TECHNICAL MANUAL

MAINTENANCE INSTRUCTIONS
WITH
ILLUSTRATED PARTS BREAKDOWN

DEPOT

RADIO SET AN/PRC-128 PN 901608-801
RP POWER AMPLIFIER PN901603-801
ADAPTER GROUP OF-185/PRC 901602-801

Magnavox Electronic Systems Company
F19628-87-C-0264
F09603-94-D-1349

BASIC AND ALL CHANGES HAVE BEEN MERGED TO MAKE THIS A COMPLETE PUBLICATION

PUBLISHED UNDER AUTHORITY OF THE SECRETARY OF THE AIR FORCE

AFMC RAFB, GA

1 JANUARY 1991

CHANGE 2 – 18 NOVEMBER 1999

LIST OF EFFECTIVE PAGES

INSERT LATEST CHANGED PAGES. DESTROY SUPERSEDED PAGES.

NOTE: The portion of the text affected by the changes is indicated by a vertical line in the margins of the page. Changes to illustrations are indicated by miniature pointing hands. Changes to wiring diagrams are indicated by shaded areas.

Dates of issue for original and changed pages are:

Original ..... 0...... 1 Jan 91
Change ..... 1.... 27 Mar 92
Change..... 2.... 18 Nov 99

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 394 CONSISTING OF THE FOLLOWING:

Page No.	*Change No.
Title	**2**
A	**2**
i – iv	0
S-1 – S-3	0
1-0 – 1-9	0
1-10 Blank	0
2-1	0
2-2 Blank	0
3-1 – 3-3	0
3-4 Blank	0
4-1 – 4-23	0
4-24 Blank	0
5-1 – 5-126	0
5-127	**2**
5-128 Added	**2**
6-1 – 6-6	0
6-7 Blank	0
6-8 – 6-9	0
6-10 – 6-11	**2**
6-12 – 6-13	0
6-14	1
6-15 – 6-90	0
6-91	1
6-92 – 6-105	0
6-106 Blank	0
6-107 – 6-111	0
6-112	**2**
6-113 – 6-115	0
6-116 Blank	0
6-117 – 6-128	0
7-1 – 7-18	0
Index-1 – Index-5	0
Index-6 Blank	0
FP-1	0
FP-2 Blank	0
FP-3	0
FP-4 Blank	0
FP-5	0
FP-6 Blank	0
FP-7	0
FP-8 Blank	0
FP-9	0
FP-10 Blank	0
FP-11	0
FP-12 Blank	0
FP-13	0
FP-14 Blank	0
FP-15	0
FP-16 Blank	0
FP-17	0
FP-18 Blank	0
FP-19	0
FP-20 Blank	0
FP-21	0
FP-22 Blank	0
FP-23	0
FP-24 Blank	0
FP-25	0
FP-26 Blank	0
FP-27	0
FP-28 Blank	0
FP-29	0
FP-30 Blank	0
FP-31	0
FP-32 Blank	0
FP-33	0
FP-34 Blank	0
FP-35	0
FF-36 Blank	0
FP-37	0
FP-38 Blank	0
FP-39	0
FP-40 Blank	0
FP-41	0
FP-42 Blank	0
FP-43	0
FP-44 Blank	0
FP-45	0
FP-46 Blank	0
FP-47	0
FP-48 Blank	0
FP-49	0
FP-50 Blank	0
FP-51	0
FP-52 Blank	0
FP-53	0
FP-54 Blank	0
FP-55	0
FP-56 Blank	0
FP-57	0
FP-58 Blank	0
FP-59	0
FP-60 Blank	0
FP-61	0
FP-62 Blank	0

*Zero in this column indicates an original page.

USAF

TABLE OF CONTENTS

TABLE OF CONTENTS - CONT

LIST OF ILLUSTRATIONS

LIST OF TABLES

FORWARD

This manual provides depot level maintenance instructions for Receiver-Transmitter PN 901608-801. RF Power Amplifier PN 901603-801 and Adapter Group PN 901602-801. Chapter 1 contains essential general information. Chapter 2 contains installation data. Chapter 3 contains preparation for use and reshipment data. Chapter 4 contains sufficient theory of operation adequate for the maintenance technician. Chapter 5 contains information and instructions necessary for the maintenance technician to fault isolate to the lowest replaceable level for each assembly. Chapter 5 is broken down into three parts; Part I, Receiver-Transmitter Maintenance, Part II, Power Amplifier Maintenance and Part III, Power Supply/Audio Maintenance. Chapter 6 contains the illustrated parts breakdown. Chapter 7 contains chassis wire lists and a list of circuit diagrams. This manual was prepared in accordance with MIL-STD-38784B, MIL-STD-38798B, and MIL-M-38807A with TM-86-01 tailoring.

TERMS AND ABBREVIATIONS

The following list of terms/abbreviations and their definitions are used throughout this manual.

ALC	Automatic Level Control
EEPROM	Electrically Erasable programmable read only memory
EOL	End of Life
ESD	Electrostatic Sensitive Device
HB LP	High Band Low Pass
IF	Intermediate Frequency
IFM	Incidental Frequency Modulation
LB LP	Low Band Low Pass
LBSR/HB	Low Band Short Range/High Band
LBLR	Low Band Long Range
LO	Local Oscillator
NICAD	Nickel-Cadmium
PA	RF Power Amplifier
PLL	Phased-locked-loop
PS/A	Power Supply/Audio
PTT	Push To Talk
PUT	Programmable Unijunction Transistor
RF/IF	Radio Frequency/Intermediate Frequency
ROM	Read Only Memory
RT	Receiver-Transmitter
SINAD	Signal+Noise+Distortion/Noise+Distortion (expressed in dB=20 log S+N+D/N+D)
SVM	Secure Voice Module
Synth/AF	Synthesizer/Audio Frequency
VA	Vehicular Adapter
VWSR	Voltage Standing Wave Ratio
VCO	Voltage-controlled Oscillator

SAFETY SUMMARY

The following are general safety precautions and instructions that must be understood and applied during many phases of operation and maintenance to ensure personal safety and health and the protection of Air Force property. Portions of this may be repeated elsewhere in this publication for emphasis.

WARNING AND CAUTION STATEMENTS

WARNING and CAUTION statements have been strategically placed throughout this text prior to operating or maintenance procedures, practices or conditions considered essential to the protection of personnel (WARNING) or equipment and property (CAUTION). A WARNING or CAUTION will apply each time the related step is repeated. Prior to starting any task, the WARNINGS or CAUTIONS included in the text for that task shall be reviewed and understood.

DO NOT SERVICE ALONE

Do not attempt internal service or adjustment of equipment unless another person capable of rendering aid and resuscitation is present.

DO NOT WEAR JEWELRY

Remove rings, watches, and other metallic objects which may cause shock or burn hazards.

FINGER RINGS

Snagged finger rings have caused many serious injuries. Unless specifically allowed by shop safety procedures, remove finger rings during all maintenance activity.

RESUSCITATION

Personnel working with or near dangerous voltage shall be trained in modern methods of resuscitation. Information and training sources may be obtained from the Director of Base Medical Services.

ELECTROSTATIC DISCHARGE (ESD)

Certain circuit card assemblies and their components will be damaged by seemingly undetectable electrostatic discharge. Care must be exercised during handling/repair of these items. Use electrostatic discharge (ESD) precautionary procedures outlined in TO 00-25-234, DOD-STD-1686, and DOD-HKBK-263.

WARNING

Avoid breathing fumes generated by soldering. Eye protection is required. Page 5-37, 5-86, 5-87, 5-88.

CAUTION

The input power supply must be current limited to 400 mAdc or damage to RT may result. Page 5-2, 5-19, 5-40, 5-42, 5-46.

CAUTION

Do not key RT for extended periods of time for the following tests or damage to RT may result. Page 5-9, 5-26.

CAUTION

Do not press RT PUSH TO TALK switch or set test adapter TRANSMIT switch to ON for the following receiver tests or damage to test equipment or RT may result. Page 5-14, 5-30.

CAUTION

The Synth/AF and RF/IF modules and Frame/Panel assembly (with modules removed) are subject to damage by static electricity. Observe precautions for handling electrostatic sensitive devices (ESD) as outlined in TO 00-25-234. Page 5-37.

CAUTION

Handle power supply (item 3) carefully as damage to pins may result. Page 5-85.

CAUTION

Do not bend pins on connector P3 (Item 7) when removing filter from amplifier. Page 5-86.

CAUTION

Amplifier Q8 and Q9 heatsinks and mating surfaces of heatsink assembly must be free of foreign material or damage to amplifier may result from overheating. Page 5-87.

CAUTION

Do not tighten hardware for Q8 and Q9 unless amplifier module is properly installed on heatsink. Page 5-87.

CAUTION

Do not bend pins on connector P3 (Item 7) when installing filter to amplifier. Page 5-87.

CAUTION

Insure thermal pad stays flat in bottom of chassis against heatsink surface or damage to amplifier may result. Page 5-88.

CAUTION

Inspect for and remove any foreign material found on thermal pad and mating surfaces of amplifier/filter or damage to amplifier may result. Page 5-88.

CAUTION

Caution must be observed in the following step as the PS/A module will drop from chassis when screws are removed. Page 5-125.

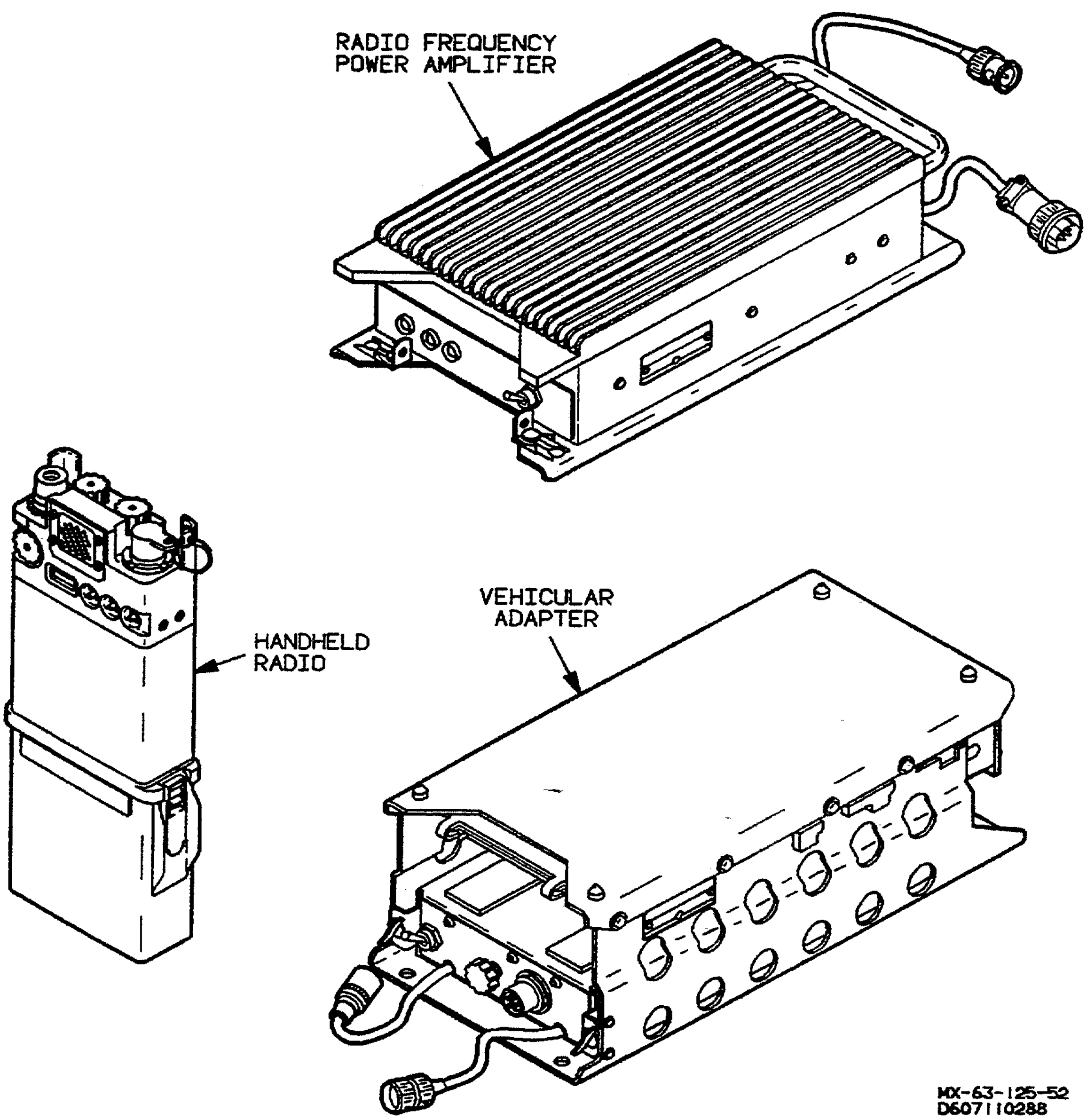


Figure 1-1. Scope Shield Communications System

CHAPTER 1

GENERAL INFORMATION

1-1 DESCRIPTION AND PURPOSE.

The Scope Shield Radio System consists of the following; Adapter Group OF-185/PRC (VA), radio frequency power amplifier (PA), and AN/PRC-128 handheld radio (PRC). The items repairable at depot level are the power supply/audio (PS/A) assembly of the VA, the complete PA (including alternate module) and the RT portion of the PRC/128 (including alternate module).

1-1.1 PRC-128 Description. The AN/PRC-128 radio system (PRC) consists of the following: a receiver/transmitter (RT), low band long range (LBLR) antenna; low band short range/high band (LBSR/HB) antenna; low band (30 to 88 MHz) and high band (130 to 174 MHz) RF/IF modules (one installed, other is alternate); carrying pouch; lanyard; and two rechargeable nickel-cadmium (NICAD) batteries. The PRC is a two-band handheld receiver-transmitter. The PRC provides short range, ground-to-ground voice communications in the low VHF-FM (30 to 88 MHz) and high VHF-FM (130 to 174 MHz) bands.

1-1.1.1 10-channel Operator Programmable-frequency Capability. The RT stores up to ten programmed channels (12.5 kHz increments) anywhere in the operating frequency range. A programmed RT can program another radio with channel/frequency information via a frequency transfer cable.

1-1.1.2 Antenna Matching Switch. The thumbwheel switch selects the proper antenna matching network for the transmit frequency. The "50" position provides a direct 50 ohm interface for test use. The "50" position is used for 130 to 174 MHz operation or with any 50 ohm external antenna. An antenna warning tone is activated if the switch position is incorrect with respect to the operating frequency.

1-1.1.3 Warning Tones. The RT generates two separate warning tones; a low battery tone and an antenna mismatch tone.

1-1.1.4 Liquid Crystal Display. A five-digit display indicates frequency, operational mode, and programming information to the operator.

1-1.1.5 Half-duplex Operation. The PRC can transmit and receive utilizing a separate frequency for each channel programmed in the half-duplex mode.

1-1.2 RF Power Amplifier Description. The RF Power Amplifier (PA) provides transmit rf amplification of approximately +10 dB (15 watts nominal output) in the frequency range of 30 to 88 MHz (30 to 88 MHz amplifier/filter installed) and 130 to 174 MHz (130 to 174 MHz amplifier/filter installed).

1-1.3 Power Supply/Audio Description. The Power Supply/Audio (PS/A) assembly conditions the vehicular input power to provide RT and PA operating power, RT battery charging current, and amplified RCV audio for a remote speaker.

1-2 LEADING PARTICULARS.

Refer to table 1-1 for a lists of all the leading particulars of the three major assemblies of the radio system to be repaired at the depot level.

Table 1-1. Leading Particulars

Leading particular	Receiver-transmitter	Power amplifier	Vehicular adapter
PRIMARY POWER	14.5 Vdc	26.5 Vdc	12/24 Vdc
WEIGHT	50 oz	6.9 lb	6.7 lb
DIMENSIONS			
Width	3.78 in	6.30 in	6.25 in
Height	9.97 in	2.90 in	4.70 in
Depth	1.52 in	12.35 in	12.65 in
STORAGE CONDITIONS			
Temperature	-45 to +70 deg. C	-45 to +70 deg. C	-45 to +70 deg. C

1-3 CAPABILITIES AND LIMITATIONS.

Refer to table 1-2 for a list of all the capabilities and limitations of the three major assemblies of the radio system to be repaired at the depot level.

Table 1-2. Capabilities and Limitations

RT GENERAL CHARACTERISTICS	
Frequency ranges..................	30.0000 to 87.9875 MHz and 130.0000 to 173.9875 MHz
Minimum channel spacing...........	25 kHz (+/- 25 kHz spacing to operate; can program in 12.5 kHz increments)
Available channels................	4640 (30-88 MHz band), 3520 (130-174 MHz band)
Preset channels...................	10 (stored in non-volatile memory)
Operating modes...................	Clear Voice (Simplex and Half Duplex) FM
Operating voltage.................	11 to 16 Vdc, 400 mAdc maximum.
Low battery warning tone..........	Four 400 Hz beeps at six second intervals when battery voltage drops below preset level
Antenna mismatch tone.............	1000 Hz tone at 2 second intervals if selected operating frequency and ANT match switch position do not agree

Table 1-2. Capabilities and Limitations - CONT

RT RECEIVER CHARACTERISTICS

Sensitivity	0.5 microvolts for 12 dB SINAD*
Selectivity (+/- 25 kHz)	-50 dB for 30-88 MHz, -60 dB for 130-174 MHz
Squelch sensitivity	0.5 microvolts (maximum), noise operated
Spurious response	-60 dB
IF rejection	-60 dB
Audio output	
Power	100 mW (nominal) into 47 ohms
Distortion (@ 100 mW)	10% (maximum)
Frequency response	300 to 3000 Hz (+1, -6 dB)
Hum and noise	
Unsquelched	30 dB below rated audio out
Squelched	50 dB below rated audio out

$$\text{* SINAD} = \frac{\text{Signal + Noise + Distortion}}{\text{Noise + Distortion}}$$

RT TRANSMITTER CHARACTERISTICS

Power output	1.0 watt (minimum into 50 ohms)
Spurious harmonic attenuation	43 dB below carrier (min.)
Frequency stability	5 ppm (maximum) of operating frequency
Audio	
Frequency response	300 to 3000 Hz (+1, -4 dB)
Harmonic distortion	10% (maximum)
Modulation	+/-3 kHz, limited at 5 kHz (130-174 MHz) +/-4.5 kHz limited at 7.5 kHz (30-88 Mhz)
FM hum and noise	30 dB below nominal deviation level (Low Band only)
Squelch tone	150 +/- 2Hz

PA CHARACTERISTICS

Frequency ranges	30.0000 to 87.9875 MHz and 130.0000 to 173.9875 MHz
Input power	25 - 28 Vdc, 3.0 Adc maximum
RF Power Output (50 ohm load)	BYPASS mode; 1 watt (ref. rf input) AMPL mode; 10 watts minimum, 20 watts maximum (internal adjust)
Spurious harmonic attenuation	60 dB below carrier (minimum)
Reference rf input level	0.25 watts minimum from RT
RCV mode signal loss	1.0 dB max

Table 1-2. Capabilities and Limitations - CONT

PS/A CHARACTERISTICS	
Input power	10 to 32 Vdc; 150 watts max.
Output power	14.5 to 15.5 Vdc @ .5 Adc max (RT). 26.0 to 27.0 Vdc @ 3.0 Adc max (PA).
Charger current	
Nominal	30 mA
Short-circuit	90 mA
RCV Audio Output	
Power	2.0 watts nominal into 8 ohms
Distortion @ 2.0 Watts	10.0 % maximum

OPERATING CONDITIONS	
Low temperature	-30 deg. C
High temperature	+55 deg. C
Relative humidity	
(40 deg. C)	95%
Altitude	15,000 ft

1-4 EQUIPMENT SUPPLIED.

The items listed in table 1-3 are supplied to assist in the troubleshooting and repair of the radio system major components.

Table 1-3. Equipment Supplied

Nomenclature	Common name	Part number
Receiver Transmitter	RT	901609-801
RF Power Amplifier	PA	901603-801
Power Supply Audio Assembly	PS/A	721605-801
Power Cable Assembly	Power Cable	420979-801

1-5 EQUIPMENT REQUIRED BUT NOT SUPPLIED.

The following table contains equipment such as cables, components and local manufactured items required to perform testing and troubleshooting. The parts and wiring diagrams required for local manufactured items are contained in chapter 7.

Table 1-4. Equipment Required But Not Supplied

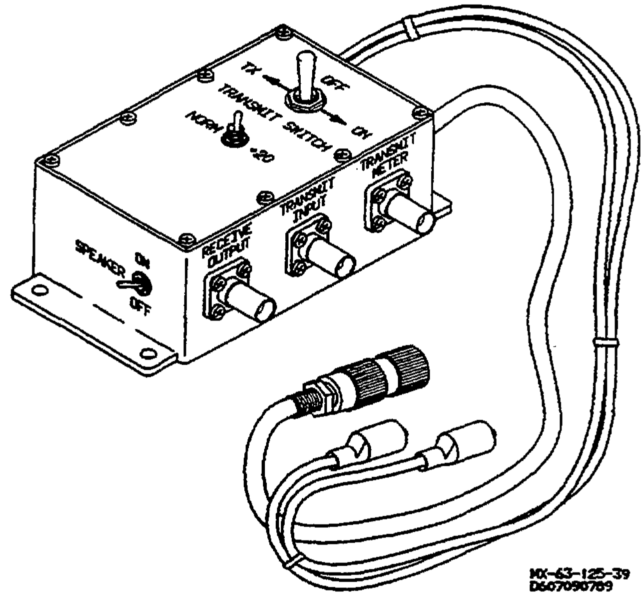
Item required	Part number	Description/length
Antenna adapter	914598-801	50 ohm BNC to RT
PA Power Supply test cable	local manufacture	6 to 8 inches
PA Filter test cable	local manufacture	6 to 8 inches
PA Amp/Filter test cable	local manufacture	6 to 8 inches
PS/A PA test cable	local manufacture	24 to 30 inches
PS/A Audio test cable	local manufacture	24 to 30 inches
PS/A Speaker test cable	local manufacture	24 to 30 inches
PS/A Charger test cable	local manufacture	24 to 30 inches
Diode (PS/A Charger)	1N4469	15V, 1W zener
Resistor (PA RCV Load)	VP25K75R	75 ohms, 25 watt
Resistor (PA XMIT Load)	VK100N10R	10 ohms, 100 watt
Resistor (PA Surge Load)	VP50K15R	15 ohms, 50 watt
Resistor (RT RCV Load)	RCR32G301JS	300 ohms, 1 watt
Resistor (RT XMIT Load)	RCR42G121JS (3 EACH)	40 ohms, 6 watt
Resistor (RT Surge Load)	RCR42G121JS	120 ohms, 2 watt
Resistor (PS/A Speaker)	RCR42G160JS (2 EACH)	8 ohms, 4 watt
Resistor (RCV AF Input)	RCR20G102JS	1k ohms, .5 watt

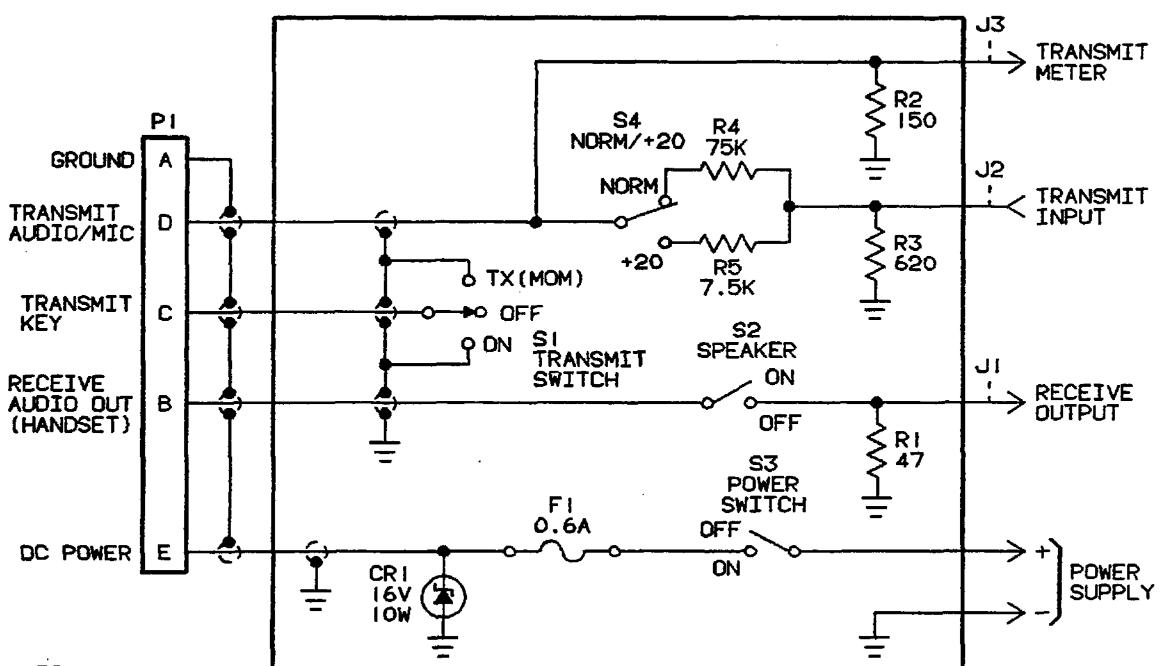
1-6 SPECIAL TOOLS AND TEST EQUIPMENT.

Figure 1-2 illustrates the Audio/Power Test Adapter, PN 421378-802. All other test equipment is listed in table 1-5.

SPECIAL TOOLS LIST

Part (Tool) Number	Mfr Code or Name/ Address	Figure & Index No.	Nomenclature	Use
421378-802	37695	N/A	Audio/Power Test Adapter	Provides the interface between the RT and common test equipment.





NOTE
RESISTANCE VALUES ARE IN OHMS, 1/4 WATT, ±5% TOL.

MX-63-125-25A
D607090789

QTY	MFC	PART NUMBER	DESCRIPTION	QTY	MFC	PART NUMBER	DESCRIPTION
1	81349	RLR07C1500GS	RESISTOR, R2	3	09353	7101	SWITCH, S2,3,4
1	81349	RLR07C47R0GS	RESISTOR, R1	3	05276	2451	CONNECTOR, J1,2,3
1	81349	RLR07C6200GS	RESISTOR, R3	1	71400	187016-1	FUSEHOLDER
1	81349	RLR07C7502GS	RESISTOR, R4	2	25330	F02A250V6A	FUSE
1		RLR07C75001GS	RESISTOR, R5	1	81349	186037-3	CONNECTOR
1	81349	JAN1N2980B	DIODE, CR1	AR	81349	M17/93-0001	CABLE, RF
1	15605	8815K10/ST42H	SWITCH, S1	AR		M17/113-RG-316	CABLE, COAXIAL

Figure 1-2. Audio/Power Test Adapter

Table 1-5. Test Equipment

Alternate type designation	Type designation	Figure & index no.	Use
Bird 4275-020 RF Sampler	Equivalent	N/A	Provides -45 dB attenuation for XMIT RF sample output.
Boonton 92D RF Millivoltmeter	Equivalent	N/A	Used to measure low level rf.
Fluke 8010A Digital Multimeter	Equivalent	N/A	Used to measure DC voltage, resistance and current.
Hewlett-Packard 334A Distortion Analyzer	Equivalent	N/A	Used to measure distortion, Vrms and SINAD.
Hewlett-Packard 5383A Frequency Counter	Equivalent	N/A	Used to measure frequency.
Hewlett-Packard 8754A Network Analyzer	Equivalent	N/A	Used to measure VSWR, stopband and passband attenuation.
Hewlett-Packard 8502A T/R Test Set	Equivalent	N/A	Mates with Network Analyzer.
Hewlett-Packard 11851B RF Cable Set	Equivalent	N/A	Mates with T/R test set.
Hewlett-Packard 8482B Power Sensor	Equivalent	N/A	Mates with rf power meter. Provides 50 ohm interface and 30 dB attenuation.
Hewlett-Packard 436A Power Meter	Equivalent	N/A	Used to measure rf power.
Hewlett-Packard 8558B Spectrum Analyzer	Equivalent	N/A	Used to measure harmonics.
Hewlett-Packard 853A Spectrum Analyzer Display	Equivalent	N/A	Mates with spectrum analyzer. Provides display.
Hewlett-Packard 41800A RF Probe	Equivalent	N/A	Mates with spectrum analyzer.
Hewlett-Packard 8640B Signal Generator	Equivalent	N/A	Provides rf modulated signal.

Table 1-5. Test Equipment - CONT

Alternate type designation	Type designation	Figure & index no.	Use
Wavetek 182 Function Generator	Equivalent	N/A	Provides audio signal.
Racal-Dana 9008 Modulation Meter	Equivalent	N/A	Used to measure fm deviation.
Tektronix 465B Oscilloscope	Equivalent	N/A	Used to measure waveforms.
Hewlett-Packard 6274B Power Supply	Equivalent	N/A	Provides 0 to 40 Vdc @ 25 Adc.
Hewlett-Packard 6216C Power Supply	Equivalent	N/A	Provides 0 to 25 Vdc @ 400 mAdc.

1-7 RELATED TECHNICAL MANUALS.

Table 1-6 lists the related technical manuals that may be required to support in troubleshooting and repairing the radio system major components.

Table 1-6. Related Technical Manuals

Publication no.	Publication title	Equipment nomenclature
31R2-4-810-1	Technical Manual, Operation and Maintenance Instructions with Illustrated Parts Breakdown, Organizational, Radio Set AN/PRC-128	AN/PRC-128
31R2-4-811-1	Technical Manual, Operation and Maintenance Instructions with Illustrated Parts Breakdown, Organizational, Adapter Group OF-185/PRC and RF Power Amplifier	OF-185/PRC

CHAPTER 2

INSTALLATION

Section I. INSTALLATION LOGISTICS

2-1 INSTALLATION LOGISTICS.

Refer to TO 31R2-4-810-1 and 31R2-4-811-1.

Section II. INSTALLATION PROCEDURES

2-2 INSTALLATION PROCEDURES.

Refer to TO 31R2-4-810-1 and 31R2-4-811-1.

CHAPTER 3

PREPARATION FOR USE AND RESHIPMENT

3-1 PREPARATION FOR USE.

All assemblies repaired must meet the performance standards in Chapter 5 prior to reshipment. Estimated performance test durations of the repairable assemblies are: RT - 1.5 hours, PA - 1.0 hours and PS/A - 1.0 hours.

3-2 PREPARATION FOR RESHIPMENT.

Refer to figure 3-1 for shipping instructions.

3-3 ITEMS REQUIRING SPECIAL ATTENTION.

The items listed in table 3-1 require special handling due to the potential for damage as a result of electrostatic discharge.

Table 3-1. Assemblies Containing Electrostatic Sensitive Devices

Assembly	Part no.
RT RF/IF 30 to 88 MHz	721597-801
RT RF/IF 130 to 174 MHz	721598-801
RT Synthesizer/Audio Frequency	721599-801
RT Frame/Panel	816173-821
PA Power Supply	721619-821
PA 30 to 88 MHz Amplifier/Filter Assembly	721620-801
Amplifier Module 30 to 88 MHz	721621-801
Filter Module 30 to 88 MHz	721622-801
PA 130 to 174 MHz Amplifier/Filter	721620-802
Amplifier Module 130 to 174 MHz	721613-801
Filter Module 130 to 174 MHz	721614-801
PS/A Module	721609-801
PS/A Chassis	721608-801

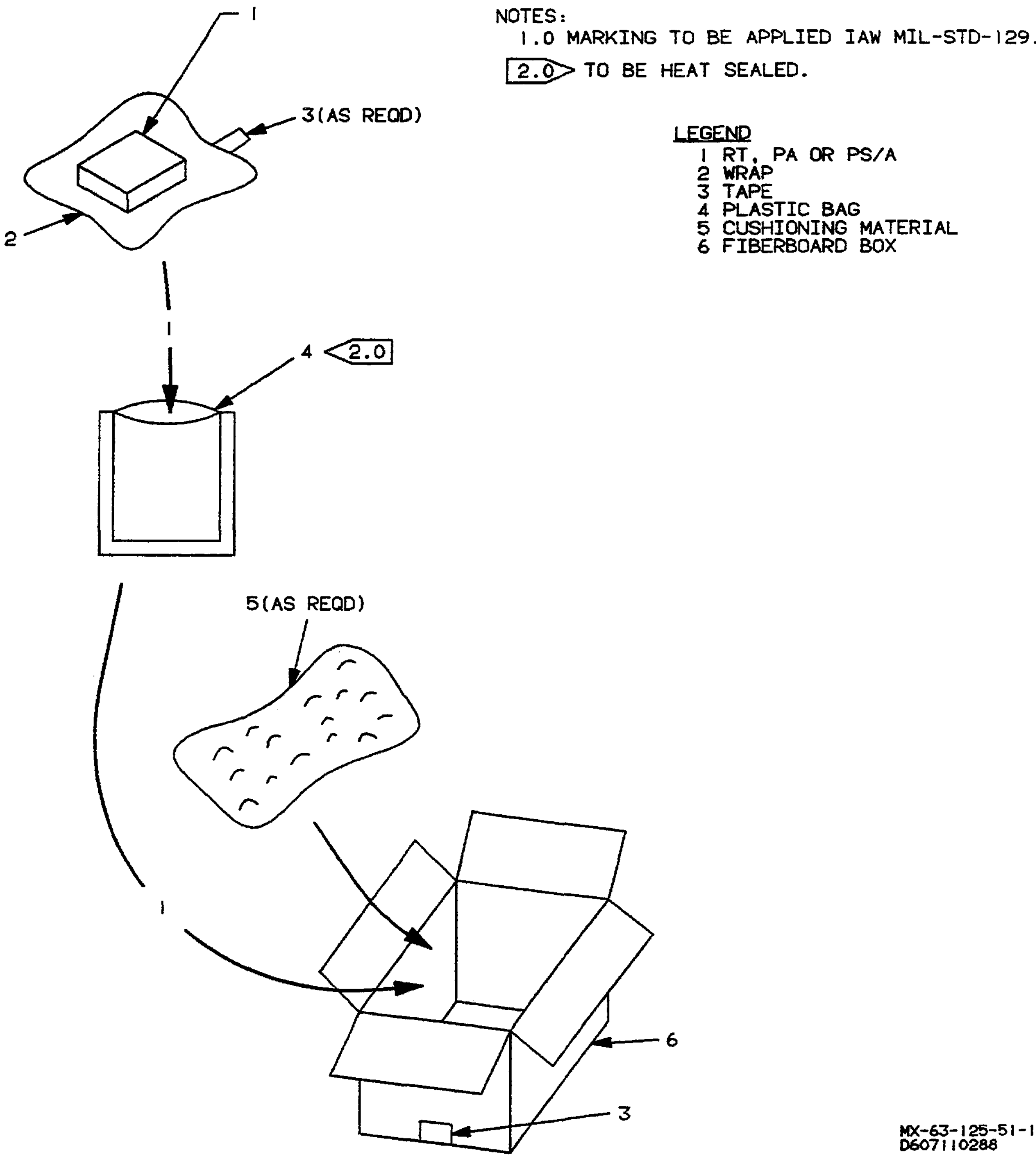


Figure 3-1. General Packing Instructions (Sheet 1 of 2)

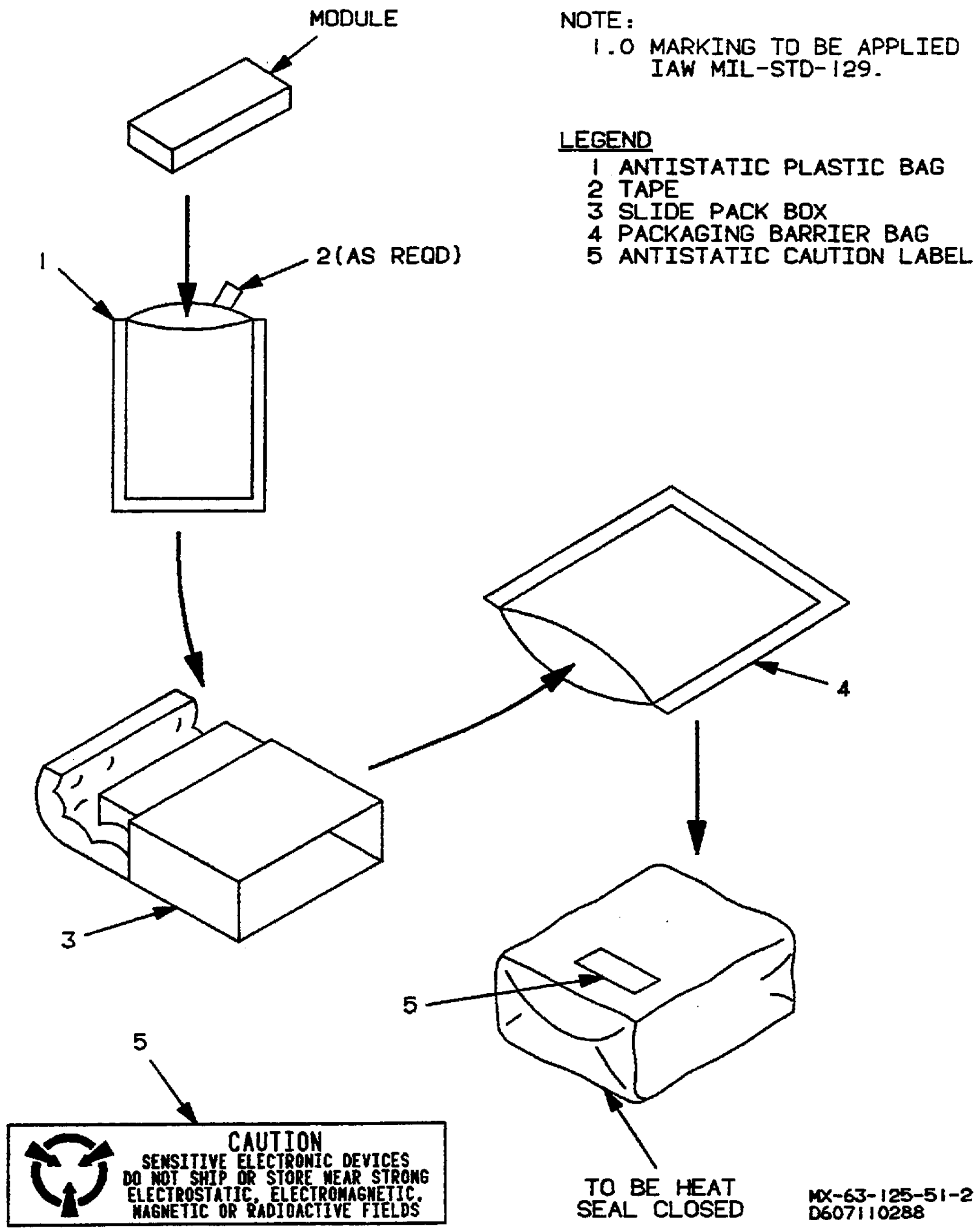


Figure 3-1. General Packing Instructions (Sheet 2 of 2)

CHAPTER 4

OPERATION AND THEORY OF OPERATION

4-1 OPERATION INSTRUCTIONS.

For operation instructions pertaining to the PRC-128 refer to TO 31R2-4-810-1. For operation instructions pertaining to the RF Power Amplifier and Power Supply/Audio assembly refer to TO 31R2-4-811-1.

4-2 RT THEORY OF OPERATION.

The following paragraphs explain RT theory of operation for the Frame/Panel assembly, low band RF/IF module, high band RF/IF module and the Synth/AF module. The frequency range for the low band radio is 30.000 to 87.9875 MHz and the high band radio frequency range is 130.000 to 173.9875 MHz. For general discussion, the low band RF/IF module is referred to as 30 to 88 MHz RF/IF module. The high band RF/IF module is referred to as 130 to 174 MHz RF/IF module. RT component level theory is broken down into circuits that perform separate functions (receive and transmit) and circuits that are used for both functions (synthesizer, voltage-controlled oscillator, voltage-tuned rf stages, and rf filter/matching networks). Special functions (battery saver, 150 Hz squelch tone, low-battery and antenna warning circuits) are also discussed. Foldout schematics at the rear of the manual are referenced. Paragraphs with no foldout schematic reference contain general information.

4-2.1 Receive Operation. The receiver is packaged in the Synth/AF, RF/IF modules and the Frame/Panel assembly. The RF/IF module contains the RF, IF, FM detector, squelch, and wideband audio circuits. The Synth/AF module contains the frequency synthesizer and the narrowband audio circuits which include the speech filter, squelch gate, speaker/headphone amplifier, speaker mute and noise mute. The antenna matching networks are located near the antenna terminal on the Frame/Panel assembly.

4-2.1.1 Antenna Coupler. Refer to FO-1. The antenna coupler networks provide optimum impedance matching and power transfer between the RT antenna and the receiver or transmitter. The networks are divided into five operating bands of 30.000 - 35.9875 MHz (band A), 36.000 - 45.9875 MHz (band B), 46.000 - 53.9875 MHz (band C), 54.000 - 63.9875 MHz (band D) and 64.000 - 87.9875 MHz (band E) and are manually selected with ANT match switch S5. A sixth position on the ANT match switch (50) bypasses all matching networks and allows for direct 50 ohm interface between the receiver or transmitter and an external power amplifier or vehicular antenna. The 50 position is always used whenever the 130 to 174 MHz RF/IF module is installed. The 50 ohm input/output position is also used when troubleshooting or making performance measurements using bench test equipment. If the 50 position is used with a low band RF/IF module, a dc path to ground of 2,000 ohms or less must be provided at the antenna connector for proper operation. The microcontroller located in the Synth/AF module monitors the position of S5 and compares its position with the selected transmit frequency. If S5 is set to the wrong range, the microcontroller generates a warning tone that is heard in the speaker. S5 must be adjusted until the warning tone is disabled. The microcontroller also prevents the RT from transmitting during an antenna mismatch.

4-2.1.2 Low-pass Filters. The 30 to 88 MHz RF/IF module contains two low-pass filters and the 130 to 174 MHz RF/IF module contains one low-pass filter.

4-2.1.2.1 Low-pass Filters (30 to 88 MHz). Refer to FO-3. Low band low-pass (LB LP) A2 and high band low-pass (HB LP) A1 filters are used in both receive and transmit modes of operation. The low band filter range is 30.000 - 50.9875 MHz and the high band is 51.000 - 87.9875 MHz. The appropriate filter network, depending on the operating frequency, is selected by the band control signals from the microcontroller. During receive operation, the filters provide attenuation to out-of-band signals which can cause interference. During transmit, the filters attenuate the harmonics of the transmitter carrier.

4-2.1.2.2 Low-pass Filter (130 to 174 MHz). Refer to FO-4. Low-pass filter A1 is used during transmit and receive modes of operation. The filter range is 130.000 - 173.9875 MHz. During receive operation, the filter provides attenuation to out-of-band signals which can cause interference. During transmit, the filter attenuates the harmonics of the transmitter carrier.

4-2.1.3 T/R Diode Switches. The 30 to 88 MHz RF/IF module requires more diode switching than the 130 to 174 MHz RF/IF module because the 30 to 88 MHz band is split into two separate sub-bands.

4-2.1.3.1 T/R Diode Switches (30 to 88 MHz). Refer to FO-3. Diode switches couple rf signals from the antenna to the receiver rf preamps, couple the synthesizer voltage controlled oscillator (VCO) injection signal to the receiver first mixer, couple rf signals from the transmit mixer to the rf preamps and antenna, select one of two low-pass filter bands, select one of two synthesizer VCO operating bands and select one of two rf preamp operating bands. The diodes are turned on by forward bias current from the receive B+, chopped B+, transmit B+, HI band, LO band or deviation control lines depending on the operating frequency and mode.

4-2.1.3.2 T/R Diode Switches (130 to 174 MHz). Refer to FO-4. Diode switches couple rf signals from the antenna to the receiver rf preamp, couple the synthesizer VCO injection signal to the receiver first mixer, couple rf signals from the transmit mixer to the rf preamps and antenna. The diodes are turned on by forward bias current from the receive B+, chopped B+, or transmit B+.

4-2.1.4 Tuned RF Preamp. The 30 to 88 MHz RF/IF module contains two band-switched rf amplifiers and the 130 to 174 MHz RF/IF module contains two cascaded rf amplifiers.

4-2.1.4.1 Tuned RF Preamp (30 to 88 MHz). Refer to FO-3. The preamp section consists of two bandswitched, varactor tuned rf preamps. Low band preamp Q3 frequency range is from 30.000 - 50.9875 MHz and high band preamp Q2 frequency range is from 51.000 - 87.9875 MHz. The bandswitch and tuning voltages for both preamps are generated by the synthesizer whenever a new frequency selection is made. The nominal tuning voltage range is 1.8 - 9.5 Vdc. The gain of each amplifier is nominally 11 - 14 dB. The output from the rf preamp is routed to receiver first mixer U6 during receive operation. The preamp is also used during transmit operation providing selectivity to undesired transmit mixer products. Transfer between transmit and receive operation is accomplished with diode switches.

4-2.1.4.2 Tuned RF Preamp (130 to 174 MHz). Refer to FO-4. The preamp section consists of two cascaded varactor tuned rf amplifiers. Amplifiers Q2 and Q3 frequency range is from 130.000 - 173.9875 MHz. The nominal tuning voltage range is 1.8 - 9.5 Vdc. The gain of Q2 is nominally 10 dB andthe gain of Q3 is nominally 15 dB. The output from the rf preamp is routed to receiver first mixer U2 during receive operation. The preamp is also used during transmit operation providing selectivity to undesired transmit mixer products. Transfer between transmit and receive operation is accomplished with diode switches.

4-2.1.5 First IF (30 to 88 and 130 to 174 MHz). Refer to FO-3 and FO-4. The first intermediate frequency (IF) circuit consists of a passive double-balanced diode mixer, a 21.4 MHz IF amplifier and an eight pole crystal filter. Receiver first mixer U6 (LB) or U2 (HB) translates the incoming amplified rf signal to the first intermediate frequency (21.4 MHz) by mixing the rf signal with the synthesizer VCO signal. The synthesizer VCO frequency range of 51.400 - 109.3875 MHz provides high side (21.400 MHz above the rf signal) injection to first mixer U6 for low band operation. The synthesizer VCO frequency range of 108.6 - 152.5875 MHz provides low side (21.400 MHz below the rf signal) injection to first mixer U2 for high band operation. First IF amplifier Q1 and crystal filter FL1 select the difference product (21.400 MHz) and reject all other mixer products. The first mixer and IF amplifier provide a nominal conversion gain of 6 dB from rf to IF. Crystal filter FL1 provides a -6 dB pass bandwidth of 30 kHz and a -60 dB stop bandwidth of 60 kHz. FL1 insertion loss is approximately 2 dB. The total receiver gain (30 to 88 MHz RF/IF) to the input of the second IF section is 15 dB nominal. The total receiver gain (130 to 174 MHz RF/IF) to the input of the second IF section is 25 dB nominal.

4-2.1.6 Second IF (30 to 88 and 130 to 174 MHz). Refer to FO-3 and FO-4. The second IF section consists of the second mixer, a 21.855 MHz local oscillator, 455 kHz second IF amplifier, FM detector, and squelch functions. The active portions are contained within integrated circuit U1. Maximum input for 12 dB SINAD ratio is 0.5 microvolt rf.

4-2.1.7 Second Mixer. (30 to 88 and 130 to 174 MHz). Refer to FO-3 and FO-4. Receiver second mixer p/o U1 translates the 21.4 MHz IF to a second IF of 455 kHz. This is accomplished by mixing the 21.4 MHz signal with 21.855 MHz local oscillator Y1 and selecting the difference product of 455 kHz. In voice mode, bandpass filter FL2 (LB) FL3 (HB) rejects all products except the 455 kHz and provides a +/-7.5 kHz second IF bandwidth wideband. Bandpass filter FL2 (HB) is not used in the normal nonsecure speech configuration. configuration.

4-2.1.8 21.855 MHz Local Oscillator (30 to 88 and 130 to 174 MHz). Refer to FO-3 and FO-4. Crystal controlled oscillator Y1 is accurate to within +/-15 parts per million (ppm) over the temperature range and provides the local oscillator injection signal for the second mixer.

4-2.1.9 455 kHz IF Amplifier (30 to 88 and 130 to 174 MHz). Refer to FO-3 and FO-4. The second IF amplifier (p/o U1) consists of a five-stage limiter and provides most of the overall 100 dB gain of the IF section. The limiting function improves the sensitivity and interference rejection capability of the receiver.

4-2.1.10 <u>FM Detector (30 to 88 and 130 to 174 MHz).</u> Refer to FO-3 and FO-4. The second IF limiter amplifier (p/o U1) drives an FM quadrature detector which converts the modulation information on the frequency modulated IF signal to a wideband audio signal. The bandwidth of the audio output signal is one-half of the first IF bandwidth or 15 kHz. In normal operation, a jumper plug is inserted into the Secure Voice Module (SVM) connector (rear of RT frame) which routes the wideband audio signal directly to the receive audio circuits in the Synth/AF module.

4-2.1.11 <u>Squelch Function (30 to 88 and 130 to 174 MHz).</u> Refer to FO-3 and FO-4. The squelch function mutes or quiets the audio output of the receiver when a signal is not being received. The squelch circuit samples the noise above the standard speech bandwidth (3 kHz) in the 8 kHz range and converts it to a dc control signal. When no carrier is present the noise level is high and the dc control signal is high. When a carrier is present the noise level is reduced which reduces the dc control level. The dc signal drives a threshold comparator (p/o U1) which provides a two state output; on or off. This output (SQUELCH MUTE) is routed to the microcontroller which activates the RCVR B+ and HB/LB control voltage as well as the squelch gate for the receiver audio amplifier. The squelch adjustments are R36 for the 30 to 88 MHz RF/IF module and R34 for the 130 to 174 MHz RF/IF module. The squelch may also be momentarily disabled by pressing the SQ DSBL button on the RT front panel.

4-2.1.12 <u>Receiver Audio Section.</u> Refer to FO-2. The receive audio functions are contained in the Synth/AF module and include the speech filter, speaker/handset amplifier, squelch-gate and speaker mute circuits.

4-2.1.12.1 <u>Speech Filter.</u> Refer to FO-2. In normal nonsecure speech operation the information bandwidth is 300 - 3000 Hz. The speech filter (R146, R147, C121, C122) passes this frequency band and attenuates frequencies above and below. Of special importance is the attenuation of the wideband audio noise above 3 kHz which improves the receiver output signal-to-noise ratio (S/N) by 6 dB. The output from the speech filter is routed to audio amplifier U12 via the volume control (p/o S2) located on the Frame/Panel assembly.

4-2.1.12.2 <u>Speaker/Handset Amplifier.</u> Refer to FO-2. Audio power amplifier U12 provides 26 dB of gain which increases the audio output level to 100 milliwatts minimum for the internal speaker (47 ohms) and 7 milliwatts minimum for the handset speaker (600 ohms).

4-2.1.12.3 <u>Squelch Gate.</u> Refer to FO-2. The squelch gate circuit controls (or gates) the receiver audio output by switching off dc power to the audio amplifier when no rf signal is present or switching on dc power when an rf signal is present. This feature not only quiets the receiver output but also reduces power consumption. The squelch gate is controlled by the microcontroller. The microcontroller receives its control signal from the squelch circuits in the RF/IF module (SQUELCH MUTE) or from the RT front panel SQ DSBL pushbutton (squelch disable).

4-2.1.12.4 <u>Noise Mute.</u> Refer to FO-2. Microcontroller U6 disables receiver audio input to the audio amplifier (enables squelch) in order to pass the low battery or antenna mismatch warning tones. Otherwise receiver noise would come through the audio circuits and mask the warning tones. The microcontroller disables the receiver detector to eliminate receiver noise prior to injection of the warning tone to the audio amplifier.

4-2.1.12.5 Speaker Mute. Refer to FO-2. The speaker mute circuit quiets the internal speaker whenever a handset is connected to the RT audio connector. When the handset is removed the internal speaker is automatically enabled. The dc resistance of the handset earpiece, when connected, changes the dc bias voltage on series FET switch Q8 which turns Q8 off and opens the audio line to the internal speaker.

4-2.2 Transmit Operation. The transmitter is packaged in the Synth/AF and RF/IF modules. The RF/IF module contains the rf preamps, rf power amplifiers, and mixer functions. The Synth/AF module contains the audio amplifier and 21.4 MHz deviation oscillator functions.

4-2.2.1 Transmitter Audio Section. Refer to FO-2. The microphone speech amplifier/limiter, 150 Hz amplifier and filter, and the speech filter are included in the transmitter audio section.

4-2.2.1.1 Speech Amplifier/Limiter. Refer to FO-2. The circuit consisting of U9 and U8 and associated components linearly amplifies the low level microphone signal to a nominal level of 4.0 Vp-p. The circuit provides a symmetrically limited output of 4.5 Vp-p when 150 Hz tones are generated (30 to 88 MHz RF/IF only). Limiter U8 prevents overmodulation by restricting the maximum carrier frequency deviation to a specified level. Amplifier U9 provides a gain of 70 dB.

4-2.2.1.2 150 Hz Amplifier. Refer to FO-2. U8 sums with transmit audio the 150 Hz square wave tone generated by the microcontroller (30 to 88 MHz RF/IF only). An RC low-pass filter consisting of R61, R83, C64 and C65 shapes the 150 Hz tone to a sawtooth waveform. The 150 Hz tone is generated only in the 30 to 88 MHz band transmit mode and triggers the tone-squelch circuit in the PRC-77 and VRC-12 radios.

4-2.2.1.3 Speech Filter. Refer to FO-2. This circuit attenuates the harmonic frequencies generated by the limiter-amplifier in order to minimize the modulation bandwidth of the transmitted signal. The high frequency rolloff components consist of C67 and R85, C62 and R81, and C63 and R82. The low frequency rolloff components consist of C71 and R94, C76 and R100, and C73 and R96. The circuit is a unity gain, active low-pass filter with a cutoff (-3 dB) frequency of 3 kHz. The filter also attenuates any high frequency background noise which may be picked up by the microphone. In normal use, the output signal is routed through the SVM jumper plug and back to the 21.4 MHz deviation oscillator in the Synth/AF module (J2-18). The normal mode of operation is plain text, nonsecure speech.

4-2.2.2 Deviation Oscillator. Refer to FO-2. This section includes the 5.0 Vdc voltage regulator, 21.4 MHz deviation oscillator, and 21.4 MHz low-pass filter.

4-2.2.2.1 5 Vdc Regulator. Refer to FO-2. Regulator U10 provides a stable supply voltage for the deviation oscillator and bias voltage for the varactor-tuned modulation circuits.

4-2.2.2.2 21.4 MHz Deviation Oscillator. Refer to FO-2. The deviation oscillator circuit frequency modulates a 21.4 MHz IF transmit carrier signal with an audio signal directly from the speech amplifier. The frequency modulation is accomplished by superimposing the audio signal on a dc bias voltage and applying the combined signal to varactor diode (CR27). The changing amplitude of the audio signal varies the capacitance of the varactor diode which, in conjunction with other components in the modulation circuit, changes or deviates the oscillator carrier frequency symmetrically on either side of the 21.4 MHz center frequency. The frequency deviation is directly proportional to the positive and negative audio amplitude variations superimposed on the varactor dc bias voltage. Potentiometer R120 allows adjustment of the 21.4 MHz deviation. U11 is a phase-locked-loop (PLL) locked to a 1.6 MHz reference which gives an output center frequency of 21.4 MHz. C99 is the adjustment for the PLL lock center frequency/tune volts. The nominal frequency deviation for plain speech is +/- 4.5 kHz (30 to 88 MHz RF/IF) and +/- 3.0 kHz (130 to 174 MHz RF/IF). The deviation sine wave audio input amplitude is 4.0 Vp-p (+/- 2.0 Vp-p on dc bias). When the input signal to the microphone is louder than normal, the limiter-amplifier clips the signal to a constant amplitude to prevent over-modulation of the carrier. Variable capacitor C99 sets up the PLL tune voltage to control varactor CR27. R120 sets maximum deviation. The maximum setting is +/- 7.5 kHz (30 to 88 MHz) and +/-5.0 kHz (130 to 174 MHz) deviation. The nominal frequency deviation for the 150 Hz squelch tone is +/-3.0 kHz with a 2.0 Vp-p input signal.

4-2.2.2.3 <u>21.4 MHz Low-pass Filter.</u> Refer to FO-2. The filter consisting of C88 - C90, L6 and L7 passes the 21.4 MHz transmit IF carrier signal and attenuates all harmonics by greater than 20 dB in order to minimize unwanted spurious products in the transmit mixer circuit. R112 - R114 provide isolation and attenuate the signal to 50 mV rf. The 21.4 MHz transmit IF output signal is routed through P2-2 to the transmit mixer in the RF/IF module.

4-2.2.3 <u>Transmit Mixer.</u> The 30 to 88 and 130 to 174 MHz RF/IF module transmit mixers differ in the VCO injection frequencies. High side injection (above the carrier frequency) is used in the Low Band RT and Low Side injection (below the carrier frequency) is used in the High Band RT.

4-2.2.3.1 <u>Transmit Mixer (30 to 88 MHz).</u> Refer to FO-3. Transmit mixer U5 is a passive double-balanced diode mixer. The desired output signal from mixer U5 is the difference product of the 21.4 MHz transmit IF input and the 51.400 to 109.3875 MHz synthesizer VCO input. The difference product comprises the frequencies from 30.000 to 87.9875 MHz. The 30 to 51 MHz VCO generates the local oscillator frequencies from 51.400 to 72.3875 MHz and the resultant low band operating frequencies from 30.000 to 50.9875 MHz. The 51 to 88 MHz VCO generates the local oscillator frequencies from 72.400 to 109.3875 MHz and the resultant high band operating frequencies from 51.000 to 87.9875 MHz. Varactor-tuned preamplifiers Q3 (30 to 51 MHz) and Q2 (51 to 88 MHz) select and amplify the difference product depending on the frequency selected.

4-2.2.3.2 <u>Transmit Mixer (130 to 174 MHz).</u> Refer to FO-4. Transmit mixer U3 is a passive double-balanced diode mixer. The desired output signal from mixer U5 is the difference product of the 21.4 MHz transmit IF input and the 108.6 to 152.5875 MHz synthesizer VCO input. The difference product comprises the frequencies from 130.000 to 173.9875 MHz. Varactor-tuned preamplifiers Q2 and Q3 following the mixer amplify the difference product.

4-2.2.4 <u>Varactor-tuned RF Preamplifiers.</u> The 30 to 88 and 130 to 174 MHz RF/IF module preamplifiers differ in frequency range. The 130 to 174 MHz RF/IF module comprises two cascaded preamplifiers and the 30 to 88 MHz RF/IF module utilizes only one preamplifier for each sub-band.

4-2.2.4.1 Varactor-tuned RF Preamplifiers (30 to 88 MHz). Refer to FO-3. Q2 and Q3 low level rf amplifiers are also used in the receive mode. Diode switches CR13, CR14, CR34 and CR41 transfer the receive-transmit signals for the respective modes of operation. During transmit operation, the preamps amplify the difference product from the transmit mixer. If the operating frequency is in the 30.000 to 50.9875 MHz range, the Q3 preamp is turned on and Q2 preamp is turned off. The opposite switching occurs if the operating frequency is in the 51.000 to 87.9875 MHz range. Each amplifier has a nominal gain of 11 - 14 dB and provides 50 dB relative attenuation to the unwanted transmit mixer image products. The preamps are voltage tuned with the synthesizer PLL control voltage TUNE VOLTS (P2-9). Frequency versus voltage tracking is accomplished with a set of six matched varactor diodes (CR26 and CR27 for the VCO, CR30 and CR31 for 30 to 51 MHz preamp, CR28 and CR29 for 51 to 88 MHz preamp) and series capacitive padders (C87 and C108 for the VCO varactors). These padder capacitors warp the tuning curves of the VCO's such that their tracking error with the pre-amps is minimized. The nominal preamplifier output signal level is 70 mV at the power amplifier input.

4-2.2.4.2 Varactor-tuned RF Preamplifiers (130 to 174 MHz). Refer to FO-4. Q2 and Q3 low level rf amplifiers are also used in the receive mode. Diode switches CR17 and CR18 transfer the receive-transmit signals for the respective modes of operation. During transmit operation, preamps Q2 and Q3 amplify the difference product from the transmit mixer. Amplifier Q2 has a nominal gain of 10 dB and Q3 has a nominal gain of 15 dB. The amplifiers are voltage tuned with the synthesizer PLL control voltage TUNE VOLTS (P2-9). Frequency versus voltage tracking is accomplished with a set of five matched varactor diodes (CR29 and CR31 for the VCO, CR19 - CR21 for preamps Q2 and Q3) and series capacitive padders (C45, C52 and C60 for the preamp varactors). These padder capacitors warp the tuning curves of the preamps such that their tracking error with the VCO's is minimized. The nominal preamplifier output signal level is 70 mV at the power amplifier input.

4-2.2.5 Power Amplifiers. The 30 to 88 and 130 to 174 MHz RF/IF module power amplifiers differ in the number of stages and the frequency range.

4-2.2.5.1 Power Amplifiers (30 to 88 MHz). Refer to FO-3. The power amplifier section consists of three stages of power gain. The amplifiers are broadband covering the complete 30.000 - 87.9875 MHz frequency range in one band with no manual tuning required. The overall power gain is 40 dB with a nominal output power level of 1.2 watts. Driver amplifiers U3 and U2 each have a nominal gain of 15 dB. Final power amplifier Q4 has a nominal gain of 10 dB. Automatic level control (ALC) circuit Q6 and associated components and final amplifier output current potentiometer R56 provide output from 0.2 - 1.2 watts. The total RT current during transmit is set to 370 mAdc maximum. The current may be reduced if lower transmit power output is desired. The output signal is routed through a diode switch to the low pass filters.

4-2.2.5.2 Power Amplifiers (130 to 174 MHz). Refer to FO-4. The power amplifier section consists of four stages of power gain. The amplifiers are broadband covering the complete 130.000 to 173.9875 MHz frequency range in one band with no manual tuning required. The overall power gain is 40 dB with a typical output power level of 1.2 watts. Driver amplifiers Q7 - Q9 each have a nominal gain of 10 dB. Final power amplifier Q4 has a nominal gain of 10 dB. Automatic level control (ALC) circuit Q4 and associated components and final amplifier output current potentiometer R61 provide output from 0.2 - 1.2 watts: The total RT current during transmit is set to 370 mAdc maximum. The current may be reduced if lower transmit power output is desired. The output signal is routed to the low pass filter.

4-2.2.6 <u>T/R Diode Switches (30 to 88 MHz).</u> Refer to FO-3. Diode switches CR4, CR6, CR10 and CR17 transfer the transmitter output signal to the low and high band low pass filters while isolating the receiver input from the transmitter and filters. The diode switches are controlled by the transmit and chopped B+ lines as well as the HI/LO Band control voltages..

4-2.2.7 <u>Lo-pass Filters.</u> The 30 to 88 MHz RF/IF module contains two low-pass filters and the 130 to 174 MHz RF/IF module contains one.

4-2.2.7.1 <u>Low-pass Filters (30 to 88 MHz).</u> Refer to FO-3. Low-pass filters A1 and A2 pass the desired transmit carrier frequency while rejecting the harmonics of the carrier. Two filter bands (A2 LO and A1 HI) are necessary to provide the required amount of attenuation to the harmonics. The bands are 30.000 to 50.9875 MHz and 51.000 to 87.9875 MHz. Q12 and Q13 control HI and LO band selection via control signals from the Synth/AF microcontroller.

4-2.2.7.2 <u>Low-pass Filters (130 to 174 MHz).</u> Refer to FO-4. Low-pass filter A1 passes the desired transmit carrier frequency while rejecting the harmonics of the carrier. The filter band is 130.000 to 173.9875 MHz.

4-2.2.8 <u>Antenna Coupler.</u> Refer to FO-1. The antenna coupler section is divided into five frequency bands and a direct 50 ohm output. Band selection is accomplished manually by setting ANT match switch S5 to the correct position (A-B-C-D-E-50). The circuits impedance match the antenna to the transmitter which provides maximum radiated power from the antenna. The 50 ohm rf input/output position bypasses the antenna matching networks and provides a direct 50 ohm interface with a power amplifier, test equipment or other antenna systems. If a 30 to 88 MHz RF/IF module is installed, a dc path to ground of 2000 ohms or less must be provided at the antenna output for proper operation. The 50 position is always used whenever a 130 to 174 MHz RF/IF module is installed.

4-2.3 <u>Synthesizer Operation.</u> Refer to FO-2. The frequency synthesizer circuits consist of the PLL and the control sections. The PLL is contained in the Synth/AF module except for the voltage-controlled-oscillators (VCO's), which are contained in the RF/IF module. The complete control section is contained in the Synth/AF module.

4-2.3.1 <u>Phase-Locked-Loop Section.</u> Refer to FO-2 and FO-3. The PLL section includes the voltage-controlled-oscillators, buffer amplifier/regulator, divide by 64/65 prescaler, frequency synthesizer, reference oscillator and loop filter. The PLL generates a stable local oscillator (LO) injection frequency for the transmit and receive mixers. The stability is accomplished by phase-locking a variable frequency VCO (51.400 to 109.3875 MHz for the 30 to 88 MHz RF/IF module; 108.6 to 152.5875 MHz for the 130 to 174 MHz RF/IF module) to a fixed frequency reference oscillator Y1 (1.6 MHz). Both oscillators are frequency divided to a phase detector frequency of 12.5 kHz for phase comparison. A dc voltage proportional to phase difference is then generated, filtered, and applied to a voltage variable capacitance (varactor) diode in the VCO circuit. When phase-locked to the reference oscillator, the VCO frequency stability is the same as the frequency stability of the 1.6 MHz reference oscillator. At a VCO frequency of 109.3875 MHz (30 to 88 MHz RF/IF module), the maximum frequency error of the LO injection frequency would be ± 547 Hz. The transmit PLL/Modulator circuit uses the same 1.6 MHz crystal reference so total RT frequency stability at all frequencies is within ± 5 ppm of the nominal transmit carrier frequency.

4-2.3.2 Voltage Controlled Oscillators. The 30 to 88 MHz RF/IF module contains a two-band VCO and the 130 to 174 MHz RF/IF module contains a single-band VCO.

4-2.3.2.1 Voltage Controlled Oscillator (30 to 88 MHz). Refer to FO-3. Dual oscillators are tuned with a 1.8 - 9.5 Vdc control voltage (TUNE VOLTS) generated by the PLL synthesizer. The LO band and HI band control lines determine which oscillator (Q8 or Q11) is turned on or off. LO band oscillator Q11 covers the range from 51.400 to 72.3875 MHz. HI band oscillator Q8 covers the range from 72.400 to 109.3875 MHz. Varactor diodes CR26 (HB) and CR27 (LB) are used in conjunction with other tuned circuit components (L30 and C88 in HB; L31 and C106 in LB) to provide the required frequency control.

4-2.3.2.2 Voltage Controlled Oscillator (130 to 174 MHz). Refer to FO-4. A single oscillator is tuned with a 1.8 - 9.5 Vdc control voltage (TUNE VOLTS) generated by the PLL synthesizer. The oscillator covers the range from 108.6 to 152.5875 MHz. Varactor diodes CR29 and CR31 are used in conjunction with other tuned circuit components (L30 and C96) to provide the required frequency control.

4-2.3.3 Buffer Amplifier/Regulator. The 30 to 88 MHz RF/IF module contains two buffer amp/regulators and the 130 to 174 MHz RF/IF module contains one buffer amp/regulator.

4-2.3.3.1 Buffer Amplifier/Regulator (30 to 88 MHz). Refer to FO-3. The buffer amplifier/regulator circuit provides a dual function. Buffer amplifiers Q10 (LB) and Q9 (HB) isolate the VCO from load reflections to minimize VCO noise and spurious signals within the PLL. The regulator action provides a stable dc supply voltage for the VCO and the Synth/AF divide by 64/65 prescaler via P2-13. The nominal output signal level from the buffer amplifier to the transmit and receive mixers is 300 mV. The nominal VCO output signal to the Synth/AF prescaler via P2-13 is 300 mV and is superimposed on the stable 6.5 Vdc supply voltage to the divide by 64/65 prescaler.

4-2.3.3.2 Buffer Amplifier/Regulator (130 to 174 MHz). Refer to FO-4. The buffer amplifier/regulator circuit provides a dual function. Buffer amplifier Q11 isolates the VCO from load reflections to minimize VCO noise and spurious signals within the PLL. The regulator action provides a stable dc supply voltage for the VCO and the Synth/AF divide by 64/65 prescaler via P2-13. The nominal output signal level from the buffer amplifier to the transmit and receive mixers is 300 mV. The nominal VCO output signal to the Synth/AF prescaler via P2-13 is 300 mV and is superimposed on the stable 6.5 Vdc supply voltage to the divide by 64/65 prescaler.

4-2.3.4 Divide By 64/65 Prescaler. Refer to FO-2. Frequency divider U1 divides by 64 or 65 as determined by the control signal generated within the frequency synthesizer, U3. U1, in combination with the divide-by-N counters within the synthesizer, divides the VCO frequency down to 12.5 kHz for phase comparison.

4-2.3.5 Frequency Synthesizer. Refer to FO-2. The frequency synthesizer circuit consists of additional frequency dividers, a reference oscillator and the phase-frequency detector. The frequency divider ratio (divide-by-N) for the PLL synthesizer is supplied by a serial input data word stored in 64 x 16 bit electrically erasable programmable read only memory (EEPROM) U5. This data word is a number that, when divided by the incoming, prescaled, VCO frequency, results in a frequency of 12.5 kHz that is applied to the phase-frequency detector. The EEPROM data is determined during the frequency programming sequence from the microcontroller. This same data is also provided back to the microcontroller for bandswitch control. If the 30 to 88 MHz RF/IF module is installed and the selected frequency is between 30.000 and 50.9875 MHz, low band is activated. If the selected frequency is between 51.000 and 87.9875 MHz, high band is activated. If a 130 to 174 MHz RF/IF module is installed, the microcontroller senses P2-8 is pulled low and the selected frequency is between 130 to 173.9875 MHz.

4-2.3.6 Phase-frequency Detector. Refer to FO-2. A fixed frequency divider (p/o U3) divides the 1.6 MHz reference oscillator down to 12.5 kHz (divides by 128) for phase comparison in the phase-frequency detector. Phase-frequency detector U3 provides two functions. The frequency detector first senses the difference in frequency between the fixed reference 12.5 kHz signal and the divided-down, variable VCO 12.5 kHz signal. The frequency detector generates a sweep voltage which pulls the VCO closer to the reference. As the VCO frequency approaches the reference frequency, the phase detector then takes control and generates a dc control voltage which phase-locks the VCO and reference signals. In this phase-locked condition, the stability and accuracy of the VCO frequency is equivalent to the reference oscillator.

4-2.3.7 Reference Oscillator. Refer to FO-2. The active circuitry for this oscillator is contained within frequency synthesizer integrated circuit U3. Quartz-crystal controlled, reference oscillator Y1 generates the PLL frequency standard (1.6 MHz) to which the VCO is phase-locked for frequency stability and accuracy. The room temperature accuracy of the reference oscillator is adjusted by C25 to within +/- 0.2 ppm. The temperature stability of the oscillator, measured with respect to room temperature accuracy, is +/- 5.0 ppm over the -30 deg C to +55 deg C temperature range.

4-2.3.8 Loop Filter. Refer to FO-2. PLL loop filter U2 and associated circuitry provides two functions. The first section is a phase-gain compensation network which stabilizes the phase-lock response parameters of the PLL. The last section is an active low-pass filter which attenuates the phase detector fundamental (12.5 kHz) and harmonic frequencies. The attenuation provided by this filter reduces the incidental frequency modulation (IFM) on the VCO frequency to less than 100 Hz deviation. The loop filter also provides dc amplification of the phase detector control signal to the 1.8 - 9.5 Vdc range required by the VCO for frequency coverage from 51.400 to 109.3875 MHz (30 to 88 MHz RF/IF module) or 108.6 to 152.5875 MHz (130 to 174 MHz RF/IF module). The output of the loop filter is the TUNE VOLTS line (P2-9).

4-2.3.9 Control Section. Refer to FO-2. The control section includes the microcontroller, EEPROM and the external operator controls. This section provides digital data conversion and processing of operator selected channel and mode information. This digital processing is done in parallel format between microcontroller U6 and external controls and in serial format between the microcontroller and LCD display, frequency synthesizer or EEPROM.

4-2.3.10 Microcontroller. Microcontroller U6 is the central processing unit (CPU) that converts frequency selection information to serial digital data. It also distributes serial data and clock to memory U5 for storage or receives data from the memory for frequency selection. The memory also supplies data to the frequency synthesizer via the microcontroller whenever a channel selection is made. The instruction program for the microcontroller is permanently masked into an internal read-only-memory (ROM). A 76.8 kHz crystal-controlled oscillator (Y2) provides the clock standard for waveform timing and data conversion, processing, and transfer. The microcontroller accepts and generates the following waveforms and control signals.

a. 150 Hz squelch tone output
b. Battery saver chopped B+ output
c. Low-battery/Antenna mismatch warning tone outputs
d. Clock output
e. Serial data input/output
f. External program data input/output and repeater transmit PTT output
g. Enable outputs (EEPROM, synthesizer)
h. Low battery detect input
i. Squelch mute input
j. PTT input
k. Low VHF/High VHF input
l. Squelch gate output
m. Wideband/Narrowband input
n. External load sense input
o. Squelch disable input
p. Strobe inputs
q. CHAN switch strobe outputs
r. SET/INC switch strobe output
s. ANT switch strobe output
t. Liquid crystal display clock output
u. Liquid crystal display data output

The microcontroller also directs serial programmable buffer U7 to produce HI band output, LO band output, receive B+ output, chopped B+ output, transmit B+ output modulator/mic amp B+ output, and squelch gate output voltages.

4-2.3.11 Preset Memory. Refer to FO-2. U5 is an electrically erasable programmable read only memory (EEPROM) with the capacity to store frequency selection data for twenty frequencies (ten receive channels and ten transmit channels). All twenty presets can be randomly programmed to unrelated frequencies and stored for an indefinite period of time. Frequency data recall and frequency changing of the RT is accomplished immediately when a channel selection is made. The memory is nonvolatile and does not require power to retain data. An enable signal from the microcontroller determines the read/write status of the EEPROM.

4-2.3.12 External Operator Controls. Refer to FO-1 and FO-2. SQ DSBL S4, SET S8, INC S9, ANT S5 and CHAN S3 switches all interface directly with the microcontroller. The microcontroller senses a high or low on the SQ DSBL, SET and INC input lines. If the SQ DSBL input is low, the microcontroller outputs serial data to U7 which generates a high on the squelch gate line enabling the audio amplifier. The SET and INC switches apply a low to the microcontroller during the programming sequence to select the desired frequency. The ANT and CHAN switches are connected to the microcontroller in a switch matrix configuration. The microcontroller generates strobe pulses on the switch input lines and simultaneously reads the strobe input pulses to determine the switch settings.

4-2.4 Special Functions. Refer to FO-2. The special functions generated by the micro-controller circuit are the 150 Hz squelch tone, battery saver timing waveform, low battery and antenna warning tones.

4-2.4.1 150 Hz Tone. Refer to FO-2. This signal is a periodic square wave with an amplitude of 5.0 Vdc and a frequency of 150 Hz ± 2 Hz. The tone is derived from Y2, the 76.8 kHz clock standard, and therefore has the same accuracy. The 150 Hz tone is filtered by R61, R83, C64 and C65 and modulates the transmit carrier signal for compatibility with the tone squelch in the PRC-77 and VRC-12 receivers. The 150 Hz tone is generated during transmit only when a low band RF/IF module is installed.

4-2.4.2 Battery Saver Timing Waveform. Refer to FO-2. The battery saver timing waveforms are periodic square waves on the chopped B+, receive B+ and HI/LO Band control voltages when the radio is in standby mode. If no rf signal is present, all of these lines are chopping in the battery saver mode. The timing accuracy is derived from 76.8 kHz clock Y2. These signals are generated by U7 from serial data provided by the microcontroller and used as the chopping voltages for duty-cycle portions of the receiver during the squelched/standby mode of operation. The battery saver signals are generated only in the squelched/standby mode of operation.

4-2.4.3 Battery Warning Tone. Refer to FO-2. The low battery warning tone consists of a series of four 400 Hz beeps every six seconds. This tone provides the operator an aural warning that the battery is nearing end-of-life (EOL). The warning circuit monitors the battery voltage and compares it to a preset, fixed reference voltage from voltage regulator U4. When the battery voltage drops below the preset reference, comparator U2 switches states and applies a low to the microcontroller. The microcontroller then turns on the speaker/headphone amplifier (squelch gate) and disables the receiver noise by turning off the detector IC (noise mute). This allows the tone to be heard by the operator. The tone amplitude is adjustable with front panel VOL control (p/o S2). The low-battery tone is generated only during the squelched/standby mode and is disabled when a signal is being received or when the radio is in transmit mode of operation.

4-2.4.4 Antenna Warning Tone. Refer to FO-2. The antenna warning tone is generated within the microcontroller and consists of a 1000 Hz tone every two seconds. The microcontroller monitors the ANT switch position and generates the tone whenever the switch position does not agree with the selected frequency in the 30 to 88 MHz frequency range. In addition, the microcontroller looks for a dc path to ground of 2000 ohms or less at the ANT terminal (50 ohm LOAD SENSE J3-16). If a dc path is detected, the microcontroller then generates a warning tone until the ANT switch is set to the "50" position (50 ohm output). The microcontroller also generates the same warning tone any time the ANT switch is not set to the "50" position for operation in the 130 to 174 MHz frequency range. The microcontroller controls the audio circuitry in the same manner as during low battery tone operation. Transmit and receive operation of the RT is disabled whenever an antenna mismatch is detected.

4-3 PA THEORY OF OPERATION.

Power amplifier (PA) 901616-801 is a low band, 30.000 to 88.000 MHz, 15 watt (nominal) rf power amplifier. The amplifier contains the chassis, power supply module, amplifier module, and filter module. Power amplifier 901616-802 is the high band 130.000 to 174.000 MHz version. The difference between the low and high band amplifiers is the amplifier/filter module. The chassis and power supply are identical for both amplifiers. The following paragraphs explain theory of operation for the chassis, power supply module, 30 to 88 MHz amplifier and filter modules, 130 to 174 MHz amplifier and filter modules. Refer to foldout schematics at the rear of the manual.

4-3.1 Chassis Assembly. Refer to FO-5. The chassis houses the amplifier/filter module, power supply module, terminal board TB1 and rf and dc interface cables. RF interface cable W4 connects REF INPUT from VA ANT out (RT) to J1 on filter module. RF interface cable W2 connects J2 on filter module to PA ANT output. S1 (AMP/BYPASS) controls the HB/LB Indicator Status and is wired in series with the KEY control from the VA. Thus in bypass mode, the KEY signal from the VA does not get routed to the amplifier/filter module (PIN P5-H KEY/AMP).

4-3.2 Power Supply Module Assembly. Refer to FO-6. 26.5 Vdc from the chassis assembly is routed through the amplifier/filter module to power supply module P4-7 and P4-8. FL5 and L9 provide EMF/RFI filtering for the input lines. Polyfuse R9 provides short circuit protection for both the amplifier/filter module and the power supply module. When any of the four outputs (6.5, 15.0 -13.0 and -48.0 Vdc) are short-circuited, the input current increases which heats up R9. R9 increases in resistance (opens up) thus shutting down the power supply. 26.5 Vdc is present on P4-7 and P4-8 during this condition. Both the short-circuit condition and the input power to P4-7 and P4-8 must be removed to reset R9. When R9 cools, the (R9) resistance decreases and allows the 26.5 Vdc current to pass through for normal power supply operation. Diode CR12 (reverse polarity protection) shuts off the power supply if the input leads are reversed. During normal operation, 26.0 Vdc is applied to free-running astable multivibrator U1-4, -5, -6, -14, the sources of Q5 and Q6, and the collectors of Q1 and Q4 the U1 switching frequency of approximately 100 kHz is set by C1 and R1.. Zener diode CR1 drops the input voltage to approximately 16.0 Vdc which is applied to U1-7, -8, -9, -12, and the collectors of Q2 and Q3. U1 outputs (pins 10 and 11) are applied to two pairs of push-pull amplifiers. Push-pull amplifier Q1 and Q2 sets the gate bias voltage across R3 (approximately 21.0 Vdc) for mosfet Q5 (normally off). Push-pull amplifier Q3 and Q4 sets the gate bias voltage across R4 (approximately 21.0 Vdc) for mosfet Q6 (normally off). Mosfet Q5 produces approximately 25.0 VAC for the positive side of transformer T1 and supplies input to bridge rectifier CR8 - CR11. Mosfet Q6 produces approximately 25.0 VAC for the negative side of T1 and the other rectifier input. The bridge rectifier produces -48.0 Vdc nominal. The -48.0 Vdc is applied to a low frequency LC filter network consisting of L4, L13, C14, C15, and C19. L8 and FL4 are high frequency RFI and EMI filters. Transformer T1 produces a nominal 6.5 Vdc via CR4 and CR5, 15.0 Vdc via CR2 and CR7, and -13.0 Vdc via CR3 and CR6. All outputs are filtered similarly to the -48.0 Vdc.

4-3.3 30 to 88 MHz Amplifier. Refer to FO-7. The 30 to 88 MHz amplifier contains a voltage controlled oscillator (VCO), rf amplifiers, phase-locked-loop (PLL) circuit, HI/LO band selection circuit, lock detector, lock switch, 8.0 and 5.0 Vdc regulators, automatic level control (ALC), thermal and fault circuits.

4-3.3.1 Voltage Controlled Oscillator. Refer to FO-7. The VCO circuit consists of Q7 and associated components. The VCO is a varactor tuned oscillator, with T1 as the feedback component. The VCO operates on two frequency bands, 30.000 to 51.000 MHz (LOWER) and 50.000 to 88.000 MHz (UPPER). The tuning voltage varies the capacitance of varactors CR7 - CR14 which adjusts the VCO operating frequency. The low end of each band is tuned by approximately -5.2 Vdc and the high end by approximately -19.0 Vdc. The crossover frequency between LOWER and UPPER is set at 50.5 MHz nominal. During the LOWER band operation the varactors tune with L2; CR5 pin diode is reversed biased by -48.0 Vdc on the UPPER line and acts like an open circuit. During UPPER band operation CR5 is forward biased by 3.0 Vdc on the UPPER line through R31 and acts as a short circuit to the oscillator frequency. This places L3 in parallel with L2. The L2/L3 combination tunes with varactors CR7 - CR14 during UPPER band operation. The VCO output power level is approximately 150 mW at the R25-T2 junction. The VCO is powered by 8.0 Vdc from adjustable regulator U1 during transmit and is shut off during receive.

4-3.3.2 <u>8 Vdc Regulator and XMIT/REC Switching.</u> Refer to FO-7. The 8 Vdc regulator consists of U1 and associated components. The regulator is powered by 15.0 Vdc from J4-3 and supplies the 8.0 Vdc to the VCO during transmit operation. The output voltage during transmit is adjusted to 8.0 Vdc by R6. During transmit operation, the XMIT voltage is approximately 4.0 Vdc (TP2 is approximately 0.6 Vdc), Q1 is on, Q1 collector and U1 ON/OFF pin are 0.0 Vdc. The low voltage at U1 ON/OFF pin turns U1 on and regulated 8.0 Vdc is present at TP1. During receive operation, the XMIT voltage is approximately -48.0 Vdc (isolated from Q1 by CR1), Q1 base is 0.0 Vdc, Q1 is off, Q1 collector is approximately 15.0 Vdc and U1 is off. U1 OUT voltage is 0.0 Vdc which turns the VCO off during receive operation. Transistors Q2 through Q5 are the XMIT/REC switches. For transmit operation J5-H (KEY/AMP) input is grounded, Q2 and Q4 are switched on and Q3 and Q5 are switched off. This causes the XMIT voltage to be approximately 4.0 Vdc. Q2 collector is approximately 6.0 Vdc, however, the current drain to the filter module causes a voltage drop across R8. Since Q3 is off, the REC voltage is approximately -48.0 Vdc. For receive operation J5-H is open circuit, Q2 and Q4 are off, Q3 and Q5 are on and the XMIT voltage becomes -48.0 Vdc and the REC voltage is approximately 4.0 Vdc.

4-3.3.3 <u>RF Amplifiers.</u> Refer to FO-7. The VCO output is coupled through C7, L6, R25, T2, and C10 to the gate of Q8. The drain current and gain of Q8 are controlled by the gate voltage from the ALC amplifier circuit U5 and associated components. The dc drain current is initially adjusted for approximately 70 mA with no rf input from the VCO. R35 and C12 provide negative feedback for improved stability and more constant gain across the 30.000 to 88.000 MHz frequency range. The output of Q8 is approximately 1.5 watts and is coupled through C19, matching transformer T3, C20 and L11 to the gate of Q9. Transistor Q9 is initially adjusted for approximately 100 mA (no signal drain current) and amplifies the rf signal to approximately 16 watts. R40 and C25 provide negative feedback for Q9. The output of Q9 is coupled through C26, L18 and matching transformer T4 to J1 RF OUTPUT.

4-3.3.4 <u>Phase-Locked-Loop.</u> Refer to FO-7. The PLL consists of U6, U7, U8, U9, Q12, Q13 and associated components; and functions during transmit operation. The purpose of the loop is to adjust the VCO frequency to the same frequency as the J2 REF INPUT (reference rf). Part of the VCO output is coupled through R26, R61 and C38 to U6. Diodes CR26 and CR27 limit the signal amplitude applied to U6. U6 divides the VCO frequency by 20 and its output is coupled through R120 to U8. J2 REF RF input is attenuated by resistive pad R108 - R111, R114, and R115 and is coupled to U7 through R116, R118 and C51. CR28 and CR29 limit the amplitude of the signal. U7 divides the reference rf frequency by 20 and its output is coupled to U8 through R121. The frequency of both inputs to U8 (U8-1, U8-3) can vary from a minimum of 1.500 MHz (30.000 MHz/20) to 4.400 MHz (88.000 MHz/20). U8 compares the input signals at pins 1 and 3 and generates error signals at pins 2 and 13. The error signals are filtered by R122, R123 and C59 and connected to operational amplifier U9. The output of U9 is a dc voltage which is modified by Q12 and Q13 to provide the tuning voltage for the VCO. This allows phase detector U8 and loop amplifier U9 to operate in a more linear mode while Q12 and Q13 modify the resulting error voltage to more closely match the VCO's varactor tune voltage requirements. When the VCO output frequency is different from the reference rf input frequency, an error voltage is generated causing the tune voltage to change until the VCO frequency is the same as J2 REF INPUT. The VCO output has the same audio frequency modulation (FM deviation) as the REF INPUT.

4-3.3.5 HI/LO Band Selector Circuit. Refer to FO-7. L34, C81, U10, Q14 through Q17 and associated components determine if the VCO should operate in the LOWER (30.000 to 51.000 MHz) or UPPER (50.000 to 88.000 MHz) band. J2 REF INPUT is coupled through R112 to a frequency sensitive bridge L34, C81, R147 and R148. CR34 and CR35 rectify the bridge rf output and L34 is adjusted so that when the REF INPUT frequency is above 50.500 MHz, the dc level from CR35 is more positive than the dc level from CR34. This causes the output from U10 to go negative (approximately -12.0 Vdc), switching Q14 and Q16 on, causing the UPPER voltage to go positive. Since the voltage at Q16 collector is approximately 6.0 Vdc and the current drain through R168 is approximately 300 mA, the UPPER voltage is approximately 3.0 Vdc. Since U10 output is negative, Q15 and Q17 are off which causes the LOWER voltage to become approximately -46.0 Vdc. When the REF INPUT frequency is lower than 50.5 MHz, U10 output is positive (approximately 13.0 Vdc), Q14 and Q16 are off which causes the UPPER voltage to become approximately -46.0 Vdc. Q15 and Q17 are on and the LOWER voltage is approximately 3.0 Vdc due to the voltage drop across R169. During initial alignment L34 is set for 50.500 MHz nominal band switching frequency. However, during normal operation, the switching may occur from 50.200 to 50.800 MHz. The band switching frequency also depends upon the harmonic content and the RF level of the REF INPUT. When the handheld radio supplies the REF INPUT, the harmonic content is 43 dB or more below the carrier and the RF level is 1.0 to 1.5 watts typically..

4-3.3.6 Lock Detector. Refer to FO-7. The lock detector is comprised of operational amplifier U4A and associated components. When the REF INPUT and the VCO output are at the same frequency, U8-2 and U8-13 are both high (2.5 - 5.0 Vdc). Diodes CR30 and CR31 are biased off and U4-1 is approximately -10.5 Vdc. TP8 LOCK signal is approximately -8.3 Vdc, and has no effect on the ALC circuit. When the REF INPUT and the VCO output are not at the same frequency, either U8-2 or U8-13 is low (0.0 - 0.4 Vdc) which causes U4-1 output to go high (approximately 13.0 Vdc). This indicates an unlocked condition and causes the ALC circuit to shut down Q8. U4-1 output also goes to U4B (lock switch), and Q11 (fault circuit).

4-3.3.7 Lock Switch. Refer to FO-7. The lock switch consists of operational amplifier U4B and associated components. When the PLL is locked (the reference rf and the VCO output are the same frequency), U4A output is low (approximately -10.5 Vdc). This switches U4B output high, (approximately 13.0 Vdc). The output of U4B goes through R71 to zener diode CR16 which regulates the voltage to approximately 8.2 Vdc. CR16 cathode voltage is divided by R41 - R49 to provide dc gate voltage for Q9 rf amplifier. R47 is adjusted initially to set the dc drain current for Q9. When the loop is locked, U4B output is high and the preset gate voltage for Q9 is present. When the loop is not locked (i.e. due to a fault or during receive), U4A output is high, U4B output is low, and Q9 gate voltage (TP5) is approximately 0.0 Vdc which keeps Q9 off. This circuitry prevents low level VCO free-running rf output from being amplified by Q9 under some conditions, such as transmit mode with no REF INPUT.

4-3.3.8 5 Vdc Regulator. Refer to FO-7. Low drop-out regulator U2 and associated components provide regulated 5.2 Vdc for U6 - U8. U2 operates on 6.5 Vdc from J4-1. U2 output is divided by R59 and R60 to the reference input U2-3. This sets U2 output to 5.2 Vdc.

4-3.3.9 Automatic Level Control. Refer to FO-7. The output voltage of operational amplifier U5 and associated components is applied to Q8 gate (TP4) to control the RF gain of Q8. The ALC inputs are: the forward (FWD PWR) and reflected (REFL PWR) voltages from the directional coupler (summed by R104 - R107), the output of the lock detector, the output of the thermal circuit, the REC voltage, and a dc voltage from "power adjust" potentiometer R100. These input voltages are summed at the input to U5. U5 output provides the ALC voltage which keeps the rf output of the module at approximately 16 watts at any operating frequency. The forward voltage input from J3-7 is a measurement of the rf power delivered to the load. The reflected input from J3-5 is normally a very low level if a 50 Ohm load is connected to the filter module but increases if a high VSWR load is connected (a load which is not close to 50 ohms). Since the forward and reflected signals are summed by R104-R107, a high VSWR load results in a higher voltage input to U5. U5 output then decreases which lowers Q8 gate voltage which lowers Q8 gain thus protecting Q8 and Q9 from possible damage. When the loop is not locked on frequency, the lock detector output (TP8) is high (approximately 8.0 Vdc) which causes U5 output to go low (approximately -0.6 Vdc). This keeps the gate voltage of Q8 turned off until the loop is locked on frequency. When the input to U5 from the thermal circuit U3A is high (approximately 13.0 Vdc), U5 output is partially reduced. This reduces Q8 gain thus protecting Q9 from possible damage due to excessive heat. The REC input to U5 (from XMIT/REC Switch) goes to approximately 4.0 Vdc in receive which causes U5 output to go low (-0.6 Vdc) which turns off Q8 gate voltage. During transmit operation, the REC voltage is approximately -46.0 Vdc, which has no effect on U5 output.

4-3.3.10 Thermal Circuit. Refer to FO-7. Operational amplifier U3A and associated components protect Q9 from possible damage due to excessive heat from component failure or abnormal operating conditions. Resistors R51 and R52 are a voltage divider to provide a reference voltage to U3A-3. R58 and R57 are a voltage divider for U3A-2 input. During normal operation pin 2 input is more positive than pin 3, U3A output is low (approximately -10.0 Vdc) and has no effect on the ALC circuit. R57 is a thermistor which decreases resistance with increasing temperature and is physically located near Q9. When a high temperature condition exists, R57 resistance drops until U3A-2 is less positive than pin 3. This causes U3A output to go high (approximately 13.0 Vdc) and U5 output to drop lower, reducing Q8 gain which lowers the rf signal into Q9 gate. Q9 then has lower rf output which reduces the power dissipation and heat. R50 and CR15 provide hysteresis so Q9 temperature has to drop before U3A output can go low again. ALC resistor value R94 is chosen so the rf output lowers but does not go to zero for the high temperature condition. This allows continued operation at a reduced power level. Typical operation is 15 watts output for normal operation and 5 watts for high temperature conditions.

4-3.3.11 Fault Circuit. Refer to FO-7. The fault circuit consists of transistors Q10, Q11, operational amplifier U3B, and associated components. Q11 emitter supplies current to a front panel POWER AMPL FAULT LED during XMIT fault conditions. The fault LED is on when J5-H KEY/AMP line is low for transmit operation in the AMPL mode and one or more of the following conditions are present; the lock detector indicates the PLL is unlocked, or the thermal circuit indicates excessive heat or the reflected power voltage indicates a high VSWR load. Operational amplifier U3B is a voltage comparator with the reference voltage at U3B-6 set by resistors R83 and R87. The REFL PWR voltage at J3-5 is input to U3B-5 to allow U3B output to toggle high (approx. 13.0 Vdc) if the REFL PWR voltage exceeds the reference threshold voltage. The positive fault signals from U4A (LOCK), U3A (TEMP), and U3B (VSWR) are applied to Q11 base to turn on the fault indicator any time Q10 is turned off (XMIT/AMPL mode only).

4-3.4 <u>30 to 88 MHz Filter Module.</u> Refer to FO-8. The 30 to 88 MHz filter module contains RF filters and switches, directional coupler and transmit/receive switch.

4-3.4.1 <u>RF Filters and Switches.</u> Refer to FO-8. The module contains two rf filters. The HI band filter (50.000 to 88.000 MHz) consists of L1 - L5, L10 - L13, C8 - C11, C42 and associated components. The LO band filter (30.000 to 51.000 MHz) consists of L16 - L20, L22 - L25, C16, C21 - C24 and associated components. The RF INPUT (W1P1) is switched to the appropriate filter by pin diodes which are driven from the HI BAND (P3-1) and LO BAND (P3-3) control voltages. For LO band operation, the LO BAND CONTROL voltage (P3-3) is approximately 4.0 Vdc and the HIGH BAND CONTROL (P3-1) is approximately -48.0 Vdc. This turns on CR8 and CR10 which allows the rf signal from W1P1 to go through the LO BAND filter. Also, CR4 and CR6 are biased off and CR5 and CR7 are biased on to keep the impedances of the HI BAND filter from affecting LO BAND filter operation. For HI BAND operation, the LO BAND CONTROL voltage (P3-3) is approximately -48.0 Vdc and the HI BAND CONTROL voltage (P3-1) is approximately 4.0 Vdc. This turns CR4, CR6, CR9 and CR11 on and CR8, CR10, CR5 and CR7 off so the RF INPUT (W1P1) goes through the HI BAND (50-88 MHz) filter.

4-3.4.2 <u>Directional Coupler.</u> Refer to FO-8. The directional coupler comprises transformers W3/L40 and W4/L41 and associated components. The rf signal from the filter goes through the primary of W3/L40 which samples the forward rf power going to J2 (ANTENNA OUTPUT). Diode CR3 rectifies the rf and produces a DC voltage proportional to the forward power. When filter module RF OUTPUT J2 is connected to a low voltage standing wave ratio (VSWR) load (nominal 50 Ohms), the FWD PWR dc voltage is proportional to the RF power out and the REFL PWR dc voltage is very low, ideally zero. The secondary of W4/L41 samples the reflected RF power, and diode CR2 rectifies the RF to produce a DC voltage proportional to the reflected power. When a rf load which is not 50 Ohms is connected to the module rf output, some of the rf power is reflected and the REFL PWR dc output increases. Because the FWD PWR and REFL PWR DC voltages are summed into the ALC circuit of the AMPL module, a high VSWR at the antenna output J2 reduces the rf power output from the AMPL module. This protects the rf amplifiers from possible damage should an incorrect rf load be connected to J2.

4-3.4.3 <u>Transmit/Receive (T/R) Switch.</u> Refer to FO-8. During transmit, the T/R (Transmit/Receive) XMIT CONTROL P3-6 is approximately 4.0 Vdc and the T/R REC CONTROL P3-8 is -48.0 Vdc. This biases pin diode CR18 ON which routes the rf signal from W3/L40 to J2. CR14 is also biased ON to connect the REF INPUT J1 from the radio to REF OUTPUT W2P2. CR15 and CR17 are biased off and CR16 is biased on to provide a rf short circuit to any rf which might be present at the CR15, CR17 junction. This is necessary because when pin diodes CR15 and CR17 are biased off, a small capacitance is still present which couples a very low level RF signal. The CR16 short to ground eliminates this small signal from coupling between J1 REF INPUT and J2 RF OUTPUT. During receive, the T/R REC CONTROL line is approximately 4.0 Vdc and the T/R XMIT CONTROL line is approximately -48.0 Vdc. CR15 and CR17 are biased on to connect RF OUTPUT J2 to REF INPUT J1. The T/R XMIT CONTROL line reverse biases CR14, CR16 and CR18. When the rf power amplifier is in the BYPASS mode, the filter module T/R switch is set the same for both transmit and receive. The radio transmit rf goes into REF INPUT J1, through CR15 and CR17 directly to the RF OUTPUT J2 (antenna).

4-3.5 <u>130 to 174 MHz Amplifier Module.</u> Refer to FO-9. The 130 to 174 MHz amplifier contains a voltage controlled oscillator (VCO), rf amplifiers, phase-locked-loop (PLL) circuit, lock detector, lock switch, 12.0 Vdc and 5.0 Vdc regulators, automatic level control (ALC), thermal and fault circuits.

4-3.5.1 <u>Voltage Controlled Oscillator.</u> Refer to FO-9. The voltage controlled oscillator (VCO) circuit consists of Q6, Q7, and associated components. The VCO is a varactor tuned oscillator operating over the frequency ranges of 130.000 to 174.000 MHz for a tuning voltage of approximately -7.0 to -19.0 Vdc measured at TP9. L4 tunes with varactors CR7-CR12 to provide the tuning voltage which adjusts the VCO operating frequency. Q7 is the oscillator transistor and Q6 is a buffer amplifier/voltage regulator for Q7. The oscillator power level is approximately 150 mW at the R24 - R25 junction. The VCO is powered by 12.0 Vdc from adjustable regulator U1 during transmit and is shut off in RCV mode.

4-3.5.2 <u>12 Vdc Regulator and XMIT/REC Switches.</u> Refer to FO-9. The 12 Vdc regulator consists of U1 and associated components. The 12.0 regulator is powered by 15.0 Vdc from J4-3 and supplies 12.0 Vdc to the VCO during transmit operation. The output voltage during transmit is adjusted to 12.0 Vdc by potentiometer R6. During transmit operation the XMIT voltage is high (approximately 4.0 Vdc, TP2 is 0.6 Vdc), Q1 is on, Q1 collector and U1 ON/OFF pin are approximately 0.0 Vdc. The low voltage at U1 ON/OFF pin turns U1 on and regulated 12.0 Vdc is present at U1 output pin and TP1. During receive operation, the XMIT voltage is approximately -48.0 Vdc (isolated from Q1 by CR1), Q1 base is 0.0 Vdc, Q1 is off, Q1 collector is at approximately 15.0 Vdc and U1 is off. U1 OUT voltage is 0.0 Vdc which turns the VCO off during RCV operation. Transistors Q2 through Q5 are the XMIT/REC switches. For transmit operation J5-H (KEY/AMP) input is grounded, Q2 and Q4 are switched on and Q3 and Q5 are switched off. This causes the XMIT voltage to be approximately 4.0 Vdc. Q2 collector is approximately 6.0 Vdc, however the current drain to the filter module causes a voltage drop across R8. Since Q3 is off, the REC voltage is approximately -48.0 Vdc. For receive operation J5-H is open circuit, Q2 and Q4 are off, and Q3 and Q5 are on. The XMIT voltage becomes -48 Vdc and the REC voltage is approximately 4.0 Vdc.

4-3.5.3 <u>RF Amplifiers.</u> Refer to FO-9. The VCO output is coupled through T1, R24, C10 and R151 to the gate of Q8. The drain current and gain of Q8 are controlled by the gate voltage from the ALC amplifier circuit U5 and associated components. The dc drain current is initially adjusted for approximately 70 mA with no rf input from the VCO. R35 and C12 provide negative feedback for improved stability and more constant gain across the frequency range. The output of Q8 is approximately 1.5 watts and is coupled through matching network T3, L12, and L13 to the gate of Q9. Transistor Q9 is initially adjusted for approximately 100 mA (no signal drain current) and amplifies the rf signal to approximately 16 watts. R40, C25, and R150 provide negative feedback for Q9. The rf output of Q9 is coupled through C26, L18 and matching transformer T4 to J1 RF OUTPUT.

4-3.5.4 <u>Phase-Locked-Loop.</u> Refer to FO-9. The PLL circuit consists of U6 - U9, Q12, Q13 and associated components, and functions during transmit operation. The purpose of the loop is to adjust the VCO frequency to the same frequency as the J2 REF INPUT (reference rf). Part of the VCO output is coupled through R26, R61, and C38 to U6. Diodes CR26 and CR27 limit the signal amplitude going to U6. U6 divides the VCO frequency by 40 and its output is coupled through R120 to U8. The REF INPUT J2 is attenuated by resistive pad R108 - R110, R112, R114 and R115 and coupled to U7 through R116, R118 and C51. CR28 and CR29 limit the amplitude of the signal. U7 divides the REF INPUT frequency by 40 and its output is coupled to U8 through R121. The frequency of both inputs to U8 (U8-1, U8-3) can vary from a minimum of 3.25 MHz (130.000 MHz/40) to 4.35 MHz (174.000 MHz/40). U8 compares the input signals at pins 1 and 3 and generates error signals at pins 2 and 13. The error signals are filtered by R122, R123 and C59 and connected to operational amplifier U9. The output of U9 is a dc voltage which is modified by Q12 and Q13 to provide the tuning voltage for the VCO. This allows phase detector U8 and loop filter U9 to operate in a more linear mode while Q12 and Q13 modify the resulting error voltage to more closely match the VCO's varactor tune voltage requirements. When the VCO output frequency is different from the REF INPUT J2 frequency, an error voltage is generated causing the tune voltage to change until the VCO frequency is the same as the REF INPUT. The VCO output has the same audio frequency modulation (FM deviation) as the REF INPUT.

4-3.5.5 Lock Detector. Refer to FO-9. The lock detector is comprised of operational amplifier U4A and associated components. When the REF INPUT and the VCO output are at the same frequency, U8-2 and U8-13 are high (2.5 - 5.0 Vdc). Diodes CR30 and CR31 are biased off and U4-1 is approximately -10.5 Vdc. TP8 LOCK signal is approximately -8.3 Vdc and has no effect on the ALC circuit. When the REF INPUT and the VCO output are not at the same frequency, either U8-2 or U8-13 is low (0.0 - 0.4 Vdc) which causes U4A-1 output high (approximately 13.0 Vdc). This indicates an unlocked condition and causes the ALC circuit to shut down Q8. U4A output also goes to U4B (lock switch) and Q11 (fault circuit).

4-3.5.6 Lock Switch. Refer to FO-9. The lock switch consists of operational amplifier U4B and associated components. When the PLL is locked (the REF INPUT and the VCO output are the same frequency), U4A output is low (approximately -10.5 Vdc). This switches U4B output high (approximately 13.0 Vdc). The output of U4B goes through R71 to zener diode CR16 which regulates the voltage to approximately 8.2 Vdc. CR16 cathode voltage is divided by R41 - R49 to provide the dc gate voltage for Q9 rf amplifier (TP5). R47 is adjusted initially to set the dc drain current for Q9. When the loop is not locked, U4B output is high and the preset gate voltage for Q9 is present. When the loop is not locked (i.e. due to some problem or during receive operation), U4A output is high, U4B output is low, and Q9 gate voltage (TP5) is approximately 0.0 Vdc which keeps Q9 off. This circuitry prevents low level VCO free-running rf output from being amplified by Q9 under some conditions, such as transmit mode with no REF INPUT.

4-3.5.7 5 Vdc Regulator. Refer to FO-9. Low drop-out regulator U2 and associated components provide regulated 5.2 Vdc for U6 - U8. U2 operates from the 6.5 Vdc via J4-1. U2-2 output is divided by R59 and R60 to the reference input U2-3. This sets U2-2 output at 5.2 Vdc.

4-3.5.8 Automatic Level Control Circuit. Refer to FO-9. The output voltage of operational amplifier U5 and associated components is applied to Q8 gate (TP4) to control the rf gain. The ALC inputs are: the forward (FWD PWR) and reflected (REFL PWR) voltages from the directional coupler (summed by R104 - R107), the output of the lock detector, the output of the thermal circuit, the REC voltage, and a dc voltage from "power adjust" potentiometer R100. The voltages are summed at the input to U5. U5 output provides the ALC voltage which keeps the rf output of the module at approximately 16 watts at any operating frequency. The forward voltage input from J3-7 is a measurement of the rf power delivered to the load. The reflected input from J3-5 is normally a very low level if a 50 Ohm load is connected to the filter module but increases if a high VSWR load is connected (a load which is not close to 50 ohms). Since the forward and reflected signals are summed by R104 R107, a high VSWR load results in a higher voltage input to U5. U5 output then decreases which lowers Q8 gate voltage which lowers Q8 gain thus protecting Q8 and Q9 from possible damage. When the loop is not locked on frequency, the lock detector output (TP8) is high (approximately 8.0 Vdc) which causes U5 output to go low (approximately -0.6 Vdc). This keeps the gate voltage of Q8 turned off until the loop is locked on frequency. When the input to U5 from the thermal circuit U3A is high (approximately 13.0 Vdc), U5 output is partially reduced. This reduces Q8 gain thus protecting Q9 from possible damage due to excessive heat. The REC input to U5 (from XMIT/REC switch) goes to approximately 4.0 Vdc in receive which causes U5 output to go low (-0.6 Vdc) which turns off Q8 gate voltage. During transmit operation the REC voltage is approximately -46.0 Vdc, having no effect on U5 output.

4-3.5.9 Thermal Circuit. Refer to FO-9. Operational amplifier U3A and associated components protect Q9 from possible damage due to excessive heat from component failure or abnormal operating conditions. Resistors R51 and R52 are a voltage divider to provide a reference voltage to U3A-3. R58 and R57 are a voltage divider for U3A-2 input. During normal operation pin 2 input is more positive than pin 3, U3A output is low (approximately -10.0 Vdc) and has no effect on the ALC circuit. R57 is a thermistor which decreases resistance with increasing temperature and is physically located near Q9. When high temperature condition exists, R57 resistance drops until U3A-2 is less positive than pin 3. This causes U3A output to go high (approximately 13.0 Vdc) and U5 output to go lower, reducing Q8 gain which lowers the rf signal into Q9 gate. Q9 then has lower rf output which reduces the power dissipation and heat. R50 and CR15 provide hysteresis so Q9 temperature has to drop before U3A output can go low again. ALC resistor value R94 is chosen so the rf output lowers but does not go to zero for the high temperature condition. This allows continued operation at a reduced power level. Typical operation is 15 watts output for normal operation and 5 watts for high temperature conditions.

4-3.5.10 Fault Circuit. Refer to FO-9. The fault circuit consists of transistors Q10, Q11, operational amplifier U3B, and associated components. Q11 emitter supplies current to a front panel POWER AMPL FAULT LED during XMIT fault conditions. The fault LED is on when J5-H KEY/AMP line is low for transmit operation in the AMPL mode and one or more of the following conditions are present; the lock detector indicates the PLL is unlocked, or the thermal circuit indicates excessive heat or the reflected power voltage indicates a high VSWR load. Operational amplifier U3B is a voltage comparator with the reference voltage at U3B-6 set by resistors R83 and R87. The REFL PWR voltage at J3-5 is input to U3B-5 to allow U3B output to toggle high (approx. 13.0 Vdc) if the REFL PWR voltage exceeds the reference threshold voltage. The positive fault signals from U4A (LOCK), U3A (TEMP), and U3B (VSWR) are applied to Q11 base to turn on the fault indicator any time Q10 is turned off (XMIT/AMPL mode only).

4-3.6 130 to 174 MHz Filter Module. Refer to FO-10. The 130 to 174 MHz filter contains a rf filter, directional coupler and a transmit/receive switch.

4-3.6.1 RF Filter. Refer to FO-10. The module contains one rf filter consisting of L1 - L5, L10 - L13, C8 - C11 for frequencies 130.000 to 174.000 MHz.

4-3.6.2 Directional Coupler. Refer to FO-10. Transformers W3/L40 and W4/L41 and associated components comprise the directional coupler circuit. The rf signal from the filter goes through the primary of W3/L40 which samples the forward rf power going to J2 (ANTENNA OUTPUT). Diode CR3 rectifies the rf and produces a DC voltage proportional to the forward power. When filter module RF OUTPUT J2 is connected to a low voltage standing wave ratio (VSWR) load (nominal 50 Ohms), the FWD PWR dc voltage is proportional to the RF power out and the REFL PWR dc voltage is very low, ideally zero. The secondary of W4/L41 samples the reflected RF power, and diode CR2 rectifies the RF to produce a DC voltage proportional to the reflected power. When a rf load which is not 50 Ohms is connected to the module rf output, some of the rf power is reflected and the REFL PWR dc output increases. Because the FWD PWR and REFL PWR DC voltages are summed into the ALC circuit of the AMPL module, a high VSWR at the antenna output J2 reduces the rf power output from the AMPL module. This protects the rf amplifiers from possible damage should an incorrect rf load be connected to J2.

4-3.6.3 Transmit/Receive (T/R) Switch. Refer to FO-10. During transmit, the T/R (Transmit/Receive) XMIT CONTROL P3-6 is approximately 4.0 Vdc and the T/R REC CONTROL P3-8 is -48.0 Vdc. This biases pin diode CR18 on which connects the rf signal from W3L40 to J2. CR14 is also biased ON to connect the REF INPUT J1 from the radio to REF OUTPUT W2P2. CR15 and CR17 are biased off and CR16 is biased on to provide a rf short circuit to any rf which might be present at the CR15, CR17 junction. This is necessary because when pin diodes CR15 and CR17 are biased off, a small capacitance is still present which couples a very low level of RF signal. The CR16 short to ground eliminates this small signal from coupling between J1 REF INPUT and J2 RF OUTPUT. During receive, the T/R REC CONTROL line is approximately 4.0 Vdc and the T/R XMIT CONTROL line is approximately -48.0 Vdc. CR15 and CR17 are biased on to connect RF OUTPUT J2 to REF INPUT J1. The T/R XMIT CONTROL line reverse biases CR14, CR16 and CR18. When the rf power amplifier is in the BYPASS mode, the T/R switch filter module is set the same for both transmit and receive. The radio transmit rf goes into REF INPUT J1, through CR15 and CR17 directly to the RF OUTPUT J2 (antenna).

4-4 PS/A THEORY OF OPERATION.

The Power Supply/Audio (PS/A) assembly contains the chassis assembly and a power supply/audio module.

4-4.1 Chassis Assembly. Refer to FO-11. The chassis assembly contains the housing for the power supply/audio module, a terminal board (TB1), rf interface cable (W2) and dc wiring harnesses. Vehicular operating power of 10.0 - 32.0 Vdc is applied to chassis assembly PWR connector J6. The input voltage is then routed to the power supply/audio module assembly via POWER ON/OFF switch/circuit breaker CB1. With the POWER ON/OFF switch in the ON position, the power supply/audio module supplies 26.5 Vdc to the PA, supplies 15.0 Vdc to the RT and lights DS1 PWR ON lamp. The chassis assembly routes 26.5 Vdc to the battery charger assembly via a battery charger circuit on TB1.

4-4.1.1 DC/CTRL Interface. Refer to FO-11. Remote voltage sense lines (J4-E,J) and DC PWR lines (J4-C,D) from the PA are routed to the power supply/audio module. Terminal board (TB1) U1 and Q2 establishes a 125 millisecond XMIT delay whenever J1-C is grounded (via external audio accessory i.e. handset). This keeps the PA keyed 125 milliseconds longer (end of message delay) when J1-C is not grounded (release PTT) to ensure compatibility with COMSEC equipment. DS2 XMIT lamp lights whenever Q2 is turned on to indicate that the PS/A assembly has been keyed via external audio accessory. Receive audio (J1-B), KEY control (J1-C), microphone audio (J1-D), and the external data line (J1-F) are routed to/from the external microphone/headset connector J1 to/from the RT (via P1).

4-4.1.2 RF Interface. Refer to FO-11. RF interface cable W2 routes the transmit/receive rf to/from the RT (via P2) to/from the PA (via J2) or to/from the external antenna. Resistor R1 (integral to W2J2 connector) provides a dc path to ground for a 50 ohm antenna load sensing requirement in the Low Band RT.

4-4.1.3 CHGR Control. FO-11. CHGR indicator DS3 is lit bright or dim depending on the condition of the rechargeable battery. The CHGR indicator is not lit when the battery or charger assembly is defective or when a nonrechargeable battery is installed on the RT. Zener diode CR1 reverse biases if the RT battery voltage drops below approximately 11.0 Vdc or there is a short in the charger assembly. Q1 is then enabled turning DS3 CHGR lamp off indicating a fault. Normal charge current of approximately 30 mA is set by R6 and R7 for battery voltage between 14.0 and 16.0 Vdc. The charge current is limited to approximately 90 mA for short circuit conditions. DS3 is lit any time normal charge current is drawn through R7.

4-4.1.4 Audio Interface. Refer to FO-11. Amplified audio (J4-E,F) from the power supply/audio assembly is routed to a remote eight ohm speaker via chassis connector J5 (SPKR). Receive audio from the RT is routed from P1-B through VA front panel volume control (R3) to power supply/audio module. R3 is used to control the audio output from the remote speaker by adjusting the input level to the PS/A module from the RT.

4-4.2 Power Supply/Audio Assembly. Refer to FO-12. The power supply/audio module provides the RT power source (RT POWER), battery charger power (BATT CHGR), and RF amplifier power source (RFA PWR). The module also contains the remote speaker audio amplifier for receive af. The power supply section contains two overvoltage, two overcurrent, and one reverse polarity protection circuit.

4-4.2.1 Power Supply. Refer to FO-12. Vehicle power via J4-H, I and G is applied to step-up/step-down regulator PS1. FL7, L7 and C17 filter the input power. CR8 provides input reverse polarity protection for PS1. CR6 and CR7 provide overvoltage protection for PS1. If the input voltage exceeds approximately 36.5 Vdc, zener diode CR6 breaks down and CR5 conducts. This causes CR7 to break down and trigger programmable unijunction transistor (PUT) Q4. Q4 triggers SCR Q3 which crowbars the input to PS1 by shorting PS1-4 and PS1-5 to ground. The SCR crowbar remains tripped (PS1 input shorted) until external power is removed from input pins J4-G, H and I. CR7 breaks down and CR4 conducts if PS1-10 and 11 output exceeds approximately 30.5 Vdc. Q4 is then triggered and the above crowbar sequence occurs. PS1 is a step-up/step-down regulator with a fixed output on pins 10 and 11 of 26.5 Vdc. The 26.5 Vdc fixed output drives the input of 15.0 Vdc linear regulator U1. CR2 increases the regulator output to 15.5 Vdc. U1 output powers the RT through steering diode CR3 and provides B+ to audio amplifier U2. R5 and R18 are current sensing resistors for the 15.0 and 26.5 Vdc outputs respectively. Q1 (26.5 Vdc) or Q6 (15.0 Vdc) conducts whenever a high current condition exists (approximately 0.5 amp for Q6 and 4.0 amp for Q1). With either Q1 or Q6 conducting, Q2 is turned on and applies a trigger signal to turn on transistor Q5. This turns on SCR Q4 which trips Q3 and the above crowbar sequence occurs. Polymer fuses R3 and R4 protect the remote voltage sense lines by preventing load current from flowing out of PS1 through the sense lines in the event of PA power cable damage or any time the load current lines are opened without opening the sense lines. The fuses, which undergo a large and abrupt change in resistance when an overcurrent condition exists, have a positive temperature coefficient. When the high current condition is repaired (normal current flow), the device resets allowing normal operation. If the PA load voltage drops below 26.5 Vdc, PS1 internally senses (via R3 and R4) the drop and increases the output voltage (pins 10 and 11) to maintain a constant 26.5 Vdc at the load. If the PA load voltage increases above 26.5 Vdc, PS1 output voltage decreases accordingly.

4-4.2.2 Audio Amplifier. Refer to FO-12. Receive audio is input on J4-D, filtered by FL5 and L5 and applied to audio amplifier U2. 150 Hz notch filter R6 - R8 and C3 - C6 attenuates the 150 Hz squelch tone present on the incoming audio signal by 30 dB minimum. This prevents a low hum from being heard in the remote speaker. R9 and R10 pad the input to U2 approximately 40 dB to prevent feedback. R11 and R12 set the voltage gain for U2 to approximately 100. The amplified output is filtered (C11, L4 and FL4) before being routed to the remote speaker. The maximum unclipped audio output at J4-F is rated at 2 watts minimum into an 8 ohm load.

CHAPTER 5

MAINTENANCE

Part I. RECEIVER-TRANSMITTER MAINTENANCE

5-1 RT MAINTENANCE

Upon receipt of the suspected faulty RT, visually inspect all connectors, switches and knobs for physical damage. The following procedures describe the sequence of events necessary for repairing the RT. If it is unknown what frequency band the RT is configured for low band (30.000 to 88.000 MHz) or high band (130.000 to 174.000 MHz) refer to TO 31R2-4-810-1 for instructions.

a. Perform RT minimum performance test (table 5-1 for low band or 5-2 for high band). If a fault is encountered perform the steps following the failed step as directed.

b. Perform alignment (tables 5-3 through 5-5) or fault isolation (tables 5-6 through 5-8) as directed.

c. After all alignments, repairs, and assembly has been completed the RT minimum performance test must be run again for confidence.

NOTE

The TRANSMIT Switch on the Audio/Power Test Adapter should always be placed in the MOMENTARY TX position ONLY unless otherwise specified.

NOTE

Should a specific locale result in degraded frequencies due to noise, alternate test frequencies may be used unless otherwise specified. Deviations shall not exceed $\pm$2.5 MHz from the nominal frequency except for the Low Band RT presets assigned to channels 3 and 4. Channel 3 shall not be assigned any frequency higher than 50.9875 MHz. Channel 4 shall not be assigned any frequency lower than 51.000 MHz.

5-2 RT MINIMUM PERFORMANCE TEST.

The following tables contain the low band RT and high band RT minimum performance tests. The minimum performance test performs two functions. First it insures that the RT is fully operational. Second, should a minimum performance step fail, the module fault isolation steps follow the failed minimum performance step.

To perform the minimum performance test run all the numeric steps (ie. 1., 2., 3., 4. ...). If a minimum performance step fails, run the corresponding module fault isolation steps (ie. 4a., 4b., 4c., etc.) to determine which module is faulty. Note, for all minimum performance tests, the following conditions apply unless otherwise specified:

a. All continuity tests (resistance) shall be taken with BOTH modules installed and power removed.

b. All voltage tests shall be taken with both modules installed and power applied (referenced to the chassis ground for each module).

5-2.1 Low Band RT Minimum Performance Test. Table 5-1 checks operation of the low band RT. This test should be performed on any suspected faulty low band RT. The RT is serviceable if every required indication is achieved.

Table 5-1. RT Low Band Minimum Performance Test

Step	Procedure	Required indication
1.	Connect test equipment (fig. 5-1) and set switches as follows; Test Adapter: TRANSMIT - OFF SPEAKER - ON NORM/+20 - NORM POWER ON/OFF - OFF RT: CHAN - 1 ANT - 50 OFF/VOL - midrange CAUTION The input power supply must be current limited to 400 mAdc or damage to RT may result.	
2.	Adjust power supply to 14.5 Vdc and current limit to 400 mAdc.	
3.	Set test adapter POWER ON/OFF switch to ON.	
4.	Load the following RT presets. Hold the INCR switch down to check each digit on the LCD for proper incremental steps while loading. CHAN — Frequency (MHz) 1 — 30.000 2 — 40.0125 3 — 50.975 4 — 51.0375 5 — 61.050 6 — 70.0625 7 — 80.025 8 — 87.9875	Dgt 1=3 to 8 Dgt 2=0 to 9 Dgt 3=0 to 9 Dgt 4/5=00 to 88
	4a. Measure from J3-1 to GND while pressing INCR for Continuity. With INCR released reading should be 90.1k ohms minimum. If either reading is incorrect a fault is indicated in the Frame/Panel.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	4b. Measure from J3-2 to GND while pressing SET for Continuity. With SET released reading should be 90.1k ohms minimum. If either reading is incorrect a fault is indicated in the Frame/Panel.	
	4c. Measure from J3-4 to J3-5 for continuity with CHAN 6 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4d. Measure from J3-4 to J3-3 for continuity with CHAN 7 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4e. Measure from J3-4 to J3-7 for continuity with CHAN 8 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4f. Measure from J3-4 to J3-9 for continuity with CHAN 9 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4g. Measure from J3-4 to J3-11 for continuity with CHAN 10 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4h. Measure from J3-6 to GND for a 4.0 Vp-p Serial Data Stream. If reading is incorrect a fault is indicated in the Synth/AF.	
	4i. Measure from J3-8 to J3-11 for continuity with CHAN 1 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4j. Measure from J3-8 to J3-9 for continuity with CHAN 2 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4k. Measure from J3-8 to J3-7 for continuity with CHAN 3 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4l. Measure from J3-8 to J3-3 for continuity with CHAN 4 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4m. Measure from J3-8 to J3-5 for continuity with CHAN 5 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	4n. Measure from J3-10 to GND for a 4.0 Vp-p Serial Data Stream. If reading is incorrect a fault is indicated in the Synth/AF.	
	4o. Measure from J3-12 to GND for 5.0 Vdc. If reading is incorrect a fault is indicated in the Synth/AF.	
5.	Rotate CHAN switch from 1 through 8 while observing FREQ display.	FREQ display indicates: Ch-1 30000 CH-2 40012 CH-3 50975 CH-4 51038 CH-5 61050 CH-6 70062 CH-7 80025 CH-8 87988
	5a. Measure from J3-4 to J3-5 for continuity with CHAN 6 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5b. Measure from J3-4 to J3-3 for continuity with CHAN 7 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5c. Measure from J3-4 to J3-7 for continuity with CHAN 8 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5d. Measure from J3-4 to J3-9 for continuity with CHAN 9 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5e. Measure from J3-4 to J3-11 for continuity with CHAN 10 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5f. Measure from J3-6 to GND for a 4.0 Vp-p Serial Data Stream. If reading is incorrect a fault is indicated in the Synth/AF.	
	5g. Measure from J3-8 to J3-11 for continuity with CHAN 1 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	5h. Measure from J3-8 to J3-9 for continuity with CHAN 2 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5i. Measure from J3-8 to J3-7 for continuity with CHAN 3 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5j. Measure from J3-8 to J3-3 for continuity with CHAN 4 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5k. Measure from J3-8 to J3-5 for continuity with CHAN 5 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5l. Measure from J3-10 to GND for a 4.0 Vp-p Serial Data Stream. If reading is incorrect a fault is indicated in the Synth/AF.	
	5m. Measure from J3-12 to GND for 5.0 Vdc. If reading is incorrect a fault is indicated in the Synth/AF.	
	<u>ANTENNA WARNING TONE</u>	
6.	Disconnect rf cable from RT ANT connector.	Warning tone (1000 Hz at 2 second intervals) is present. Tone is clear with no background noise present in SPKR/MIC.
	6a. With ANT 50 selected, measure from J3-13 to GND for a momentary deflection, then 93.2k ohms min.	
	6b. With ANT A selected, measure from J3-13 to J3-11 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6c. With ANT B selected, measure from J3-13 to J3-9 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	6d. With ANT C selected, measure from J3-13 to J3-7 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6e. With ANT D selected, measure from J3-13 to J3-5 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6f. With ANT E selected, measure from J3-13 to J3-3 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6g. Measure from J3-16 to ANT for 10k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6h. Measure from J3-16 to GND for a momentary deflection, then 179.5k ohms min. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6i. Measure from J2-24 to GND. Resistance should vary smoothly from 47k ohms to 4 ohms while rotating the VOL control from full CCW to full CW. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6j. Measure from J2-25 to GND for 17 to 27 ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6k. Measure from J2-26 to GND for 71.7k ohms with VOL control set at full CCW. If reading is incorrect a fault is indicated in the Frame/Panel.	
7.	Set CHAN and ANT switches to the following positions; <u>ANT</u> <u>CHAN</u> A 1 B 2 C 3 D 5 E 6	Warning tone is absent only during matched ANT and CHAN positions.
	7a. Measure from J3-4 to J3-5 for continuity with CHAN 6 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	7b. Measure from J3-4 to J3-3 for continuity with CHAN 7 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7c. Measure from J3-4 to J3-7 for continuity with CHAN 8 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7d. Measure from J3-4 to J3-9 for continuity with CHAN 9 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7e. Measure from J3-4 to J3-11 for continuity with CHAN 10 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7f. Measure from J3-8 to J3-11 for continuity with CHAN 1 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7g. Measure from J3-8 to J3-9 for continuity with CHAN 2 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7h. Measure from J3-8 to J3-7 for continuity with CHAN 3 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7i. Measure from J3-8 to J3-3 for continuity with CHAN 4 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7j. Measure from J3-8 to J3-5 for continuity with CHAN 5 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7k. With ANT 50 selected, measure from J3-13 to GND for a momentary deflection, then 93.2k ohms min.	
	7l. With ANT A selected, measure from J3-13 to J3-11 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7m. With ANT B selected, measure from J3-13 to J3-9 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	7n. With ANT C selected, measure from J3-13 to J3-7 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7o. With ANT D selected, measure from J3-13 to J3-5 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7p. With ANT E selected, measure from J3-13 to J3-3 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7q. Measure from J3-16 to ANT for 10k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7r. Measure from J3-16 to GND for a momentary deflection, then 179.5k ohms min. If reading is incorrect a fault is indicated in the Frame/Panel.	
	<u>SQUELCH DISABLE</u>	
8.	Press SQ DSBL switch.	FREQ display indicates LO and noise is heard in SPKR/MIC.
	8a. Measure from J2-23 to GND with SQ DSBL pressed for continuity. Release SQ DSBL switch. Minimum resistance is 243k ohms. If either reading is incorrect a fault is indicated in the Frame/Panel.	
	8b. Measure from J2-24 to GND. Resistance should vary smoothly from 47k ohms to 4 ohms while rotating the VOL control from full CCW to full CW.If reading is incorrect a fault is indicated in the Frame/Panel.	
	8c. Measure from J2-25 to GND for 10 ohms maximum. If reading is incorrect a fault is indicated in the Frame/Panel.	
	8d. Measure from J2-26 to GND for 71.7k ohms with VOL control set at full CCW. If reading is incorrect a fault is indicated in the Frame/Panel.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	BATTERY WARNING TONE	
9.	Connect rf cable to ANT connector and set ANT switch to 50. Reduce input power supply voltage to 10.0 Vdc.	Low battery warning tone (four 400 Hz beeps at 6 sec intervals) present in SPKR/MIC. Tone is clear with no background noise present in SPKR/MIC.
	9a. A fault is indicated in the Synth/AF module. Fault isolate module IAW Table 5-6.	
10.	Increase power supply voltage to 11.75 Vdc.	Warning tone continues.
11.	Set OFF/VOL control OFF, then rotate to midrange.	Warning tone absent.
	11a. A fault is indicated in the Synth/AF module. Fault isolate module IAW Table 5-6.	
12.	Reset power supply voltage to 14.5 Vdc.	
	TRANSMIT POWER OUTPUT AND STABILITY CAUTION Do not key RT for extended periods of time for the following tests or damage to RT may result.	
13.	Set test adapter TRANSMIT switch to TX and measure power output and transmit current for CHAN 1, 2, 3, 4, 6 and 8.	1.0 watt minimum. Ammeter indicates less than 370 mAdc.
	13a. If XMTR RF adjustment has been performed IAW Table 5-4 proceed to step 13c, otherwise perform step 13b..	
	13b. Perform XMTR RF adjustment in accordance with Table 5-4 and rerun Minimum Performance Test.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	13c. Measure J2-4 to GND for a minimum of 12 Vp-p pulsed DC in the standby mode. The signal should be at a 210 msec repeat rate. If reading is incorrect a fault is indicated in the Synth/AF.	
	13d. Measure from J2-4 to GND for 12.0 Vdc min. while pressing SQ DSBL. If reading is incorrect a fault is indicated in the Synth/AF.	
	13e. Measure from J2-4 to GND for 0.5 Vdc max. while pressing PUSH TO TALK. If reading is incorrect a fault is indicated in the Synth/AF.	
	13f. Measure from J2-10 to GND for 0.5 Vdc maximum in the standby mode. If reading is incorrect a fault is indicated in the Synth/AF.	
	13g. Measure from J2-10 to GND for 12.0 Vdc minimum with the PUSH TO TALK switch pressed. If reading is incorrect a fault is indicated in the Synth/AF.	
	13h. Measure from J2-14 to GND for 12.0 Vdc minimum (if channel selected is below 51.000 MHz) and 0.5 Vdc maximum (if channel selected is above 51.000 MHz) while pressing the SQ DSBL switch. If either reading is incorrect a fault is indicated in the Synth/AF.	
	13i. Measure from J2-16 to GND for 12.0 Vdc minimum (if channel selected is above 51.000 MHz) and 0.5 Vdc maximum (if channel selected is below 51.000 MHz) while pressing the SQ DSBL switch. If either reading is incorrect a fault is indicated in the Synth/AF.	
	13j. Measure from J2-19 to AUDIO pin C for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
	13k. Measure J2-19 to GND for 4.5 Vdc in the standby mode. If reading is incorrect a fault is indicated in the Synth/AF.	
14.	Set test adapter TRANSMIT switch to TX and measure frequency accuracy for CHAN 2 and 6.	+/- 2.0 ppm of operating frequency
	14a. If synthesizer output frequency alignment has been performed IAW Table 5-3 proceed to step 14c, otherwise perform step 14b.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	14b. Perform synthesizer output frequency alignment IAW Table 5-3 and rerun Minimum Performance Test.	
	14c. If reading is incorrect a fault is indicated in the Synth/AF.	
	<u>SQUELCH TONE</u>	
	NOTE Unless otherwise specified, 300 to 3000 audio filter on modulation meter shall be disabled (OUT) for the following tests.	
15.	Disconnect frequency counter and connect modulation meter demod out (AF) to frequency counter.	
16.	Set test adapter TRANSMIT switch to TX and measure squelch tone frequency.	150 +/- 2 Hz
	16a. Measure J2-20 to GND for 5.0 Vdc in the standby mode. If reading is incorrect a fault is indicated in the Synth/AF.	
	16b. Measure J2-20 to GND for a 4.5 Vp-p, 150 Hz (sawtooth) signal while pressing the PUSH TO TALK switch. If audio signal is not present a fault is indicated in the Synth/AF.	
17.	Set test adapter TRANSMIT switch to TX, and measure squelch tone deviation.	2500 to 3500 Hz deviation
	17a. If modulation limiting adjustment has been performed IAW Table 5-3 proceed to step 17c, otherwise perform step 17b.	
	17b. Perform modulation limiting adjustment IAW Table 5-3 and rerun Minimum Performance Test.	
	17c. If reading is incorrect a fault is indicated in the Synth/AF.	
	<u>TRANSMITTER MODULATION</u>	
18.	Adjust audio oscillator for 1 kHz and connect audio oscillator to test adapter TRANSMIT INPUT connector.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
19.	Connect distortion analyzer input to test adapter XMIT METER connection. **NOTE** The RT INCR switch must be pressed to disable the 150 Hz squelch tone after test adapter TRANSMIT switch is set to ON, and shall be held down to make the following transmitter modulation measurements.	
20.	Set test adapter TRANSMIT switch to ON, press RT INCR switch and adjust audio oscillator output level for 4.5 kHz deviation on modulation meter. Measure the microphone audio input level on the distortion analyzer.	1.0 mV RMS maximum
	20a. Measure from J2-18 to J2-22 for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
	20b. Measure from J2-19 to AUDIO pin C for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
	20c. Measure J2-19 to GND for 4.5 Vdc in the standby mode. If reading is incorrect a fault is indicated in the Synth/AF.	
	20d. Measure from J2-21 to AUDIO pin-D for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
	20e. Measure J2-22 to GND for a 6.0 Vp-p voice signal while pressing the PUSH TO TALK switch and speaking into the MIC. If reading is incorrect a fault is indicated in the Synth/AF.	
21.	Disconnect distortion analyzer from XMIT METER connector on test adapter. Disconnect modulation meter demod out (AF) from frequency counter and connect demod out to distortion analyzer input.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
22.	Set test adapter TRANSMIT switch to ON, press RT INCR switch, and establish a "0 dB" reference level at 1 kHz. Measure transmit audio frequency response at the following frequencies relative to the 1 kHz (0 dB) response.	
	300 Hz	+1 to -4 dB
	3000 Hz	+1 to -4 dB
	5000 Hz	-7 dB minimum
	15000 Hz	-28 dB minimum
	22a. A fault is indicated in the Synth/AF module. Fault isolate the module IAW Table 5-6.	
23.	With TRANSMIT switch "ON" and modulation meter 300-3000 Hz audio filter IN, press RT INCR switch and measure transmit audio distortion at 1 kHz.	less than 5% distortion
	23a. A fault is indicated in the Synth/AF module. Fault isolate the module IAW Table 5-6.	
24.	With modulation meter 300-3000 Hz audio filter OUT and TRANSMIT switch "ON", set test adapter NORM/+20 switch to +20.	
25.	Press RT INCR switch and measure transmit audio maximum deviation at 300 Hz, 1 kHz, 2kHz, and 3kHz (300-3000 Hz audio filter OUT).	7.5 kHz maximum
	25a. If modulation limiting adjustment has been performed IAW Table 5-3 proceed to step 25c, otherwise perform step 25b.	
	25b. Perform modulation limiting adjustment IAW Table 5-3 and rerun Minimum Performance Test.	
	25c. If reading is incorrect a fault is indicated in the Synth/AF.	
26.	Set test adapter TRANSMIT switch to OFF.	
	TRANSMIT MICROPHONE	
27.	Disconnect audio oscillator from test adapter TRANSMIT INPUT.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
28.	Press RT PUSH TO TALK switch and speak into SPKR/MIC (hold microphone about 1 inch from mouth), monitor transmit audio deviation.	Approximately 4.5 kHz deviation with peaks limited to less than 11.0 kHz
	28a. Measure from J2-18 to J2-22 for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
	28b. Measure J2-22 for a 6.0 Vp-p voice signal while pressing the PUSH TO TALK switch and speaking into the MIC. If reading is incorrect a fault is indicated in the Synth/AF.	
	28c. Measure from J2-25 to GND for 17 to 27 ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	28d. Measure from J2-27 to GND with PUSH TO TALK pressed for a maximum of 10 ohms. Release PUSH TO TALK switch and measure a minimum resistance of 500k ohms. If either reading is incorrect a fault is indicated in the Frame/Panel.	
	CAUTION Do not press RT PUSH TO TALK switch or set test adapter TRANSMIT switch to ON for the following receiver tests or damage to test equipment or RT may result.	
	<u>RECEIVER SENSITIVITY</u>	
29.	Connect test equipment (fig. 5-2).	
30.	Set test adapter SPEAKER switch to OFF and rotate RT CHAN switch to 1.	
31.	Adjust signal generator for 30.000 MHz, 0.5 microvolt, 1 kHz audio modulated at 4.5 kHz deviation.	Receive audio present on distortion analyzer
	31a. If squelch adjustment has been performed IAW Table 5-4 proceed to step 31c, otherwise perform step 31b.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
31b.	Perform squelch adjustment IAW Table 5-4 and rerun Minimum Performance Test.	
31c.	Measure J2-4 to GND for a minimum of 12 Vp-p pulsed DC in the standby mode. The signal should be at a 210 msec repeat rate. If reading is incorrect a fault is indicated in the Synth/AF.	
31d.	Measure from J2-4 to GND for 12.0 Vdc min. while pressing SQ DSBL. If reading is incorrect a fault is indicated in the Synth/AF.	
31e.	Measure from J2-4 to GND for 0.5 Vdc max. while pressing PUSH TO TALK. If reading is incorrect a fault is indicated in the Synth/AF.	
31f.	Measure J2-5 to GND for 1 Vp-p receiver noise. If reading is incorrect a fault is indicated in the RF/IF.	
31g.	Measure from J2-7 to GND for a minimum of 12 Vp-p pulsed DC in the standby mode. If reading is incorrect a fault is indicated in the Synth/AF.	
31h.	Measure from J2-7 to GND for 0.5 Vdc maximum with the PUSH TO TALK switch pressed. If reading is incorrect a fault is indicated in the Synth/AF.	
31i.	Measure from J2-14 to GND for 12.0 Vdc minimum (if channel selected is below 51.000 MHz) and 0.5 Vdc maximum (if channel selected is above 51.000 MHz) while pressing the SQ DSBL switch. If either reading is incorrect a fault is indicated in the Synth/AF.	
31j.	Measure from J2-16 to GND for 12.0 Vdc minimum (if channel selected is above 51.000 MHz) and 0.5 Vdc maximum (if channel selected is below 51.000 MHz) while pressing the SQ DSBL switch. If either reading is incorrect a fault is indicated in the Synth/AF.	
31l.	Measure from J2-17 to AUDIO pin B for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
31m.	Measure J2-17 for the absence of an audio signal in the standby mode. If audio signal is present a fault is indicated in the Synth/AF.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	31n. Measure from J2-28 to J2-5 for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
32.	Adjust RT OFF/VOL control for 1.0 Vrms on distortion analyzer.	
33.	Measure audio output SINAD ratio.	12 dB minimum
	33a. If RCVR alignment has been performed IAW Table 5-4 proceed to step 33c, otherwise perform step 33b.	
	33b. Perform RCVR alignment IAW Table 5-4 and rerun Minimum Performance Test.	
	33c. If reading is incorrect a fault is indicated in the RF/IF.	
34.	Adjust signal generator for the appropriate frequencies and measure SINAD ratio for the following RT presets: <u>CHAN</u> <u>Signal Generator (MHz)</u> 2 40.0125 3 50.9750 4 51.0375 6 70.0625 8 87.9875	12 dB minimum
	34a. If RCVR alignment has been performed IAW Table 5-4 proceed to step 34c, otherwise perform step 34b.	
	34b. Perform RCVR alignment IAW Table 5-4 and rerun Minimum Performance Test.	
	34c. If reading is incorrect a fault is indicated in the RF/IF.	
	<u>RECEIVER SQUELCH SENSITIVITY</u>	
35.	On the Audio/Power Test Adapter, place the SPEAKER switch to ON. Set RF output of signal generator to minimum. Slowly increase RF output to 0.2 microvolts on signal generator and check receiver for quieting.	Receiver remains quiet
	35a. If squelch adjustment has been performed IAW Table 5-4 proceed to step 35c, otherwise perform step 35b.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	35b. Perform squelch adjustment IAW Table 5-4 and rerun Minimum Performance Test.	
	35c. If reading is incorrect a fault is indicated in the RF/IF.	
36.	Slowly increase signal generator rf output until squelch breaks and normal audio output is restored. Measure signal generator RF output level.	0.4 microvolts maximum
	36a. If squelch adjustment has been performed IAW Table 5-4 proceed to step 36c, otherwise perform step 36b.	
	36b. Perform squelch adjustment IAW Table 5-4 and rerun Minimum Performance Test.	
	36c. If reading is incorrect a fault is indicated in the RF/IF.	
37.	On the Audio/Power Test Adapter, place the SPEAKER switch to OFF.	
	<u>RECEIVER AUDIO OUTPUT DISTORTION</u>	
38.	Adjust signal generator for 1.0 mV and 1 kHz audio modulated at 4.5 kHz deviation.	
39.	Adjust RT OFF/VOL control for 2.20 to 2.40 Vrms on distortion analyzer.	Signal unclipped
	39a. If RCVR alignment has been performed IAW Table 5-4 proceed to step 39c, otherwise perform step 39b.	
	39b. Perform RCVR alignment IAW Table 5-4 and rerun Minimum Performance Test.	
	39c. If reading is incorrect a fault is indicated in the RF/IF.	
40.	Measure receiver audio output harmonic distortion.	less than 10 % distortion
	40a. If RCVR alignment has been performed IAW Table 5-4 proceed to step 40c, otherwise perform step 40b.	
	40b. Perform RCVR alignment IAW Table 5-4 and rerun Minimum Performance Test.	

Table 5-1. RT Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	40c. If reading is incorrect a fault is indicated in the RF/IF.	
	<u>RECEIVE AUDIO AMP FREQUENCY RESPONSE</u>	
41.	Adjust RT OFF/VOL control for 1.6 Vrms on distortion analyzer and establish a 0 dB reference at 1 kHz audio.	
42.	Adjust audio oscillator for 300 Hz modulation and measure receive audio amplifier frequency response relative to the 0 dB reference.	+1 to -6 dB
	42a. A fault is indicated in the Synth/AF module. Fault isolate module IAW Table 5-6.	
43.	Adjust audio oscillator for 3000 Hz modulation and measure receive audio amplifier frequency response relative to the 0 dB reference.	+1 to -6 dB
	43a. A fault is indicated in the Synth/AF module. Fault isolate module IAW Table 5-6.	
	<u>RECEIVER SPEAKER AND SPEAKER MUTING</u>	
44.	Set test adapter SPEAKER switch to ON.	Tone heard in SPKR/MIC
	44a. Measure from J2-25 to GND for 17 to 27 ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
45.	Set test adapter SPEAKER switch to OFF.	Tone not heard in SPKR/MIC
	45a. A fault is indicated in the Synth/AF module. Fault isolate module IAW Table 5-6.	
46.	Test is complete.	

5-2.2 <u>High Band RT Minimum Performance Test.</u> Table 5-2 checks operation of the high band RT. This test should be performed on any suspected faulty high band RT. The RT is serviceable if every required indication is achieved.

Table 5-2. RT High Band Minimum Performance Test

Step	Procedure	Required indication
1.	Connect test equipment (fig. 5-1) and set switches as follows; Test Adapter: TRANSMIT - OFF SPEAKER - ON NORM/+20 - NORM POWER ON/OFF - OFF RT: CHAN - 1 ANT - 50 OFF/VOL - midrange **CAUTION** The input power supply must be current limited to 400 mAdc or damage to RT may result.	
2.	Adjust power supply to 14.5 Vdc and current limit to 400 mAdc.	
3.	Set test adapter POWER ON/OFF switch to ON.	
4.	Load the following RT presets. Hold the INCR switch down to check each digit on the LCD for proper incremental steps while loading. CHAN — Frequency (MHz) 1 — 130.000 2 — 140.0125 3 — 150.975 4 — 151.0375 5 — 161.050 6 — 165.0625 7 — 170.025 8 — 173.9875	Dgt 1=3 to 7 Dgt 2=0 to 9 Dgt 3=0 to 9 Dgt 4/5=00 to 88
	4a. Measure from J3-1 to GND while pressing INC for Continuity. With INC released reading should be 90.1k ohms minimum. If either reading is incorrect a fault is indicated in the Frame/Panel.	
	4b. Measure from J3-2 to GND while pressing SET for Continuity. With SET INC released reading should be 90.1k ohms minimum. If either reading is incorrect a fault is indicated in the Frame/Panel.	

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	4c. Measure from J3-4 to J3-5 for continuity with CHAN 6 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4d. Measure from J3-4 to J3-3 for continuity with CHAN 7 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4e. Measure from J3-4 to J3-7 for continuity with CHAN 8 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4f. Measure from J3-4 to J3-9 for continuity with CHAN 9 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4g. Measure from J3-4 to J3-11 for continuity with CHAN 10 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4h. Measure from J3-6 to GND for a 4.0 Vp-p Serial Data Stream. If reading is incorrect a fault is indicated in the Synth/AF.	
	4i. Measure from J3-8 to J3-11 for continuity with CHAN 1 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4j. Measure from J3-8 to J3-9 for continuity with CHAN 2 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4k. Measure from J3-8 to J3-7 for continuity with CHAN 3 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4l. Measure from J3-8 to J3-3 for continuity with CHAN 4 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4m. Measure from J3-8 to J3-5 for continuity with CHAN 5 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	4n. Measure from J3-10 to GND for a 4.0 Vp-p Serial Data Stream. If reading is incorrect a fault is indicated in the Synth/AF.	

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	4o. Measure from J3-12 to GND for 5.0 Vdc. If reading is incorrect a fault is indicated in the Synth/AF.	
5.	Rotate CHAN switch from 1 through 8 while observing FREQ display.	FREQ display indicates: CH-1 30000 CH-2 40012 CH-3 50975 CH-4 51038 CH-5 61050 CH-6 65062 CH-7 70025 CH-8 73988
	5a. Measure from J3-4 to J3-5 for continuity with CHAN 6 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5b. Measure from J3-4 to J3-3 for continuity with CHAN 7 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5c. Measure from J3-4 to J3-7 for continuity with CHAN 8 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5d. Measure from J3-4 to J3-9 for continuity with CHAN 9 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5e. Measure from J3-4 to J3-11 for continuity with CHAN 10 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5f. Measure from J3-6 to GND for a 4.0 Vp-p Serial Data Stream. If reading is incorrect a fault is indicated in the Synth/AF.	
	5g. Measure from J3-8 to J3-11 for continuity with CHAN 1 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5h. Measure from J3-8 to J3-9 for continuity with CHAN 2 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	5i. Measure from J3-8 to J3-7 for continuity with CHAN 3 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5j. Measure from J3-8 to J3-3 for continuity with CHAN 4 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5k. Measure from J3-8 to J3-5 for continuity with CHAN 5 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	5l. Measure from J3-10 to GND for a 4.0 Vp-p Serial Data Stream. If reading is incorrect a fault is indicated in the Synth/AF.	
	5m. Measure from J3-12 to GND for 5.0 Vdc. If reading is incorrect a fault is indicated in the Synth/AF.	
	<u>ANTENNA WARNING TONE</u>	
6.	Set ANT switch to A.	Warning tone (1000 Hz at 2 second intervals) is present. Tone is clear with no background noise present in SPKR/MIC.
	6a. With ANT 50 selected, measure from J3-13 to GND for a momentary deflection, then 93.2k ohms min.	
	6b. With ANT A selected, measure from J3-13 to J3-11 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6c. With ANT B selected, measure from J3-13 to J3-9 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6d. With ANT C selected, measure from J3-13 to J3-7 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	6e. With ANT D selected, measure from J3-13 to J3-5 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6f. With ANT E selected, measure from J3-13 to J3-3 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6g. Measure from J3-16 to ANT for 10k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6h. Measure from J3-16 to GND for a momentary deflection, then 179.5k ohms min. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6i. Measure from J2-24 to GND. Resistance should vary smoothly from 47k ohms to 4 ohms while rotating the VOL control from full CCW to full CW.If reading is incorrect a fault is indicated in the Frame/Panel.	
	6j. Measure from J2-25 to GND for 17 to 27 ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	6k. Measure from J2-26 to GND for 71.7k ohms with VOL control set at full CCW. If reading is incorrect a fault is indicated in the Frame/Panel.	
7.	Rotate ANT switch to B through E.	Warning tone is present.
	7a. Measure from J3-4 to J3-5 for continuity with CHAN 6 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7b. Measure from J3-4 to. J3-3 for continuity with CHAN 7 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7c. Measure from J3-4 to J3-7 for continuity with CHAN 8 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7d. Measure from J3-4 to J3-9 for continuity with CHAN 9 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	7e. Measure from J3-4 to J3-11 for continuity with CHAN 10 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7f. Measure from J3-8 to J3-11 for continuity with CHAN 1 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7g. Measure from J3-8 to J3-9 for continuity with CHAN 2 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7h. Measure from J3-8 to J3-7 for continuity with CHAN 3 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7i. Measure from J3-8 to J3-3 for continuity with CHAN 4 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7j. Measure from J3-8 to J3-5 for continuity with CHAN 5 selected. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7k. With ANT 50 selected, measure from J3-13 to GND for a momentary deflection, then 93.2k ohms min.	
	7l. With ANT A selected, measure from J3-13 to J3-11 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7m. With ANT B selected, measure from J3-13 to J3-9 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7n. With ANT C selected, measure from J3-13 to J3-7 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7o. With ANT D selected, measure from J3-13 to J3-5 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7p. With ANT E selected, measure from J3-13 to J3-3 for 3.0k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	7q. Measure from J3-16 to ANT for 10k ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	7r. Measure from J3-16 to GND for a momentary deflection, then 179.5k ohms min. If reading is incorrect a fault is indicated in the Frame/Panel.	
8.	Rotate ANT switch to 50.	Warning tone absent.
	8a. A fault is indicated in the Synth/AF module. Fault isolate module IAW Table 5-6.	
	<u>SQUELCH DISABLE</u>	
9.	Press SQ DSBL switch.	FREQ display indicates HI and noise is heard in SPKR/MIC.
	9a. Measure from J2-23 to GND with SQ DSBL pressed for continuity. Release SQ DSBL switch. Minimum resistance is 243k ohms. If either reading is incorrect a fault is indicated in the Frame/Panel.	
	9b. Measure from J2-24 to GND. Resistance should vary smoothly from 47k ohms to 4 ohms while rotating the VOL control from full CCW to full CW.If reading is incorrect a fault is indicated in the Frame/Panel.	
	9c. Measure from J2-25 to GND for 17 to 27 ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	9d. Measure from J2-26 to GND for 71.7k ohms with VOL control set at full CCW. If reading is incorrect a fault is indicated in the Frame/Panel.	

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	BATTERY WARNING TONE	
10.	Reduce input power supply voltage to 10.0 Vdc	Low battery warning tone (a series of four 400 Hz "beeps" every 6 sec.) present in SPKR/MIC. Tone is clear with no background noise present in SPKR/MIC.
	10a. A fault is indicated in the Synth/AF module. Fault isolate module IAW Table 5-6.	
11.	Increase power supply voltage to 11.75 Vdc.	
12.	Set RT OFF/VOL control OFF, then rotate to midrange.	Warning tone absent.
	12a. A fault is indicated in the Synth/AF module. Fault isolate module IAW Table 5-6.	
13.	Reset power supply voltage to 14.5 Vdc.	
	TRANSMIT POWER OUTPUT AND STABILITY	
	CAUTION	
	Do not key RT for extended periods of time for the following tests or damage to RT may result.	
14.	Set test adapter TRANSMIT switch to TX and measure power output and transmit current for CHAN 1, 4, and 8.	1.0 watts minimum. Ammeter indicates less than 370 mAdc
	14a. If XMTR RF adjustment has been performed IAW Table 5-5 proceed to step 14c, otherwise perform step 14b.	
	14b. Perform XMTR RF adjustment in accordance with Table 5-5 and rerun Minimum Performance Test.	

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	14c. Measure from J2-4 to GND for a minimum of 12 Vp-p pulsed DC in the standby mode. The signal should be at a 210 msec repeat rate. If reading is incorrect a fault is indicated in the Synth/AF.	
	14d. Measure from J2-4 to GND for 12.0 Vdc minimum while pressing SQ DSBL. If reading is incorrect a fault is indicated in the Synth/AF.	
	14e. Measure from J2-4 to GND for 0.5 Vdc maximum while pressing PUSH TO TALK. If reading is incorrect a fault is indicated in the Synth/AF.	
	14f. Measure from J2-10 to GND for 0.5 Vdc maximum in standby mode. If reading is incorrect a fault is indicated in the Synth/AF.	
	14g. Measure from J2-10 to GND for 12.0 Vdc minimum with the PUSH TO TALK switch pressed. If reading is incorrect a fault is indicated in the Synth/AF.	
	14h. Measure from J2-16 to GND for 12.0 Vdc minimum while pressing the SQ DSBL switch. If reading is incorrect a fault is indicated in the Synth/AF.	
	14i. Measure from J2-19 to AUDIO pin C for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
	14j. Measure from J2-19 to GND for 4.5 Vdc in the standby mode. If reading is incorrect a fault is indicated in the Synth/AF.	
15.	Set test adapter TRANSMIT switch to TX and measure frequency accuracy for CHAN 4.	+/- 2.0 ppm of operating frequency
	15a. If synthesizer output frequency alignment has been performed IAW Table 5-3 proceed to step 15c, otherwise perform step 15b.	
	15b. Perform synthesizer output frequency alignment IAW Table 5-3 and rerun Minimum Performance Test.	
	15c. If reading is incorrect a fault is indicated in the Synth/AF.	

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	TRANSMITTER MODULATION	
16.	Adjust audio oscillator for 1 kHz and connect audio oscillator to test adapter TRANSMIT INPUT connector.	
17.	Connect distortion analyzer input to test adapter XMIT METER connector.	
	NOTE Unless otherwise specified, 300 to 3000 audio filter on modulation meter shall be disabled (OUT) for the following tests.	
18.	Set test adapter TRANSMIT switch to ON, and adjust audio oscillator output level for 3.0 kHz deviation on modulation meter. Measure the microphone audio input level on the distortion analyzer.	1.0 mV RMS maximum
	18a. Measure from J2-18 to J2-22 for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
	18b. Measure from J2-19 to AUDIO pin C for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
	18c. Measure from J2-19 to GND for 4.5 Vdc in the standby mode. If reading is incorrect a fault is indicated in the Synth/AF.	
	18d. Measure from J2-21 to AUDIO pin D for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
	18e. Measure from J2-22 to GND for a 6.0 Vp-p voice signal while pressing the PUSH TO TALK switch and speaking into the MIC. If reading is incorrect a fault is indicated in the Synth/AF.	
19.	Disconnect distortion analyzer from test adapter XMIT METER.	
20.	Connect modulation meter demod out (AF) to distortion analyzer input.	

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
21.	Establish a "0 dB" reference level at 1 kHz and measure transmit audio frequency response at the following frequencies relative to the 1 kHz (0 dB) response.	
	300 Hz	+1 to -4 dB
	3000 Hz	+1 to -4 dB
	5000 Hz	-7 dB minimum
	15000 Hz	-28 dB minimum
	21a. A fault is indicated in the Synth/AF module. Fault isolate module IAW Table 5-6.	
22.	With TRANSMIT switch "ON" and modulation meter 300-3000 Hz audio filter IN, measure transmit audio distortion at 1 kHz.	less than 5% distortion
	22a. A fault is indicated in the Synth/AF module. Fault isolate module IAW Table 5-6.	
23.	With modulation meter 300-3000 Hz audio filter OUT and TRANSMIT switch "ON", set test adapter NORM/+20 switch to +20.	
24.	Measure transmit audio maximum deviation at 300 Hz, 1 kHz, 2 kHz, and 3 kHz (300-3000 Hz audio filter OUT).	5.0 kHz maximum
	24a. If modulation limiting adjustment has been performed IAW Table 5-3 proceed to step 24c, otherwise perform step 24b.	
	24b. Perform modulation limiting adjustment IAW Table 5-3 and rerun Minimum Performance Test.	
	24c. If reading is incorrect a fault is indicated in the Synth/AF.	
25.	Set test adapter TRANSMIT switch to OFF.	
	<u>TRANSMIT MICROPHONE</u>	
26.	Disconnect audio oscillator from test adapter TRANSMIT INPUT.	
27.	Press RT PUSH TO TALK switch and speak into SPKR/MIC (hold microphone about 1 inch from mouth), monitor transmit audio deviation.	Approximately 3.0 kHz deviation with peaks limited to less than 5.0 kHz

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	27a. Measure from J2-18 to J2-22 for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
	27b. Measure J2-22 for a 6.0 Vp-p voice signal while pressing the PUSH TO TALK switch and speaking into the MIC. If reading is incorrect a fault is indicated in the Synth/AF.	
	27c. Measure from J2-25 to GND for 17 to 27 ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
	27d. Measure from J2-27 to GND with PUSH TO TALK pressed for a maximum of 10 ohms. Release PUSH TO TALK switch. Minimum resistance is 500k ohms. If either reading is incorrect a fault is indicated in the Frame/Panel.	
	CAUTION Do not press RT PUSH TO TALK switch or set test adapter TRANSMIT switch to ON for the following receiver tests or damage to test equipment may result.	
	<u>RECEIVER SENSITIVITY</u>	
28.	Connect test equipment (<u>fig.</u> 5-2).	
29.	Set test adapter SPEAKER switch to OFF and rotate RT CHAN switch to 1.	
30.	Adjust signal generator for 130.000 MHz, 0.5 microvolt, 1 kHz audio modulated at 3.0 kHz deviation.	Receive audio present on distortion analyzer
	30a. If squelch adjustment has been performed IAW Table 5-5 proceed to step 30c, otherwise perform step 30b.	
	30b. Perform squelch adjustment IAW Table 5-5 and rerun Minimum Performance Test.	
	30c. Measure from J2-4 to GND for a minimum of 12 Vp-p pulsed DC in the standby mode. The signal should be at a 210 msec repeat rate. If reading is incorrect a fault is indicated in the Synth/AF.	

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	30d. Measure from J2-4 to GND for 12.0 Vdc min. while pressing SQ DSBL. If reading is incorrect a fault is indicated in the Synth/AF.	
	30e. Measure from J2-4 to GND for 0.5 Vdc max. while pressing PUSH TO TALK. If reading is incorrect a fault is indicated in the Synth/AF.	
	30f. Measure from J2-5 to GND for 1 Vp-p receiver noise. If reading is incorrect a fault is indicated in the RF/IF.	
	30g. Measure from J2-7 to GND for a minimum of 12 Vp-p pulsed DC in the standby mode. If reading is incorrect a fault is indicated in the Synth/AF.	
	30h. Measure from J2-7 to GND for 0.5 Vdc maximum with the PUSH TO TALK switch pressed. If reading is incorrect a fault is indicated in the Synth/AF.	
	30i. Measure from J2-16 to GND for 12.0 Vdc minimum while pressing the SQ DSBL switch. If reading is incorrect a fault is indicated in the Synth/AF.	
	30j. Measure from J2-17 to AUDIO pin B for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
	30k. Measure from J2-17 to GND for the absence of an audio signal in the standby mode. If audio signal is present a fault is indicated in the Synth/AF.	
	30l. Measure from J2-28 to J2-5 for continuity. If reading is incorrect a fault is indicated in the Frame/Panel.	
31.	Adjust RT OFF/VOL control for 1.0 Vrms on distortion analyzer.	
32.	Measure audio output SINAD ratio	12 dB min.
	32a. If RCVR alignment has been performed IAW Table 5-5 proceed to step 32c, otherwise perform step 32b.	
	32b. Perform RCVR alignment IAW Table 5-5 and rerun Minimum Performance Test.	

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	32c. If reading is incorrect a fault is indicated in the RF/IF.	
33.	Adjust signal generator for 173.9875 MHz and set RT CHAN switch to 8 and measure SINAD ratio.	12 dB min.
	33a. If RCVR alignment has been performed IAW Table 5-5 proceed to step 33c, otherwise perform step 33b.	
	33b. Perform RCVR alignment IAW Table 5-5 and rerun Minimum Performance Test.	
	33c. If reading is incorrect a fault is indicated in the RF/IF.	
34.	Adjust signal generator for 151.0375 MHz and set RT CHAN switch to 4 and measure SINAD ratio.	12 dB min.
	34a. If RCVR alignment has been performed IAW Table 5-5 proceed to step 34c, otherwise perform step 34b.	
	34b. Perform RCVR alignment IAW Table 5-5 and rerun Minimum Performance Test.	
	34c. If reading is incorrect a fault is indicated in the RF/IF.	
	RECEIVER SQUELCH SENSITIVITY	
35.	On the Audio/Power Test Adapter, place the SPEAKER switch to ON. Set RF output of signal generator to minimum. Slowly increase RF output to 0.2 microvolts on signal generator and check receiver for quieting.	Receiver remains quiet
	35a. If squelch adjustment has been performed IAW Table 5-5 proceed to step 35c, otherwise perform step 35b.	
	35b. Perform squelch adjustment IAW Table 5-5 and rerun Minimum Performance Test.	
	35c. If reading is incorrect a fault is indicated in the RF/IF.	
36.	Slowly increase signal generator rf output until squelch breaks and normal audio output is restored. Measure signal generator RF output level.	0.4 microvolts maximum

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	36a. If squelch adjustment has been performed IAW Table 5-5 proceed to step 36c, otherwise perform step 36b.	
	36b. Perform squelch adjustment IAW Table 5-5 and rerun Minimum Performance Test.	
	36c. If reading is incorrect a fault is indicated in the RF/IF.	
37.	On the Audio/Power Test Adapter, place the SPEAKER switch to OFF.	
	<u>RECEIVER AUDIO OUTPUT DISTORTION</u>	
38.	Adjust signal generator for 1.0 mV and 1 kHz audio modulated at 3.0 kHz deviation.	
39.	Adjust RT OFF/VOL control for 2.20 to 2.40 Vrms on distortion analyzer.	Signal unclipped
	39a. If RCVR alignment has been performed IAW Table 5-5 proceed to step 39c, otherwise perform step 39b.	
	39b. Perform RCVR alignment IAW Table 5-5 and rerun Minimum Performance Test.	
	39c. If reading is incorrect a fault is indicated in the RF/IF.	
40.	Measure receiver audio output harmonic distortion.	less than 10% distortion
	40a. If RCVR alignment has been performed IAW Table 5-5 proceed to step 40c, otherwise perform step 40b.	
	40b. Perform RCVR alignment IAW Table 5-5 and rerun Minimum Performance Test.	
	40c. If reading is incorrect a fault is indicated in the RF/IF.	
	<u>RECEIVE AUDIO AMP FREQUENCY RESPONSE</u>	
41.	Adjust RT OFF/VOL control for 1.6 Vrms on distortion analyzer and establish a 0 dB reference at 1 kHz audio.	

Table 5-2. RT High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
42.	Adjust audio oscillator for 300 Hz modulation and measure receive audio amplifier frequency response relative to the 0 dB reference.	+1 to -6 dB
	42a. A fault is indicated in the Synth/AF module. Fault isolate module IAW Table 5-6.	
43.	Adjust audio oscillator for 3000 Hz modulation and measure receive audio amplifier frequency response relative to the 0 dB reference.	+1 to -6 dB
	43a. A fault is indicated in the Synth/AF module. Fault isolate module IAW Table 5-6.	
	<u>RECEIVER SPEAKER AND SPEAKER MUTING</u>	
44.	Set test adapter SPEAKER switch to ON.	Tone heard in SPKR/MIC
	44a. Measure from J2-25 to GND for 17 to 27 ohms. If reading is incorrect a fault is indicated in the Frame/Panel.	
45.	Set test adapter SPEAKER switch to OFF.	Tone not heard in SPKR/MIC
	45a. A fault is indicated in the Synth/AF module. Fault isolate module IAW Table 5-6.	
46.	Test is complete.	

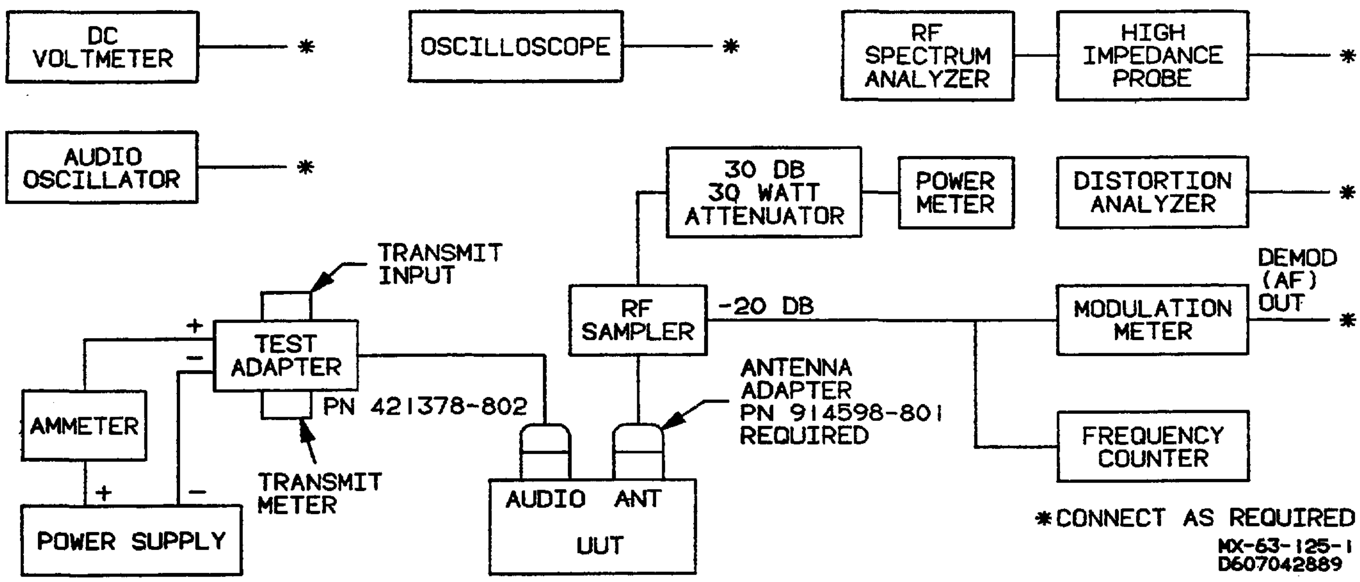


Figure 5-1. RT Transmit Test Setup

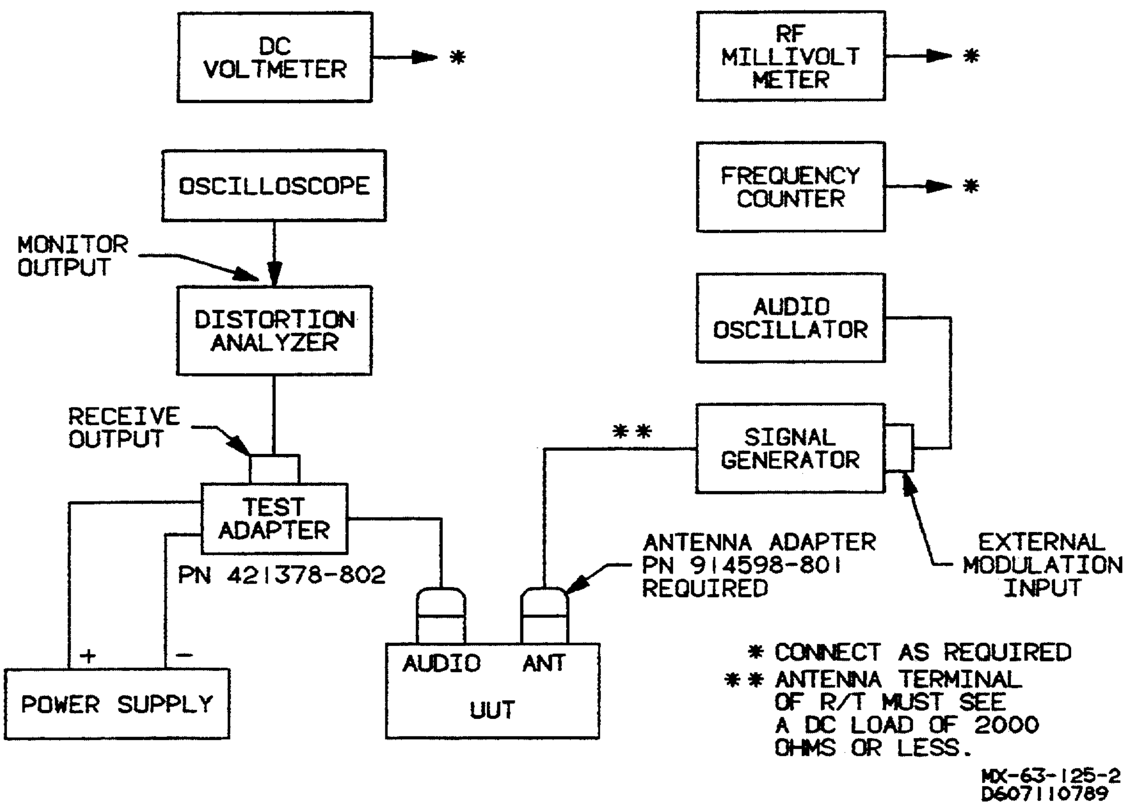


Figure 5-2. RT Receive Test Setup

5-3 RT DISASSEMBLY/ASSEMBLY PROCEDURES.

The following procedures apply to both the low band and high band systems. The procedures are provided to assist in preparing the RT for testing and maintenance and also to reassemble after testing and maintenance. Refer to Figure 5-3 RT Disassembly/Assembly diagram as required.

5-3.1 RT Disassembly Procedures. The following procedures provide the necessary steps for disassembling and setting up the RT for alignment, fault isolation, and piece part repair.

CAUTION

The Synth/AF and RF/IF modules and Frame/Panel assembly (with modules removed) are subject to damage by static electricity. Observe precautions for handling electrostatic sensitive devices (ESD) as outlined in TO 00-25-234.

a. Remove RT module cover assembly (item 1) by rotating two captive screws (item 2) on bottom and sliding module cover from RT.

b. Hold RT in palm of one hand and grip Synth/AF module (item 3) with thumb and forefinger of other hand. Fingerholds are provided on module through open areas (item 4) in Module Frame (item 9). Gently rock module and pull straight out from Frame/Panel (item 9).

c. Repeat step b for RF/IF module (item 6).

d. Desolder and remove Synth/AF module cover (item 7).

e. Desolder and remove RF/IF module cover (item 8).

f. Align connector pins (item 10) and gently push Synth/AF module (item 3) straight into Frame/Panel (item 9) until module is flatly seated on Frame/Panel divider plate (item 11).

g. Repeat step f for RF/IF module (item 6).

5-3.2 RT Assembly Procedures. The following procedures provide the necessary steps for reassembling the RT after testing, alignment, and repair is complete. Refer to figure 5-3 RT Disassembly/Assembly diagram as required.

CAUTION

The Synth/AF and RF/IF modules and Frame/Panel assembly (with modules removed) are subject to damage by static electricity. Observe precautions for handling electrostatic sensitive devices (ESD) as outlined in TO 00-25-234.

WARNING

Avoid breathing fumes generated by soldering. Eye protection is required.

a. Hold RT in palm of one hand and grip Synth/AF module (item 3) with thumb and forefinger of other hand. Fingerholds are provided on module through open areas (item 4) in Module Frame (item 9). Gently rock module and pull straight out from Frame/Panel (item 9).

b. Install and solder Synth/AF module cover (item 7).

c. Install and solder RF/IF module cover (item 8).

d. Align connector pins (item 10) and gently push Synth/AF module (item 3) straight into Frame/Panel (item 9) until module is flatly seated on Frame/Panel divider plate (item 11).

e. Repeat step c for RF/IF module (item 6).

NOTE

Apply a thin coat of silicone compound (MIL-G-4343) to top edge of RT module cover assembly.

f. Slide RT module cover assembly (item 1) over modules and tighten two captive screws (item 2) on bottom of module cover.

5-4 RT MODULE ALIGNMENT.

The following paragraphs contain instructions to align and adjust the Synth/AF, low band RF/IF and high band RF/IF modules. Alignment should be performed as directed from minimum performance tests or any time it is desirable to adjust the RT for peak performance. Alignment should only be performed with all R/T components and modules stabilized at room ambient temperature.

5-4.1 RT Synth/AF Module Alignment. Refer to paragraph 5-3 and prepare the Synth/AF module for alignment. Table 5-3 aligns the Synth/AF module for peak performance. A serviceable low band RF/IF module must be used to perform the alignment procedures properly. If any procedure does not meet the specified limits, refer to the Synth/AF module fault isolation procedure paragraph 5-5.1, the Synth/AF module schematic FO-2, and the Synth/AF module component location diagram figure 5-4 as required.

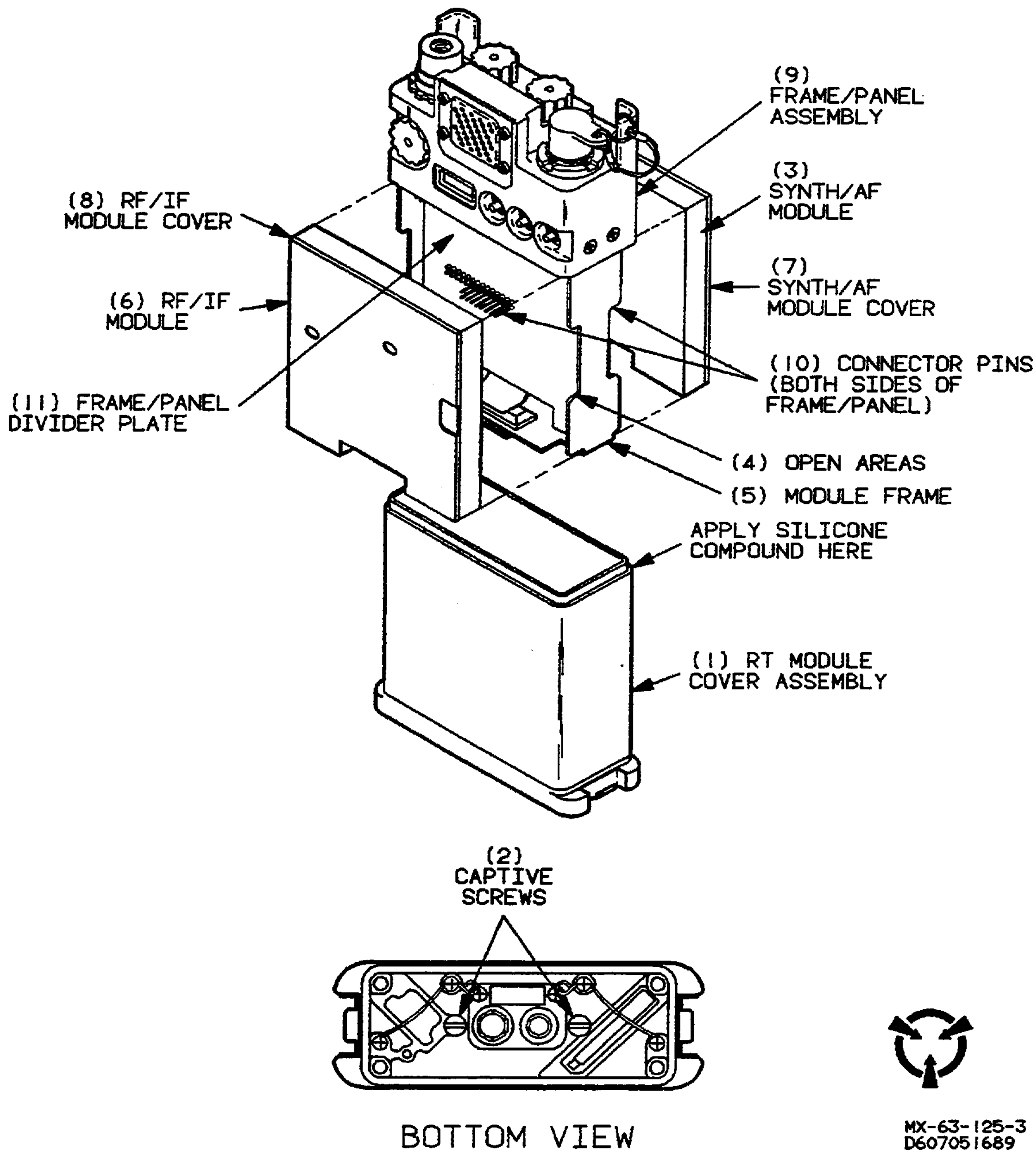


Figure 5-3. RT Disassembly/Assembly Diagram.

Table 5-3. RT Synth/AF Module Alignment

Step	Procedure
1.	Connect test equipment (fig. 5-1) and set switches as follows; Test Adapter: TRANSMIT - OFF; SPEAKER - ON; NORM/+20 - NORM; POWER ON/OFF - OFF RT: CHAN - 1; ANT - 50; OFF/VOL - midrange CAUTION The input power supply must be current limited to 400 mAdc or damage to RT may result.
2.	Adjust power supply to 14.5 Vdc and current limit to 400 mAdc.
3.	Set test adapter POWER ON/OFF switch to ON.
	SYNTHESIZER OUTPUT FREQUENCY ALIGNMENT NOTE Perform steps 4 through 7 only if RT transmit frequency accuracy is not within +/- 2.0 ppm. Otherwise proceed to step 8.
4.	Program a frequency of 87.9875 MHz into channel 8 of the RT.
5.	Set test adapter TRANSMIT switch to TX.
6.	Measure 109.3875 MHz at P2-13 (VCO frequency).
7.	Adjust C25 for VCO frequency accuracy of +/-0.2 PPM (within 22 Hz of nominal)
	MODULATOR FREQUENCY ALIGNMENT
8.	Set test adapter TRANSMIT switch to ON.
9.	Hold a jumper between P2-1 and R16 (TP3).
10.	Place a jumper between R83 and chassis ground. NOTE Initial adjustment of C99 is to guarantee that the 21.4 MHz modulator frequency is locked up (coarse adjustment). The final C99 adjustment for TP2 voltage is critical to set the modulator frequency range (fine adjustment).

Table 5-3. RT Synth/AF Module Alignment - CONT

Step	Procedure
11.	Measure 2.5 +/- 0.1 Vdc at TP2. If the voltage is incorrect, adjust C99.
12.	Measure 21.4 MHz +/- 50 Hz at P2-2.
13.	Remove jumper between P2-1 and R16 (TP3).
	<u>MODULATION LIMITING ADJUSTMENT</u>
	NOTE
	300 - 3000 Hz audio filter on modulation meter shall be disabled (OUT) for the following test.
14.	Connect audio oscillator to transmit input on test adapter.
15.	Adjust audio oscillator for 300 Hz and output level to produce 4.5 kHz deviation on the modulation meter.
16.	Set test adapter NORM/+20 switch to +20.
17.	Measure 7.25 +/- 0.2 kHz deviation on the modulation meter. Adjust R120 if incorrect.
18.	Remove audio input and remove jumper from P2-20 to module chassis ground.
19.	Measure 2.50 to 3.50 kHz deviation on modulation meter. If frequency deviation is greater than 3.45 kHz, select a next higher value for R84 and repeat step. If frequency deviation is less than 2.55 kHz, select a next lower value for R84 and repeat step.
20.	Place transmit switch to OFF.
21.	Alignment is complete.

5-4.2 <u>RT Low Band RF/IF Module Alignment.</u> Refer to paragraph 5-3 and prepare the low band module for alignment. Table 5-4 aligns the low band module for peak performance. If any procedure does not meet the specified limits, refer to the low band module fault isolation procedure paragraph 5-5.2, the low band module schematic FO-3, and the low band module component location diagram figure 5-5 as required.

Table 5-4. RT Low Band RF/IF Module Alignment

Step	Procedure
1.	Connect test equipment (fig. 5-2) and set switches as follows; Test Adapter: TRANSMIT - OFF; SPEAKER - OFF; NORM/+20 - NORM; POWER ON/OFF - OFF RT: CHAN - 3 (50.975 MHz); ANT - 50; OFF/VOL - midrange **CAUTION** The input power supply must be current limited to 400 mAdc or damage to RT may result.
2.	Adjust power supply to 14.5 Vdc and current limit to 400 mAdc.
3.	Set test adapter POWER ON/OFF switch to ON. VCO ALIGNMENT NOTE Alternate test frequencies shall not be used for VCO alignment. Perform alignment using preset channels specified in the minimum performance test.
4.	Jumper R62 (SQ DSBL) in Synth/AF module to ground.
5.	Measure 13.0 Vdc +/- 10% (low band control) at P2-14.
6.	Adjust C106 for 9.4 - 9.6 Vdc at P2-9.
7.	Measure 72.375 MHz +/- 2 PPM at P2-13.
8.	Select channel 1 (30.000 MHz) on RT.
9.	Adjust L31 for 1.75 to 2.10 Vdc at P2-9.
10.	Measure 51.400 MHz +/- 2 PPM at P2-13.
11.	If L30 adjustment was required, repeat steps 6 thru 10 to achieve limits.
12.	Select channel 8 (87.9875 MHz) on RT.
13.	Measure 13.0 Vdc +/- 10% (high band control) at P2-16.
14.	Adjust C88 for 9.4 - 9.6 Vdc at P2-9.

Table 5-4. RT Low Band RF/IF Module Alignment- CONT

Step	Procedure
15.	Measure 109.3875 MHz +/- 2 PPM at P2-13.
16.	Select channel 4 (51.0375 MHz) on RT.
17.	Adjust L30 for 1.75 - 2.10 Vdc at P2-9.
18.	Measure 72.4375 MHz +/- 2 PPM at P2-13.
19.	If L30 adjustment was required, repeat steps 14 thru 18 to achieve limits.
20.	Measure 6.5 - 7.7 Vdc (VCO output voltage) at P2-13.
21.	Select channel 1 (30.000 MHz) on RT.
22.	Measure 6.5 - 7.7 Vdc at P2-13.
23.	Measure 270 to 450 mV RF at P2-13 using a HI-Z probe with the RT set to channels 1, 2, 3, 4, and 6.
24	Measure 220 to 450 mv at P2-13 using a HI-Z probe with the RT set to channel 8 (87.9875 MHz).
	<u>RCVR ALIGNMENT</u>
25	Select channel 1 (30.000 MHz) on RT.
26.	Adjust signal generator for 30.000 MHz +/- 50 Hz, 10.0 microvolts, 8 kHz deviation at 1 kHz audio.
27.	Adjust RT OFF/VOL control for 1.0 VRMS on distortion analyzer and measure 51.400 MHz +/- 2 PPM at P2-13.
	NOTE
	Signal generator output level may be adjusted as necessary to override noise.
28.	Adjust C28 for best SINAD.
29.	Adjust signal generator for 0.5 microvolt output.
30.	Adjust T3 and T4 for best SINAD.

Table 5-4. RT Low Band RF/IF Module Alignment- CONT

Step	Procedure
31.	Adjust signal generator for 50.975 MHz +/- 50 Hz, 8 kHz deviation at 1 kHz audio.
32.	Select channel 3 (50.975 MHz) on RT.
33.	Measure 72.375 MHz +/- 2 PPM at P2-13.
34.	Adjust C49 and C55 for for best SINAD.
35.	Adjust signal generator for 51.0375 MHz +/- 50 Hz, 8 kHz deviation at 1 kHz audio.
36.	Select channel 4 (51.0375 MHz) on RT.
37.	Measure 72.4375 MHz +/- 2 PPM at P2-13.
38.	Adjust T1 and T2 for best SINAD.
39.	Adjust signal generator for 87.9875 MHz +/- 50 Hz, 8 kHz deviation at 1 kHz audio.
40.	Select channel 8 (87.9875 MHz) on RT.
41.	Measure 109.3875 MHz +/- 2 PPM at P2-13.
42.	Adjust C47 and C54 for best SINAD.
	NOTE To guarantee proper RCVR alignment, the trim caps shall be the last components adjusted in each band. (C49 and C55 at 50.975 MHz; C47 and C54 at 87.9875 MHz.)
43.	Adjust signal generator output level to 0.25 microvolts and repeat alignment steps 25 thru 42 above for channels 1, 3, 4, and 8 until there is no further improvement.
44.	Adjust signal generator for 40.0125 MHz +/- 50 Hz, 4.5 kHz deviation at 1 kHz audio, 1.0 mV rf output level.
45.	Select channel 2 (40.0125 MHz) on the RT and adjust RT OFF/VOL for 2.4 Vrms audio output.
46.	Adjust C28 for minimum audio distortion (10% maximum).
47.	Adjust RT OFF/VOL control for 1.0 Vrms audio output and measure 12 dB minimum SINAD ratio for channels 1 (30.000 MHz), 2 (40.0125 MHz), 3 (50.975 MHz), 4 (51.0375 MHz), 6 (70.0625 MHz), and 8 (87.9875 MHz) with a generator output of 0.5 microvolts, 4.5 kHz deviation, and 1 kHz audio for each channel.

Table 5-4. RT Low Band RF/IF Module Alignment- CONT

Step	Procedure
	SQUELCH ADJUSTMENT
48.	Adjust signal generator for 40.0125 MHz, 1 kHz audio modulated at 4.5 kHz deviation and rf output level to minimum.
49.	Select channel 2 (40.0125 MHz) on RT.
50.	Adjust R36 fully CW (approximately 10 turns).
51.	Measure 0.5 Vdc maximum at P2-6.
52.	Adjust signal generator rf output level for 1.0 microvolts.
53.	Measure 2.0 Vdc minimum at P2-6.
54.	Adjust signal generator rf output level for minimum output.
55.	Adjust R36 CCW until P2-6 voltage is greater than 2.0 Vdc.
56.	Slowly adjust R36 CW until P2-6 is less than 0.5 Vdc.
57.	Adjust R36 approximately one turn CW.
58.	Adjust signal generator rf output level to 0.27 microvolts.
59.	Measure 2.0 Vdc minimum (squelch open) at P2-6.
60.	Adjust signal generator rf output level for 0.20 microvolts.
61.	Measure 0.5 Vdc maximum (squelch close) at P2-6.
	NOTE
	If limits are not met, adjust R36 CCW to obtain squelch open limit or CW for squelch close limit.
62.	Remove jumper from R62 (on Synth/AF Module) and ground.
	TRANSMITTER RF OUTPUT ADJUSTMENT
63.	Connect test equipment per figure 5-1.
64.	Select channel 2 (40.0125 MHz) on RT.
65.	Set test adapter TRANSMIT switch to TX and adjust R56 until power supply current is 350 to 360 mAdc.

Table 5-4. RT Low Band RF/IF Module Alignment- CONT

Step	Procedure
66.	Set test adapter TRANSMIT switch to TX and verify rf output is 1.0 watt minimum and transmit current (total RT) is less than 370 mAdc for channels 1, 2, 3, 4, 6, and 8.
67.	Alignment is complete.

5-4.3 RT High Band RF/IF Module Alignment. Refer to paragraph 5-3 and prepare the high band module for alignment. Table 5-5 aligns the high band module for peak performance. If any procedure does not meet the specified limits, refer to the high band module fault isolation procedure paragraph 5-5.3, the high band module schematic FO-4, and the high band module component location diagram figure 5-6 as required.

Table 5-5. RT High Band RF/IF Module Alignment

Step	Procedure
1.	Connect test equipment (fig. 5-2), and set switches as follows; Test Adapter: TRANSMIT - OFF SPEAKER - OFF NORM/+20 - NORM POWER ON/OFF - OFF RT: CHAN - 8 (173.9875 MHz) ANT - 50 OFF/VOL - midrange CAUTION The input power supply must be current limited to 400 mAdc or damage to RT may result.
2.	Adjust power supply to 14.5 Vdc and current limit to 400 mAdc.
3.	Set test adapter POWER ON/OFF switch to ON. VCO ALIGNMENT NOTE Alternate test frequencies shall not be used for VCO alignment. Perform alignment using preset channels specified in the minimum performance test.

Table 5-5. RT High Band RF/IF Module Alignment - CONT

Step	Procedure
4.	Jumper R62 (SQ DSBL) in the Synth/AF module to ground.
5.	Measure 13.0 Vdc +/- 10% (high band control) at P2-16.
6.	Adjust C96 for 9.4 - 9.6 Vdc at P2-9.
7.	Measure 152.5875 MHz +/- 2 PPM at P2-13.
8.	Select channel 1 (130.000 MHz) on RT.
9.	Adjust L30 for 1.85 - 2.10 Vdc at P2-9.
10.	Measure 108.600 MHz +/- 2 PPM at P2-13.
11.	If L30 adjustment was required, repeat steps 6 thru 10 to achieve limits.
12.	Measure 6.5 to 7.7 Vdc (VCO output voltage) at P2-13.
13.	Using a high impedance probe, measure 290 mV minimum at R67 with the RT set to channels 1, 4, and 8.
	<u>RCVR ALIGNMENT</u>
14.	Select channel 1 (130.00 MHz) on RT.
15.	Adjust signal generator for 130.000 MHz +/- 50 Hz, 10.0 microvolt, 1 kHz audio modulated at 8 kHz deviation.
16.	Adjust RT OFF/VOL control for 1.0 Vrms on distortion analyzer.
	NOTE Signal generator output level may be adjusted as necessary to override noise.
17.	Adjust C25 for best SINAD.
18.	Adjust signal generator for 173.9875 +/- 50 Hz and 0.5 microvolt output with 1 kHz audio modulated at 8 kHz deviation.
19.	Select channel 8 (173.9875 MHz) on RT.

Table 5-5. RT High Band RF/IF Module Alignment - CONT

Step	Procedure
20.	Measure 152.5875 MHz +/- 2 PPM at P2-13.
21.	Adjust C46, C51, and C59 for best SINAD.
22.	Adjust signal generator for 130.000 MHz +/- 50 Hz with 1 kHz audio modulated at 8 kHz deviation.
23.	Select channel 1 (130.000 MHz) on RT.
24.	Measure 108.600 MHz +/- 2 PPM at P2-13.
25.	Adjust L13, L15, and L17 for best SINAD (the core shall not extend more than 1/2 turn above flush, and shall not go below four turns down from flush).
	NOTE
	To guarantee proper RCVR alignment, the trim caps shall be the last components adjusted (C46, C51, and C59 at 173.9875 MHz).
26.	Adjust signal generator output level to 0.25 microvolts and repeat above alignment steps 14 thru 25 for channels 1 and 8.
27.	Adjust signal generator for 151.0375 MHz +/- 50 Hz, 3.0 kHz deviation and 1.0 mV rf output.
28.	Select channel 4 (151.0375 MHz) on RT and adjust RT OFF/VOL for 2.4 Vrms audio output.
29.	Adjust C25 for minimum audio distortion (10% maximum).
30.	Adjust RT OFF/VOL control for 1.0 Vrms audio output and measure 12 dB minimum SINAD ratio for channels 1 (30.000), 4 (51.038), and 8 (73.988) with a signal generator output of 0.5 microvolts at 3 kHz deviation and 1 kHz audio for each channel.
	SQUELCH ADJUSTMENT
31.	Adjust signal generator for 151.0375 MHz, 1 kHz audio modulated at 3.0 kHz deviation and rf output level to minimum.
32.	Select channel 4 (151.0375 MHz) on RT.
33.	Adjust R34 fully CW (approximately 10 turns).
34.	Measure less than 0.5 Vdc at P2-6.

Table 5-5. RT High Band RF/IF Module Alignment - CONT

Step	Procedure
35.	Adjust signal generator rf output level for 1.0 microvolt.
36.	Measure 2.0 Vdc minimum at P2-6.
37.	Adjust signal generator rf output level for minimum output.
38.	Adjust R34 CCW until P2-6 voltage is greater than 2.0 Vdc.
39.	Slowly adjust R34 CW until P2-6 is less than 0.5 Vdc.
40.	Adjust R34 approximately one turn CW.
41.	Adjust signal generator rf output level to 0.27 microvolts.
42.	Measure 2.0 Vdc minimum (squelch open) at P2-6.
43.	Adjust signal generator rf output level for 0.20 microvolts.
44.	Measure 0.5 Vdc maximum (squelch close) at P2-6.
	NOTE
	If limits are not met, adjust R34 CCW to obtain squelch open limit or CW for squelch close limit
45.	Remove jumper from P2-23 (on Synth/AF Module) and ground.
	<u>TRANSMITTER RF OUTPUT ADJUSTMENT</u>
46.	Connect test equipment per figure 5-1.
47.	Select channel 4 (151.0375 MHz) on RT.
48.	Set test adapter TRANSMIT switch to TX and rotate R61 until power supply current is 350 to 360 mAdc.
49.	Set test adapter TRANSMIT switch to TX and verify rf output is 1.0 watt minimum and transmit current (total RT) is less than 370 mAdc for channels 1, 4, and 8.
50.	Alignment is complete.

5-5 RT COMPONENT FAULT ISOLATION.

The following procedures contain information necessary to fault isolate the Synth/AF module, the low band RF/IF module, the high band RF/IF module, and the Frame/Panel assembly to the lowest repairable component. These procedures should be performed as directed from the minimum performance and alignment procedures. The RT Frame/Panel assembly is fault isolated by performing a comprehensive continuity check. Chapter 7 also contains a Wire List along with a Schematic Diagram.

5-5.1 Synth/AF Module Fault Isolation. Perform the following fault isolation as directed from the minimum performance and alignment procedures. Equipment setup is the same as that of the procedure that directed fault isolation be performed unless otherwise stated. Refer to schematic diagrams and test point information in Chapter 7 as required for fault isolation.

Table 5-6. Synth/AF Module Symptom/Remedy

Symptom	Remedy
MICROPROCESSOR/MEMORY FAULTS	
a. Cannot program preset channels	U5, U6, Q1
b. LCD displays incorrect information	U5, U6, Q1
c. ANT warning tone error	U6 - 21
d. Battery warning tone error	U2-C, U2-D, U6-1, 3, 4
CONTROL VOLTAGE FAULTS	
a. No XMIT B+ voltage	Check U6-2, U7-6
b. No RCVR B+ voltage	Check U6-15, U7-11
c. No chopped B+ voltage	Check U6-15, U7-10
d. No HI/LO Band Control voltages	Check U7-2,3,4,8,9
e. Squelch disable error	Check U6-19, U7-7
PLL/SYNTH FAULTS	
a. Output frequency incorrect	U1, U3
b. Cannot adjust C25 for ± 2 PPM	Y1
c. Tune voltage error	U2-A, U2-B

Table 5-6. Synth/AF Module Symptom/Remedy - CONT

Symptom	Remedy
MODULATOR FAULTS	
a. No 21.4 MHz output	Q5, Q7
b. Cannot adjust C99 for TP2 voltage of 2.5 Vdc.	U11, CR27
c. Cannot adjust R120 for correct modulation	Q6, Q10
d. No 150 Hz squelch tone	U6 - 18
XMIT MIC AMP FAULTS	
a. Low gain or no output at P2-22	U7-5, Q4, U8, U9
b. Excessive distortion	Measure distortion at P2-22
c. Incorrect frequency response	U8, U9
d. No internal spkr/mic mute	Q9
RCVR AF AMP FAULTS	
a. Low gain or no output	U7-7, U12-5, Q8
b. Excessive distortion	Measure distortion at P2-28
c. Incorrect frequency response	R146, R147, C121, C122
d. No internal spkr/mic mute	Q8

5-5.2 Low Band RF/IF Module Fault Isolation. Perform the following symptom/remedy as directed from the minimum performance and alignment procedures. Equipment setup is the same as that of the procedure that directed fault isolation be performed unless otherwise stated. Refer to schematic diagrams and test point information in chapter 7 as required for fault isolation.

Table 5-7. RT Low Band RF/IF Module Symptom/Remedy

Symptom	Remedy
VCO FAULTS	
a. Tune voltage P2-9 railed out low (approx. 0.4 Vdc) and no rf at P2-13.	LB - Perform voltage measurements at TP6, TP10. If incorrect voltage: Q10, CR33, CR37, CR25, Q11, C105 HB - Perform voltage measurements at TP5, TP12. If incorrect voltage: Q9, CR32, CR36, CR24, Q8, C89
b. Oscillator is running but frequency is stuck at lower end of range.	LB - CR27, L31 HB - CR26, L30
c. Tune voltage railed out high (may go low at low channel but not low enough).	LB - CR26 HB - CR27
d. P2-13 rf level is too low.	LB - C99-C101, L28, L29, CR24, Q11, Q10 HB - C93-C95, L25, L26, CR25, Q8, Q9
e. P2-13 voltage not within limits.	
- VCO frequency is ok at P2-13.	LB - CR37 shorted, CR24, R79 HB - CR36 shorted, CR25, R78
- VCO frequency is not ok at P2-13.	LB - CR33 shorted, Q11, CR25, L27 HB - CR32 shorted, Q8, CR24, L27
SQUELCH FAULTS	
a. Squelch does not set.	Check R36 for 0 - 5k ohms, C113. Adjust R36 full CW. Level should vary 20 - 30 dB between U1-9 and U1-11. If not, U1, CR8, CR9, R30. If problem not resolved, go to RCVR faults.
b. Signal present only when SQ DSBL is pressed (very large signal input).	Press SQ DSBL and measure 0.5 Vdc at U1-12. If U1-12 is 0.0 Vdc or near 0.0 Vdc, R33 (thermistor) shorted, R60 or CR7 open

Table 5-7. RT Low Band RF/IF Module Symptom/Remedy - CONT

Symptom	Remedy
c. Squelch does not set. Takes large signal to open squelch.	Apply 0.5 microvolts rf at ANT connector and press SQ DSBL switch. Measure 12 dB minimum SINAD. If SINAD incorrect, go to RCVR faults. If SINAD correct, R28, R33
<u>TRANSMITTER FAULTS</u> NOTE Voltages and rf levels are measured during transmit unless otherwise noted.	
a. No power output. Maximum current during transmit. Current not adjustable.	Q4 shorted, R53, C67
b. Cannot adjust current. Unadjustable high power.	R56, R55, R54, CR19. Measure voltages at Q6 base (12.7 Vdc) and emitter (TP16, 3.5 - 13.0 Vdc). If incorrect, R51, CR22, Q6
c. Power output low at all frequencies. Maximum current during transmit (is adjustable).	Measure voltage at Q7 collector (12.0 Vdc). If incorrect, CR20, CR21. Using spectrum analyzer and high impedance probe, measure gain of U3 (TP17) and U2 (TP19)
d. Power output low at all frequencies or fades with extended transmit time.	C75, C76, Q4, CR18
e. No power output. Small or no increase in transmit current.	C77, C73, T7, L18, T8, Q4. Measure TP13 (14.1 Vdc RCV, 0.07 Vdc XMIT). If incorrect Q5, R58. R59, Q7, R61, L21
f. No power output, one band only.	LB - A2; HB - A1; measure T/R switch voltages at TP1, TP2, TP3, and TP4.
g. No or low power output. Receiver checks poorly also, one band only.	LB - CR17, CR34 HB - CR10, CR13

Table 5-7. RT Low Band RF/IF Module Symptom/Remedy - CONT

Symptom	Remedy
h. No Transmit driver input level at TP15.	Go to RF Preamp faults.
RECEIVER FAULTS	
a. Cannot adjust C28 for minimum distortion. Distortion high.	L7 open, C28, C118, R27, C121 (if L7, C28, or C118 are replaced C121 may have to be selected to o btain less than 10% distortion.
b. Low or no audio level (4.5 kHz deviation).	If no audio present, C38 or R88 open, C39 shorted If audio present but low and C38, R88, C39 ok, then remove C38 and C113 and measure U1-9 AF output for approximately 300 mVrms. If low, U1
c. Poor SINAD. Cannot adjust C28 for maximum audio output (noisy or no signal).	Apply 21.4 MHz rf signal at 1 mV at ANT connector. Using a high impedance probe, measure 10 - 15 dB increase from Q1-G1 (TP9) to Q1-drain. If incorrect, measure approx. 4.35 Vdc at TP8 (Q1-G2) and 12.75 Vdc at Q1-drain. If incorrect, R9 - R14. If ok, go to RF Preamp faults.
RF PREAMP FAULTS NOTE All measurements shall be taken with 0.5 microvolts rf signal input to ANT connector (frequency depends upon band).	
LB PREAMP	
a. Cannot adjust T3, T4, C49, C55 for 12 dB minimum SINAD ratio.	Perform voltage measurements at TP23, TP24, TP25. Measure CR30 and CR31 cathode voltages. Should be same as TP22 tune voltage. If low or near 0.0 Vdc, CR30, CR31

Table 5-7. RT Low Band RF/IF Module Symptom/Remedy - CONT

Symptom	Remedy
HB PREAMP	
b. Cannot adjust T1, T2, C47, C54 for 12 dB minimum SINAD ratio.	Perform voltage measurements at TP21, TP27, TP28. Measure CR28 and CR29 cathode voltages. Should be same as TP22 tune voltage. If low or near 0.0 Vdc, CR28, CR29
c. Poor SINAD in one or both bands.	LB - Measure 0.6 to 1.0 Vdc on case of Q3. If incorrect, T3, CR30, Q3. With high impedance probe, measure 8 to 17 dB gain from TP14 to TP24. If incorrect, Q3. If SINAD bad at both ends of band and gain is good, CR30 HB - Measure 0.6 to 1.0 Vdc on case of Q2. If incorrect, T1, CR28, Q2. With high impedance probe, measure 8 to 17 dB gain from TP14 to TP28. If incorrect, Q2. If SINAD bad at both ends of band and gain is good, CR28
d. Poor SINAD or no receive.	Measure 6.5 Vdc at TP14 and anode of CR17 or CR10. If either voltage is missing, R39 or R40 bad. Check CR11, CR12, CR35 not shorted. Measure T/R switch voltages at TP1, TP2, TP3, and TP4. Check U6, CR2, or refer to VCO faults

5-5.3 High Band RF/IF Module Fault Isolation. Perform the following symptom/remedy as directed from the minimum performance and alignment procedures. Equipment setup is the same as that of the procedure that directed fault isolation be performed unless otherwise stated. Refer to schematic diagrams and test point information in chapter 7 as required for fault isolation.

Table 5-8. RT High Band RF/IF Module Symptom/Remedy

Symptom	Remedy
VCO FAULTS	
a. Tune voltage P2-9 railed out low (approx. 0.4 Vdc) and no rf at P2-13.	Q11, CR30, R88, Q10, C97
b. Oscillator is running but frequency is stuck at lower end of range.	CR29, CR31, L30
c. Tune voltage railed out high (may go low at low channel but not low enough).	CR29, CR31
d. P2-13 rf level is too low.	C101, L31, Q10, Q11
e. P2-13 voltage not within limits.	
- VCO frequency is ok at P2-13.	C75 shorted, R94
- VCO frequency is not ok at P2-13.	CR30 shorted, Q10, L32, R105
SQUELCH FAULTS	
a. Squelch does not set.	Check R34 for 0 - 5k ohms, C35. Adjust R34 full CW. Level should vary 20 to 30 dB between U1-9 and U1-11. If not, U1, CR9, CR10, R27. If problem not resolved, go to RCVR faults.
b. Signal present only when SQ DSBL is pressed (very large signal input).	Press SQ DSBL and measure 0.5 Vdc at U1-12. If U1-12 is 0.0 Vdc or near 0.0 Vdc, R19 (thermistor) shorted, R64 or CR8 open
c. Squelch does not set. Takes large signal to open squelch.	Apply 0.5 microvolts rf at ANT connector and press SQ DSBL switch. Measure 12 dB minimum SINAD. If SINAD incorrect, go to RCVR faults. If SINAD correct, R19, R26 - R29.

Table 5-8. RT High Band RF/IF Module Symptom/Remedy - CONT

Symptom	Remedy
TRANSMITTER FAULTS	
NOTE	
Voltages and rf levels are measured during transmit unless otherwise noted.	
a. No power output. Maximum current during transmit. Current not adjustable.	Q6 shorted, R57
b. Cannot adjust current. Unadjustable high power.	R61, R60, R59, CR22. Measure voltages at Q4 base (12.7 Vdc) and TP2. If incorrect, R56, CR28, Q4
c. Power output low at all frequencies. Maximum current during transmit (is adjustable).	Using spectrum analyzer and high impedance probe, measure gain of Q9 (R83), Q8 (R74), Q7 (R73)
d. Power output low at all frequencies or fades with extended transmit time.	C110, C73, Q6, CR25, CR24, CR23
e. No power output. Small or no increase in transmit current.	C74, C63, T1, L40, Q6. Measure TP3. If incorrect Q5, R58 - R63.
f. No power output.	A1, L22, L38
g. No or low power output. Receiver checks poorly also.	CR17, CR18
h. No Transmit driver input level at TP12.	Go to RF Preamp faults.
RECEIVER FAULTS	
a. Cannot adjust C25 for minimum distortion. Distortion high.	L11 open, C25, C24, R24, C23 if L11, C25, or C24 are replaced C23 may have to be selected to achieve less than 10% distortion.

Table 5-8. RT High Band RF/IF Module Symptom/Remedy - CONT

Symptom	Remedy
b. Low or no audio level (3.0 kHz deviation)	If no audio present, C36 or R32 open, C37 shorted If audio present but low and C36, R32, C37 ok, then remove C36 and C35 and measure U1-9 AF output for approximately 300 mVrms. If low, U1
c. Poor SINAD. Cannot adjust C25 for maximum audio output (noisy or no signal).	Apply 21.4 MHz rf signal at 1 mV at ANT connector. Using a high impedance probe, measure 10 - 15 dB increase from Q1-G1 (TP5) to Q1-drain. If incorrect, measure approximately 4.35 Vdc at Q1-G2 (TP4) and 12.75 Vdc at Q1-drain. If incorrect, R4 - R11. If ok, go to RF Preamp faults.
RF PREAMP FAULTS	
NOTE All measurements shall be taken with 0.5 microvolts rf signal input to ANT connector.	
a. Cannot adjust L13, L15, L17, C46, C51, C59 for 12 dB minimum SINAD ratio.	Perform voltage measurements at TP7, TP8, TP9, and TP10. Measure CR19, CR20 and CR21 cathode voltages. Should be same as TP15 tune voltage. If low or near 0.0 Vdc, CR19, CR20, CR21
b. Poor SINAD.	Measure 0.4 to 0.9 Vdc on case of Q2, 0.6 to 1.0 Vdc on case of Q3. If incorrect, L13, CR19, L15, CR20, L17, CR21, Q2, Q3. With high impedance probe, measure 20 to 26 dB gain from input (TP14) to output (TP10). If incorrect, Q2, Q3. If SINAD bad at both ends of band and gain is good, CR19, CR20, CR21
c. Poor SINAD or no receive.	Measure 6.1 Vdc at (TP14) If voltage is missing, R39 bad. Check CR14, CR15, CR16 not shorted. Check U2, CR2 or refer to VCO faults.

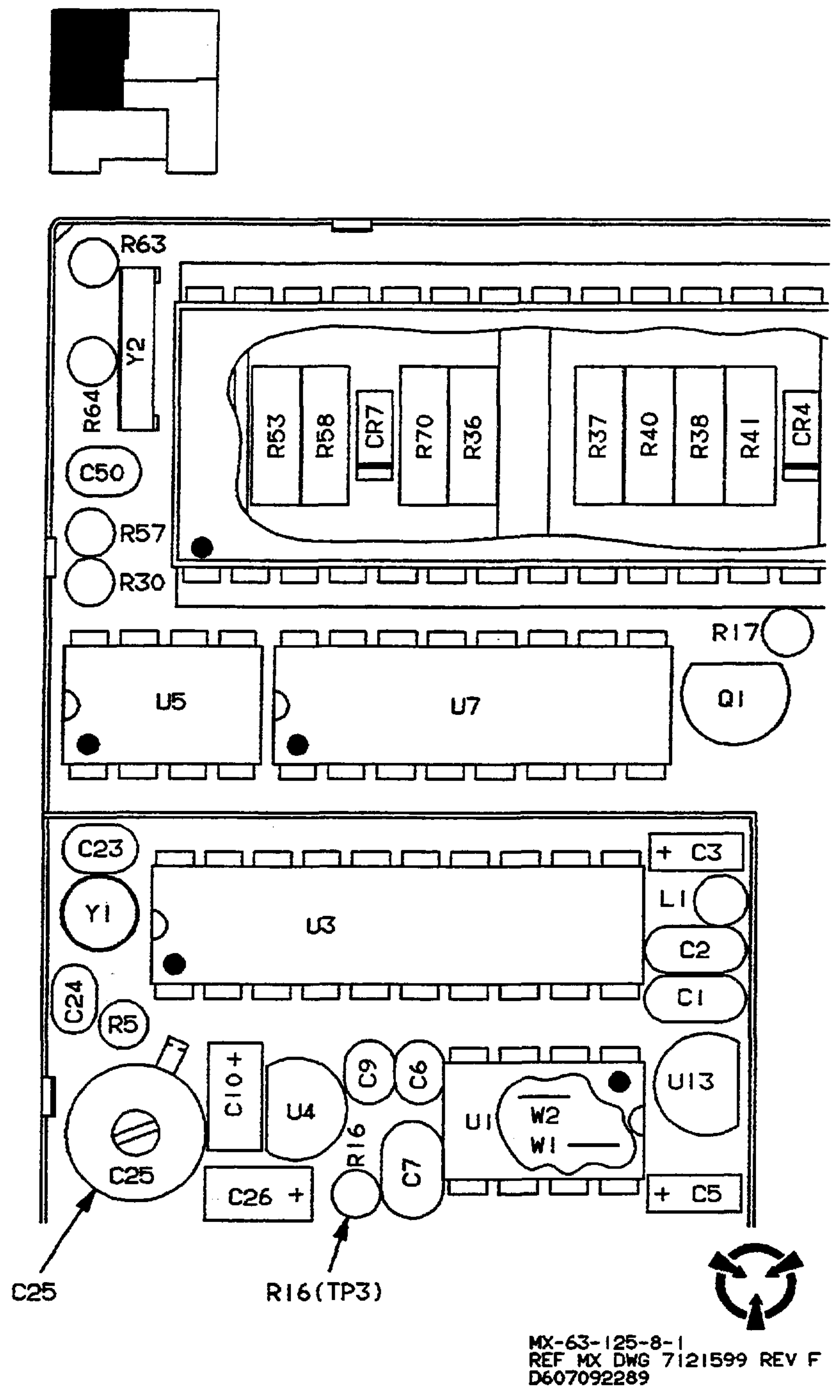


Figure 5-4. RT Synth/AF Module Component Location (Sheet 1 of 4)

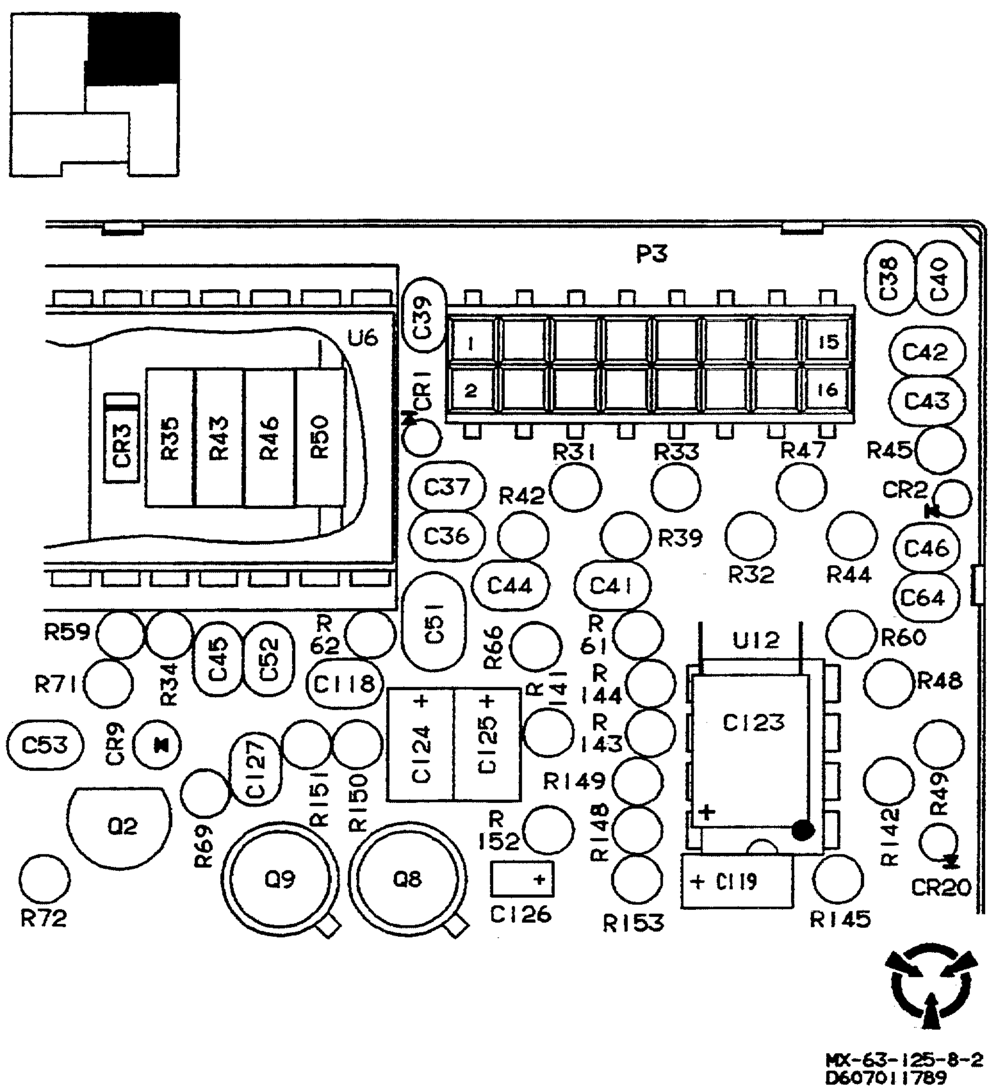


Figure 5-4. RT Synth/AF Module Component Location (Sheet 2 of 4)

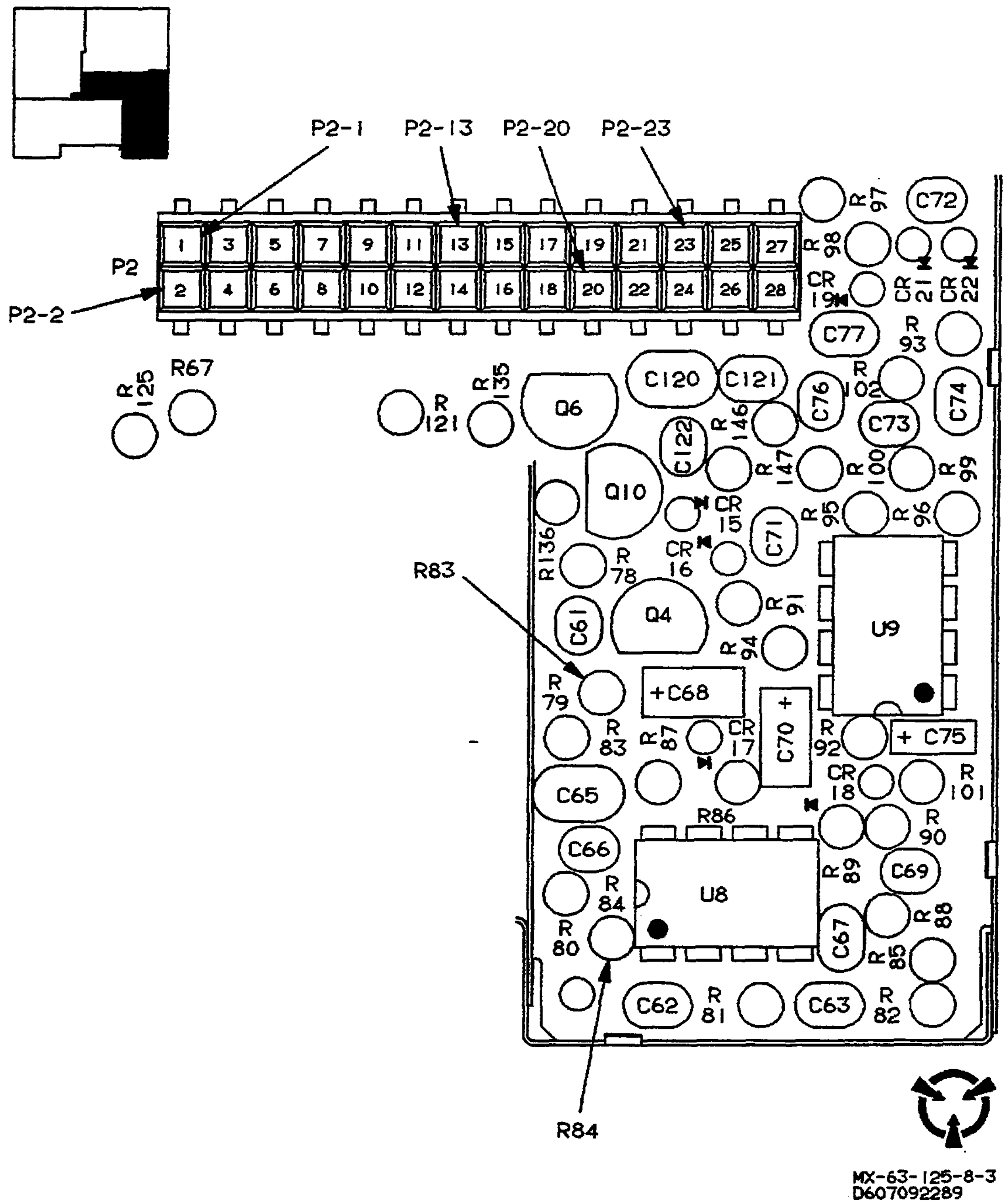


Figure 5-4. RT Synth/AF Module Component Location (Sheet 3 of 4)

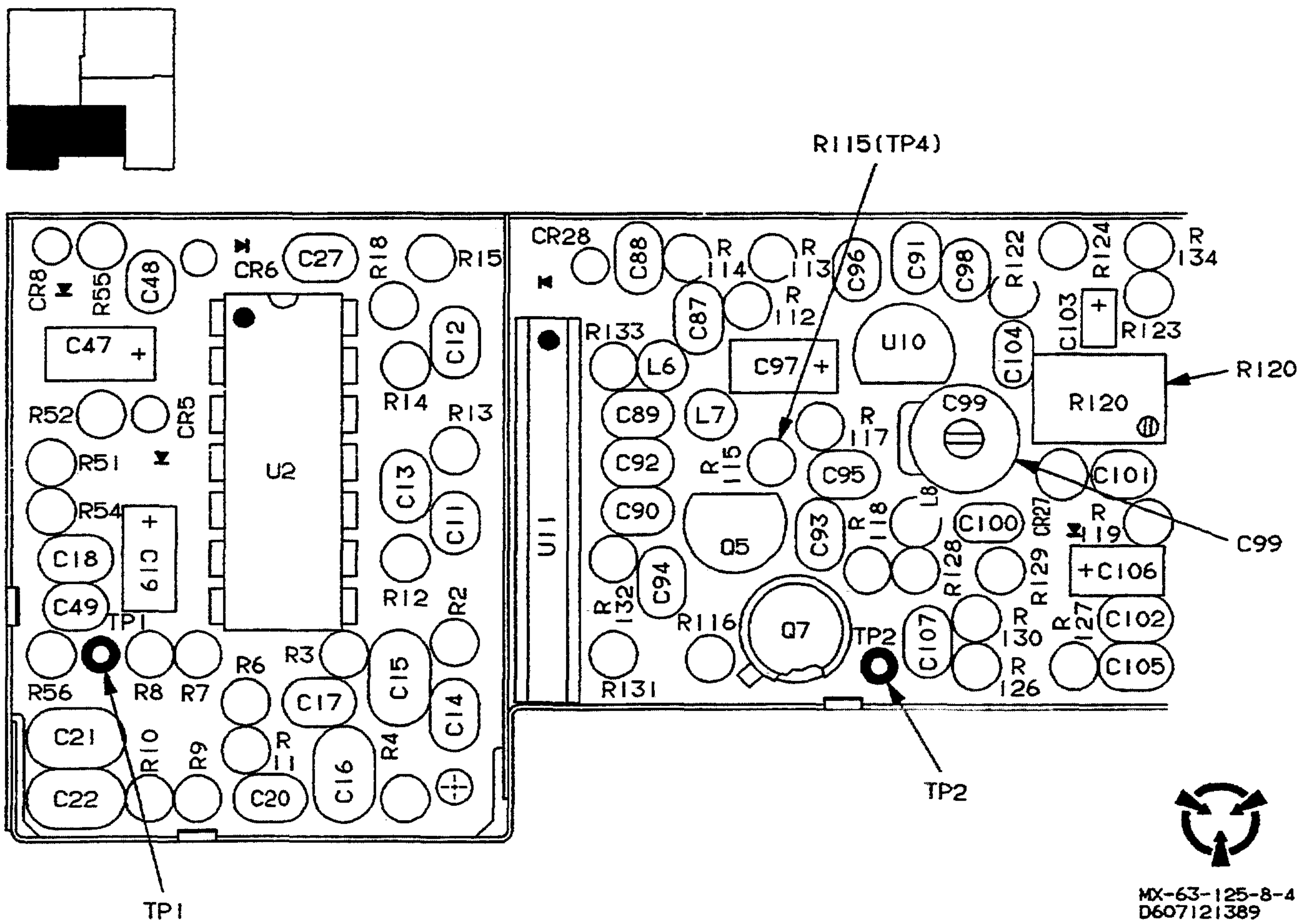


Figure 5-4. RT Synth/AF Module Component Location (Sheet 4 of 4)

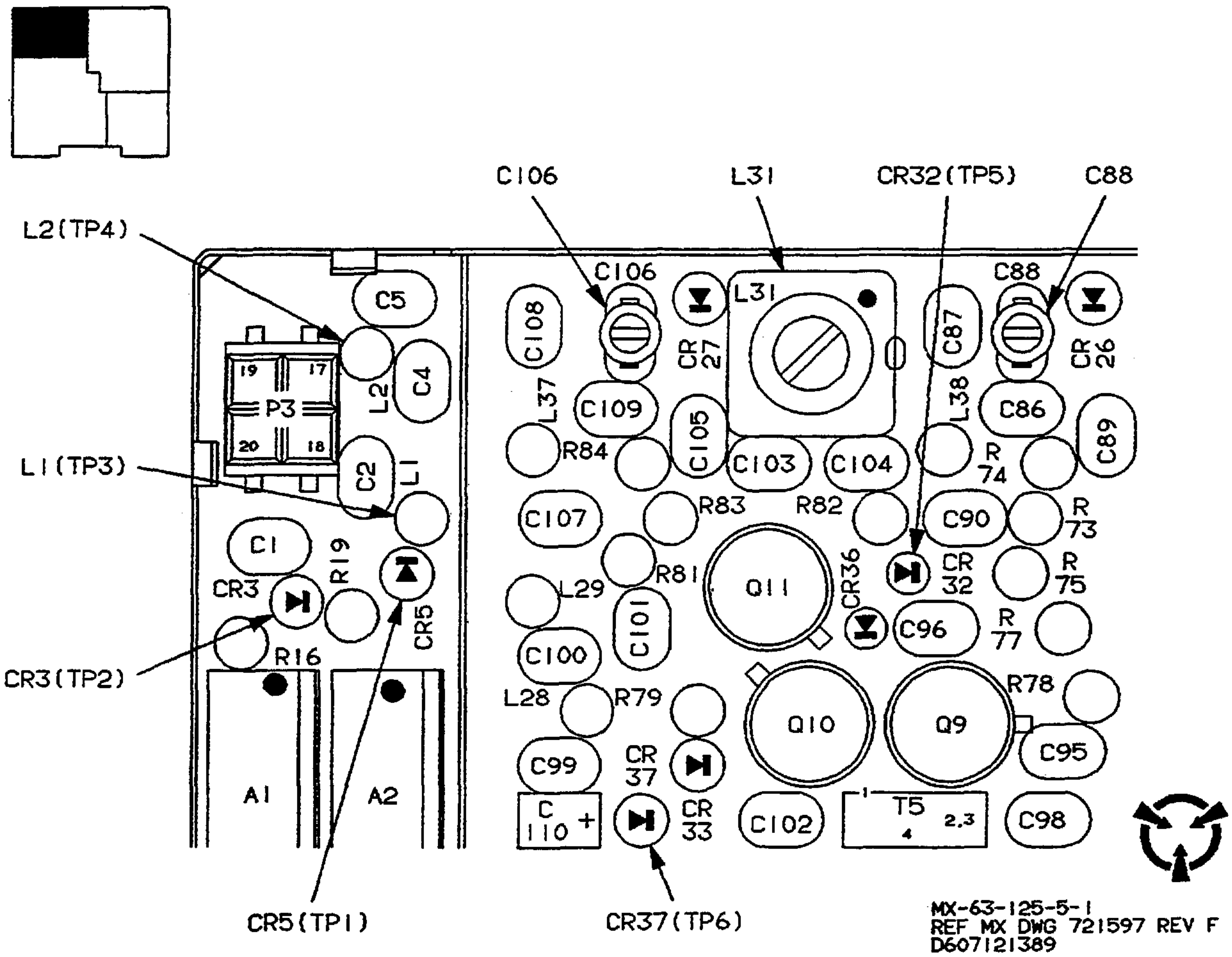
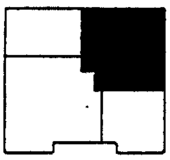


Figure 5-5. RT Low Band RF/IF Module Component Location (Sheet 1 of 4)



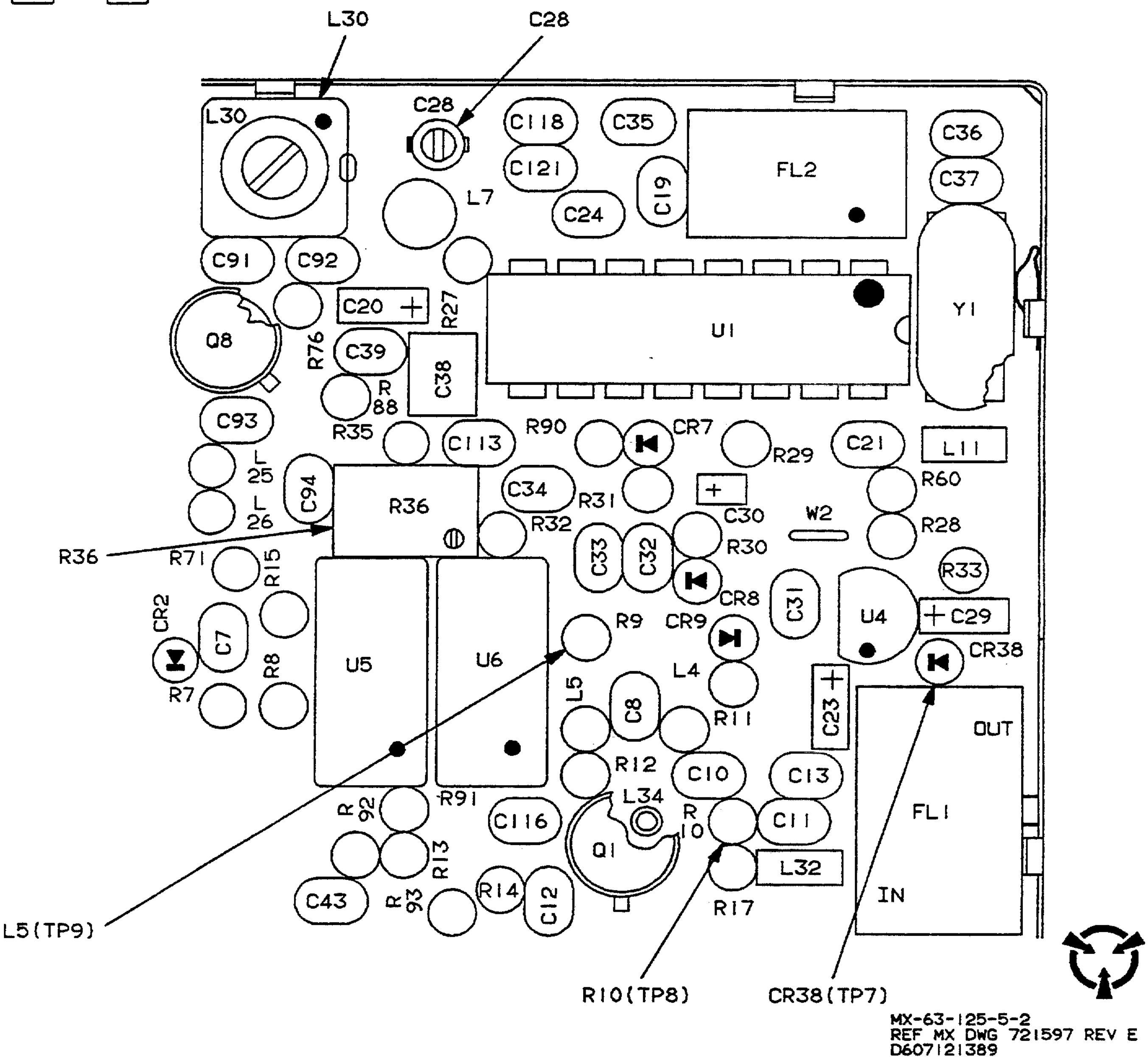


Figure 5-5. RT Low Band RF/IF Module Component Location (Sheet 2 of 4)

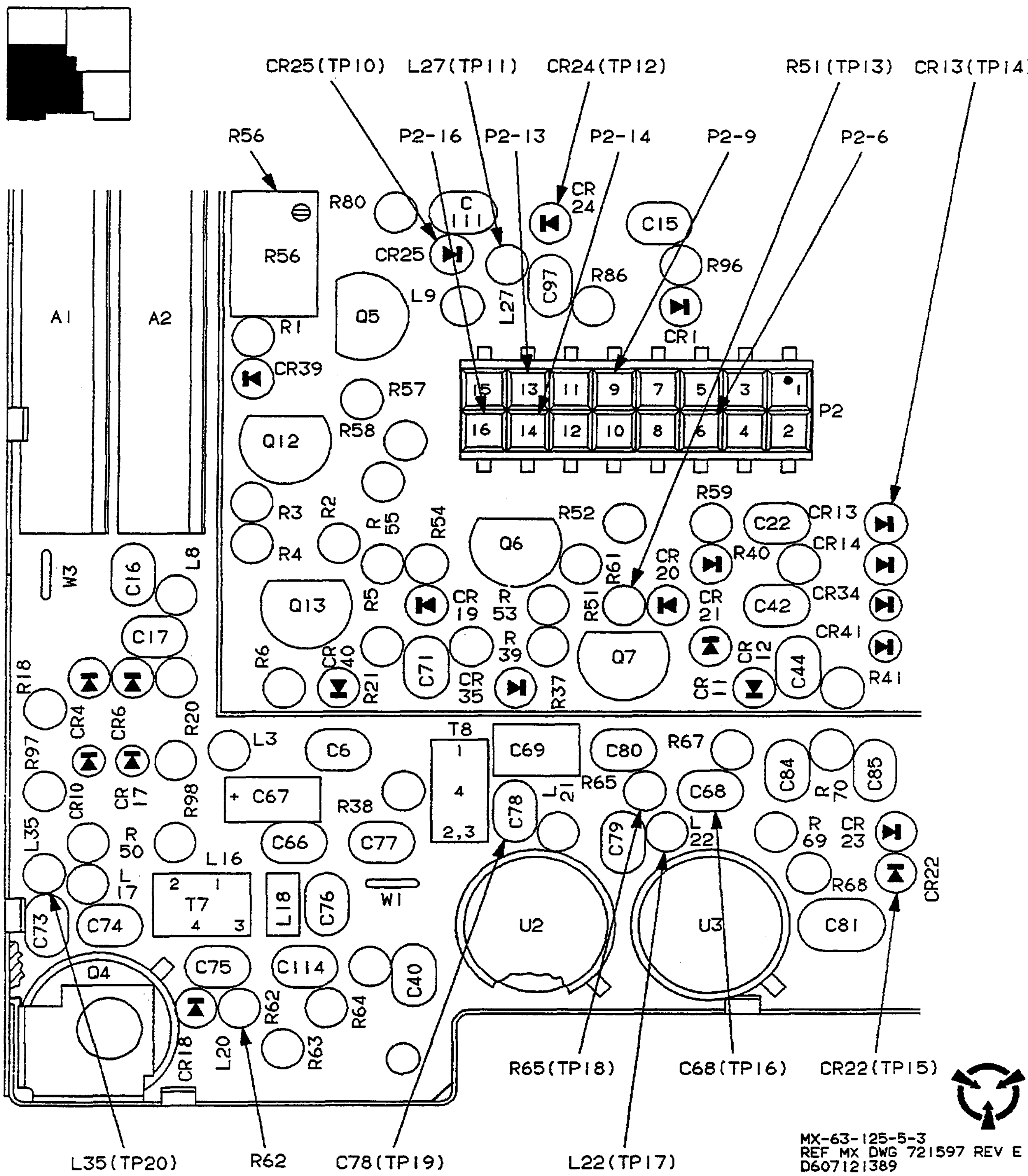


Figure 5-5. RT Low Band RF/IF Module Component Location (Sheet 3 of 4)

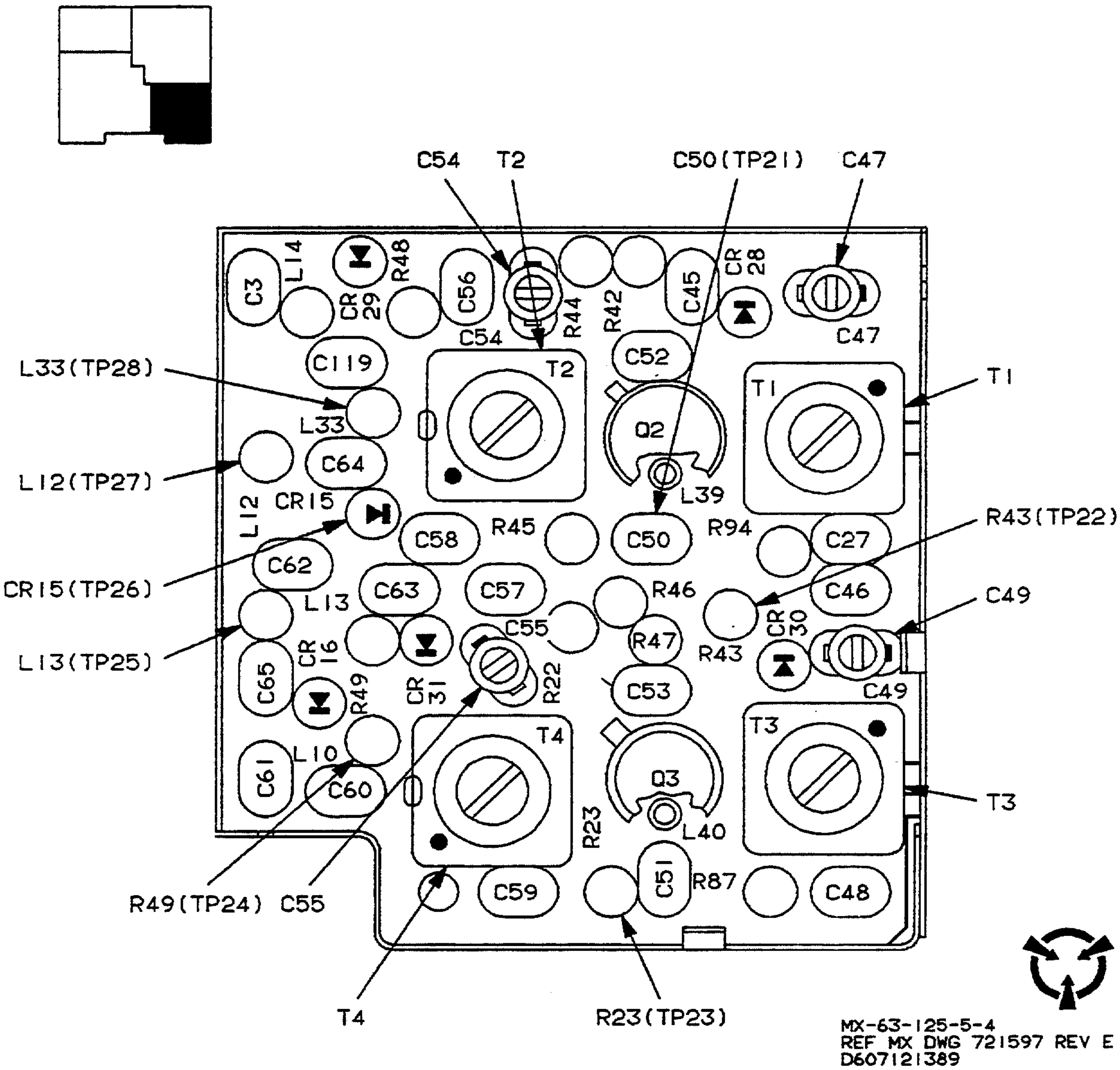


Figure 5-5. RT Low Band RF/IF Module Component Location (Sheet 4 of 4)

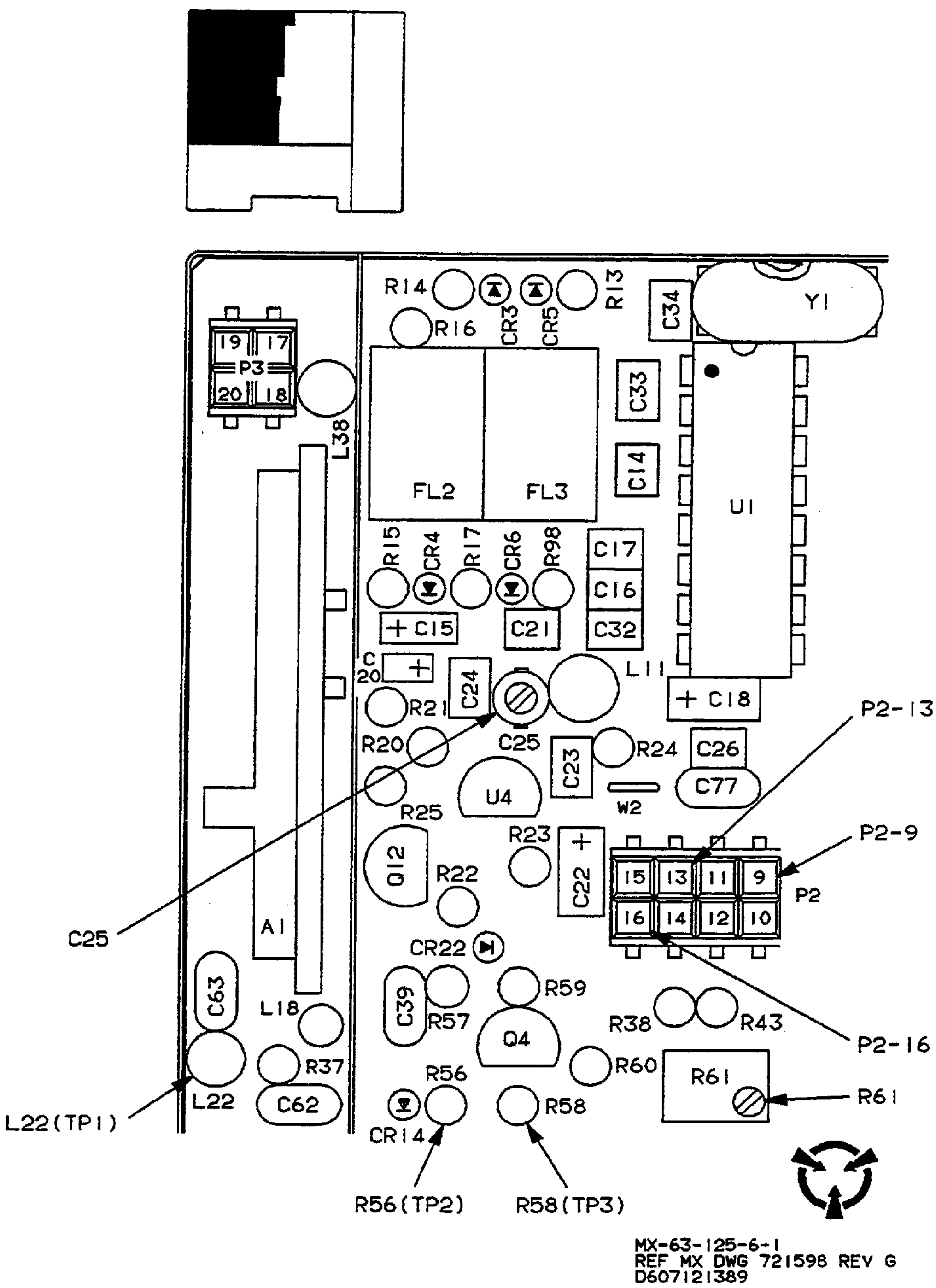


Figure 5-6. RT High Band RF/IF Module Component Location (Sheet 1 of 4)

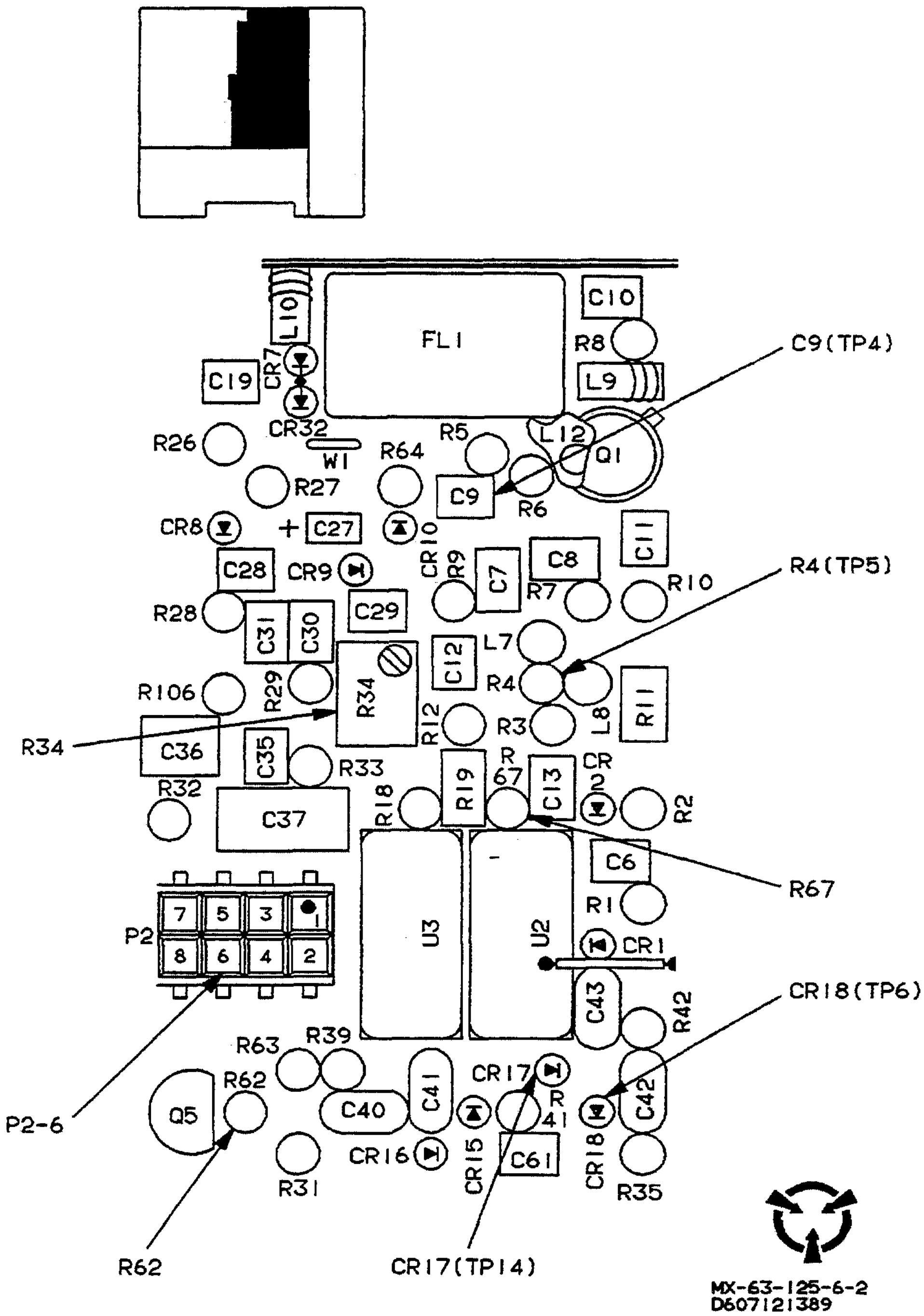


Figure 5-6. RT High Band RF/IF Module Component Location (Sheet 2 of 4)

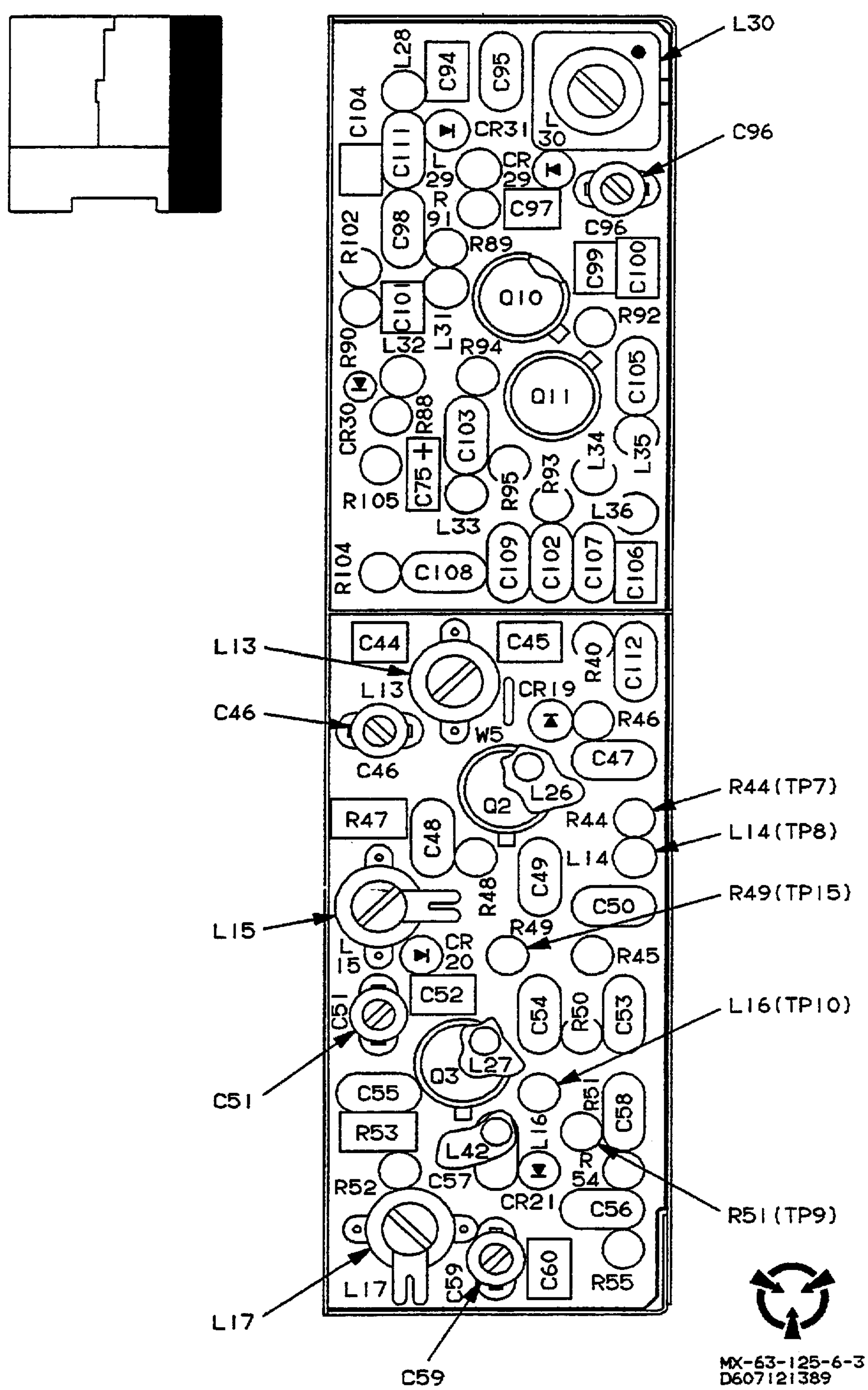


Figure 5-6. RT High Band RF/IF Module Component Location (Sheet 3 of 4)

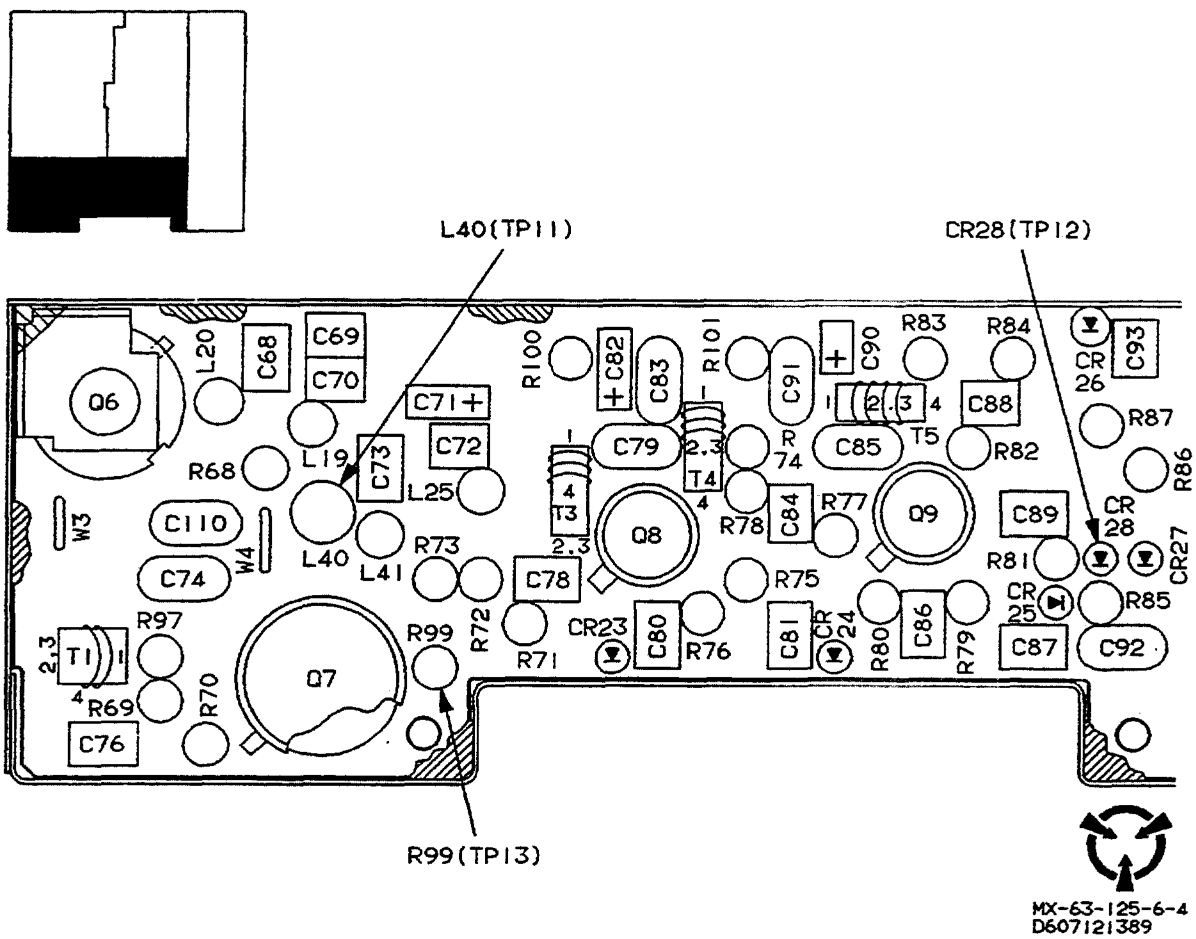


Figure 5-6. RT High Band RF/IF Module Component Location (Sheet 4 of 4)

5-5.4 <u>RT Frame/Panel Continuity Checks.</u> Refer to figure 5-7 for RT frame/panel component location and perform resistance/continuity checks per table 5-9 with both modules removed.

Table 5-9. RT Frame/Panel Wire List

Switch	Position	From	To	Indication
		J2-3	J1-8	
		J2-4	J1-11	
		J2-5	J1-5	
		J2-7	J1-6	
		J2-10	J1-12	
		J2-11	J1-2,10,13	
		J2-12	J1-11	
		J2-17	J5-B	
		J2-18	J1-1	
		J2-19	J5-C	
		J2-20	J1-9	
		J2-21	J5-D	
		J2-22	J1-14	
		J2-23	J1-7	
		J2-28	J1-4	
		J3-19,20	Interconnect Plate	
		J3-14	J5-F	
		J5-A	J2-11	
		Battery Terminal (+)	J1-15	
		Battery Terminal (-)	J2-11, Interconnect Plate, Chassis Frame, Control Panel	
VOL/OFF	ON	Battery Terminal (+)	J2-12	6.5-8.0 kohms (observe diode polarity)
VOL/OFF	OFF	Battery Terminal (+)	J2-12	6.5-8.0 kohms (observe diode polarity)
VOL/OFF	ON	J5-E	J2-12	Continuity
VOL/OFF	OFF	J5-E	J2-12	Open
VOL/OFF	FULL CW	J2-24	J2-26	20K ohms max
VOL/OFF	FULL CCW	J2-24	J2-11	100 ohms max
VOL/OFF	FULL CCW	J2-26	J2-11	70K - 130K ohms
		J2-11	J2-23	Open
SQ DSBL	PRESS	J2-11	J2-23	Continuity
		J2-11	J2-1	Open
INCR	PRESS	J2-11	J2-1	Continuity
		J2-11	J2-2	Open
SET	PRESS	J2-11	J2-2	Continuity
		J2-11	J2-27	Open
PUSH TO TALK	PRESS	J2-11	J2-27	Continuity

Table 5-9. RT Frame/Panel Wire List - CONT

Switch	Position	From	To	Indication
		J2-25	J2-11	17 - 27 ohms
ANT	A	J3-17	J3-11	1200 - 1800 ohms
ANT	B	J3-17	J3-9	1200 - 1800 ohms
ANT	C	J3-17	J3-7	1200 - 1800 ohms
ANT	D	J3-17	J3-5	1200 - 1800 ohms
ANT	E	J3-17	J3-3	1200 - 1800 ohms
ANT	"50"	J3-17	J3-13	1200 - 1800 ohms
CHAN	1	J3-8	J3-11	Continuity
CHAN	2	J3-8	J3-9	Continuity
CHAN	3	J3-8	J3-7	Continuity
CHAN	4	J3-8	J3-3	Continuity
CHAN	5	J3-8	J3-5	Continuity
CHAN	6	J3-4	J3-5	Continuity
CHAN	7	J3-4	J3-3	Continuity
CHAN	8	J3-4	J3-7	Continuity
CHAN	9	J3-4	J3-9	Continuity
CHAN	10	J3-4	J3-11	Continuity
		J4 (ANT post)	J3-16	8K - 12K ohms

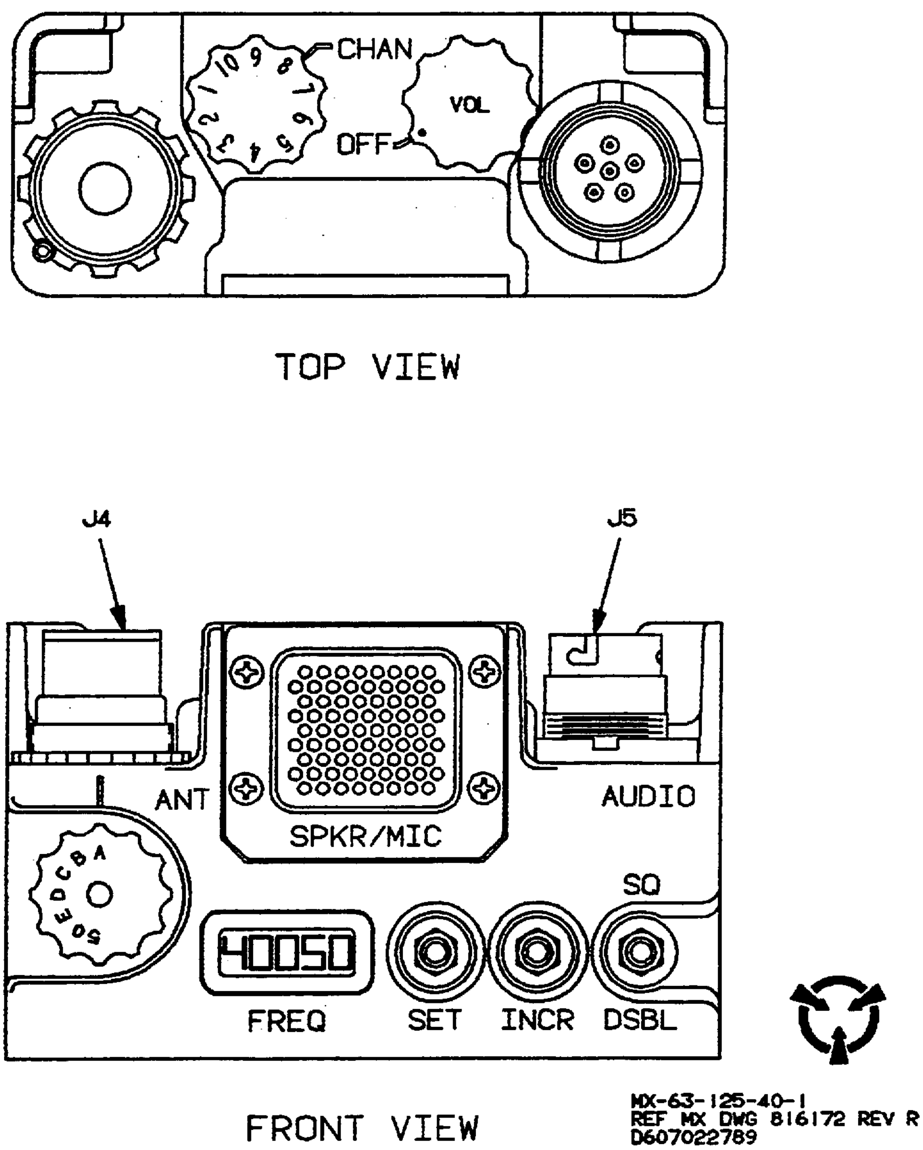


Figure 5-7. RT Frame/Panel Component Location (Sheet 1 of 2)

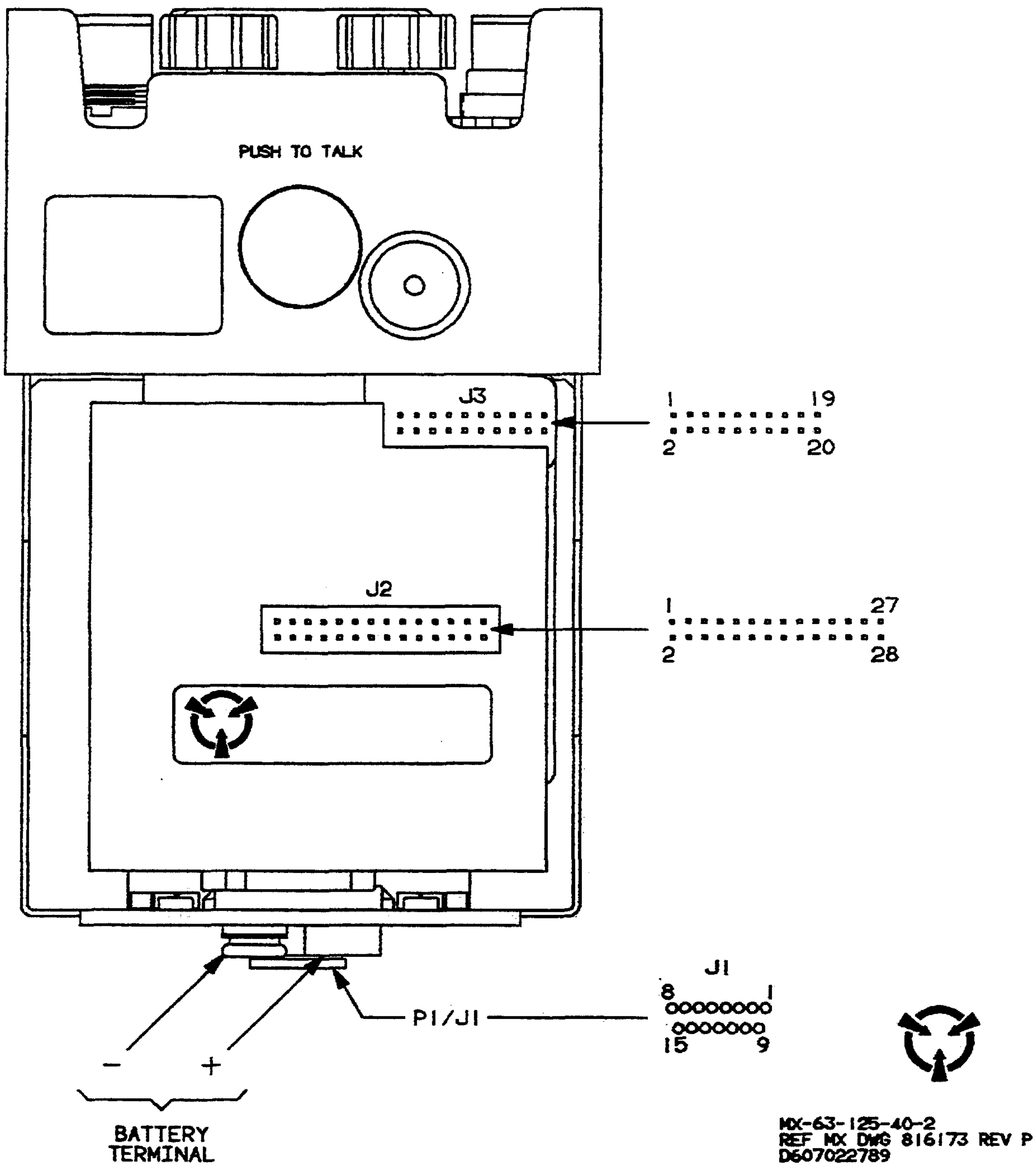


Figure 5-7. RT Frame/Panel Component Location (Sheet 2 of 2)

Part II. POWER AMPLIFIER MAINTENANCE

5-6 PA MAINTENANCE CONCEPT.

Upon receipt of the suspected faulty UUT, visually inspect all connectors, switches and knobs for physical damage. The following procedures describe the sequence of events necessary for repairing the UUT to serviceable condition.

a. Perform UUT minimum performance test (table 5-10 for low band and table 5-11 for high band). If a fault is encountered, identify the faulty module (table 5-12) as directed.

b. Troubleshoot the faulty module per FO-13 through FO-17.

c. Perform alignment per tables 5-13 through 5-16.

d. After all alignments, repairs, and assembly has been completed, the UUT minimum performance test must be run again for confidence.

5-7 PA MINIMUM PERFORMANCE TEST.

The following tables contain the Low Band and High Band PA minimum performance tests. The minimum performance test insures the PA is operational.

5-7.1 Low Band PA Minimum Performance Test. The following test checks operation of the Low Band PA. The test also verifies performance of the PA after a repair has been made. The PA is serviceable if every procedure meets the required limits. If the PA does not pass the test, refer to table 5-12 for fault isolation. A serviceable Low Band RT and PS/A assembly is required for the test.

Table 5-10. PA Low Band Minimum Performance Test

Step	Procedure	Required indication
1.	Connect test equipment (fig. 5-8) and set switches as follows; Test Adapter: TRANSMIT - OFF SPEAKER - OFF NORM/+20 - NORM POWER ON/OFF - OFF RT: ANT - 50 OFF/VOL - midrange PA: AMPL/BYPASS - AMPL PS/A: POWER ON/OFF - OFF SPKR/VOL - midrange	
2.	Adjust power supply to 27 Vdc and set current limit to 25 amps.	
3.	Connect RF sampler to PS/A J2.	

Table 5-10. PA Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
4.	Set PS/A POWER ON/OFF switch to ON.	PA FREQUENCY BAND 30-88 MHZ indicator lit
5.	Load the following RT presets; 30.000 MHz 40.000 MHz 50.000 Mhz 51.000 Mhz 70.000 MHz 87.9875 MHz	
6.	Select channel programmed for 30.000 MHz.	
7.	Adjust audio oscillator for 1 kHz audio.	
8.	Set modulation meter 300 to 3000 Hz audio filter to IN.	
9.	Set test adapter TRANSMIT switch to TX, press RT INCR switch, and adjust audio oscillator for ±4.5 kHz deviation on modulation meter.	
10.	Set test adapter TRANSMIT switch to TX, press RT INCR switch and measure the following references, recording each measurement for future use: power output reference (watts) frequency accuracy reference (MHz) modulation deviation reference (kHz) audio distortion reference (%)	
11.	Repeat step 10 for RT presets 40.000, 50.000, 51.000, 70.000, and 87.9875 MHz.	
12.	Reference level is complete. NOTE Do not change test equipment settings after performing the reference procedure unless instructed.	

Table 5-10. PA Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
13.	Connect RF sampler to PA ANT J2.	
14.	Connect PA W4P2 to PS/A J2.	
	TRANSMIT BYPASS	
15.	Set PA AMPL/BYPASS switch to BYPASS.	PA FREQUENCY BAND 30-88 MHZ indicator off
16.	Select 30.000 MHz preset on R/T and set test adapter TRANSMIT switch to TX and measure power output.	Less than 1.0 dB below reference taken in step 10
	TRANSMIT AMPL	
17.	Set PA AMPL/BYPASS switch to AMPL, test adapter TRANSMIT switch to ON, press RT INCR switch and measure the following.	Power AMPL FAULT indicator not lit.
	frequency accuracy	Same as ref. +/- 100 Hz
	modulation deviation	Same as ref. +/- 0.5 kHz
	audio distortion	Same as ref. +/- 1.0 %
	power output	12 - 20 watts
18.	Select RT presets 40.000, 50.000, 51.000, 70.000, and 87.9875 MHz and repeat step 17.	same as step 17
	FAULT	
19.	Remove RF Sampler from PA J2.	

Table 5-10. PA Low Band Minimum Performance Test - CONT

Step	Procedure	Required indication
20.	Set test adapter TRANSMIT switch to TX.	POWER AMPL FAULT indicator lit on UUT.
21.	Test is complete.	

5-7.2 PA High Band Minimum Performance Test. The following test checks operation of the High Band PA. The test also verifies performance of the PA after a repair has been made. The PA is serviceable if every procedure meets the required limits. If the PA does not pass the test, refer to table 5-12 for fault isolation.

Table 5-11. PA High Band Minimum Performance Test

Step	Procedure	Required indication
1.	Connect test equipment (fig. 5-8) and set switches as follows; Test Adapter: TRANSMIT - OFF SPEAKER - OFF NORM/+20 - NORM POWER ON/OFF - OFF RT: ANT - 50 OFF/VOL - midrange PA: AMPL/BYPASS - AMPL PS/A: POWER ON/OFF - OFF SPKR/VOL - midrange	
2.	Adjust power supply to 27 Vdc and set current limit to 25 amps.	
3.	Connect RF sampler to PS/A J2.	
4.	Set PS/A POWER ON/OFF switch to ON.	PA FREQUENCY BAND 130-174 MHZ indicator lit
5.	Load the following RT presets; 130.000 MHz 152.000 MHz 173.9875 MHz	

Table 5-11. PA High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
6.	Select channel programmed for 130.000 MHz.	
7.	Adjust audio oscillator for 1 kHz audio.	
8.	Set modulation meter 300 to 3000 Hz audio filter to IN.	
9.	Set test adapter TRANSMIT switch to TX, and adjust audio oscillator for ±3.0 kHz deviation on modulation meter.	
10.	Set test adapter TRANSMIT switch to TX, and measure the following references, recording each measurement for future use: power output reference (watts) frequency accuracy reference (MHz) modulation deviation reference (kHz) audio distortion reference (%)	
11.	Repeat step 10 for RT presets 152.000 and 173.9875 MHz.	
12.	Reference level is complete. NOTE Do not change test equipment settings after performing the reference procedure unless instructed.	
13.	Connect RF sampler to PA ANT J2.	
14.	Connect PA W4P2 to PS/A J2.	

Table 5-11. PA High Band Minimum Performance Test - CONT

Step	Procedure	Required indication
	TRANSMIT BYPASS	
15.	Set PA AMPL/BYPASS switch to BYPASS.	PA FREQUENCY BAND 130-174 MHz indicator off
16.	Select 130.000 MHz preset on RT and set test adapter TRANSMIT switch to TX. Measure power output.	less than 1.0 dB below reference taken in step 10
	TRANSMIT AMPL	
17.	Set PA AMPL/BYPASS switch to AMPL, test adapter TRANSMIT switch to ON and measure the following;	POWER AMPL FAULT indicator not lit
	frequency accuracy	same as ref. +/- 100 Hz
	modulation deviation	same as ref. +/- 0.5 kHz
	audio distortion	same as ref. +/- 1.0 %
	power output	12 - 20 watts
18.	Select RT Presets 152.000 and 173.9875 MHz and repeat step 17.	same as step 17
	FAULT	
19.	Remove RF sampler from PA J2.	
20.	Set test adapter TRANSMIT switch to TX.	POWER AMPL FAULT indicator lit
21.	Test is complete.	

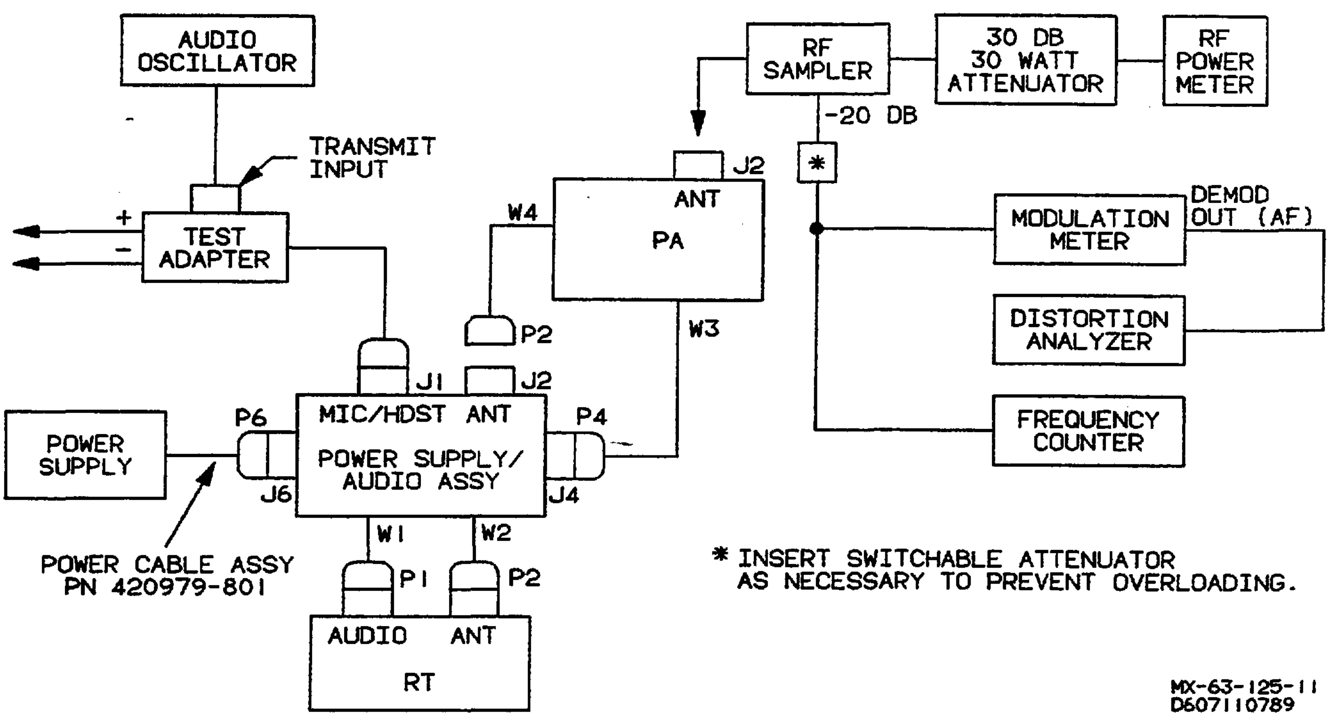


Figure 5-8. PA Performance Test Setup.

5-7.3 PA Fault Isolation. The following symptom/remedy table applies to the Low Band and High Band PA. Find the symptom that most likely describes the fault condition. Refer to para. 5-8 for removal/replacement procedures. Refer to figure 5-9 through 5-15 for PA module component locations.

Table 5-12. PA Module Fault Checks

Symptom	Remedy
1. PA frequency band indicator not lit in AMPL mode.	
A) Remove PA power supply from amplifier/filter and connect only P4-5/6 and P4-7/8 to J4 on amplifier. Measure 6.0 VDC minimum at P4-1 on power supply.	Repair power supply if no voltage present.
B) Remove PA filter from amplifier and disconnect P5-I or P5-F. Measure 6.0 VDC minimum at J5-I or J5-F.	Repair amplifier module if no voltage present; otherwise repair PA chassis assembly.
2. No power output in BYPASS mode.	
A) Disconnect RF interface cable W4 and measure reference RF input from RT at W4P1 for less than 0.1 dB below reference level.	Repair chassis assembly if no reference RF measured at W4P1.
B) Disconnect RF interface cable W2 from filter module and measure power output at J2 on filter for less than 1.0 dB below reference level.	Repair chassis assembly if RF measurement correct at J2 on filter.
C) Measure +4.0 VDC at J3/P3-8 and -48.0 VDC at J3/P3-6 with PA filter and amplifier mated.	Repair PA filter module if both voltage measurements are correct.
D) Remove filter module from amplifier module and measure +6.0 VDC at J3-8 and -48.0 VDC at J3-6 on amplifier module.	Repair PA filter module if both voltage measurements are correct.
E) Remove PA power supply from amplifier and connect only P4-5/6 and P4-7/8 to J4 on amplifier. Measure +6.0 VDC at P4-1 and -48.0 VDC at P4-9.	Repair PA amplifier module if both voltage measurements are correct; repair PA power supply if either voltage is incorrect.

Table 5-12. PA Module Fault Checks - CONT

Symptom	Remedy
3. RF output Frequency Accuracy, Audio Distortion, or Modulation Deviation exceeds limits with power output level measurements correct.	
A) Disconnect filter W1P1 from amplifier and measure RF output at amplifier J1 connector for correct frequency accuracy, audio distortion, or modulation deviation.	Repair PA filter module if all parameters are correct.
B) Remove PA power supply from amplifier/filter module and connect only P4-5/6 and P4-7/8 to J4 in amplifier. Measure +6.0 VDC at P4-1, -13.0 VDC at P4-2, +15.0 VDC at P4-3, and -48.0 VDC at P4-9 on PA Power Supply.	Repair PA amplifier module if all four voltage readings are correct; repair PA power supply if any voltage reading is incorrect.
4. No power output in AMPL mode with BYPASS mode measurement correct.	
A) Disconnect W2 from amplifier module J2 and measure RF reference input to amplifier module at W2P2 for less than 1.0 dB below reference level.	Go to step 4-F if measurement is correct; otherwise continue with step 4-B.
B) Measure +4.0 VDC at J3/P3-6 and -48.0 VDC at J3/P3-8 with PA amplifier and filter mated.	Repair PA filter module if both voltage measurements are correct.
C) Remove filter module from amplifier module and measure +6.0 VDC at J3-6 and -48.0 VDC at J3-8 on amplifier module.	Repair PA filter module if both voltage measurements are correct.
D) Remove PA power supply from amplifier and connect only P4-5/6 and P4-7/8 to J4 in amplifier module. Measure +6.0 VDC at P4-1 and -48.0 VDC at 4-9 on power supply.	Repair PA power supply if either voltage is not present or measurement is incorrect.
E) Measure 0.2 VDC maximum at J5-H on amplifier module.	Repair PA amplifier module if measurements are correct; otherwise repair PA chassis assembly.

Table 5-12. PA Module Fault Checks - CONT

Symptom	Remedy
F) Disconnect W1P1 from amplifier module and measure the RF output level at J1 on amplifier module for 20 - 30 Watts.	Go to step 4-H if measurement is correct; otherwise continue with step 4-G.
G) Remove PA power supply from amplifier module and connect only P4-5/6 and P4-7/8 to J4 in amplifier module. Measure +6.0 VDC at P4-1, -13.0 VDC at P4-2, +15.0 VDC at P4-3 and -48.0 VDC at P4-9 on power supply.	Repair PA amplifier module if all four voltage measurements are correct; repair PA power supply if any voltage measurements are incorrect.
H) Measure REFL PWR voltage at P3/J3-5 for 0.2 VDC maximum and FWD PWR voltage at P3/J3-7 for 0.7 VDC minimum with PA amplifier/filter mated.	For High Band PA, repair PA filter module if either voltage measurement is incorrect. Continue with step 4-I for Low Band PA if only voltage at P3/J3-7 is incorrect; otherwise repair Low Band PA filter module.
I) Measure +3.0 VDC at J3/P3-3 and -48.0 VDC at J3/P3-1, if operating frequency is between 30.0 and 50.8 MHz <u>OR</u> measure +3.0 VDC at J3/P3-1 and -48.0 VDC at J3/P3-3 if operating frequency is between 50.4 and 88 MHz.	Repair PA filter module if both voltage measurements are correct.
J) Remove PA filter module from amplifier module. Connect PA chassis W4P1 to amplifier module J2. Connect PA chassis W2P2 to amplifier module J1. Measure +6.0 VDC at J3/P3-3 and -48.0 VDC at J3/P3-1 if operating frequency is between 30.0 and 50.8 MHz <u>OR</u> measure +6.0 VDC at J3/P3-1 and -48.0 VDC at J3/P3-3 if operating frequency is between 50.4 and 88 MHz.	Repair PA filter module if both voltage measurements are correct.
K) Remove PA power supply from amplifier module and connect only P4-5/6 and P4-7/8 to J4 in amplifier module. Measure +6.0 VDC at P4-1 and -48 VDC at P4-9 on power supply.	Repair PA amplifier module if both voltage measurements are correct; otherwise repair PA power supply if either voltage measurement is incorrect.

Table 5-12. PA Module Fault Checks - CONT

Symptom	Remedy
5. Transmit FAULT indicator remains lit in RCV mode or in XMIT mode with no fault conditions present.	Repair PA amplifier module.
6. Power AMPL FAULT indicator does not light for VSWR fault.	
A) Measure 0.3 VDC minimum at J3/P3-5 with PA amplifier/ filter mated.	Repair PA filter module if voltage measurements are incorrect.
B) Disconnect PA filter module W2P2 from amplifier module and check FAULT indicator.	Repair PA amplifier module if indicator lights.
C) Disconnect P5-G and measure for +6.0 VDC at J5-G on amplifier module.	Repair PA amplifier module if voltage measurements incorrect; otherwise repair PA chassis assembly.

5-8 PA MODULE ASSEMBLY AND DISASSEMBLY PROCEDURES.

The following paragraphs contain instructions necessary to remove and replace the PA power supply, amplifier and filter assemblies.

5-8.1 Power Supply Removal. Place PA with heatsink fins face down and perform the following steps. Refer to figure 5-9.

a. Remove base plate (item 1) on PA by rotating seven slotted fasteners (item 2) 1/4 turn CCW.

NOTE

Power supply captive screws (item 4) are double captivated.

b. Loosen four spring-loaded captive screws until they spring up. Lift spring-loaded captive screws and loosen through second set of threads (amplifier module standoffs).

CAUTION

Handle power supply (item 3) carefully as damage to pins may result.

c. Lift power supply straight up from amplifier/filter assembly (item 11).

WARNING

Avoid breathing fumes generated by soldering. Eye protection is required.

d. Unsolder and remove power supply cover if required for fault isolation.

5-8.2 Amplifier/Filter Removal. Remove power supply (para 5-8.1) prior to performing the following steps. Refer to figure 5-9.

a. Disconnect chassis wiring harness P5 (item 5).

b. Disconnect antenna output plug P2 (item 7).

c. Disconnect reference input plug P1 (item 9).

d. Loosen amplifier/filter six spring-loaded captive screws (item 12) until they spring up.

e. Remove amplifier/filter (item 11) by lifting filter end first and pulling out at an angle towards rear of chassis.

5-8.3 Filter Removal. Refer to figure 5-10.

a. Disconnect W1P1 (Item 1) and W2P2 (Item 2) from amplifier J1 and J2 connectors.

b. Remove four crosshead screws and washers (Item 3) securing filter (Item 4) to heatsink (Item 5).

c. Rotate four captive screws (Item 6) CCW approximately three turns into standoff
threads to clear the heat sink.

CAUTION

Do not bend pins on connector P3 (Item 7) when removing filter from amplifier.

d. Carefully slide filter (Item 4) away from amplifier (Item 8) and remove.

WARNING

Avoid breathing fumes generated by soldering. Eye protection is required.

e. Unsolder and remove filter cover (Item 9) , if required, for fault isolation or alignment.

5-8.4 Amplifier Removal. Refer to figure 5-10.

NOTE

The filter (Item 4) must be removed (para 5-8.3) prior to removing the amplifier.

a. Unsolder and remove amplifier cover (Item 10).

b. Remove four crosshead screws and washers (Item 11) securing Q8 and Q9 to heatsink.

c. Loosen six crosshead screws (Item 13) securing amplifier to heatsink.

d. Carefully lift amplifier (Item 8) straight up from heatsink (Item 5).

5-8.5 Amplifier Replacement. Refer to figure 5-10.

CAUTION

Amplifier Q8 and Q9 heatsinks and mating surfaces of heatsink assembly must be free of foreign material or damage to amplifier may result from overheating.

a. Apply silicone heatsink compound (MIL-C-B47113-IOZ) to amplifier Q8 and Q9 heatsinks.

b. Place amplifier (Item 8) over heatsink (Item 5) and align mounting holes. Install amplifier on heatsink and insure standoffs are seated flat against heatsink surface.

CAUTION

Do not tighten hardware for Q8 and Q9 unless amplifier module is properly installed on heatsink.

c. Install and tighten four crosshead screws and washers (Item 11) securing Q8 and Q9 to heatsink (Item 5).

WARNING

Avoid breathing fumes generated by soldering. Eye protection is required.

d. Install and solder cover (Item 10) on module if alignment and fault isolation is complete.

e. Tighten six crosshead screws (Item 13) securing amplifier to heatsink.

5-8.6 Filter Replacement. Refer to figure 5-10.

CAUTION

Do not bend pins on connector P3 (Item 7) when installing filter to amplifier.

a. Install and solder cover (Item 9) on module if alignment and fault isolation is complete.

b. Slide filter (Item 4) on heatsink assembly (Item 5) and connect P3 (Item 8) to amplifier J3.

c. Install and tighten four crosshead screws and washers (Item 3) securing filter to heatsink.

d. Connect W1P1 (Item 1) and W2P2 (Item 2) to amplifier J1 and J2.

5-8.7 Amplifier/filter Replacement. Refer to figure 5-9.

CAUTION

Insure thermal pad stays flat in bottom of chassis against heatsink surface or damage to amplifier may result.

CAUTION

Inspect for and remove any foreign material found on thermal pad and mating surfaces of amplifier/filter or damage to amplifier may result.

a. Install the amplifier/filter (amplifier end first) at an angle and slide toward front of chassis.

b. Align amplifier/filter with mounting holes in heatsink and thread six spring-loaded captive screws one to two turns into chassis mounting holes. Do not tighten completely until power supply is installed.

c. Connect P1 to filter module J1.

d. Connect P2 to filter module J2.

e. Connect P5 to amplifier module J5.

5-8.8 Power Supply Replacement. Perform amplifier/filter replacement (step 5-7.7), then perform the following. Refer to figure 5-9.

WARNING

Avoid breathing fumes generated by soldering. Eye protection is required.

a. Install and solder cover on module if fault isolation is complete.

b. Align four spring-loaded captive screws with mounting holes (Item 16) in top of amplifier/filter. Ensure (Item 15) P4 connector pins are aligned and slowly lower until four standoff posts bottom out and P4 connector pins firmly mate with amplifier J4.

NOTE

Power supply captive screws are double captivated.

c. Thread four spring-loaded captive screws through captive threads (amplifier/filter standoffs). Tighten four spring-loaded captive screws one to two turns into heatsink. Do not tighten completely at this time.

d. Alternately tighten ten spring-loaded captive screws (four if only the power supply was removed) securing power supply and amplifier/filter to heatsink assembly. Tighten screws (6 to 8 in-lbs) to insure even pressure on heatsink thermal pad.

e. Install base plate (Item 1) and secure by rotating seven slotted fasteners (Item 2) 1/4 turn CW.

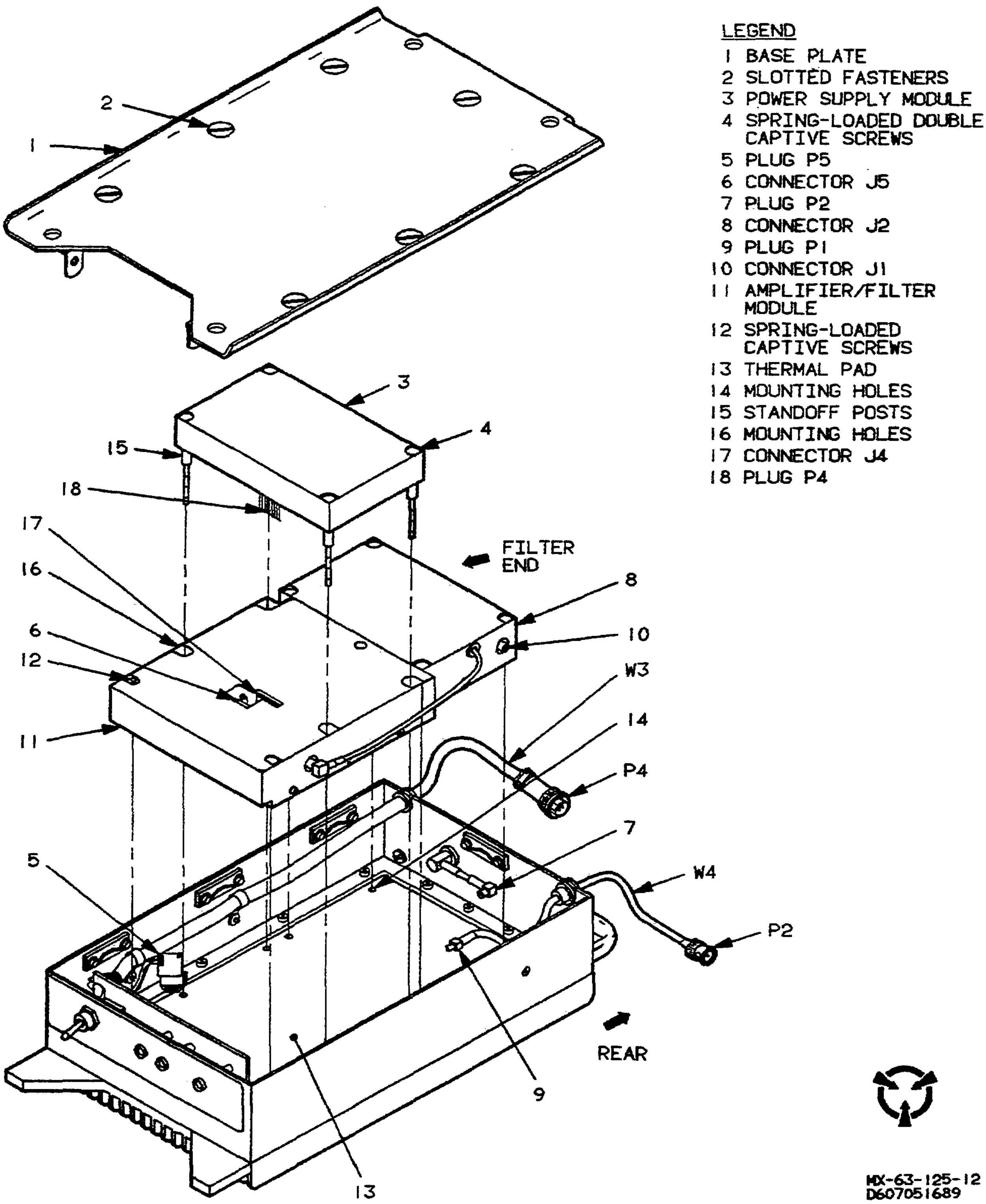


Figure 5-9. PA Module Disassembly/Assembly Diagram

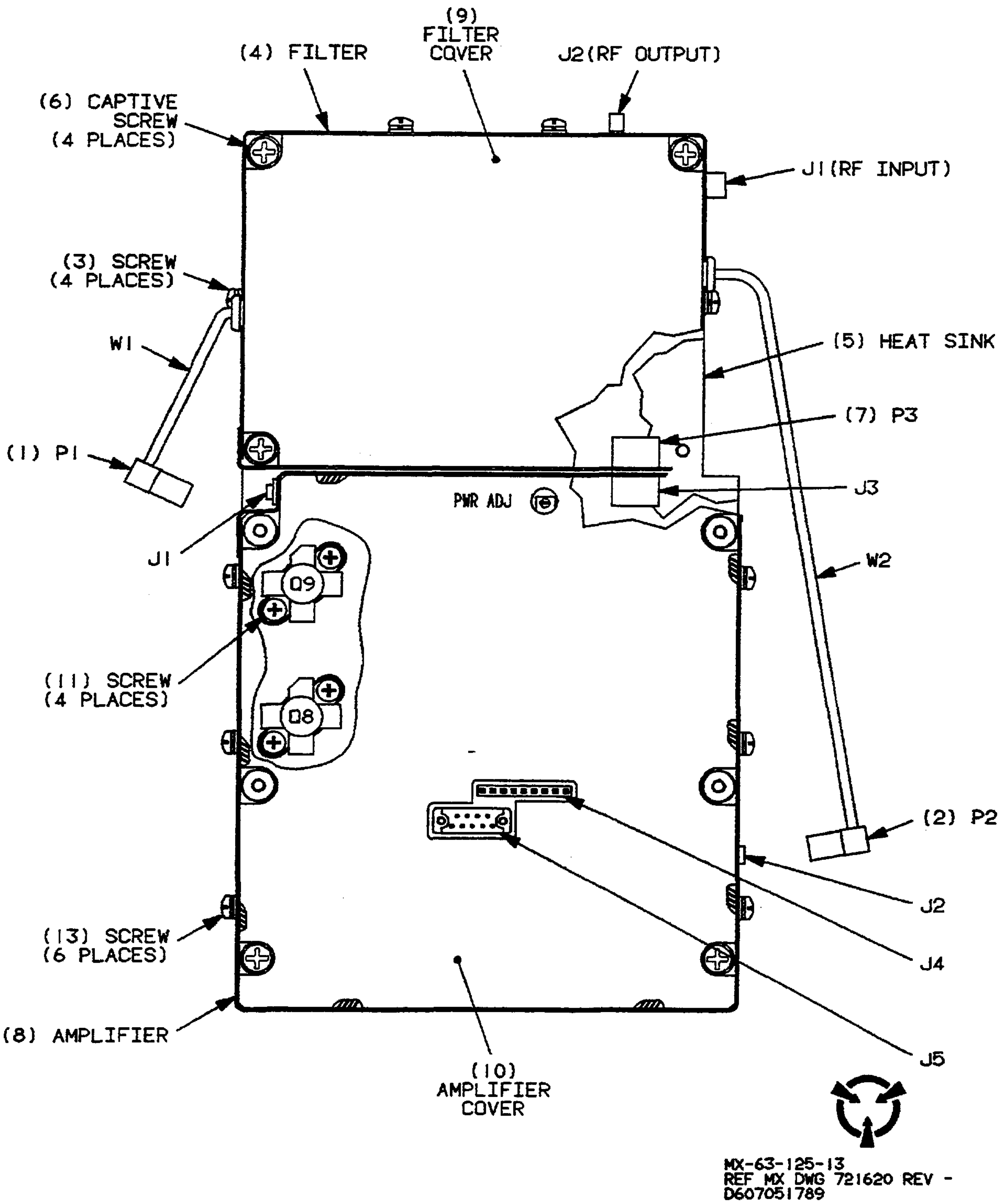


Figure 5-10. PA Amplifier/Filter Module Disassembly/Assembly.

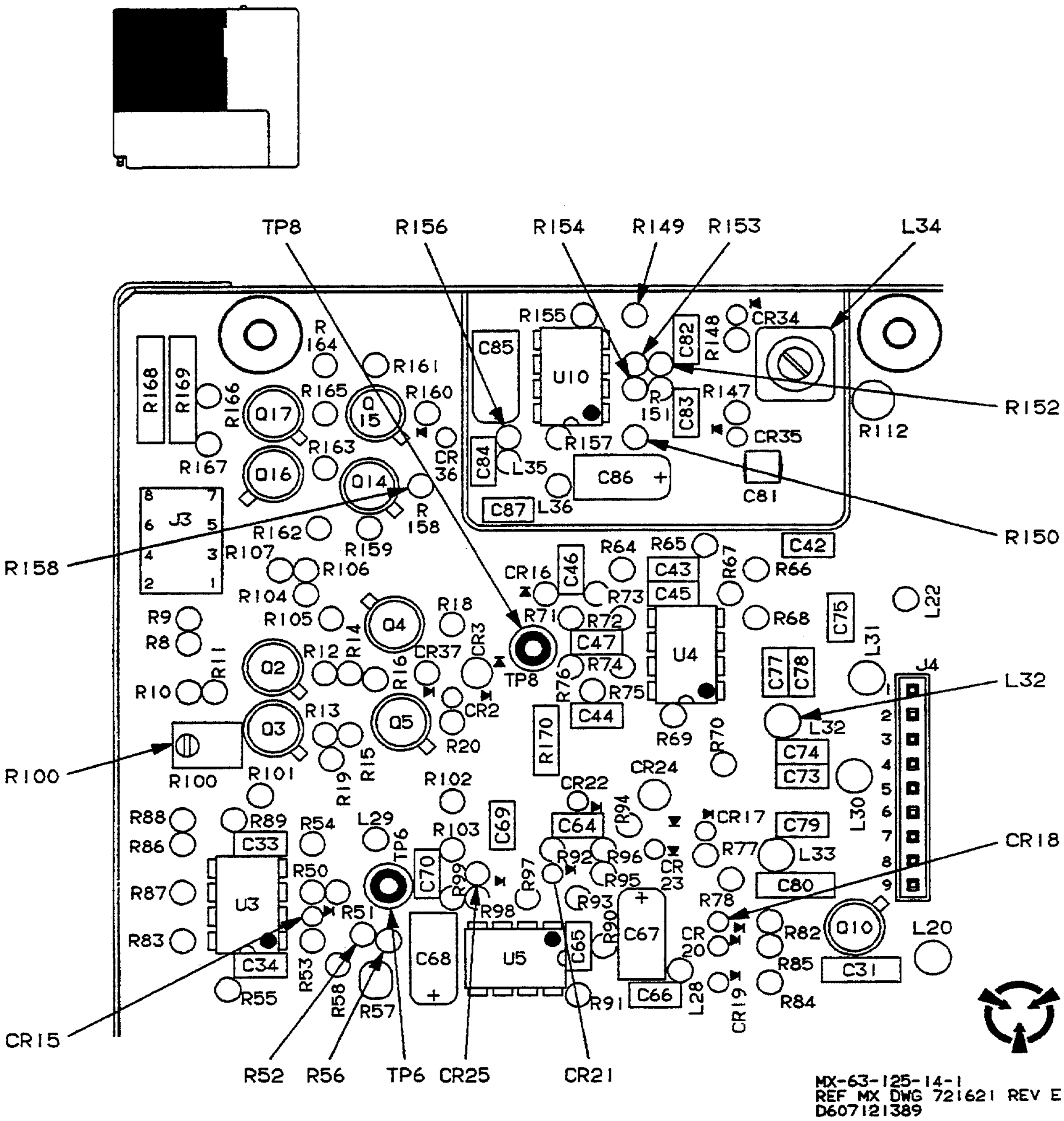


Figure 5-11. PA Low Band Amplifier Module Component Location
(Sheet 1 of 3)

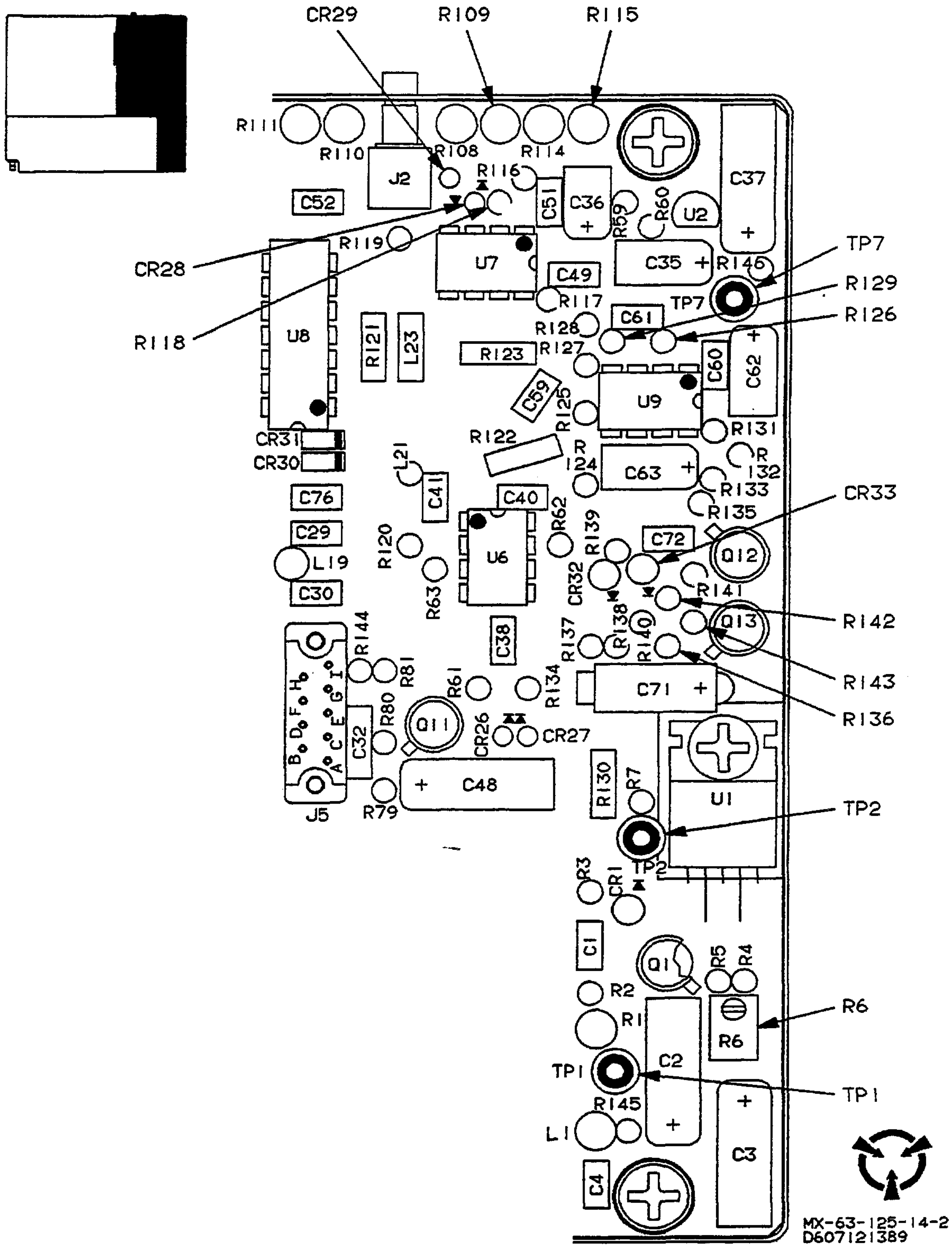


Figure 5-11. PA Low Band Amplifier Module Component Location
(Sheet 2 of 3)

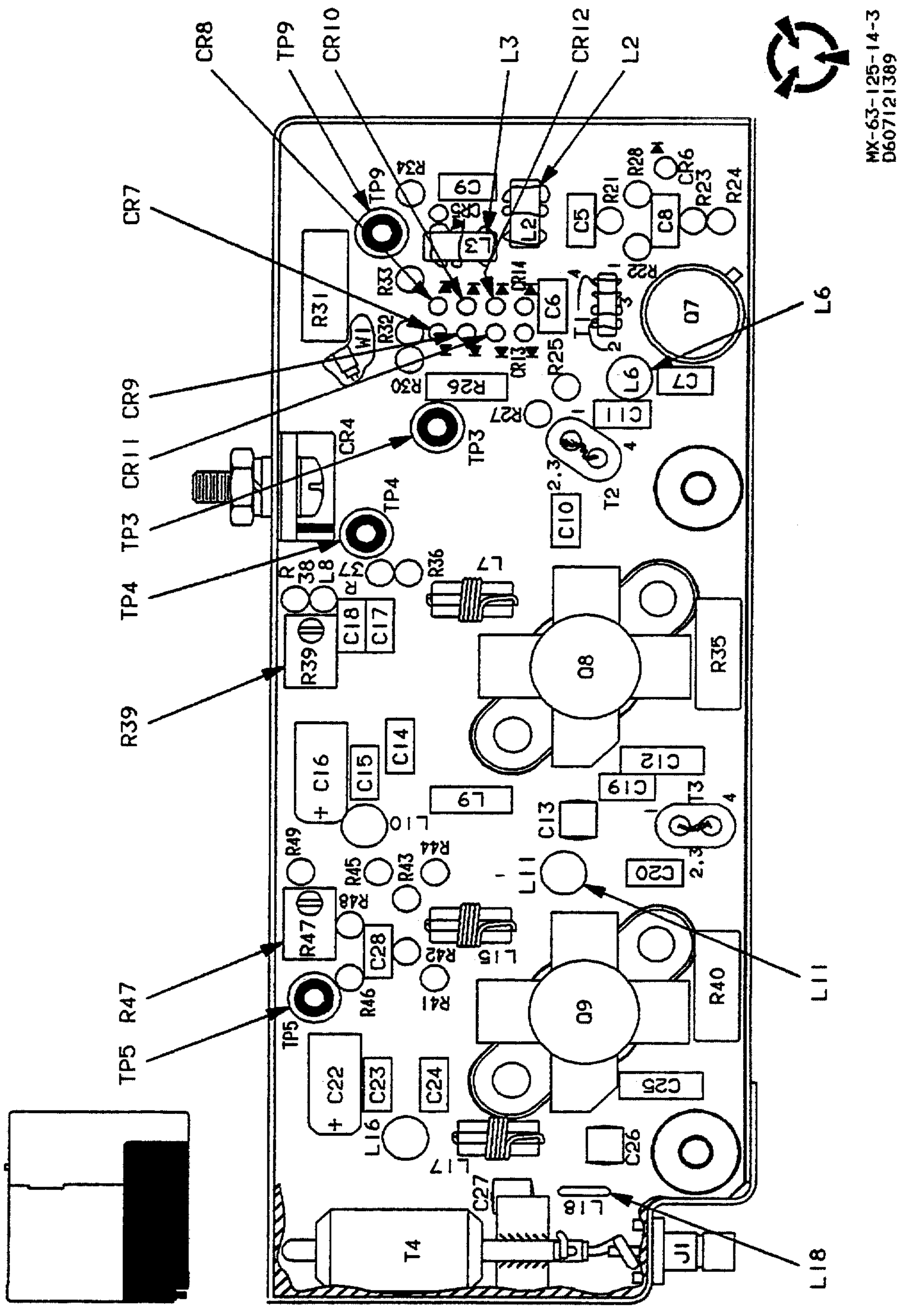


Figure 5-11. PA Low Band Amplifier Module Component Location
(Sheet 3 of 3)

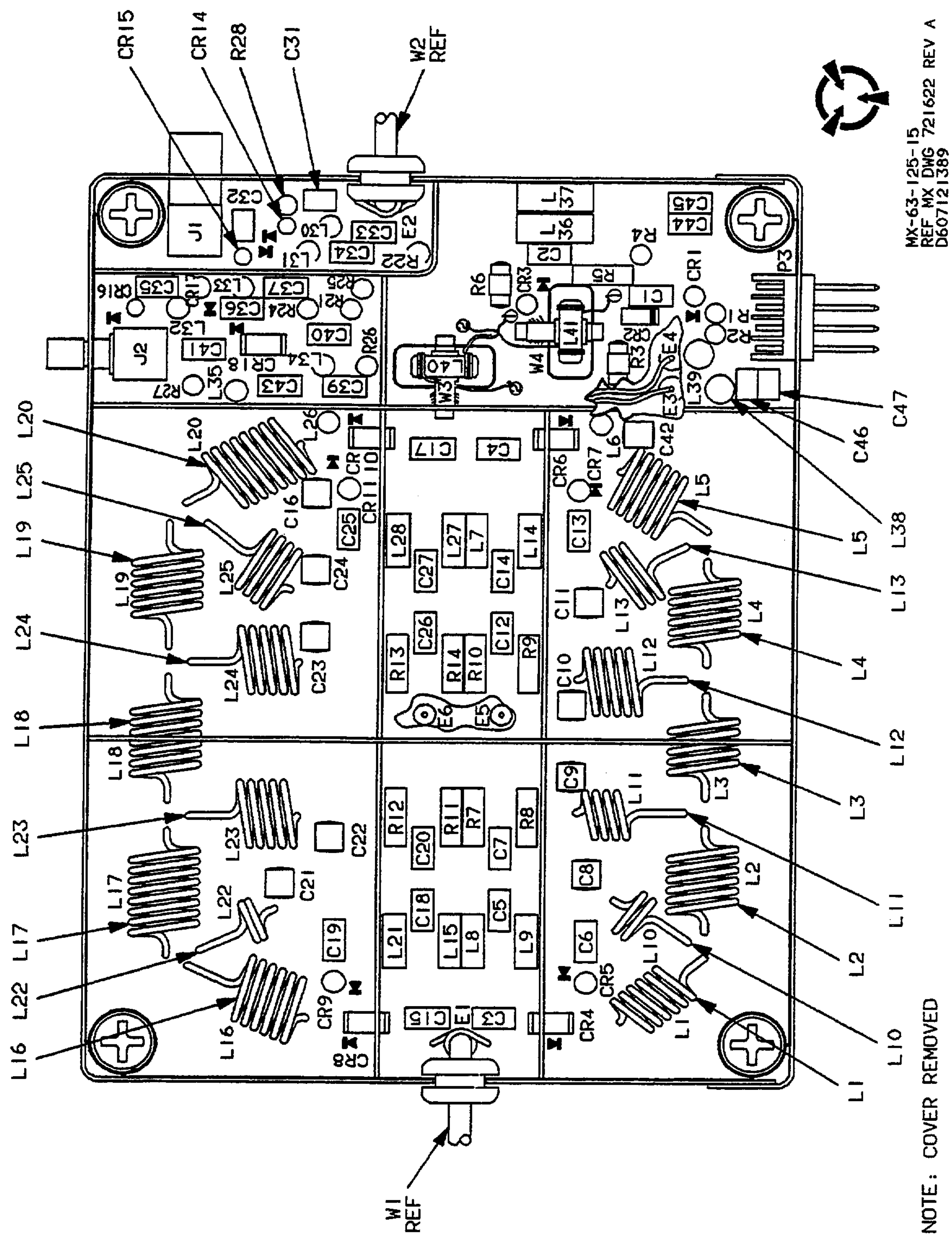


Figure 5-12. PA Low Band Filter Module Component Location

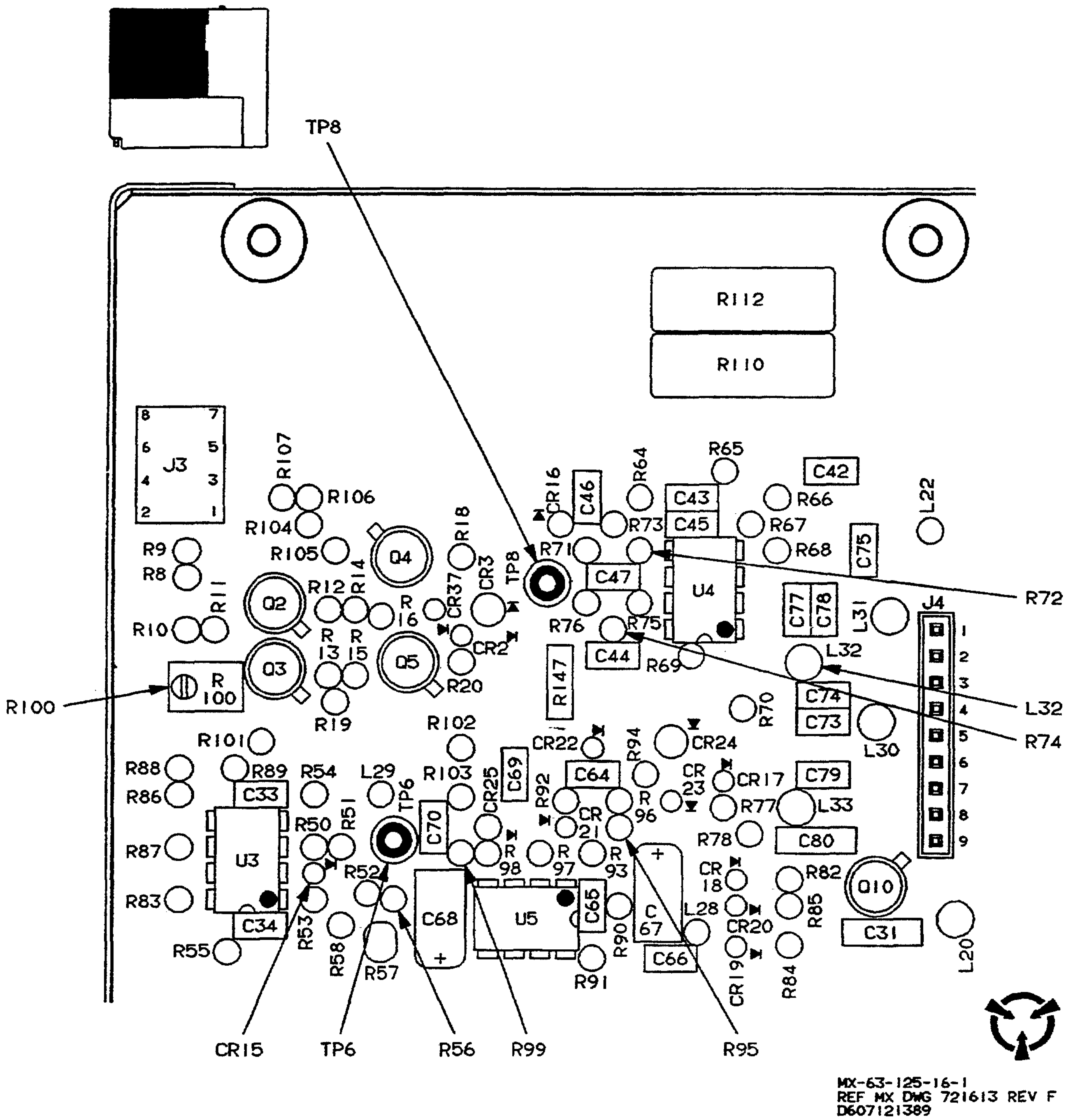


Figure 5-13. PA High Band Amplifier Module Component Location
(Sheet 1 of 3)

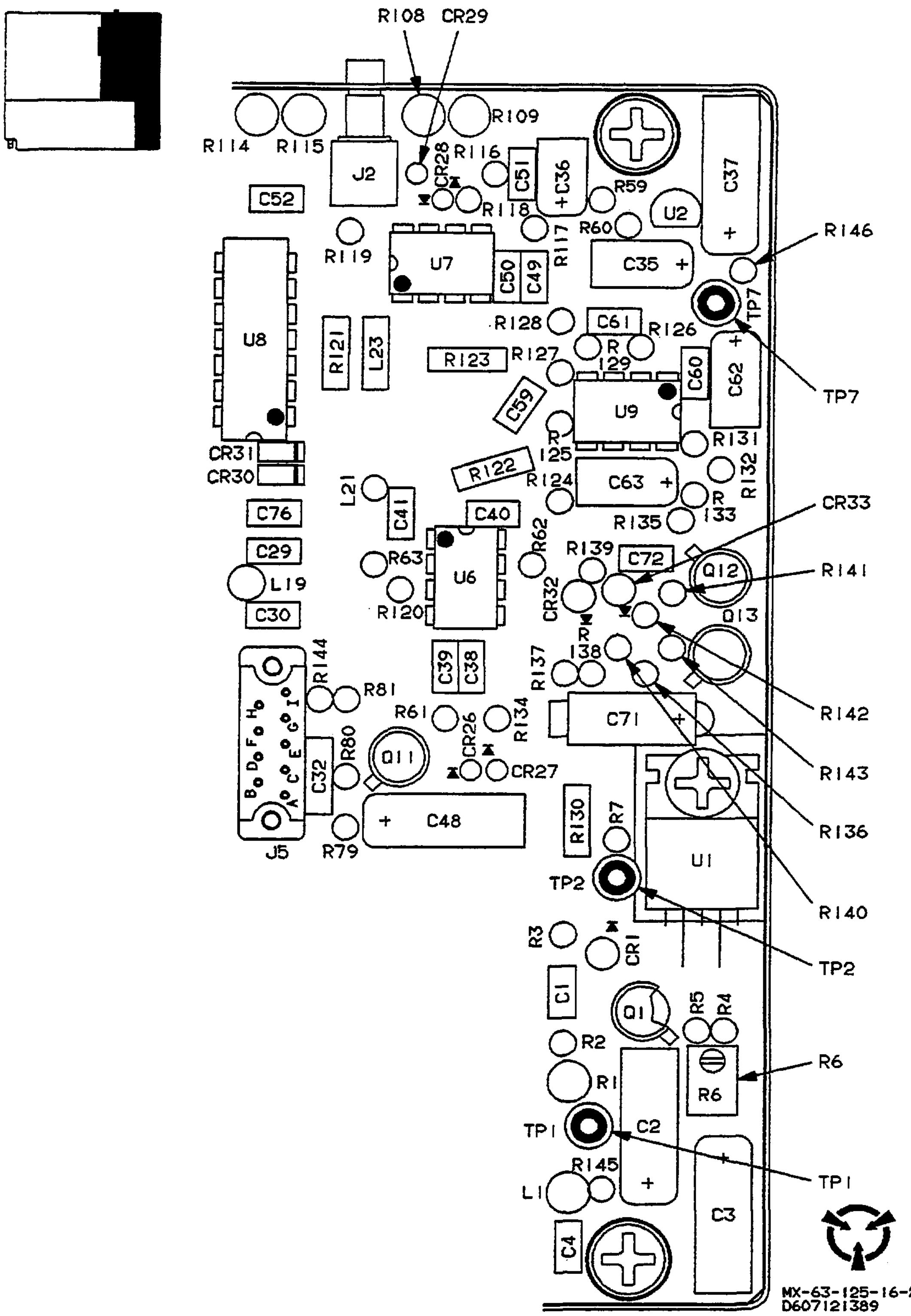


Figure 5-13. PA High Band Amplifier Module Component Location
(Sheet 2 of 3)

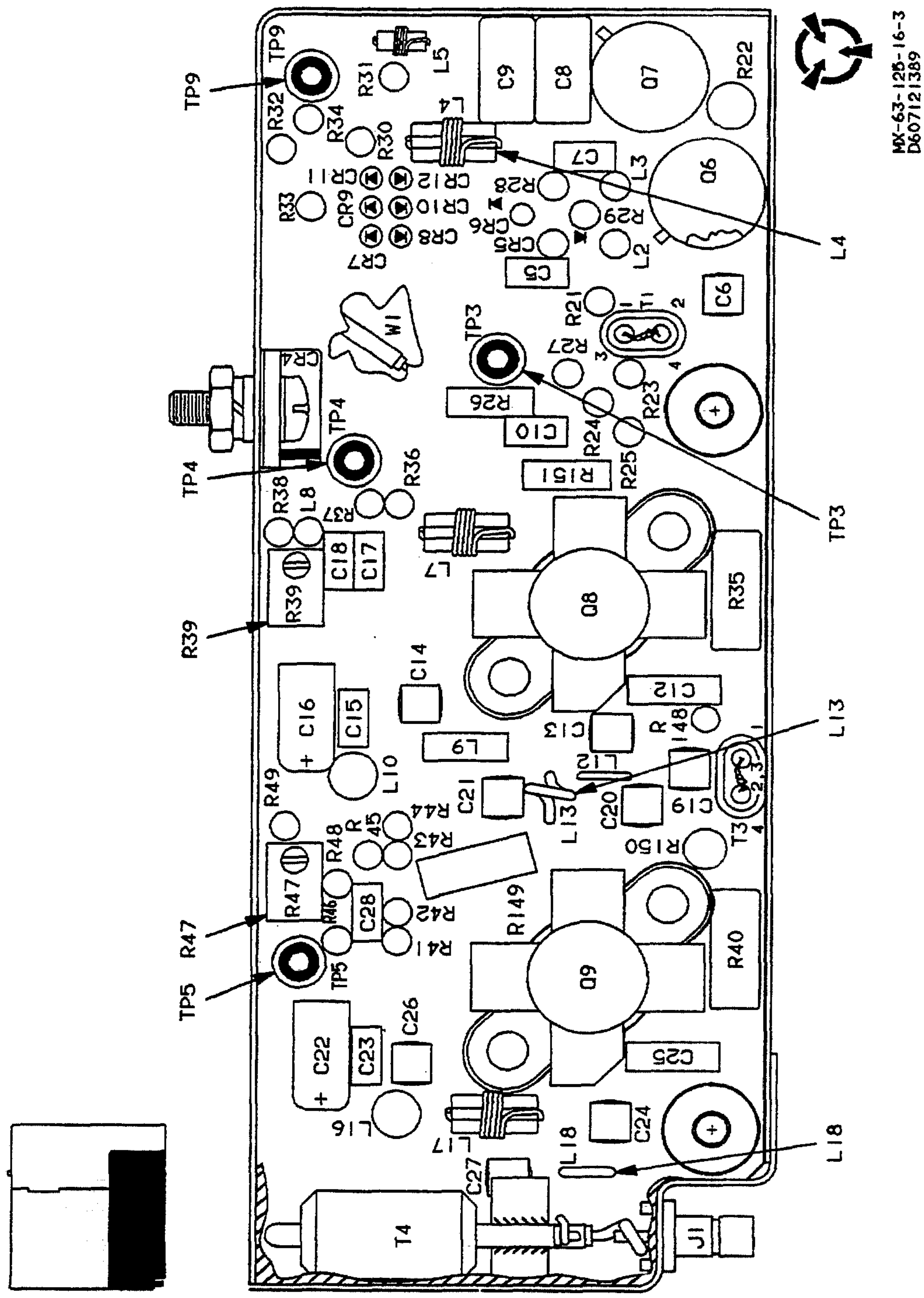


Figure 5-13. PA High Band Amplifier Module Component Location (Sheet 3 of 3)

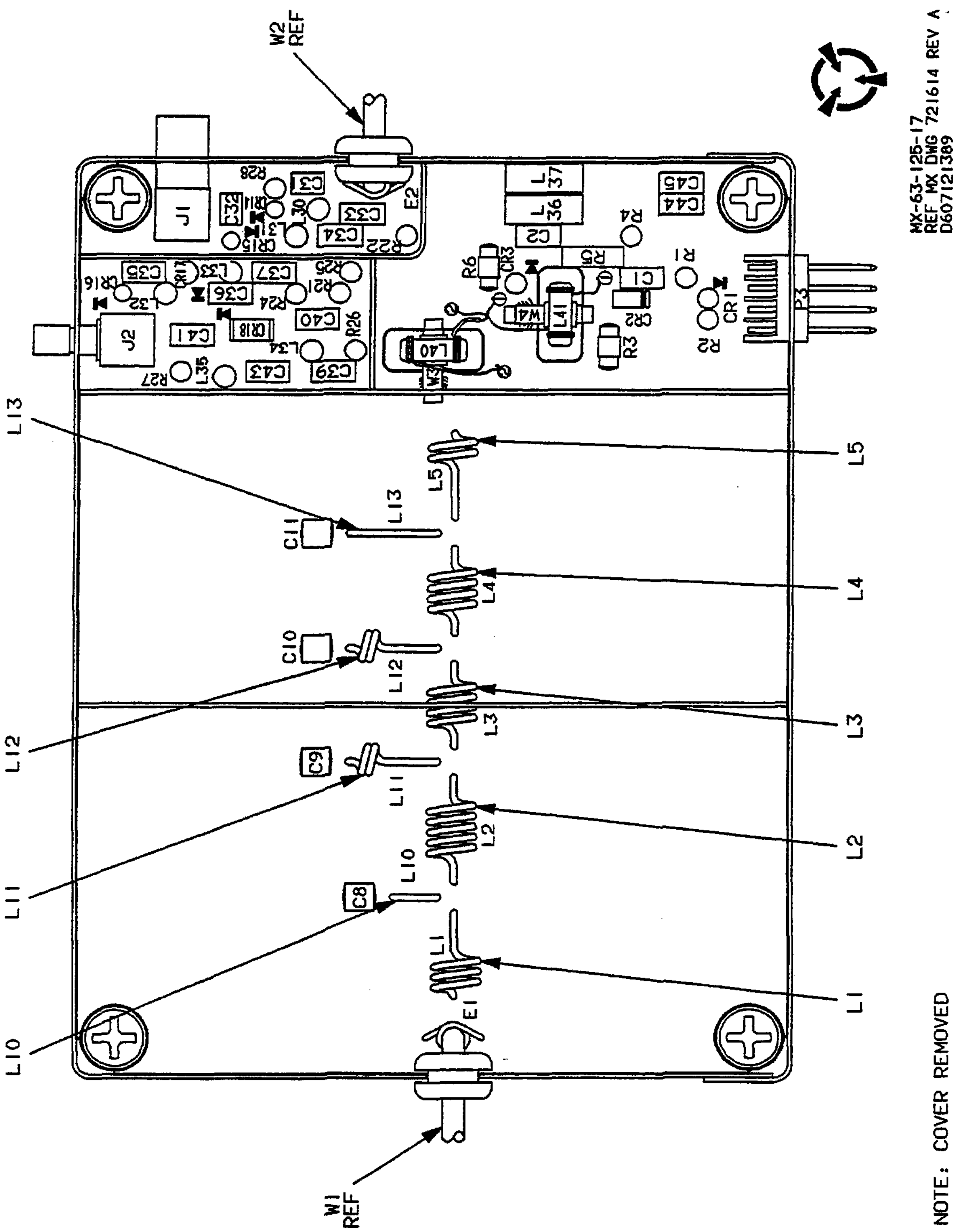


Figure 5-14. PA High Band Filter Module Component Location

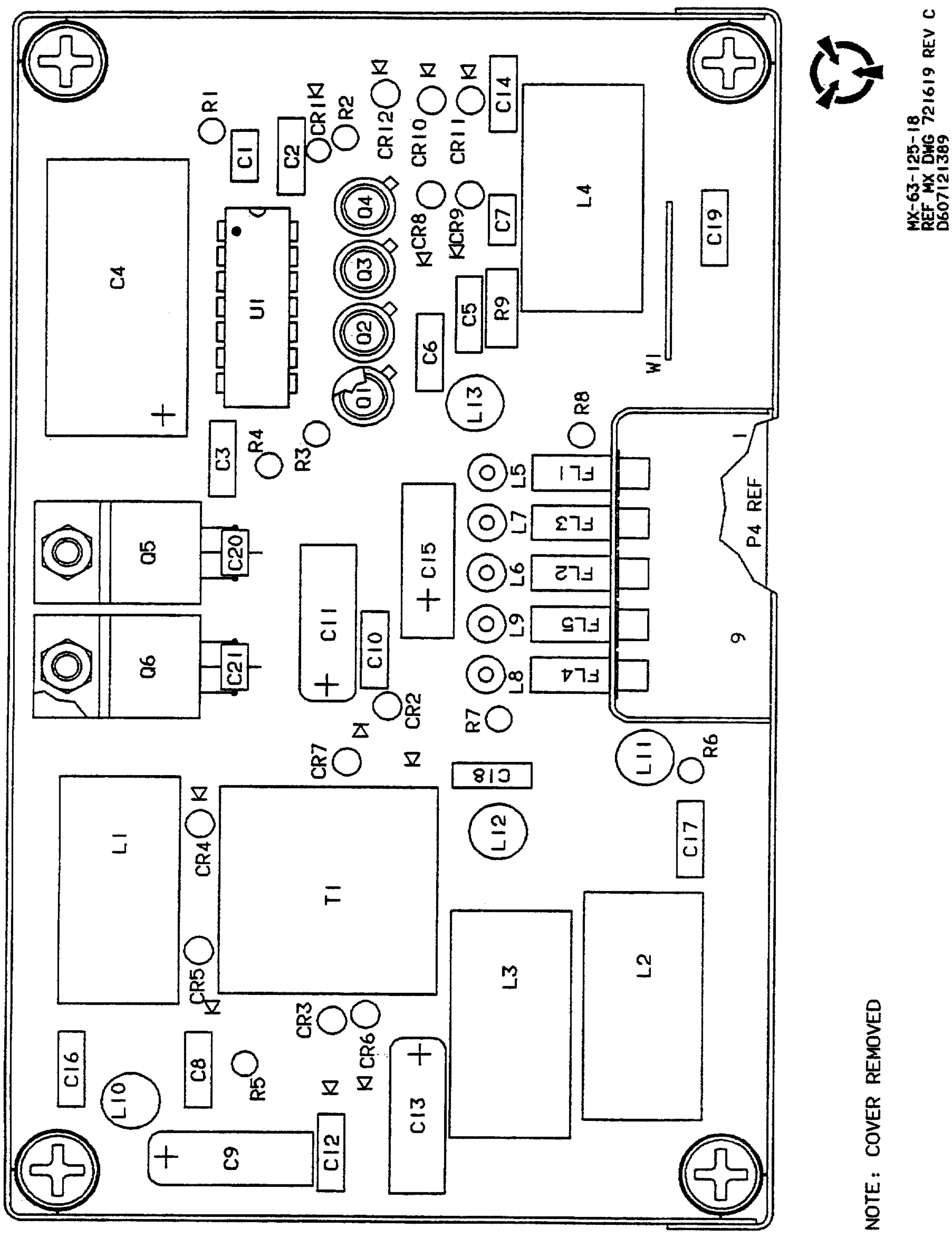


Figure 5-15. PA Power Supply Component Location

5-9 PA MODULE ALIGNMENT.

The following paragraphs contain instructions to align and adjust the Low Band and High Band PA amplifier and filter modules. Alignment of the applicable circuit is required after a component has been replaced or when otherwise directed. Local manufactured test cables not supplied are listed in chapter 1. The test cables are used to extend the PA amplifier/filter and power supply modules from the PA chassis. Refer to para. 5-8.2 for amplifier/filter removal and para. 5-8.1 for power supply removal procedures.

5-9.1 Low Band Amplifier Alignment and Adjustment. The following table contains alignment procedures for the Low Band amplifier modules. A serviceable power supply/audio assembly, Low Band RT, PA power supply, PA chassis and PA Low Band filter module shall be used during the alignment procedure. If any procedure does not meet the specified limits refer to figure FO-13 and fault isolate. Refer to figure 5-11 as required.

Table 5-13. PA Low Band Amplifier Module Alignment and Adjustment

Step	Procedure
1.	Connect test equipment (fig. 5-16) and set equipment as follows; Test Adapter TRANSMIT - OFF POWER ON/OFF - OFF RT ANT - 50 OFF/VOL - midrange PA AMPL/BYPASS - AMPL PS/A POWER ON/OFF - OFF
2.	Adjust power supply to 27 Vdc and set current limit to 25 amps.
3.	Set PS/A POWER ON/OFF switch to ON.
	VCO ALIGNMENT
4.	Load the following RT Preset frequencies: 30.000 51.000 50.400 40.000 70.000 50.800 50.000 87.9875
5.	Select 30.000 MHz on RT. NOTE Spreading L2 windings increases the tune voltage; compressing L2 windings decreases the tune voltage.
6.	Set test adapter TRANSMIT switch to TX and measure -5.2 to -6.5 Vdc at TP9. If measurement is not within tolerance, adjust L2.
7.	Set test adapter TRANSMIT switch to TX and measure less than -7.0 Vdc at TP8.

Table 5-13. PA Low Band Amplifier Module Alignment and Adjustment - CONT

Step	Procedure
8.	Select 50.000 MHz on RT.
9.	Set test adapter TRANSMIT switch to TX and measure -17.0 to -20.0 Vdc at TP9. If measurement is not within tolerance, adjust L2 and repeat above steps until voltage is correct for both 30.000 and 50.000 MHz.
10.	Set test adapter TRANSMIT switch to TX and measure less than -7.0 Vdc at TP8.
11.	Select 51.0000 MHz on RT.
	NOTE Spreading L3 windings increases the tune voltage; compressing windings decreases the tune voltage.
12.	Set test adapter TRANSMIT switch to TX and measure -5.2 to -6.5 Vdc at TP9. If measurement is not within tolerance, adjust L3.
13.	Set test adapter TRANSMIT switch to TX and measure less than -7.0 Vdc at TP8.
14.	Select 87.9875 MHz on RT.
15.	Set test adapter TRANSMIT switch to TX and measure -17.0 to -20.0 Vdc at TP9. If measurement is not within tolerance, adjust L3 and repeat above steps until voltage is correct for both 51.000 and 87.9875 MHz. If adjusting L3 does not bring tune voltage within limits, adjust L6.
16.	Set test adapter TRANSMIT switch to TX and measure less than -7.0 Vdc at TP8.
	BAND SELECT ALIGNMENT
17.	Jumper TP2, TP4, and TP5 to module chassis ground.
18.	Select 50.800 MHz on RT.
19.	Set test adapter TRANSMIT switch to TX and measure 4.0 Vdc +/- 10% at J3-1. If measurement is -48 Vdc nominal adjust L34 CW for 4.0 Vdc nominal.
20.	Set test adapter TRANSMIT switch to TX and measure -48.0 Vdc +/- 10% at J3-3.
21.	Select 50.400 MHz on RT.

Table 5-13. PA Low Band Amplifier Module Alignment and Adjustment - CONT

Step	Procedure
22.	Set test adapter TRANSMIT switch to TX and measure 4.0 Vdc +/- 10% at J3-3. If measurement is 4.0 VVdc nominal adjust L34 CCW for -48 Vdc nominal. If L34 adjustment is required, repeat above steps until voltage is correct at both 50.800 MHz and 50.400 MHz.
23.	Set test adapter TRANSMIT switch to TX and measure -48.0 Vdc at J3-1.
	<u>REGULATOR ADJUSTMENT</u>
24.	Remove jumper from TP2 to ground.
25.	Measure 0.5 Vdc maximum at TP1.
26.	Set test adapter TRANSMIT switch to TX and measure 7.8 to 8.2 Vdc at TP1. If measurement is not within tolerance, adjust R6 for 8.0 Vdc.
27.	Measure 5.0 to 5.5 Vdc at TP7.
	<u>XSTR BIAS ADJUSTMENT</u>
28.	Set PS/A POWER ON/OFF switch to OFF.
29.	Jumper TP8 to L32 and jumper TP2 to module chassis ground.
30.	Connect ammeter from P5-A to J5-A of Amp/Filter test cable.
31.	Set PS/A POWER ON/OFF switch to ON and test adapter TRANSMIT switch to ON.
32.	Measure and record reference level current on ammeter (225 to 275 mAdc).
33.	Remove ground jumper from TP4 and verify current on ammeter is 65 to 75 mAdc above reference. If measurement is not within tolerance, adjust R39 for 70 mAdc above reference.
34.	Measure 1.5 - 5.5 Vdc at TP4.
35.	Remove ground from TP5 and jumper TP4 to ground.
36.	Verify current on ammeter is 95 to 105 mAdc above reference. If measurement is not within tolerance, adjust R47 for 100 mAdc above reference.
37.	Measure 1.0 to 5.0 Vdc at TP5.
38.	Set PS/A POWER ON/OFF switch to OFF and test adapter TRANSMIT switch to OFF.

Table 5-13. PA Low Band Amplifier Module Alignment and Adjustment - CONT

Step	Procedure
	RF OUTPUT ADJUSTMENT
39.	Remove all jumpers from TP2, TP4, TP5, TP8.
40.	Remove ammeter from Amp/Filter test cable.
41.	Set PSA POWER ON/OFF switch to ON.
42.	Adjust R100 maximum CW.
43.	Select 87.9875 MHz on RT.
	NOTE
	L18 is adjusted by adding a fillet of solder to the radius.
44.	Set test adapter TRANSMIT switch to TX and measure 14.0 watts minimum on power meter. If measurement is not within tolerance, adjust L11, and L18.
45.	Select 40.000 MHz on RT.
46.	Set test adapter TRANSMIT switch to TX and adjust R100 for 16 watts power output.
47.	Set test adapter TRANSMIT switch to TX and measure 12 - 20 watts power output at the following RT frequencies; 30.000, 50.000, 51.000, 70.000 and 87.9875 MHz.
48.	Alignment is complete.

5-9.2 Low Band Filter Module Alignment. The following table contains alignment procedures for the Low Band filter module. A serviceable power supply/audio assembly, Low Band RT, PA power supply, PA chassis and Low Band amplifier module shall be used during the alignment procedure. The cover must be removed from the amplifier and/or the filter if adjustments are to be made. If any procedure does not meet the specified limits refer to figure FO-14 and fault isolate. Refer to figures 5-11, 5-12 and 5-18 as required.

Table 5-14. PA Low Band Filter Module Alignment

Step	Procedure
1.	Calibrate network analyzer. Keep connecting cables as short as possible.
2.	Connect test equipment (fig. 5-17) and set equipment as follows; Test Adapter TRANSMIT - ON POWER ON/OFF - OFF PA AMPL/BYPASS - AMPL PS/A POWER ON/OFF - OFF
3.	Jumper amplifier module TP4, TP5 and TP2 to module chassis ground.
4.	Adjust power supply to 27 Vdc and set current limit to 25 amps.
5.	Set PS/A POWER ON/OFF switch to ON.
	30-51 MHZ (LB SECTION) ALIGNMENT
6.	Momentarily connect amplifier module R156 to R158 to select LB section.
7.	Verify the stopband attenuation (channel 2) is 60 dB minimum in the frequency range of 60.000 through 150.000 MHz. (Set analyzer to 10 dB/div, CENTER FREQ to 100 MHz and SWEEP WIDTH to 200 MHz.) If measurement is not within tolerance annotate any discrepancies.
8.	Verify the passband attenuation (channel 2) at the following frequencies. (Set analyzer to 1 dB/div, CENTER FREQ to 50 MHz and SWEEP WIDTH to 100 MHz.) If measurement is not within tolerance annotate any discrepancies. Frequency (MHz) — Attenuation (maximum) 30.000 — 1.0 dB 40.000 — 1.2 dB 51.000 — 1.7 dB
9.	Verify return loss (channel 1) of 14 dB or more (VSWR 1.5:1) in the passband of 30.000 to 51.000 MHz. (Set analyzer to 10 dB/div, CENTER FREQ to 50 MHz and SWEEP WIDTH to 100 MHz.) If measurement is not within tolerance annotate any discrepancies. NOTE If a component has been replaced the following notch frequencies may be used as a starting point for setting the traps. The null is very broad at 109.000 MHz.

Table 5-14. PA Low Band Filter Module Alignment - CONT

Step	Procedure
	Notch Frequency (MHZ) / Ref. Coil: 1st 60.000 — L24 2nd 63.000 — L23 3rd 74.000 — L25 4th 109.000 — L22 NOTE Do not adjust any coils an extreme amount. Compress or expand turns slightly while checking results on Network Analyzer. Repeat all adjustments since there will be some interaction between coils.
10.	If discrepancies were annotated in the previous three steps adjust L16 through L20 and L22 through L25 as required (L16 through L20 will most effect the return loss; L22 through L25 will most effect stopband and passband attenuation). NOTE Repeat all three measurements (Stopband attenuation, Passband attenuation, Return Loss) for verification if any adjustments were made.
11.	30-51 MHz (LB section) alignment complete.
	50-88 MHZ (HB SECTION) ALIGNMENT
12.	Momentarily connect amplifier module R158 to GND to select HB section.
13.	Verify the stopband attenuation (channel 2) is 60 dB minimum in the frequency range of 101.000 - 270.000 MHz. (Set analyzer to 10 dB/div, CENTER FREQ to 200 MHz and SWEEP WIDTH to 200 MHz.) If measurement is not within tolerance annotate discrepancies.
14.	Verify the passband attenuation (channel 2) at the following frequencies. (Set analyzer to 1 dB/div, CENTER FREQ to 50 MHz and SWEEP WIDTH to 100 MHz.) If measurement is not within tolerance annotate discrepancies. Frequency (MHz) / Attenuation (maximum): 50.000 — 1.0 dB 70.000 — 1.2 dB 88.000 — 1.7 dB

Table 5-14. PA Low Band Filter Module Alignment - CONT

Step	Procedure
15.	Verify return loss (channel 1) of 14 dB or more (VSWR 1.5:1) in the passband of 50.000 to 88.000 MHz. (Set analyzer to 10 dB/div, CENTER FREQ to 50 MHz and SWEEP WIDTH to 100 MHz.) If measurement is not within tolerance, annotate any discrepancies. NOTE If a component has been replaced the following notch frequencies may be used as a starting point for setting the traps. The null is very broad at 190.000 MHz. Notch Frequency (MHz) — Ref. coil 1st 103.000 — L12 2nd 110.000 — L11 3rd 129.000 — L13 4th 190.000 — L10 NOTE Do not adjust any coils an extreme amount. Compress or expand turns slightly while checking results on Network Analyzer. Repeat all adjustments since there will be some interaction between coils.
16.	If discrepancies were annotated in the previous three steps, adjust L1 through L5 and L10 through L13 as required (L1 through L5 will most effect the return loss; L10 through L13 will most effect stopband and passband attenuation). NOTE Repeat all three measurements (Stopband attenuation, Passband attenuation, Return Loss) for verification if any adjustments were made.
17.	Alignment is complete.

5-9.3 High Band Amplifier Alignment and Adjustment. The following table contains alignment procedures for the High Band amplifier module. A serviceable power supply/audio assembly, High Band RT, PA power supply, PA chassis and High Band filter shall be used during the alignment procedure. If any procedure does not meet the specified limits refer to figure FO-15 and fault isolate. Refer to figure 5-13 as required.

Table 5-15. PA High Band Amplifier Module Alignment

Step	Procedure
1.	Connect test equipment (fig. 5-16) and set equipment as follows; Test Adapter TRANSMIT - OFF POWER ON/OFF - OFF RT ANT - 50 OFF/VOL - midrange PA AMPL/BYPASS - AMPL PS/A POWER ON/OFF - OFF
2.	Adjust power supply to 27 Vdc and set current limit to 25 amps.
3.	Set PS/A POWER ON/OFF switch to ON.
4.	Load the following RT preset frequencies: 130.000 152.000 173.9875
	VCO ALIGNMENT
5.	Select 130.000 MHz on RT.
	NOTE Spreading L4 windings increases the tune voltage; compressing windings decreases the tune voltage.
6.	Set test adapter TRANSMIT switch to TX and measure -5.2 to -8.2 Vdc at TP9. If measurement is not within tolerance, adjust L4.
7.	Set test adapter TRANSMIT switch to TX and measure less than -7.0 Vdc at TP8.
8.	Select 173.9875 MHz on RT.
9.	Set test adapter TRANSMIT switch to TX and measure -17.0 to -20.0 Vdc at TP9. If measurement is not within tolerance; adjust L4 then repeat above steps until voltage is correct for both 130.000 and 173.9875 MHz.
10.	Set test adapter TRANSMIT switch to TX and measure less than -7.0 Vdc at TP8.
	REGULATOR ADJUSTMENT
11.	Measure 0.5 Vdc maximum at TP1.
12.	Set test adapter TRANSMIT switch to TX and measure 11.8 to 12.2 Vdc at TP1. If measurement is not within tolerance, adjust R6 for 12.0 Vdc.

Table 5-15. PA High Band Amplifier Module Alignment - CONT

Step	Procedure
13.	Measure 5.0 to 5.5 Vdc at TP7.
	<u>XSTR BIAS ADJUSTMENT</u>
14.	Set PS/A POWER ON/OFF switch to OFF.
15.	Jumper TP2, TP4 and TP5 to module chassis ground.
16.	Jumper TP8 to L32.
17.	Connect ammeter from P5-A to J5-A of Amp/Filter test cable.
18.	Set PS/A POWER ON/OFF switch to ON and TRANSMIT switch to ON.
19.	Measure and record reference level on ammeter(175 to 225 mA).
20.	Remove ground jumper from TP4 and verify current on ammeter is 65 to 75 mAdc above reference. If measurement is not within tolerance, adjust R39 for 70 mAdc above reference.
21.	Measure 1.5 - 5.5 Vdc at TP4.
22.	Remove ground from TP5 and jumper TP4 to ground.
23.	Verify current on ammeter is 95 to 105 mAdc above reference. If measurement is not within tolerance, adjust R47 for 100 mAdc above reference.
24.	Measure 1.0 - 5.0 Vdc at TP5.
25.	Set PS/A POWER ON/OFF switch to OFF and test adapter TRANSMIT switch to OFF.
	<u>RF OUTPUT ADJUSTMENT</u>
26.	Remove all jumpers from TP2, TP4, TP5, TP8.
27.	Remove ammeter from AMP/Filter test cable.
28.	Set PS/A POWER ON/OFF switch to ON.
29.	Adjust R100 maximum CW.
30.	Select 173.9875 MHz on RT.
	NOTE
	L13 and L18 are adjusted by adding a fillet of solder to the radius.

Table 5-15. PA High Band Amplifier Module Alignment - CONT

Step	Procedure
31.	Set test adapter TRANSMIT switch to TX and measure 15.0 watts minimum on power meter. If measurement is not within tolerance, adjust L13 and L18.
32.	Select 130.000 MHz on RT.
33.	Set test adapter TRANSMIT switch to TX and adjust R100 for 16.0 watts power output.
34.	Set test adapter TRANSMIT switch to TX and measure 12 - 20 watts power output at 152.000 and 173.9875 MHz.
35.	Adjustment is complete.

5-9.4 High Band Filter Alignment. The following table contains alignment procedures for the High Band Filter module. A serviceable power supply/audio assembly, High Band RT, PA power supply, PA chassis and High Band amplifier shall be used during the alignment procedure. If any procedure does not meet the specified limits refer to figure FO-16 and fault isolate. Refer to figure 5-13, 5-14 and 5-18 as required.

Table 5-16. PA High Band Filter Module Alignment

Step	Procedure
1.	Calibrate network analyzer. Keep connecting cables as short as possible.
2.	Connect test equipment (fig. 5-17) and set equipment as follows; Test Adapter TRANSMIT - ON POWER ON/OFF - OFF PA AMPL/BYPASS - AMPL PS/A POWER ON/OFF - OFF
3.	Jumper amplifier module TP4, TP5 and TP2 to module chassis ground.
4.	Adjust power supply to 27 Vdc and set current limit to 25 amps.
5.	Set PS/A POWER ON/OFF switch to ON.
6.	Verify the stopband attenuation (channel 2) is 60 dB minimum in the frequency range of 260.000 to 350.000 MHz. (Set analyzer to 10 dB/div, CENTER FREQ to 400 MHz and SWEEP WIDTH to 500 MHz.) If measurement is not within tolerance annotate discrepancy.

Table 5-16. PA High Band Filter Module Alignment - CONT

Step	Procedure
7.	Verify the passband attenuation (channel 2) at the following frequencies. (Set analyzer to 1 dB/div, CENTER FREQ to 100 MHz and SWEEP WIDTH to 200 MHz.) If measurement is not within tolerance annotate discrepancy. Frequency (MHz) — Attenuation (maximum) 130.000 — 0.8 dB 150.000 — 1.0 dB 174.000 — 1.5 dB
8.	Verify return loss (channel 1) of 14 dB or more (VSWR 1.5:1) in the passband of 130.000 to 174.000 MHz. (Set analyzer to 10 dB/div, CENTER FREQ to 100 MHz and SWEEP WIDTH to 200 MHz.) If measurement is not within tolerance annotate discrepancy. NOTE If a component has been replaced, the following notch frequencies may be used as a starting point for setting the traps. The null is very broad at 622.000 MHz. Notch Frequency (MHz) — Ref. coil 1st 249.000 — L12 2nd 273.000 — L11 3rd 349.000 — L13 4th 622.000 — L10 NOTE Do not adjust any coils an extreme amount. Compress or expand turns slightly while checking results on Network Analyzer. Repeat all adjustments since there will be some interaction between coils.
9.	If discrepancies were annotated in the previous three steps adjust L1 through L5 and L10 through L13 as required (L1 through L5 will most effect the return loss) (L10 through L13 will most effect stopband and passband attenuation). NOTE Repeat all three measurements (Stopband Attenuation, Passband Attenuation, Return Loss) for verification if any adjustments were made.
10.	Alignment is complete.

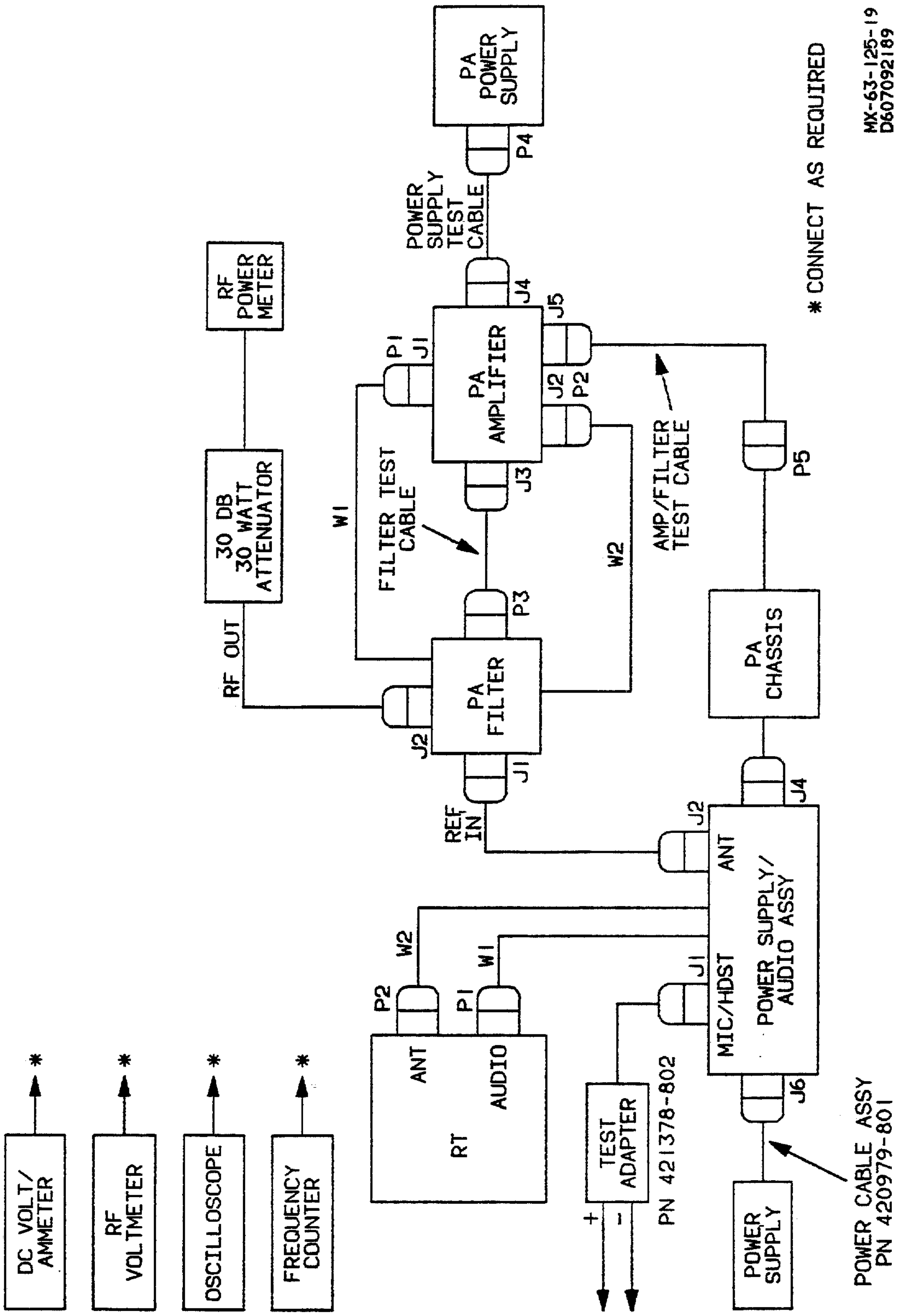


Figure 5-16. PA Module Test Setup

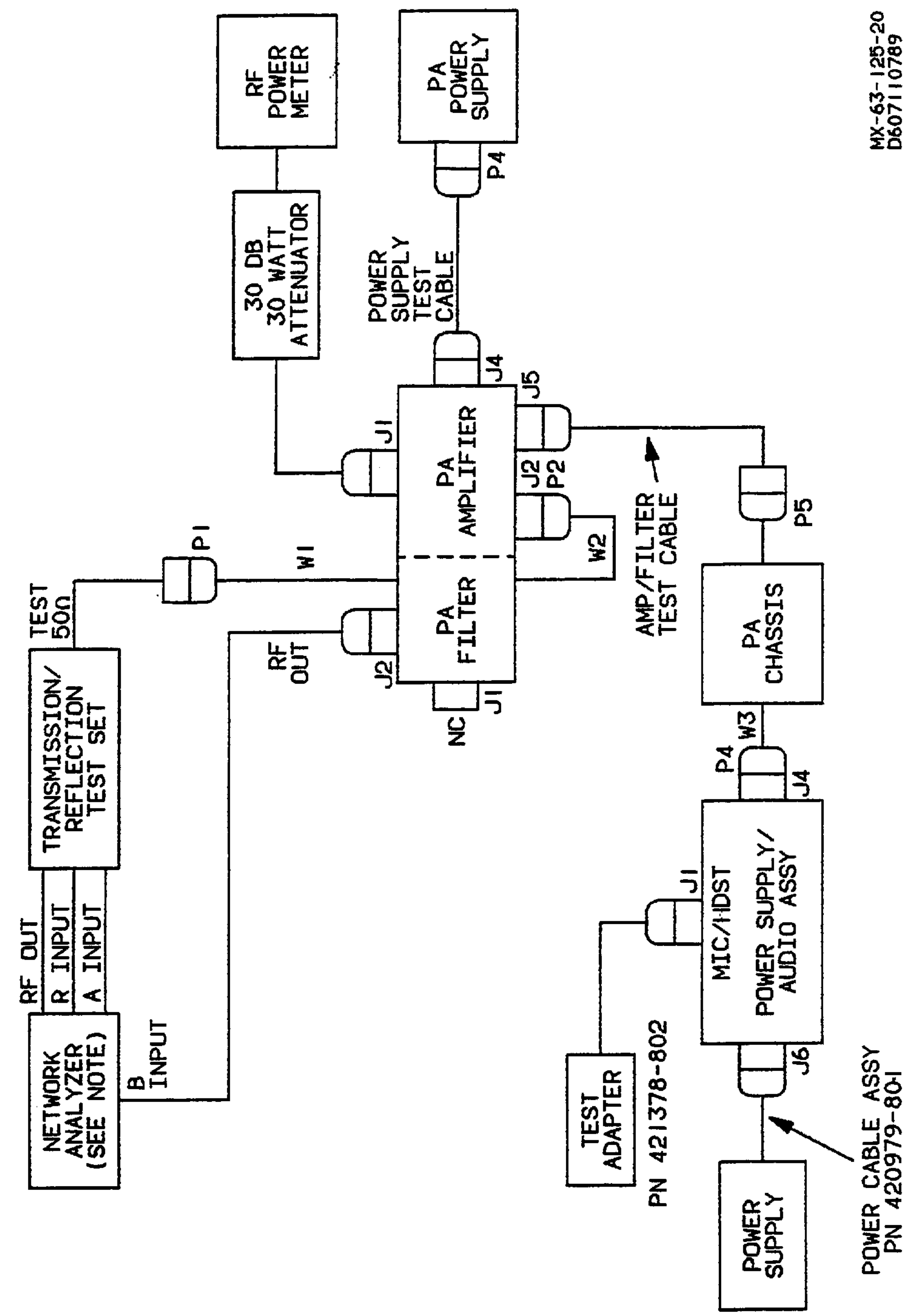


Figure 5-17. PA Filter Alignment Test Setup

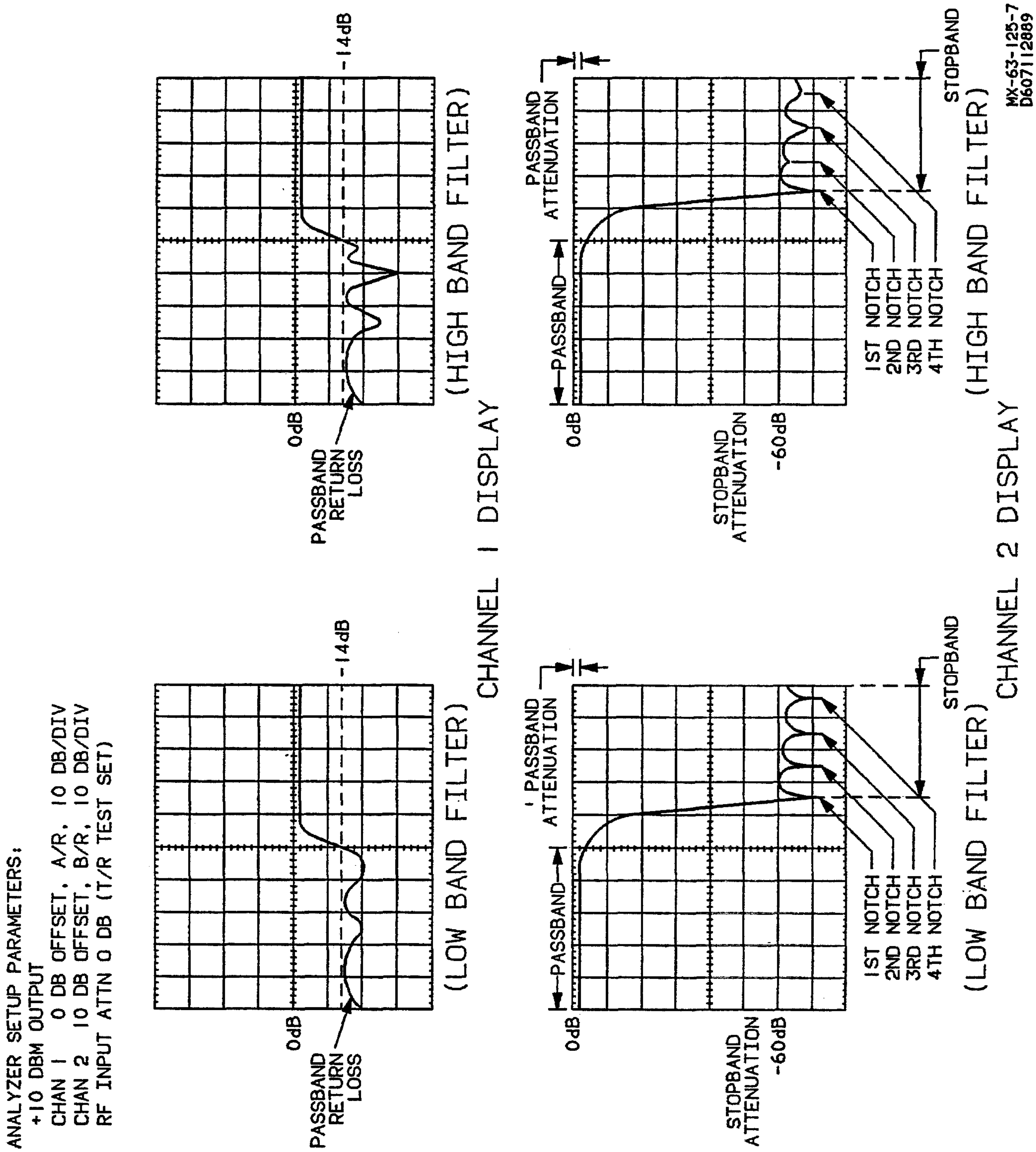


Figure 5-18. Typical Analyzer Display

5-10 PA COMPONENT FAULT ISOLATION.

After repair, refer to required alignment procedures based upon the circuit component replaced. Perform minimum performance test per para. 5-7 before replacing covers and installing modules into chassis.

5-10.1 PA Chassis Fault Isolation. The PA chassis is fault isolated by performing a comprehensive continuity check. Refer to chapter 7 and perform wire list continuity measurements using table 7-3 and figure FO-5.

5-10.2 PA Low Band Amplifier Module Fault Isolation. The Low Band Amplifier Module is fault isolated by using figure FO-13. Refer to table 7-8 and figure FO-7 for important test point information.

5-10.3 PA Low Band Filter Module Fault Isolation. The PA Low Band Filter Module is fault isolated by using figure FO-14. Refer to figure FO-8 for schematic diagram.

5-10.4 PA High Band Amplifier Module Fault Isolation. The PA High Band Amplifier Module is fault isolated by using figure FO-15. Refer to table 7-9 and figure FO-9 for important test point information.

5-10.5 PA High Band Filter Module Fault Isolation. The PA High Band Filter Module is fault isolated by using figure FO-16. Refer to figure FO-10 for schematic diagram.

5-10.6 PA Power Supply Module Fault Isolation. The PA Power Supply Module is fault isolated by using figure FO-17. Refer to figure FO-6 for schematic diagram.

Part III. POWER SUPPLY/AUDIO MAINTENANCE

5-11 PS/A MAINTENANCE.

Upon receipt of the suspected faulty UUT, visually inspect all connectors, switches and knobs for physical damage. The following procedures describe the sequence of events necessary for repairing the UUT to serviceable condition.

a. Perform PS/A minimum performance test and fault isolate to suspected faulty module or chassis.
b. Repair module or chassis.
c. Mate repaired unit with serviceable module or chassis.
d. Perform PS/A minimum performance test.

5-12 PS/A MINIMUM PERFORMANCE TEST.

The following table contains the Power Supply/audio assembly minimum performance test. The minimum performance test insures the PS/A is operational. The PS/A is serviceable if every requirement meets the limits established. If the PS/A does not pass the test, perform the task assigned in the fault location column or check component listed. Refer to figure 5-21 and chapter 7 for component location and schematic diagram. Refer to figure FO-18 for fault isolation. Local manufactured test cables and equipment required but not supplied for the test are listed in chapter 1.

Table 5-17. PS/A Minimum Performance Test

Step	Procedure	Required indication	Fault location
1.	Connect test equipment to PS/A per fig. 5-19).		
2.	Connect PS/A W1P1 to AUDIO test cable.		
3.	Adjust power supply to 27 Vdc and set current limit to 25 amps.		
4.	Set PS/A POWER ON/OFF switch to ON.	POWER ON indicator lit	Refer to FO-18, Flow A
	XMIT LED INDICATOR		
5.	Connect AUDIO pin C to pin A (ground). Disconnect pin C after indication.	XMIT indicator lit	Refer to FO-18 Flow C
	BATTERY CHARGER VOLTAGE		
6.	Connect CHGR test cable to PS/A CHGR J3.		

Table 5-17. PS/A Minimum Performance Test - CONT

Step	Procedure	Required indication	Fault location
7.	Measure voltage at CHGR test cable (+) and (-) terminals.	26.5 +/- 1.0 Vdc	Refer to FO-18, Flow B
	BATTERY CHARGER CURRENT		
8.	Connect diode (observe polarity) between CHGR test cable (-) and ammeter (-) terminal. Connect ammeter (+) terminal to CHGR test cable (+) lead.	PS/A CHGR indicator lit	Refer to FO-18 Flow B
9.	Measure battery charger current.	30 +/- 7 mAdc	Refer to FO-18 Flow B
10.	Remove diode from test leads.		
	BATTERY CHARGER SHORT CIRCUIT		
11.	Connect CHGR test cable (-) lead to ammeter (-) terminal.	PS/A CHGR indicator not lit	Refer to FO-18 Flow B
12.	Measure battery charger short circuit current.	90 +/- 15 mAdc	Refer to FO-18 Flow B
13.	Disconnect ammeter from CHGR test cable and CHGR test cable from PS/A J3.		
	RT RECEIVE LOAD		
	NOTE AUDIO connector pin E must not touch ground or PS/A circuit breaker will trip.		
14.	Connect RT RECEIVE resistor between AUDIO test cable pins E (+) and A (-).		
15.	Measure voltage across audio test cable pins E (+) and A (-).	15.0 +/- 0.6 Vdc (record measurement)	Refer to FO-18 Flow A
	PA RECEIVE LOAD		
16.	Connect PA test cable to PS/A RFPA J4.		

Table 5-17. PS/A Minimum Performance Test - CONT

Step	Procedure	Required indication	Fault location
17.	Connect PA RECEIVE resistor between PA test cable pins D (+) and C (-).		
18.	Measure voltage across PA test cable pins D (+) and C (-).	26.5 +/- 0.6 Vdc (record measurement)	Refer to FO-18 Flow A
19.	Disconnect PA test cable pin D from resistor.		
	<u>RT TRANSMIT LOAD</u>		
20.	Connect RT TRANSMIT resistor in parallel with RT RECEIVE resistor.		
21.	Measure voltage across RT TRANSMIT resistor.	Voltage is +/- 0.5 Vdc of level measured in step 15.	Refer to FO-18 Flow A
22.	Disconnect AUDIO test cable pin E from RT TRANSMIT and RECEIVE resistors.		
	<u>PA TRANSMIT LOAD</u>		
23.	Connect PA TRANSMIT resistor in parallel with PA RECEIVE resistor.		
24.	Connect AUDIO test cable pin E to RT TRANSMIT and RECEIVE resistors.		
25.	Connect PA test cable pin D to PA TRANSMIT and RECEIVE resistors.		
26.	Measure voltage across PA TRANSMIT resistor.	Voltage is +/- 0.5 Vdc of level measured in step 18. Record Measurement.	Refer to FO-18 Flow A
	NOTE Input voltage to UUT shall not drop below 10.0 Vdc for the low-line regulator test when measured at the input connector or the UUT.		

Table 5-17. PS/A Minimum Performance Test - CONT

Step	Procedure	Required indication	Fault location
	INPUT LINE REGULATION		
27.	Adjust power supply to 10.0 Vdc and measure voltage across PA TRANSMIT resistor.	Voltage is +/- 0.2 Vdc of level measured in step 26.	Refer to FO-18 Flow A
28.	Adjust power supply to 32.0 Vdc and measure voltage across PA TRANSMIT resistor.	Voltage is +/- 0.2 Vdc of level measured in step 26.	Refer to FO-18 Flow A
	INPUT OVERVOLTAGE		
29.	Increase input power supply to 38.0 Vdc.	POWER ON indicator goes out, circuit breaker trips.	Refer to FO-18 Flow D
30.	Disconnect AUDIO test cable pin E and PA test cable pin D from TRANSMIT and RECEIVE resistors.		
	RT SURGE LOAD		
31.	Connect RT SURGE resistor in parallel with RT RECEIVE and RT TRANSMIT resistor.		
32.	Adjust power supply to 32.0 Vdc.		
33.	Set PS/A POWER ON/OFF switch to ON.		
34.	Connect AUDIO test cable pin E to RT RECEIVE, TRANSMIT and SURGE resistors.	POWER ON indicator goes out, circuit breaker trips.	Refer to FO-18 Flow D
35.	Disconnect AUDIO test cable pin E from RT resistors.		
	PA SURGE LOAD		
36.	Connect PA SURGE resistor in parallel with PA RECEIVE and TRANSMIT resistors.		
37.	Set PS/A POWER ON/OFF switch to ON.		

Table 5-17. PS/A Minimum Performance Test - CONT

Step	Procedure	Required indication	Fault location
38.	Connect PA test cable pin D to PA RECEIVE, TRANSMIT and SURGE resistors.	POWER ON indicator goes out, circuit breaker trips.	Refer to FO-18 Flow D
39.	Disconnect PA test cable pin D from PA resistors.		
40.	Disconnect PA test cable from PS/A RFPA J4.		
	<u>SPEAKER OUTPUT LEVEL</u>		
41.	Connect SPKR test cable to PS/A SPKR J5.		
42.	Rotate PS/A SPKR VOL control max CW.		
43.	Set PS/A Power ON/OFF switch ON.		
44.	Connect eight ohm SPKR resistor between SPKR test cable pins A (-) and B (+).		
45.	Connect 1k ohm resistor between audio oscillator + and - terminals.		
46.	Connect AUDIO test cable pins B (+) and A (-) to audio oscillator.		
47.	Connect distortion analyzer and scope between pins B (+) and A (-) of SPKR test cable.		
48.	Adjust audio oscillator (output level at 1 kHz) for maximum unclipped audio output on scope. Read level on distortion analyzer.	4.0 Vrms minimum	Refer to FO-18 Flow E
	<u>AUDIO INPUT LEVEL</u>		
49.	Remove distortion analyzer from SPKR test cable pins B and A.		
50.	Connect distortion analyzer to AUDIO test cable pins B (+) and A (-).		

Table 5-17. PS/A Minimum Performance Test - CONT

Step	Procedure	Required indication	Fault location
51.	Measure audio oscillator input level on distortion analyzer.	0.9 +/- 0.2 Vrms	PS/A module U2 and associated components
	<u>SPEAKER OUTPUT DISTORTION</u>		
52.	Remove distortion analyzer from AUDIO test cable pins B and A and connect distortion analyzer to SPKR test cable pins B (+) AND A (-).		
53.	Adjust PS/A VOL control for 4.0 Vrms on analyzer.		
54.	Measure speaker output distortion on distortion analyzer.	7.0 % maximum	PS/A module U2 and associated components
	<u>VOLUME CONTROL</u>		
55.	Establish a 0 dB reference level on distortion analyzer.		
56.	Slowly adjust PS/A SPKR VOL control full CCW and monitor scope and analyzer.	No discontinuities in signal during adjustment. At full CCW, level is 30 dB minimum below 0 dB reference level.	TB1-R3
	<u>150 HZ ATTENUATION</u>		
57.	Set PS/A SPKR VOL control to max CW.		
58.	Adjust audio oscillator for a speaker output level of 3.0 Vrms at 1 kHz.		
59.	Establish 0 dB reference on analyzer.		
60.	Adjust audio oscillator to 150 Hz.		
61.	Measure 150 Hz attenuation (reference 1 kHz).	-30 dB minimum	PS/A module R6-R8, C3-C6

Table 5-17. PS/A Minimum Performance Test - CONT

Step	Procedure	Required indication	Fault location
	FREQUENCY RESPONSE		
62.	Adjust audio oscillator to 500 Hz.		
63.	Measure response (reference 1 kHz).	-7.0 to +1.0 dB	PS/A module U2 and associated components
64.	Adjust audio oscillator to 3 kHz.		
65.	Measure response (reference 1 kHz).	-1.0 to +5.0 dB	PS/A Module U2 and associated components
66.	Disconnect SPKR test cable from PS/A SPKR J5.		
67.	Disconnect PS/A W1P1 from AUDIO test cable.		
	RF INSERTION LOSS		
	NOTE A 130 to 174 MHz RF/IF module must be installed in the RT prior to RF test. Refer to para. 5-3.		
68.	Connect RT ANT connector to power meter (via attenuator).		
69.	Connect RT Audio connector to PS/A W1P1. Select 173.975 on RT. Turn on RT.		
70.	Press PUSH TO TALK button on RT and measure power output.	Establish reference	
71.	Disconnect RT ANT connector from power meter.		
72.	Connect RT ANT connector to PS/A W2P2.		
73.	Connect PS/A ANT J2 to power meter (via attenuator)		

Table 5-17. PS/A Minimum Performance Test - CONT

Step	Procedure	Required indication	Fault location
74.	Press PUSH TO TALK button on RT and measure power output.	1 dB maximum insertion loss from reference established in step 70.	Chassis W2
75.	Test is complete.		

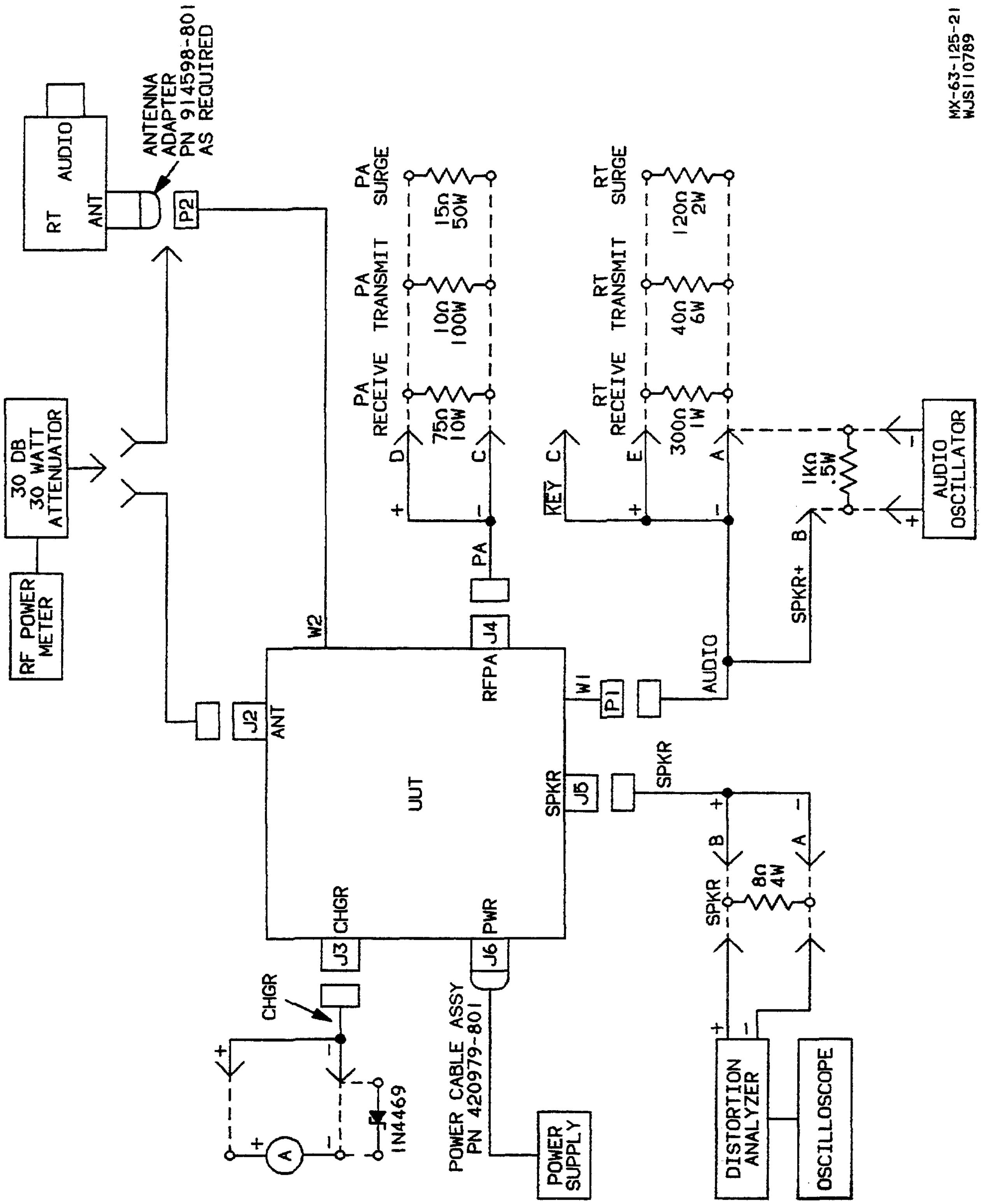


Figure 5-19. PS/A Test Setup

5-13 PS/A DISASSEMBLY/ASSEMBLY.

Perform the following procedures to disassemble and reassemble the PS/A to support testing and repair as directed. Refer to figure 5-20.

5-13.1 PS/A Module Disassembly.

a. Loosen seven crosshead screws (item 1) securing cover (item 2) to chassis (item 3).

b. Lift cover from chassis assembly.

CAUTION

Caution must be observed in the following step as the PS/A module will drop from chassis when screws are removed.

c. Remove four crosshead screws and washers (item 4) on top of chassis securing PS/A module (item 5) to chassis and remove PS/A module from chassis.

d. Disconnect P4 (item 6) from PS/A module J4.

5-13.2 PS/A Module Assembly.

a. Connect P4 (item 6) to PS/A module J4.

b. Insert PS/A module (item 5) into chassis (Item 3).

c. Install and tighten four crosshead screws and washers (item 4) on top of chassis to secure PS/A module.

d. Install cover assembly (item 2) over PS/A chassis.

e. Tighten seven crosshead screws (item 1) to secure cover to chassis.

5-14 PS/A FAULT ISOLATION.

The following paragraphs describe the steps necessary to fault isolate and repair the PS/A.

5-14.1 PS/A Chassis Fault Isolation. The PS/A chassis is fault isolated by performing a comprehensive continuity check. Refer to chapter 7 and perform PS/A chassis wire list continuity measurements per table 7-4 and figure FO-11.

5-14.2 PS/A Module Fault Isolation. The PS/A Module is fault isolated by using figure FO-18. Refer to figure 5-21 and figure FO-12 for component location and schematic diagram.

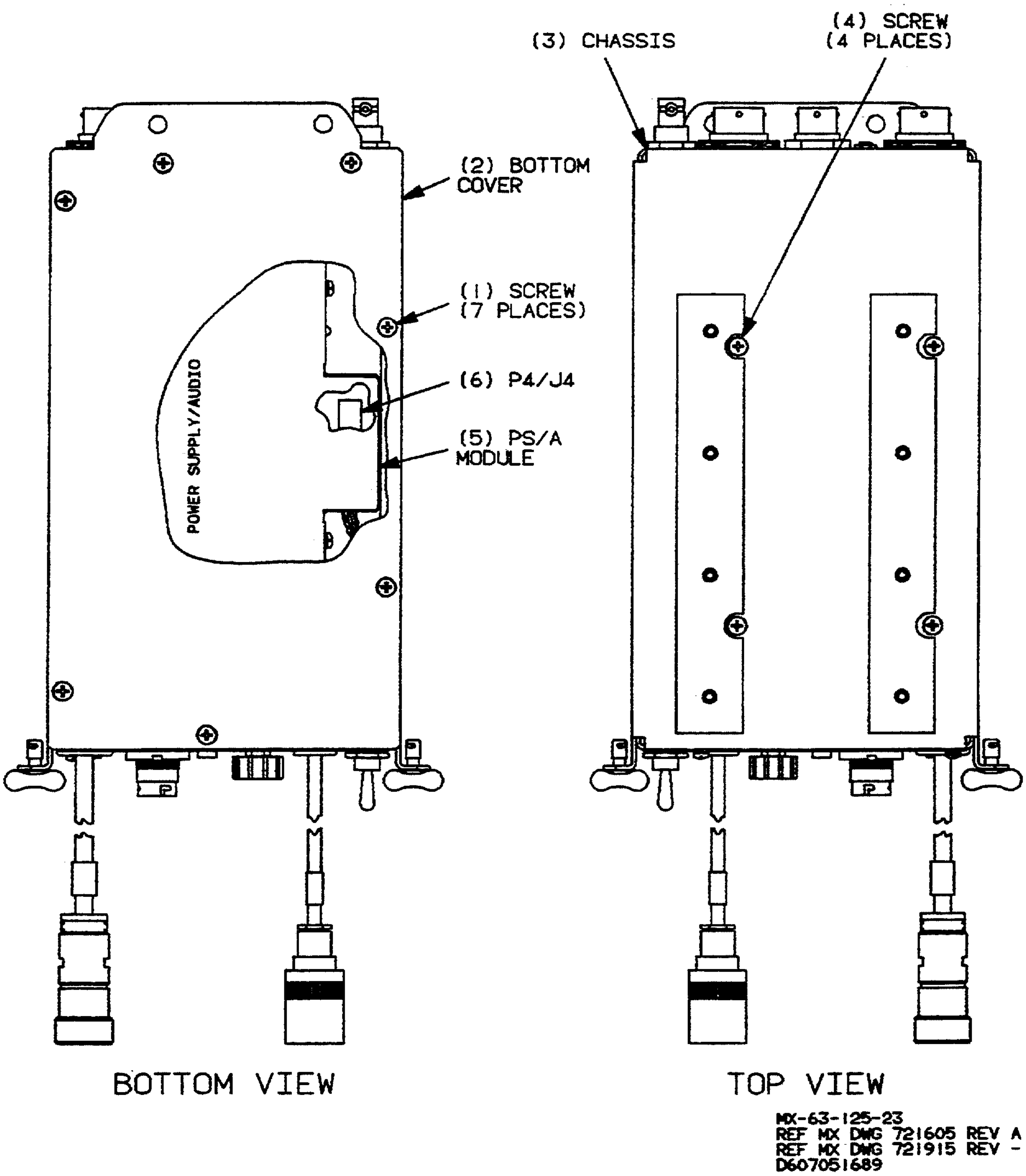
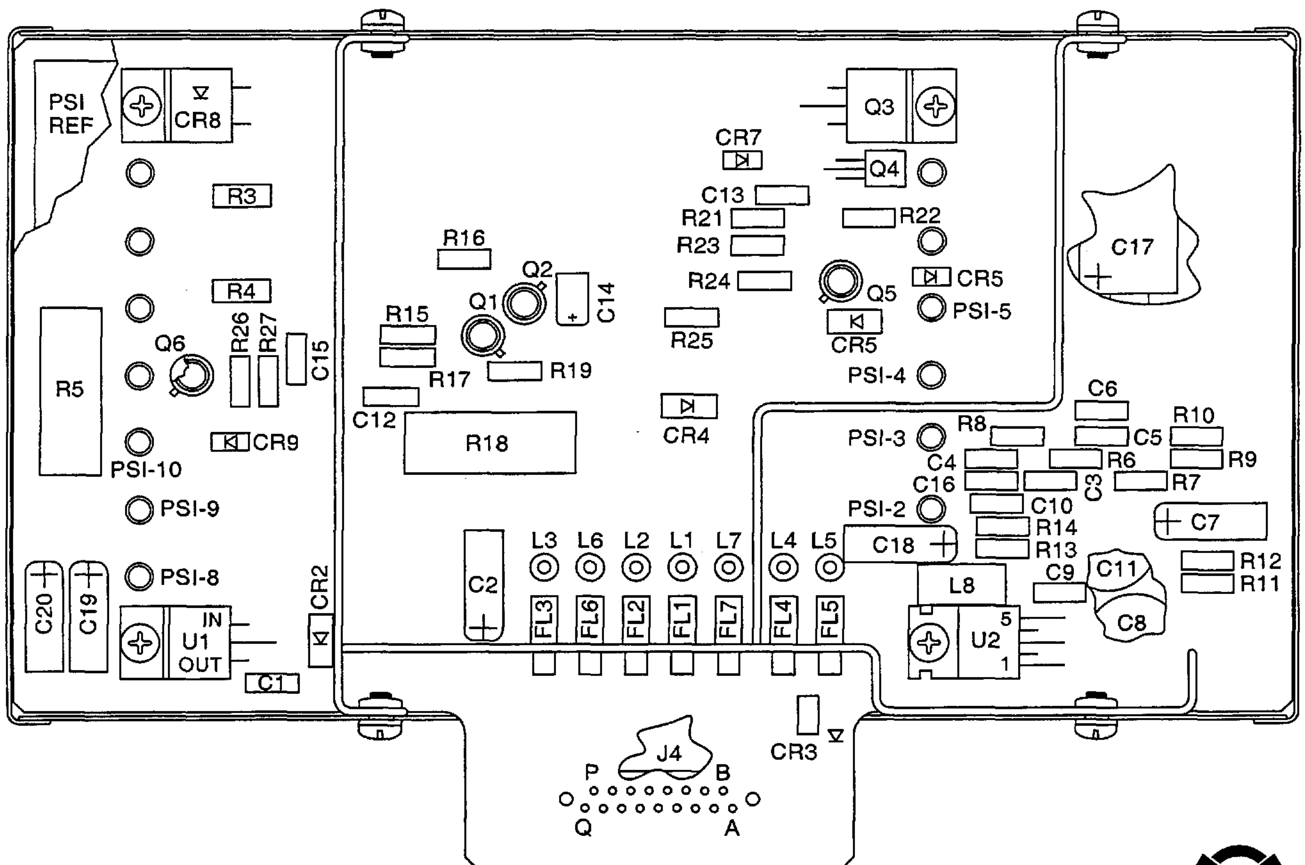


Figure 5-20. PS/A Disassembly/Assembly Diagram



TOP VIEW

NOTE: COVER REMOVED

MX-63-125-24
REF MX DWG 721609 REV C
D607121389

Figure 5-21. PS/A Module Component Location

REPAIRABLE NICAD BATTERY REPLACEMENT PROCEDURES

Perform the following procedure when replacing the internal battery pack, part number 11-1200AS8X3. Refer to Figure 5-22 Repairable Battery.

a. Remove battery assembly from AN/PRC 128.

b. Remove 4 each phillips head screws from the top of the battery case.

c. Remove 3 each phillips head screws from the bottom of the battery case.

d. Using a non-mettalic blunt end instrument (such as a wooden dowel) gently push the internal batterty pack out of the case. (Push on the silver contacts on the bottom of the case)

e. Note the position and orientation of all foam insulators as they must be reused.

f. Remove foam insulators and adhesive tape as needed to access the red and black wires on the ni-cad battery pack.

g. If applicable, remove shrink tubing from the ni-cad battery pack solder tab connections.

h. De-solder the red and black wires from the unserviceable battery pack, noting their position and orientation.

i. Remove unserviceable battery pack from plastic base and install new battery pack on plastic base.

j. Install new shrink tubing on the red and black wires and solder the wires to the battery tabs.

CAUTION

Observe proper polarity when installing red and black wires to the ni-cad battery pack!

k. Install foam insulators and new adhesive tape as needed to hold the battery pack together.

l. Install 7 phillips head screws into the case.

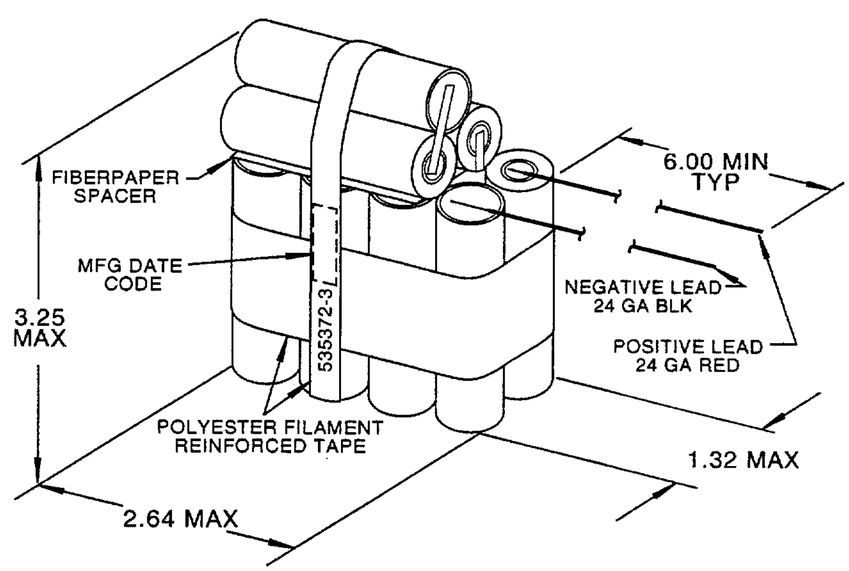


Figure 5-22. Repairable Battery

CHAPTER 6

ILLUSTRATED PARTS BREAKDOWN

Section I. INTRODUCTION

6-1 GENERAL.

The Illustrated Parts Breakdown lists, illustrates, and describes the parts used in the Scope Shield Radio System. The items are manufactured by the Magnavox Government and Industrial Electronics Company, Fort Wayne, Indiana.

6-2 MAINTENANCE PARTS LIST.

The Maintenance Parts List (MPL), (Section II), consists of the complete systems divided into main groups. The main groups are broken down into assemblies, subassemblies and details. The next higher assembly (NHA) is indicated for each separately illustrated item. Each assembly and subassembly listed is followed immediately by its component parts. In general, the assemblies and parts installed at the time the end item was manufactured are listed and identified in the manual. When an assembly/part (including vendor items) different from the original was installed during manufacture of the later items, series, or blocks, all assemblies and parts are listed (and "Usable on" coded). However, when the original assembly or part does not have continued application, only the preferred assembly or part is listed. When an assembly/part installed during modification, and the original does not have continued application, only the preferred item is listed. Interchangeable and substitute assemblies and parts, subsequently authorized by the Government, are not listed in this manual. Such items are identified by information available through the Interchangeable and Substitute (I & S) Data Systems (refer to T.O. 00-25-184). When a standard size part can be replaced with an oversize/undersize part, the latter parts, showing sizes, are also listed.

a. Figure and Index Number Column. This column lists the figure and index number of each part illustrated in the related figure. The index numbers are in numerical sequence and indicate order of disassembly except where the order does not apply. Index numbers identify each part shown in the related figure. Assemblies which have detail parts indexed are not indexed unless; the assembly is illustrated completely assembled on the same illustration; or is identified as an assembly by bracketing or circling of components. When a group of parts (bolt, washer, nut) is used at a specific location for attachment purposes, one index number assigned is sufficient. The index number appears on the same line as the first part composing the group.

b. Part Number Column. This column lists the contractor's part number (drawing number), including dash numbers, assigned to each part. Vendor part numbers are listed when parts are identical to the contractor used part. Those parts which have Government Standards numbers assigned have the Government Standards number listed. Parts altered or selected for special fit, tolerance, etc., from vendor, commercial or government standard items have contractor part numbers. The vendor, commercial, or Government Standards part number of the altered or selected part follow the part description in the Description column. Alternate parts are listed and identified by an equal (=) sign preceding the part number one space to the left. Select at test items installed during manufacturing/modification, are listed and identified by a (+) sign preceding the part number one space to the left. Item(s) of supply part number(s) and FSCM that is stocked, stored, and issued by the Government as identified by the Government during the initial provisioning process shall be identified by an (*) sign preceding the part number one space to the left. Government Furnished Equipment (GFE) and Contractor Furnished Equipment (CFE), covered by separate manuals are listed and identified by a number sign (#) inserted flush right following the part number. Decalcomania, metalcals, and vinyl film markings are considered as parts. The part number for each marking will be followed by a asterisk (*) symbol inserted flush right. Requisition the marking in accordance with the requirements of AFR 6-1.

c. FSCM Column. This column lists a 5-digit code number following the part number denoting the procuring vendor. The source of vendor code numbers is the Federal Supply Code for Manufacturers (FSCM) Cataloging Handbook H4-1, H4-2 and H4-3.

d. Description Column. This column contains the description of all items appearing on the Maintenance Parts List. The indentation headed "1" through "7" shows the relationship of parts and subassemblies to assemblies. The description consists of the approved item name, as found in the Federal Item Identification Guide for Supply Catalog Handbook H6-1, or is in accordance with the contractor's drawing title. The description contains modifiers necessary to identify the particular item. Additional information following the item description may include the following; a list of alternate part numbers to give stock ordering information; exceptions to the Usable On Code for the item; and references to preceding and subsequent figures concerning assemblies and subassemblies. This data is considered an integral part of the item description assuring the correctness of repair maintenance procedures. Item(s) identified as a Hardness Critical Item (HCI), the marking HCI (reference DOD-STD-100) shall precede the first word in the Description column.

e. Attaching Parts. Items used to attach parts or assemblies to each other are listed immediately after the part. The attaching parts have the same indentation code as the parts attached. The code (AP) appears on the same line with and immediately following the attaching part item.

f. Units Per Assembly. This column contains the number of units required per assembly and/or subassembly. If more than one assembly is required, the total number of assemblies is listed. When an assembly or subassembly is listed more than once, the total number of units per assembly or subassembly appears the first time and REF for subsequent listings.

g. Usable On Code. This column shows the Usable On Codes for systems, assemblies, and parts indicating specific usability by part number. Usable on code explanations are located at the bottom of the applicable page. The codes A, B, C etc., when shown within a group, relate the part back to the same coded part within the next higher assembly. When this column is left blank, an assembly or part is common to all part number variations of the next higher assembly.

h. Source, Maintenance and Recoverability SMR Codes. This manual contains Joint Military Services Uniform SMR Codes. Detailed coding criteria may be obtained from T.O. 00-25-195.

6-3 NUMERICAL INDEX. The Numerical Index (Chapter 6 Section III) is compiled in accordance with the numerical part number filing system described in paragraph a.

a. Part Number Column. This column contains all the part numbers that appear in the Maintenance Parts List and part numbers that have been assigned to detail parts assembled into the end article. The order of procedure establishing the sequence in which the part numbers are listed is explained below. The order of precedence in the first position of each part number is Letters A through Z, Numerals 0 through 9.

NOTE

Alphabetical O's are considered as numerical zeroes in all positions in each part number.

The order of precedence in the second and succeeding positions in each part number is as follows:

(1) Space (blank column).
(2) Diagonal (/).
(3) Period (.).
(4) Dash (-).
(5) Letters A through Z.
(6) Numerals 0 through 9.

The following is a sample of part numbers arranged in alphabetical-numerical sequence used in the Numerical Index.

AN931-4-13	B2	16.W2
A2460	S/1	16W060
A317	1140	32P010.1
A32	121873	32P0101
B12	128	39A45

b. Figure and Index Number Column. For each part number, the figure or figure and index number refers to the Maintenance Parts List where parts relationship is shown. When an assembly or part has not been assigned an index number, the figure and index number of the preceding part in the Maintenance Parts List is used with the letter "F" before the figure number, such as F6-7. The letter "F" denotes "follows".

6-4 REFERENCE DESIGNATION INDEX. The Reference Designation Index (Chapter 6 Section IV) is listed by figure as it appears in the MPL, then in alphabetical-numerical order, the reference designations used in schematic diagrams and instruction books. Opposite the reference designation is listed the figure index number as shown in the MPL.

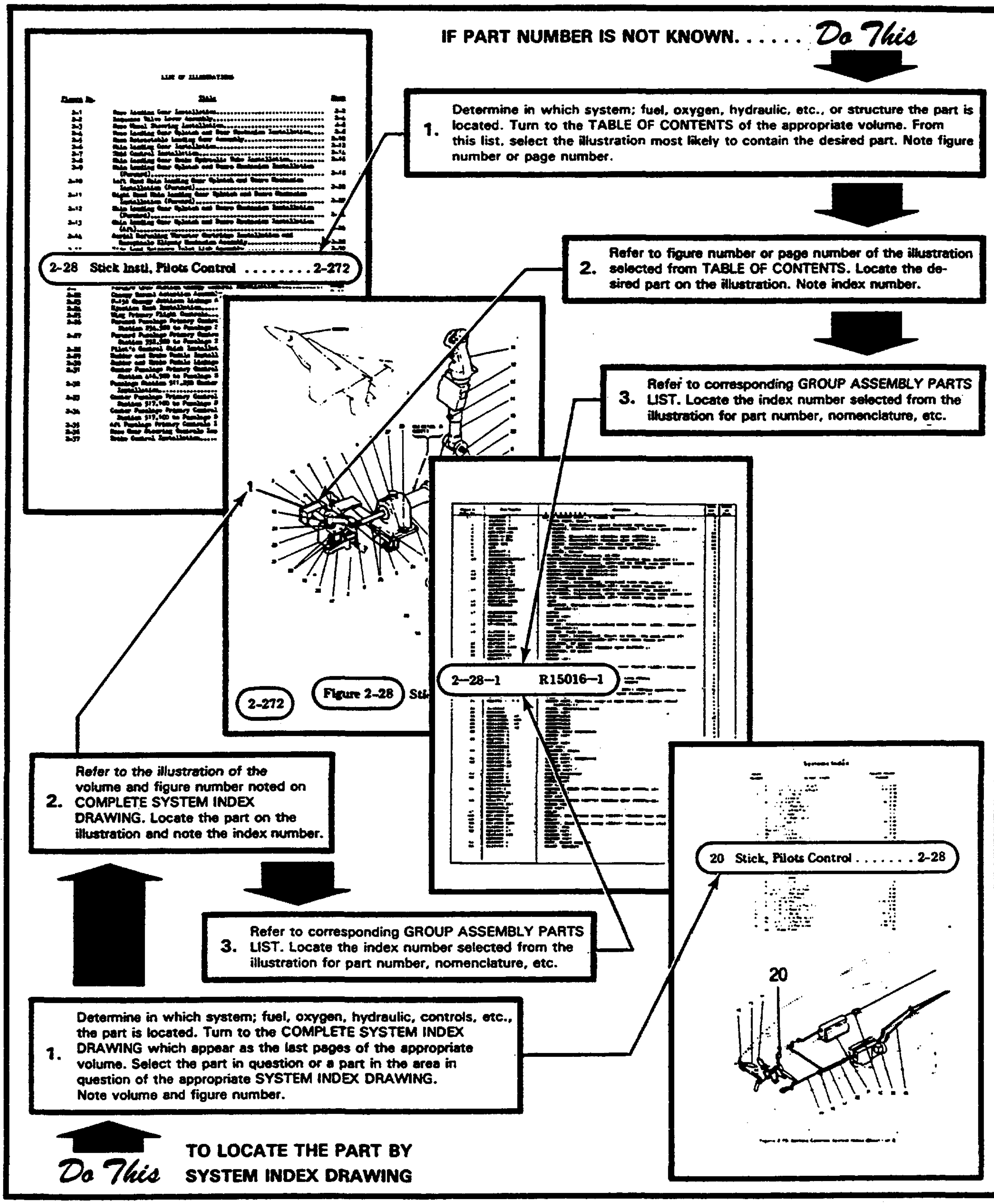
6-5 ELECTROSTATIC DISCHARGE (ESD) SENSITIVE DEVICES.

a. This technical order contains parts and assemblies sensitive to damage by ESD. T.O. 00-25-234 should be consulted for specific information on how damage can occur to electronic parts, assemblies and equipment by ESD and the control measures to be taken to protect against such damage.

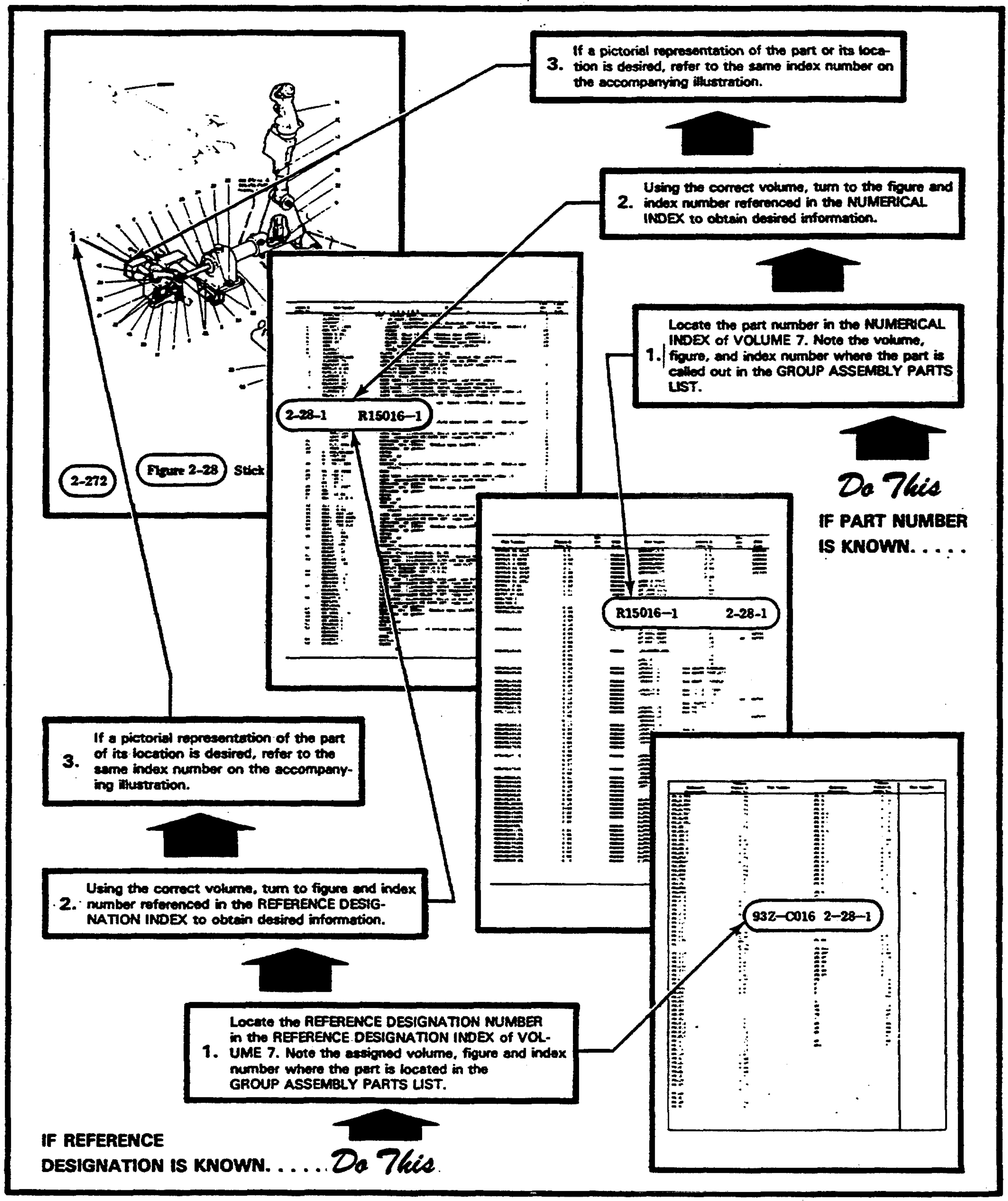
b. Illustrations contained within this manual which depict ESD parts are further identified by the use of the following symbol affixed in the lower right-hand corner of each applicable illustration.

c. The MPL contained within this manual with ESD sensitive parts listed are identified by the following symbol (ESD). These symbols are placed in the extreme right of the description column for the item identified as ESD sensitive.

"HOW TO USE THIS ILLUSTRATED PARTS BREAKDOWN"



"HOW TO USE THIS ILLUSTRATED PARTS BREAKDOWN"



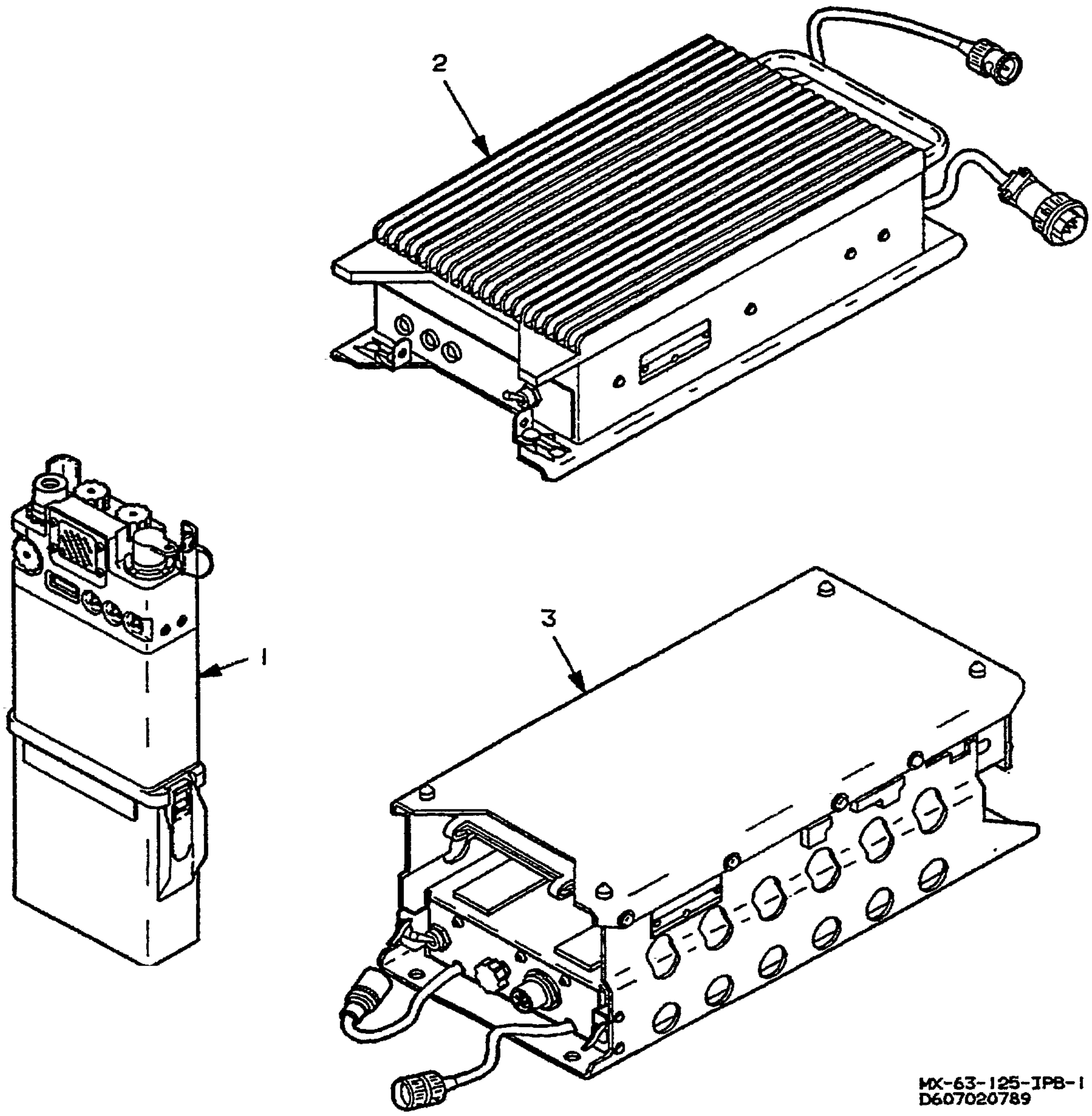


Figure 6-1. Scope Shield Radio System

Section II.

MAINTENANCE PARTS LIST

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 1-		37695	RADIO SYSTEM, Scope ShieLd	1		
- 1	901608-801	37695	. RADIO SYSTEM, AN/PRC-128 (See fig. 2 for bkdn)	1		PEODDS
- 2	901603-801	37695	. POWER AMPLIFIER SYSTEM, RF (See fig. 9 for......... bkdn)	1		PAOODT
- 3	901602-801	37695	. ADAPTER GROUP, OF-185/PRC (See fig. 18 for .... bkdn)	1		PAODDT

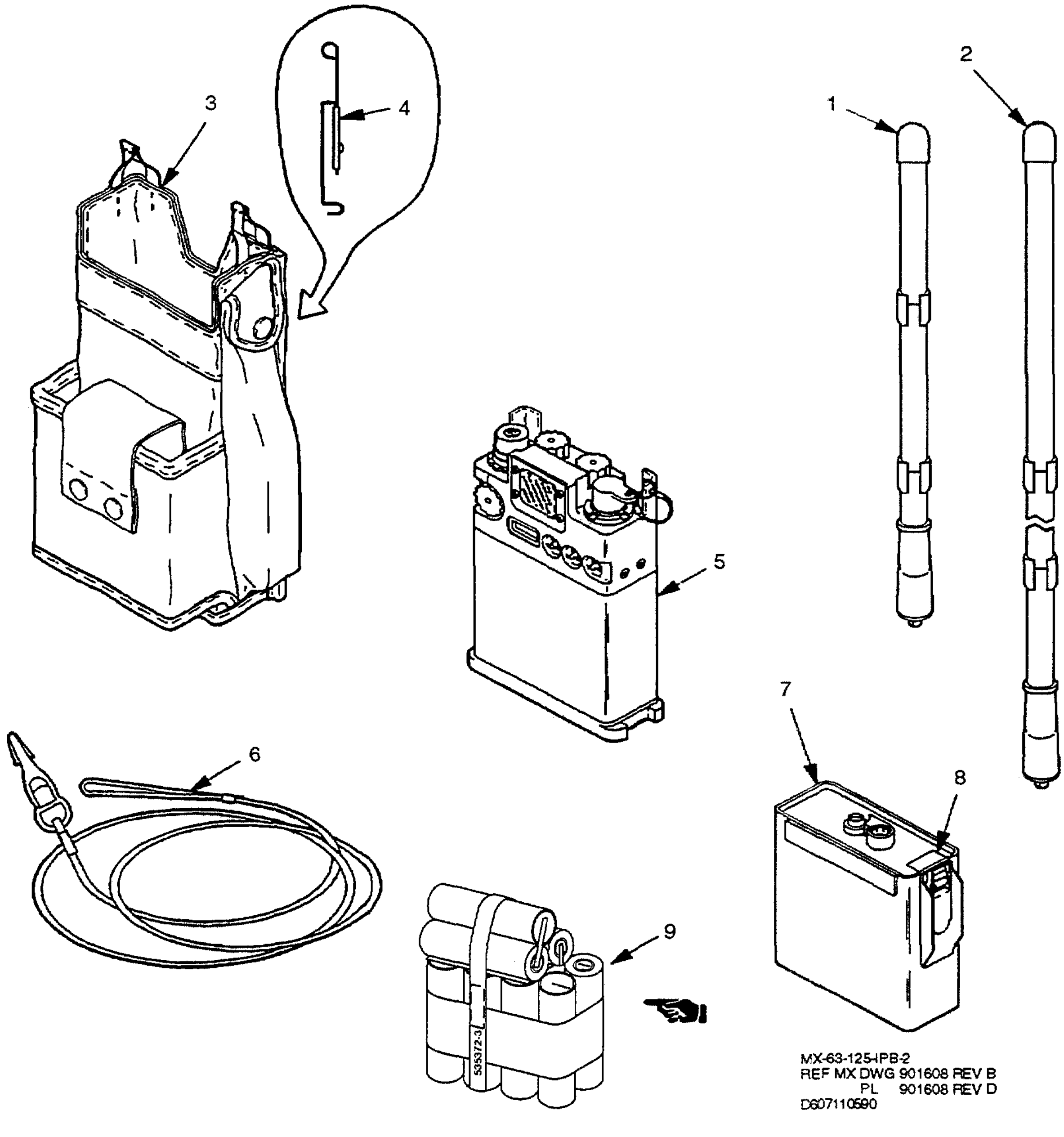


Figure 6-2. AN/PRC-128 Radio System

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 1-	901608-801	37695	RADIO SYSTEM, AN/PRC-128 (See fig. 1 for nha)	REF		PEODDS
- 1	518026-1	37695	. ANTENNA, FLexibLe	1		PAOZZN
- 2	721153-3	37695	. ANTENNA, FLexibLe	1		PAOZZN
- 3	349924-1	37695	. CARRYING POUCH, Radio Set	1		PAOZZN
- 4	4-1-139	81337	. . KEEPER	2		
- 5	901609-801	37695	. RECEIVER/TRANSMITTER AN/PRC-128 (See fig. 3 for bkdn)	1		PAODDT
- 6	SM-B-523304	80063	. LANYARD ASSEMBLY	1		PAOZZN
- 7	548103-801	37695	. BATTERY, Rechargeable Nickel-cadmium	2*		PAOZZN
- 8	156068-1*	37695	. . DECAL, Charge date	1		XB
- 9	11-1200AS8X3	1U269	. BATTERY PACK, Rechargeable Nickel-cadmium	2		PAOOO

***NOTE**

One battery used with radio.
One battery spare.

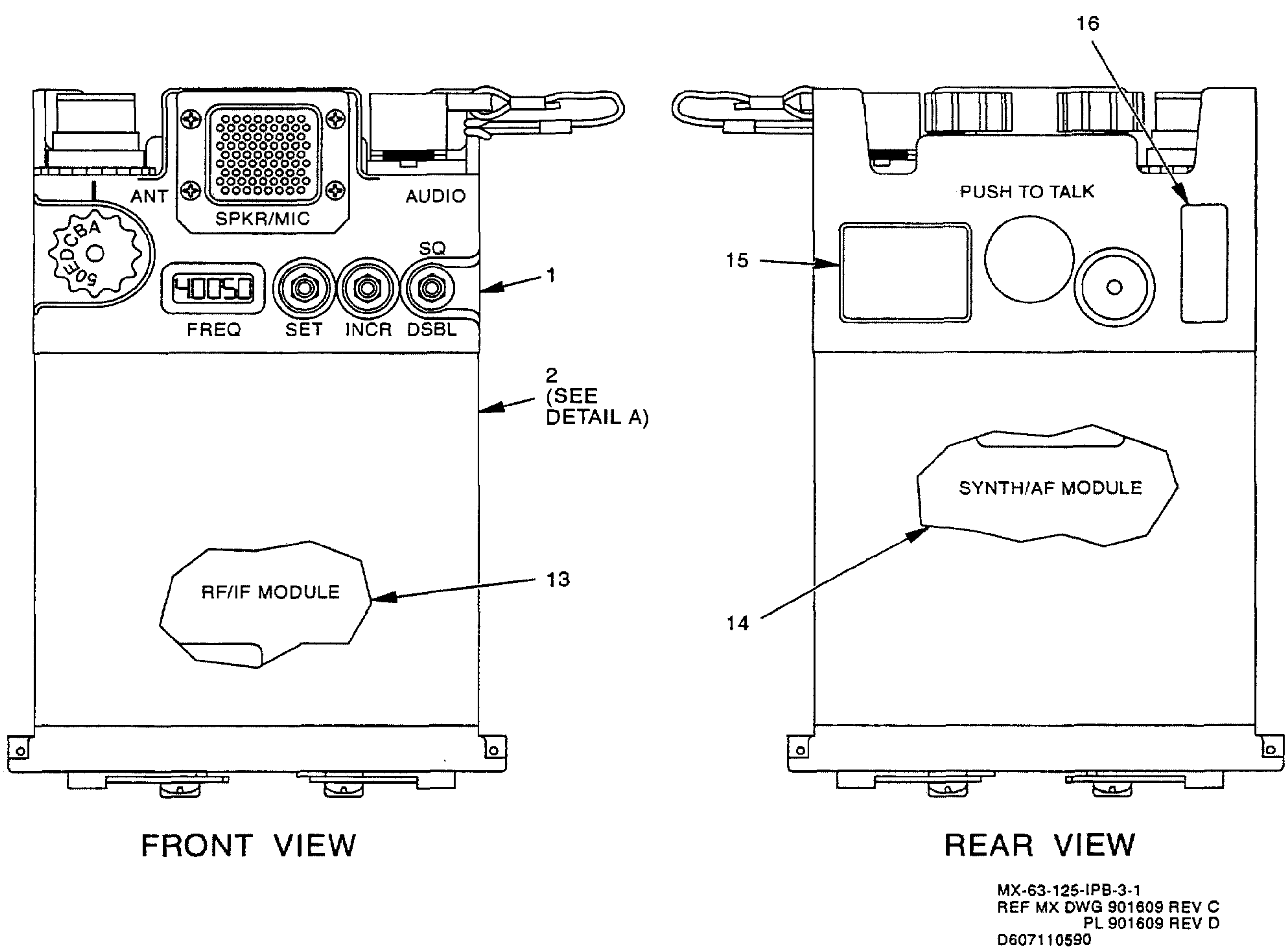


Figure 6-3. AN/PRC-128 Receiver Transmitter (Sheet 1 of 2)

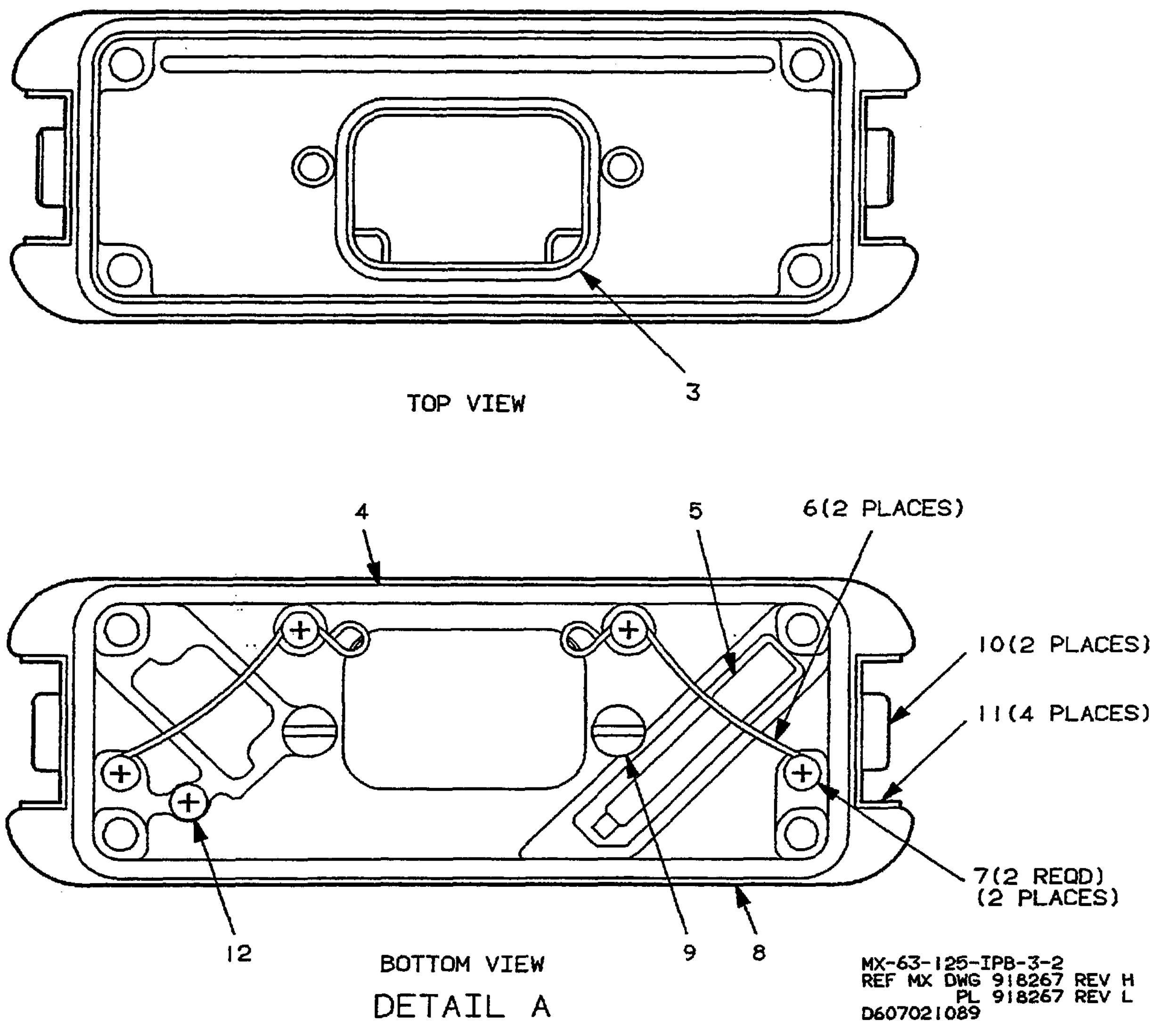
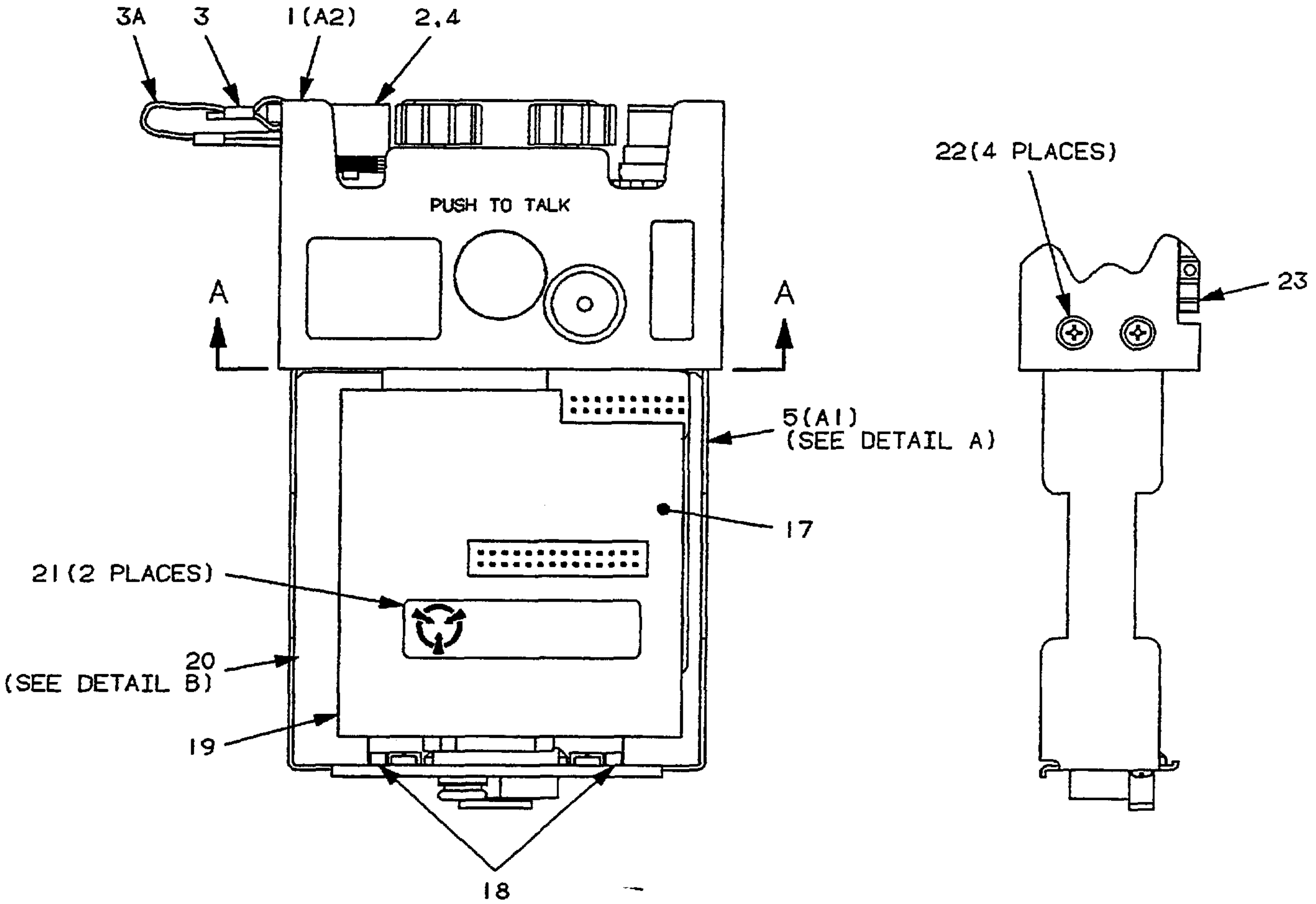


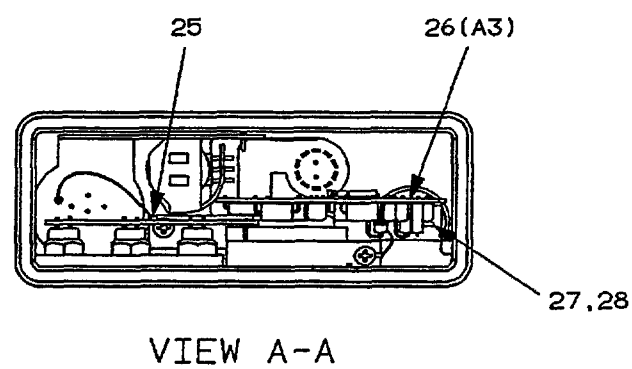
Figure 6-3. AN/PRC-128 Receiver Transmitter (Sheet 2 of 2)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 3-	901609-801	37695	RECEIVER/TRANSMITTER, AN/PRC-128 (See fig. 2 ...... for nha)	REF		PAODDT
- 1	816173-821	37695	. FRAME AND PANEL ASSEMBLY (ESD)(See fig. 4 for ... bkdn)	1		XB
- 2	918267-804	37695	. MODULE COVER ASSEMBLY	1		XB
- 3	MS9068-024	96906	. . PACKING	1		PADZZN
- 4	345110-1	37695	. . GASKET	1		XB
- 5	808234-1	37695	. . TOOL, Tuning	1		PAOZZN
- 6	136273-1	37695	. . RETAINER, Spring	2		XB
- 7	MS51957-2	96906	. . SCREW (AP)	2		PADZZN
- 8	914050-804	37695	. . MODULE COVER ASSEMBLY	1		XB
- 9	130755-1	97539	. . SCREW, Captive (AP) (Spec cont dwg .... 130755-1, FSCM 37695)	2		XB
- 10	512101-1	37695	. . STRIKE	2		XB
- 11	109715-1190	37695	. . PIN, Spring	4		XB
- 12	MS3212-11	96906	. . SCREW SEAL	1		XB
- 13	721597-801	37695	. MODULE ASSEMBLY, Low band RF/IF (ESD)(See .... fig. 6 for bkdn)	1		PAOLDT
	721598-801	37695	. MODULE ASSEMBLY, High band RF/IF (ESD)(See ...... fig. 7 for bkdn)	1*		PAOLDT
- 14	721599-801	37695	. MODULE ASSEMBLY, Synthesizer/AF (ESD)(See .... fig. 8 for bkdn)	1		PAOLDT
- 15	156687	37695	. PLATE, Identification	1		XB
- 16	159837-3 *	37695	. DECAL, Warranty	1		XB

* NOTE

High band RF/IF module assembly supplied for optional use.





MX-63-125-IPB-4-1
REF MX DWG 816173 REV T
PL 816173 REV AC
D607110590

Figure 6-4. Frame and Panel Assembly (Sheet 1 of 2)

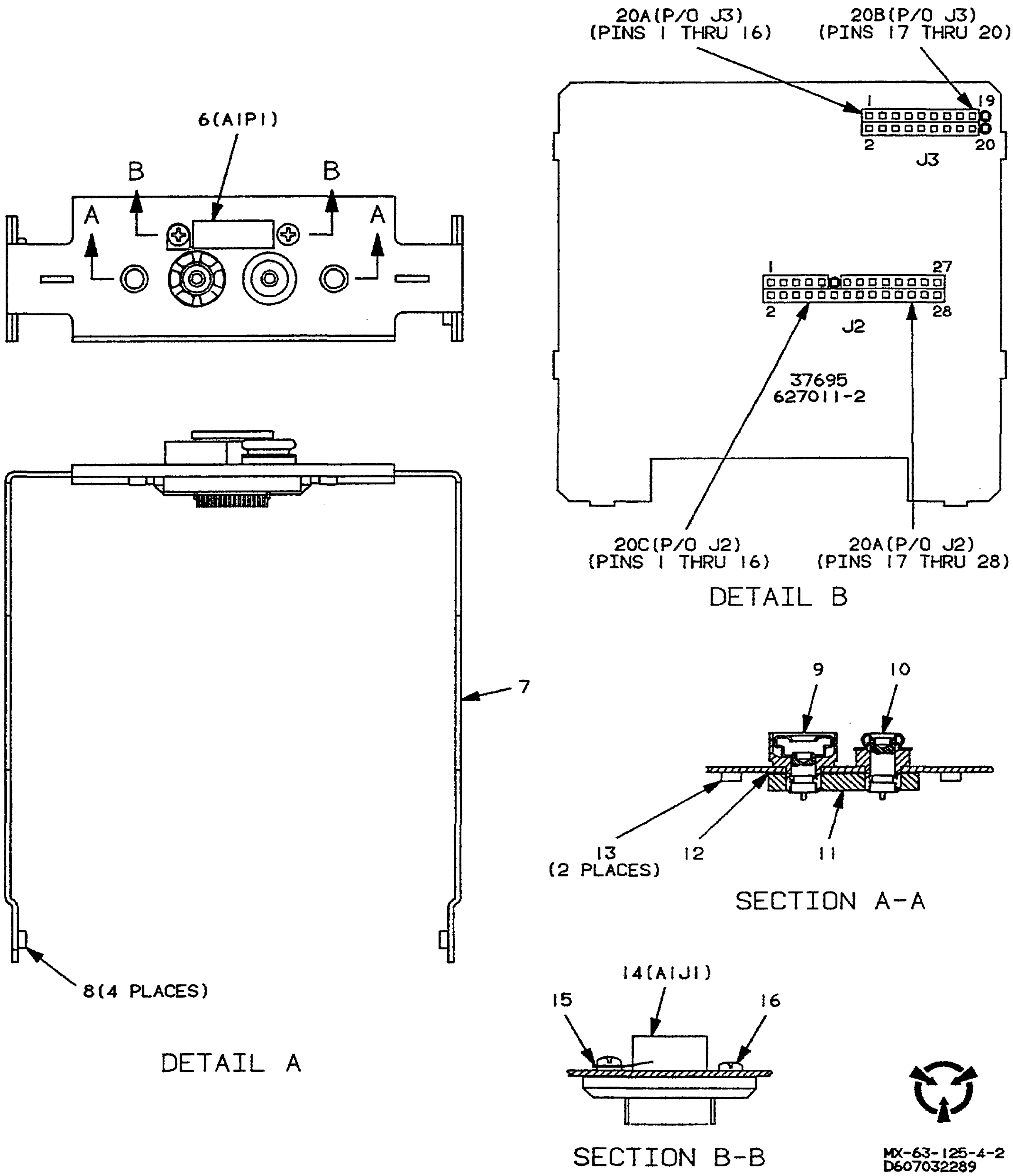


Figure 6-4. Frame and Panel Assembly (Sheet 2 of 2)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 4-	816173-821	37695	FRAME AND PANEL ASSEMBLY (ESD) (See fig. 3 .... for nha)	REF		XB
- 1	816172-821	37695	. PANEL ASSEMBLY (ESD) (See fig. 5 for bkdn)	1		XB
- 2	817455-801	37695	. DUST COVER ASSEMBLY	1		XB
- 3	938573-1	37695	. . CLIP	2		XB
- 3A	446351-10	37695	. . CORD, Fibrous	AR		XB
- 4	348205-2	37695	. . COVER	1		XB
- 5	816171-801	37695	. FRAME ASSEMBLY	1		XB
- 6	095-9003-0024	98278	. . CONNECTOR, Shorting plug (Spec cont dwg .... 185749-1, FSCM 37695)	1		XB
- 7	938720-1	37695	. . FRAME, Chassis	1		XB
- 8	M45938/7-1	81349	. . NUT, Self-locking, clinch (Spec cont dwg ...... 135227-7, FSCM 37695)	4		XB
	*M45938-7-1	81349	. . NUT, Plain, clinch	4		XB
- 9	815888-802	37695	. . BATTERY TERMINAL ASSEMBLY	1		XB
- 10	815888-801	37695	. . BATTERY TERMINAL ASSEMBLY	1		XB
- 11	515866-1	37695	. . PLATE, Mounting	1		XB
- 12	348276-2	37695	. . GASKET, Connector	1		XB
- 13	M45938/7-3	81349	. . NUT, Self-locking, clinch (Spec cont dwg ...... 135227-8, FSCM 37695)	2		XB
- 14	MEC50-13-185	54455	. . CONNECTOR (Spec cont dwg 186193-1, FSCM .... 37695)	1		PADZZN
- 15	MS51957-2	96906	. . SCREW (AP)	1		PADZZN
	MS35333-69	96906	. . WASHER (AP)....................................	1		PADZZN
- 16	MS51957-2	96906	. . SCREW (AP)....................................	1		PADZZN
- 17	420541-1	37695	. PRINTED WIRING, Flexible	1		XA
- 18	97-540-17-X(3)	30817	. CONTACT STRIP, Radio frequency grounding .... (Spec cont dwg 165579-2, FSCM 37695)	2		XB
- 19	349857-2	37695	. INSULATOR	1		XB
- 20	627011-2	37695	. INTERCONNECT, Chassis	1		XB
- 20A	ISMM212W1702R	31514	. CONTACT, Feed thru	28		
- 20B	ISMM212W1602R	31514	. CONTACT, Feed thru	4		
- 20C	ISMM212W150R	31514	. CONTACT, Feed thru	16		
- 21	A3034572 *	80063	. LABEL	2		XB
- 22	R-440-AC-4, BLACK	97539	. SCREW, Machine (Spec cont dwg 136331-1, ... FSCM 37695)	4		PADZZN
- 23	516502-2	37695	. KNOB, Antenna matching	1		PAOZZN
- 24	DELETED					
- 25	542	79963	. TERMINAL, Lug (Spec cont dwg 205010-31, ... FSCM 37695)	1		XB
	=4476	71785	. TERMINAL, Lug (Spec cont dwg 205010-1, ... FSCM 37695)	AR		XB
- 26	816765-821	37695	. ANTENNA MATCHING ASSEMBLY	1		PADZZN
- 27	542	79963	. TERMINAL, Lug (Spec cont dwg 205010-31, ... FSCM 37695)	1		XB
	=4476	71785	. TERMINAL, Lug (Spec cont dwg 205010-1, ... FSCM 37695)	AR		XB
- 28	MS51957-2	96906	. SCREW (AP)	1		PADZZN
	NAS1640-2	80205	. WASHER (AP)	1		PADZZN
	*MS35338-134	96906	. WASHER (AP)	1		PADZZN

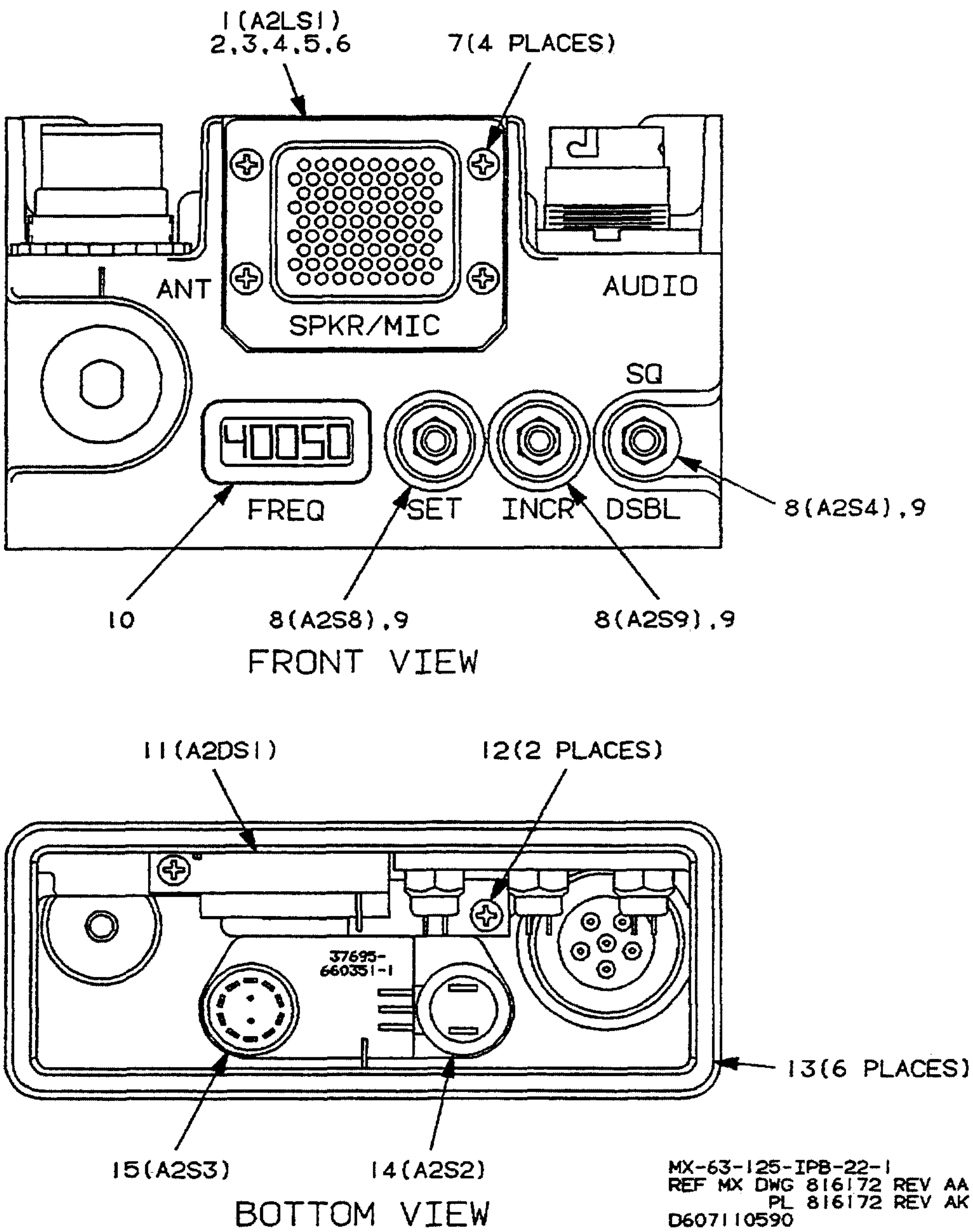


Figure 6-5. Panel Assembly (Sheet 1 of 2)

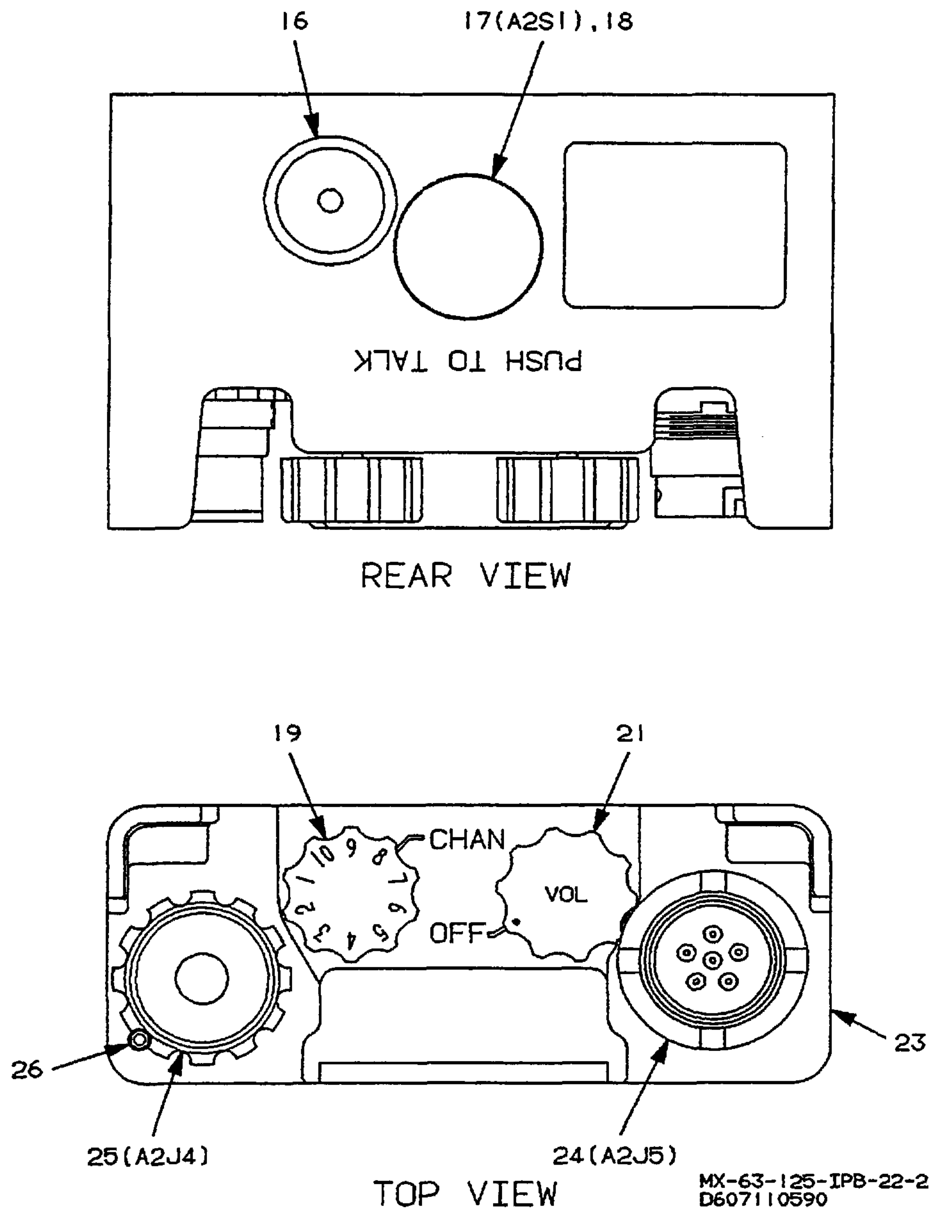


Figure 6-5. Panel Assembly (Sheet 2 of 2)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 5-	816172-821	37695	PANEL ASSEMBLY (ESD) (See fig. 4 for nha)	REF		XB
- 1	1848	31005	. TRANSDUCER, Permanent magnet (Spec cont dwg ..... 588007-1, FSCM 37695)	1		PADZZN
- 2	335466-1	37695	. PAD, Compression	1		XB
- 3	349649-1	37695	. GASKET, Speaker	1		XB
- 4	349648-2	37695	. DIAPHRAGM, Speaker	1		XB
- 5	942748-1	37695	. STIFFENER, Diaphragm	1		XB
- 6	942152-2	37695	. PROTECTOR, Speaker	1		XB
- 7	MS51957-2B	96906	. SCREW (AP)	4		PADZZN
	NAS1640-2P	80205	. WASHER (AP)	4		PADZZN
	*MS35338-134B	96906	. WASHER (AP)	4		PADZZN
- 8	39YY2370-1 (BLK)	81073	. SWITCH, Pushbutton (Spec cont 165549-5, ... FSCM 37695)	3		PADZZN
- 9	130740-1	37695	. WASHER (Make from MS35333-106)	1		PADZZN
- 10	349619-3	37695	. WINDOW, Protective	1		XB
- 11	VK4003	NONE	. DISPLAY MODULE, Liquid crystal (ESD)(Spec .... cont dwg 622191-2, FSCM 37695)(VGI Inc., San Jose, CA)	1		PADZZN
- 12	MS51957-2	96906	. SCREW (AP)	2		PADZZN
	NAS1640-2	80205	. WASHER (AP)	2		PADZZN
	*MS35338-134	96906	. WASHER (AP)	2		PADZZN
- 13	M148-S40	NONE	. PACKING, Preformed (Spec cont dwg 349284-4, ... FSCM 37695)(Tobar, Columbus, IN)	1		PADZZN
	=345110-1	37695	. GASKET	AR		XB
- 14	WRS8766	01121	. RESISTOR, Variable (Spec cont dwg 228092-4, ... FSCM 37695)	1		PADZZN
- 15	56SY3013-031N	81073	. SWITCH, Rotary, coded (Spec cont dwg .... 165575-1, FSCM 37695)	1		PADZZN
- 16	944592-801	37695	. WASHER, Breather frame assembly	1		XB
- 17	ML1-124MD	51163	. SWITCH, Push button (Spec cont dwg 165803-1, ... FSCM 37695)	1		PADZZN
- 18	445147-6024	37695	. MASK, Tape die cut	1		XB
- 19	517448-801	37695	. KNOB	1		PAOZZN
- 20	DELETED					
- 21	517448-802	37695	. KNOB	1		PAOZZN
- 22	DELETED					
- 23	660351-1	37695	. PANEL, Front	1		XB
- 24	MC-283R-10	63525	. CONNECTOR, Receptacle, electrical (Spec cont .... dwg 186137-5, FSCM 37695)	1		PADZZN
- 25	72605-01	14283	. CONNECTOR, Antenna (Spec cont dwg 187055-1, ... FSCM 37695)	1		PADZZN
- 26	NAS1081C04D3N	80205	. SETSCREW	1		PADZZN

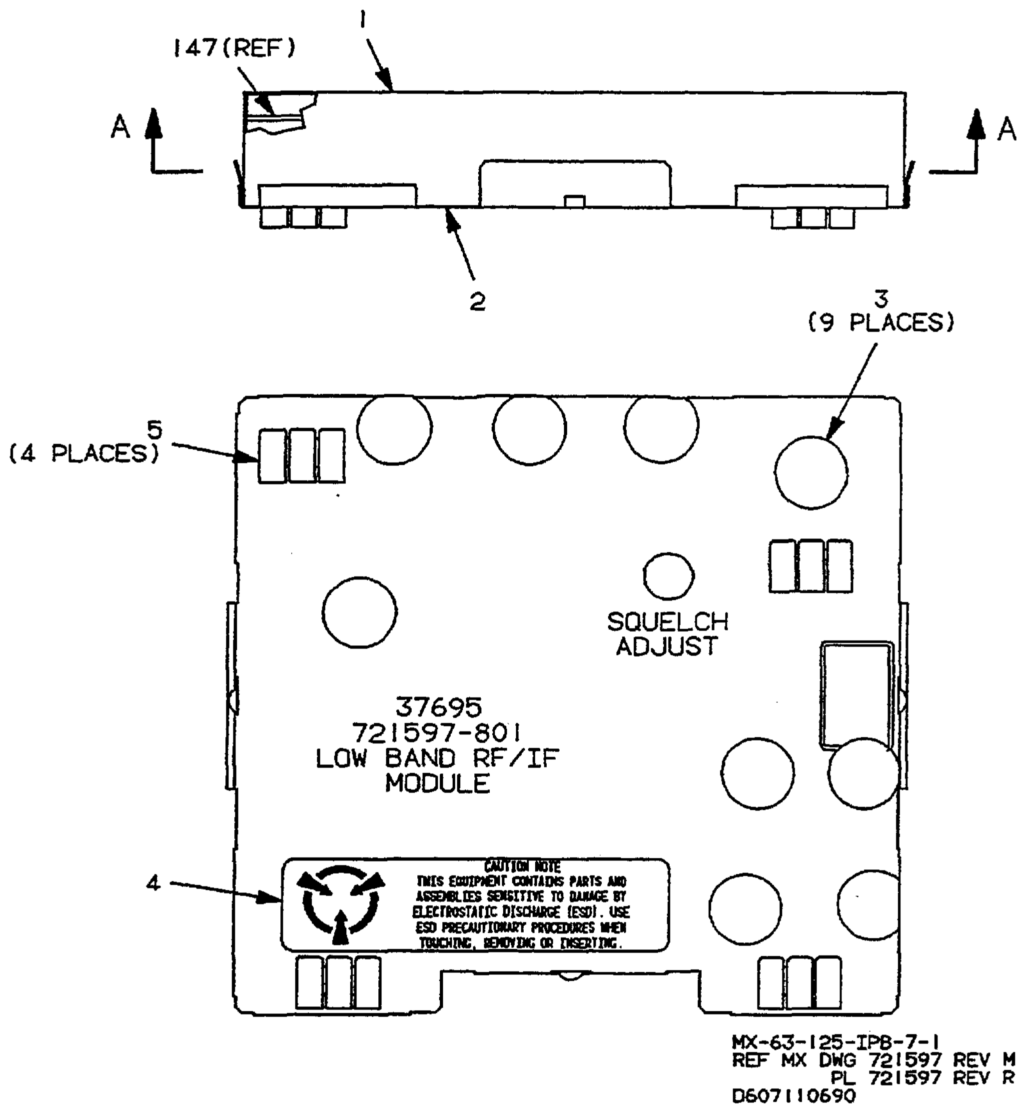
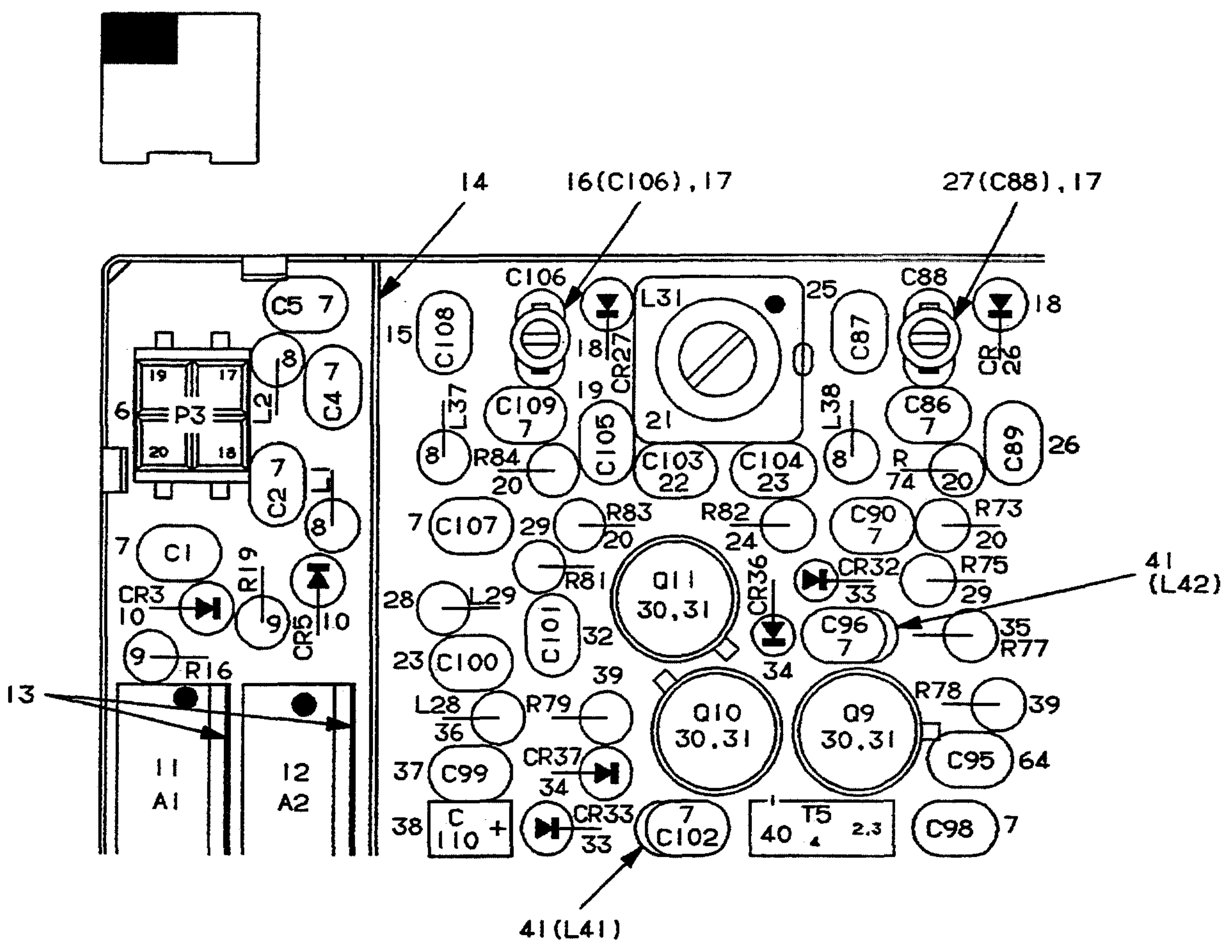


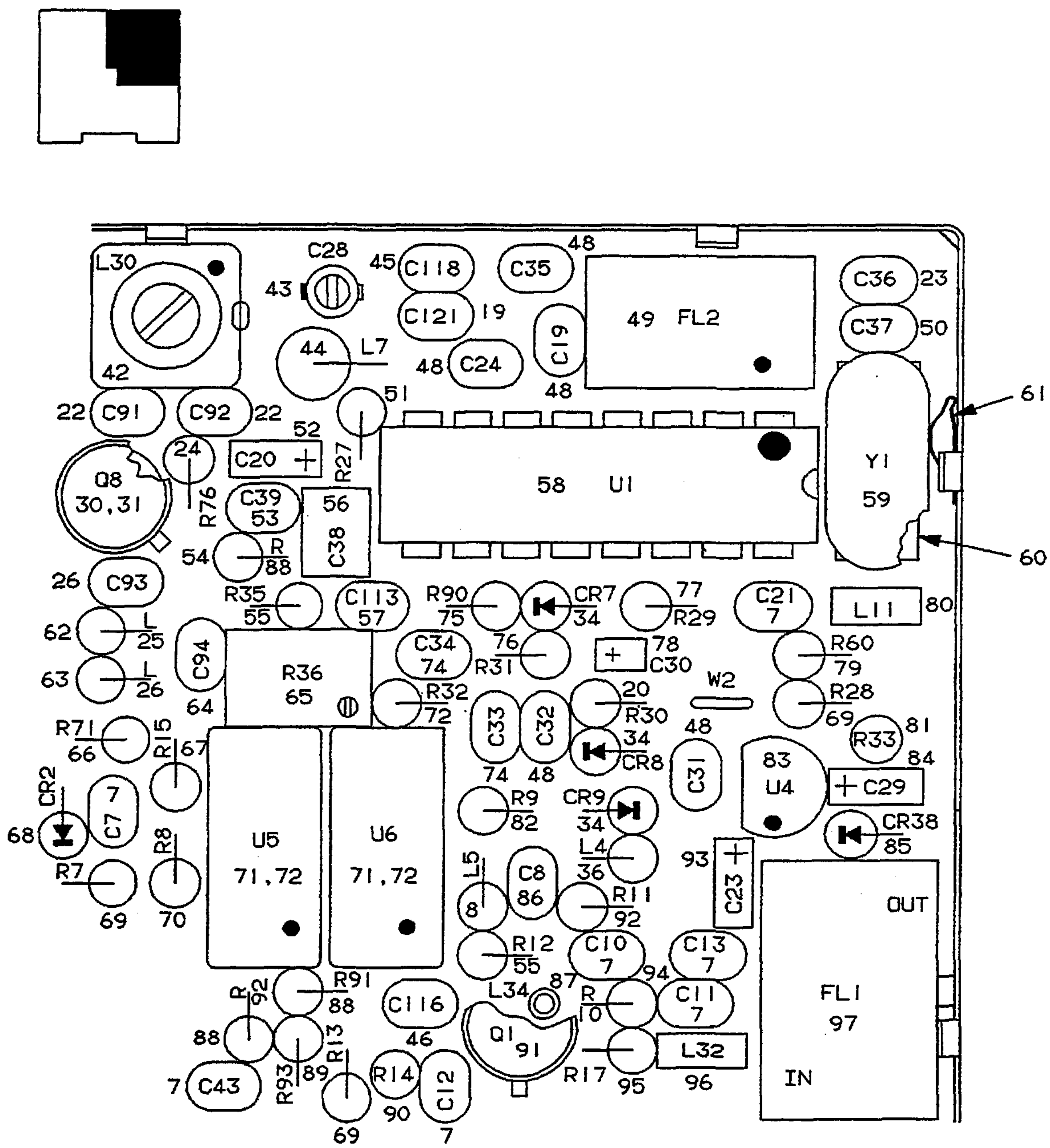
Figure 6-6. Low Band RF/IF Module Assembly (Sheet 1 of 7)



P/O SECTION A-A

MX-63-125-IPB-7-2
D607110690

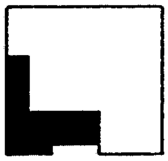
Figure 6-6. Low Band RF/IF Module Assembly (Sheet 2 of 7)



P/O SECTION A-A

MX-63-125-IPB-7-3
D607110690

Figure 6-6. Low Band RF/IF Module Assembly (Sheet 3 of 7)



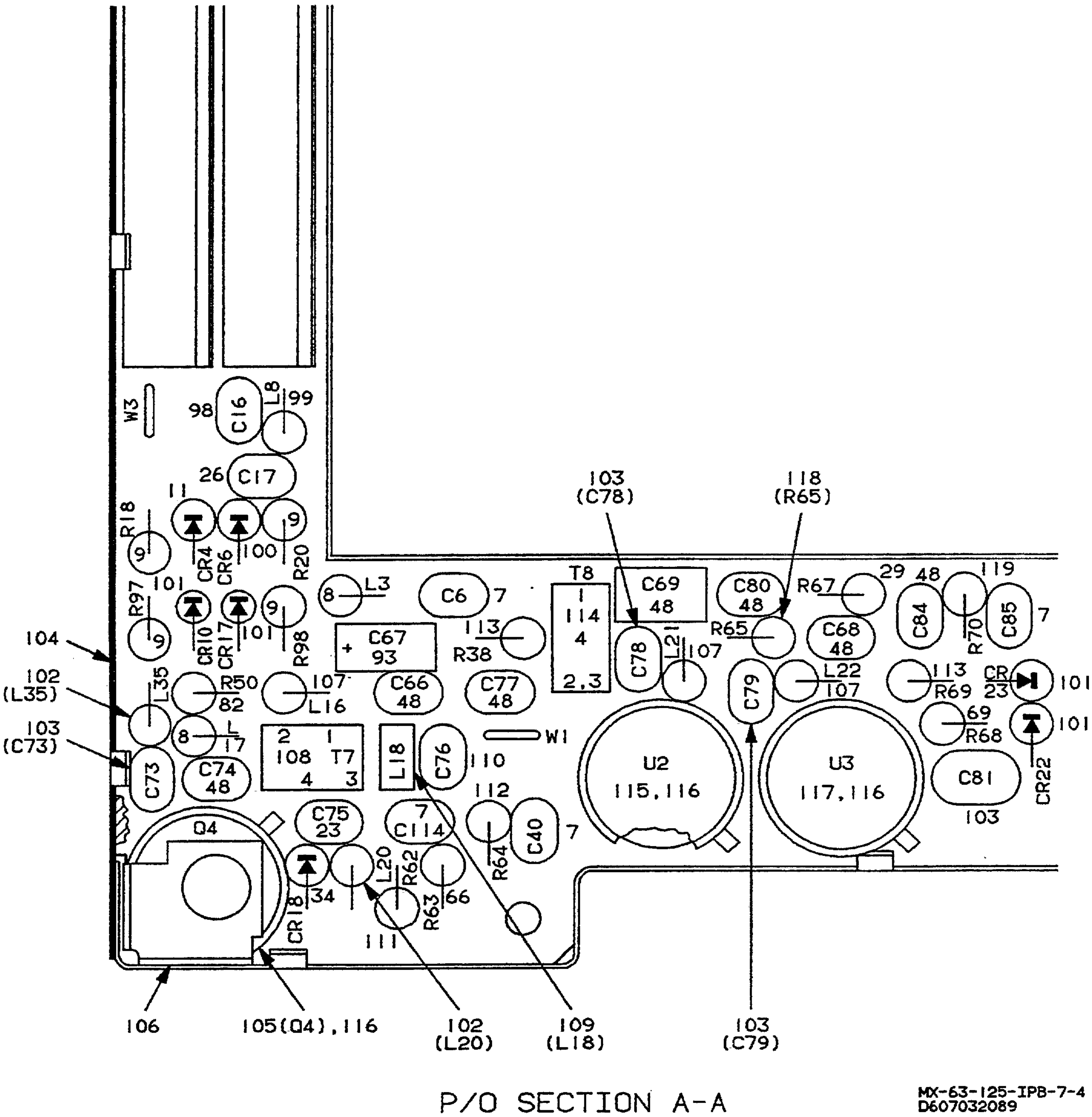
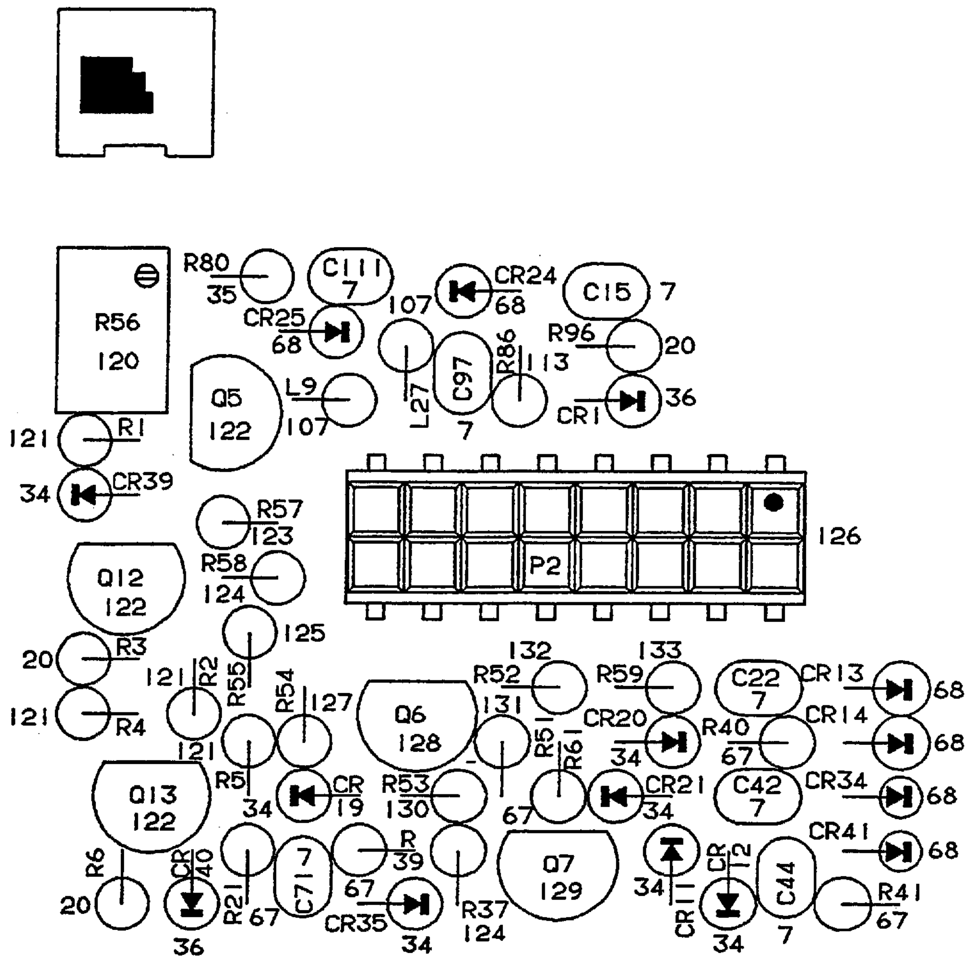


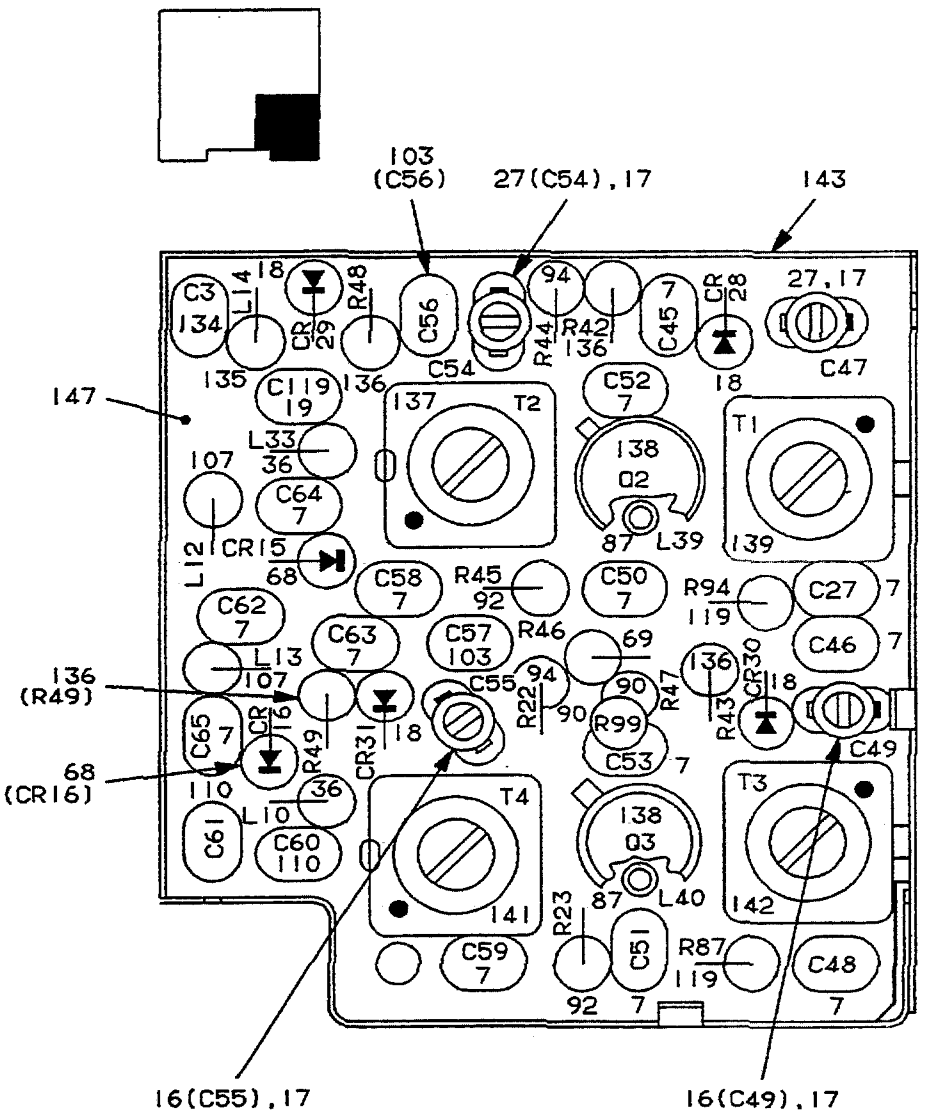
Figure 6-6. Low Band RF/IF Module Assembly (Sheet 4 of 7)



P/O SECTION A-A

MX-63-125-IPB-7-5
D607020889

Figure 6-6. Low Band RF/IF Module Assembly (Sheet 5 of 7)



P/O SECTION A-A

MX-63-125-IPB-7-6
D607110690

Figure 6-6. Low Band RF/IF Module Assembly (Sheet 6 of 7)

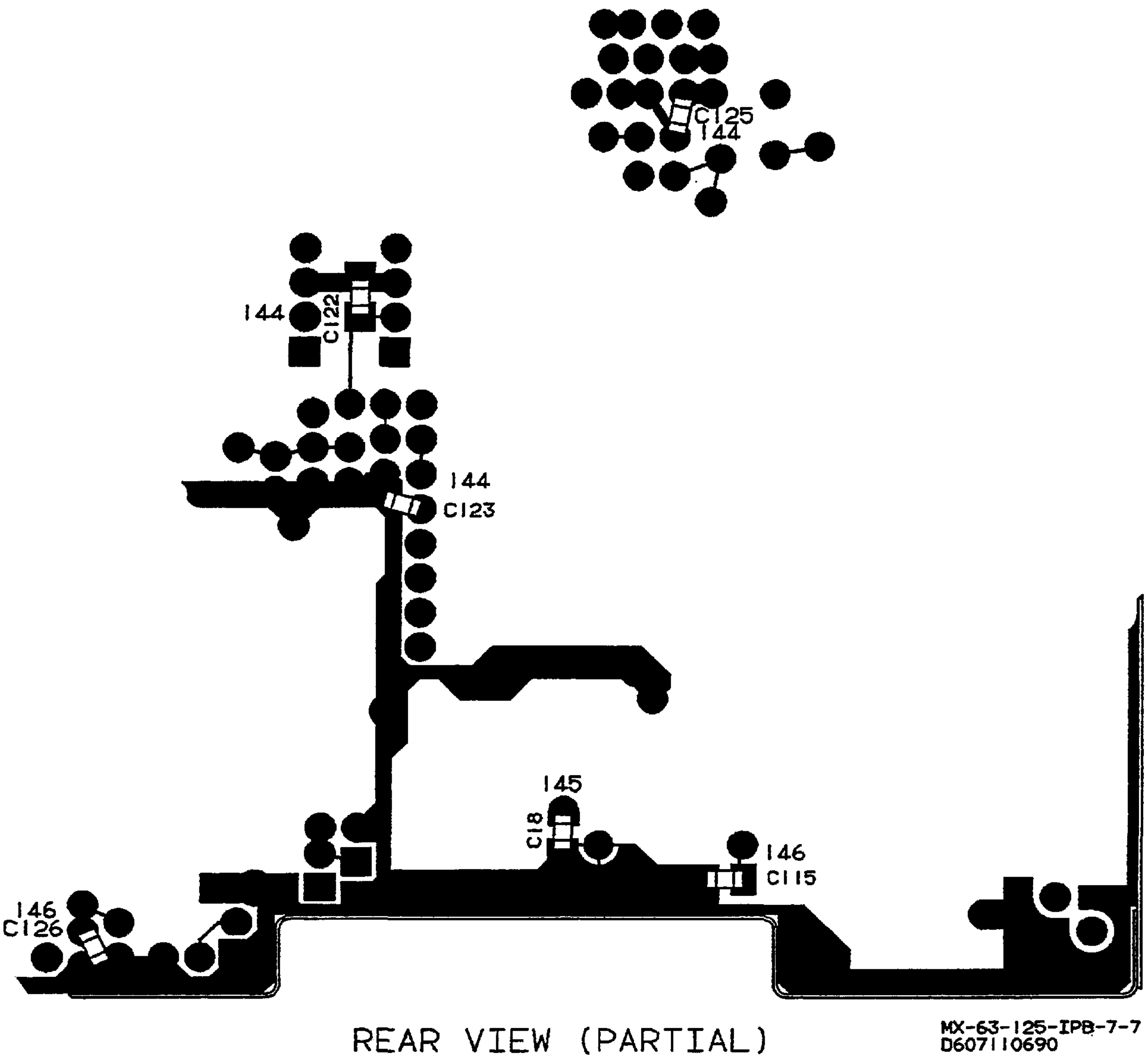


Figure 6-6. Low Band RF/IF Module Assembly (Sheet 7 of 7)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 6-	721597-801	37695	MODULE ASSEMBLY, Low band RF/IF (ESD) (See .... fig. 3 for nha)	REF		PAOLDT
- 1	944128-1	37695	. HOUSING	1		XB
- 2	945235-1	37695	. COVER	1		XB
- 3	513917-2	37695	. COVER	9		XB
- 4	A3034572 *	80063	. LABEL	1		XB
- 5	97-540-17-X(3)	30817	. CONTACT STRIP, Radio frequency grounding .... (Spec cont dwg 165579-2, FSCM 37695)	4		XB
- 6	00-8352-004-752-877	91662	. CONNECTOR, Receptacle (Spec cont dwg .... 186308-1, FSCM 37695)	1		PADZZN
- 7	C330C184M5R5CA	31433	. CAPACITOR, Fixed ceramic (37695 spec cont .... dwg 258329-20107)	43		PADZZN
- 8	MS75084-6	96906	. COIL	7		PADZZN
- 9	RLR07C2703GS	81349	. RESISTOR	6		PADZZN
- 10	MA4PH302	96341	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg ...... 619691-9, FSCM 37695)	3		PADZZN
- 11	815588-821	37695	. CIRCUIT CARD ASSEMBLY, Low pass filter	1		PADZZN
- 12	815588-822	37695	. CIRCUIT CARD ASSEMBLY, Low pass filter	1		PADZZN
- 13	349630-3	37695	. INSULATOR	2		XB
- 14	942068-8	37695	. SHIELD	1		XB
- 15	VP31BA131JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22110, FSCM 37695)	1		PADZZN
- 16	DVS3PS20A	72982	. CAPACITOR, Variable, ceramic dielectric .... (Spec cont dwg 265011-41, FSCM 37695)	3		PADZZN
- 17	300-100-022	32559	. INSULATOR, Capacitor (Spec cont dwg .... 349210-9, FSCM 37695)	1		XB
- 18	DKV6522	17540	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg ...... 648673-1, FSCM 37695)	6		PADZZN
- 19	VP31BA220JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22209, FSCM 37695)	3		PADZZN
- 20	RLR07C1002GS	81349	. RESISTOR	8		PADZZN
- 21	369122-13	37695	. RADIO FREQUENCY ASSEMBLY	1		PADZZN
	=369122-2	37695	. RADIO FREQUENCY ASSEMBLY	AR		PADZZN
- 22	VP31BA330JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22210, FSCM 37695)	3		PADZZN
- 23	VP31BA680JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22214, FSCM 37695)	4		PADZZN
- 24	RLR07C6200GS	81349	. RESISTOR	2		PADZZN
- 25	VP31BA620JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22111, FSCM 37695)	1		PADZZN
- 26	VP31BA180JB	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22198, FSCM 37695)	3		PADZZN
- 27	DVS3PS10A	72982	. CAPACITOR, Variable, ceramic dielectric .... (Spec cont dwg 265011-39, FSCM 37695)	3		PADZZN
- 28	MS75083-6	96906	. COIL	1		PADZZN
- 29	RLR07C2000GS	81349	. RESISTOR	3		PADZZN
- 30	2N2857	04713	. TRANSISTOR, NPN (ESD) (Spec cont dwg .... 648587-1, FSCM 37695)	4		PADZZN
	*SM-B-696869	80063	. TRANSISTOR	4		PADZZN
- 31	M38527/01-030N	81349	. MOUNTING PADS AND INSULATOR DISKS	1		XB
- 32	VP31BA270JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22010, FSCM 37695)	1		PADZZN
- 33	IN5237B	14433	. SEMICONDUCTOR DEVICE, Diode (ESD) (Spec cont .... dwg 615910-3, FSCM 37695)	2		PADZZN
- 34	JAN1N4454-1	81349	. SEMICONDUCTOR DEVICE (ESD)	15		PADZZN
- 35	RLR07C1801GS	81349	. RESISTOR	2		PADZZN
- 36	MS75083-3	96906	. COIL	4		PADZZN
- 37	VP31BA560JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22213, FSCM 37695)	1		PADZZN
- 38	275056-425	37695	. CAPACITOR, Fixed, electrolytic	1		PADZZN
- 39	RLR07C33R0GS	81349	. RESISTOR	2		PADZZN
- 40	369123-4	37695	. TOROID ASSEMBLY	1		PADZZN
- 41	5659065/4A	02114	. SHIELDING BEAD, Electronic (Spec cont dwg .... 657867-4, FSCM 37695)	2		PADZZN
- 42	369122-12	37695	. RADIO FREQUENCY ASSEMBLY	1		PADZZN
	=369122-1	37695	. RADIO FREQUENCY ASSEMBLY	AR		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 6- 43	GKW30001	52769	. CAPACITOR, Variable, ceramic dielectric .... (Spec cont dwg 265011-43, FSCM 37695)	1		PADZZN PADZZN
- 44	30129-14J	59474	. COIL, Radio frequency (Spec cont dwg .... 369126-1, FSCM 37695)	1		PADZZN
	*240-0013-00	59474	. COIL, Radio frequency	1		PADZZN
- 45	VP31BA241JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22113, FSCM 37695)	1		PADZZN
- 46	CN15C100J	16546	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22005, FSCM 37695)	1		PADZZN
- 47	+CN15C100J	16546	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22005, FSCM 37695)	1		PADZZN
	+VP31BA220JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22209, FSCM 37695)	AR		PADZZN
	+VP31BA330JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22210, FSCM 37695)	AR		PADZZN
	+VP31BA470JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22212, FSCM 37695)	AR		PADZZN
- 48	C320C823K5R5CA	31433	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258329-21105, FSCM 37695)	12		PADZZN
- 49	CFW455C	51406	. FILTER, Bandpass (Spec cont dwg 325407-3, ... FSCM 37695)	1		PADZZN
- 50	VP31BA390JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22012, FSCM 37695)	1		PADZZN
- 51	RLR07C6201GS	81349	. RESISTOR	1		PADZZN
- 52	275056-43	37695	. CAPACITOR, Fixed, electrolytic	1		PADZZN
- 53	VP32BA332KA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-21035, FSCM 37695)	1		PADZZN
- 54	RLR07C1501GS	81349	. RESISTOR	1		PADZZN
- 55	RLR07C5101GS	81349	. RESISTOR	2		PADZZN
- 56	275064-76	37695	. CAPACITOR, Fixed, electrolytic	1		PADZZN
- 57	150-050-X7R-223K	51642	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258329-21117, FSCM 37695)	1		PADZZN
- 58	LM3361AN	27014	. MICROCIRCUIT, Linear (ESD)(Spec cont dwg .... 648413-1, FSCM 37695)	1		PADZZN
	*LM3361ANA+	27014	. MICROCIRCUIT, Linear	1		PADZZN
- 59	535423-6	37695	. CRYSTAL UNIT, Quartz	1		PADZZN
- 60	345565-1	37695	. INSULATOR	1		XB
- 61	97-540-17-X(1)	30817	. CONTACT STRIP, Radio frequency grounding .... (Spec cont dwg 165579-4, FSCM 37695)	1		XB
- 62	MS75083-4	96906	. COIL	1		PADZZN
- 63	MS75083-1	96906	. COIL	1		PADZZN
- 64	VP31BA470JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22212, FSCM 37695)	2		PADZZN
- 65	RJ26CW502	81349	. RESISTOR	1		PADZZN
	=RJR26CW502R	81349	. RESISTOR	AR		PADZZN
	*=RJR26FW502R	81349	. RESISTOR	AR		PADZZN
- 66	RLR07C27R0GS	81349	. RESISTOR	2		PADZZN
- 67	RLR07C2701GS	81349	. RESISTOR	6		PADZZN
- 68	MA47915	96341	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg ...... 619915-1, FSCM 37695)	9		PADZZN
- 69	RLR07C1001GS	81349	. RESISTOR	5		PADZZN
- 70	RLR07C3901GS	81349	. RESISTOR	1		PADZZN
- 71	TFM-2-21	15542	. MIXER, Radio frequency (ESD)(Spec cont dwg ...... 626730-1, FSCM 37695)	2		PADZZN
- 72	348755-1	37695	. INSULATOR, RF mixer	2		XB
- 73	RLR07C4301GS	81349	. RESISTOR	1		PADZZN
- 74	VP31BA391JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22024, FSCM 37695)	2		PADZZN
- 75	RLR07C1803GS	81349	. RESISTOR	1		PADZZN
- 76	RLR07C3903GS	81349	. RESISTOR	1		PADZZN
- 77	RLR07C2003GS	81349	. RESISTOR	1		PADZZN
- 78	275056-423	37695	. CAPACITOR, Fixed, electrolytic	1		PADZZN
- 79	RLR07C3602GS	81349	. RESISTOR	1		PADZZN
- 80	369123-1	37695	. TOROID ASSEMBLY	1		PADZZN
- 81	STD0154	15454	. RESISTOR, Thermal (Spec cont dwg 238283-4, ... FSCM 37695)	1		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 6- 82	RLR07C51R0GS	81349	. RESISTOR	2		PADZZN
- 83	LP2950ACZ-5.0	27014	. MICROCIRCUIT, Linear (ESD)(Spec cont dwg .... 648443-1, FSCM 37695)	1		PADZZN
- 84	275056-37	37695	. CAPACITOR, Fixed, electrolytic	1		PADZZN
- 85	JAN1N5712	81350	. SEMICONDUCTOR DEVICE	1		PADZZN
- 86	VP31BA361JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22115, FSCM 37695)	1		PADZZN
- 87	21-172-J	33062	. SHIELDING BEAD, Electronic (Spec cont dwg .... 657907-1, FSCM 37695)	3		XB
- 88	RCR07G8R2JS	81349	. RESISTOR	2		PADZZN
- 89	RLR07C1500GS	81349	. RESISTOR	1		PADZZN
- 90	31TD4	90634	. RESISTOR, Thermal (Spec cont dwg 238283-1, ... FSCM 37695)	3		PADZZN
	*15DC102K-EC-S	15454	. RESISTOR, Thermal	2		PADZZN
- 91	3N201	04713	. TRANSISTOR, Dual gate mosfet (ESD)(Spec cont .... dwg 648600-1, FSCM 37695)	1		PADZZN
	*151-1055-00	80009	. TANSISTOR, Dual gate mosfet	1		PADZZN
- 92	RLR07C4302GS	81349	. RESISTOR	3		PADZZN
- 93	275056-41	37695	. CAPACITOR, Fixed, electrolytic	2		PADZZN
- 94	RLR07C8202GS	81349	. RESISTOR	3		PADZZN
- 95	RLR07C3001GS	81349	. RESISTOR	1		PADZZN
- 96	369123-13	37695	. TOROID ASSEMBLY	1		PADZZN
- 97	7398	25120	. FILTER, Bandpass (Spec cont dwg 345405-2, ... FSCM 37695)	1		PADZZN
- 98	VP31BA150JB	95275	. CAPACITOR, Fixed ceramic (Spec cont .... dwg 258330-22197, FSCM 37695)	1		PADZZN
- 99	369121-1040J	37695	. COIL, Radio frequency	1		PADZZN
-100	UM4001B	12969	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg ...... 619691-2, FSCM 37695)	1		PADZZN
-101	MA4PH148	96341	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg ...... 619915-5, FSCM 37695)	4		PADZZN
	=6479-80	17540	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg ...... 619915-3, FSCM 37695)	AR		PADZZN
-102	369121-55R0J	37695	. COIL, Radio frequency	2		PADZZN
-103	VP32BA102KB	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-21219, FSCM 37695)	6		PADZZN
-104	349630-8	37695	. INSULATOR	1		XB
-105	MFR237	04713	. TRANSISTOR (ESD)(Spec cont dwg 645732-1, FSCM ... 37695)	1		PADZZN
	*SD1127	04713	. TRANISTOR	1		PADZZN
-106	817324-801	37695	. HEAT SINK ASSEMBLY	1		XB
-107	MS75084-4	96906	. COIL	7		PADZZN
-108	369123-5	37695	. TOROID ASSEMBLY	1		PADZZN
-109	369123-2	37695	. TOROID ASSEMBLY	1		PADZZN
-110	VP31BA121JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22216, FSCM 37695)	3		PADZZN
-111	RLR07C1300GS	81349	. RESISTOR	1		PADZZN
-112	RLR07C1100GS	81349	. RESISTOR	1		PADZZN
-113	RLR07C1000GS	81349	. RESISTOR	3		PADZZN
-114	369124-1	37695	. TRANSFORMER, Balun	1		PADZZN
-115	MWA130	04713	. MICROCIRCUIT, Hybrid (Spec cont dwg 626159-2, ... FSCM 37695)	1		PADZZN
-116	M87111/01-4Y17	81349	. HEAT SINK..	1		XB
-117	MWA110	04713	. MICROCIRCUIT, Hybrid (Spec cont dwg 626159-3, ... FSCM 37695)	1		PADZZN
-118	RLR07C20R0GS	81349	. RESISTOR	1		PADZZN
-119	RLR07C2001GS	81349	. RESISTOR	3		PADZZN
-120	RJ26CW503	81349	. RESISTOR	1		PADZZN
	=RJR26CW503R	81349	. RESISTOR	AR		PADZZN
	*=RJR26FW503R	81349	. RESISTOR	AR		PADZZN
-121	RLR07C2702GS	81349	. RESISTOR	4		PADZZN
-122	MPSA06	07263	. TRANSISTOR (Spec cont dwg 647002-1, ... FSCM 37695)	3		PADZZN
-123	RLR07C2402GS	81349	. RESISTOR	1		PADZZN
-124	RLR07C4702GS	81349	. RESISTOR	2		PADZZN
-125	RLR07C7501GS	81349	. RESISTOR	1		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 6-126	533721-3	00779	. CONNECTOR, Receptacle (Spec cont dwg .... 186308-5, FSCM 37695)	1		PADZZN
-127	RLR07C1201GS	81349	. RESISTOR	1		PADZZN
-128	MPSA55	07263	. TRANSISTOR, PNP (Spec cont dwg 647001-1, ... FSCM 37695)	1		PADZZN
-129	MPSW51A	04713	. TRANSISTOR, PNP (Spec cont dwg 647304-1, ... FSCM 37695)	1		PADZZN
-130	RWR81S3R32FR	81349	. RESISTOR	1		PADZZN
	*RWR81S3R32FS	81349	. RESISTOR	1		PADZZN
-131	RCR07G4R7JS	81349	. RESISTOR	1		PADZZN
-132	RLR07C6801GS	81349	. RESISTOR	1		PADZZN
-133	RLR07C10R0GS	81349	. RESISTOR	1		PADZZN
-134	VP31BA101JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22017, FSCM 37695)	1		PADZZN
-135	369121-39R0J	37695	. COIL, Radio frequency	1		PADZZN
-136	RLR07C1003GS	81349	. RESISTOR	4		PADZZN
-137	369122-4	37695	. RADIO FREQUENCY ASSEMBLY	1		PADZZN
-138	3N211	18722	. TRANSISTOR (ESD)(Spec cont dwg 646881-1, ... FSCM 37695)	2		PADZZN
-139	369122-3	37695	. RADIO FREQUENCY ASSEMBLY	1		PADZZN
-140	DELETED					
-141	369122-6	37695	. RADIO FREQUENCY ASSEMBLY	1		PADZZN
-142	369122-5	37695	. RADIO FREQUENCY ASSEMBLY	1		PADZZN
-143	942068-9	37695	. SHIELD	1		XB
-144	3BN050S100J	26654	. CAPACITOR, Fixed, ceramic dielectric (Spec ...... (cont dwg 255096-10226, FSCM 37695)	3		PADZZN
	*3BN0505100JD	26654	. CAPACITOR, Fixed, ceramic dielectric	2		PADZZN
-145	3BN050S330J	26654	. CAPACITOR, Fixed, ceramic dielectric (Spec ...... cont dwg 255096-10239, FSCM 37695)	1		PADZZN
-146	ULA155C103K	04222	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258268-11220, FSCM 37695)	2		PADZZN
-147	415464-1	37695	. PRINTED WIRING BOARD	1		XB

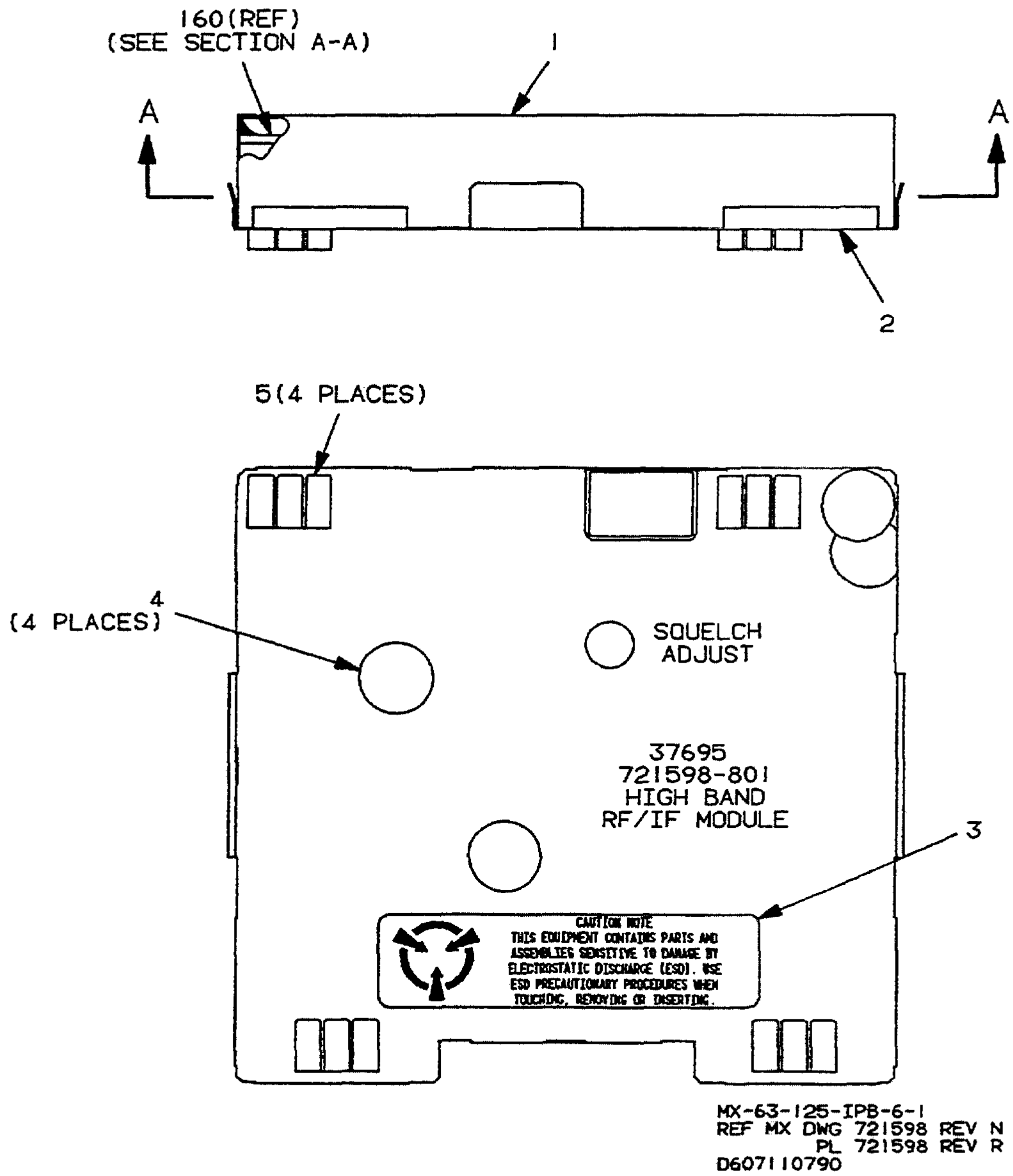


Figure 6-7. High Band RF/IF Module Assembly (Sheet 1 of 6)

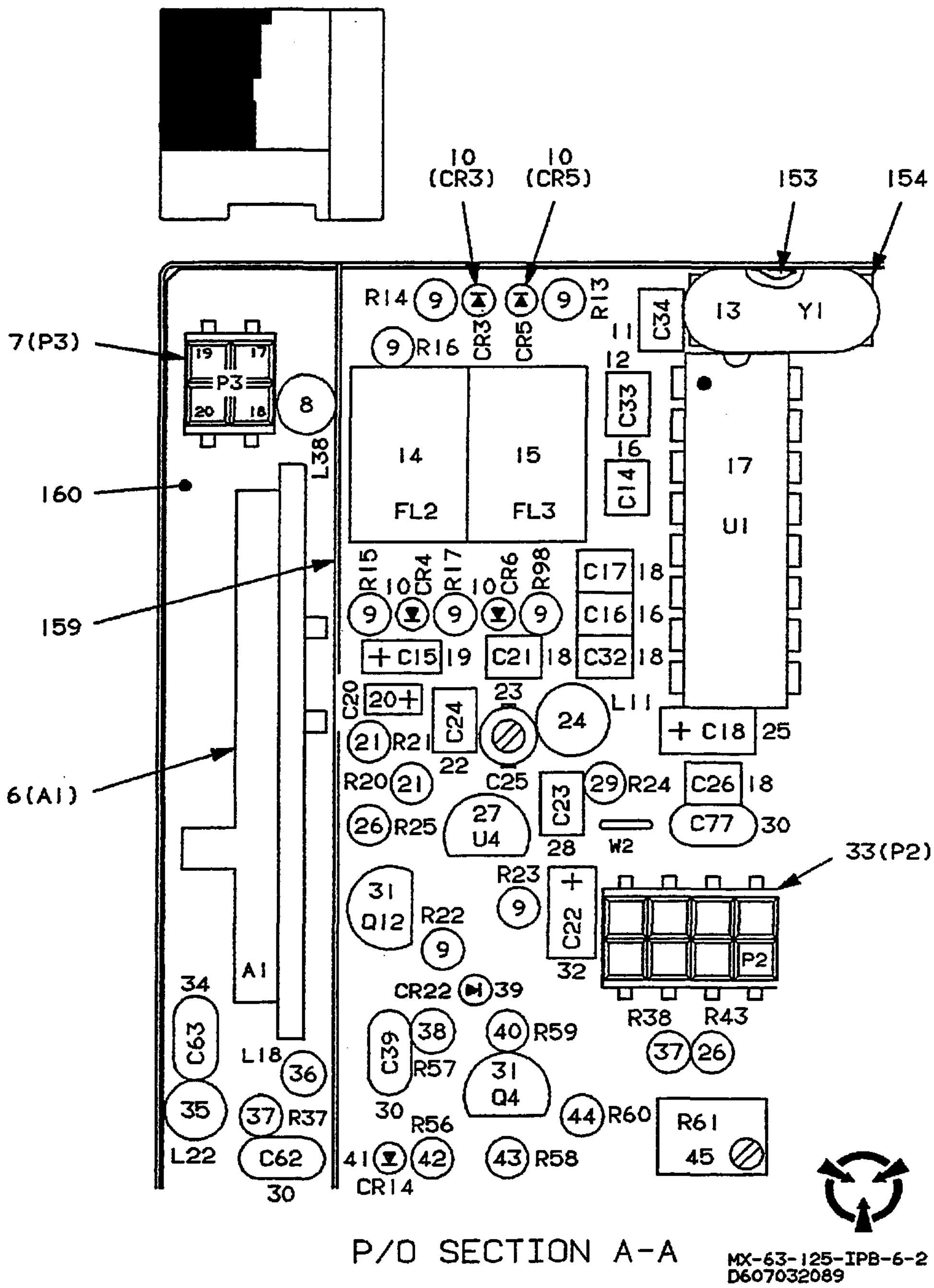


Figure 6-7. High Band RF/IF Module Assembly (Sheet 2 of 6)

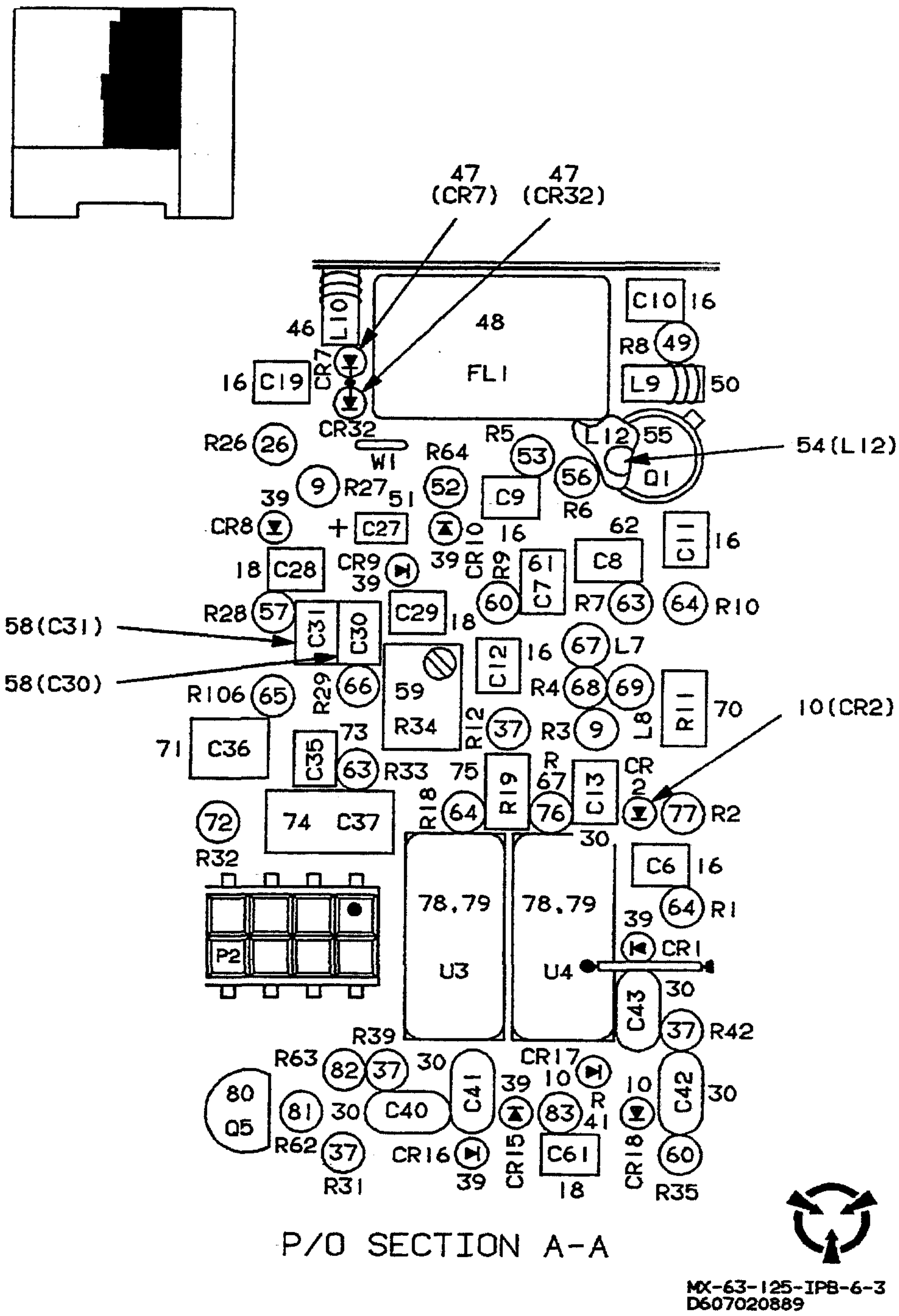


Figure 6-7. High Band RF/IF Module Assembly (Sheet 3 of 6)

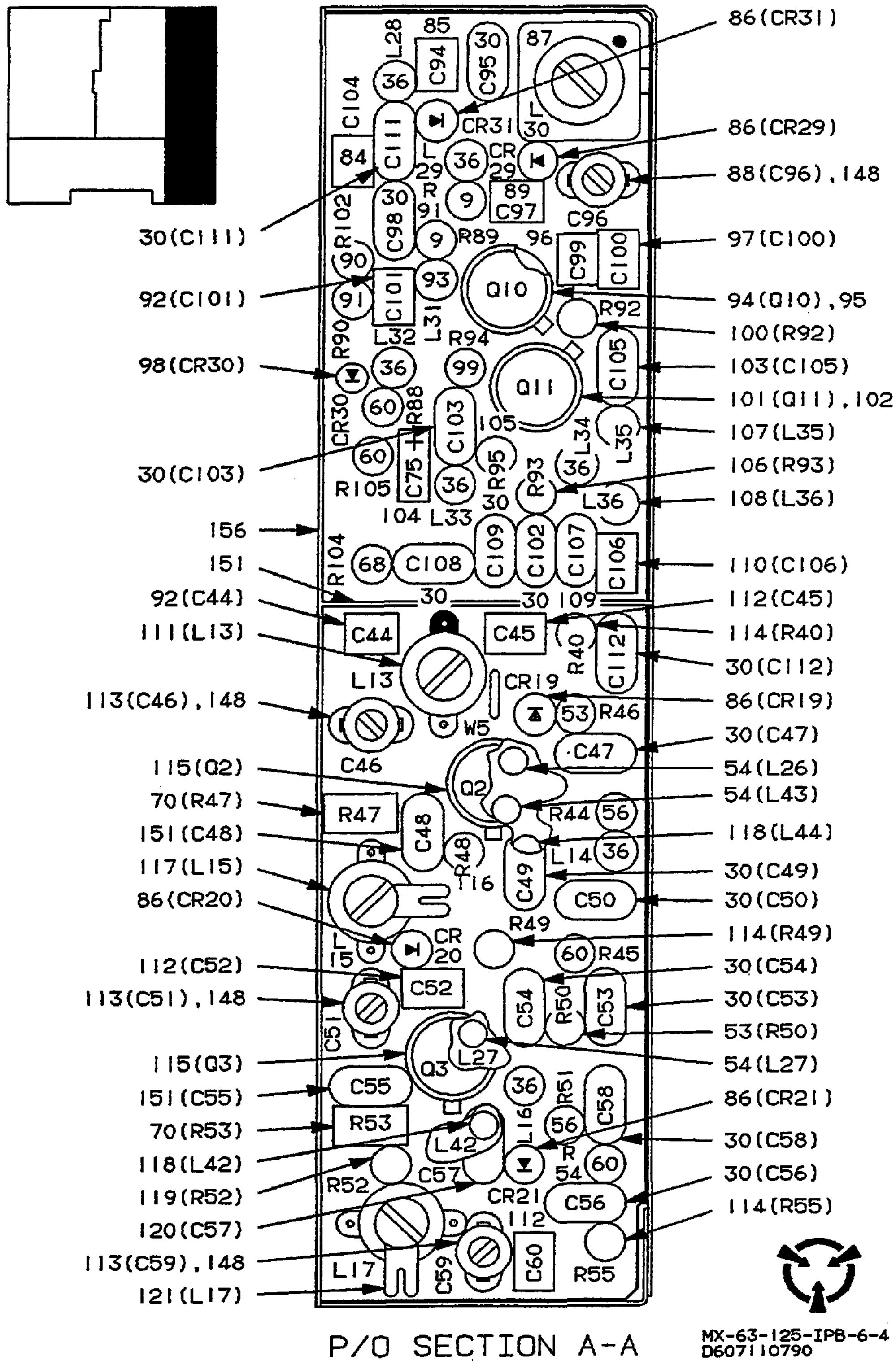


Figure 6-7. High Band RF/IF Module Assembly (Sheet 4 of 6)

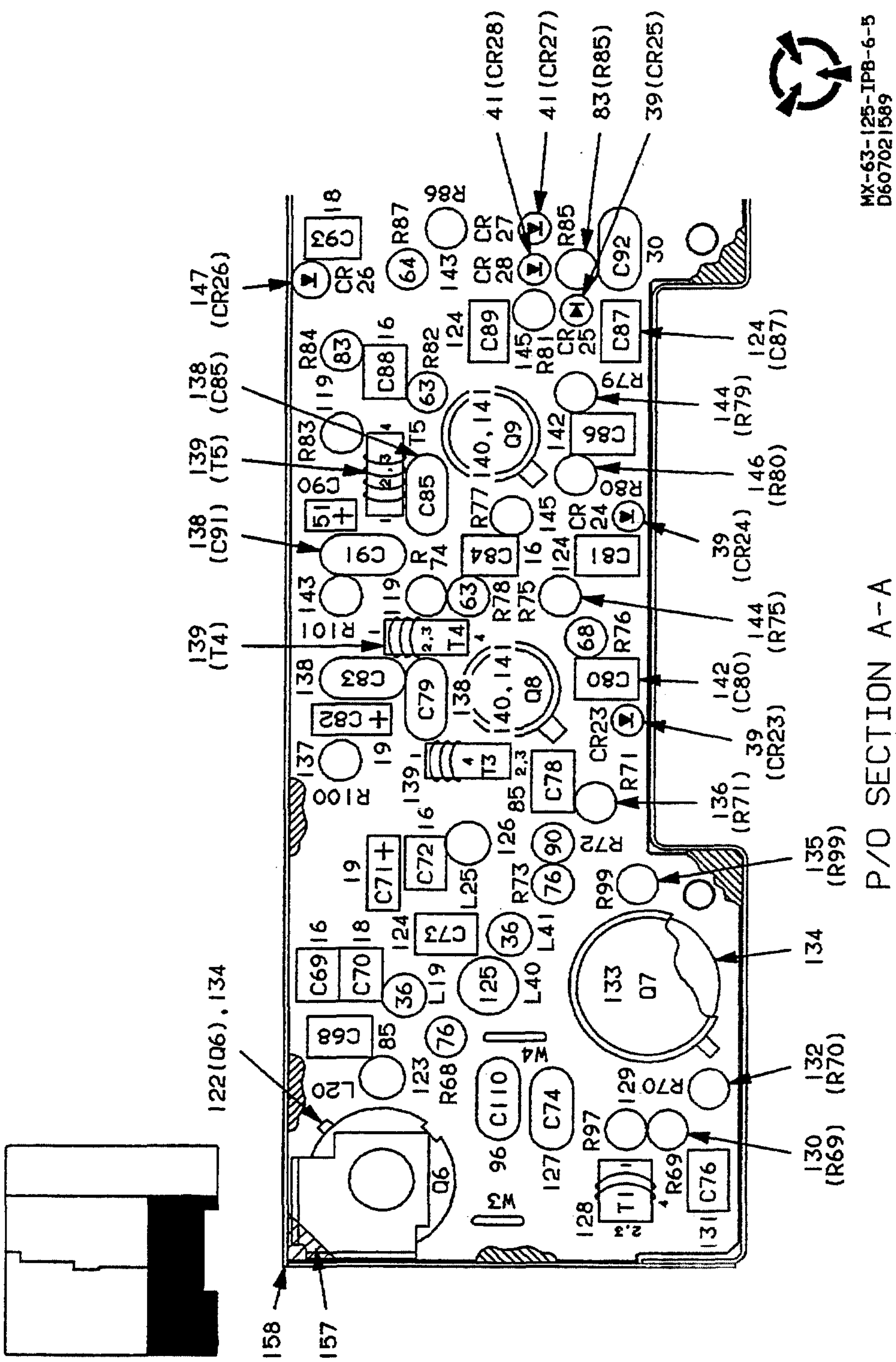


Figure 6-7. High Band RF/IF Module Assembly (Sheet 5 of 6)

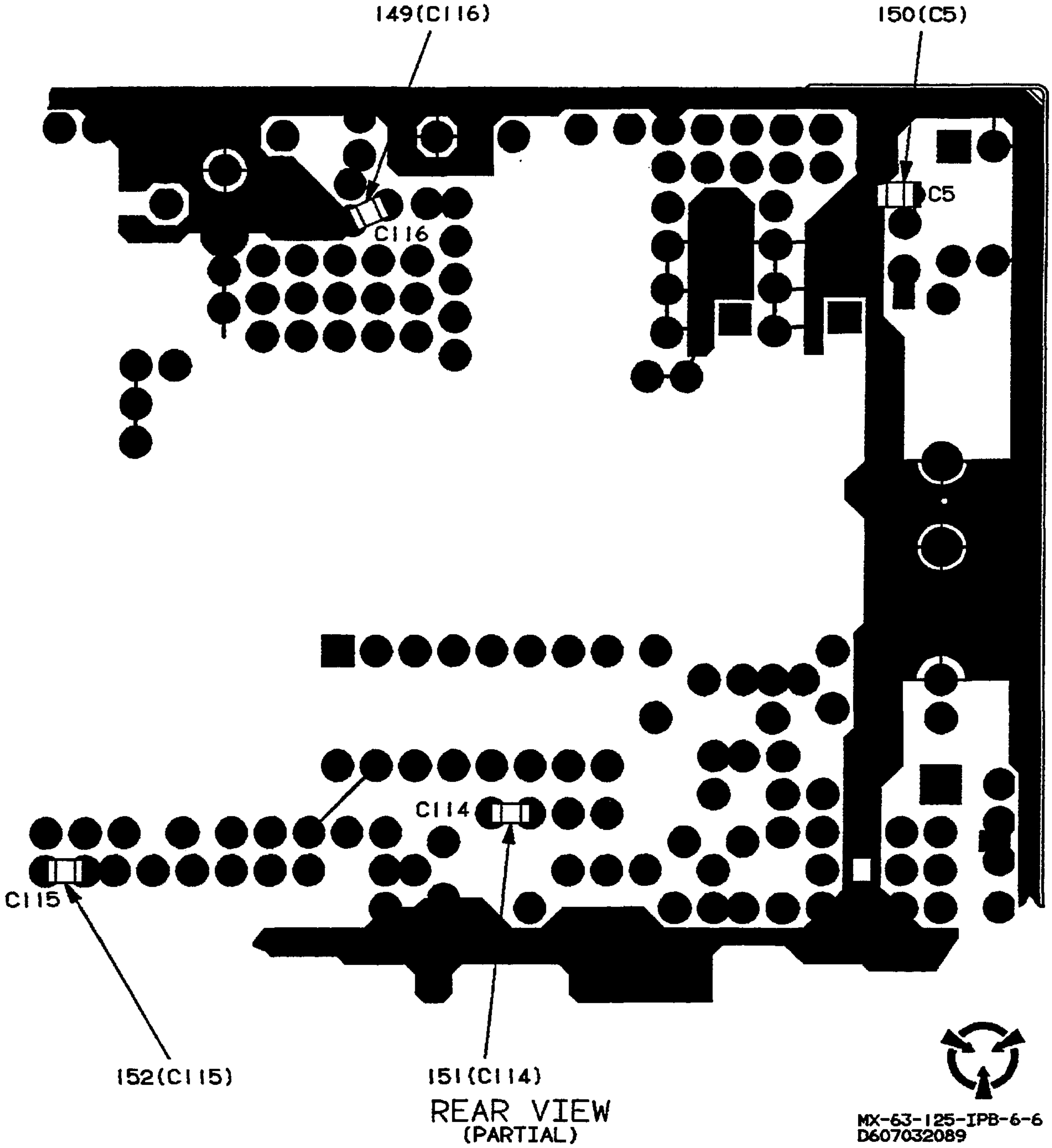


Figure 6-7. High Band RF/IF Module Assembly (Sheet 6 of 6)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 7-	721598-801	37695	MODULE ASSEMBLY, High band RF/IF (ESD)(See .... fig. 3 for nha)	REF		PAOLDT
- 1	945240-1	37695	. HOUSING	1		XB
- 2	945236-1	37695	. COVER	1		XB
- 3	A3034572 *	80063	. LABEL	1		XB
- 4	513917-2	37695	. COVER	4		XB
- 5	97-540-17-X(3)	30817	. CONTACT STRIP, Radio frequency grounding .... (Spec cont dwg 165579-2, FSCM 37695)	4		XB
- 6	721812-801	37695	. CIRCUIT CARD ASSEMBLY, TR switch/filter	1		PADZZN
- 7	00-8352-004-752-877	91662	. CONNECTOR, Receptacle (Spec cont dwg .... 186308-1, FSCM 37695)	1		PADZZN
- 8	369121-32R0H	37695	. COIL, Radio frequency	1		PADZZN
- 9	RLR07C1002GS	81349	. RESISTOR	12		PADZZN
- 10	MA47915	96341	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg ...... 619915-1, FSCM 37695)	7		PADZZN
- 11	VP31BA390JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22012, FSCM 37695)	1		PADZZN
- 12	VP31BA680JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22214, FSCM 37695)	1		PADZZN
- 13	535423-6	37695	. CRYSTAL UNIT, Quartz	1		PADZZN
- 14	CFW455C	51406	. FILTER, Bandpass (Spec cont dwg 345407-3, ... FSCM 37695)	1		PADZZN
- 15	CFW455E	51406	. FILTER, Bandpass (Spec cont dwg 325407-2, ... FSCM 37695)	1		PADZZN
- 16	C315C103M5R5CA	31433	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258329-20107, FSCM 37695)	12		PADZZN
- 17	LM3361AN	27014	. MICROCIRCUIT, Linear (ESD)(Spec cont dwg......... 648413-1, FSCM 37695)	1		PADZZN
	*LM3361ANA+	27014	. MICROCIRCUIT, Linear	1		PADZZN
- 18	C320C823K5R5CA	31433	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258329-21105, FSCM 37695)	9		PADZZN
- 19	275056-34	37695	. CAPACITOR, Fixed, electrolytic	3		PADZZN
- 20	275056-27	37695	. CAPACITOR, Fixed, electrolytic	1		PADZZN
- 21	RLR07C2700GS	81349	. RESISTOR	2		PADZZN
- 22	VP31BA241JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22113, FSCM 37695	1		PADZZN
- 23	GKW30001	52769	. CAPACITOR, Variable, ceramic dielectric .... (Spec cont dwg 265011-43, FSCM 37695)	1		PADZZN
- 24	30129-14J	59474	. COIL, Radio frequency (Spec cont dwg .... 369126-1, FSCM 37695)	1		PADZZN
	*240-0013-00	59474	. COIL, Radio frequency	1		PADZZN
- 25	275056-43	37695	. CAPACITOR, Fixed, electrolytic	1		PADZZN
- 26	RLR07C2003GS	81349	. RESISTOR	3		PADZZN
- 27	LP2950ACZ-5.0	27014	. MICROCIRCUIT, Linear (ESD)(Spec cont dwg .... 648443-1, FSCM 37695)	1		PADZZN
- 28	+CN15C100J	16546	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22005, FSCM 37695)	1		PADZZN
	+VP31BA220JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22209, FSCM 37695)	AR		PADZZN
	+VP31BA330JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22210, FSCM 37695)	AR		PADZZN
- 29	RLR07C6201GS	81349	. RESISTOR	1		PADZZN
- 30	VP32BA102KB	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-21219, FSCM 37695)	24		PADZZN
- 31	MPSA55	07263	. TRANSISTOR-PNP (Spec cont dwg 647001-1, ... FSCM 37695)	2		PADZZN
- 32	275056-41	37695	. CAPACITOR, Fixed, electrolytic	1		PADZZN
- 33	533721-3	00779	. CONNECTOR, Receptacle (Spec cont dwg .... 186308-5, FSCM 37695)	1		PADZZN
- 34	VP32BA272KA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-21034, FSCM 37695)	1		PADZZN
- 35	369121-34R0H	37695	. COIL, Radio frequency	1		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 7- 36	MS75083-13	96906	. CHOKE	10		PADZZN
- 37	RLR07C2701GS	81349	. RESISTOR	6		PADZZN
- 38	RWR81S3R32FR	81349	. RESISTOR	1		PADZZN
	*RWR81S3R32FS	81349	. RESISTOR	1		PADZZN
- 39	JAN1N4454-1	81349	. SEMICONDUCTOR DIODE (ESD)	10		PADZZN
- 40	RLR07C1201GS	81349	. RESISTOR	1		PADZZN
- 41	MA4PH148	96341	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg 619915-5, FSCM 37695)	3		PADZZN
	=6479-80	17540	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg 619915-3, FSCM 37695)	AR		PADZZN
- 42	RCR07G4R7JS	81349	. RESISTOR	1		PADZZN
- 43	RLR07C6801GS	81349	. RESISTOR	1		PADZZN
- 44	RLR07C7501GS	81349	. RESISTOR	1		PADZZN
- 45	RJ26CW503	81349	. RESISTOR	1		PADZZN
	=RJR26CW503R	81349	. RESISTOR	AR		PADZZN
	*=RJR26FW503R	81349	. RESISTOR	AR		PADZZN
- 46	369123-1	37695	. TOROID ASSEMBLY	1		PADZZN
- 47	JAN1N5712	81350	. SEMICONDUCTOR	2		PADZZN
- 48	7398	25120	. FILTER, Bandpass (Spec cont dwg 325405-2, FSCM 37695)	1		PADZZN
- 49	RLR07C3001GS	81349	. RESISTOR	1		PADZZN
- 50	369123-13	37695	. TOROID ASSEMBLY	1		PADZZN
- 51	275056-423	37695	. CAPACITOR, Fixed, electrolytic	2		PADZZN
- 52	RLR07C3602GS	81349	. RESISTOR	1		PADZZN
- 53	RLR07C4302GS	81349	. RESISTOR	3		PADZZN
- 54	21-172-J	33062	. SHIELDING BEAD, Electronic (Spec cont dwg 657907-1, FSCM 37695)	4		XB
- 55	3N201	04713	. TRANSISTOR, Dual gate mosfet (Spec cont dwg 648600-1, FSCM 37695)	1		PADZZN
	*151-1055-00	80009	. TRANISTOR, Dual gate mosfet	1		PADZZN
- 56	RLR07C8202GS	81349	. RESISTOR	3		PADZZN
- 57	RLR07C3903GS	81349	. RESISTOR	1		PADZZN
- 58	VP31BA391JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22024, FSCM 37695)	2		PADZZN
- 59	RJ26CW502	81349	. RESISTOR	1		PADZZN
	=RJR26CW502R	81349	. RESISTOR	AR		PADZZN
	*=RJR26FW502R	81349	. RESISTOR	1		PADZZN
- 60	RLR07C1000GS	81349	. RESISTOR	6		PADZZN
- 61	VP31BA361JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22115, FSCM 37695)	1		PADZZN
- 62	VP31BA100JB	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22195, FSCM 37695)	1		PADZZN
- 63	RLR07C5101GS	81349	. RESISTOR	4		PADZZN
- 64	RLR07C1001GS	81349	. RESISTOR	4		PADZZN
- 65	RLR07C1803GS	81349	. RESISTOR	1		PADZZN
- 66	RLR07C4301GS	81349	. RESISTOR	1		PADZZN
- 67	MS75083-3	96906	. COIL	1		PADZZN
- 68	RLR07C51R0GS	81349	. RESISTOR	3		PADZZN
- 69	MS75084-6	96906	. COIL	1		PADZZN
- 70	31TD4	90634	. RESISTOR, Thermal (Spec cont dwg 238283-1, FSCM 37695)	3		PADZZN
	*15DC102K-EC-S	15454	. RESISTOR, Thermal	3		PADZZN
- 71	275064-76	37695	. CAPACITOR, Fixed, electrolytic	1		PADZZN
- 72	RLR07C1501GS	81349	. RESISTOR	1		PADZZN
- 73	150-050-X7R-223K	51642	. CAPACITOR, Fixed ceramic (Spec cont dwg 258329-21117, FSCM 37695)	1		PADZZN
- 74	VP42BA332KB	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-21084, FSCM 37695)	1		PADZZN
- 75	STD0154	15454	. RESISTOR, Thermal (Spec cont dwg 238283-4, FSCM 37695)	1		PADZZN
- 76	RLR07C27R0GS	81349	. RESISTOR	3		PADZZN
- 77	RLR07C3901GS	81349	. RESISTOR	1		PADZZN
- 78	TFM-2-21	15542	. MIXER, Radio frequency (ESD)(Spec cont dwg 626730-1, FSCM 37695)	2		PADZZN
- 79	348755-1	37695	. INSULATOR, RF Mixer	2		XB

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 7- 80	MPSA06	07263	. TRANSISTOR (Spec cont dwg 647002-1, FSCM 37695)	1		PADZZN
- 81	RLR07C2402GS	81349	. RESISTOR	1		PADZZN
- 82	RLR07C4702GS	81349	. RESISTOR	1		PADZZN
- 83	RLR07C2001GS	81349	. RESISTOR	3		PADZZN
- 84	C320C104K5R5CA	31433	. CAPACITOR, Fixed ceramic (Spec cont dwg 258329-21115, FSCM 37695)	1		PADZZN
	*M39014/01-1593	81349	. CAPACITOR	1		PADZZN
- 85	VP31BA101JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22017, FSCM 37695)	3		PADZZN
- 86	648673-2	37695	. SEMICONDUCTOR DEVICE, Diode	5		PADZZN
- 87	369122-8	37695	. RADIO FREQUENCY ASSEMBLY	1		PADZZN
- 88	DVS3PS6A	72982	. CAPACITOR, Variable, ceramic dielectric (Spec cont dwg 265011-38, FSCM 37695)	1		PADZZN
- 89	VP31BA4R7CB	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-27192, FSCM 37695)	1		PADZZN
- 90	RLR07C2201GS	81349	. RESISTOR	2		PADZZN
- 91	RLR07C2000GS	81349	. RESISTOR	1		PADZZN
- 92	CN15C7R5D	16546	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-26185, FSCM 37695)	2		PADZZN
- 93	MS75083-1	96906	. COIL	1		PADZZN
- 94	2N5031	04713	. TRANSISTOR	1		PADZZN
- 95	M38527/01-030N	81349	. MOUNTING PADS AND INSULATOR DISKS	1		XB
- 96	VP31BA220JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22209, FSCM 37695)	2		PADZZN
- 97	VP31BA330JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22210, FSCM 37695)	1		PADZZN
- 98	IN5237B	14433	. SEMICONDUCTOR DEVICE, Diode (ESD)(Spec cont dwg 615910-3, FSCM 37695)	1		PADZZN
- 99	RLR07C16R0GS	81349	. RESISTOR	1		PADZZN
-100	RLR07C6200GS	81349	. RESISTOR	1		PADZZN
-101	JAN2N2857	81350	. SEMICONDUCTOR	1		PADZZN
-102	M38527/01-030N	81349	. MOUNTING PADS AND INSULATOR DISKS	1		XB
-103	VP31BA3R3CB	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-27191, FSCM 37695)	1		PADZZN
-104	275056-36	37695	. CAPACITOR, Fixed, electrolytic	1		PADZZN
-105	RLR07C1801GS	81349	. RESISTOR	1		PADZZN
-106	RLR07C4700GS	81349	. RESISTOR	1		PADZZN
-107	MS75083-4	96906	. COIL	1		PADZZN
-108	369121-56R0J	37695	. COIL, Radio frequency	1		PADZZN
-109	VP31BA100DB	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-26195, FSCM 37695)	1		PADZZN
-110	VP31BA270JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22010, FSCM 37695)	1		PADZZN
-111	369113-9	37695	. COIL, Radio frequency, variable	1		PADZZN
-112	VP31BA131JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22110, FSCM 37695)	3		PADZZN
-113	DVS3PS20A	72982	. CAPACITOR, Variable, ceramic dielectric (Spec cont dwg 265011-41, FSCM 37695)	3		PADZZN
-114	RLR07C1003GS	81349	. RESISTOR	3		PADZZN
-115	3N211	18722	. TRANSISTOR (ESD)(Spec cont dwg 646881-1, FSCM 37695)	2		PADZZN
-116	RLR07C1200GS	81349	. RESISTOR	1		PADZZN
-117	369113-3	37695	. COIL, Radio frequency, variable	1		PADZZN
-118	5659065/4A	02114	. SHIELDING BEAD, Electronic (Spec cont dwg 657867-4, FSCM 37695)	2		PADZZN
-119	RLR07C7500GS	81349	. RESISTOR	3		PADZZN
-120	C320C102K1G5CA	31433	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-1219, FSCM 37695)	1		PADZZN
-121	369113-1	37695	. COIL, Radio frequency, variable	1		PADZZN
-122	MFR237	04713	. TRANSISTOR (ESD)(Spec cont dwg 645732-1, FSCM 37695)	1		PADZZN
	*SD1127	04713	. TRANSISTOR	1		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 7-123	MS75083-5	96906	. COIL	1		PADZZN
-124	VP31BA471JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22025, FSCM 37695)	4		PADZZN
-125	369121-1200H	37695	. COIL, Radio frequency	1		PADZZN
-126	MS75084-12	96906	. COIL	1		PADZZN
-127	VP32BA182KA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-21032, FSCM 37695)	1		PADZZN
-128	369123-8	37695	. TOROID ASSEMBLY	1		PADZZN
-129	RCR07G5R1JS	81349	. RESISTOR	1		PADZZN
-130	RCR07G2R7JS	81349	. RESISTOR	1		PADZZN
-131	VP31BA331JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22023, FSCM 37695)	1		PADZZN
-132	RLR07C30R0GS	81349	. RESISTOR	1		PADZZN
-133	MRF515	04713	. TRANSISTOR (Spec cont dwg 647633-1, FSCM 37695)	1		PADZZN
-134	M87111/01-4Y17	81349	. HEAT SINK	2		XB
-135	RCR07G6R8JS	81349	. RESISTOR	1		PADZZN
-136	RLR07C3300GS	81349	. RESISTOR	1		PADZZN
-137	RLR07C15R0GS	81349	. RESISTOR	1		PADZZN
-138	VP32BA222KA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-21033, FSCM 37695)	4		PADZZN
-139	369123-9	37695	. TOROID ASSEMBLY	3		PADZZN
-140	618770-1	37695	. TRANSISTOR	2		PADZZN
-141	M38527/01-030N	81349	. MOUNTING PADS AND INSULATOR DISKS	1		XB
-142	VP31BA470JA	95275	. CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22212, FSCM 37695)	2		PADZZN
-143	RLR07C39R0GS	81349	. RESISTOR	2		PADZZN
-144	RLR07C22R0GS	81349	. RESISTOR	2		PADZZN
-145	RLR07C5100GS	81349	. RESISTOR	2		PADZZN
-146	RLR07C1500GS	81349	. RESISTOR	1		PADZZN
-147	JAN1N4625	81350	. SEMICONDUCTOR	1		PADZZN
-148	300-100-022	32559	. INSULATOR, Capacitor (Spec cont dwg 349210-9, FSCM 37695)	4		XB
-149	MN403R0D	73899	. CAPACITOR, Fixed, ceramic dielectric (Spec cont dwg 258475-464, FSCM 37695)	1		PADZZN
-150	MN409R1D	73899	. CAPACITOR, Fixed, ceramic dielectric (Spec cont dwg 258475-408, FSCM 37695)	1		PADZZN
-151	EL50U102K0-0	20932	. CAPACITOR, Fixed, ceramic (Spec cont dwg 258268-10291, FSCM 37695)	3		PADZZN
-152	MN40180G	73899	. CAPACITOR, Fixed, ceramic dielectric (Spec cont dwg 258475-315, FSCM 37695)	1		PADZZN
-153	97-540-17-X(1)	30817	. CONTACT STRIP, Radio frequency grounding (Spec cont dwg 165579-4, FSCM 37695)	1		XB
-154	345565-1	37695	. INSULATOR	1		XB
-155	943422-10	37695	. SHIELD	1		XB
-156	943422-9	37695	. SHIELD	1		XB
-157	817324-801	37695	. HEAT SINK ASSEMBLY	1		XB
-158	943422-8	37695	. SHIELD	1		XB
-159	943422-7	37695	. SHIELD	1		XB
-160	415538-1	37695	. PRINTED WIRING BOARD	1		XA

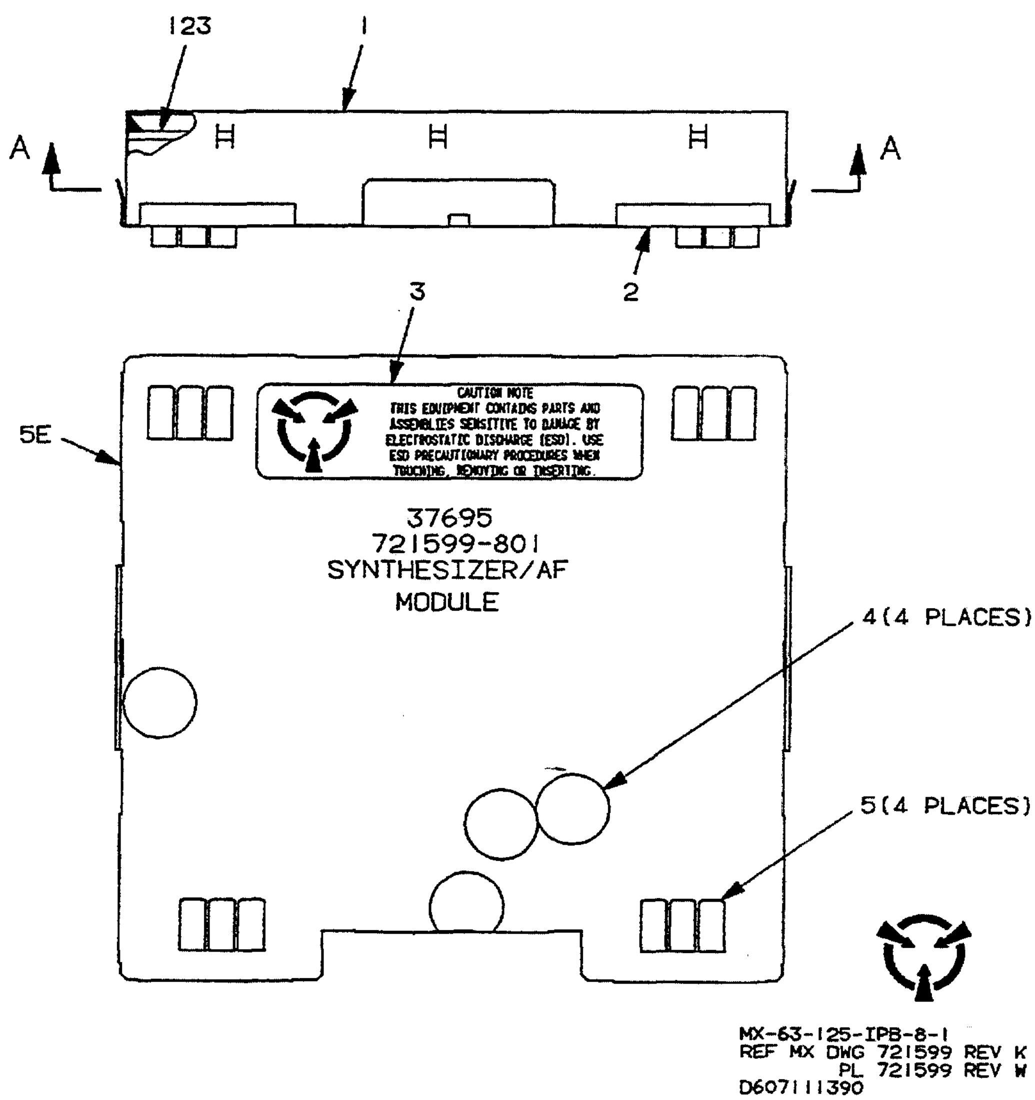


Figure 6-8. Synthesizer/AF Module Assembly (Sheet 1 of 5)

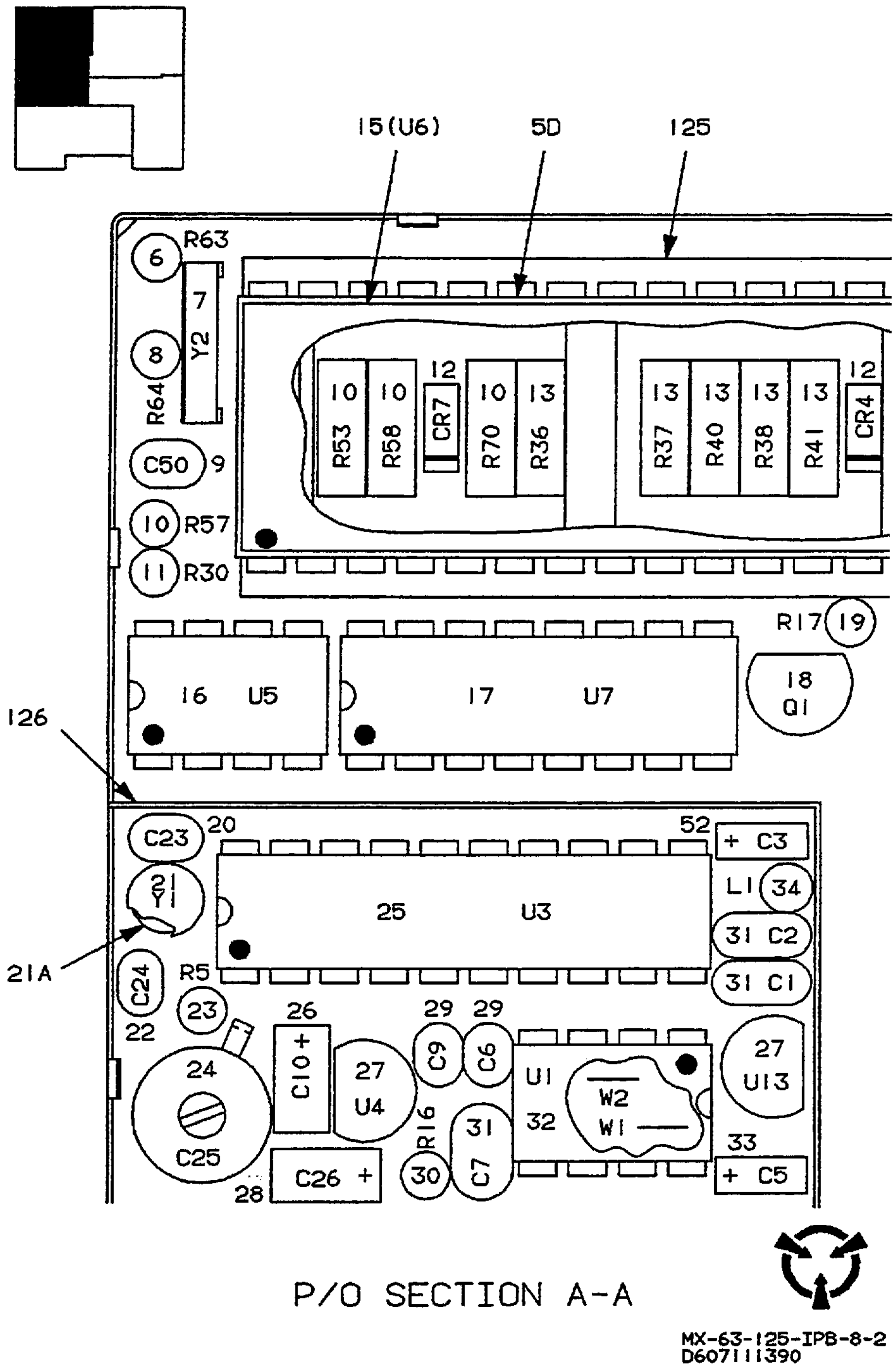


Figure 6-8. Synthesizer/AF Module Assembly (Sheet 2 of 5)

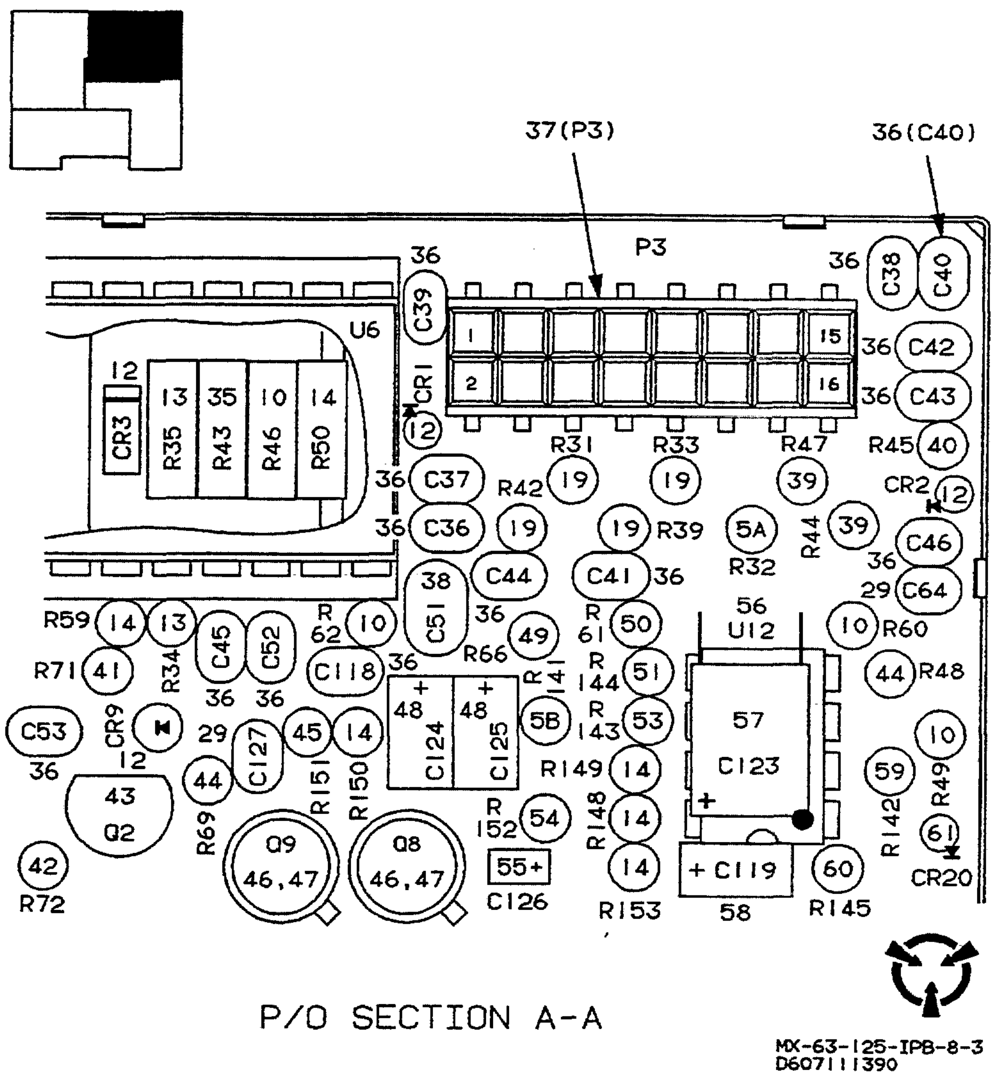
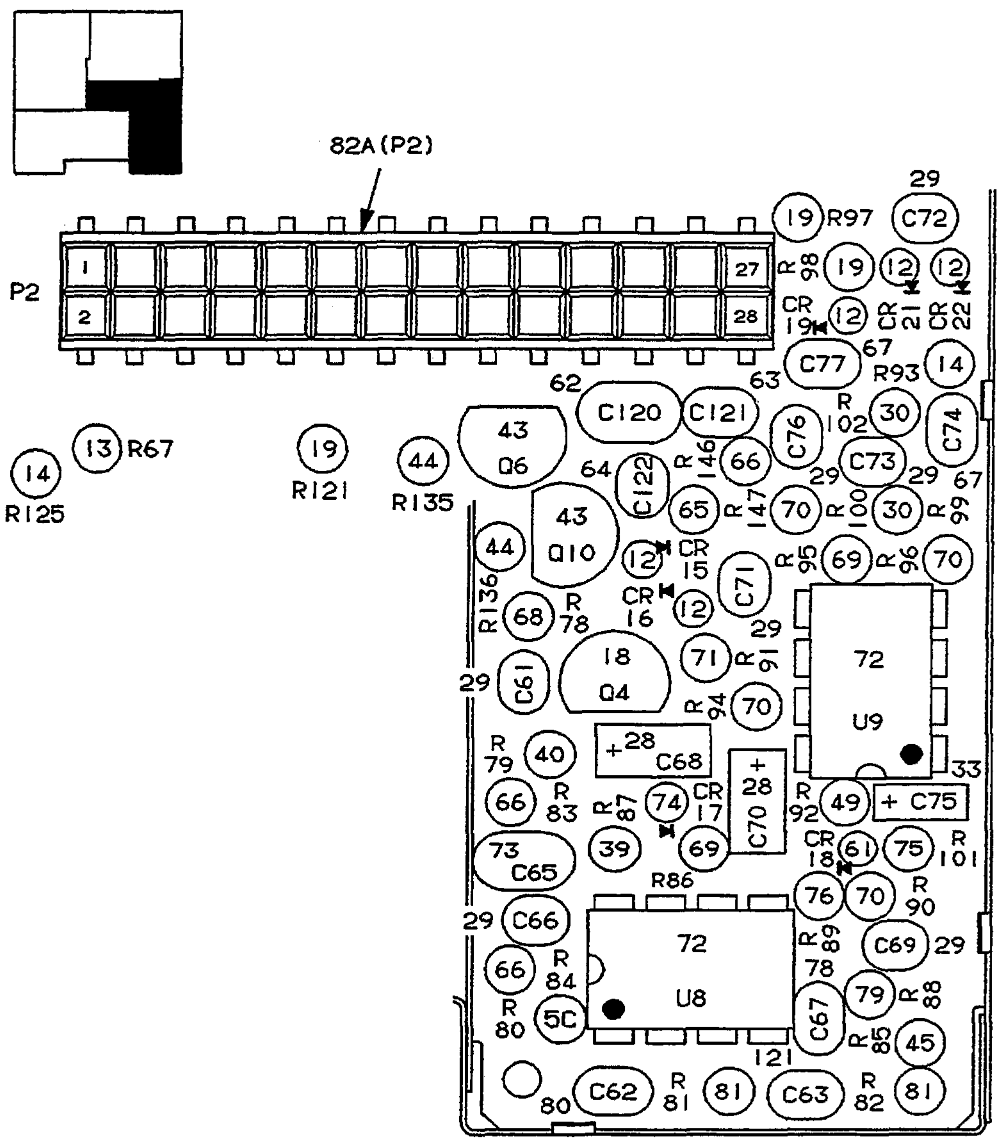


Figure 6-8. Synthesizer/AF Module Assembly (Sheet 3 of 5)



P/O SECTION A-A

MX-63-125-IPB-8-4
D607111390

Figure 6-8. Synthesizer/AF Module Assembly (Sheet 4 of 5)

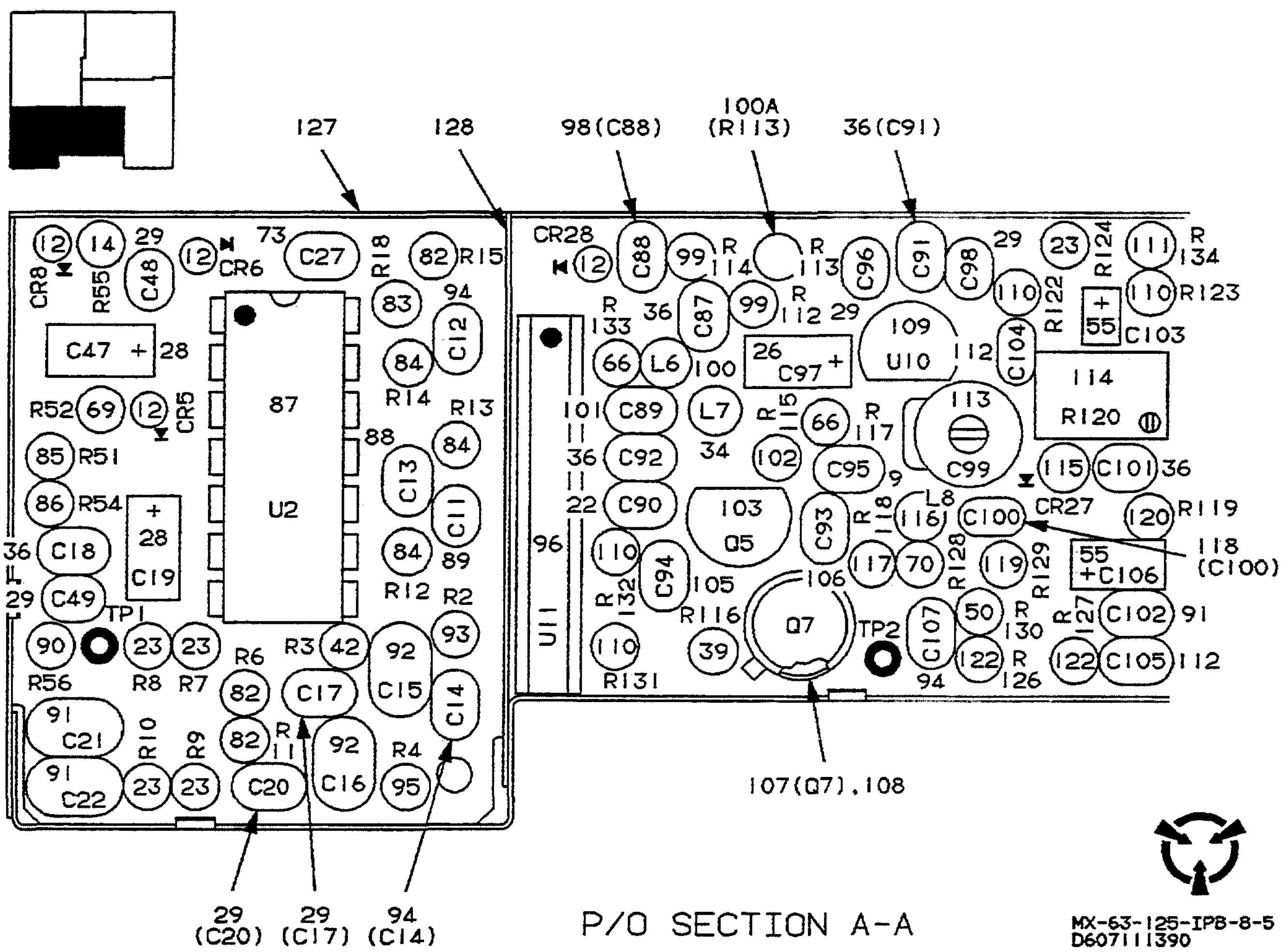


Figure 6-8. Synthesizer/AF Module Assembly (Sheet 5 of 5)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 8-	721599-801	37695	MODULE ASSEMBLY, Synthesizer/AF (ESD)(See fig. 3 for nha)	REF		PAOLDT
- 1	944129-1	37695	. HOUSING	1		XB
- 2	945237-1	37695	. COVER	1		XB
- 3	A3034572 *	80063	. LABEL	1		XB
- 4	513917-2	37695	. COVER	3		XB
- 5	97-540-17-X(3)	30817	. CONTACT STRIP, Radio frequency grounding (Spec cont dwg 165579-2, FSCM 37695)	4		XB
- 5A	RLR07C2003GS	81349	. RESISTOR	1		PADZZN
- 5B	RLR07C2203GS	81349	. RESISTOR	1		PADZZN
- 5C	+RLR07C3303GS	81349	. RESISTOR	1		PADZZN
	+RLR07C2703GS	81349	. RESISTOR	AR		PADZZN
	+RLR07C3003GS	81349	. RESISTOR	AR		PADZZN
	+RLR07C3603GS	81349	. RESISTOR	AR		PADZZN
	+RLR07C3903GS	81349	. RESISTOR	AR		PADZZN
- 5D	335466-2	37695	. PAD, Compression	1		XB
- 5E	721599-811	37695	. MODULE ASSEMBLY, Synthesizer/AF (ESD)	1		XB
- 6	RLR07C3303GS	81349	. . RESISTOR	1		PADZZN
- 7	CX-1VC, 76.8 KHZ	51791	. . CRYSTAL, Quartz (Spec cont dwg 538773-1, FSCM 37695)	1		PADZZN
- 8	RCR07G226JS	81349	. . RESISTOR	1		PADZZN
- 9	VP31BA180JB	95275	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22198, FSCM 37695)	2		PADZZN
- 10	RLR07C2003GS	81349	. . RESISTOR	8		PADZZN
- 11	RLR07C5101GS	81349	. . RESISTOR	1		PADZZN
- 12	JAN1N4454-1	81349	. . SEMICONDUCTOR DEVICE (ESD)	15		PADZZN
- 13	RLR07C4702GS	81349	. . RESISTOR	8		PADZZN
- 14	RLR07C1003GS	81349	. . RESISTOR	9		PADZZN
- 15	648408-3	37695	. . MICROCIRCUIT, Digital (ESD)	1		PADZZN
	=648409-101	37695	. . MICROCIRCUIT, Digital (ESD)	AR		PADZZN
- 16	NMC9346EN	27014	. . MICROCIRCUIT, Digital (ESD)(Spec cont dwg 648649-1, FSCM 37695)	1		PADZZN
- 17	UCN-5895A	56289	. . MICROCIRCUIT, Digital (ESD)(Spec cont dwg 648883-1, FSCM 37695)	1		PADZZN
- 18	MPSA55	07263	. . TRANSISTOR-PNP (Spec cont dwg 647001-1, FSCM 37695)	2		PADZZN
- 19	RLR07C2701GS	81349	. . RESISTOR	8		PADZZN
- 20	CN15A120J	16546	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22055, FSCM 37695)	1		PADZZN
- 21	DSMGQ 1.60 MHZ	62712	. . CRYSTAL UNIT, Quartz (Spec cont dwg 538868-1, FSCM 37695)	1		PADZZN
- 21A	335803-1	37695	. . INSULATOR, Crystal	1		XB
- 22	CN15C100J	16546	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22005, FSCM 37695)	2		PADZZN
- 23	RLR07C3002GS	81349	. . RESISTOR	6		PADZZN
- 24	8052-1	91293	. . CAPACITOR, Variable, air dielectric (Spec cont dwg 267933-27, FSCM 37695)	1		PADZZN
- 25	MC145156L	04713	. . MICROCIRCUIT, Digital (ESD)(Spec cont dwg 645725-1, FSCM 37695)	1		PADZZN
- 26	275056-42	37695	. . CAPACITOR, Fixed, electrolytic	2		PADZZN
- 27	LP2959ACZ-5.0	27014	. . MICROCIRCUIT, Linear (ESD)(Spec cont dwg 648443-1, FSCM 37695)	2		PADZZN
- 28	275056-41	37695	. . CAPACITOR, Fixed, electrolytic	5		PADZZN
- 29	C320C823K5R5CA	31433	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258329-21105	17		PADZZN
- 30	RLR07C1500GS	81349	. . RESISTOR	3		PADZZN
- 31	VP32BA102KB	95275	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258330-21219,FSCM 37695)	3		PADZZN
- 32	SC63599P	04713	. . MICROCIRCUIT, Digital (ESD)(Spec cont dwg 647004-3, FSCM 37695)	1		PADZZN
	=MC12017P	04713	. . MICROCIRCUIT, Digital (ESD)(Spec cont dwg 647004-1, FSCM 37695)	AR		PADZZN
- 33	275056-34	37695	. . CAPACITOR, Fixed, electrolytic	2		PADZZN
- 34	MS75084-5	96906	. . COIL	2		PADZZN
- 35	RLR07C2700GS	81349	. . RESISTOR	1		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 8- 36	C315C103M5R5CA	31433	. . CAPACITOR, Fixed ceramic (Spec cont dwg .... 258329-20107, FSCM 37695)	19		PADZZN
- 37	533721-3	00779	. . CONNECTOR, Receptacle (Spec cont dwg .... 186308-5, FSCM 37695)	1		PADZZN
- 38	CW20C183K	16546	. . CAPACITOR, Fixed ceramic (Spec cont dwg .... 258329-21027, FSCM 37695)	1		PADZZN
- 39	RLR07C1001GS	81349	. . RESISTOR	4		PADZZN
- 40	RLR07C5602GS	81349	. . RESISTOR	2		PADZZN
- 41	RLR07C1004GS	81349	. . RESISTOR	1		PADZZN
- 42	RLR07C2201GS	81349	. . RESISTOR	2		PADZZN
- 43	MPSA06	07263	. . TRANSISTOR(Spec cont dwg 647002-1, FSCM 37695)	3		PADZZN
- 44	RLR07C2202GS	81349	. . RESISTOR	4		PADZZN
- 45	RLR07C2403GS	81349	. . RESISTOR	2		PADZZN
- 46	V12304	17856	. . TRANSISTOR(Spec cont dwg 645733-1, FSCM 37695)	2		PADZZN
- 47	M38527/01-030N	81349	. . MOUNTING PADS AND INSULATOR DISKS	1		XB
- 48	275056-47	37695	. . CAPACITOR, Fixed, electrolytic	2		PADZZN
- 49	RLR07C1203GS	81349	. . RESISTOR	2		PADZZN
- 50	RLR07C1502GS	81349	. . RESISTOR	2		PADZZN
- 51	RCR07G8R2JS	81349	. . RESISTOR	1		PADZZN
- 52	275056-37	37695	. . CAPACITOR, Fixed, electrolytic	1		PADZZN
- 53	RLR07C51R0GS	81349	. . RESISTOR	1		PADZZN
- 54	RLR07C3601GS	81349	. . RESISTOR	1		PADZZN
- 55	275056-425	37695	. . CAPACITOR, Fixed, electrolytic	3		PADZZN
- 56	LM386N-4	27014	. . MICROCIRCUIT, Linear (Spec cont dwg .... 615907-1 FSCM 37695)	1		PADZZN
- 57	275056-255	37695	. . CAPACITOR, Fixed, electrolytic	1		PADZZN
- 58	275056-234	37695	. . CAPACITOR, Fixed, electrolytic	1		PADZZN
- 59	RLR07C2200GS	81349	. . RESISTOR	1		PADZZN
- 60	RLR07C1300GS	81349	. . RESISTOR	1		PADZZN
- 61	IN5234B	14433	. . SEMICONDUCTOR DEVICE, Diode (ESD)(Spec cont ... dwg 615910-1, FSCM 37695)	2		PADZZN
- 62	CW15C153K	16546	. . CAPACITOR, Fixed ceramic (Spec cont dwg .... 258329-21026, FSCM 37695)	1		PADZZN
- 63	CW15A472K	16546	. . CAPACITOR, Fixed ceramic (Spec cont dwg........ 258329-21068, FSCM 37695)	1		PADZZN
- 64	C315C103K5R5CA	31433	. . CAPACITOR, Fixed ceramic (Spec cont dwg .... 258329-21107, FSCM 37695)	1		PADZZN
	*C312C103K5R5CA	05397	. . CAPACITOR, Fixed ceramic	1		PADZZN
- 65	RLR07C1501GS	81349	. . RESISTOR	1		PADZZN
- 66	RLR07C1002GS	81349	. . RESISTOR	5		PADZZN
- 67	C315C472K5R5CA	31433	. . CAPACITOR, Fixed ceramic (Spec cont dwg .... 258329-21102, FSCM 37695)	2		PADZZN
- 68	RLR07C1000GS	81349	. . RESISTOR	1		PADZZN
- 69	RLR07C5603GS	81349	. . RESISTOR	3		PADZZN
- 70	RLR07C1202GS	81349	. . RESISTOR	5		PADZZN
- 71	RLR07C6803GS	81349	. . RESISTOR	1		PADZZN
- 72	LM158J	27014	. . MICROCIRCUIT, Linear (Spec cont dwg .... 616139-2, FSCM 37695)	2		PADZZN
- 73	CW20C223K	16546	. . CAPACITOR, Fixed ceramic (Spec cont dwg .... 258329-21028, FSCM 37695)	2		PADZZN
- 74	IN5237B	14433	. . SEMICONDUCTOR DEVICE, Diode (ESD)(Spec cont ... dwg 615910-3, FSCM 37695)	1		PADZZN
- 75	RLR07C8202GS	81349	. . RESISTOR	1		PADZZN
- 76	RLR07C4703GS	81349	. . RESISTOR	1		PADZZN
- 77	DELETED					
- 78	VP31BA151JA	95275	. . CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22019, FSCM 37695)	1		PADZZN
- 79	RLR07C3003GS	81349	. . RESISTOR	1		PADZZN
- 80	VP31BA620JA	95275	. . CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22222, FSCM 37695)	1		PADZZN
- 81	RLR07C3603GS	81349	. . RESISTOR	2		PADZZN
- 82	RLR07C2002GS	81349	. . RESISTOR	3		PADZZN
- 82A	533721-5	00779	. . CONNECTOR, Receptacle (Spec cont dwg .... 186308-13, FSCM 37695)	1		PADZZN
- 83	RLR07C3901GS	81349	. . RESISTOR	1		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 8- 84	RLR07C3302GS	81349	. . RESISTOR	3		PADZZN
- 85	RLR07C5103GS	81349	. . RESISTOR	1		PADZZN
- 86	RLR07C3922FM	81349	. . RESISTOR	1		PADZZN
	*RLR07C3922FS	81349	. . RESISTOR	1		PADZZN
- 87	MC33174P	04713	. . MICROCIRCUIT, Linear (Spec cont dwg 648784-2, FSCM 37695)	1		PADZZN
- 88	VP31BA391JA	95275	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22024, FSCM 37695)	1		PADZZN
- 89	VB32BA242KA	95275	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258330-21125, FSCM 37695)	1		PADZZN
- 90	RLR07C3322FM	81349	. . RESISTOR	1		PADZZN
	*RLR07C3322FS	81349	. . RESISTOR	1		PADZZN
- 91	CW15A222K	16546	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258329-21064, FSCM 37695)	3		PADZZN
	*CW15C222K	16546	. . CAPACITOR, Fixed ceramic	3		PADZZN
- 92	C315C332K5R5CA	31433	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258329-21109, FSCM 37695)	2		PADZZN
- 93	RLR07C6801GS	81349	. . RESISTOR	1		PADZZN
- 94	150-100-X7R-682K	51642	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258329-21134, FSCM 37695)	3		PADZZN
	=150-050-WR5-682K	51642	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258329-21022, FSCM 37695)	AR		PADZZN
- 95	RLR07C1601GS	81349	. . RESISTOR	1		PADZZN
- 96	MC145151-2	58420	. . MICROCIRCUIT, Digital (ESD)(Spec cont dwg 648749-1, FSCM 37695)	1		PADZZN
- 97	DELETED					
- 98	VP31BA331JA	95275	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22023, FSCM 37695)	1		PADZZN
- 99	RLR07C33R0GS	81349	. . RESISTOR	2		PADZZN
-100	MS75083-8	96906	. . COIL	1		PADZZN
-100A	RLR07C20R0GS	81349	. . RESISTOR	1		PADZZN
-101	VP31BA271JA	95275	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22021, FSCM 37695)	1		PADZZN
-102	RLR07C5600GS	81349	. . RESISTOR	1		PADZZN
-103	MPS 5179	04713	. . TRANSISTOR (ESD) (Spec cont dwg 617716-1, FSCM 37695)	1		PADZZN
-104	DELETED					
-105	VP31BA390JA	95275	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22012, FSCM 37695)	1		PADZZN
-106	VP31BA430JA	95275	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22104, FSCM 37695)	1		PADZZN
-107	2N4351	04713	. . TRANSISTOR (ESD) (Spec cont dwg 615445-1, FSCM 37695)	1		PADZZN
-108	M38527/01-030N	81349	. . MOUNTING PADS AND INSULATOR DISKS	1		XB
-109	MC78L05ACP	04713	. . MICROCIRCUIT, Linear (Spec cont dwg 616155-1 FSCM 37695)	1		PADZZN
	*UA78L05AWC	07263	. . MICROCIRCUIT, Linear	1		PADZZN
-110	RLR07C1802GS	81349	. . RESISTOR	4		PADZZN
-111	RLR07C8201GS	81349	. . RESISTOR	1		PADZZN
-112	C315C102K5R5CA	31433	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258329-21099, FSCM 37695)	2		PADZZN
	*C315C102K1R5CA	31433	. . CAPACITOR, Fixed ceramic	2		PADZZN
-113	GXL15000	52769	. . CAPACITOR, Variable, film dielectric (Spec cont dwg 265201-2, FSCM 37695)	1		PADZZN
-114	+RJ26CW501	81349	. . RESISTOR	1		PADZZN
	+RJR26CW501R	81349	. . RESISTOR	AR		PADZZN
	*RJR26FW501R	81349	. . RESISTOR	AR		PADZZN
-115	MA4ST023	96341	. . SEMICONDUCTOR DEVICE, Diode (Spec cont dwg 648762-1, FSCM 37695)	1		PADZZN
-116	MS75083-12	96906	. . COIL	1		PADZZN
-117	RLR07C5601GS	81349	. . RESISTOR	1		PADZZN
-118	VP31BA820JB	95275	. . CAPACITOR, Fixed ceramic (Spec cont dwg 258330-22065, FSCM 37695)	1		PADZZN
-119	RLR07C1201GS	81349	. . RESISTOR	1		PADZZN
-120	RLR07C2702GS	81349	. . RESISTOR	1		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 8-121	VP31BA201JB	95275	. . CAPACITOR, Fixed ceramic (Spec cont dwg .... 258330-22156, FSCM 37695)	1		PADZZN
-122	RLR07C7503GS	81349	. . RESISTOR	2		PADZZN
-123	415463-1	37695	. . PRINTED WIRING BOARD	1		XA
-124	DELETED					
-125	840-AG11D	91506	. . SOCKET, I.C (Spec cont dwg 186824-9, FSCM...... 37695)	1		PADZZN
-126	942068-6	37695	. . SHIELD	1		XB
-127	942068-7	37695	. . SHIELD	1		XB
-128	942068-5	37695	. . SHIELD	1		XB

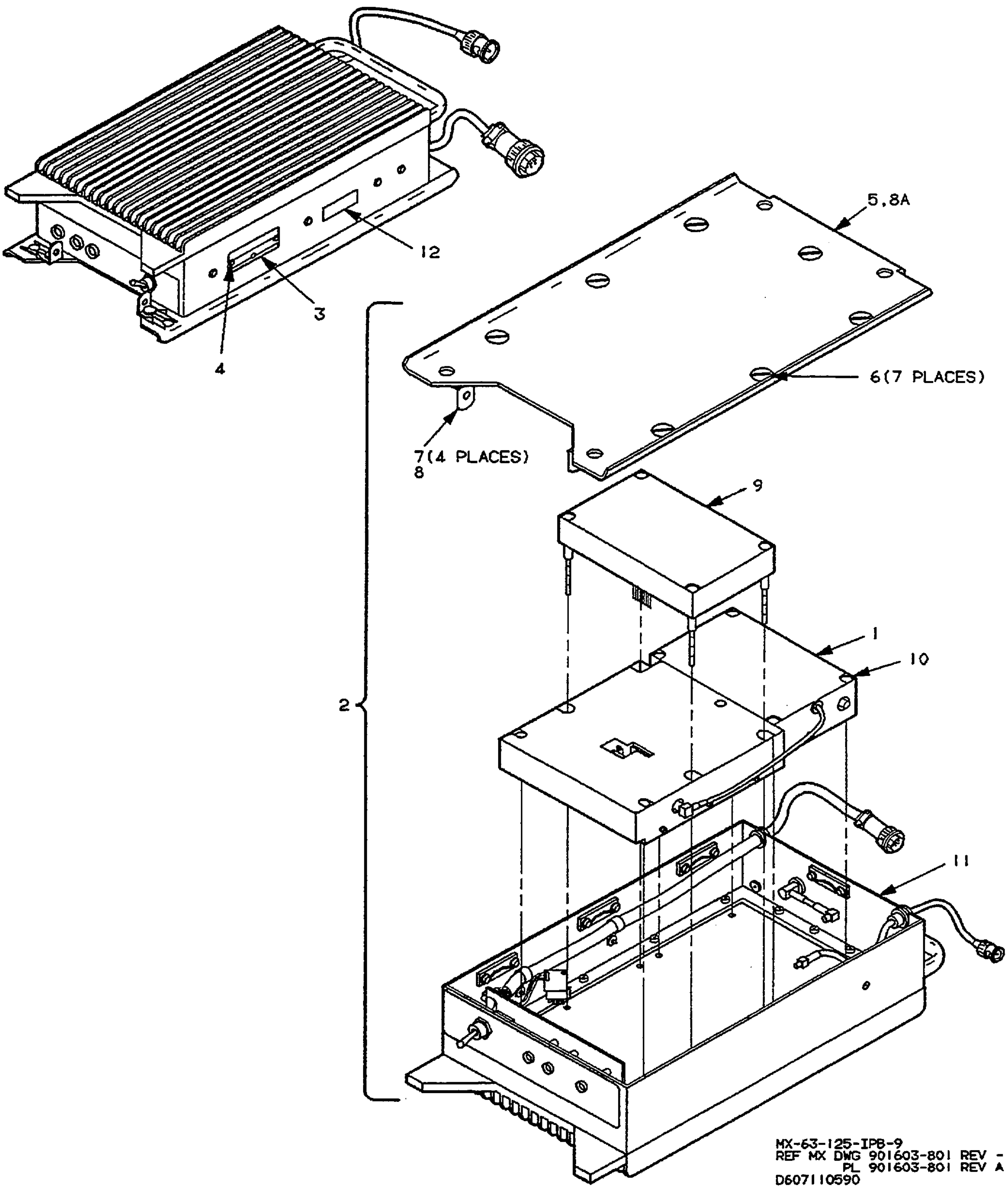


Figure 6-9. RF Power Amplifier

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6- 9- -	901603-801	37695	POWER AMPLIFIER SYSTEM, RF (See fig. 1 for nha) ...	REF		PAODDT
- 1	721620-802	37695	. AMPLIFIER/FILTER ASSEMBLY (See fig. 10 for ...... bkdn)	1		PAODDT
- 2	901616-801	37695	. POWER AMPLIFIER ASSEMBLY, RF	1		PAOLDT
- 3	156663- *	37695	. . PLATE, Identification	1		XB
- 4	MS51957-1	96906	. . SCREW (AP)	2		PADZZN
- 5	721913-801	37695	. . BASE ASSEMBLY, Power amplifier	1		XB
- 6	FJ4-35	72794	. . . STUD, Turnlock fastener (Spec cont dwg ...... 107225-13, FSCM 37695)	7		XB
	SR4	72794	. . . RING, Retaining (Spec cont dwg 108877-2, ... FSCM 37695)	7		XB
- 7	2L	80813	. . . LATCH, Dimco-Gray	4		XB
	*MS21332-11	96906	. . . LATCH	4		XB
- 8	2-R-113	80813	. . . RIVET, Solid (AP) (Spec cont dwg 136452-3, .. FSCM 37695)	1		XB
	2W	80183	. . . WASHER, (AP)	1		XB
	*MS21332-41	96906	. . . WASHER, (AP)	1		XB
	2-G	80013	. . . GUIDE (AP)	1		XB
- 8A	944572-1	37695	. . . BASE, Plate	1		XB
- 9	721619-801	37695	. . MODULE ASSEMBLY, Power supply (ESD)(See .... fig. 15 for bkdn)	1		PADLDT
- 10	721620-801	37695	. . AMPLIFIER/FILTER ASSEMLBY (See fig. 10 for .... bkdn)	1		PAODDT
- 11	721618-801	37695	. . CHASSIS ASSEMBLY, Power amplifier (See fig. ... 16 for bkdn)	1		XB
- 12	159837-3 *	37695	. . DECAL, Warranty	1		XB

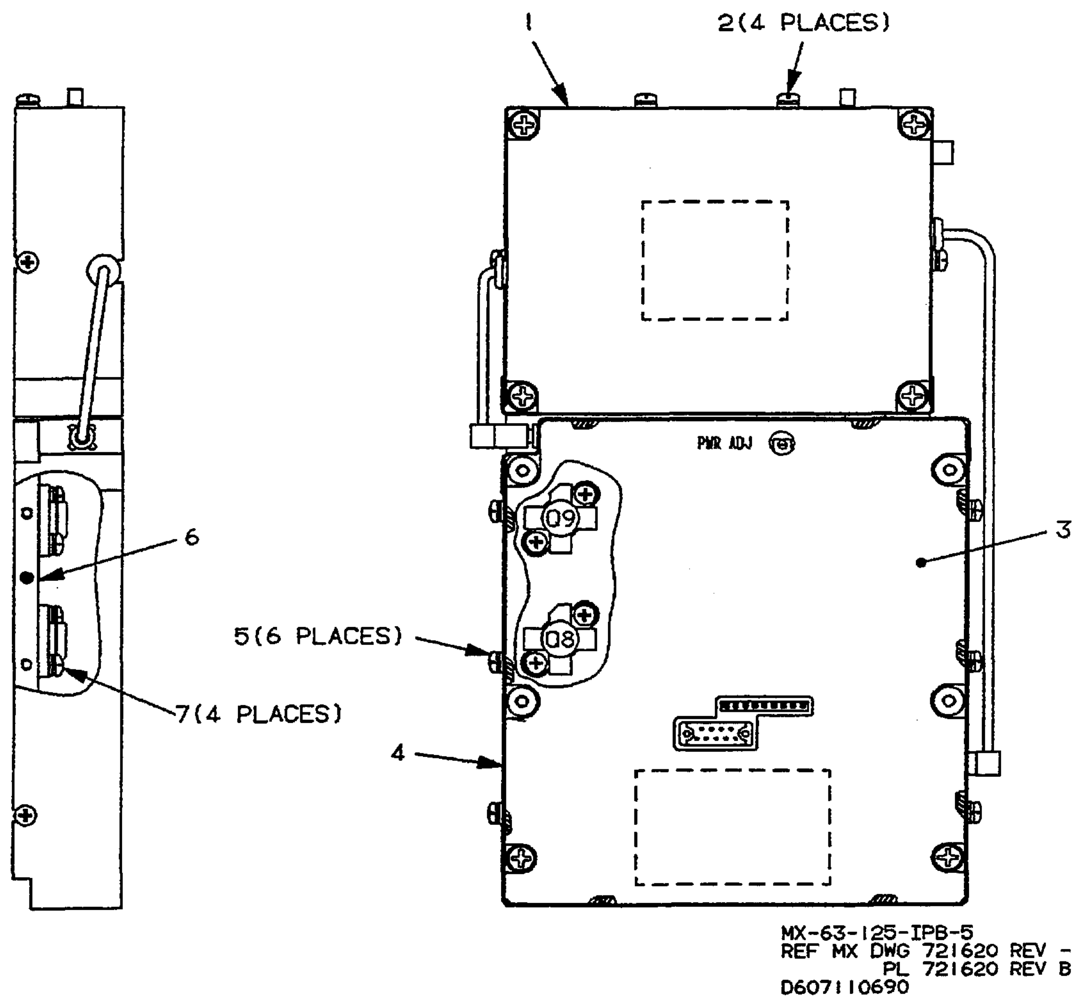


Figure 6-10. Amplifier/Filter Assembly

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-10-	721620-802	37695	AMPLIFIER/FILTER ASSEMBLY, (See fig. 9 for nha)....	REF	A	PAODDT
	721620-801	37695	AMPLIFIER/FILTER ASSEMBLY, (See fig. 9 for nha)....	REF	B	PAODDT
- 1	721614-801	37695	. MODULE ASSEMBLY, High band filter (ESD)(See ..... fig. 11 for bkdn)	1	A	PAOLDT
	721622-801	37695	. MODULE ASSEMBLY, Low band filter (ESD)(See ...... fig. 12 for bkdn)	1	B	PAOLDT
- 2	MS51957-14	96906	. SCREW (AP)	4		PADZZN
	NAS620C4	80205	. WASHER (AP)	4		PADZZN
	MS35338-135	96906	. WASHER (AP)	4		PADZZN
- 3	945202-1	37695	. COVER	1		XB
- 4	721613-801	37695	. MODULE ASSEMBLY, High band amplifier (ESD) ...... (See fig. 13 for bkdn)	1	A	PAOLDT
	721621-801	37695	. MODULE ASSEMBLY, Low band amplifier (ESD) .... (See fig. 14 for bkdn)	1	B	PAOLDT
- 5	MS51957-14	96906	. SCREW (AP)	6		PADZZN
	NAS620C4	80205	. WASHER (AP)	6		PADZZN
	MS35338-135	96906	. WASHER (AP)	6		PADZZN
- 6	945268-1	37695	. HEAT SINK	1		XB
- 7	MS51957-14	96906	. SCREW (AP)	4		PADZZN
	NAS620C4	80205	. WASHER (AP)	4		PADZZN
	MS35338-135	96906	. WASHER (AP)	4		PADZZN

A = USED ON 721620-802 ONLY
B = USED ON 721620-801 ONLY

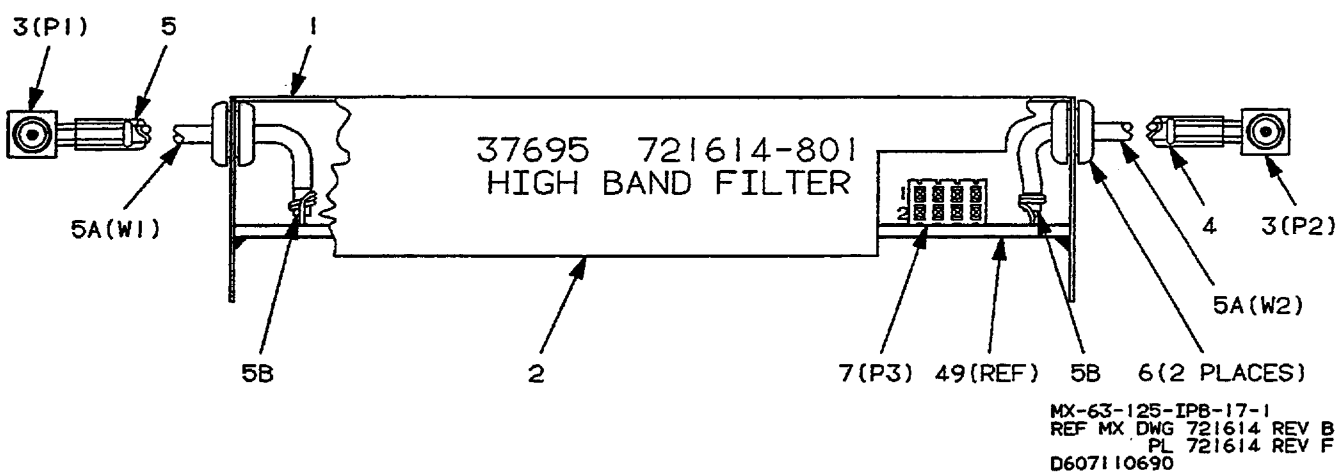


Figure 6-11. High Band Filter Module Assembly (Sheet 1 of 3)

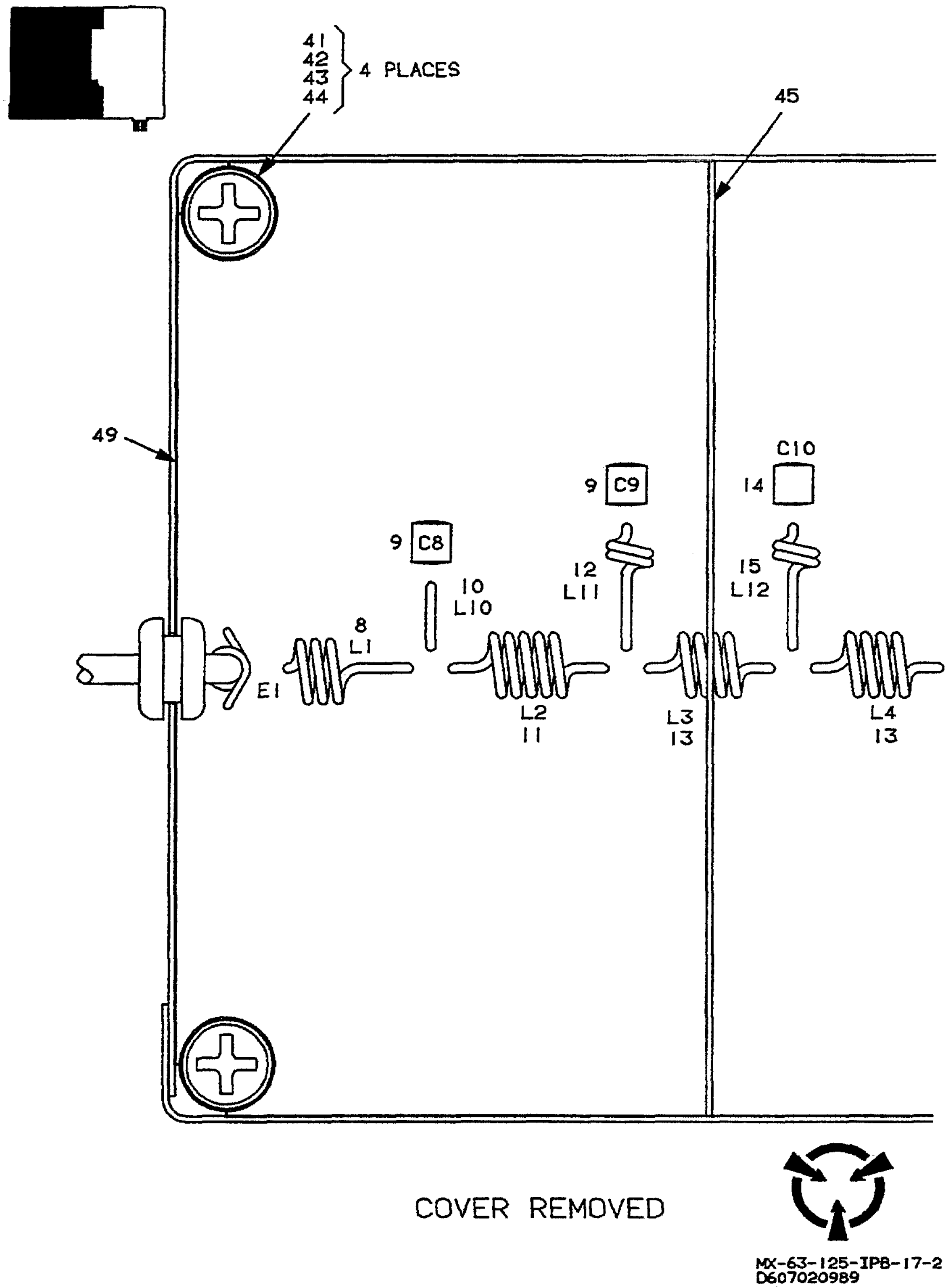


Figure 6-11. High Band Filter Module Assembly (Sheet 2 of 3)

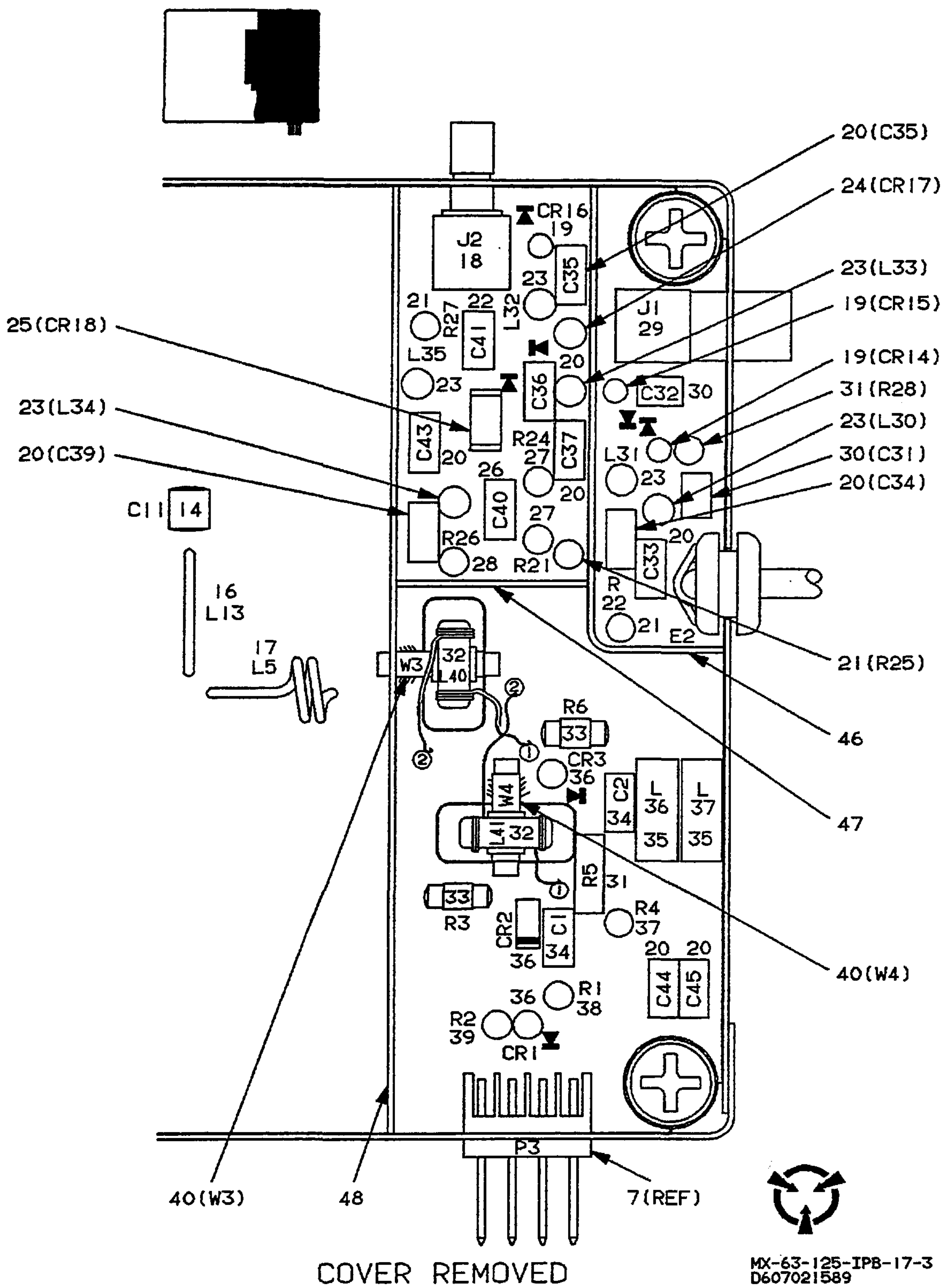


Figure 6-11. High Band Filter Module Assembly (Sheet 3 of 3)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-11-	721614-801	37695	MODULE ASSEMBLY, High band filter (ESD)(See fig. 10 for nha)	REF		PAOLDT
- 1	945201-1	37695	. COVER	1		XB
- 2	945119-1	37695	. HOUSING	1		XB
- 3	M39012/69B0009	19505	. CONNECTOR, Plug, electrical (Spec cont dwg 188972-7, FSCM 37695)	2		XB
- 4	156174-7	37695	. BAND MARKER	1		XB
- 5	156174-6	37695	. BAND MARKER	1		XB
- 5A	M17/113-RG316	81349	. CABLE	AR		XB
- 5B	465006-20	37695	. WIRE, Electrical	AR		XB
- 6	MS35489-1	96906	. GROMMET	2		XB
- 7	1-86479-6	00779	. CONNECTOR, Receptacle, electrical (Spec cont dwg 185627-110, FSCM 37695)	1		PADZZN
- 8	369144-10	37695	. COIL, Radio frequency	1		PADZZN
- 9	ATC-100-B-160-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec cont dwg 258300-11245, FSCM 37695)	2		PADZZN
- 10	369144-17	37695	. COIL, Radio frequency	1		PADZZN
- 11	369144-15	37695	. COIL, Radio frequency	1		PADZZN
- 12	369144-13	37695	. COIL, Radio frequency	1		PADZZN
- 13	369144-16	37695	. COIL, Radio frequency	2		PADZZN
- 14	ATC-100-B-200-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec cont dwg 258300-11244, FSCM 37695)	2		PADZZN
- 15	369144-18	37695	. COIL, Radio frequency	1		PADZZN
- 16	369144-19	37695	. COIL, Radio frequency	1		PADZZN
- 17	369144-14	37695	. COIL, Radio frequency	1		PADZZN
- 18	2010-6511-002	19505	. CONNECTOR, Receptacle, electrical (Spec cont dwg 189175-8, FSCM 37695)	1		PADZZN
- 19	6C40363-15	NONE	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg 619915-2, FSCM 37695)(GHZ Devices, North Chelmsford, MA)	3		PADZZN
- 20	CK05BX103K	81349	. CAPACITOR	9		PADZZN
	*M39014/01-1575	81349	. CAPACITOR	9		PADZZN
- 21	RWR81S20R0FR	81349	. RESISTOR	3		PADZZN
	*RWR81S20R0FS	81349	. RESISTOR	3		PADZZN
- 22	CK05BX102K	81349	. CAPACITOR	1		PADZZN
	*M39014-01-1357	81349	. CAPACITOR	1		PADZZN
- 23	MS75084-8	96906	. COIL	6		PADZZN
- 24	MAP456	96341	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg 619915-4, FSCM 37695)	1		PADZZN
- 25	MA4PH165	96341	. SEMICONDUCTOR DEVICE, Diode	1		PADZZN
	=UM4306A	17540	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg 619906-5, FSCM 37695)	AR		PADZZN
- 26	CK05BX681K	81349	. CAPACITOR	1		PADZZN
	*M39014/01-1354	81349	. CAPACITOR	1		PADZZN
- 27	RLR07C3000GS	81349	. RESISTOR	2		PADZZN
- 28	RLR07C10R0GS	81349	. RESISTOR	1		PADZZN
- 29	2042-6511-000	19505	. CONNECTOR, Receptacle electrical (Spec cont dwg 189175-10, FSCM 37695)	1		PADZZN
- 30	150-100-X7R-103M	51642	. CAPACITOR, Fixed ceramic (Spec cont dwg 258329-20136, FSCM 37695)	2		PADZZN
- 31	RLR07C1501GS	81349	. RESISTOR	2		PADZZN
- 32	369123-6	37695	. TOROID ASSEMBLY	2		PADZZN
- 33	TRM-18-S	24620	. RESISTOR, Fixed, film (Spec cont dwg 238279-1, FSCM 37695)	2		PADZZN
- 34	CK05BX101K	81349	. CAPACITOR	2		PADZZN
	*M39014/01-1339	81349	. CAPACITOR	2		PADZZN
- 35	2773002111	34899	. SHIELDING BEAD (Spec cont dwg 650503-1, FSCM 37695)	2		XB
- 36	JAN1N5712	81350	. SEMICONDUCTOR DEVICE	3		PADZZN
- 37	RLR07C5601GS	81349	. RESISTOR	1		PADZZN
- 38	RLR07C9100GS	81349	. RESISTOR	1		PADZZN
- 39	RLR07C2401GS	81349	. RESISTOR	1		PADZZN
- 40	421116-1	37695	. CABLE, Radio frequency	2		XB
- 41	518155-1	37695	. POST, Mounting	4		XB
- 42	518157-1	37695	. SCREW	4		XB

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-11- 43	107100-150	37695	. WASHER, Flat	4		XB
- 44	LC-016B-9SS	84830	. SPRING, Helical, compression (Spec cont dwg 438662-46, FSCM 37695)	4		XB
- 45	945122-6	37695	. SHIELD	1		XB
- 46	945122-2	37695	. SHIELD	1		XB
- 47	945122-7	37695	. SHIELD	1		XB
- 48	945122-1	37695	. SHIELD	1		XB
- 49	415542-1	37695	. PRINTED WIRING BOARD	1		XA

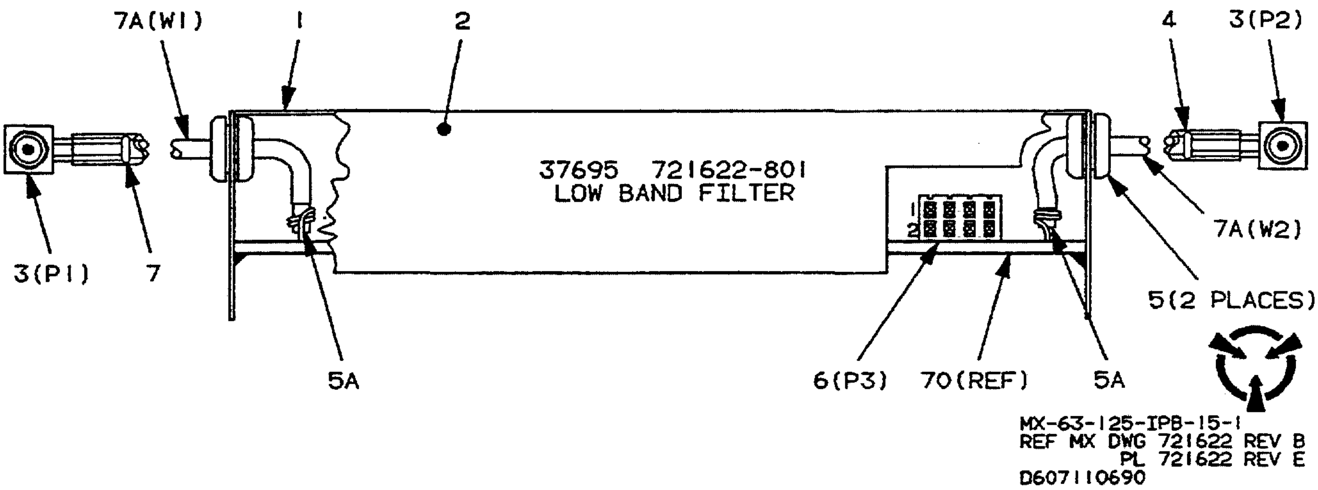


Figure 6-12. Low Band Filter Module Assembly (Sheet 1 of 3)

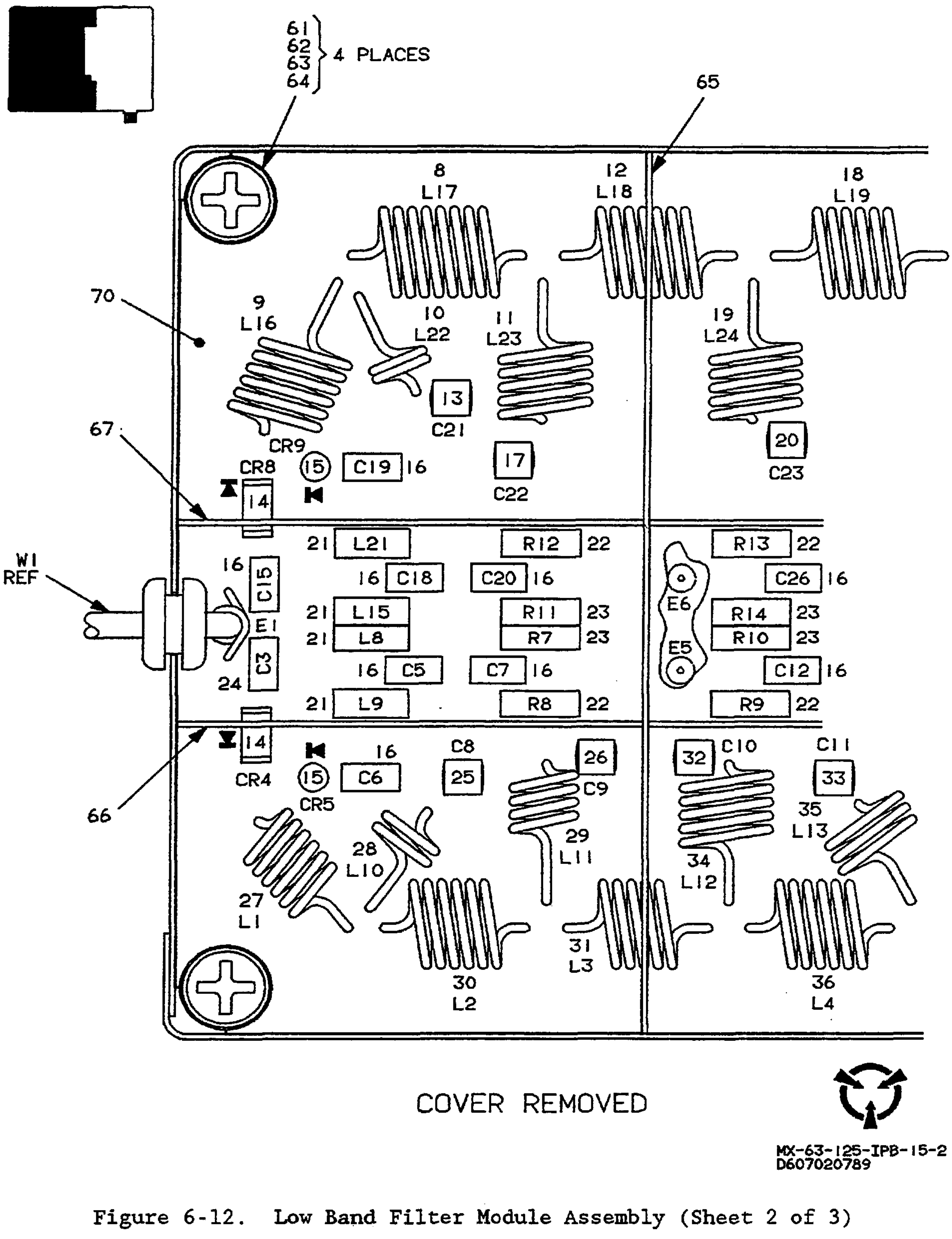
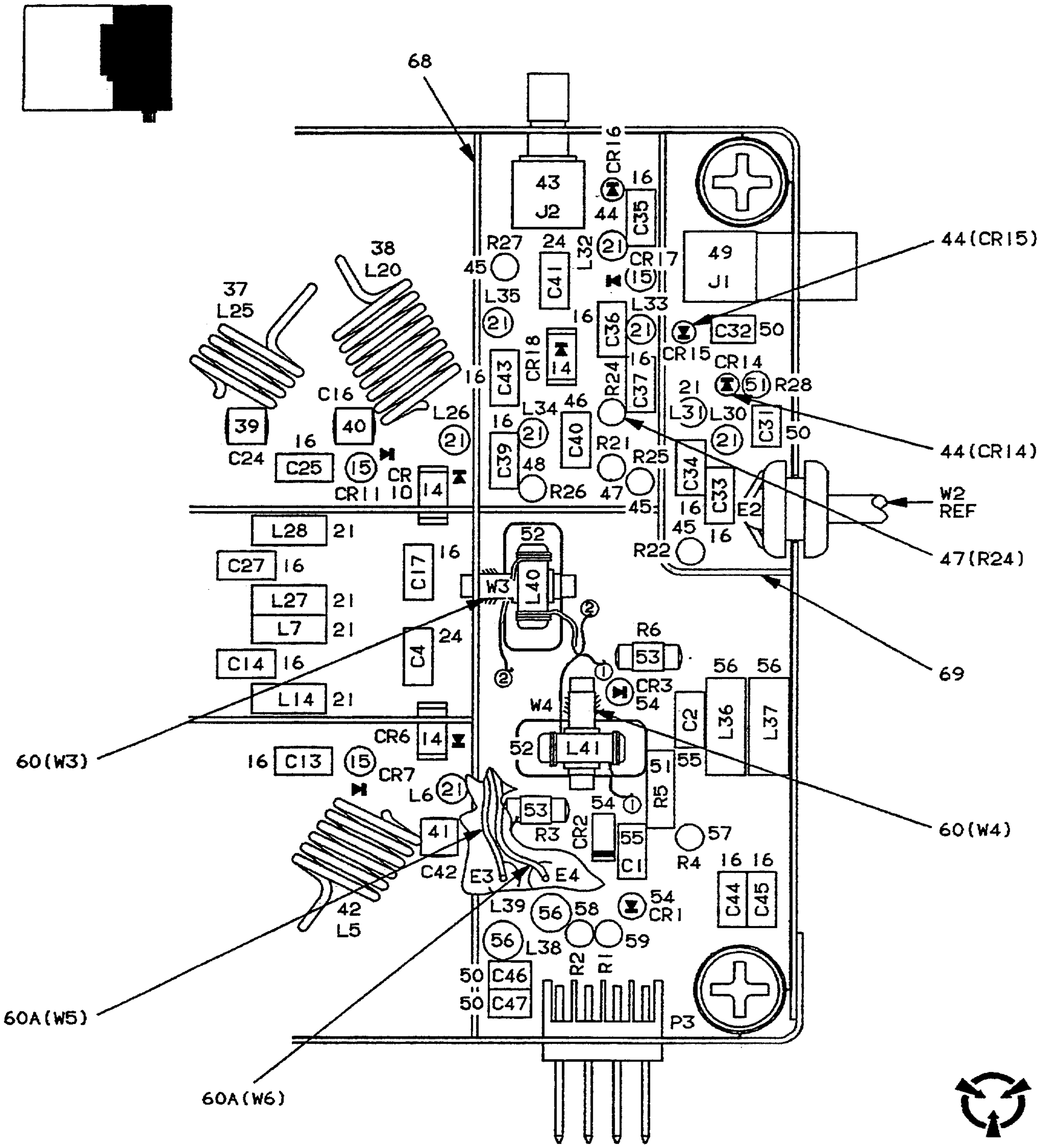


Figure 6-12. Low Band Filter Module Assembly (Sheet 2 of 3)



COVER REMOVED

MX-63-125-IPB-15-3
D607032089

Figure 6-12. Low Band Filter Module Assembly (Sheet 3 of 3)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-12-	721622-801	37695	MODULE ASSEMBLY, Low band filter (ESD)(See .... fig. 10 for nha)	REF		PAOLDT
- 1	945201-1	37695	. COVER	1		XB
- 2	945119-1	37695	. HOUSING	1		XB
- 3	M39012/69B0009	19505	. CONNECTOR, Plug, electrical (Spec cont dwg....... 188972-7, FSCM 37695)	2		XB
- 4	156174-7	37695	. BAND MARKER	1		XB
- 5	MS35489-1	96906	. GROMMET	2		XB
- 5A	465006-20	37695	. WIRE, Electrical	AR		XB
- 6	1-86479-6	00779	. CONNECTOR, Receptacle, electrical (Spec cont .... dwg 185627-110, FSCM 37695)	1		PADZZN
- 7	156174-6	37695	. BAND MARKER	1		XB
- 7A	M17/113-RG316	81349	. CABLE	AR		XB
- 8	369144-2	37695	. COIL, Radio frequency	1		PADZZN
- 9	369144-1	37695	. COIL, Radio frequency	1		PADZZN
- 10	369144-12	37695	. COIL, Radio frequency	1		PADZZN
- 11	369144-29	37695	. COIL, Radio frequency	1		PADZZN
- 12	369144-3	37695	. COIL, Radio frequency	1		PADZZN
- 13	ATC-100-B-820-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec .... cont dwg 258300-11259, FSCM 37695)	1		PADZZN
	*ATC100B820GP500	29990	. CAPACITOR, Fixed, glass dielectric	1		PADZZN
- 14	MA4PH165	96341	. SEMICONDUCTOR DEVICE, Diode	5		PADZZN
	=UM4306A	17540	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg ...... 619906-5, FSCM 37695)	AR		PADZZN
- 15	MAP456	96341	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg ...... 619915-4, FSCM 37695)	5		PADZZN
- 16	CK05BX103K	81349	. CAPACITOR	23		PADZZN
	*M39014/01-1575	81349	. CAPACITOR	23		PADZZN
- 17	ATC-100-B-680-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec .... cont dwg 258300-11257, FSCM 37695)	1		PADZZN
- 18	369144-27	37695	. COIL, Radio frequency	1		PADZZN
- 19	369144-4	37695	. COIL, Radio frequency	1		PADZZN
- 20	ATC-100-B-620-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec .... cont dwg 258300-11256, FSCM 37695)	1		PADZZN
- 21	MS75084-8	96906	. COIL	16		PADZZN
- 22	RLR07C3300GS	81349	. RESISTOR	4		PADZZN
- 23	RWR81S40R2FR	81349	. RESISTOR	4		PADZZN
	*RWR81S40R2FS	81349	. RESISTOR	4		PADZZN
- 24	CK05BX102K	81349	. CAPACITOR	3		PADZZN
	*M39014-01-1357	81349	. CAPACITOR	3		PADZZN
- 25	ATC-100-B-470-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec .... cont dwg 258300-11253, FSCM 37695)	1		PADZZN
	*CDR14BP470EGSR	81349	. CAPACITOR	1		PADZZN
- 26	ATC-100-B-390-J-P-500-SP	29999	. CAPACITOR, Fixed, glass dielectric (Spec .... cont dwg 258300-11251, FSCM 37695)	1		PADZZN
- 27	369144-25	37695	. COIL, Radio frequency	1		PADZZN
- 28	369144-13	37695	. COIL, Radio frequency	1		PADZZN
- 29	369144-11	37695	. COIL, Radio frequency	1		PADZZN
- 30	369144-6	37695	. COIL, Radio frequency	1		PADZZN
- 31	369144-26	37695	. COIL, Radio frequency	1		PADZZN
- 32	ATC-100-B-360-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec .... cont dwg 258300-11250, FSCM 37695)	1		PADZZN
	*CDR14BG360EFSM	81349	. CAPACITOR	1		PADZZN
- 33	ATC-100-B-510-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec .... cont dwg 258300-11254, FSCM 37695)	1		PADZZN
	*ATC-100-B-510-G-P-500	29990	. CAPACITOR	1		PADZZN
- 34	369144-28	37695	. COIL, Radio frequency	1		PADZZN
- 35	369144-10	37695	. COIL, Radio frequency	1		PADZZN
- 36	369144-8	37695	. COIL, Radio frequency	1		PADZZN
- 37	369144-9	37695	. COIL, Radio frequency	1		PADZZN
- 38	369144-5	37695	. COIL, Radio frequency	1		PADZZN
- 39	ATC-100-B-910-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec .... cont dwg 258300-11260, FSCM 37695)	1		PADZZN
	*CDR14BG910EFSR	81349	. CAPACITOR	1		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-12- 40	ATC-100-B-750-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec cont dwg 258300-11258, FSCM 37695)	1		PADZZN
- 41	ATC-100-B-430-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec cont dwg 258300-11252, FSCM 37695)	1		PADZZN
- 42	369144-7	37695	. COIL, Radio frequency	1		PADZZN
- 43	2010-6511-002	19505	. CONNECTOR, Receptacle, electrical (Spec cont dwg 189175-8, FSCM 37695)	1		PADZZN
- 44	6C40363-15	NONE	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg 619915-2, FSCM 37695)(GHZ Devices, North Chelmsford, MA)	3		PADZZN
- 45	RWR81S20R0FR	81349	. RESISTOR	3		PADZZN
	*RWR81S20R0FS	81349	. RESISTOR	3		PADZZN
- 46	CK05BX681K	81349	. CAPACITOR	1		PADZZN
	*M39014/01-1354	81349	. CAPACITOR	1		PADZZN
- 47	RLR07C3000GS	81349	. RESISTOR	2		PADZZN
- 48	RLR07C10R0GS	81349	. RESISTOR	1		PADZZN
- 49	2042-6511-000	19505	. CONNECTOR, Receptacle electrical (Spec cont dwg 189175-10, FSCM 37695)	1		PADZZN
- 50	150-100-X7R-103M	51642	. CAPACITOR, Fixed ceramic (Spec cont dwg 258329-20136, FSCM 37695)	4		PADZZN
- 51	RLR07C1501GS	81349	. RESISTOR	2		PADZZN
- 52	369123-6	37695	. TOROID ASSEMBLY	2		PADZZN
- 53	TRM-18-S	24620	. RESISTOR, Fixed, film (Spec cont dwg 238279-1, FSCM 37695)	2		PADZZN
- 54	JAN1N5712	81350	. SEMICONDUCTOR DEVICE	3		PADZZN
- 55	CK05BX101K	81349	. CAPACITOR	2		PADZZN
	*M39014/01-1339	81349	. CAPACITOR	2		PADZZN
- 56	2773002111	34899	. SHIELDING BEAD (Spec cont dwg 650503-1, FSCM 37695)	4		XB
- 57	RLR07C5601GS	81349	. RESISTOR	1		PADZZN
- 58	RLR07C2401GS	81349	. RESISTOR	1		PADZZN
- 59	RLR07C9100GS	81349	. RESISTOR	1		PADZZN
- 60	421116-1	37695	. CABLE, Radio frequency	2		XB
- 60A	M16878/6BEB	81349	. WIRE	AR		XB
- 61	518155-1	37695	. POST, Mounting	4		XB
- 62	518157-1	37695	. SCREW	4		XB
- 63	107100-150	37695	. WASHER, Flat	4		XB
- 64	LC-016B-9SS	84830	. SPRING, Helical, compression (Spec cont dwg 438662-46, FSCM 37695)	4		XB
- 65	945122-5	37695	. SHIELD	1		XB
- 66	945122-4	37695	. SHIELD	1		XB
- 67	945122-3	37695	. SHIELD	1		XB
- 68	945122-1	37695	. SHIELD	1		XB
- 69	945122-2	37695	. SHIELD	1		XB
- 70	415545-1	37695	. PRINTED WIRING BOARD	1		XA

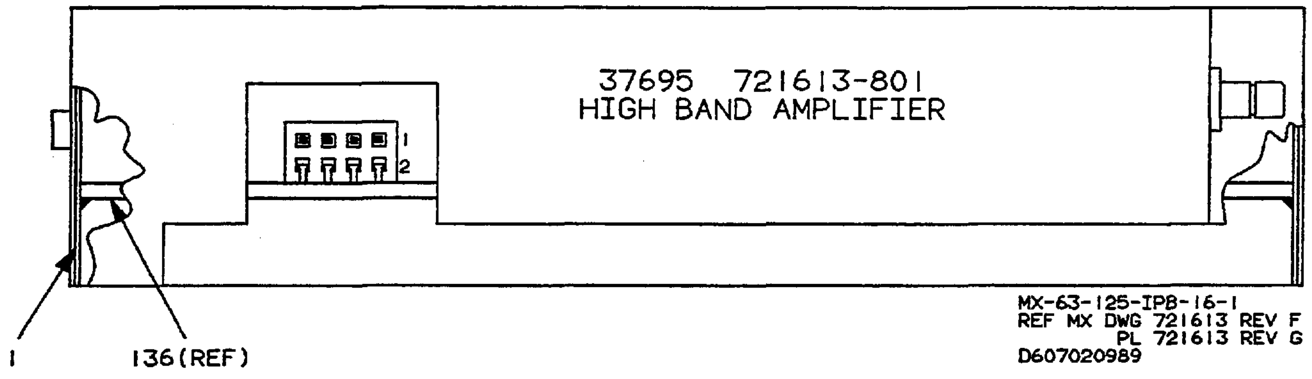


Figure 6-13. High Band Amplifier Module Assembly (Sheet 1 of 4)

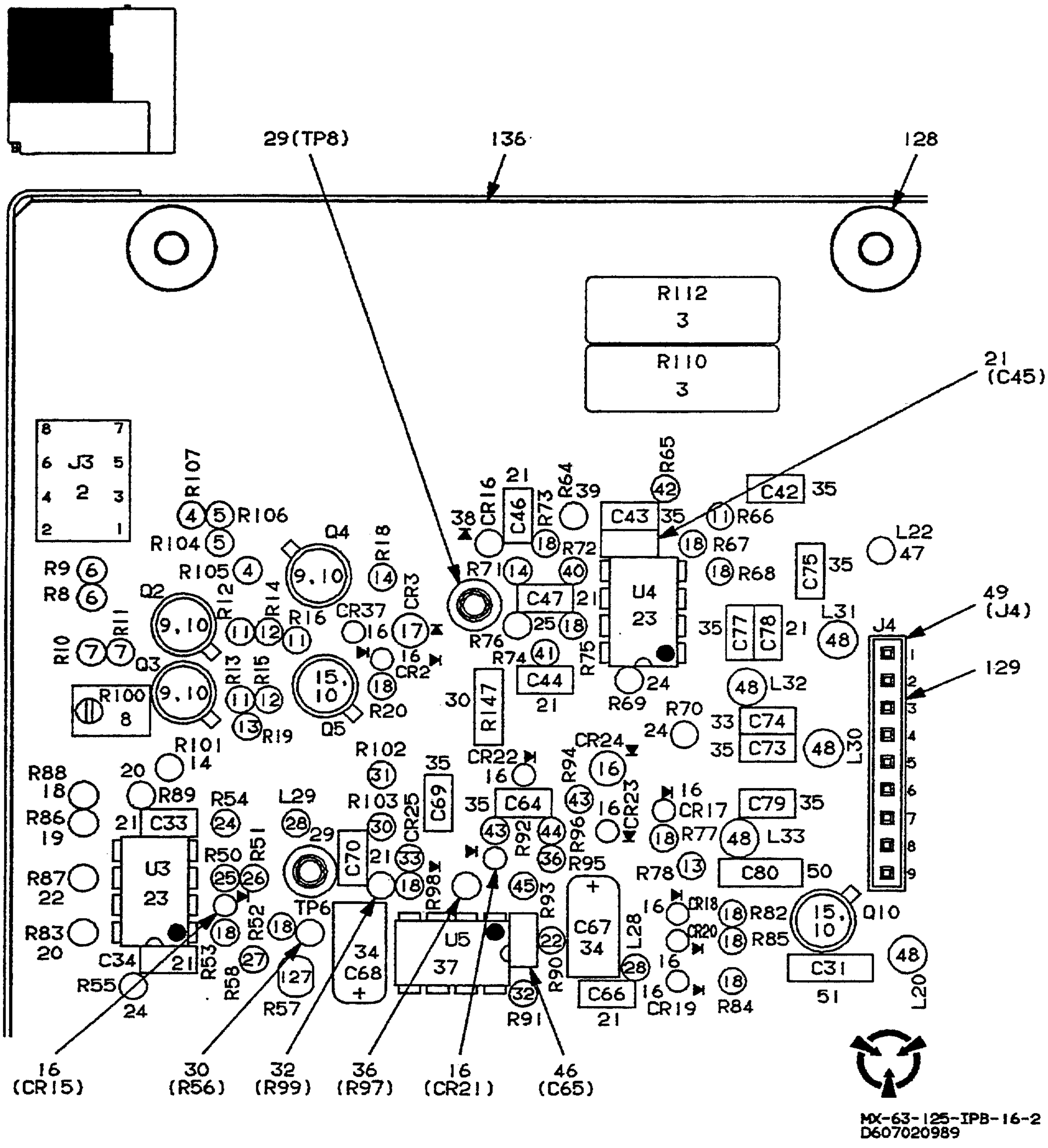


Figure 6-13. High Band Amplifier Module Assembly (Sheet 2 of 4)

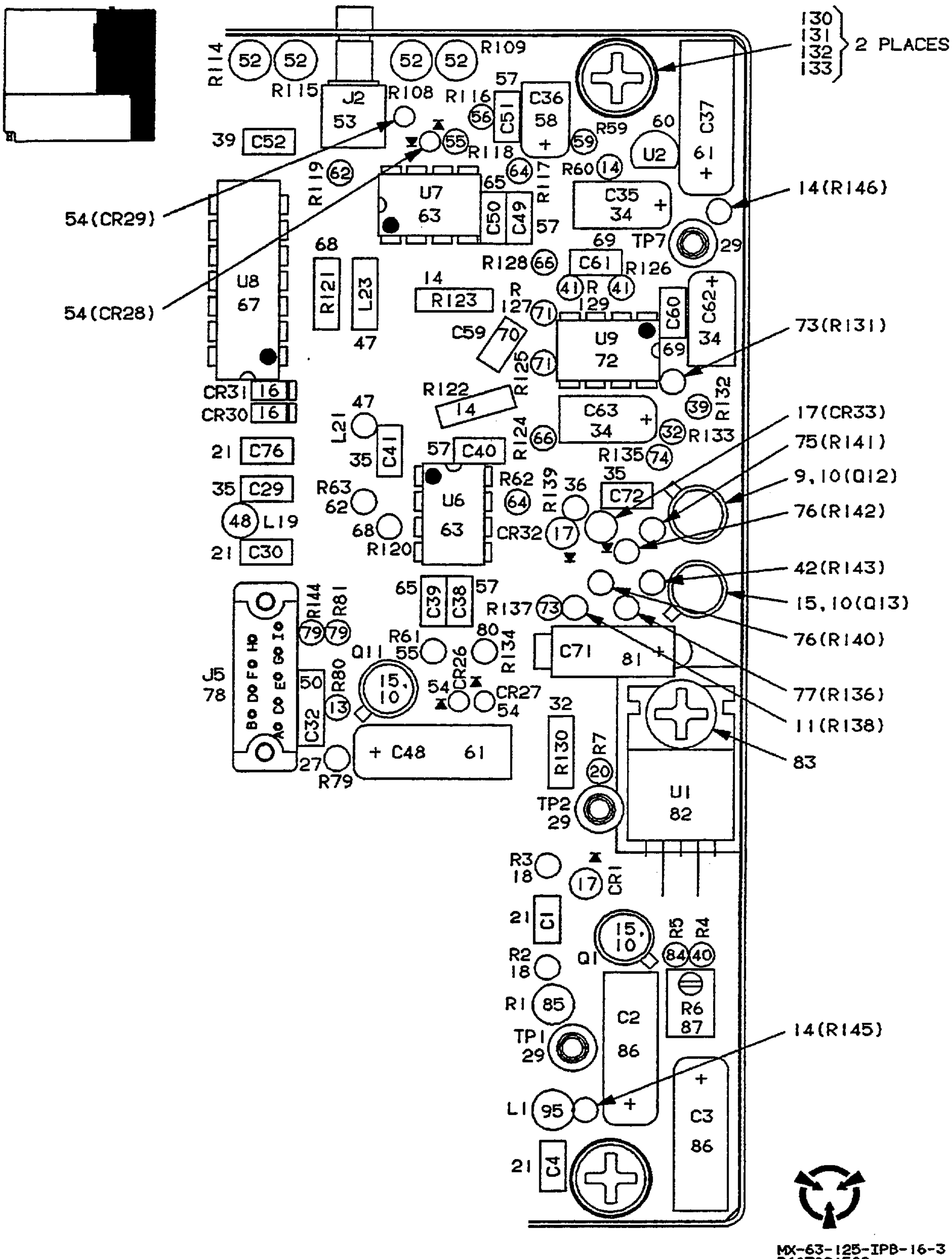


Figure 6-13. High Band Amplifier Module Assembly (Sheet 3 of 4)

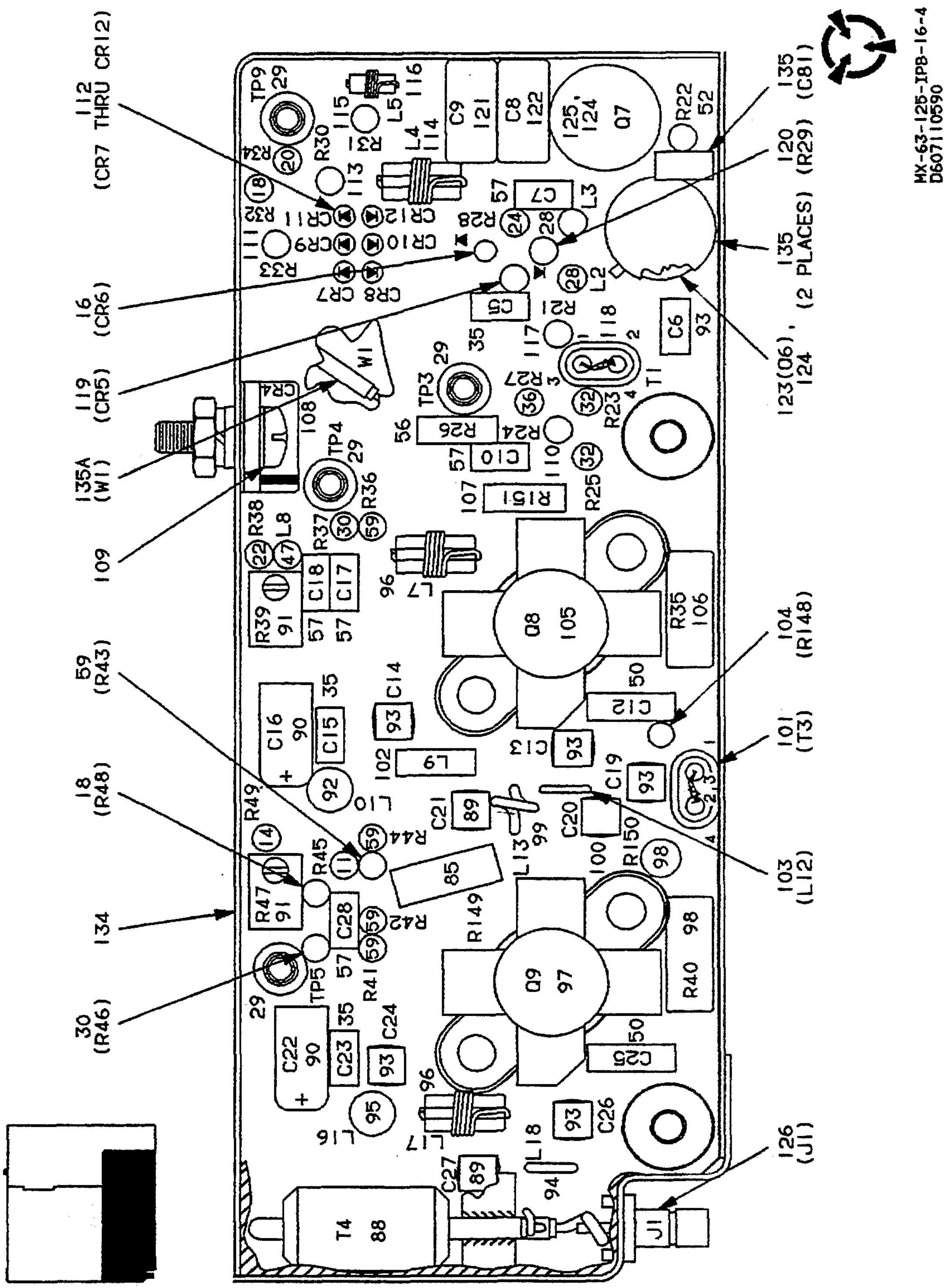


Figure 6-13. High Band Amplifier Module Assembly (Sheet 4 of 4)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-13-	721613-801	37695	MODULE ASSEMBLY, High band amplifier (ESD)(See .... fig. 10 for nha)	REF		PAOLDT
- 1	945120-1	37695	. HOUSING	1		XB
- 2	6-85930-3	00779	. CONNECTOR (Spec cont dwg 189158-157, FSCM .... 37695)	1		PADZZN
- 3	RLR32C2000GS	81349	. RESISTOR	2		PADZZN
- 4	RLR07C1601GS	81349	. RESISTOR	2		PADZZN
- 5	RLR07C7501GS	81349	. RESISTOR	2		PADZZN
- 6	RWR81S20R0FR	81349	. RESISTOR	2		PADZZN
	*RWR81S20R0FS	81349	. RESISTOR	2		PADZZN
- 7	RLR07C3002GS	81349	. RESISTOR	2		PADZZN
- 8	RJ26CW102	81349	. RESISTOR	1		PADZZN
	*RJ26FW102R	81349	. RESISTOR	1		PADZZN
	=RJR26CW102R	81349	. RESISTOR	AR		PADZZN
	*=RJR26FW102R	81349	. RESISTOR	AR		PADZZN
- 9	JAN2N2907A	81350	. SEMICONDUCTOR DEVICE	4		PADZZN
- 10	M38527/01-030N	81349	. MOUNTING PADS AND INSULATOR DISKS	1		XB
- 11	RLR07C5101GS	81349	. RESISTOR	6		PADZZN
- 12	RLR07C4700GS	81349	. RESISTOR	2		PADZZN
- 13	RLR07C5102GS	81349	. RESISTOR	3		PADZZN
- 14	RLR07C1001GS	81349	. RESISTOR	9		PADZZN
- 15	JAN2N2222A	81350	. SEMICONDUCTOR DEVICE	5		PADZZN
- 16	JAN1N4454-1	81349	. SEMICONDUCTOR DEVICE (ESD)	14		PADZZN
- 17	JAN1N647-1	81350	. SEMICONDUCTOR DEVICE (ESD)	4		PADZZN
- 18	RLR07C1002GS	81349	. RESISTOR	17		PADZZN
- 19	RCR07G106JS	81349	. RESISTOR	1		PADZZN
- 20	RLR07C1003GS	81349	. RESISTOR	4		PADZZN
- 21	CK05BX104K	81349	. CAPACITOR	14		PADZZN
	*M39014/01-1593	81349	. CAPACITOR	14		PADZZN
- 22	RLR07C2001GS	81349	. RESISTOR	3		PADZZN
- 23	MC1558U	04713	. MICROCIRCUIT, Linear (ESD)(Spec cont dwg .... 648903-1, FSCM 37695)	2		PADZZN
- 24	RLR07C1000GS	81349	. RESISTOR	5		PADZZN
- 25	RLR07C4702GS	81349	. RESISTOR	2		PADZZN
- 26	RLR07C1501GS	81349	. RESISTOR	1		PADZZN
- 27	RLR07C4701GS	81349	. RESISTOR	2		PADZZN
- 28	MS75083-10	96906	. COIL	4		PADZZN
- 29	105-0857-001	74970	. JACK, Tip (Spec cont dwg 189681-5, FSCM.......... 37696)	9		PADZZN
- 30	RLR07C5100GS	81349	. RESISTOR	5		PADZZN
- 31	RLR07C1201GS	81349	. RESISTOR	1		PADZZN
- 32	RLR07C3000GS	81349	. RESISTOR	6		PADZZN
- 33	JAN1N751A-1	81350	. SEMICONDUCTOR DEVICE	1		PADZZN
- 34	275054-126	37695	. CAPACITOR, Fixed, electrolytic	5		PADZZN
- 35	CK05BX103K	81349	. CAPACITOR	15		PADZZN
	*M39014/01-1575	81349	. CAPACITOR	15		PADZZN
- 36	RLR07C1502GS	81349	. RESISTOR	4		PADZZN
- 37	LM101AJ	04713	. MICROCIRCUIT, Linear (ESD)(Spec cont dwg .... 648902-1, FSCM 37695)	1		PADZZN
- 38	JAN1N756A-1	81350	. SEMICONDUCTOR DEVICE	1		PADZZN
- 39	RLR07C8201GS	81349	. RESISTOR	2		PADZZN
- 40	RLR07C2702GS	81349	. RESISTOR	2		PADZZN
- 41	RLR07C3001GS	81349	. RESISTOR	3		PADZZN
- 42	RLR07C6201GS	81349	. RESISTOR	2		PADZZN
- 43	RLR07C1803GS	81349	. RESISTOR	2		PADZZN
- 44	RLR07C3901GS	81349	. RESISTOR	1		PADZZN
- 45	RLR07C1004GS	81349	. RESISTER	1		PADZZN
- 46	CK05BX470K	81349	. CAPACITOR	1		PADZZN
	*M39014/01-1333	81349	. CAPACITOR	1		PADZZN
- 47	MS75084-6	96906	. COIL	4		PADZZN
- 48	2773002111	34899	. SHIELDING BEAD (Spec cont dwg 650503-1, FSCM .... 37695)	6		XB
- 49	533028-1	00779	. CONNECTOR	1		PADZZN
- 50	CK06BX104K	81349	. CAPACITOR	4		PADZZN
	*M39014/02-1350	81349	. CAPACITOR	4		PADZZN
- 51	CK06BX824K	81349	. CAPACITOR	1		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-13- 52	RLR20C1000GS	81349	. RESISTOR	5		PADZZN
	=RLR20C1000GR	81349	. RESISTOR	5		PADZZN
- 53	2010-6511-002	19505	. CONNECTOR, Receptacle, electrical (Spec cont dwg 189175-8, FSCM 37695)	1		PADZZN
- 54	615485-2	37695	. SEMICONDUCTOR DEVICE, Diode (ESD)	4		PADZZN
- 55	RLR07C51R0GS	81349	. RESISTOR	2		PADZZN
- 56	RLR07C3600GS	81349	. RESISTOR	2		PADZZN
- 57	CK05BX102K	81349	. CAPACITOR	9		PADZZN
	*M39014-01-1357	81349	. CAPACITOR	9		PADZZN
- 58	275054-42	37695	. CAPACITOR, Fixed, electrolytic	1		PADZZN
- 59	RLR07C22R0GS	81349	. RESISTOR	6		PADZZN
- 60	LM2931AZ5.0	27014	. MICROCIRCUIT, Linear (ESD) (Spec cont dwg 948905-1, FSCM 37695)	1		PADZZN
	*LM2931AT5	27014	. MICROCIRCUIT, Linear (ESD)	1		PADZZN
- 61	275054-54	37695	. CAPACITOR, Fixed, electrolytic	2		PADZZN
- 62	RLR07C2201GS	81349	. RESISTOR	2		PADZZN
- 63	MC12016P	04713	. MICROCIRCUIT, Digital (ESD) (Spec cont dwg 646273-1, FSCM 37695)	2		PADZZN
- 64	RLR07C3902GS	81349	. RESISTOR	2		PADZZN
- 65	CK05BX100K	81349	. CAPACITOR	2		PADZZN
	*M39014/01-1321	81349	. CAPACITOR	2		PADZZN
- 66	RLR07C1101GS	81349	. RESISTOR	2		PADZZN
- 67	MC4344L	04713	. MICROCIRCUIT, Linear (ESD) (Spec cont dwg 615489-1, FSCM 37695)	1		PADZZN
- 68	RLR07C15R0GS	81349	. RESISTOR	2		PADZZN
- 69	CK05BX222K	81349	. CAPACITOR	2		PADZZN
	*M39014/01-1563	81349	. CAPACITOR	2		PADZZN
- 70	CK05BX681K	81349	. CAPACITOR	1		PADZZN
	*M39014/01-1354	81349	. CAPACITOR	1		PADZZN
- 71	RLR07C9101GS	81349	. RESISTOR	2		PADZZN
- 72	MC1741UD	04713	. MICROCIRCUIT, Linear (ESD) (Spec cont dwg 648904-1, FSCM 37695)	1		PADZZN
- 73	RLR07C4301GS	81349	. RESISTOR	2		PADZZN
- 74	RLR07C4300GS	81349	. RESISTOR	1		PADZZN
- 75	RLR07C4302GS	81349	. RESISTOR	1		PADZZN
- 76	RLR07C6801GS	81349	. RESISTOR	2		PADZZN
- 77	RLR07C1602GS	81349	. RESISTOR	1		PADZZN
- 78	ST600-1-9P1	95238	. CONNECTOR	1		PADZZN
- 79	RLR07C2200GS	81349	. RESISTOR	2		PADZZN
- 80	RLR07C2701GS	81349	. RESISTOR	1		PADZZN
- 81	M39003/01-2411	81349	. CAPACITOR	1		PADZZN
	*M39003/01-3131	81349	. CAPACITOR	1		PADZZN
- 82	LM2931CT	27014	. MICROCIRCUIT, Linear (ESD) (Spec cont dwg 648905-2)	1		PADZZN
- 83	MS51957-28	96906	. SCREW (AP)	1		PADZZN
	MS35338-136	96906	. WASHER (AP)	1		PADZZN
	HS007AC58	87585	. INSULATOR (AP)	2		XB
	NAS620C6	80205	. WASHER (AP)	1		PADZZN
	MS35649-264	96906	. NUT (AP)	1		PADZZN
- 84	RLR07C2203GS	81349	. RESISTOR	1		PADZZN
- 85	RCR20G2R7JS	81349	. RESISTOR	2		PADZZN
- 86	275054-101	37695	. CAPACITOR, Fixed, electrolytic	2		PADZZN
- 87	RJ26CW503	81349	. RESISTOR	1		PADZZN
	=RJR26CW503R	81349	. RESISTOR	AR		PADZZN
	*=RJR26FW503R	81349	. RESISTOR	AR		PADZZN
- 88	369124-5	37695	. TRANSFORMER, Balun	1		PADZZN
- 89	ATC-100-B-101-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec cont dwg 258300-11261, FSCM 37695)	2		PADZZN
- 90	275054-154	37695	. CAPACITOR, Fixed, electrolytic	2		PADZZN
- 91	RJ26CW502	81349	. RESISTOR	2		PADZZN
	=RJR26CW502R	81349	. RESISTOR	AR		PADZZN
	*=RJR26FW502R	81349	. RESISTOR	2		PADZZN
- 92	369145-5	37695	. COIL, Radio frequency	1		PADZZN
- 93	ATC-100-B-102-K-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec cont dwg 258300-11185, FSCM 37695)	6		PADZZN
- 94	369144-20	37695	. COIL, Radio frequency	1		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-13- 95	369145-7	37695	. COIL, Radio frequency	2		PADZZN
- 96	369145-4	37695	. COIL, Radio frequency	2		PADZZN
- 97	MRF171	04713	. SEMICONDUCTOR DEVICE, Transistor (ESD) (Spec cont dwg 648908-1, FSCM 37695)	1		PADZZN
- 98	RLR20C3900GS	81349	. RESISTOR	2		PADZZN
	*RLR20C3900FS	81349	. RESISTOR	2		PADZZN
- 99	369144-22	37695	. COIL, Radio frequency	1		PADZZN
-100	ATC-100-B-270-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec cont dwg 258300-11247, FSCM 37695)	1		PADZZN
-101	369124-2	37695	. TRANSFORMER, Balun	1		PADZZN
-102	MS75084-2	96906	. COIL	1		PADZZN
-103	369144-21	37695	. COIL, Radio frequency	1		PADZZN
-104	RCR07G2R7GS	81349	. RESISTOR	1		PADZZN
-105	MRF134	04713	. SEMICONDUCTOR DEVICE, Transistor (ESD) (Spec cont dwg 648907-1, FSCM 37695)	1		PADZZN
-106	RLR20C2001GS	81349	. RESISTOR	1		PADZZN
-107	RCR07G6R8JS	81349	. RESISTOR	1		PADZZN
	+RCR07G2R7JS	81349	. RESISTOR	AR		PADZZN
	+RCR07G4R7JS	81349	. RESISTOR	AR		PADZZN
-108	MUR810	04713	. SEMICONDUCTOR DEVICE, Rectifier (Spec cont dwg 648901-2, FSCM 37695)	1		PADZZN
-109	MS51957-15	96906	. SCREW (AP)	1		PADZZN
	NAS620C4	80205	. WASHER (AP)	1		PADZZN
	HS007AC58	87585	. INSULATOR (AP)	1		XB
	15090-047-062-N-1	51506	. INSULATOR, Bushing (AP) (Spec cont dwg 447768-10, FSCM 37695)	1		XB
	MS35338-135	96906	. WASHER (AP)	1		PADZZN
	MS35649-244	96906	. NUT(AP)	1		PADZZN
-110	RLR07C18R0GS	81349	. RESISTOR	1		PADZZN
-111	RLR07C2402GS	81349	. RESISTOR	1		PADZZN
-112	BB409	NONE	. SEMICONDUCTOR DEVICE, Diode (ESD) (Spec cont dwg 647917-1, FSCM 37695)(Siemens Corp., Iselin, NJ)	6		PADZZN
-113	RLR07C1202GS	81349	. RESISTOR	1		PADZZN
-114	369145-9	37695	. COIL, Radio frequency	1		PADZZN
-115	RLR07C12R0GS	81349	. RESISTOR	1		PADZZN
-116	369145-10	37695	. COIL, Radio frequency	1		PADZZN
-117	RLR07C5600GS	81349	. RESISTOR	1		PADZZN
-118	369124-4	37695	. TRANSFORMER, Balun	1		PADZZN
-119	JAN1N752A-1	81349	. SEMICONDUCTOR DEVICE	1		PADZZN
-120	RLR07C9100GS	81349	. RESISTOR	1		PADZZN
-121	CM04ED680J03	81349	. CAPACITOR	1		PADZZN
	*CMR04E680GODR	81349	. CAPACITOR	1		PADZZN
-122	CM04CD180J03	81349	. CAPACITOR	1		PADZZN
	*CMR04C180JODR	81349	. CAPACITOR	1		PADZZN
-123	MRF237	04713	. TRANSISTOR (ESD)(Spec cont dwg 645732-1, FSCM 37695)	1		PADZZN
	*SD1127	04713	. TRANISTOR	1		PADZZN
-124	M87111/01-4Y17	81349	. HEAT SINK	1		XB
-125	JAN2N5109	81349	. SEMICONDUCTOR DEVICE	1		PADZZN
-126	2009-6511-000	19505	. CONNECTOR, Receptacle, electric (Spec cont dwg 189175-7, FSCM 37695)	1		PADZZN
-127	1DC802K-EC	15454	. RESISTOR, Thermal (Spec cont dwg 238283-2, FSCM 37695)	1		PADZZN
-128	518155-4	37695	. POST, Mounting	4		XB
-129	335662-2	37695	. INSULATOR	1		XB
-130	518155-1	37695	. POST, Mounting	2		XB
-131	518157-1	37695	. SCREW	2		XB
-132	107100-150	37695	. WASHER, Flat	2		XB
-133	LC-016B-9SS	84830	. SPRING, Helical, compression (Spec cont dwg 438662-46, FSCM 37695)	2		XB
-134	945122-9	37695	. SHIELD	1		XB
-135	MN40220G	73899	. CAPACITOR (Spec cont dwg 258475-317, FSCM 37695)	2		PADZZN
-135A	M17/151-00002	81349	. CABLE	AR		XB
-136	415541-1	37695	. PRINTED WIRING BOARD	1		XA

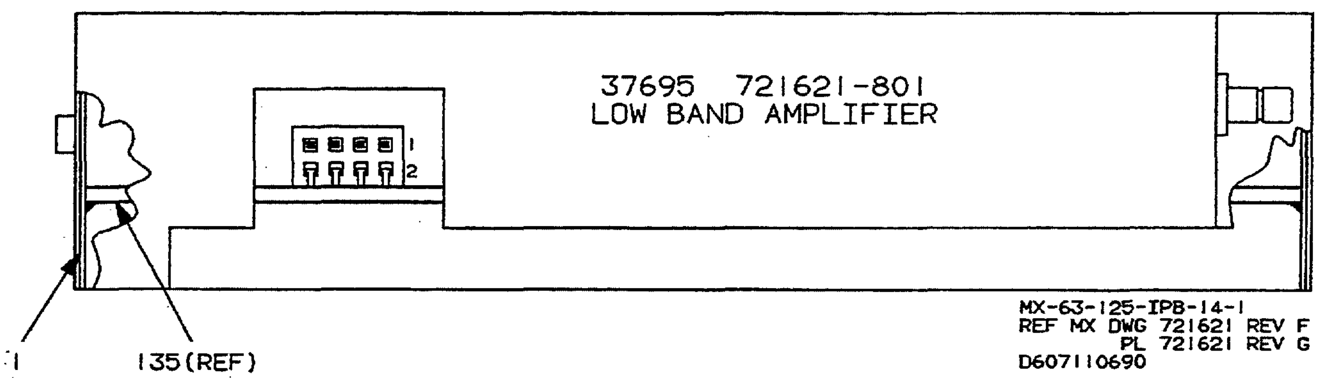


Figure 6-14. Low Band Amplifier Module Assembly (Sheet 1 of 4)

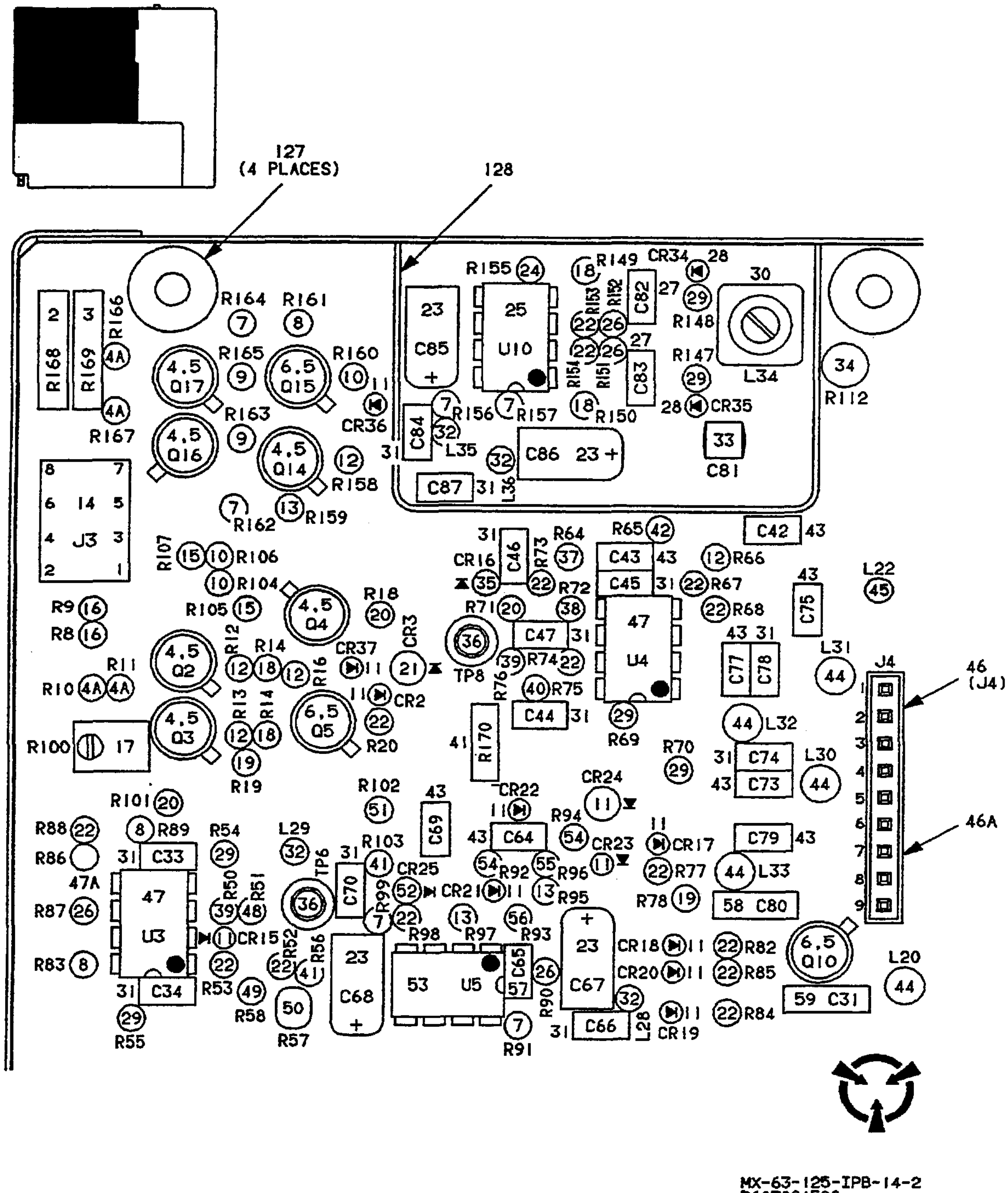


Figure 6-14. Low Band Amplifier Module Assembly (Sheet 2 of 4)

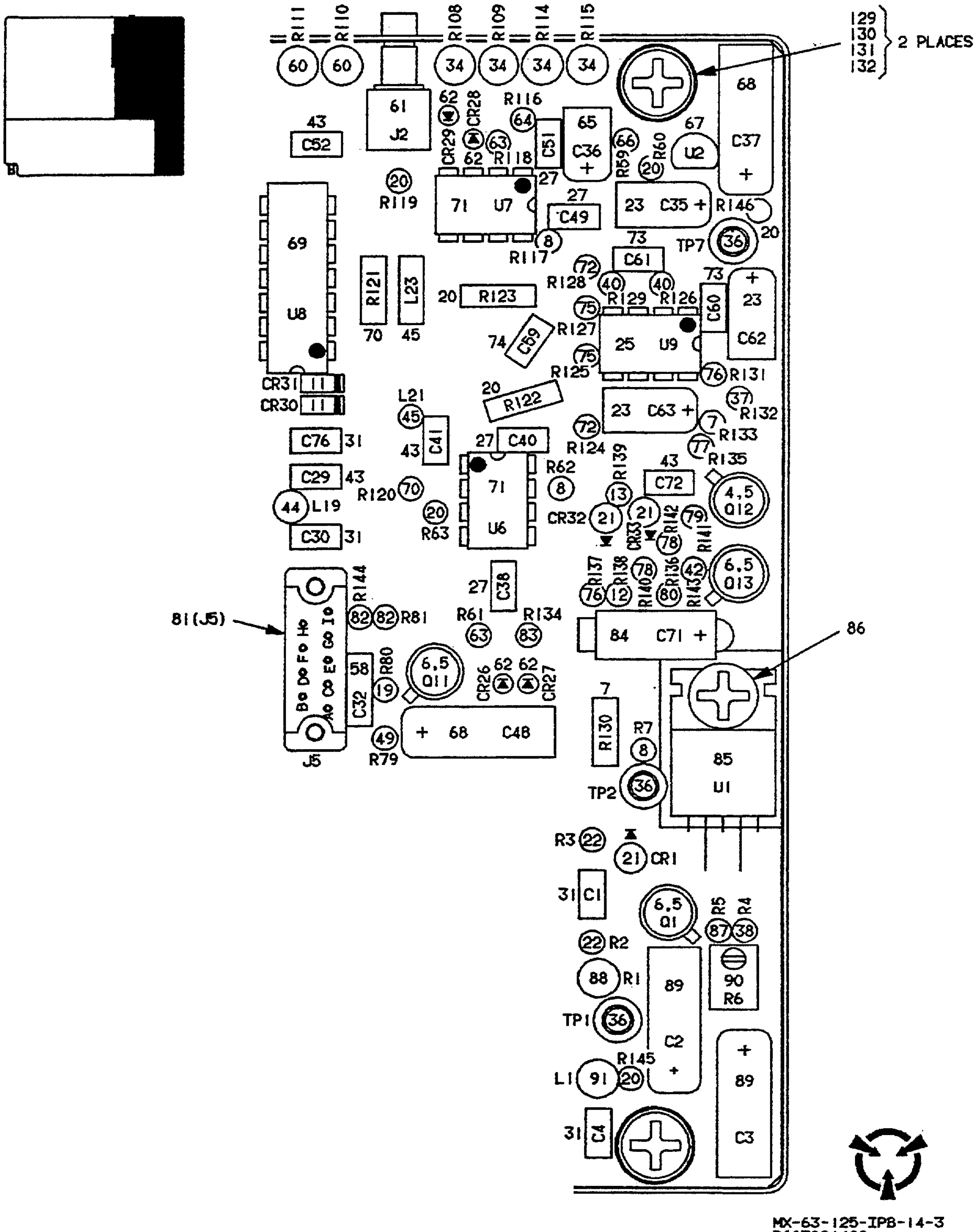


Figure 6-14. Low Band Amplifier Module Assembly (Sheet 3 of 4)

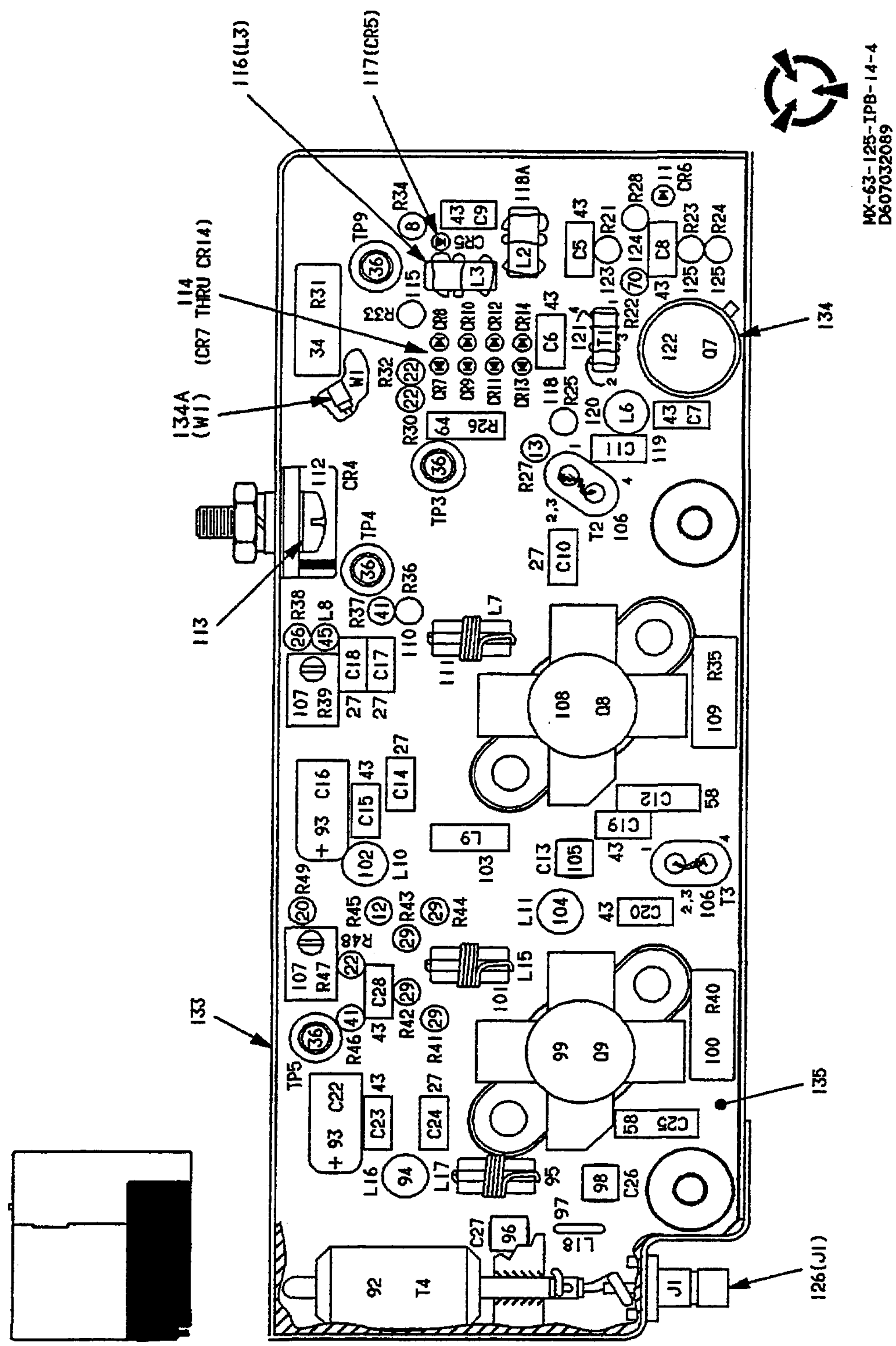


Figure 6-14. Low Band Amplifier Module Assembly (Sheet 4 of 4)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-14-	721621-801	37695	MODULE ASSEMBLY, Low band amplifier (ESD) (See .... fig. 10 for nha)	REF		PAOLDT
- 1	945120-1	37695	. HOUSING	1		XB
- 2	RWR80S10R0FR	81349	. RESISTOR	1		PADZZN
	*RWR80S10R0FS	81349	. RESISTOR	1		PADZZN
- 3	RWR80S12R1FR	81349	. RESISTOR	1		PADZZN
	*RWR80S12R1FS	81349	. RESISTOR	1		PADZZN
- 4	JAN2N2907A	81350	. SEMICONDUCTOR DEVICE	7		PADZZN
- 4A	RLR07C3002GS	81349	. RESISTOR	4		PADZZN
- 5	M38527/01-030N	81349	. MOUNTING PADS AND INSULATOR DISKS	1		XB
- 6	JAN2N2222A	81350	. SEMICONDUCTOR DEVICE	6		PADZZN
- 7	RLR07C3000GS	81349	. RESISTOR	8		PADZZN
- 8	RLR07C1003GS	81349	. RESISTOR	7		PADZZN
- 9	RLR07C6802GS	81349	. RESISTOR	2		PADZZN
- 10	RLR07C7501GS	81349	. RESISTOR	3		PADZZN
- 11	JAN1N4454-1	81349	. SEMICONDUCTOR DEVICE (ESD)	15		PADZZN
- 12	RLR07C5101GS	81349	. RESISTOR	7		PADZZN
- 13	RLR07C1502GS	81349	. RESISTOR	5		PADZZN
- 14	6-85930-3	00779	. CONNECTOR (Spec cont dwg 189158-157, FSCM .... 37695)	1		PADZZN
- 15	RLR07C1601GS	81349	. RESISTOR	2		PADZZN
- 16	RWR81S20R0FR	81349	. RESISTOR	2		PADZZN
	*RWR81S20R0FS	81349	. RESISTOR	2		PADZZN
- 17	RJ26CW102	81349	. RESISTOR	1		PADZZN
	*RJ26FW102R	81349	. RESISTOR	1		PADZZN
	=RJR26CW102R	81349	. RESISTOR	AR		PADZZN
	*=RJR26FW102R	81349	. RESISTOR	AR		PADZZN
- 18	RLR07C4700GS	81349	. RESISTOR	4		PADZZN
- 19	RLR07C5102GS	81349	. RESISTOR	3		PADZZN
- 20	RLR07C1001GS	81349	. RESISTOR	11		PADZZN
- 21	JAN1N647-1	81350	. SEMICONDUCTOR DEVICE (ESD)	4		PADZZN
- 22	RLR07C1002GS	81349	. RESISTOR	20		PADZZN
- 23	275054-126	37695	. CAPACITOR, Fixed, electrolytic	7		PADZZN
- 24	RCR07G226JS	81349	. RESISTOR	1		PADZZN
- 25	MC1741UD	04713	. MICROCIRCUIT, Linear (ESD) (Spec cont dwg .... 648904-1, FSCM 37695)	1		PADZZN
- 26	RLR07C2001GS	81349	. RESISTOR	5		PADZZN
- 27	CK05BX102K	81349	. CAPACITOR	11		PADZZN
	*M39014-01-1357	81349	. CAPACITOR	11		PADZZN
- 28	JAN1N5712	81350	. SEMICONDUCTOR DEVICE	2		PADZZN
- 29	RLR07C1000GS	81349	. RESISTOR	10		PADZZN
- 30	369122-9	37695	. RADIO FREQUENCY ASSEMBLY	1		PADZZN
- 31	CK05BX104K	81349	. CAPACITOR	16		PADZZN
	*M39014/01-1593	81349	. CAPACITOR	16		PADZZN
- 32	MS75083-10	96906	. COIL	4		PADZZN
- 33	ATC-100-B-300-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec .... cont dwg 258300-11248, FSCM 37695)	1		PADZZN
	*CDR14BG300EFSR	81349	. CAPACITOR	1		PADZZN
- 34	RLR20C1000GS	81349	. RESISTOR	6		PADZZN
	=RLR20C1000GR	81349	. RESISTOR	6		PADZZN
- 35	JAN1N756A-1	81350	. SEMICONDUCTOR DEVICE	1		PADZZN
- 36	105-0857-001	74970	. JACK, Tip (Spec cont dwg 189681-5, FSCM 37695) ..	9		PADZZN
- 37	RLR07C8201GS	81349	. RESISTOR	2		PADZZN
- 38	RLR07C2702GS	81349	. RESISTOR	2		PADZZN
- 39	RLR07C4702GS	81349	. RESISTOR	2		PADZZN
- 40	RLR07C3001GS	81349	. RESISTOR	3		PADZZN
- 41	RLR07C5100GS	81349	. RESISTOR	5		PADZZN
- 42	RLR07C6201GS	81349	. RESISTOR	2		PADZZN
- 43	CK05BX103K	81349	. CAPACITOR	22		PADZZN
	*M39014/01-1575	81349	. CAPACITOR	22		PADZZN
- 44	2773002111	34899	. SHIELDING BEAD (Spec cont dwg 650503-1, FSCM .... 37695)	6		XB
- 45	MS75084-6	96906	. COIL	4		PADZZN
- 46	533028-1	00779	. CONNECTOR	1		PADZZN
- 46A	335662-2	37695	. INSULATOR	1		XB

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-14- 47	MC1558U	04713	. MICROCIRCUIT, Linear (ESD) (Spec cont dwg .... 648903-1, FSCM 37695)	2		PADZZN
- 47A	RCR07G106JS	81349	. RESISTOR	1		PADZZN
- 48	RLR07C1501GS	81349	. RESISTOR	1		PADZZN
- 49	RLR07C4701GS	81349	. RESISTOR	2		PADZZN
- 50	1DC802K-EC	15454	. RESISTOR, Thermal (Spec cont dwg 238283-2, ... FSCM 37695)	1		PADZZN
- 51	RLR07C1201GS	81349	. RESISTOR	1		PADZZN
- 52	JAN1N751A-1	81350	. SEMICONDUCTOR DEVICE	1		PADZZN
- 53	LM101AJ	04713	. MICROCIRCUIT, Linear (ESD)(Spec cont dwg .... 648902-1, FSCM 37695)	1		PADZZN
- 54	RLR07C1803GS	81349	. RESISTOR	2		PADZZN
- 55	RLR07C3901GS	81349	. RESISTOR	1		PADZZN
- 56	RLR07C1004GS	81349	. RESISTOR	1		PADZZN
- 57	CK05BX470K	81349	. CAPACITOR	1		PADZZN
	*M39014/01-1333	81349	. CAPACITOR	1		PADZZN
- 58	CK06BX104K	81349	. CAPACITOR	4		PADZZN
	*M39014/02-1350	81349	. CAPACITOR	4		PADZZN
- 59	CK06BX824K	81349	. CAPACITOR	1		PADZZN
- 60	RLR20C3900GS	81349	. RESISTOR	2		PADZZN
	*RLR20C3900FS	81349	. RESISTOR	2		PADZZN
- 61	2010-6511-002	19505	. CONNECTOR, Receptacle, electric (Spec cont ...... dwg 189175-8, FSCM 37695)	1		PADZZN
- 62	615485-2	37695	. SEMICONDUCTOR DEVICE, Diode (ESD)	4		PADZZN
- 63	RLR07C51R0GS	81349	. RESISTOR	2		PADZZN
- 64	RLR07C3600GS	81349	. RESISTOR	2		PADZZN
- 65	275054-42	37695	. CAPACITOR, Fixed, electrolytic	1		PADZZN
- 66	RLR07C22R0GS	81349	. RESISTOR	1		PADZZN
- 67	LM2931AZ5.0	27014	. MICROCIRCUIT, Linear (ESD) (Spec cont dwg .... 948905-1, FSCM 37695)	1		PADZZN
	*LM2931AT5	27014	. MICROCIRCUIT, Linear (ESD)	1		PADZZN
- 68	275054-54	37695	. CAPACITOR, Fixed, electrolytic	2		PADZZN
- 69	MC4344L	04713	. MICROCIRCUIT, Linear (ESD) (Spec cont dwg .... 615489-1, FSCM 37695)	1		PADZZN
- 70	RLR07C15R0GS	81349	. RESISTOR	3		PADZZN
- 71	DS8628N4	27014	. MICROCIRCUIT, Linear (ESD)(Spec cont dwg .... 649033-1, FSCM 37695)	2		PADZZN
- 72	RLR07C1101GS	81349	. RESISTOR	2		PADZZN
- 73	CK05BX222K	81349	. CAPACITOR	2		PADZZN
	*M39014/01-1563	81349	. CAPACITOR	2		PADZZN
- 74	CK05BX681K	81349	. CAPACITOR	1		PADZZN
	*M39014/01-1354	81349	. CAPACITOR	1		PADZZN
- 75	RLR07C9101GS	81349	. RESISTOR	2		PADZZN
- 76	RLR07C4301GS	81349	. RESISTOR	2		PADZZN
- 77	RLR07C4300GS	81349	. RESISTOR	1		PADZZN
- 78	RLR07C6801GS	81349	. RESISTOR	2		PADZZN
- 79	RLR07C4302GS	81349	. RESISTOR	1		PADZZN
- 80	RLR07C1602GS	81349	. RESISTOR	1		PADZZN
- 81	ST600-1-9P1	95238	. CONNECTOR	1		PADZZN
- 82	RLR07C2200GS	81349	. RESISTOR	2		PADZZN
- 83	RLR07C2701GS	81349	. RESISTOR	1		PADZZN
- 84	M39003/01-2411	81349	. CAPACITOR	1		PADZZN
	*M39003/01-3131	81349	. CAPACITOR	1		PADZZN
- 85	LM2931CT	27014	. MICROCIRCUIT, Linear (ESD) (Spec cont dwg 648905-2, 37695)	1		PADZZN
- 86	MS51957-28	96906	. SCREW (AP)	1		PADZZN
	NAS620C6	80205	. WASHER (AP)	1		PADZZN
	HS007AC58	87585	. INSULATOR (AP)	1		XB
	MS35338-136	96906	. WASHER (AP)	1		PADZZN
	MS35649-264	96906	. NUT (AP)	1		PADZZN
- 87	RLR07C1203GS	81349	. RESISTOR	1		PADZZN
- 88	RWR80S33R2FR	81349	. RESISTOR	1		PADZZN
	*RWR80S33R2FS	81349	. RESISTOR	1		PADZZN
- 89	275054-101	37695	. CAPACITOR, Fixed, electrolytic	2		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-14- 90	RJR26CW503R	81349	. RESISTOR	1		PADZZN
	=RJ26CW503	81349	. RESISTOR	AR		PADZZN
	*=RJR26FW503R	81349	. RESISTOR	AR		PADZZN
- 91	369145-2	37695	. COIL, Radio frequency	1		PADZZN
- 92	369124-5	37695	. TRANSFORMER, Balun	1		PADZZN
- 93	275054-154	37695	. CAPACITOR, Fixed, electrolytic	2		PADZZN
- 94	369145-7	37695	. COIL, Radio frequency	1		PADZZN
- 95	369145-8	37695	. COIL, Radio frequency	1		PADZZN
- 96	ATC-100-B-470-J-P-500-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec .... cont dwg 258300-11253, FSCM 37695)	1		PADZZN
	*CDR14BP470EGSR	81349	. CAPACITOR	1		PADZZN
- 97	369144-20	37695	. COIL, Radio frequency	1		PADZZN
- 98	ATC-100-B-102-K-P-100-SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec .... cont dwg 258300-11185)	1		PADZZN
- 99	MRF171	04713	. SEMICONDUCTOR DEVICE, Transistor (ESD) (Spec .... cont dwg 648908-1, FSCM 37695)	1		PADZZN
-100	RLR20C1001GS	81349	. RESISTOR	1		PADZZN
-101	369145-6	37695	. COIL, Radio frequency	1		PADZZN
-102	369145-5	37695	. COIL, Radio frequency	1		PADZZN
-103	MS75084-2	96906	. COIL	1		PADZZN
-104	369145-12	37695	. COIL, Radio frequency	1		PADZZN
-105	ATC100B100JP500SP	29990	. CAPACITOR, Fixed, glass dielectric (Spec .... cont dwg 258300-11237)	1		PADZZN
-106	369124-2	37695	. TRANSFORMER, Balun	2		PADZZN
-107	RJR26CW502R	81349	. RESISTOR	2		PADZZN
	=RJ26CW502	81349	. RESISTOR	AR		PADZZN
	*=RJR26FW502R	81349	. RESISTOR	2		PADZZN
-108	MRF134	04713	. SEMICONDUCTOR DEVICE, Transistor (ESD) (Spec .... cont dwg 648907-1, FSCM 37695)	1		PADZZN
-109	RLR20C2001GS	81349	. RESISTOR	1		PADZZN
-110	RLR07C18R0GS	81349	. RESISTOR	1		PADZZN
-111	369145-4	37695	. COIL, Radio frequency	1		PADZZN
-112	MUR810	04713	. SEMICONDUCTOR DEVICE, Rectifier (Spec cont ...... dwg 648901-2, FSCM 37695)	1		PADZZN
-113	MS51957-15	96906	. SCREW (AP)	1		PADZZN
	NAS620C4	80205	. WASHER (AP)	1		PADZZN
	HS007AC58	87585	. INSULATOR (AP)	1		XB
	15090-047-062-N-1	51506	. INSULATOR, Bushing (AP) (Spec cont dwg .... 447768-10, FSCM 37695)	1		XB
	MS35338-135	96906	. WASHER (AP)	1		PADZZN
	MS35649-244	96906	. NUT (AP)	1		PADZZN
-114	BB409	NONE	. SEMICONDUCTOR DEVICE, Diode (ESD) (Spec cont .... dwg 647917-1, FSCM 37695)(Siemens Corp., Iselin, NJ	8		PADZZN
-115	RLR07C2402GS	81349	. RESISTOR	1		PADZZN
-116	369123-11	37695	. TOROID ASSEMBLY	1		PADZZN
-117	6C40363-15	NONE	. SEMICONDUCTOR DEVICE, Diode (Spec cont dwg ...... 619915-2, FSCM 37695)(GHZ Devices, North Chelmsford, MA)	1		PADZZN
-118	RLR07C20R0GS	81349	. RESISTOR	1		PADZZN
-118A	369123-12	37695	. TOROID ASSEMBLY	1		PADZZN
-119	CK05BX220K	81349	. CAPACITOR	1		PADZZN
	*M39014/01-1327	81349	. CAPACITOR	1		PADZZN
-120	369145-3	37695	. COIL, Radio frequency	1		PADZZN
-121	369123-10	37695	. TOROID ASSEMBLY	1		PADZZN
-122	JAN2N5109	81349	. SEMICONDUCTOR DEVICE	1		PADZZN
-123	RLR07C9100GS	81349	. RESISTOR	1		PADZZN
-124	RLR07C33R0GS	81349	. RESISTOR	1		PADZZN
-125	RCR07G6R8JS	81349	. RESISTOR	2		PADZZN
-126	2009-6511-000	19505	. CONNECTOR, Receptacle, electric (Spec cont ...... dwg 189175-7, FSCM 37695)	1		PADZZN
-127	518155-4	37695	. POST, Mounting	4		XB
-128	945122-10	37695	. SHIELD	1		XB
-129	518157-1	37695	. SCREW	2		XB
-130	107100-150	37695	. WASHER, Flat	2		XB

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-14-131	LC-016B-9SS	84830	. SPRING, Helical, compression (Spec cont dwg ..... 438662-46, FSCM 37695)	2		XB
-132	518155-1	37695	. POST, Mounting	2		XB
-133	945122-9	37695	. SHIELD	1		XB
-134	M87111/01-4Y17	81349	. HEAT SINK	1		XB
-134A	M17/151-00002	81349	. CABLE	AR		XB
-135	415544-1	37695	. PRINTED WIRING BOARD	1		XA

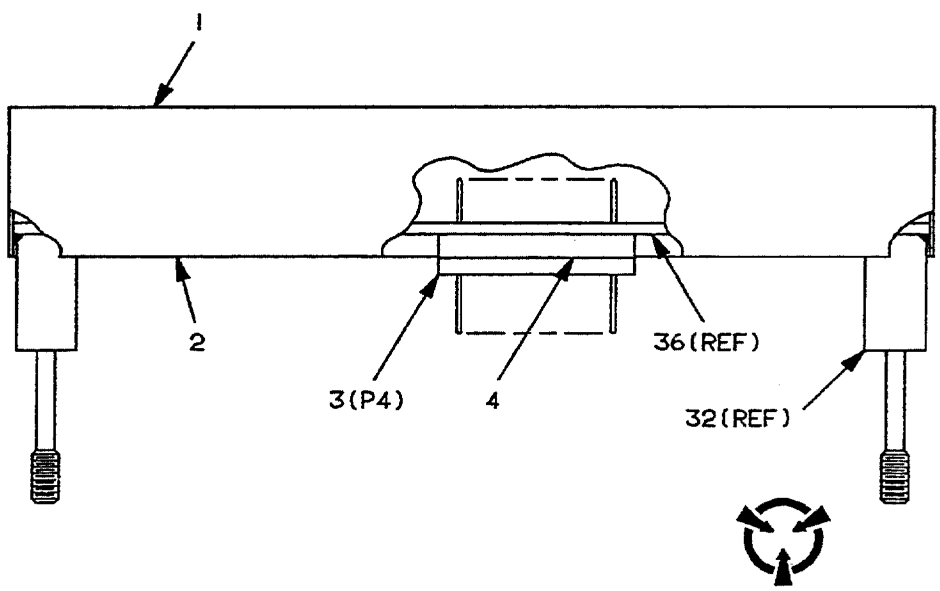


Figure 6-15. Power Supply Module Assembly (Sheet 1 of 2)

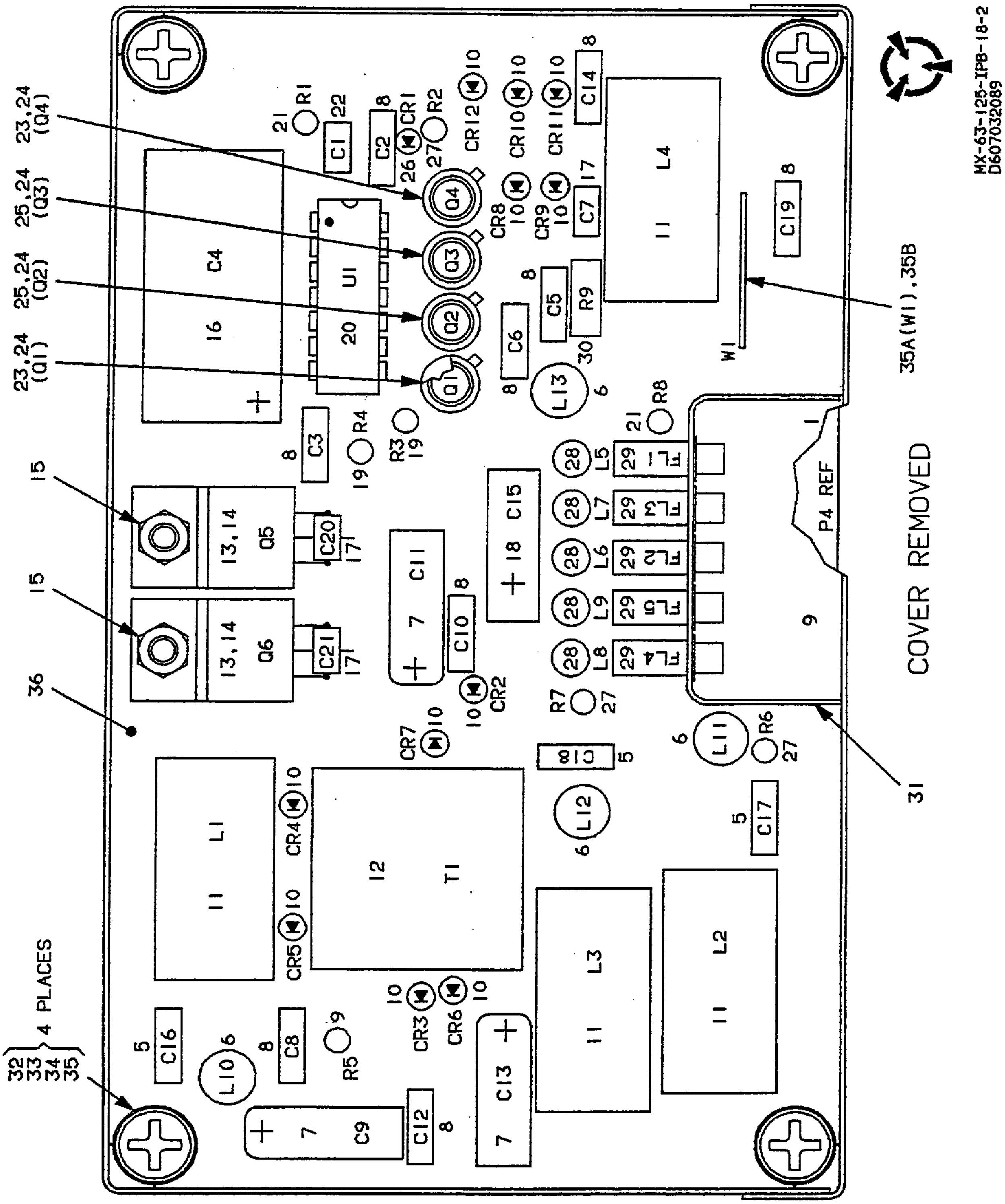


Figure 6-15. Power Supply Module Assembly (Sheet 2 of 2)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-15-	721619-801	37695	MODULE ASSEMBLY, Power supply (ESD) (See fig. ..... 9 for nha)	REF		PADLDT
- 1	945203-1	37695	. COVER	1		XB
- 2	945121-1	37695	. HOUSING	1		XB
- 3	1-87470-1	00779	. CONNECTOR (Spec cont dwg 185931-21, FSCM .... 37695)	1		PADZZN
- 4	335662-1	37695	. INSULATOR	1		XB
- 5	CK06BX824K	81349	. CAPACITOR	3		PADZZN
- 6	MS75101-4	96906	. COIL	4		PADZZN
- 7	275054-101	37695	. CAPACITOR, Fixed, electrolytic	3		PADZZN
- 8	CK06BX104K	81349	. CAPACITOR	9		PADZZN
	*M39014/02-1350	81349	. CAPACITOR	9		PADZZN
- 9	RLR07C4700GS	81349	. RESISTOR	1		PADZZN
- 10	MUR110	04713	. DIODE (Spec cont dwg 648899-2, FSCM 37695)	11		PADZZN
- 11	RL-1283-1000	14778	. RF CHOKE (Spec cont dwg 325511-1, FSCM 37695) ...	4		PADZZN
- 12	MT-4021	37695	. TRANSFORMER, Power (Spec cont dwg 305176-1, ... FSCM 37695)	1		PADZZN
- 13	MTP8P08	04713	. TRANSISTOR (ESD) (Spec cont dwg 648900-1, ... FSCM 37695)	2		PADZZN
- 14	HS007AC58	87585	. INSULATOR	1		XB
- 15	MS51957-15	96906	. SCREW (AP)	1		PADZZN
	15090-.047-.094-N-1	51506	. INSULATOR, Bushing (AP) (Spec cont dwg........... 447768-11, FSCM 37695)	1		PADZZN
	NAS620C4	80205	. WASHER (AP)	1		PADZZN
	MS35338-135	96906	. WASHER (AP)	1		PADZZN
	MS35649-244	96906	. NUT (AP)	1		PADZZN
- 16	301AEM820U050B3	00853	. CAPACITOR, Fixed, electrolytic (Spec cont........ dwg 275116-3, FSCM 37695)	1		PADZZN
- 17	CK05BX222K	81349	. CAPACITOR	3		PADZZN
	*M39014/01-1563	81349	. CAPACITOR	3		PADZZN
- 18	M39003/01-2411	81349	. CAPACITOR	1		PADZZN
	*M39003/01-3131	81349	. CAPACITOR	1		PADZZN
- 19	RLR07C24R0GS	81349	. RESISTOR	2		PADZZN
	*RCR07G4R7JS	81349	. RESISTOR	2		PADZZN
	*RLR07C2400GS	81349	. RESISTOR	2		PADZZN
- 20	CD4047BF	02735	. MICROCIRCUIT, Digital (Spec cont dwg 616509-1, .. FSCM 37695)	1		PADZZN
- 21	RLR07C2202GS	81349	. RESISTOR	2		PADZZN
- 22	CK05BX101K	81349	. CAPACITOR	1		PADZZN
	*M39014/01-1339	81349	. CAPACITOR	1		PADZZN
- 23	JAN2N2222A	81350	. SEMICONDUCTOR DEVICE	2		PADZZN
- 24	M38527/01-030N	81349	. MOUNTING PADS AND INSULATOR DISKS	1		XB
- 25	JAN2N2907A	81350	. SEMICONDUCTOR DEVICE	2		PADZZN
- 26	JAN1N758A-1	81349	. SEMICONDUCTOR DEVICE	1		PADZZN
- 27	RLR07C3001GS	81349	. RESISTOR	3		PADZZN
- 28	2673000101	34899	. SHIELDING BEAD (Spec cont dwg 657914-4, ... FSCM 37695)	5		XB
	*911573-007	19156	. SHIELDING BEAD	5		XB
- 29	4102-000	59660	. FILTER (Spec cont dwg 325512-1, FSCM 37695)	5		PADZZN
- 30	RXE050	06090	. RESISTOR, Thermal (Spec cont dwg 235184-6, ... FSCM 37695)	1		PADZZN
- 31	945122-8	37695	. SHIELD	1		XB
- 32	518155-2	37695	. POST, Mounting	4		XB
- 33	518157-2	37695	. SCREW	4		XB
- 34	107100-150	37695	. WASHER, Flat	4		XB
- 35	LC-0168-9SS	84830	. SPRING, Helical, compression (Spec cont dwg ..... 438662-46, FSCM 37695)	4		XB
- 35A	465006-22	37695	. WIRE, Electrical	AR		XB
	*B33-22BS	81346	. WIRE, Electrical	AR		XB
- 35B	445013-527	37695	. INSULATION SLEEVING, Electrical, teflon/250C	AR		XB
- 36	415543-1	37695	. PRINTED WIRING BOARD	1		XA

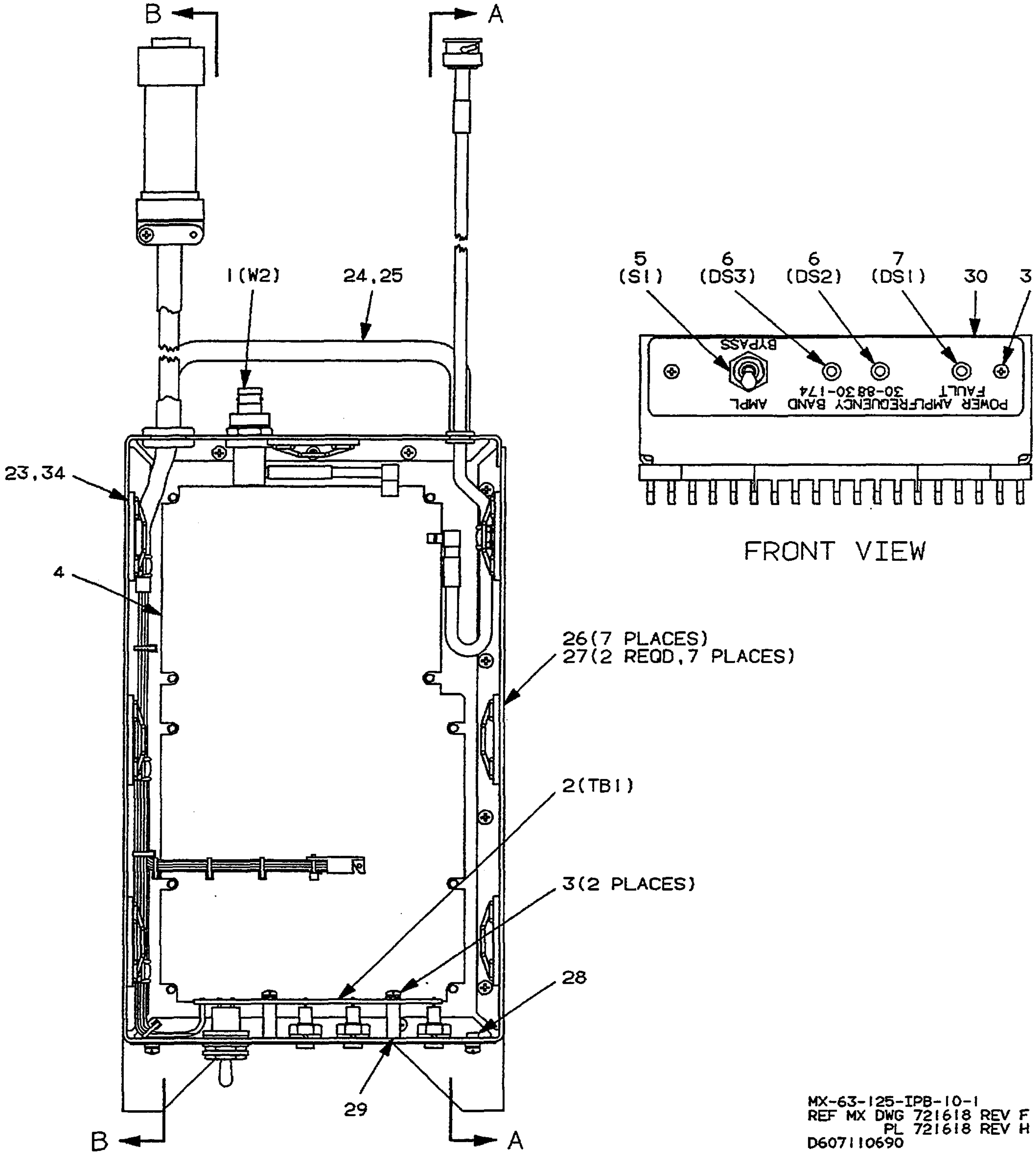


Figure 6-16. Power Amplifier Chassis Assembly (Sheet 1 of 2)

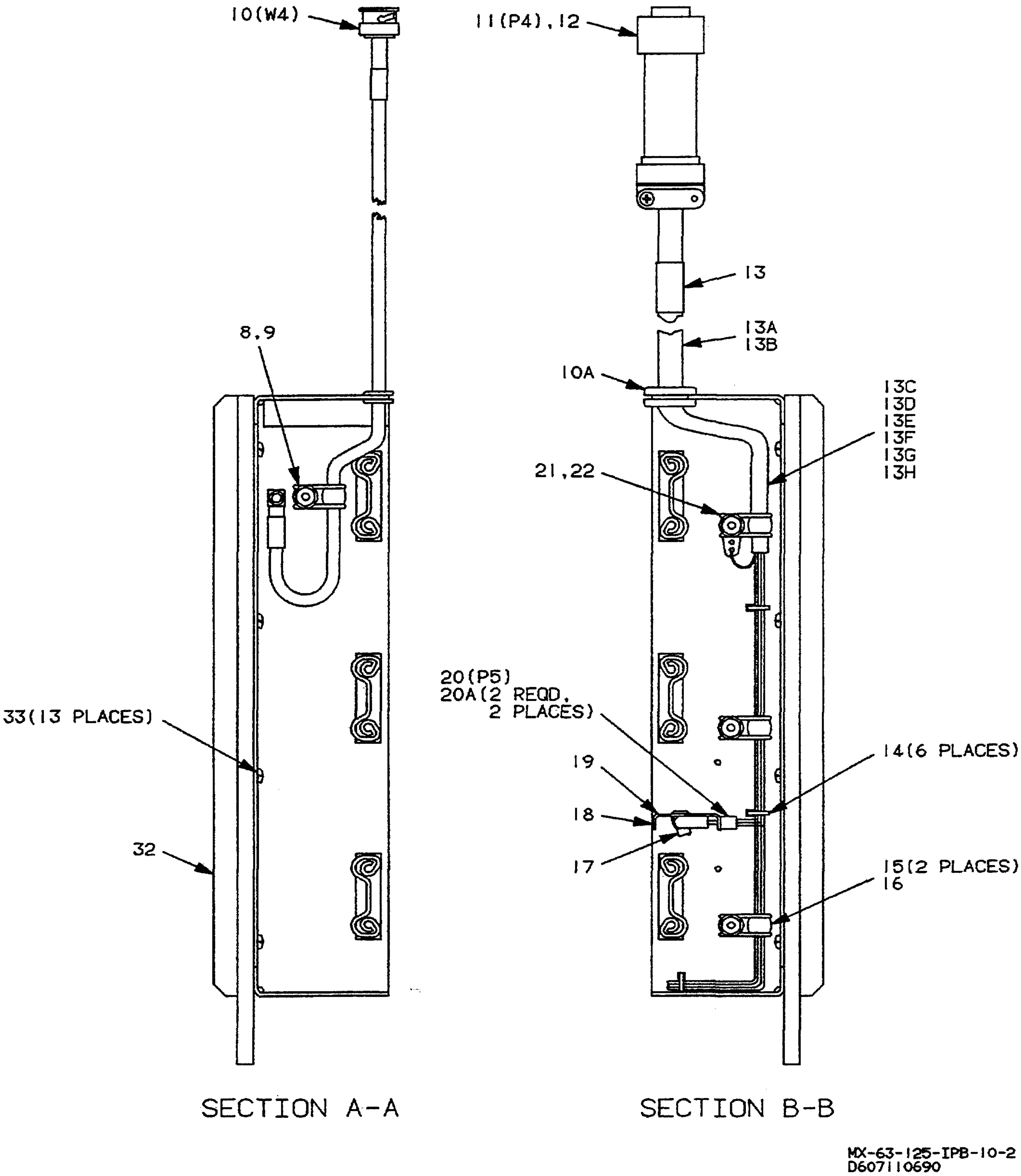


Figure 6-16. Power Amplifier Chassis Assembly (Sheet 2 of 2)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-16-	721618-801	37695	CHASSIS ASSEMBLY, Power amplifier (See fig. 9 ..... for nha)	REF		XB
- 1	421308-802	37695	. CABLE ASSEMBLY, Radio frequency (See fig. 17 .... for bkdn)	1		PADZZN
- 2	415614-1	37695	. PRINTED WIRING BOARD	1		XA
- 3	MS51957-14	96906	. SCREW (AP)	2		PADZZN
	NAS620C4	80205	. WASHER (AP)	2		PADZZN
	MS35338-135	96906	. WASHER (AP)....................................	2		PADZZN
- 4	335724-1	37695	. GASKET	1		XB
- 5	A223T11WCB	81640	. SWITCH, Toggle (Spec cont dwg 165865-1, ... FSCM 37695)	1		PADZZN
- 6	LED407GB0	34165	. LIGHT, Indicator (Spec cont dwg 186352-4, ... FSCM 37695)	2		PADZZN
- 7	LED407YB0	34165	. LIGHT, Indicator (Spec cont dwg 186352-6......... FSCM 37695)	1		PADZZN
- 8	NAS1397R3B	80205	. CLAMP	1		PADZZN
- 9	MS24693C4	96906	. SCREW (AP)	1		PADZZN
	AN960C5	88044	. WASHER (AP)	1		PADZZN
	MS21083C04	96906	. NUT (AP)	1		XB
- 10	421308-801	37695	. CABLE ASSEMBLY, Radio frequency (See fig. 17 .... for bkdn)	1		PADZZN
- 10A	MS35489-9	96906	. GROMMET	1		XB
- 11	KPT05-12-10P	71468	. CONNECTOR (Spec cont dwg 187197-1, FSCM 37695) ..	1		XB
- 12	SE1E0906A2.0-4	07418	. SHIELD, Electrical connector (Spec cont dwg ..... 187196-1, FSCM 37695)	1		XB
- 13	156174-15	37695	. BAND MARKER	1		XB
- 13A	3674	16164	. CABLE (Spec cont dwg 421726-1, FSCM 37695).......	AR		XB
- 13B	M23053/1-102-0	81349	. INSULATION SLEEVING	AR		XB
- 13C	466145-241	37695	. WIRE, Electrical	AR		XB
- 13D	466145-243	37695	. WIRE, Electrical	AR		XB
- 13E	466145-244	37695	. WIRE, Electrical	AR		XB
- 13F	466145-247	37695	. WIRE, Electrical	AR		XB
- 13G	466145-248	37695	. WIRE, Electrical	AR		XB
- 13H	M23053/5-103C	81349	. INSULATION SLEEVING	AR		XB
- 14	TY-23M	59730	. STRAP, Cable, adjustable (Spec cont dwg .... 107545-3, FSCM 37695)	6		XB
- 15	NAS1397R4B	80205	. CLAMP	2		PADZZN
- 16	MS24693C4	96906	. SCREW (AP)	1		PADZZN
	AN960C5	88044	. WASHER (AP)	1		PADZZN
	MS21083C04	96906	. NUT (AP)	1		XB
- 17	TY-23M	59730	. STRAP, Cable, adjustable (Spec cont dwg .... 107545-3, FSCM 37695)	1		XB
- 18	335466-3	37695	. PAD, Compression	1		XB
- 19	945396-2	37695	. BRACKET	1		XB
- 20	600-1-9SC	95238	. CONNECTOR	1		XB
- 20A	NAS620C0	80205	. WASHER (AP)	4		PADZZN
- 21	NAS1397R5B	80205	. CLAMP	1		PADZZN
	*NAS1397R5	80205	. CLAMP	1		PADZZN
- 22	MS24693C4	96906	. SCREW (AP)	1		PADZZN
	AN960C5	88044	. WASHER (AP)	2		PADZZN
	MS77068-1	96906	. TERMINAL (AP)	1		PADZZN
	MS21083C04	96906	. NUT (AP)	1		XB
- 23	721914-801	37695	. CHASSIS SUBASSEMBLY, Power amplifier	1		XB
- 24	MS39087-4	96906	. . HANDLE	1		PADZZN
- 25	MS51958-63	96906	. . SCREW (AP)	2		PADZZN
	MS35338-138	96906	. . WASHER (AP)	2		PADZZN
- 26	944580-2	37695	. . SPACER, Spring	7		XB
- 27	MS20426AD4-6	96906	. . RIVET (AP)	2		XB
	SB4-2	72974	. . LOCKSPRING, Turnlock fastener (AP) (Spec ...... cont dwg 108305-2, FSCM 37695)	1		
- 28	M45938/5-4C	81349	. . NUT	2		XB
- 29	NCN-4-3-2-18	07886	. . INSERT, Screw thread (Spec cont dwg .... 107328-65, FSCM 37695)	2		XB

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-16- 30	156652-1 *	37695	. . PLATE, Information	1		XB
- 31	MS51957-14	96906	. . SCREW (AP)	2		PADZZN
	MS35338-135	96906	. . WASHER (AP)	2		PADZZN
	NAS620C4	80205	. . WASHER (AP)	2		PADZZN
- 32	518030-1	37695	. . HEAT SINK, Amplifier	1		XB
- 33	MS51957-14	96906	. . SCREW (AP)	13		PADZZN
	MS35338-135	96906	. . WASHER (AP)	13		PADZZN
- 34	944576-1	37695	. . CHASSIS	1		XB

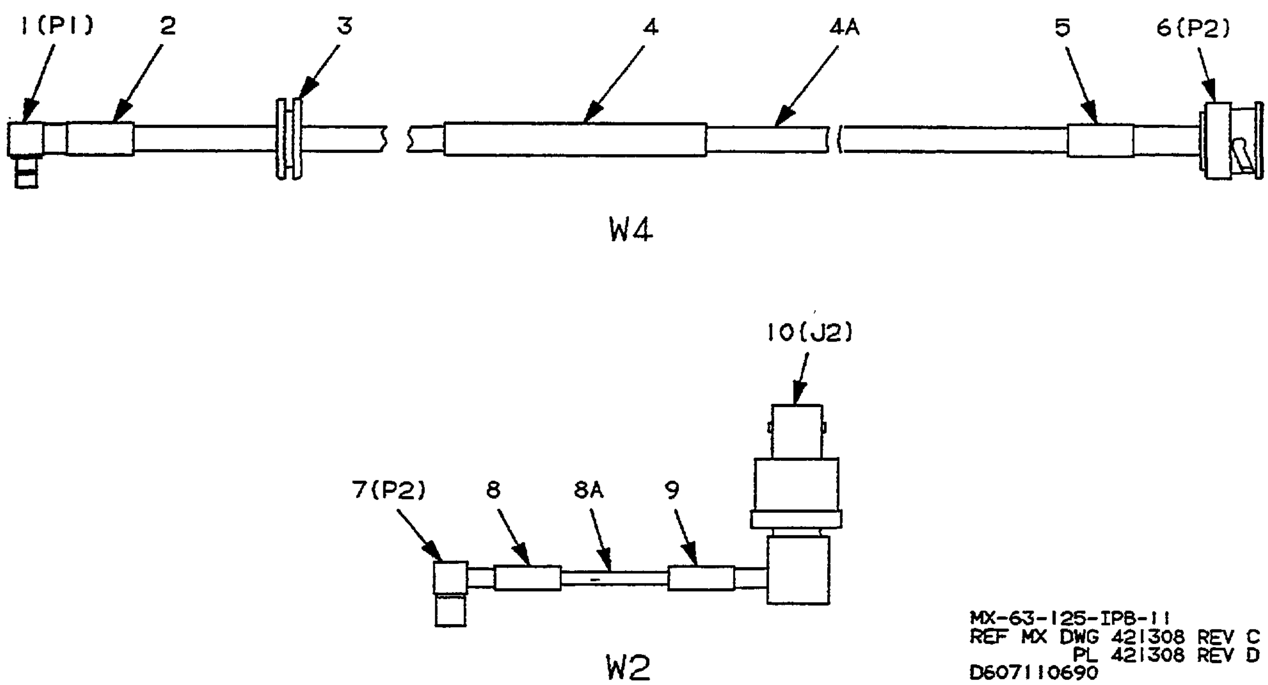


Figure 6-17. Radio Frequency Cable Assembly

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-17-	421308-801	37695	CABLE ASSEMBLY, Radio frequency (See fig. 16 ...... for nha)	REF	A	PADZZN
	421308-802	37695	CABLE ASSEMBLY, Radio frequency (See fig. 16 ...... for nha)	REF	B	PADZZN
- 1	2141-1521-006	19505	. CONNECTOR, Plug, electrical (Spec cont dwg ...... 187201-1, FSCM 37695)	1	A	XB
- 2	156174-16	37695	. BAND MARKER	1	A	XB
- 3	MS35489-4	96906	. GROMMET	1	A	XB
- 4	156174-17	37695	. BAND MARKER	1	A	XB
- 4A	M17/155-00001	81349	. CABLE	AR	A	XB
- 5	156174-18	37695	. BAND MARKER	1	A	XB
- 6	M39012/16-0013	81349	. CONNECTOR	1	A	XB
- 7	M39012/69B0009	81349	. CONNECTOR, Plug, electrical (Spec cont dwg....... 188972-7, FSCM 37695)	1	B	XB
- 8	156174-19	37695	. BAND MARKER	1	B	XB
- 8A	M17/113-RG316	81349	. CABLE	AR	B	XB
- 9	156174-20	37695	. BAND MARKER	1	B	XB
- 10	6561-6521-003	19505	. CONNECTOR, Radio frequency (Spec cont dwg .... 186172-1, FSCM 37695)	1	B	XB

A = USED ON 421308-801 ONLY.
B = USED ON 421308-802 ONLY.

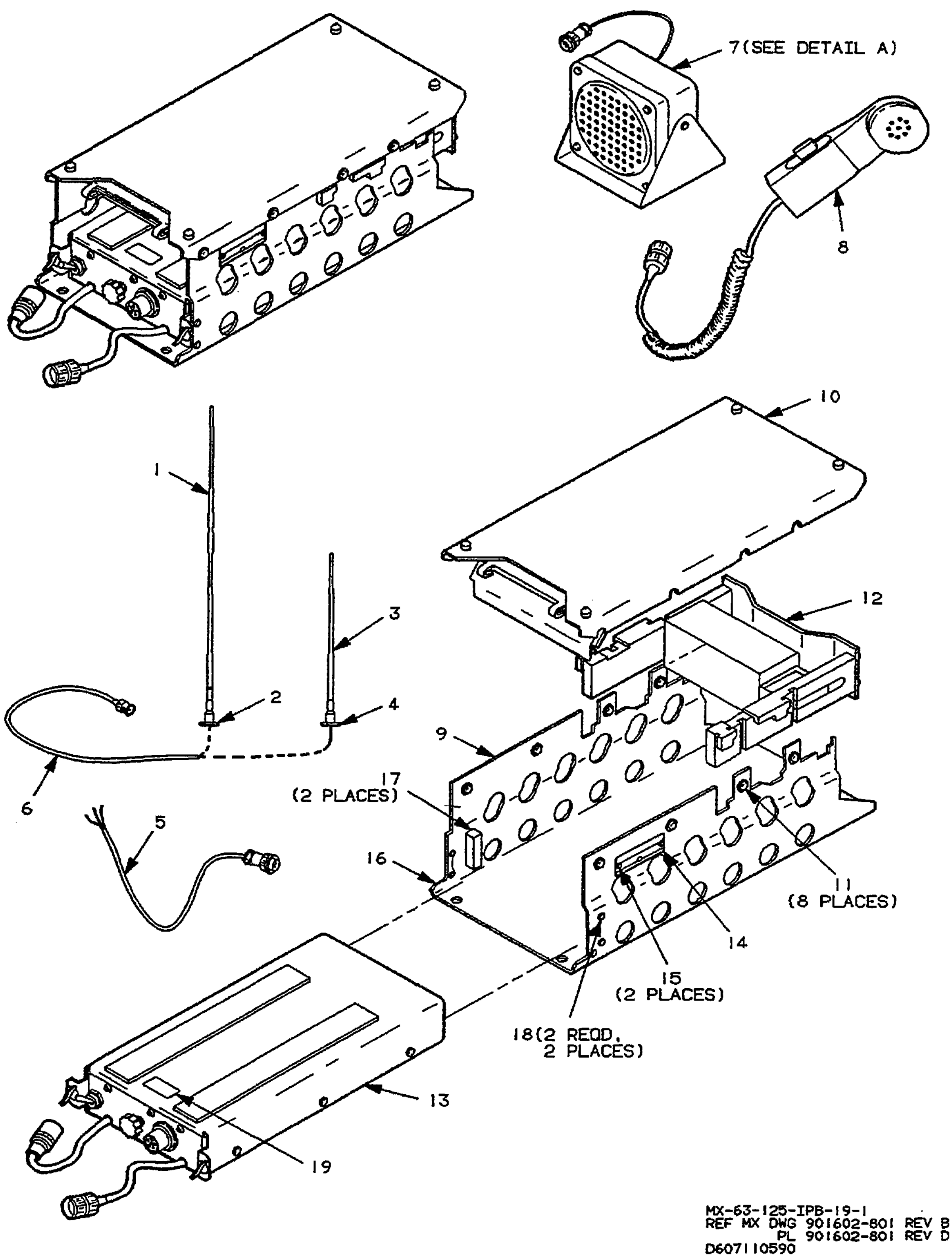


Figure 6-18. Radio OF-185/PRC Adapter Group (Sheet 1 of 2)

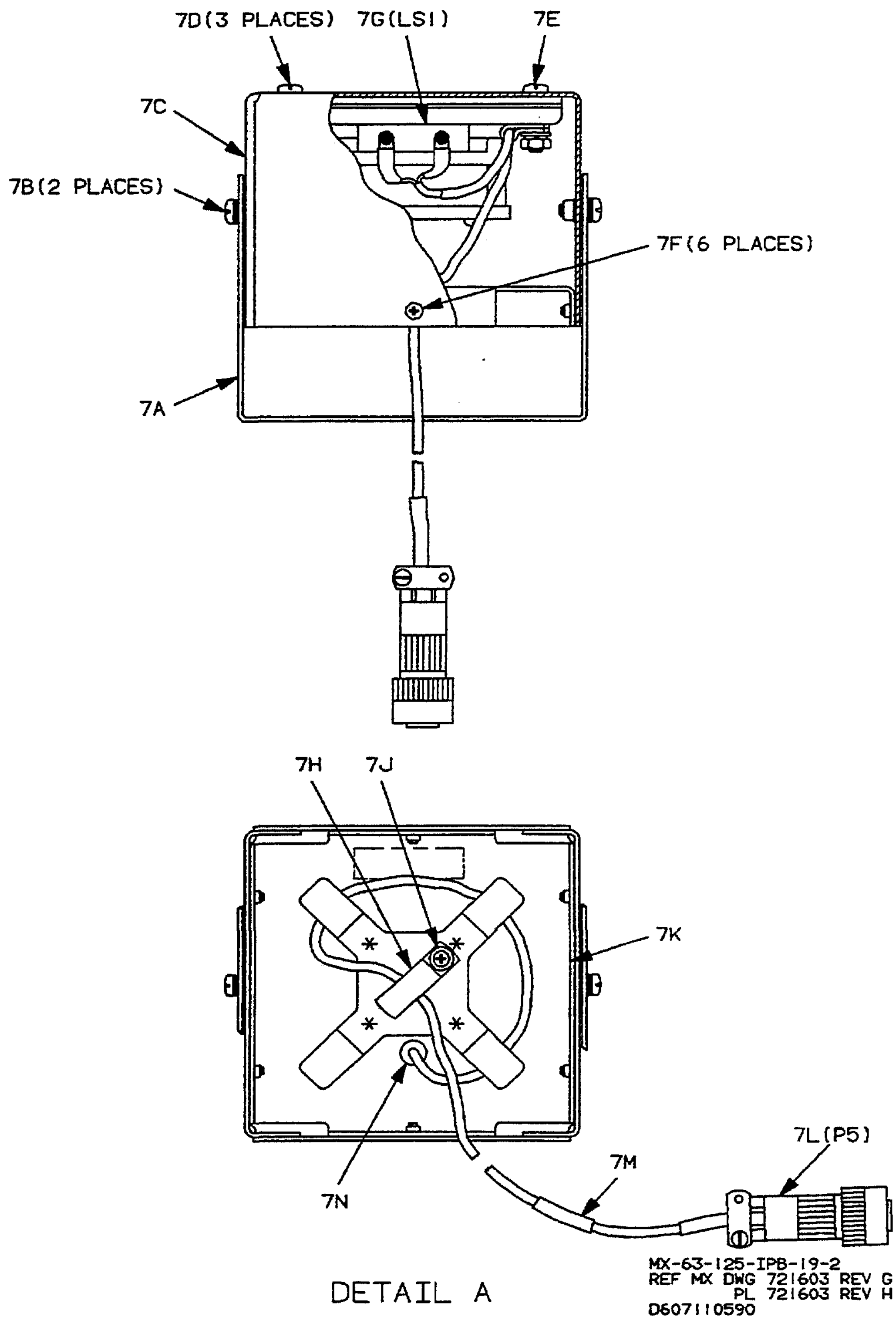


Figure 6-18. Radio OF-185/PRC Adapter Group (Sheet 2 of 2)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-18-	901602-801	37695	ADAPTER GROUP, Radio OF-185/PRC (See fig. 1 .... for nha)	REF		PAODDT
- 1	4242-MK1	23657	. ANTENNA, Vehicular, low band (Spec cont .... dwg 627670-1, FSCM 37695)	1		PAOZZN
- 2	80-06-0115-41	23657	. . BOLT, Hex (AP)	4		XB
	35-75-0154-50	23657	. . GASKET (AP)	1		XB
	80-08-0074-41	23657	. . WASHER, Flat (AP)	4		XB
	80-08-0071-41	23657	. . WASHER, Lock (AP)	4		XB
	80-07-0053-41	23657	. . NUT, Hex (AP)	4		XB
- 3	4255	23657	. ANTENNA, Vehicular, high band (Spec cont .... dwg 627671-1, FSCM 37695)	1		PAOZZN
- 4	80-06-0115-41	23657	. . BOLT, Hex (AP)	4		XB
	35-75-0154-50	23657	. . GASKET (AP)	1		XB
	80-08-0074-41	23657	. . WASHER, Flat (AP)	4		XB
	80-08-0071-41	23657	. . WASHER, Lock (AP)	4		XB
	80-07-0053-41	23657	. . NUT, Hex (AP)	4		XB
- 5	420979-801	37695	. CABLE ASSEMBLY, Input power	1		PAOZZN
- 6	420980-801	37695	. CABLE ASSEMBLY, Antenna	2		PAOZZN
	420980-802	37695	. CABLE ASSEMBLY, Antenna 15'X6"	1		PAOZZ
	420980-803	37695	. CABLE ASSEMBLY, Antenna 10'X6"	1		PAOZZ
- 7	721603-801	37695	. REMOTE SPEAKER ASSEMBLY	1		PAOOOP
- 7A	945328-1	37695	. . BRACKET, Speaker	1		XB
- 7B	MS51957-44	96906	. . SCREW (AP)	2		PADZZN
	M12133/4-176	81349	. . WASHER (AP)	2		PADZZN
	AN960C8	88041	. . WASHER (AP)	4		PADZZN
	M45938/5-7C	81349	. . NUT (AP)	2		XB
- 7C	945326-1	37695	. . ENCLOSURE, Speaker	1		XB
- 7D	MS51957-32	96906	. . SCREW (AP)	3		PADZZN
	AN960C6	88044	. . WASHER (AP)	6		PADZZN
	*THWA0612	04643	. . WASHER, Flat (AP)	6		PADZZN
	MS35338-136	96906	. . WASHER (AP)	3		PADZZN
	MS35649-264	96906	. . NUT (AP)	3		PADZZN
- 7E	MS51957-32	96906	. . SCREW (AP)	1		PADZZN
	AN960C6	88044	. . WASHER (AP)	2		PADZZN
	*THWA0612	04643	. . WASHER, Flat (AP)	2		PADZZN
	NAS1397R2B	80205	. . CLAMP (AP)	1		PADZZN
	MS35338-136	96906	. . WASHER (AP)	1		PADZZN
	MS35649-264	96906	. . NUT (AP)	1		PADZZN
- 7F	MS24693-C2	96906	. . SCREW (AP)	6		PADZZN
	M45938/5-4C	81349	. . NUT (AP)	6		XB
- 7G	H-400	07109	. . LOUDSPEAKER, Four (4) inch (Spec cont dwg ..... 480499-1, FSCM 37695)	1		PADZZN
- 7H	30-1	06915	. . CLIP, Spring tension (Spec cont dwg .... 130453-1, FSCM 37695)	1		XB
- 7J	MS51957-14	96906	. . SCREW (AP)	1		PADZZN
	AN960-C4	88044	. . WASHER (AP)	1		PADZZN
	M45938/5-4C	81349	. . NUT (AP)	1		XB
- 7K	945327-1	37695	. . COVER	1		XB
- 7L	KPT06-B10-6P		. . CONNECTOR (Spec cont dwg 187197-2,FSCM 37695)..	1		XB
- 7M	156174-9	37695	. . BAND MARKER	1		XB
- 7N	MS35489-1	96906	. . GROMMET	1		XB
- 8	SM-D-627685 #	80063	. MICROPHONE	1		PAOZZN
- 9	901615-801	37695	. VEHICULAR ADAPTER ASSEMBLY	1		PAODDT
- 10	721607-801	37695	. . COVER ASSEMBLY, Vehicular adapter chassis	1		XB
- 11	MS51957-29	96906	. . SCREW (AP)	8		PADZZN
	NAS620C6	88044	. . WASHER (AP)	8		PADZZN
- 12	721606-801	37695	. . REAR SUPPORT, Charger assembly	1		XB
- 13	721605-801	37695	. . POWER SUPPLY/AUDIO ASSEMBLY (See fig. 19 ...... for bkdn)	1		PAOLDT
- 14	156663- *	37695	. . PLATE, Identification	1		XB
- 15	MS51957-1	96906	. . SCREW (AP)	2		PADZZN
- 16	721604-801	37695	. . CHASSIS BASE ASSEMBLY, Vehicular adapter	1		XB
- 17	336030-1	37695	. . SPACER, Power supply...........................	2		XB
- 18	MS51957-15	96906	. . SCREW (AP)	2		PADZZN
	NAS620C4	80205	. . WASHER (AP)	2		PADZZN
	MS35338-135	96906	. . WASHER (AP)	2		PADZZN
	NAS671C4	80205	. . NUT (AP)	2		PADZZN
- 19	159837-3 *	37695	. . DECAL	1		XB

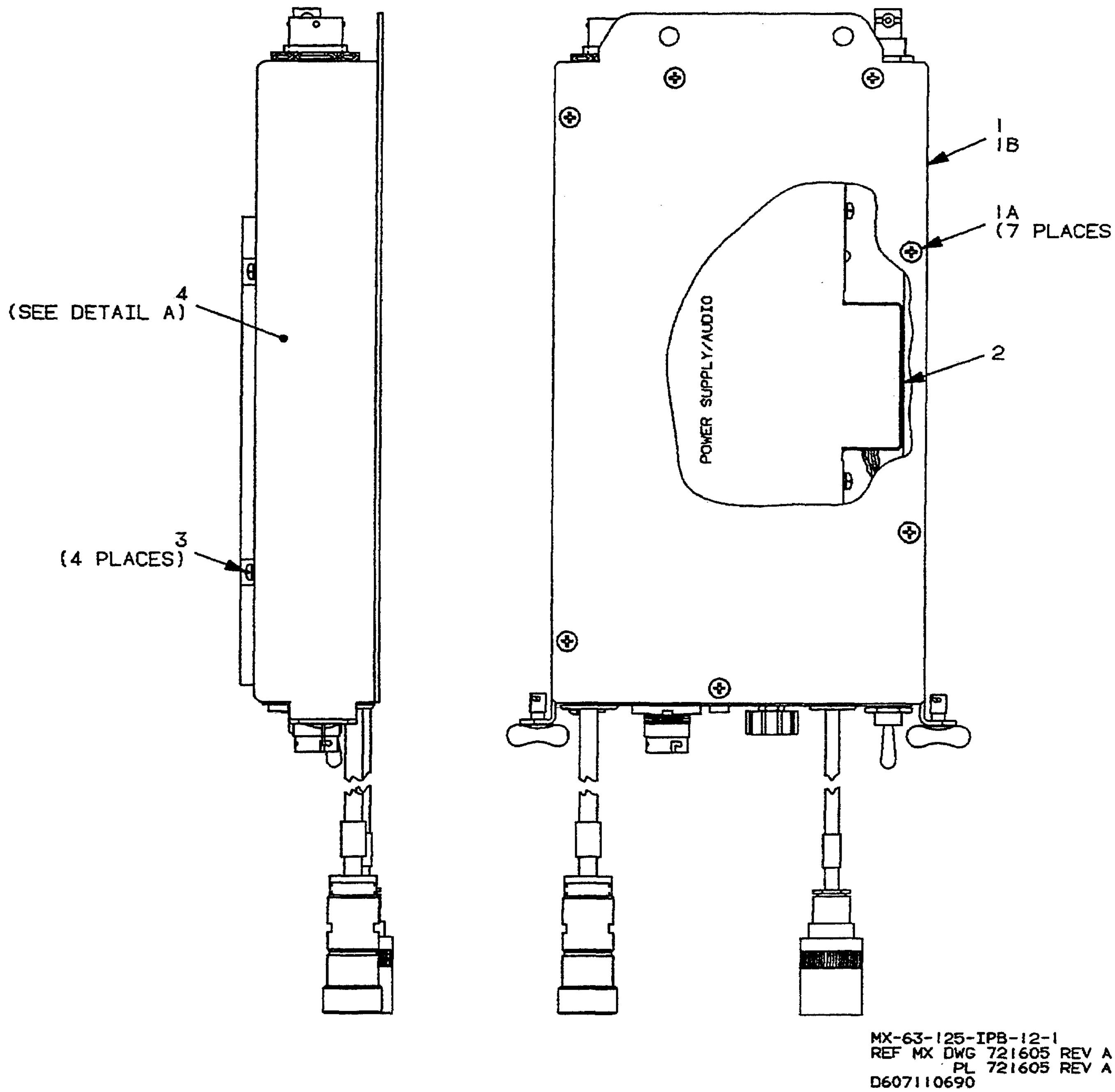


Figure 6-19. Power Supply/Audio Assembly (Sheet 1 of 3)

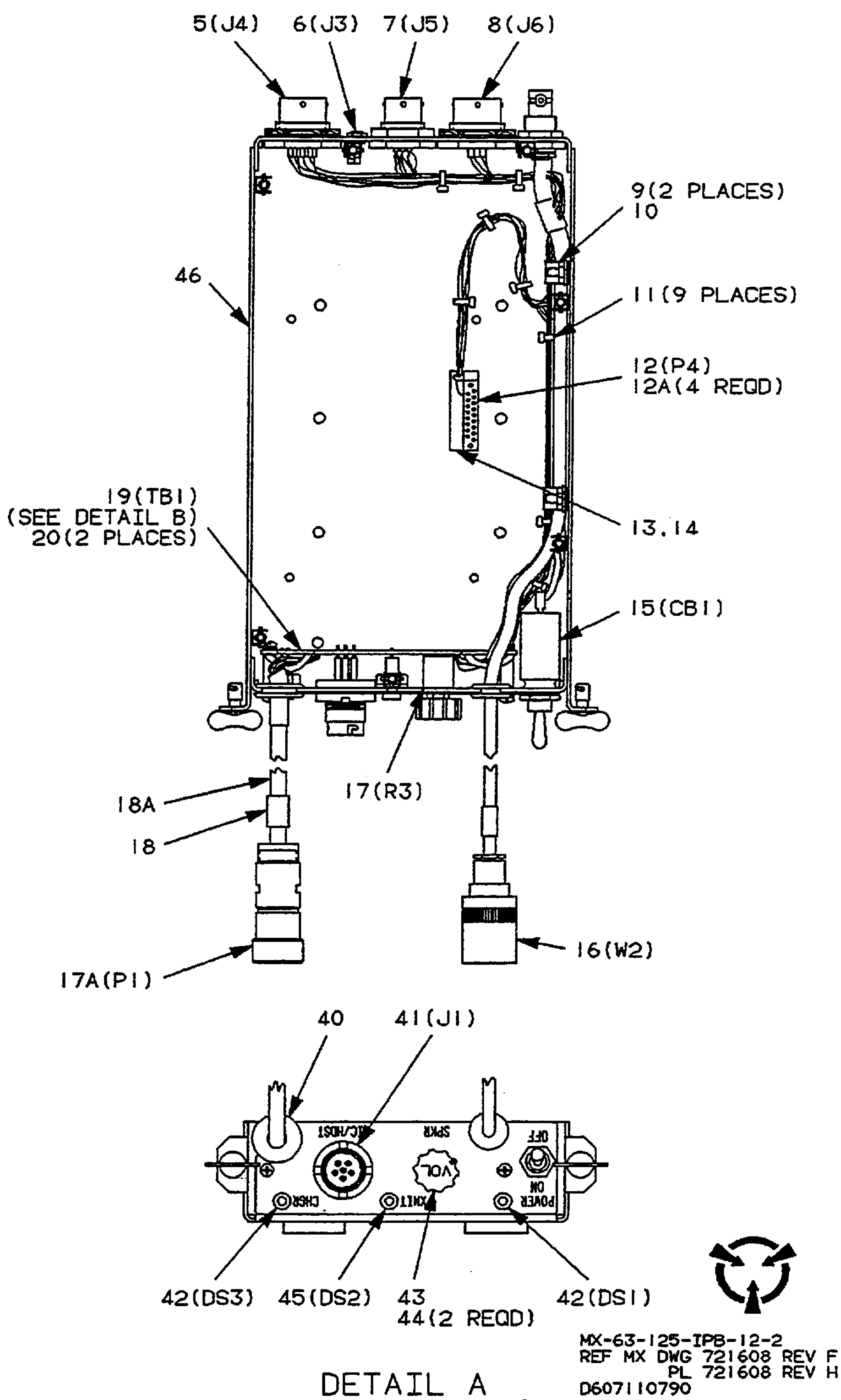


Figure 6-19. Power Supply/Audio Assembly (Sheet 2 of 3)

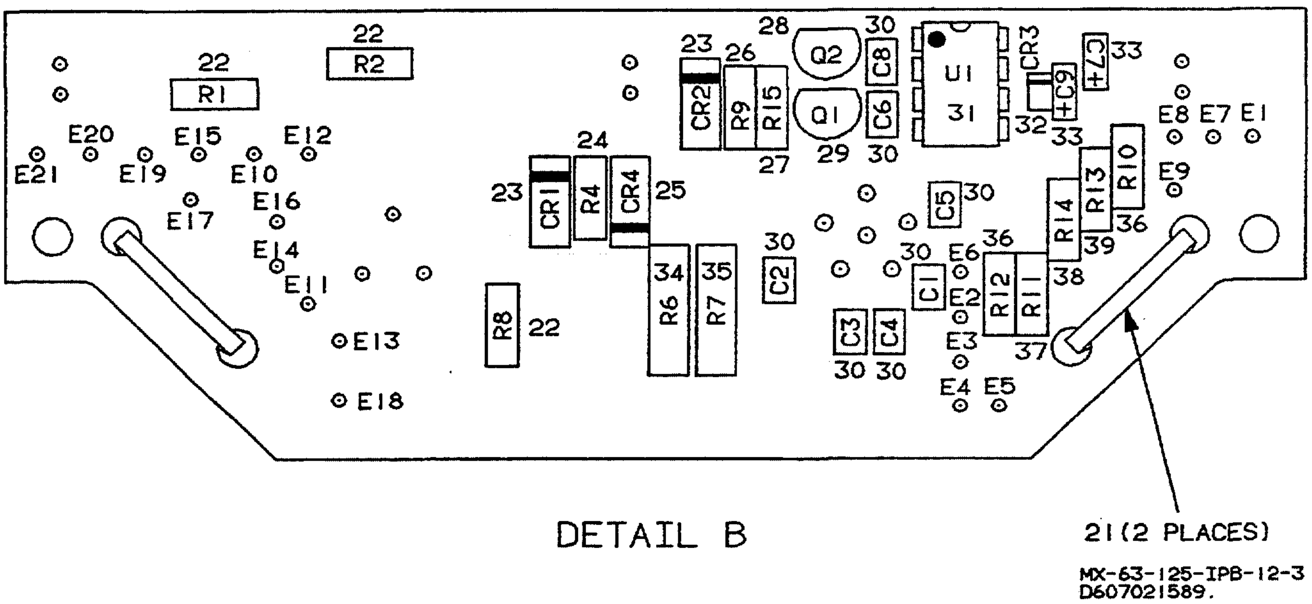


Figure 6-19. Power Supply/Audio Assembly (Sheet 3 of 3)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-19-	721605-801	37695	POWER SUPPLY/AUDIO ASSEMBLY (See fig. 18 for nha)..	REF		PAOLDT
- 1	721610-801	37695	. COVER ASSEMBLY, Power supply/audio	1		XB
- 1A	518157-3	37695	. . SCREW, Special	7		XB
- 1B	945074-1	37695	. . COVER, Chassis	1		XB
- 2	721609-801	37695	. MODULE ASSEMBLY, Power supply/audio (ESD)(See ... fig. 20 for bkdn)	1		PADDDT
- 3	MS51957-15	96906	. SCREW (AP)	4		PADZZN
	MS35338-135	96906	. WASHER (AP)	4		PADZZN
- 4	721608-801	37695	. CHASSIS ASSEMBLY, Power supply/audio	1		XB
- 5	KPT07A12-10S	71468	. . CONNECTOR (Spec cont dwg 187209-3, FSCM .... 37695)	1		PADZZN
- 6	TR2A	82389	. . JACK, Telephone (Spec cont dwg 185135-3, ... FSCM 37695)	1		PADZZN
- 7	KPT07A10-6S	71468	. . CONNECTOR (Spec cont dwg 187209-2, FSCM .... 37695)	1		PADZZN
	*MS3474W10-6S	96906	. . CONNECTOR	1		PADZZN
- 8	KPT07A12-3P	71468	. . CONNECTOR (Spec cont dwg 187209-1, FSCM .... 37695)	1		PADZZN
- 9	NAS1397R6B	80205	. . CLAMP	2		PADZZN
	*NAS1397R6N	80205	. . CLAMP	2		PADZZN
- 10	MS24693C4	96906	. . SCREW (AP)	1		PADZZN
	AN960C5	88044	. . WASHER (AP)	1		PADZZN
	MS21083C04	96906	. . NUT (AP)	1		XB
- 11	TY-23M	59730	. . STRAP, Cable, adjustable (Spec cont dwg........ 107545-3, FSCM 37695)	9		XB
- 12	UPC2B175S-8	09922	. . CONNECTOR, Receptacle, solder cup (Spec cont... dwg 186052-1, FSCM 37695)	1		PADZZN
	*M55302/6-02	81349	. . CONNECTOR	1		PADZZN
- 12A	NAS620C0	80205	. . WASHER (AP)	4		PADZZN
- 13	945396-1	37695	. . BRACKET	1		XB
- 14	335466-3	37695	. . PAD, Compression	1		XB
- 15	AP1-1-51-153	81541	. . CIRCUIT BREAKER (Spec cont dwg 165863-1, ... FSCM 37695)	1		PADZZN
- 16	421308-803	37695	. . CABLE ASSEMBLY, Radio frequency (See fig. ..... 21 for bkdn)	1		PADZZN
- 17	SPRW4A2521S16	35627	. . RESISTOR, Variable (Spec cont dwg 225359-1, ... FSCM 37695)	1		PADZZN
- 17A	MC617(1/4)	63525	. . CONNECTOR, Plug (Spec cont dwg 186138-3, ... FSCM 37695)	1		PADZZN
- 18	156174-21	37695	. . BAND MARKER	1		XB
- 18A	3674	16164	. . CABLE (Spec cont dwg 421726-1, FSCM 37695).....	AR		XB
- 19	415613-1	37695	. . PRINTED WIRING BOARD	1		XA
- 20	MS51957-14	96906	. . SCREW (AP)	2		PADZZN
	NAS620C4	80205	. . WASHER (AP)	2		PADZZN
	MS35338-135	96906	. . WASHER (AP)	2		PADZZN
- 21	TY-23M	59730	. . STRAP, Cable, adjustable (Spec cont dwg .... 107545-3, FSCM 37695)	2		XB
- 22	RWR81S7500FR	81349	. . RESISTOR	3		PADZZN
	*RWR81S7500FS	81349	. . RESISTOR	3		PADZZN
- 23	JAN1N965B1	81349	. . SEMICONDUCTOR DEVICE	2		PADZZN
- 24	RLR07C1002GS	81349	. . RESISTOR	1		PADZZN
- 25	JAN1N647-1	81350	. . SEMICONDUCTOR DEVICE	1		PADZZN
- 26	RLR07C1003GS	81349	. . RESISTOR	2		PADZZN
- 27	RLR07C5101GS	81349	. . RESISTOR	1		PADZZN
- 28	MPSA06	07263	. . TRANSISTOR (Spec cont dwg 647002-1, ... FSCM 37695)	1		PADZZN
- 29	MPSA55	07263	. . TRANSISTOR-PNP (Spec cont dwg 647001-1, ... FSCM 37695)	1		PADZZN
- 30	C315C102M5R5CA	31433	. . CAPACITOR, Fixed ceramic (Spec cont dwg .... 258329-20099, FSCM 37695)	7		PADZZN
- 31	LM158J	27014	. . MICROCIRCUIT, Linear (Spec cont dwg 616139-2, . FSCM 37695)	1		PADZZN
- 32	JAN1N4454-1	81349	. . SEMICONDUCTOR DEVICE (ESD)	1		PADZZN
- 33	275056-432	37695	. . CAPACITOR, Fixed, electrolytic	2		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-19- 34	RWR80S6490FR	81349	. . RESISTOR	1		PADZZN
	*RWR80S6490FS	81349	. . RESISTOR	1		PADZZN
- 35	RWR80S7500FR	81349	. . RESISTOR	1		PADZZN
	*RWR80S7500FS	81349	. . RESISTOR	1		PADZZN
- 36	RLR07C2402GS	81349	. . RESISTOR	1		PADZZN
- 37	RLR07C1203GS	81349	. . RESISTOR	1		PADZZN
- 38	RLR07C7503GS	81349	. . RESISTOR	1		PADZZN
- 39	RLR07C1000GS	81349	. . RESISTOR	1		PADZZN
- 40	1240	28520	. . BUSHING, Strain relief (Spec cont dwg .... 345177-5, FSCM 37695)	1		XB
	*SR7K2	28520	. . BUSHING, Strain relief	1		XB
- 41	MC-283R-8	63525	. . CONNECTOR, Receptacle, electrical (Spec cont .. dwg 186137-8, FSCM 37695)	1		PADZZN
- 42	LED407GB0	34165	. . LIGHT, Indicator (Spec cont dwg 186352-4, ... FSCM 37695)	2		PADZZN
- 43	517448-2	37695	. . KNOB	1		PAOZZN
- 44	NAS1081C06D3N	80205	. . SETSCREW (AP)	2		PAOZZN
- 45	LED407YB0	34165	. . Light, Indicator (Spec cont dwg 186352-6, ... FSCM 37695)	1		PADZZN
- 46	721915-801	37695	. . CHASSIS SUBASSEMBLY, Power supply/audio .... (See fig. 22 for bkdn)	1		XB

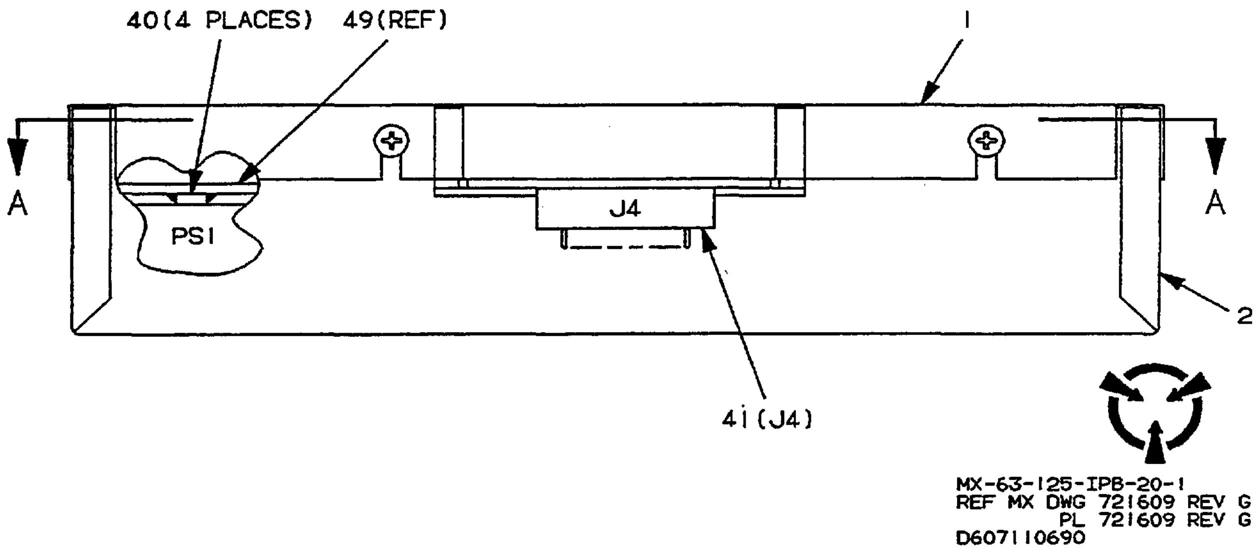


Figure 6-20. Power Supply/Audio Module Assembly (Sheet 1 of 3)

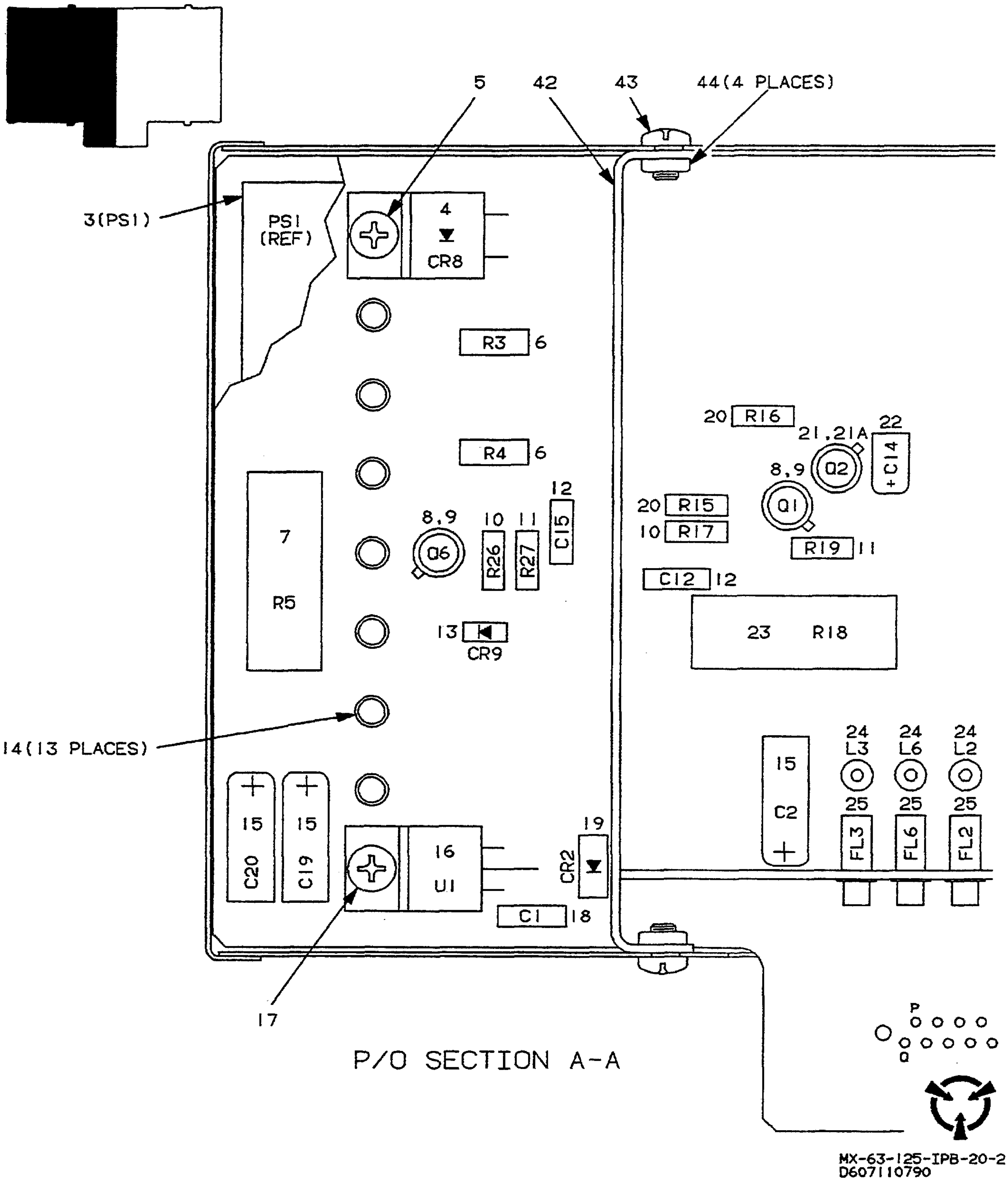


Figure 6-20. Power Supply/Audio Module Assembly (Sheet 2 of 3)

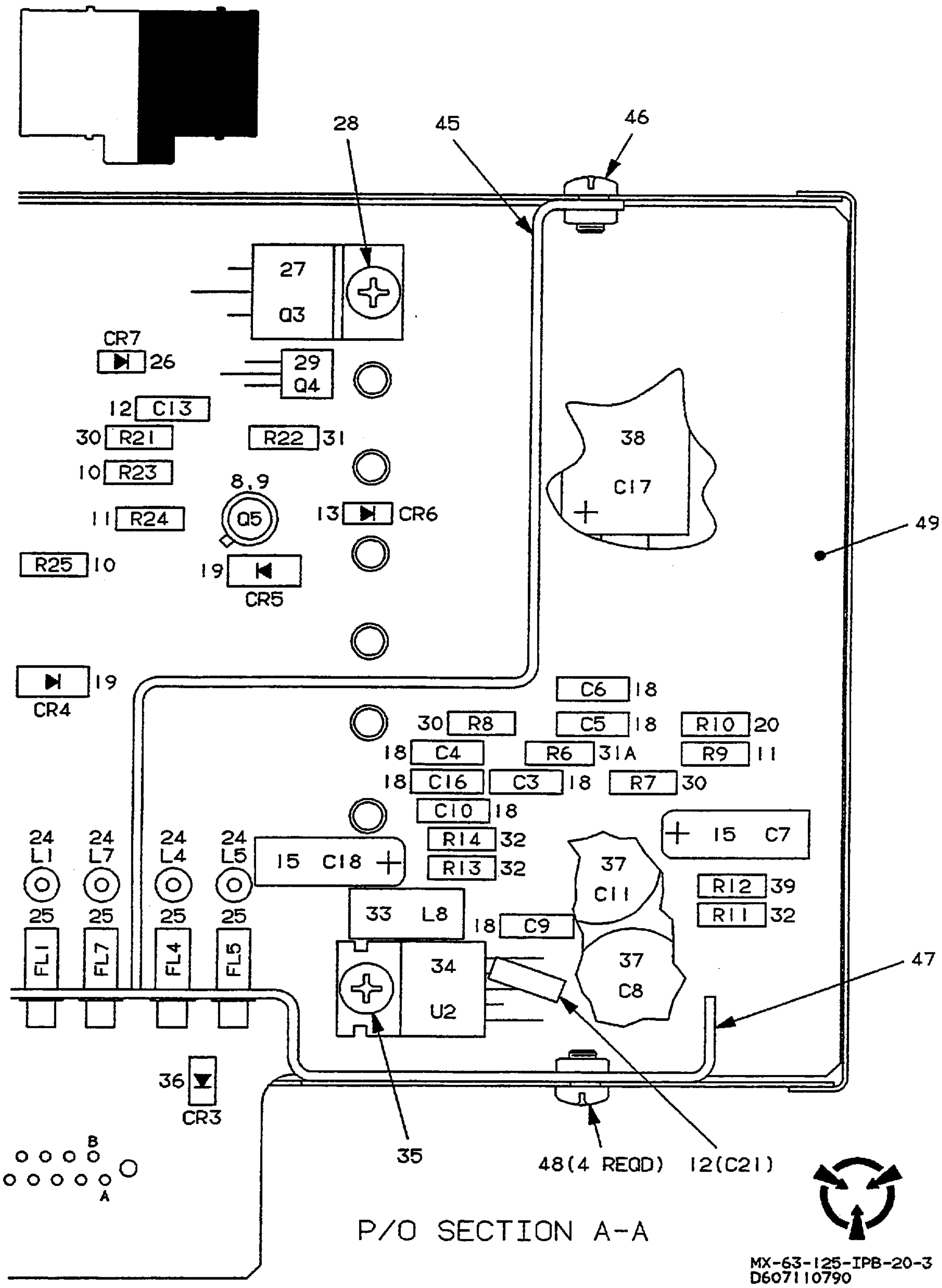


Figure 6-20. Power Supply/Audio Module Assembly (Sheet 3 of 3)

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-20-	721609-801	37695	MODULE ASSEMBLY, Power supply/audio (ESD)(See ..... fig. 19 for nha)	REF		PADDDT
- 1	945238-1	37695	. COVER	1		XB
- 2	945239-1	37695	. HOUSING	1		XB
- 3	UWS1226	47996	. POWER SUPPLY (Spec cont dwg 535619-1, FSCM ...... 37695)	1		PADZZN
- 4	MUR1520	04713	. DIODE (ESD) (Spec cont dwg 649008-4, FSCM .... 37695)	1		PADZZN
- 5	MS51957-17	96906	. SCREW (AP)	1		PADZZN
	MS35338-135	96906	. WASHER (AP)	1		PADZZN
	HS007AC58	87585	. INSULATOR (AP)	2		XB
	15090-.047-.094-N-1	51506	. INSULATOR, Bushing (AP)(Spec cont dwg .... 447768-11, FSCM 37695)	1		PADZZN
	NAS620C4	80205	. WASHER (AP)	1		PADZZN
- 6	RXE050	06090	. RESISTOR, Thermal (Spec cont dwg 235184-6, ... FSCM 37695)	2		PADZZN
- 7	RWR84S12R4FR	81349	. RESISTOR	1		PADZZN
	*RWR84S12R4FS	81349	. RESISTOR	1		PADZZN
- 8	JAN2N2222A	81350	. SEMICONDUCTOR DEVICE	3		PADZZN
- 9	M38527/01-030N	81349	. MOUNTING PADS AND INSULATOR DISKS	1		XB
- 10	RLR07C1001GS	81349	. RESISTOR	4		PADZZN
- 11	RLR07C6802GS	81349	. RESISTOR	4		PADZZN
- 12	CK06BX824K	81349	. CAPACITOR	4		PADZZN
- 13	JAN1N753A1	81350	. SEMICONDUCTOR DEVICE	2		PADZZN
- 14	0343-0-15-01-34-27-10-0	NONE	. CONTACT, Electrical (Spec cont dwg 165831-1, ... FSCM 37695) (Mill-Max Manufacturing Corp, Oyster Bay, NY)	13		XB
- 15	275054-101	37695	. CAPACITOR, Fixed, electrolytic	5		PADZZN
- 16	MC7815BT	04713	. MICROCIRCUIT, Linear (ESD)(Spec cont dwg .... 648906-5, FSCM 37695)	1		PADZZN
	*5962-8855301TA	67268	. MICROCIRCUIT, Linear	1		PADZZN
- 17	MS51957-17	96906	. SCREW (AP)	1		PADZZN
	MS35338-135	96906	. WASHER (AP)	1		PADZZN
	HS007AC58	87585	. INSULATOR (AP)	2		XB
	15090-.047-.094-N-1	51506	. INSULATOR, Bushing (AP)(Spec cont dwg .... 447768-11, FSCM 37695)	1		PADZZN
	NAS620C4	80205	. WASHER (AP)	1		PADZZN
- 18	CK06BX104K	81349	. CAPACITOR	8		PADZZN
	*M39014/02-1350	81349	. CAPACITOR	8		PADZZN
- 19	JAN1N647-1	81350	. SEMICONDUCTOR DEVICE	3		PADZZN
- 20	RLR07C6801GS	81349	. RESISTOR	3		PADZZN
- 21	JAN2N2907A	81350	. SEMICONDUCTOR DEVICE	1		PADZZN
- 22	275054-42	37695	. CAPACITOR, Fixed, electrolytic	1		PADZZN
- 23	RWR84SR150FR	81349	. RESISTOR	1		PADZZN
	*RWR84SR150FS	81349	. RESISTOR	1		PADZZN
- 24	2673000101	34899	. SHIELDING BEAD (Spec cont dwg 657914-4, ... FSCM 37695)	7		XB
	*911573-007	19156	. SHIELDING BEAD	5		XB
- 25	4102-000	59660	. FILTER (Spec cont dwg 325512-1, FSCM 37695)	7		PADZZN
- 26	JAN1N972B1	81350	. SEMICONDUCTOR DEIVCE	1		PADZZN
- 27	MCR69-6	04713	. TRANSISTOR (ESD)(Spec cont dwg 649010-1, ... FSCM 37695)	1		PADZZN
- 28	MS51957-17	96906	. SCREW (AP)	1		PADZZN
	MS35338-135	96906	. WASHER (AP)	1		PADZZN
	HS007AC58	87585	. INSULATOR (AP)	2		XB
	15090-.047-.094-N-1	51506	. INSULATOR, Bushing (AP)(Spec cont dwg .... 447768-11, FSCM 37695)	1		PADZZN
	NAS620C4	80205	. WASHER (AP)	1		PADZZN
- 29	2N6027	04713	. TRANSISTOR (ESD) (Spec cont dwg 649034-1, ... FSCM 37695)	1		PADZZN
- 30	RLR07C1102GS	81349	. RESISTOR	3		PADZZN
- 31	RLR07C1500GS	81349	. RESISTOR	1		PADZZN
- 31A	RLR07C5601GS	81349	. RESISTOR	1		PADZZN
- 32	RCR07G2R7JS	81349	. RESISTOR	3		PADZZN
- 33	MS75101-4	96906	. COIL	1		PADZZN

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-20- 34	LM383AT01	27014	. MICROCIRCUIT, LINEAR (ESD)(Spec cont dwg .... 648898-1, FSCM 37695)	1		PADZZN
- 35	MS51957-17	96906	. SCREW (AP)	1		PADZZN
	MS35338-135	96906	. WASHER (AP)	1		PADZZN
	HS007AC58	87585	. INSULATOR (AP)	2		XB
	15090-.047-.094 N-1	51506	. INSULATOR, Bushing (AP)(Spec cont dwg .... 447768-11, FSCM 37695)	1		PADZZN
	NAS620C4	80205	. WASHER (AP)	1		PADZZN
- 36	MUR110	04713	. DIODE (Spec cont dwg 648899-2, FSCM 37695)	1		PADZZN
- 37	ULB1C221M1CA	55680	. CAPACITOR, Fixed, electrolytic (Spec cont dwg ... 275110-11, FSCM 37695)	2		PADZZN
- 38	301AEM270U1003B	00853	. CAPACITOR, Fixed, electrolytic (Spec cont dwg ... 275116-6, FSCM 37695)	1		PADZZN
- 39	RLR07C2700GS	81349	. RESISTOR	1		PADZZN
- 40	518155-5	37695	. POST, Mounting	4		XB
- 41	ST600-1-17P1	95238	. CONNECTOR	1		PADZZN
- 42	945241-1	37695	. SHIELD	1		XB
- 43	MS51957-13	96906	. SCREW (AP)	2		PADZZN
- 44	M45938/5-3C	81349	. NUT (AP)	4		XB
- 45	945241-2	37695	. SHIELD	1		XB
- 46	MS51957-13	96906	. SCREW (AP)	1		PADZZN
- 47	945241-3	37695	. SHIELD	1		XB
- 48	MS51957-13	96906	. SCREW (AP)	1		PADZZN
- 49	415540-1	37695	. PRINTED WIRING BOARD	1		XA

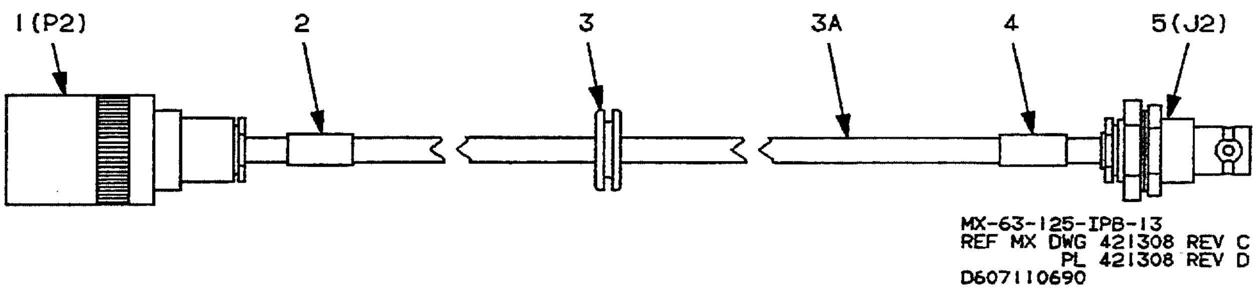


Figure 6-21. Radio Frequency Cable Assembly

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-21-	421308-803	37695	CABLE ASSEMBLY, Radio frequency (See fig. 19 ...... for nha)	REF		PADZZN
- 1	187103-1	37695	. CONNECTOR, Plug, electrical	1		XB
- 2	156174-22	37695	. BAND MARKER	1		XB
- 3	MS35489-4	96906	. GROMMET	1		XB
- 3A	M17/175-00001	81349	. CABLE	AR		XB
- 4	156174-23	37695	. BAND MARKER	1		XB
- 5	02005	58167	. CONNECTOR, Receptacle, electrical (Spec cont..... dwg 187207-1, FSCM 37695)	1		XB

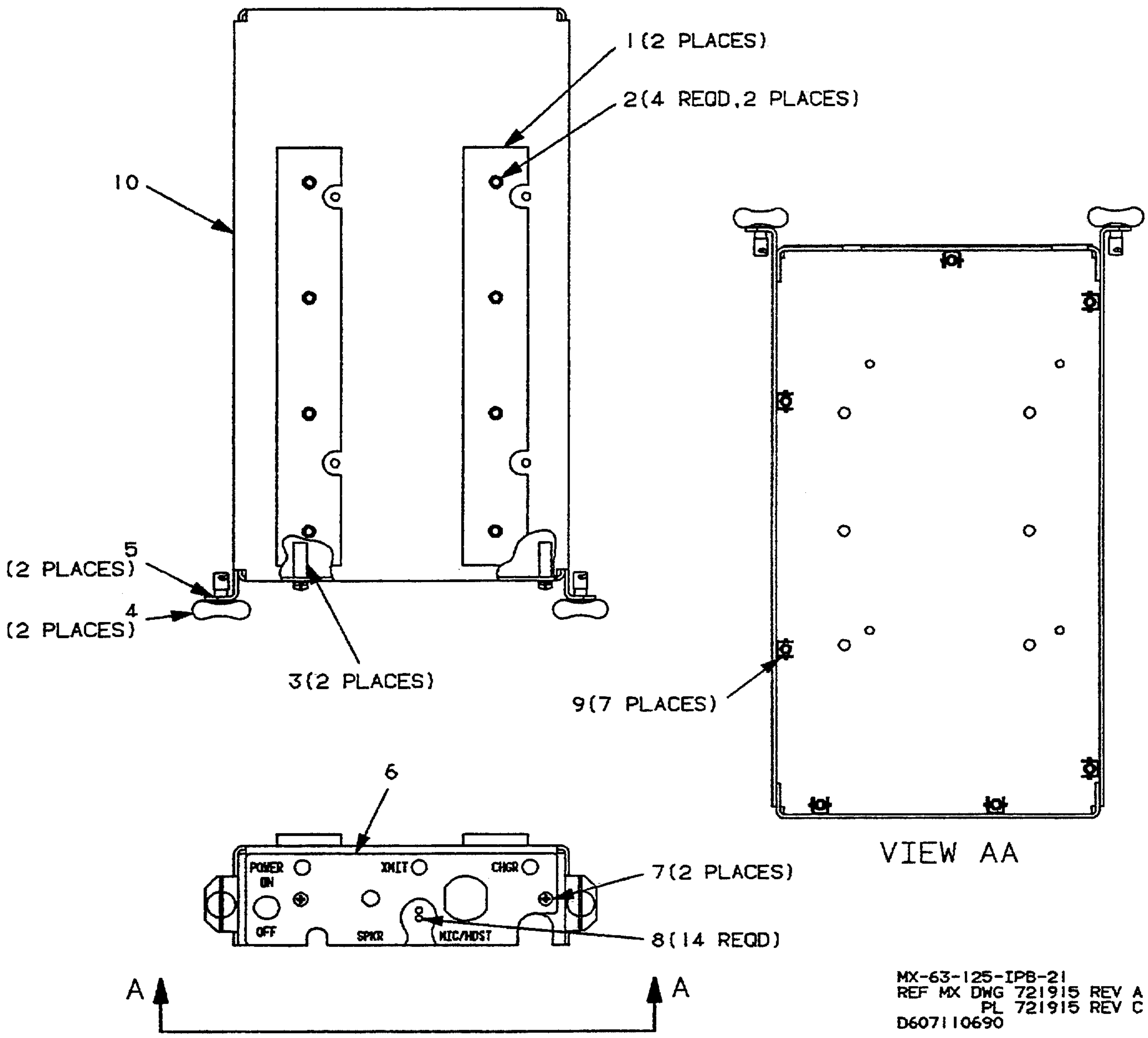


Figure 6-22. Power Supply/Audio Chassis Assembly

FIGURE AND INDEX NUMBER	PART NUMBER	FSCM	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE	SMR CODE
6-22-	721915-801	37695	CHASSIS SUBASSEMBLY, Power supply/audio (See fig.19 for nha)	REF		XB
- 1	335600-1	37695	. WEAR STRIP	2		XB
- 2	MS20426AD3-5	96906	. RIVET (AP)	4		XB
	NAS620C3	80205	. WASHER (AP)	4		PADZZN
- 3	NCN-4-3-2-18	07886	. INSERT, Screw thread (Spec cont dwg 107328-65, FSCM 37695)	2		XB
- 4	AJW4-30	72794	. DZUS, Stud, turnlock fastener (Spec cont dwg 109721-227, FSCM 37695)	2		XB
- 5	SR4	72794	. RING, Retaining (Spec cont dwg 108877-2, FSCM 37695)	2		XB
	*1307246PC8	10001	. RING, Retaining	2		XB
- 6	156653-1 *	37695	. PLATE, Information	1		XB
- 7	MS51957-14	96906	. SCREW (AP)	2		PADZZN
	MS35338-135	96906	. WASHER (AP)	2		PADZZN
	NAS620C4	80205	. WASHER (AP)	2		PADZZN
- 8	MS20426AD2-3	96906	. RIVET	14		XB
- 9	RMLHA27M2860-62	72962	. NUT, Self-locking, plate-right angle (Spec cont dwg 107295-2, FSCM 37695)	7		XB
- 10	944574-1	37695	. CHASSIS	1		XB

Section III.

NUMERICAL INDEX

PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER
AJW4-30	6-22- 4	A3034572	6- 4- 21	CM04CD180J03	6-13-122
AN960C4	F6-18- 7J		6- 6- 4	CM04ED680J03	6-13-121
AN960C5	F6-16- 9		6- 7- 3	CN15A120J	6- 8- 20
	F6-16- 16		6- 8- 3	CN15C100J	6- 6- 46
	F6-16- 22	BB409	6-13-112		6- 6- 47
	F6-19- 10		6-14-114		6- 7- 28
AN960C6	F6-18- 7D	B33-22BS	F6-15- 35A		6- 8- 22
	F6-18- 7E	CDR14BG300EFSR	F6-14- 33	CN15C7R5D	6- 7- 92
AN960C8	F6-18- 7B	CDR14BG360EFSM	F6-12- 32	CW15A222K	6- 8- 91
AP1-1-51-153	6-19- 15	CDR14BG901EFSR	F6-12- 39	CW15C222K	F6- 8- 91
ATC100B100JP500SP	6-14-105	CDR14BP470EGSR	F6-12- 25	CW15A472K	6- 8- 63
ATC-100-B-101-J-P-	6-13- 89		F6-14- 96	CW15C153K	6- 8- 62
500-SP		CD4047BF	6-15- 20	CW20C183K	6- 8- 38
ATC-100-B-102-K-P-	6-14- 98	CFW455C	6- 6- 49	CW20C223K	6- 8- 73
100-SP			6- 7- 14	C312C103K5R5CA	F6- 8- 64
ATC-100-B-102-K-P-	6-13- 93	CFW455E	6- 7- 15	C315C102K1R5CA	F6- 8-112
500-SP		CK05BX100K	6-13- 65	C315C102K5R5CA	6- 8-112
ATC-100-B-160-J-P-	6-11- 9	CK05BX101K	6-11- 34	C315C102M5R5CA	6-19- 30
500-SP			6-12- 55	C315C103K5R5CA	6- 8- 64
ATC-100-B-200-J-P-	6-11- 14		6-15- 22	C315C103M5R5CA	6- 7- 16
500-SP		CK05BX102K	6-11- 22		6- 8- 36
ATC-100-B-270-J-P-	6-13-100		6-12- 24	C315C332K5R5CA	6- 8- 92
500-SP			6-13- 57	C315C472K5R5CA	6- 8- 67
ATC-100-B-300-J-P-	6-14- 33		6-14- 27	C320C102K1G5CA	6- 7-120
500-SP		CK05BX103K	6-11- 20	C320C104K5R5CA	6- 7- 84
ATC-100-B-360-J-P-	6-12- 32		6-12- 16	C320C823K5R5CA	6- 6- 48
500-SP			6-13- 35		6- 7- 18
ATC-100-B-390-J-P-	6-12- 26		6-14- 43		6- 8- 29
500-SP		CK05BX104K	6-13- 21	C330C184M5R5CA	6- 6- 7
ATC-100-B-430-J-P-	6-12- 41		6-14- 31	DKV6522	6- 6- 18
500-SP		CK05BX220K	6-14-119	DSMGQ 1.60 MHZ	6- 8- 21
ATC-100-B-470-J-P-	6-12- 25	CK05BX222K	6-13- 69	DS8628N4	6-14- 71
500-SP			6-14- 73	DVS3PS10A	6- 6- 27
	6-14- 96		6-15- 17	DVS3PS20A	6- 6- 16
ATC-100-B-510-G-P-	F6-12- 33	CK05BX470K	6-13- 46		6- 7-113
500			6-14- 57	DVS3PS6A	6- 7- 88
ATC-100-B-510-J-P-	6-12- 33	CK05BX681K	6-11- 26	EL50U102K0-0	6- 7-151
500-SP			6-12- 46	FJ4-35	6- 9- 6
ATC-100-B-620-J-P-	6-12- 20		6-13- 70	GKW30001	6- 6- 43
500-SP			6-14- 74		6- 7- 23
ATC-100-B-680-J-P-	6-12- 17	CK06BX104K	6-13- 50	GXL15000	6- 8-113
500-SP			6-14- 58	H-400	6-18- 7G
ATC-100-B-750-J-P-	6-12- 40		6-15- 8	HS007AC58	6-15- 14
500-SP			6-20- 18		F6-13- 83
ATC-100-B-820-J-P-	6-12- 13	CK06BX824K	6-13- 51		F6-13-109
500-SP			6-14- 59		F6-14- 86
ATC-100-B-910-J-P-	6-12- 39		6-15- 5		F6-14-113
500-SP			6-20- 12		F6-20- 5
ATC100B820GP500	F6-12- 13	CMR04C180J0DR	F6-13-122		F6-20- 17
A223T11WCB	6-16- 5	CMR04E680G0DR	F6-13-121		F6-20- 28

PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER
HS007AC58	F6-20- 35	LM158J	6- 8- 72	MPSA55	6-19- 29
IN5234B	6- 8- 61		6-19- 31	MPSW51A	6- 6-129
IN5237B	6- 6- 33	LM2931AT5	F6-13- 60	MRF134	6-13-105
	6- 7- 98		F6-14- 67		6-14-108
	6- 8- 74	LM2931AZ5.0	6-13- 60	MRF171	6-13- 97
ISMM212W150R	6- 4- 20C		6-14- 67		6-14- 99
ISMM212W1602R	6- 4- 20B	LM2931CT	6-13- 82	MRF237	6-13-123
ISMM212W1702R	6- 4- 20A		6-14- 85	MRF515	6- 7-133
JAN1N4454-1	6- 6- 34	LM3361AN	6- 6- 58	MS20426AD2-3	6-22- 8
	6- 7- 39		6- 7- 17	MS20426AD3-5	6-22- 2
	6- 8- 12	LM3361ANA+	6- 6- 58	MS20426AD4-6	6-16- 27
	6-13- 16		6- 7- 17	MS21083C04	F6-16- 9
	6-14- 11	LM383AT01	6-20- 34		F6-16- 16
	6-19- 32	LM386N-4	6- 8- 56		F6-16- 22
JAN1N4625	6- 7-147	LP2950ACZ-5.0	6- 6- 83		F6-19- 10
JAN1N5712	6- 6- 85		6- 7- 27	MS21332-11	F6- 9- 7
	6- 7- 47	LP2959ACZ-5.0	6- 8- 27	MS21332-41	F6- 9- 8
	6-11- 36	MAP456	6-11- 24	MS24693-C2	6-18- 7F
	6-12- 54		6-12- 15	MS24693C4	6-16- 9
	6-14- 28	MA4PH148	6- 6-101		6-16- 16
JAN1N647-1	6-13- 17		6- 7- 41		6-16- 22
	6-14- 21	MA4PH165	6-11- 25		6-19- 10
	6-19- 25		6-12- 14	MS3212-11	6- 3- 12
	6-20- 19	MA4PH302	6- 9- 10	MS3474W10-6S	F6-19- 7
JAN1N751A-1	6-13- 33	MA4ST023	6- 8-115	MS35333-69	F6- 4- 15
	6-14- 52	MA47915	6- 6- 68	MS35338-134	F6- 4- 28
JAN1N752A-1	6-13-119		6- 7- 10	MS35338-135	F6-10- 2
JAN1N753A1	6-20- 13	MC12016P	6-13- 63		F6-10- 5
JAN1N756A-1	6-13- 38	MC78L05ACP	6- 8-109		F6-10- 7
	6-14- 35	MC-283R-10	6- 5- 24		F6-13-109
JAN1N758A-1	6-15- 26	MC-283R-8	6-19- 41		F6-14-113
JAN1N965B1	6-19- 23	MCR69-6	6-20- 27	MS35338-135	F6-15- 15
JAN1N972B1	6-20- 26	MC12017P	F6- 8- 32		F6-16- 3
JAN2N2222A	6-13- 15	MC145151-2	6- 8- 96		F6-16- 31
	6-14- 6	MC145156L	6- 8- 25		F6-16- 33
	6-15- 23	MC1558U	6-13- 23		F6-19- 3
	6-20- 8		6-14- 47		F6-19- 20
JAN2N2857	6- 7-101	MC1741UD	6-13- 72		F6-20- 5
JAN2N2907A	6-13- 9		6-14- 25		F6-20- 17
	6-14- 4	MC33174P	6- 8- 87		F6-20- 28
	6-15- 25	MC4344L	6-13- 67		F6-20- 35
	6-20- 21		6-14- 69		F6-22- 7
JAN2N5109	6-13-125	MC617(1/4)	6-19- 17A	MS35338-136	F6-13- 83
	6-14-122	MC7815BT	6-20- 16		F6-14- 86
KPT05-12-10P	6-16- 11	MEC50-13-185	6- 4- 14		F6-18- 7D
KPT06-B10-6P	6-18- 7L	MFR237	6- 6-105		F6-18- 7E
KPT07A10-6S	6-19- 7		6- 7-122	MS35338-138	F6-16- 25
KPT07A12-10S	6-19- 5	ML1-124MD	6- 5- 17	MS35489-1	6-11- 6
KPT07A12-3P	6-19- 8	MN40180G	6- 7-152		6-12- 5
LC-016B-9SS	6-11- 44	MN40220G	6-13-135		6-18- 7N
	6-12- 64	MN403R0D	6- 7-149	MS35489-4	6-17- 3
	6-13-133	MN409R1D	6- 7-150		6-21- 3
	6-14-131	MPS 5179	6- 8-103	MS35489-9	6-16- 10A
	6-15- 35	MPSA06	6- 6-122	MS35649-244	F6-13-109
LED407GB0	6-16- 6		6- 7- 80		F6-14-113
	6-19- 42		6- 8- 43		F6-15- 15
LED407YB0	6-16- 7		6-19- 28	MS35649-264	F6-13- 83
	6-19- 45	MPSA55	6- 6-128		F6-14- 86
LM101AJ	6-13- 37		6- 7- 31		F6-18- 7D
	6-14- 53		6- 8- 18		F6-18- 7E

PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER
MS39087-4	6-16- 24	MS75101-4	6-15- 6	M39014/01-1357	F6-14- 27
MS51957-1	6- 9- 4		6-20- 33	M39014/01-1563	F6-13- 69
	6-18- 15	MS77068-1	F6-16- 22		F6-14- 73
MS51957-13	6-20- 43	MS9068-024	6- 3- 3		F6-15- 17
	6-20- 46	MT-4021	6-15- 12	M39014/01-1575	F6-11- 20
	6-20- 48	MTP8P08	6-15- 13		F6-12- 16
MS51957-14	6-10- 2	MUR110	6-15- 10		F6-13- 35
	6-10- 5		6-20- 36		F6-14- 43
	6-10- 7	MUR1520	6-20- 4	M39014/01-1593	F6- 7- 84
	6-16- 3	MUR810	6-13-108		F6-13- 21
	6-16- 31		6-14-112		F6-14- 31
	6-16- 33	MWA110	6- 6-117	M39014/02-1350	F6-13- 50
	6-18- 7J	MWA130	6- 6-115		F6-14- 58
	6-19- 20	M12133/4-176	F6-18- 7B		F6-15- 8
	6-22- 7	M148-S40	6- 5- 13		F6-20- 18
MS51957-15	6-13-109	M16878/6BEB	6-12- 60A	M45938/5-3C	6-20- 44
	6-14-113	M17/113-RG316	6-11- 5A	M45938/5-4C	6-16- 28
	6-15- 15		6-12- 7A		F6-18- 7F
	6-19- 3		6-17- 8A		F6-18- 7J
	6-20- 5	M17/151-00002	6-13-135A	M45938/5-7C	F6-18- 7B
	6-20- 17		6-14-134A	M45938/7-1	6- 4- 8
MS51957-17	6-20- 28	M17/155-00001	6-17- 4A	M45938/7-3	6- 4- 13
	6-20- 35	M17/175-00001	6-21- 3A	M55302/6-02	F6-19- 12
MS51957-2	6- 3- 7	M23053/1-102-0	6-16- 13B	M87111/01-4Y17	6- 6-116
	6- 4- 15		6-19- 18B		6- 7-134
	6- 4- 16	M23053/5-103C	6-16- 13H		6-13-124
	6- 4- 28	M38527/01-030N	6- 6- 31		6-14-134
	6- 5- 12		6- 7- 95	NAS1081C04D3N	6- 5- 26
MS51957-2B	6- 5- 7		6- 7-102	NAS1081C06D3N	6-19- 44
MS51957-28	6-13- 83		6- 7-141	NAS1397R2B	F6-18- 7E
	6-14- 86		6- 8- 47	NAS1397R3B	6-16- 8
MS51957-29	6-18- 11		6- 8-108		6-16- 15
MS51957-32	6-18- 7C		6-13- 10	NAS1397R5	F6-16- 21
	6-18- 7E		6-14- 5	NAS1397R5B	6-16- 21
MS51957-44	6-18- 7B		6-15- 24	NAS1397R6B	6-19- 9
MS51958-63	6-16- 25		6-20- 9	NAS1397R6N	F6-19- 9
MS75083-1	6- 6- 63	M39003/01-2411	6-13- 81	NAS1640-2	F6- 4- 28
	6- 7- 93		6-14- 84		F6- 5- 12
MS75083-10	6-13- 28		6-15- 18	NAS1640-2P	F6- 5- 7
	6-14- 32	M39003/01-3131	F6-13- 81	NAS620C0	6-16- 20A
MS75083-12	6- 8-116		F6-14- 84		6-19- 12A
MS75083-13	6- 7- 36		F6-15- 18	SNAS620C3	F6-22- 2
MS75083-3	6- 6- 36	M39012/16-0013	6-17- 6	NAS620C4	F6-10- 2
	6- 7- 67	M39012/69B0009	6-11- 3		F6-10- 5
MS75083-4	6- 6- 62		6-12- 3		F6-10- 7
	6- 7-107		6-17- 7		F6-13-109
MS75083-5	6- 7-123	M39014/01-1321	F6-13- 65		F6-14-113
MS75083-6	6- 6- 28	M39014/01-1327	F6-14-119		F6-15- 15
MS75083-8	6- 8-100	M39014/01-1333	F6-13- 46		F6-16- 3
MS75084-12	6- 7-126		F6-14- 57		F6-16- 31
MS75084-2	6-13-102	M39014/01-1339	F6-11- 34		F6-19- 20
	6-14-103		F6-12- 55		F6-20- 5
MS75084-4	6- 6-107		F6-15- 22		F6-20- 17
MS75084-5	6- 8- 34	M39014/01-1354	F6-11- 26		F6-20- 28
MS75084-6	6- 6- 8		F6-12- 46		F6-20- 35
	6- 7- 69		F6-13- 70		F6-22- 7
	6-13- 47		F6-14- 74	NAS620C6	F6-13- 83
	6-14- 45	M39014/01-1357	F6-11- 22		F6-14- 86
MS75084-8	6-11- 23		F6-12- 24		F6-18- 11
	6-12- 21		F6-13- 57	NCN-4-3-2-18	6-16- 29

PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER
NCN-4-3-2-18	6-22- 3	RLR07C1000GS	6- 6-113	RLR07C1502GS	6-13- 36
NMC9346EN	6- 8- 16		6- 7- 60		6-14- 13
R-440-AC-4, BLACK	6- 4- 22		6- 8- 68	RLR07C16R0GS	6- 7- 99
RCR07G106JS	6-13- 19		6-13- 24	RLR07C1601GS	6- 8- 95
	6-14- 47A		6-14- 29		6-13- 4
RCR07G2R7GS	6-13-104		6-19- 39		6-14- 15
RCR07G2R7JS	6- 7-130	RLR07C1001GS	6- 6- 69	RLR07C1602GS	6-13- 77
	6-20- 32		6- 7- 64		6-14- 80
	F6-13-107		6- 8- 39	RLR07C18R0GS	6-13-110
RCR07G226JS	6- 8- 8		6-13- 14		6-14-110
	6-14- 24		6-14- 20	RLR07C1801GS	6- 6- 35
RCR07G4R7JS	6- 6-131		6-20- 10		6- 7-105
	6- 7- 42	RLR07C1002GS	6- 6- 20	RLR07C1802GS	6- 8-110
	F6-13-107		6- 7- 9	RLR07C1803GS	6- 6- 75
	F6-15- 19		6- 8- 66		6- 7- 65
RCR07G5R1JS	6- 7-129		6-13- 18		6-13- 43
RCR07G6R8JS	6- 7-135		6-14- 22		6-14- 54
	6-13-107		6-19- 24	RLR07C20R0GS	6- 6-118
	6-14-125	RLR07C1003GS	6- 6-136		6- 8-100A
RCR07G8R2JS	6- 6- 88		6- 7-114		6-14-118
	6- 8- 51		6- 8- 14	RLR07C2000GS	6- 6- 29
RCR20G2R7JS	6-13- 85		6-13- 20		6- 7- 91
RJR26CW102R	F6-13- 8		6-14- 8	RLR07C2001GS	6- 6-119
	F6-14- 17		6-19- 26		6- 7- 83
RJR26FW102R	F6-13- 8	RLR07C1004GS	6- 8- 41		6-13- 22
	F6-14- 17		6-13- 45		6-14- 26
RJR26CW501R	F6- 8-114		6-14- 56	RLR07C2002GS	6- 8- 82
RJR26FW501R	F6- 8-114	RLR07C1100GS	6- 6-112	RLR07C2003GS	6- 6- 5A
RJR26CW502R	F6- 6- 65	RLR07C1101GS	6-13- 66		6- 6- 77
	F6- 7- 59		6-14- 72	RLR07C2003GS	6- 7- 26
	F6-13- 91	RLR07C1102GS	6-20- 30		6- 8- 10
	6-14-107	RLR07C12R0GS	6-13-115	RLR07C22R0GS	6- 7-144
RJR26FW502R	F6- 6- 65	RLR07C1200GS	6- 7-116		6-13- 59
	F6- 7- 59	RLR07C1201GS	6- 6-127		6-14- 66
	F6-13- 91		6- 7- 40		6- 8- 59
	F6-14-107		6- 8-119	RLR07C2200GS	6-13- 79
RJR26CW503R	F6- 6-120		6-13- 31		6-14- 82
	F6- 7- 45		6-14- 51	RLR07C2201GS	6- 7- 90
	F6-13- 87	RLR07C1202GS	6- 8- 70		6- 8- 42
	6-14- 90		6-13-113		6-13- 62
RJR26FW102R	F6-13- 8	RLR07C1203GS	6- 8- 49	RLR07C2202GS	6- 8- 44
	F6-14- 17		6-14- 87		6-15- 21
RJR26FW503R	F6- 6-120		6-19- 37	RLR07C2203GS	6- 8- 5B
	F6- 7- 45	RLR07C1300GS	6- 6-111		6-13- 84
	F6-13- 87		6- 8- 60	RLR07C24R0GS	6-15- 19
	6-14- 90	RLR07C15R0GS	6- 7-137	RLR07C2401GS	6-11- 39
RJ26CW102	6-13- 8		6-13- 68		6-12- 58
	6-14- 17		6-14- 70		6- 6-123
RJ26CW501	6- 8-114	RLR07C1500GS	6- 6- 89	RLR07C2402GS	6- 7- 81
RJ26CW502	6- 6- 65		6- 7-146		6-13-111
	6- 7- 59		6- 8- 30		6-14-115
	6-13- 91		6-20- 31		6-19- 36
	F6-14-107	RLR07C1501GS	6- 6- 54	RLR07C2403GS	6- 8- 45
RJ26CW503	6- 6-120		6- 7- 72	RLR07C27R0GS	6- 6- 66
	6- 7- 45		6- 8- 65		6- 7- 76
	6-13- 87		6-11- 31	RLR07C2700GS	6- 7- 21
	F6-14- 90		6-12- 51		6- 8- 35
RLR07C10R0GS	6- 6-133		6-13- 26		6-20- 39
	6-11- 28		6-14- 48	RLR07C2701GS	6- 6- 67
	6-12- 48	RLR07C1502GS	6- 8- 50		6- 7- 37

PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER
RLR07C2701GS	6- 8- 19	RLR07C4302GS	6- 7- 53	RLR07C7503GS	6- 8- 122
	6-13- 80		6-13- 75		6-19- 38
	6-14- 83		6-14- 79	RLR07C8201GS	6- 8- 111
RLR07C2702GS	6- 6- 121	RLR07C4700GS	6- 7- 106		6-13- 39
	6- 8- 120		6-13- 12		6-14- 37
	6-13- 40	RLR07C4700GS	6-14- 18	RLR07C8202GS	6- 6- 94
	6-14- 38		6-15- 9		6- 7- 56
RLR07C2703GS	6- 6- 77	RLR07C4701GS	6-13- 27		6- 8- 75
	F6- 8- 5C		6-14- 49	RLR07C9100GS	6-11- 38
RLR07C30R0GS	6- 7- 132	RLR07C4702GS	6- 6- 124		6-12- 59
RLR07C3000GS	6-11- 27		6- 7- 82		6-13- 120
	6-12- 47		6- 8- 13		6-14- 123
	6-13- 32		6-13- 25	RLR07C9101GS	6-13- 71
RLR07C3000GS	6-14- 7		6-14- 39		6-14- 75
RLR07C3001GS	6- 6- 95	RLR07C4703GS	6- 8- 76	RLR20C1000GR	F6-13- 52
	6- 7- 49	RLR07C51R0GS	6- 6- 82		F6-14- 34
	6-13- 41		6- 7- 68	RLR20C1000GS	6-13- 52
	6-14- 40		6- 8- 53		6-14- 34
	6-15- 27		6-13- 55	RLR20C1001GS	6-14- 100
RLR07C3002GS	6- 8- 23		6-14- 63	RLR20C2001GS	6-13- 106
	6-13- 7	RLR07C5100GS	6- 7- 145		6-14- 109
	6-14- 4A		6-13- 30	RLR20C3900GS	6-13- 98
RLR07C3003GS	F6- 8- 5C		6-14- 41		6-14- 60
	6- 8- 79	RLR07C5101GS	6- 6- 55	RLR20C3900FS	F6-13- 98
RLR07C33R0GS	6- 6- 39		6- 7- 63		F6-14- 60
	6- 8- 99		6- 8- 11	RLR32C2000GS	6-13- 3
	6-14- 124		6-13- 11	RL-1283-1000	6-15- 11
RLR07C3300GS	6- 7- 136		6-14- 12	RMLHA27M2860-62	6-22- 9
	6-12- 22		6-19- 27	RWR80S10R0FR	6-14- 2
RLR07C3302GS	6- 8- 84	RLR07C5102GS	6-13- 13	RWR80S10R0FS	F6-14- 2
RLR07C3303GS	6- 8- 5C	RLR07C5102GS	6-14- 19	RWR80S12R1FR	6-14- 3
	6- 8- 6	RLR07C5103GS	6- 8- 85	RWR80S12R1FS	F6-14- 3
RLR07C3322FM	6- 8- 90	RLR07C5600GS	6- 8- 102	RWR80S33R2FR	6-14- 88
RLR07C3322FS	F6- 8- 90		6-13- 117	RWR80S33R2FS	F6-14- 88
RLR07C3600GS	6-13- 56	RLR07C5601GS	6- 8- 117	RWR80S6490FR	6-19- 34
	6-14- 64		6-11- 37	RWR80S6490FS	F6-19- 34
RLR07C3601GS	6- 8- 54		6-12- 57	RWR80S7500FR	6-19- 35
RLR07C3602GS	6- 6- 79		6-20- 31A	RWR80S7500FS	F6-19- 35
	6- 7- 52	RLR07C5602GS	6- 8- 40	RWR81S20R0FR	6-11- 21
RLR07C3603GS	F6- 8- 5C	RLR07C5603GS	6- 8- 69		6-12- 45
	6- 8- 81	RLR07C6200GS	6- 6- 24		6-13- 6
RLR07C39R0GS	6- 7- 143		6- 7- 100		6-14- 16
RLR07C3901GS	6- 6- 70	RLR07C6201GS	6- 6- 51	RWR81S20R0FS	F6-11- 21
	6- 7- 77		6- 7- 29		F6-12- 45
	6- 8- 83		6-13- 42		F6-13- 6
	6-13- 44		6-14- 42		F6-14- 16
	6-14- 55	RLR07C6801GS	6- 6- 132	RWR81S3R32FR	6- 6- 130
RLR07C3902GS	6-13- 64		6- 7- 43		6- 7- 38
RLR07C3903GS	6- 6- 76		6- 8- 93	RWR81S3R32FS	F6- 6- 130
	6- 7- 57		6-13- 76		F6- 7- 38
	F6- 8- 5C		6-14- 78	RWR81S40R2FR	6-12- 23
RLR07C3922FM	6- 8- 86		6-20- 20	RWR81S40R2FR	F6-12- 23
RLR07C3922FS	F6- 8- 86	RLR07C6802GS	6-14- 9	RWR81S7500FS	6-19- 22
RLR07C4300GS	6-13- 74		6-20- 11	RWR81S7500FS	F6-19- 22
	6-14- 77	RLR07C6803GS	6- 8- 71	RWR84SR150FR	6-20- 23
RLR07C4301GS	6- 6- 73	RLR07C7500GS	6- 7- 119	RWR84SR150FS	F6-20- 23
	6- 7- 66	RLR07C7501GS	6- 6- 125	RWR84S12R4FR	6-20- 7
	6-13- 73		6- 7- 44	RWR84S12R4FS	F6-20- 7
	6-14- 76		6-13- 5	RXE050	6-15- 30
RLR07C4302GS	6- 6- 92		6-14- 10		6-20- 6

PART NUMBER	FIGURE AND INDEX NUMBER
SB4-2	F6-16- 27
SC63599P	6- 8- 32
SD1127	F6- 6- 125
	F6- 7- 122
	F6-13- 123
SE1E0906A2.0-4	6-16- 12
SM-B-696869	F6- 6- 30
SM-D-627685	6-18- 8
SM-B-523304	6- 2- 6
SPRW4A2521S16	6-19- 17
SR4	6-22- 5
	F6- 9- 6
SR7K2	F6-19- 40
STD0154	6- 6- 81
	6- 7- 75
ST600-1-17P1	6-20- 41
ST600-1-9P1	6-13- 78
	6-14- 81
TFM-2-21	6- 6- 71
	6- 7- 78
THWA0612	F6-18- 7D
	F6-18- 7E
TR2A	6-19- 6
TRM-18-S	6-11- 33
	6-12- 53
TY-23M	6-16- 14
	6-16- 17
	6-19- 11
	6-19- 21
UA78L05AWC	F6- 8- 109
UCN-5895A	6- 8- 17
ULA155C103K	6- 6- 146
ULB1C221M1CA	6-20- 37
UM40018	6- 6- 100
UM4306A	F6-11- 25
	F6-12- 14
UPC2B175S-8	6-19- 12
UWS1226	6-20- 3
VB32BA242KA	6- 8- 89
VK4003	6- 5- 11
VP31BA100DB	6- 7- 109
VP31BA100JB	6- 7- 62
VP31BA101JA	6- 6- 134
	6- 7- 85
VP31BA121JA	6- 6- 110
VP31BA131JA	6- 6- 15
	6- 7- 112
VP31BA150JB	6- 6- 98
VP31BA151JA	F6- 8- 78
VP31BA180JB	6- 6- 26
	6- 8- 9
VP31BA201JB	6- 8- 121
VP31BA220JA	6- 6- 19
	6- 7- 96
	F6- 6- 47
	F6- 7- 28
VP31BA241JA	6- 6- 45
	6- 7- 22
VP31BA270JA	6- 6- 32
	6- 7- 110

PART NUMBER	FIGURE AND INDEX NUMBER
VP31BA271JA	6- 8- 101
VP31BA3R3CB	6- 7- 103
VP31BA330JA	6- 6- 22
	6- 7- 97
	F6- 6- 47
	F6- 7- 28
VP31BA331JA	6- 7- 131
	6- 8- 98
VP31BA361JA	6- 6- 86
	6- 7- 61
VP31BA390JA	6- 6- 50
	6- 7- 11
	6- 8- 105
VP31BA391JA	6- 6- 74
	6- 7- 58
	6- 8- 88
VP31BA4R7CB	6- 7- 89
VP31BA430JA	6- 8- 106
VP31BA470JA	F6- 6- 47
	6- 6- 64
	6- 7- 142
VP31BA471JA	6- 7- 124
VP31BA560JA	6- 6- 37
VP31BA620JA	6- 6- 25
	6- 8- 80
VP31BA680JA	6- 6- 23
	6- 7- 12
VP31BA820JB	6- 8- 118
VP32BA102KB	6- 6- 103
	6- 7- 30
	6- 8- 31
VP32BA182KA	6- 7- 127
VP32BA222KA	6- 7- 138
VP32BA272KA	6- 7- 34
VP32BA332KA	6- 6- 53
	6- 7- 74
V12304	6- 8- 46
WRS8766	6- 5- 14
00-8352-004-752-877	6- 6- 6
	6- 7- 7
02005	6-21- 5
0343-0-15-01-34-27-10-0	6-20- 14
095-9003-0024	6- 4- 6
1-86479-6	6-11- 7
	6-12- 6
1-87470-1	6-15- 3
11-1200AS8X3	6- 2- 9
1DC802K-EC	6-13- 127
	6-14- 50
105-0857-001	6-13- 29
	6-14- 36
107100-150	6-11- 43
	6-12- 63
	6-13- 132
	6-14- 130
	6-15- 34
109715-1190	6- 3- 11
1240	6-19- 40
1307246PC8	F6-22- 5
130740-1	6- 5- 9

PART NUMBER	FIGURE AND INDEX NUMBER
136273-1	6- 3- 6
15DC102K-EC-S	F6- 6- 90
	F6- 7- 70
150-050-WR5-682K	F6- 8- 94
150-050-X7R-223K	6- 6- 57
	6- 7- 73
150-100-X7R-103M	6-11- 30
	6-12- 50
150-100-X7R-682K	6- 8- 94
15090-047-062-N-1	F6-13- 109
	F6-14- 113
15090-.047-.094-N-1	F6-15- 15
	F6-20- 5
	F6-20- 17
	F6-20- 28
	F6-20- 35
151-1055-00	F6- 6- 91
	F6- 7- 55
156068-1	6- 2- 8
156174-15	6-16- 13
156174-16	6-17- 2
156174-17	6-17- 4
156174-18	6-17- 5
156174-19	6-17- 8
156174-20	6-17- 9
156174-21	6-19- 18
156174-22	6-21- 2
156174-23	6-21- 4
156174-6	6-11- 5
	6-12- 7
156174-7	6-11- 4
	6-12- 4
156174-9	6-18- 7M
156652-1	6-16- 30
156653-1	6-22- 6
156663-	6- 9- 3
	6-18- 14
156687	6- 3- 15
159837-3	6- 3- 16
	6- 9- 12
1848	6- 5- 1
187103-1	6-21- 1
2-G	F6- 9- 8
2-R-113	6- 9- 8
2L	6- 9- 7
2N2857	6- 6- 30
2N4351	6- 8- 107
2N5031	6- 7- 94
2N6027	6-20- 29
2W	F6- 9- 8
2009-6511-000	6-13- 126
	6-14- 126
2042-6511-000	6-11- 2
	6-12- 49
21-172-J	6- 6- 87
	6- 7- 54
2010-6511-002	6-11- 18
	6-12- 43
	6-13- 53
	6-14- 61

PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER
2141-1521-006	6-17- 1	335466-2	6- 8- 5D	369123-8	6- 7-128
240-0013-00	F6- 6- 44	335466-3	6-16- 18	369123-9	6- 7-139
	F6- 7- 24		6-19- 14	369124-1	6- 6-114
2673000101	6-15- 28	335600-1	6-22- 1	369124-2	6-13-101
	6-20- 24	335662-1	6-15- 4		6-14-106
275054-101	6-13- 86	335662-2	6-13-129	369124-4	6-13-118
	6-14- 89		6-14- 46A	369124-5	6-13- 88
	6-15- 7	335724-1	6-16- 4		6-14- 92
	6-20- 15	335803-1	6- 8- 21A	369144-1	6-12- 9
275054-126	6-13- 34	345110-1	6- 3- 4	369144-10	6-11- 8
	6-14- 23		F6- 5- 13		6-12- 35
275054-154	6-13- 90	345565-1	6- 6- 60	369144-11	6-12- 29
	6-14- 93		6- 7-154	369144-12	6-12- 10
275054-42	6-13- 58	348205-2	6- 4- 4	369144-13	6-11- 12
	6-14- 65	348276-2	6- 4- 12		6-12- 28
	6-20- 22	348755-1	6- 6- 72	369144-14	6-11- 17
275054-54	6-13- 61		6- 7- 79	369144-15	6-11- 11
	6-14- 68	349619-3	6- 5- 10	369144-16	6-11- 13
275056-234	6- 8- 58	349630-3	6- 6- 13	369144-17	6-11- 10
275056-255	6- 8- 57	349630-8	6- 6-104	369144-18	6-11- 15
275056-27	6- 7- 20	349648-2	6- 5- 4	369144-19	6-11- 16
275056-34	6- 7- 19	349649-1	6- 5- 3	369144-2	6-12- 8
275056-34	6- 8- 33	349857-2	6- 4- 19	369144-20	6-13- 94
275056-36	6- 7-104	349924-1	6- 2- 3		6-14- 97
275056-37	6- 6- 84	35-75-0154-50	F6-18- 2	369144-21	6-13-103
	6- 8- 52		F6-18- 4	369144-22	6-13- 99
275056-41	6- 6- 93	3674	6-16- 13A	369144-25	6-12- 27
	6- 7- 32	3674	6-19- 18A	369144-26	6-12- 31
	6- 8- 28	369113-1	6- 7-121	369144-27	6-12- 18
275056-42	6- 8- 26	369113-3	6- 7-117	369144-28	6-12- 34
275056-423	6- 6- 78	369113-9	6- 7-111	369144-29	6-12- 11
	6- 7- 51	369121-1040J	6- 6- 99	369144-3	6-12- 12
275056-425	6- 6- 38	369121-1200H	6- 7-125	369144-4	6-12- 19
	6- 8- 55	369121-32R0H	6- 7- 8	369144-5	6-12- 38
275056-43	6- 6- 52	369121-34R0H	6- 7- 35	369144-6	6-12- 30
	6- 7- 25	369121-39R0J	6- 6-135	369144-7	6-12- 42
275056-432	6-19- 33	369121-55R0J	6- 6-102	369144-8	6-12- 36
275056-47	6- 8- 48	369121-56R0J	6- 7-108	369144-9	6-12- 37
275064-76	6- 6- 56	369122-1	F6- 6- 42	369145-10	6-13-116
	6- 7- 71	369122-12	6- 6- 42	369145-12	6-14-104
2773002111	6-11- 35	369122-13	6- 6- 21	369145-2	6-14- 91
	6-12- 56	369122-2	F6- 6- 21	369145-3	6-14-120
	6-13- 48	369122-3	6- 6-139	369145-4	6-13- 96
	6-14- 44	369122-4	6- 6-137		6-14-111
3BN050S100J	6- 6-144	369122-5	6- 6-142	369145-5	6-13- 92
3BN050S330J	6- 6-145	369122-6	6- 6-141		6-14-102
3BN0505100JD	F6- 6-144	369122-8	6- 7- 87	369145-6	6-14-101
3N201	6- 6- 91	369122-9	6-14- 30	369145-7	6-13- 95
	6- 7- 55	369123-1	6- 6- 80		6-14- 94
3N211	6- 6-138		6- 7- 46	369145-8	6-14- 95
	6- 7-115	369123-10	6-14-121	369145-9	6-13-114
30-1	6-18- 7H	369123-11	6-14-116	39YY2370-1 (BLK)	6- 5- 8
300-100-022	6- 6- 17	369123-12	6-14-118A	4-1-139	6- 2- 4
	6- 7-148	369123-13	6- 6- 96	4102-000	6-15- 29
301AEM270U1003B	6-20- 38	369123-13	6- 7- 50		6-20- 25
301AEM820U050B3	6-15- 16	369123-2	6- 6-109	415463-1	6- 8-123
30129-14J	6- 6- 44	369123-4	6- 6- 40	415464-1	6- 6-147
	6- 7- 24	369123-5	6- 6-108	415538-1	6- 7-160
	6- 7- 70	369123-6	6-11- 32	415540-1	6-20- 49
335466-1	6- 5- 2		6-12- 52	415541-1	6-13-136

PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER
415542-1	6-11- 49	533721-3	6- 6-126	721621-801	6-14-REF
415543-1	6-15- 36		6- 7- 33	721622-801	F6-10- 1
415544-1	6-14-135		6- 8- 37		6-12-REF
415545-1	6-12- 70	533721-5	6- 8- 82A	721812-801	6- 7- 6
415613-1	6-19- 19	535423-6	6- 6- 59	721913-801	6- 9- 5
415614-1	6-16- 2		6- 7- 13	721914-801	6-16- 23
420541-1	6- 4- 17	542	6- 4- 25	721915-801	6-19- 46
420979-801	6-18- 5		6- 4- 27		6-22-REF
420980-801	6-18- 6	548103-804	6- 2- 7	72605-01	6- 5- 25
421116-1	6-11- 40	56SY3013-031N	6- 5- 15	7398	6- 6- 97
	6-12- 60	5659065/4A	6- 6- 41		6- 7- 48
421308-801	6-16- 10		6- 7-118	80-06-0115-41	6-18- 2
	6-17-REF	5962-8855301TA	F6-20- 16		6-18- 4
421308-802	6-16- 1	6-85930-3	6-13- 2	80-07-0053-41	F6-18- 2
	6-17-REF		6-14- 14		F6-18- 4
421308-803	6-19- 16	6C40363-15	6-11- 19	80-08-0071-41	F6-18- 2
	6-21-REF		6-12- 44	80-08-0071-41	F6-18- 4
4242-MK1	6-18- 1	6C40363-15	6-14-117	80-08-0074-41	F6-18- 2
4255	6-18- 3	600-1-9SC	6-16- 20		F6-18- 4
445013-527	6-15- 35B	615485-2	6-13- 54	8052-1	6- 8- 24
445147-6024	6- 5- 18		6-14- 62	808234-1	6- 3- 5
446351-10	6- 4- 3A	618770-1	6- 7-140	815588-821	6- 6- 11
4476	F6- 4- 25	627011-2	6- 4- 20	815588-822	6- 6- 12
	F6- 4- 27	6479-80	F6- 6-101	815888-801	6- 4- 10
465006-20	6-11- 5B		F6- 7- 41	815888-802	6- 4- 9
	6-12- 5A	648408-3	6- 8- 15	816171-801	6- 4- 5
465006-22	6-15- 35A	648409-101	F6- 8- 15	816172-821	6- 4- 1
466145-241	6-16- 13C	648673-2	6- 7- 86		6- 5-REF
466145-243	6-16- 13D	6561-6521-003	6-17- 10	816173-821	6- 3- 1
466145-244	6-16- 13E	660351-1	6- 5- 23		6- 4-REF
466145-247	6-16- 13F	721153-3	6- 2- 2	816765-821	6- 4- 26
466145-248	6-16- 13G	721597-801	6- 3- 13	817324-801	6- 6-106
510083-1	6- 3- 9		6- 6-REF		6- 7-157
512101-1	6- 3- 10	721598-801	6- 3- 13	817455-801	6- 4- 2
513917-2	6- 6- 3		6- 7-REF	840-AG11D	6- 8-125
	6- 7- 4	721599-801	6- 3- 14	901602-801	6- 1- 3
	6- 8- 4		6- 8-REF		6-18-REF
515866-1	6- 4- 11	721599-811	6- 8- 5E	901603-801	6- 1- 2
516502-2	6- 4- 23	721603-801	6-18- 7		6- 9-REF
517448-801	6- 5- 19	721605-801	6-18- 13	901608-801	6- 1- 1
517448-802	6- 5- 21		6-19-REF		6- 2-REF
	6-19- 43	721606-801	6-18- 12	901609-801	6- 2- 5
518026-1	6- 2- 1	721607-801	6-18- 10		6- 3-REF
518030-1	6-16- 32	721608-801	6-19- 4	901615-801	6-18- 9
518155-1	6-11- 41	721609-801	6-19- 2	901616-801	6- 9- 2
	6-12- 61		6-20-REF	911573-007	F6-15- 28
	6-13-130	721610-801	6-19- 1		F6-20- 24
	6-14-132	721613-801	6-10- 4	914050-804	6- 3- 8
518155-2	6-15- 32		6-13-REF	918267-804	6- 3- 2
518155-4	6-13-128	721614-801	6-10- 1	938573-1	6- 4- 3
	6-14-127		6-11-REF	938720-1	6- 4- 7
518155-5	6-20- 40	721618-801	6- 9- 11	942068-5	6- 8-128
518157-1	6-11- 42		6-16-REF	942068-6	6- 8-126
	6-12- 62	721619-801	6- 9- 9	942068-7	6- 8-127
	6-13-131		6-15-REF	942068-8	6- 6- 14
	6-14-129	721620-801	6- 9- 10	942068-9	6- 6-143
518157-2	6-15- 33		6-10-REF	942152-2	6- 5- 6
518157-3	6-19- 1A	721620-802	6- 9- 1	942748-1	6- 5- 5
533028-1	6-13- 49		6-10-REF	943422-10	6- 7-155
	6-14- 46	721621-801	F6-10- 4	943422-7	6- 7-159

PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER
943422-8	6- 7-158	945122-2	6-11- 46	945239-1	6-20- 2
943422-9	6- 7-156		6-12- 69	945240-1	6- 7- 1
944128-1	6- 6- 1	945122-3	6-12- 67	945241-1	6-20- 42
944129-1	6- 8- 1	945122-4	6-12- 66	945241-2	6-20- 45
944572-1	6- 9- 8A	945122-5	6-12- 65	945241-3	6-20- 47
944574-1	6-22- 10	945122-6	6-11- 45	945268-1	6-10- 6
944576-1	6-16- 34	945122-7	6-11- 47	945326-1	6-18- 7C
944580-2	6-16- 26	945122-8	6-15- 31	945327-1	6-18- 7K
944592-801	6- 5- 16	945122-9	6-13-134	945328-1	6-18- 7A
945074-1	6-19- 1B		6-14-133	945396-1	6-19- 13
945119-1	6-11- 2	945201-1	6-11- 1	945396-2	6-16- 19
	6-12- 2		6-12- 1	97-540-17-X(1)	6- 6- 61
945120-1	6-13- 1	945202-1	6-10- 3		6- 7-153
	6-14- 1	945203-1	6-15- 1	97-540-17-X(3)	6- 4- 18
945121-1	6-15- 2	945235-1	6- 6- 2		6- 6- 5
945122-1	6-11- 48	945236-1	6- 7- 2		6- 7- 5
	6-12- 68	945237-1	6- 8- 2		6- 8- 5
945122-10	6-14-128	945238-1	6-20- 1		

Section IV.

REFERENCE DESIGNATION INDEX

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
Frame and Panel	6- 4- REF	C15	6- 6- 7	C63	6- 6- 7
Assembly		C16	6- 6- 98	C64	6- 6- 7
A1	6- 4- 5	C17	6- 6- 26	C65	6- 6- 7
A1J1	6- 4- 14	C18	6- 6-145	C66	6- 6- 48
A1P1	6- 4- 6	C19	6- 6- 48	C67	6- 6- 93
A2	6- 4- 1	C2	6- 6- 7	C68	6- 6- 48
A3	6- 4- 26	C20	6- 6- 52	C69	6- 6- 48
A2 Panel Assembly	6- 5- REF	C21	6- 6- 7	C7	6- 6- 7
A2DS1	6- 5- 11	C22	6- 6- 7	C71	6- 6- 7
A2J4	6- 5- 25	C23	6- 6- 93	C73	6- 6-103
A2J5	6- 5- 24	C24	6- 6- 48	C74	6- 6- 48
A2LS1	6- 5- 1	C27	6- 6- 7	C75	6- 6- 23
A2S1	6- 5- 17	C28	6- 6- 43	C76	6- 6-110
A2S2	6- 5- 14	C29	6- 6- 84	C77	6- 6- 48
A2S3	6- 5- 15	C3	6- 6-134	C78	6- 6-103
A2S4	6- 5- 8	C30	6- 6- 78	C79	6- 6-103
A2S8	6- 5- 8	C31	6- 6- 48	C8	6- 6- 86
A2S9	6- 5- 8	C32	6- 6- 48	C80	6- 6- 48
Low Band RF/IF	6- 6- REF	C33	6- 6- 74	C81	6- 6-103
Module Assembly		C34	6- 6- 74	C84	6- 6- 48
A1	6- 6- 11	C35	6- 6- 48	C85	6- 6- 7
A2	6- 6- 12	C36	6- 6- 23	C86	6- 6- 7
C1	6- 6- 7	C37	6- 6- 50	C87	6- 6- 25
C10	6- 6- 7	C38	6- 6- 56	C88	6- 6- 27
C100	6- 6- 23	C39	6- 6- 53	C89	6- 6- 26
C101	6- 6- 32	C4	6- 6- 7	C90	6- 6- 7
C102	6- 6- 7	C40	6- 6- 7	C91	6- 6- 22
C103	6- 6- 22	C42	6- 6- 7	C92	6- 6- 22
C104	6- 6- 23	C43	6- 6- 7	C93	6- 6- 26
C105	6- 6- 19	C44	6- 6- 7	C94	6- 6- 64
C106	6- 6- 16	C45	6- 6- 7	C95	6- 6- 64
C107	6- 6- 7	C46	6- 6- 7	C96	6- 6- 7
C108	6- 6- 15	C47	6- 6- 27	C97	6- 6- 7
C109	6- 6- 7	C48	6- 6- 7	C98	6- 6- 7
C11	6- 6- 7	C49	6- 6- 16	C99	6- 6- 37
C110	6- 6- 38	C5	6- 6- 7	CR1	6- 6- 34
C111	6- 6- 7	C50	6- 6- 7	CR10	6- 6-101
C113	6- 6- 57	C51	6- 6- 7	CR11	6- 6- 34
C114	6- 6- 7	C52	6- 6- 7	CR12	6- 6- 34
C115	6- 6-146	C53	6- 6- 7	CR13	6- 6- 68
C116	6- 6- 46	C54	6- 6- 27	CR14	6- 6- 68
C118	6- 6- 45	C55	6- 6- 16	CR15	6- 6- 68
C119	6- 6- 19	C56	6- 6-103	CR16	6- 6- 68
C12	6- 6- 7	C57	6- 6-103	CR17	6- 6-101
C121	6- 6- 19	C58	6- 6- 7	CR18	6- 6- 34
C122	6- 6-144	C59	6- 6- 7	CR19	6- 6- 34
C123	6- 6-144	C6	6- 6- 7	CR2	6- 6- 68
C125	6- 6-144	C60	6- 6-110	CR20	6- 6- 34
C126	6- 6-146	C61	6- 6-110	CR21	6- 6- 34
C13	6- 6- 7	C62	6- 6- 7	CR22	6- 6-101

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
CR23	6- 6-101	L5	6- 6- 8	R50	6- 6- 82
CR24	6- 6- 68	L7	6- 6- 44	R51	6- 6-131
CR25	6- 6- 68	L8	6- 6- 99	R52	6- 6-132
CR26	6- 6- 18	L9	6- 6-107	R53	6- 6-130
CR27	6- 6- 18	P2	6- 6-126	R54	6- 6-127
CR28	6- 6- 18	P3	6- 6- 6	R55	6- 6-125
CR29	6- 6- 18	Q1	6- 6- 91	R56	6- 6-120
CR3	6- 6- 10	Q10	6- 6- 30	R57	6- 6-123
CR30	6- 6- 18	Q11	6- 6- 30	R58	6- 6-124
CR31	6- 6- 18	Q12	6- 6-122	R59	6- 6-133
CR32	6- 6- 33	Q13	6- 6-122	R6	6- 6- 20
CR33	6- 6- 33	Q2	6- 6-138	R60	6- 6- 79
CR34	6- 6- 68	Q3	6- 6-138	R61	6- 6- 67
CR35	6- 6- 34	Q4	6- 6-105	R62	6- 6-111
CR36	6- 6- 34	Q5	6- 6-122	R63	6- 6- 66
CR37	6- 6- 34	Q6	6- 6-128	R64	6- 6-112
CR38	6- 6- 85	Q7	6- 6-129	R65	6- 6-118
CR39	6- 6- 34	Q8	6- 6- 30	R67	6- 6- 29
CR4	6- 6- 10	Q9	6- 6- 30	R68	6- 6- 69
CR40	6- 6- 34	R1	6- 6-121	R69	6- 6-113
CR41	6- 6- 68	R10	6- 6- 94	R7	6- 6- 69
CR5	6- 6- 10	R11	6- 6- 92	R70	6- 6-119
CR6	6- 6-100	R12	6- 6- 55	R71	6- 6- 66
CR7	6- 6- 34	R13	6- 6- 69	R73	6- 6- 20
CR8	6- 6- 34	R14	6- 6- 90	R74	6- 6- 20
CR9	6- 6- 34	R15	6- 6- 67	R75	6- 6- 29
FL1	6- 6- 97	R16	6- 6- 9	R76	6- 6- 24
FL2	6- 6- 49	R17	6- 6- 95	R77	6- 6- 35
L1	6- 6- 8	R18	6- 6- 9	R78	6- 6- 39
L10	6- 6- 36	R19	6- 6- 9	R79	6- 6- 39
L11	6- 6- 80	R2	6- 6-121	R8	6- 6- 70
L12	6- 6-107	R20	6- 6- 9	R80	6- 6- 35
L13	6- 6-107	R21	6- 6- 67	R81	6- 6- 29
L14	6- 6-135	R22	6- 6- 94	R82	6- 6- 24
L16	6- 6-107	R23	6- 6- 92	R83	6- 6- 20
L17	6- 6- 8	R27	6- 6- 51	R84	6- 6- 20
L18	6- 6-109	R28	6- 6- 69	R86	6- 6-113
L2	6- 6- 8	R29	6- 6- 77	R87	6- 6-119
L20	6- 6-102	R3	6- 6- 20	R88	6- 6- 54
L21	6- 6-107	R30	6- 6- 20	R9	6- 6- 82
L22	6- 6-107	R31	6- 6- 76	R90	6- 6- 75
L25	6- 6- 62	R32	6- 6- 73	R91	6- 6- 88
L26	6- 6- 63	R33	6- 6- 81	R92	6- 6- 88
L27	6- 6-107	R35	6- 6- 55	R93	6- 6- 89
L28	6- 6- 36	R36	6- 6- 65	R94	6- 6-119
L29	6- 6- 28	R37	6- 6-124	R96	6- 6- 20
L3	6- 6- 8	R38	6- 6-113	R97	6- 6- 9
L30	6- 6- 42	R39	6- 6- 67	R98	6- 6- 9
L31	6- 6- 21	R4	6- 6-121	R99	6- 6- 90
L32	6- 6- 96	R40	6- 6- 67	T1	6- 6-139
L33	6- 6- 36	R41	6- 6- 67	T2	6- 6-137
L34	6- 6- 87	R42	6- 6-136	T3	6- 6-142
L35	6- 6-102	R43	6- 6-136	T4	6- 6-141
L37	6- 6- 8	R44	6- 6- 94	T5	6- 6- 40
L38	6- 6- 8	R45	6- 6- 92	T7	6- 6-108
L39	6- 6- 87	R46	6- 6- 69	T8	6- 6-114
L4	6- 6- 36	R47	6- 6- 90	U1	6- 6- 58
L40	6- 6- 87	R48	6- 6-136	U2	6- 6-115
L41	6- 6- 41	R49	6- 6-136	U3	6- 6-117
L42	6- 6- 41	R5	6- 6-121	U4	6- 6- 83

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
U5	6- 6- 71	C49	6- 7- 30	CR2	6- 7- 10
U6	6- 6- 71	C5	6- 7-150	CR20	6- 7- 86
Y1	6- 6- 59	C50	6- 7- 30	CR21	6- 7- 86
High Band RF/IF	6- 7- REF	C51	6- 7-113	CR22	6- 7- 39
Module Assembly		C52	6- 7-112	CR23	6- 7- 39
A1	6- 7- 6	C53	6- 7- 30	CR24	6- 7- 39
C10	6- 7- 16	C54	6- 7- 30	CR25	6- 7- 39
C100	6- 7- 97	C55	6- 7-151	CR26	6- 7-147
C101	6- 7- 92	C56	6- 7- 30	CR27	6- 7- 41
C102	6- 7- 30	C57	6- 7-120	CR28	6- 7- 41
C103	6- 7- 30	C58	6- 7- 30	CR29	6- 7- 86
C104	6- 7- 84	C59	6- 7-113	CR3	6- 7- 10
C105	6- 7-103	C6	6- 7- 16	CR30	6- 7- 98
C106	6- 7-110	C60	6- 7-112	CR31	6- 7- 86
C107	6- 7-109	C61	6- 7- 18	CR32	6- 7- 47
C108	6- 7- 30	C62	6- 7- 30	CR4	6- 7- 10
C109	6- 7- 30	C63	6- 7- 34	CR5	6- 7- 10
C11	6- 7- 16	C68	6- 7- 85	CR6	6- 7- 10
C110	6- 7- 96	C69	6- 7- 16	CR7	6- 7- 47
C111	6- 7- 30	C7	6- 7- 61	CR8	6- 7- 39
C112	6- 7- 30	C7	6- 7-131	CR9	6- 7- 39
C114	6- 7-151	C70	6- 7- 18	FL1	6- 7- 48
C115	6- 7-152	C71	6- 7- 19	FL2	6- 7- 14
C116	6- 7-149	C72	6- 7- 16	FL3	6- 7- 15
C12	6- 7- 16	C73	6- 7-124	L10	6- 7- 46
C13	6- 7- 30	C74	6- 7-127	L11	6- 7- 24
C14	6- 7- 16	C75	6- 7-104	L12	6- 7- 54
C15	6- 7- 19	C77	6- 7- 30	L13	6- 7-111
C16	6- 7- 16	C78	6- 7- 85	L14	6- 7- 36
C17	6- 7- 18	C79	6- 7-138	L15	6- 7-117
C18	6- 7- 25	C8	6- 7- 62	L16	6- 7- 36
C19	6- 7- 16	C80	6- 7-142	L17	6- 7-121
C20	6- 7- 20	C81	6- 7-124	L18	6- 7- 36
C21	6- 7- 18	C82	6- 7- 19	L19	6- 7- 36
C22	6- 7- 32	C83	6- 7-138	L20	6- 7-123
C23	6- 7- 28	C84	6- 7- 16	L22	6- 7- 35
C24	6- 7- 22	C85	6- 7-138	L25	6- 7-126
C25	6- 7- 23	C86	6- 7-142	L26	6- 7- 54
C26	6- 7- 18	C87	6- 7-124	L27	6- 7- 54
C27	6- 7- 51	C88	6- 7- 16	L28	6- 7- 36
C28	6- 7- 18	C89	6- 7-124	L29	6- 7- 36
C29	6- 7- 18	C9	6- 7- 16	L30	6- 7- 87
C30	6- 7- 58	C90	6- 7- 51	L31	6- 7- 93
C31	6- 7- 58	C91	6- 7-138	L32	6- 7- 36
C32	6- 7- 18	C92	6- 7- 30	L33	6- 7- 36
C33	6- 7- 12	C93	6- 7- 18	L34	6- 7- 36
C34	6- 7- 11	C94	6- 7- 85	L35	6- 7-107
C35	6- 7- 73	C95	6- 7- 30	L36	6- 7-108
C36	6- 7- 71	C96	6- 7- 88	L38	6- 7- 8
C37	6- 7- 74	C97	6- 7- 89	L40	6- 7-125
C39	6- 7- 30	C98	6- 7- 30	L41	6- 7- 36
C40	6- 7- 30	C99	6- 7- 96	L42	6- 7-118
C41	6- 7- 30	CR1	6- 7- 39	L44	6- 7-118
C42	6- 7- 30	CR10	6- 7- 39	L54	6- 7- 54
C43	6- 7- 30	CR14	6- 7- 41	L7	6- 7- 67
C44	6- 7- 92	CR15	6- 7- 39	L8	6- 7- 69
C45	6- 7-112	CR16	6- 7- 39	L9	6- 7- 50
C46	6- 7-113	CR17	6- 7- 10	P2	6- 7- 33
C47	6- 7- 30	CR18	6- 7- 10	P3	6- 7- 7
C48	6- 7-151	CR19	6- 7- 86	Q1	6- 7- 55

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
Q10	6- 7- 94	R50	6- 7- 53	Synthesizer/AF Module Assembly	6- 8- REF
Q11	6- 7-101	R51	6- 7- 56		
Q12	6- 7- 31	R52	6- 7-119	C1	6- 8- 31
Q2	6- 7-115	R53	6- 7- 70	C10	6- 8- 26
Q3	6- 7-115	R54	6- 7- 60	C100	6- 8-118
Q4	6- 7- 31	R55	6- 7-114	C101	6- 8- 36
Q5	6- 7- 80	R56	6- 7- 42	C102	6- 8- 91
Q6	6- 7-122	R57	6- 7- 38	C103	6- 8- 55
Q7	6- 7-133	R58	6- 7- 43	C104	6- 8-112
Q8	6- 7-140	R59	6- 7- 40	C105	6- 8-112
Q9	6- 7-140	R6	6- 7- 56	C106	6- 8- 55
R1	6- 7- 64	R60	6- 7- 44	C107	6- 8- 94
R10	6- 7- 64	R61	6- 7- 45	C11	6- 8- 89
R100	6- 7-137	R62	6- 7- 81	C118	6- 8- 36
R101	6- 7-143	R63	6- 7- 82	C119	6- 8- 58
R102	6- 7- 90	R64	6- 7- 52	C12	6- 8- 94
R104	6- 7- 68	R67	6- 7- 76	C120	6- 8- 62
R105	6- 7- 60	R68	6- 7- 76	C121	6- 8- 63
R106	6- 7- 65	R69	6- 7-130	C122	6- 8- 64
R11	6- 7- 70	R7	6- 7- 63	C123	6- 8- 57
R12	6- 7- 37	R70	6- 7-132	C124	6- 8- 48
R13	6- 7- 9	R71	6- 7-136	C125	6- 8- 48
R14	6- 7- 9	R72	6- 7- 90	C126	6- 8- 55
R15	6- 7- 9	R73	6- 7- 76	C127	6- 8- 29
R16	6- 7- 9	R74	6- 7-119	C13	6- 8- 88
R17	6- 7- 9	R75	6- 7-144	C14	6- 8- 94
R18	6- 7- 64	R76	6- 7- 68	C15	6- 8- 92
R19	6- 7- 75	R77	6- 7-145	C16	6- 8- 92
R2	6- 7- 77	R78	6- 7- 63	C17	6- 8- 29
R20	6- 7- 21	R79	6- 7-144	C18	6- 8- 36
R21	6- 7- 21	R8	6- 7- 49	C19	6- 8- 28
R22	6- 7- 9	R80	6- 7-146	C2	6- 8- 31
R23	6- 7- 9	R81	6- 7-145	C20	6- 8- 29
R24	6- 7- 29	R82	6- 7- 63	C21	6- 8- 91
R25	6- 7- 26	R83	6- 7-119	C22	6- 8- 91
R26	6- 7- 26	R84	6- 7- 83	C23	6- 8- 20
R27	6- 7- 9	R85	6- 7- 83	C24	6- 8- 22
R28	6- 7- 57	R86	6- 7-143	C25	6- 8- 24
R29	6- 7- 66	R87	6- 7- 64	C26	6- 8- 28
R3	6- 7- 9	R88	6- 7- 60	C27	6- 8- 73
R31	6- 7- 37	R89	6- 7- 9	C3	6- 8- 52
R32	6- 7- 72	R9	6- 7- 60	C36	6- 8- 36
R33	6- 7- 63	R90	6- 7- 91	C37	6- 8- 36
R34	6- 7- 59	R91	6- 7- 9	C38	6- 8- 36
R35	6- 7- 60	R92	6- 7-100	C39	6- 8- 36
R37	6- 7- 37	R93	6- 7-106	C40	6- 8- 36
R38	6- 7- 37	R94	6- 7- 99	C41	6- 8- 36
R39	6- 7- 37	R95	6- 7-105	C42	6- 8- 36
R4	6- 7- 68	R97	6- 7-129	C43	6- 8- 36
R40	6- 7-114	R98	6- 7- 9	C44	6- 8- 36
R41	6- 7- 83	R99	6- 7-135	C45	6- 8- 36
R42	6- 7- 37	T1	6- 7-128	C46	6- 8- 36
R43	6- 7- 26	T3	6- 7-139	C47	6- 8- 28
R44	6- 7- 56	T4	6- 7-139	C48	6- 8- 29
R45	6- 7- 60	T5	6- 7-139	C49	6- 8- 29
R46	6- 7- 53	U1	6- 7- 17	C5	6- 8- 33
R47	6- 7- 70	U2	6- 7- 78	C50	6- 8- 9
R48	6- 7-116	U3	6- 7- 78	C51	6- 8- 38
R49	6- 7-114	U4	6- 7- 27	C52	6- 8- 36
R5	6- 7- 53	Y1	6- 7- 13	C53	6- 8- 36

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
C6	6- 8- 29	Q2	6- 8- 43	R31	6- 8- 19
C61	6- 8- 29	Q4	6- 8- 18	R32	6- 8- 5A
C62	6- 8- 80	Q5	6- 8-103	R33	6- 8- 19
C63	6- 8-121	Q6	6- 8- 43	R34	6- 8- 13
C64	6- 8- 29	Q7	6- 8-107	R35	6- 8- 13
C65	6- 8- 73	Q8	6- 8- 46	R36	6- 8- 13
C66	6- 8- 29	Q9	6- 8- 46	R37	6- 8- 13
C67	6- 8- 78	R10	6- 8- 23	R38	6- 8- 13
C68	6- 8- 28	R100	6- 8- 70	R39	6- 8- 19
C69	6- 8- 29	R101	6- 8- 75	R4	6- 8- 95
C7	6- 8- 31	R102	6- 8- 30	R40	6- 8- 13
C70	6- 8- 28	R11	6- 8- 82	R41	6- 8- 13
C71	6- 8- 29	R112	6- 8- 99	R42	6- 8- 19
C72	6- 8- 29	R113	6- 8-100A	R43	6- 8- 35
C73	6- 8- 29	R114	6- 8- 99	R44	6- 8- 39
C74	6- 8- 67	R115	6- 8-102	R45	6- 8- 40
C75	6- 8- 33	R116	6- 8- 39	R46	6- 8- 10
C76	6- 8- 29	R117	6- 8- 66	R47	6- 8- 39
C77	6- 8- 67	R118	6- 8-117	R48	6- 8- 44
C87	6- 8- 36	R119	6- 8-120	R49	6- 8- 10
C88	6- 8- 98	R12	6- 8- 84	R5	6- 8- 23
C89	6- 8-101	R120	6- 8-114	R50	6- 8- 14
C9	6- 8- 29	R121	6- 8- 19	R51	6- 8- 85
C90	6- 8- 22	R122	6- 8-110	R52	6- 8- 69
C91	6- 8- 36	R123	6- 8-110	R53	6- 8- 10
C92	6- 8- 36	R124	6- 8- 23	R54	6- 8- 86
C93	6- 8-106	R125	6- 8- 14	R55	6- 8- 14
C94	6- 8-105	R126	6- 8-122	R56	6- 8- 90
C95	6- 8- 9	R127	6- 8-122	R57	6- 8- 10
C96	6- 8- 29	R128	6- 8- 70	R58	6- 8- 10
C97	6- 8- 26	R129	6- 8-119	R59	6- 8- 14
C98	6- 8- 29	R13	6- 8- 84	R6	6- 8- 82
C99	6- 8-113	R130	6- 8- 50	R60	6- 8- 10
CR1	6- 8- 12	R131	6- 8-110	R61	6- 8- 50
CR15	6- 8- 12	R132	6- 8-110	R62	6- 8- 10
CR16	6- 8- 12	R133	6- 8- 66	R63	6- 8- 6
CR17	6- 8- 74	R134	6- 8-111	R64	6- 8- 8
CR18	6- 8- 61	R135	6- 8- 44	R66	6- 8- 49
CR19	6- 8- 12	R136	6- 8- 44	R67	6- 8- 13
CR2	6- 8- 12	R14	6- 8- 84	R69	6- 8- 44
CR20	6- 8- 61	R141	6- 8- 5B	R7	6- 8- 23
CR21	6- 8- 12	R142	6- 8- 59	R70	6- 8- 10
CR22	6- 8- 12	R143	6- 8- 53	R71	6- 8- 41
CR27	6- 8-115	R144	6- 8- 51	R72	6- 8- 42
CR28	6- 8- 12	R145	6- 8- 60	R78	6- 8- 68
CR3	6- 8- 12	R146	6- 8- 66	R79	6- 8- 66
CR4	6- 8- 12	R147	6- 8- 65	R8	6- 8- 23
CR5	6- 8- 12	R148	6- 8- 14	R80	6- 8- 66
CR6	6- 8- 12	R149	6- 8- 14	R81	6- 8- 81
CR7	6- 8- 12	R15	6- 8- 82	R82	6- 8- 81
CR8	6- 8- 12	R150	6- 8- 14	R83	6- 8- 40
CR9	6- 8- 12	R151	6- 8- 45	R84	6- 8- 5C
L1	6- 8- 34	R152	6- 8- 54	R85	6- 8- 45
L6	6- 8-100	R153	6- 8- 14	R86	6- 8- 69
L7	6- 8- 34	R16	6- 8- 30	R87	6- 8- 39
L8	6- 8-116	R17	6- 8- 19	R88	6- 8- 79
P2	6- 8- 82A	R18	6- 8- 83	R89	6- 8- 76
P3	6- 8- 37	R2	6- 8- 93	R9	6- 8- 23
Q1	6- 8- 18	R3	6- 8- 42	R90	6- 8- 70
Q10	6- 8- 43	R30	6- 8- 11	R91	6- 8- 71

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
R92	6- 8- 49	L3	6-11- 13	C35	6-12- 16
R93	6- 8- 14	L30	6-11- 23	C36	6-12- 16
R94	6- 8- 70	L31	6-11- 23	C37	6-12- 16
R95	6- 8- 69	L32	6-11- 23	C39	6-12- 16
R96	6- 8- 70	L33	6-11- 23	C4	6-12- 24
R97	6- 8- 19	L34	6-11- 23	C40	6-12- 46
R98	6- 8- 19	L35	6-11- 23	C41	6-12- 24
R99	6- 8- 30	L36	6-11- 35	C42	6-12- 41
U1	6- 8- 32	L37	6-11- 35	C43	6-12- 16
U10	6- 8-109	L4	6-11- 13	C44	6-12- 16
U11	6- 8- 96	L40	6-11- 32	C45	6-12- 16
U12	6- 8- 56	L41	6-11- 32	C46	6-12- 50
U13	6- 8- 27	L5	6-11- 17	C47	6-12- 50
U2	6- 8- 87	P1	6-11- 3	C5	6-12- 16
U3	6- 8- 25	P2	6-11- 3	C6	6-12- 16
U4	6- 8- 27	P3	6-11- 7	C7	6-12- 16
U5	6- 8- 16	R1	6-11- 38	C8	6-12- 25
U6	6- 8- 15	R2	6-11- 39	C9	6-12- 26
U7	6- 8- 17	R21	6-11- 27	CR1	6-12- 54
U8	6- 8- 72	R22	6-11- 21	CR10	6-12- 14
U9	6- 8- 72	R24	6-11- 27	CR11	6-12- 15
Y1	6- 8- 21	R25	6-11- 21	CR14	6-12- 44
Y2	6- 8- 7	R26	6-11- 28	CR15	6-12- 44
High Band Filter	6-11- REF	R27	6-11- 21	CR16	6-12- 44
Module Assembly		R28	6-11- 31	CR17	6-12- 15
C1	6-11- 34	R3	6-11- 33	CR18	6-12- 14
C10	6-11- 14	R4	6-11- 37	CR2	6-12- 54
C11	6-11- 14	R5	6-11- 31	CR3	6-12- 54
C2	6-11- 34	R6	6-11- 33	CR4	6-12- 14
C31	6-11- 30	W1	6-11- 5A	CR5	6-12- 15
C32	6-11- 30	W2	6-11- 5A	CR6	6-12- 14
C33	6-11- 20	W3	6-11- 40	CR7	6-12- 15
C34	6-11- 20	W4	6-11- 40	CR8	6-12- 14
C35	6-11- 20	Low Band Filter	6-12- REF	CR9	6-12- 15
C36	6-11- 20	Module Assembly		J1	6-12- 49
C37	6-11- 20	C1	6-12- 55	J2	6-12- 43
C39	6-11- 20	C10	6-12- 32	L1	6-12- 27
C40	6-11- 26	C11	6-12- 33	L10	6-12- 28
C41	6-11- 22	C12	6-12- 16	L11	6-12- 29
C43	6-11- 20	C13	6-12- 16	L12	6-12- 34
C44	6-11- 20	C14	6-12- 16	L13	6-12- 35
C45	6-11- 20	C15	6-12- 16	L14	6-12- 21
C8	6-11- 9	C16	6-12- 40	L15	6-12- 21
C9	6-11- 9	C17	6-12- 16	L16	6-12- 9
CR1	6-11- 36	C18	6-12- 16	L17	6-12- 8
CR14	6-11- 19	C19	6-12- 16	L18	6-12- 12
CR15	6-11- 19	C2	6-12- 55	L19	6-12- 18
CR16	6-11- 19	C20	6-12- 16	L2	6-12- 30
CR17	6-11- 24	C21	6-12- 13	L20	6-12- 38
CR18	6-11- 25	C22	6-12- 17	L21	6-12- 21
CR2	6-11- 36	C23	6-12- 20	L22	6-12- 10
CR3	6-11- 36	C24	6-12- 39	L23	6-12- 11
J1	6-11- 29	C25	6-12- 16	L24	6-12- 19
J2	6-11- 18	C26	6-12- 16	L25	6-12- 37
L1	6-11- 8	C27	6-12- 16	L26	6-12- 21
L10	6-11- 10	C3	6-12- 24	L27	6-12- 21
L11	6-11- 12	C31	6-12- 50	L28	6-12- 21
L12	6-11- 15	C32	6-12- 50	L3	6-12- 31
L13	6-11- 16	C33	6-12- 16	L30	6-12- 21
L2	6-11- 11	C34	6-12- 16	L31	6-12- 21

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
L32	6-12- 21	C23	6-13- 35	CR1	6-13- 17
L33	6-12- 21	C24	6-13- 93	CR10	6-13-112
L34	6-12- 21	C25	6-13- 50	CR11	6-13-112
L35	6-12- 21	C26	6-13- 93	CR12	6-13-112
L36	6-12- 56	C27	6-13- 89	CR15	6-13- 16
L37	6-12- 56	C28	6-13- 57	CR16	6-13- 38
L38	6-12- 56	C29	6-13- 35	CR17	6-13- 16
L39	6-12- 56	C3	6-13- 86	CR18	6-13- 16
L4	6-12- 36	C30	6-13- 21	CR19	6-13- 16
L40	6-12- 52	C31	6-13- 51	CR2	6-13- 16
L41	6-12- 52	C32	6-13- 50	CR20	6-13- 16
L5	6-12- 42	C33	6-13- 21	CR21	6-13- 16
L6	6-12- 21	C34	6-13- 21	CR22	6-13- 16
L7	6-12- 21	C35	6-13- 34	CR23	6-13- 16
L8	6-12- 21	C36	6-13- 58	CR24	6-13- 16
L9	6-12- 21	C37	6-13- 61	CR25	6-13- 33
P1	6-12- 3	C38	6-13- 57	CR26	6-13- 54
P2	6-12- 3	C39	6-13- 65	CR27	6-13- 54
P3	6-12- 6	C4	6-13- 21	CR28	6-13- 54
R1	6-12- 59	C40	6-13- 57	CR29	6-13- 54
R10	6-12- 23	C41	6-13- 35	CR3	6-13- 17
R11	6-12- 23	C42	6-13- 35	CR30	6-13- 16
R12	6-12- 22	C43	6-13- 35	CR31	6-13- 16
R13	6-12- 22	C44	6-13- 21	CR32	6-13- 17
R14	6-12- 23	C45	6-13- 21	CR33	6-13- 17
R2	6-12- 58	C46	6-13- 21	CR37	6-13- 16
R21	6-12- 47	C47	6-13- 21	CR4	6-13-108
R22	6-12- 45	C48	6-13- 61	CR5	6-13-119
R24	6-12- 47	C49	6-13- 57	CR6	6-13- 16
R25	6-12- 45	C5	6-13- 35	CR7	6-13-112
R26	6-12- 48	C50	6-13- 65	CR8	6-13-112
R27	6-12- 45	C51	6-13- 57	CR9	6-13-112
R28	6-12- 51	C52	6-13- 35	J1	6-13-126
R3	6-12- 53	C59	6-13- 70	J2	6-13- 53
R4	6-12- 57	C6	6-13- 93	J3	6-13- 2
R5	6-12- 51	C60	6-13- 69	J4	6-13- 49
R6	6-12- 53	C61	6-13- 69	J5	6-13- 78
R7	6-12- 23	C62	6-13- 34	L1	6-13- 95
R8	6-12- 22	C63	6-13- 34	L10	6-13- 92
R9	6-12- 22	C64	6-13- 35	L12	6-13-103
W1	6-12- 7A	C65	6-13- 46	L13	6-13- 99
W2	6-12- 7A	C66	6-13- 21	L16	6-13- 95
W3	6-12- 60	C67	6-13- 34	L17	6-13- 96
W4	6-12- 60	C68	6-13- 34	L18	6-13- 94
High Band Amplifier Module Assembly	6-13- REF	C69	6-13- 35	L19	6-13- 48
		C7	6-13- 57	L2	6-13- 28
C1	6-13- 21	C70	6-13- 21	L20	6-13- 48
C10	6-13- 57	C71	6-13- 81	L21	6-13- 47
C12	6-13- 50	C72	6-13- 35	L22	6-13- 47
C13	6-13- 93	C73	6-13- 35	L23	6-13- 47
C14	6-13- 93	C74	6-13- 21	L28	6-13- 28
C15	6-13- 35	C75	6-13- 35	L29	6-13- 28
C16	6-13- 90	C76	6-13- 21	L3	6-13- 28
C17	6-13- 57	C77	6-13- 35	L30	6-13- 48
C18	6-13- 57	C78	6-13- 21	L31	6-13- 48
C19	6-13- 93	C79	6-13- 35	L32	6-13- 48
C2	6-13- 86	C8	6-13-122	L33	6-13- 48
C20	6-13-100	C80	6-13- 50	L4	6-13-114
C21	6-13- 89	C81	6-13-135	L5	6-13-116
C22	6-13- 90	C9	6-13-121	L7	6-13- 96

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
L8	6-13- 47	R142	6-13- 76	R61	6-13- 55
L9	6-13-102	R143	6-13- 42	R62	6-13- 64
Q1	6-13- 15	R144	6-13- 79	R63	6-13- 62
Q10	6-13- 15	R145	6-13- 14	R64	6-13- 39
Q11	6-13- 15	R146	6-13- 14	R65	6-13- 42
Q12	6-13- 9	R147	6-13- 30	R66	6-13- 11
Q13	6-13- 15	R148	6-13-104	R67	6-13- 18
Q2	6-13- 9	R149	6-13- 85	R68	6-13- 18
Q3	6-13- 9	R15	6-13- 12	R69	6-13- 24
Q4	6-13- 9	R150	6-13- 98	R7	6-13- 20
Q5	6-13- 15	R151	6-13-107	R70	6-13- 24
Q6	6-13-123	R16	6-13- 11	R71	6-13- 14
Q7	6-13-125	R18	6-13- 14	R72	6-13- 40
Q8	6-13-105	R19	6-13- 13	R73	6-13- 18
Q9	6-13- 97	R2	6-13- 18	R74	6-13- 18
R1	6-13- 85	R20	6-13- 18	R75	6-13- 41
R10	6-13- 7	R21	6-13-117	R76	6-13- 25
R100	6-13- 8	R22	6-13- 52	R77	6-13- 18
R101	6-13- 14	R23	6-13- 32	R78	6-13- 13
R102	6-13- 31	R24	6-13-110	R79	6-13- 27
R103	6-13- 30	R25	6-13- 32	R8	6-13- 6
R104	6-13- 5	R26	6-13- 56	R80	6-13- 13
R105	6-13- 4	R27	6-13- 36	R81	6-13- 79
R106	6-13- 5	R28	6-13- 24	R82	6-13- 18
R108	6-13- 52	R29	6-13-120	R83	6-13- 20
R109	6-13- 52	R3	6-13- 18	R84	6-13- 18
R11	6-13- 7	R30	6-13-113	R85	6-13- 18
R110	6-13- 3	R31	6-13-115	R86	6-13- 19
R112	6-13- 3	R32	6-13- 18	R87	6-13- 22
R114	6-13- 52	R33	6-13-111	R88	6-13- 18
R115	6-13- 52	R34	6-13- 20	R89	6-13- 20
R116	6-13- 56	R35	6-13-106	R9	6-13- 6
R117	6-13- 64	R36	6-13- 59	R90	6-13- 22
R118	6-13- 55	R37	6-13- 30	R91	6-13- 32
R119	6-13- 62	R38	6-13- 22	R92	6-13- 43
R12	6-13- 11	R39	6-13- 91	R93	6-13- 45
R120	6-13- 68	R4	6-13- 40	R94	6-13- 43
R121	6-13- 68	R40	6-13- 98	R95	6-13- 36
R122	6-13- 14	R41	6-13- 59	R96	6-13- 44
R123	6-13- 14	R42	6-13- 59	R97	6-13- 36
R124	6-13- 66	R43	6-13- 59	R98	6-13- 18
R125	6-13- 71	R44	6-13- 59	R99	6-13- 32
R126	6-13- 41	R45	6-13- 11	T1	6-13-118
R127	6-13- 71	R46	6-13- 30	T3	6-13-101
R128	6-13- 66	R47	6-13- 91	T4	6-13- 88
R129	6-13- 41	R48	6-13- 18	TP1	6-13- 29
R13	6-13- 11	R49	6-13- 14	TP2	6-13- 29
R130	6-13- 32	R5	6-13- 84	TP3	6-13- 29
R131	6-13- 73	R50	6-13- 25	TP4	6-13- 29
R132	6-13- 39	R51	6-13- 26	TP5	6-13- 29
R133	6-13- 32	R52	6-13- 18	TP6	6-13- 29
R134	6-13- 80	R53	6-13- 18	TP7	6-13- 29
R135	6-13- 74	R54	6-13- 24	TP8	6-13- 29
R136	6-13- 77	R55	6-13- 24	TP9	6-13- 29
R137	6-13- 73	R56	6-13- 30	U1	6-13- 82
R138	6-13- 11	R57	6-13-127	U2	6-13- 60
R139	6-13- 36	R58	6-13- 27	U3	6-13- 23
R14	6-13- 12	R59	6-13- 59	U4	6-13- 23
R140	6-13- 76	R6	6-13- 87	U5	6-13- 37
R141	6-13- 75	R60	6-13- 14	U6	6-13- 63

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
U7	6-13- 63	C67	6-14- 23	J1	6-14-126
U8	6-13- 67	C68	6-14- 23	J2	6-14- 61
U9	6-13- 72	C69	6-14- 43	J3	6-14- 14
W1	6-13-135A	C7	6-14- 43	J4	6-14- 46
Low Band Amplifier	6-14- REF	C70	6-14- 31	J5	6-14- 81
Module Assembly		C71	6-14- 84	L1	6-14- 91
C1	6-14- 31	C72	6-14- 43	L10	6-14-102
C10	6-14- 27	C73	6-14- 43	L11	6-14-104
C11	6-14-119	C74	6-14- 31	L15	6-14-101
C12	6-14- 58	C75	6-14- 43	L16	6-14- 94
C13	6-14-105	C76	6-14- 31	L17	6-14- 95
C14	6-14- 27	C77	6-14- 43	L18	6-14- 97
C15	6-14- 43	C78	6-14- 31	L19	6-14- 44
C16	6-14- 93	C79	6-14- 43	L2	6-14-118A
C17	6-14- 27	C8	6-14- 43	L20	6-14- 44
C18	6-14- 27	C80	6-14- 58	L21	6-14- 45
C19	6-14- 43	C81	6-14- 33	L22	6-14- 45
C2	6-14- 89	C82	6-14- 27	L23	6-14- 45
C20	6-14- 43	C83	6-14- 27	L28	6-14- 32
C22	6-14- 93	C84	6-14- 31	L29	6-14- 32
C23	6-14- 43	C85	6-14- 23	L3	6-14-116
C24	6-14- 27	C86	6-14- 23	L30	6-14- 44
C25	6-14- 58	C87	6-14- 31	L31	6-14- 44
C26	6-14- 98	C9	6-14- 43	L32	6-14- 44
C27	6-14- 96	CR1	6-14- 21	L33	6-14- 44
C28	6-14- 43	CR10	6-14-114	L34	6-14- 30
C29	6-14- 43	CR11	6-14-114	L35	6-14- 32
C3	6-14- 89	CR12	6-14-114	L36	6-14- 32
C30	6-14- 31	CR13	6-14-114	L6	6-14-120
C31	6-14- 59	CR14	6-14-114	L7	6-14-111
C32	6-14- 58	CR15	6-14- 11	L8	6-14- 45
C33	6-14- 31	CR16	6-14- 35	L9	6-14-103
C34	6-14- 31	CR17	6-14- 11	Q1	6-14- 6
C35	6-14- 23	CR18	6-14- 11	Q10	6-14- 6
C36	6-14- 65	CR19	6-14- 11	Q11	6-14- 6
C37	6-14- 68	CR2	6-14- 11	Q12	6-14- 4
C38	6-14- 27	CR20	6-14- 11	Q13	6-14- 6
C4	6-14- 31	CR21	6-14- 11	Q14	6-14- 4
C40	6-14- 27	CR22	6-14- 11	Q15	6-14- 6
C41	6-14- 43	CR23	6-14- 11	Q16	6-14- 4
C42	6-14- 43	CR24	6-14- 11	Q17	6-14- 4
C43	6-14- 43	CR25	6-14- 52	Q2	6-14- 4
C44	6-14- 31	CR26	6-14- 62	Q3	6-14- 4
C45	6-14- 31	CR27	6-14- 62	Q4	6-14- 4
C46	6-14- 31	CR28	6-14- 62	Q5	6-14- 6
C47	6-14- 31	CR29	6-14- 62	Q7	6-14-122
C48	6-14- 68	CR3	6-14- 21	Q8	6-14-108
C49	6-14- 27	CR30	6-14- 11	Q9	6-14- 99
C5	6-14- 43	CR31	6-14- 11	R1	6-14- 88
C51	6-14- 27	CR32	6-14- 21	R10	6-14- 4A
C52	6-14- 43	CR34	6-14- 28	R100	6-14- 17
C59	6-14- 74	CR35	6-14- 28	R101	6-14- 20
C6	6-14- 43	CR36	6-14- 11	R102	6-14- 51
C60	6-14- 73	CR37	6-14- 11	R103	6-14- 41
C61	6-14- 73	CR4	6-14-112	R104	6-14- 10
C62	6-14- 23	CR5	6-14-117	R105	6-14- 15
C63	6-14- 23	CR6	6-14- 11	R106	6-14- 10
C64	6-14- 43	CR7	6-14-114	R107	6-14- 15
C65	6-14- 57	CR8	6-14-114	R108	6-14- 34
C66	6-14- 31	CR9	6-14-114	R109	6-14- 34

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
R11	6-14- 4A	R165	6-14- 9	R68	6-14- 22
R110	6-14- 60	R166	6-14- 4A	R69	6-14- 29
R111	6-14- 60	R167	6-14- 4A	R7	6-14- 8
R112	6-14- 34	R168	6-14- 2	R70	6-14- 29
R114	6-14- 34	R169	6-14- 3	R71	6-14- 20
R115	6-14- 34	R170	6-14- 41	R72	6-14- 38
R116	6-14- 64	R18	6-14- 20	R73	6-14- 22
R117	6-14- 8	R19	6-14- 19	R74	6-14- 22
R118	6-14- 63	R2	6-14- 22	R75	6-14- 40
R119	6-14- 20	R20	6-14- 22	R76	6-14- 39
R12	6-14- 12	R21	6-14-123	R77	6-14- 22
R120	6-14- 70	R22	6-14- 70	R78	6-14- 19
R121	6-14- 70	R23	6-14-125	R79	6-14- 49
R122	6-14- 20	R24	6-14-125	R8	6-14- 16
R123	6-14- 20	R25	6-14-118	R80	6-14- 19
R124	6-14- 72	R26	6-14- 64	R81	6-14- 82
R125	6-14- 75	R27	6-14- 13	R82	6-14- 22
R126	6-14- 40	R28	6-14-124	R83	6-14- 8
R127	6-14- 75	R3	6-16- 22	R84	6-14- 22
R128	6-14- 72	R30	6-14- 22	R85	6-14- 22
R129	6-14- 40	R31	6-14- 34	R86	6-14- 47A
R13	6-14- 12	R32	6-14- 22	R87	6-14- 26
R130	6-14- 7	R33	6-14-115	R88	6-14- 22
R131	6-14- 76	R34	6-14- 8	R89	6-14- 8
R132	6-14- 37	R35	6-14-109	R9	6-14- 16
R133	6-14- 7	R36	6-14-110	R90	6-14- 26
R134	6-14- 83	R37	6-14- 41	R91	6-14- 7
R135	6-14- 77	R38	6-14- 26	R92	6-14- 54
R136	6-14- 80	R39	6-14-107	R93	6-14- 56
R137	6-14- 76	R4	6-14- 38	R94	6-14- 54
R138	6-14- 12	R40	6-14-100	R95	6-14- 13
R139	6-14- 13	R41	6-14- 29	R96	6-14- 55
R14	6-14- 18	R42	6-14- 29	R97	6-14- 13
R140	6-14- 78	R43	6-14- 29	R98	6-14- 22
R141	6-14- 79	R44	6-14- 29	R99	6-14- 7
R142	6-14- 78	R45	6-14- 12	T1	6-14-121
R143	6-14- 42	R46	6-14- 41	T2	6-14-106
R144	6-14- 82	R47	6-14-107	T3	6-14-106
R145	6-14- 20	R48	6-14- 22	T4	6-14- 92
R146	6-14- 20	R49	6-14- 20	TP1	6-14- 36
R147	6-14- 29	R5	6-14- 87	TP2	6-14- 36
R148	6-14- 29	R50	6-14- 39	TP3	6-14- 36
R149	6-14- 18	R51	6-14- 48	TP4	6-14- 36
R15	6-14- 18	R52	6-14- 22	TP5	6-14- 36
R150	6-14- 18	R53	6-14- 22	TP6	6-14- 36
R151	6-14- 26	R54	6-14- 29	TP7	6-14- 36
R152	6-14- 26	R55	6-14- 29	TP8	6-14- 36
R153	6-14- 22	R56	6-14- 41	TP9	6-14- 39
R154	6-14- 22	R57	6-14- 50	U1	6-14- 85
R155	6-14- 24	R58	6-14- 49	U10	6-14- 25
R156	6-14- 7	R59	6-14- 66	U2	6-14- 67
R157	6-14- 7	R6	6-14- 90	U3	6-14- 47
R158	6-14- 12	R60	6-14- 20	U4	6-14- 47
R159	6-14- 13	R61	6-14- 63	U5	6-14- 53
R16	6-14- 12	R62	6-14- 8	U6	6-14- 71
R160	6-14- 10	R63	6-14- 20	U7	6-14- 71
R161	6-14- 8	R64	6-14- 37	U8	6-14- 69
R162	6-14- 7	R65	6-14- 42	U9	6-14- 25
R163	6-14- 9	R66	6-14- 12	W1	6-14-134A
R164	6-14- 7	R67	6-14- 22		

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
Power Supply Module	6-15- REF	R1	6-15- 21	P4	6-19- 12
Assembly		R2	6-15- 27	Q1	6-19- 29
C1	6-15- 22	R3	6-15- 19	Q2	6-19- 28
C10	6-15- 8	R4	6-15- 19	R1	6-19- 22
C11	6-15- 7	R5	6-15- 9	R10	6-19- 26
C12	6-15- 8	R6	6-15- 27	R11	6-19- 37
C13	6-15- 7	R7	6-15- 27	R12	6-19- 36
C14	6-15- 8	R8	6-15- 21	R13	6-19- 39
C15	6-15- 18	R9	6-15- 30	R14	6-19- 38
C16	6-15- 5	T1	6-15- 12	R15	6-19- 27
C17	6-15- 5	U1	6-15- 20	R2	6-19- 22
C18	6-15- 5	W1	6-15- 35A	R3	6-19- 17
C19	6-15- 8	Power Amplifier	6-16- REF	R4	6-19- 24
C2	6-15- 8	Chassis Assembly		R6	6-19- 34
C20	6-15- 17	DS1	6-16- 7	R7	6-19- 35
C21	6-15- 17	DS2	6-16- 6	R8	6-19- 22
C3	6-15- 8	DS3	6-16- 6	R9	6-19- 26
C4	6-15- 16	P4	6-16- 11	TB1	6-19- 19
C5	6-15- 8	P5	6-16- 20	U1	6-19- 31
C6	6-15- 8	S1	6-16- 5	W2	6-19- 16
C7	6-15- 17	TB1	6-16- 2	Power Supply/Audio	6-20- REF
C8	6-15- 8	W2	6-16- 1	Module Assembly	
C9	6-15- 7	W4	6-16- 10	C1	6-20- 18
CR1	6-15- 26	W2 Radio Frequency	6-17- REF	C10	6-20- 18
CR10	6-15- 10	Cable Assembly		C11	6-20- 37
CR11	6-15- 10	W4 Radio Frequency	6-17- REF	C12	6-20- 12
CR12	6-15- 10	Cable Assembly		C13	6-20- 12
CR2	6-15- 10	W2J2	6-17- 10	C14	6-20- 22
CR3	6-15- 10	W2P2	6-17- 7	C15	6-20- 12
CR4	6-15- 10	W4P1	6-17- 1	C16	6-20- 18
CR5	6-15- 10	W4P2	6-17- 6	C17	6-20- 38
CR6	6-15- 10	Radio OF-185/PRC	6-18- REF	C18	6-20- 15
CR7	6-15- 10	Adapter Group		C19	6-20- 15
CR8	6-15- 10	LS1	6-18- 7G	C2	6-20- 15
CR9	6-15- 10	P5	6-18- 7L	C20	6-20- 15
FL1	6-15- 29	Power Supply/Audio	6-19- REF	C21	6-20- 12
FL2	6-15- 29	Assembly		C3	6-20- 18
FL3	6-15- 29	C1	6-19- 30	C4	6-20- 18
FL4	6-15- 29	C2	6-19- 30	C5	6-20- 18
FL5	6-15- 29	C3	6-19- 30	C6	6-20- 18
L1	6-15- 11	C4	6-19- 30	C7	6-20- 15
L10	6-15- 6	C5	6-19- 30	C8	6-20- 37
L11	6-15- 6	C6	6-19- 30	C9	6-20- 18
L12	6-15- 6	C7	6-19- 33	CR2	6-20- 19
L13	6-15- 6	C8	6-19- 30	CR3	6-20- 36
L2	6-15- 11	C9	6-19- 33	CR4	6-20- 19
L3	6-15- 11	CB1	6-19- 15	CR5	6-20- 19
L4	6-15- 11	CR1	6-19- 23	CR6	6-20- 13
L5	6-15- 28	CR2	6-19- 23	CR7	6-20- 26
L6	6-15- 28	CR3	6-19- 32	CR8	6-20- 4
L7	6-15- 28	CR4	6-19- 25	CR9	6-20- 13
L8	6-15- 28	DS1	6-19- 42	FL1	6-20- 25
L9	6-15- 28	DS2	6-19- 45	FL2	6-20- 25
P4	6-15- 3	DS3	6-19- 42	FL3	6-20- 25
Q1	6-15- 23	J1	6-19- 41	FL4	6-20- 25
Q2	6-15- 25	J3	6-19- 6	FL5	6-20- 25
Q3	6-15- 25	J4	6-19- 5	FL6	6-20- 25
Q4	6-15- 23	J5	6-19- 7	FL7	6-20- 25
Q5	6-15- 13	J6	6-19- 8	J4	6-20- 41
Q6	6-15- 13	P1	6-19- 17A	L1	6-20- 24

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
L2	6-20- 24	R11	6-20- 32	R27	6-20- 11
L3	6-20- 24	R12	6-20- 39	R3	6-20- 6
L4	6-20- 24	R13	6-20- 32	R4	6-20- 6
L5	6-20- 24	R14	6-20- 32	R5	6-20- 7
L6	6-20- 24	R15	6-20- 20	R6	6-20- 31A
L7	6-20- 24	R16	6-20- 20	R7	6-20- 30
L8	6-20- 33	R17	6-20- 10	R8	6-20- 30
PS1	6-20- 3	R18	6-20- 23	R9	6-20- 11
Q1	6-20- 8	R19	6-20- 11	U1	6-20- 16
Q2	6-20- 21	R21	6-20- 30	U2	6-20- 34
Q3	6-20- 27	R22	6-20- 31	W2 Radio Frequency Cable Assembly	6-21- REF
Q4	6-20- 29	R23	6-20- 10		
Q5	6-20- 8	R24	6-20- 11	W2J2	6-21- 5
Q6	6-20- 8	R25	6-20- 10	W2P2	6-21- 1
R10	6-20- 20	R26	6-20- 10		

CHAPTER 7

CIRCUIT DIAGRAMS

7-1 GENERAL.

This chapter contains circuit and cable assembly diagrams. The diagrams are necessary to aid the technicians understanding of information presented in previous chapters. The diagrams are arranged in the same order as that portion of text to which they pertain. Diagram test points with their significant data are included in this chapter. Local manufacture test cable data is located in this chapter. Oversized diagrams are contained in foldout figures located at the rear of this manual.

7-2 LIST OF FOLDOUTS.

Table 7-1 is an index of all the foldouts found at the rear of this manual.

Table 7-1. List of Foldouts

7-3 CHASSIS CONTINUITY CHECKS.

The following tables contain wire lists for the RT frame/panel, RF Power Amplifier chassis and Power Supply/Audio chassis assemblies. Perform the continuity checks as directed from fault isolation procedures in chapter 5.

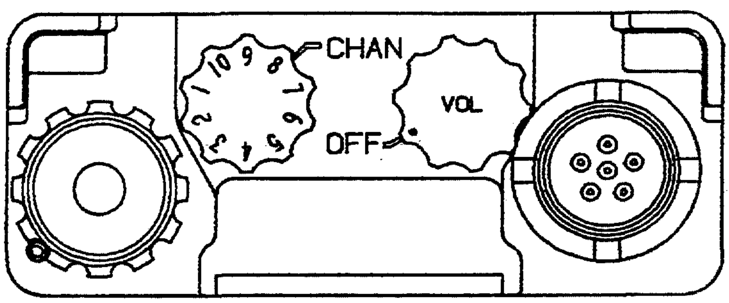
7-3.1 RT Frame/Panel Continuity Checks. Refer to figure 7-1 for RT frame/panel component location and perform resistance/continuity checks per table 7-2.

Table 7-2. RT Frame/Panel Wire List

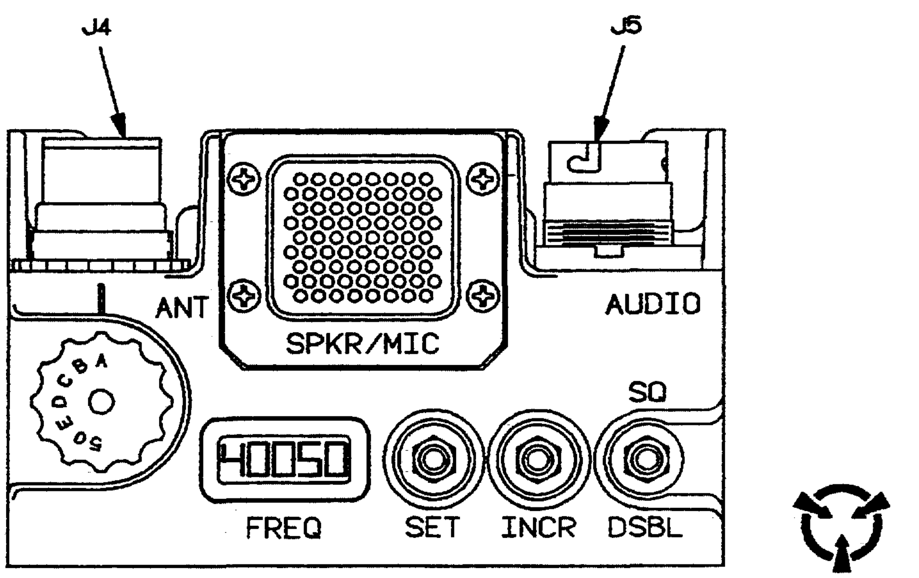
Switch	Position	From	To	Indication
		J2-3	J1-8	
		J2-4	J1-11	
		J2-5	J1-5	
		J2-7	J1-6	
		J2-10	J1-12	
		J2-11	J1-2,10,13	
		J2-12	J1-11	
		J2-17	J5-B	
		J2-18	J1-1	
		J2-19	J5-C	
		J2-20	J1-9	
		J2-21	J5-D	
		J2-22	J1-14	
		J2-23	J1-7	
		J2-28	J1-4	
		J3-19,20	Interconnect Plate	
		J3-14	J5-F	
		J5-A	J2-11	
		Battery Terminal (+)	J1-15	
		Battery Terminal (-)	J2-11, Interconnect Plate, Chassis Frame, Control Panel	
VOL/OFF	ON	Battery Terminal (+)	J2-12	6.5-8.0 kohms (observe diode polarity)
VOL/OFF	OFF	Battery Terminal (+)	J2-12	6.5-8.0 kohms (observe diode polarity)
VOL/OFF	ON	J5-E	J2-12	Continuity
VOL/OFF	OFF	J5-E	J2-12	Open
VOL/OFF	FULL CW	J2-24	J2-26	20K ohms max
VOL/OFF	FULL CCW	J2-24	J2-11	100 ohms max
VOL/OFF	FULL CCW	J2-26	J2-11	70K - 130K ohms
		J2-11	J2-23	Open
SQ DSBL	PRESS	J2-11	J2-23	Continuity
		J2-11	J2-1	Open
INCR	PRESS	J2-11	J2-1	Continuity
		J2-11	J2-2	Open
SET	PRESS	J2-11	J2-2	Continuity
		J2-11	J2-27	Open
PUSH TO TALK	PRESS	J2-11	J2-27	Continuity
		J2-25	J2-11	17 - 27 ohms

Table 7-2. RT Frame/Panel Wire List - CONT

Switch	Position	From	To	Indication
ANT	A	J3-17	J3-11	1200 - 1800 ohms
ANT	B	J3-17	J3-9	1200 - 1800 ohms
ANT	C	J3-17	J3-7	1200 - 1800 ohms
ANT	D	J3-17	J3-5	1200 - 1800 ohms
ANT	E	J3-17	J3-3	1200 - 1800 ohms
ANT	"50"	J3-17	J3-13	1200 - 1800 ohms
CHAN	1	J3-8	J3-11	Continuity
CHAN	2	J3-8	J3-9	Continuity
CHAN	3	J3-8	J3-7	Continuity
CHAN	4	J3-8	J3-3	Continuity
CHAN	5	J3-8	J3-5	Continuity
CHAN	6	J3-4	J3-5	Continuity
CHAN	7	J3-4	J3-3	Continuity
CHAN	8	J3-4	J3-7	Continuity
CHAN	9	J3-4	J3-9	Continuity
CHAN	10	J3-4	J3-11	Continuity
		J4 (ANT post)	J3-16	8K - 12K ohms



TOP VIEW



FRONT VIEW

MX-63-125-40-1
REF MX DWG 816172 REV R
D607022789

Figure 7-1. RT Frame/Panel Component Location (Sheet 1 of 2)

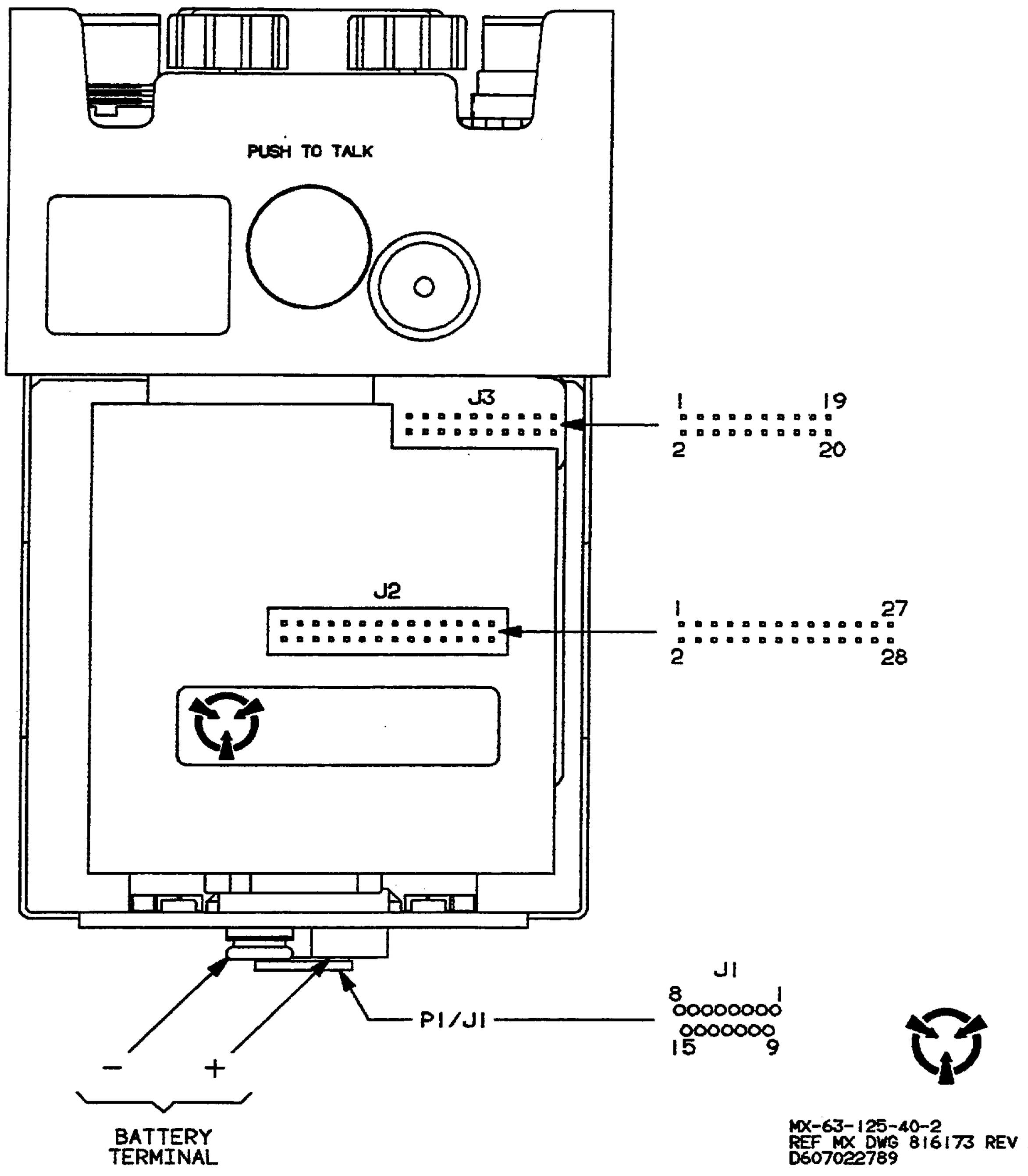


Figure 7-1. RT Frame/Panel Component Location (Sheet 2 of 2)

7-3.2 <u>PA Chassis Wire List.</u> Refer to figure 7-2 for PA chassis component location and perform resistance/continuity checks per table 7-3.

Table 7-3. PA Chassis Wire List

Wire no.	Color	From	To	Remarks
1**	GREEN	P4-G	TB1-E1	
2**	BLACK	P4-H	TB1-E2	
3**	BLACK	P4-J	P5-D	
4**	BLUE	P4-E	P5-B	
5**	BLACK	P4-C	P5-C	
6**	RED	P4-D	P5-A	
7**	BLACK	P4-A	TB1-E4	
8**	WHITE	P4-K	TB1-E3	
9	GREEN	P4-F	*	
10		P4-B	N.C.	
11	GREEN	*	***	
12	GRAY	P5-E	TB1-E6	
13	BROWN	P5-F	TB1-E9	
14	VIOLET	P5-G	TB1-E7	
15	YELLOW	P5-H	TB1-E5	
16	ORANGE	P5-I	TB1-E8	
17		N.C.	TB1-E10	

* Attached to W3 braided shield or use integral drain wire.
** The following wire numbers are supplied as twisted pairs integral to cable W3: 1 and 2, 3 and 4, 5 and 6, 7 and 8.
*** Wire number 11 is attached to chassis GND lug.

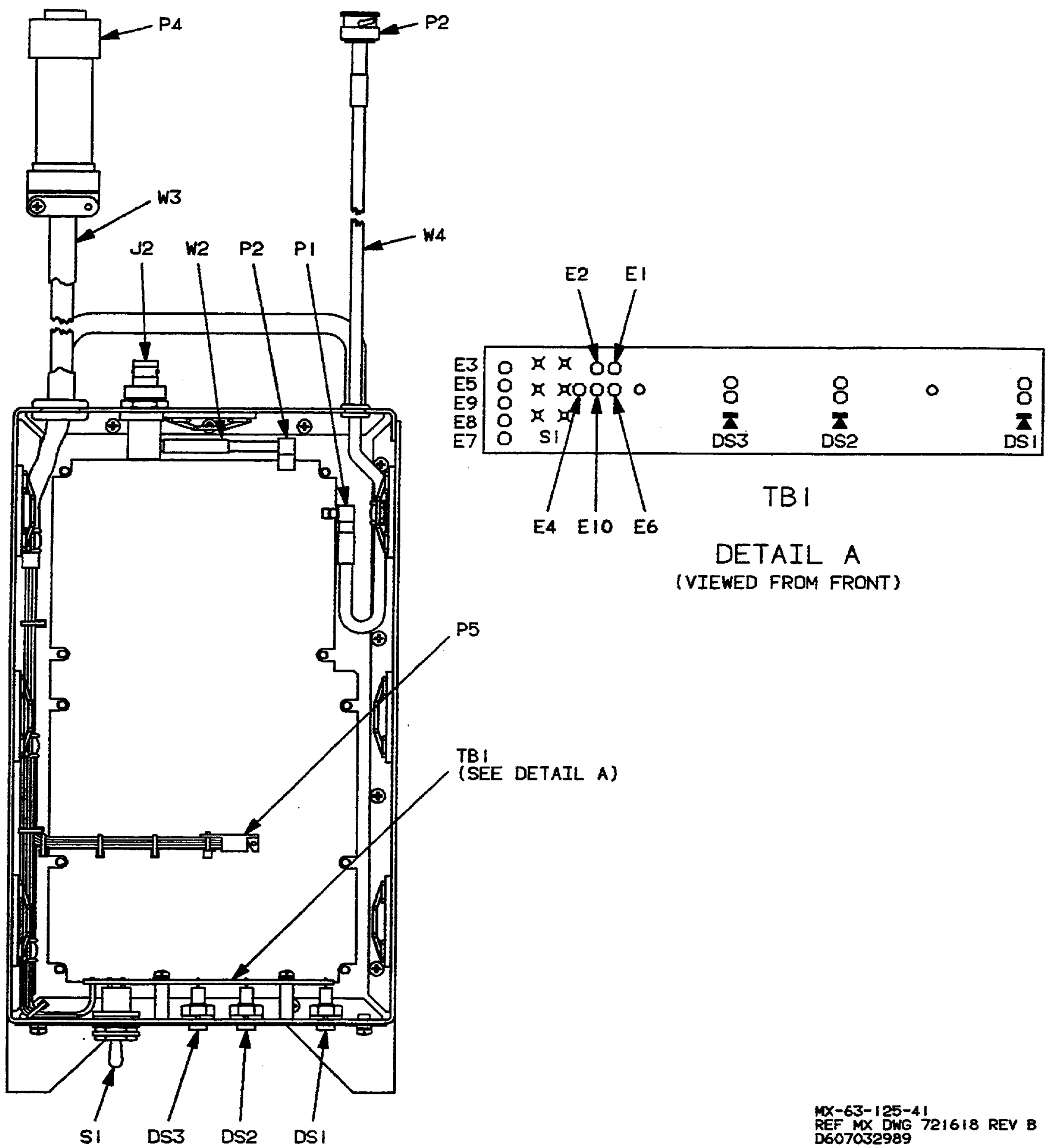


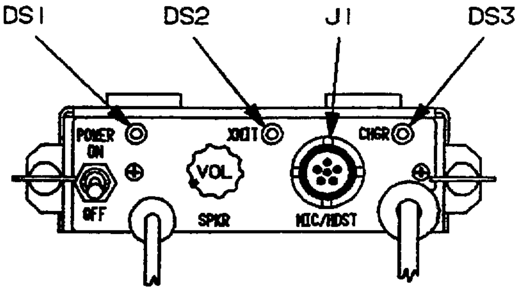
Figure 7-2. PA Chassis Component Location

7-3.3 PS/A Chassis Wire List. Refer to figure 7-4 for PS/A chassis component location and perform resistance/continuity checks per table 7-4.

Table 7-4. PS/A Chassis Wire List

Wire no.	Color	From	To	Remarks
1	BLACK	P4-A	TB1-E11	Twisted Pair with P4-B
2	RED	P4-B	TB1-E10	Twisted Pair with P4-A
3	GRAY	P4-C	TB1-E15	Twisted Pair with P4-C
4	BLUE	P4-D	TB1-E14	Twisted Pair with P4-D
5	GRAY	P4-E	J5-A	Twisted Pair with J5-B
6	BLUE	P4-F	J5-B	Twisted Pair with J5-A
7	RED	P4-G	CB1-1	
8	RED	P4-H	CB1-1	
9	RED	P4-I	CB1-1	
10	ORANGE	P4-J	J4-E	Twisted Pair with P4-L
11	BLACK	P4-K	J6-C	
12	BROWN	P4-L	J4-J	Twisted Pair with P4-J
13	BLACK	P4-M	J6-C	
14	WHITE	P4-N	TB1-E16	
15	BLACK	P4-O	J6-C	
16	RED	P4-P	J4-D	Twisted Pair with P4-Q
17	BLACK	P4-Q	J4-C	Twisted Pair with P4-P
18	RED	J6-B	CB1-2	
19	RED	J6-B	CB1-2	
20	RED	J6-B	CB1-2	
21	GREEN	J4-F	TB1-E17	
22	GREEN	J5-F	TB1-E20	
23	GREEN	J6-A	TB1-E21	
24	VIOLET	J4-A	TB1-E13	Twisted Pair with J4-K
25	YELLOW	J4-K	TB1-E12	Twisted Pair with J4-A
26	ORANGE	J3-(+)	TB1-E18	Twisted Pair with J3-(-)
27	BROWN	J3-(-)	TB1-E19	Twisted Pair with J3-(+)
28**	GREEN	P1-F	TB1-E6	
29**	BLACK	P1-A	TB1-E8	
30**	BLACK	P1-A	TB1-E7	
31**	BLUE	P1-D	TB1-E4	
32**	BLACK	P1-A	TB1-E1	
33**	RED	P1-E	TB1-E5	
34**	WHITE	P1-B	TB1-E2	
35**	BLACK	P1-C	TB1-E3	
36	GREEN	*	TB1-E9	
37	N/A	*	NC	

* Attached to braided shield of W1 or use integral drain wire.
** The following wire numbers are supplied as twisted pairs integral to cable W1:28 and 29, 30 and 31, 32 and 33, 34 and 35.



FRONT VIEW

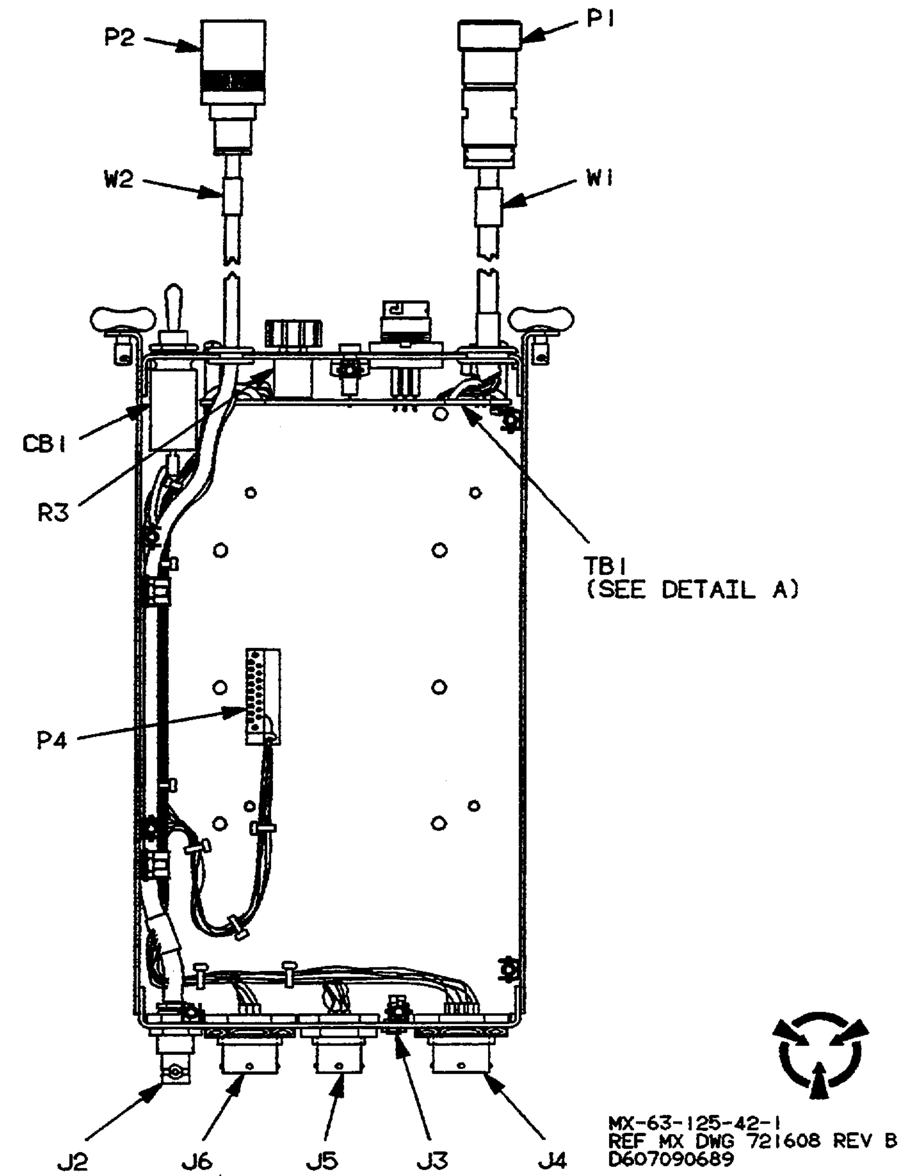
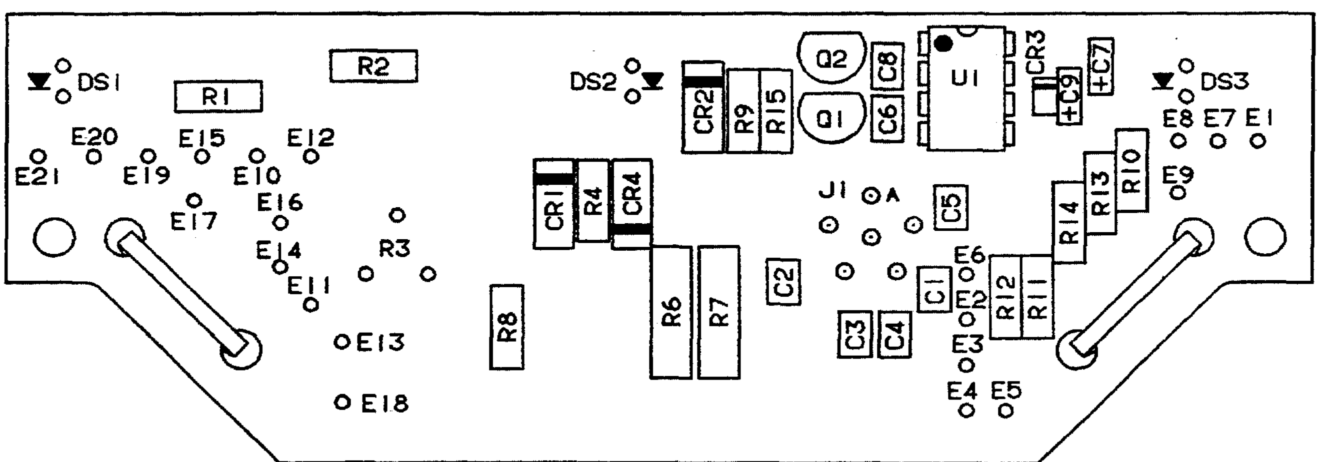


Figure 7-3. PS/A Chassis Component Location (Sheet 1 of 2)



TB1

DETAIL A
(VIEWED FROM FRONT)

MX-63-125-42-2
D607032989

Figure 7-3. PS/A Chassis Component Location (Sheet 2 of 2)

7-4 SCHEMATIC DIAGRAM TEST POINT DESCRIPTIONS.

The following tables contain test point information for the RT Synth/AF, high band and low band, RF/IF modules and the PA high band and low band amplifier modules.

7-4.1 Low Band RF/IF Module Test Point Description. Refer to component location diagram located in chapter 5 and schematic diagram FO-3. Measurements preceded by "LB" are for operating frequencies between 30.000 and 50.9875 MHz and measurements preceded by "HB" are for operating frequencies between 51.000 - 87.9875 MHz.

Table 7-5. Low Band RF/IF Module Test Point Description

TP#	Receive	Transmit	Notes
TP1	LB 1.4 Vdc	LB 1.5 Vdc	LB Filter Select
	HB 4.9 Vdc	HB 5.6 Vdc	
TP2	LB 4.9 Vdc	LB 5.8 Vdc	HB Filter Select
	HB 1.4 Vdc	HB 1.5 Vdc	
TP3	LB 12.6 Vdc	LB 12.2 Vdc	HB Control
	HB 0.72 Vdc	HB 0.79 Vdc	
TP4	LB 0.72 Vdc	LB 0.79 Vdc	LB Control
	HB 12.6 Vdc	HB 12.2 Vdc	
TP5	LB 0.42 Vdc	LB 0.46 Vdc	HB VCO Select
	HB 8.8 Vdc	HB 8.8 Vdc	
TP6	LB 8.8 Vdc	LB 8.8 Vdc	LB VCO Select
	HB 0.42 Vdc	HB 0.46 Vdc	
TP7	21.4 MHz	-------	First IF output
TP8	4.35 Vdc	-------	First IF amp B+
TP9	21.4 MHz	-------	First Mixer output
TP10	LB 7.4 Vdc	LB 7.4 Vdc	LB VCO B+
	HB 0.0 Vdc	HB 0.0 Vdc	
	51.4 - 72.4 MHz	51.4 - 72.4 MHz	LB VCO Freq
TP11	220 - 420 mV RF	220 - 420 mV RF	VCO RF Level
	51.4 - 109.4 MHz	51.4 -109.4 MHz	VCO Freq (HB/LB)
TP12	LB 0.0 Vdc	LB 0.0 Vdc	HBO VCO B+
	HB 7.6 Vdc	HB 7.6 Vdc	HB VCO VOLTS
	72.0 - 109.4 MHz	72.0 - 109.4 MHz	HB VCO Freq
TP13	14.2 Vdc	0.05 Vdc	Transmit Switch
TP14	1 mv RF (signal generator level)	--------	RCV RF level
TP15	-------	-10 dBm	XMIT 1st Driver input
TP16	0.05 Vdc	1.0 - 13.0 Vdc	XMIT ALC
TP17	-------	+4.0 dBm	XMIT 1st Driver output
	0.0 Vdc	3.0 Vdc	
TP18	0.0 Vdc	3.5 Vdc	XMIT PIN diode B+
TP19	-------	+18 dBm	XMIT 2nd Driver output
	0.0 Vdc	7.5 Vdc	
TP20	-------	+32 dBm	XMIT Final Amp output
	0.0 Vdc	2.4 Vdc	

Table 7-5. Low Band RF/IF Module Test Point Description - CONT

TP#	Receive	Transmit	Notes
TP21	LB 0.20 HB 4.4 Vdc	LB 0.20 Vdc HB 4.2 Vdc	HB Preamp bias
TP22	1.75 to 9.60 Vdc	1.75 to 9.60 Vdc	Tune volts
TP23	LB 4.4 Vdc HB 0.28 Vdc	LB 4.2 Vdc HB 0.28 Vdc	LB Preamp bias
TP24	-33 dBm (with 1 mV input)	-4 dBm HB no rf	LB Preamp RF output
TP25	LB 13.5 Vdc HB 0.41 Vdc	LB 12.9 Vdc HB 0.45 Vdc	LB Preamp select
TP26	-33 dBm (with 1 mv input)	-4 dBm	Preamp RF OUT (HB/LB)
TP27	LB 0.41 Vdc HB 13.5 Vdc	LB 0.45 Vdc HB 12.9 Vdc	HB Preamp select
TP28	-33 dBm (with 1 mv input)	-4 dBm LB no RF	HB Preamp RF out

7-4.2 <u>High Band RF/IF Module Test Point Description.</u> Refer to component location diagram located in chapter 5 and schematic diagram FO-4.

Table 7-6. High Band RF/IF Module Test Point Description

TP#	Receive	Transmit	Notes
TP1	-----	+33 dBm	Final Amp output
TP2	14.0 Vdc	11.0 Vdc	Final Amp B+
TP3	14.0 Vdc	.03 Vdc	Transmit Switch
TP4	4.35 Vdc	-----	First IF Amp B+
TP5	21.4 MHz	-----	First Mixer output
TP6	-----	5.9 Vdc	XMIT B+
TP7	4.4 Vdc	4.2 Vdc	RF Preamp B+ (Q2)
TP8	12.9 Vdc	12.3 Vdc	RF Preamp output (Q2)
TP9	4.5 Vdc	4.3 Vdc	RF Preamp B+ (Q3)
TP10	13.2 Vdc	12.6 Vdc	RF Preamp output (Q3)
TP11	-----	+20 dBm	Third driver output
TP12	-----	-13 dBm	First driver input
TP13	-----	-5 dBm	Second driver output
TP14	1 mv RF (signal generator level)	-----	RCV RF level
TP15	1.85 to 9.60 Vdc	1.85 to 9.60 Vdc	Tune volts

7-4.3 Synth/AF Module Test Point Description. Refer to component location diagram located in Chapter 5 and schematic diagram FO-2.

Table 7-7. Synth/AF Module Test Point Description

Test point	Test point description
P2-1	Loop/RCV bandwidth. RCV mode controls RCV bandwidth (output Low=SVM mode, high=NB mode). XMIT mode output Low=slow loop, high=fast loop.
P2-2	21.4 MHz output of frequency modulator. Output present in Transmit mode only.
P2-3	No connection.
P2-4	Chopped B+. T/R switch control for RF/IF module. "Chopped" in standby mode. High in RCV mode only.
P2-5	No connection.
P2-6	Squelch mute. Receive squelch sense lead. Normally, hi, squelched lo.
P2-7	Receive B+. Power supply source for RF/IF module receive function-"chopped" in standby mode.
P2-8	HB/LB module sense. Low (0.0 Vdc) for HB module operation. High (5.0 Vdc) for LB module.
P2-9	Tune Volts. Frequency synthesizer VCO Control Voltage. 1.8 to 9.6 Vdc.
P2-10	Transmit B+. Transmitter function power supply voltage. Zero volts in receive and standby modes. +12 volts nominal in transmit.
P2-11	GND. Ground (common) lead for all module functions except synthesizer tune volts.
P2-12	Run B+. Power supply input for module. 14.2 Vdc nominal.
P2-13	VCO Input. Frequency synthesizer VCO input frequency line. Requires 6.5 Vdc (along with VCO input frequency) as power supply for prescalar.
P2-14	Lo Band Control. Controls RF/IF module frequency range. 0 Vdc or 12 Vdc nominal - depends on channel frequency selected. "Chopped" in standby mode.

Table 7-7. Synth/AF Module Test Point Description - CONT

Test point	Test point description
P2-15	Synth GND. Ground return for VCO Tune Volts (pin 9) only.
P2-16	Hi Band Control. Controls RF/IF module frequency range. 0 Vdc or 12 Vdc nominal - depends on frequency selected. "Chopped" in standby mode.
P2-17	Handset SPKR. Module receive audio output and sense lead for external handset.
P2-18	XMIT Cipher. 21.4 MHz modulator audio frequency input.
P2-19	Handset PTT. Handset push to transmit (PTT) sense lead. Pull low for transmit operation.
P2-20	150 Hz Tone. Transmit tone squelch input (150 Hz). Also SVM presence sense lead.
P2-21	Handset MIC. Transmit audio input from external handset to microphone amplifier.
P2-22	XMIT Audio. Output of microphone amplifier. Drives SVM or FM modulator (through Pin 18 SVM jumper plug).
P2-23	Squelch Disable. Sense lead for squelch disable. Pull low for squelch function disable.
P2-24	Volume Tap. Audio input for receive audio amplifier.
P2-25	SPKR/MIC. Connection for R/T speaker/microphone. Functions as R/T audio input for transmit - audio output for receive.
P2-26	Volume Top. Output to volume control, for receive audio filter and low battery/antenna warning tones.
P2-27	INT PTT. Sense lead for R/T PTT function. Pull low for transmit operation.
P2-28	RCV Audio. Input for receive audio signal from either RF/IF module or SVM.
P3-1	INC switch sense lead (for programming channel frequencies).
P3-2	SET switch sense lead (for programming channel frequencies).
P3-3	Channel/antenna switch sense lead (channels 4,7 - antenna position E).

Table 7-7. Synth/AF Module Test Point Description - CONT

Test point	Test point description
P3-4	Channel select switch (high numbered channels) enable.
P3-5	Channel/antenna switch sense lead (channels 5,6 - antenna position D).
P3-6	LCD data out.
P3-7	Channel/Antenna switch sense lead (channels 3,8 - antenna position C).
P3-8	Channel select switch (low numbered channels) enable.
P3-9	Channel/Antenna switch sense lead (channels 2,9 - antenna position B).
P3-10	LCD clock out.
P3-11	Channel/Antenna switch sense lead (channels 1,10 - antenna position A).
P3-12	LCD +5 volt supply (to module +5 volt supply).
P3-13	Antenna switch enable.
P3-14	External programming data in line (for programming channel frequencies).
P3-15	(LCD Light Control; always off).
P3-16	50 ohm antenna (dc path to ground) sense lead.
TP1	Low Battery Warning tone comparator output.
TP2	21.4 MHz Modulator PLL tune voltage.
TP3	Low Battery Warning tone input voltage sense.
TP4	21.4 MHz Modulator Voltage regulator output.

7-4.4 Low Band Amplifier Module Test Point Description. Refer to component location diagram located in chapter 5 and schematic diagram FO-7. All measurements are taken at 30.000 MHz unless otherwise noted.

Table 7-8. Low Band Amplifier Module Test Point Description

TP	Receive	Transmit	Notes
TP1	0.3 Vdc	8.00 Vdc	Adjust R6 to set
TP2	0.0 Vdc	0.65 Vdc	
TP3	------	30.000 MHz	VCO FREQ
TP4	0.0 Vdc max	3.4 Vdc	1.5 - 5.5 in XMIT
TP5	0.0 Vdc max	1.91 Vdc	1.0 - 5.0 in XMIT
TP6	8.4 Vdc	8.16 Vdc	3.0 - 10.5 Vdc (varies with °C)
TP7	5.14 Vdc	5.14 Vdc	5.0 - 5.5 Vdc
TP8	8.21 Vdc	-8.96 Vdc	lock detector
TP9	-4.05 Vdc	-5.29 Vdc	tune volts
		-18.25 Vdc	Measured at 87.9875 MHz
U6-1	------	30.000 MHz	VCO output
U7-1	------	30.000 MHz	REF output
U8-1	------	1.50 MHz	
U8-3	------	1.50 MHz	
U8-2	0.27 Vdc	3.65 Vdc	
U8-13	0.27 Vdc	3.65 Vdc	
Q2 case	-48.0 Vdc	+6.0 Vdc	T/R XMIT control
Q3 case	+6.0 Vdc	-48.0 Vdc	T/R REC control
Q16 case	-48.0 Vdc	-48.0 Vdc	HI BAND control
Q17 case	+6.0 Vdc	+6.0 Vdc	LO BAND control
Q16 case	+6.0 Vdc	+6.0 Vdc	measured at 87.9875 Mhz
Q17 case	-48.0 Vdc	-48.0 Vdc	measured at 87.9875 Mhz

7-4.5 <u>High Band Amplifier Module Test Point Description.</u> Refer to component location diagram located in chapter 5 and schematic diagram FO-9. All measurements are taken at 130.000 Mhz unless otherwise noted.

Table 7-9. High Band Amplifier Module Test Point Description

TP	Receive	Transmit	Notes
TP1	0.3 Vdc	12.0 Vdc	Adjust R6 to set
TP2	0.0 Vdc	0.65 Vdc	
TP3	------	130.000 MHz	VCO FREQ
TP4	-0.224 Vdc	3.0 Vdc	1.5 - 5.5 Vdc in XMT
TP5	0.0 Vdc	4.26 Vdc	1.0 - 5.0 Vdc in XMT
TP6	8.52 Vdc	8.25 Vdc	3.0 - 10.5 Vdc (varies with °C)
TP7	5.35 Vdc	5.35 Vdc	5.0 - 5.5 Vdc
TP8	8.24 Vdc	-8.97 Vdc	lock detector
TP9	-4.04 Vdc	-5.94 Vdc	tune volts
		-18.7 Vdc	measured at 173.9875 MHz
U6-5	-----	130.000 MHz	VCO output
U7-5	-----	130.000 MHz	REF input
U8-1	-----	3.25 MHz	
U8-3	-----	3.25 MHz	
U8-2	0.27 Vdc	3.65 Vdc	
U8-13	0.27 Vdc	3.65 Vdc	
Q2 case	-48.0 Vdc	+6.0 Vdc	T/R XMIT control
Q3 case	+6.0 Vdc	-48.0 Vdc	T/R REC control

7-5 <u>LOCAL MANUFACTURE TEST CABLES.</u> Refer to figure 7-4 as required. Cable length to be per Table 1-4 and method of termination to be optional.

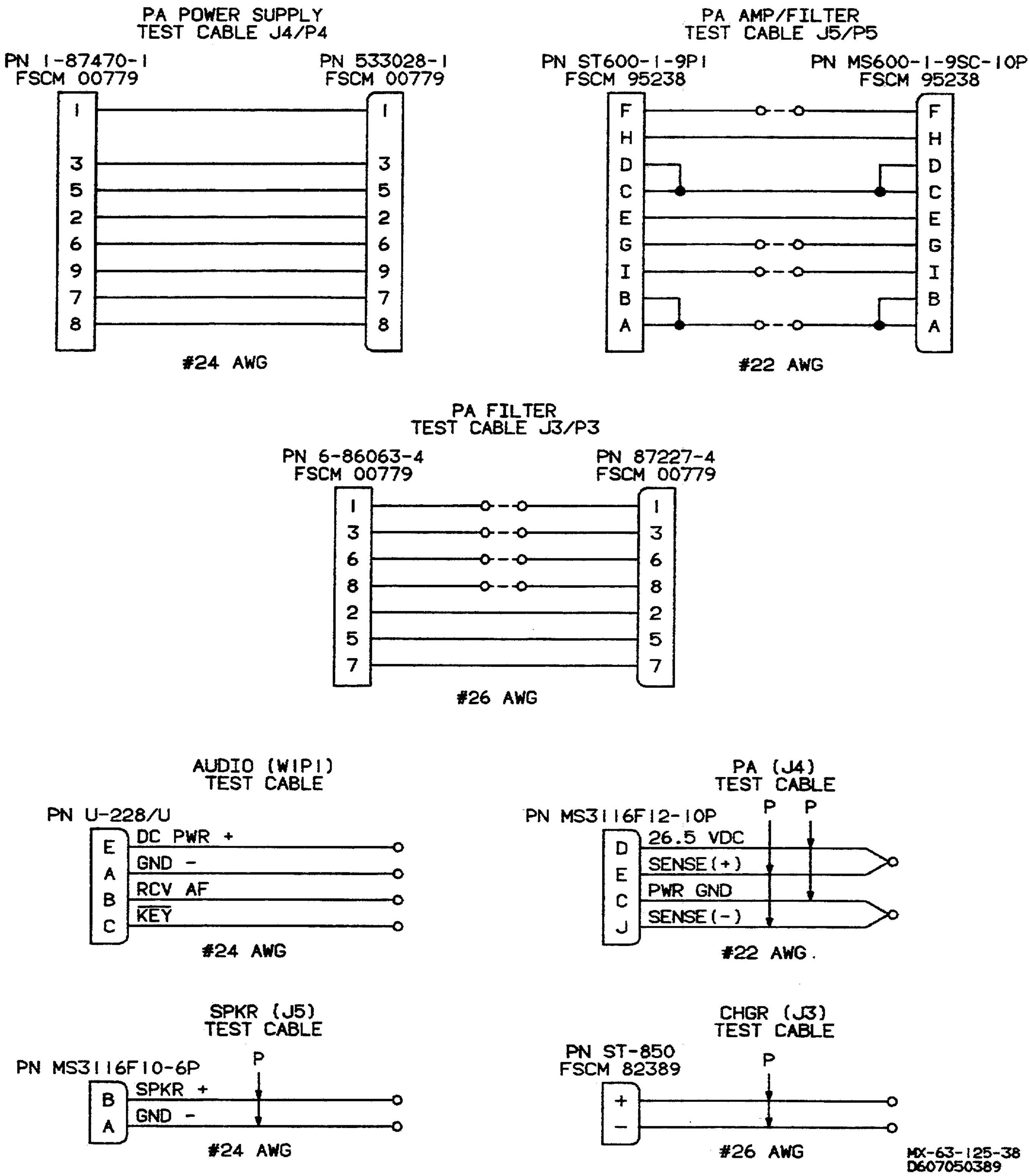


Figure 7-4. Local Manufacture Test Cables

ALPHABETICAL INDEX

Subject	Paragraph, Figure Table Number

A

B

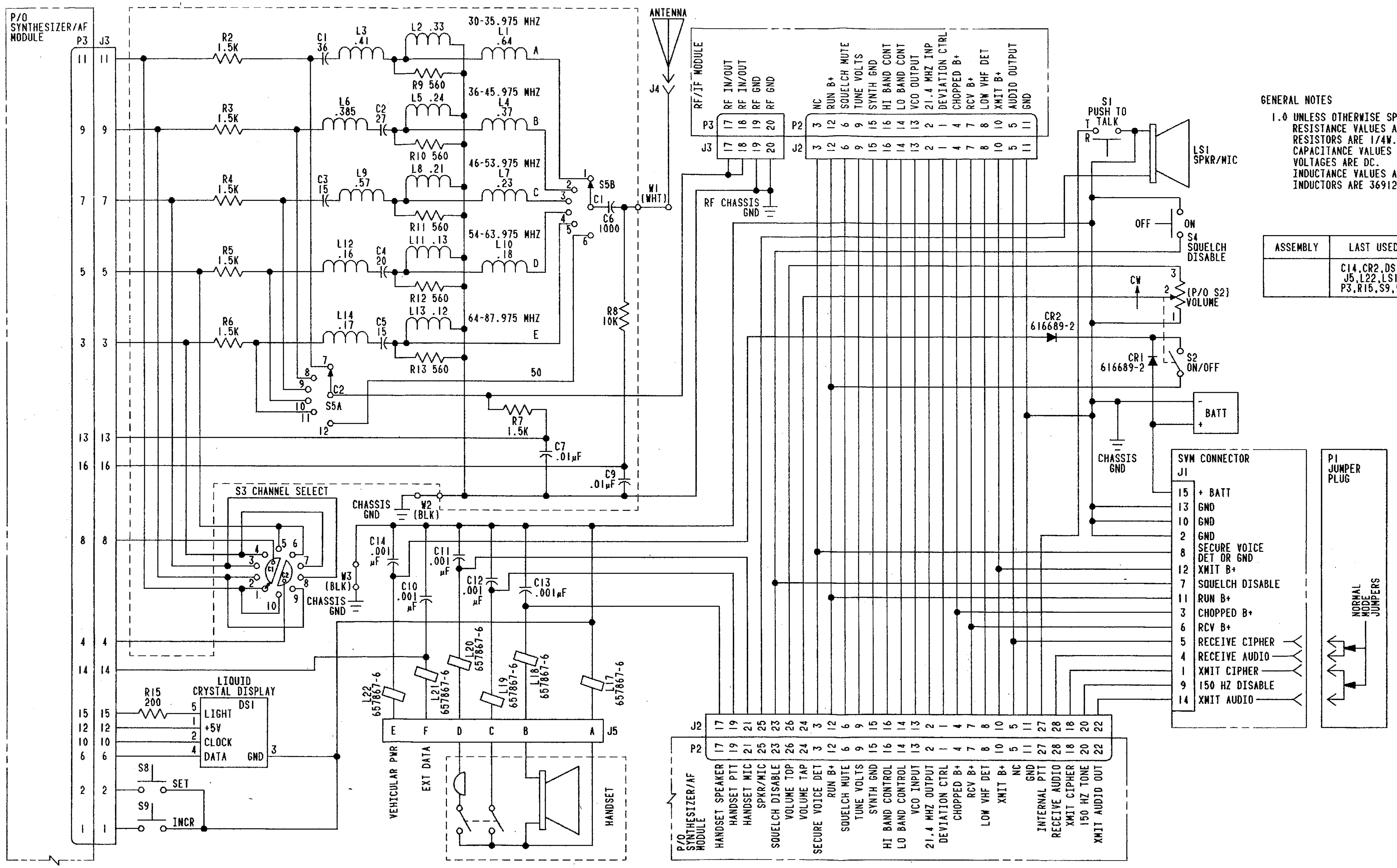
C

ALPHABETICAL INDEX - CONT

ALPHABETICAL INDEX - CONT

ALPHABETICAL INDEX - CONT

ALPHABETICAL INDEX - CONT



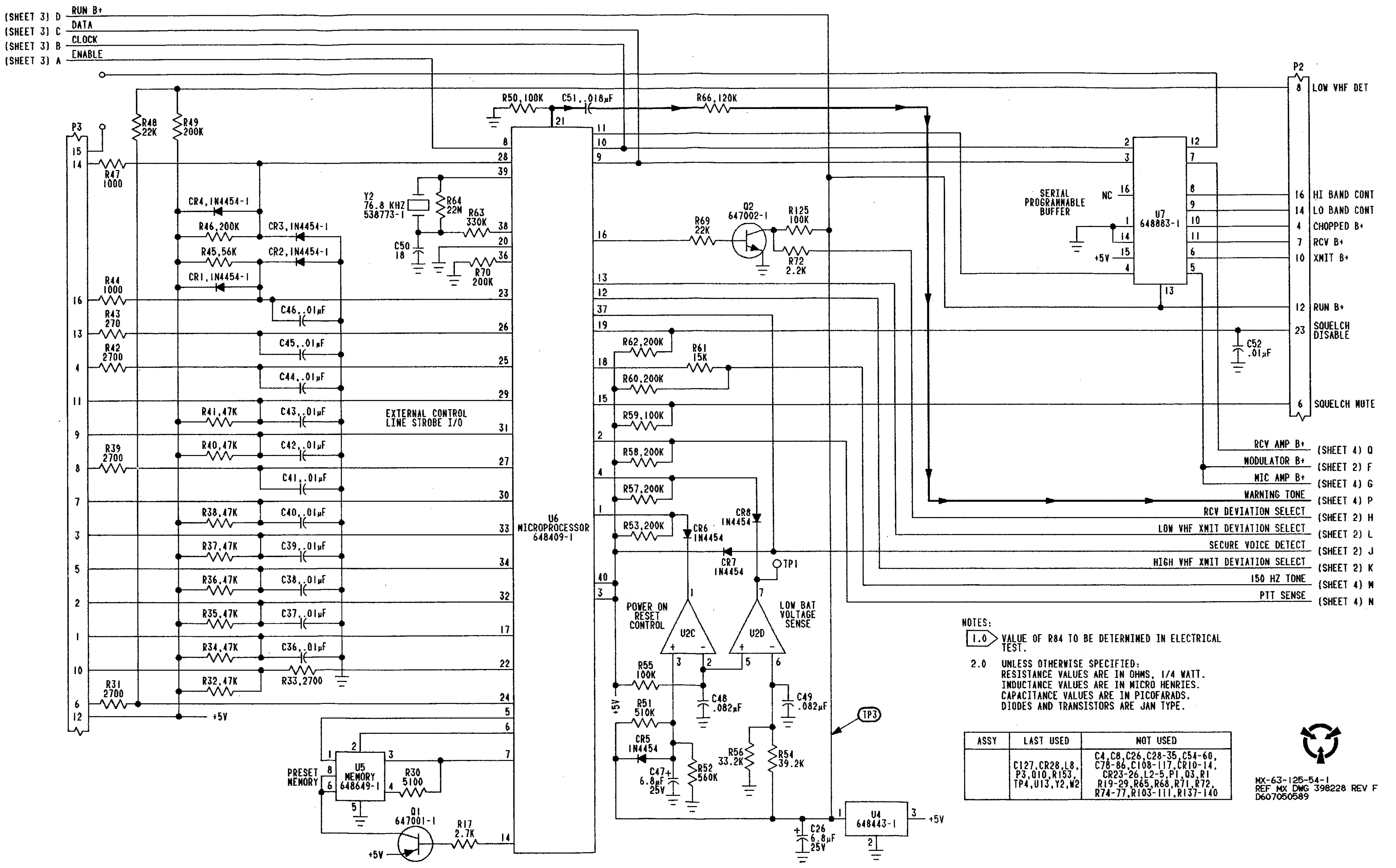
GENERAL NOTES

1.0 UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS.
RESISTORS ARE 1/4W.
CAPACITANCE VALUES ARE ON PICOFARADS.
VOLTAGES ARE DC.
INDUCTANCE VALUES ARE MICROHENRIES.
INDUCTORS ARE 369121-XXXX TYPES.

ASSEMBLY	LAST USED	NOT USED
	C14,CR2,DS1, J5,L22,LS1, P3,R15,S9,W3	C8,L15,L16, R1,R14,S6,S7

NX-63-125-26
REF NX DWG 398246 REV A
D607050589

FO-1. RT Frame/Panel Interconnect Schematic



NOTES:

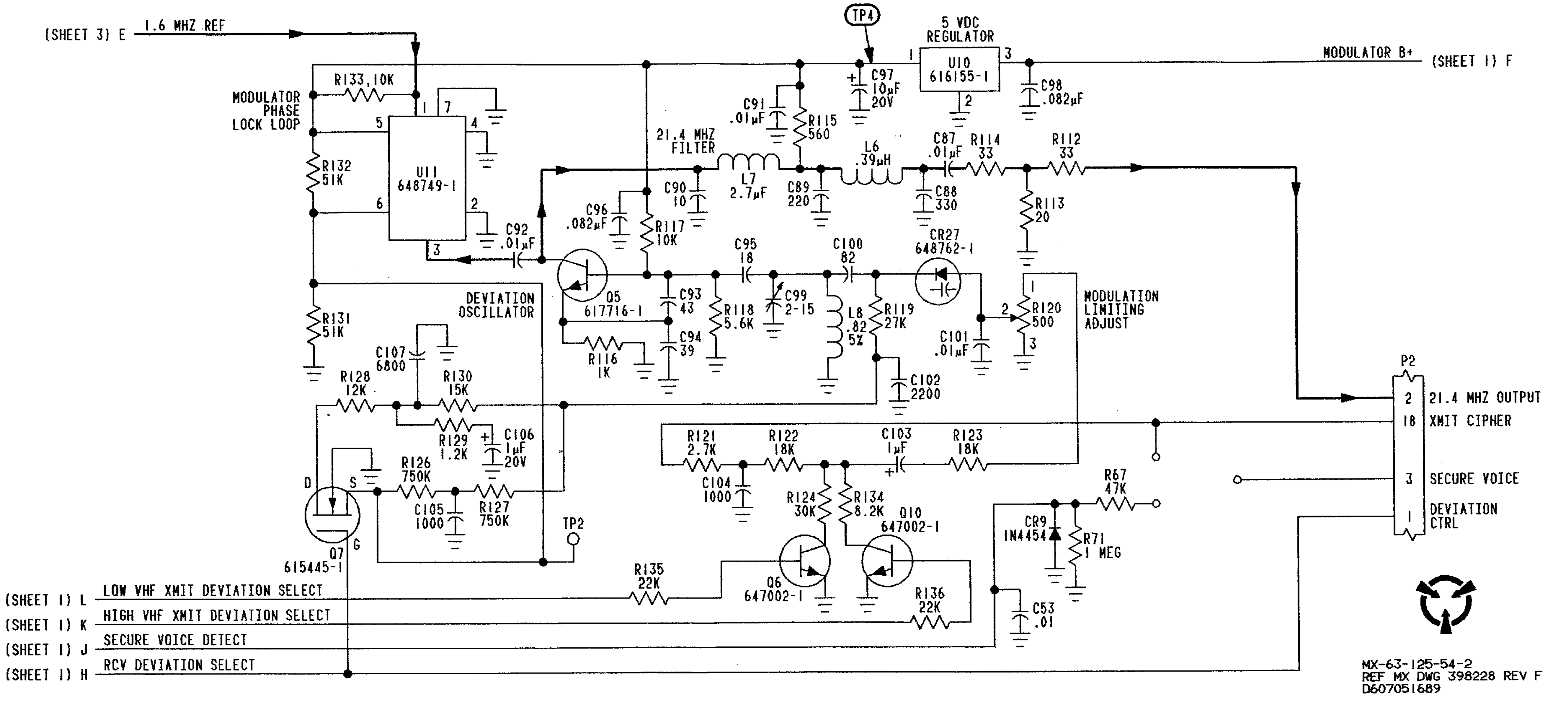
1.0 VALUE OF R84 TO BE DETERMINED IN ELECTRICAL TEST.

2.0 UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS, 1/4 WATT.
INDUCTANCE VALUES ARE IN MICRO HENRIES.
CAPACITANCE VALUES ARE IN PICOFARADS.
DIODES AND TRANSISTORS ARE JAN TYPE.

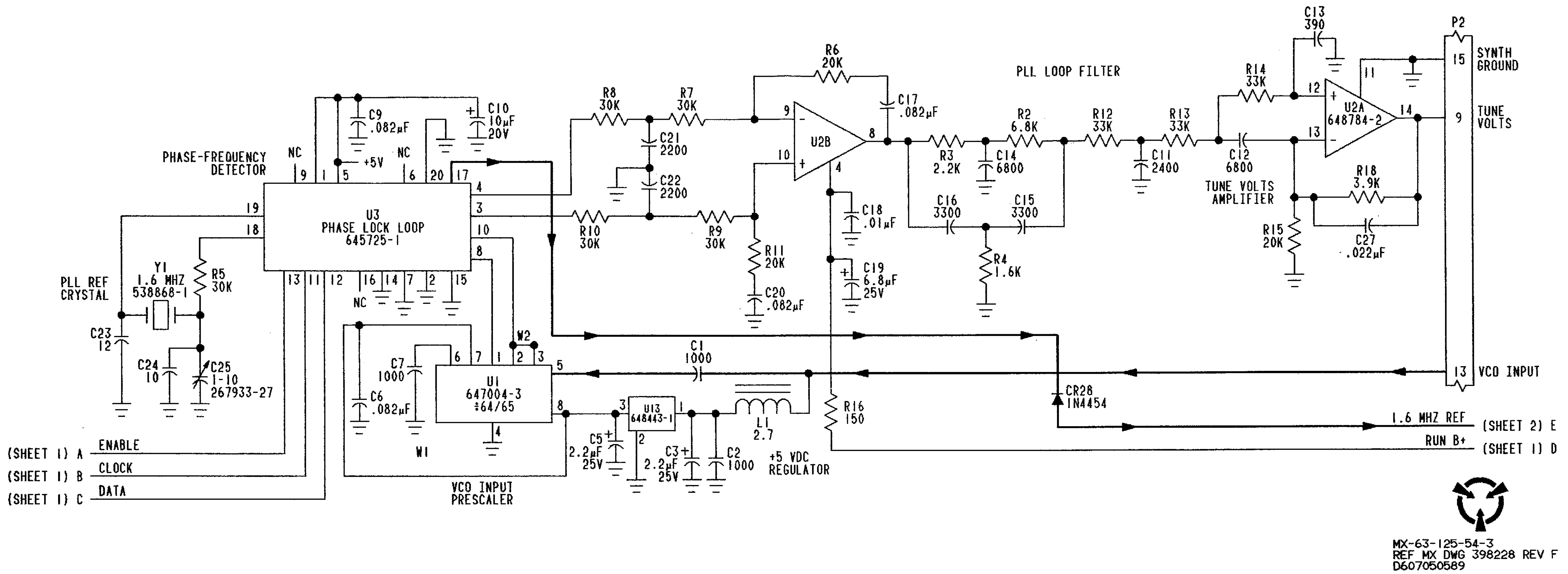
ASSY	LAST USED	NOT USED
	C127,CR28,L8, P3,Q10,R153, TP4,U13,Y2,W2	C4,C8,C26,C28-35,C54-60, C78-86,C108-117,CR10-14, CR23-26,L2-5,P1,Q3,R1 R19-29,R65,R68,R71,R72, R74-77,R103-111,R137-140

MX-63-125-54-1
REF MX DWG 398228 REV F
D607050589

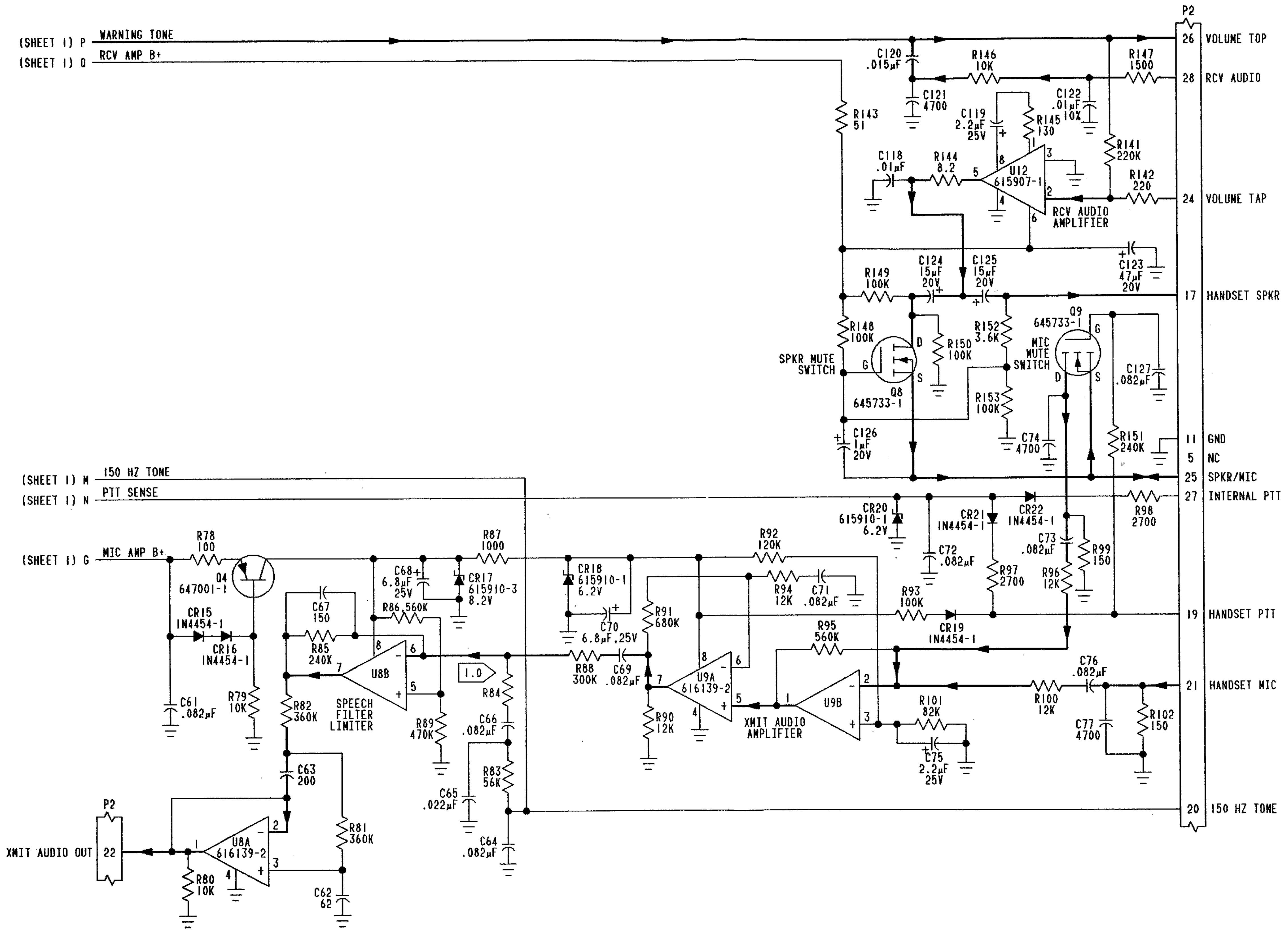
FO-2. RT Synthesizer/AF Schematic
(Sheet 1 of 4)



FO-2. RT Synthesizer/AF Schematic
(Sheet 2 of 4)



FO-2. RT Synthesizer/AF Schematic
(Sheet 3 of 4)



MX-63-125-54-4
REF MX DWG 398228 REV F
D607050589

FO-2. RT Synthesizer/AF Schematic
(Sheet 4 of 4)

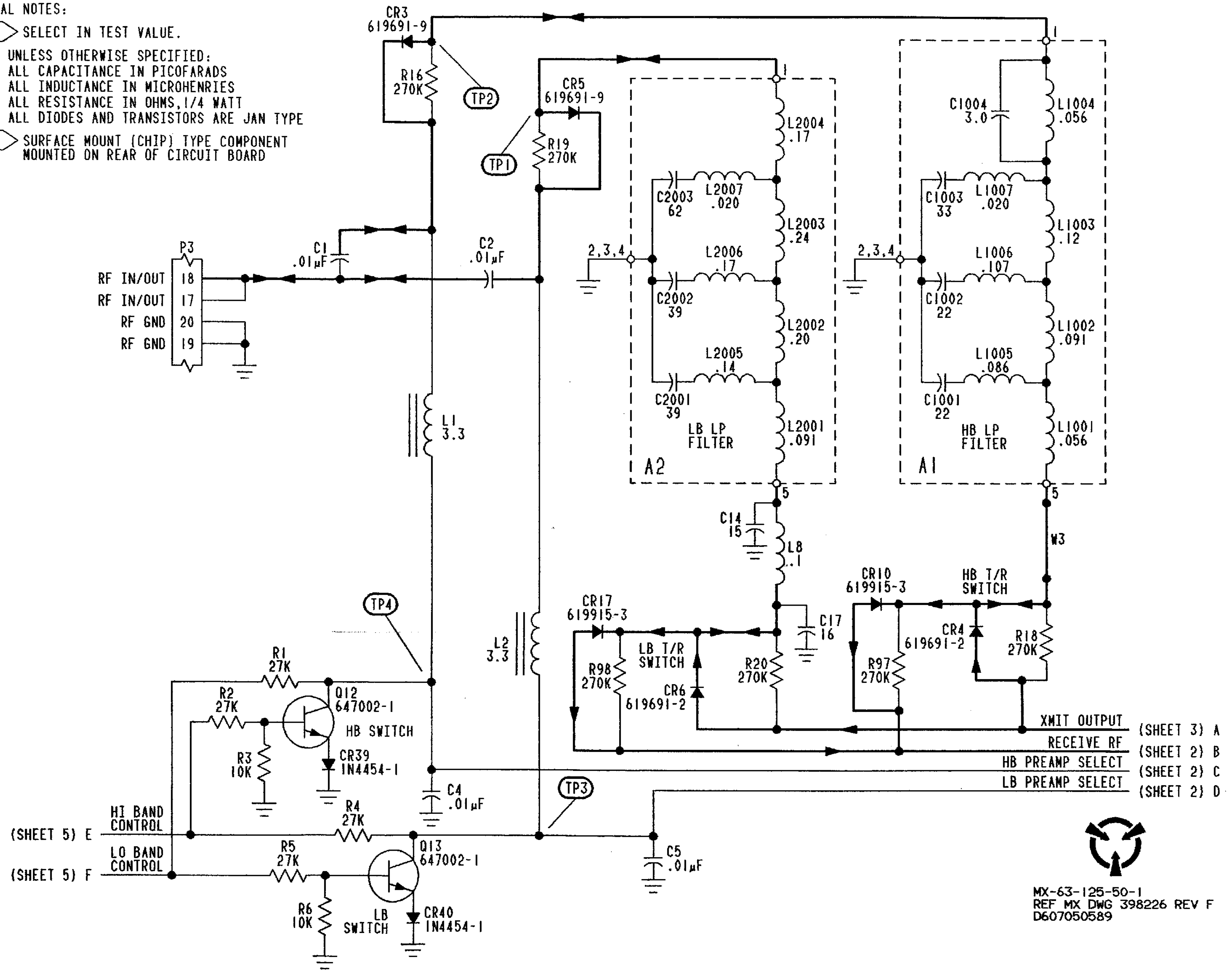
ASSEMBLY	LAST USED	NOT USED
	A2,C2003,CR41, FL2,L2007,P3,Q13, R100,T8,TP28,U6, Y1,W2	C14,C25,C26,C70, C72,C82,C83,C112, C117,C120,C126-1000,C1005-2000, L15,L23,L24, L43-1000,L1008-2000,P1,R24,R25, R26,R34,R66,R89, R95,R99,T6

GENERAL NOTES:

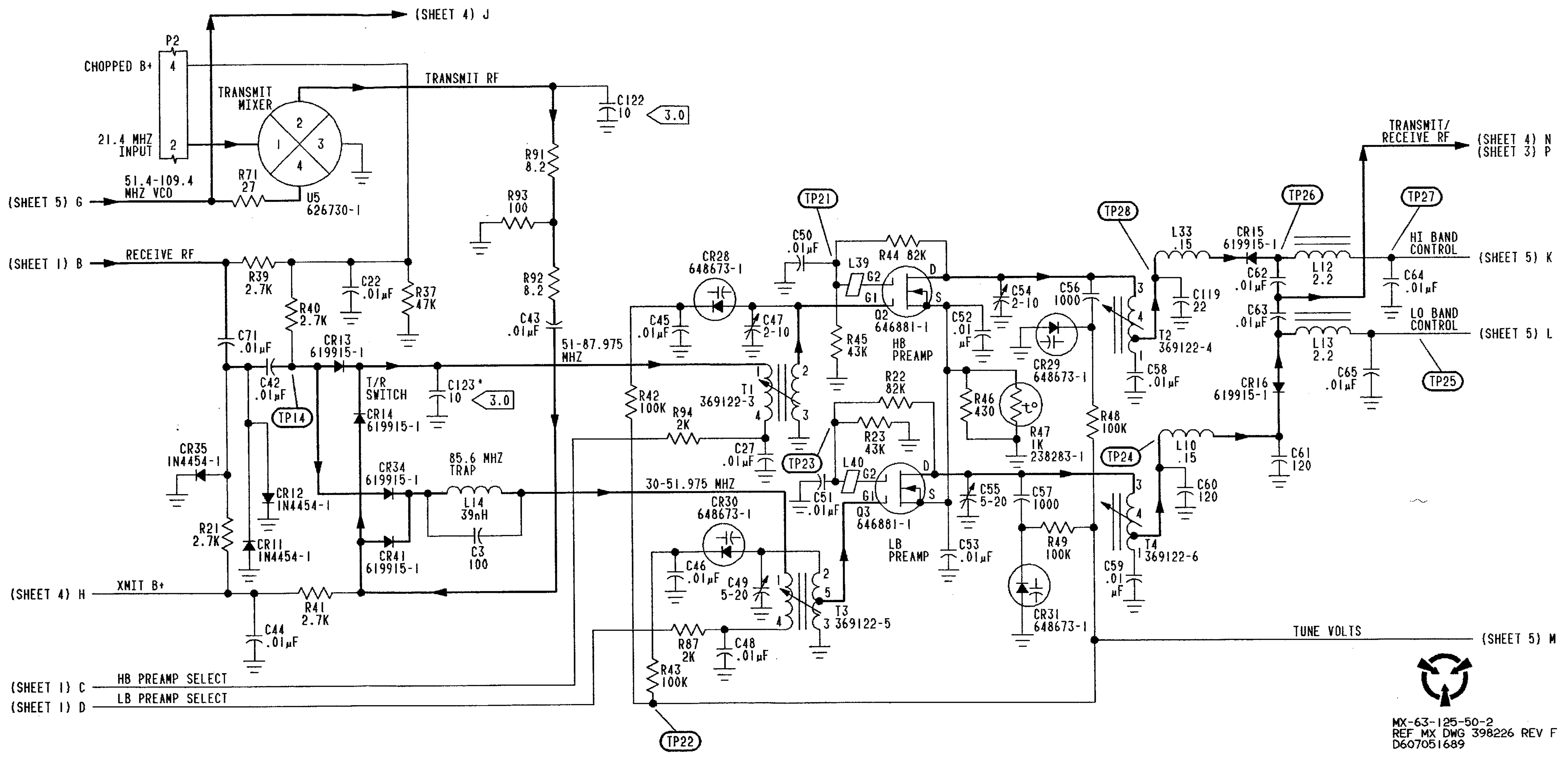
1.0 SELECT IN TEST VALUE.

2.0 UNLESS OTHERWISE SPECIFIED:
ALL CAPACITANCE IN PICOFARADS
ALL INDUCTANCE IN MICROHENRIES
ALL RESISTANCE IN OHMS, 1/4 WATT
ALL DIODES AND TRANSISTORS ARE JAN TYPE

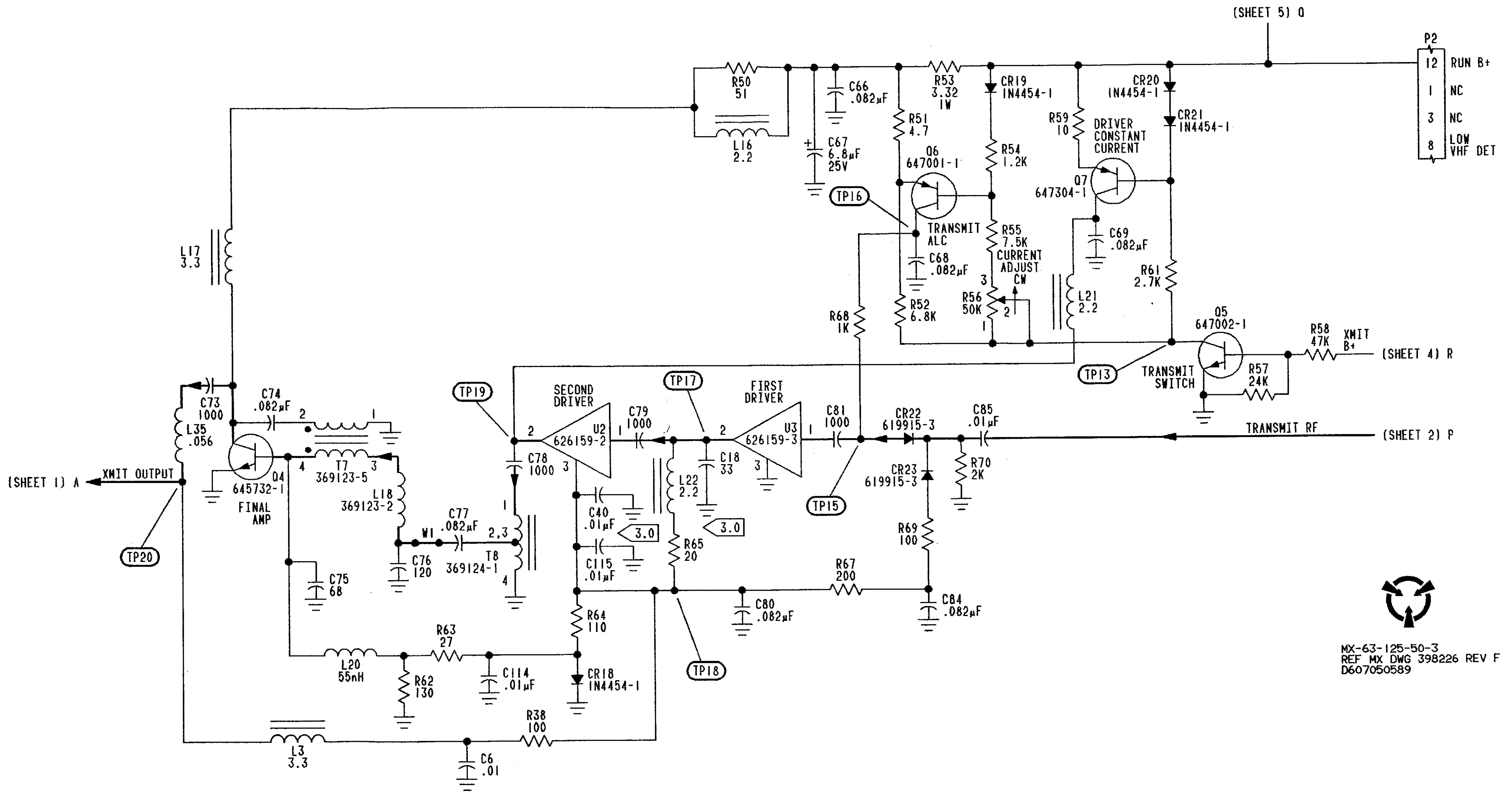
3.0 SURFACE MOUNT (CHIP) TYPE COMPONENT MOUNTED ON REAR OF CIRCUIT BOARD



FO-3. RT 30 to 88 MHz RF/IF Schematic
(Sheet 1 of 5)

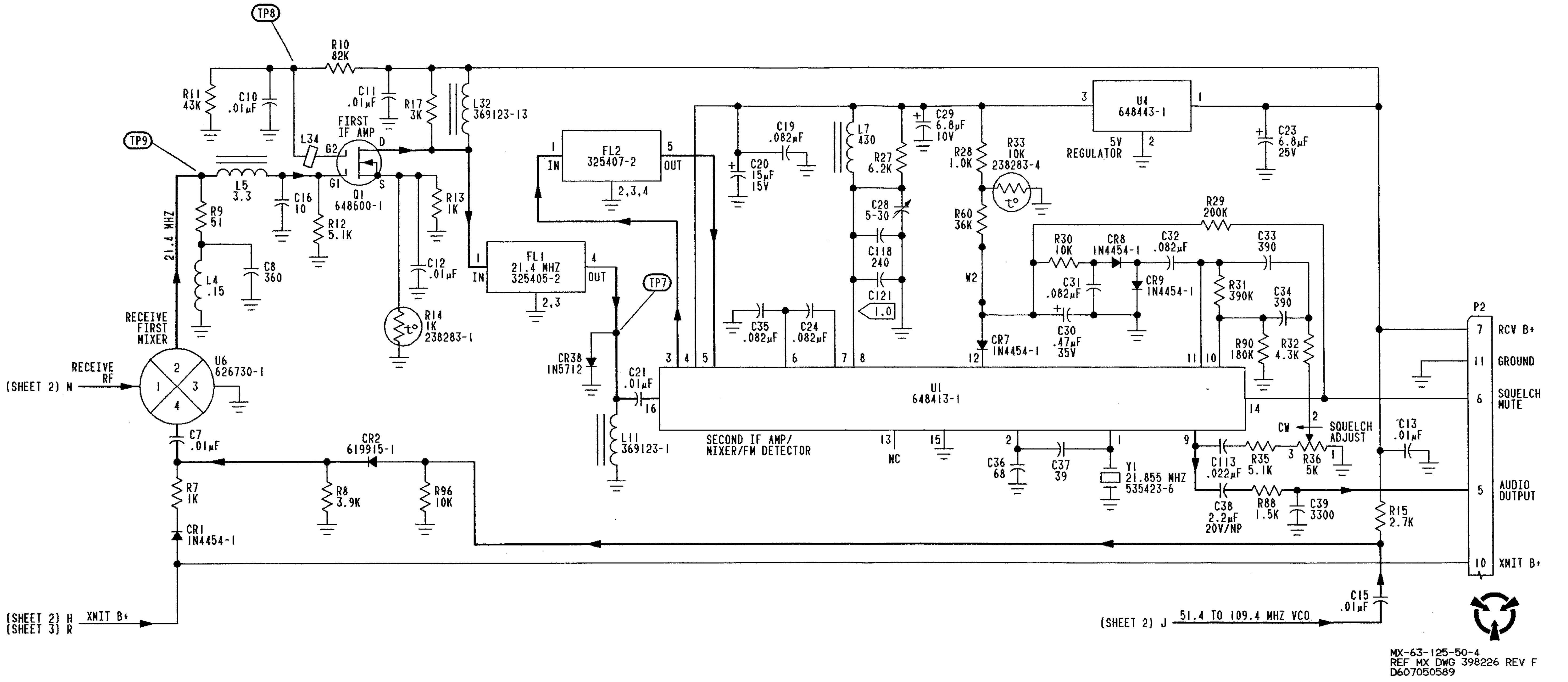


FO-3. RT 30 to 88 MHz RF/IF Schematic (Sheet 2 of 5)

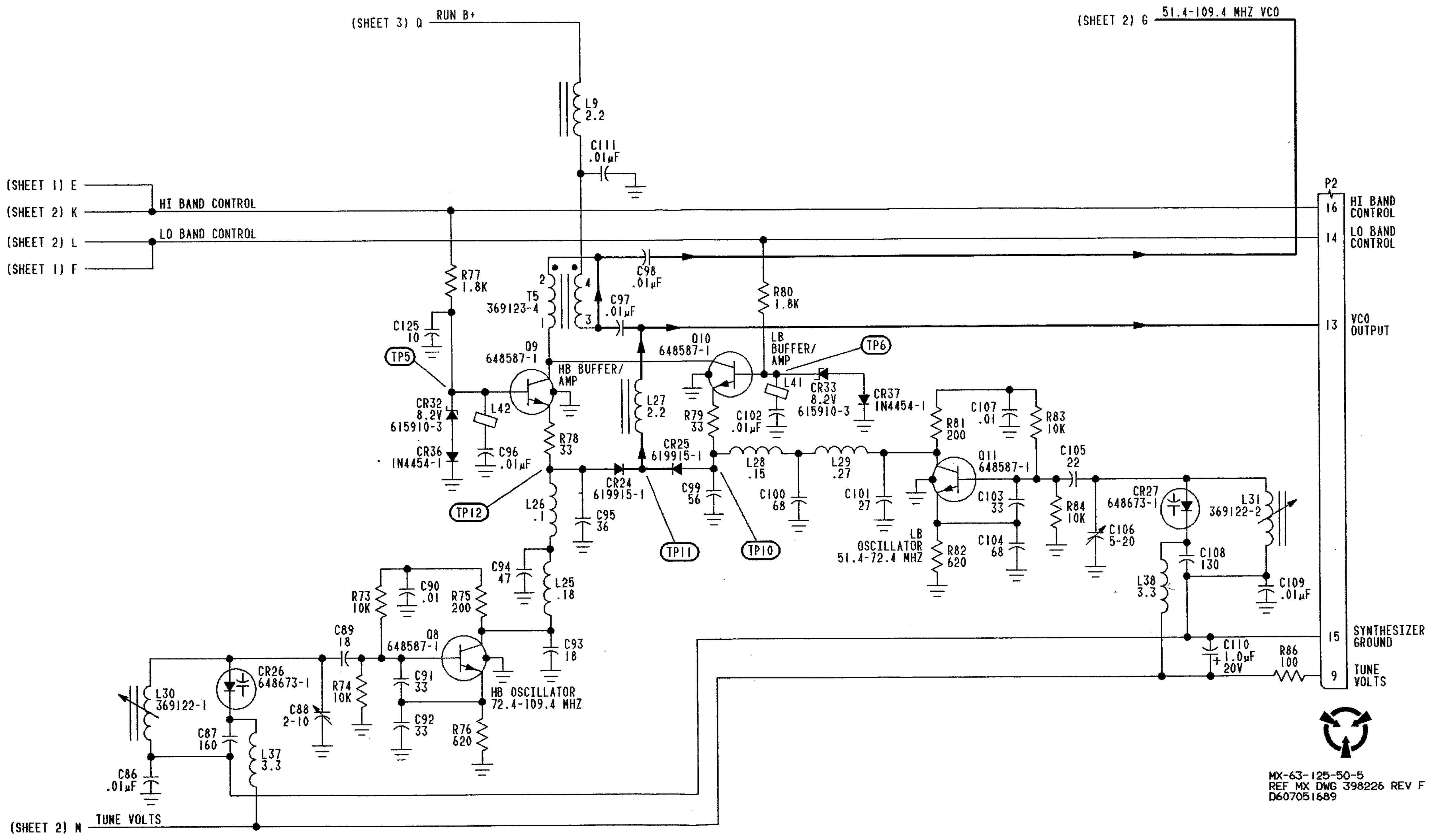


MX-63-125-50-3
REF MX DWG 398226 REV F
D607050589

FO-3. RT 30 to 88 MHz RF/IF Schematic
(Sheet 3 of 5)



FO-3. RT 30 to 88 MHz RF/IF Schematic
(Sheet 4 of 5)



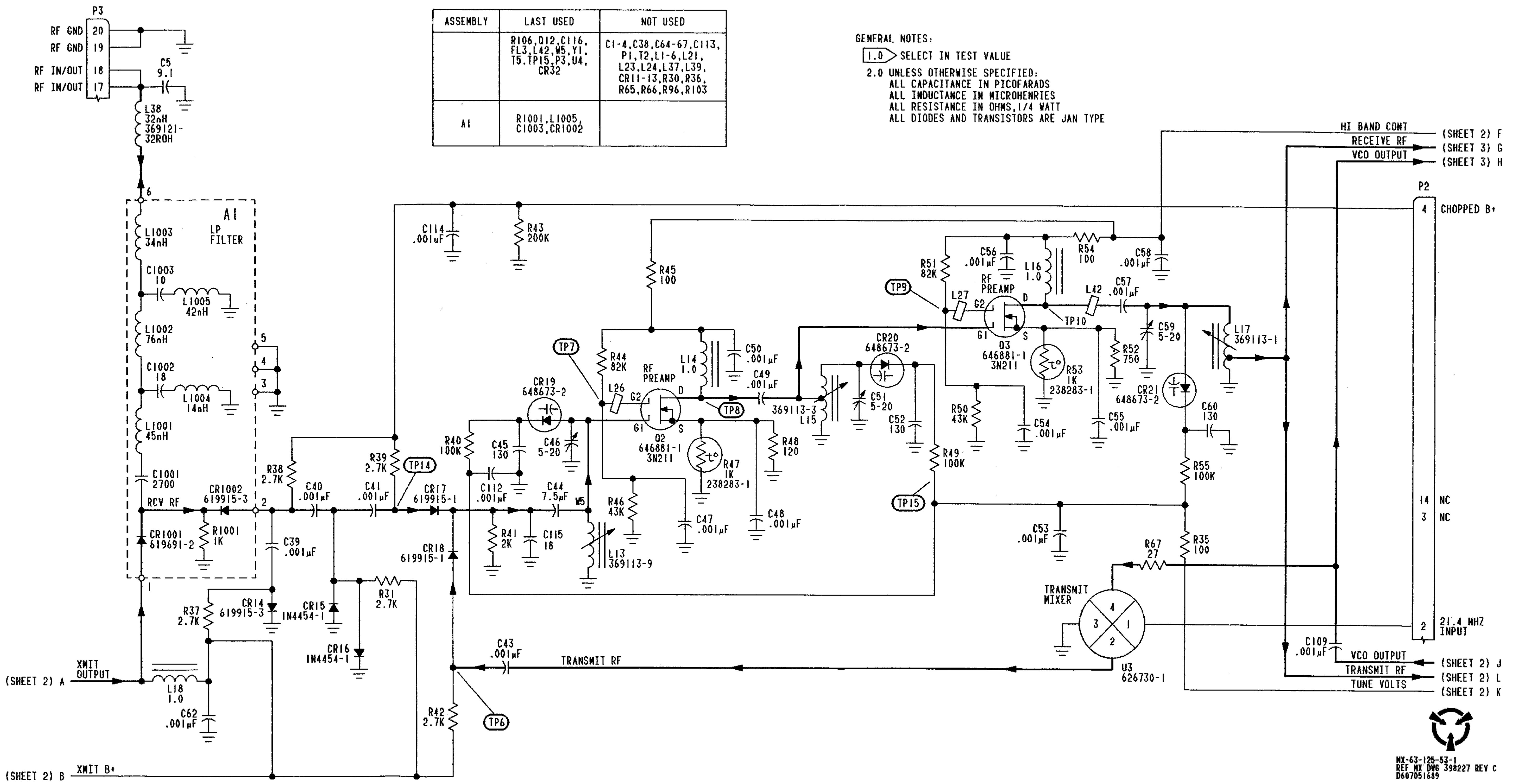
FO-3. RT 30 to 88 MHz RF/IF Schematic
(Sheet 5 of 5)

ASSEMBLY	LAST USED	NOT USED
	R106,Q12,C116, FL3,L42,W5,Y1, T5,TP15,P3,U4, CR32	C1-4,C38,C64-67,C113, P1,T2,L1-6,L21, L23,L24,L37,L39, CR11-13,R30,R36, R65,R66,R96,R103
A1	R1001,L1005, C1003,CR1002	

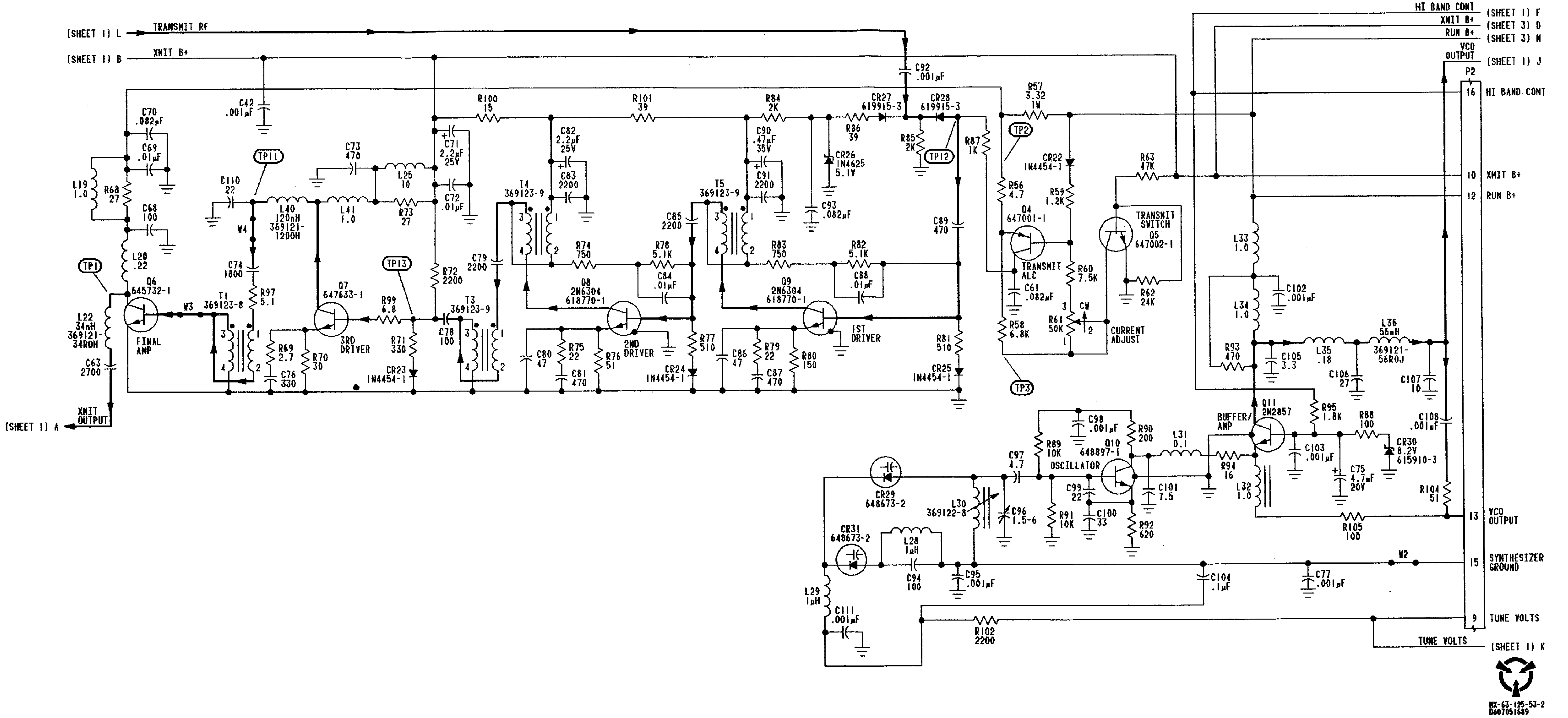
GENERAL NOTES:

1.0 SELECT IN TEST VALUE

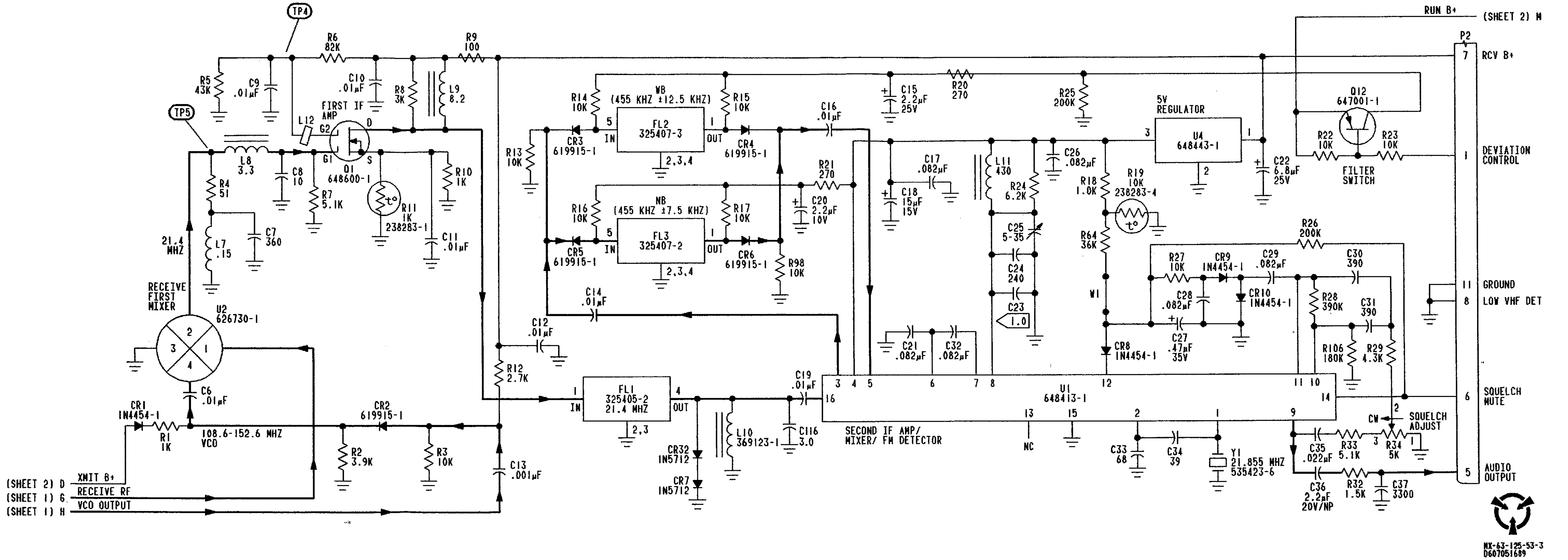
2.0 UNLESS OTHERWISE SPECIFIED:
ALL CAPACITANCE IN PICOFARADS
ALL INDUCTANCE IN MICROHENRIES
ALL RESISTANCE IN OHMS,1/4 WATT
ALL DIODES AND TRANSISTORS ARE JAN TYPE



FO-4. RT 130 to 174 MHz RF/IF
Schematic (Sheet 1 of 3)



FO-4. RT 130 to 174 MHz RF/IF Schematic (Sheet 2 of 3)

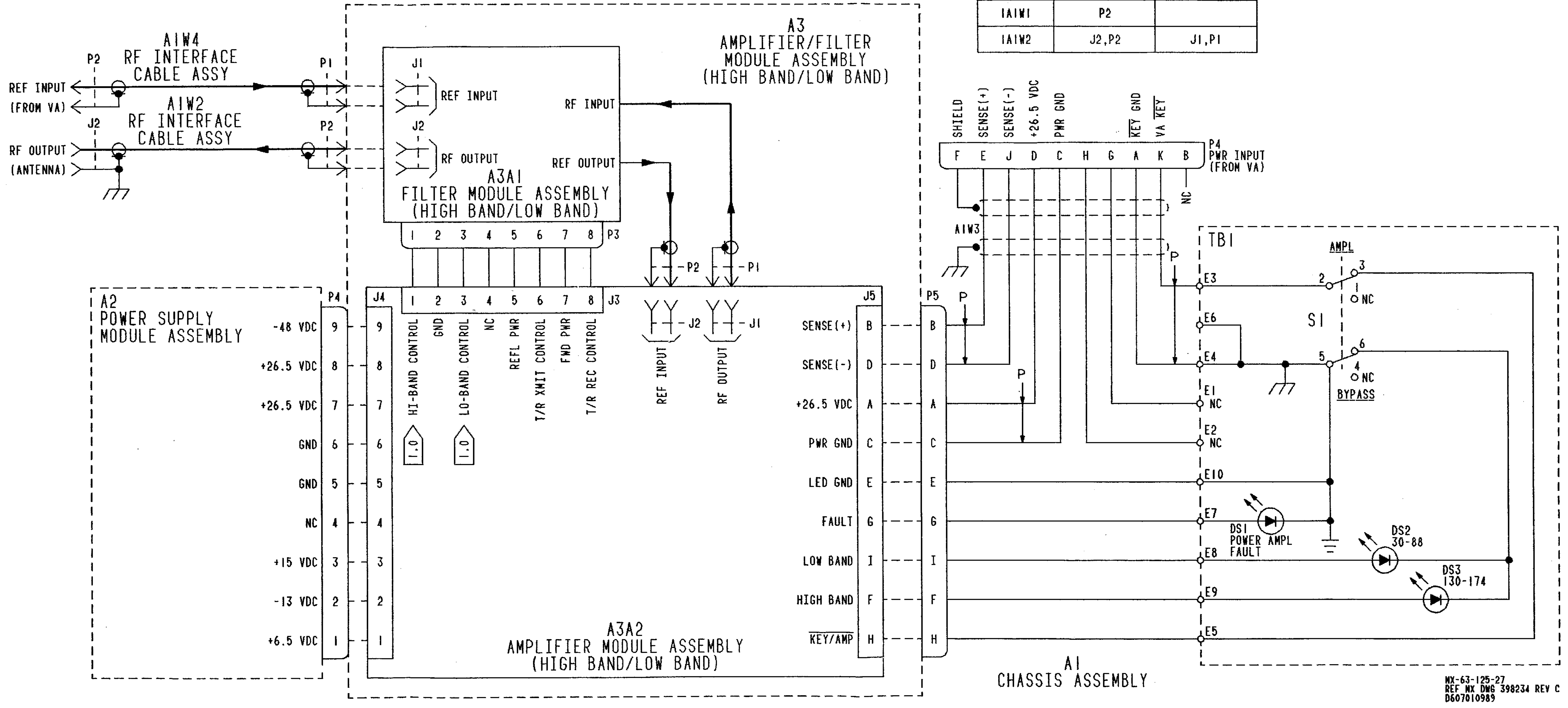


FO-4. RT 130 to 174 MHz RF/IF Schematic (Sheet 3 of 3)

ASSEMBLY	LAST USED	NOT USED
1A1	DS3,E10,P5, S1,TB1,W4	P1,P2,P3,W1
1A2	P4	P1,P2,P3
1A3	A2	
1A3A1	3	
1A3A2	J5	
1A1W1	P2	
1A1W2	J2,P2	J1,P1

NOTE

1.0 THESE LINES NOT CONNECTED IN HIGH BAND CONFIGURATION.

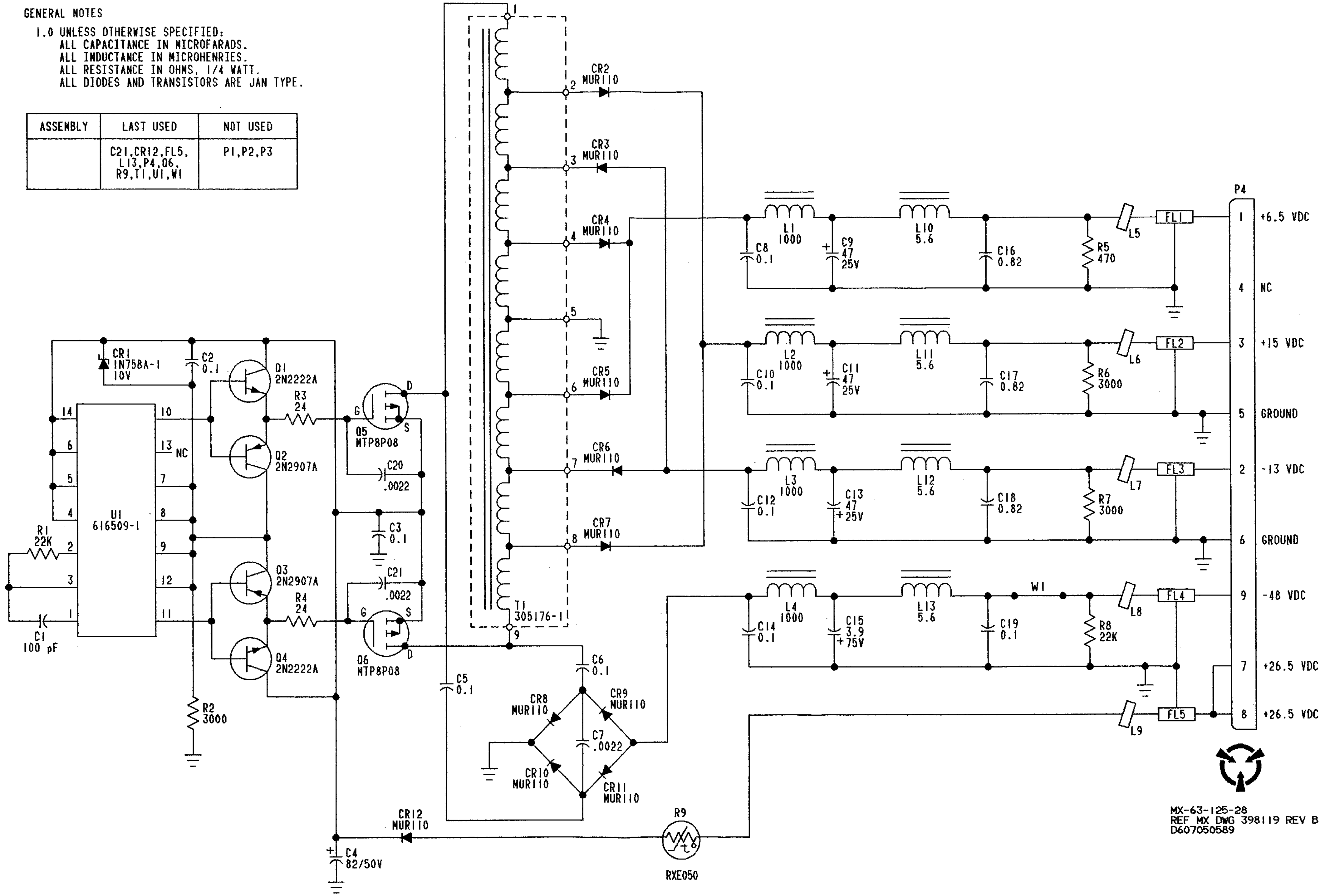


FO-5. PA Chassis Interconnect Schematic

GENERAL NOTES

1.0 UNLESS OTHERWISE SPECIFIED:
ALL CAPACITANCE IN MICROFARADS.
ALL INDUCTANCE IN MICROHENRIES.
ALL RESISTANCE IN OHMS, 1/4 WATT.
ALL DIODES AND TRANSISTORS ARE JAN TYPE.

ASSEMBLY	LAST USED	NOT USED
	C21,CR12,FL5, L13,P4,Q6, R9,T1,U1,W1	P1,P2,P3

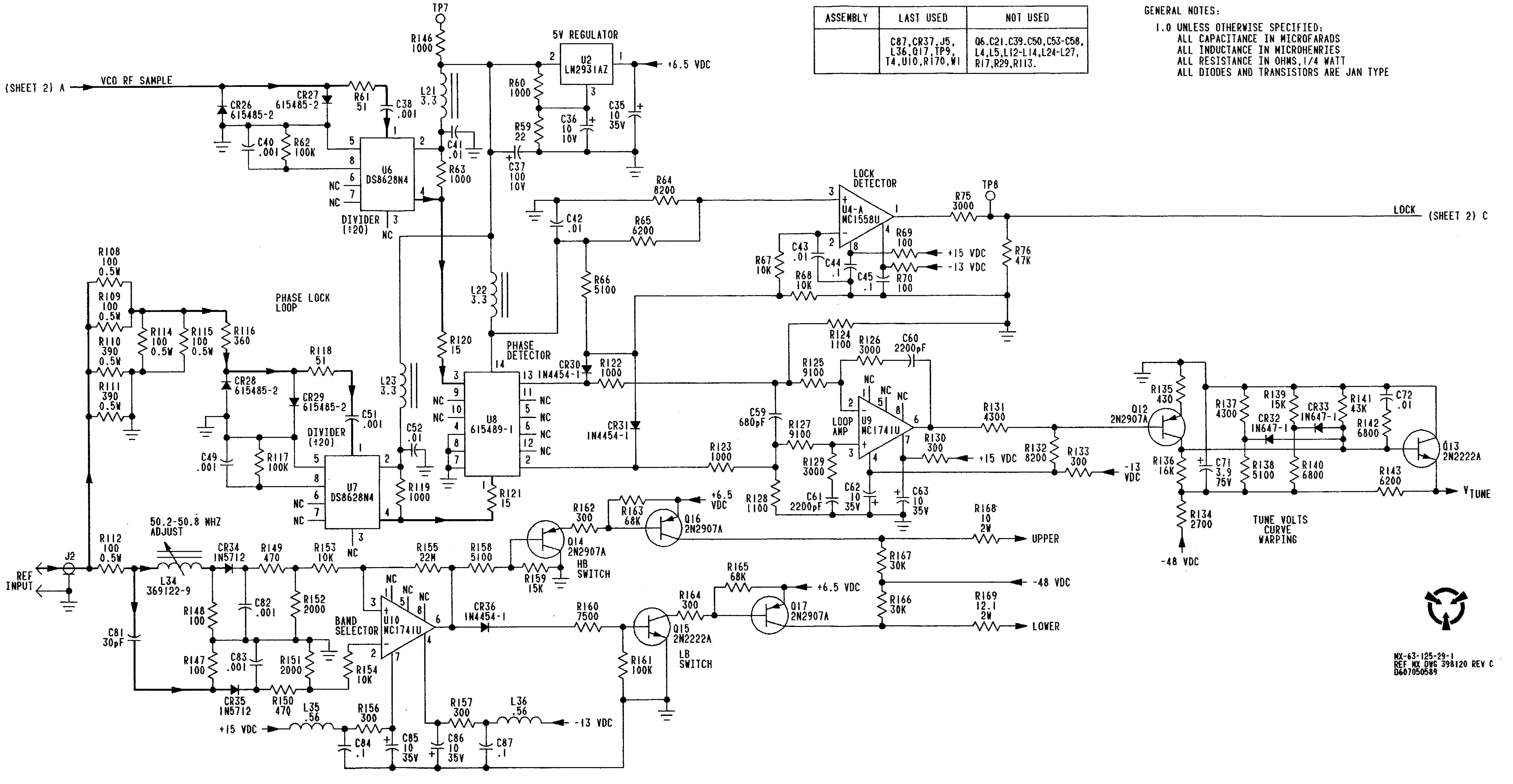


FO-6. PA Power Supply Schematic

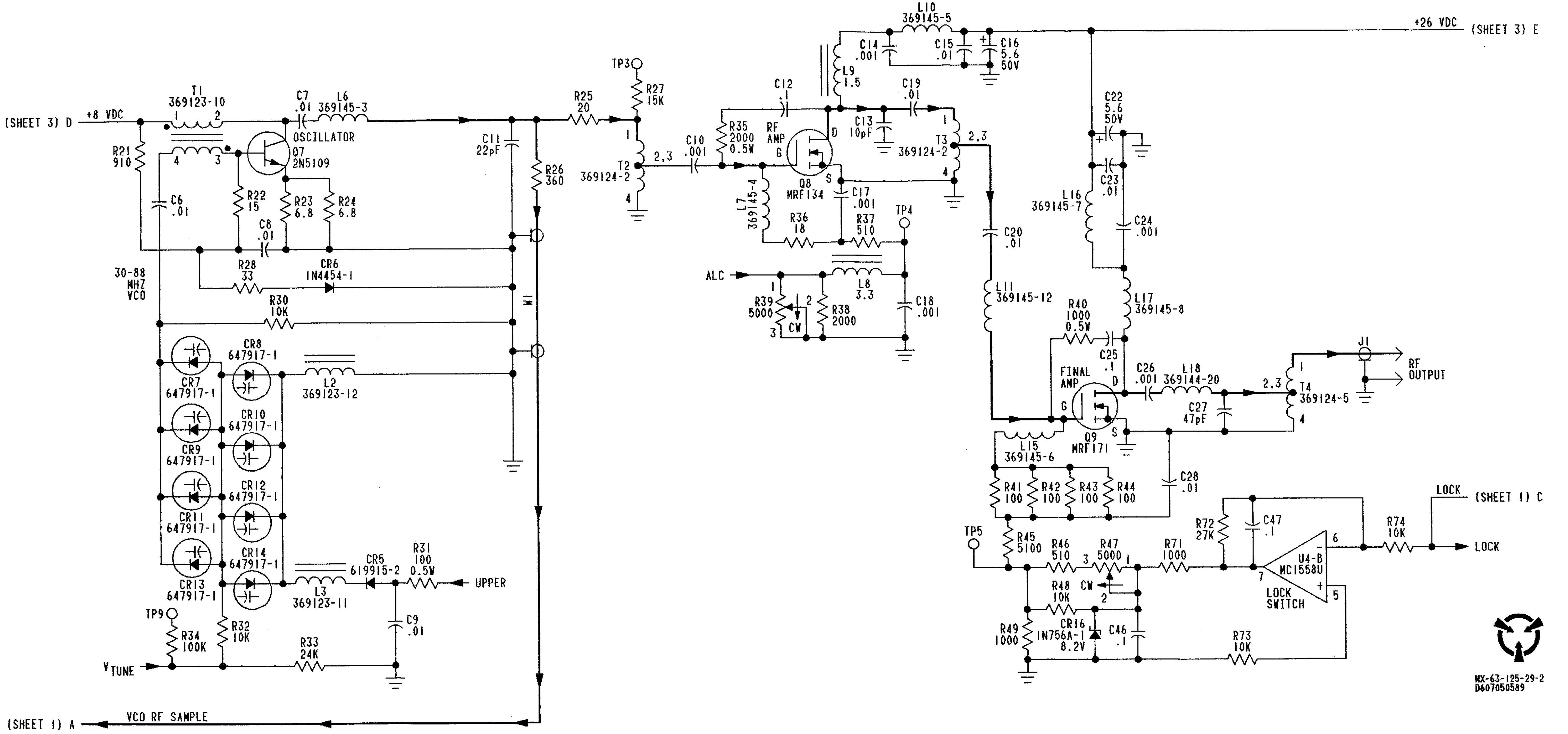
ASSEMBLY	LAST USED	NOT USED
	C87,CR37,J5, L36,Q17,TP9, T4,U10,R170,W1	Q6,C21,C39,C50,C53-C58, L4,L5,L12-L14,L24-L27, R17,R29,R113.

GENERAL NOTES:

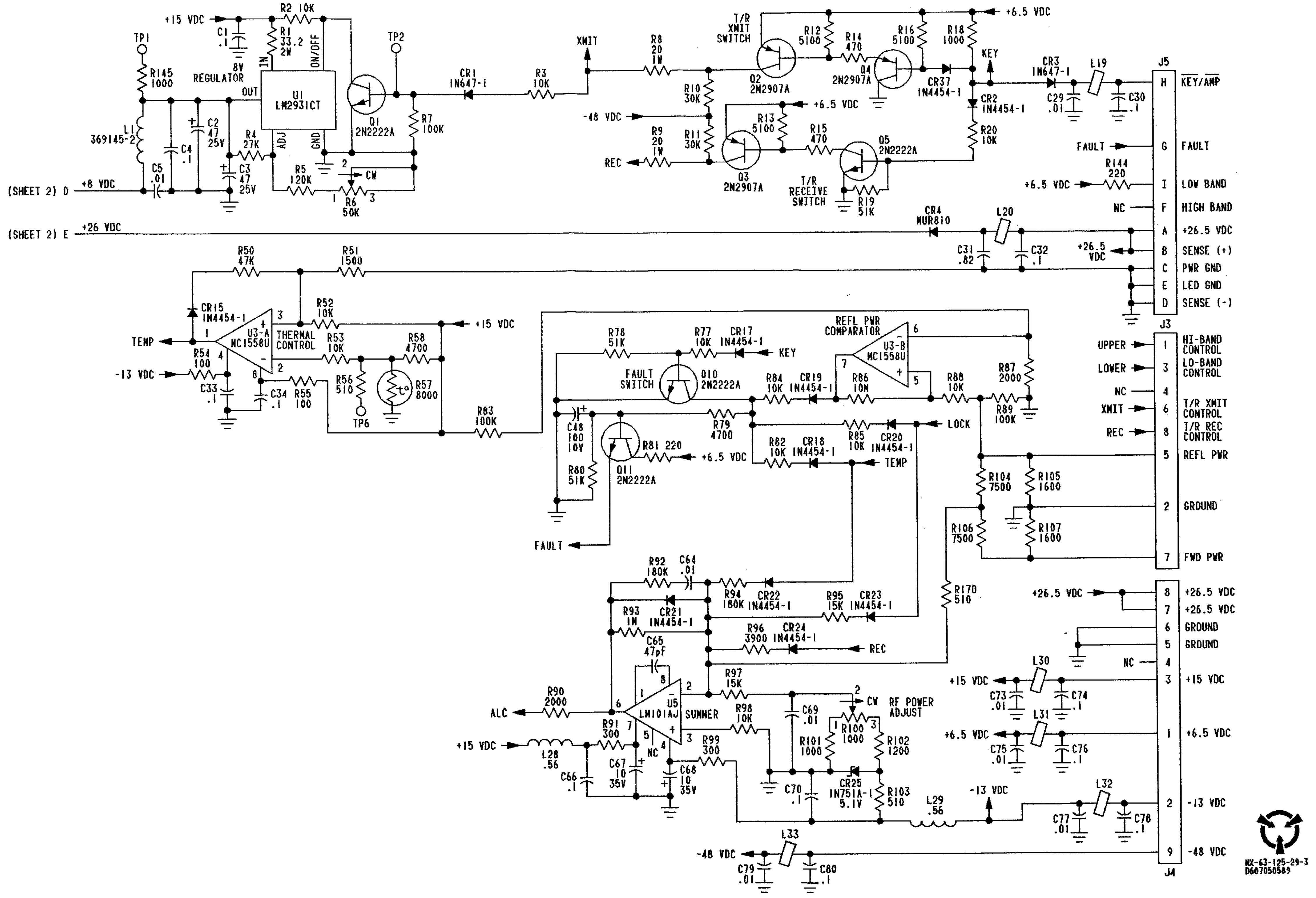
1.0 UNLESS OTHERWISE SPECIFIED:
ALL CAPACITANCE IN MICROFARADS
ALL INDUCTANCE IN MICROHENRIES
ALL RESISTANCE IN OHMS,1/4 WATT
ALL DIODES AND TRANSISTORS ARE JAN TYPE



FO-7. PA 30 to 88 MHz Amplifier Schematic (Sheet 1 of 3)



FO-7. PA 30 to 88 MHz Amplifier
Schematic (Sheet 2 of 3)

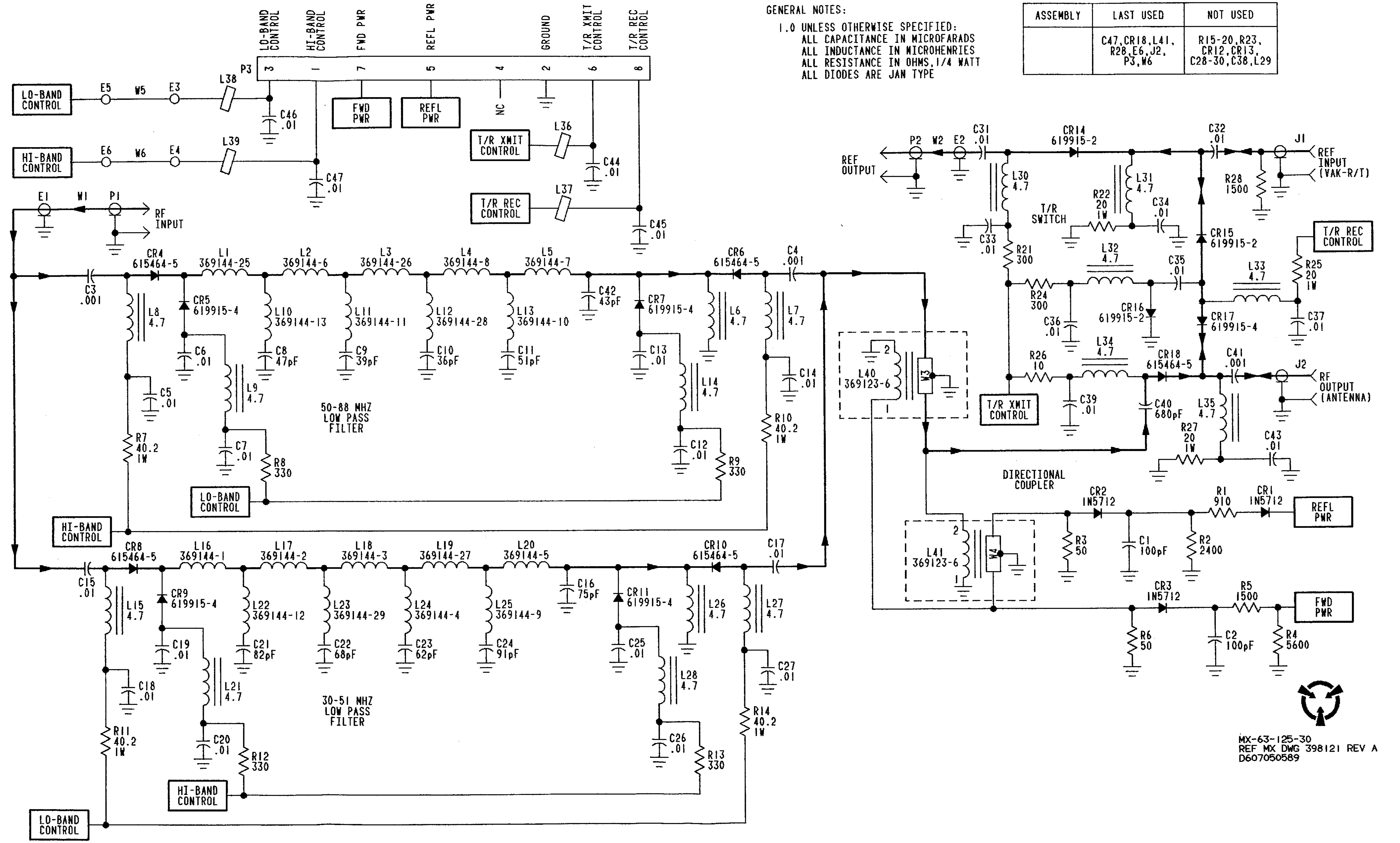


FO-7. PA 30 to 88 MHz Amplifier
Schematic (Sheet 3 of 3)

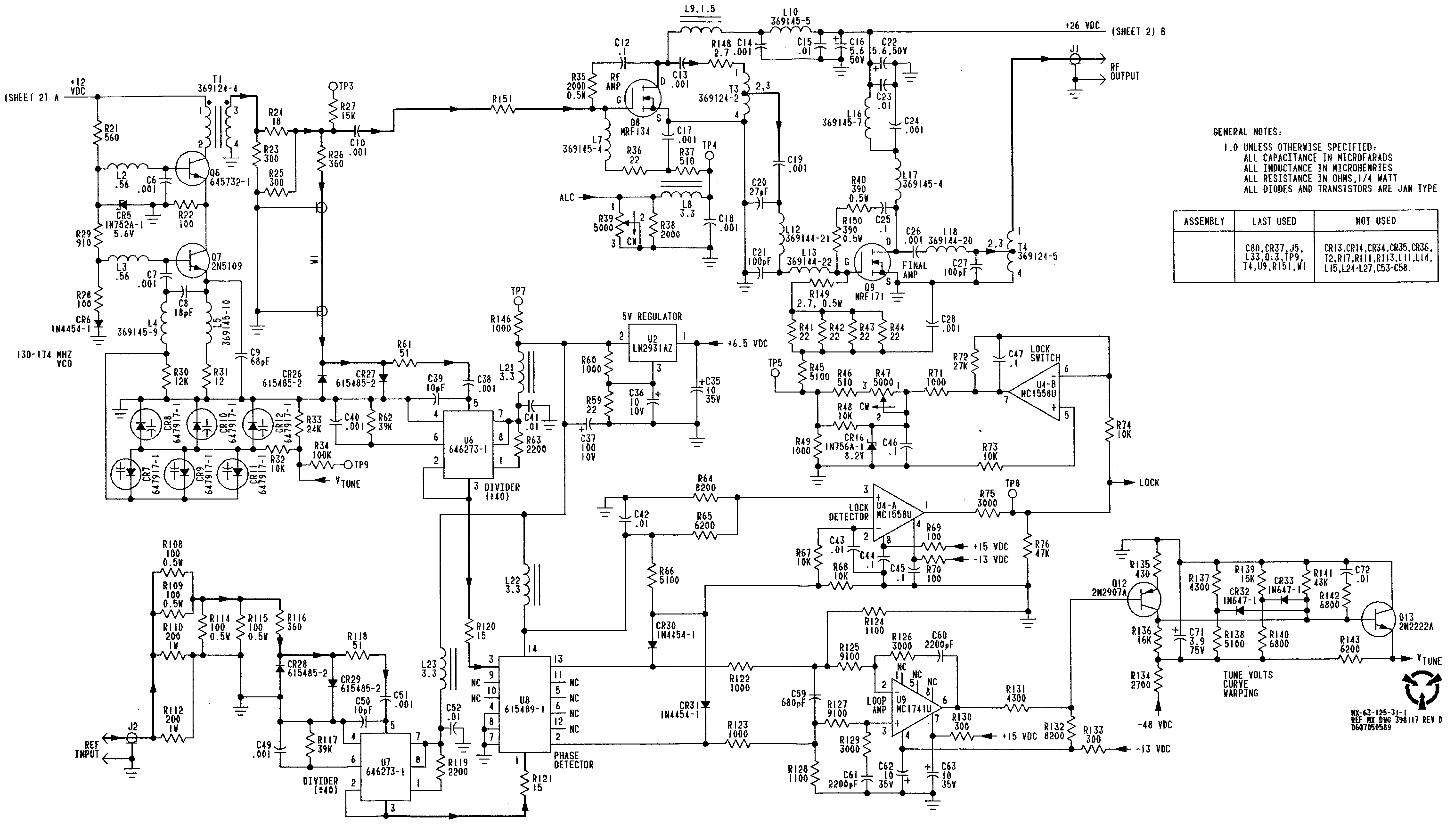
GENERAL NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
ALL CAPACITANCE IN MICROFARADS
ALL INDUCTANCE IN MICROHENRIES
ALL RESISTANCE IN OHMS, 1/4 WATT
ALL DIODES ARE JAN TYPE

ASSEMBLY	LAST USED	NOT USED
	C47, CR18, L41, R28, E6, J2, P3, W6	R15-20, R23, CR12, CR13, C28-30, C38, L29



FO-8. PA 30 to 88 MHz Filter Schematic

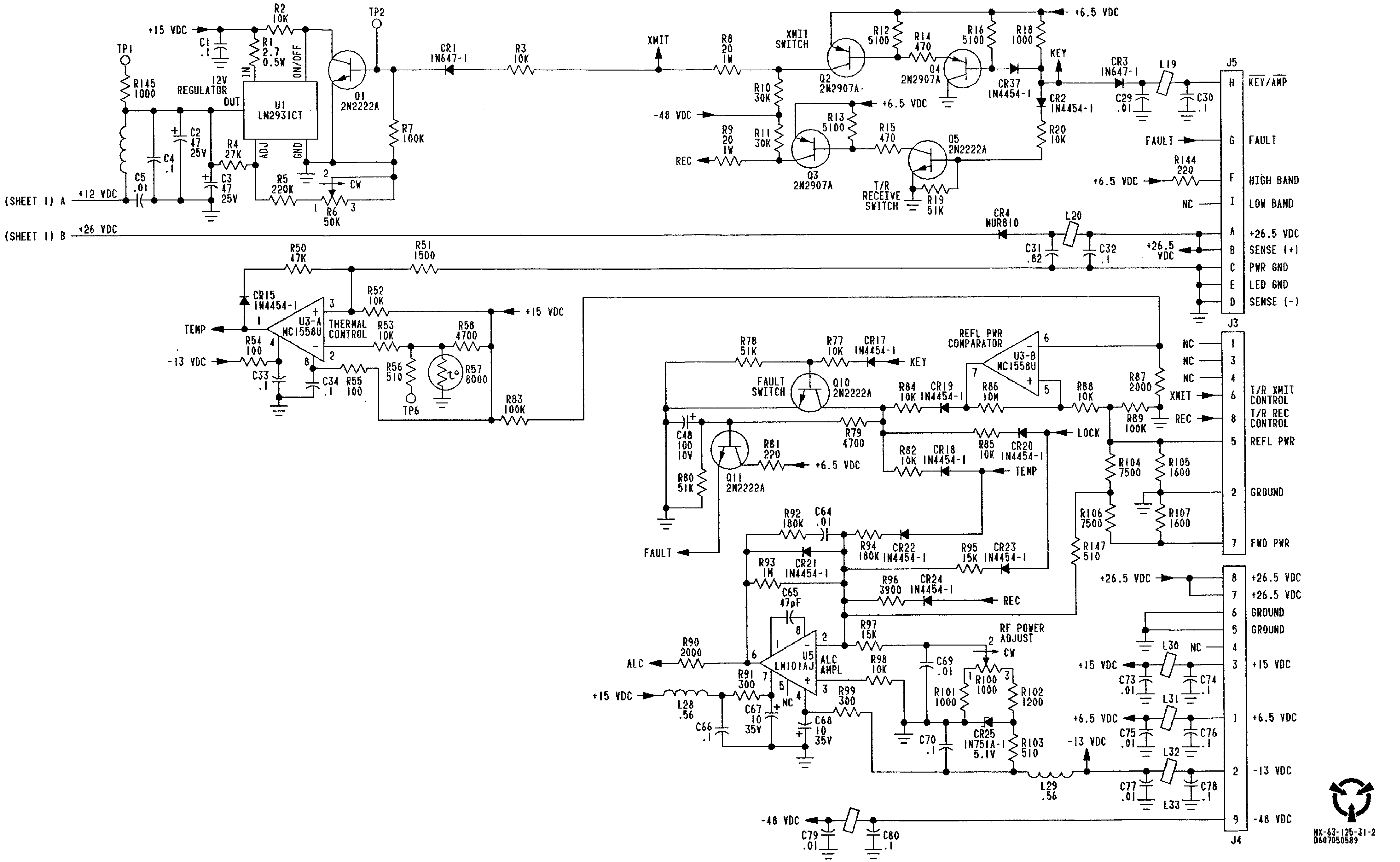


GENERAL NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
- ALL CAPACITANCE IN MICROFARADS
- ALL INDUCTANCE IN MICROHENRIES
- ALL RESISTANCE IN OHMS, 1/4 WATT
- ALL DIODES AND TRANSISTORS ARE JAN TYPE

ASSEMBLY	LAST USED	NOT USED
	C80, CR37, J5, L33, Q13, TP9, T4, U9, R151, W1	CR13, CR14, CR34, CR35, CR36, T2, R17, R111, R113, L11, L14, L15, L24-L27, C53-C58.

FO-9. PA 130 to 174 MHz Amplifier Schematic (Sheet 1 of 2)

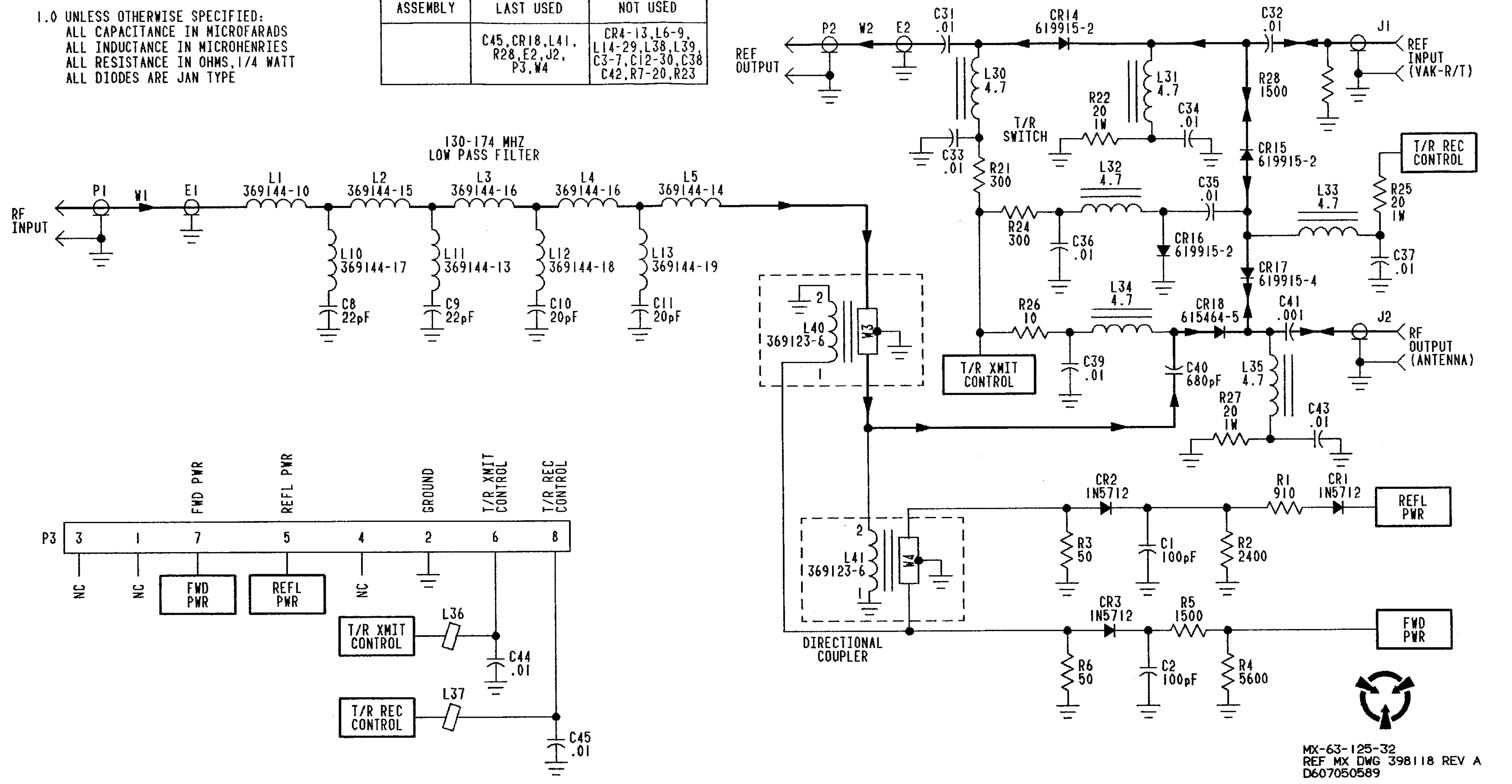


FO-9. PA 130 to 174 MHz Amplifier
Schematic (Sheet 2 of 2)

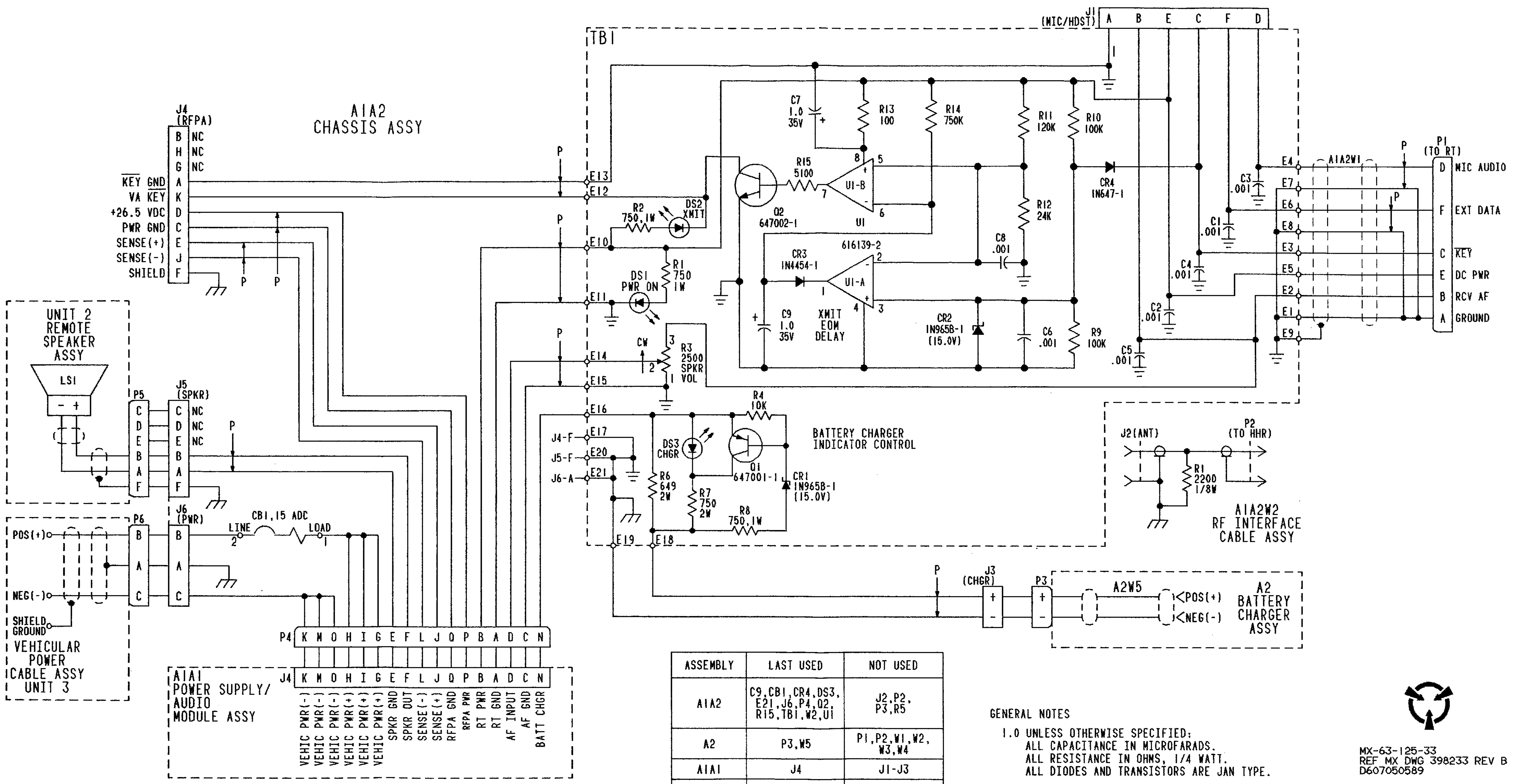
GENERAL NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
ALL CAPACITANCE IN MICROFARADS
ALL INDUCTANCE IN MICROHENRIES
ALL RESISTANCE IN OHMS, 1/4 WATT
ALL DIODES ARE JAN TYPE

ASSEMBLY	LAST USED	NOT USED
	C45, CR18, L41, R28, E2, J2, P3, W4	CR4-13, L6-9, L14-29, L38, L39, C3-7, C12-30, C38 C42, R7-20, R23



FO-10. PA 130 to 174 MHz Filter Schematic



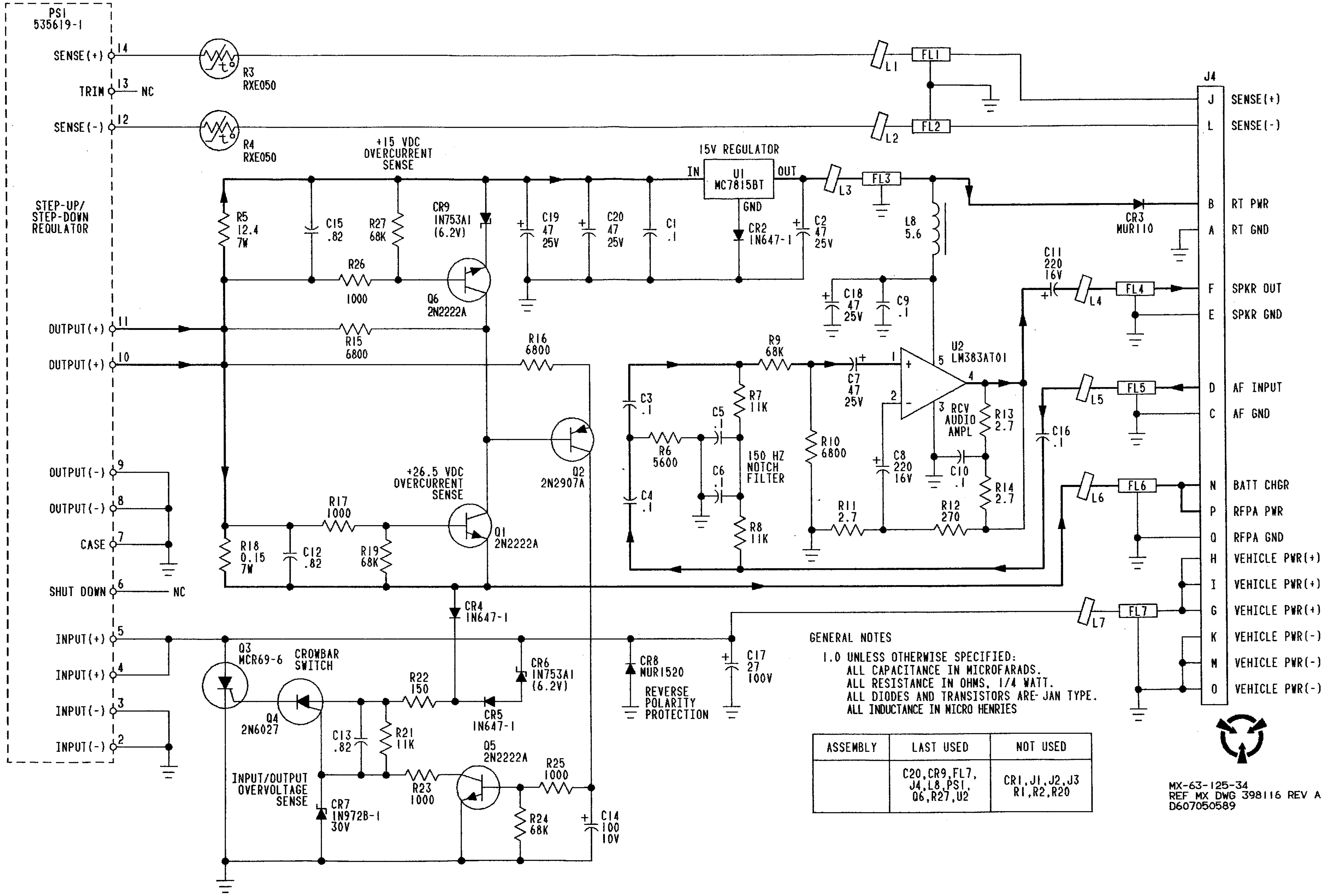
ASSEMBLY	LAST USED	NOT USED
A1A2	C9,CB1,CR4,DS3, E21,J6,P4,Q2, R15,TB1,W2,U1	J2,P2, P3,R5
A2	P3,W5	P1,P2,W1,W2, W3,W4
A1A1	J4	J1-J3
UNIT 2	P5,LS1	P1-P4
A1A2W2	J2,P2,R1	J1,P1
UNIT 3	P6	P1-P5
A1	A2	

GENERAL NOTES

1.0 UNLESS OTHERWISE SPECIFIED:
ALL CAPACITANCE IN MICROFARADS.
ALL RESISTANCE IN OHMS, 1/4 WATT.
ALL DIODES AND TRANSISTORS ARE JAN TYPE.

MX-63-125-33
REF MX DWG 398233 REV B
D607050589

FO-11. PS/A Chassis Interconnect Schematic

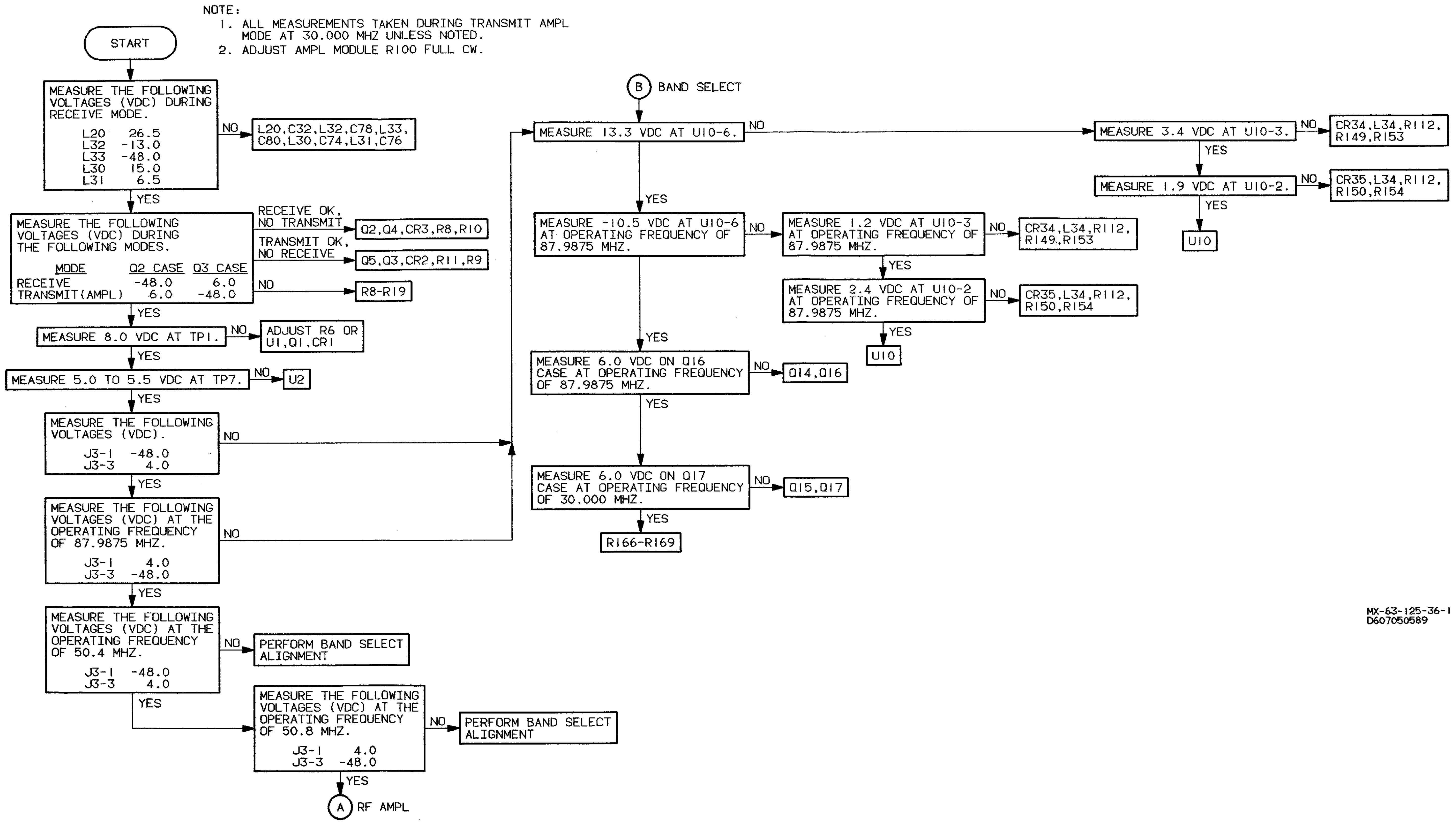


GENERAL NOTES

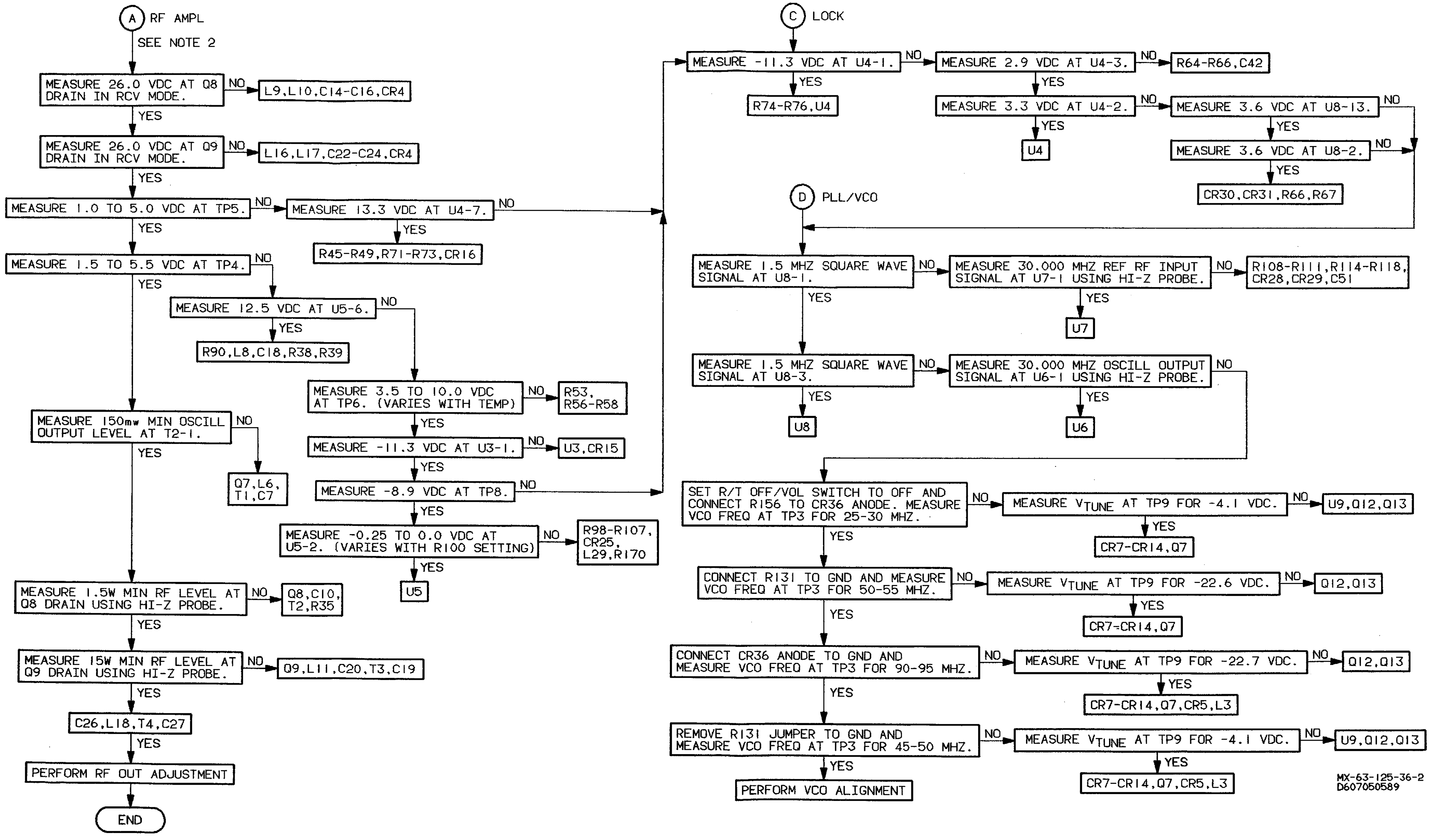
1.0 UNLESS OTHERWISE SPECIFIED:
ALL CAPACITANCE IN MICROFARADS.
ALL RESISTANCE IN OHMS, 1/4 WATT.
ALL DIODES AND TRANSISTORS ARE JAN TYPE.
ALL INDUCTANCE IN MICRO HENRIES

ASSEMBLY	LAST USED	NOT USED
	C20,CR9,FL7, J4,L8,PS1, Q6,R27,U2	CR1,J1,J2,J3 R1,R2,R20

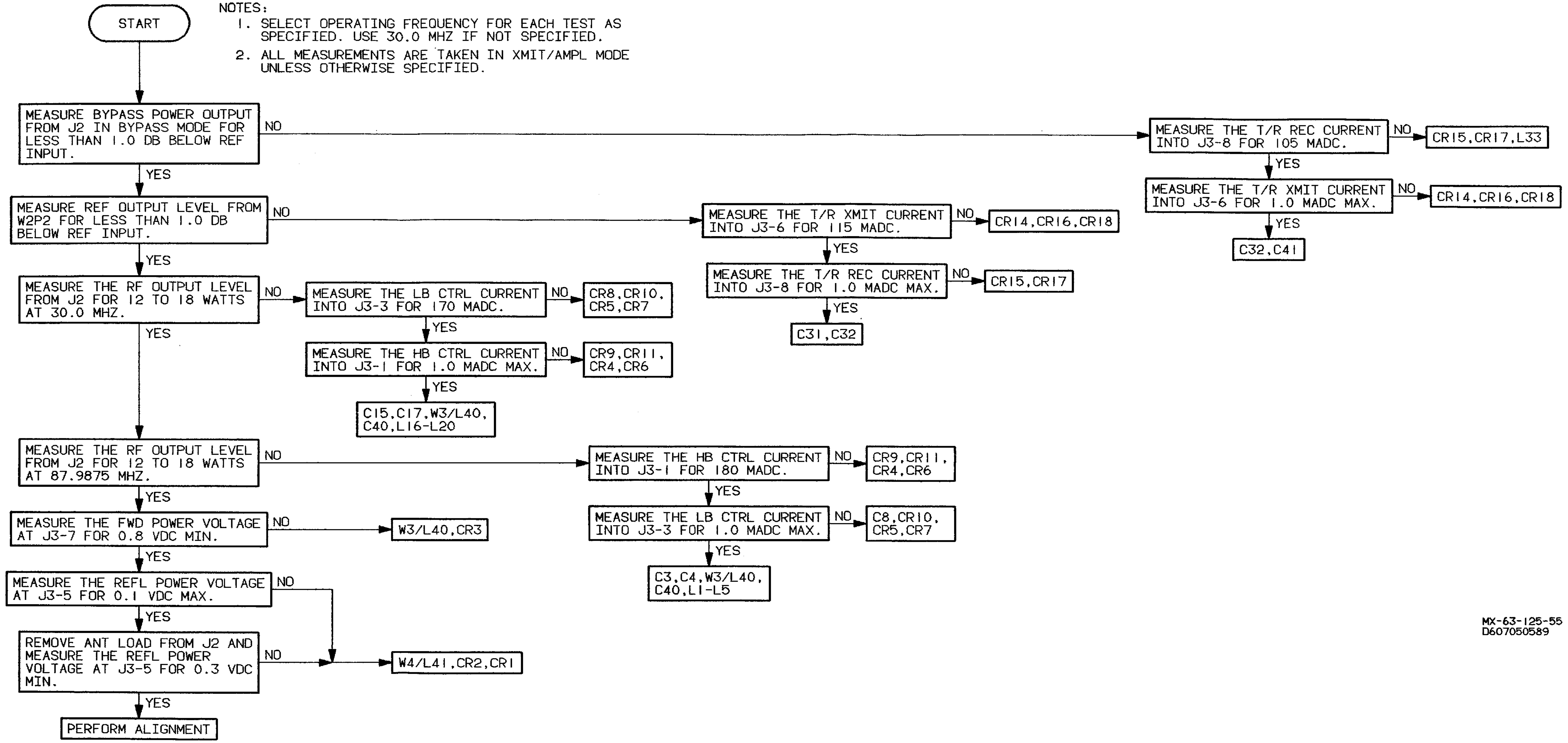
FO-12. PS/A Power Supply/Audio Schematic



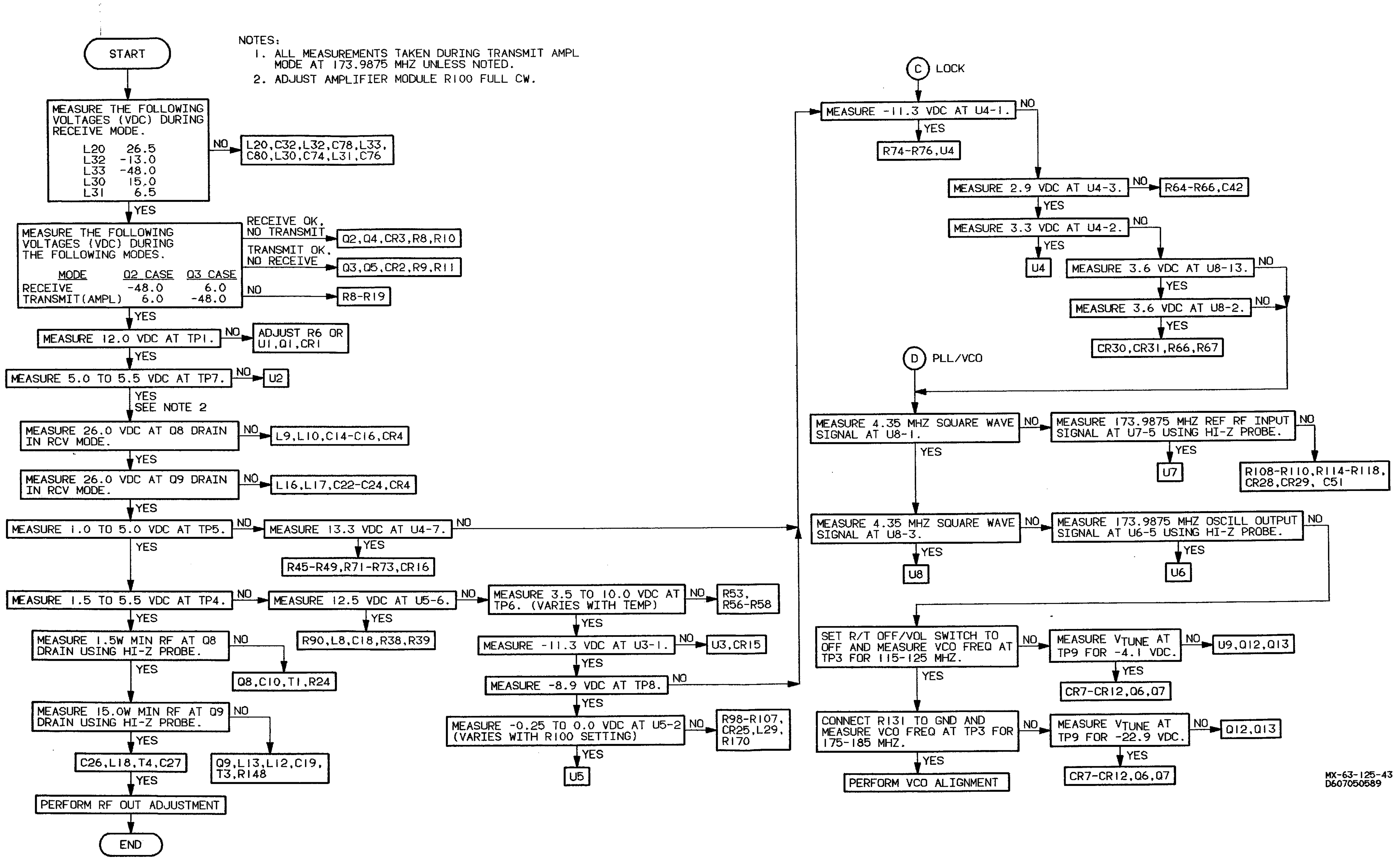
FO-13. PA 30 to 88 MHz Amplifier Module Fault Isolation (Sheet 1 of 2)



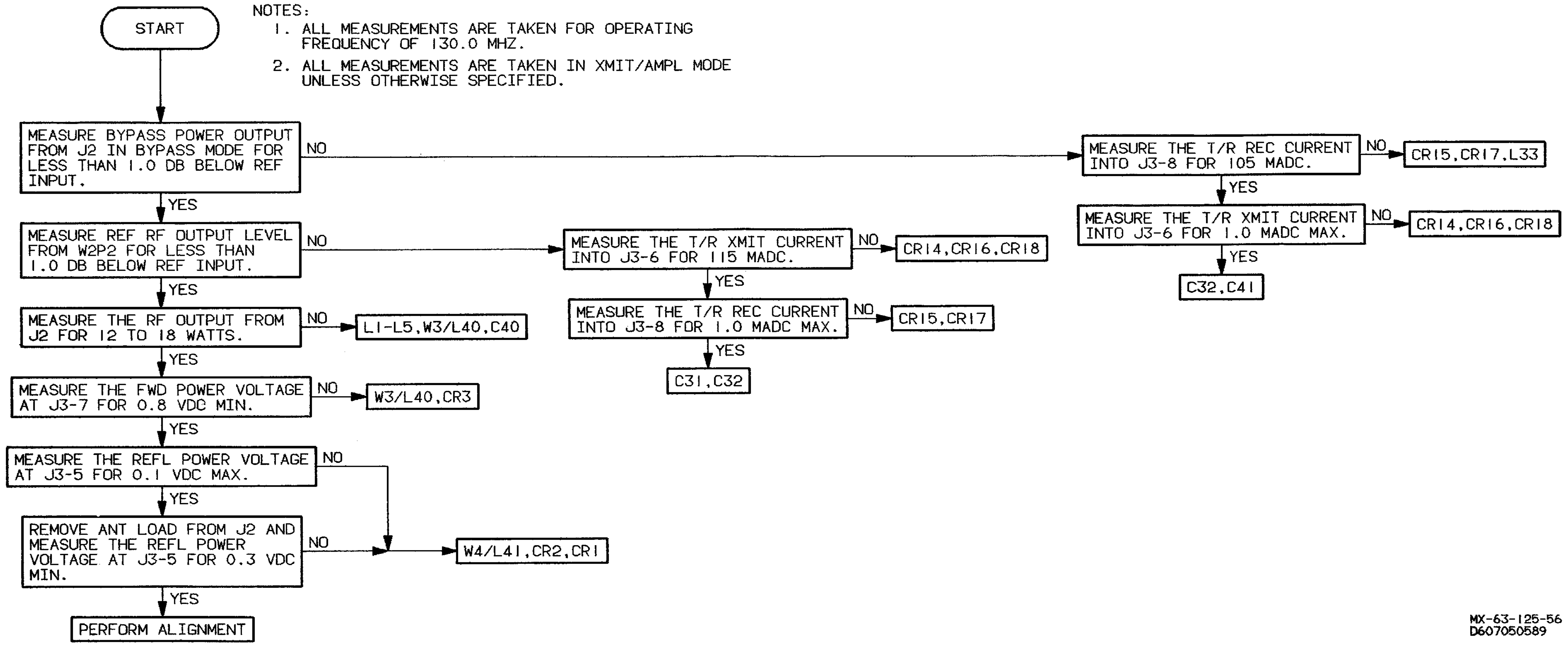
FO-13. PA 30 to 88 MHz Amplifier Module Fault Isolation (Sheet 2 of 2)



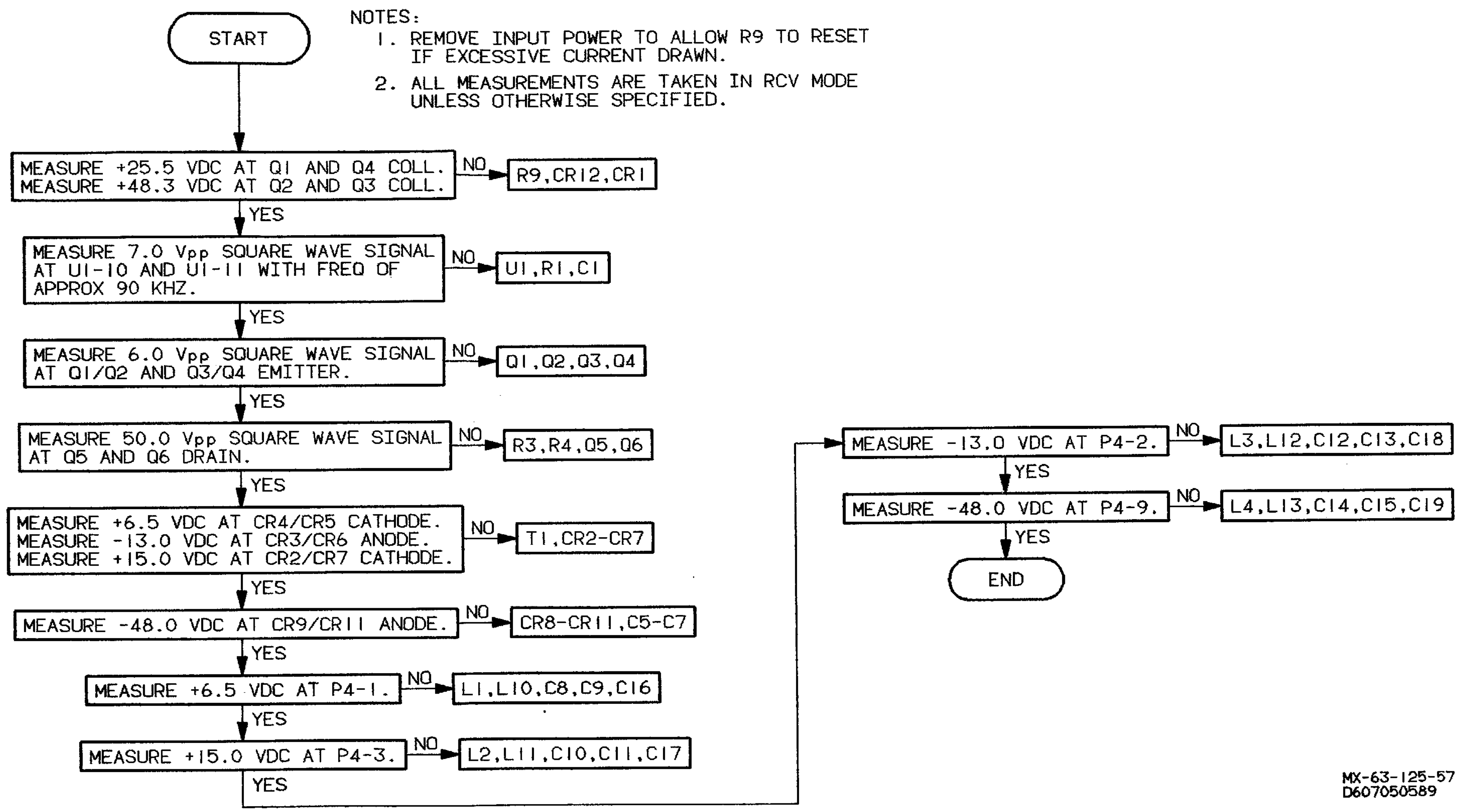
FO-14. PA 30 to 88 MHz Filter Module Fault Isolation



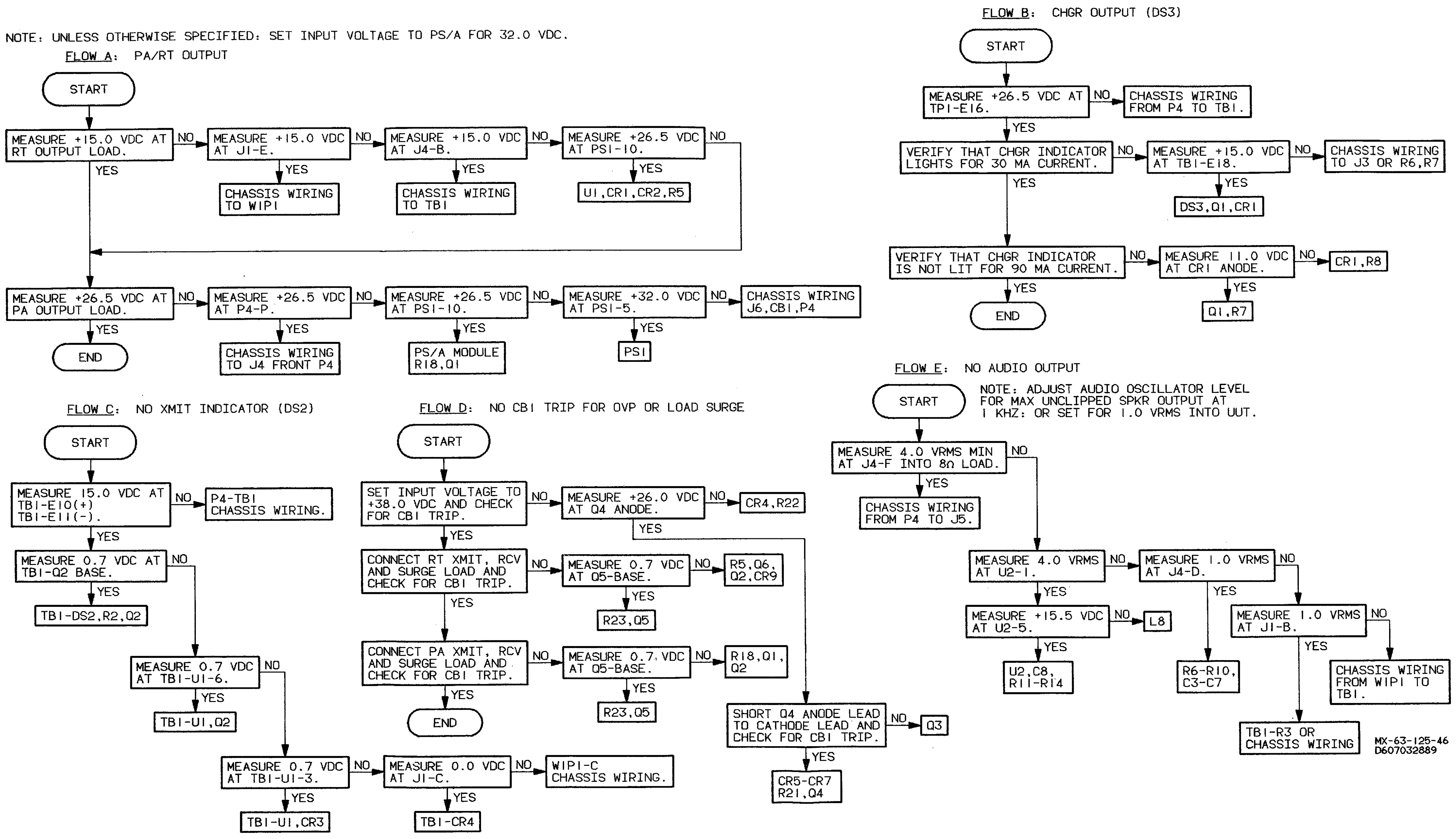
FO-15. PA 130 to 174 MHz Amplifier Fault Isolation



FO-16. PA 130 to 174 MHz Filter Fault Isolation



FO-17. PA Power Supply Fault Isolation



FO-18. PS/A Fault Isolation