDIX B

### MAINTENANCE ALLOCATION CHART

#### B-1. GENERAL

This appendix provides a summary of the maintenance operations for the Manpack R/E Test Set TS-4255/GRC-215. It authorizes levels of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

#### B-2. MAINTENANCE FUNCTION

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 (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

e. Aline. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment or system.

h. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

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

### **B-3. COLUMN ENTRIES**

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

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

c. Column 3. Maintenance Functions. Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for purpose of having the group numbers in the MAC and RPSTL coincide.

d. Column 4. Maintenance Level. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(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 level of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance levels, appropriate work time figures will be shown for each category. The number of task-hours specified by the work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating 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. Subcolumns of column 4 are as follows:

UNIT

- C - Operator/Crew
- O - Organizational/Unit

INTERMEDIATE

- F -.Direct Support
- H - General Support
- L - Special Repair Activity (SRA)

DEPOT

- D -.Depot

e. Column 5. Tools and Equipment. Column 5 specifies by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

f. Column 6. Remarks. Column 6 contains an alphabetic code which leads to the remark in section IV, Remarks, which is pertinent to the item opposite the particular code.

**B-4. TOOL AND TEST EQUIPMENT REQUIREMENTS (SECT. III)**

a. Tool or Test Equipment Reference Code. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. Maintenance Level. The codes in this column indicate the maintenance level allocated to tool or test equipment.

c. Nomenclature. This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

d. National/NATO Stock Number. This column lists the National/ NATO stock number of the specific tool or test equipment.

e. Tool Number. This column lists the manufacturer's part number of the tool followed by the Federal Supply Code for manufacturers (5-digit) in parentheses.

**B-5. REMARKS (SECT. IV)**

a. Reference Code. This code refers to the appropriate item in section II, column 6.

b. Remarks. This column provides the required explanatory information necessary to clarify items appearing in section II.

**SECTION II MAINTENANCE ALLOCATION CHART  
FOR  
MANPACK R/E TEST SET  
TS-4255/GRC-215**

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6)
			C	O	F	H	D		
	<b>REMARKS</b>								
00	Test Set, Manpack TS-4255/GRC-215 (950579-801)	Replace Inspect Test Repair				0.01 0.05 1.5 2.0		1-5,7,10-16 6-9	A,E A,D,E,F
01	Case, Test Set (10647)	Repair				0.5		6	
02	Front Panel Assembly (1-94284.0000//A)	Test Repair				1.5 1.5		1-5,7,10-16 6-9	E E,F
0201	CCA A1 (1-94392.0000//B)	Repair				1.0			E,B
0202	CCA A2 (3-90391.0000//B)	Repair				0.5			E,B
0203	CCA A3 (3-94361.0000//B)	Repair				0.5			B
03	Cable Assembly W67 (3-94310.0000//B)	Test Repair				0.3 0.5		1 6	C
04	Cable Assembly W68 (3-94311.0000//B)	Test Repair				0.3 0.5		1 6	C
		<b>B-4</b>							

**SECTION III.  
TOOL AND TEST EQUIPMENT REQUIREMENTS  
FOR  
MANPACK R/E TEST SET  
TS-4255/GRC-215**

REFERENCE CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL* NUMBER
1	H	Multimeter, Digital AN/USM-486	6625-01-145-2430	FLUKE 8050A-01
2	H	Power Supply PP-8202/G *	6130-00-160-0827	HP 6274B
3	H	Power Supply PP-3940B	6130-01-164-0548	POWER-10 4006
4	H	Function Generator SG-1133/U	6625-01-028-4989	HP 3312A
5	H	Frequency Counter AN/USM-459	6625-01-061-8928	HP 5328A-10/11/30/41
6	H	Tool Kit, Elect. TK-17 (Incl. Metric)	5180-01-195-0855	JENSEN JTK-17RM
7	H	Workstation, Static	4940-01-087-3458	3M 8021
8	H	Repair Kit, PCB MK-772/U	5999-00-757-7042	
9	H	Maintenance Kit, PCB MX-10897/G	5895-01-267-9473	PACE Model RNR PIN 8007-0117
10	H	Oscilloscope AN/USM-488	6625-01-187-7847	TEKTRONIX 2235L
11	H	Cable Assembly, DC Power W1 **		569712-801//B
12	H	Lead, Test Minigrabber Test Clips to BNC Male	6625-01-040-0572	ITT POMONA 3787-C-48
13	H	Cable Assembly, RG-58C/U BNC Male Each End	5995-00-724-4232	ITT POMONA 2249-C -48
14	H	Test CLip to Double Banana Plug	6625-01-013-0884	ITT POMONA 3786-C-48
15	H	Resistor, 620 Ohm + 20X, 1/4W		
16	H	Resistor, 10K Ohm + 20Z, 1/4W (6 Ea.)		

\* PP-8202/G(NSN6130-00-0028)  
provides identical capability  
when source power is 230V,  
50 cycle. Air Force use only.

\*\* It is part of the test set.



**SECTION IV.  
REMARKS  
TEST SET, MANPACK  
TS-4255/GRC-215**

Reference Code	Remarks
A	Consists of test repair to front panel assembly and cable assemblies. Includes performance performance check.
B	Test/repair as part of next higher assembly.
C	Consists of point-to-point continuity checks.
D	Cable assembly, W1 (569712.801//B) is not repairable.
E	Electrostatic sensitive devices.
F	Piece part repair.
	<b>B-6</b>

**APPENDIX C  
OPERATOR'S, UNIT,  
DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE  
MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST**

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	02	Front Panel Assembly (1-94284.0000//A).....	C-3-1	C-3
		0201 CCA A1 (1-94392.0000//B).....	C-4-1	C-4
		0202 CCA A2 (3-90391.0000//B).....	C-5-1	C-5
		0203 CCA A3 (3-94361.0000//B).....	C-6-1	C-6
	03	Cable Assembly, W67 (3-94310.0000//B).....	C-7-1	C-7
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## APPENDIX C

OPERATOR'S, UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE  
REPAIR PARTS AND SPECIAL TOOLS LIST

## INTRODUCTION

**C-1. Scope**

This appendix lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of general support maintenance of the TS-4255/GRC-215. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance and recoverability (SMR) codes.

**C-2. General**

This Repair Parts and Special Tools List is divided into the following sections:

a. Section II. Repair Parts List. A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending numeric sequence, with the parts in each group listed in ascending item number sequence. Figure numbers are listed directly beneath the group header.

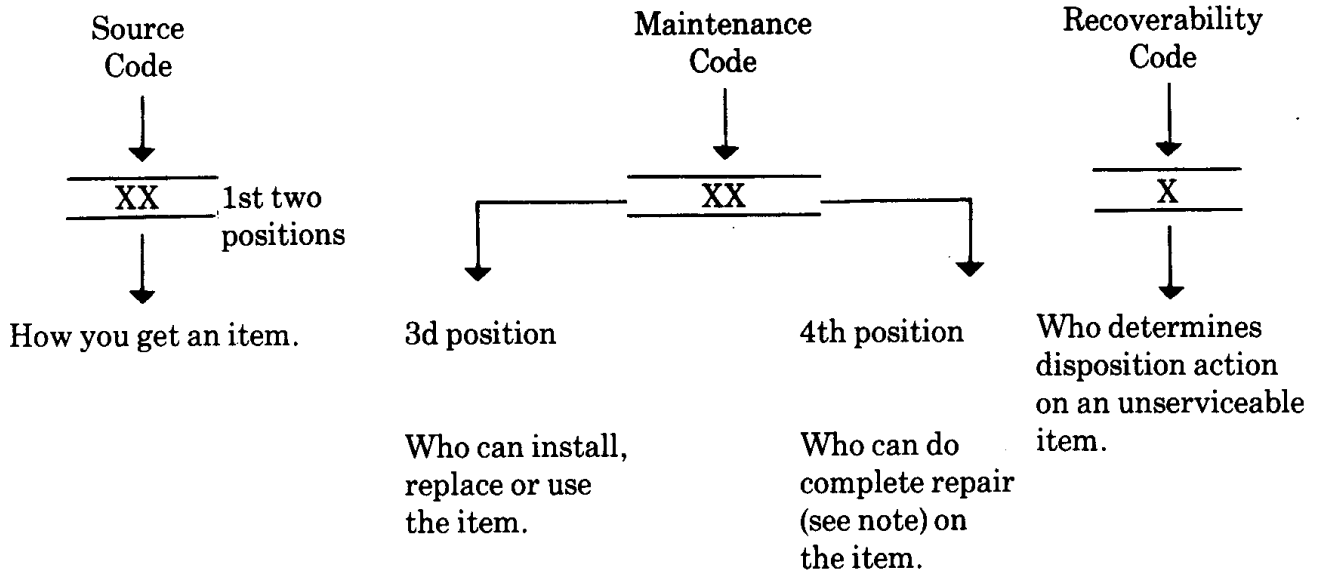
b. Section III. Special Tools List. Not applicable.

c. Section IV. Cross-Reference Indexes. A list, in National item identification number (NIIN) sequence, of all National stock numbered items appearing in the listing, followed by a list in alphameric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance. The figure number and item number index list figure and item numbers in numeric sequence and cross-references National stock number, Commercial and Government Entity Code, and part numbers.

**C-3. Explanation of Columns (Section II and III)**

a. Item No. (Column (1)). Indicates the number used to identify items called out in the illustration.

b. SMR Code (Column (21)). The source, maintenance, and recoverability (SMR) code is a five-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instruction, as shown in the following breakout:



**NOTE**

Complete repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "repair" function in a use/user environment in order to restore serviceability to a failed item.

(1) Source code. The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follows:

<u>Code</u>	<u>Explanation</u>
<div style="border: 1px solid black; padding: 5px; display: inline-block;">                     PA PB PC PD PE PF PG                 </div>	Stocked items: use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the third position of the SMR code.

**NOTE**

Items coded PC are subject to deterioration.

<div style="border: 1px solid black; padding: 5px; display: inline-block;">                     KD KF KB                 </div>	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated in the third position of the SMR code. The complete kit must be requisitioned and applied.
---	--

Code

Explanation

MO—Made at org/  
AVUM category  
MF—Made at DS/  
AVUM category  
MH—Made at GS  
category  
ML—Made at  
Specialized  
Repair Activity  
(SRA)  
MD—Made at Depot

Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the part number in the description and usable on code (UOC) column and listed in the Bulk Material group of the repair parts list. If the item is authorized to you by the third position code of the SMR code, but the source code indicates it is made at a higher category, order the item from the higher category of maintenance.

AO—Assembled by  
org/AVUM  
category  
AF—Assembled by  
DS/AVUM  
category  
AH—Assembled by  
GS category  
AL—Assembled by  
SRA  
AD—Assembled by  
Depot

Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the category of maintenance indicated by the source code. If the third position code of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher category, order the item from the higher category of maintenance.

Code

Explanation

- XA - Do not requisition an "XA" coded item. Order its next higher assembly.
- XB - If an "XB" item is not available from salvage, order it using the CAGEC and part number given.
- XC - Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.
- XD - Item is not stocked. Order an "XD" coded item through normal supply channels using the CAGEC and part number given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

(2) Maintenance code. Maintenance codes tell you the category of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

(a) The maintenance code entered in the third position tells you the lowest maintenance category authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to one of the following categories of maintenance.

<u>Code</u>	<u>Application/Explanation</u>
C	Crew or operator maintenance done within organizational or aviation maintenance.
O	Organizational or aviation unit category can remove, replace, and use the item.
F	Direct support or aviation intermediate category can remove, replace, and use the item.
H	General support category can remove, replace, and use the item.
L	Specialized repair activity can remove, replace, and use the item.
D	Depot category can remove, replace, and use the item.

(b) The maintenance code entered in the fourth position tells whether or not the item is to be repaired and identifies the lowest maintenance category with the capability to do complete repair (i.e., perform all authorized repair functions). This position will contain one of the following maintenance codes.

**NOTE**

Some limited repair may be done on the item at a lower category of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.

<u>Code</u>	<u>Application/Explanation</u>
O -	Organizational or aviation unit is the lowest category that can do complete repair of the item.
F -	Direct support or aviation intermediate is the lowest category that can do complete repair of the item.
H -	General support is the lowest category that can do complete repair of the item.
L -	Specialized repair activity (designate the specialized repair activity) is the lowest category that can do complete repair of the item.
D -	Depot is the lowest category that can do complete repair of the item.

<u>Code</u>	<u>Application/Explanation</u>
Z -	Nonreparable. No repair is authorized.
B -	No repair is authorized. (No parts or special tools are authorized for the maintenance of a "B" coded item.) However, the item may be reconditioned by adjusting, lubricating, etc., at the user category.

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

<u>Recoverability codes</u>	<u>Application/Explanation</u>
Z -	Nonreparable item. When unserviceable, condemn and dispose of the item at the category of maintenance shown in the third position of SMR code.
O -	Reparable item. When uneconomically reparable, condemn and dispose of the item at organizational or aviation unit category.
F -	Reparable item. When uneconomically reparable, condemn and dispose of the item at direct support or aviation intermediate category.
H -	Reparable item. When uneconomically reparable, condemn and dispose of the item at general support category.
D -	Reparable item. When beyond lower category repair capability, return to depot. Condemnation and disposal of item not authorized below depot category.
L -	Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).
A -	Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer appropriate manuals/directives for specific instructions.

c. CAGEC (Column (3)). The Commercial and Government Entity Code (CAGEC) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

d. Part Number (Column (4)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

**NOTE**

When you use an NSN to requisition an item, the item you receive may have a different part number from the part ordered.

- e. Description and Usable on Code (UOC) (Column (5)). This column includes the following information.
  - (1) The Federal item name and, when required, a minimum description to identify the item.
  - (2) The statement "END OF FIGURE" appears just below the last item description in Column (5) for a given figure in both section II and section III.
- f. Qty (Column (6)). 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 the quantity is variable and the quantity may vary from application to application.

**C-4. Explanation of Columns (Section IV)**

- a. National Stock Number (NSN) Index.

(1) Stock number column. This column lists the NSN by National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN. When using this column to locate an item, ignore the first four digits of the NSN. When requisitioning items use the complete NSN (13 digits).

(2) Fig. column. This column lists the number of the figure where the item is identified/located. The illustrations are in numerical sequence in sections II and III.

(3) Item column. The item number identifies the item associated with the figure listed in the adjacent Fig. column. This item is also identified by the NSN listed on the same line.

- b. Part Number Index. Part numbers in this index are listed by part number in ascending alphanumeric sequence.

(1) CAGEC column. This column lists the Commercial and Government Entity Code (CAGEC).



(2) Part number column. This column indicates the part number assigned to the item.

(3) Stock number column. This column lists the National stock number for the associated part number and manufacturer identified in the part number and CAGEC columns to the left.

(4) Fig. column. This column lists the number of the figure where the item is identified/located in sections II and III.

(5) Item column. The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

c. Figure and Item Number Index.

(1) Fig. column. This column lists the number of the figure where the item is identified/located in sections II and III.

(2) Item column. The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

(3) Stock number column. This column lists the National stock number for the item.

(4) CAGEC column. The Commercial and Government Entity Code (CAGEC) is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

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

#### **C-5. Special Information**

National stock numbers (NSN's) that are missing from P source coded items have been applied for and will be added to this TM by future change/revision when they are entered in the Army Master Data File (AMDF). Until the NSN's are established and published, submit exception requisitions to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-MM, Fort Monmouth, NJ 07703-5000 for the part required to support your equipment.

#### **NOTE**

An item SMR coded "H" in the third, fourth, and fifth position is interpreted as intermediate for Air Force Repair.

**C-6. How to Locate Repair Parts**

a. When National stock number or part number is not known.

(1) First. Using the table of contents, determine the assembly group or subassembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and listings are divided into the same groups.

(2) Second. Find the figure covering the assembly group or subassembly group to which the item belongs.

(3) Third. Identify the item on the figure and note the item number.

(4) Fourth. Refer to the Repair Parts List for the figure to find the part number for the item number noted on the figure.

(5) Fifth. Refer to the Part Number Index to find the NSN, if assigned.

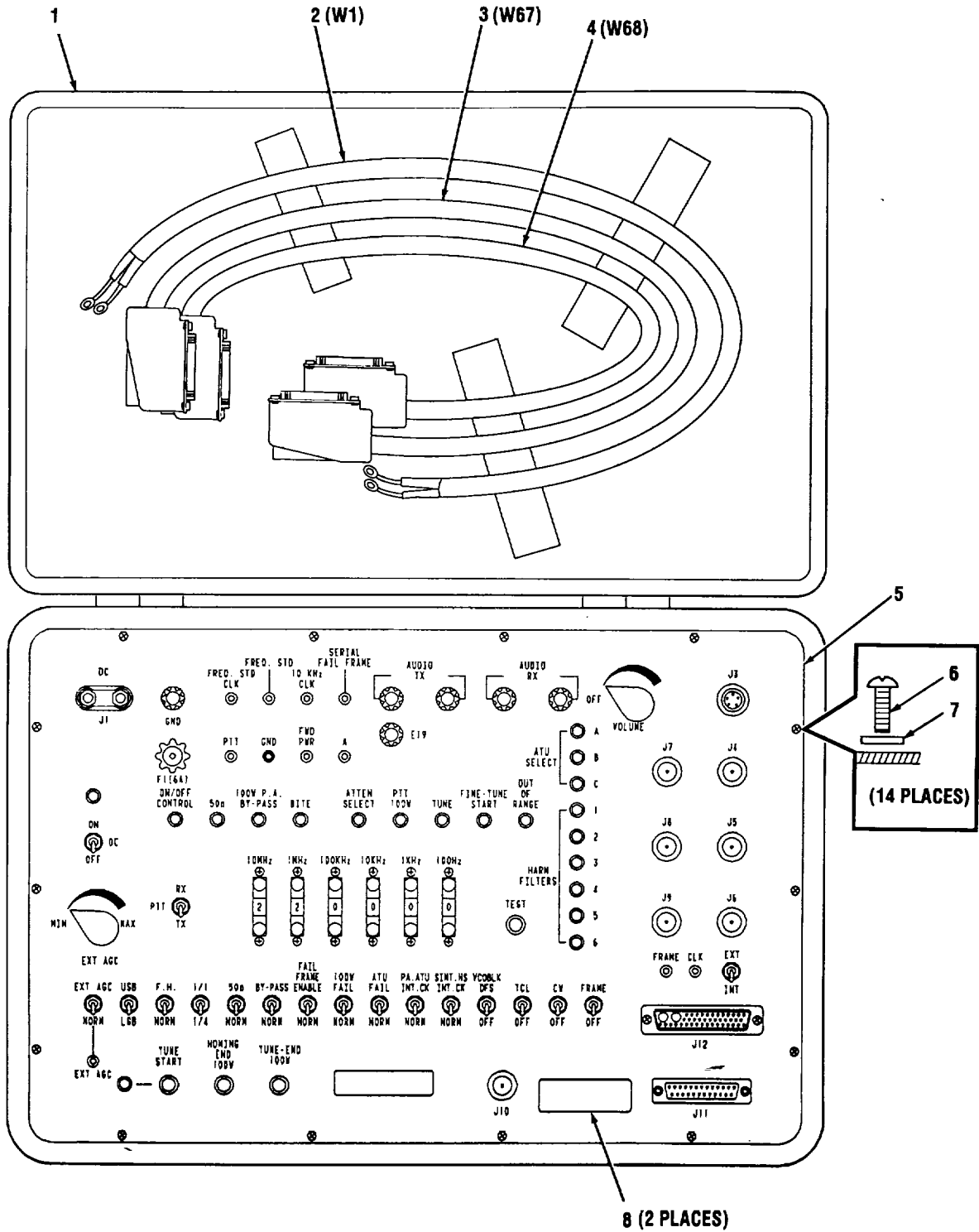
b. When National stock number or part number is known.

(1) First. Using the index of National stock numbers and part numbers, find the pertinent National stock number or part number. The NSN index is in National item identification number (NITN) sequence (para C-4a(l)). The part numbers in the part number index are listed in ascending alphameric sequence (para C-4b). Both indexes cross-reference you to the illustration figure and item number of the item you are looking for.

(2) Second. After finding the figure and item number, verify that the item is the one you're looking for, then locate the item number in the repair parts list for the figure.

**C-7. Abbreviations**

Not applicable.



CE1VY-001

Figure C-1. Test Set, Manpack TS-4255/GRC-215 (950579-801)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
-------------------	--------------------	--------------	-----------------------	--	------------

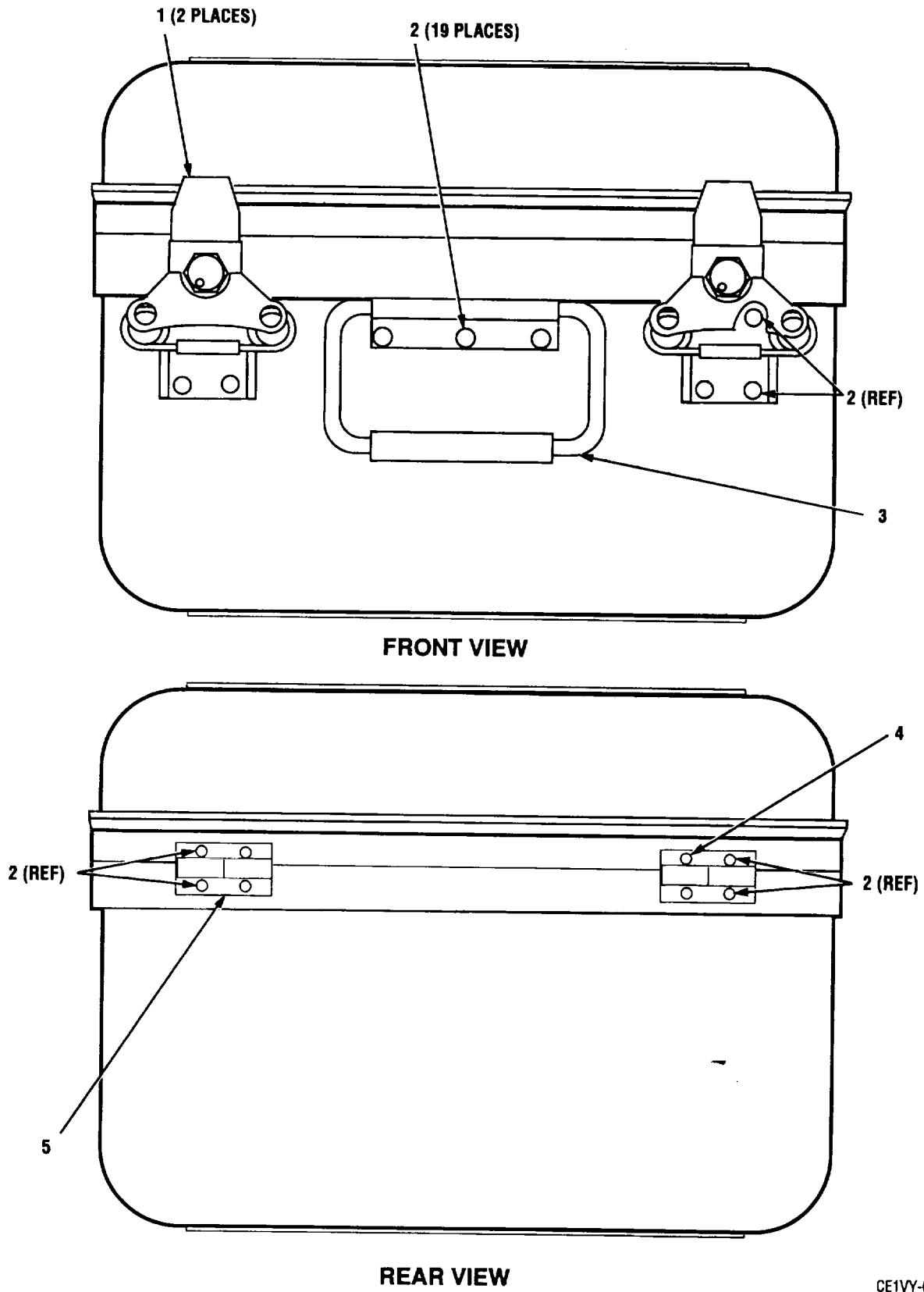
GROUP 00 TEST SET,MANPACK  
 TS-4255/GRC-215  
 (950579-801)

FIG. C-1

1	XBHHH	24995	10647	CASE,TEST SET (SEE FIG.C-2 FOR ..... PARTS BREAKDOWN)	1
2	PAHZZ	A3026	569712.801//B	CABLE,DC POWER.....	1
3	PAHHH	A3026	3-94310.0000//B	CABLE ASSEMBLY,POWE (SEE FIG.C-7..... FOR PARTS BREAKDOWN).	1
4	PAHHH	A3026	3-94311.0000//B	CABLE ASSEMBLY,POWE (SEE FIG.C-8..... FOR PARTS BREAKDOWN).	1
5	XBHLL	A3026	1-94284.0000//A	PANEL ASSEMBLY (SEE FIG.C3 FOR..... PARTS BREAKDOWN)	1
6	PAHZZ	96906	MS51957-45	SCREW,MACHINE .....	14
7	PAHZZ	88044	AN960C8L	WASHER,FLAT.....	14
8	XBHZZ	A3026	4-A2155.0009//D	PLATE,IDENTIFICATIO.....	2

END OF FIGURE

C-1-1



CE1VY-002

Figure C-2. Case Assembly (10647)

SECTION II					
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
				GROUP 01 CASE ASSEMBLY (10647)	
				FIG. C-2	
1	XBHZZ	24995	22002022	LATCH.....	2
2	XBHZZ	24995	33500035	RIVET ASSEMBLY .....	19
3	XBHZZ	24995	31000691	HANDLE,BOW .....	1
4	XBHZZ	24995	24000450	HINGE .....	1
5	XBHZZ	24995	24000460	HINGE .....	1

END OF FIGURE

C-2-1

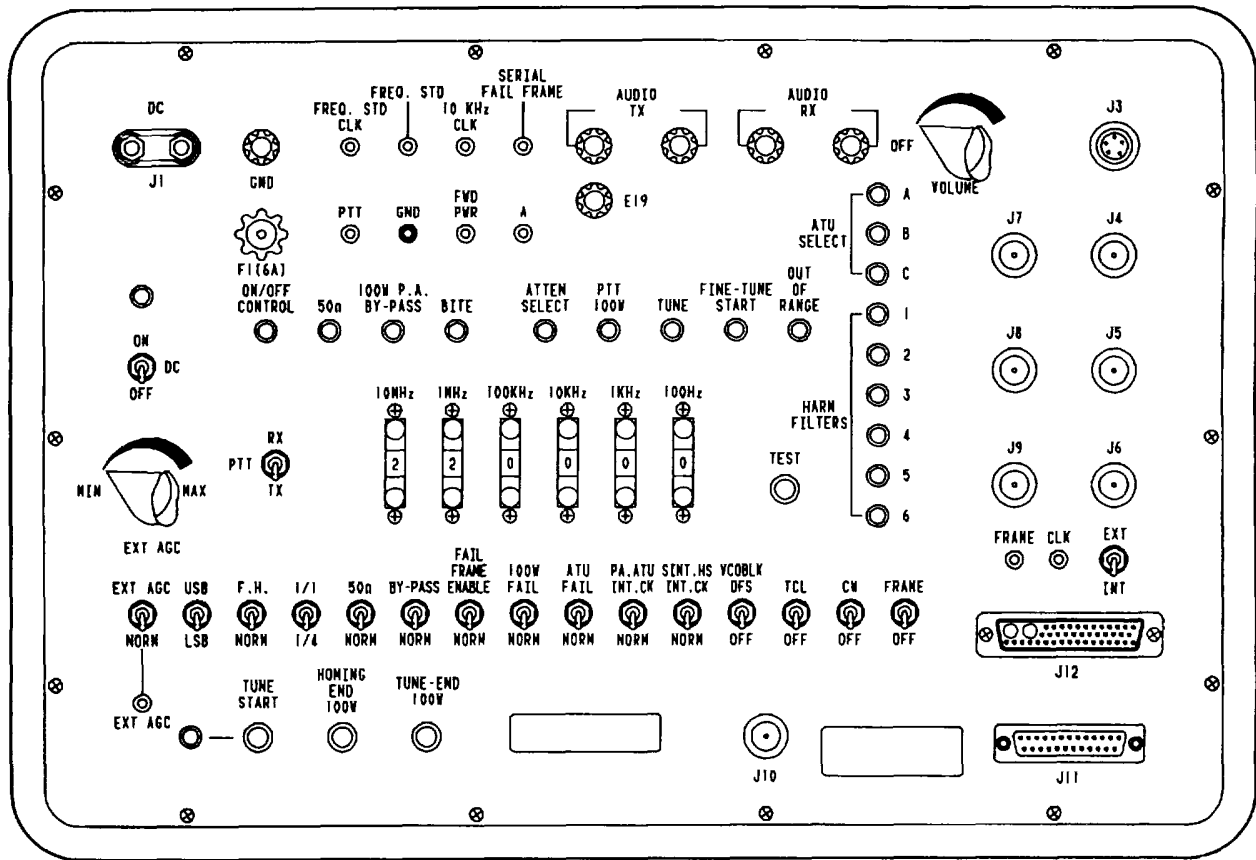
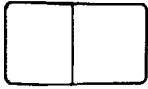
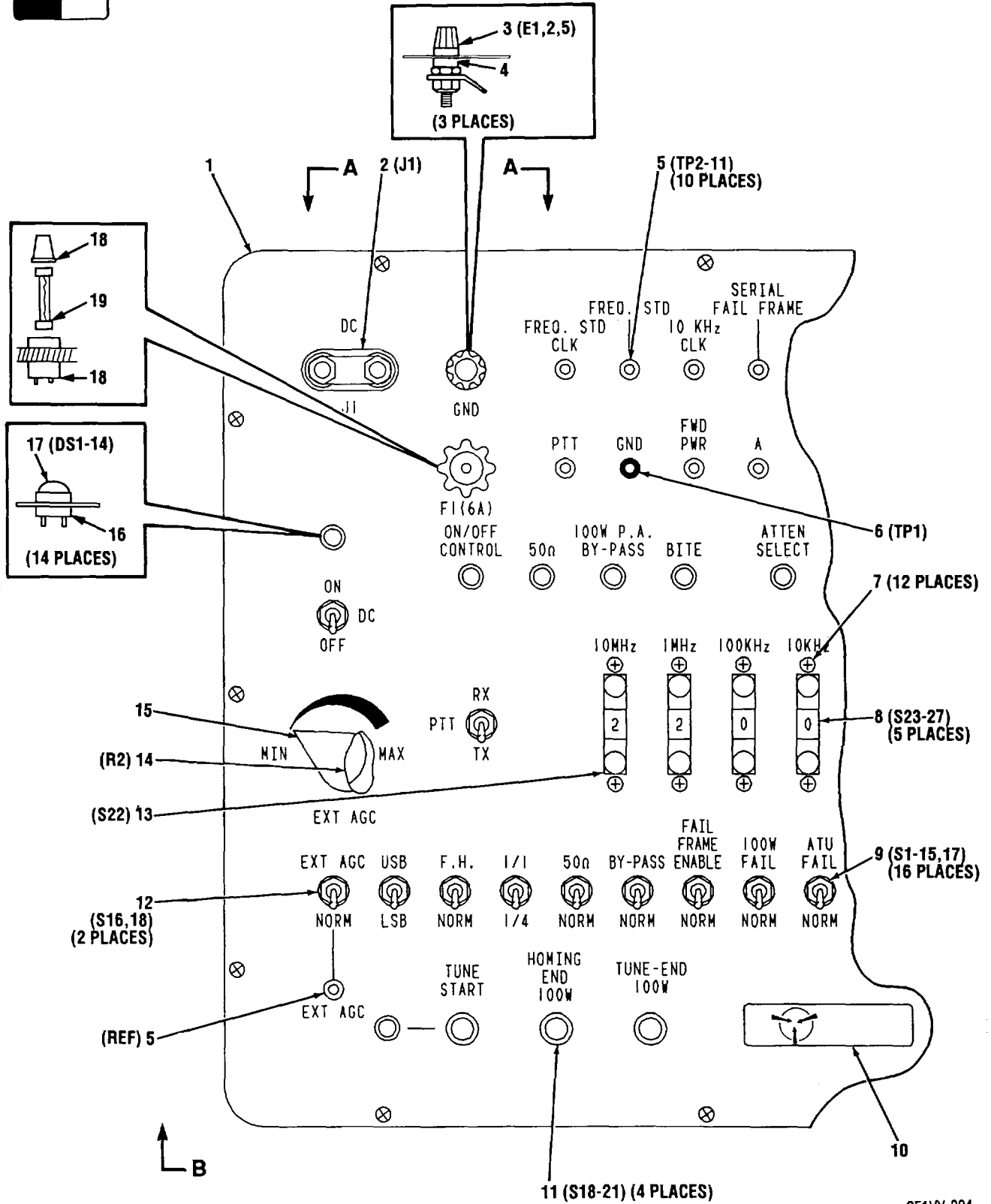


Figure C-3. Front Panel Assembly (1-94284.0000/A) (Sheet 1 of 5)



CF1VY-004

Figure C-3. Front Panel Assembly (1-94284.0000//A) (Sheet 2 of 5)



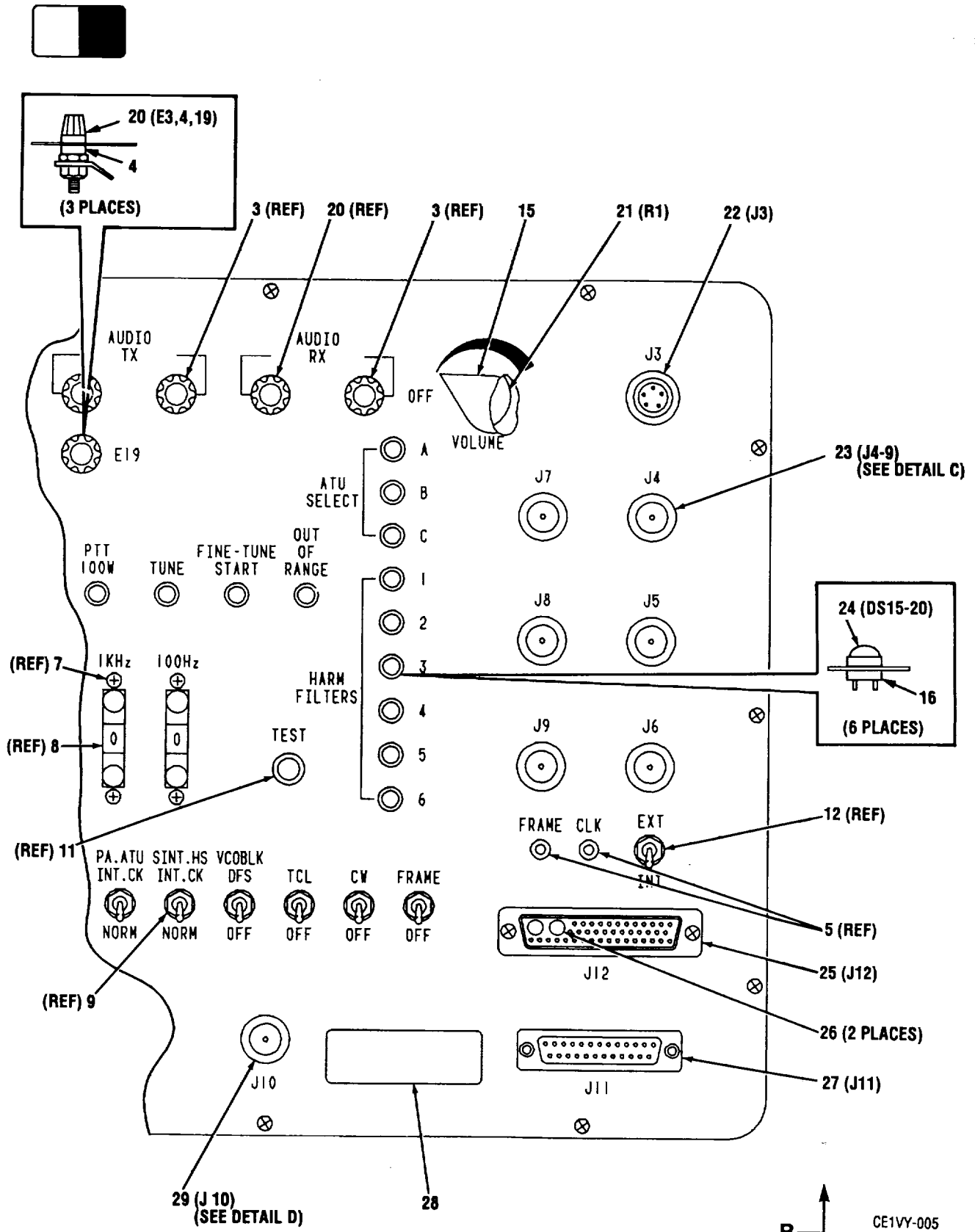
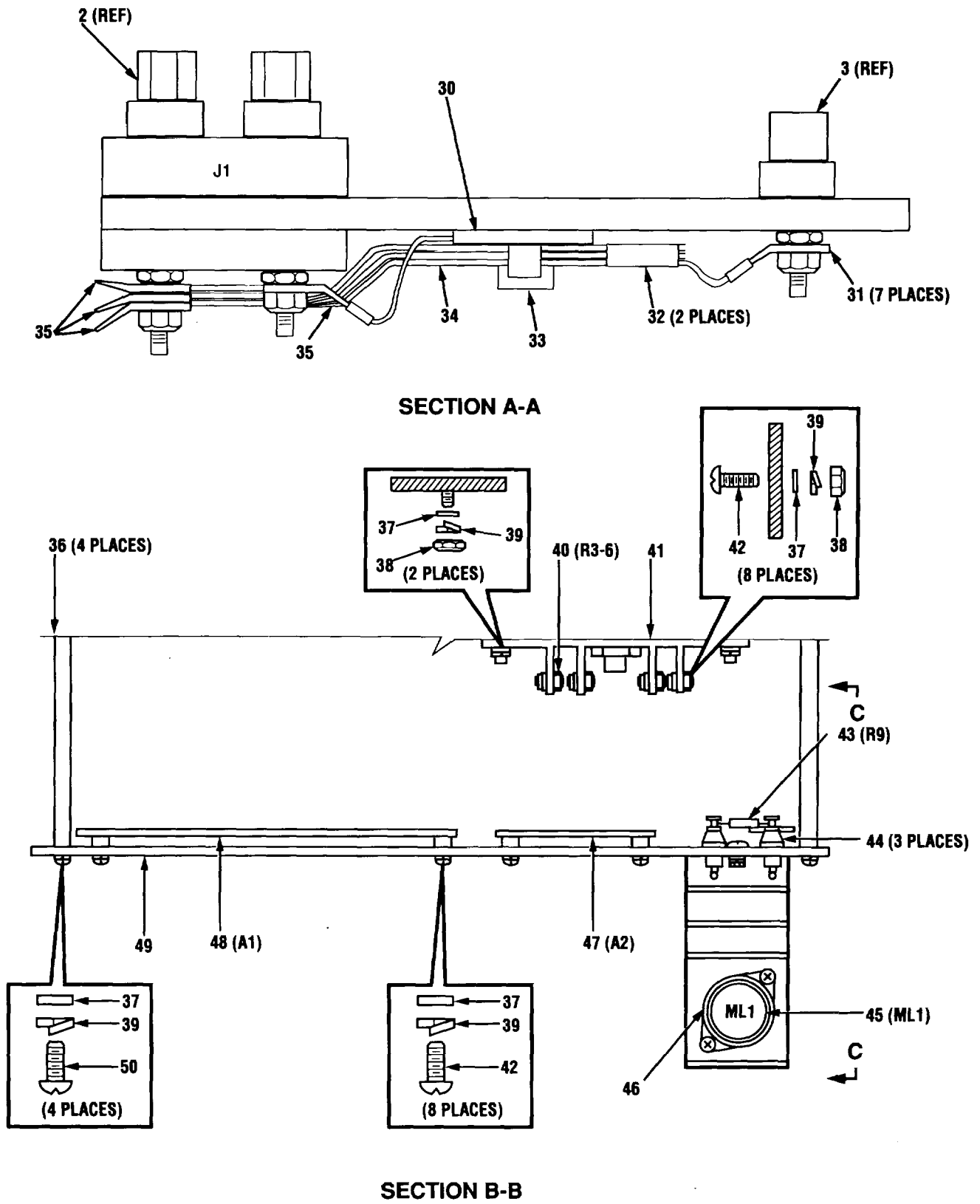


Figure C-3. Front Panel Assembly (1-94284.0000//A) (Sheet 3 of 5)



CE1VY-006

Figure C-3. Front Panel Assembly (1-94284.0000//A) (Sheet 4 of 5)

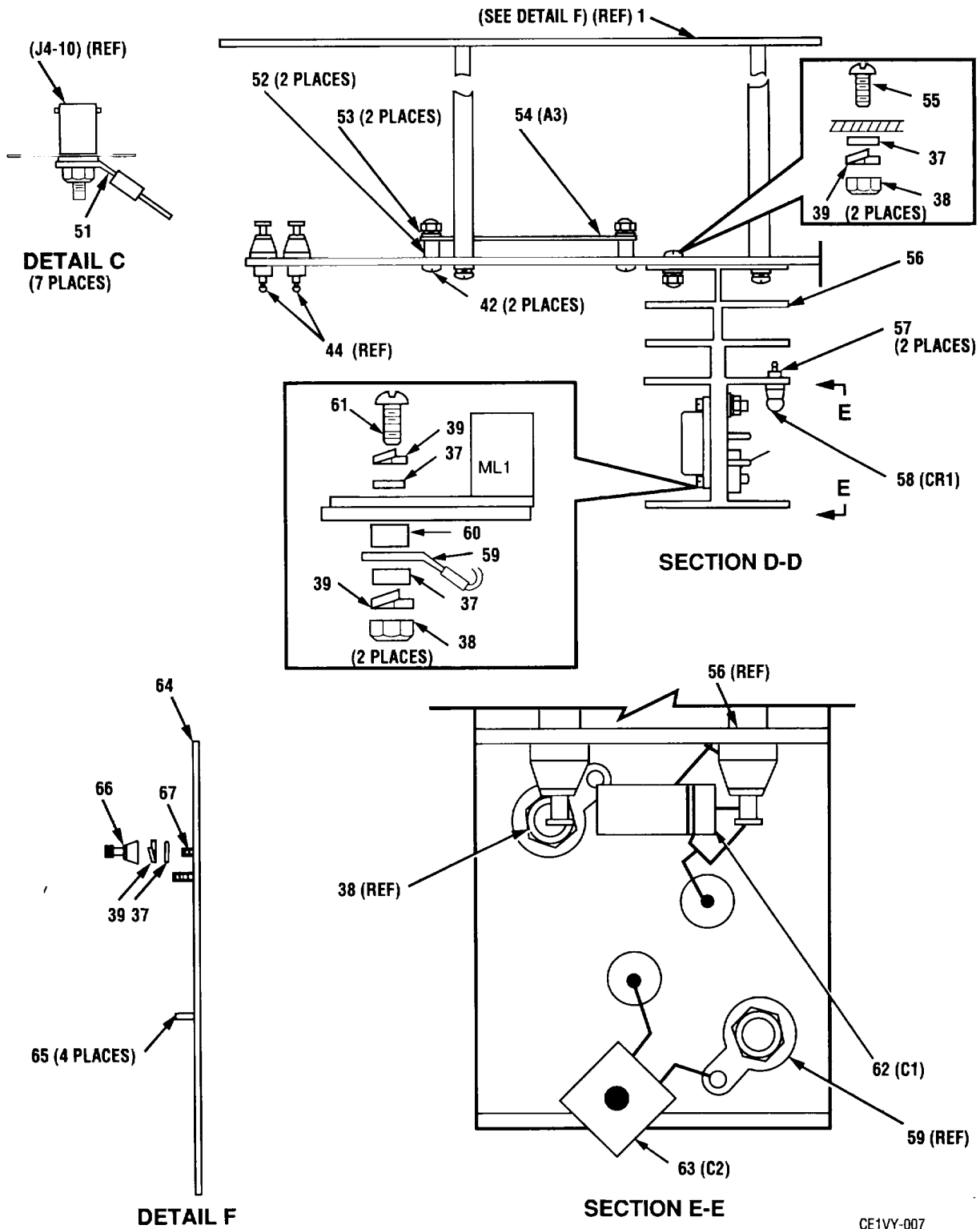


Figure C-3. Front Panel Assembly (1-94284.0000//A) (Sheet 5 of 5)

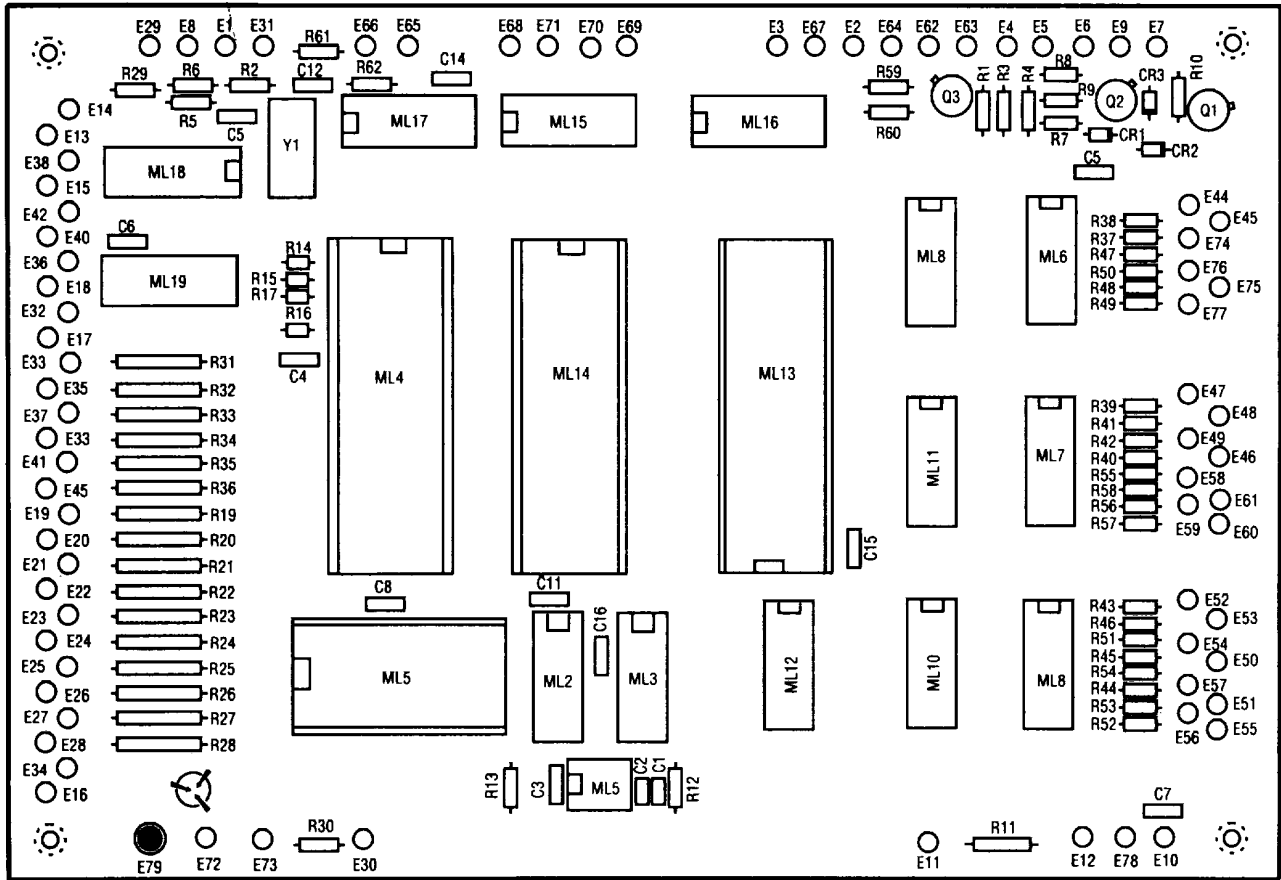
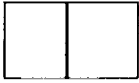
## SECTION II

TM 11-6625-3213-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
GROUP 02 FRONT PANEL ASSEMBLY (1-94284.0000//A)					
FIG. C-3					
1	XBHHH	A3026	1-A2144.0000//A	FRONT PANEL .....	1
2	PAHZZ	18323	990C758H03	POST,BINDING,ELECTR .....	1
3	PAHZZ	A3026	4-36509.0001//C	BINDING POST,ELECTR .....	3
4	PAHZZ	A3026	3-10284.0109//C	TERMINAL,LUG .....	6
5	PAHZZ	A3026	4-36246.0000//N	JACK,TIP .....	10
6	PAHZZ	A3026	4-06746.0000//N	JACK,TIP .....	1
7	PAHZZ	96906	MS51959-3	SCREW,MACHINE .....	12
8	PAHZZ	91812	D36BA1GLRSP	SWITCH,ROTARY .....	5
9	PAHZZ	A3026	4-32151.0004//M	SWITCH,TOGGLE .....	16
10	XBHZZ	80063	A3034572	LABEL--ELECTROSTATE .....	1
11	PAHZZ	A3026	4-32150.0003//M	SWITCH,PUSH BUTTON .....	4
12	PAHZZ	A3026	4-32151.0005//M	SWITCH,TOGGLE .....	2
13	PAHZZ	91812	28165	SWITCH,ROTARY .....	1
14	PAHZZ	A3026	4-55268.0003//G	RESISTOR,FIXED,COMP .....	1
15	PAHZZ	49956	70-4-1G	KNOB .....	2
16	PAHZZ	A3026	4-34260.0000//M	HOLDER,LAMP .....	20
17	PAHZZ	80063	A3027517	SEMICONDUCTOR DEVI .....	14
18	PAHZZ	81349	FHN20G	FUSEHOLDER,EXTRACTO .....	1
19	PAHZZ	A3026	4-05861.0020//Q	FUSE,CARTRIDGE .....	1
20	PAHZZ	A3026	4-36509.0002//C	BINDING POST,ELECTR .....	3
21	PAHZZ	A3026	4-A2173.0000//G	POTENTIOMETER .....	1
22	PAHZZ	49956	481660-1	CONNECTOR,RECEPTACL .....	1
23	PAHZZ	81349	M39012/24-0002	CONNECTOR,RECEPTACL .....	6
24	PAHZZ	28480	HLMP-3507	LIGHT EMITTING DIOD .....	6
25	PAHZZ	A3026	DDMY-43W2S	CONNECTOR,RECEPTACL .....	1
26	PAHZZ	71785	DM53740-5008	CONTACT,ELECTRICAL .....	2
27	PAHZZ	58189	555146-074	CONNECTOR,PLUG,ELEC .....	1
28	XBHZZ	A3026	4-A2155.0009//D	PLATE,IDENTIFICATIO .....	1
29	PAHZZ	A3026	503.10.0445.000/ /N	CONNECTOR,RECEPTACL .....	1
30	PAHZZ	A3026	4-A2161.0000//D	MOUNTING BASE,ELECT .....	1
31	PAHZZ	96906	MS25036-146	TERMINAL,LUG .....	7
32	XBHZZ	A3026	4-A2158.0000//D	BAND,MARKER .....	2
33	PAHZZ	59730	TY23M(MS3367-4)	STRAP,TIEDOWN,ELECT .....	1
34	XBHHH	A3026	4-94409.0000//B	WIRING HARNESS .....	1
35	PAHZZ	96906	MS25036-103	TERMINAL,LUG .....	4
36	PAHZZ	A3026	3-A2131.0000//D	SPACER .....	4
37	PAHZZ	96906	MS15795-803	WASHER,FLAT .....	29
38	PAHZZ	A3026	3-75883-001	NUT,PLAIN,HEXAGON .....	14
39	PAHZZ	A3026	3-10311-003	WASHER,LOCK .....	29
40	PAHZZ	58135	RJ150-50	RESISTOR,FIXED,FILM .....	4
41	XBHZZ	A3026	3-A2147.0000//D	HEATSINK,ELECTRICAL .....	1
42	PAHZZ	96906	MS51957-13	SCREW,MACHINE .....	18
43	PAHZZ	81349	RCR07G103JS	RESISTOR,FIXED,COMP .....	1
44	PAHZZ	A3026	4-B3047.0000//C	TERMINAL,FEEDTHRU .....	3
45	PAHZZ	81349	M38510/10706BYA	MICROCIRCUIT,LINEAR .....	1

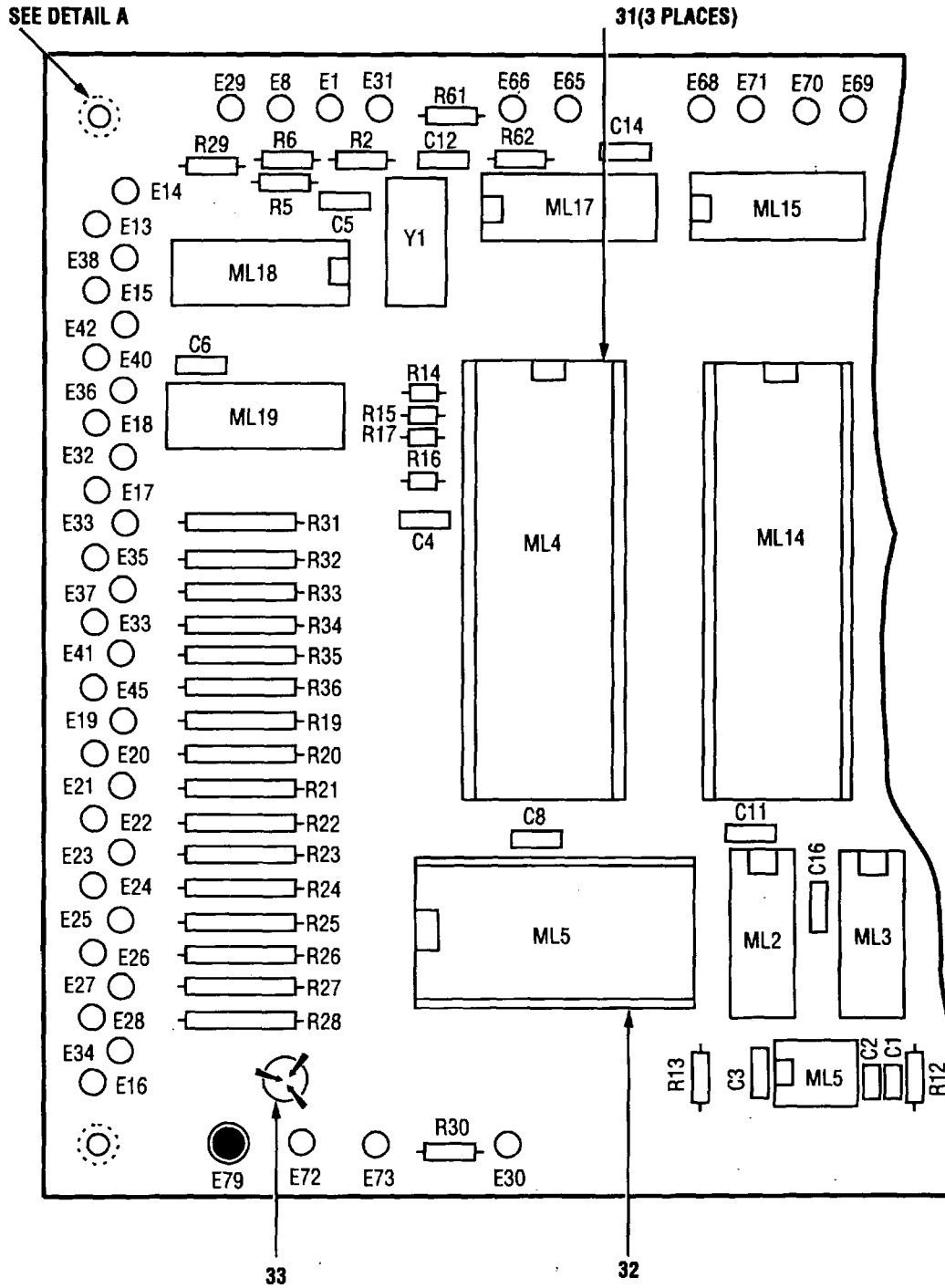
SECTION II					
(1)	(2)	(3)	(4)	(5)	(6)
ITEM NO	SMR CODE	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
46	PAHZZ	80063	A3027095-1	HEAT SINK-INSULATOR.. .....	1
47	PAHLL	A3026	3-90391.0000//B	CIRCUIT CARD ASSEMB (SEE FIG.C-5 .....	1
				FOR PARTS BREAKDOWN)	
48	PAHLL	A3026	1-94392.0000//B	CIRCUIT CARD ASSEMB (SEE FIG.C-4 .....	1
				FOR PARTS BREAKDOWN)	
49	XBHZZ	A3026	2-A2146.0000//D	PLATE .....	1
50	PAHZZ	96906	MS51957-15	SCREW,MACHINE .....	4
51	PAHZZ	80063	A3027823	TERMINAL,LUG.....	7
52	PAHZZ	A3026	4-A2151.0000//C	BUSHING .....	2
53	PAHZZ	A3026	3-10539.0013//C	WASHER,FLAT.....	2
54	PAHLL	A3026	3-94361.0000//B	CIRCUIT CARD ASSEMB (SEE FIG.C-6 .....	1
				FOR PARTS BREAKDOWN)	
55	PAHZZ	96906	MS51957-14	SCREW,MACHINE .....	2
56	XBHZZ	A3026	3-A2160.0000//D	HEATSINK,ELECTRICAL .....	1
57	PAHZZ	98291	011-2004	TERMINAL,FEEDTHRU .....	2
58	PAHZZ	81349	JAN1N3957	SEMICONDUCTOR DEVIC .....	1
59	PAHZZ	80063	A3026908-6	TERMINAL,LUG.....	2
60	PAHZZ	A3026	4-51249.0000//C	BUSHING .....	2
61	PAHZZ	96906	MS51957-17	SCREW,MACHINE .....	2
62	PAHZZ	81349	M39014/02-1358	CAPACITOR,FIXED,CER .....	1
63	PAHZZ	81349	M39014/01-1593	CAPACITOR,FIXED,CER .....	1
64	XBHZZ	A3026	1-A2145.0000//D	PANEL,FRONT .....	1
65	PAHZZ	81349	M63540/1-9C	STUD,SELF-LOCKING .....	4
66	PAHZZ	80063	A3026906-3	TERMINAL,LUG.....	1
67	PAHZZ	81349	M63540/1-6C	STUD,SELF-LOCKING .....	1

END OF FIGURE



CE1VY-008

Figure C-4. CCA A1 (1-94392.0000//B) (Sheet 1 of 5)

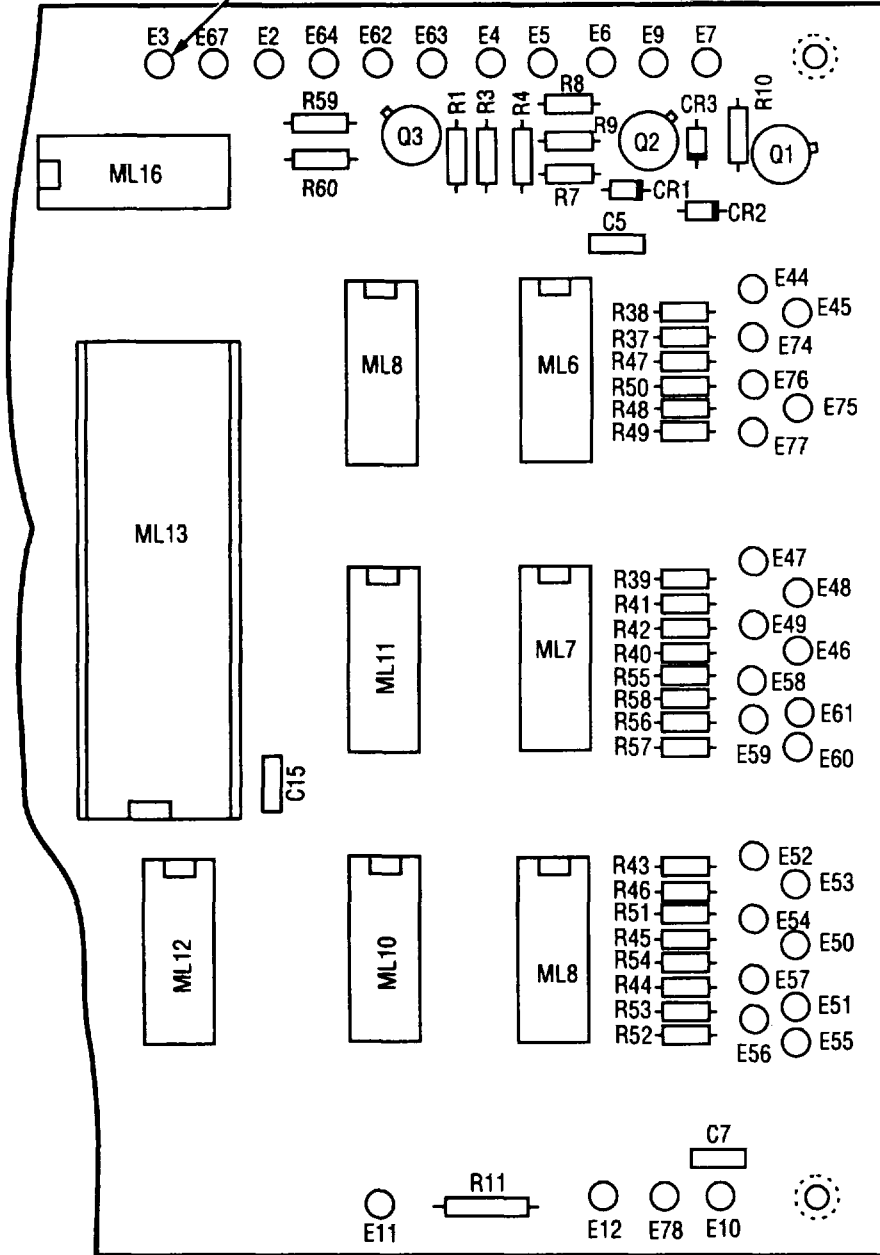


CE1VY-009

Figure C-4. CCA A1 (1-94392.0000//B) (Sheet 2 of 5)



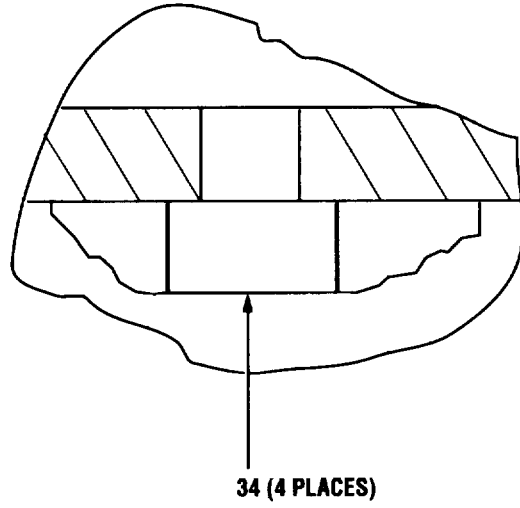
SEE DETAIL B



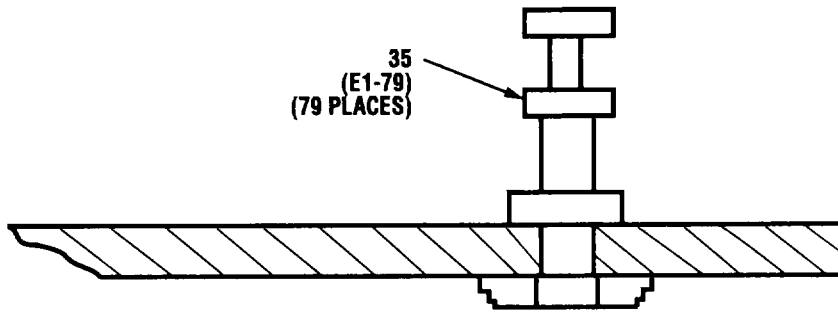
CE1VY-010

Figure C-4. CCA A1 (1-94392.0000//B) (Sheet 3 of 5)





**DETAIL A**



**DETAIL B**

CE1VY-011

Figure C-4. CCA A1 (1-94392.0000//B) (Sheet 4 of 5)

NOTE: ALL REF DESIGNATORS SHOULD BE PRECEDED BY AN A1 .

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.
CR1	1	C16	3	ML18	16	R14	26	R32	24	R50	19
CR2	1	ML1	6	ML19	17	R15	26	R33	24	R51	19
CR3	1	ML2	7	Q1	18	R16	26	R34	24	R52	19
C1	2	ML3	7	Q2	18	R17	26	R35	24	R53	19
C2	3	ML4	8	Q3	18	R18	26	R36	24	R54	19
C3	3	ML5	9	R1	19	R19	24	R37	19	R55	19
C4	4	ML6	10	R2	20	R20	24	R38	19	R56	19
C5	3	ML7	10	R3	19	R21	24	R39	19	R57	19
C6	3	ML8	10	R4	19	R22	24	R40	19	R58	19
C7	3	ML9	10	R5	19	R23	24	R41	19	R59	28
C8	4	ML10	10	R6	19	R24	24	R42	19	R60	21
C9	4	ML11	10	R7	21	R25	24	R43	19	R61	29
C10	4	ML12	11	R8	22	R26	24	R44	19	R62	19
C11	4	ML13	12	R9	19	R27	24	R45	19	R63	21
C12	3	ML14	12	R10	23	R28	24	R46	19	R64	21
C13	5	ML15	13	R11	24	R29	27	R47	19	R65	21
C14	3	ML16	14	R12	25	R30	27	R48	19	R66	21
C15	4	ML17	15	R13	25	R31	24	R49	19	Y1	30

CE1VY-012

Figure C-4. CCA A1 (1-94392.0000/B) (Sheet 5 of 5)

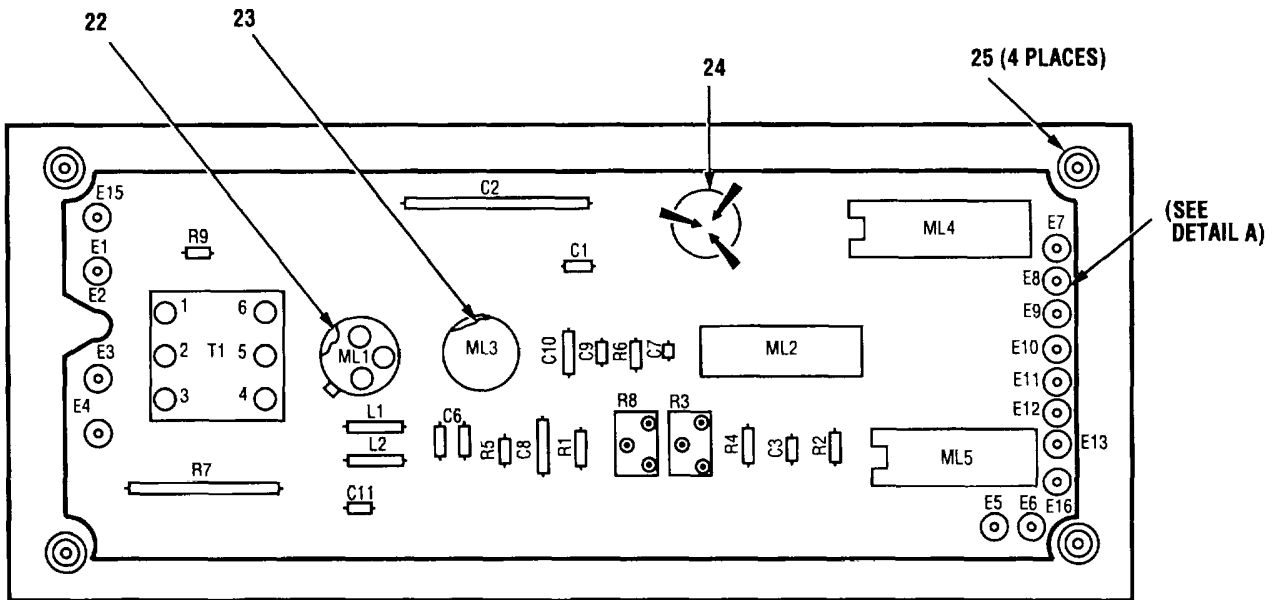
## SECTION II

TM11-6625-3213-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
GROUP 0201 CCA A1) (1-94392.0000//B)					
FIG. C-4					
1	PAHZZ	81349	JAN1N4454-1	SEMICONDUCTOR DEVIC .....	3
2	PAHZZ	81349	M39014/01-1351	CAPACITOR, FIXED, CER .....	1
3	PAHZZ	81349	M39014/01-1593	CAPACITOR, FIXED, CER .....	8
4	PAHZZ	81349	M39014/01-1575	CAPACITOR, FIXED, CER .....	6
5	PAHZZ	81349	M39014-01-1333	CAPACITOR, FIXED, CER .....	1
6	PAHZZ	81349	M38510/10901BPB	MICROCIRCUIT, LINEAR.....	1
7	PAHZZ	81349	M38510/00104BCB	MICROCIRCUIT, DIGITA.....	2
8	PAHZZ	04713	MC6802S	MICROCIRCUIT, DIGITA.....	1
9	PAHZZ	A3026	4-59176.0107//P	MICROCIRCUIT, DIGITA.....	1
10	PAHZZ	81349	M38510/32202BEB	MICROCIRCUIT, DIGITA.....	6
11	PAHZZ	01295	SN7442J	MICROCIRCUIT, DIGITA.....	1
12	PAHZZ	04713	6821/BQAJC	MICROCIRCUIT, DIGITA.....	2
13	PAHZZ	04713	MC14490L	MICROCIRCUIT, DIGITA.....	1
14	PAHZZ	02735	CD4050BD/3	MICROCIRCUIT, DIGITA.....	1
15	PAHZZ	02735	CD4027BE	MICROCIRCUIT, DIGITA.....	1
16	PAHZZ	02735	7901401EB	MICROCIRCUIT, DIGITA.....	1
17	PAHZZ	81349	M38510/00803BCB	MICROCIRCUIT, DIGITA.....	1
18	PAHZZ	81349	JAN2N2222A	TRANSISTOR .....	3
19	PAHZZ	81349	RCR05G103JS	RESISTOR, FIXED, COMP .....	29
20	PAHZZ	81349	RCR05G302JS	RESISTOR, FIXED, COMP .....	1
21	PAHZZ	81349	RCR05G1002JS	RESISTOR, FIXED, COMP .....	6
22	PAHZZ	81349	RCR05G124JS	RESISTOR, FIXED, COMP .....	1
23	PAHZZ	81349	RCR05G221JS	RESISTOR, FIXED, COMP .....	1
24	PAHZZ	81349	RCR20G152JS	RESISTOR, FIXED, COMP .....	17
25	PAHZZ	81349	RCR05G105JS	RESISTOR, FIXED, COMP .....	2
26	PAHZZ	81349	RCR05G472JS	RESISTOR, FIXEB, COMP.....	5
27	PAHZZ	81349	RCR05G104JS	RESISTOR, FIXED, COMP .....	2
28	PAHZZ	81349	RCR05G511JS	RESISTOR, FIXED, COMP .....	1
29	PAHZZ	81349	RCR05G203JS	RESISTOR, FIXED, COMP .....	1
30	PAHZZ	80063	A3026810-1	CRYSTAL, QUARTZ.....	1
31	PAHZZ	06726	ICN-406-S5-G	SOCKET.....	3
32	PAHZZ	06726	ICN-246-S4-G	SOCKET.....	1
33	XBHZZ	80063	A3034571-3	LABEL, ELECTROSTATIC .....	1
34	PAHZZ	A3026	4-A2151.0000//C	BUSHING.....	4
35	PAHZZ	58189	666273-074	TERMINAL, LUG.....	79

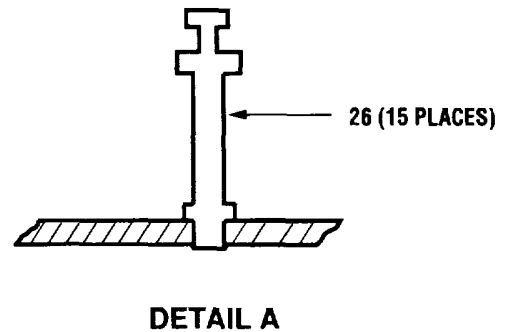
END OF FIGURE

C-4-1



**LEGEND**

REF. DES.	ITEM NO.	REF. DES.	ITEM NO.	REF. DES.	ITEM NO.	REF. DES.	ITEM NO.
C1	1	L1	8	R6	16	R26	20
C2	2	ML1	9	R8	18	R27	20
C3	3	ML2	10	R9	19	R28	20
C5	1	ML3	11	R11	20	R31	20
C6	1	ML4	12	R19	20	R32	20
C7	4	ML5	13	R20	20	R33	20
C8	5	R1	14	R21	20	R34	20
C9	6	R2	14	R22	20	R35	20
C10	5	R3	15	R23	20	R36	20
C11	7	R4	16	R24	20	T1	21
L1	8	R5	17	R25	20		



**DETAIL A**

**NOTE: ALL REF DESIGNATORS SHOULD BE PRECEDED BY AN A2**

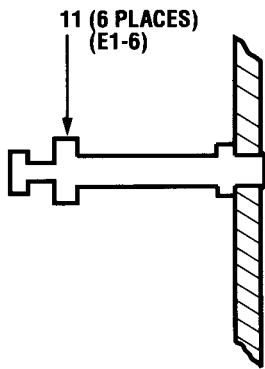
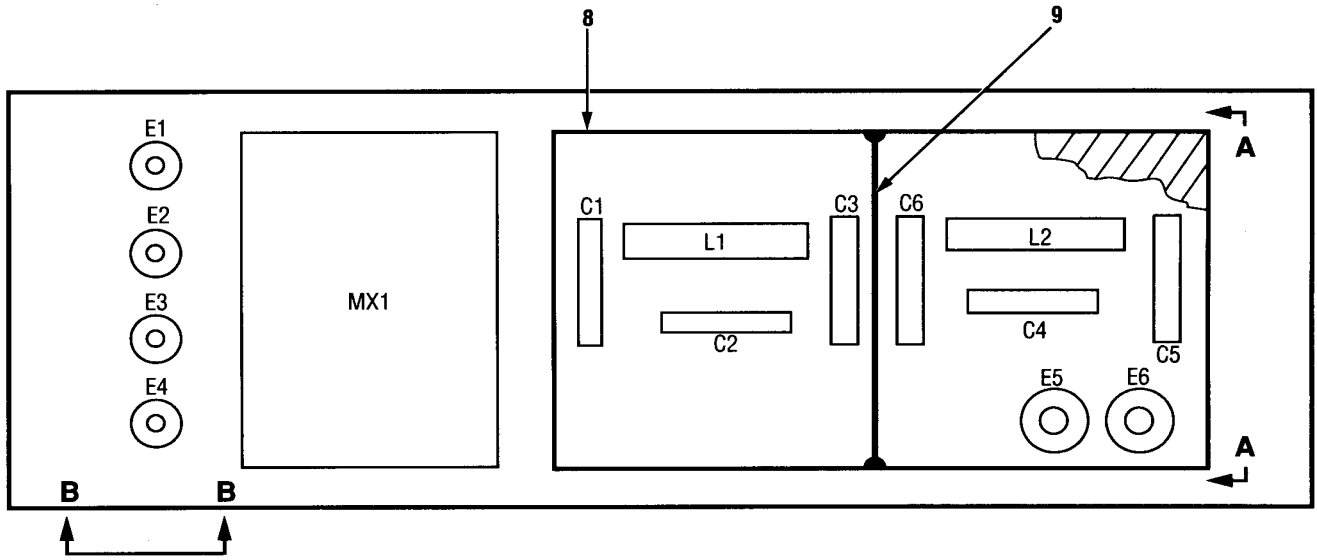
CE1VY-013

Figure C-5. CCA A2 (3-90391.0000/B)

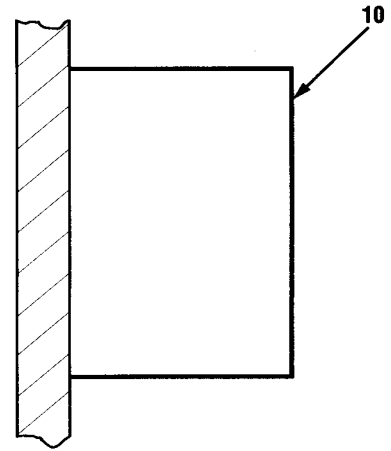
SECTION II

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
GROUP 0202 CCA (A2)(1-90391.0000//B)					
FIG. C-5					
1	PAHZZ	81349	M39014/01-1593	CAPACITOR, FIXED, CER .....	3
2	PAHZZ	81349	CLR65BB56OKGL	CAPACITOR, FIXED, ELE .....	1
3	PAHZZ	31433	T370-D106M020AS	CAPACITOR, FIXED, ELE .....	1
4	PAHZZ	31433	T372B225M010A5	CAPACITOR, FIXED, ELE .....	1
5	PAHZZ	31433	T372E336M006AS	CAPACITOR, FIXED, ELE .....	2
6	PAHZZ	81349	M39014/02-1332	CAPACITOR, FIXED, CER .....	1
7	PAHZZ	81349	M39014/02-1358	CAPACITOR, FIXED, CER .....	1
8	PAHZZ	A3026	696017.180//K	INDUCTOR .....	2
9	PAHZZ	06481	971325-2102	MICROCIRCUIT, LINEAR.....	1
10	PAHZZ	07933	RM3503ADC3	MICROCIRCUIT, LINEAR.....	1
11	PAHZA	55154	5L6270C-CM	MICROCIRCUIT, LINEAR.....	1
12	PAHZZ	02735	CD4050BD/3	MICROCIRCUIT, DIGITA.....	1
13	PAHZZ	81349	M38510/00803BCB	MICROCIRCUIT, DIGITA.....	1
14	PAHZZ	81349	RCR05G202JS	RESISTOR, FIXED, COMP .....	2
15	PAHZZ	81349	RJR26FW503R	RESISTOR, VARIABLE, N.....	1
16	PAHZZ	81349	RCR05G512JS	RESISTOR, FIXED, COMP .....	2
17	PAHZZ	81349	RCR05G105JS	RESISTOR, FIXED, COMP .....	1
18	PAHZZ	81349	RJR26FW103R	RESISTOR, VARIABLE, N.....	1
19	PAHZZ	81349	RCR05G1003JS	RESISTOR, FIXED, COMP .....	1
20	PAHZZ	81349	RCR32G681JS	RESISTOR, FIXED, COMP .....	17
21	PAHZZ	81349	M27/70-10	TRANSFORMER, AUDIO F.....	1
22	PAHZZ	81349	M38527/02-017D	MOUNTING PAD, ELECTR.....	1
23	PAHZZ	81349	M38527-1-18B1	MOUNTING PAD, ELECTR.....	1
24	XBHZZ	80063	A3034571-3	LABEL, ELECTROSTATIC .....	1
25	PAHZZ	A3026	4-A2151.0000//C	BUSHING .....	4
26	PAHZZ	58189	666273-074	TERMINAL, LUG.....	15

END OF FIGURE



SECTION B-B



SECTION A-A

LEGEND

REF. DES.	ITEM NO.
C1	1
C2	2
C3	3
C4	4
C5	5
C6	3
L1	6
L2	6
MX1	7

CE1VY-014

NOTE: ALL REF DESIGNATORS SHOULD BE PRECEDED BY AN A3

Figure C-6. CCA A3 (3-94361.0000//B)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
-------------------	--------------------	--------------	-----------------------	--	------------

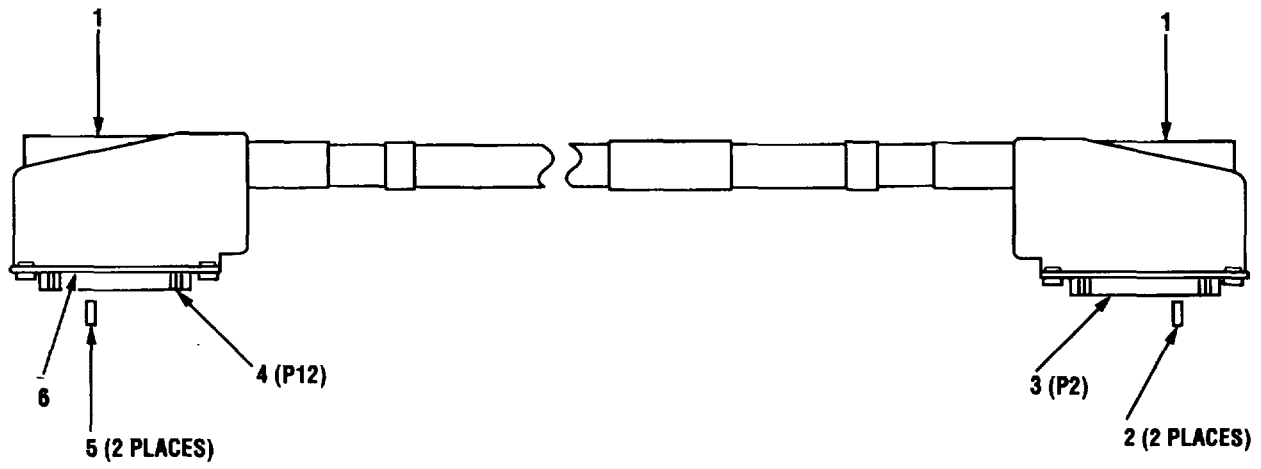
GROUP 0203 CCA (A3)(1-94361.0000//B)

FIG. C-6

1	PAHZZ	81349	M39014/01-1568	CAPACITOR, FIXED, CER .....	1
2	PAHZZ	81349	M39014/01-1354	CAPACITOR, FIXED, CER .....	1
3	PAHZZ	81349	M39014/01-1566	CAPACITOR, FIXED, CER .....	2
4	PAHZZ	81349	CKR05BX271KP	CAPACITOR, FIXED, ELE .....	1
5	PAHZZ	81349	M39014/02-1332	CAPACITOR, FIXED, CER .....	1
6	PAHZZ	96906	MS75084-12	COIL, RADIO FREQUENC .....	2
7	PAHZZ	80063	A3030174	MIXER STAGE, FREQUEN .....	1
8	XBHZZ	A3026	4-B0886.0000//C	FRAME .....	1
9	PAHZZ	A3026	4-B0887.0000//C	SHIELD, ELECTRICAL .....	1
10	XBHZZ	A3026	4-B0890.0000//C	COVER.....	1
11	PAHZZ	58189	666273-074	TERMINAL, LUG.....	6

END OF FIGURE

C-6-1



NOTE: ALL REF DESIGNATORS SHOULD BE PRECEDED BY AN W67

CE1VY-015

Figure C-7. Cable Assembly, W67 (3-94310.0000//B)



(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
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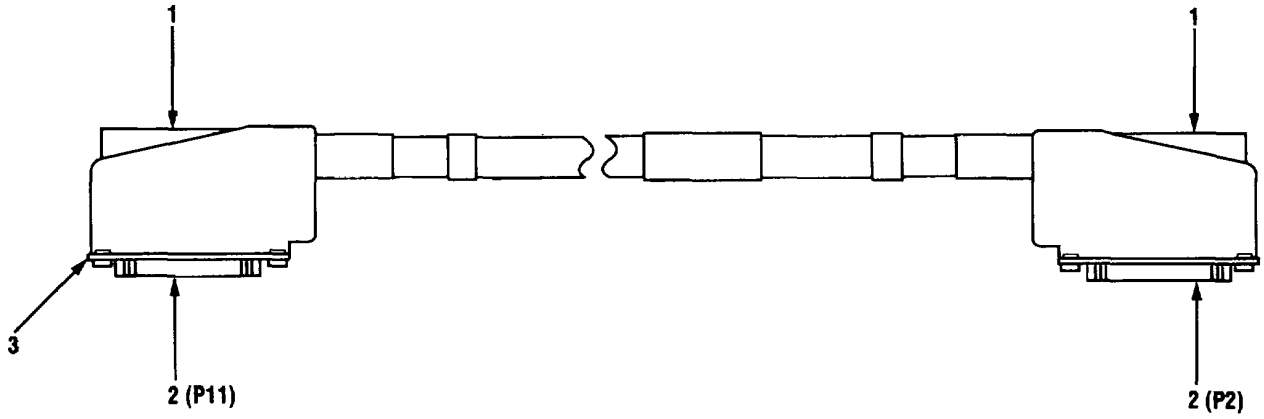
GROUP 03 CABLE ASSEMBLY (W67)  
(3-94310.0000//B)

FIG. C-7

1	PAHZZ	71468	DD51217	SHIELD, ELECTRICAL C.....	2
2	PAHZZ	18876	9073891-3	CONTACT, ELECTRICAL.....	2
3	PAHZZ	A3026	DDMY-43W2S	CONNECTOR, RECEPTACL .....	1
4	PAHZZ	96214	531740-1	CONNECTOR, RECEPTACL .....	1
5	PAHZZ	71785	DM53740-5008	CONTACT, ELECTRICAL.....	2
6	PAHZZ	18876	10125334-2	RETAINER, ELECTRICAL.....	1

END OF FIGURE

C-7-1



**NOTE: ALL REF DESIGNATORS SHOULD BE PRECEDED BY A W68**

**CE1VY-016**

*Figure C-8. Cable Assembly, W68 (3-94311.0000//B)*

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
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GROUP 04 CABLE ASSEMBLY (W68)  
(3-94311.0000//B)

FIG. C-8

1	XBHZZ	71468	DB51213-1	HOUSING.....	2
2	PAHZZ	81349	M24308/4-3	CONNECTOR, RECEPTACL .....	2
3	PAHZZ	71468	DD51223-1	RETAINER, ELECTRICAL.....	1

END OF FIGURE

C-8-1

## SECTION IV

TM11-6625-3213-14&amp;P

CROSS- REFERENCE-INDEXES  
NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5910-00-010-8717	C-3	63	5935-00-896-9910	C-7	6
	C-4	3	5935-00-905-2740	C-8	3
	C-5	1	5935-00-948-2792	C-7	1
5999-00-021-2119	C-7	2	5961-00-965-9594	C-3	58
5950-00-031-4557	C-6	6	5935-00-997-8026	C-3	23
5940-00-045-6399	C-3	2	5962-01-033-2282	C-4	14
5305-00-054-5647	C-3	42		C-5	12
5305-00-054-5648	C-3	55	5905-01-035-5065	C-4	19
5305-00-054-5649	C-3	50		C-5	19
5305-00-054-5651	C-3	61	5962-01-069-3045	C-4	6
5305-00-054-6670	C-1	6	5950-01-078-6496	C-5	21
5910-00-098-9242	C-6	3	5999-01-080-1971	C-5	23
5905-00-106-3666	C-3	43	5910-01-100-8108	C-5	3
5905-00-111-4738	C-4	24	5962-01-101-1050	C-4	10
5910-00-113-5276	C-4	2	5962-01-110-5628	C-4	15
5910-00-113-5284	C-3	62	5962-01-151-4506	C-4	12
	C-5	7	5905-01-161-7274	C-5	15
5910-00-113-5515	C-4	5	5962-01-164-8741	C-5	10
5910-00-113-9448	C-6	2	5980-01-178-0898	C-3	24
5910-00-124-0659	C-4	4	5905-01-184-3510	C-5	18
5910-00-143-0501	C-5	6	5895-01-185-5408	C-6	7
	C-6	5	5307-01-188-5229	C-3	65
5940-00-143-4771	C-3	35	5307-01-194-3198	C-3	67
5910-00-166-6757	C-6	1	5999-01-194-9729	C-5	22
5905-00-177-7486	C-4	23	5962-01-195-1993	C-5	9
5905-00-195-4074	C-4	25	5930-01-241-4623	C-3	13
	C-5	17	5905-01-244-6853	C-3	40
5905-00-197-0224	C-4	28	5962-01-274-1575	C-5	11
5905-00-235-3534	C-5	20	5999-01-276-5655	C-3	46
5962-00-318-2223	C-4	7	5940-01-276-7162	C-3	59
5962-00-369-9839	C-4	17			
	C-5	13			
5935-00-402-1519	C-7	4			
5905-00-413-1200	C-4	29			
5905-00-421-8918	C-4	20			
5905-00-458-9346	C-4	27			
5905-00-458-9347	C-4	22			
5905-00-458-9500	C-4	21			
5905-00-470-9481	C-5	14			
5935-00-489-9999	C-8	2			
5920-00-556-0144	C-3	18			
5310-00-558-6207	C-1	7			
5940-00-578-3484	C-3	57			
5310-00-595-6211	C-3	37			
5905-00-617-5091	C-4	26			
5355-00-656-1458	C-3	15			
5905-00-689-1290	C-5	16			
5305-00-727-8833	C-3	7			
5940-00-804-0365	C-3	31			
5935-00-823-0667	C-3	22			

## NATIONAL STOCK NUMBER AND PART NUMBER INDEX

		PART NUMBER INDEX			
CAGEC	PART NUMBER		STOCK NUMBER	FIG.	ITEM
88044	AN960C8L		5310-00-558-6207	C-1	7
80063	A3026810-1			C-4	30
80063	A3026906-3			C-3	66
80063	A3026908-6		5940-01-276-7162	C-3	59
80063	A3027095-1		5999-01-276-5655	C-3	46
80063	A3027517			C-3	17
80063	A3027823			C-3	51
80063	A3030174		5895-01-185-5408	C-6	7
80063	A3034571-3			C-4	33
				C-5	24
80063	A3034572			C-3	10
02735	CD4027BE		5962-01-110-5628	C-4	15
02735	CD4050BD/3		5962-01-033-2282	C-4	14
				C-5	12
81349	CKR05BX271KP			C-6	4
81349	CLR65BB560KGL			C-5	2
71468	DB51213-1			C-8	1
A3026	DDMY-43W25			C-3	25
				C-7	3
71468	DD51217		5935-00-948-2792	C-7	1
71468	DD51223-1		5935-00-905-2740	C-8	3
71785	DM53740-5008			C-3	26
				C-7	5
91812	D36BAIGLRSP			C-3	8
81349	FHN20G		5920-00-556-0144	C-3	18
28480	HLMP-3507		5980-01-178-0898	C-3	24
06726	ICN-246-S4-G			C-4	32
06726	ICN-406-55-G			C-4	31
81349	JAN1N3957		5961-00-965-9594	C-3	58
81349	JAN1N4454-1			C-4	1
81349	JAN2N2222A			C-4	18
04713	MC14490L			C-4	13
04713	MC68025			C-4	8
96906	MS15795-803		5310-00-595-6211	C-3	37
96906	MS25036-103		5940-00-143-4771	C-3	35
96906	MS25036-146		5940-00-804-0365	C-3	31
96906	MS51957-13		5305-00-054-5647	C-3	42
96906	MS51957-14		5305-00-054-5648	C-3	55
96906	MS51957-15		5305-00-054-5649	C-3	50
96906	MS51957-17		5305-00-054-5651	C-3	61
96906	MS51957-45		5305-00-054-6670	C-1	6
96906	MS51959-3		5305-00-727-8833	C-3	7
96906	MS75084-12		5950-00-031-4557	C-6	6
81349	M24308/4-3		5935-00-489-9999	C-8	2
81349	M27/70-10		5950-01-078-6496	C-5	21
81349	M38510/00104BCB		5962-00-318-2223	C-4	7
81349	M38510/00803BCB		5962-00-369-9839	C-4	17
				C-5	13
81349	M38510/10706BYA			C-3	45
81349	M38510/10901BPB		5962-01-069-3045	C-4	6
81349	M38510/32202BEB		5962-01-101-1050	C-4	10

**NATIONAL STOCK NUMBER AND PART NUMBER INDEX  
PART NUMBER INDEX**

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
81349	M38527-1-18B1	5999-01-080-1971	C-5	23
81349	M38527/02-017D	5999-01-194-9729	C-5	22
81349	M39012/24-0002	5935-00-997-8026	C-3	23
81349	M39014-01-1333	5910-00-113-5515	C-4	5
81349	M39014/01-1351	5910-00-113-5276	C-4	2
81349	M39014/01-1354	5910-00-113-9448	C-6	2
81349	M39014/01-1566	5910-00-098-9242	C-6	3
81349	M39014/01-1568	5910-00-166-6757	C-6	1
81349	M39014/01-1575	5910-00-124-0659	C-4	4
81349	M39014/01-1593	5910-00-010-8717	C-3	63
			C-4	3
			C-5	1
81349	M39014/02-1332	5910-00-143-0501	C-5	6
			C-6	5
81349	M39014/02-1358	5910-00-113-5284	C-3	62
			C-5	7
81349	M63540/1-6C	5307-01-194-3198	C-3	67
81349	M63540/1-9C	5307-01-188-5229	C-3	65
81349	RCR05G1002JS	5905-00-458-9500	C-4	21
81349	RCR05G103JS	5905-01-035-5065	C-4	19
			C-5	19
81349	RCR05G104JS	5905-00-458-9346	C-4	27
81349	RCR05G105JS	5905-00-195-4074	C-4	25
			C-5	17
81349	RCR05G124JS	5905-00-458-9347	C-4	22
81349	RCR05G202JS	5905-00-470-9481	C-5	14
81349	RCR05G203JS	5905-00-413-1200	C-4	29
81349	RCR05G221JS	5905-00-177-7486	C-4	23
81349	RCR05G302JS	5905-00-421-8918	C-4	20
81349	RCR05G472JS	5905-00-617-5091	C-4	26
81349	RCR05G511JS	5905-00-197-0224	C-4	28
81349	RCR05G512JS	5905-00-689-1290	C-5	16
81349	RCR07G103JS	5905-00-106-3666	C-3	43
81349	RCR20G152JS	5905-00-111-4738	C-4	24
81349	RCR32G681JS	5905-00-235-3534	C-5	20
81349	RJR26FW103R	5905-01-184-3510	C-5	18
81349	RJR26FW503R	5905-01-161-7274	C-5	15
58135	RJ150-50	5905-01-244-6853	C-3	40
07933	RM3503ADC3	5962-01-164-8741	C-5	10
55154	SL6270C-CM	5962-01-274-1575	C-5	11
01295	SN7442J		C-4	11
59730	TY23M(MS3367-4)		C-3	33
31433	T370-D106M020AS	5910-01-100-8108	C-5	3
31433	T372B225M010AS		C-5	4
31433	T372E336M006AS		C-5	5
98291	011-2004	5940-00-578-3484	C-3	57
A3026	1-A2144.0000//A		C-3	1
A3026	1-A2145.0000//D		C-3	64
A3026	1-94284.0000//A		C-1	5
A3026	1-94392.0000//B		C-3	48
18876	10125334-2	5935-00-896-9910	C-7	6

**NATIONAL STOCK NUMBER AND PART NUMBER INDEX  
PART NUMBER INDEX**

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
24995	10647		C-1	1
A3026	2-A2146.0000//D		C-3	49
24995	22002022		C-2	1
24995	24000450		C-2	4
24995	24000460		C-2	5
91812	28165	5930-01-241-4623	C-3	13
A3026	3-A2131.0000//D		C-3	36
A3026	3-A2147.0000//D		C-3	41
A3026	3-A2160.0000//D		C-3	56
A3026	3-10284.0109//C		C-3	4
A3026	3-10311-003		C-3	39
A3026	3-10539.0013//C		C-3	53
A3026	3-75883-001		C-3	38
A3026	3-90391.0000//B		C-3	47
A3026	3-94310.0000//B		C-1	3
A3026	3-94311.0000//B		C-1	4
A3026	3-94361.0000//B		C-3	54
24995	31000691		C-2	3
24995	33500035		C-2	2
A3026	4-A2151.0000//C		C-3	52
			C-4	34
			C-5	25
A3026	4-A2155.0009//D		C-1	8
			C-3	28
A3026	4-A2158.0000//D		C-3	32
A3026	4-A2161.0000//D		C-3	30
A3026	4-A2173.0000//G		C-3	21
A3026	4-B0886.0000//C		C-6	8
A3026	4-B0887.0000//C		C-6	9
A3026	4-B0890.0000//C		C-6	10
A3026	4-B3047.0000//C		C-3	44
A3026	4-05861.0020//Q		C-3	19
A3026	4-06746.0000//N		C-3	6
A3026	4-32150.0003//M		C-3	11
A3026	4-32151.0004//M		C-3	9
A3026	4-32151.0005//M		C-3	12
A3026	4-34260.0000//M		C-3	16
A3026	4-36246.0000//N		C-3	5
A3026	4-36509.0001//C		C-3	3
A3026	4-36509.0002//C		C-3	20
A3026	4-51249.0000//C		C-3	60
A3026	4-55268.0003//G		C-3	14
A3026	4-59176.0107//P		C-4	9
A3026	4-94409.0000//B		C-3	34
49956	481660-1	5935-00-823-0667	C-3	22
A3026	503.10.0445.000//N		C-3	29
96214	531740-1	5935-00-402-1519	C-7	4
58189	555146-074		C-3	27
A3026	569712.801//B		C-1	2
58189	666273-074		C-4	35

NATIONAL STOCK NUMBER AND PART NUMBER INDEX  
PART NUMBER INDEX

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
58189	666273-074		C-5	26
			C-6	11
04713	6821/BQAJC	5962-01-151-4506	C-4	12
A3026	696017.180//K		C-5	8
49956	70-4-1G	5355-00-656-1458	C-3	15
02735	7901401EB		C-4	16
18876	9073891-3	5999-00-021-2119	C-7	2
06481	971325-2102	5962-01-195-1993	C-5	9
18323	990C758H03	5940-00-045-6399	C-3	2

**C-I-5**



## CROSS REFERENCE INDEXES

FIG.	ITEM	FIGURE AND ITEM NUMBER INDEX STOCK NUMBER	CAGEC	PART NUMBER
C-1	1		24995	10647
C-1	2		A3026	569712.801//B
C-1	3		A3026	3-94310.0000//B
C-1	4		A3026	3-94311.0000//B
C-1	5		A3026	1-94284.0000//A
C-1	6	5305-00-054-6670	96906	MS51957-45
C-1	7	5310-00-558-6207	88044	AN960C8L
C-1	8		A3026	4-A2155.0009//D
C-2	1		24995	22002022
C-Z	2		24995	33500035
C-2	3		24995	31000691
C-2	4		24995	24000450
C-2	5		24995	24000460
C-3	1		A3026	1-A2144.0000//A
C-3	2	5940-00-045-6399	18323	990C758H03
C-3	3		A3026	4-36509.0001//C
C-3	4		A3026	3-10284.0109//C
C-3	5		A3026	4-36246.0000//N
C-3	6		A3026	4-06746.0000//N
C-3	7	5305-00-727-8833	96906	MS51959-3
C-3	8		91812	D36BA1GLRSP
C-3	9		A3026	4-32151.0004//M
C-3	10		80063	A3034572
C-3	11		A3026	4-32150.0003//M
C-3	12		A3026	4-32151.0005//M
C-3	13	5930-01-241-4623	91812	28165
C-3	14		A3026	4-55268.0003//G
C-3	15	5355-00-656-1458	49956	70-4-1G
C-3	16		A3026	4-34260.0000//M
C-3	17		80063	A3027517
C-3	18	5920-00-556-0144	81349	FHN20G
C-3	19		A3026	4-05861.0020//Q
C-3	20		A3026	4-36509.0002//C
C-3	21		A3026	4-A2173.0000//G
C-3	22	5935-00-823-0667	49956	481660-1
C-3	23	5935-00-997-8026	81349	M39012/24-0002
C-3	24	5980-01-178-0898	28480	HLMP-3507
C-3	25		A3026	DDMY-43W25
C-3	26		71785	DM53740-5008
C-3	27		58189	555146-074
C-3	28		A3026	4-A2155.0009//D
C-3	29		A3026	503.10.0445.000/ /N
C-3	30		A3026	4-A2161.0000//D
C-3	31	5940-00-804-0365	96906	MS25036-146
C-3	32		A3026	4-A2158.0000//D
C-3	33		59730	TY23M(MS3367-4)
C-3	34		A3026	4-94409.0000//B
C-3	35	5940-00-143-4771	96906	MS25036-103
C-3	36		A3026	3-A2131.0000//D
C-3	37	5310-00-595-6211	96906	MS15795-803

## CROSS REFERENCE INDEXES

FIG.	ITEM	FIGURE AND ITEM NUMBER INDEX STOCK NUMBER	CAGEC	PART NUMBER
C-3	38		A3026	3-75883-001
C-3	39		A3026	3-10311-003
C-3	40	5905-01-244-6853	58135	RJ150-50
C-3	41		A3026	3-A2147.0000//D
C-3	42	5305-00-054-5647	96906	MS51957-13
C-3	43	5905-00-106-3666	81349	RCR07G103JS
C-3	44		A3026	4-B3047.0000//C
C-3	45		81349	M38510/10706BYA
C-3	46	5999-01-276-5655	80063	A3027095-1
C-3	47		A3026	3-90391.0000//B
C-3	48		A3026	1-94392.0000//B
C-3	49		A3026	2-A2146.0000//D
C-3	50	5305-00-054-5649	96906	MS51957-15
C-3	51		80063	A3027823
C-3	52		A3026	4-A2151.0000//C
C-3	53		A3026	3-10539.0013//C
C-3	54		A3026	3-94361.0000//B
C-3	55	5305-00-054-5648	96906	MS51957-14
C-3	56		A3026	3-A2160.0000//D
C-3	57	5940-00-578-3484	98291	011-2004
C-3	58	5961-00-965-9594	81349	JAN1N3957
C-3	59	5940-01-276-7162	80063	A3026908-6
C-3	60		A3026	4-51249.0000//C
C-3	61	5305-00-054-5651	96906	MS51957-17
C-3	62	5910-00-113-5284	81349	M39014/02-1358
C-3	63	5910-00-010-8717	81349	M39014/01-1593
C-3	64		A3026	1-A2145.0000//D
C-3	65	5307-01-188-5229	81349	M63540/1-9C
C-3	66		80063	A3026906-3
C-3	67	5307-01-194-3198	81349	M63540/1-6C
C-4	1		81349	JAN1N4454-1
C-4	2	5910-00-113-5276	81349	M39014/01-1351
C-4	3	5910-00-010-8717	81349	M39014/01-1593
C-4	4	5910-00-124-0659	81349	M39014/01-1575
C-4	5	5910-00-113-5515	81349	M39014-01-1333
C-4	6	5962-01-069-3045	81349	M38510/10901BPB
C-4	7	5962-00-318-2223	81349	M38510/00104BCB
C-4	8		04713	MC6802S
C-4	9		A3026	4-59176.0107//P
C-4	10	5962-01-101-1050	81349	M38510/32202BEB
C-4	11		01295	SN7442J
C-4	12	5962-01-151-4506	04713	6821/BQAJC
C-4	13		04713	MC14490L
C-4	14	5962-01-033-2282	02735	CD4050BD/3
C-4	15	5962-01-110-5628	02735	CD4027BE
C-4	16		02735	7901401EB
C-4	17	5962-00-369-9839	81349	M38510/00803BCB
C-4	18		81349	JAN2N2222A
C-4	19	5905-01-035-5065	81349	RCR05G103JS
C-4	20	5905-00-421-8918	81349	RCR05G302JS
C-4	21	5905-00-458-9500	81349	RCR05G102JS

## CROSS REFERENCE INDEXES

FIG.	ITEM	FIGURE AND ITEM NUMBER INDEX STOCK NUMBER	CAGEC	PART NUMBER
C-4	22	5905-00-458-9347	81349	RCR05G124JS
C-4	23	5905-00-177-7486	81349	RCR05G221JS
C-4	24	5905-00-111-4738	81349	RCR20G152JS
C-4	25	5905-00-195-4074	81349	RCR05G105JS
C-4	26	5905-00-617-5091	81349	RCR05G472JS
C-4	27	5905-00-458-9346	81349	RCR05G104JS
C-4	28	5905-00-197-0224	81349	RCR05G511JS
C-4	29	5905-00-413-1200	81349	RCR05G203JS
C-4	30		80063	A3026810-1
C-4	31		06726	ICN-406-S5-G
C-4	32		06726	ICN-246-S4-G
C-4	33		80063	A3034571-3
C-4	34		A3026	4-A2151.0000//C
C-4	35		58189	666273-074
C-5	1	5910-00-010-8717	81349	M39014/01-1593
C-5	2		81349	CLR65BB560KGL
C-5	3	5910-01-100-8108	31433	T370-D106M020AS
C-5	4		31433	T372B225M010AS
C-5	5		31433	T372E336M006AS
C-5	6	5910-00-143-0501	81349	M39014/02-1332
C-5	7	5910-00-113-5284	81349	M39014/02-1358
C-5	8		A3026	696017.180//K
C-5	9	5962-01-195-1993	06481	971325-2102
C-5	10	5962-01-164-8741	07933	RM3503ADC3
C-5	11	5962-01-274-1575	55154	SL6270C-CM
C-5	12	5962-01-033-2282	02735	CD4050BD/3
C-5	13	5962-00-369-9839	81349	M38510/00803BCB
C-5	14	5905-00-470-9481	81349	RCR05G202JS
C-5	15	5905-01-161-7274	81349	RJR26FW503R
C-5	16	5905-00-689-1290	81349	RCR05G512JS
C-5	17	5905-00-195-4074	81349	RCR05G105JS
C-5	18	5905-01-184-3510	81349	RJR26FW103R
C-5	19	5905-01-035-5065	81349	RCR05G103JS
C-5	20	5905-00-235-3534	81349	RCR32G681JS
C-5	21	5950-01-078-6496	81349	M27/70-10
C-5	22	5999-01-194-9729	81349	M38527/02-017D
C-5	23	5999-01-080-1971	81349	M38527-1-18B1
C-5	24		80063	A3034571-3
C-5	25		A3026	4-A2151.0000//C
C-5	26		58189	666273-074
C-6	1	5910-00-166-6757	81349	M39014/01-1568
C-6	2	5910-00-113-9448	81349	M39014/01-1354
C-6	3	5910-00-098-9242	81349	M39014/01-1566
C-6	4		81349	CKR05BX271KP
C-6	5	5910-00-143-0501	81349	M39014/02-1332
C-6	6	5950-00-031-4557	96906	MS75084-12
C-6	7	5895-01-185-5408	80063	A3030174
C-6	8		A3026	4-80886.0000//C
C-6	9		A3026	4-B0887.0000//C
C-6	10		A3026	4-B0890.0000//C
C-6	11		58189	666273-074

## CROSS REFERENCE INDEXES

FIG.	ITEM	FIGURE AND ITEM NUMBER INDEX STOCK NUMBER	CAGEC	PART NUMBER
C-7	1	5935-00-948-2792	71468	DD51217
C-7	2	5999-00-021-2119	18876	9073891-3
C-7	3		A3026	DDMY-43W25
C-7	4	5935-00-402-1519	96214	531740-1
C-7	5		71785	DM53740-5008
C-7	6	5935-00-896-9910	18876	10125334-2
C-8	1		71468	DB51213-1
C-8	2	5935-00-489-9999	81349	M24308/4-3
C-8	3	5935-00-905-2740	71468	DD51223-1

C-I-9

**GLOSSARY**

Section I. ABBREVIATIONS AND ACRONYMS

AGC.....	Automatic Gain Control
ATU.....	Antenna Tuning Unit
BCD.....	Binary Coded Decimal
BITE.....	Built-In-Test Equipment
CCA.....	Circuit Card Assembly
CMOS.....	Complementary Metal Oxide Semiconductor
CPU.....	Central Processing Unit
CW.....	Continuous Wave
dBm.....	Decibels measured in milliwatts
DMM.....	Digital Multimeter
ECCM.....	Electronic Counter-Counter Measures
EIR.....	Equipment Improvement Recommendations
EPROM.....	Erasable Programmable Read Only Memory
FH.....	Frequency Hopping
FO.....	Fold-Out
GND.....	Ground
Hz.....	Hertz
IAW.....	In Accordance With
IC.....	Integrated Circuit
IF.....	Intermediate Frequency
KHz.....	Kilohertz
Kohms.....	Kilohms
LED.....	Light-emitting Diode
LSB.....	Lower Sideband
MAC.....	Maintenance Allocation Chart
MDCS.....	Maintenance Data Collection Subsystem
MHz.....	Megahertz
MIL STD.....	Military Standard
mSec.....	milliseconds
mV.....	milliVolts
MWO.....	Modification Work Order
NSN.....	National Stock Number

P/N.....	Part Number
PA.....	Power Amplifier
PTT.....	Push-To-Talk
R/E.....	Receiver/Exciter
RF.....	Radio Frequency
ROD.....	Report of Discrepancy
RPSTL.....	Repair Parts and Special Tools List
RX.....	Receive
SRA.....	Special Repair Activity
TCL.....	Tone Converter Logic
TDR.....	Transportation Discrepancy Report
TP.....	Test Point
TTL.....	Transistor to Transistor Logic
TX.....	Transmit
USB.....	Upper Sideband
UUT.....	Unit-Under-Test
VCO.....	Voltage Controlled Oscillator
VDC.....	Volts Direct Current
VSWR.....	Voltage Standing Wave Ratio
W.....	Watt

**GLOSSARY-2**

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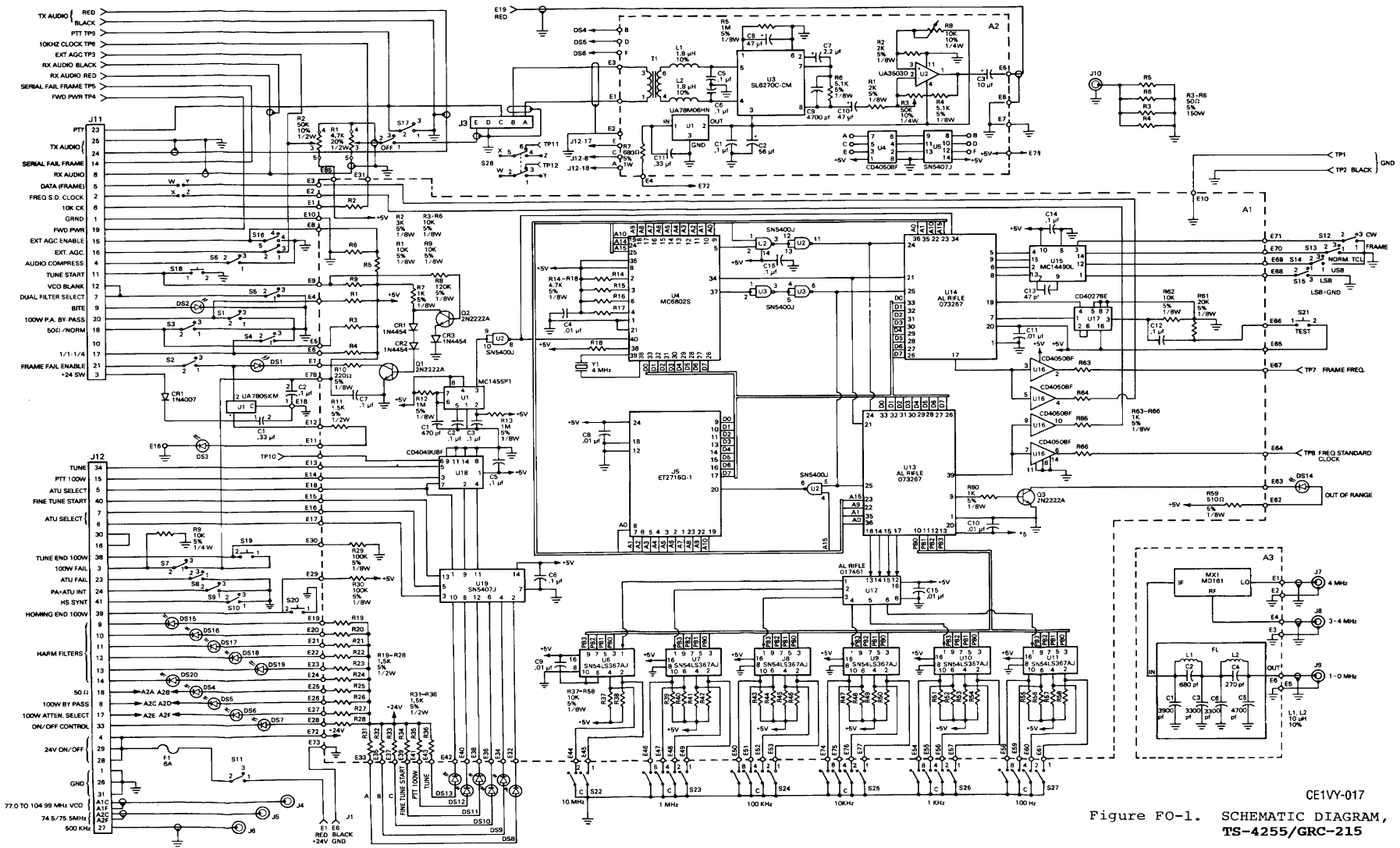
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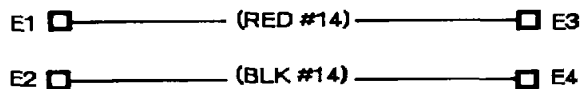
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Figure FO-1. SCHEMATIC DIAGRAM, TS-4255/GRC-215

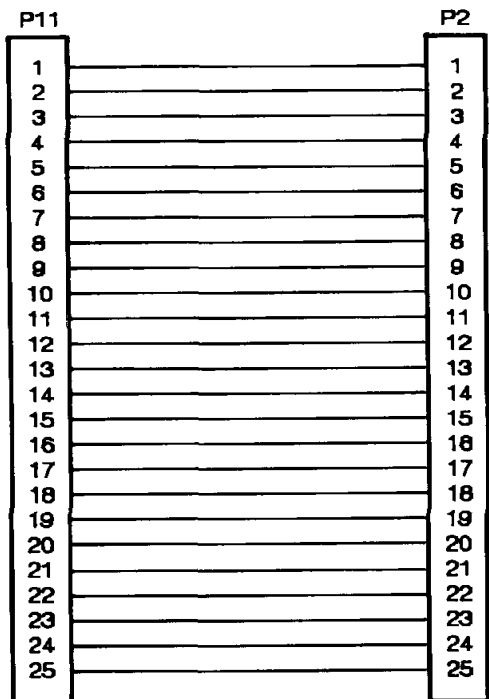
Figure FO-1. SCHEMATIC DIAGRAM,

TS-4255/GRC-215

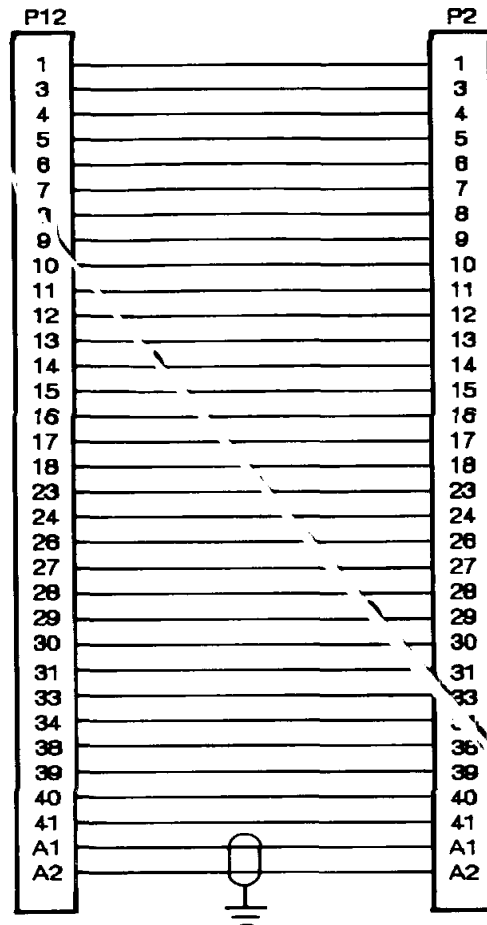




**SCHEMATIC  
CABLE ASSEMBLY W1  
DC POWER**



**PIN ASSIGNMENTS FOR  
CABLE ASSEMBLY W68**



**PIN ASSIGNMENTS FOR  
CABLE ASSEMBLY W67**

CE1VY-018

Figure FO-2. PIN ASSIGNMENTS, CABLE ASSY W1, W67, and W68.

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