NAVELEX 0967-163-2010

TECHNICAL MANUAL

for

RADIO RECEIVING SETS AN/SRR-19 ( )

Superseding

NAVSHIPS 0967-163-2010 18 July 1966

NAVSHIPS 0967-163-2020 18 July 1966

DEPARTMENT OF THE NAVY

NAVAL ELECTRONIC SYSTEMS COMMAND

Publication: 1 October 1973

LIST OF EFFECTIVE PAGES

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Title Page	ORIGINAL	3-1 to 3-14	ORIGINAL
ii to vii	ORIGINAL	4-1 to 4-28	ORIGINAL
1-0 to 1-6	ORIGINAL	5-1 to 5-91	ORIGINAL
2-1 to 2-10	ORIGINAL	6-1 to 6-44	ORIGINAL

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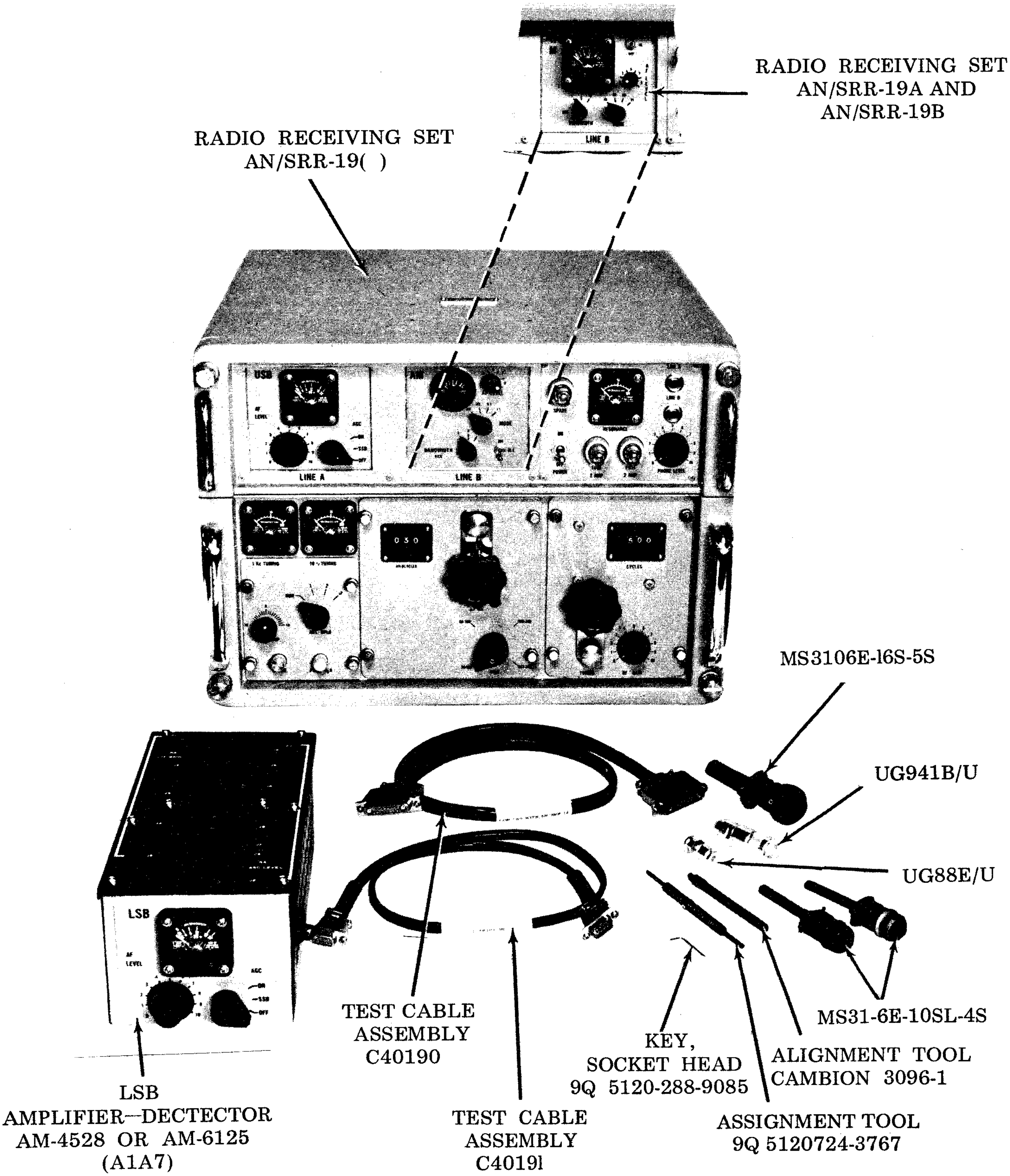


Figure 1-1. Radio Receiving Sets AN/SRR-19( )

SECTION 1

GENERAL INFORMATION

1-1 SCOPE

This technical manual covers the description, installation, operation, trouble-shooting, maintenance and parts lists for the AN/SRR-19, 19A & 19B receiving sets.

This manual is effective on receipt and supersedes NAVSHIPS 0967-263-2010, 2020. Extracts from this publication may be made to facilitate the preparation of other Department of Defense publications.

1-2 GENERAL DESCRIPTION

The AN/SRR-19 series receivers are intended for the reception of low frequency (30-300 KHz), single sideband broadcasts, and the reception of A1, A2, A3 (and F1 with external equipment) broadcasts. Normal use will be in the upper sideband of single sideband broadcasts. An auxiliary LSB amplifier-detector module will replace either the AM amplifier-detector module or the USB amplifier-detector module for separate or simultaneous reception of both sidebands. These Naval Fleet Broadcasts (in the low frequency spectrum) may be received at great distances when high frequency reception is not reliable. The AN/SRR-19( ) receivers will provide multichannel teletype signals to processing equipment such as the AN/UCC-1.

1-3 DESCRIPTION OF UNITS

A general view of Radio Receiving Set AN/SRR-19( ) appears in Figure 1-1. The receiver consists of a two-section drawer in a common cabinet. The lower section (deck) contains the r. f. tuning, frequency conversion, and i-f amplification circuits; the upper deck contains the amplifier-detectors, crystal oscillator, frequency dividers, and the power supply circuits. A fan assembly provides for the cooling of the receiver components.

1-4 REFERENCE DATA

Table 1-1 lists as reference data the basic characteristics of the AN/SRR-19( ) receiver.

1-5 EQUIPMENT SUPPLIED

Table 1-2 lists the equipment and accessories supplied.

1-6 EQUIPMENT REQUIRED BUT NOT SUPPLIED

Table 1-3 is a list of equipment required but not supplied.

1-7 FACTORY OR FIELD CHANGES

Changes to the technical manual as a result of FC-1 and FC-2 are incorporated in this publication. Reference EIMB NAVSHIPS 0967-000-0010 Field Change Identification Guide, Change 14 page 3-31.

1-8 EQUIPMENT SIMILAITIES

The AN/SRR-19( ) series receivers are functionally identical and units are physically interchangeable.

1-9 PREPARATION FOR RESHIPMENT

No special procedures are required.

TABLE 1-1. REFERENCE DATA

Power Requirements	200 watts, 100/110/120/Vac 50-60 or 400 Hz, single phase, 1.7 amperes nominal.
Antenna input impedence	50 ohms, unbalanced
Maximum output	Line A: 60 mw, 600 ohm load Line B: 60 mw, 600 ohm load Phone jacks: 15 mw, 600 ohm load
Receiver type	Double conversion superheterodyne: First I.F. 1715.5 KHz Second I.F. 100 KHz Band widths 1.0 KHz (narrow), 3.0 KHz (medium), 8.0 KHz (wide)
Frequency Range	30-300 KHz in 4 bands Band 1: 30-55 KHz Band 2: 55-109 KHz Band 3: 109-202 KHz Band 4: 202-300 KHz
Frequency Standard	1 MHz crystal controlled synthesiser
Frequency Stability	1 part in 10^8 per day
Modes of Operation	LSB, USB, ISB, AM, CW, MCW, and (RATT with auxiliary equipment)
Sensitivity	For an output of 1 mw across a 600 ohm load, signal to noise ratio 20 DB; CW mode . . . . 1 uv max. 0.3 uv (typical) All other modes . . . . 2 uv max. 0.5 uv (typical)
Ambient Temperature and Humidity Limitations	32° F to 122° F, 30-95% relative humidity
Heat Dissipation	200 watts (nominal) (8.54 Btu/min)
Installation	Table or 19 inch rack mount

TABLE 1-2. EQUIPMENT SUPPLIED

QTY PER EQUIP.	NOMENCLATURE		DIMENSIONS (IN.)			VOL	WT
	NAME	DESIG	HGT	W	D	(CU FT)	(LB)
1	Radio Receiving Set (includes USB Assembly AM-4527( ) or AM-6124 and AM Assembly AM-4529( ) or AM-6126	AN/SRR-19( )	12-1/4	17-1/4	22-1/2	2.75	125
1	LSB Assembly (replaces AM Assembly AM-4529( ) or AM-6126	AM-4528( ) or AM-6125	3-3/4	4-5/8	11-3/4	0.118	6
1	Cable Assembly (9-pin)	C40191					
1	Cable Assembly (17-pin)	C40190					
1	Cable Connector	MS-3106E-16S-5S					
2	Cable Connector	MS-3106E-10SL-4S					
1	Cable Connector	UG88E/U					
1	Cable Connector	UG941B/U					
2	Technical Manual	NAVELEX 0967-163-2010					
1	Operator's Instruction Chart	NAVELEX 0967-163-2020					
1	Performance Standards Sheet	NAVELEX 0967-163-2030					

TABLE 1-2. EQUIPMENT SUPPLIED (continued)

QTY PER EQUIP.	NOMENCLATURE		DIMENSIONS (IN.)			VOL	WT
	NAME	DESIG	HGT	W	D	(CU FT)	(LB)
1	Maintenance Standards Book	NAVELEX 0967-163-2040					
1	Alignment Tool	9Q5120-724-3767					
1	Alignment Tool	Cambion 3096-1					
1	Key, Socket Head	9Q5120-228-9085					

TABLE 1-3. EQUIPMENT REQUIRED BUT NOT SUPPLIED

QTY PER EQUIP	NOMENCLATURE		USED	REQUIRED CHARACTERISTICS
	NAME	DESIGNATION		
1	Headset	NT-49985A	Monitor audio output	600 ohms
1	Antenna	None	Supply rf signals	50 ohms (terminated)
1	Cable, coax	RG-10A/U	Antenna transmission line	50 ohms
1	Cable, power	THFA (or equiv)	Primary power to receiver	
2	Cable, output	DHFA (or equiv)	Audio output lines	
1	Cable, coax	RG-58C/U	Auxiliary Frequency standard (for calibration)	50 ohms
1	Multimeter	AN/PSM-4B (or equiv)	Trouble-shooting and maintenance procedures	90 to 165 vdc; 6.3 vac to 125 vac rms; 5%
1	Electronic Voltmeter	AN/USM-143 (or equiv)	Trouble-shooting and maintenance procedures	0.1 to 6.0 vac rms; ±5%
1	Rf Signal Generator	AN/URM-25D (or equiv)	Trouble-shooting and maintenance procedures	30 KHz to 300 KHz; output 0.1 uv to 0.1 volt; modulation 400 or 1000 cps
1	Electronic Counter	AN/USM-207 (or equiv)	Trouble-shooting and maintenance procedures	0.1 volt sensitivity, min
1	Oscilloscope	AN/USM-281( ) (or equiv)	Trouble-shooting and maintenance procedures	50 MHz vertical Bandwidth, min

TABLE 1-3. EQUIPMENT REQUIRED BUT NOT SUPPLIED (continued)

QTY PER EQUIP	NOMENCLATURE		USE	REQUIRED CHARACTERISTICS
	NAME	DESIGNATION		
1	Audio Oscillator	AN/URM-127	Trouble-shooting and maintenance procedures	220-200 KHz output, 1 uv to 10 v
1	Electronic VTVM	AN/USM-116	Trouble-shooting and maintenance procedures	15 Hertz to 250 KHz
1	Frequency Standard	AN/URQ-10 (or equiv)	Trouble-shooting and maintenance procedures	1MHz; stability (drift rate per day) 1 part in 10^9 or better Note: Accuracy is 1 part in 10^8 or better only when within the calibration cycle
1	Stopwatch		Trouble-shooting and maintenance procedures	Sweep hand: 60 sec, 1/5-sec steps Small hand: 30 min

SECTION 2

INSTALLATION

2-1 UNPACKING AND HANDLING

Normal care should be exercised in uncrating of equipment and accessories. Table 2-1 lists shipping data.

2-2 POWER REQUIREMENTS

For normal operation, 100/110/120 Vac, 50-60 or 400 Hz single phase power is required. Voltages should not exceed ±10% and frequency ±5% of the nominal value. Primary power is applied to a female connector (supplied) which connects to power in receptacle (A2J1). See Figure 2-1. Power distribution within the cabinet is shown on Figure 5-38, Section 5 of this technical manual.

2-3 SITE SELECTION

Consideration of location in relation to auxiliary units such as teletype printers should be given. Internal shielding and effective filtering permit the equipment to operate satisfactorily close to transmitting equipment.

2-4 INSTALLATION REQUIREMENTS

a. The AN/SRR-19( ) may be mounted on a bench, or rack mounted by attaching a rack mounting bracket to either side of the cabinet. (Details for fabrication of rack mounting brackets are shown on Figure 2-3).

CAUTION

When rack mounting, allow a minimum of 10 inches above the deck.

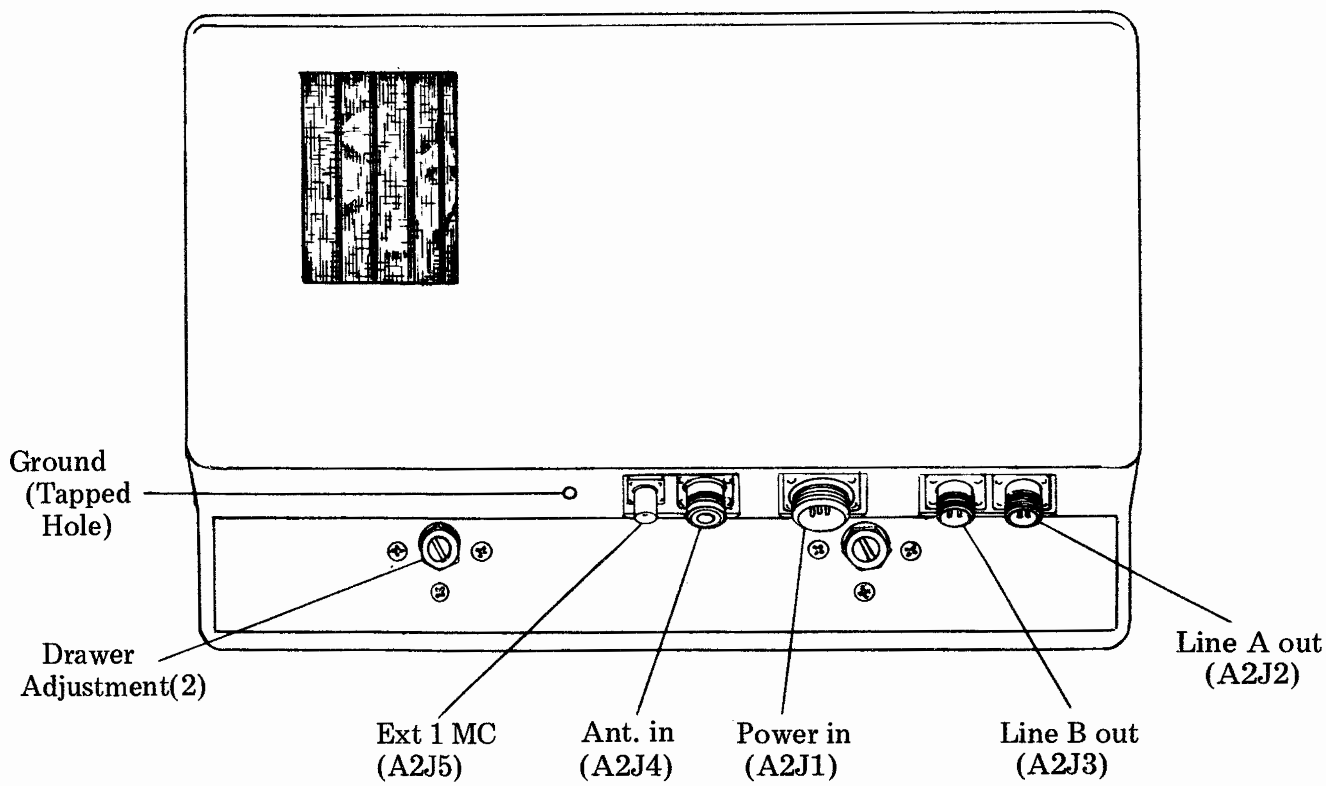


Figure 2-1. External Cable Connections

b. When bench mounting the cabinet, install lower front edge flush with or extend slightly beyond the edge of the bench to permit vertical indexing of the extended drawer. The base of the receiver cabinet has four holes to accommodate 3/8 inch diameter bolts for bench mounting.

c. For rack mounting the cabinet, refer to Figures 2-2 and 2-3. The cabinet has tapped holes for mounting the brackets.

d. There must be a minimum of 22 inches service access clearance in front of and above the extended drawer. Outline drawing, Figure 2-2, shows extended dimensions.

e. The drawer may be removed from the cabinet by fully extending and removing the retractable cable at the rear panel of the drawer. Remove two cable clamps, and disconnect connector at A19J10. Press the rear latches on both sides and pull the drawer forward, supporting it as it leaves the slides.

CAUTION

Because of the weight (125 lbs), two men are required to safely remove or replace the drawer.

2-5 EXTERNAL CONNECTIONS

a. All connections are made using cable connectors (supplied). Figures 2-4, 2-5, and 2-6 show methods of assembly.

b. Figure 2-1 shows location of receptacles in the rear of the cabinet.

c. The equipment is shipped with connections for operation from a power source of 110 VAC, 50-60 Hz. For operation using 100 or 120 VAC, reposition taps on transformer A1A14-T1 located in the top deck. For operation with a 400 Hz source, use frequency tap terminal 5 on A1A14-T1. (See Figure 5-28 for location of terminals.)

2-6 INSPECTION AND ADJUSTMENT

a. GENERAL. After the equipment is installed and before it is turned over to operating personnel, observe the receiver performance in detail and make any necessary minor adjustments. Environmental conditions will vary between the factory and installation site. Handling of the equipment during shipment may require minor adjustments to assure optimum performance. All aspects and features of receiver operation must be checked and particular care must be taken to correct any condition which would lead to abnormal performance.

Note

The AN/SRR-19( ) is shipped with the AM module and the USB module in place. Initial tests are made using the AM module and the LINE B output. The LSB replaces the AM module for multichannel SSB tests.

b. INITIAL ENERGIZING OF EQUIPMENT. The location of each operating control is shown in Figure 3-1. Table 3-2 gives a brief description of the function of each control. Perform the following steps in the order of presentation:

(1) Ensure that all external cable connections are tight.

(2) Verify that the primary tap connections to power transformer A1A14-T1 are compatible with the available line voltage and frequency.

(3) Preset the panel controls to the positions given in Table 2-2.

(4) Set the external primary power switches to ON.

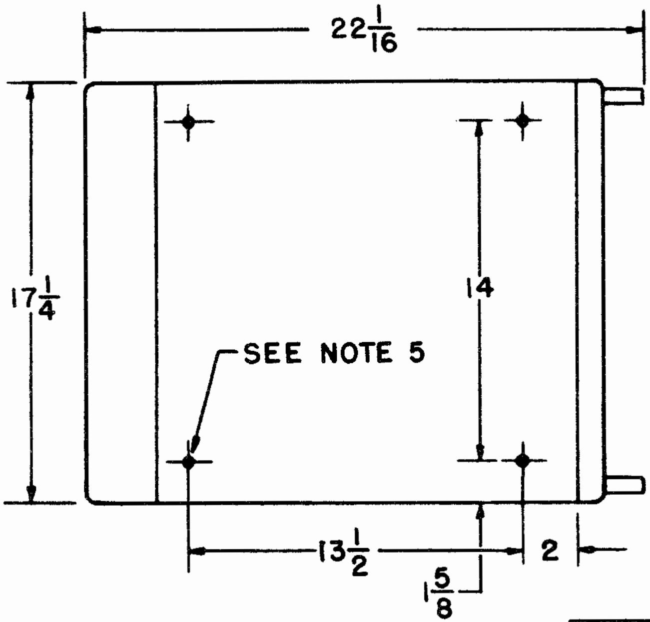
(5) Set the POWER ON/OFF panel switch to ON and wait for thirty seconds. The KILOCYCLES and CYCLES counters should be illuminated immediately.

NOTE

The receiver is operable after a 30-second warm-up period, but the internal frequency standard oscillator may not reach its designated stability of one part in 10^8 until after the first hour of operation.

(6) Insert 600-ohm headphones in the LINE B phone jack.

c. TUNING PERFORMANCE. To observe the performance of the receiver, use signal generator (AN/URM-25( ) or equivalent) or actual transmitted signals. Because the frequency accuracy of



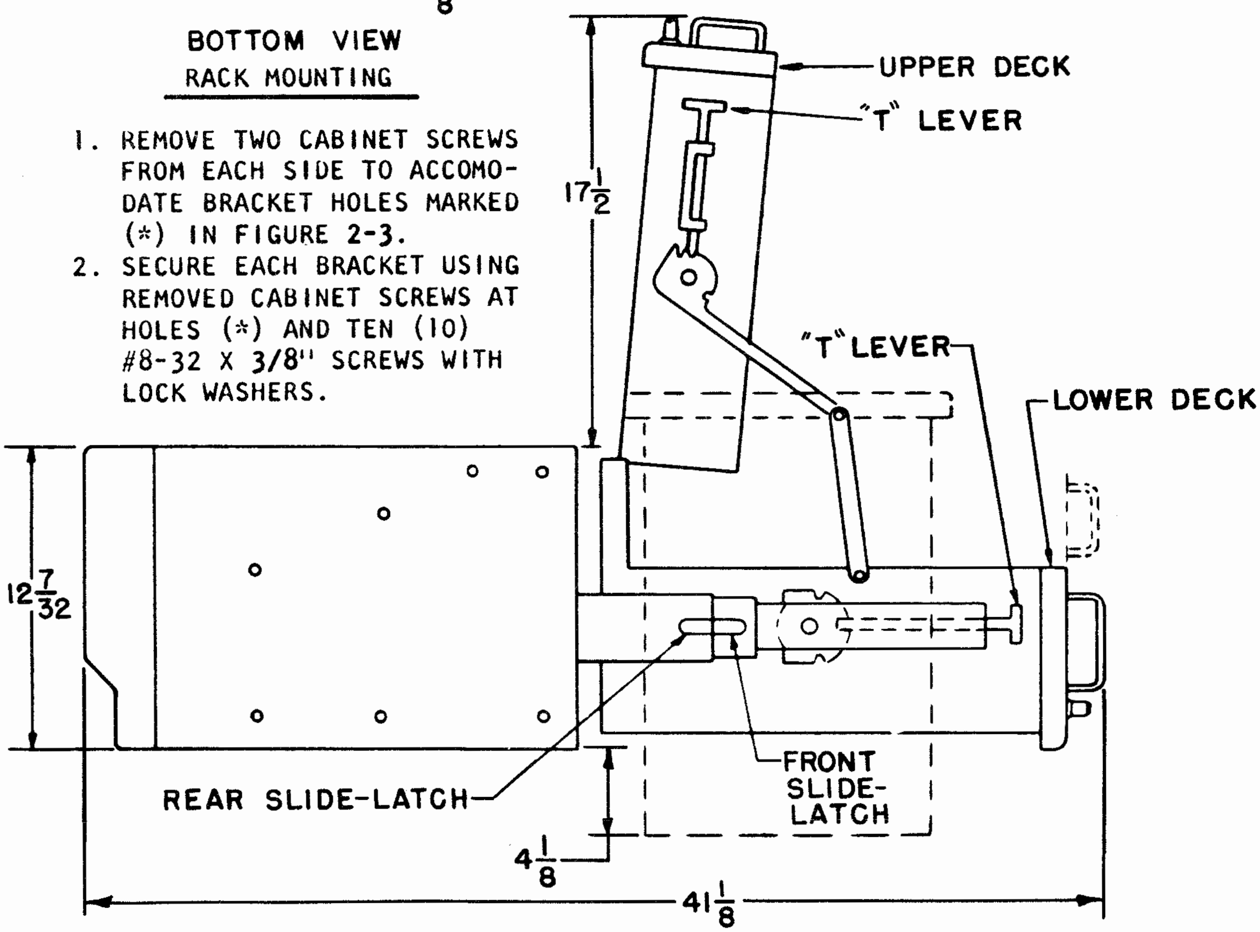
BOTTOM VIEW

BENCH MOUNTING

1. ALL DIMENSIONS ARE IN INCHES (APPROXIMATE).
2. ALLOW CLEARANCE AROUND EQUIPMENT FOR ADEQUATE VENTILATION.
3. WHEN THE EQUIPMENT IS INSTALLED, CABLE CONNECTIONS AT THE REAR EXTEND THE OVERALL DEPTH TO APPROXIMATELY 24-1/2".
4. GROUND EQUIPMENT USING 3/8"-16 BOLT IN TAPPED HOLE IN REAR OF CABINET.
5. HOLES (4) ARE DRILLED 7/16"DIA. FOR 3/8"-16 MOUNTING BOLTS.

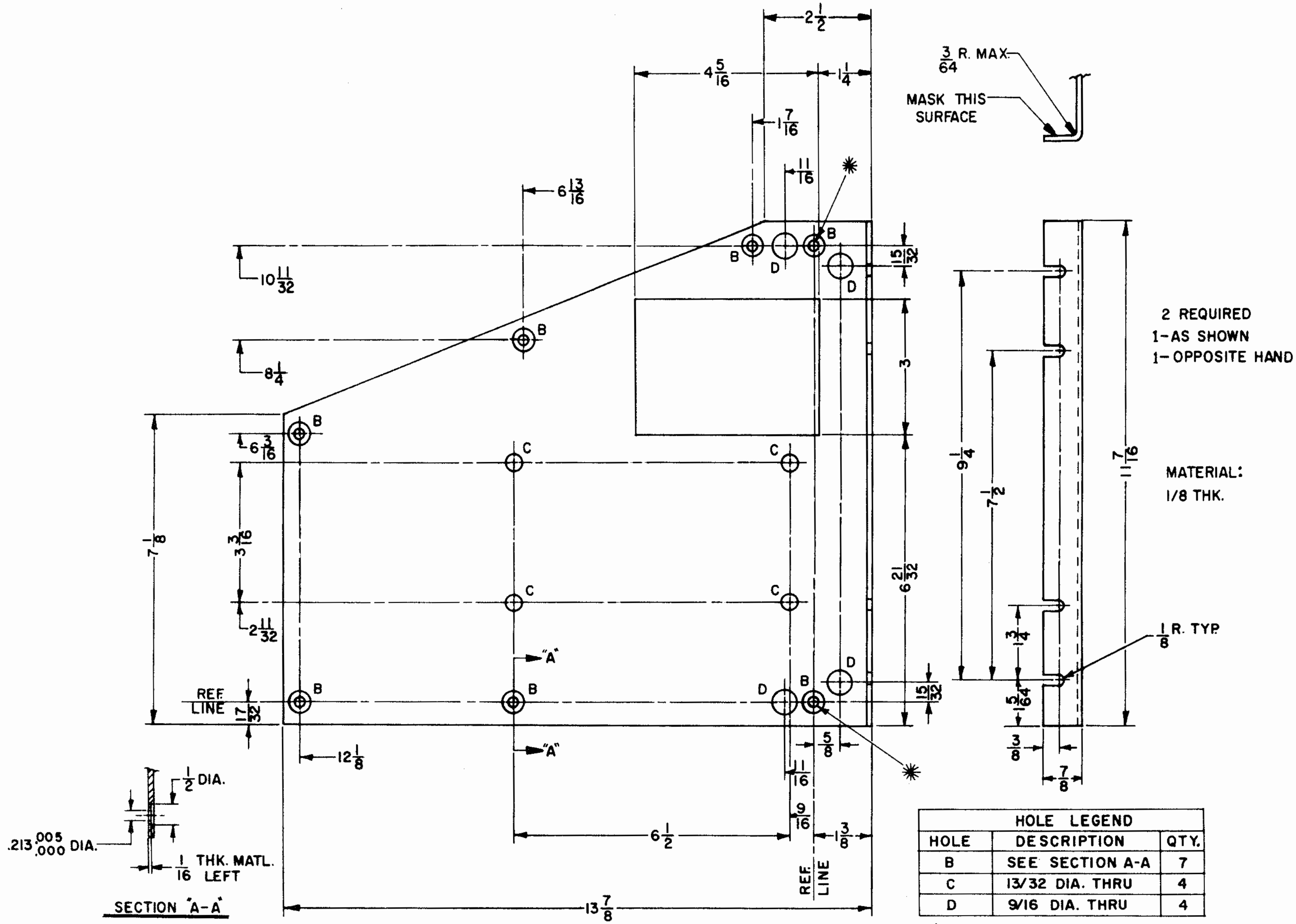
RACK MOUNTING

1. REMOVE TWO CABINET SCREWS FROM EACH SIDE TO ACCOMODATE BRACKET HOLES MARKED (*) IN FIGURE 2-3.
2. SECURE EACH BRACKET USING REMOVED CABINET SCREWS AT HOLES (*) AND TEN (10) #8-32 X 3/8" SCREWS WITH LOCK WASHERS.



SIDE VIEW (DRAWER EXTENDED)

Figure 2-2. Radio Receiving Set AN/SRR-19 ( )



HOLE LEGEND		
HOLE	DESCRIPTION	QTY.
B	SEE SECTION A-A	7
C	13/32 DIA. THRU	4
D	9/16 DIA. THRU	4

✱ FOR MOUNTING, USE ORIGINAL CABINET SCREWS

Figure 2-3. Rack-Mounting Bracket

the receiver exceeds the accuracy of most signal generators, tune the signal generator to the receiver or a primary frequency standard. At least one frequency within each tuning band should be observed and preferably two frequencies, at the low and high end of each band, using both incremental and continuous tuning procedures.

(1) INCREMENTAL TUNING. A complete procedure for tuning the receiver by the incremental method is described in Section 3. Main points of this procedure have been selected for the following tuning performance test:

(a) Open the receiver drawer and raise the upper deck. Place the TUNING CONT/INC switch in the INC position (see Figure 3-2). Lower the deck and close the drawer.

(b) Set the BAND selector to 30-55, the KILOCYCLES counter to 030, and the CYCLES counter to 000 (a test frequency of 30 KHz).

(c) Carefully adjust the TUNING Δ F lKC control for a minimum reading (dip) on the 1 KC TUNING meter, and the TUNING control for a dip on the 10 ~ TUNING meter.

(d) Connect the signal genrator to the ANT. connector A2J4. Adjust the signal generator for a 30 KHz test signal, modulated 30% with 400 Hz. Start with a low voltage output from the signal generator increasing the signal output until a tone is heard. The RESONANCE and LINE B meters should indicate the presence of a signal.

(e) Tune the receiver to 55 KHz and repeat the procedures given in steps (c) and (d), adjusting the signal generator for a 55 KHz test signal. Repeat steps (c) and (d) on the remaining frequency bands.

NOTE

If actual transmitted signals are available for the tests, remember that the transmitter frequency may vary slightly from the published station frequency. When adjusting the TUNING control, remember that dip on the 10 ~ TUNING meter occurs at each 10-cycle tuning increment.

(2) CONTINUOUS TUNING. To receive a signal when the frequency does not terminate in whole 10-hertz increments (for example, a frequency of 30.005 KHz), the continuous tuning method must be used. Check this method for at least one frequency using an actual transmitted signal if possible. If the tuning circuits perform satisfactorily on all bands using incremental tuning, a test (using continuous tuning) on one band is sufficient to verify this method. Continuous and incremental tuning procedures are identical except for the following:

(a) The TUNING CONT/INC switch is set at the CONT position.

(b) The 10 ~ TUNING meter should remain dipped at all times. Adjustment of the TUNING control for a maximum indication the RESONANCE meter is difficult because of the small (1 KHz) tuning range available.

(d) SINGLE SIDEBAND OPERATION. The following performance test for multichannel single sideband operation is made with the LSB module installed in place of the AM module. (Module removal and replacement instructions are contained in Section 5, Maintenance.) One test frequency, on any frequency band, is sufficient to verify SSB operation.

(1) Complete steps (a) through (d) of the incremental tuning procedure in paragraph 2-6-c-(1).

(2) Connect the signal genrator to the ANT. connector A2J4. Adjust the generator for a 29 KHz test signal, unmodulated.

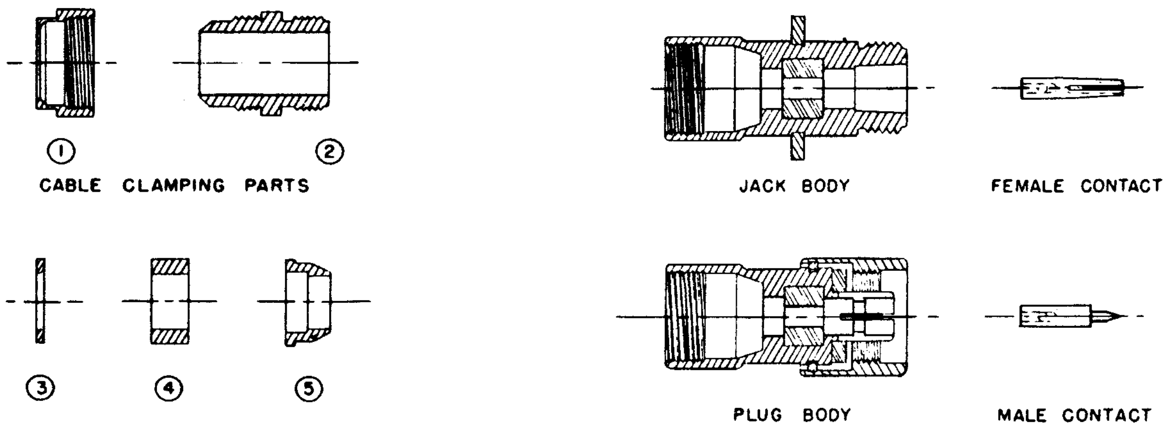
(3) The RESONANCE meter and the LINE B output meter should indicate the presence of a signal and a 1000 Hz tone should be heard in the headphones.

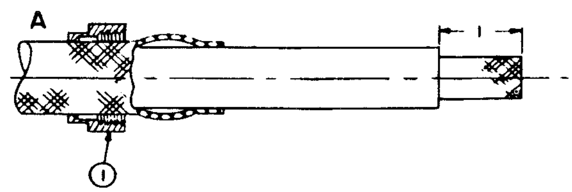
(4) Set the generator to 31 KHz. Plug the headphones in the LINE A phone jack. The RESONANCE meter and the LINE A output meter should indicate the presence of a signal and a 1000 Hz tone should be heard in the headphones.

Note

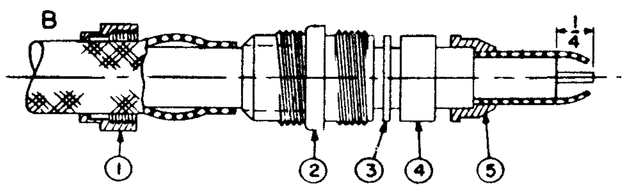
Setting the signal generator 1 KHz below and then 1 KHz above the nominal signal frequency will test the lower and upper sideband channels, respectively, by providing a 1 KHz sideband to the LSB and USB demodulators.

INSTRUCTIONS FOR ASSEMBLY

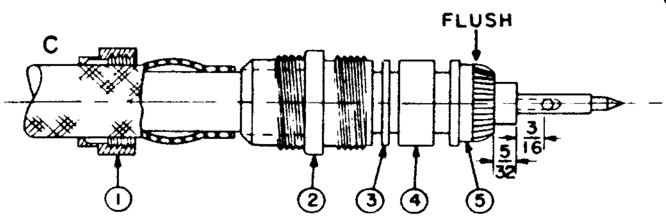




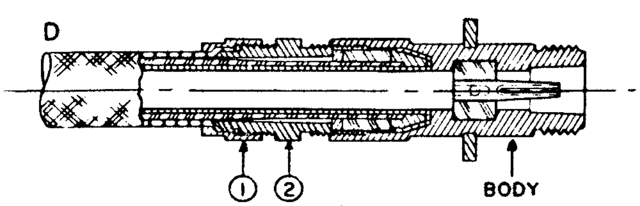
A SLIDE PART NO. 1 OVER ARMOR AND PUSH ARMOR BACK. CUT VINYLITE OUTER JACKET OFF, SQUARE AND EVEN, ONE INCH FROM END, BEING CAREFUL NOT TO DAMAGE WIRE BRAID.



B PUSH WIRE BRAID BACK AND CUT OFF 1/4" OF DIELECTRIC. PULL BRAID FORWARD AGAIN AND TAPER INWARD AT END (IF NECESSARY FOR REMAINDER OF THIS STEP). SLIDE PART NO. 2 OVER VINYLITE JACKET AND FOLLOW WITH PARTS NO. 3, 4, AND 5, MAKING SURE THAT NO. 5 CLEARS ALL BRAID WIRES AND THAT ITS INTERNAL SHOULDER RESTS SQUARELY AGAINST END OF JACKET.



C UNBRAID ENDS OF WIRE SHIELD AND PULL OUT PARALLEL. THEN FOLD THESE BACK OVER PART NO. 5 AND CUT OFF FLUSH WITH SHOULDER ON THIS PART. CUT OFF DIELECTRIC AGAIN, THIS TIME SO AS TO LEAVE 5/32" OF DIELECTRIC EXPOSED. CUT SQUARE AND EVEN, BEING CAREFUL NOT TO NICK CENTER CONDUCTOR. CUT OFF CENTER CONDUCTOR 3/16" FROM END OF DIELECTRIC AND TIN. SOLDER THIS TIP TO MALE OR FEMALE CONTACT. KEEP SOLDER AND FLUX OFF OF END OF DIELECTRIC, AND REMOVE EXCESS.



D INSERT CABLE AS ASSEMBLED, IN PLUG OR JACK BODY AS FAR AS IT WILL GO. PUSH PARTS NO. 4 AND 3 INTO BODY, AND SCREW IN PART NO. 2. HOLD BODY WITH WRENCH TO TIGHTEN, USING CARE NOT TO LET BODY OR CABLE ROTATE. PULL ARMOR FORWARD OVER TAPERED PORTION OF PART NO. 2. CUT OFF EXCESS ARMOR AND UNBRAID ENDS FOR A SHORT DISTANCE. BRING PART NO. 1 FORWARD TO CLAMP ARMOR BETWEEN THE TWO TAPERED SURFACES. BE CAREFUL THAT LOOSE ENDS OF ARMOR WIRES DO NOT EXTEND INTO SCREW THREADS AND JAM.

Figure 2-4. Antenna Cable, Connector Assembly

e. OPERATION OF SPECIAL CIRCUITS. The antenna coupling, agc, bfo, and noise limiter circuits are considered special circuits. While not absolutely essential for basic receiver operation, they do supplement and enhance receiver performance. Tests of these circuits are made simply by operating the controls and observing the degree to which the functions are performed. Any frequency band may be used. A signal generator is required for some tests, while others may be performed using an actual transmitted signal.

(1) ANTENNA COUPLING (using the AM module). The antenna coupling consists of a resistive attenuator at the receiver input. Moving the ANT. CPLG switch from NOR to positions 1, 2 or 3 reduces the signal level received by the antenna. Place AGC switch on USB module off and NL switch on AM module OFF for this test.

(a) Complete steps (a) through (c) of the incremental tuning procedure. (Paragraph 2-6c(1)).

(b) Connect the signal generator to the ANT. connector A2J4. Adjust the generator for a 30 KHz test signal, modulated 30% at 400 KHz.

(c) With the ANT. CPLG switch on NOR, increase the generator output level to obtain a +15 db reading on the LINE B output meter.

(d) Set the ANT. CPLG switch to position 1. The meter reading should decrease to approximately 0 db.

(e) Repeat step (c) with CPLG switch in position 1 and then set the switch to position 2. The meter reading should decrease to approximately 0 db.

(f) Repeat step (c) with CPLG switch in position 2 and then set the switch to position 3. The meter reading should again decrease to approximately 0 db.

(2) MODE SELECTOR (AM amplifier-detector). The MODE switch on the panel of the AM module selects the reception modes and controls operation of the agc and bfo circuits in this modular assembly. To test these circuits perform the following:

(a) Al MODE. For this mode of reception the bfo is on and the agc is off. To test the bfo circuit, tune the receiver to 30 KHz and set the signal generator for a 30 KHz unmodulated test signal. Plug the headphones into the LINE B phone jack. A 1000 Hz beat note should be heard in the headphones. Adjust the AF LEVEL control and the PHONE LEVEL control to set the headphone level.

(b) A2 MODE. For this mode the bfo and agc are off. Use a modulated test signal. The modulation should be heard in the earphones.

(c) A3 MODE. In this mode the bfo is off and the agc is on. To test the agc circuit operation, tune the receiver and set the signal generator for a 400 Hz modulated test signal of 10 uv. Adjust the AF LEVEL control for a reading of +10 db on the LINE B output meter. Slowly increase the generator output to 5000 uv. The output meter reading should not change by more than 6 db.

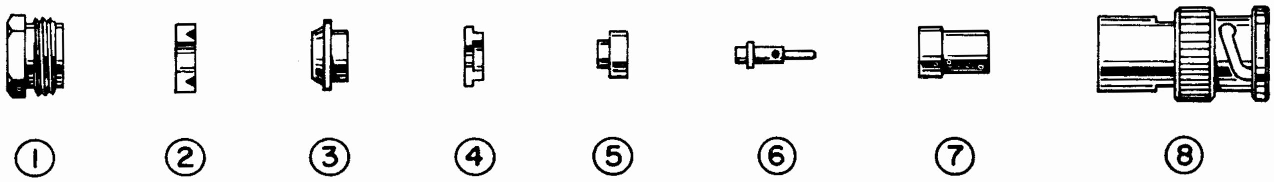
(d) F1 MODE. In this mode the bfo and agc are on. Adjust the receiver and signal generator as described for the A1 mode test. A 2550 Hz beat note should be heard in the headphones.

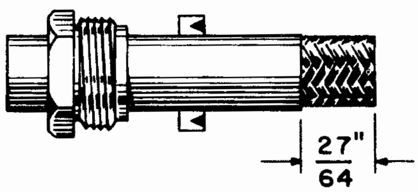
(3) BANDWIDTH KCS SELECTOR (AM amplifier-detector). The BANDWIDTH KCS switch selects on of three bandwidths (1 KHz, 3 KHz and 8 KHz). To test the functions of this control, perform the following:

(a) Position MODE switch to A3, tune the receiver to modulated test signal from the generator.

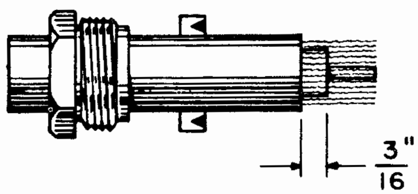
(b) Set the BANDWIDTH KCS switch in turn at 8 KHz, 3 KHz and 1 KHz, and note the bandwidth limiting effects, by changing frequency setting of signal generator slightly in each of the three bandwidth positions noting difference in variation above and below the center frequency.

(4) NOISE LIMITER (AM amplifier-detector). To test the noise limiter, tune the receiver to a noisy part of the frequency spectrum. Increase the AF LEVEL and PHONE LEVEL controls to provide a loud signal in the headphones. When the N.L. ON/OFF switch in placed in the ON position, the noise level should drop appreciably. If an AM transmission can be received, the modulation should appear distorted at high levels when the noise limiter is operating, but undistorted when the limiter is off.

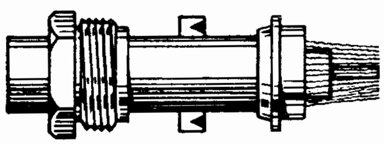




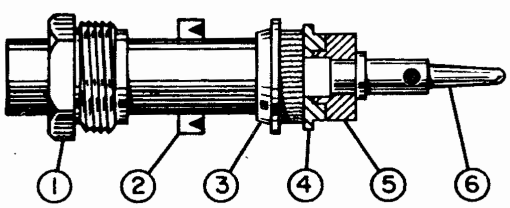
A Cut cable end sharp and square. Slide parts 1 and 2 ("v" groove towards part 3) over jacket. Cut off jacket 27/64" from end, being careful not to damage braid.



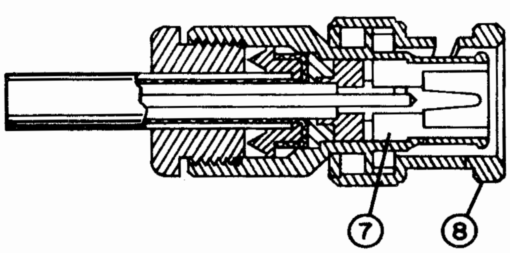
B Comb out braid and fold out. Cut off cable dielectric 3/16" from end. Do not nick center conductor.



C Taper braid forward as shown. Place part 3 over braid and push back against cable jacket.

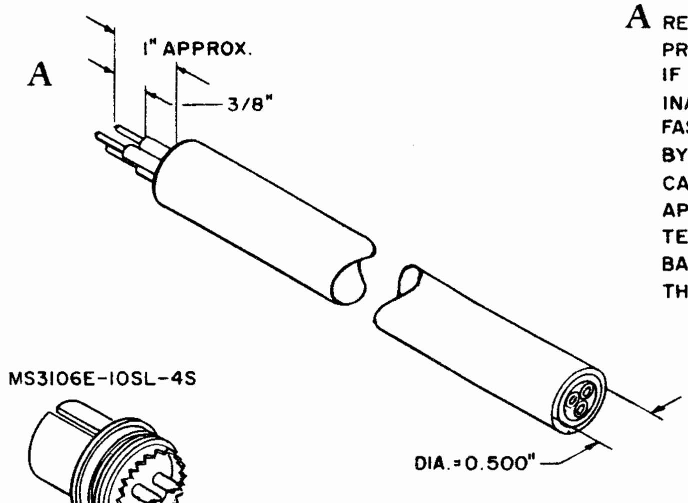


D Fold braid back, trim to length, and form over part 3. Tin exposed center conductor (use minimum heat so as not to distort jacket). Slide parts 4, 5, and 6 onto cable (these parts must butt). Solder part 6 and remove excess flux and solder.



E Slide part 7 over part 6 and butt against shoulder as shown. Insert cable into part 8. Make sure sharp edge of part 3 seats in "v" groove of part 2. Hold part 8 stationary and tighten part 1.

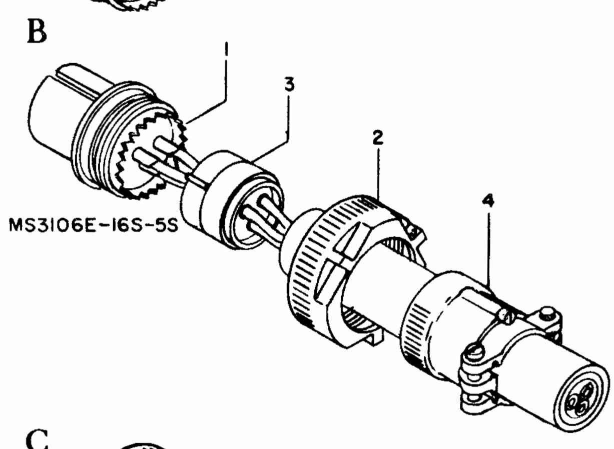
Figure 2-5. External Frequency-Standard Cable, Connector Assembly



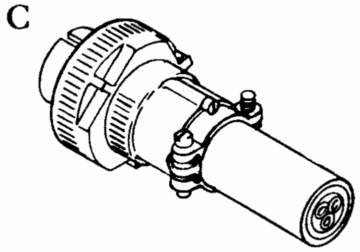
A REMOVE APPROXIMATELY 1 INCH OF THE OUTER PROTECTIVE JACKET FROM THE END OF THE CABLE. IF THE CABLE IS ARMORED, ARMOR SHOULD TERMINATE AT THE SAME POINT AS THE CABLE JACKET. FASTEN CUT END OF ARMOR WITH FRICTION TAPE OR BY OTHER SUITABLE MEANS.

CAREFULLY TRIM BACK ANY SHIELDING TO A POINT APPROXIMATELY 1/4" FROM THE END OF THE PROTECTIVE JACKET.

BARE THE EXPOSED CONDUCTORS FOR 3/8" TIN THE ENDS OF THE CONDUCTORS.

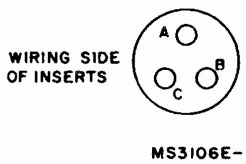


B INSERT THE CABLE PREPARED IN STEP A THROUGH CLAMP(4), AND COUPLING RING(2), FERRULE & GROMMET(3), BEFORE SOLDERING CONNECTIONS. SOLDER CONDUCTORS TO CONNECTIONS IN INSERT OF PLUG BODY(1), OBSERVING COLOR CODE BELOW.

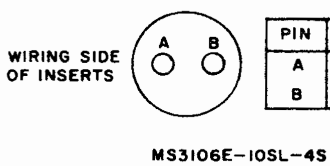


C ASSEMBLE BY SLIDING COUPLING NUT FORWARD UNTIL HELD BY RETAINING RING ON PLUG BODY, SLIDE FERRULE & GROMMET OVER CONNECTIONS AND THREAD FEMALE END OF CLAMP TO CONNECTOR BODY. TIGHTEN CLAMPING SCREWS TO HOLD CABLE SECURELY.

COLOR CODE CONNECTION DIAGRAM



PIN	COLOR
A	BLACK
B	RED
C	WHITE



PIN	COLOR
A	BLACK
B	RED

APPLICABLE CABLES

NAVY TYPE

TCOP-3, 3-CONDUCTOR, NO.16, OIL RESISTANT, PORTABLE.

THFA-3, 3-CONDUCTOR, NO.16, HEAT & FLAME RESISTANT, ARMORED.

TRIA-3, 3-CONDUCTOR, NO.16, RESIN INSULATED, ARMORED.

TRIP-3, 3-CONDUCTOR, NO.16, RESIN INSULATED, PLAIN.

Figure 2-6. Output and Power Cable, Connector Assembly

(5) SSB AGC (USB and LSB amplifier-detectors). This operating test is performed with the LSB amplifier-detector in place of the AM amplifier-detector module. (Module removal and replacement instructions are contained in Section 5, Maintenance). AGC circuits in the LSB and USB channels derive AGC voltage from the received signals. The AGC, ON/SSB/OFF switch for each channel controls application of AGC voltage to the receiver circuits. In the SSB position, AGC is applied to the related channel i-f amplifier. In the ON position, AGC is applied to the channel i-f amplifier, the receiver 1st i-f amplifier, and to the preselector. In the OFF position, no AGC voltage is applied. Test AGC operation as follows:

(a) Tune the receiver to 30 KHz, and the signal generator for an unmodulated signal of 10 uv at 31 KHz for USB checks and 29 KHz for LSB checks.

(b) Set the AGC switch on the channel being tested to the SSB position. Adjust the audio level control, and the RF GAIN control for an indication of +10 db on the LINE output meter.

(c) Increase the generator output from 10 uv to 5000 uv. The LINE A output meter reading should not change more than 6 db.

(d) Reduce the generator output to 5 uv. Set the channel AGC switch to the ON position and repeat step c. Return the AGC switch to OFF.

f. OPERATION WITH OTHER EQUIPMENT. The efficiency of the receiver when used with teletype or other terminal equipment should be tested by actual operation. The following suggestions may aid in making these test meaningful:

(1) RECEIVER. Condition the receiver for the tests by presetting all controls according to Table 3-3, as appropriate. Allow ample warm-up time.

(2) OTHER EQUIPMENT. Make sure that the external equipment is in good operating condition before testing. When connecting external equipment, follow the instructions contained in the technical manual for such equipment. Allow ample warm-up time.

TABLE 2-1 SHIPPING DATA

BOX NO.	CONTENTS	DIMENSIONS (IN.) HEIGHT	WIDTH	DEPTH	VOL (CU FT)	WT (LB)
1	Radio Receiving Set AN/SRR-19( ) with cables, connectors, technical manuals, and LSB assembly.	22	24	28	9.3	180

TABLE 2-2 PRELIMINARY CONTROL SETTINGS

CONTROL	SETTING	CONTROL	SETTING
POWER ON/OFF	OFF	USB - AF LEVEL	MAX. CW
PHONE LEVEL	MAX. CW	USB - AGC	OFF
AM - AF LEVEL	MAX. CW	ANT. COMP.	O
AM MODE	A2	ANT. CPLG	NOR
AM BANDWIDTH	3 KC	RF GAIN	MAX. CW
AM N/L	OFF		

SECTION 3

OPERATION

3-1 FUNCTIONAL OPERATION

Receiver operation is characterized by excellent stability, permitting long periods of unattended operation. Counter-type tuning dials facilitate accurate tuning to a desired frequency, and frequency errors caused by drift in the local oscillators are removed by drift-cancellation circuits. The receiver can be incrementally tuned in steps of 10 Hz or continually tuned (between increments) with partial drift-cancellation during continuous tuning.

The receiver is shipped with the USB module in the LINE A panel position and the AM module in the LINE B position. Either may be replaced by the LSB module to change modes of operation.

Since each side band may presently contain multiplex signals with as many as sixteen (16) channels, it is possible, using both the USB and the LSB modules, to receive thirty-two (32) multiplex channels simultaneously.

Note

> External equipment such as AN/UCC-1 is required to separate the frequency division multiplex (FDM) signals and process them for terminal readout.

The AM module may be used for the reception of modes A1, A2 and A3. F1 mode (RATT) is available when used with external equipment such as AN/URA-17. A 1000 Hz beat frequency is used in the A1 mode and a 2550 Hz beat frequency is used for the F1 mode.

3-2 OPERATING PROCEDURES

a. DESCRIPTION OF CONTROLS. All controls for receiver operation are located on the front panel (figure 3-1) except the TUNING CONT/INC switch, located on the 2nd injector (A) assembly A1A12 on the lower deck (see figure 3-2). Controls which are accessible when the receiver drawer is extended but not for use by the operator, are listed in paragraph 3-3e. Table 3-1 contains a description of the function of all operating controls, jacks, and indicating devices.

b. SEQUENCE OF OPERATION. Operation will be as described in Table 3-3.

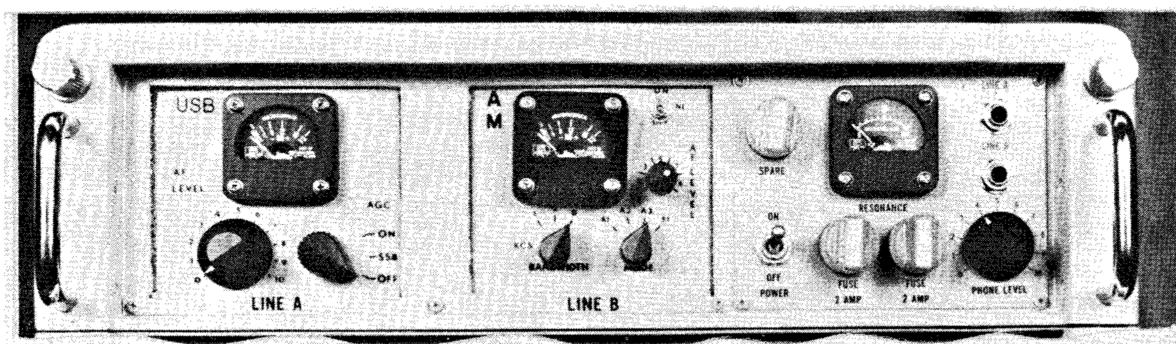
CAUTION

> Before starting the equipment for the first time, make sure that the primary taps on power transformer A1A14T1 have been adjusted according to instructions in Section 2, Installation. Verify that the tag attached to the power input connector shows the ship's power source voltage and frequency.

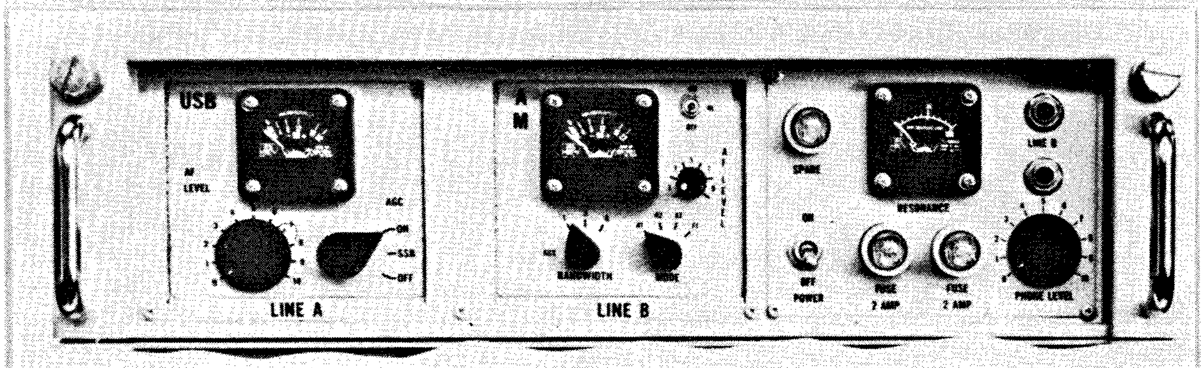
3-3 INDICATOR PRESENTATION

a. FREQUENCY COUNTERS. The signal frequency to which the receiver is tuned appears directly in the KILOCYCLES and CYCLES counter windows. The main tuning control TUNING ΔF = 1 KC selects the KILOCYCLE counter reading, and the TUNING (secondary tuning) control selects the CYCLES counter reading. Figure 3-3a shows the counter readings for a signal frequency of 101.060 KHz.

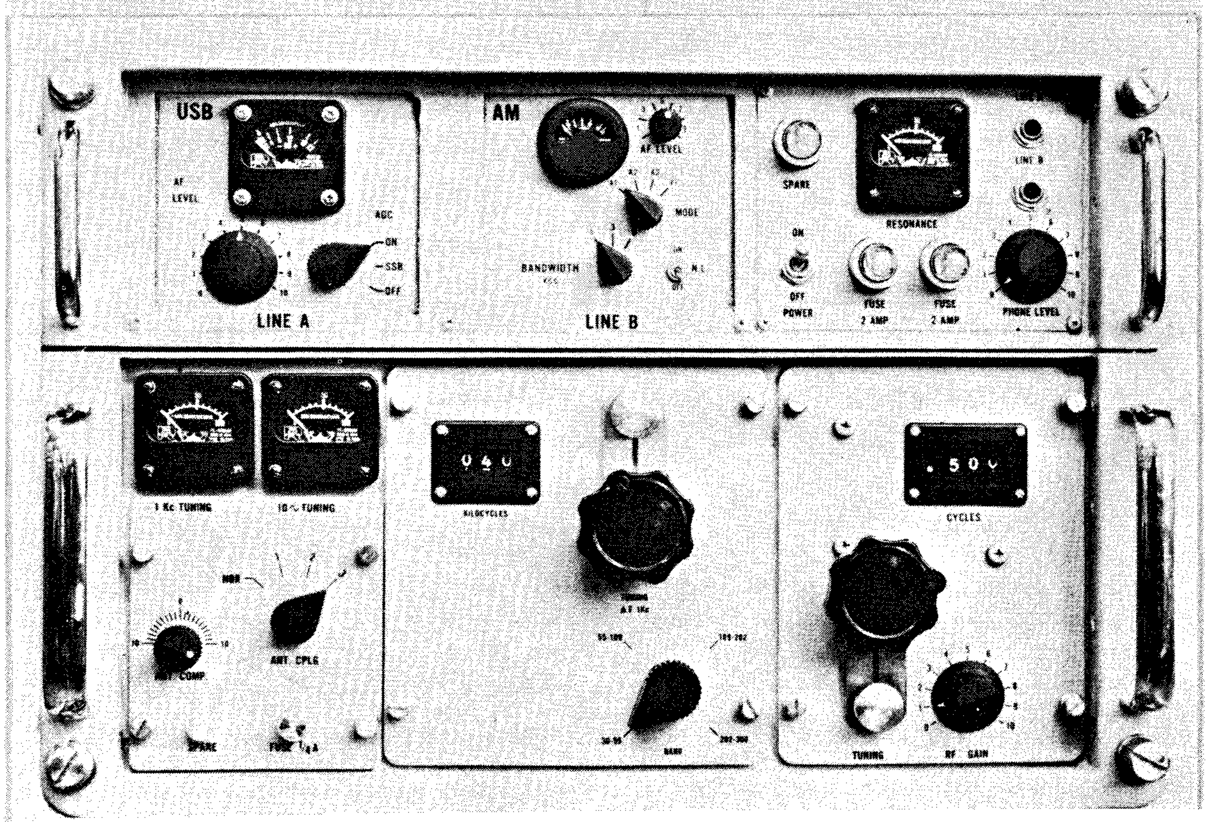
(Con't on page 3-9)



AN/SRR-19B



AN/SRR-19A



AN/SRR-19

Figure 3-1. Radio Receiving Sets AN/SRR-19, AN/SRR-19A and AN/SRR-19B, Front View

TABLE 3-1 OPERATING CONTROLS AND DEVICES

LOCATION AND PANEL MARKING	TYPE OF CONTROL	CONTROL FUNCTION
Antenna Coupling (A1A1)		
ANT. COMP	Variable capacitor	Tunes antenna circuit to frequency of received signal.
ANT. CPLG	Switch: NOR 1/2/3	Attenuates received signal in positions 1, 2, and 3. No attenuation in NOR position.
FUSE 1/4 A	Fuse	Protective 1/4-ampere fuse in antenna circuit.
SPARE	Fuse	Spare 1/4-ampere fuse.
Main Tuning (A1A15)		
BAND	Switch: 30-55, 55-109, 109-202, 202-303 (kc)	Frequency band selector. Also positions KILOCYCLES counter drums.
TUNING $\Delta F = 1$ KC	Ganged variable capacitors	Main tuning control. Frequency is shown on KILOCYCLES counter Control equipped with a lock screw.
KILOCYCLES	3-digit counter	Indicates frequency set by TUNING $\Delta F = 1$ KC control, in kilocycles.
1 KC TUNING	Meter	Indicates 1-kc tuning increments.
Secondary Tuning (A1A16)		
RF GAIN	Potentiometer	Manual control of receiver gain.
TUNING	Variable capacitor	Secondary tuning control. Frequency is shown on CYCLES counter. Control equipped with a lock screw.
CYCLES	3-digit counter	Indicates frequency set by TUNING control, in cycles.
10 ~ TUNING	Meter	Indicates 10-cycle tuning increments.

TABLE 3-1 OPERATING CONTROLS AND DEVICES (cont.)

LOCATION AND PANEL MARKING	TYPE OF CONTROL	CONTROL FUNCTION
LINE A, USB (A1A6)		
AF LEVEL	Potentiometer	Controls LINE A output level.
AGC	Switch: ON/SSB/OFF	Controls usb channel agc circuit.
Output Meter	Meter	Indicates LINE A output level.
LINE B, AM (A1A20)		
AF LEVEL	Potentiometer	Controls LINE B output level.
MODE	Switch: A1/A2/A3/F1	Selects LINE B channel operating modes.
BANDWIDTH KCS	Switch: 1/3/8 (kc)	Selects LINE B channel selectivity.
N.L. (Noise Limiter)	Switch: ON/OFF	Controls LINE B noise limiter operation
Output Meter	Meter	Indicates LINE B output level.
Auxiliary Module, LSB (A1A7) (For LINE A or B use)		
AF LEVEL	Potentiometer	Controls output level.
AGC	Switch: ON/SSB/OFF	Controls lsb channel agc circuits.
Output Meter	Meter	Indicates output level
Power Supply (Panel section)		
POWER	Switch: ON/OFF	Controls primary power to set.
PHONE LEVEL	Potentiometer	Controls LINE A and B headphone level.
RESONANCE	Meter	Tuning meter for incremental or continuous tuning of receiver.
LINE A (jack)	Jack	To monitor LINE A output, using headphones.

TABLE 3-1 OPERATING CONTROLS AND DEVICES (cont.)

LOCATION AND PANEL MARKING	TYPE OF CONTROL	CONTROL FUNCTION
LINE B (jack)	Jack	To monitor LINE B output, using headphones.
2 AMP (two)	Fuses	Primary 2-ampere power circuit fuses.
SPARE	Fuse	Spare 2-ampere fuse.
2nd Injector (A) (A1A12) (See figure 3-2)		
TUNING CONT/INC	Switch: CONT/INC	Selects receiver tuning method, incremental or continuous.

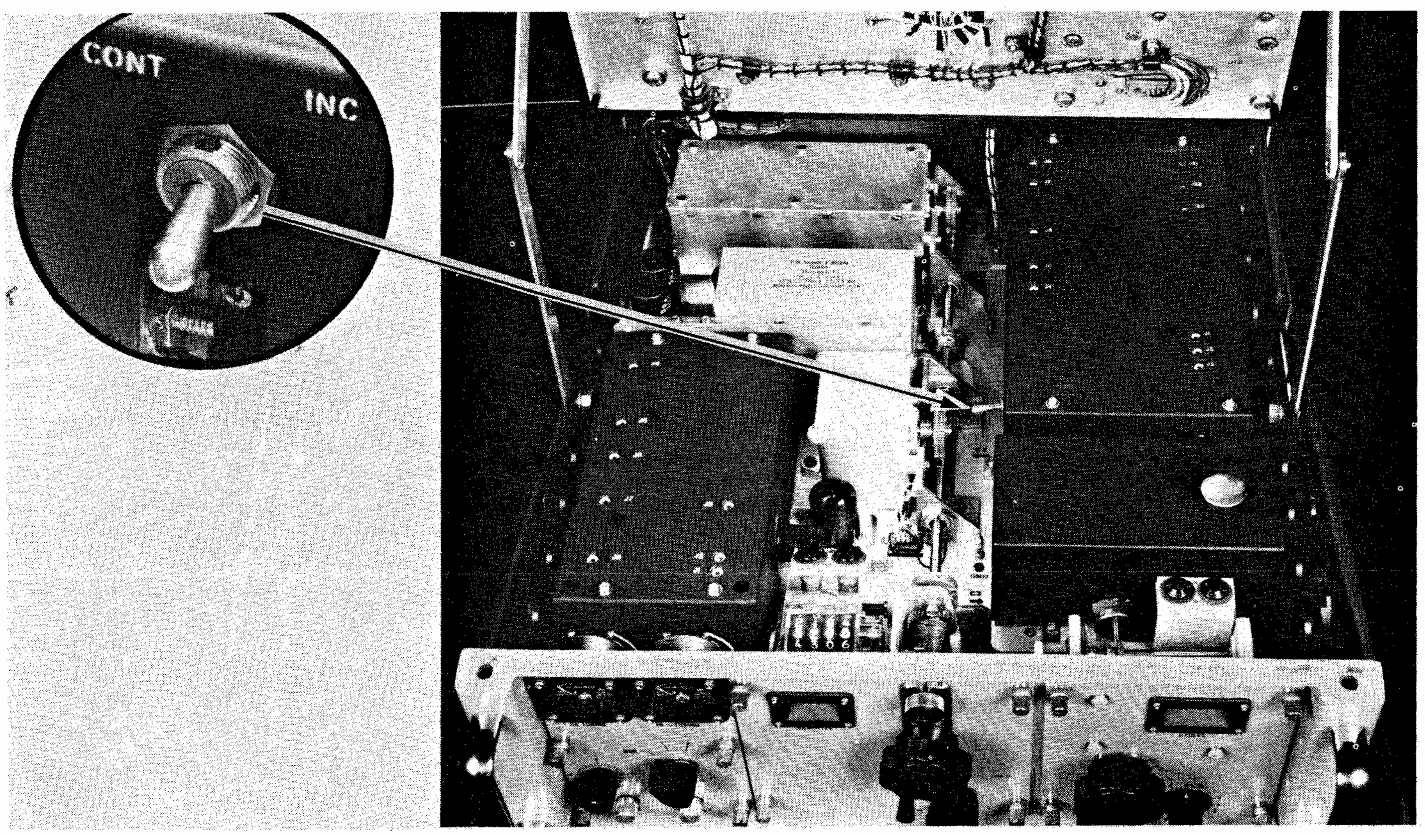


Fig 3-2   Tuning Cont/Inc Switch Location

TABLE 3-2 RADIO RECEIVING SETS AN/SRR-19( )
TROUBLE-SHOOTING GUIDE

INDICATION	PROBABLE CAUSE	REMEDIAL ACTION
1. Receiver dead; no lights or meter indications.	1. a. POWER switch OFF. b. No primary power source c. Fuses A1A9F1 or A1A19F2 on power panel blown.	1. a. Set switch to ON. b. Check other equipment. Restore power. c. Check fuses. Replace with spare fuse.
2. Lamps light but no signal output.	2. a. Antenna coupling fuse blown.	2. a. Check fuse A1A1F1. Replace with spare.
3. All panel meters read normal, but no output at ssb terminal equipment	3. a. Wrong channel filter. b. Faulty terminal equipment	3. a. Verify use of the correct channel filter b. Test terminal equipment separately.
4. Channel output signal to terminal equipment "garbled" (channels mixed or overlapped).	4. a. Set improperly tuned. b. Faulty oscillator calibration. c. Fault at transmitter.	4. a. Check set tuning. b. Check hf and interpolator oscillator calibrations. (See Section 4.) c. Verify legibility of transmitted signal.
5. Terminal equipment copy ok, but is of wrong channel.	5. a. Wrong channel filter in use. b. Set incorrectly tuned.	5. a. Verify channel filter used. b. Verify channel frequency.

NOTE

When receiving multichannel ssb signals, receiver should be tuned to transmitter suppressed-carrier frequency and not to ssb channel frequency.

TABLE 3-3 RADIO RECEIVING SETS AN/SRR-19 ( )
SUMMARY OF OPERATION

1. STARTING THE RECEIVER	
Step 1.	Set the POWER switch to ON.
Step 2.	If desired frequency ends in a whole kilocycle, hundreds, or tens of cylces, set the TUNING CONT/INC switch (on assembly A1A12) to INC. If not, set switch to CONT.
Step 3.	Set ANT. CPLG switch to NOR.
Step 4.	Set RF GAIN control near maximum (clockwise) and adjust the channel AF LEVEL control for desired output level.
2. TUNING	
Step 1.	Set BAND switch to frequency range desired.
Step 2.	Use TUNING $\Delta F = 1$ KC control and set KILOCYCLES counter to first two (or three) digits of desired frequency in kilocycles.
Step 3.	Readjust TUNING $\Delta F = 1$ KC control slightly for minimum indication dip on 1 KC TUNING meter.
Step 4.	Use TUNING control and set CYCLES counter to remaining three digits of desired frequency. (For incremental tuning, last digit must be "0".)
Step 5.	If the incremental tuning method is used, readjust TUNING control slightly for minimum indication dip on the 10 ~ TUNING meter.
Step 6.	If the continuous tuning method is used, readjust the TUNING control for maximum receiver output.
Step 7.	Adjust ANT. COMP control for maximum reading on the RESONANCE meter.
3. RECEPTION MODES	
	For usb broadcasts, use the LINE A channel. For A1, A2, A3, and F1 broadcasts, use the LINE B channel.
Step 1.	Set MODE switch to desired mode. (AM module only.)
Step 2.	Set BANDWIDTH KCS switch to desired bandwidth. (AM module only.)
	For lsb broadcasts, replace the LINE B channel AM module with LSB module.
4. STOPPING THE RECEIVER	
Step 1.	Turn the RF GAIN and AF LEVEL controls fully counterclockwise.
Step 2.	Set the POWER switch to OFF.

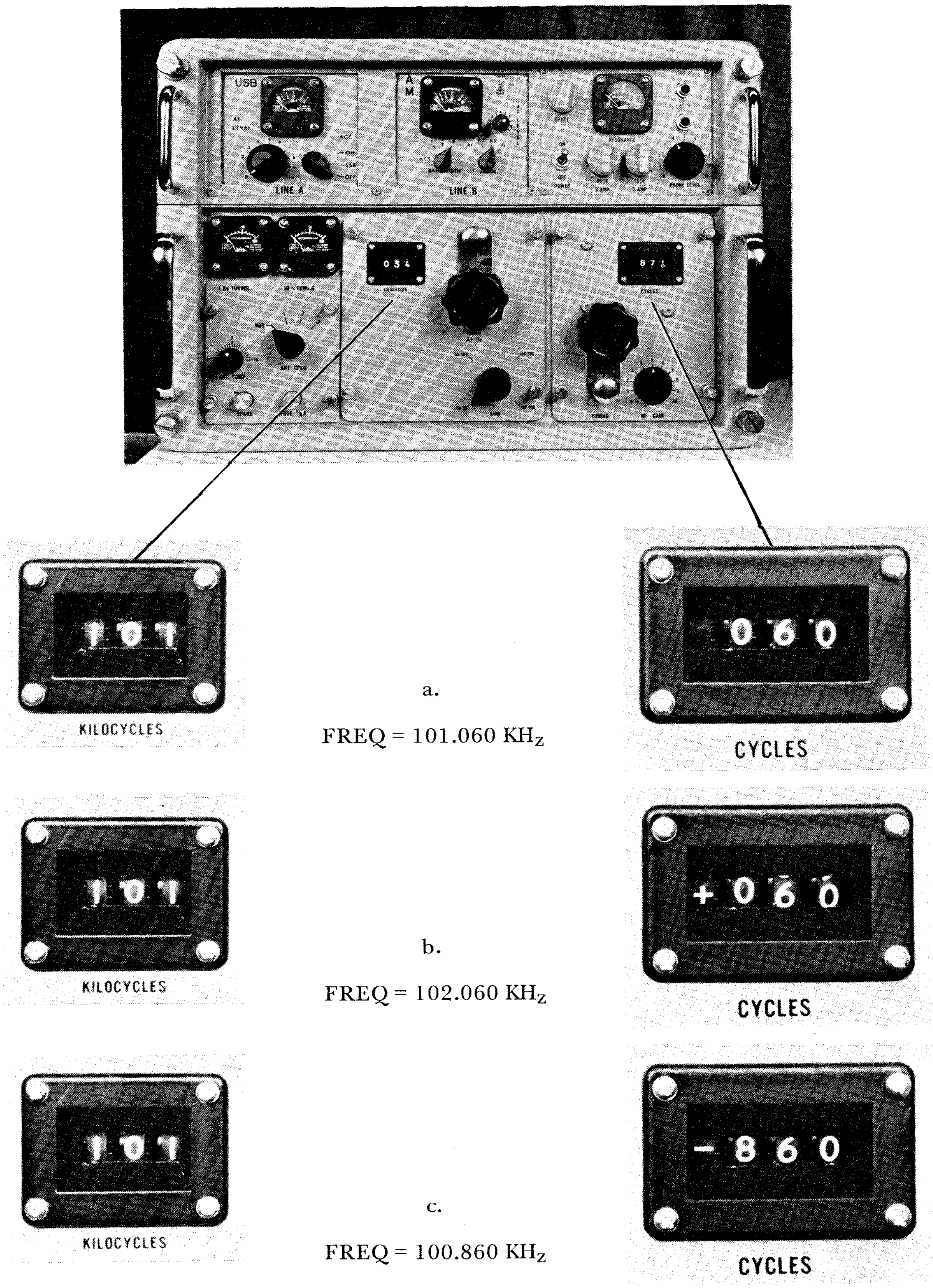


Figure 3-3. Tuning Indicator Presentations

(1) KILOCYCLES COUNTER. The KILOCYCLES counter contains four counter sections, one for each frequency band, which are rotated into position at the window by the BAND switch. Each section consists of four digit-drums. Three appear at the window, and the fourth, masked by the counter bezel, is for calibration purposes. The first two or three digits of the signal frequency appear at this counter. For example: 30 KHz appears as 030 and 300 KHz as 300. The remainder of the signal frequency appears at the CYCLES counter.

(2) CYCLES COUNTER. The CYCLES counter contains four drums. The last three are digit-drums indicating the signal frequency termination in cycles, from 000 to 999. Because the digits 000 will appear twice during tuning, once at each extreme of the counter range, the first drum contains a + and a — sign. As the CYCLES counter is advanced past 999 a + 000 will appear indicating that 1 KHz should be added to the KILOCYCLE counter reading. The CYCLES counter will stop at approximately +145 and further increases in frequency will require an increase of the KILOCYCLE counter and a decrease of the CYCLES counter to eliminate the + sign appearing in the window.

A — sign appearing as the counter is decreased past 000 to —999 indicates a reading of 1000 Hz less than indicated by the KILOCYCLES counter. The low limit is approximately —850.

Figure 3-3b shows a frequency setting of 102.060 KHz. (Note that the digits 101 appear at the KILOCYCLES counter and +060 at the CYCLES counter.)

Figure 3-3c shows a frequency setting of 100.860 KHz. The — sign indicates that 1 KHz should be subtracted from the KILOCYCLES counter reading.

b. TUNING METERS. The 1 KC TUNING and 10 ~ TUNING meters permit accurate and precise adjustment of the main and secondary tuning controls, respectively, using the incremental tuning method.

Note

The 10, ~ TUNING meter is not used for continuous tuning. It continuously indicates a (dip) when this tuning method is used.

(1) 1 KHz TUNING. A minimum reading (dip) on the KHz TUNING meter occurs when the main tuning control is set precisely at the 1 KHz increments on the KILOCYCLES counter's third drum. A meter dip will occur at each 1 KHz increment throughout the tuning control range, using either incremental or continuous tuning.

(2) 10 ~ TUNING. Using the incremental tuning method, a meter dip will occur at each 10 Hz increment set by the secondary tuning control on the CYCLES counter, subject to a tolerance of ±2 hertz on the fourth drum. For example: If the CYCLES counter indicates 150, a meter dip may occur at a setting from 148 to 152. When continuous tuning is used, the 10 ~ TUNING meter is not used and a final adjustment of the secondary tuning control is performed by monitoring the receiver output signal, limited by the 1 KHz tuning range available.

c. RESONANCE METER. The RESONANCE meter functions as a conventional tuning meter, a maximum reading indicating tuning resonance. Using the continuous tuning method, the RESONANCE meter will serve as a tuning indicator for final adjustment of the TUNING control, subject to the limitation imposed by a control range of 1 KHz.

d. OUTPUT LEVEL METERS. The modules installed in LINE A and LINE B panel positions contain individual power-output meters, calibrated in decibels from —8 to 0 to +22 db. When the output lines are properly terminated by 600-ohm loads, a meter reading of 0 db signifies an output level of 1 milliwatt (0 dbm = 1mw).

e. NONOPERATING CONTROLS. The following controls are not located on the receiver panel but are accessible when the drawer is opened. They are primarily for the use of technicians in adjusting and calibrating the receiver. Normally, these controls should not be adjusted except by a qualified technician. They are shown in figure 5-2 of this technical manual.

(1) EXT/CAL/NOR switch: The crystal oscillator calibration switch (S1), located on assembly A1A9.

(2) RESERVE GAIN control: A preset reserve gain control (R4) in the 100 KHz i-f amplifier circuits of assemblies A1A6A1, A1A7A1 and A1A20A1.

(3) AGC GAIN control: A preset agc level control (R4) in the agc amplifier circuits of assemblies A1A6A2, A1A7A2 and A1A20A2.

(4) CRYSTAL CAL control: A calibration adjustment at the 1-mc oscillator module A1A9A1.

Note

The EXT/CAL/NOR switch on assembly A1A9 must be set to NOR for normal receiver operation. The CAL position permits oscillator calibration using the RESONANCE meter as a "null" indicator, and the EXT position requires an external 1-mc standard for receiver operation.

3-4 EMERGENCY OPERATION

a. PARTIAL FAILURE. Normally, good maintenance procedures require that electronic equipment be shut down for repairs as soon as a significant defect develops. Under unusual or emergency conditions, however, loss of equipment services for any length of time may not be acceptable, and a substitute method of operation must be found.

The substitute method will, in most cases, involve a reduction of equipment capabilities. If alternate equipment is not available, the lower operating efficiency must be accepted. When the emergency period is over, steps should be taken to restore the equipment to normal operation. Subject to the foregoing, the following emergency procedures are suggested.

(1) ANTENNA COUPLING. In the event that the protective fuse blows, placing the ANT. CPLG switch in position 1, 2 or 3 will renew the signal path but will also reduce the strength of the receiver signal.

(2) INCREMENTAL TUNING. Inability to tune the receiver incrementally in 10 Hz steps (using the secondary TUNING control) can sometimes be corrected by placing the TUNING CONT/INC switch (see figure 3-2) in the CONT position and tuning the receiver using the continuous method. The frequency stability of the receiver is slightly reduced using this method and a more frequent adjustment of the TUNING control may be required.

(3) AGC CIRCUITS. Failure of the receiver AGC circuits to control receiver gain will not prevent reception and the set will be operative, subject to a high degree of signal fading when receiving fluctuating signals.

(4) PRIMARY POWER. Interruption of the primary power source to the receiver can be remedied only by an alternate power source. Most shipboard power distribution systems have provisions for the use of an alternate or emergency power supply. The operator should be familiar with the ship's power distribution and should be able to shift quickly to an alternate supply in an emergency.

b. Other THAN NORMAL. In the event of complete failure of an amplifier-dectector module in the LINE A or LINE B channel, reception can be continued in an emergency by retuning the receiver to accommodate unintended operating modes using the operable amplifier-detector module.

(1) A1 RECEPTION USING SSB AMPLIFIER-DETECTORS. If the AM amplifier-detector is inoperative, CW reception can be continued using one of the ssb amplifier-detectors. The receiver is retuned to substitute the 100 KHz carrier injection frequency for the bfo frequency. Set the AGC switch to OFF.

(a) To use usb amplifier-detector for cw reception, reset the KILOCYCLES counter 1 KHz above the signal frequency. A 1000 Hz beat frequency will be obtained. To vary the beat frequency obtained, use the continuous tuning method and adjust the TUNING control.

(b) To use lsb amplifier-detector for cw reception, reset the KILOCYCLES counter 1 KHz below the signal frequency. The TUNING control can be used to vary the beat frequency as previously described.

(2) A3 RECEPTION USING THE SSB AMPLIFIER-DETECTORS. If the AM amplifier-detector is inoperative, AM reception can be obtained using one of the ssb amplifier-detectors by retuning the receiver slightly to superimpose the 100 KHz carrier injection frequency on the A3 signal carrier. Use the continuous tuning method and adjust the TUNING control. Set the AGC switch to OFF.

(3) F1 RECEPTION USING SSB AMPLIFIER-DETECTORS. If the AM amplifier-detector is inoperative, F1 reception can be obtained using one of the ssb amplifier-detectors. The receiver is retuned to substitute the 100 KHz carrier injection frequency for the bfo frequency. Set the AGC switch to OFF.

(a) To use usb amplifier-detector for F1 reception, reset the KILOCYCLES counter to 2.55 KHz above the signal frequency. A 2550 Hz beat frequency will be obtained. To vary the beat frequency, use the continuous tuning method and adjust the TUNING control.

(b) To use lsb amplifier-detector for F1 reception, reset the KILOCYCLES counter 2.55 KHz below the signal frequency. The TUNING control can be used to vary the beat frequency as previously described.

(4) SSB RECEPTION USING AM AMPLIFIER-DETECTOR. If either ssb amplifier-detector is inoperative, ssb reception can be obtained using the AM amplifier-detector and retuning the receiver to substitute the bfo injection frequency for the carrier injection frequency.

(a) To use the AM amplifier-detector for usb reception, place the MODE switch in the A1 position and the BANDWIDTH KCS switch in the 3 KHz position. Reset the KILOCYCLES counter 1 KHz above the signal frequency. Use the continuous tuning method and adjust the TUNING control for best reception of the desired FDM channel.

(b) To use the AM amplifier-detector for lsb reception, follow the instruction for usb reception and reset the KILOCYCLES COUNTER 1 KHz below the signal frequency. Use the TUNING control to select the desired FDM channel.

c. JAMMING. Fundamentally, jamming is a deliberate attempt to prevent the reception of transmitted signals by the emission of interfering signals at or near the transmitted frequency. Unusual signals from the receiver can be caused by jamming, accidental interference from another station, or a defect in the equipment. To avoid confusion as to the source of the unusual signals, disconnect the antenna from the receiving set. If the interference continues, it is being generated by a defective receiver circuit. If the interference stops, it is not caused by a receiver defect.

(1) TYPES OF JAMMING. Jamming signals are broadly classified as continuous-wave or modulated. Continuous-wave jamming is a steady, unmodulated carrier, slightly off-frequency to produce a constant beat-note in the receiver output. Modulated jamming appears in a great variety of forms ranging from music, speech, tone combination, and random keying, to actual noise modulation, swept frequency, and various stepped tone patterns. Modulated jamming, depending upon its characteristics, is usually refered to as spark, sweep-through, bagpipes, gulls, noise, or tone; the name implies its major tonal characteristic.

(2) ANTIJAMMING PROCEDURES. When the presence of jamming is recognized or suspected, immediately notify the superior officer and continue to operate the receiver. Continuous operation is a basic antijamming technique; if the equipment is shut down, the jammer has accomplished his purpose. The following procedures are based upon general communications practices plus considerations of the receiver design features. Other tactical considerations concerning antijamming procedures and countermeasures must govern in cases of conflict with this manual.

(a) Continue to operate the receiver.

(b) If the jamming signal is very strong, set the ANT. CPLG switch at positions 1, 2 or 3 to attenuate the signal and prevent receiver blocking.

(c) When using the AM amplifier-detector, set the BANDWIDTH KCS switch to the narrowest bandwidth, position 1.

(d) Use the continuous tuning method and detune the receiver slightly to separate the desired signal, if possible.

(e) Vary the RF GAIN control setting. This may reduce the jamming level and allow reception of the desired signal.

(f) Remember that the success or failure of antijamming methods will depend largely on the signal-to-noise ratio between the desired signal and the jamming signal. A combination of the steps described may work, even though an individual step is not successful.

(g) Single sideband channels, because of their relatively narrow bandwidths, are relatively unaffected by broadband noise-modulated jamming. If AM reception is effectively jammed and conditions permit, a shift to single sideband communication modes should be considered.

(h) In the event that the communications channel remains jammed after all possible combinations have been tried, a shift in operating frequency is dictated. The shift should be well outside the band area occupied by the jamming frequencies.

(i) At the first opportunity, make an accurate record of the jamming signal characteristics, the apparent effectiveness of the jamming, and the success or failure of each antijamming measure attempted.

3-5 OPERATOR'S MAINTENANCE

a. GENERAL. Electronic technicians are usually responsible for the maintenance and repair of receiving equipment, although routine items of preventive maintenance which do not require elaborate test set-ups are normally assigned to the operator. Troubleshooting and the repair of minor defects may also be required of operating personnel from time to time. In order to meet this responsibility, the operator must have a thorough knowledge of the equipment including a complete familiarity with the function of all controls and the procedures governing their use. A general knowledge of circuit theory should be acquired so that the location and probable cause of electrical or mechanical failures may be determined. In this manner, minor troubles can often be corrected before they become serious. Under normal conditions, however, major repairs or precise circuit adjustments should not be attempted by other than qualified technicians.

b. OPERATING CHECKS AND ADJUSTMENTS. The receiving set is designed to operate for long periods without requiring extensive adjustments other than those involved in changing frequencies or output channels. The following operating checks and adjustments should be performed periodically and have been selected from the Maintenance Standard Book for the receiver. (Refer to NAVELEX 0967-163-2040 for a complete description of all maintenance steps.)

(1) TUNING PROCEDURE. Preset the receiver utilizing the steps given in Table 3-3.

(2) CRYSTAL OSCILLATOR ACCURACY. Accuracy of the 1-mc crystal oscillator (A1A9A1) should be checked daily, provided that a primary frequency standard with an accuracy of 1 part in 10^9 or better is available. Use the following procedure to conduct the check.

(a) If there is not a frequency standard, AN/URQ-9, or equivalent already connected to the EXT 1 MC connector on the rear of the receiver, one must be connected at this time.

(b) Many installations use the external standard in lieu of the 1 MHz oscillator. To determine if the connection is made perform the following:

1 Assure that the standard is functioning and the distribution amplifiers are on.

2 Extend the receiver drawer and position the NOR/CAL/EXT switch to CAL (See figure 5-3).

3 Observe the resonance meter for two to three minutes (if the external standard is connected, a deflection should be noted). The slower the deflection, the more accurate the oscillator. If the resonance meter remains near midscale without moving there is no connection.

(c) Extend the receiver drawer and set the NOR/CAL/EXT switch (see figure 3-2) to the CAL position.

(d) Using a stopwatch, count the beats indicated by deflections of the RESONANCE meter pointer. (A beat is one deflection and return of the pointer to a point on the meter scale.)

(e) If one beat (or less) is observed during a 100-second period, the crystal oscillator frequency is accurate to 1 part in 10^8. A beat period of less than 100 seconds indicates a need for calibration of the oscillator.

(f) Return the NOR/CAL/EXT switch to the NOR position. Close the drawer and disconnect the external frequency standard.

(3) CONTROL FUNCTION. Check the operating controls and their functions by tuning the receiver to a local station and noting the effect of each control on the received signal.

(a) ANTENNA COUPLING. Place the ANT. CPLG switch successively in positions 1, 2 and 3. The signal strength should decrease noticeably at each switch position.

(b) AGC. When AGC is used, the output signal level should remian fairly constant when receiving a fluctuating signal.

Note

Controls and switches should move easily from one setting to another. Do not attempt to force a control or switch: To do so can result in damage.

(c) MODE (AM amplifier-detector). The bfo circuit should operate in switch positions A1 and F1. Note the beat-frequency tone accompanying a receiver signal.

(d) BANDWIDTH KCS (AM amplifier-detector). Place the BANDWIDTH KCS switch in positions 8, 3 and 1. Note the increase in tuning sharpness resulting from the decreased in bandwidth.

(e) NOISE LIMITER (AM amplifier-detector). The noise limited circuit is operable for reception modes A2 and A3 only. Place the MODE switch in the A3 position and tune the receiver to an AM broadcast. Setting the N.L. ON/OFF switch at ON should reduce any noise impulses present and also distort the signal.

c. PREVENTIVE MAINTENANCE. The Maintenance Standards Book for Radio Receiving Sets AN/SRR-19( ) (NAVELEX 0967-162-2040) provides maintenance and operating personnel with a systematic and efficient method of checking the equipment and performing routine preventive maintenance.

d. EMERGENCY MAINTENANCE. Operating personnel must expect the possibility of receiver failure when technician services are not immediately available. In an emergency, the need for keeping the receiver in operation is of utmost importance and the operator must be able to recognize a receiver failure symptom, determine the source of trouble, and make emergency repairs. It is not practical to attempt a discussion of every type of failure which may possbily occur. Instead, a general outline of trouble-shooting techniques will be presented to aid the operator in developing a systematic approach to problems.

(1) ISOLATING TROUBLE. The receiver consists of a number of related functional circuits, each performing a specific task which contributes to operation of the receiver. Depending on the location of a faulty circuit, trouble symptoms can range from reduced sensitivity or selectivity to a complete breakdown of the equipment. A haphazard search through the circuits will not accomplish much, except by accident. A more effective approach concerns the identification of the faulty circuit, based upon observed symptoms of trouble such as abnormal meter readings, unnatural response of panel controls, etc. Make the following checks before attempting a detailed examination of the equipment.

(a) Check that all controls are in the intended positions and have not been accidentally moved.

(b) If the set is completely dead (no counter illumination, meter indications, or output signal), check the primary power fuses located on the power panel. Verify that the ship's primary power is present for distribution.

(c) If the receiver is operative but the output signal is weak or absent, check the antenna connection. If the antenna is fed through an external distribution panel, check for panel connections.

(d) Inspect all external cable connections at the rear of the receiver and make sure that they are secure.

e. TROUBLE-SHOOTING GUIDE. Table 3-2 serves as a guide to help the operator find and correct minor troubles.

SECTION 4

TROUBLE SHOOTING

4-1 LOGICAL TROUBLE SHOOTING

The following paragraphs describe a general technique of trouble shooting based on six logical steps. If adequate historical or field data of equipment faults are not available, trouble shooting techniques equivalent to these steps should be used.

a. SYMPTON RECOGNITION. Refer to Sections 1, 2 and 3 to determine that control settings and equipment connections are correct for the desired mode of reception. Performance of maintenance standards checks contained in the Maintenance Standard Book (NAVELEX 0967-163-2040) will be of further help in locating performance deterioration.

b. SYMPTON INVESTIGATION. After a particular sympton (fault) has been recognized, further tests should be performed to further identify the troublesome area.

Example: Receiver operation is subnormal on one frequency band and normal on the other bands. The trouble most likely is in those sections of the receiver associated with only the troublesome band.

c. PROBABLE FAULTY SECTION. The next step is to determine the most likely functional sections in which faults could occur. Refer to the functional block diagram (Figure 4-2). In the example above, we find that:

(1) The USB and AM modules can be eliminated since they work on the other bands.

(2) The 1 MHz crystal, first i-f amplifier, injectors mixers, power supply, blister and external connections must be all right for the same reason.

(3) Electron tubes are probably not at fault since they function normally on the other bands.

(4) The trouble may be in the preselector or the HF Oscillator because these sections are affected by the band switch, changing circuit components.

(5) The trouble may be misalignment of the tuned circuits for the faulty band.

(6) The trouble may be a defective band switch.

d. LOCALIZING THE FAULTY SECTION. To efficiently localize the trouble, tests should be made in a logical sequence using tests that provide valid answers with little time and effort. In the example, we can:

(1) Place the band switch to the position of the suspected band.

(2) Use a signal generator and apply rf signals to test points in the preselector. Measure stage gain and compared to test data as shown on figure 4-5.

(3) Check the high frequency oscillator using test data given on figure 4-4.

e. ISOLATING THE FAULTY COMPONENT. After the faulty stage has been located, the trouble should be pinpointed to a particular part or parts. This is done using schematics and measuring voltages and resistances in and around the faulty stage. If it is a band switch problem, resistance tests of those sections connected with the faulty band will locate the exact failure.

f. FAULT ANAYLISIS. After the component failure is found, the reasons for its failure should be considered. Perhaps the failure of another component or a short circuit was the original cause and replacement of the part would result in the failure of the replacement.

For example: You find a plate load resistor overheated or burned out.

(1) Normal circuit current wouldn't cause it, so therefore it must have been caused by excessive current.

(2) If the cathode resistor is OK, chances are that it wasn't caused by tube plate current.

(3) A check at the load end of the resistor may reveal a leaky or shorted B+ decoupling capacitor or a wiring short.

g. USE OF TEST CABLES. Two test cables are provided with the equipment for the measurement of DC operating voltages at tube-socket pins and significant circuit test points. One test cable is equipped with 9-pin connectors and the other with 19-pin connectors, for testing all plug-in assemblies (see table 1-1).

NOTE

The test cables should not be used for overall alignment or signal measurements; to do so will introduce errors caused by the test cable capacitance.

To install a test cable perform the following:

(1) Remove primary power from the equipment.

(2) Remove the assembly to be tested (see Section 5). Remove cover.

(3) Connect the cable between the assembly and the equipment.

WARNING

Potentials as high as 165 volts dc are present in the power-supply circuits. Avoid contact.

(4) Energize the equipment. All dc voltages are measured to ground unless otherwise indicated. AC voltages are measured between the circuit points indicated. (Tables 1-2 and 1-3, Section 1, lists test equipment and special tools).

NOTE

All resistance measurements are made with the receiver de-energized and the module removed.

4-2 OVER-ALL FUNCTION DESCRIPTION

a. GENERAL. Radio Receiving Sets AN/SRR-19( ) are dual-conversion superheterodyne receivers which operate in the frequency range of 30.0 kc to 300.0 kc in four bands. These are:

(1) BAND 1: 30.0 to 55.0 kc

(2) BAND 2: 55.0 to 109.0 kc

(3) BAND 3: 109.0 to 202.0 kc

(4) BAND 4: 202.0 to 300.0 kc

The receiver is shipped with the USB amplifier-detector and the AM amplifier-detector installed, and is equipped with an auxiliary LSB amplifier-detector which will replace either the USB or the AM amplifier-detector module. The following modes of operation are provided:

A1 - Continuous-wave telegraphy (CW)

A2 - Modulated continuous-wave telegraphy (MCW).

A3 - Amplitude modulation (AM).

A9 - Two independent sidebands, each containing eight 75 Band RATT channels (using external equipment).

F1 - Frequency shift teletype (using external equipment).

Initial receiver tuning is in increments of 1 KHz. Secondary tuning is in steps of 10 Hertz, or continuous through each selected 1 KHz increment. Counter-type dials facilitate receiver tuning and the local oscillators are drift-cancelled for incremental tuning to provide a high degree of frequency stability.

b. BASIC BLOCK DIAGRAM. Figure 4-1 is a basic block diagram of the receiver, with the main signal path indicated by a heavy line. It shows the basic relationship between the rf tuning circuits in the lower deck and the detectors, amplifiers, and frequency standard in the upper deck. For simplicity, some blocks represent more than one major circuit.

An rf signal, selected by the preselector (A1A2, A1A3 and A1A4), is converted to a broad band i-f of 1715.5 KHz and amplified by the 1st i-f amplifier (A1A5). Following a second coversion to 100 KHz, the signal is applied to the USB and AM amplifier-detectors (A1A6 and A1A20) for detection and amplification. Initial receiver tuning (1 KHz INC TUNING CKTS) is performed by the hf oscillator (A1A8) and the 1st injector (A1A10). Secondary tuning in 10 Hz steps (or continuously) is performed by the interpolator oscillator (A1A13) and the 2nd injectors (A1A11 and A1A12). The 1 KC TUNING and 10 ~ TUNING meters permit accurate adjustments of the tuning controls to these increments.

The crystal oscillator - frequency divider (A1A9) provides all standard frequencies for circuit operation, including the precise 1 KHz and 500 Hz frequency spectrums for incremental tuning. It contains a stable 1 MHz crystal oscillator with provisions for oscillator calibration using an external frequency standard. The power supply (A1A14) provides heater and plate voltages to all circuits, and a separate voltage regulator (not shown) regulates the heater and plate voltages for the hf and interpolator oscillators.

A blister module contains all connections for external cables to or from the receiver, and contains low-pass filters for the POWER IN circuit and the LINE A and LINE B output circuits. The auxiliary LSB amplifier-detector module, shipped with the equipment, will replace either the USB or the AM amplifier-detectors to extend the reception modes. A fan module, not shown, provides air flow for cooling.

c. FUNCTIONAL BLOCK DIAGRAM. Figure 4-2 is a detailed functional block diagram of the receiver. The main signal path through the various circuits is indicated by a heavy line. The following paragraphs provide a detailed description of the major circuit functions and the over-all receiver.

(1) SIGNAL PATH. An rf signal from the antenna is applied to the antenna coupling (A1A1) which provides three steps of signal attenuation for optimum reception under strong signal conditions. From the antenna coupling the signal is applied to the preselector consisting of the 1st rf amplifier (A1A2), the 2nd rf amplifier (A1A3), and the preselector mixer (A1A4). The mixer combines the selected signal with a locally generated signal from the hf oscillator (A1A8) to produce the first i-f (broad band) frequency of 1715.5 KHz. This frequency is amplified by the 1st i-f amplifier (A1A5) where it is combined with a 1616 to 1615 KHz injection frequency from the 2nd injector (B) (A1A11), to produce the second i-f frequency of 100 KHz. This second i-f frequency goes to the USB and AM amplifier-detectors (A1A6 and A1A20, respectively) where it is amplified, detected (demodulated), and amplified as an audio signal. The audio output from these channels passes through individual low-pass filters in the blister (A2) prior to termination at the LINE A and LINE B output connectors, respectively.

(2) FIRST FREQUENCY-INJECTION. The first frequency-injection in the receiver is generated by the hf oscillator (A1A8) which covers a frequency range of 1746 to 2016 KHz in four bands. The oscillator frequency is also applied to an injection mixer in the 1st injector (A1A10) where it is combined with a 1 KHz spectrum extending from 1146 to 1416 KHz. The 600 KHz frequency product from the mixer occurs at precise 1 KHz increments throughout the hf oscillator tuning range, and after amplification it is applied to the 2nd injector (B) (A1A11). The 1 KC TUNING meter indicates the presence of a 600 KHz frequency product during initial receiver tuning.

(3) SECOND FREQUENCY-INJECTION. The second frequency-injection is obtained from the 2nd injector (B) (A1A11). This injection frequency is derived from and is dependent upon the functions of the interpolator oscillator (A1A13) and the 2nd injector (A) (A1A12). Starting at the interpolator oscillator, the locally generated 660 to 610 KHz frequency is combined at injection mixer V1 and V2 in the 2nd injector (A) (A1A12), with a 500 Hz frequency spectrum extending from 750 to 800 KHz. The 140 KHz frequency product, occuring at precise 500 Hz increments over the oscillator tuning range, is amplified and reduced to 28 KHz by divider Z2 prior to application to the injection mixer T3, CR2. The 10 ~ TUNING meter indicates the presence of a 140 KHz frequency in the amplifier. Thus the tuning increments are reduced from 500 to 100 hertz steps at the input of the 2nd injector (B) (A1A11).

The interpolator oscillator output is also applied to injection mixer CR2 through divider Z1, which reduces the oscillator frequency from 660 to 610 KHz to 132 to 122 KHz. The product from injection mixer CR2, will be 160 to 150 KHz in 100 Hz increments, and is applied to the 2nd injector (B) (A1A11). (For continuous tuning, a fixed 140 KHz frequency is applied to injection mixer V1 and V2. Output from mixer CR2 is then continuous when the oscillator is tuned and not in increments.)

Frequency divider Z1 in the 2nd injector (B) reduces the 160 to 150 KHz injection frequency by a factor of ten to obtain 16 to 15 KHz. (This frequency division also reduces the tuning increments from 100 hertz to 10 hertz.) Injection mixer CR1 and CR2 combines a 1-MHz standard frequency with the divider output, and the 1016 to 1015 KHz product is applied to injection mixer V2 and V3. The 600 KHz output from the 1st injector (occurring in increments of 1 KHz as the hf oscillator is tuned) is applied to injection mixer V2 and V3 through the 600 KHz filter (A1A18). The mixer product, 1616 to 1615 KHz, is amplified and applied to the second conversion mixer in the 1st i-f amplifier. (When the receiver is incrementally tuned, the 1616 to 1615 kc second frequency-injection occurs in increments of both 1 KHz and 10 hertz. For continuous tuning, injection occurs in continuously tuned increments of 1 KHz only.)

(4) CARRIER INJECTION. A third frequency-injection into the main signal path consists of a 100 KHz standard frequency from A1A9, which is applied to the balanced demodulator in the USB amplifier-detector module. This frequency functions as a carrier reinsertion for SSB signal detection.

(5) FREQUENCY STANDARD. The crystal oscillator - frequency divider (A1A9) contains a 1 KHz crystal oscillator in a temperature controlled oven (A1), frequency dividers, 1 KHz and 500 hertz spectrum generators, and a circuit for checking the crystal oscillator accuracy with an external frequency standard. All standard and spectrum frequencies for the receiver are generated in this section.

(6) POWER SUPPLY. The power supply (A1A14) operates from a primary power source of 100/110/120 volts ac, 50-60 or 400 Hz, single phase. The supply provides all operating voltages for the various functional circuits. A thermostat removes primary power if the cabinet temperature is excessive.

(7) VOLTAGE REGULATOR. The voltage regulator (A1A17) contains regulating circuits for the 6.3 volt ac heater supply and the +120 volt dc plate supply voltages for the hf and interpolator oscillators (A1A8) and (A1A13), respectively. Unregulated voltages to this module are provided by the power supply (A1A14).

(8) BLISTER. The blister (A2), located at the rear of the receiver cabinet, contains interference filters for the primary power source input circuit and the LINE A and LINE B audio output circuits. It also contains connectors for all input and output cables to the receiver.

(9) FAN. A ventilating fan assembly (A3), located at the rear of the cabinet, draws outside air into the cabinet through a filter at the rear of the cabinet and exhausts the hot air through screened ports in the sides. A thermostat controls fan operation.

d. BASIC TUNING DIAGRAM. The tuning diagram of the receiver (figure 4-3) shows the development of the first and second injection frequencies and the use of spectrum frequencies. In the example, the receiver is tuned for a signal frequency of 30.5 KHz.

(1) A signal frequency of 30.5 KHz received at the preselector is passed when the preselector is tuned to a dial indication of 030 and the tuning meter "dipped". Tuning the dial to 030 also sets the HF oscillator frequency to 1746 KHz. The incoming 30.5 KHz is mixed with the HF oscillator frequency in the preselector mixer and the difference, 1715.5 KHz, is applied to the 1st i-f amplifier (A1A5).

(2) At the same time the HF oscillator supplies this same 1746 KHz signal to the 1st injection mixer A1A10-V1 where it combines with frequencies of 1146 KHz to 1416 KHz received from the crystal oscillator frequency divider assembly (A1A9). Only the combination resulting in a 600 KHz difference will be passed through the filter amplifier. (Namely, the 1746 Hertz from the HF oscillator and 1146 Hertz from A1A9.)

(3) Stop there and drop down to the interpolation oscillator which supplies the tuning for the last 500 Hz of the incoming frequency of 30.5 KHz. Setting the tuning dial on 500 and "dipping" the tuning meter sets the interpolation oscillator frequency to 635 KHz. This is mixed with another spectrum of frequencies from A1A9 (750 KHz to 800 KHz) in A1A12-V1 and V2. Only the combination resulting in 140 KHz is passed by the filter amplifiers to divider A1A12-Z2 (÷5).

There the resultant 28 KHz is applied to mixer T3, CR2.

(4) The same 635 KHz processed to 28 KHz is processed to 127 KHz by divider A1A12-Z1 (÷5) and also applied to mixer T3, CR2. The resultant 155 KHz is further divided by A1A11-Z1 (÷10) and added to the 1 MHz standard from A1A9 with the result of 1015.5 KHz.

(5) The 600 KHz from 1st injector, A1A10, is combined with the 1015.5 KHz from A1A11-FL2 in A1A11-V2/V3 mixers. The sum frequency of 1615.5 KHz is mixed with the 1st i-f frequency of 1715.5 KHz in A1A5-V2 to produce a 2nd i-f frequency of 100 KHz.

(6) Retracing the paths again will show how a slight variation or drift in the tuning of the HF oscillator will cancel itself out and the 100 KHz i-f signal will not be effected. For example, the HF oscillator frequency is 1746.250 KHz, resulting in a mixed frequency of 1715.750 KHz, at A1A4-V1.

(7) At the same time the output from injection mixer A1A10-V1 would be 600.250 KHz, which added to the 1015.5 KHz from A1A11 becomes 1615.750 KHz. The difference then, is still 100 KHz (1715.750 minus 1615.750).

(8) When in the incremental tuning method, drift cancellation for the interpolation oscillator occurs at injection mixer A1A12-T3, CR2. For example: if the oscillator frequency is 635.150 KHz, one input to the mixer will be 127.030 KHz, divided at Z1 and the other input will be 17.970 KHz. The 27.970 KHz is a result of mixing 635.150 KHz with 775 KHz in the injection mixer A1A12-V1&V2 to produce 39.850 KHz, divided by 5 at Z2 It can readily be seen the sum output of the injector mixer is still 155 KHz (27.970 + 127.030 = 155.000). At this point the tuning accuracy is said to be absolute and any further drift is dependent on the 1 MHz standard from A1A9 having a drift rate of 1 part in 10^8 per day.

Note

Drift cancellation does not occur in the continuous tuning method since a fixed 140 KHz is merely passed on to A1A12-Z2. This 140 KHz is not a result of interpolation oscillator frequency mixing with spectrum frequencies. This permits tuning to the last digit of the frequency, however its accuracy becomes a function of the interpolation oscillator tolerance (±150) which when divided by A1A12-Z1 becomes ±30 hertz.

4-3 DETAILED FUNCTIONAL DESCRIPTION

a. Antenna Coupling A1A1 (refer to figure 5-41).

This module serves as a variable step attenuator and low pass filter. Resistors in various combinations provide for attenuation of 0, 15, 30 and 45 db as switch S1 is position from NOR thru position 3. The low pass filter comprised of L1, C1 and L2, C2 is designed to greatly reduce signals above 600 KHz to prevent interference of frequencies near 1715.5 KHz (the 1st i-f frequency). The -3 db point is between 520 and 570 KHz.

b. Preselector A1A2/3/4 (refer to figures 5-42, 43 and 44).

This functional section of three modules contains two stages of HF amplification and a mixer stage. Tuning is accomplished by the band switch and the four section tuning capacitor A1A19-C1. Connections to the main tuning capacitor are shown at zones 5A and 9A of figure 5-42, zone 2A of figure 5-43 and zone 2A of figure 5-44. The output of A1A2-V1 is coupled to A1A3-V1 thru double tuned circuit that acts as a tuned bandpass filter for increased selectrivity. This circuit consists of A1A2-T5 and A1A3-L3 (for band 1) tuned by sections B and C of the main tuning capacitor.

The output of the second RF amplifier A1A3-V1 is tuned by section D of the tuning capacitor (A1A19-C1) and then applied to the mixer A1A4-V1 where it is combined with the first injection frequency from the HF oscillator, A1A8. The HF oscillator is ganged to the preselector tuning control so that it will "track" and provide the first i-f having a center frequency of 1714.5 with a 10 KHz bandwidth.

c. First i-f Amplifier A1A5 (refer to figure 5-45).

This module has a single i-f amplification stage and contains the second conversion mixer (A1A5-V2). Input to this stage is tuned by C2 and

L1 to 1715.5 KHz (center frequency), and filtered by FL1. Selective bandpass filter L2, C9, L3, C13 and C14 couples the first i-f signal to mixer V2 which also receives the 1615-1616 KHz injection frequency. The output is the 100 KHz second i-f selected by tuned circuit consisting of L4, C20 and C21 (in series). Capacitors C20 and C21 provide a voltage divider to reduce the mixer output level applied to the detector modules.

d. SSB Amplifier detectors A1A6/A1A7 (refer to figure 5-46).

The LSB and USB modules are identical except for input filter FL1. Note the center frequency of FL1 for the USB module is lower (98.975 KHz) than for the LSB module (101.025 KHz). This is because the USB (transmitted) becomes inverted at the first i-f amplifier A1A5. The output still corresponds to the USB (transmitted). The 100 KHz i-f amplifier A1A6/7-A1 consists of five stages (V1 thru V5) coupled by 100 KHz tuned circuits. Reserve gain control R4 sets the limit (maximum level) that rf gain control (front panel) can obtain. The RF gain sets the DC level of the cathodes V1 thur V4. AGC when selected, is applied to the grids of all the stages. (AGC is developed in the A2 board from a portion of the signal taken from A1V4).

The A1A6/A7-A2 board contains the SSB detector circuit, the audio amplifier, and the AGC amplifier circuits.

The sideband detector or demodulator is Z1 consisting of two transformers and four diodes arranged as a balanced modulator. (96 to 99.7 KHz for LSB and 100.3 to 104 KHz for USB.) One input is the 100 KHz i-f signal frequency and the other a carrier reinsertion 100 KHz from the crystal oscillator assembly A1A9. A2-V1 acts as a buffer amplifier for the 100 KHz carrier frequency.

The audio amplifier consists of preamplifier V4 and push-pull amplifiers V5 and V6. Interstage transformer T2 provides coupling between the preamplifier and the push-pull amplifiers. Output transformer T3 provides and output of 150 ohm impedence and output transformer T4 provides an output of 600 ohms impendence for headphones. Negative feedback to V4 from V5 through R17 stablizes amplifier gain. PHONE LEVEL Control (A1A19-R1) is across the secondary of T4 and has no effect on line output at T3.

The AGC amplifier consists of V2, V3 and rectifier CR2. V2 receives a portion of the signal voltage from A1V4 thru A2C2. AGC Gain Control R4 presets the level at which AGC action will be effective. Diode CR2 is reverse biased by voltage divider R20 and R23 to prevent weak signals developing AGC voltage. C23, R27 and R33 provide the AGC time constant to give the fast, attack, slow-decay AGC characteristic required for TTY and SSB voice reception. A portion of the 100 KHz signal is taken off ahead of CR2 and applied to CR1, the rectifier for resonance meter A1A19M1. R18 is the meter multiplier. AGC voltage for the 100 KHz i-f amplifier is obtained at the junction of R27 and R33. The preselector AGC is obtained from R26. These voltages are selected by the AGC switch A1A6/7-S1.

The AGC switch is a three position switch (OFF — SSB — ON). In the OFF position, no AGC voltage is supplied from the module. In the SSB position AGC voltages are supplied only to the 100 KHZ amplifier A1, within the module. In the ON position AGC voltages are supplied to both the 100 KHz amplifier within the module and to the receiver preselector module A1A2/3/4. When both sideband modules are in use and the AGC switches are both ON, the sideband module having the highest AGC voltage controls the preselector gain. (This is also true with the AM module if MODE switch is in the A3 position).

e. AM Amplifier-Detector A1A20 (refer to figure 5-56).

This module differs from the sideband modules in that subassembly A3 replaces demodulator Z1 and input pass band filter FL1 replaces the sideband filter FL1. Operation of subassemblies A1 and A2 are identical to those previously discussed for the SSB modules.

The input filter (L-1, C2) rejects stray high frequencies and provides a high impedance signal source for the 1 KHz and 3 KHz filters of FL1. The 8 KHz bandwidth is determined by the 100 KHz i-f amplifier A1. Resistors R2 thru R15 compensate for changes in circuit loading for the various positions of S1.

When mode switch S2 in the A1 position, AM detector diode CRl is bypassed and the 100 KHz signal goes direct to the heterodyne detector V1. Also, the feedback path for crystal Y1 is completed and the beat frequency (99.000 KHz) is generated. This beat frequency is amplified by A2-V1 and returned to the cathode of A3-V1. The resultant 1000 hertz is amplified in the A2 subassembly and is available at the line jack or the headphone jack.

When the mode selector is in the A2 or A3 positions, detector CR1 detects the audio which can be noise limited by CR2 (when NL switch S3 is in the ON position) and is coupled by C5 to the grid of A3-V1 which now is an audio preamplifier.

In the F1 position, detector CR1 is again bypassed and the signal goes direct to the heterodyne detector V1. The feedback path for crystal V2 is completed and a beat frequency (97.450 KHz) is generated. The output from heterodyne detector V1 becomes 2.550 KHz for teletype operation.

f. High Frequency Oscillator A1A8 (refer to figure 5-47).

The purpose of this module is to supply the first injector frequency to the preselector mixer A1A4 and first injector module A1A10. The frequency range is from 1746 KHz to 2016 KHz in four bands, tuned by capacitor A1A19C2. V1 is a grid tuned armstrong oscillator with positive feedback from cathode to grid through transformer T1 (for band 1). Output to the preselector A1A4-V2 is coupled through C33, while output to A1A10 is buffered by V2, a cathode follower. Low pass filter L1, C1 and C2 in the heater leads of V1 and V2 prevents the oscillator frequencies from entering other circuits via heater leads. Slight changes in frequency or drift of the HF Oscillator is cancelled as previously described.

g. Crystal Oscillator A1A9 (refer to figure 5-48).

This is the stability determining module and supplies the 1 MHz standard to A1A11 and the frequency spectrums used in A1A10 and A1A12. It also furnishes the 100 KHz (carrier) to the SSB modules.

The 1 MHz crystal oscillator subassembly A1 contains the solid state oscillator, buffer amplifier and proportional control oven amplifier. This is a sealed unit with an oscillator adjustment on the side. Drift is less than one part in 10^8 per day. An external frequency standard may also be used when switch S1 is in the EXT position. When S1 is in the CAL position, the oscillator is compared to an external standard and the indication is observed on the resonance meter. Diode CR2 serves as the meter rectifier. L2 and C2 form a harmonic rejection filter.

Divider Z1 (÷ 10) contains four binary flip-flops and reduces the 1 MHz input frequency to a 100 KHz square wave output. The outputs are used in the SSB detectors for 100 KHz carrier reinsertion and further divided by Z2 (÷ 100) for the spectrum frequencies.

Divider Z2 (÷ 100) contains seven binary flip-flops to reduce the 100 KHz to a 1 KHz square wave which is processed by Z3 for spectrum frequencies.

Divider Z3 (÷ 2) contains a single flip-flop to produce the 500 Hertz square wave. Both the 1 KHz and 500 Hz square waves are applied to the equivelent of blocking oscillators to produce "spikes". The output of 1 KHz spectrum is applied to A1A10 where filter A1A10-FL1 passes the 750 to 800 KHz spectrum. Voltage to the dividers is supplied so that supply current for the flip-flops is in series, removing any one of the dividers removes voltage to all.

The voltage regulator CR1 regulates the 24 volts used in the crystal oscillator. Voltage regulator CR3 furnishes the regulated +12 volts for the dividers in this module and also to dividers A1A11-Z1, A1A12-Z1 and Z2. The +12 volts and -24 volts unregulated is supplied from power supply A1A14 as 36 volts ungrounded.

h. First Injector A1A10 and 600 KHz Filter A1A18 (refer to figures 5-49 and 5-55).

This module furnishes initial receiver tuning in increments of 1 KHz. It also operates the 1 KC TUNING meter (A1A19M2) and is a part of the HF oscillator draft cancelling loop.

A spectrum of frequencies (harmonics) 1 KHz separated is received from crystal oscillator (A1A9) to FL1. FL1 passes only those frequencies between 1146 and 1416 KHz. Frequencies from the HF oscillator (1746 to 2016 KHz) are mixed with the spectrum frequencies in V1 and only a product of 600 KHz will result at 1 KHz intervals of the HF oscillator tuning as indicated by a "dip" on the 1 KC TUNING meter.

The AGC voltage applied to P1-3 for grids of V2 and V3 is from A1A11 and used to stabilize the gain and contribute to the "dip" of the 1 KC TUNING meter. It is in no way connected with the overall receiver AGC voltages applied to the preselector and i-f amplifiers.

The 600 KHz filter module A1A18 provides for a high impedance connection to A1A11 second injector B.

i. Second Injector (B) A1A11 (see figure 5-50).

This module combines the 1 KHz incremental tuning established in A1A10 with the 10 Hz or continuous tuning of second injector (A) (A1A12). It also combines the 1 MHz standard from A1A9 which determines receiver stability, and forms a part of the drift cancelling loop.

The 160-150 KHz received from A1A12 as a result of interpolator oscillator tuning is filtered by FL1 and applied to Z1 (÷ 10) by cathode follower V1. Z1 contains four binary flip-flops and its output is a square wave (16-15 KHz) occurring in 10 Hz steps for incremental tuning and continuous when in the continuous mode. The DC voltage for Z1 is received from the voltage regulator in A1A9. L1 and C5 form a low pass filter for decoupling and R29 drops the 12 volts to 4 volts for divider operation.

1 MHz from A1A9 is applied to center tap of T1 primary and the 16-15 KHz from divider Z1 is applied to junction of R5 and R6 which compensate for small differences in diodes CR1 and CR2. The combination of the diodes and transformer form a balanced modulator which eliminates the 1 MHz component. C11 with L-2 and T1 secondary form a tuned circuit for filter FL2 passing frequencies from 1015-1016 KHz (1 KHz ± 1.5 KHz). This range of frequencies tuneable in 10 Hz steps (or continuous when in that mode) is applied to cathode follower V2 for isolation and then to mixer V3 where it is combined with the 600 KHz from A1A18. The resultant range of frequencies is applied to FL3, amplified by V4 and V5. The output of V5 is fed to mixer A1A5V2 where it is mixed with the incoming first i-f to produce the second i-f of 100 KHz (99-101 KHz).

j. Second Injector (A) A1A12 (refer to figure 5-51).

This module provides the receiver secondary tuning in 10 Hz steps (or continuous) and operates the 10 ~ TUNING meter. In the incremental tuning method, it also provides the drift cancellation for the INT. OSC. A1A13. When S1 is in the CONT position, a fixed 140 KHz is supplied to the grid of V1. Tuned circuit, T1 secondary, L1 and C2 select the fixed 140 KHz from the 500 Hz spectrum on the primary of T1, V2 is merely another amplifier since there is no input from the INT OSC at this point. However, in the INC position S1 selects the 500 Hz spectrum from 750 to 800 KHz and cathode follower V1 drives V2 as a mixer which now receives the input at its grid from the INT OSC (610-660 KHz). L3 and C7 form a 140 KHz tuned circuit. A 140 KHz output will occur at each 500 Hz interval as the interpolation oscillator is tuned at this point. (Because of frequency division, the net result is the injector frequency at A1A11-CR1 and CR2 is incremental in 10 Hz steps.)

V3, 4 and 5 make up the 140 KHz amplifier with tuned circuits providing coupling between stages. Front panel 10 ~ TUNING meter (A1A19M3) is operated by the voltage developed across R19 in the cathode of V4. The injection-agc rectifier CR1 receives a portion of the 140 KHz signal from the output of V5 through coupling capacitor C28. C22 and R18 are load and time constant for the agc which is applied to V4 to stabilize gain and provide more pointer "dip" at the 10 ~ TUNING meter. This has no connection with the overall receiver AGC that is applied to the preselector and i-f stages.

Frequency divider Z2 (÷ 5) reduces the 140 KHz to 28 KHz and Z1 (÷ 5) reduces the interpolation oscillator input to 132 to 122 KHz for mixing at T3 and CR2. The resultant 50 to 160 KHz (in 100 Hz steps) is applied to A1A11-Z1 (÷ 10) thru filter FL1 and cathode follower V1. Therefore, the injection frequency is controlled in 10 Hz steps. The frequency at this point is said to be absolute and accurate to the 1 MHz standard for incremental tuning due to drift cancellation. When in the continuous tuning method, oscillator drift tolerance of ±150 Hz will not be cancelled and the accuracy is reduced to ±30 Hz after frequency division by divider A1A12-Z1 (÷ 5).

k. Interpolation Oscillator A1A13 (refer to figure 5-52).

This oscillator has a 50 KHz tuning range from 610 to 660 KHz regardless of the position of the bandswitch and is controlled by front panel TUNING CYCLES control geared to tuning capacitor A1A19-C3. Trimmer capacitors C4 and C6 adjust the high and low end of the tuning range. V1 is a triode connected pentode operating as a grid tuned armstrong oscillator. Positive feedback is obtained from the plate through transformer T1. L1 is part of T1 secondary but is not inductively coupled and forms part of the tuning circuit. Resistors R5 and R6 are DC return paths for the injector circuits.

l. Fan Assembly A3 (see figure 5-58).

The cabinet fan cools the equipment by drawing outside air into the cabinet through a filter in the rear and exhausing the hot air through side ports. Thermostat A1A19S2 controls fan operation and is located on the underside of the top deck (see figure 5-3). The induction motor operates at 2400 rpm and delivers 40 cfm at 60 Hz and 36 rpm and 47 cfm at 400 Hz. Thermostat A1A19S2 operates between 105°F (40°C) and 85°F (30°C) ±5°F.

4-4 TROUBLE SHOOTING SUGGESTIONS.

(refer to figures 4-1 thru 4-5).

Front panel indications are used to first identify the problem area. For example: If receiver operation is abnormal or completely inoperative and failure of the 1 KC TUNING or 10 ~ TUNING meters to "dip" when the tuning controls are adjusted for incremental tuning is observed, the following procedures should be followed prior to extensive trouble shooting. This sympton is often caused by the loss of a standard frequency or spectrum:

a. Check or replace the frequency divider modules Z1, Z2 and Z3 in the crystal oscillator-frequency divider A1A9.

b. Check or replace the frequency divider Z1 in second injector (B) A1A11.

c. Check or replace Z1 and Z2 in the second injector (A) A1A12.

Note

> Failure of the regulators in A1A9 supplying the dc voltages to the dividers will also cause this same problem.

After long service, the receiver may become difficult to tune in 1 KHz increments due to aging of the oscillator tube V1 in module A1A8. Realignment using instructions in section 5 will usually correct the condition and must be accomplished if the tube is replaced.

Test point measurements of signal voltages and waveforms are made using an RF VTVM or a calibrated oscilloscope. An exception to this procedure concerns the main signal-path test points where signed voltages indicated are those required from a signal generator to produce a standard receiver output level. (Standard output is indicated by a +8 db reading on the output meter with a 600 ohm load.)

Use Tables 4-1 and 4-2 for signal tracing with test equipment connected as shown in figures 4-1 thru 4-5.

TABLE 4-1

FREQUENCY CONTROL CHECK LIST
(USE FIGURE 4-4)

Test Equipment: Frequency Counter AN/USM—207, Oscilloscope AN/USM—281, VTVM AN/USM-16 or equivalents.

TEST EQUIPMENT	TEST POINT	OBSERVATION
Frequency Counter and Oscilloscope	A1A9—J2	Exactly 1 MHz (1000.000 KHz on counter, 10 vpp on scope)
Oscilloscope	A1A9—J5	100 KHz square wave, 10 vpp
Oscilloscope	A1A9—J7	500 Hz Spectrum lines or “spikes”, 10 vpp
Oscilloscope	A1A9—J9	1 KHz Spectrum lines or “spikes”, 10 vpp

NOTE

This signal is difficult to see on some scopes. A dip of the 1 KHz tuning meter, during tuning, is a good indication this signal is present.

TEST EQUIPMENT	TEST POINT	OBSERVATION
Oscilloscope	A1A12—J1	Waveform shown on figure 4-4, when INT OSC is tuned in the incremental mode at “dip”
Oscilloscope	A1A12—J3	140 KHz sine wave, 1.5 vpp
VTVM	A1A12—J6	—1.5 vdc, when 10 ~ TUNING meter is “dipped”
Oscilloscope	A1A12—J21	28 KHz sine wave, 25 vpp
Oscilloscope and/or Frequency Counter	A1A12—J22	Depending on tuning of INT OSC, 132 to 122 KHz sine wave, 40 vpp
VTVM	A1A8—J1	—1 vdc when HF oscillator is operating
Oscilloscope	A1A10—J2	Waveform as shown on figure 4-4

TABLE 4-1 (cont.)

TEST EQUIPMENT	TEST POINT	OBSERVATION
Oscilloscope and/or Frequency Counter	A1A10—J1	2.5 vpp sine wave at the frequency set by the HF oscillator - 1746 to 2016 KHz
VTVM	A1A10—J6	—3 vdc
Oscilloscope	A1A10—J8	600 KHz sine wave, 1 vpp
Oscilloscope	A1A11—J14	600 KHz sine wave, 2 vpp
Oscilloscope	A1A11—J1	155 KHz sine wave, 4 vpp with INT OSC dial at 500
Oscilloscope	A1A11—J5	55 KHz sine wave, 3 vpp with INT OSC dial at 500
Oscilloscope	A1A11—J10	15.500 KHz square wave, 1.5 vpp with INT OSC dial at 500
VTVM	A1A11—J18	—2 vdc
Oscilloscope and Frequency Counter	A1A11—J17	1616 to 1615 KHz, sine wave 5 vpp, throughout the tuning range of the INC OSC

TABLE 4-2

SIGNAL FLOW CHECK LIST
(USE FIGURE 4-5)

Test Equip: Audio OSC AN/URM-127, RF Signal Generator AN/URM-25 or equivalent.

Always adjust the inject signal amplitude, to produce an output from LINE A or LINE B of 8 db, measured across a 600 ohm load. The maximum inject signal allowed to produce the 8 db line output is shown at the various test points on Figure 4-5 and in this table.

Normal signal tracing procedure is used, starting at the output and working back toward the input.

Set receiver controls as indicated on figure 4-5.

TEST EQUIPMENT	SIGNAL INJECT AT TEST POINT	INJECT SIGNAL REQUIRED
AN/URM-127	A1A6A2—J5/6	1000 Hz at 0.7 v max
AN/URM-127	A1A20A2—J5/6	1000 Hz at 0.7 v max
AN/URM—127	A1A6A2—J4	1000 Hz at 0.3 v max
AN/URM—127	A1A20A2—J4	1000 Hz at 0.3 v max
AN/URM—25	A1A6A1—J5	99 KHz, CW at 70 mv max
AN/URM-25	A1A6A1—J4	99 KHz, CW at 10 mv max
AN/URM—25	A1A6A1—J3	99 KHz, CW at 2 mv max
AN/URM—25	A1A6A1—J2	99 KHz, CW at 1 mv max
AN/URM—25	A1A6A1—J1	99 KHz, CW at 0.5 mv max

NOTE

For LSB (A1A7) follow same procedure as for USB A1A6, except use 101 KHz CW.

AN/URM—25	A1A20A1—J5	100 KHz, MCW at 150 mv max
AN/URM—25	A1A20A1—J4	100 KHz, MCW at 10 mv max
AN/URM—25	A1A20A1-J3	100 KHz, MCW at 2 mv max
AN/URM—25	A1A20A1—J2	100 KHz, MCW at 1 mv max
AN/URM—25	A1A20A1—J1	100 KHz, MCW at 0.3 mv max

TABLE 4-2 (cont.)

TEST EQUIPMENT	SIGNAL INJECT AT TEST POINT	INJECT SIGNAL REQUIRED
AN/URM—25	A1A5—J4	99 KHz, CW for 8 db, LINE A. 100 KHz, MCW for 8 db, LINE B (101 KHz, CW for LSB in either) LINE A or LINE B, 2.0 mv max)
AN/URM—25 (Tune Rcvr incrementally to 50.500 KHz)	A1A5—J2	1714.5 KHz at 2.0 mv max
AN/URM—25	A1A5—J1	1714.5 KHz at 1.5 mv max
AN/URM—25 (Tune Rcvr incrementally to 50.000 KHz)	A2A4—J2	51 KHz CW 60 uv max for 8 db at LINE A output
AN/URM—25	A1A3—J1	51 KHz, CW 30 uv max
AN/URM—25	A1A2—J1	51 KHz, CW 2 uv max
AN/URM—25	Ant Input	51 KHz, CW 2 uv max

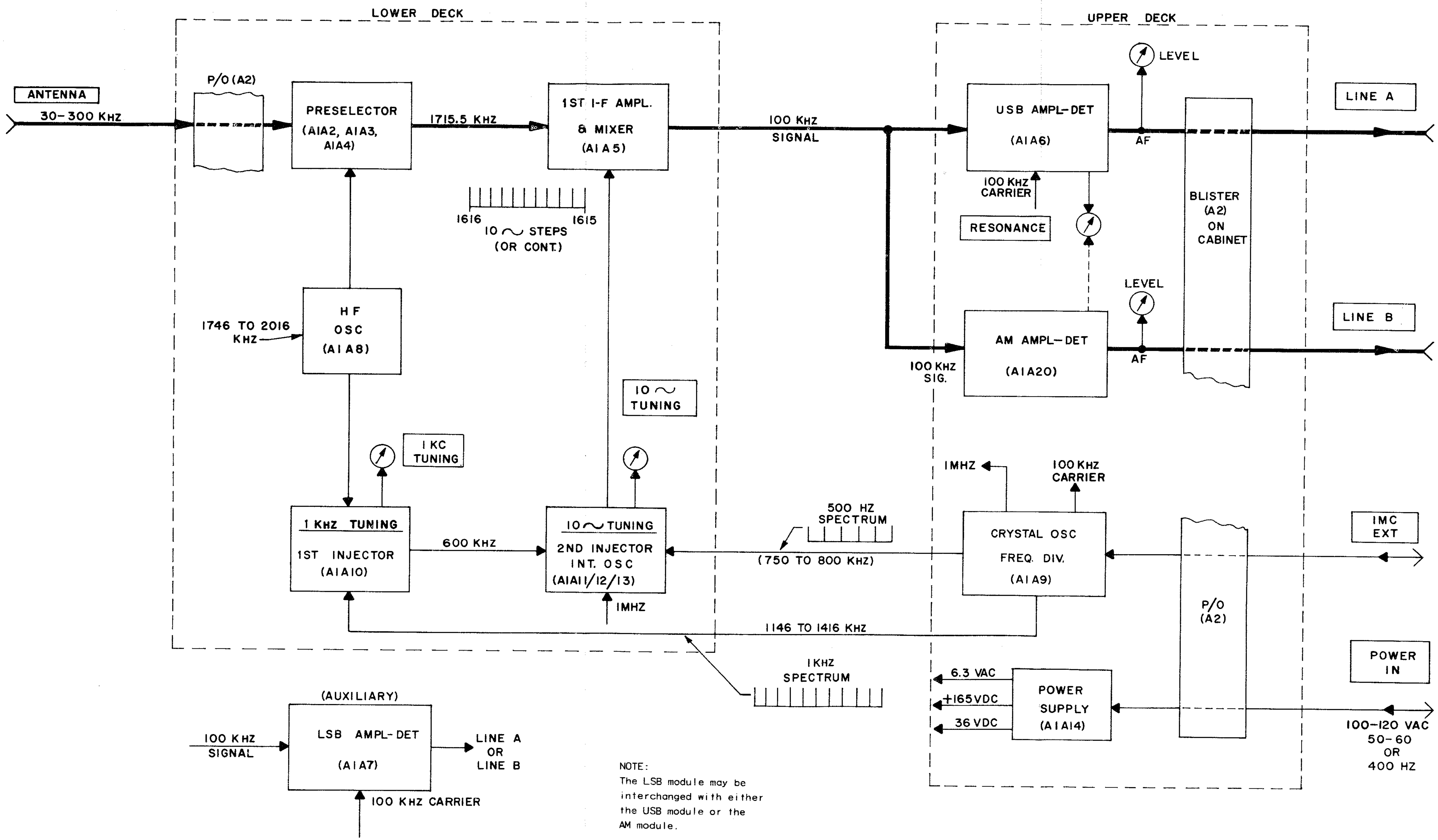


Figure 4-1. Radio Receiving Set AN/SRR-19 ( ), Basic Block Diagram

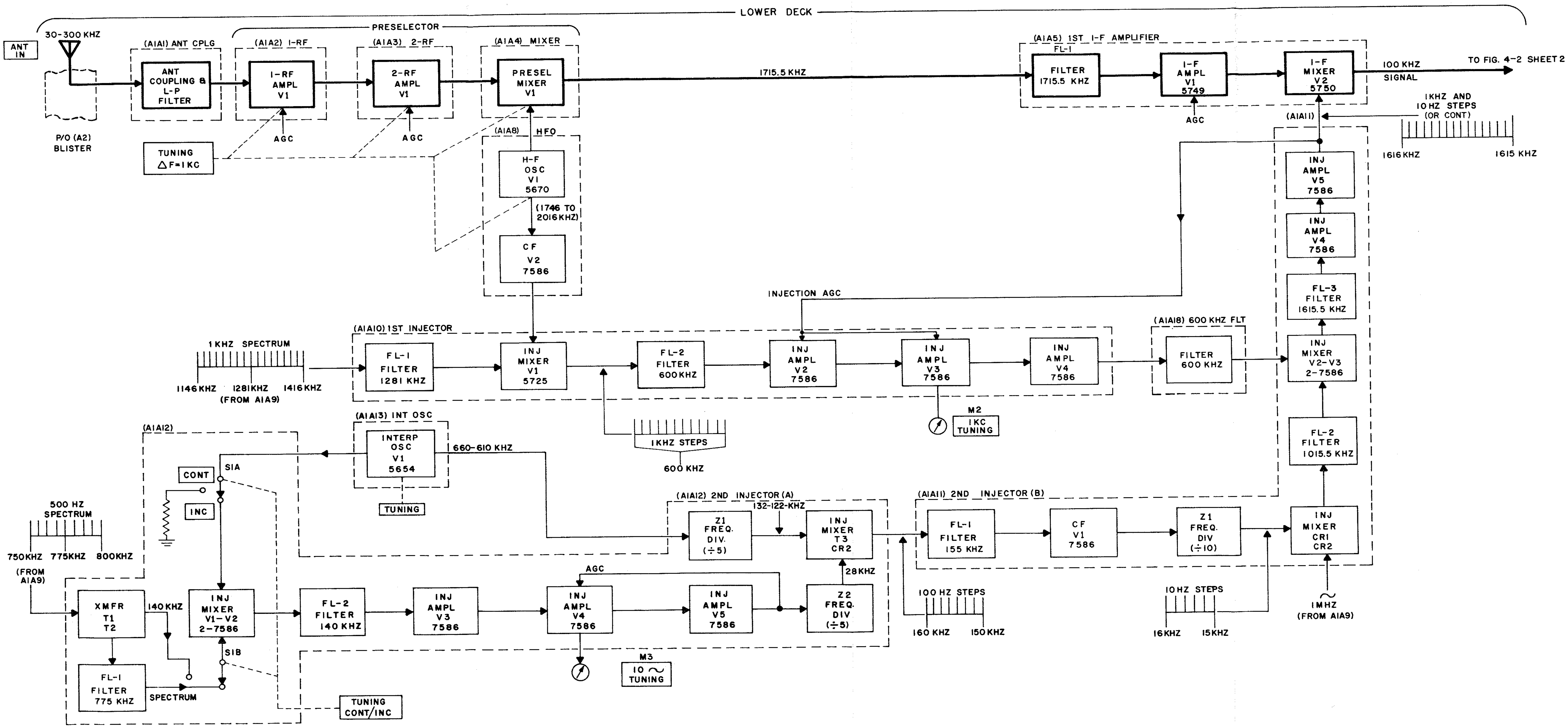


Figure 4-2. Radio Receiving Set AN/SRR-19 ( ), Functional Block Diagram (Sheet 1)

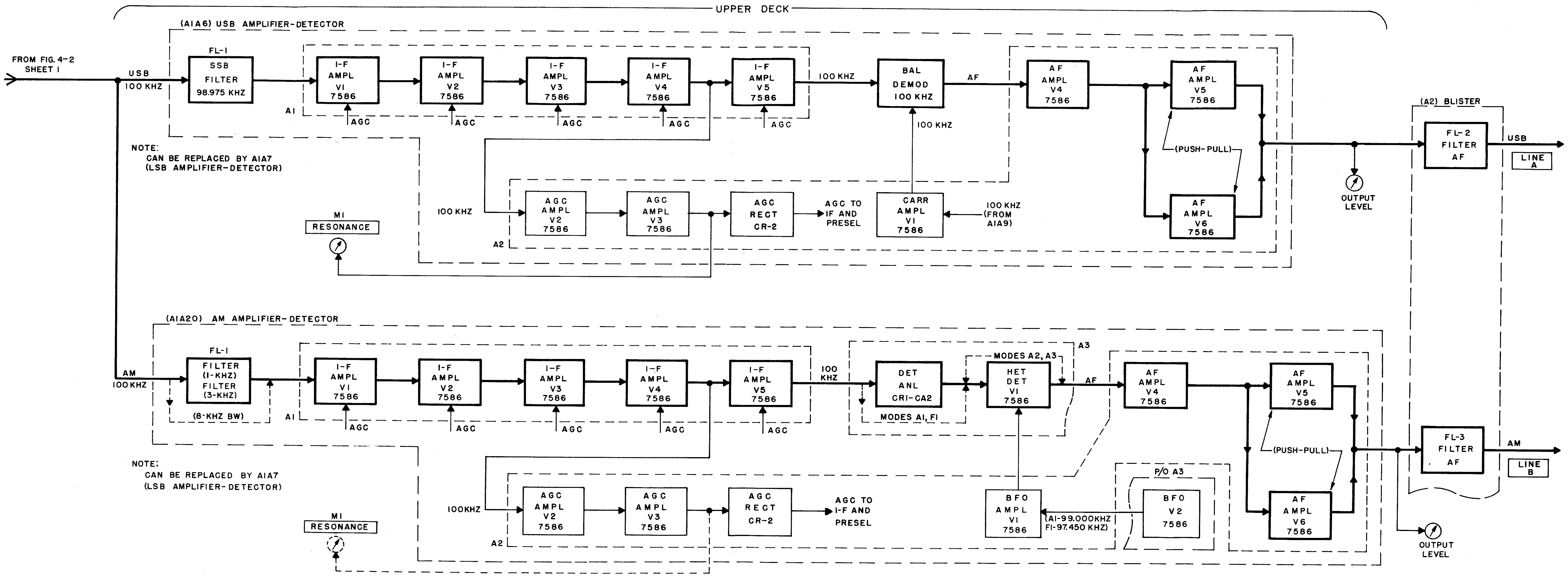


Figure 4-2. Radio Receiving Set AN/SRR-19 ( ), Functional Block Diagram (Sheet 2)

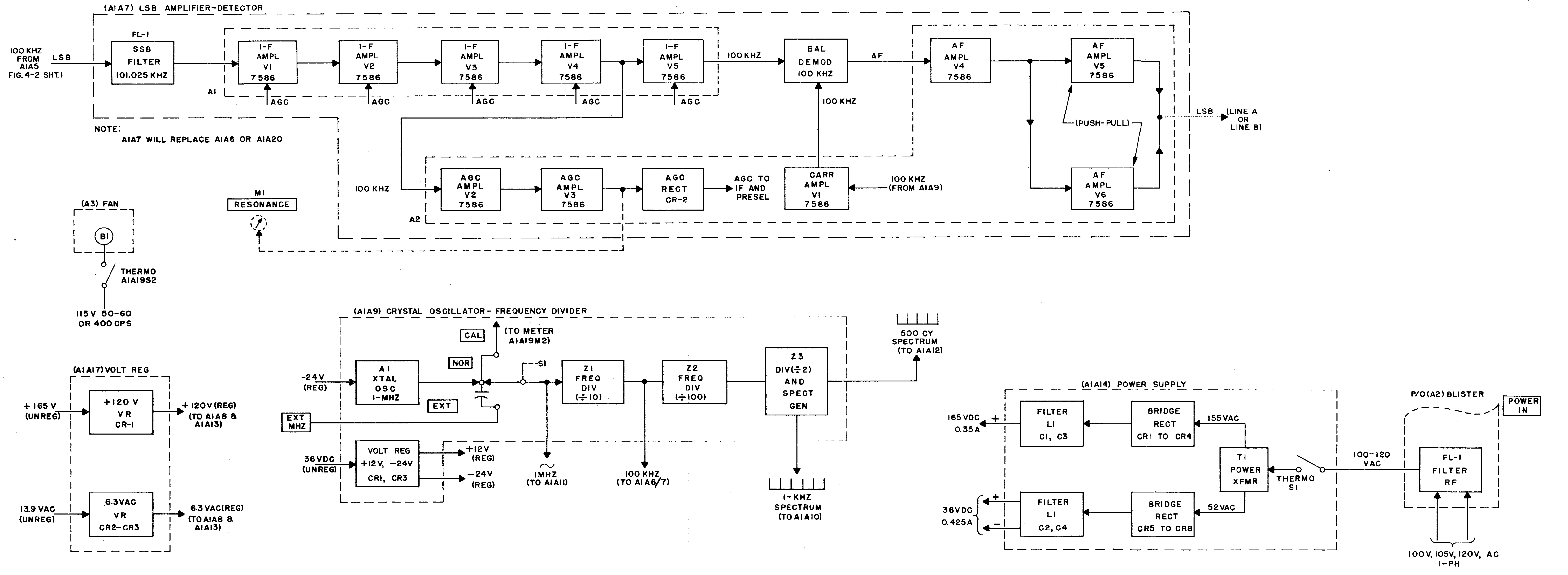


Figure 4-2. Radio Receiving Set AN/SRR-19 ( ), Functional Block Diagram (Sheet 3)

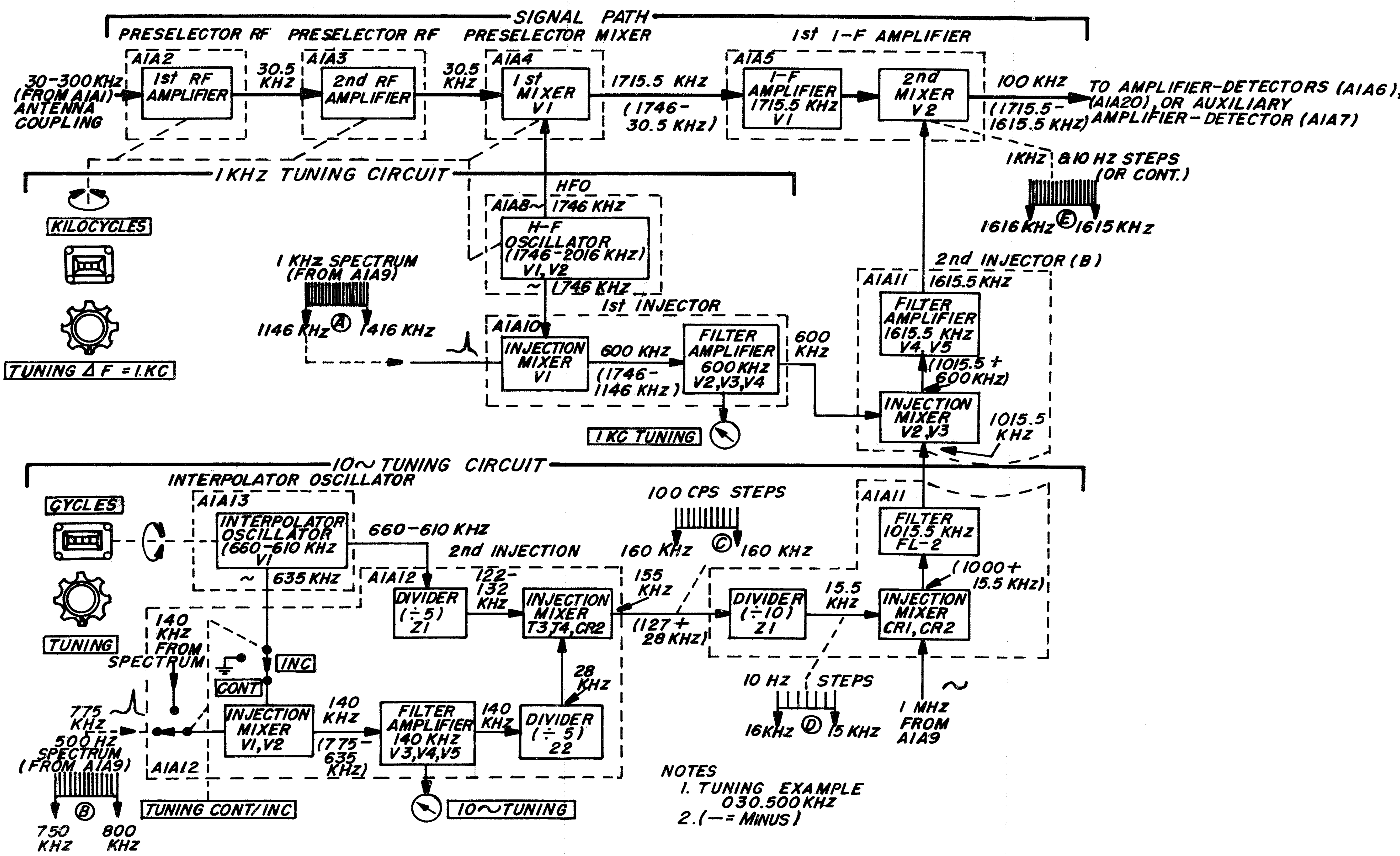


Figure 4-3. Radio Receiving Set AN/SRR-19 ( ), Basic Tuning Diagram

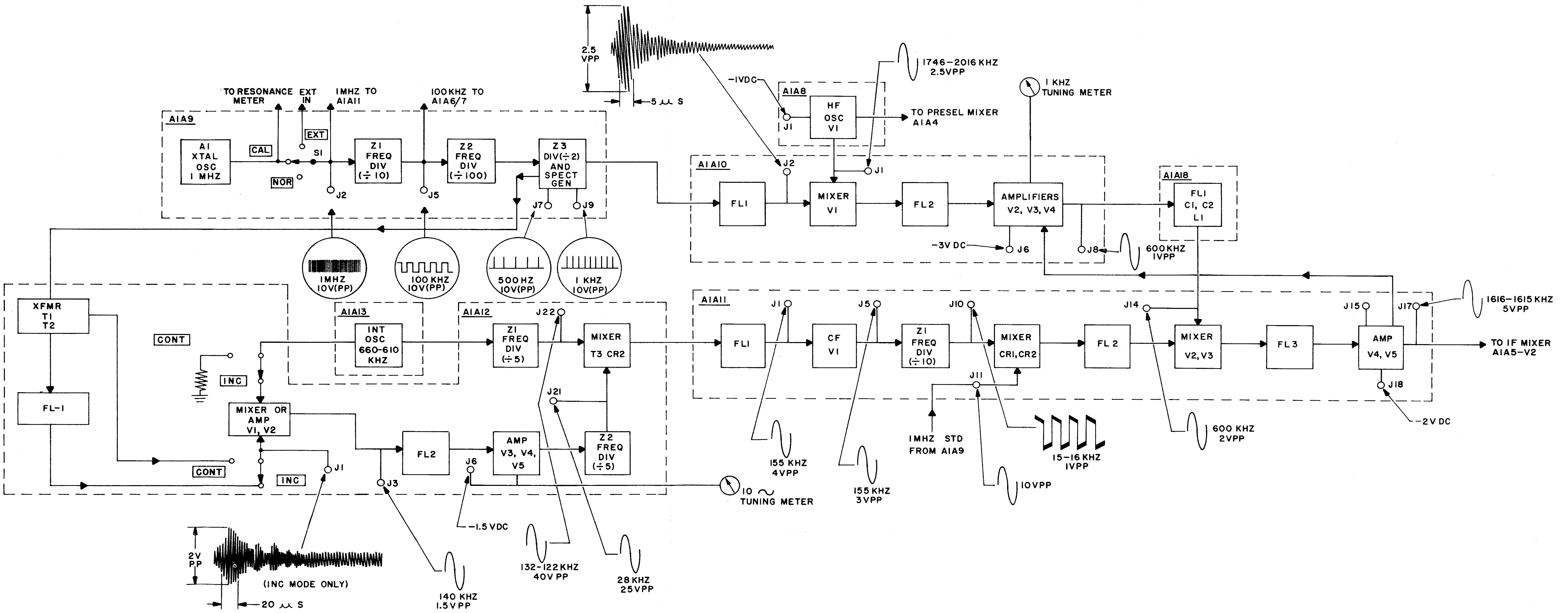


Figure 4-4. Radio Receiving Set AN/SRR-19 ( ), Servicing Block, Frequency Control Diagram

Figure 4-5. Radio Receiving Set AN/SRR-19 ( ), Servicing Block, Signal Flow Diagram

SECTION 5

MAINTENANCE

5-1 INTRODUCTION

This section provides; instructions for removal and replacement of modules, test data and overall alignment procedures.

NOTE

Maintenance actions involving component failures are to be reported in accordance with current 3M procedures. The "Maintenance Data Collection System" stores this information making it available for readouts and analysis. Corrective action for an unusual failure, field changes and other information is then made available to all users via the monthly Electronics Information Bulletin (EIB).

5-2 PREVENTIVE MAINTENANCE

a. Receiver deterioration can best be detected by performance standards tests. These tests are listed in the Maintenance Standards Book NAVELEX 0967-163-2040.

b. Table 5-1 is the recommended Maintenance Schedule and is identical to the one in the Maintenance Standards Book. The Planned Maintenance System will incorporate those tests which are a minimum requirement on a regularly scheduled basis.

5-3 REMOVAL OF MODULES, SUBASSEMBLIES AND PARTS

CAUTION

Remove the primary power from equipment before attempting module removal, replacement, or any repair procedure.

a. Figures 5-1 thru 5-37 are pictorial location guides for modules and subassemblies. Modules and covers are secured by captive screws. Subassemblies and subchassis are secured by removable screws and lockwashers. Caution should be exercised in removal of modules where solderless terminals attach to the main tuning capacitor. Some modules are secured with screws from the bottom while others are secured from the top. It will be necessary to observe special precautions for the following:

(1) (A1A1) Disconnect cables at J1 and J2 prior to removal.

(2) (A1A2) Remove tube V1 prior to removal. Loosen the four captive screws attaching the solderless terminals to tuning capacitor A1A19-C1 at the bottom of the rf amplifier. Rotate the ANT COMP. control fully clockwise. Be careful to disengage the ANT COMP. shaft and band switch guides.

(3) (A1A3) Remove tube V1 prior to removal. Loosen two captive screws attaching solderless terminals to the tuning capacitor and be careful when disengaging the band switch guides.

(4) (A1A4) Remove tube V1. Remove tube socket access plate (2 screws) to expose captive screw inside the mixer chassis. Loosen two screws attaching the solderless terminals to the tuning capacitor.

(5) (A1A6/7/20) These three modules are secured by captive screws from beneath. When loosened, simply lift at the rear of the module to disengage the multipin connector, slide back, up and out.

(6) (A1A8) Remove tube V1, loosen screw attaching solderless terminal to the tuning capacitor. Be careful when disengaging the band switch guides.

TABLE 5-1 MAINTENANCE SCHEDULE

DAILY		TIME REQD: 5 MIN
STEP NO.	ACTION REQUIRED	* SECTION & STEP
1	Record accuracy of crystal oscillator output frequency. (When external standard is not used).	C1
2	Observe performance of equipment.	A1
MONTHLY		TIME REQD: 10 MIN
1	Clean equipment and service fan filter	F1
QUARTERLY		TIME REQD: 90 MIN
1	Record over-all sensitivity of Mode A1 (1-kc bandwidth) for all bands.	E1
2	Record over-all sensitivity of Mode A2 (Any Band)	E2
3	Record over-all sensitivity of Mode A3 (Any Band)	E3
4	Record over-all performance of Mode F1.	E4
5	Record over-all bandwidth at 6-db points for all bandwidth positions.	E5
6	Record over-all sensitivity of the USB, and LSB Amplifier-Detectors.	E6
7	Record bandpass of receiver on SSB Amplifier-Detectors.	E7
8	Record agc action for SSB Amplifier-Detectors.	E8
9	Record agc action for AM Amplifier-Detector.	E9
10	Lubricate counter mechanisms and drawer mechanisms.	F2

NOTE: STEPS NOT LISTED IN THIS SCHEDULE ARE "UNSCHEDULED STEPS".

* Refers to section and step of Maintenance Standards Book, NAVELEX 0967-163-2040.

(7) (A1A13) Loosen the screw attaching the solderless terminal to the tuning capacitor.

(8) (A1A15) Position band switch to 202-300 KC and crank tuning control to 202 KC.

(9) (A1A16) Position counter to +000.

(10) (A1A17) First remove main tuning module A1A15. Unsolder and tag connections for complete removal.

(11) Blister (A2).

(a) Disconnect plug A1A19J10 and clamps on the rear of the receiver drawer.

(b) Remove the drawer.

(c) Disconnect plug P2 from the fan assembly A3.

(d) Disconnect all blister cables from the rear of the cabinet.

NOTE

If the rear of the cabinet is not accessible, the external cables may be disconnected in the cabinet after the blister has been removed. In this case, the cables should be secured to prevent them from sliding out thru the rear of the cabinet.

(e) Release the slide fasteners and remove the blister module.

(12) Fan Assembly (A3). Remove blister A2 and the three screws that hold the fan assembly to the hinge.

5-4 REPAIR

a. Test equipment and special tools. Table 1-3 lists test equipment required. Alignment tools and test cables are listed in Table 1-2.

b. Table 5-5 is a resistance chart to aid in locating faulty components.

c. Modules may be tested by utilizing the test cables provided.

d. Nuvistor tubes are in a integral shield with guide pins which assure proper insertion.

e. Frequency divider modules are color coded and plug in type. Modules having the same color are interchangeable. They are not repairable and must be replaced when faulty. (Table 5-2 identifies these modules).

f. Band switch cable (P/O A1A15) is replaced by removing the module and proceeding as follows: (see figure 5-36)

(1) Remove the old cable by loosening clamps D1 and D2 on pulley D.

(2) Rotate the selector wheel to place the largest gear at the panel window.

(3) Loosen the clamp screw on pulley A and remove cable loop.

(4) Remove the remaining cable from the mechanism.

(5) Cut 3-½ feet of dial cable and fold it double to form a small loop at the center.

(6) Loosen the mounting screws at pulleys B and C.

(7) Slide both pulleys up toward the counter and tighten the mounting screws.

(8) Insert the loop thru slot in pulley A and secure under the washer at the clamp screw.

(9) Select one cable end and pass it over the top of pulley A, through the hole Z, over pulley C and once around pulley D to the slot. Pull cable taut and secure under the washer at clamp screw D2. (It will be necessary to move the band switch to 55-109 to find access to D2.)

(10) Pass the remaining cable end around pulley A (in a direction opposite to step (9)), thru hole Y, over pulley B, and partially around pulley D to the slot. Pull cable taut and secure under the washer at clamp screw D1.

(11) Loosen the mounting screws at pulleys B and C and slide down to apply cable tension and then tighten the mounting screws.

NOTE

Do not over tighten cable tension. Nominal adjustment provides for ±¼ inch of cable movement when pushed with finger between pulley D and pulley B or C.

(12) Check band switch operation for proper indexing of the four counter drums in the panel window. The counter drums should align centrally with the window.

(13) A minor adjustment of the counter wheel indexing can be made by loosening the set screw for the counter wheel detent lever.

TABLE 5-2. FREQUENCY DIVIDER MODULE IDENTIFICATION

IDENTITY		LOCATION AND SYMBOL		
COLOR	FUNCTION	A1A9	A1A11	A1A12
RED	÷2	Z3	--	--
GREEN	÷5	--	--	Z1, Z2
BLUE	÷10	Z1	Z1	--
ORANGE	÷100	Z2	--	--

5-5 OVERALL ALIGNMENT

Prior to alignment, the receiver must be in operating condition. Any attempt at alignment on a receiver that is faulty will be useless. Receiver and test equipment should have a 30 minute warm-up.

a. Verify that the following voltages are correct using AN/PSM-4 or equivalent. See figures 5-2, 5-3 and 5-5.

(1) Input voltage at A1A19TB1-11 and 12 is 105 to 120 vac.

(2) Unregulated heater supply at A1A19TB1-6 and 9 is 6.3vac ±10%.

(3) Unregulated plate supply at A1A19TB1-8 to GND is +165vdc ±10%.

(4) Regulated heater supply at A1A19TB4-2 and 5 is 5.6vac ±5%.

(5) Regulated plate supply at A1A19TB4-9 to GND is +120vdc ±5%.

(6) Regulated voltage for frequency dividers at A1A9-J3/(TP) to GND is +12vdc ±5%.

(7) Regulated voltage for XTAL/OSC at A1A9-J1 to GND is -24vdc ±5%. (See figures 5-2 and 5-48).

b. Check and adjust the CRYSTAL OSC A1A9. (See Figures 5-2, 5-27 and 5-48).

(1) Position the EXT/NOR/CAL switch to CAL.

(2) Connect the 1 MHz output of a standard (AN/URQ-9 or 10) to the external 1MC input (A2J5) at the rear of the receiver blister (A2). (See figures 5-30 and 5-57).

NOTE

This connection should have been made during installation. If not, and the receiver is mounted in a difficult access area, the receiver must be withdrawn from the case and the blister removed from the inside of the case to gain access to this connector.

(3) Observe the resonance meter and count the number of beats during a 100 second interval. (A beat is one deflection of the pointer and back to its original position.)

CAUTION

An oscillator considerably off frequency will give an indication of a stable pointer on the resonance meter.

(4) If the beat rate is greater than once during the 100 second period, remove the module cover and hole plug on the left side of the oscillator to gain access to the calibration capacitor.

(5) Using alignment tool 9Q5120-724-3767 (located in clip on bottom left wall of the receiver) adjust the calibration capacitor until the time between deflections exceeds 100 seconds. Return EXT/NOR/CAL switch to the NOR position.

NOTE

It may be helpful to connect a counter to A1A9-J2 for initial adjustment, however, the 100 second count method is far more accurate than the counter. A beat of one in 100 seconds is equivalent to a change of 1/100 of a cycle per second or one part in 10^8. Counter resolution at this frequency is good only to 10^6.

(6) Connect VTVM, or oscilloscope to A1A9-J2 and adjust L2 for a maximum vac indication. (10 volts P-P).

(7) Observe waveforms at A1A9-J2, J5, J7 and J9 for presence of signals as shown on figure 4-4.

NOTE

The 1 KHz spectrum at J9 is difficult to see and requires a oscilloscope with a minimum of 50 MHz rise time. If the 1 KHz tuning meter dips, it is a good assumption that this signal is ok.

(8) Replace the hole plug and module cover.

c. Check travel of the 1 KC tuning dials for all bands.

(1) Position band switch to 30-55 KC.

(2) Turn hand crank to both extremes, the counter should indicate a 2 to 3 KHz over-shoot prior to hitting the stops.

(3) On band two, the over-shoot should be 3 to 4 KHz, band three, 4 to 5 KHz and band four, 5 KHz.

(4) If the travel is not correct, adjust pile-up stops as follows (see figure 5-34):

(a) Note and record band and counter setting.

(b) Remove tuning module A1A15 to prevent damage to the tuning capacitor.

(c) Loosen screw (55) and turn spur gear (54) to position stop gear (66) for proper over-shoot.

(d) Tighten screw (55).

(e) Return band switch and counter setting to the position prior to removal and reinsert the module.

CAUTION

Do not force the tuning capacitor beyond its stop. The counter stops should be within the range of the capacitor tuning. When coupled, the tuning capacitor coupling should be able to travel nearly one full turn or more at either end after the counter stops.

d. Check and adjust first injector A1A10 and filter A1A18. See figures 5-4, 5-5, 5-49 and 5-55.

(1) Tune the receiver incrementally to 165.5 KHz.

(2) Remove cover of A1A10 and adjust L1, L2, L3 and L4 for a maximum "dip" on the 1 KC tuning meter.

(3) Adjust L1 on the 600 KHz filter A1A18 for a maximum "dip" on the 1 KC tuning meter.

e. Calibrate the H.F. oscillator A1A8. See figures 5-5, 5-47 and table 5-3.

(1) Connect a frequency counter to J1 on the first injector module A1A10.

(2) Remove the kilocycle counter bezel. Tune the receiver incrementally to the frequencies listed in the frequency (KC) column of table 5-3. The last digit normally hidden by the bezel, must fall within the tolerance listed on table 5-3. The receiver is properly tuned when the 1 KC tuning meter is "dipped" and the frequency counter reads the correct H.F. OSC frequency. This is always 1716 KHz above the KC counter reading.

If adjustments are required, use table 5-3 and set counters exactly as shown in the "center" column and adjust associated components for the correct reading on the frequency counter.

NOTE

Transformer T1 thru T4 are under access plates and are tuned using a non-metalic wand to position the wire-loop very slightly. Always try tuning the capacitors first and repeat checks on either end. When approaching correct frequency counter reading while making adjustments, check by moving dial counter slightly until the correct frequency counter reading can be obtained within a half division change on the fourth dial counter. Tuning is more difficult on the higher bands. Repeat tuning checks on each end of every band and adjust as required.

(3) Replace the bezel and transformer covers when alignment is completed.

TABLE 5-3. ALIGNMENT CHART, HF OSCILLATOR A1A8

BAND (KC)	FREQUENCY (KC)	KILOCYCLES COUNTER SETTING			ADJUST FOR CORRECT FREQUENCY	HF OSCILLATOR FREQUENCY (KC) (READ ON COUNTER)
		CENTER	TOLERANCE LOW	TOLERANCE HIGH		
30-55	30 55	0305 0555	0303 0553	0307 0557	T1 C5 and C6	1746 1771
55-109	55 109	0555 1095	0553 1093	0557 1097	T2 C13	1771 1825
109-202	109 202	1095 2025	1093 2023	1097 2027	T3 C20	1825 1918
202-300	202 300	2025 3005	2023 3003	2027 3007	T4 C27	1918 2016

f. Check stops on cycles counter.

(1) Position crank to stops in the counter-clockwise direction. Pile up should occur at a counter reading of -850 (approx.).

(2) Position crank to stops in the clockwise direction. Pile up should occur at +147 (approx.).

NOTE

Variable air capacitor A1A19-C3 is rotatable 360 degrees. The only stops are in the counter mechanism. There are approximately 13 revolutions of the coupling to one revolution of the capacitor. If misalignment of the coupling should occur, position the counter to its extreme counterclockwise position (-850). Remove the cover of tuning capacitor A1A19-C3 and position the coupling so that large plates are completely unmeshed or open. If it is necessary to adjust the counter to the stops, (figure 5-35), loosen set screws (17) on small gear (16) and rotate to the desired setting, tighten the set screws.

g. Check and align the second injector (A), A1A12. (See figures 5-4, 5-24, 5-25 and 5-51).

(1) Connect an oscilloscope or VTVM to A1A11-J5 in the second injector (B). (This provides isolation of second injector (A) A1A12 while making adjustments).

(2) Set the KILOCYCLES COUNTER to 165.

(3) Place TUNING CONT/INC to the CONT position.

(4) Remove cover and use special Cambion tool (located in clip on lower left wall on the bottom of the receiver) to tune L1 of A1A12 for a maximum "dip" on the 10 cycle tuning meter.

NOTE

If necessary cut off an inch or so from the handle end of the tool. Do not use extender cables when tuning.

(5) Place TUNING CONT/INC switch to INC.

(6) Set cycles counter to 500 and tune for a maximum dip on the 10~ tuning meter.

(7) Tune L1 again for maximum "dip" on the 10~ tuning meter.

(8) Adjust C5, L2, L3, L4, L5 and L6 for a maximum dip on the 10~ tuning meter.

(9) Adjust L9, L10 and L11, for a maximum indication on the VTVM or oscilloscope connected at A1A11-J5.

(10) Replace cover.

h. Check and adjust the second injector (B), A1A11 (See figures 5-5, 5-22, 5-23 and 5-50).

(1) Tune the receiver incrementally to 165.5 KHz.

(2) Remove module cover.

(3) Connect VTVM for negative dc voltage at A1A11-J18.

(4) Using special cambion tool adjust L2, L3, L4 and L5 for maximum negative voltage at A1A11-J18 (approximately -3vdc).

(5) Replace the module cover.

i. Check and adjust the interpolator oscillator A1A13. (See figures 5-4, 5-5, 5-26 and 5-52).

(1) Tune the main tuning control to 165 KHz and lock the dial.

(2) Connect frequency counter to A1A12-J22.

(3) Set the cycles counter to +000 (this reading follows 999). Note the frequency counter reading (above or below 122 KHz).

(4) Set the cycles counter to 000 (just after -999). Note the frequency counter reading, (above or below 132 KHz).

NOTE

It will be necessary to over compensate at one end to bring in the other. Make adjustments at both ends until no further adjustment is necessary. Note the frequency counter reading at each end during tuning to calculate the amount of over-shoot required. (C4 will only control the oscillator, by approximately 20 Hz). When making adjustments it is easier to lock the secondary tuning dial and carefully remove assembly A1A16 to gain access to the adjustments.

(5) Adjust coil L1 for a frequency counter reading of 122.000 KHz with the dial at +000.

(6) Adjust capacitor C6 (course) and C4 (fine) for a frequency counter reading of 132.000 KHz with diat at 000.

(7) Check to insure the adjustments are locked when tuning is completed.

j. Check and adjust the preselector, A1A2/3/4. (See figures 5-5, 5-42, 5-43, 5-44 and table 5-4).

(1) Set the cycles counter to 000 (just after -999).

(2) Connect the signal generator AN/URM-25 to the ANT input.

(3) Set band switch and tune receiver incrementally to 30.000 KHz.

(4) Set AM MODE switch to A2.

(5) Set USB, AGC switch to OFF.

(6) Set AF and RF gain controls to 10.

(7) Connect a frequency counter to monitor the output of the signal generator. Carefully adjust the signal generator for 30.000 KHz. Modulate the signal generator output with 400 hertz at 30% and adjust output amplitude for an audible tone in headphones connected to LINE B.

(8) Connect AC voltmeter to LINE B output and adjust the receiver for a deflection on the 10db scale.

NOTE

When using an external output meter, be sure line is terminated in 600 ohms.

(9) Adjust lst RF AMP, 2nd RF AMP and Mixer (use Table 5-4) for a maximum output at LINE B. Reduce the signal generator output as required to keep pointer on scale.

NOTE

When tuning at 30 KHz it is sometimes impossible to notice a change, so set transformer tuning slugs to a mid-point.

(10) Retune signal generator and receiver to 55.000 KHz. Make adjustments in accordance with Table 5-4.

(11) Repeat at both ends of the band until proper tracking is accomplished.

(12) Complete the tuning for the remaining bands.

TABLE 5-4. ALIGNMENT CHART, PRESELECTOR A1A2, A1A3, A1A4

BAND (KC)	RECEIVER FREQUENCY	SIG GEN FREQUENCY	TUNE FOR MAXIMUM 1st RF AMPL (A1A2)	2nd RF AMPL (A1A3)	MIXER (A1A4)
30-55	30.0	30.0	T1, T5	L3	T1
	55.0	55.0	C11	C2	C6
55-109	55.0	55.0	T2, T6	L4	T2
	109.0	109.0	C12	C3	C7
109-202	109.0	109.0	T3, T7	L5	T3
	202.0	202.0	C13	C4	C8
202-300	202.0	202.0	T4, T8	L6	T4
	300.0	300.0	C14	C5	C9

k. Tune and adjust the first i-f amplifier, A1A5. (Figures 5-4, 5-1 and 5-45).

(1) Tune signal generator using frequency counter to 165.500 KHz modulated 400 hertz at 30%.

(2) Tune the receiver incrementally 165.500 KHz.

(3) Adjust L1, C11, C13 and L4 for maximum output at LINE B.

l. Tune and adjust the USB module A1A6 (see figures 5-2, 5-12, 5-13, 5-14 and 5-46).

(1) Connect output meter to LINE A and set USB AF level control to 10, AGC to OFF and RF gain to maximum.

(2) Connect the signal generator to A1A5-J4.

(3) Tune the signal generator to 99.000 KHz, CW approximately 1 mv amplitude (monitor with frequency counter).

(4) Adjust A1A6A1-L1 thru L5 (figure 5-13) for maximum output at LINE A.

(5) Adjust A1A6-L1 (located center rear of module, figure 5-12) for maximum on the output meter.

(6) Remove the signal generator from A1A5-J4 and reconnect to ANT IN jack.

(7) Tune the receiver incrementally to 165.500 KHz.

(8) Adjust the signal generator for 166.500 KHz, CW at approximately 1 uv amplitude (1 KHz above receiver frequency).

(9) Tune "Reserve Gain" potentiometer A1A6A1-R4 to its full clockwise position.

(10) Adjust RF and AF gain controls for an indication of +18 db on the LINE A output meter.

(11) Adjust the "Reserve Gain" potentiometer A1A6A1-R4 for a 20 db drop on the LINE A output meter (-2 db reading).

(12) Set the AM mode switch to A1 to prevent AM agc from adding to the side band agc.

(13) Set the agc level A1A6A2-R4 fully counter clockwise.

(14) Increase the generator output for an indication of +10 db on the LINE A output meter.

(15) Connect VTVM to read negative voltage at A1A6A2-J7 and adjust A1A6A2-T1 for maximum negative voltage on meter.

NOTE

It may be necessary to advance AGC level control slightly for an indication.

(16) Turn the AGC switch to ON.

(17) Adjust AGC level control for a barely perceptable drop on the LINE A output meter (1/2 to 1 db).

NOTE

The LSB module is aligned in the same fashion except the generator frequency for the i-f is 101.000 KHz and RF is 164.500 KHz.

m. Tune and adjust the AM Detector A1A20 (See figures 5-14, 5-15, 5-16, 5-46 and 5-56).

(1) Connect output meter to LINE B and set the LSB, AF level control full clockwise and MODE switch to A2.

(2) Connect signal generator to A1A5-J4. Tune the signal generator to 100 KHz and modulate with 400 hertz 30%, approximately 1 mv amplitude.

(3) Peak coils L1 thru L5 on the A1 subassembly and L1 on the main chassis.

(4) Remove the generator and connect to the ANT terminal.

(5) Set generator for 165.500 KHz modulated 400 hertz at 30% approximately 1 uv amplitude.

(6) Tune receiver to 165.500 KHz incrementally.

(7) Set USB, AGC switch to OFF and AM MODE switch to A3.

(8) Turn reserve gain A1A20A1-R4 fully clockwise.

(9) Adjust signal generator, RF gain and AF gain for an output of +18 db on the LINE B output meter.

(10) Adjust the reserve gain for a 20 db drop on the LINE B meter (-2 db reading on meter).

(11) Set the AGC level A1A20A2-R4 fully counter-clockwise.

(12) Increase generator output for an indication of +10 db on the LINE B output meter.

(13) Connect VTVM to read a negative voltage at A1A20-J7.

NOTE

It may be necessary to advance agc level potentiometer R4 for an indication.

(14) Adjust A1A20A2-T1 for a maximum negative voltage.

(15) Increase the AGC level until a drop is just preceptable on the line meter. (1/2 to 1 db).

(16) Disconnect the generator.

(17) Connect the frequency counter to A1A20A3-J2.

(18) Position MODE switch to A1.

(19) Adjust A1A20A3-C15 for a counter reading of 99.000 KHz.

(20) Position MODE switch to F1.

(21) Adjust A1A20A3-C20 for a counter reading of 97.450 KHz.

5-6 RESISTANCE CHART (Table 5-5)

a. All measurements are made from tube socket terminals and chassis unless otherwise stated with the module connected by means of test cables, or with module in place using tube socket adapters.

b. The symbol "K" in the table represents Kilohms and the symbol "M" represents Megohms.

c. Use AN/USM-116 (or equivalent) for all measurements. Prior to taking measurements, position receiver controls as follows:

(1) RF GAIN: fully clockwise.

(2) AF LEVEL: fully clockwise.

(3) PHONE LEVEL: fully clockwise.

(4) TUNING CONT/INC: INC

(5) BAND: 109-202.

(6) SSB AGC: ON

(7) TUNING CONTROLS: Tuned incrementally to 150.000 KHz.

(8) MODE SW: A3.

(9) BANDWIDTH: 8 KHz

5-7 PARTS LOCATION ILLUSTRATIONS

Figures 5-1 thru 5-33 and 5-37 are the parts location illustrations. They identify the relative locations of all circuit elements and test points for each module in the receiving set. Figures 5-34 and 5-35 are exploded views of the counter mechanisms A1A15 and A1A16.

5-8 SCHEMATIC DIAGRAMS

Schematic diagrams are provided in figures 5-39 thru 5-58. Heavy weight lines indicate the main signal path, and flow is depicted by arrow heads. Secondary signal lines are light weight and have small arrow heads for flow.

All part values are given in ohms, pico-farads and microhenries unless otherwise indicated.

The dc resistance of inductors and transformers are omitted if less than one ohm.

All resistors are rated 1/2 watt unless otherwise specified.

TABLE 5-5 RESISTANCE CHART

SYMBOL & TYPE	PIN NUMBER											
	1	2	3	4	5	6	7	8	9	10	11	12
	FIRST RF AMPLIFIER (A1A2)											
V1 5749	620k	150	0	0	4.6k	12k	150					
	SECOND RF AMPLIFIER (A1A3)											
V1 5749	660k	160	0	0	5k	15k	160					
	PRESELECTOR MIXER (A1A4)											
V1 5750	240k	210	0	0	5k	21k	7					
	FIRST I-F AMPLIFIER (A1A5)											
V1 5749	400k	160	0	0	4.3k	17k	160					
V2 5750	110k	220	0	0	4.5k	15k	0					
	100-KC I-F AMPLIFIER A1 (p/o A1A6, A1A7, A1A20)											
V1 7586		8.5k		600k				2.8k		0		0
V2 7586		8.5k		130k				2.8k		0		0
V3 7586		8.5k		80k				140		0		0
V4 7586		8.5k		325k				140		0		0
V5 7586		8.5k		750k				130		0		0
	AGC AND AF AMPLIFIER A2 (p/o A1A6, A1A7, A1A20)											
V1 7586		16k		48k				130		0		0
V2 7586		40k		1.1m				1.1k		0		0
V3 7586		13k		500k				130		0		0
V4 7586		80k		1.1m				1k		0		0
V5 7586		3k		1.6k				420		0		0
V6 7586		3k		2.6k				420		0		0

TABLE 5-5 RESISTANCE CHART (Cont.)

SYMBOL & TYPE	PIN NUMBER											
	1	2	3	4	5	6	7	8	9	10	11	12
	DETECTOR AND BFO A3 (p/o A1A20)											
V1 7586		28k		230k				50		0		0
V2 7586		80k		1k				0		0		0
	HIGH-FREQUENCY OSCILLATOR (A1A8)											
V1 5670	2	0.2	16k	6k	--	6k	16k	0.2	0			
V2 7586		30k		100k				2k		--		--
	FIRST INJECTOR (A1A10)											
V1 5725	36k	240	0	0	3.4k	15k	100k					
V2 7586		4k		220k				0		0		0
V3 7586		4k		260k				260		0		0
V4 7586		4k		100k				1.5k		0		0
	SECOND INJECTOR (B) (A1A11)											
V1 7586		23k		9.2k				10k		0		0
V2 7586		24k		10k				460		0		0
V3 7586		22k		100k				460		0		0
V4 7586		50k		11k				340		0		0
V5 7586		26k		3.2				340		0		0
	SECOND INJECTOR (A) (A1A12)											
V1 7586		24k		1m				460		0		0
V2 7586		25k		1m				460		0		0
V3 7586		2k		500k				0		0		0

TABLE 5-5 RESISTANCE CHART (Cont.)

SYMBOL & TYPE	PIN NUMBER											
	1	2	3	4	5	6	7	8	9	10	11	12
	SECOND INJECTOR (A) (A1A12) (Cont.)											
V4 7586		2k		900k				200		0		0
V5 7586		4.0k		100k				1.6k		0		0
	INTERPOLATOR OSCILLATOR (A1A13)											
V1 5654	280k	100	0	1.6k	6k	6k	100					

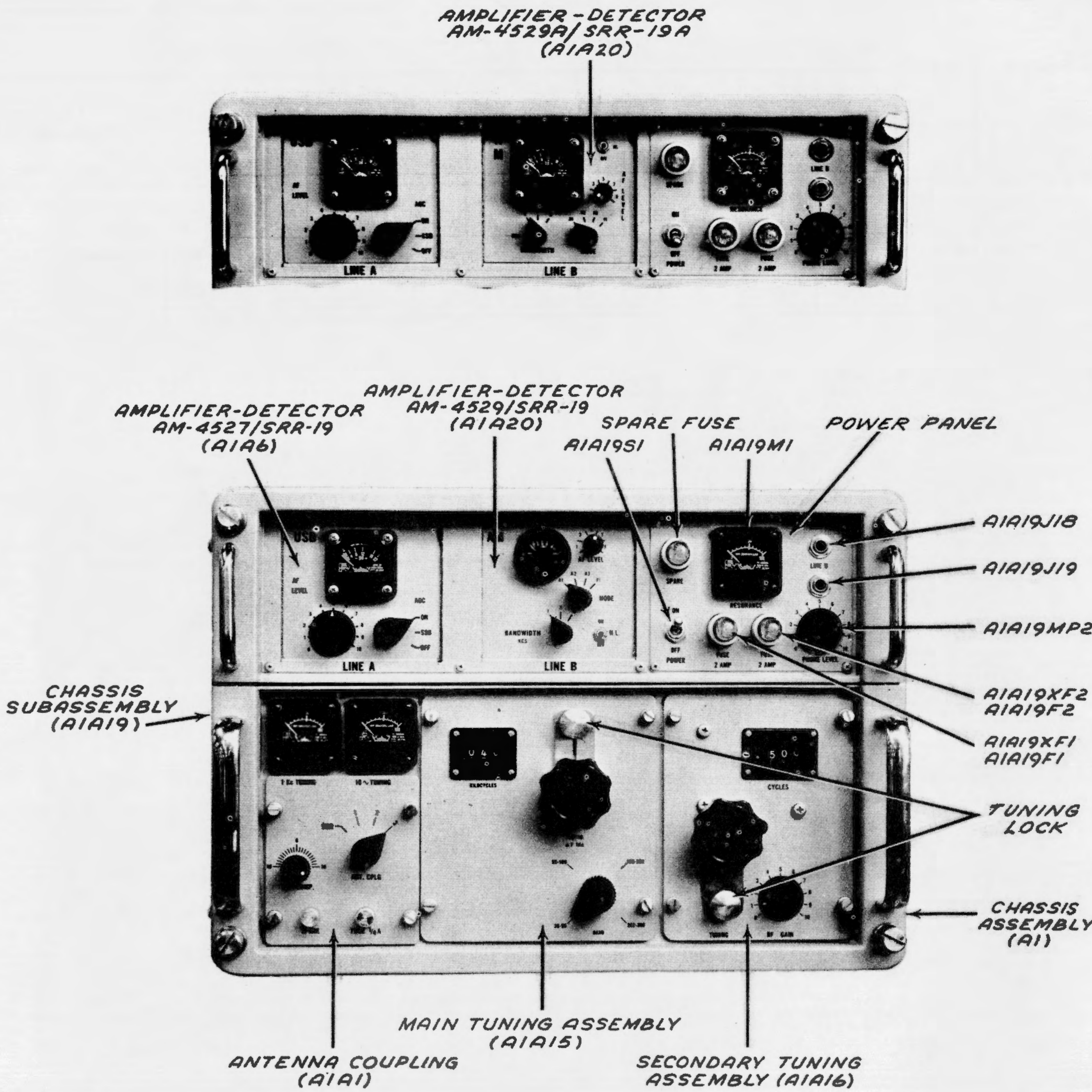


Figure 5-1. Radio Receiving Set AN/SRR-19 ( ), Front Panel (p/o A1A19), Parts Location

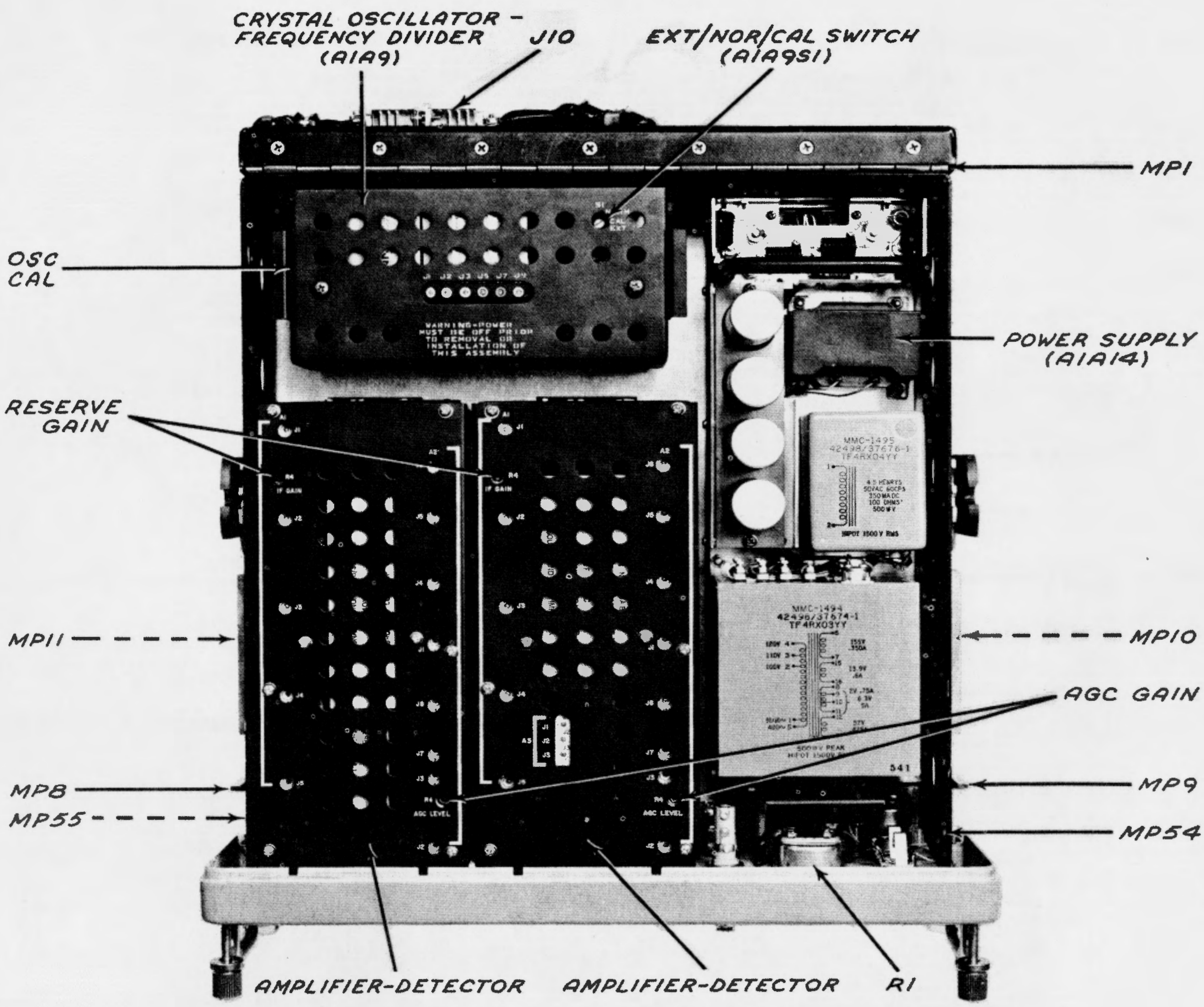


Figure 5-2. Radio Receiving Set AN/SRR-19 ( ), Upper Deck, Top View

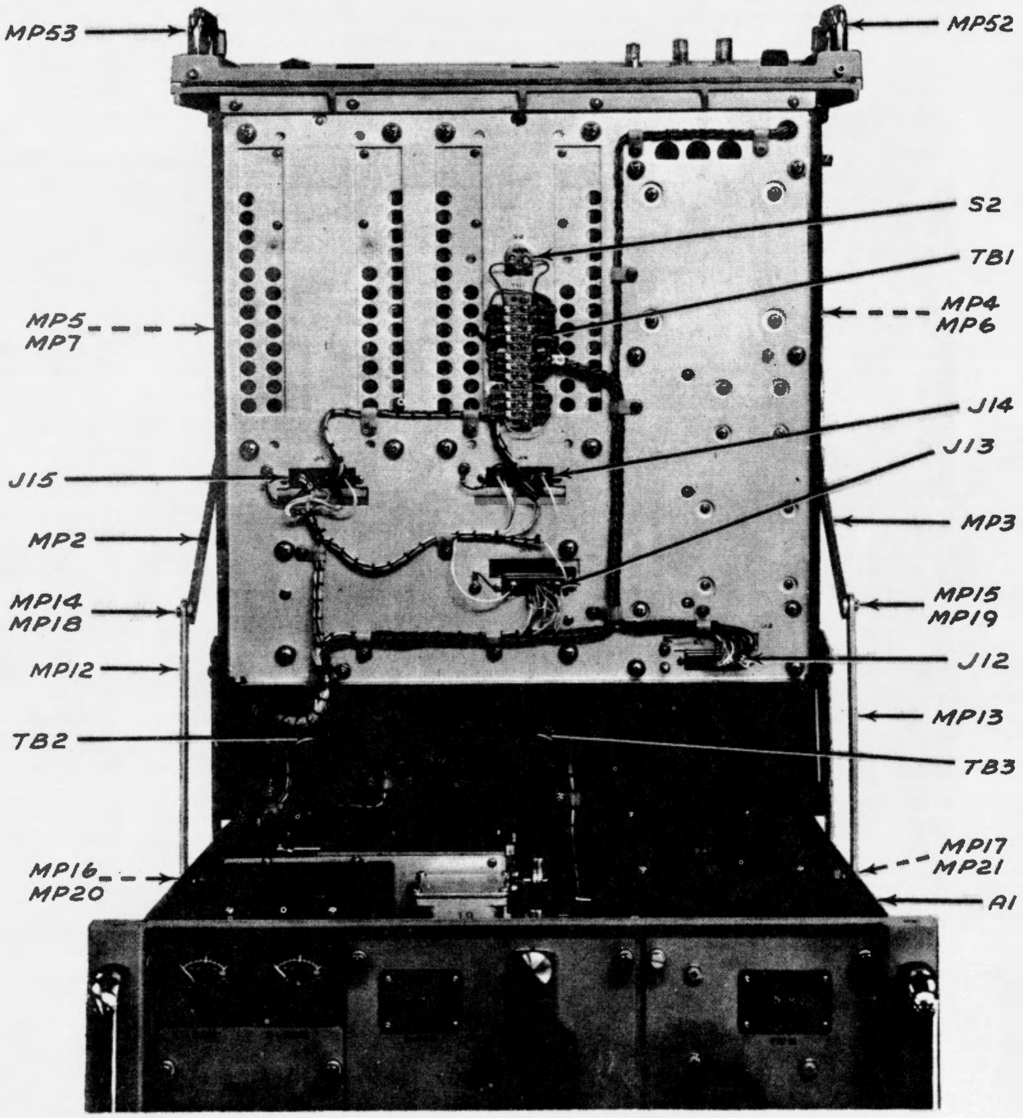


Figure 5-3. Radio Receiving Sets AN/SRR-19 ( ), Upper Deck, Bottom View

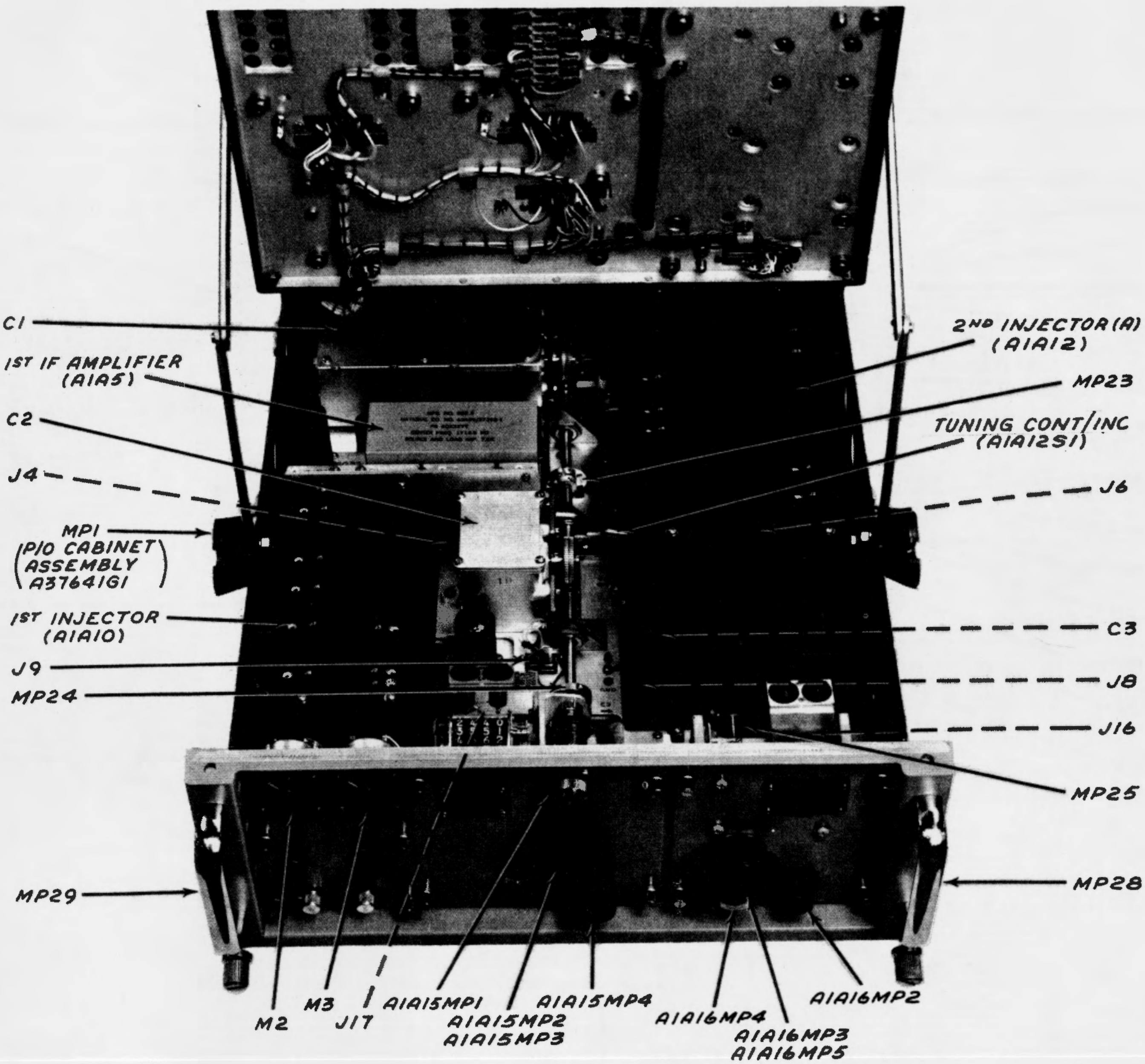


Figure 5-4. Radio Receiving Sets AN/SRR-19 ( ), Lower Deck, Top View

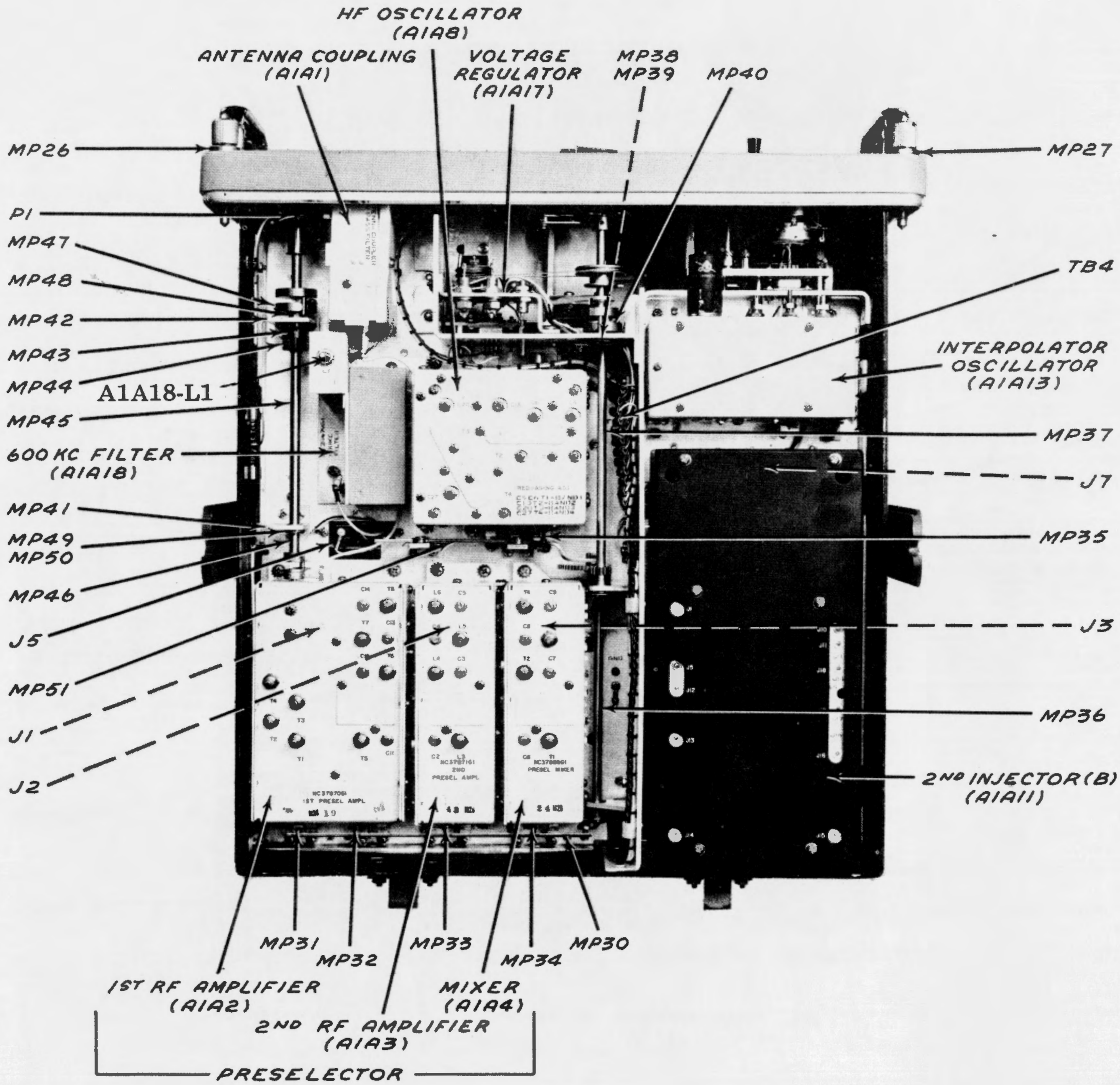


Figure 5-5. Radio Receiving Sets AN/SRR-19 ( ), Lower Deck, Bottom View

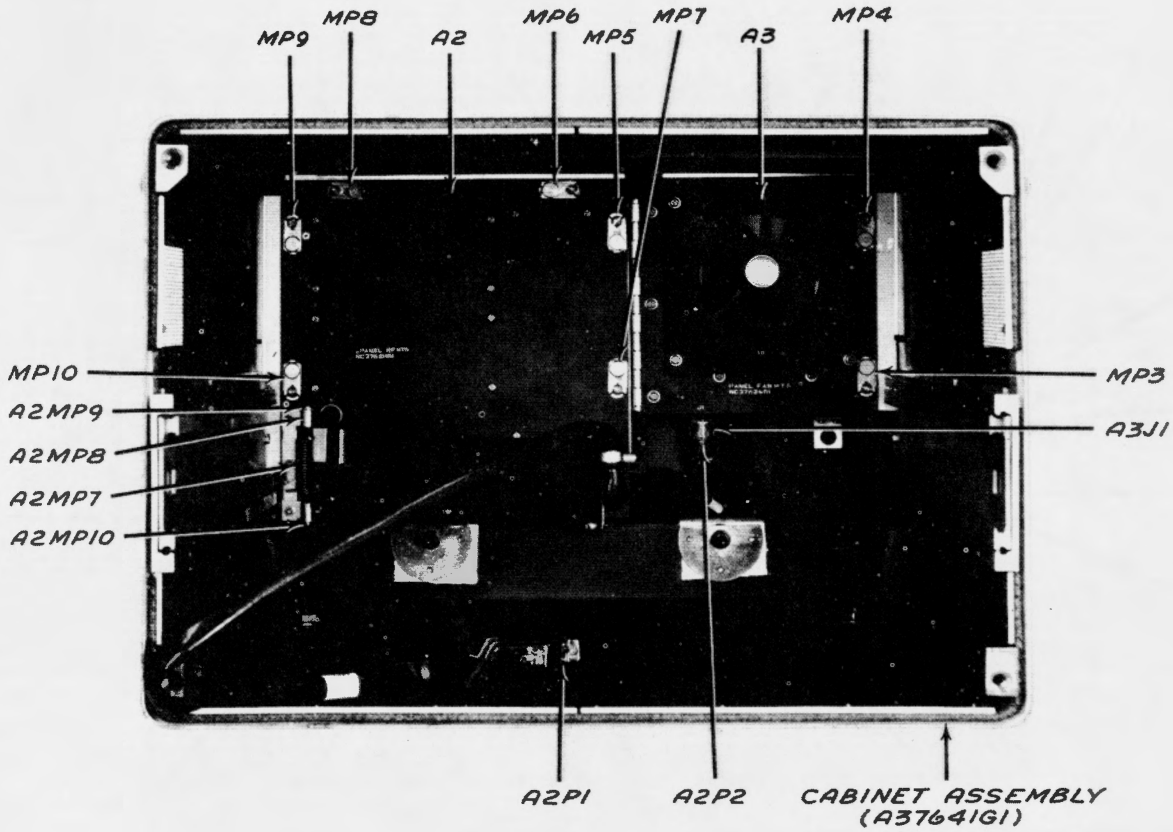


Figure 5-6. Radio Receiving Sets AN/SRR-19 ( ), Cabinet, Interior View

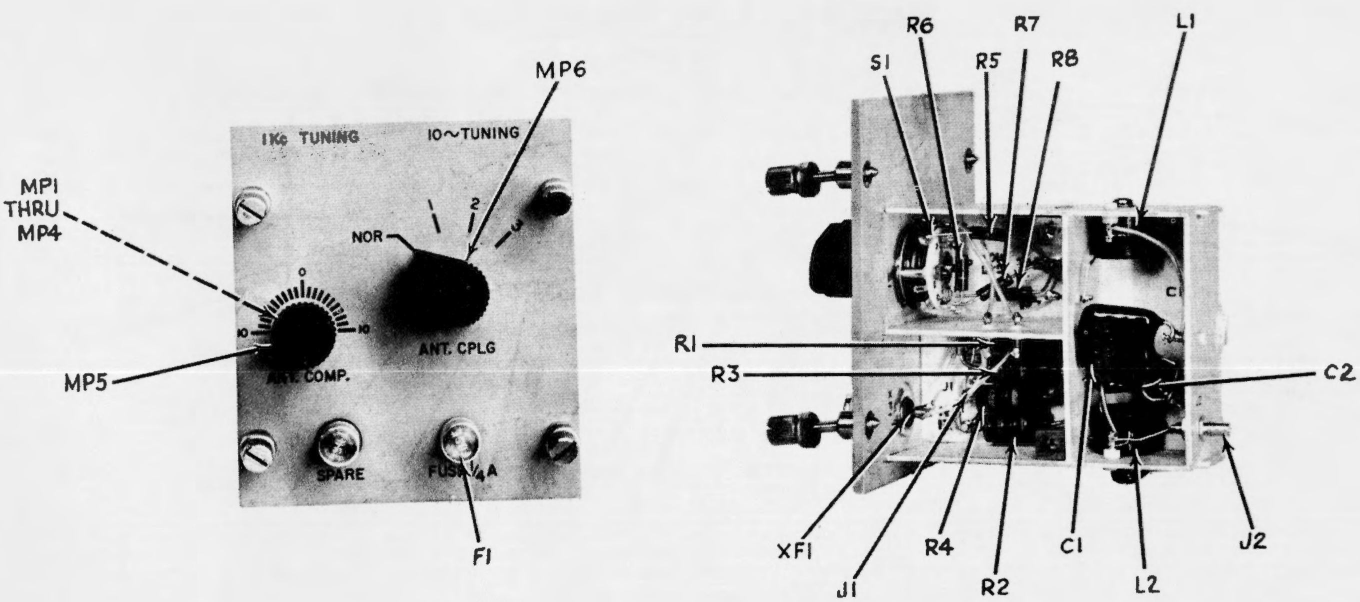


Figure 5-7. Antenna Coupling A1A1, Parts Location

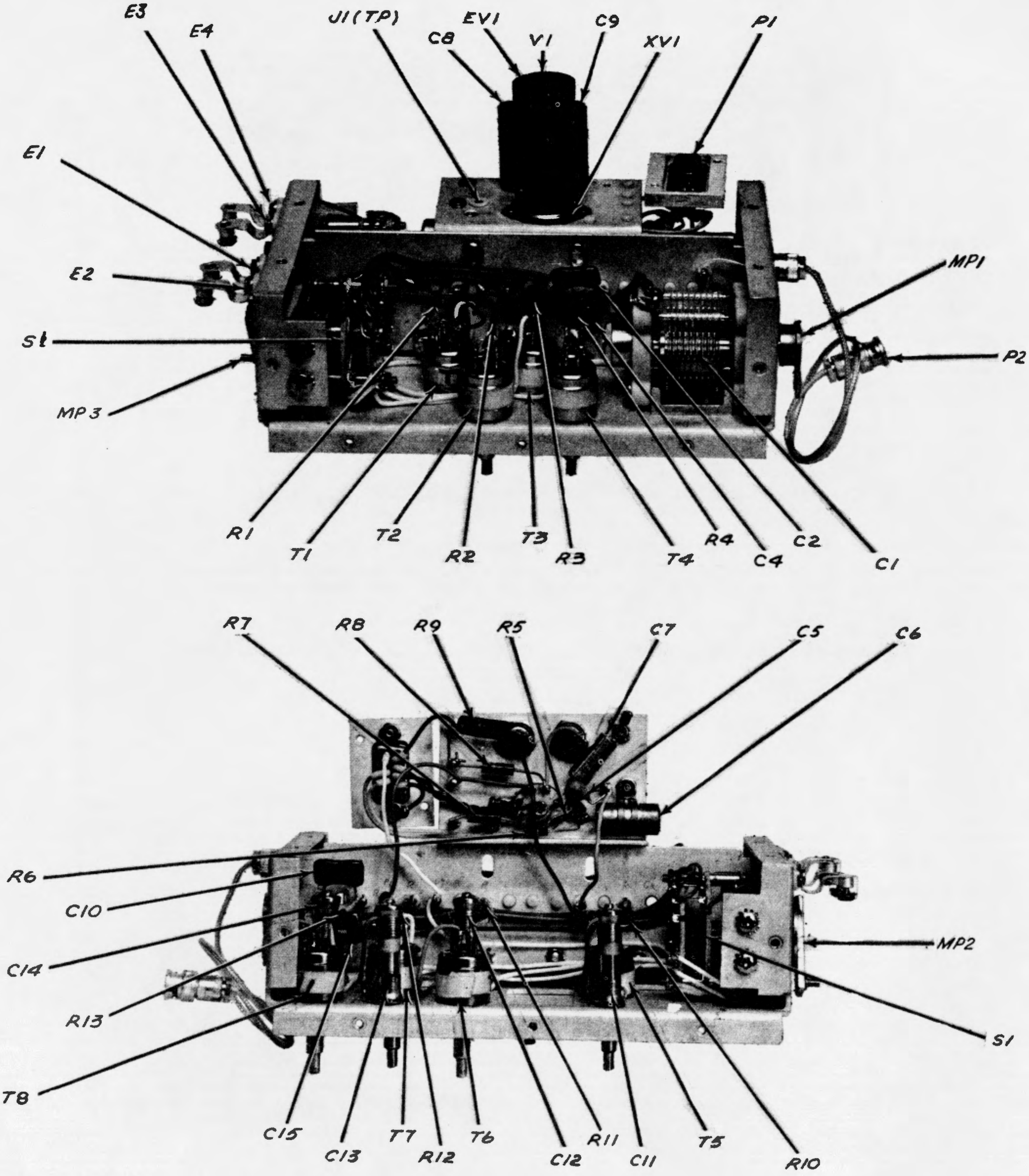
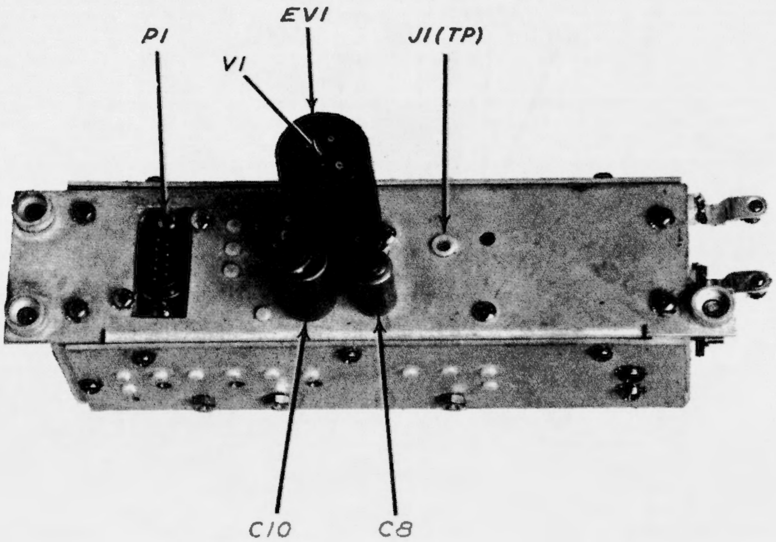


Figure 5-8. Preselector; First Rf Amplifier A1A2, Parts Location and Test Points



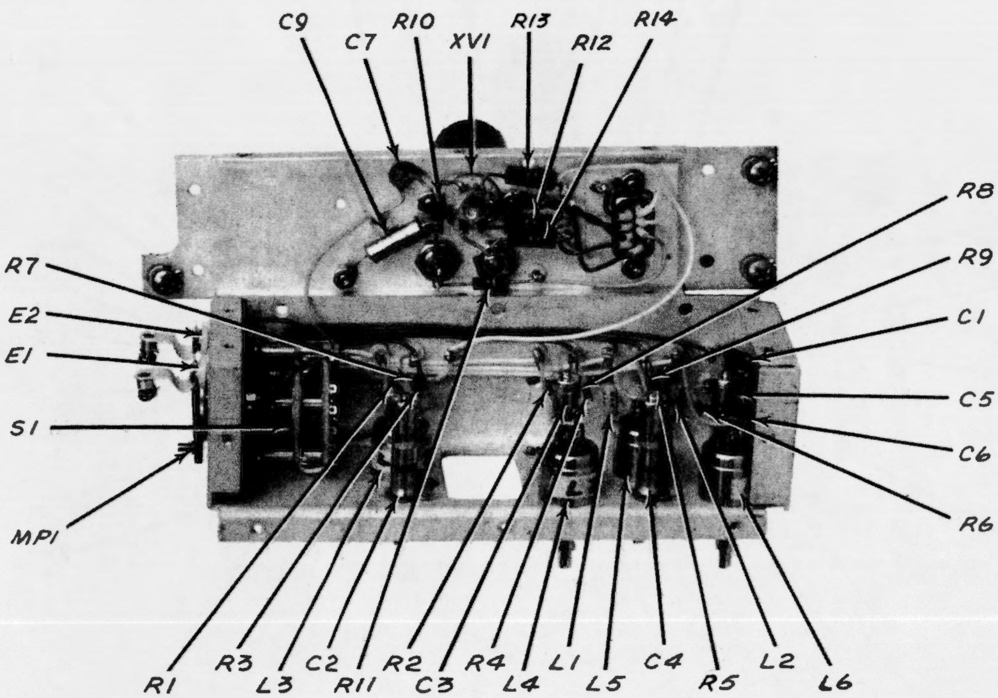
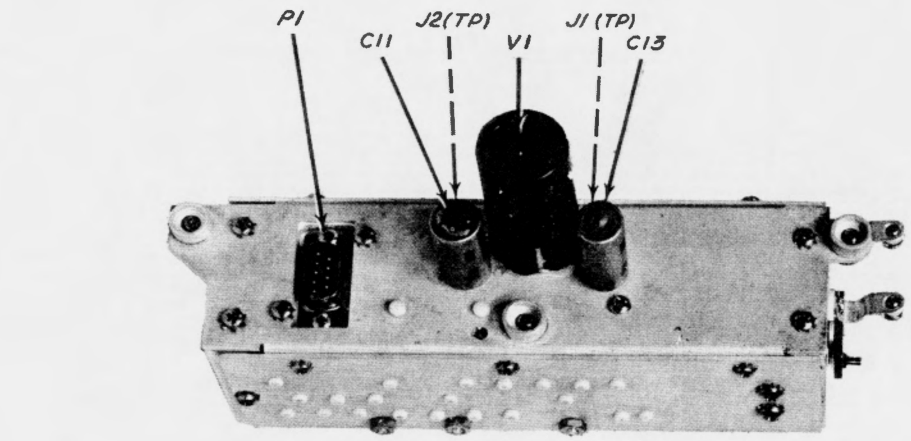


Figure 5-9. Preselector; Second Rf Amplifier A1A3, Parts Location and Test Points



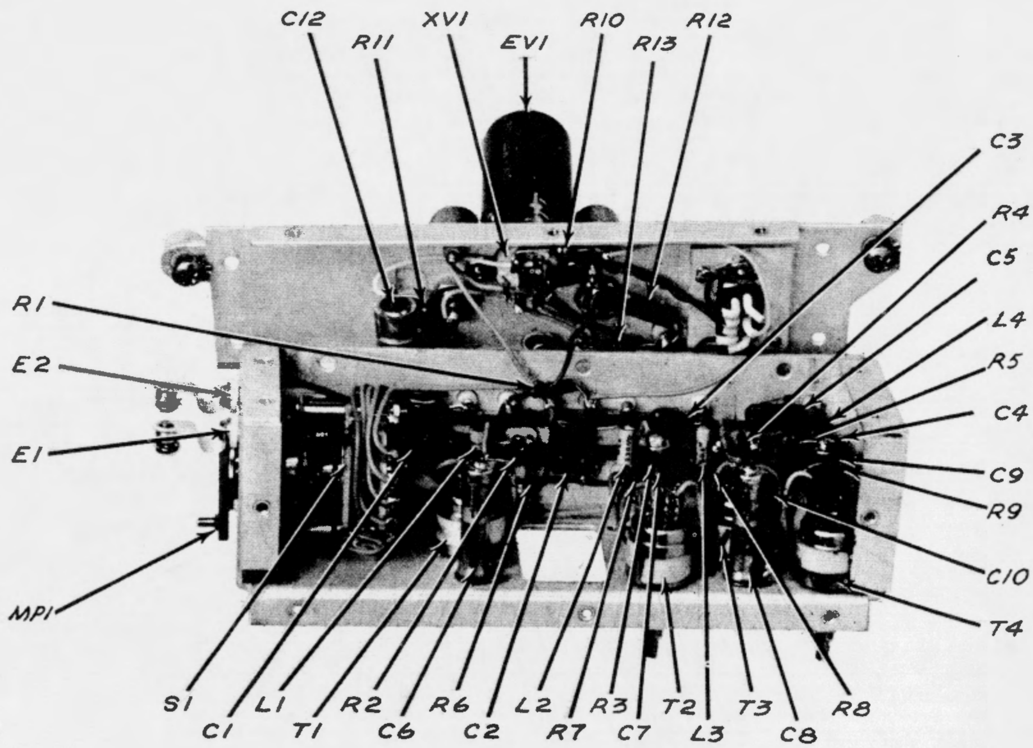


Figure 5-10. Preselector; Mixer A1A4, Parts Location and Test Points

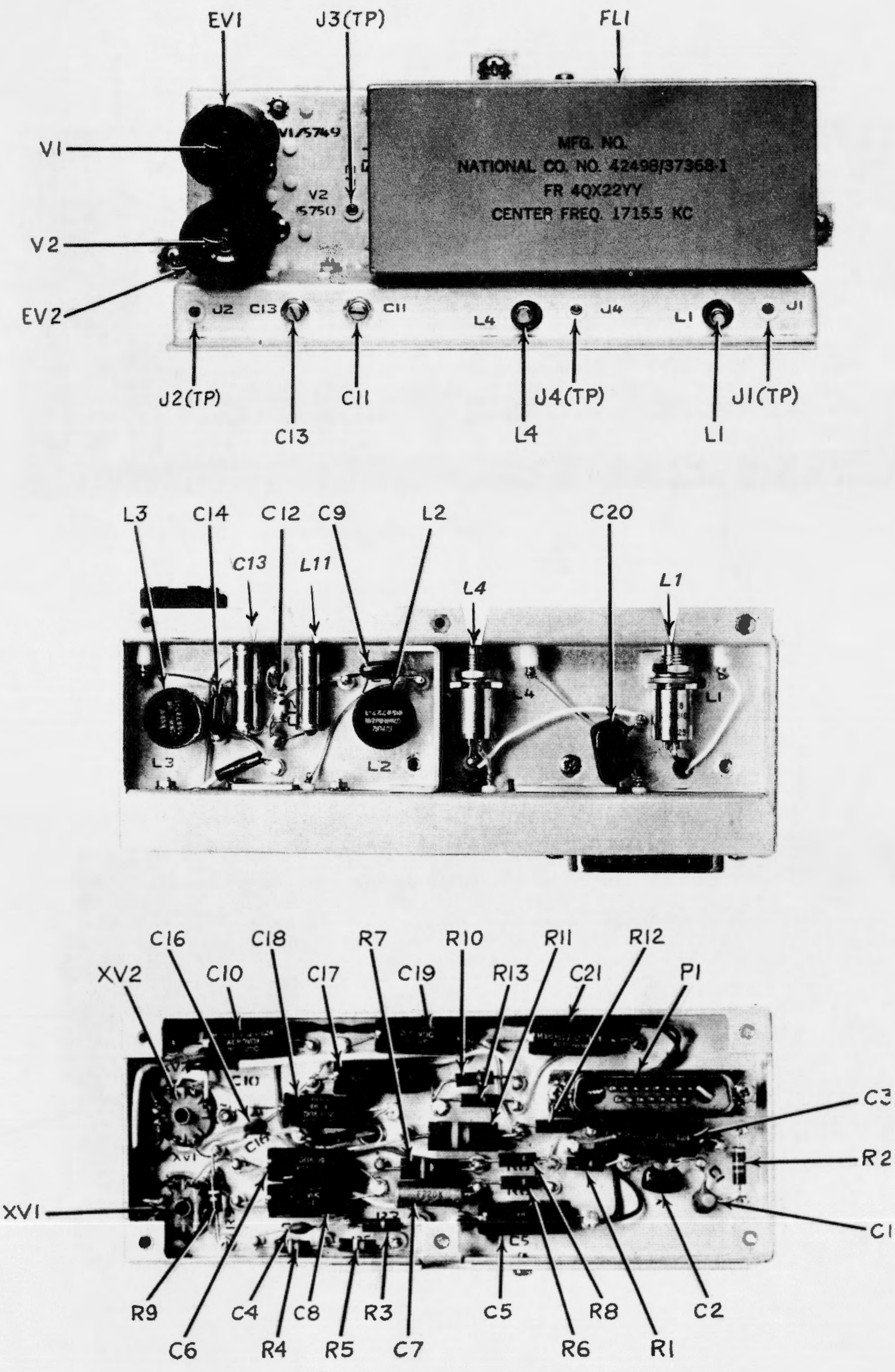
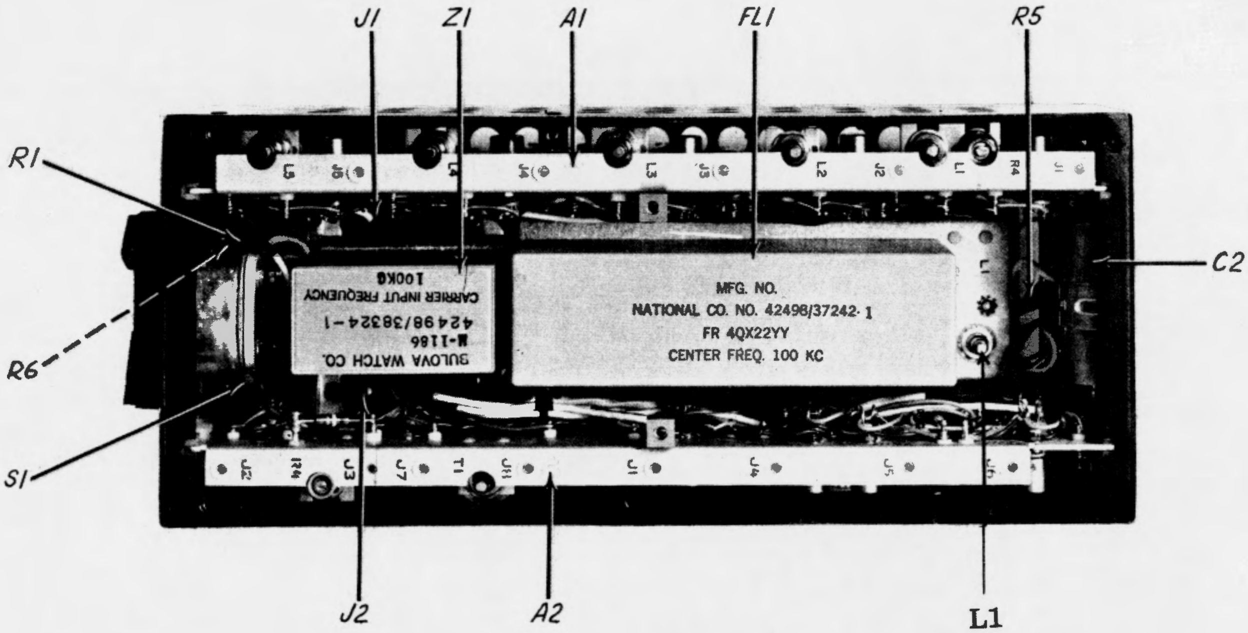


Figure 5-11. First I-F Amplifier A1A5, Parts Location and Test Points



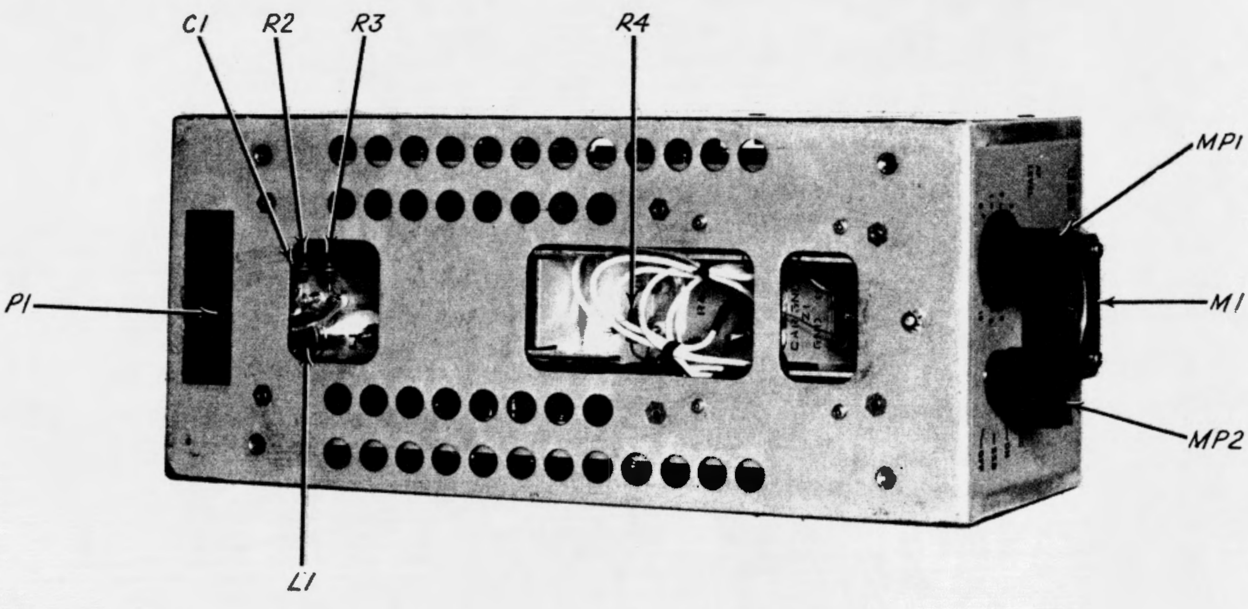
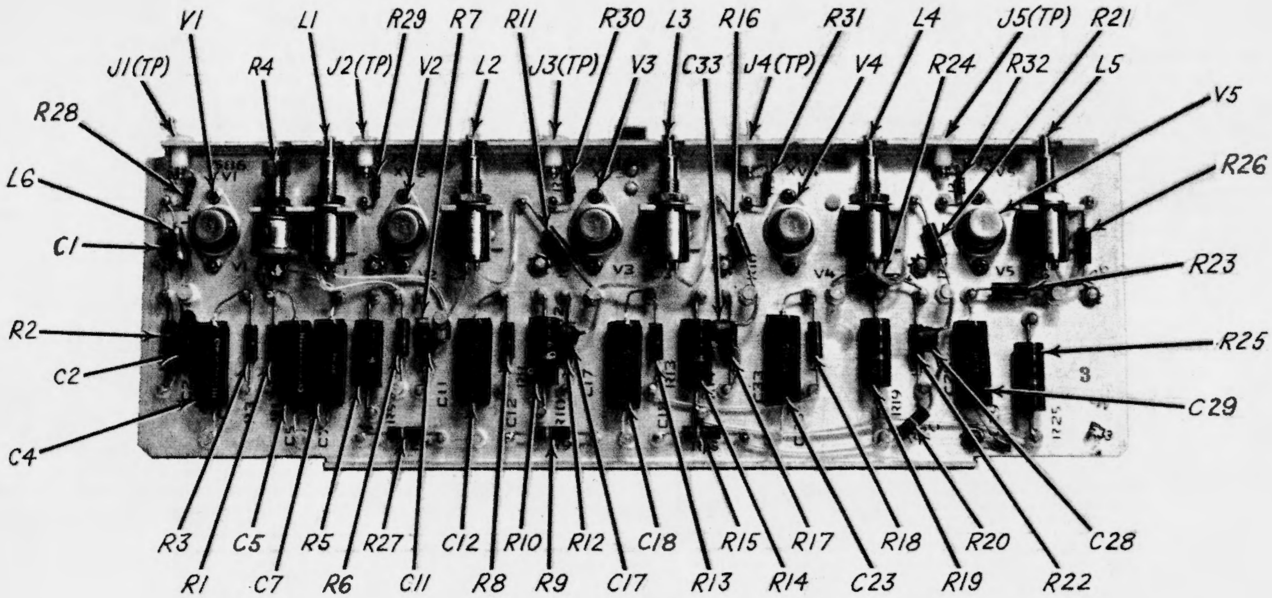


Figure 5-12. Ssb Amplifier-Detectors (A1A6 and A1A7), Parts Location and Test Points



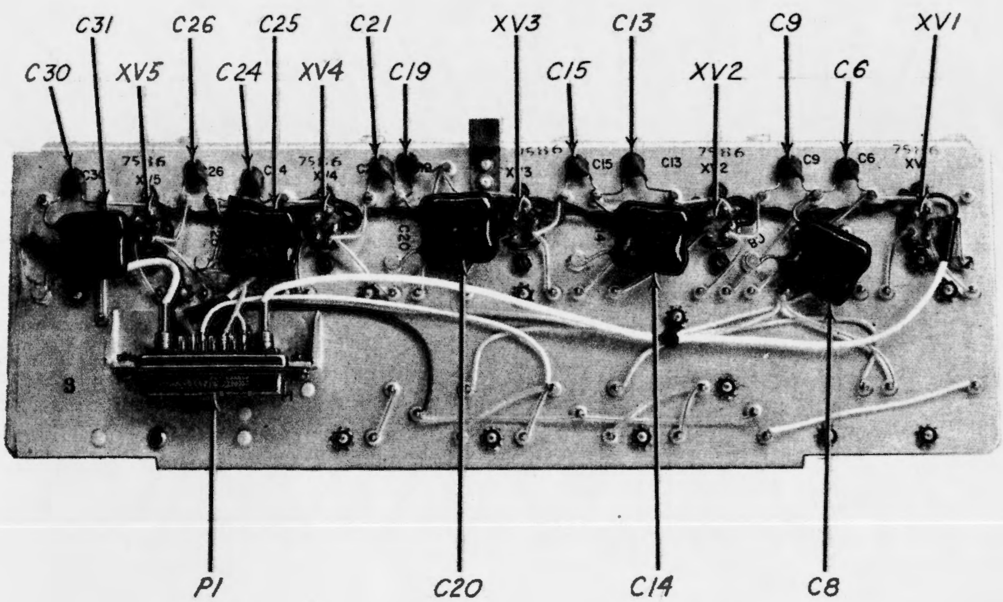
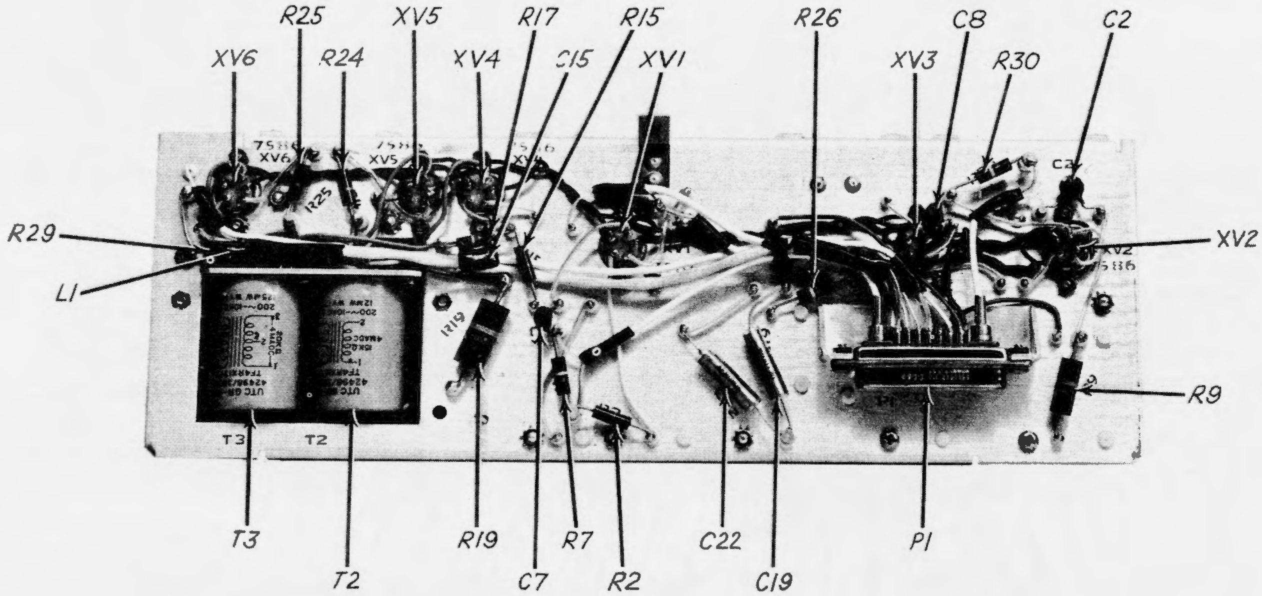


Figure 5-13. 100-Kc I-F Amplifier (Subassembly) A1A6A1, A1 A7A1, and A1A20A1, Parts Location and Test Points



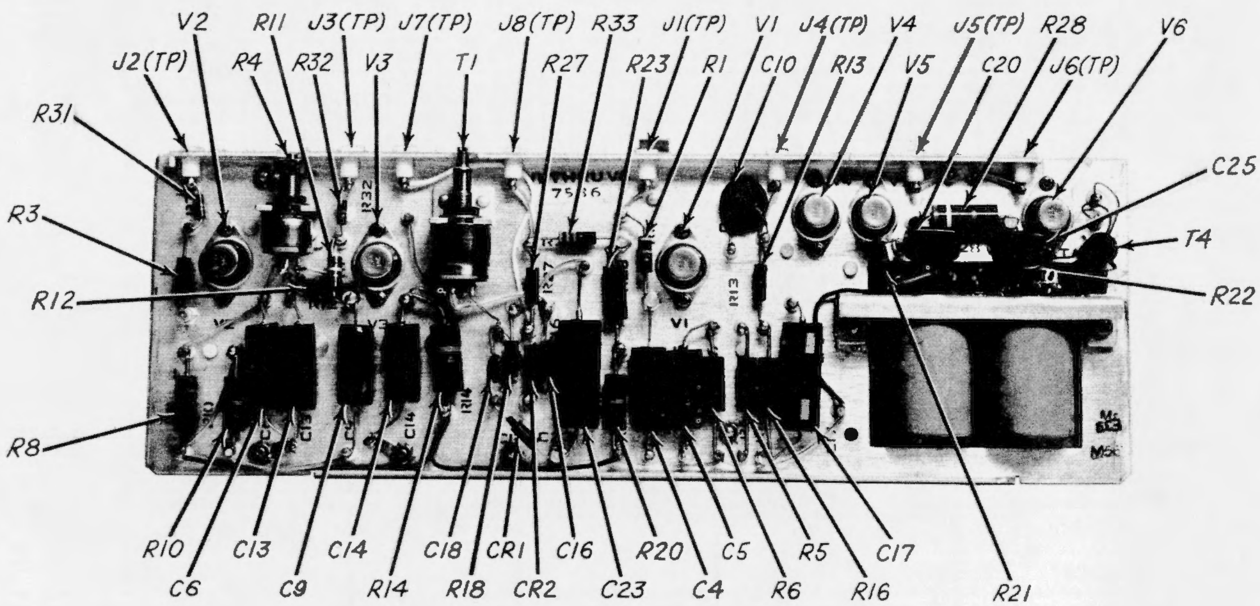


Figure 5-14. Agc and Audio Amplifier (Subassembly) A1A6A2, A1A7A2, and A1A20A2, Parts Location and Test Points

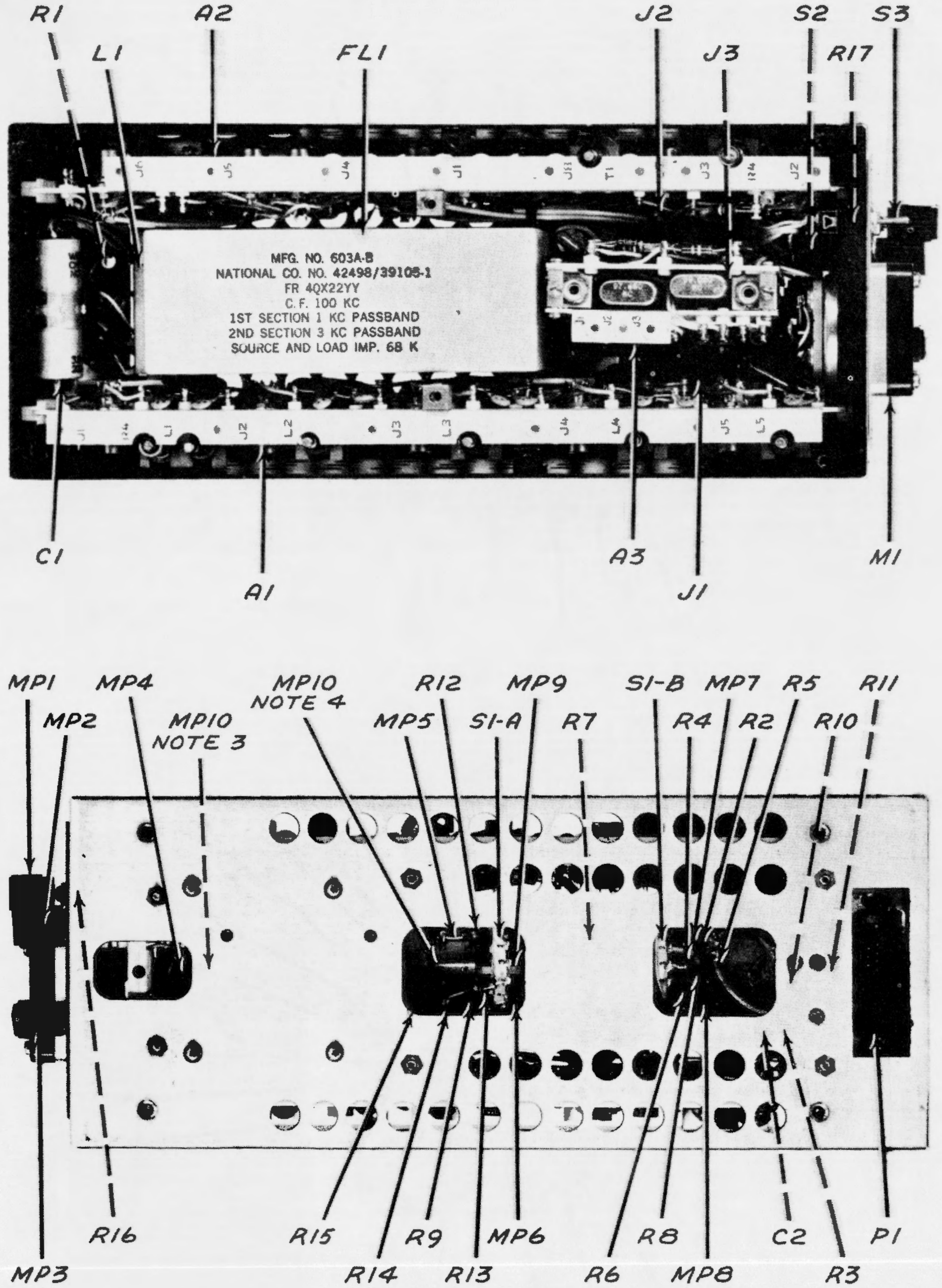


Figure 5-15. AM Amplifier-Detector (A1A20), Parts Location and Test Points

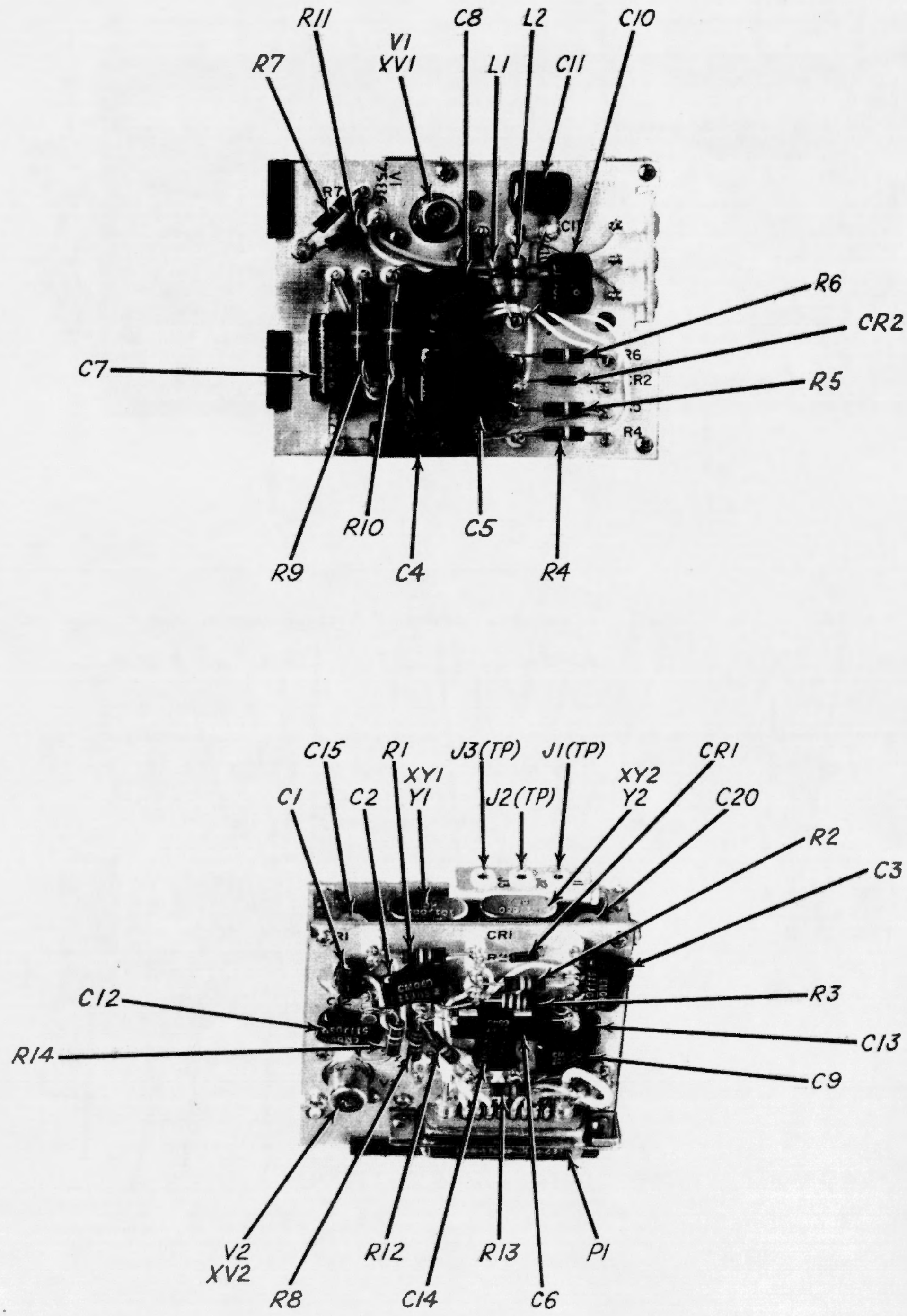
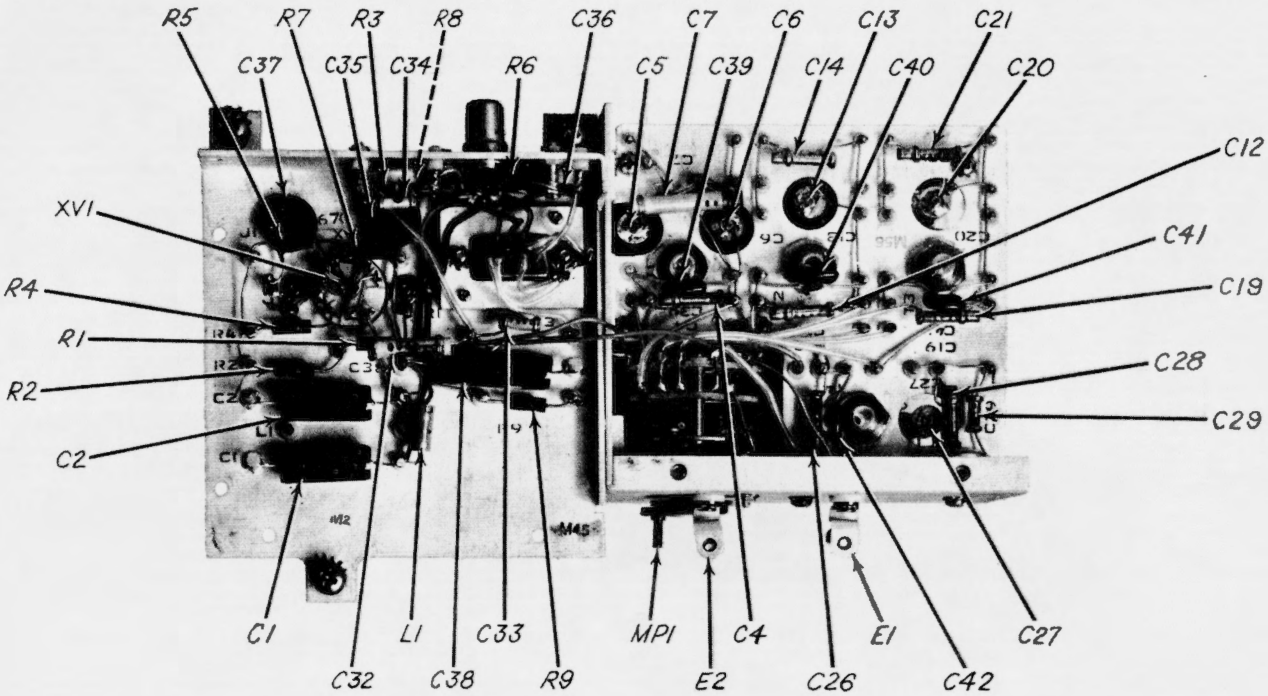


Figure 5-16. Detector and Bfo (Subassembly) A1A20A3, Parts Location and Test Points



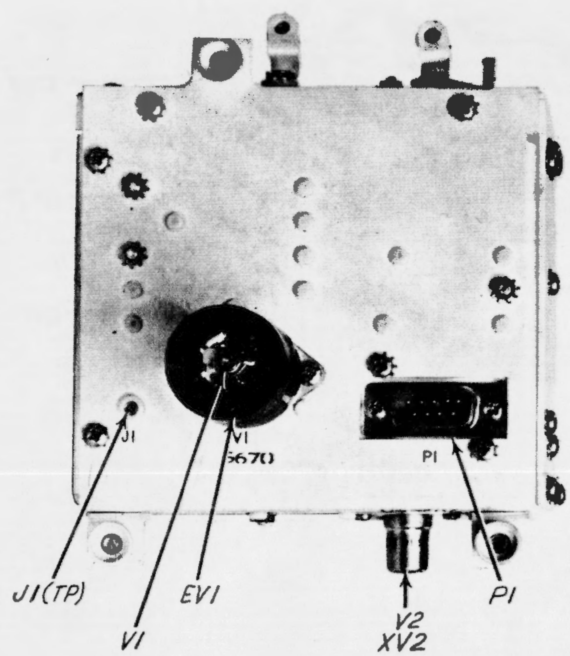


Figure 5-17. High-Frequency Oscillator A1A8, Parts Location and Test Points

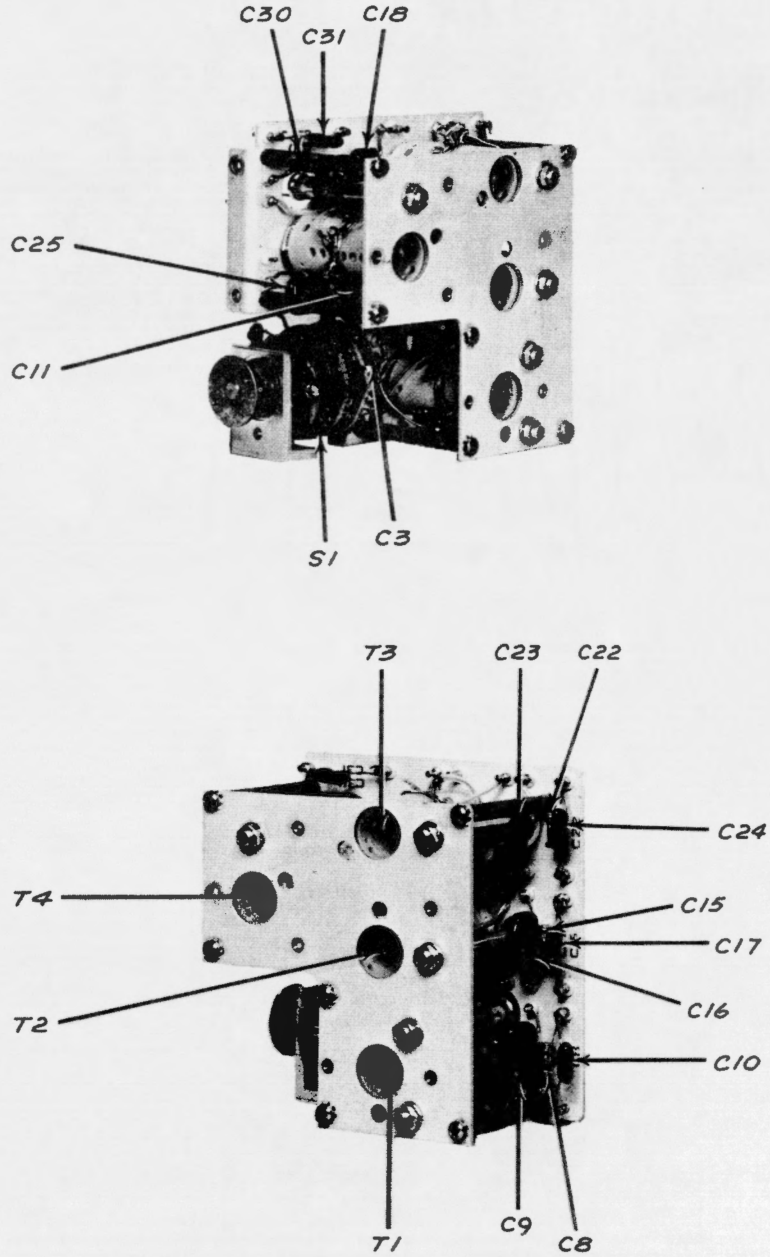


Figure 5-18. High-Frequency Oscillator A1A8, Parts Location and Test Points, Disassembled

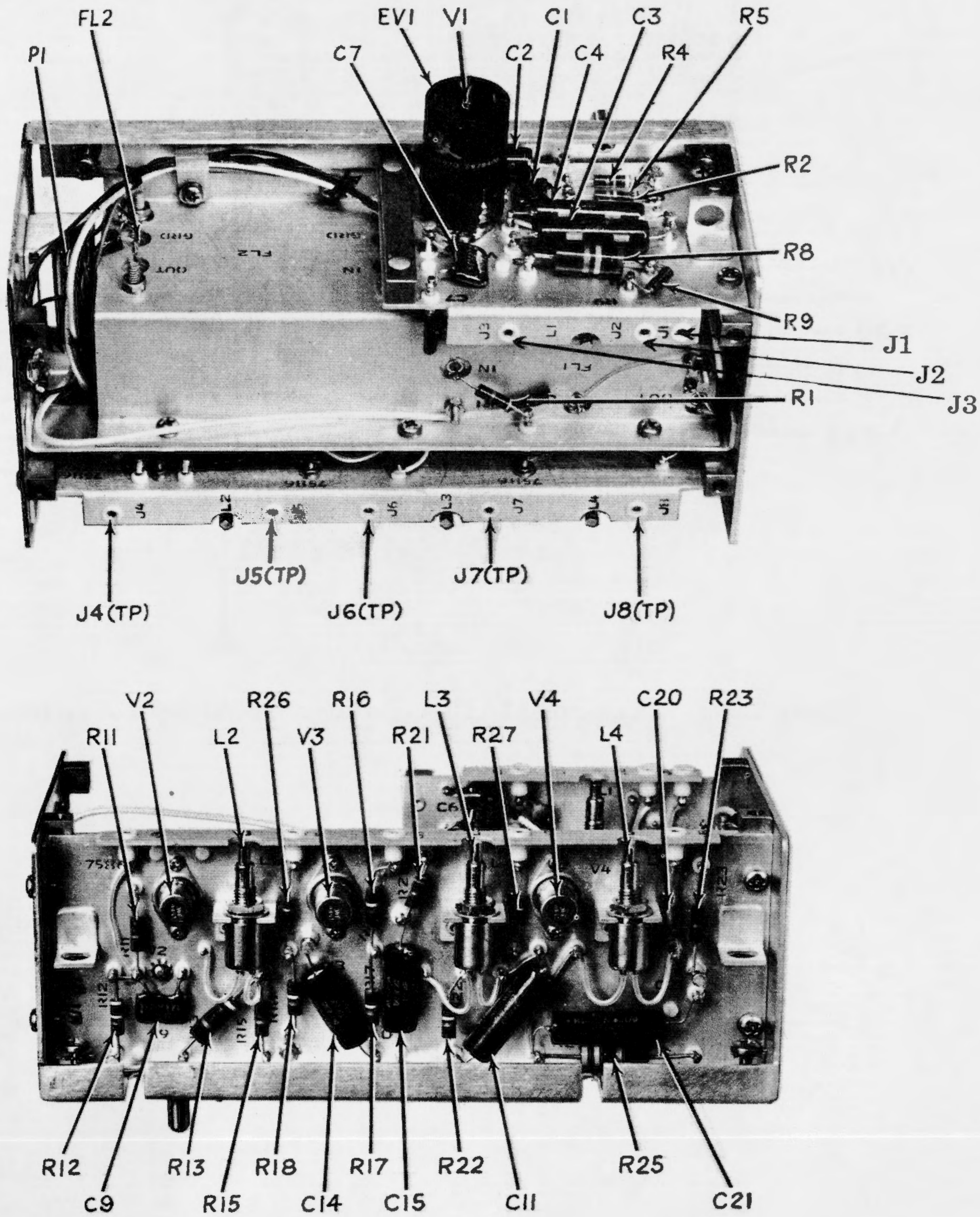


Figure 5-19. 1st Injector A1A10, Parts Location and Test Points

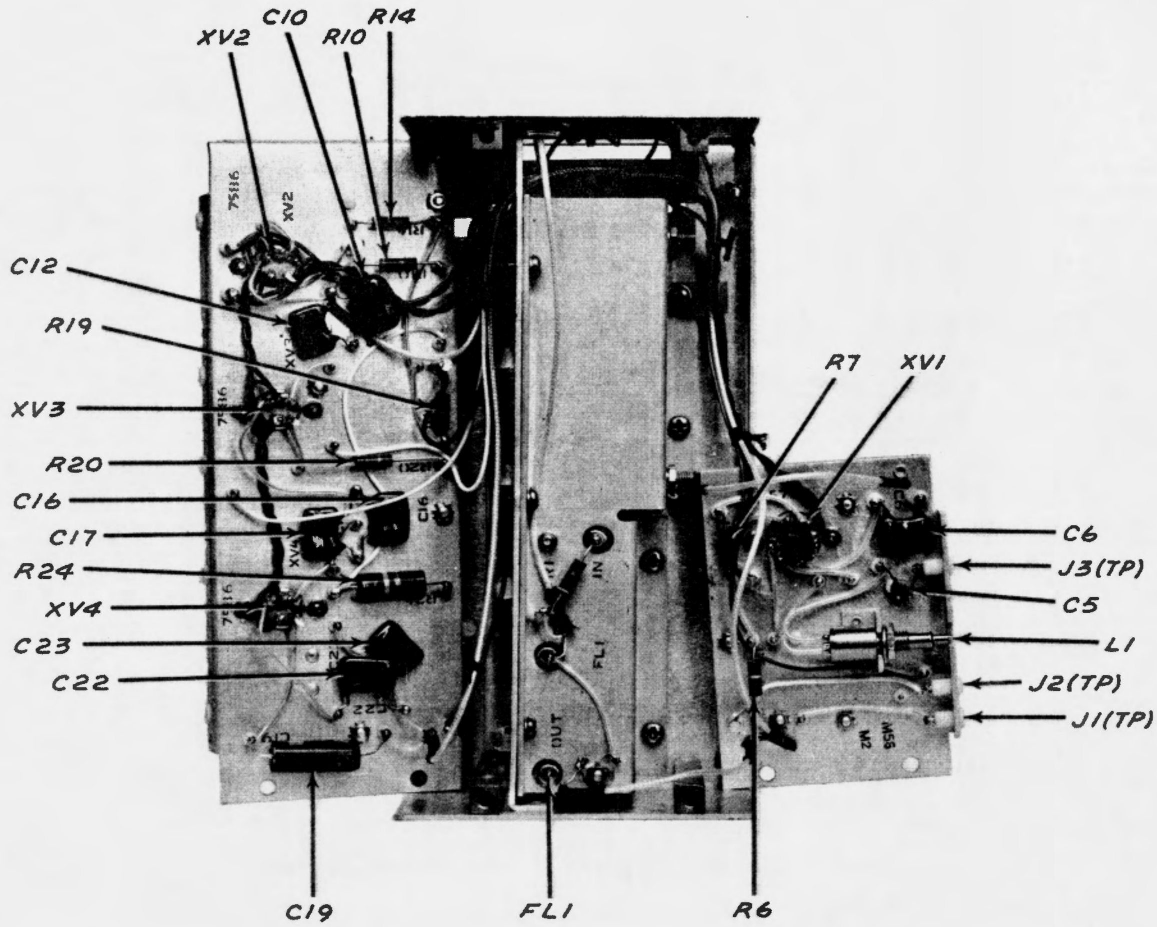


Figure 5-20. 1st Injector A1A10, Parts Location and Test Points, Disassembled

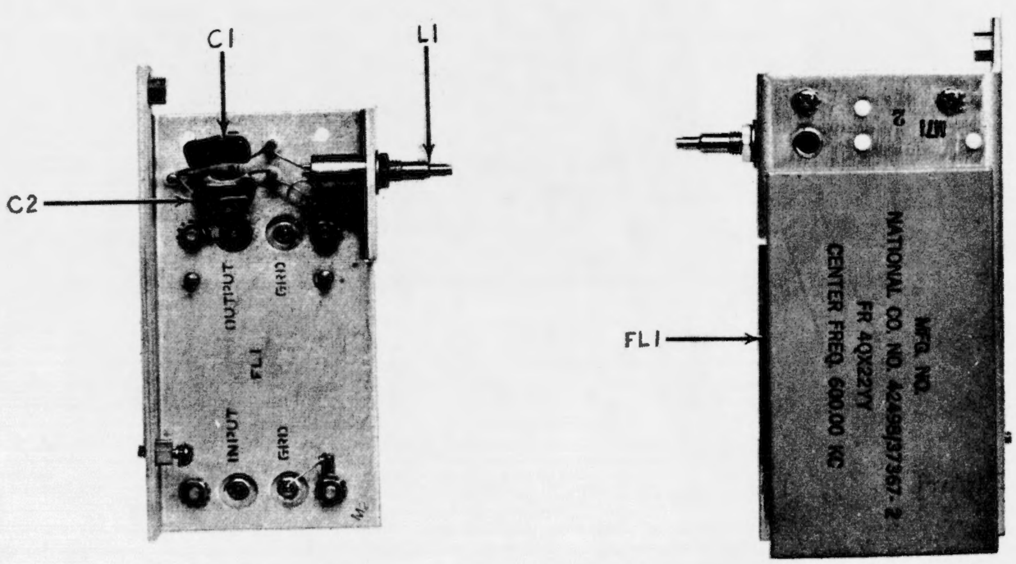


Figure 5-21. 600-Kc Filter A1A18, Parts Location

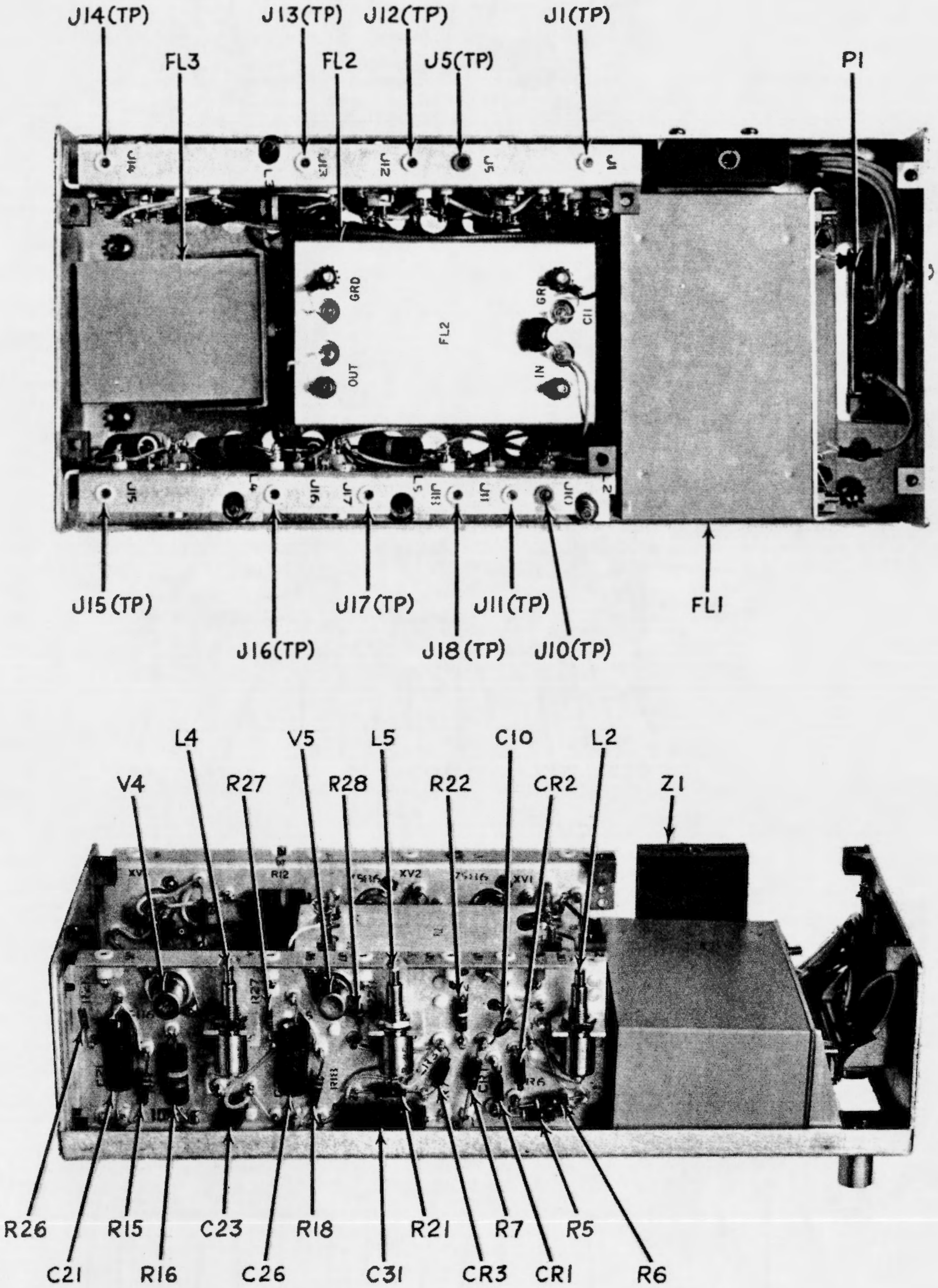
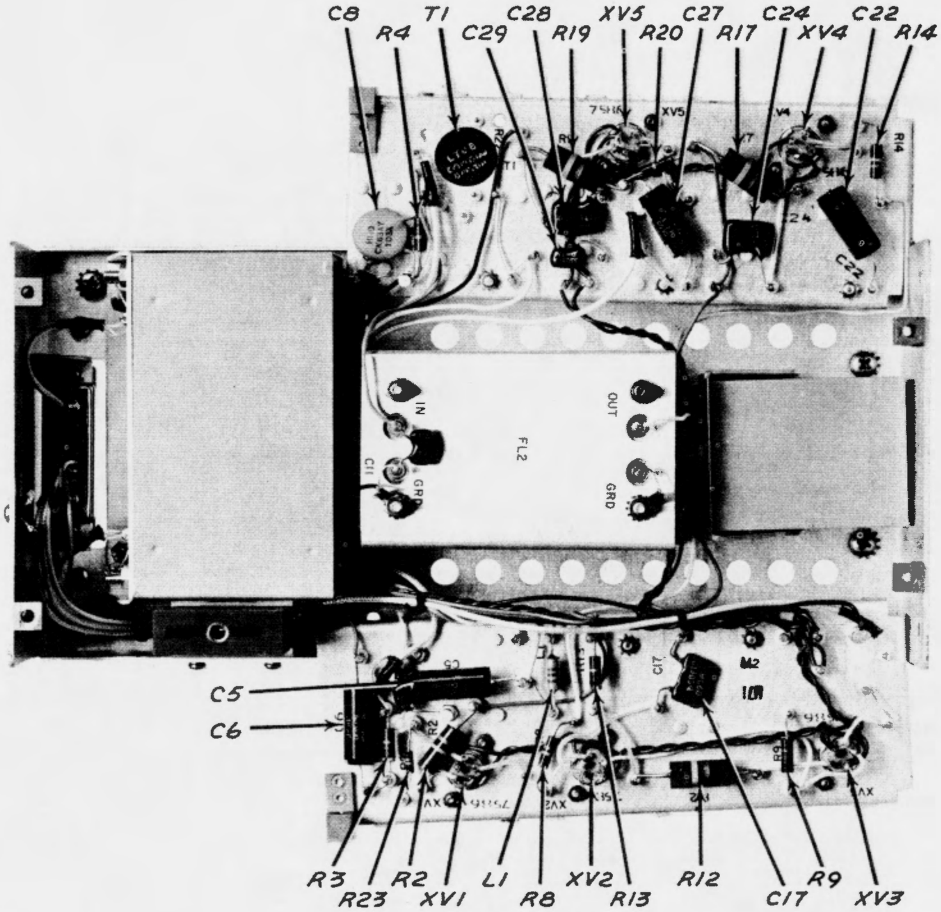


Figure 5-22. 2nd Injector (B) A1A11, Parts Location and Test Points



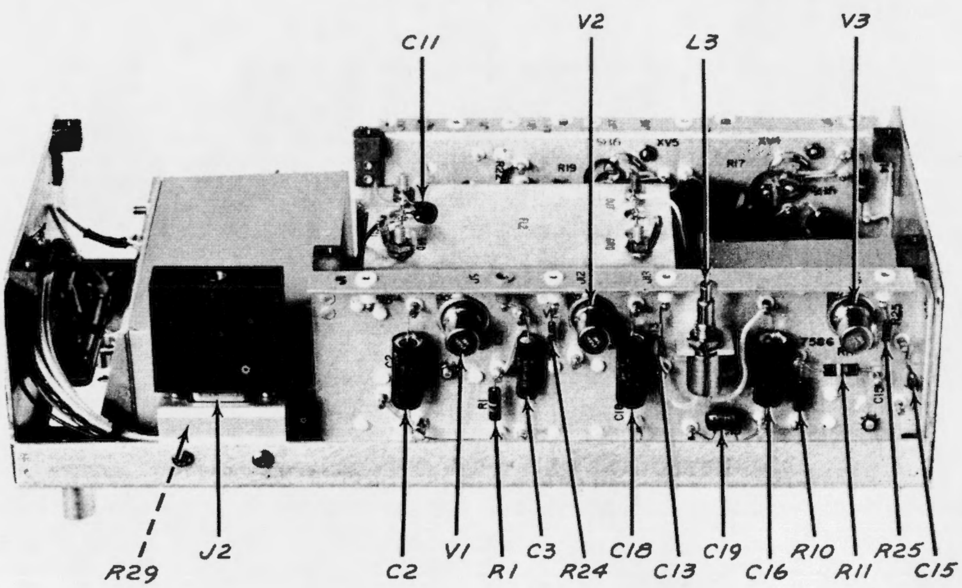


Figure 5-23. 2nd Injector (B) A1A11, Parts Location and Test Points, Disassembled

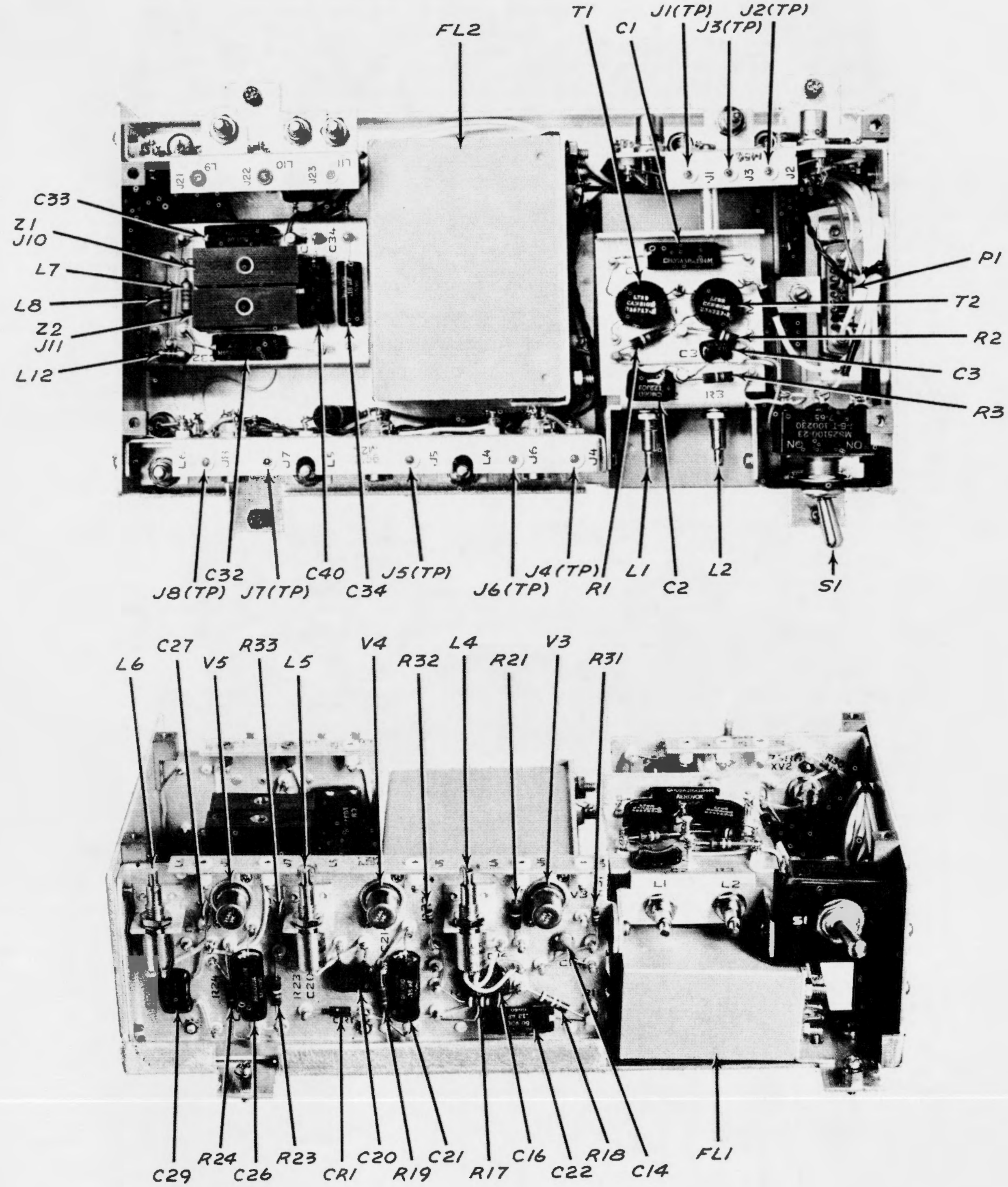


Figure 5-24. 2nd Injector (A) A1A12, Parts Locationand Test Points

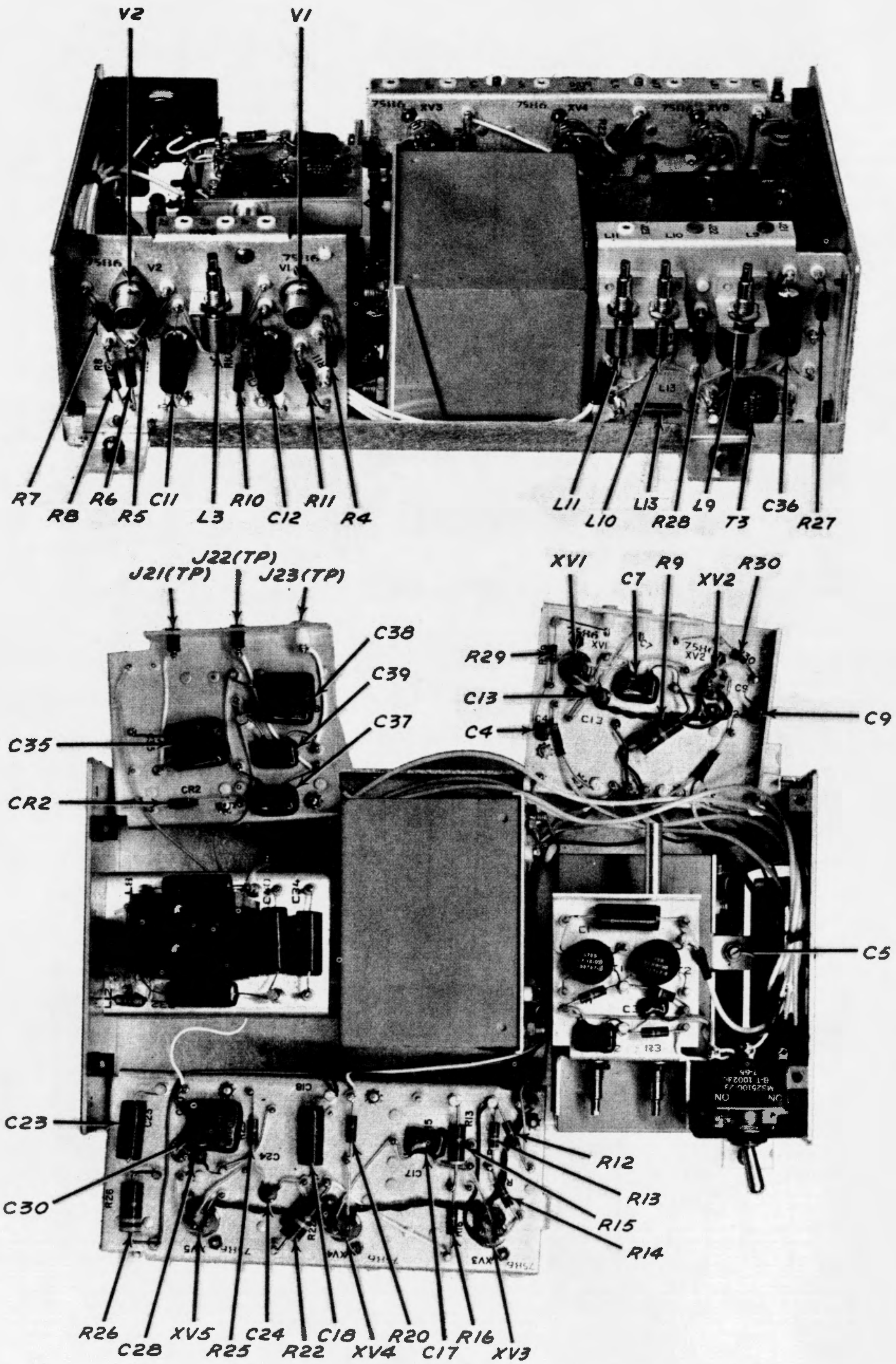


Figure 5-25. 2nd Injector (A) A1A12, Parts Location and Test Points, Disassembled

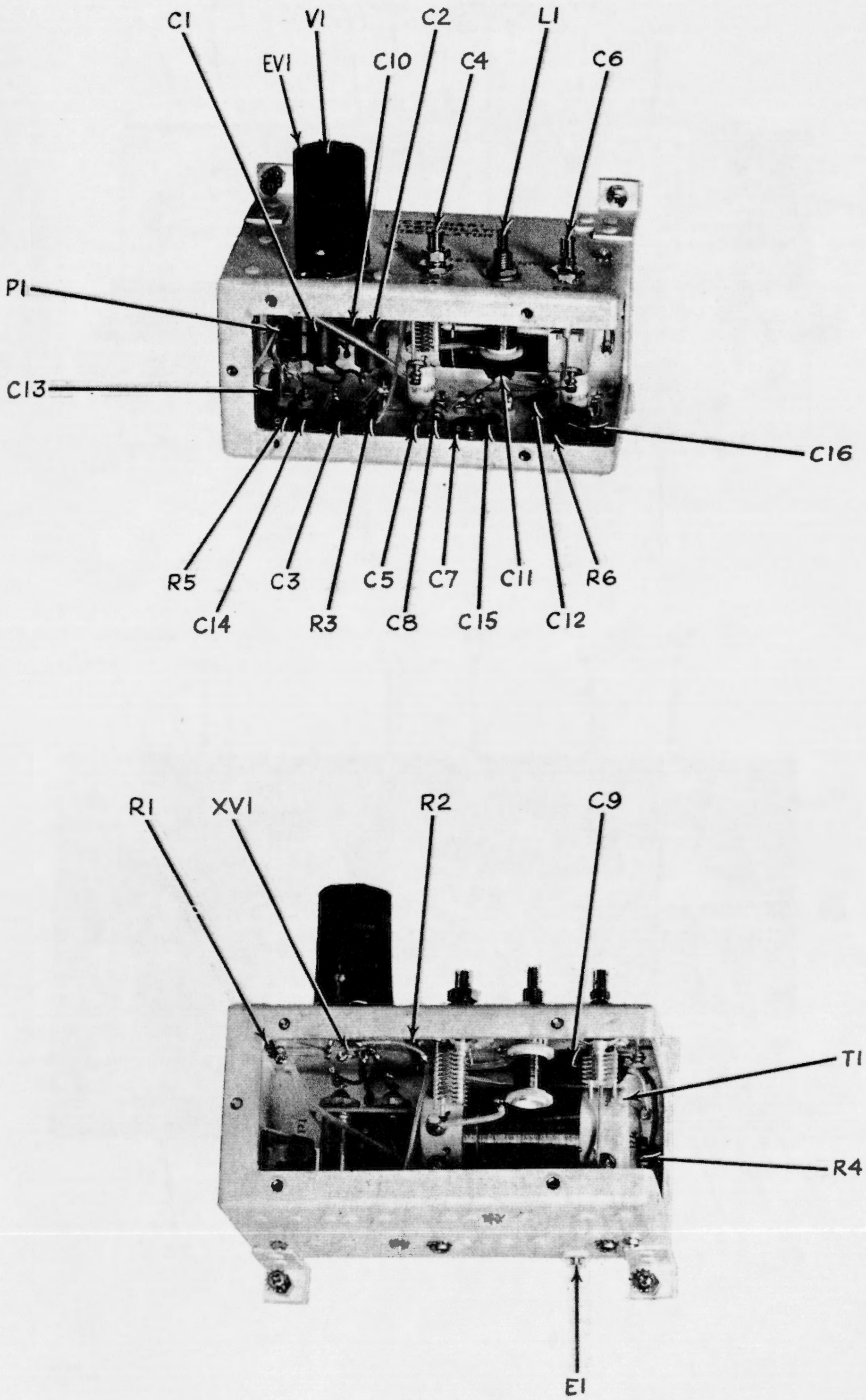
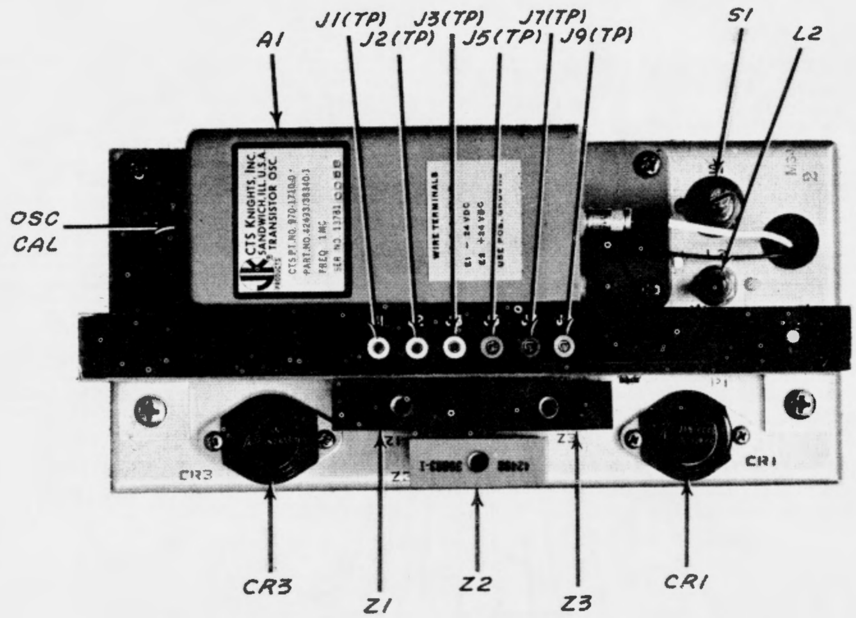


Figure 5-26. Interpolator Oscillator A1A13, Parts Location and Test Points



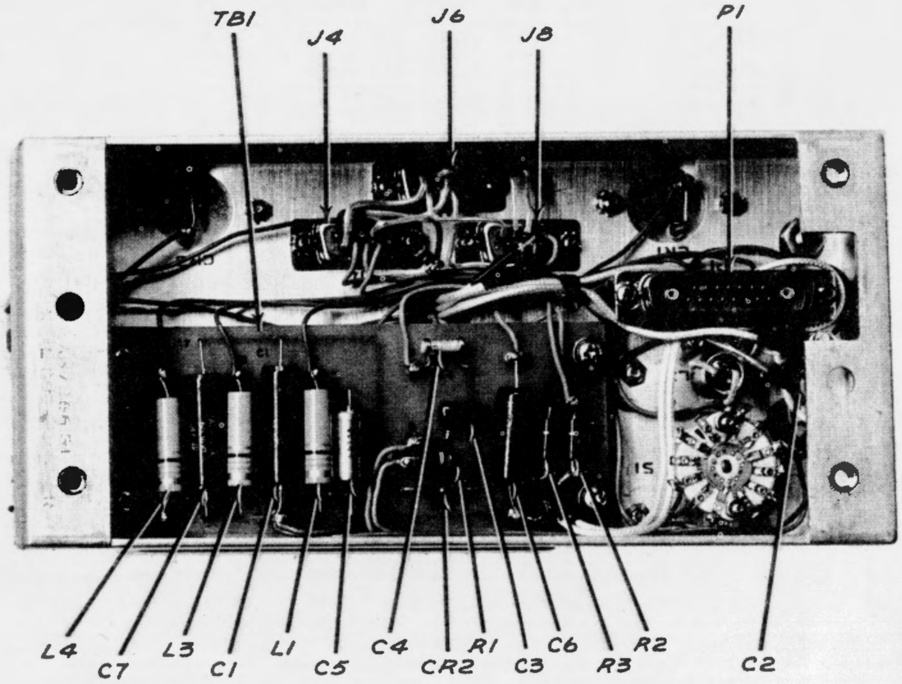
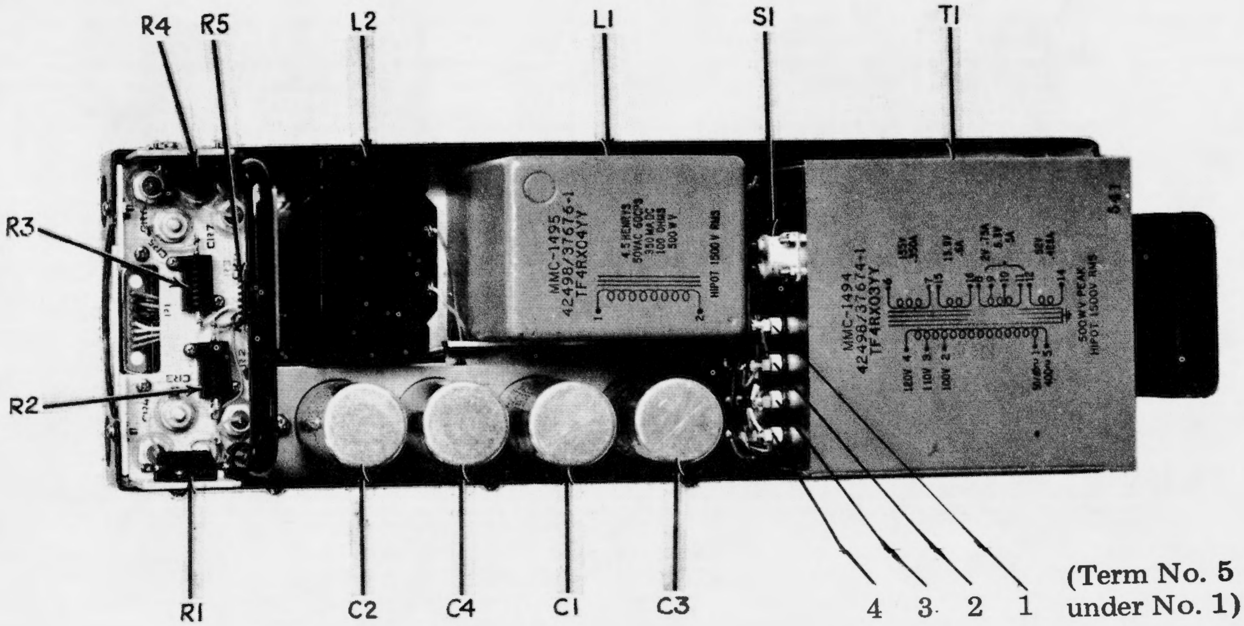


Figure 5-27. Crystal Oscillator - Frequency Divider A1A9, Parts Location and Test Points



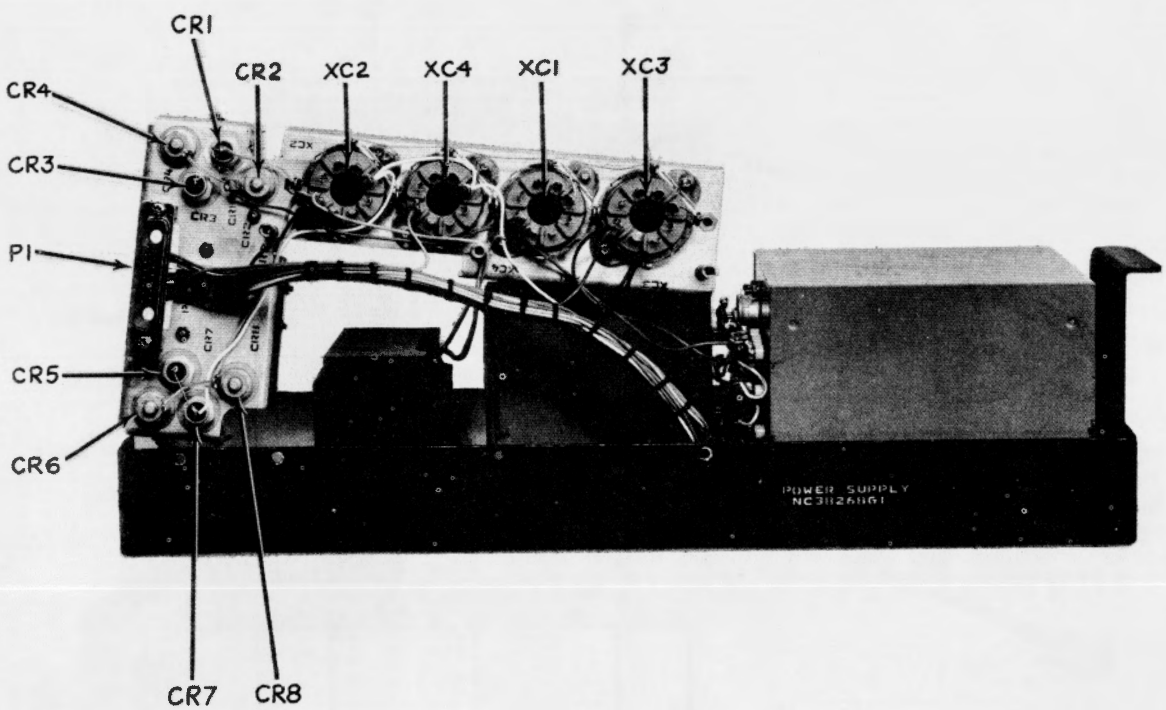


Figure 5-28. Power Supply A1A14, Parts Location

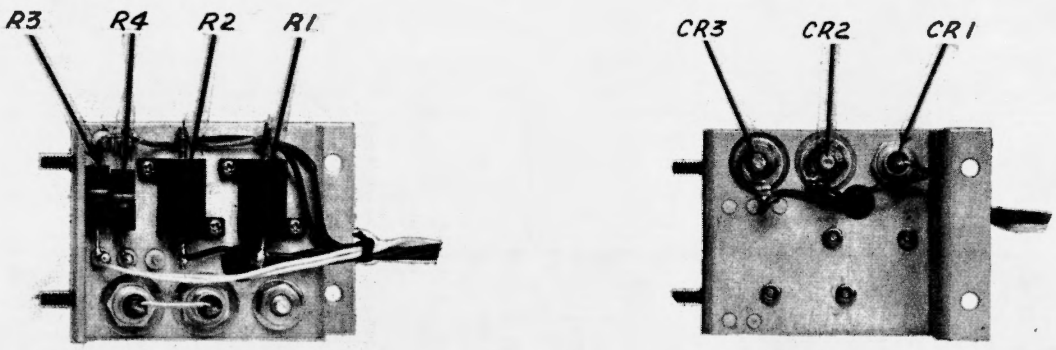


Figure 5-29. Voltage Regulator A1A17, Parts Location

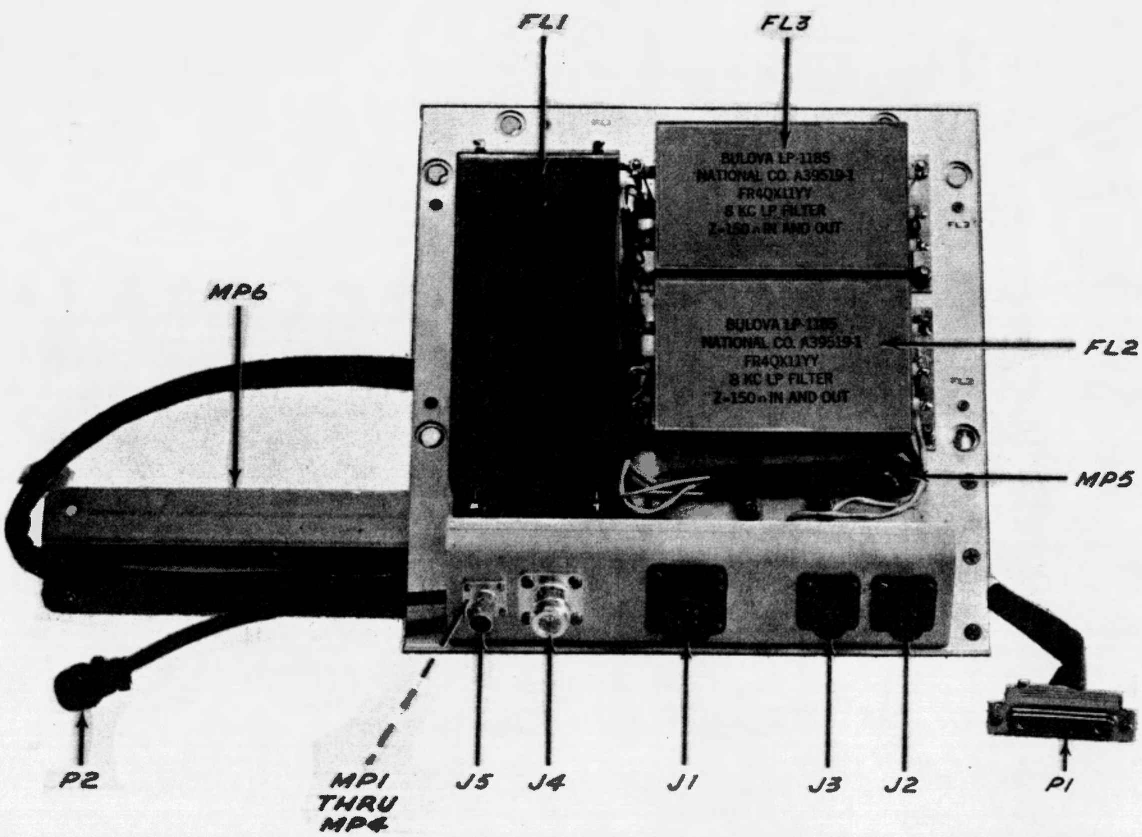


Figure 5-30. Blister Assembly A2, Parts Location

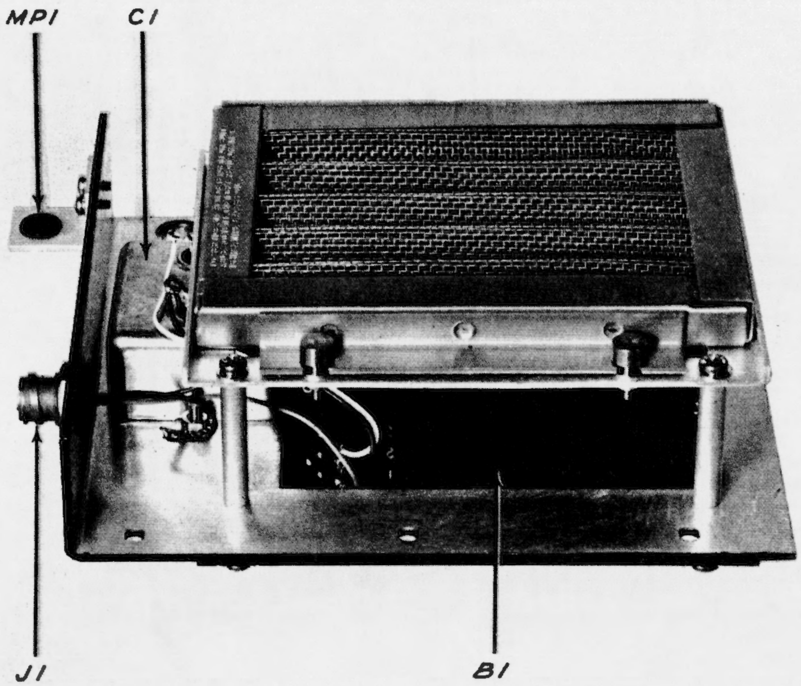


Figure 5-31. Fan Assembly A3, Parts Location

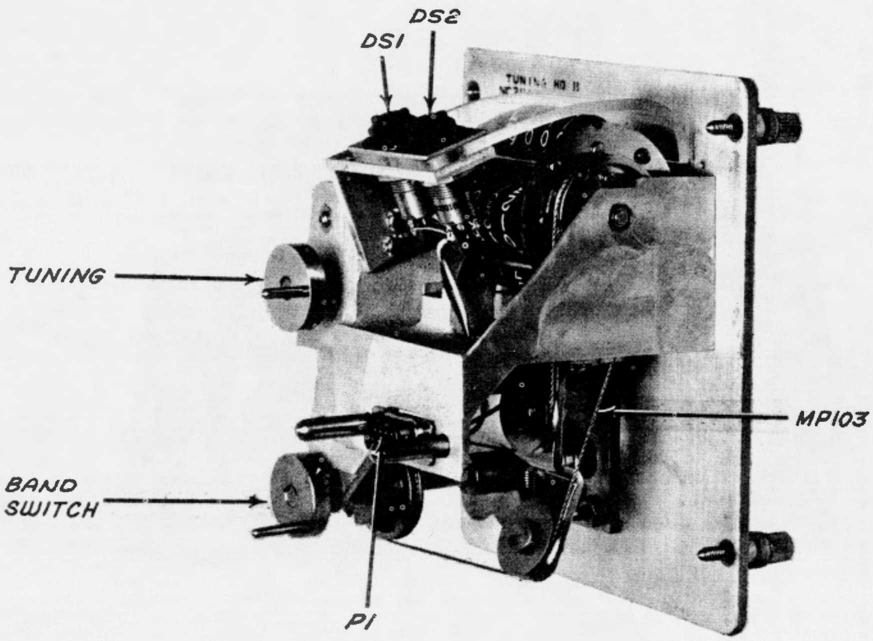


Figure 5-32. Main Tuning Assembly A1A15, Parts Location

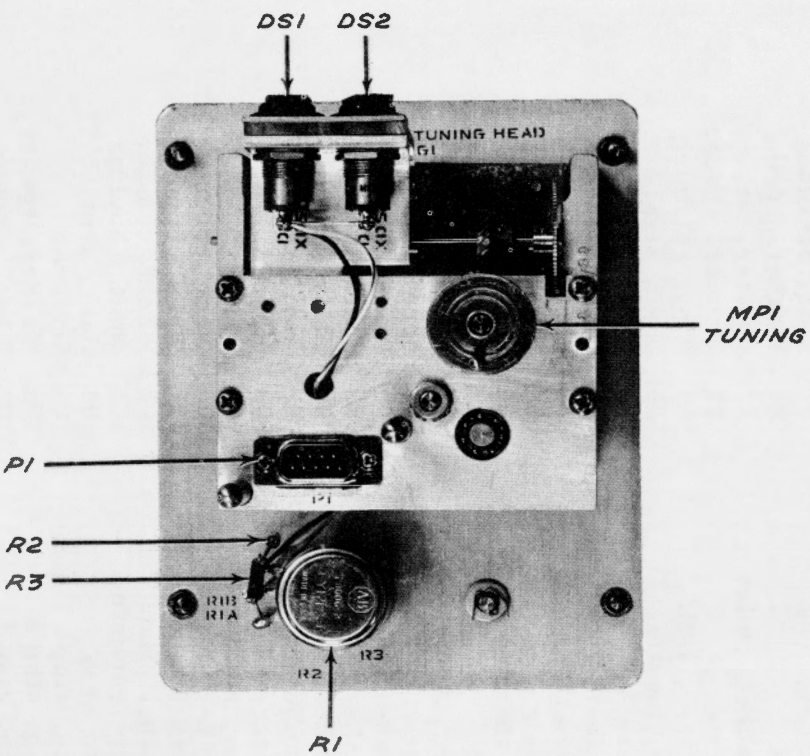


Figure 5-33. Secondary Tuning Assembly A1A16, Parts Location

KEY TO FIGURE 5-34

1	Light, panel
2	Light, panel
3	Nut
4	Washer, flat
5	Clamp, light
6	Screw
7	Bracket, light
8	Bracket, light
9	Screw
10	Washer, lock
11	Coupling assy
12	Setscrew
13	Ring, retaining
14	Pulley, groove
15	Setscrew
16	Hub, detent
17	Setscrew
18	Pin
19	Ring, retaining
20	Shaft, straight
21	Stop
22	Screw
23	Washer, lock
24	Nut
25	Plate
26	Screw
27	Washer, lock
28	Washer, flat
29	Spring, helical
30	Arm, roller
31	Screw
32	Washer, lock
33	Spacer
34	Pulley, groove
35	Pin, pulley
36	Washer, flat
37	Washer, lock
38	Nut
39	Pulley, groove
40	Pin, pulley
41	Washer, flat
42	Washer, lock
43	Nut
44	Bracket, pulley
45	Screw
46	Washer, lock
47	Pin, locating
48	Screw
49	Washer, lock
50	Connector, plug
51	Screw
52	Washer, lock
53	Nut
54	Gear, spur
55	Screw
56	Washer, lock
57	Washer, flat
58	Washer, flat
59	Coupling assy
60	Setscrew
61	Ring, retaining
62	Washer, lock
63	Washer, flat
64	Washer, flat
65	Ring, retaining
66	Gear assy
67	Ring, stop
68	Ring, stop 2
69	Ring, stop 1
70	Collar, shaft
71	Pin
72	Setscrew
73	Gear, helical
74	Pin
75	Setscrew
76	Shaft, straight
77	Gear, helical
78	Setscrew
79	Pin
80	Ring, retaining
81	Washer, spring
82	Washer, flat
83	Washer, spacer
84	Ring, retaining
85	Shaft, straight
86	Spacer
87	Gear, cluster
88	Setscrew
89	Pin
90	Spacer
91	Washer, spacer
92	Shaft retainer
93	Screw
94	Washer, lock
95	Spacer, counter
96	Pulley, groove
97	Gear, spur (27T)
98	Setscrew
99	Spacer
100	Wheel, counter
101	Wheel, counter
102	Wheel, counter
103	Shaft, shoulder
104	Gear, spur (26T)
105	Setscrew
106	Washer, spacer
107	Wheel, counter
108	Wheel, counter
109	Wheel, counter
110	Shaft, shoulder
111	Gear, spur (38T)
112	Setscrew
113	Washer, spacer
114	Wheel, counter
115	Wheel, counter
116	Wheel, counter
117	Shaft, shoulder
118	Gear, spur (53T)
119	Setscrew
120	Washer, spacer
121	Wheel, counter
122	Wheel, counter
123	Wheel, counter
124	Shaft, shoulder
125	Gear, spur
126	Gear, spur
127	Gear, spur
128	Shaft, straight
129	Gear, spur
130	Gear, spur
131	Gear, spur
132	Shaft, straight
133	Gear, spur
134	Gear, spur
135	Gear, spur
136	Shaft, straight
137	Gear, spur
138	Gear, spur
139	Gear, spur
140	Shaft, straight
141	Plate, end
142	Spring, helical
143	Screw
144	Washer
145	Bearing, ball
146	Bearing, ball
147	Bearing, ball
148	Bearing, ball
149	Bearing, ball
150	Bearing, ball
151	Housing

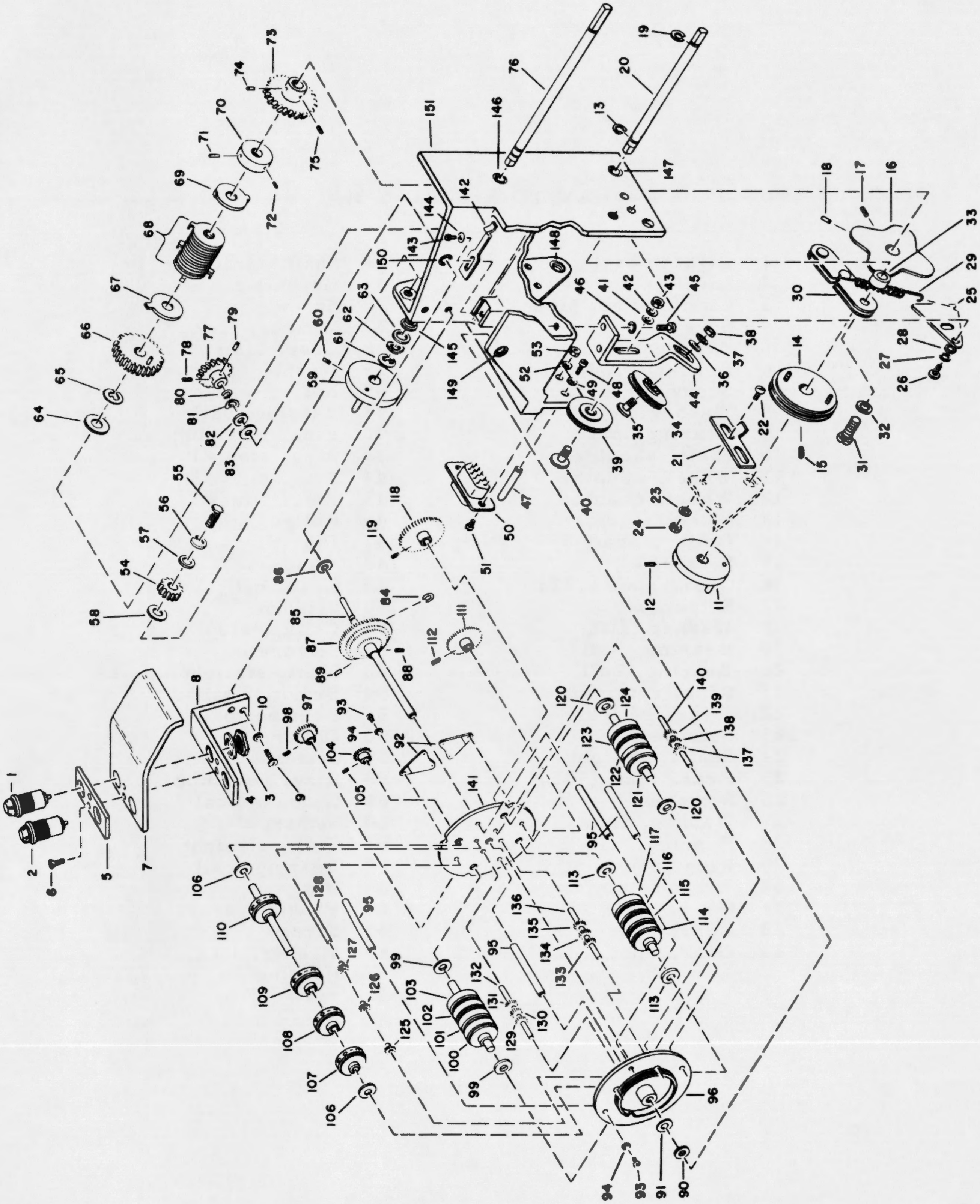


Figure 5-34. Main Tuning Module A1A15, Exploded View of Counter

KEY TO FIGURE 5-35

1	Light, panel	34	Shaft, straight
2	Light, panel	35	Bracket
3	Clamp, light pipe	36	Screw
4	Screw	37	Washer, lock
5	Bracket	38	Gear, idler
6	Bracket, light pipe	39	Washer, lock
7	Screw	40	Nut
8	Washer, lock	41	Bearing, ball
9	Bearing, ball	42	Ring, retaining
10	Shaft, shoulder	43	Ring, stop #1
11	Wheel, counter	44	Ring, stop #2
12	Wheel, counter	45	Ring, stop #3
13	Wheel, counter	46	Collar, stop
14	Collar, shaft	47	Pin
15	Setscrew	48	Setscrew
16	Gear, spur (18T)	49	Gear, helical
17	Setscrew	50	Setscrew
18	Washer, flat	51	Collar, stop
19	Bearing, ball	52	Setscrew
20	Bearing, ball	53	Shaft, straight
21	Ring, retaining	54	Bearing, ball
22	Gear, helical	55	Bearing, ball
23	Setscrew	56	Collar, stop
24	Shaft, straight	57	Setscrew
25	Gear, spur (90T)	58	Ring, retaining
26	Setscrew	59	Gear, helical
27	Washer, flat	60	Setscrew
28	Bearing, ball	61	Shaft, straight
29	Ring, retaining	62	Bearing, ball
30	Ring, retaining	63	Pin
31	Gear, spur	64	Panel, rear
32	Gear, spur	65	Screw
33	Gear, spur	66	Washer, lock
		67	Housing

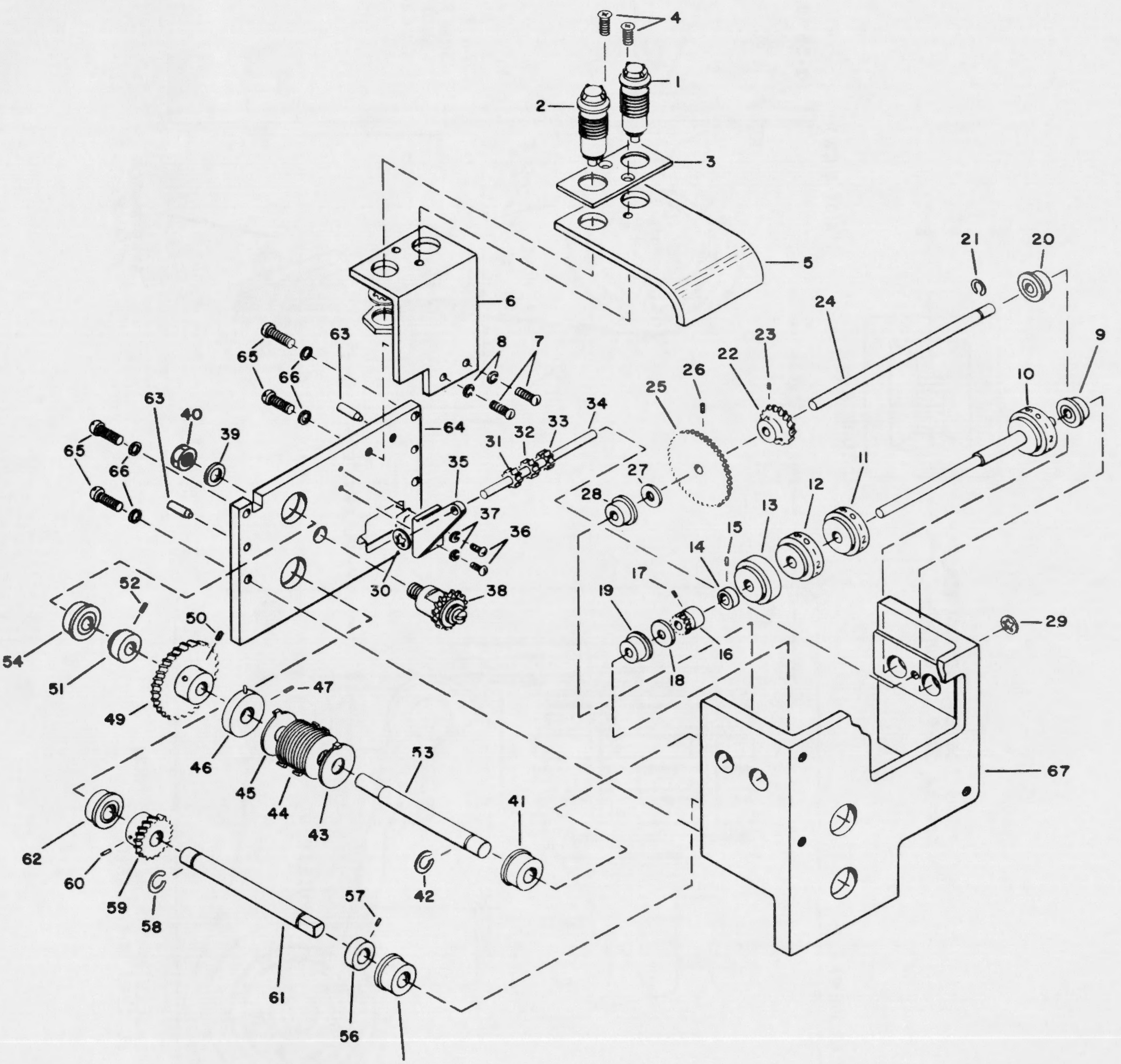


Figure 5-35. Secondary Tuning Module A1A16, Exploded View of Counter

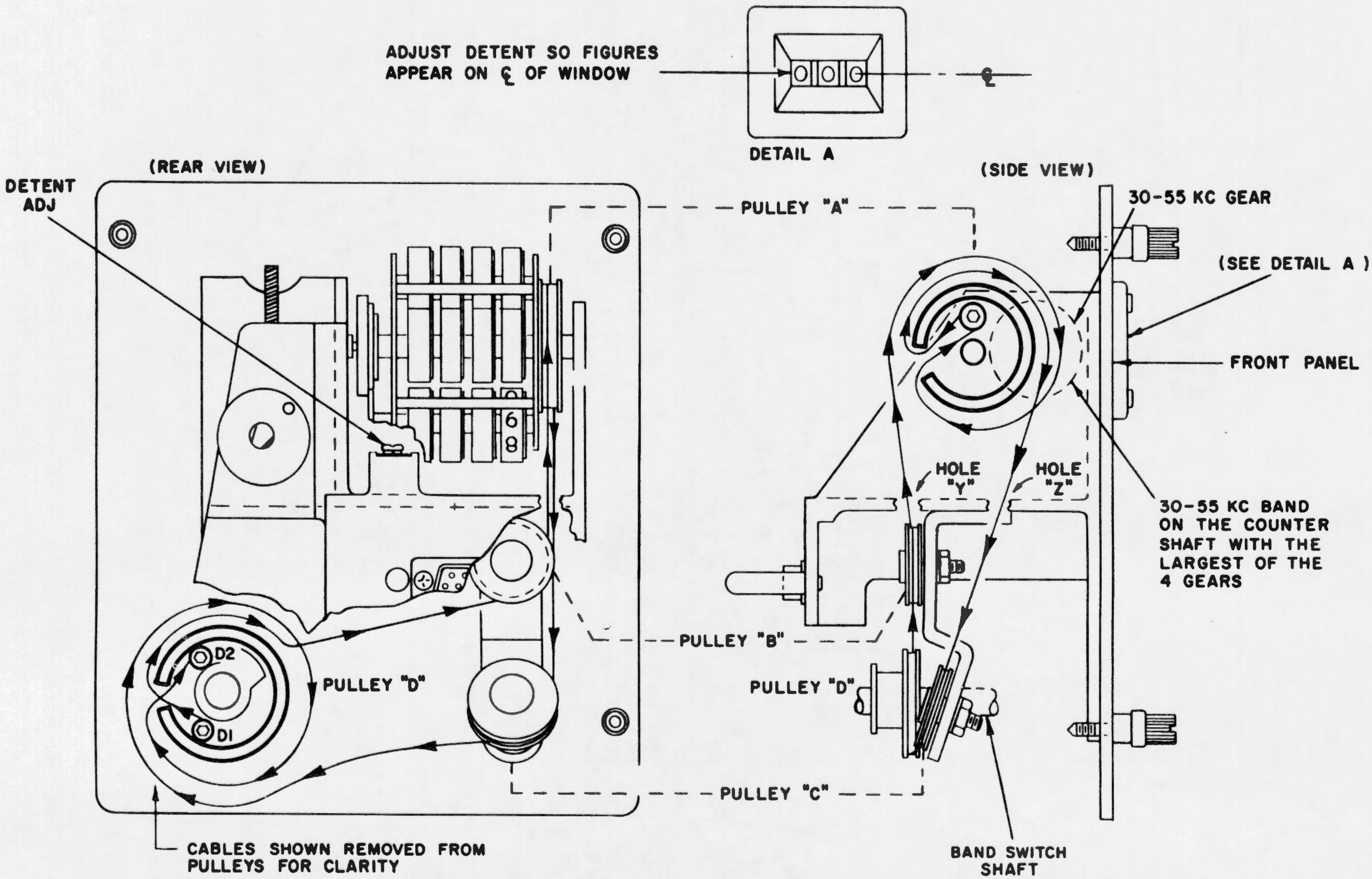


Figure 5-36. Main Tuning Module A1A15, BAND Switch Cable Installation

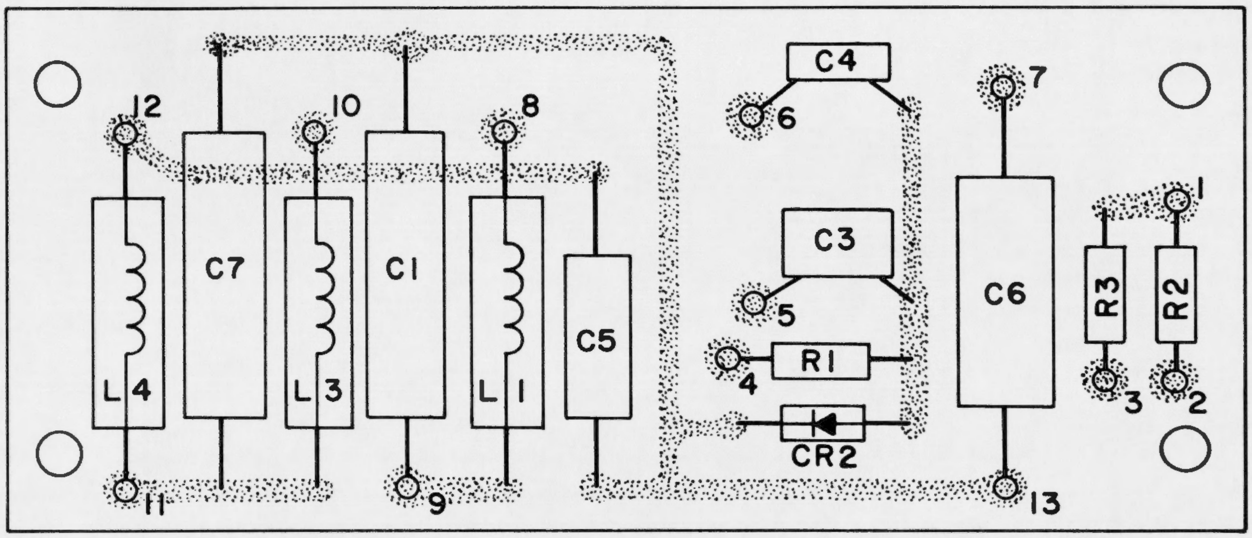


Figure 5-37. Printed Circuit Terminal Board A1A9TB-1, Parts Location

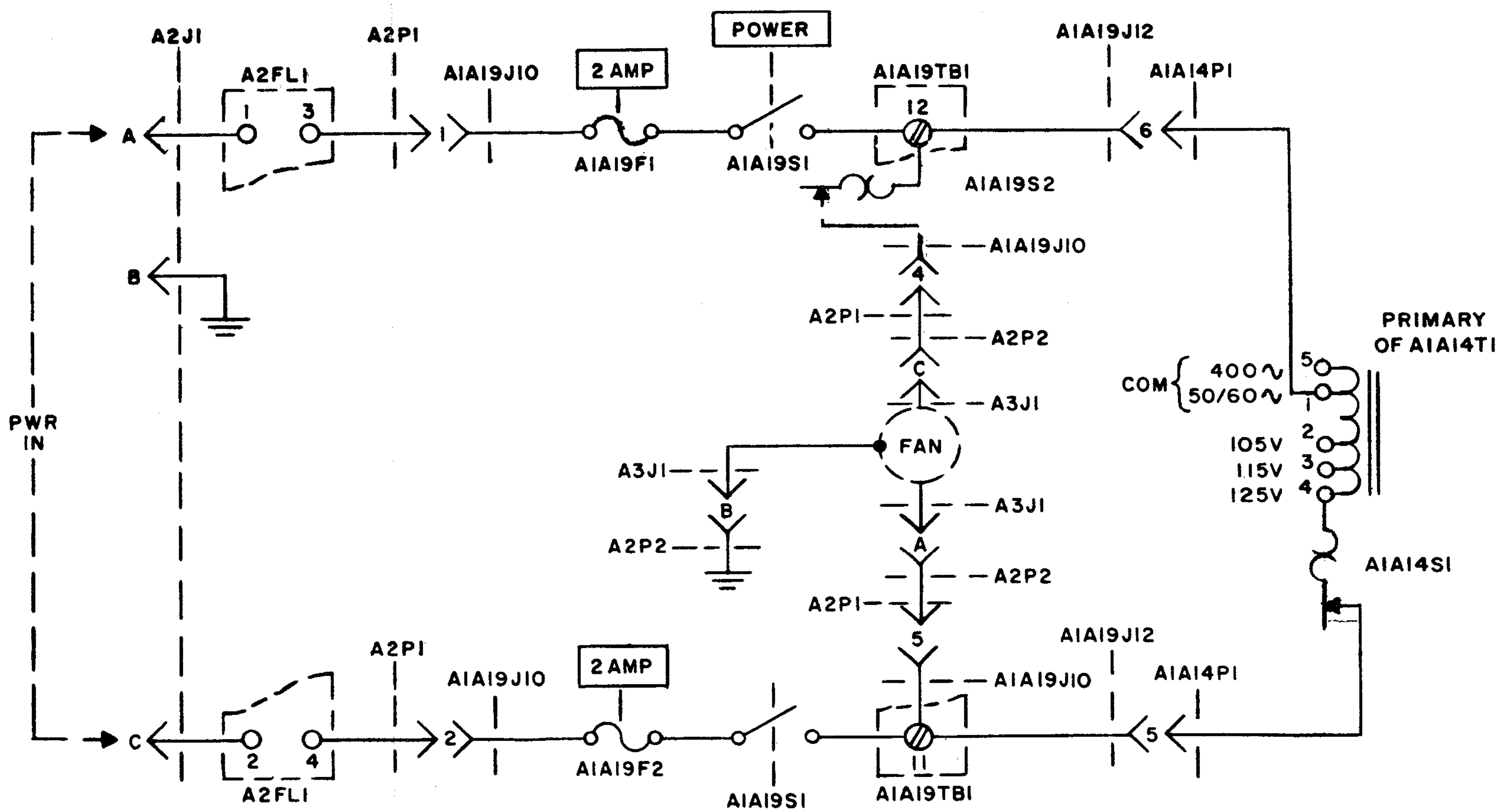


Figure 5-38. Power Distribution Diagram

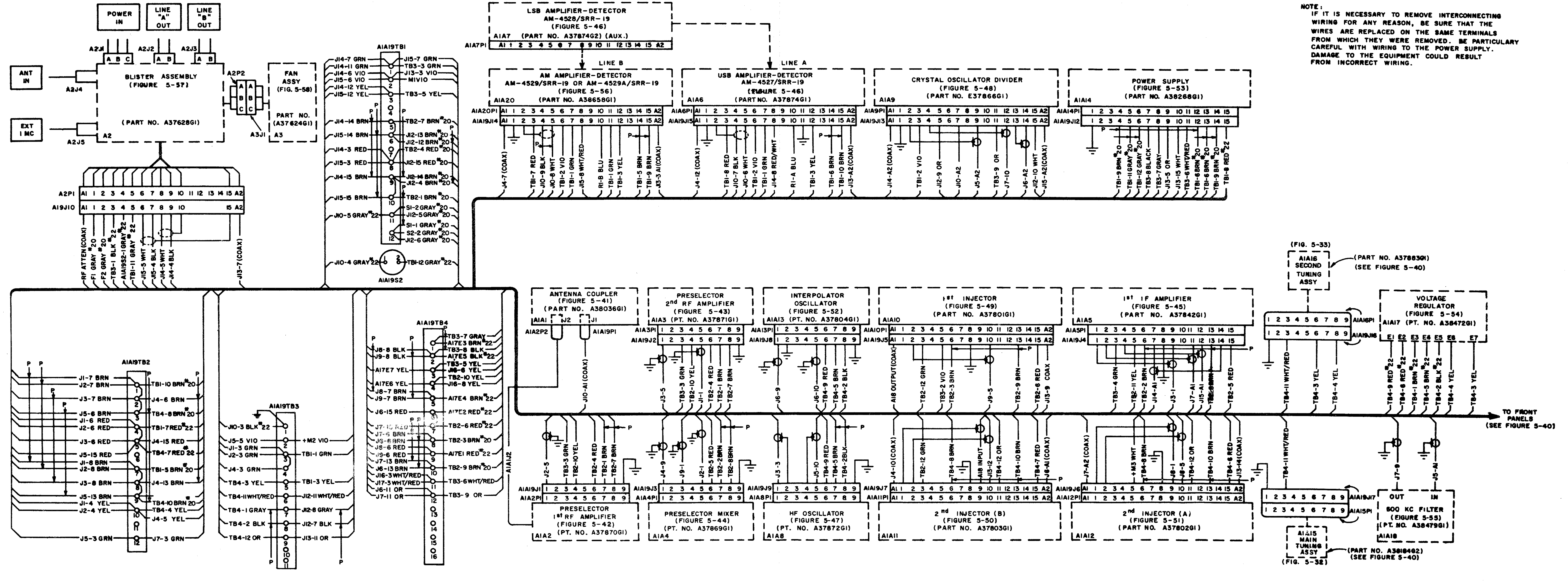


Figure 5-39. Interconnecting Diagram (Sheet 1)

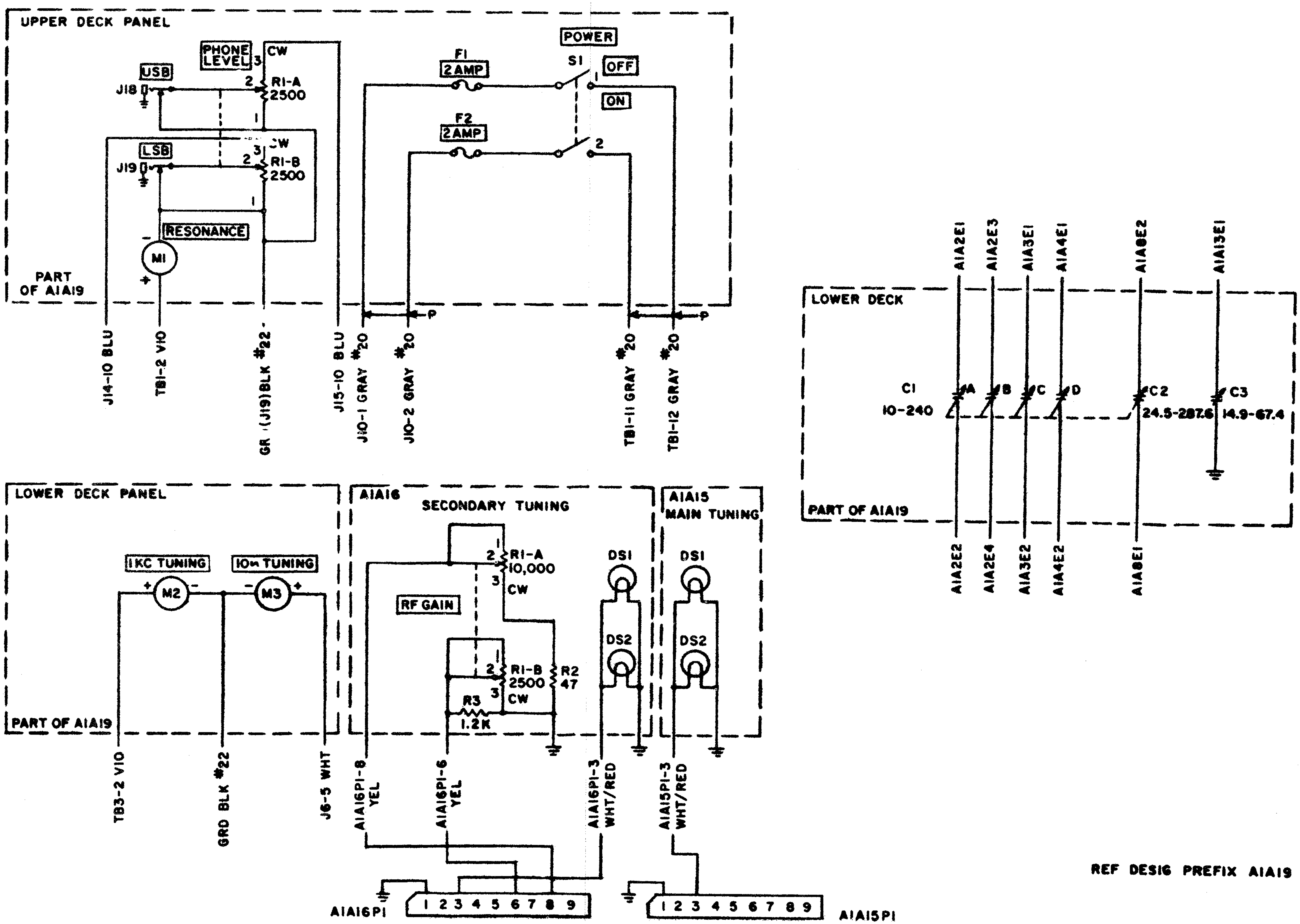


Figure 5-40. Interconnecting Diagram (Sheet 2)

PARTS LOCATION INDEX

REF DESIG	LOC
A1A1C1	8E
C2	9E
F1	4D
J1	2D
J2	9E
L1	7E
L2	8E
R1	3D
R2	3E
R3	3D
R4	3E
R5	5H
R6	5F
R7	6F
R8	6F
S1A	5F
S1B	5E

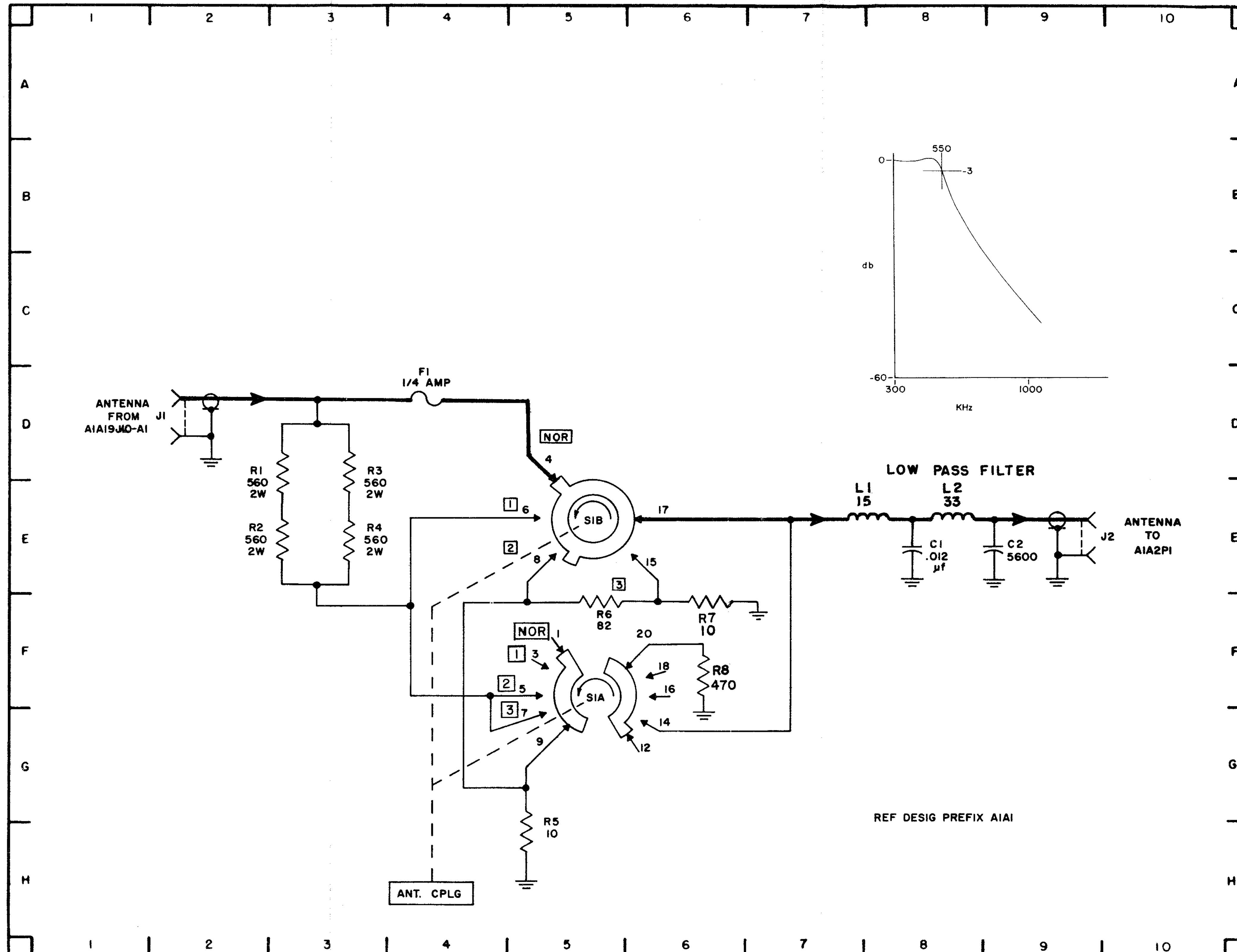


Figure 5-41. Antenna Coupling A1A1, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
A1A2C1	5B	A1A2R3	5E
C2	4F	R4	5F
C3	Not used	R5	6C
C4	4F	R6	6D
C5	6B	R7	7C
C6	6D	R8	8C
C7	7C	R9	8D
C8	8C	R10	10C
C9	10G	R11	10D
C10	10F	R12	10E
C11	9C	R13	10F
C12	9D	S1A	3G
C13	9E	S1B	3B
C14	10F	S2A	10G
C15	9F	S2B	10B
E1	5A	T1	5C
E2	5A	T2	5D
E3	9A	T3	5F
E4	9A	T4	5G
J1	6A	T5	11D
P1	13 CDEF	T6	11E
P2	2B	T7	11E
R1	5B	T8	11F
R2	5D	V1	7B

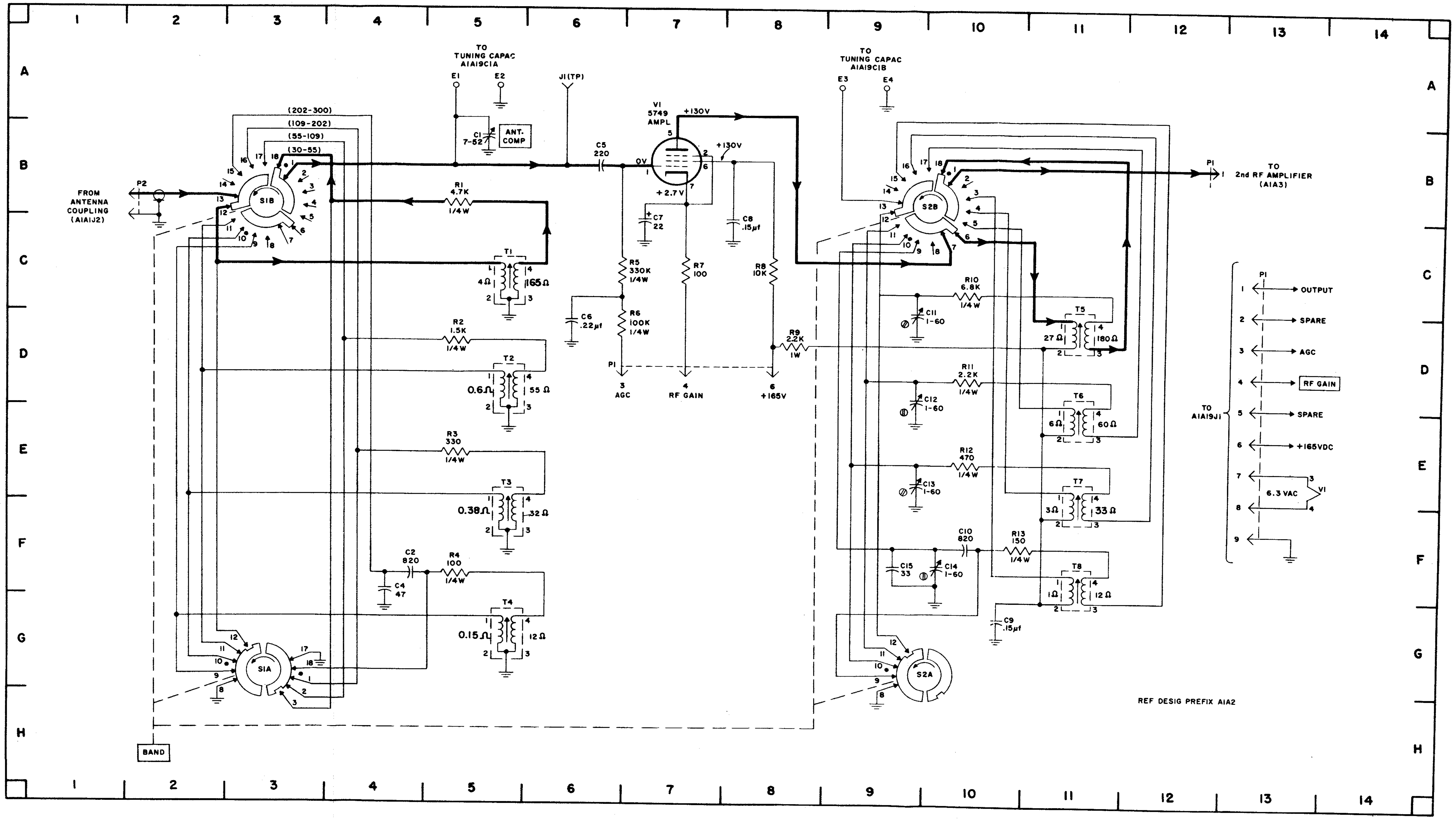


Figure 5-42. Preselector; First Rf Amplifier A1A2, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
A1A3C1	6F	A1A3P1	10 FGH
C2	6C	R1	4C
C3	6D	R2	4D
C4	6E	R3	6B
C5	6F	R4	6D
C6	7F	R5	6E
C7	8B	R6	6F
C8	8C	R7	7C
C9	8C	R8	7D
C10	9C	R9	7E
E1	2A	R10	8C
E2	2A	R11	8C
L1	4E	R12	10B
L2	5F	R13	9C
L3	5B	R14	10B
L4	5D	S1A	3G
L5	5E	S1B	3C
L6	5F	V1	9B

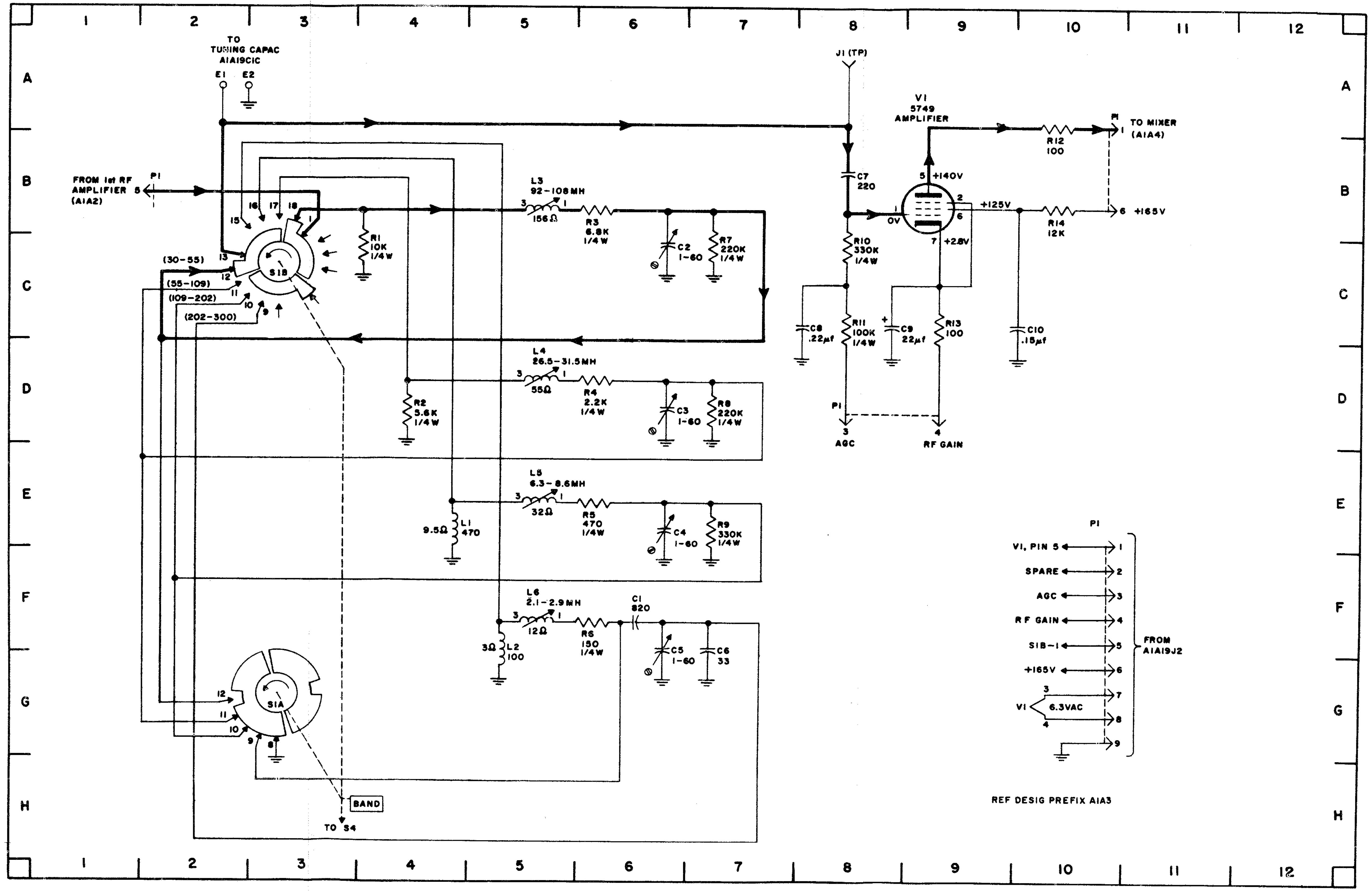


Figure 5-43. Preselector; Second Rf Amplifier A1A3, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
A1A4C1	7C	A1A4P1	10E,F,G
C2	7D	R1	3D
C3	7E	R2	7A
C4	7G	R3	5D
C5	5F	R4	5E
C6	7A	R5	5F
C7	4D	R6	7A
C8	4E	R7	4D
C9	4F	R8	4E
C10	4F	R9	4F
C11	7H	R10	9B
C12	10C	R11	10C
C13	11B	R12	7H
E1	2A	R13	11C
E2	3A	S1A	4G
J1	9A	S1B	4B
J2	9A	T1	8C
L1	7B	T2	8D
L2	7D	T3	8E
L3	7E	T4	8G
L4	7G	V1	10B

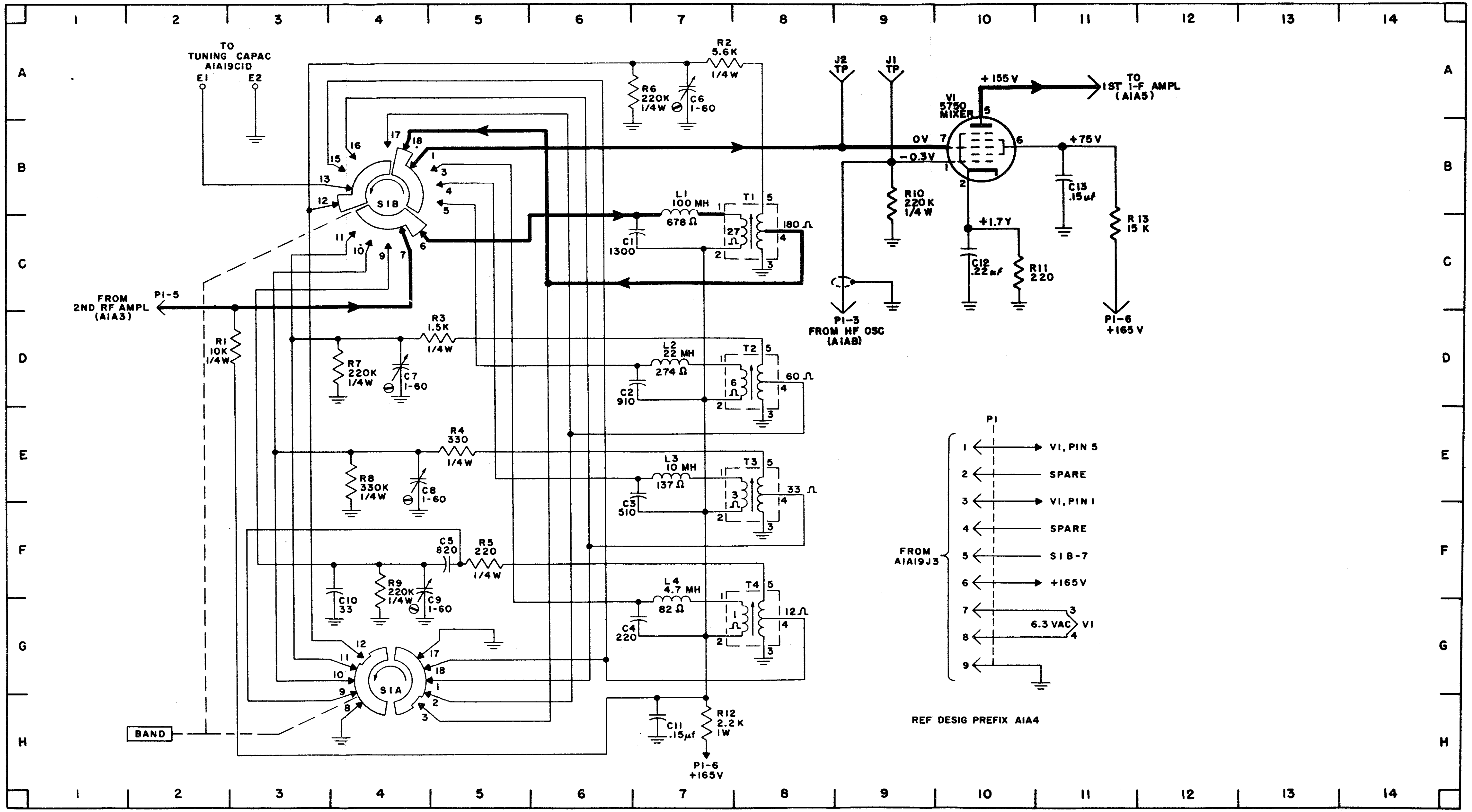


Figure 5-44. Preselector; Mixer A1A4, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
A1A5C1	3C	A1A5L1	3D
C2	2D	L2	8B
C3	2D	L3	9B
C4	5C	L4	12B
C5	4D	P1	2FGH
C6	6D	R1	3D
C7	5D	R2	3A
C8	7D	R3	4D
C9	7B	R4	5D
C10	8D	R5	5D
C11	8B	R6	6D
C12	9B	R7	7C
C13	10B	R8	7D
C14	9B	R9	10D
C15	Not used	R10	11D
C16	9D	R11	11C
C17	10D	R12	12D
C18	11D	R13	13D
C19	12D	V1	6C
C20	12B	V2	11C
C21	12B		
FL1	4C		
J1(TP)	3A		
J2(TP)	10A		
J3(TP)	9D		
J4(TP)	13A		

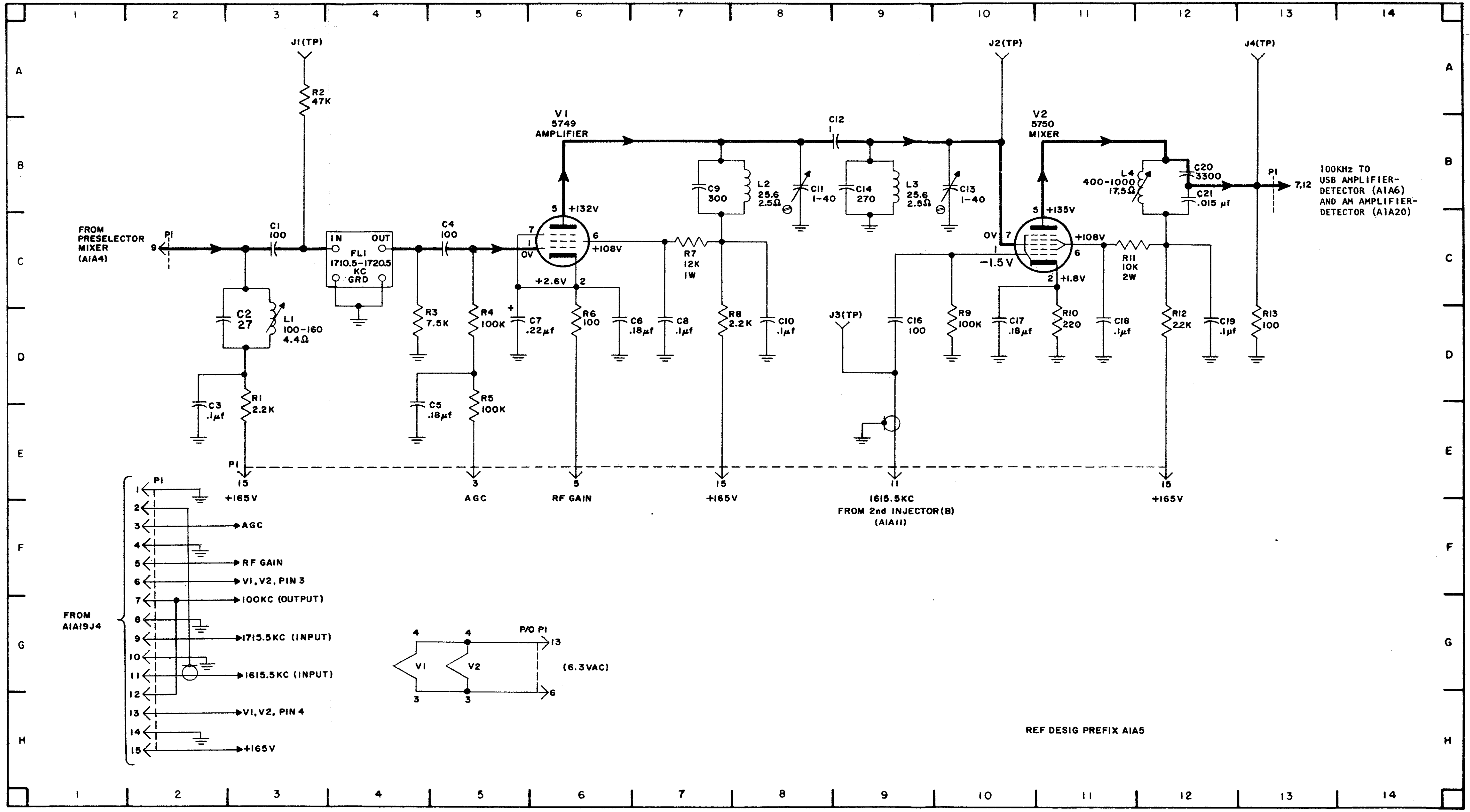


Figure 5-45. First I-F Amplifier A1A5, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
A1A6C1	3B	A1A6A1C30	12B	A1A6A1R30	8A	A1A6A2R3	16E
C2	6F	C31	11B	R31	9A	R4	16E
FL1	3B	C32	Not used	R32	11A	R5	14E
J1	7DEFG	C33	9C	V1	6B	R6	14E
J2	11DEFG	J1	5A	V2	7B	R7	14D
L1	2B	J2	7A	V3	8B	R8	17E
M1	4A	J3	8A	V4	10B	R9	17E
P1	2DEFG	J4	9A	V5	11B	R10	17E
R1	14B	J5	11A	A1A6A2C1	Not used	R11	17E
R2	3B	L1	7B	C2	15D	R12	18E
R3	3B	L2	8B	C3	Not used	R13	16B
R4	4B	L3	9B	C4	14E	R14	18E
R5	6F	L4	11B	C5	14E	R15	16B
R6	14B	L5	12B	C6	16E	R16	16C
S1	3C	L6	5B	C7	14D	R17	17A
Z1	14B	P1	12ABCD	C8	17D	R18	19E
A1A6A1C1	5B	R1	6C	C9	17E	R19	17C
C2	5C	R2	5B	C10	16B	R20	19E
C3	Not used	R3	6B	C11	Not used	R21	17B
C4	6B	R4	6C	C12	Not used	R22	17B
C5	6C	R5	6A	C13	18E	R23	19E
C6	6B	R6	6B	C14	18E	R24	18B
C7	7C	R7	7B	C15	17A	R25	18B
C8	6B	R8	7B	C16	19D	R26	20D
C9	6B	R9	7C	C17	17C	R27	20E
C10	Not used	R10	7A	C18	19D	R28	18B
C11	7C	R11	8B	C19	19E	R29	20B
C12	7B	R12	8B	C20	17B	R30	16D
C13	8B	R13	8B	C21	Not used	R31	16D
C14	7B	R14	9A	C22	19E	R32	17D
C15	8B	R15	9C	C23	20D	R33	20E
C16	Not used	R16	9B	C24	Not used	T1	18D
C17	8C	R17	9B	C25	19B	T2	17B
C18	9B	R18	10B	J1	13D	T3	19B
C19	9B	R19	10A	J2	16D	T4	20B
C20	9B	R20	10C	J3	17D	V1	14D
C21	9B	R21	10B	J4	16D	V2	16D
C22	Not used	R22	11C	J5	18A	V3	18D
C23	10B	R23	11B	J6	18A	V4	16B
C24	10B	R24	11C	J7	20D	V5	18B
C25	10B	R25	11A	J8	20D	V6	18B
C26	10B	R26	12B	L1	19B	CR1	19E
C27	Not used	R27	6C	P1	20BCDEF	CR2	19D
C28	10C	R28	5A	R1	13E		
C29	11B	R29	7A	R2	13E		

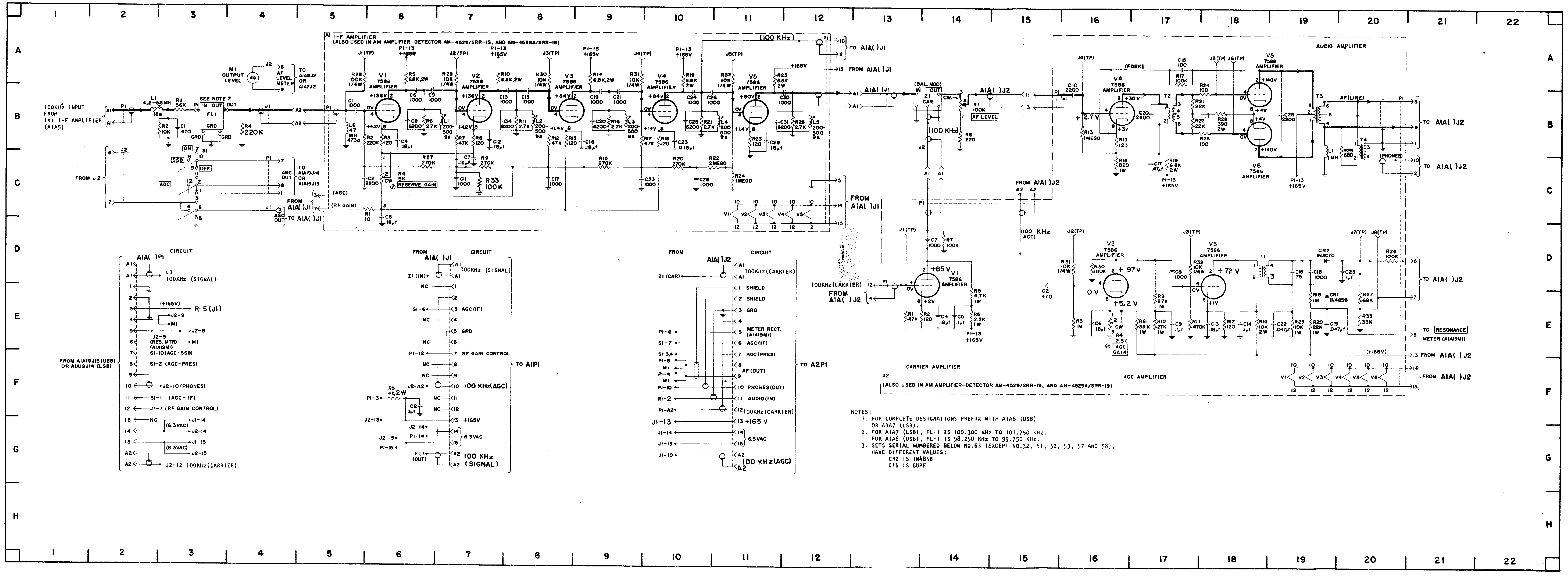


Figure 5-46. SSB Amplifier-Detectors, (A1A6 and A1A7), Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
A1A8C1	12H	A1A8C33	12F
C2	12G	C34	9D
C3	7C	C35	11D
C4	7C	C36	12E
C5	6D	C37	12A
C6	6D	C38	12D
C7	5D	C39	7C
C8	5D	C40	7D
C9	5D	C41	7E
C10	4D	C42	7F
C11	7D	E1	1A
C12	7D	E2	1A
C13	6D	J1	10A
C14	6D	L1	12G
C15	5D	P1	G 7,8,9,10,11
C16	5D	R1	9C
C17	5D	R2	9B
C18	7E	R3	10E
C19	7E	R4	10B
C20	6E	R5	12B
C21	6E	R6	11E
C22	5E	R7	12A
C23	5E	R8	12D
C24	5E	R9	12D
C25	7E	S1A	4G
C26	7F	S1B	4B
C27	6F	T1	3C
C28	6F	T2	3D
C29	5F	T3	3E
C30	5F	T4	3F
C31	5F	V1	11B
C32	9B	V2	11D

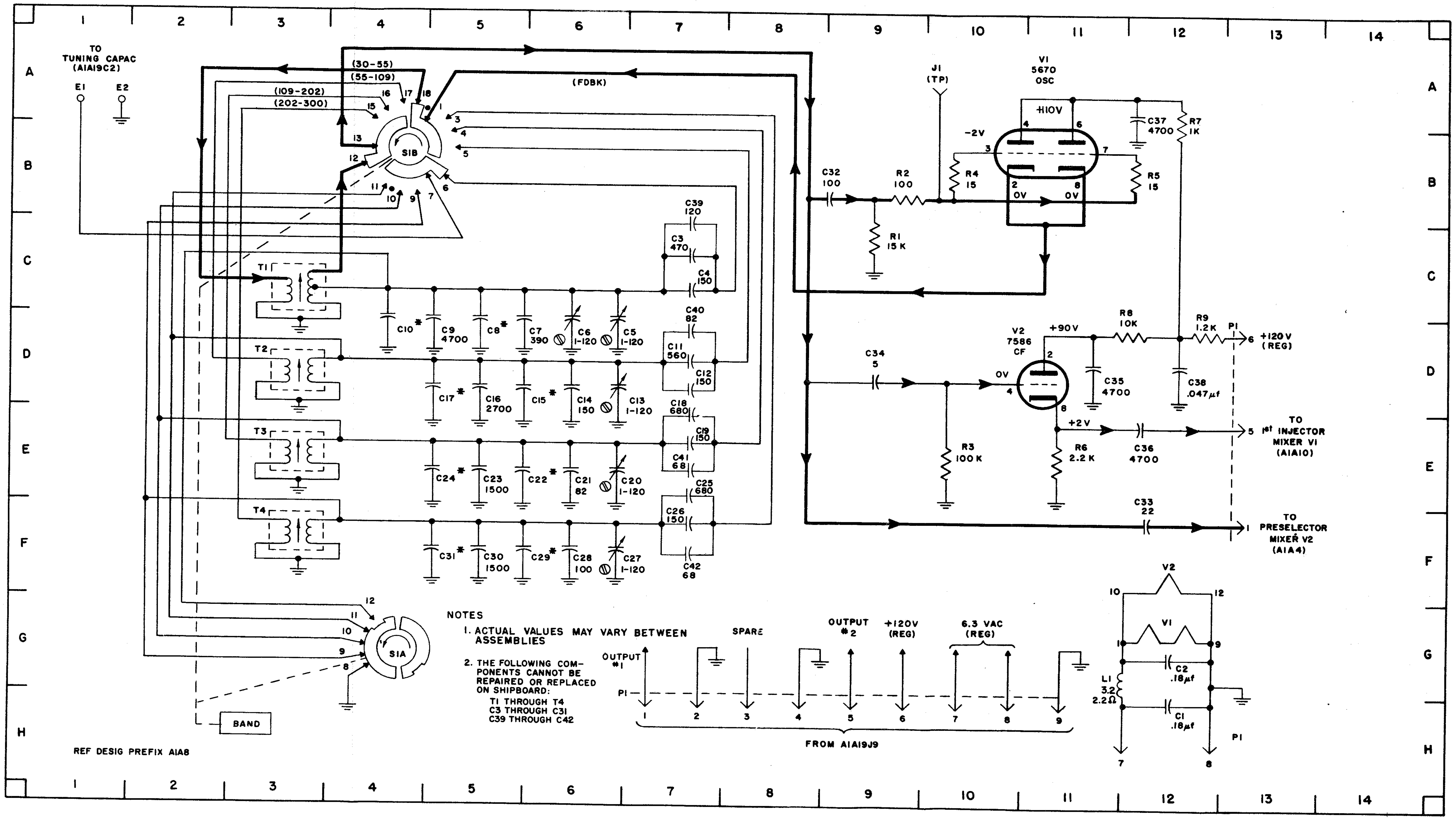


Figure 5-47. High-Frequency Oscillator A1A8, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
A1A9A1	2C	A1A9L1	2F
C1	3F	L2	3C
C2	3C	L3	9F
C3	6E	L4	11F
C4	6E	P1	16B-G
C5	12F	R1	4E
C6	5F	R2	7F
C7	10F	R3	7F
CR1	2D	R4	4B
CR2	4F	S1	5C
CR3	10D	Z1	7B
J1	3D	Z2	10B
J2	4A	Z3	12B
J3	12D		
J5	8D		
J7	13C		
J9	13A		

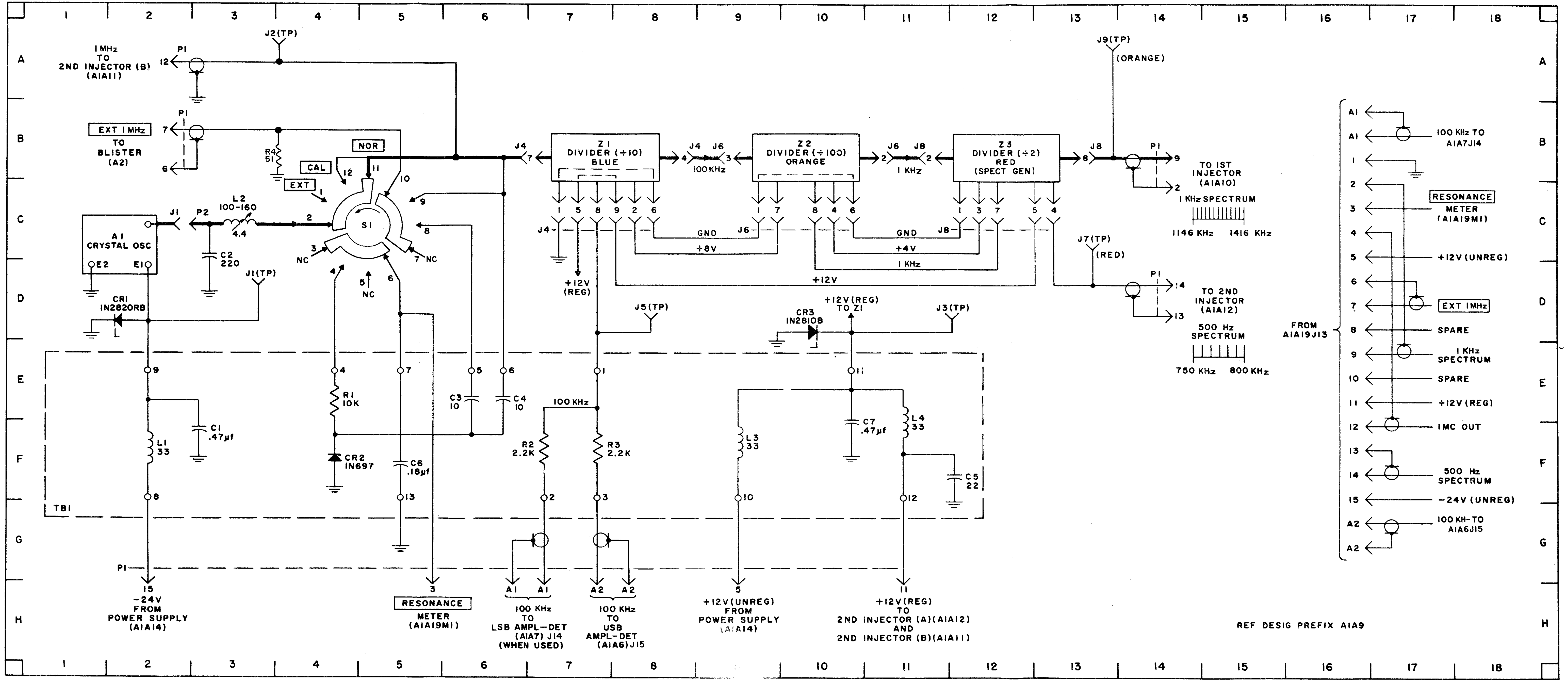


Figure 5-48. Crystal Oscillator - Frequency Divider A1A9, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
A1A10C1	4A	A1A10P1	2 E,F,G,H
C2	6C	R1	3C
C3	7C	R2	3A
C4	8C	R3	Not used
C5	9A	R4	5C
C6	8B	R5	4B
C7	8C	R6	5C
C8	Not used	R7	6C
C9	10C	R8	7C
C10	13C	R9	8C
C11	16F	R10	10C
C12	13B	R11	12C
C13	Not used	R12	11C
C14	14E	R13	13E
C15	15C	R14	11C
C16	16C	R15	15E
C17	16B	R16	10D
C18	Not used	R17	11D
C19	18C	R18	14C
C20	18A	R19	14D
C21	18F	R20	14C
C22	18B	R21	15D
C23	18C	R22	17C
FL1	4C	R23	17C
FL2	9C	R24	17E
J1	3A	R25	19E
J2	5A	R26	14A
J3	9A	R27	17A
J4	11A	V1	6C
J5	14A	V2	12C
J6	10D	V3	14C
J7	17A	V4	17C
J8	18A		
L1	8C		
L2	13C		
L3	16C		
L4	18C		

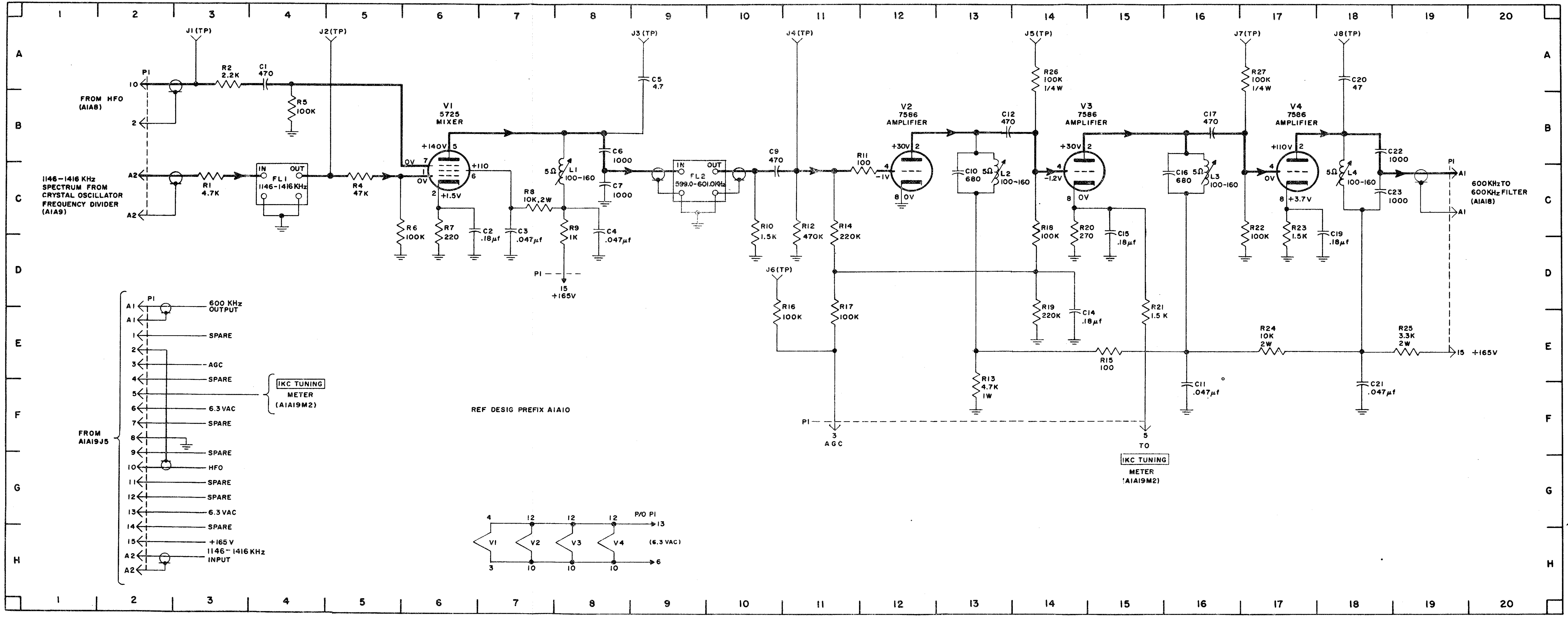


Figure 5-49. 1st Injector A1A10, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
A1A11C1	#	A1A11J13	6D
C2	7B	J14	7D
C3	8B	J15	9D
C4	#	J16	11D
C5	10C	J17	13D
C6	10B	J18	14D
C7	#	L1	10C
C8	11C	L2	13B
C9	#	L3	6E
C10	13C	L4	11F
C11	13C	L5	13F
C12	#	P1	17B thru F
C13	6E	R1	8C
C14	#	R2	7A
C15	7G	R3	11B
C16	7F	R4	11C
C17	8E	R5	12B
C18	7G	R6	12C
C19	8G	R7	12C
C20	#	R8	5F
C21	9G	R9	6G
C22	11G	R10	6G
C23	11F	R11	6G
C24	11F	R12	7F
C25	#	R13	7G
C26	11G	R14	9F
C27	13G	R15	10G
C28	13F	R16	10F
C29	13F	R17	10G
C30	#	R18	12G
C31	13G	R19	12F
CR1	12B	R20	12G
CR2	12C	R21	14G
CR3	14F	R22	14E
FL1	6B	R23	7A
FL2	14B	R24	14A
FL3	8F	R25	7E
J1	7A	R26	9E
J2	8,9,10 B C	R27	11E
J3	#	R28	13E
J4	#	R29	9C
J5	8A	T1	12B
J6	#	V1	7B
J7	#	V2	6F
J8	#	V3	6F
J9	#	V4	10F
J10	11A	V5	12F
J11	14C	Z1	9B
J12	14A		

\# NOT USED

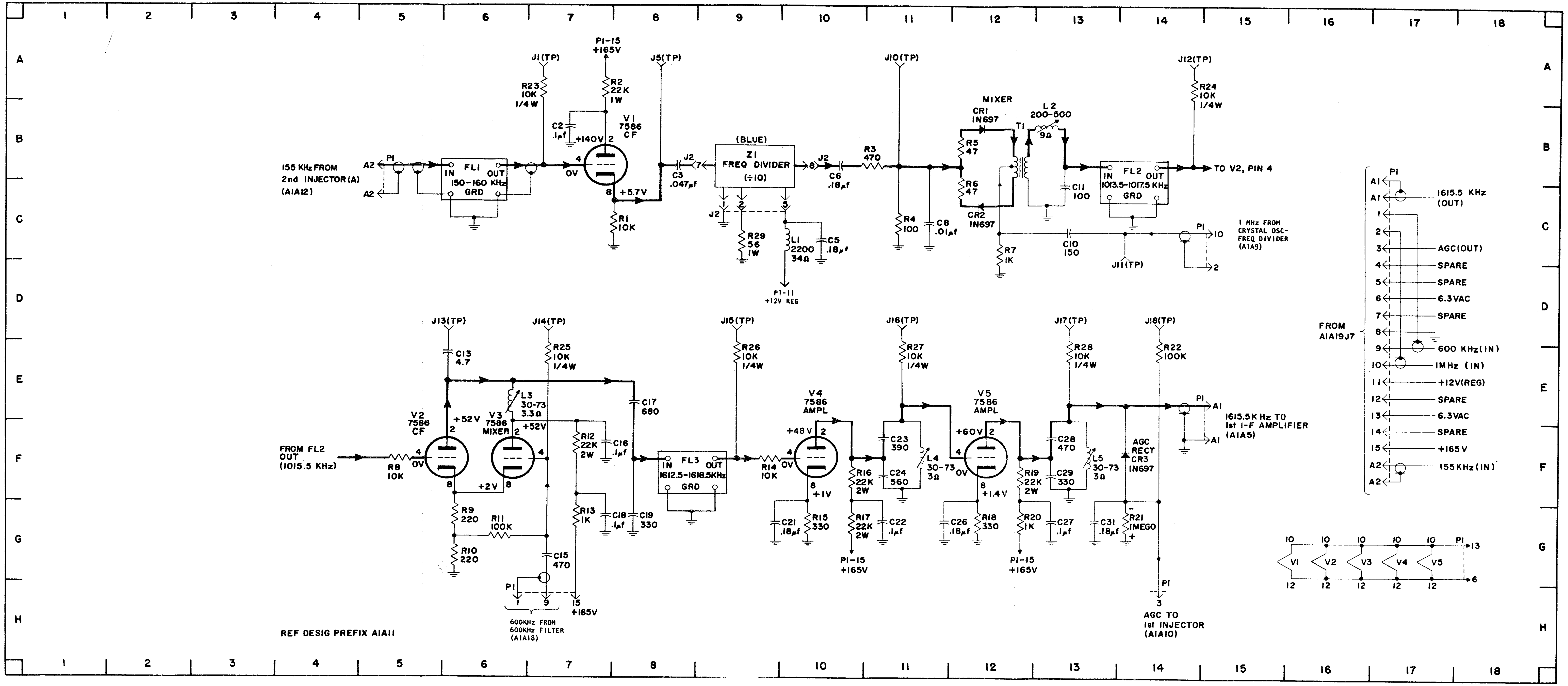


Figure 5-50. 2nd Injector (B) A1A11, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
A1A12C1	2C	A1A12CR1	13E	A1A12R3	4F
C2	4D	CR2	19G	R4	5D
C3	4E	FL1	4E	R5	6D
C4	5C	FL2	8C	R6	6E
C5	5E	J1	5A	R7	6D
C6	#	J2	7D	R8	6F
C7	6B	J3	8A	R9	7C
C8	#	J4	9A	R10	8C
C9	7E	J5	11A	R11	8B
C10	#	J6	10E	R12	9D
C11	7C	J7	13A	R13	9D
C12	8C	J8	14A	R14	9C
C13	8B	J9	#	R15	9G
C14	9C	J10	15C,D	R16	9F
C15	#		16D	R17	11D
C16	11C		17C	R18	11E
C17	11B	J11	16G,F	R19	12D
C18	9G		17G	R20	12F
C19	#	J12	#	R21	11E
C20	12C	thru		R22	10F
C21	11D	J20		R23	13D
C22	11E	J21	18A	R24	13D
C23	10G	J22	18E	R25	14E
C24	13B	J23	20E	R26	10G
C25	#	L1	3C	R27	17C
C26	13D	L2	3E	R28	18G
C27	14A	L3	7B	R29	5B
C28	14D	L4	11C	R30	7D
C29	14C	L5	13C	R31	9B
C30	14D	L6	14C	R32	11B
C31	#	L7	16F	R33	13B
C32	16F	L8	16G	S1A	5C
C33	16H	L9	18C	S1B	5F
C34	16H	L10	18G	T1	3C
C35	18C	L11	20G	T2	3E
C36	18C	L12	16E	T3	19G
C37	18G	L13	19G	V1	6C
C38	18G	P1	20A,B,C,D	V2	7C
C39	20G	R1	3D	V3	10C
C40	15E	R2	3E	V4	12C
				V5	13C
				Z1	16G
				Z2	16C

\# NOT USED

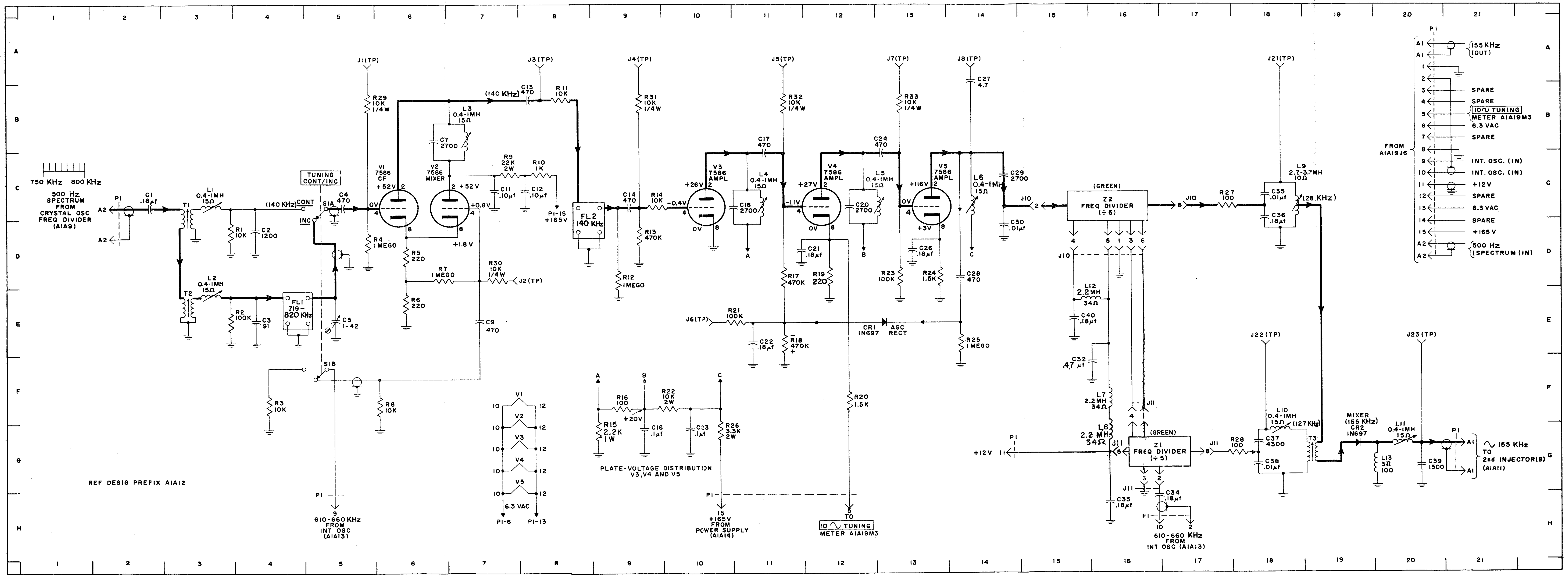


Figure 5-51. 2nd Injector (A) A1A12, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC
A1A13C1	5E
C2	5E
C3	7B
C4	7B
C5	7B
C6	6B
C7	5B
C8	5B
C9	3A
C10	2A
C11	4B
C12	4B
C13	7D
C14	7D
C15	7D
C16	7E
L1	3B
P1	2C,D,E
R1	9A
R2	8B
R3	8B
R4	3A
R5	8D
R6	8E
T1	4A
V1	8B

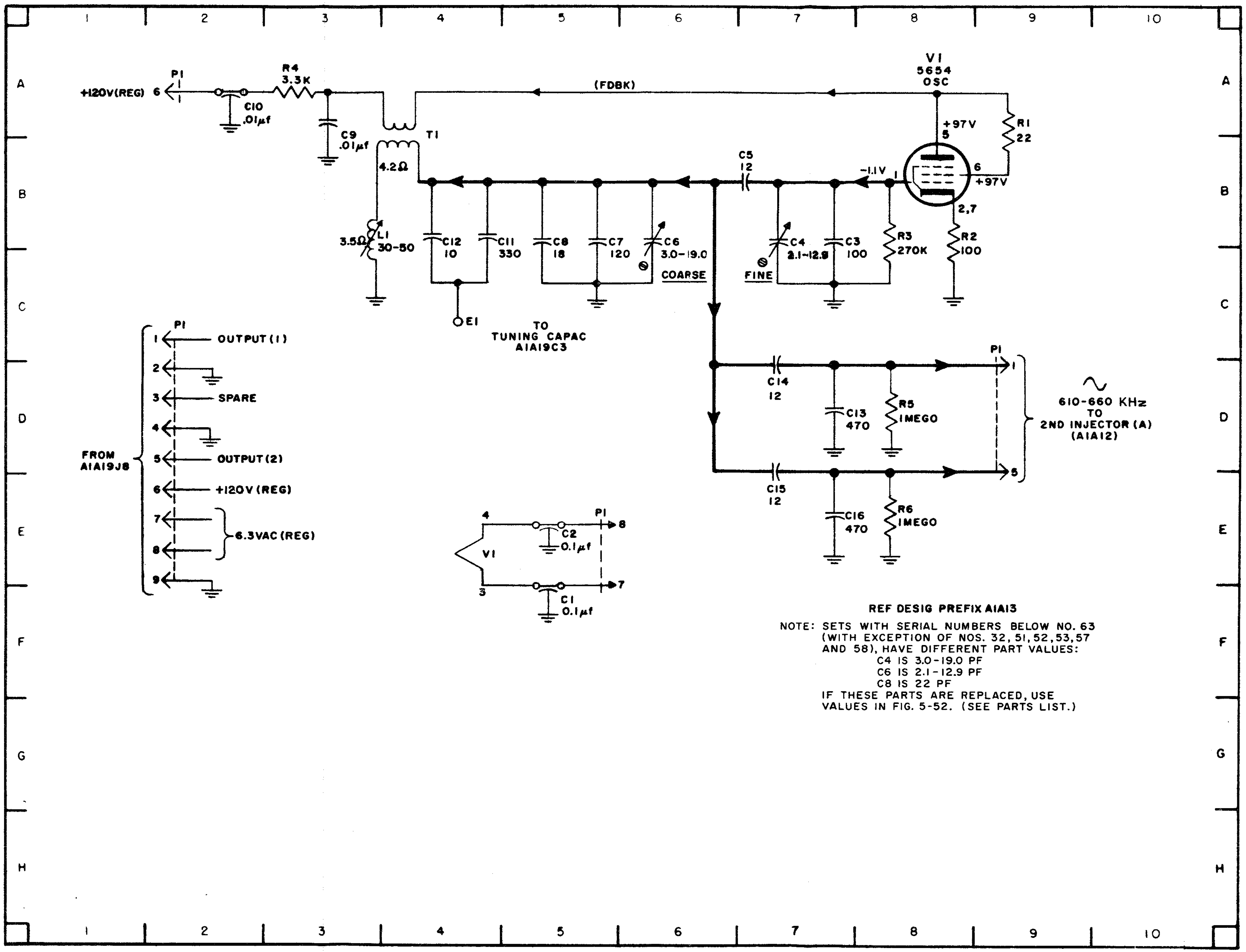


Figure 5-52. Interpolator Oscillator A1A13, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC
A1A14C1	6B
C2	6E
C3	7B
C4	7E
CR1	5A
CR2	6A
CR3	5B
CR4	6B
CR5	5E
CR6	6E
CR7	5E
CR8	6E
L1	7A
L2	7E
P1	2E,F,G
R1	4A
R2	4B
R3	4E
R4	4E
R5	7B
S1	2C
T1	3A,B,C,D,E

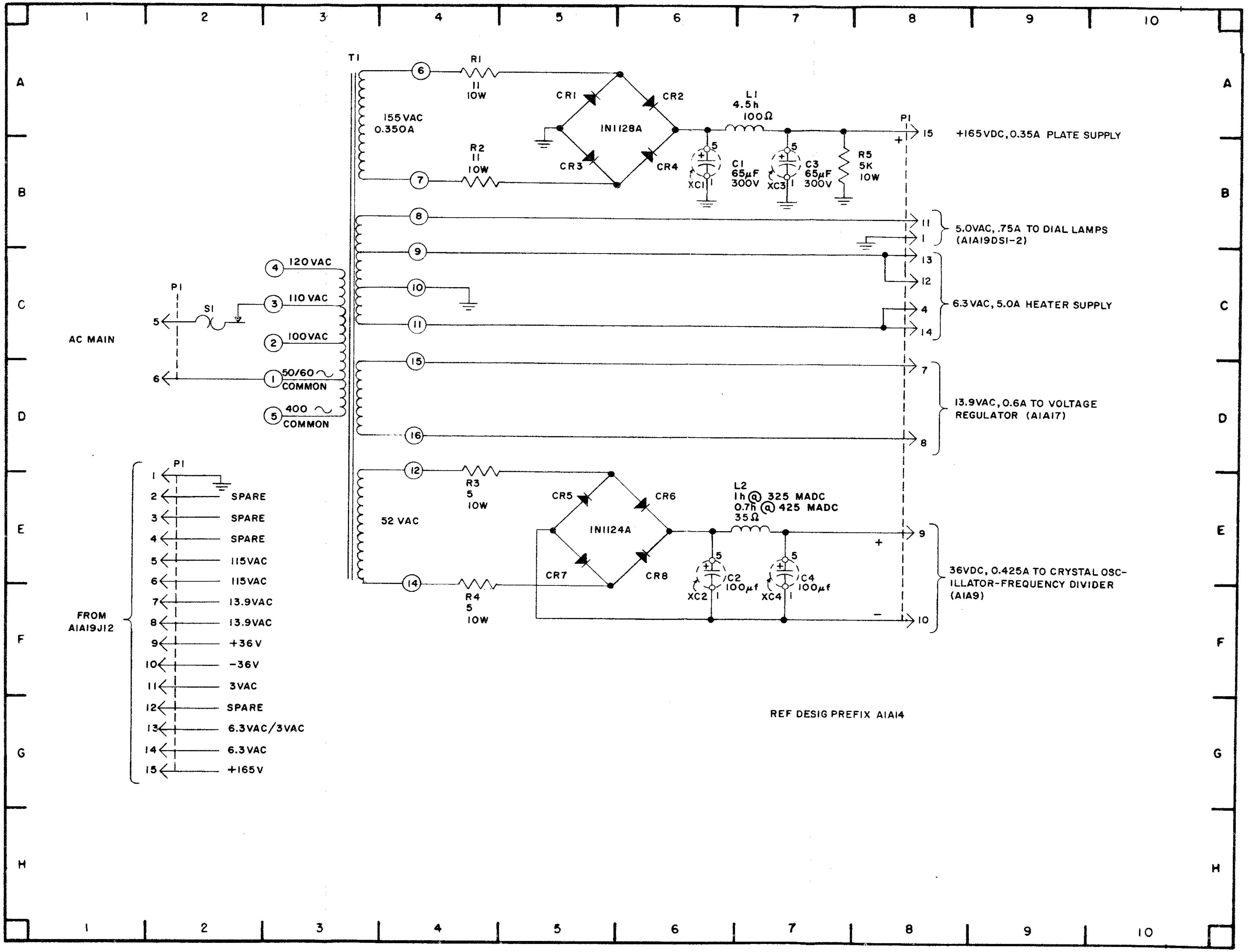


Figure 5-53. Power Supply A1A14, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC
A1A17CR1	4C
CR2	4D
CR3	4E
E1	4C
E2	3C
E3	3D
E4	4D
E5	4E
E6	4B
E7	4F
R1	3C
R2	3D
R3	3B
R4	4G

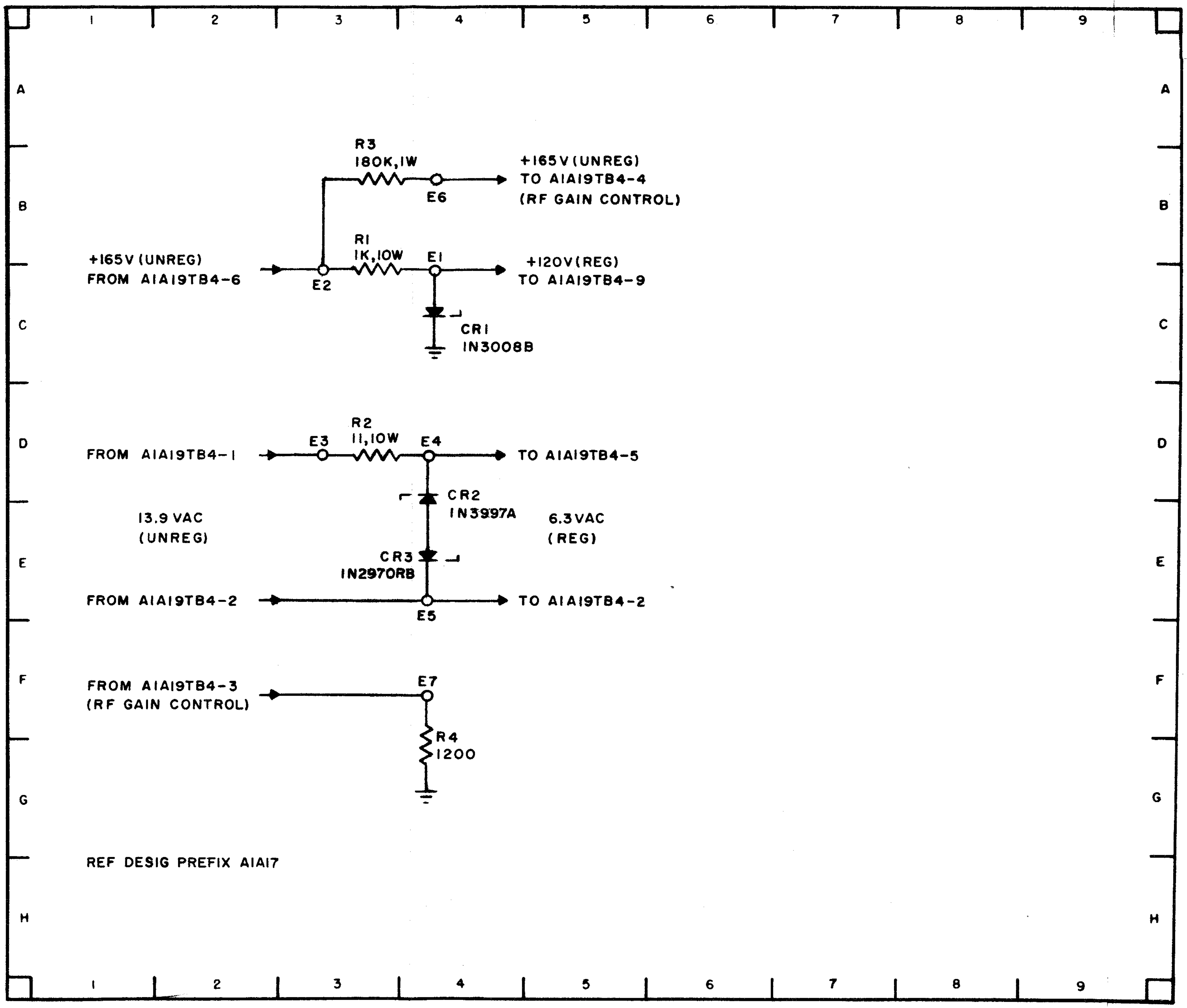


Figure 5-54. Voltage Regulator A1A17, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC
A1A18C1	5B
C2	5C
L1	6C
FL1	4C

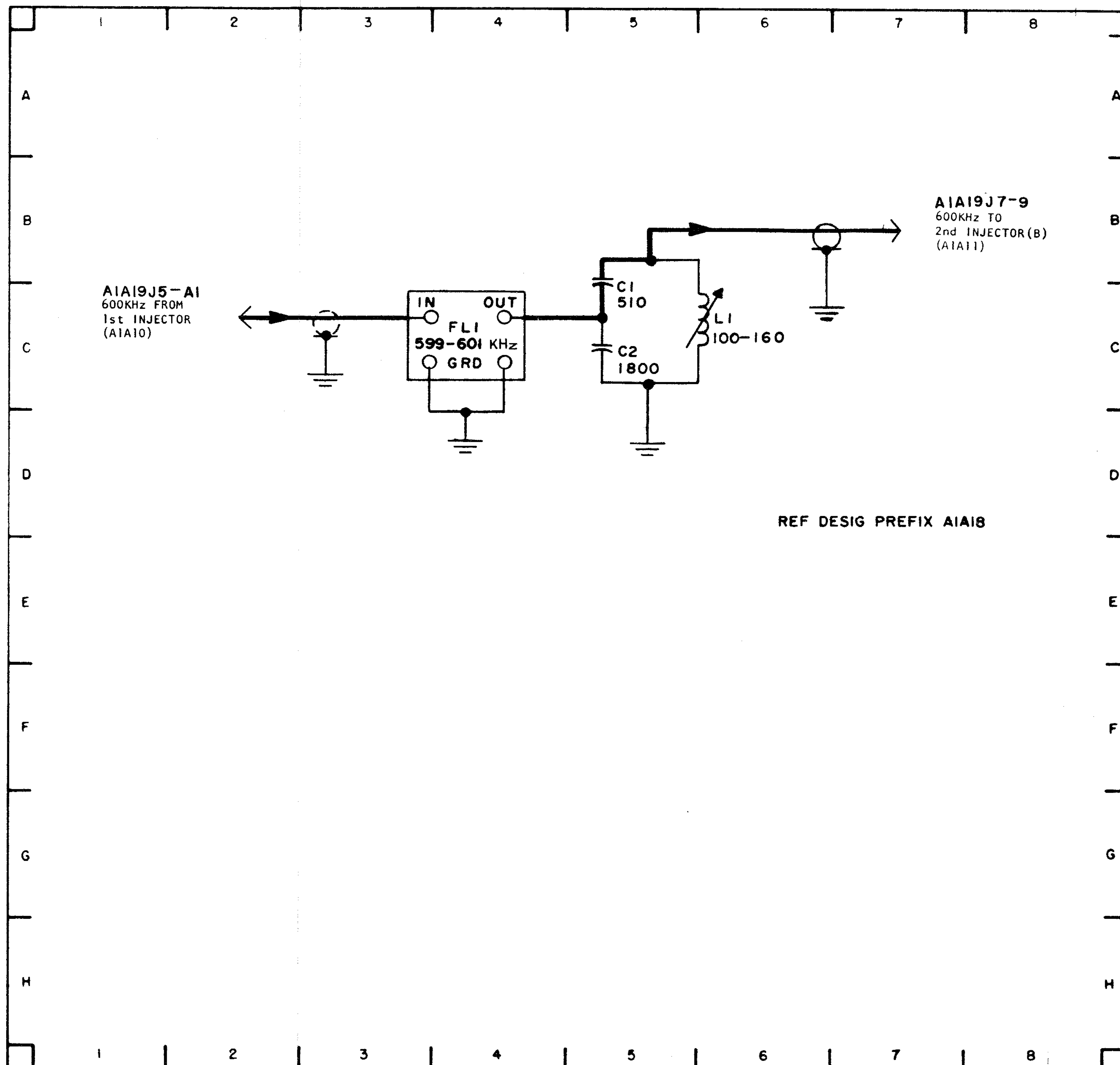


Figure 5-55. 600-KHz Filter, A1A18, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
A1A20A1	7A	A1A20S1A	7D	A1A20A3J1	11D
A2	15A	S1B	3D	J2	12D
C1	2F	S2A	13A	J3	13D
C2	2D	S2B	11A	L1	12D
C3	#	S3	10F	L2	12D
C4	#	A1A20A3C1	10D	R1	10D
C5	#	C2	9E	R2	10D
FL1	5C	C3	9E	R3	10E
J1	5E thru H	C4	10D	R4	9D
J2	7E thru H	C5	10D	R5	10D
J3	9C thru 16C	C6	14E	R6	10D
L1	2D	C7	12E	R7	11E
R1	2F	C8	12D	R8	14E
R2	3D	C9	16D	R9	12E
R3	3D	C10	12E	R10	12E
R4	4D	C11	13E	R11	11E
R5	4C	C12	15D	R12	14E
R6	4C	C13	15D	R13	14D
R7	5C	C14	16E	R14	13E
R8	4D	C15	15D	V1	11E
R9	5C	C16	#	V2	14E
R10	16A	C17	#	Y1	15D
R11	16A	C18	#	Y2	14D
R12	6D	C19	#		
R13	7D	C20	14D		
R14	6C	CR1	9D		
R15	7D	CR2	10D		
R16	11B				
R17	15C				

NOT USED

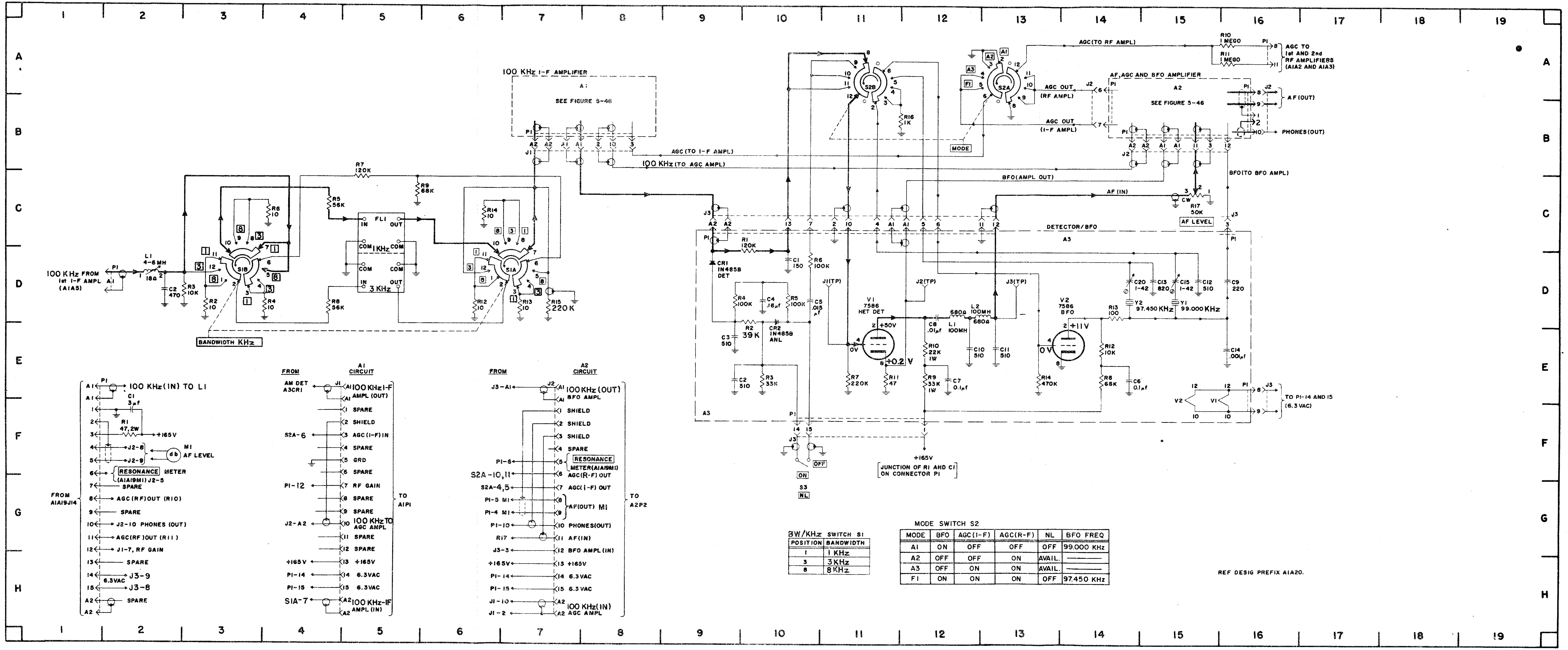


Figure 5-56. AM Amplifier-Detector, (A1A20), Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC
A2J1	2F
J2	2C
J3	2E
J4	2A
J5	2B
FL1	4F
FL2	4C
FL3	4E
P1	6A-G
P2	4,5G

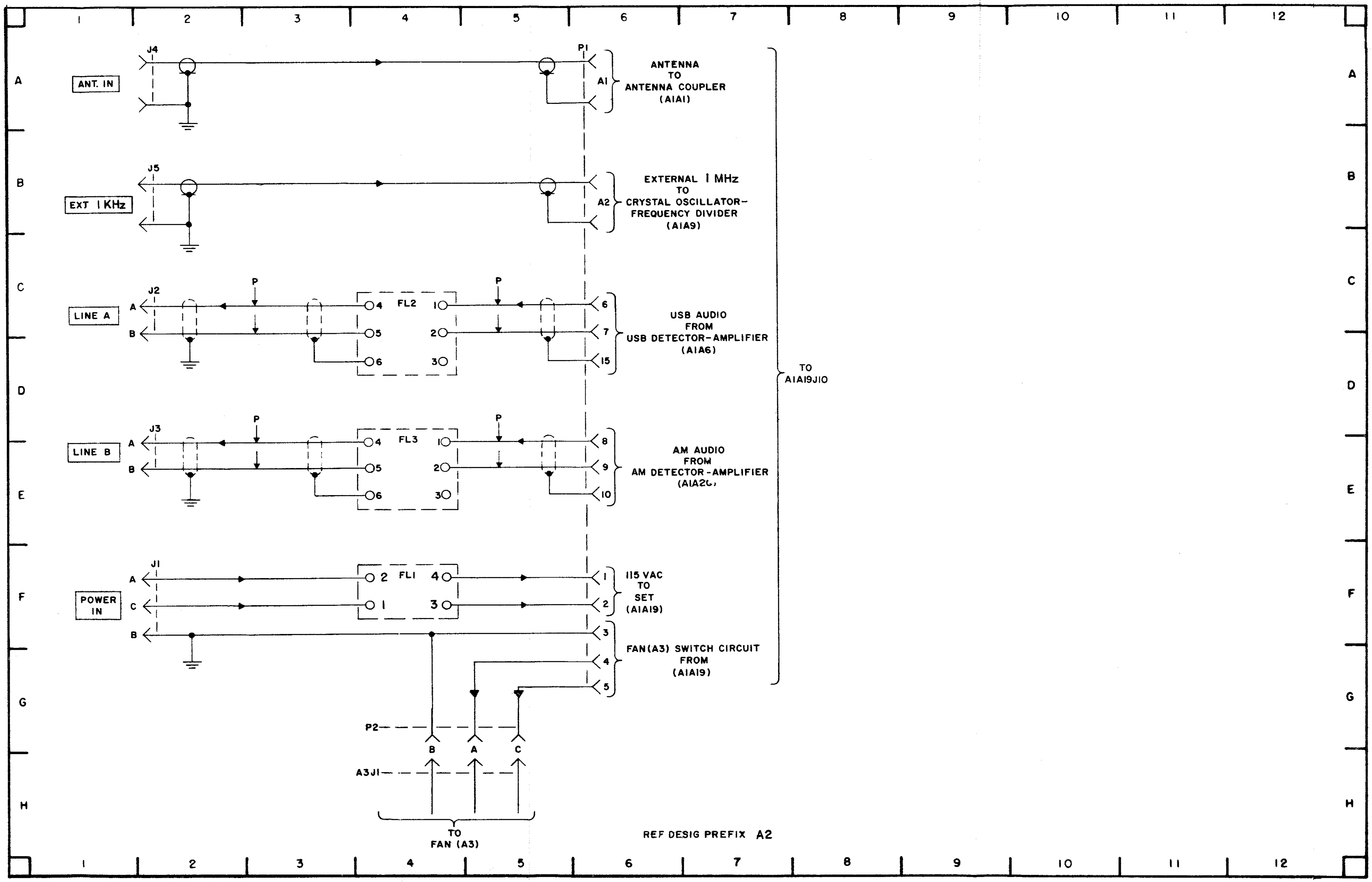


Figure 5-57. Blister Assembly A2, Schematic Diagram

PARTS LOCATION INDEX

REF DESIG	LOC
A3B1	6BC
C1	4B
J1	2BCD
TB1	4BC

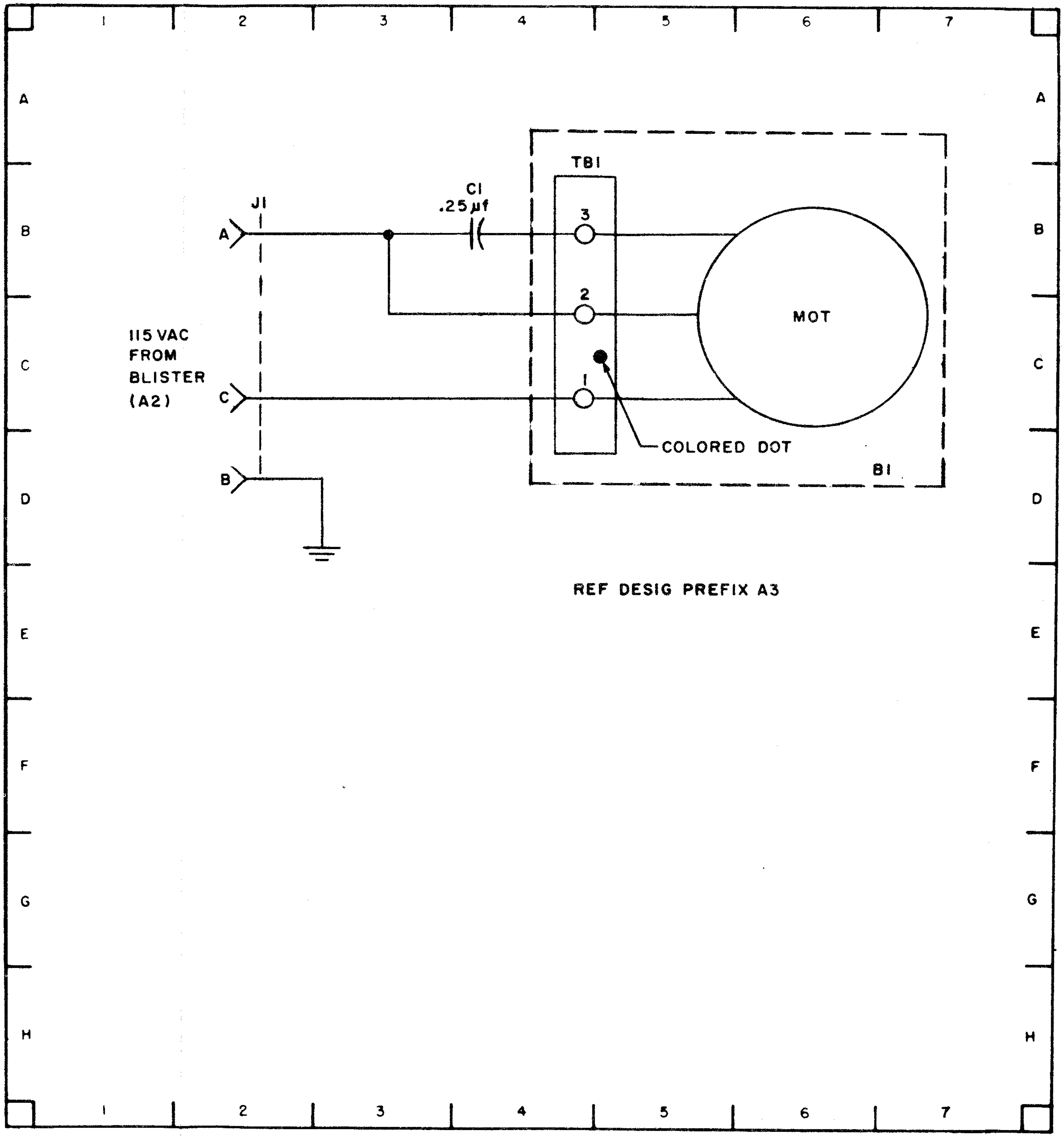


Figure 5-58. Fan Assembly A3, Schematic Diagram

SECTION 6

PARTS LIST

6.1 INTRODUCTION

a. REFERENCE DESIGNATIONS. The unit numbering method of assigning reference designations has been used to identify assemblies, subassemblies, and parts. This method has been expanded as much as necessary to adequately cover the various degrees of subdivision of the equipment. Examples of this unit numbering method and typical expansions of the same are illustrated by the following.

b. REFERENCE DESIGNATION PREFIX. Partial reference designations are used on the equipment and illustrations. The partial reference designations consist of the class letter (S) and the identifying item number. The complete reference designations may be obtained by placing the proper prefix before the partial reference designations. Prefixes are provided on illustrations following the notation "REF DESIG PREFIX".

Example 1: A 1

Class of item — Item No. within class

Read as: First (1) assembly (A).

Example 2: A1 A1

Assembly designation — Subassembly designation

Read as: First (1) subassembly (A) of first (1) assembly (A).

Example 3: A1 A1 R1

Assembly designation — Subassembly designation — Class and No. of item

Read as: First (1) resistor (R) of first (1) subassembly (A) of first (1) assembly.

Example 4: A1 A1 A1 R1

Assembly designation — Subassembly designation — Sub-subassembly designation — Class and No. of item

Read as: First (1) resistor (R) of first (1) sub-subassembly (A) of first (1) subassembly (A) of first (1) assembly (A).

6.2 LIST OF MAJOR ASSEMBLIES

Table 6-1 is a listing of the major assemblies comprising the equipment. The major assemblies are listed by their complete reference designation. Table 6-1 contains the following information for each major assembly listed: column 1 - reference designation; column 2 - name; and column 3 - location of the first page of its parts listing in Table 6-2.

TABLE 6-1. LIST OF MAJOR ASSEMBLIES

REF DESIG	NAME	PAGE
	Radio Receiving Sets AN/SRR-19 ( )	6-3
A1	Chassis Assembly	6-4
A1A1	Antenna Coupling Assembly	6-4
A1A2	1st Rf Amplifier	6-5
A1A3	2nd Rf Amplifier	6-7
A1A4	Preselector Mixer Assembly	6-8
A1A5	1st I-F Amplifier	6-9
A1A6	Usb Amplifier-Detector	6-10
A1A6A1	100-Kc I-F Amplifier	6-11
A1A6A2	Agc and Af Amplifiers	6-13
A1A7	Lsb (Auxiliary) Amplifier-Detector	6-15
A1A7A1	100-Kc I-F Amplifier	6-15
A1A7A2	Agc and Af Amplifiers	6-15
A1A8	High-Frequency Oscillator	6-15
A1A9	Crystal Oscillator - Frequency Divider	6-17
A1A10	1st Injector	6-18
A1A11	2nd Injector (B)	6-20
A1A12	2nd Injector (A)	6-22
A1A13	Interpolator Oscillator	6-25
A1A14	Power Supply	6-26
A1A15	Main Tuning Assembly	6-27
A1A16	Secondary Tuning Assembly	6-31
A1A17	Voltage Regulator, Oscillator	6-34
A1A18	600-Kc Filter Assembly	6-34
A1A19	Chassis Subassembly	6-35
A1A20	AM Amplifier-Detector	6-38
A1A20A1	100-Kc I-F Amplifier	6-40
A1A20A2	Agc and Af Amplifiers	6-40
A1A20A3	Detector/Bfo Assembly	6-40
A2	Blister Assembly	6-41
A3	Fan Assembly	6-42

6.3 MAINTENANCE PARTS LIST

Table 6-2 lists all assemblies and their maintenance parts, and provides the following information: column 1 lists the complete reference designation for the item listed; column 2 references explanatory notes which are given in paragraph 6.6; column 3 lists the noun name and brief description, as well as manufacturer's code and type number; and column 4 identifies the illustration which pictorially locates the part.

6.4 LIST OF MANUFACTURERS

Table 6-3 lists the manufacturers of parts used in the equipment. The table includes the manufacturer's code used in Table 6-2 to identify the manufacturers. These codes were taken from the Federal Supply Code for Manufacturers, H4-1.

6.5 STOCK NUMBER INDENTIFICATION

Allowance Parts List (APL) issued by the Electronics Supply Office (ESO) include Federal Stock Numbers and Source Maintenance and Recoverability Codes. Therefore, reference should be made to the APL prepared for the equipment for stock numbering information.

6.6 NOTES

The following notes provide information as referenced in Table 6-2.

1. Supplied with but not part of.
2. Lsb amplifier-detector (A1A7) may be used in place of usb amplifier-detector (A1A6), or AM amplifier-detector (A1A20).
3. Part of AN/SRR-19 only.
4. Part of AN/SRR-19A only.

TABLE 6-2. MAINTENANCE PARTS LIST

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
		RADIO RECEIVING SETS AN/SRR-19( ): Frequency range 30 kc to 300 kc; incremental tuning steps 1 kc and 10 cps, or continuous; independent ssb reception of multichannel RATT broadcasts, and modes A1, A2, A3, F1; auxiliary lsb amplifier-detector	1-1
	1	ALIGNMENT TOOL, EE: Plastic body; metal tips; hex tip one end, screwdriver tip on other end; 5.12 in. lg.	1-1
	1	ALIGNMENT TOOL, EE: Paper phenolic handle; cadmium plated brass tip; 3-11/16 in. lg; 1/4 in. dia body; 5/16 in. dia tip.	1-1
	1	CONNECTOR, PLUG, ELECTRICAL: MIL type MS3106E16S5S.	1-1

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
	1	CONNECTOR, PLUG, ELECTRICAL: MIL type MS3106E10SL4S.	1-1
	1	CONNECTOR, PLUG, ELECTRICAL: MIL type UG941B/U.	1-1
	1	CONNECTOR, PLUG, ELECTRICAL: MIL type UG88E/U.	1-1
	1	CABLE ASSEMBLY, TEST: 17 conductor; 6 ft R196A/U coax cable; 45 ft assorted color-coded hook-up wire; plug connector on one end, receptacle connector on other end; 42498 dwg/type C40190.	1-1
	1	CABLE ASSEMBLY, TEST: 9-conductor; 27 ft assorted color-coded hook-up wire; plug connector on one end, receptacle connector on other end; 42498 dwg/type C40191.	1-1
	1	KEY, SOCKET HEAD SCREW: Steel, cadmium plated; multiple spline type; 4 flutes; 1-3/8 in. lg shaft, 1/2 in. lg head.	1-1
A1		CHASSIS ASSEMBLY: Same as above but without Blister Assembly A2 and Fan Assembly A3; 42498 dwg/type E38842G1 (AN/SRR-19) or E38842G2 (AN/SRR-19A).	5-1
A1A1		ANTENNA COUPLING ASSY: Input signal attenuator; c/o protective fuse; 4-position switch unit with attenuation resistors; input impedance 52 ohms; maximum signal attenuation approximately 45 db in three steps; also contains low-pass LC filter, -3 db point at 550 kc; 42498 dwg/type D38036G1.	5-1
A1A1C1		CAPACITOR: MIL type CM07F123J03.	5-7
A1A1C2		CAPACITOR: MIL type CM07F562J03.	5-7
A1A1F1		FUSE, CARTRIDGE: MIL type M23419-2-010.	5-7
A1A1J1		CONNECTOR: MIL type UG1464U.	5-7
A1A1J2		Same as A1A1J1.	5-7
A1A1L1		COIL: MIL type MS90537-27.	5-7
A1A1L2		COIL: MIL type MS90537-31.	5-7
A1A1MP1		SHAFT, STRAIGHT: Cres per QQ-S-763; passivated finish; 0.250 in. od by 3.250 in. lg; 42498 dwg/type B37754-1.	5-7
A1A1MP2		RING, RETAINING: Carbon spring steel, cadmium plated; 0.025 in. thk; 0.207 in. id; 0.527 in. od; 42498 dwg B19785-1; 97464 type 1000-25.	5-7
A1A1MP3		Same as A1A1MP2.	5-7
A1A1MP4		COUPLING ASSEMBLY: Brass with steel pin; 1 in. dia by 23/32 in thk; 42498 dwg/type B31176-3.	5-7
A1A1MP5		KNOB: MIL type MS91528-1E2B.	5-7
A1A1MP6		KNOB: MIL type MS91528-1K2B.	5-7
A1A1R1		RESISTOR: MIL type RC42GF561J.	5-7
A1A1R2		Same as A1A1R1.	5-7
A1A1R3		Same as A1A1R1.	5-7
A1A1R4		Same as A1A1R1.	5-7
A1A1R5		RESISTOR: MIL type RC20GF100J.	5-7
A1A1R6		RESISTOR: MIL type RC20GF820J.	5-7

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A1R7		RESISTOR: MIL type RC20GF471J.	5-7
A1A1R8		Same as A1A1R5.	5-7
A1A1S1		SWITCH, ROTARY: 3-pole; 4-position; shorting type; 42498 dwg A38220-1; 76854 type 222582A1.	5-7
A1A1XF1		FUSEHOLDER: 125 v nom, current range 1/500-5A; 42498 dwg A39861-1; 75915 type 282001.	5-7
A1A2		1ST RF AMPLIFIER: P/o preselector; 30 kc to 300 kc in four bands; band 1, 30-55 kc; band 2, 55-109 kc; band 3, 109-202 kc; band 4, 202-300 kc; 1 tube, fil 6.3 vac, plate 165 vdc; 42498 dwg/type D37870G1.	5-5
A1A2C1		CAPACITOR, VARIABLE, AIR: 7.60 to 52 uuf; plate meshing type; 42498 dwg A39744-1; 42498 type B18584.	5-8
A1A2C2		CAPACITOR: MIL type CM06D821J03.	5-8
A1A2C3		Not used.	
A1A2C4		CAPACITOR: MIL type CM05D470J03.	5-8
A1A2C5		CAPACITOR: MIL type CK60AX221M.	5-8
A1A2C6		CAPACITOR, FIXED, PAPER: 0.22 uf; 200 vdc working; ±20%; 42498 dwg A20011-3; 56289 type 118P22402T12.	5-8
A1A2C7		CAPACITOR: MIL type CS13AF220K.	5-8
A1A2C8		CAPACITOR, FIXED, PAPER: 0.15 uf; 400 vdc working ±20%; 42498 dwg A19988-2; 56289 type 118P15404T15.	5-8
A1A2C9		Same as A1A2C8.	5-8
A1A2C10		Same as A1A2C2.	5-8
A1A2C11		CAPACITOR: MIL type PC39J600.	5-8
A1A2C12		Same as A1A2C11.	5-8
A1A2C13		Same as A1A2C11.	5-8
A1A2C14		Same as A1A2C11.	5-8
A1A2C15		CAPACITOR: MIL type CM05D330J03.	5-8
A1A2E1		TERMINAL, FEED-THRU, INSULATED: Brass; gold plated; 1.20 uuf; 750 v; 42498 dwg A28670; 98291 type FT325.	5-8
A1A2E2		Same as A1A2E1.	5-8
A1A2E3		Same as A1A2E1.	5-8
A1A2E4		Same as A1A2E1.	5-8
A1A2EV1		SHIELD, ELECTRON TUBE: MIL type MS24233-2.	5-8
A1A2J1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 rd female contact; straight; 42498 dwg A17697GREEN; 98291 type SKT-2BCGREEN.	5-8
A1A2MP1		HUB, YOKE: Brass, cadmium plated; 0.281 in. thk, 0.500 in. wide, 0.875 in. high; 42498 dwg/type B37953G1.	5-8
A1A2MP2		ARM, SWITCH: Cres per QQ-S-763; passivated finish; 0.278 in. thk; 0.313 in. wide; 1.188 in. high; 42498 dwg/type D34669G1.	5-8
A1A2MP3		Same as A1A2MP2.	5-8
A1A2P1		CONNECTOR, PLUG, ELECTRICAL: 9 rd male contacts; straight; 42498 dwg A38650-1; 71468 type DEM9PC37A134.	5-8
A1A2P2		CONNECTOR: MIL type UG1460/U.	5-8

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A2R1		RESISTOR: MIL type RC07GF472J.	5-8
A1A2R2		RESISTOR: MIL type RC07GF152J.	5-8
A1A2R3		RESISTOR: MIL type RC07GF331J.	5-8
A1A2R4		RESISTOR: MIL type RC07GF101J.	5-8
A1A2R5		RESISTOR: MIL type RC07GF334J.	5-8
A1A2R6		RESISTOR: MIL type RC07GF104J.	5-8
A1A2R7		RESISTOR: MIL type RC20GF101J.	5-8
A1A2R8		RESISTOR: MIL type RC20GF103J.	5-8
A1A2R9		RESISTOR: MIL type RC32GF222J.	5-8
A1A2R10		RESISTOR: MIL type RC07GF682J.	5-8
A1A2R11		RESISTOR: MIL type RC07GF222J.	5-8
A1A2R12		RESISTOR: MIL type RC07GF471J.	5-8
A1A2R13		RESISTOR: MIL type RC07GF151J.	5-8
A1A2S1		SWITCH, ROTARY: 2-section; 5-pole; 4-position shorting type; 42498 dwg C34778; 42498 type C34654-3.	5-8
A1A2S2		Same as A1A2S1.	5-8
A1A2T1		TRANSFORMER, RF: 100 to 120 mh secondary inductance; Q is 72 to 82 at 25 kc frequency; 4 ohms primary, 165 ohms secondary max dc resistance; 15 ma dc max primary; shielded coil form, 42498 dwg/type D39728-13.	5-8
A1A2T2		TRANSFORMER, RF: 26.5 to 31.5 mh secondary inductance; Q is 120 to 118 at 79 kc frequency; 0.60 ohms primary, 55 ohms secondary max dc resistance; 40 ma dc max primary; shielded coil form; 42498 dwg/type D39728-12.	5-8
A1A2T3		TRANSFORMER, RF: 6.3 to 8.7 mh secondary inductance; Q is 100 to 104 at 250 kc frequency; 0.38 ohms primary, 32 ohms secondary max dc resistance; 40 ma dc max primary; shielded coil form, 42498 dwg/type D39728-11.	5-8
A1A2T4		TRANSFORMER, RF: 2.1 to 2.9 mh secondary inductance; Q is 106 to 120 at 250 kc frequency; 0.15 ohms primary, 12 ohms secondary max dc resistance; 60 ma dc max primary; shielded coil form; 42498 dwg/type D39728-10.	5-8
A1A2T5		TRANSFORMER, RF: 120 to 140 mh secondary inductance; Q is 72 to 82 at 25 kc frequency; 27 ohms primary, 180 ohms secondary max dc resistance; 10 ma dc max primary; shielded coil form, 42498 dwg/type D39728-4.	5-8
A1A2T6		TRANSFORMER, RF: 32 to 38 mh secondary inductance; Q is 120 to 118 at 79 kc frequency; 6 ohms primary, 60 ohms secondary max dc resistance; 15 ma dc max primary; shielded coil form; 42498 dwg/type D39728-3.	5-8
A1A2T7		TRANSFORMER, RF: 6.7 to 9.3 mh secondary inductance; Q is 100 to 104 at 250 kc frequency; 3 ohms primary, 33 ohms secondary max dc resistance; 20 ma dc max primary; shielded coil form; 42498 dwg/type D39728-2.	5-8

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A2T8		TRANSFORMER, RF: 2.1 to 2.9 mh secondary inductance; Q is 106 to 120 at 250 kc frequency; 1 ohm primary, 12 ohms secondary max dc resistance; 40 ma dc max primary; shielded coil form; 42498 dwg/type D39728-1.	5-8
A1A2V1		ELECTRON TUBE: MIL type JAN5749/6BA6.	5-8
A1A2XV1		SOCKET, ELECTRON TUBE: MIL type TS102P01.	5-8
A1A3		2ND RF AMPLIFIER: P/o preselector; 30 kc to 300 kc in four bands; band 1, 30-55 kc; band 2, 55-109 kc; band 3, 109-202 kc; band 4, 202-300 kc; 1 tube, fil 6.3 vac, plate 165 vdc; 42498 dwg/type D37871G1.	5-5
A1A3C1		Same as A1A2C2.	5-9
A1A3C2		Same as A1A2C11.	5-9
A1A3C3		Same as A1A2C11.	5-9
A1A3C4		Same as A1A2C11.	5-9
A1A3C5		Same as A1A2C11.	5-9
A1A3C6		Same as A1A2C15.	5-9
A1A3C7		Same as A1A2C5.	5-9
A1A3C8		CAPACITOR, FIXED, PAPER: 0.22 uf; 200 vdc working; ±20%; 42498 dwg A19988-1; 56289 type 118P22402T15.	5-9
A1A3C9		Same as A1A2C7.	5-9
A1A3C10		Same as A1A2C8.	5-9
A1A3E1		Same as A1A2E1.	5-9
A1A3E2		Same as A1A2E1.	5-9
A1A3EV1		Same as A1A2EV1.	5-9
A1A3J1		Same as A1A2J1.	5-9
A1A3L1		CHOKE, RF: MIL type MS90537-45.	5-9
A1A3L2		CHOKE, RF: MIL type MS90537-37.	5-9
A1A3L3		COIL, RF: 92 to 108 mh inductance; Q is 72 to 82 at 25 kc frequency; 156 ohms max dc resistance; shielded coil form; 42498 dwg/type D39724-4.	5-9
A1A3L4		COIL, RF: 26.5 to 31.5 mh inductance; Q is 118 to 120 at 79 kc frequency; 55 ohms max dc resistance; shielded coil form; 42498 dwg/type D39724-3.	5-9
A1A3L5		COIL, RF: 6.3 to 8.6 mh inductance; Q is 100 to 104 at 250 kc frequency; 32 ohms max dc resistance; shielded coil form; 42498 dwg/type D39724-2.	5-9
A1A3L6		COIL, RF: 2.1 to 2.9 mh inductance; Q is 106 to 120 at 250 kc frequency; 12 ohms max dc resistance; shielded coil form; 42498 dwg/type D39724-1.	5-9
A1A3MP1		Same as A1A2MP2.	5-9
A1A3P1		Same as A1A2P1.	5-9
A1A3R1		RESISTOR: MIL type RC07GF103J.	5-9
A1A3R2		RESISTOR: MIL type RC07GF562J.	5-9
A1A3R3		Same as A1A2R10.	5-9
A1A3R4		Same as A1A2R11.	5-9
A1A3R5		Same as A1A2R12.	5-9
A1A3R6		Same as A1A2R13.	5-9
A1A3R7		RESISTOR: MIL type RC07GF224J.	5-9
A1A3R8		Same as A1A3R7.	5-9

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A3R9		Same as A1A2R5.	5-9
A1A3R10		Same as A1A2R5.	5-9
A1A3R11		Same as A1A2R6.	5-9
A1A3R12		Same as A1A2R7.	5-9
A1A3R13		Same as A1A2R7.	5-9
A1A3R14		RESISTOR: MIL type RC20GF123J.	5-9
A1A3S1		Same as A1A2S1.	5-9
A1A3V1		Same as A1A2V1.	5-9
A1A3XV1		Same as A1A2XV1.	5-9
A1A4		PRESELECTOR MIXER ASSY: P/o preselector; 30 kc to 300 kc in four bands; band 1, 30-55 kc; band 2, 55-109 kc; band 3, 109-202 kc; band 4, 202-300 kc; 1 tube, fil 6.3 vac, plate 165 vdc; 42498 dwg/type D37869G1.	5-5
A1A4C1		CAPACITOR: MIL type CM06D132J03.	5-10
A1A4C2		CAPACITOR: MIL type CM06D911J03.	5-10
A1A4C3		CAPACITOR: MIL type CM06D511J03.	5-10
A1A4C4		CAPACITOR: MIL type CM05D221J03.	5-10
A1A4C5		Same as A1A2C2.	5-10
A1A4C6		Same as A1A2C11.	5-10
A1A4C7		Same as A1A2C11.	5-10
A1A4C8		Same as A1A2C11.	5-10
A1A4C9		Same as A1A2C11.	5-10
A1A4C10		Same as A1A2C15.	5-10
A1A4C11		Same as A1A2C8.	5-10
A1A4C12		Same as A1A2C6.	5-10
A1A4C13		Same as A1A2C8.	5-10
A1A4E1		Same as A1A2E1.	5-10
A1A4E2		Same as A1A2E1.	5-10
A1A4EV1		Same as A1A2EV1.	5-10
A1A4J1		Same as A1A2J1.	5-10
A1A4J2		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 rd female contact; straight; 42498 dwg A17697ORANGE; 98291 type SKT-2BCORANGE.	5-10
A1A4L1		COIL, RF: MIL type MS90537-73.	5-10
A1A4L2		CHOKE, RF: MIL type MS90537-65.	5-10
A1A4L3		CHOKE, RF: MIL type MS90537-61.	5-10
A1A4L4		CHOKE, RF: MIL type MS90537-57.	5-10
A1A4MP1		Same as A1A2MP2.	5-10
A1A4P1		Same as A1A2P1.	5-10
A1A4R1		Same as A1A2R8.	5-10
A1A4R2		Same as A1A3R2.	5-10
A1A4R3		Same as A1A2R2.	5-10
A1A4R4		Same as A1A2R3.	5-10
A1A4R5		RESISTOR: MIL type RC07GF221J.	5-10
A1A4R6		Same as A1A3R7.	5-10
A1A4R7		Same as A1A3R7.	5-10
A1A4R8		Same as A1A2R5.	5-10
A1A4R9		Same as A1A3R7.	5-10
A1A4R10		Same as A1A3R7.	5-10
A1A4R11		RESISTOR: MIL type RC20GF221J.	5-10
A1A4R12		Same as A1A2R9.	5-10

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A4R13		RESISTOR: MIL type RC20GF153J.	5-10
A1A4S1		Same as A1A2S1.	5-10
A1A4T1		TRANSFORMER, RF: 120 to 140 mh secondary inductance; Q is 72 to 82 at 25 kc frequency; 27 ohms primary, 180 ohms secondary max dc resistance; 10 ma dc max primary; shielded coil form; 42498 dwg/type D39728-9.	5-10
A1A4T2		TRANSFORMER, RF: 32 to 38 mh secondary inductance; Q is 118 to 120 at 79 kc frequency; 6 ohms primary, 60 ohms secondary max dc resistance; 15 ma dc max primary; shielded coil form; 42498 dwg/type D39728-8.	5-10
A1A4T3		TRANSFORMER, RF: 6.7 to 9.3 mh secondary inductance; Q is 100 to 104 at 250 kc frequency; 3 ohms primary, 33 ohms secondary max dc resistance; 20 ma dc max primary; shielded coil form; 42498 dwg/type D39728-7.	5-10
A1A4T4		TRANSFORMER, RF: 2.1 to 2.9 mh secondary inductance; Q is 106 to 120 at 250 kc frequency; 1 ohm primary, 12 ohms secondary max dc resistance; 40 ma dc max primary; shielded coil form; 42498 dwg/type D39728-6.	5-10
A1A4V1		ELECTRON TUBE: MIL type JAN5750/6BE6W.	5-10
A1A4XV1		Same as A1A2XV1.	5-10
A1A5		1ST I-F AMPLIFIER: 1715.5 kc; bandwidth 10 kc; 2 tubes, fil 6.3 vac, plate 165 vdc; 42498 dwg/type D38498G1.	5-5
A1A5C1		CAPACITOR: MIL type CK60BX101M.	5-11
A1A5C2		CAPACITOR: MIL type CM05D270J03.	5-11
A1A5C3		CAPACITOR: MIL type CH09A3NC104M.	5-11
A1A5C4		Same as A1A5C1.	5-11
A1A5C5		CAPACITOR: MIL type CH09A3RA184M.	5-11
A1A5C6		Same as A1A5C5.	5-11
A1A5C7		Same as A1A2C7.	5-11
A1A5C8		Same as A1A5C3.	5-11
A1A5C9		CAPACITOR: MIL type CM05D301J03.	5-11
A1A5C10		Same as A1A5C3.	5-11
A1A5C11		CAPACITOR: MIL type PC39J420.	5-11
A1A5C12		CAPACITOR: MIL type CC20CK010C.	5-11
A1A5C13		Same as A1A5C11.	5-11
A1A5C14		CAPACITOR: MIL type CM05D271J03.	5-11
A1A5C15		Not used.	
A1A5C16		Same as A1A5C1.	5-11
A1A5C17		Same as A1A5C5.	5-11
A1A5C18		Same as A1A5C3.	5-11
A1A5C19		Same as A1A5C3.	5-11
A1A5C20		CAPACITOR: MIL type CM06D332J03.	5-11
A1A5C21		CAPACITOR: MIL type CP05A1KC153K3.	5-11
A1A5EV1		Same as A1A2EV1.	5-11
A1A5EV2		Same as A1A2EV1.	5-11
A1A5FL1		FILTER, BANDPASS: 1710.5 to 1720.5 kc bandwidth at 1 db attenuation; 7500 ohms impedance; 42498 dwg/type A37368-1.	5-11

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A5J1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 rd female contact; straight; 42498 dwg A17697WHITE; 98291 type SKT2BCWHITE.	5-11
A1A5J2		Same as A1A5J1.	5-11
A1A5J3		Same as A1A5J1.	5-11
A1A5J4		Same as A1A5J1.	5-11
A1A5L1		COIL, RF: 66 to 160 uh inductance; Q is 20 to 60; 2.5 mc to 790 kc frequency; 4.4 ohms max; shielded coil form; 42498 dwg/type D39725-2.	5-11
A1A5L2		COIL, RF: 25.6 uh ±2% inductance; Q is 175 at 2.5 mc frequency; single winding type; carbonyl E coil form; 42498 dwg/type D39727-1.	5-11
A1A5L3		Same as A1A5L2.	5-11
A1A5L4		COIL, RF: 400 to 1000 uh inductance; Q is 30 to 40; 250 to 790 kc frequency; 17.5 ohms max dc resistance; 50 ma dc max; shielded coil form; 42498 dwg/type D39725-3.	5-11
A1A5P1		CONNECTOR, PLUG, ELECTRICAL: 15 rd male contacts; straight; with 2 straight coax connectors for RG196/U cable; 42498 dwg/type A38531-1.	5-11
A1A5R1		RESISTOR: MIL type RC20GF222J.	5-11
A1A5R2		RESISTOR: MIL type RC20GF473J.	5-11
A1A5R3		RESISTOR: MIL type RC20GF752J.	5-11
A1A5R4		RESISTOR: MIL type RC20GF104J.	5-11
A1A5R5		Same as A1A5R4.	5-11
A1A5R6		Same as A1A2R7.	5-11
A1A5R7		RESISTOR: MIL type RC32GF123J.	5-11
A1A5R8		Same as A1A5R1.	5-11
A1A5R9		Same as A1A5R4.	5-11
A1A5R10		Same as A1A4R11.	5-11
A1A5R11		RESISTOR: MIL type RC42GF103J.	5-11
A1A5R12		Same as A1A5R1.	5-11
A1A5R13		Same as A1A2R7.	5-11
A1A5V1		Same as A1A2V1.	5-11
A1A5V2		Same as A1A4V1.	5-11
A1A5XV1		Same as A1A2XV1.	5-11
A1A5XV2		Same as A1A2XV1.	5-11
A1A6	2	USB AMPLIFIER-DETECTOR AM-4527/SRR-19; C/o 100-kc i-f amplifier A1A6A1; agc amplifier, carrier amplifier, af amplifier A1A6A2; ssb filter, balanced demodulator; panel section containing level control, agc switch, output meter; 42498 dwg/type D37874G1.	5-1
A1A6C1		CAPACITOR: MIL type CM06D471J03.	5-12
A1A6C2		CAPACITOR: MIL type CH12A3NC305M.	5-12
A1A6FL1		FILTER, BANDPASS: 98.250 kc to 99.700 kc; 68,000 ohms nom impedance; 30 db (min) carrier rejection; 42498 dwg/type A37242-2.	5-12
A1A6J1		CONNECTOR, RECEPTACLE, ELECTRICAL: 15 rd female contacts; floating type; straight; with 2 rt angle coax connectors for RG196/U cable; 42498 dwg/type A38532-2.	5-12

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A6J2		Same as A1A6J1.	5-12
A1A6L1		COIL, RF: 4.2 to 5.8 mh inductance; Q is 90 to 100 at 250 kc frequency; 18 ohms max dc resistance; shielded coil form; 42498 dwg/type D39724-6.	5-12
A1A6M1		METER: MIL type MR13B100SPECR.	5-12
A1A6MP1		KNOB: MIL type MS91528-1F2B.	5-12
A1A6MP2		Same as A1A1MP6.	5-12
A1A6P1		CONNECTOR, PLUG, ELECTRICAL: 15 rd male contacts; straight; with 2 rt angle coax connectors for RG196/U cable; 42498 dwg/type A38531-2.	5-12
A1A6R1		RESISTOR: MIL type RV4NAYSD104C.	5-12
A1A6R2		Same as A1A2R8.	5-12
A1A6R3		RESISTOR: MIL type RC20GF563J.	5-12
A1A6R4		RESISTOR: MIL type RC20GF683J.	5-12
A1A6R5		RESISTOR: MIL type RC42GF470J.	5-12
A1A6R6		RESISTOR: MIL type RC20GF221K.	5-13
A1A6S1		SWITCH, ROTARY: 1 section; 3 pole; 3 position; shorting type; 42498 dwg/type A39779-1.	5-12
A1A6Z1		DEMODULATOR, BALANCED: 100 kc carrier input frequency; 96 to 99.7 kc signal frequency for lsb use; 100.3 to 104 kc signal frequency for usb use; 100,000 ohms impedance; 42498 dwg/type A38324-1.	5-12
A1A6A1		100-KC I-F AMPLIFIER: Bandwidth 8 kc; five tubes, five tuned circuits; fil 6.3 vac, plate 165 vdc; 42498 dwg/type D38778G1.	5-12
A1A6A1C1		CAPACITOR: MIL type CK60AW102M.	5-13
A1A6A1C2		CAPACITOR: MIL type CM06D222J03.	5-13
A1A6A1C3		Not used.	
A1A6A1C4		Same as A1A5C5.	5-13
A1A6A1C5		Same as A1A5C5.	5-13
A1A6A1C6		Same as A1A6A1C1.	5-13
A1A6A1C7		Same as A1A5C5.	5-13
A1A6A1C8		CAPACITOR: MIL type CM07F622J03.	5-13
A1A6A1C9		Same as A1A6A1C1.	5-13
A1A6A1C10		Not used.	
A1A6A1C11		Same as A1A6A1C1.	5-13
A1A6A1C12		Same as A1A5C5.	5-13
A1A6A1C13		Same as A1A6A1C1.	5-13
A1A6A1C14		Same as A1A6A1C8.	5-13
A1A6A1C15		Same as A1A6A1C1.	5-13
A1A6A1C16		Not used.	
A1A6A1C17		Same as A1A6A1C1.	5-13
A1A6A1C18		Same as A1A5C5.	5-13
A1A6A1C19		Same as A1A6A1C1.	5-13
A1A6A1C20		Same as A1A6A1C8.	5-13
A1A6A1C21		Same as A1A6A1C1.	5-13
A1A6A1C22		Not used.	
A1A6A1C23		Same as A1A5C5.	5-13
A1A6A1C24		Same as A1A6A1C1.	5-13
A1A6A1C25		Same as A1A6A1C8.	5-13
A1A6A1C26		Same as A1A6A1C1.	5-13

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A6A1C27		Not used.	
A1A6A1C28		Same as A1A6A1C1.	5-13
A1A6A1C29		Same as A1A5C5.	5-13
A1A6A1C30		Same as A1A6A1C1.	5-13
A1A6A1C31		Same as A1A6A1C8.	5-13
A1A6A1C32		Not used.	
A1A6A1C33		Same as A1A6A1C1.	5-13
A1A6A1J1		Same as A1A5J1.	5-13
A1A6A1J2		Same as A1A5J1.	5-13
A1A6A1J3		Same as A1A5J1.	5-13
A1A6A1J4		Same as A1A5J1.	5-13
A1A6A1J5		Same as A1A5J1.	5-13
A1A6A1L1		COIL, RF: 200 to 500 uh inductance; Q is 30 to 50 at 790 kc frequency; 9.2 ohms max dc resistance; 50 ma dc max; shielded coil form; 42498 dwg/type D39725-1.	5-13
A1A6A1L2		Same as A1A6A1L1.	5-13
A1A6A1L3		Same as A1A6A1L1.	5-13
A1A6A1L4		Same as A1A6A1L1.	5-13
A1A6A1L5		Same as A1A6A1L1.	5-13
A1A6A1L6		COIL, RF: MIL type MS90537-69.	5-13
A1A6A1P1		Same as A1A5P1.	5-13
A1A6A1R1		Same as A1A1R5.	5-13
A1A6A1R2		RESISTOR: MIL type RC20GF224J.	5-13
A1A6A1R3		RESISTOR: MIL type RC20GF121J.	5-13
A1A6A1R4		RESISTOR: MIL type RV6LAYSA502A.	5-13
A1A6A1R5		RESISTOR: MIL type RC42GF682J.	5-13
A1A6A1R6		RESISTOR: MIL type RC20GF272J.	5-13
A1A6A1R7		Same as A1A5R2.	5-13
A1A6A1R8		Same as A1A6A1R3.	5-13
A1A6A1R9		RESISTOR: MIL type RC20GF274J.	5-13
A1A6A1R10		Same as A1A6A1R5.	5-13
A1A6A1R11		Same as A1A6A1R6.	5-13
A1A6A1R12		Same as A1A5R2.	5-13
A1A6A1R13		Same as A1A6A1R3.	5-13
A1A6A1R14		Same as A1A6A1R5.	5-13
A1A6A1R15		Same as A1A6A1R9.	5-13
A1A6A1R16		Same as A1A6A1R6.	5-13
A1A6A1R17		Same as A1A5R2.	5-13
A1A6A1R18		Same as A1A6A1R3.	5-13
A1A6A1R19		Same as A1A6A1R5.	5-13
A1A6A1R20		Same as A1A6A1R9.	5-13
A1A6A1R21		Same as A1A6A1R6.	5-13
A1A6A1R22		RESISTOR: MIL type RC20GF205J.	5-13
A1A6A1R23		Same as A1A6A1R3.	5-13
A1A6A1R24		RESISTOR: MIL type RC20GF105J.	5-13
A1A6A1R25		Same as A1A6A1R5.	5-13
A1A6A1R26		Same as A1A6A1R6.	5-13
A1A6A1R27		Same as A1A6A1R9.	5-13
A1A6A1R28		Same as A1A2R6.	5-13
A1A6A1R29		Same as A1A3R1.	5-13
A1A6A1R30		Same as A1A3R1.	5-13

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A6A1R31		Same as A1A3R1.	5-13
A1A6A1R32		Same as A1A3R1.	5-13
A1A6A1V1		ELECTRON TUBE: MIL type JAN7586.	5-13
A1A6A1V2		Same as A1A6A1V1.	5-13
A1A6A1V3		Same as A1A6A1V1.	5-13
A1A6A1V4		Same as A1A6A1V1.	5-13
A1A6A1V5		Same as A1A6A1V1.	5-13
A1A6A1XV1		SOCKET, ELECTRON TUBE: 5 pins; 1 amp current rating; 0.05 max contact resistance; 1.2 uuf max capacitance between one contact and all other conducting parts; 42498 dwg C34647; 71785 type 133-65-10-003.	5-13
A1A6A1XV2		Same as A1A6A1XV1.	5-13
A1A6A1XV3		Same as A1A6A1XV1.	5-13
A1A6A1XV4		Same as A1A6A1XV1.	5-13
A1A6A1XV5		Same as A1A6A1XV1.	5-13
A1A6A2		AGC AND AF AMPLIFIERS: C/o agc amplifier, two tubes, agc rectifier; carrier amplifier, one tube; af amplifier, three tubes; frequency range 300-2000 cycles; line output 60 mw 600-ohm load, phone output 15 mw 600-ohm load; fil 6.3 vac, plate 165 vdc; 42498 dwg/type D38779G1.	5-12
A1A6A2C1		Not used.	
A1A6A1C2		CAPACITOR: MIL type CK60AX471M.	5-14
A1A6A2C3		Not used.	
A1A6A2C4		Same as A1A5C5.	5-14
A1A6A2C5		Same as A1A5C3.	5-14
A1A6A2C6		Same as A1A5C5.	5-14
A1A6A2C7		Same as A1A6A1C1.	5-14
A1A6A2C8		Same as A1A6A1C1.	5-14
A1A6A2C9		Same as A1A5C3.	5-14
A1A6A2C10		CAPACITOR: MIL type CK62AX222K.	5-14
A1A6A2C11		Not used.	
A1A6A2C12		Not used.	
A1A6A2C13		Same as A1A5C5.	5-14
A1A6A2C14		Same as A1A5C3.	5-14
A1A6A2C15		CAPACITOR: MIL type CM05D101J03.	5-14
A1A6A2C16		CAPACITOR: MIL type CM05D750J03.	5-14
A1A6A2C17		CAPACITOR: MIL type CH09A3NC474M.	5-14
A1A6A2C18		Same as A1A6A1C1.	5-14
A1A6A2C19		CAPACITOR: MIL type CH09A3RA473M.	5-14
A1A6A2C20		CAPACITOR: MIL type CM06F242J03.	5-14
A1A6A2C21		Not used.	
A1A6A2C22		Same as A1A6A2C19.	5-14
A1A6A2C23		CAPACITOR: MIL type CH09A3RA105M.	5-14
A1A6A2C24		Not used.	
A1A6A2C25		Same as A1A6A1C2.	5-14
A1A6A2CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type 1N485B.	5-14
A1A6A2CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type 1N3070.	5-14
A1A6A2J1		Same as A1A5J1.	5-14

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A6A2J2		Same as A1A5J1.	5-14
A1A6A2J3		Same as A1A5J1.	5-14
A1A6A2J4		Same as A1A5J1.	5-14
A1A6A2J5		Same as A1A5J1.	5-14
A1A6A2J6		Same as A1A5J1.	5-14
A1A6A2J7		Same as A1A5J1.	5-14
A1A6A2J8		Same as A1A5J1.	5-14
A1A6A2L1		CHOKE, RF: MIL type MS90537-49.	5-14
A1A6A2P1		Same as A1A5P1.	5-14
A1A6A2R1		Same as A1A5R2.	5-14
A1A6A2R2		Same as A1A6A1R3.	5-14
A1A6A2R3		Same as A1A6A1R24.	5-14
A1A6A2R4		RESISTOR: MIL type RV6LAYSA252A.	5-14
A1A6A2R5		RESISTOR: MIL type RC32GF472K.	5-14
A1A6A2R6		Same as A1A2R9.	5-14
A1A6A2R7		Same as A1A5R4.	5-14
A1A6A2R8		RESISTOR: MIL type RC32GF333J.	5-14
A1A6A2R9		RESISTOR: MIL type RC32GF273J.	5-14
A1A6A2R10		Same as A1A6A2R9.	5-14
A1A6A2R11		RESISTOR: MIL type RC20GF474J.	5-14
A1A6A2R12		Same as A1A6A1R3.	5-14
A1A6A2R13		Same as A1A6A1R24.	5-14
A1A6A2R14		Same as A1A5R11.	5-14
A1A6A2R15		Same as A1A6A1R3.	5-14
A1A6A2R16		RESISTOR: MIL type RC32GF821J.	5-14
A1A6A2R17		Same as A1A5R4.	5-14
A1A6A2R18		Same as A1A6A1R24.	5-14
A1A6A2R19		RESISTOR: MIL type RC42GF683J.	5-14
A1A6A2R20		RESISTOR: MIL type RC32GF223J.	5-14
A1A6A2R21		RESISTOR: MIL type RC20GF223J.	5-14
A1A6A2R22		Same as A1A6A2R21.	5-14
A1A6A2R23		RESISTOR: MIL type RC32GF103J.	5-14
A1A6A3R24		Same as A1A2R7.	5-14
A1A6A2R25		Same as A1A2R7.	5-14
A1A6A2R26		Same as A1A5R4.	5-14
A1A6A2R27		Same as A1A6R4.	5-14
A1A6A2R28		RESISTOR: MIL type RC42GF391J.	5-14
A1A6A2R29		RESISTOR: MIL type RC20GF681K.	5-14
A1A6A2R30		Same as A1A5R4.	5-14
A1A6A2R31		Same as A1A3R1.	5-14
A1A6A2R32		Same as A1A3R1.	5-14
A1A6A2R33		RESISTOR: MIL type RC20GF333J.	5-14
A1A6A2T1		TRANSFORMER, RF: 26.5 to 31.5 mh inductance; Q is 118 to 120 at 79 kc frequency; 6 ohms primary, 55 ohms secondary max dc resistance; 40 ma dc max primary; 42498 dwg/type D39728-5.	5-14
A1A6A2T2		TRANSFORMER, AF: 15,000 ohms primary impedance; 95,000 ohms secondary impedance; 200 to 10,000 cps, ±2 db, response; 42498 dwg A38339-1; 89665 type GR463.	5-14

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A6A2T3		TRANSFORMER, AF: 20,000 ohms, center tapped, primary impedance; 150 ohms, center tapped, secondary impedance; 200 to 10,000 cps, ±2 db, response; 42498 dwg A38317-1; 89665 type GR464.	5-14
A1A6A2T4		TRANSFORMER, AF: 500 ohms, center tapped, primary impedance; 31 ohms primary resistance; 600 ohms secondary impedance; 42498 dwg A38338-1; 89665 type GR465.	5-14
A1A6A2V1		Same as A1A6A1V1.	5-14
A1A6A2V2		Same as A1A6A1V1.	5-14
A1A6A2V3		Same as A1A6A1V1.	5-14
A1A6A2V4		Same as A1A6A1V1.	5-14
A1A6A2V5		Same as A1A6A1V1.	5-14
A1A6A2V6		Same as A1A6A1V1.	5-14
A1A6A2XV1		Same as A1A6A1XV1.	5-14
A1A6A2XV2		Same as A1A6A1XV1.	5-14
A1A6A2XV3		Same as A1A6A1XV1.	5-14
A1A6A2XV4		Same as A1A6A1XV1.	5-14
A1A6A2XV5		Same as A1A6A1XV1.	5-14
A1A6A2XV6		Same as A1A6A1XV1.	5-14
A1A7	2	LSB (AUXILIARY) AMPLIFIER-DETECTOR AM-4528/SRR-19: C/o 100-kc i-f amplifier A1A7A1; agc amplifier, carrier amplifier, af amplifier A1A7A2; ssb filter; balanced demodulator; panel section containing level control, agc switch, output meter; 42498 dwg/type D37874G2.	1-1
A1A7A1		Same as A1A6A1.	5-12
A1A7A2		Same as A1A6A2.	5-12
A1A7C1		Same as A1A6C1.	5-12
A1A7C2		Same as A1A6C2.	5-12
A1A7FL1		FILTER, BANDPASS: 100.300 kc to 101.750 kc; 68,000 ohms nom impedance; 30 db (min) carrier rejection; 42498 dwg/type A37242-1.	5-12
A1A7J1		Same as A1A6J1.	5-12
A1A7J2		Same as A1A6J1.	5-12
A1A7L1		Same as A1A6L1.	5-12
A1A7M1		Same as A1A6M1.	5-12
A1A7MP1		Same as A1A6MP1.	5-12
A1A7MP2		Same as A1A1MP6.	5-12
A1A7P1		Same as A1A6P1.	5-12
A1A7R1		Same as A1A6R1.	5-12
A1A7R2		Same as A1A2R8.	5-12
A1A7R3		Same as A1A6R3.	5-12
A1A7R4		Same as A1A6R4.	5-12
A1A7R5		Same as A1A6R5.	5-12
A1A7R6		Same as A1A6R6.	5-12
A1A7S1		Same as A1A6S1.	5-12
A1A7Z1		Same as A1A6Z1.	5-12
A1A8		HIGH-FREQUENCY OSCILLATOR: 1746 to 2016 kc in four bands; two tubes, oscillator and cathode follower; fil 6.3 vac (regulated), plate 120 vdc (regulated); 42498 dwg/type E39649G1.	5-5

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A8C1		CAPACITOR: MIL type CH09A3RA184K.	5-17
A1A8C2		Same as A1A8C1.	5-17
A1A8C3		CAPACITOR: MIL type CM06F471G03.	5-18
A1A8C4		CAPACITOR: MIL type CC25UJ151G.	5-17
A1A8C5		CAPACITOR: VARIABLE, AIR: 1.0 to 120 pf capacitance range; 1000 vdc working; 42498 dwg/type A40620-5.	5-17
A1A8C6		Same as A1A8C5.	5-17
A1A8C7		CAPACITOR: MIL type CC35UJ391F.	5-17
A1A8C8		CAPACITOR, FIXED, CERAMIC: 56 pf approx value; to be determined at final test.	5-18
A1A8C9		CAPACITOR: MIL type CM06F472G03.	5-18
A1A8C10		CAPACITOR, FIXED, MICA: 0 to 270 pf max range.	5-18
A1A8C11		CAPACITOR: MIL type CM06F561G03.	5-18
A1A8C12		Same as A1A8C4.	5-17
A1A8C13		Same as A1A8C5.	5-17
A1A8C14		Same as A1A8C4.	5-17
A1A8C15		CAPACITOR, FIXED, CERAMIC: 27 pf approx value; to be determined at final test.	5-18
A1A8C16		CAPACITOR: MIL type CM06F272G03.	5-18
A1A8C17		CAPACITOR, FIXED, MICA: 0 to 270 pf max range.	5-18
A1A8C18		CAPACITOR: MIL type CM06F681G03.	5-18
A1A8C19		Same as A1A8C4.	5-17
A1A8C20		Same as A1A8C5.	5-17
A1A8C21		CAPACITOR: MIL type CC25UJ820G.	5-17
A1A8C22		CAPACITOR, FIXED, CERAMIC: 33 pf approx value; to be determined at final test.	5-18
A1A8C23		CAPACITOR: MIL type CM06F152G03.	5-18
A1A8C24		CAPACITOR, FIXED, MICA: 0 to 270 pf max range.	5-18
A1A8C25		Same as A1A8C18.	5-18
A1A8C26		Same as A1A8C4.	5-17
A1A8C27		Same as A1A8C5.	5-17
A1A8C28		CAPACITOR: MIL type CC25UJ101G.	5-17
A1A8C29		CAPACITOR, FIXED, CERAMIC: 33 pf approx value; to be determined at final test.	5-17
A1A8C30		Same as A1A8C23.	5-18
A1A8C31		CAPACITOR, FIXED, MICA: 0 to 270 pf max range.	5-18
A1A8C32		CAPACITOR: MIL type CC32CG101G.	5-17
A1A8C33		CAPACITOR: MIL type CC20CH220G.	5-17
A1A8C34		CAPACITOR: MIL type CC20CH050C.	5-17
A1A8C35		CAPACITOR: MIL type CK62AW472M.	5-17
A1A8C36		Same as A1A8C35.	5-17
A1A8C37		Same as A1A8C35.	5-17
A1A8C38		CAPACITOR: MIL type CH09A3NE473K.	5-17
A1A8C39		CAPACITOR: MIL type CM05F121G03.	5-17
A1A8C40		CAPACITOR: MIL type CM05E820G03.	5-17
A1A8C41		CAPACITOR: MIL type CM05E680G03.	5-17
A1A8C42		Same as A1A8C41.	5-17

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A8E1		Same as A1A2E1.	5-17
A1A8E2		Same as A1A2E1.	5-17
A1A8EV1		SHIELD, ELECTRON TUBE: MIL type MS24233-4.	5-17
A1A8J1		Same as A1A5J1.	5-17
A1A8L1		COIL, RF: MIL type MS75008-34.	5-17
A1A8MP1		ARM, SWITCH: 1-3/16 in. high, 5/16 in. wide, 0.090 in. thk; 42498 dwg/type B34669G2.	5-17
A1A8P1		Same as A1A2P1.	5-17
A1A8R1		Same as A1A4R13.	5-17
A1A8R2		Same as A1A2R7.	5-17
A1A8R3		Same as A1A5R4.	5-17
A1A8R4		RESISTOR: MIL type RC20GF150J.	5-17
A1A8R5		Same as A1A8R4.	5-17
A1A8R6		Same as A1A5R1.	5-17
A1A8R7		RESISTOR: MIL type RC20GF102J.	5-17
A1A8R8		Same as A1A2R8.	5-17
A1A8R9		RESISTOR: MIL type RC20GF122J.	5-17
A1A8S1		Same as A1A2S1.	5-18
A1A8T1		TRANSFORMER, RF: 0.50 uh primary inductance, ±5%; 1.365 uh secondary inductance, ±2%; 1.28 uh tertiary inductance, ±5%; 42498 dwg/type D39746-1.	5-18
A1A8T2		TRANSFORMER, RF: 0.90 uh primary inductance, ±5%; 2.34 uh secondary inductance, ±2%; 42498 dwg/type D39746-2.	5-18
A1A8T3		TRANSFORMER, RF: 1.05 uh primary inductance, ±5%; 3.58 uh secondary inductance, ±2%; 42498 dwg/type D39746-3.	5-18
A1A8T4		TRANSFORMER, RF: 1.00 uh primary inductance, ±5%; 3.18 uh secondary inductance, ±2%; 42498 dwg/type D39746-4.	5-18
A1A8V1		ELECTRON TUBE: MIL type JAN5670.	5-17
A1A8V2		Same as A1A6A1V1.	5-17
A1A8XV1		SOCKET, ELECTRON TUBE: MIL type TS103C01.	5-17
A1A8XV2		Same as A1A6A1XV1.	5-17
A1A9		CRYSTAL OSCILLATOR - FREQUENCY DIVIDER: C/o 1 mc crystal oscillator and oven; external calibration circuit; outputs of 1 mc, 100 kc, 1 kc spectrum, and 500 cps spectrum; three digital frequency dividers (÷10), (÷100), (÷2); voltage regulators, 24 vdc (zener), 12 vdc (zener); no tubes; 42498 dwg/type D37866G1.	5-2
A1A9A1		CRYSTAL OSCILLATOR ASSY: 1 mc frequency; crystal oscillator and oven assembly; square-wave output; accuracy 1 part in 10^8 per day; 24 volts dc; 7-1/4 watts; 42498 dwg/type A38340-1.	5-27
A1A9C1		CAPACITOR: MIL type CH09A3RA474M.	5-27
A1A9C2		Same as A1A4C4.	5-27
A1A9C3		CAPACITOR: MIL type CM05C100K03.	5-27
A1A9C4		Same as A1A9C3.	5-27
A1A9C5		Same as A1A2C7.	5-27
A1A9C6		Same as A1A5C5.	5-27
A1A9C7		Same as A1A9C1.	5-27

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A9CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type 1N2820RB.	5-27
A1A9CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type 1N697.	5-27
A1A9CR3		SEMICONDUCTOR DEVICE, DIODE: MIL type 1N2810B.	5-27
A1A9J1		Same as A1A5J1.	5-27
A1A9J2		Same as A1A5J1.	5-27
A1A9J3		Same as A1A5J1.	5-27
A1A9J4		CONNECTOR, RECEPTACLE, ELECTRICAL: 9 rd female contacts; straight; 42498 dwg A38651-1; 71468 type DEM9SC37A134.	5-27
A1A9J5		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 rd female contact; straight; 42498 dwg A17697BLUE; 98291 type SKT-2BCBLUE.	5-27
A1A9J6		Same as A1A9J4.	5-27
A1A9J7		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 rd female contact; straight; 42498 dwg A17697RED; 98291 type SKT-2BCRED.	5-27
A1A9J8		Same as A1A9J4.	5-27
A1A9J9		Same as A1A4J2.	5-27
A1A9L1		CHOKE, RF: MIL type MS16221-17.	5-27
A1A9L2		Same as A1A5L1.	5-27
A1A9L3		Same as A1A9L1.	5-27
A1A9L4		Same as A1A9L1.	5-27
A1A9P1		Same as A1A5P1.	5-27
A1A9R1		Same as A1A2R8.	5-27
A1A9R2		Same as A1A5R1.	5-27
A1A9R3		Same as A1A5R1.	5-27
A1A9S1		SWITCH, ROTARY: 1 section; 3 poles; 3-position; shorting type; 42498 dwg/type A39779-2 (1-7/8 in. shaft).	5-27
A1A9TB1		PRINTED CIRCUIT BOARD: 4 mounting holes; 4-5/8 in. lg, 2 in. wide; 42498 dwg/type C40027-1.	5-27
A1A9Z1		MODULE, DIGITAL: Frequency divider assy (÷10); color coded blue; 42498 dwg A39883-2; 09353 type B4593.	
A1A9Z2		MODULE, DIGITAL: Frequency divider (÷100); color coded orange; 42498 dwg A39883-1; 09353 type B4595.	5-27
A1A9Z3		MODULE, DIGITAL: Frequency divider and spectrum generators (÷2); color coded red; 42498 dwg A39883-4; 09353 type B4596.	5-27
A1A10		1ST INJECTOR: C/o mixer, 600 kc, 1 tube; amplifier, 600 kc, three tubes; fil 6.3 vac, plate 165 vdc; 42498 dwg/type D37801G1.	5-4
A1A10C1		Same as A1A6C1.	5-19
A1A10C2		Same as A1A5C5.	5-19
A1A10C3		CAPACITOR: MIL type CH09A3NE473M.	5-19
A1A10C4		Same as A1A10C3.	5-19
A1A10C5		CAPACITOR: MIL type CK60BX4R7K.	5-20
A1A10C6		CAPACITOR: MIL type CM06D102J03.	5-20

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A10C7		Same as A1A10C6.	5-19
A1A10C8		Not used.	
A1A10C9		Same as A1A6C1.	5-19
A1A10C10		CAPACITOR: MIL type CM06D681J03.	5-20
A1A10C11		Same as A1A10C3.	5-19
A1A10C12		Same as A1A6C1.	5-20
A1A10C13		Not used.	
A1A10C14		Same as A1A5C5.	5-19
A1A10C15		Same as A1A5C5.	5-19
A1A10C16		Same as A1A10C10.	5-20
A1A10C17		Same as A1A6C1.	5-20
A1A10C18		Not used.	
A1A10C19		Same as A1A5C5.	5-20
A1A10C20		CAPACITOR: MIL type CK60BX470M.	5-19
A1A10C21		Same as A1A10C3.	5-19
A1A10C22		Same as A1A10C6.	5-20
A1A10C23		Same as A1A10C6.	5-20
A1A10EV1		SHIELD, ELECTRON TUBE: MIL type MS24233-1.	5-19
A1A10FL1		FILTER, BANDPASS: 1281 kc nom freq; 1146 kc to 1416 kc frequency range at 3 db bandpass; 42498 dwg/type A37484-3.	5-20
A1A10FL2		FILTER, BANDPASS: 599.0 kc to 601.0 kc frequency range at 2 db bandpass; 1500 ohms; 42498 dwg/type A37367-1.	5-19
A1A10J1		Same as A1A5J1.	5-20
A1A10J2		Same as A1A5J1.	5-20
A1A10J3		Same as A1A5J1.	5-20
A1A10J4		Same as A1A5J1.	5-19
A1A10J5		Same as A1A5J1.	5-19
A1A10J6		Same as A1A5J1.	5-19
A1A10J7		Same as A1A5J1.	5-19
A1A10J8		Same as A1A5J1.	5-19
A1A10L1		Same as A1A5L1.	5-20
A1A10L2		Same as A1A5L1.	5-19
A1A10L3		Same as A1A5L1.	5-19
A1A10L4		Same as A1A5L1.	5-19
A1A10P1		Same as A1A5P1.	5-19
A1A10R1		RESISTOR: MIL type RC20GF472J.	5-19
A1A10R2		Same as A1A5R1.	5-19
A1A10R3		Not used.	
A1A10R4		Same as A1A5R2.	5-19
A1A10R5		Same as A1A5R4.	5-19
A1A10R6		Same as A1A5R4.	5-20
A1A10R7		Same as A1A4R11.	5-20
A1A10R8		Same as A1A5R11.	5-19
A1A10R9		Same as A1A8R7.	5-19
A1A10R10		RESISTOR: MIL type RC20GF152J.	5-20
A1A10R11		Same as A1A2R7.	5-19
A1A10R12		Same as A1A6A2R11.	5-19
A1A10R13		RESISTOR: MIL type RC32GF472J.	5-19
A1A10R14		Same as A1A6A1R2.	5-20
A1A10R15		Same as A1A2R7.	5-19

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A10R16		Same as A1A5R4.	5-19
A1A10R17		Same as A1A5R4.	5-19
A1A10R18		Same as A1A5R4.	5-19
A1A10R19		Same as A1A6A1R2.	5-20
A1A10R20		RESISTOR: MIL type RC20GF271J.	5-20
A1A10R21		Same as A1A10R10.	5-19
A1A10R22		Same as A1A5R4.	5-19
A1A10R23		Same as A1A10R10.	5-19
A1A10R24		Same as A1A5R11.	5-20
A1A10R25		RESISTOR: MIL type RC42GF332J.	5-19
A1A10R26		Same as A1A2R6.	5-19
A1A10R27		Same as A1A2R6.	5-19
A1A10V1		ELECTRON TUBE: MIL type JAN5725/6AS6W.	5-19
A1A10V2		Same as A1A6A1V1.	5-19
A1A10V3		Same as A1A6A1V1.	5-19
A1A10V4		Same as A1A6A1V1.	5-19
A1A10XV1		Same as A1A2XV1.	5-20
A1A10XV2		Same as A1A6A1XV1.	5-20
A1A10XV3		Same as A1A6A1XV1.	5-20
A1A10XV4		Same as A1A6A1XV1.	5-20
A1A11		2ND INJECTOR (B): C/o cathode follower and frequency divider (÷10), 1 tube; mixer, 1015.5 kc, no tubes; mixer, 1615.5 kc, two tubes; amplifier 1615.5 kc, two tubes; injection-agc rectifier, no tubes; fil 6.3 vac, plate 165 vdc; 42498 dwg/type D37803G1.	5-5
A1A11C1		Not used.	
A1A11C2		Same as A1A5C3.	5-22
A1A11C3		Same as A1A6A2C19.	5-23
A1A11C4		Not used.	
A1A11C5		Same as A1A5C5.	5-23
A1A11C6		Same as A1A5C5.	5-23
A1A11C7		Not used.	
A1A11C8		CAPACITOR: MIL type CK63AY103X.	5-23
A1A11C9		Not used.	
A1A11C10		CAPACITOR: MIL type CK60BX151M.	5-22
A1A11C11		Same as A1A6A2C15.	5-23
A1A11C12		Not used.	
A1A11C13		Same as A1A10C5.	5-23
A1A11C14		Not used.	
A1A11C15		Same as A1A6A2C2.	5-23
A1A11C16		Same as A1A5C3.	5-23
A1A11C17		Same as A1A10C10.	5-23
A1A11C18		Same as A1A5C3.	5-23
A1A11C19		CAPACITOR: MIL type CM05E331J03.	5-23
A1A11C20		Not used.	
A1A11C21		Same as A1A5C5.	5-22
A1A11C22		Same as A1A5C3.	5-23
A1A11C23		CAPACITOR: MIL type CM05D391J03.	5-22
A1A11C24		CAPACITOR: MIL type CM06D561J03.	5-23
A1A11C25		Not used.	
A1A11C26		Same as A1A5C5.	5-22

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A11C27		Same as A1A5C3.	5-23
A1A11C28		Same as A1A6C1.	5-23
A1A11C29		CAPACITOR: MIL type GM05D331J03.	5-23
A1A11C30		Not used.	
A1A11C31		Same as A1A5C5.	5-22
A1A11CR1		Same as A1A9CR2.	5-22
A1A11CR2		Same as A1A9CR2.	5-22
A1A11CR3		Same as A1A9CR2.	5-22
A1A11FL1		FILTER, BANDPASS: 150.0 to 160.0 kc bandwidth at 3 db bandpass; 5000 ohms input impedance; 25,000 ohms output impedance; 42498 dwg/type A37484-1.	5-22
A1A11FL2		FILTER, BANDPASS: 1013.5 kc to 1017.5 kc bandwidth at 3 db attenuation; 62,000 ohms impedance; 42498 dwg/type A37369-1.	5-22
A1A11FL3		FILTER, BANDPASS: 1612.5 to 1618.5 kc bandwidth at 3 db bandpass; 5,000 ohms input impedance; 25,000 ohms output impedance; 42498 dwg/type A37484-2.	5-22
A1A11J1		Same as A1A5J1.	5-22
A1A11J2		Same as A1A9J4.	5-23
A1A11J3		Not used.	
A1A11J4		Not used.	
A1A11J5		Same as A1A9J5.	5-22
A1A11J6		Not used.	
A1A11J7		Not used.	
A1A11J8		Not used.	
A1A11J9		Not used.	
A1A11J10		Same as A1A9J5.	5-22
A1A11J11		Same as A1A5J1.	5-22
A1A11J12		Same as A1A5J1.	5-22
A1A11J13		Same as A1A5J1.	5-22
A1A11J14		Same as A1A5J1.	5-22
A1A11J15		Same as A1A5J1.	5-22
A1A11J16		Same as A1A5J1.	5-22
A1A11J17		Same as A1A5J1.	5-22
A1A11J18		Same as A1A5J1.	5-22
A1A11L1		CHOKE, RF: MIL type MS90537-53.	5-23
A1A11L2		Same as A1A6A1L1.	5-22
A1A11L3		COIL, RF: 30 uh min to 73 uh max inductance range; 2.5 mc frequency; 3.3 ohms dc resistance; 50 ma dc current; 500 vrms; 42498 dwg/type D39725-4.	5-23
A1A11L4		Same as A1A11L3.	5-22
A1A11L5		Same as A1A11L3.	5-22
A1A11P1		Same as A1A5P1.	5-22
A1A11R1		Same as A1A2R8.	5-23
A1A11R2		Same as A1A6A2R20.	5-23
A1A11R3		Same as A1A1R7.	5-23
A1A11R4		Same as A1A2R7.	5-23
A1A11R5		RESISTOR: MIL type RC20GF470J.	5-22
A1A11R6		Same as A1A11R5.	5-22
A1A11R7		Same as A1A8R7.	5-22

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A11R8		Same as A1A2R8.	5-23
A1A11R9		Same as A1A4R11.	5-23
A1A11R10		Same as A1A4R11.	5-23
A1A11R11		Same as A1A5R4.	5-23
A1A11R12		RESISTOR: MIL type RC42GF223J.	5-23
A1A11R13		Same as A1A8R7.	5-23
A1A11R14		Same as A1A2R8.	5-23
A1A11R15		RESISTOR: MIL type RC20GF331J.	5-22
A1A11R16		Same as A1A11R12.	5-22
A1A11R17		Same as A1A11R12.	5-23
A1A11R18		Same as A1A11R15.	5-22
A1A11R19		Same as A1A11R12.	5-23
A1A11R20		Same as A1A8R7.	5-23
A1A11R21		Same as A1A6A1R24.	5-22
A1A11R22		Same as A1A5R4.	5-22
A1A11R23		Same as A1A3R1.	5-23
A1A11R24		Same as A1A3R1.	5-23
A1A11R25		Same as A1A3R1.	5-23
A1A11R26		Same as A1A3R1.	5-22
A1A11R27		Same as A1A3R1.	5-22
A1A11R28		Same as A1A3R1.	5-22
A1A11R29		RESISTOR: MIL type RC32GF560J.	5-23
A1A11T1		TRANSFORMER, RF: 16 uh ±30% primary inductance; 16 uh secondary inductance; Q is 60 at 2.5 mc frequency; pri-single type primary winding; sec-bifilar type secondary winding; encapsulated; 42498 dwg/type D39727-3.	5-23
A1A11V1		Same as A1A6A1V1.	5-23
A1A11V2		Same as A1A6A1V1.	5-23
A1A11V3		Same as A1A6A1V1.	5-23
A1A11V4		Same as A1A6A1V1.	5-22
A1A11V5		Same as A1A6A1V1.	5-22
A1A11XV1		Same as A1A6A1XV1.	5-23
A1A11XV2		Same as A1A6A1XV1.	5-23
A1A11XV3		Same as A1A6A1XV1.	5-23
A1A11XV4		Same as A1A6A1XV1.	5-23
A1A11XV5		Same as A1A6A1XV1.	5-23
A1A11Z1		Same as A1A9Z1.	5-22
A1A12		2ND INJECTOR (A): C/o mixer, 140 kc, two tubes; amplifier, 140 kc, three tubes, two frequency-dividers (÷5), no tubes; mixer, 155 kc, no tubes; fil 6.3 vac, plate 165 vac; 42498 dwg/type D37802G1.	5-4
A1A12C1		Same as A1A5C5.	5-24
A1A12C2		CAPACITOR: MIL type CM06D122J03.	5-24
A1A12C3		CAPACITOR: MIL type CM05D910J03.	5-24
A1A12C4		Same as A1A6A2C2.	5-25
A1A12C5		Same as A1A5C11.	5-25
A1A12C6		Not used.	
A1A12C7		CAPACITOR: MIL type CM06D272J03.	5-25
A1A12C8		Not used.	
A1A12C9		Same as A1A6A2C2.	5-25

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A12C10		Not used.	
A1A12C11		Same as A1A5C3.	5-25
A1A12C12		Same as A1A5C3.	5-25
A1A12C13		Same as A1A6A2C2.	5-25
A1A12C14		Same as A1A6A2C2.	5-24
A1A12C15		Not used.	
A1A12C16		Same as A1A12C7.	5-24
A1A12C17		CAPACITOR: MIL type CM06D471K03.	5-25
A1A12C18		Same as A1A5C3.	5-25
A1A12C19		Not used.	
A1A12C20		Same as A1A12C7.	5-24
A1A12C21		Same as A1A5C5.	5-24
A1A12C22		Same as A1A5C5.	5-24
A1A12C23		Same as A1A5C3.	5-25
A1A12C24		Same as A1A6A2C2.	5-25
A1A12C25		Not used.	
A1A12C26		Same as A1A5C5.	5-24
A1A12C27		Same as A1A10C5.	5-24
A1A12C28		Same as A1A6A2C2.	5-25
A1A12C29		Same as A1A12C7.	5-24
A1A12C30		CAPACITOR: MIL type CM07F103J03.	5-25
A1A12C31		Not used.	
A1A12C32		Same as A1A5C5.	5-24
A1A12C33		Same as A1A5C5.	5-24
A1A12C34		Same as A1A5C5.	5-24
A1A12C35		Same as A1A12C30.	5-25
A1A12C36		Same as A1A5C5.	5-25
A1A12C37		CAPACITOR: MIL type CM06D432J03.	5-25
A1A12C38		Same as A1A12C30.	5-25
A1A12C39		CAPACITOR: MIL type CM06D152J03.	5-25
A1A12C40		Same as A1A5C5.	5-24
A1A12CR1		Same as A1A9CR2.	5-24
A1A12CR2		Same as A1A9CR2.	5-25
A1A12FL1		FILTER, BANDPASS: 719 to 820 kc bandwidth; 47,000 ohms input; 42498 dwg/type B29213.	5-24
A1A12FL2		FILTER, BANDPASS: 140 kc nom frequency; 350 cps bandpass at 6 db points; 42498 dwg A37366-1; 82068 type S95365.	5-24
A1A12J1		Same as A1A5J1.	5-24
A1A12J2		Same as A1A5J1.	5-24
A1A12J3		Same as A1A5J1.	5-24
A1A12J4		Same as A1A5J1.	5-24
A1A12J5		Same as A1A5J1.	5-24
A1A12J6		Same as A1A5J1.	5-24
A1A12J7		Same as A1A5J1.	5-24
A1A12J8		Same as A1A5J1.	5-24
A1A12J9		Not used.	
A1A12J10		Same as A1A9J4.	5-24
A1A12J11		Same as A1A9J4.	5-24
A1A12J12 thru A1A12J20		Not used.	

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A12J21		Same as A1A2J1.	5-25
A1A12J22		Same as A1A2J1.	5-25
A1A12J23		Same as A1A5J1.	5-25
A1A12L1		Same as A1A5L4.	5-24
A1A12L2		Same as A1A5L4.	5-24
A1A12L3		Same as A1A5L4.	5-25
A1A12L4		Same as A1A5L4.	5-24
A1A12L5		Same as A1A5L4.	5-24
A1A12L6		Same as A1A5L4.	5-24
A1A12L7		Same as A1A11L1.	5-24
A1A12L8		Same as A1A11L1.	5-24
A1A19L9		COIL, RF: 2.7 to 3.7 mh inductance; Q is 120 at 250 kc frequency; 10 ohms max dc resistance; shielded; coil form; 42498 dwg/type D39724-5.	5-25
A1A12L10		Same as A1A5L4.	5-25
A1A12L11		Same as A1A5L4.	5-25
A1A12L12		Same as A1A11L1.	5-24
A1A12L13		Same as A1A3L2.	5-25
A1A12P1		Same as A1A5P1.	5-24
A1A12R1		Same as A1A2R8.	5-24
A1A12R2		Same as A1A5R4.	5-24
A1A12R3		Same as A1A2R8.	5-24
A1A12R4		Same as A1A6A1R24.	5-25
A1A12R5		Same as A1A4R11.	5-25
A1A12R6		Same as A1A4R11.	5-25
A1A12R7		Same as A1A6A1R24.	5-25
A1A12R8		Same as A1A2R8.	5-25
A1A12R9		Same as A1A11R12.	5-25
A1A12R10		Same as A1A8R7.	5-25
A1A12R11		Same as A1A2R8.	5-25
A1A12R12		Same as A1A6A1R24.	5-25
A1A12R13		Same as A1A6A2R11.	5-25
A1A12R14		Same as A1A2R8.	5-25
A1A12R15		Same as A1A2R9.	5-25
A1A12R16		Same as A1A2R7.	5-25
A1A12R17		Same as A1A6A2R11.	5-24
A1A12R18		Same as A1A6A2R11.	5-24
A1A12R19		Same as A1A4R11.	5-24
A1A12R20		Same as A1A10R10.	5-25
A1A12R21		Same as A1A5R4.	5-24
A1A12R22		Same as A1A5R11.	5-25
A1A12R23		Same as A1A5R4.	5-24
A1A12R24		Same as A1A10R10.	5-24
A1A12R25		Same as A1A6A1R24.	5-25
A1A12R26		Same as A1A10R25.	5-25
A1A12R27		Same as A1A2R7.	5-25
A1A12R28		Same as A1A2R7.	5-25
A1A12R29		Same as A1A3R1.	5-25
A1A12R30		Same as A1A3R1.	5-25
A1A12R31		Same as A1A3R1.	5-25
A1A12R32		Same as A1A3R1.	5-24

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A12R33		Same as A1A3R1.	5-24
A1A12S1		SWITCH: MIL type MS25100-23.	5-24
A1A12T1		TRANSFORMER: 10.6 uh ±20% inductance; Q is 50 at 2.5 mc frequency primary and secondary; bifilar winding; encapsulated; 42498 dwg/type D39727-2.	5-24
A1A12T2		Same as A1A12T1.	5-24
A1A12T3		Same as A1A12T1.	5-25
A1A12V1		Same as A1A6A1V1.	5-25
A1A12V2		Same as A1A6A1V1.	5-25
A1A12V3		Same as A1A6A1V1.	5-24
A1A12V4		Same as A1A6A1V1.	5-24
A1A12V5		Same as A1A6A1V1.	5-24
A1A12XV1		Same as A1A6A1XV1.	5-25
A1A12XV2		Same as A1A6A1XV1.	5-25
A1A12XV3		Same as A1A6A1XV1.	5-25
A1A12XV4		Same as A1A6A1XV1.	5-25
A1A12XV5		Same as A1A6A1XV1.	5-25
A1A12Z1		MODULE, DIGITAL: Frequency divider (÷5); color coded green; 42498 dwg A39883-3; 09353 type B4594.	5-24
A1A12Z2		Same as A1A12Z1.	5-24
A1A13		INTERPOLATOR OSCILLATOR: 610 to 660 kc, one band; 1 tube; fil 6.3 vac (regulated), plate 120 vdc (regulated); 42498 dwg/type D37804G1.	5-5
A1A13C1		CAPACITOR: MIL type CZ24BEB104.	5-26
A1A13C2		Same as A1A13C1.	5-26
A1A13C3		Same as A1A6A2C15.	5-26
A1A13C4		CAPACITOR: MIL type CT06E013J.	5-26
A1A13C5		CAPACITOR: MIL type CC20CH120G.	5-26
A1A13C6		CAPACITOR: MIL type CT06E019J.	5-26
A1A13C7		Same as A1A8C39.	5-26
A1A13C8		CAPACITOR: MIL type CC20UJ180G.	5-26
A1A13C9		Same as A1A12C30.	5-26
A1A13C10		CAPACITOR: MIL type CZ24BEF103.	5-26
A1A13C11		Same as A1A11C29.	5-26
A1A13C12		Same as A1A9C3.	5-26
A1A13C13		Same as A1A6C1.	5-26
A1A13C14		CAPACITOR: MIL type CM05C120K03.	5-26
A1A13C15		Same as A1A13C14.	5-26
A1A13C16		Same as A1A6C1.	5-26
A1A13E1		Same as A1A2E1.	5-26
A1A13EV1		Same as A1A10EV1.	5-26
A1A13L1		COIL, RF: 30 to 50 uh inductance; Q is 68 to 76 at 2.5 mc frequency; 3.5 ohms max dc resistance; close-wound winding; ceramic coil form; 42498 dwg/type D39726-1.	5-26
A1A13P1		Same as A1A2P1.	5-26
A1A13R1		RESISTOR: MIL type RC20GF220J.	5-26
A1A13R2		Same as A1A2R7.	5-26
A1A13R3		Same as A1A6A1R9.	5-26
A1A13R4		RESISTOR: MIL type RC20GF332J.	5-26
A1A13R5		Same as A1A6A1R24.	5-26
A1A13R6		Same as A1A6A1R24.	5-26

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A13T1		TRANSFORMER, RF: 250 uh inductance, Q is 120 at 790 kc frequency, primary; 12.5 uh inductance, Q is 50 at 2.5 mc frequency, secondary; 4.2 ohms primary, 0.6 ohms secondary, max dc resistance; 15.1 uh mutual inductance; ceramic coil form; 42498 dwg/type D39729-1.	5-26
A1A13V1		ELECTRON TUBE: MIL type JAN5654/6AK5W.	5-26
A1A13XV1		SOCKET, ELECTRON TUBE: MIL type TS102C01.	5-26
A1A14		POWER SUPPLY: Electronic, non-regulated; two diode-bridge rectifiers, two single section LC filters; no tubes; outputs 165 vdc, 0.35 amp; 36 vdc, 0.425 amp; 5.15 vac, 0.75 amp; 6.3 vac, 5.0 amp; 13.9 vac, 0.6 amp; 42498 dwg/type D38268G1.	5-2
A1A14C1		CAPACITOR: MIL type CE51C650N.	5-28
A1A14C2		CAPACITOR: MIL type CE51C101K.	5-28
A1A14C3		Same as A1A14C1.	5-28
A1A14C4		Same as A1A14C2.	5-28
A1A14CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type 1N1128A.	5-28
A1A14CR2		Same as A1A14CR1.	5-28
A1A14CR3		Same as A1A14CR1.	5-28
A1A14CR4		Same as A1A14CR1.	5-28
A1A14CR5		SEMICONDUCTOR DEVICE, DIODE: MIL type 1N1124A.	5-28
A1A14CR6		Same as A1A14CR5.	5-28
A1A14CR7		Same as A1A14CR5.	5-28
A1A14CR8		Same as A1A14CR5.	5-28
A1A14L1		REACTOR: 4.5 h min at 50 v, 60 cps and 0.35 amp dc; 100 ohms max dc resistance; 500 v peak working voltage; 42498 dwg/type A37676-1.	5-28
A1A14L2		REACTOR: 1 h min at 10 v, 60 cps and 0.325 amp dc; 35 ohms, ±20%, dc resistance; 0.7 h min at 10 v, 60 cps and 0.425 amp dc; 535 v peak working voltage; 42498 dwg/type A38320-1.	5-28
A1A14P1		CONNECTOR, PLUG, ELECTRICAL: 17 rd male contacts; straight; 42498 dwg A38531-3; 71468 type DBM17W2PC37A134.	5-28
A1A14R1		RESISTOR: MIL type RE65G11R0.	5-28
A1A14R2		Same as A1A14R1.	5-28
A1A14R3		RESISTOR: MIL type RE65G5R00.	5-28
A1A14R4		Same as A1A14R3.	5-28
A1A14R5		RESISTOR: MIL type RE65G5001.	5-28
A1A14S1		SWITCH, THERMOSTATIC: 3.0 amp at 115 vac (non-inductive); normally closed; contacts open at 215°F ±5°F; contacts reclose at 202°F ±12°F; 42498 dwg/type A39738-2.	5-28
A1A14T1		TRANSFORMER, POWER: Primary 100/110/120 v 50/60/400 cps, single phase; secondary (6-7) 155 vrms at 0.35 amp; (8-9) 2 v at 0.75 amp; (9-11) 6.3 v at 5 amp; (12-14) 52 v at 0.425 amp; (15-16) 13.9 v at 0.6 amp; 105°C operating temperature; 42498 dwg/type A37674-1.	5-28

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A14XC1		SOCKET, CAPACITOR: MIL type TS101P02.	5-28
A1A14XC2		Same as A1A14XC1.	5-28
A1A14XC3		Same as A1A14XC1.	5-28
A1A14XC4		Same as A1A14XC1.	5-28
A1A15		MAIN TUNING ASSEMBLY: C/o 4-drum counter, tuning control, bandswitch detent; counter illuminated; 42498 dwg/type E38184G2.	5-4
A1A15DS1		LIGHT, PANEL: MIL type MS25010C12B328, (6.0 v, 0.20 amp, 500 hours).	5-34 (1)
A1A15DS2		Same as A1A15DS1.	5-34 (2)
A1A15MP1		LOCK, SHAFT: Stainless steel, passivated; 0.215 in. thk, 1.000 in. w, 2.500 in. lg; 42498 dwg/type B19420.	5-4
A1A15MP2		KNOB: 3 to 4 inch-lbs torque; 1.875 in. od by 1.437 in. lg; 42498 dwg/type B33173-4.	5-4
A1A15MP3		BUSHING, SLEEVE: Stainless steel; two no. 6 (0.138 in.)-32 tapped holes; 0.250 in. id by 0.500 in. od; 0.312 in. thk; 42498 dwg/type A19419.	5-4
A1A15MP4		KNOB: MIL type MS91528-2K2B.	5-4
A1A15MP5		SHAFT, STRAIGHT: Cres per QQ-S-763, passivated finish; 0.094 in. od by 1.391 in. lg; 42498 dwg/type A18130.	5-34 (140)
A1A15MP6		Same as A1A15MP5.	5-34 (136)
A1A15MP7		Same as A1A15MP5.	5-34 (132)
A1A15MP8		Same as A1A15MP5.	5-34 (128)
A1A15MP9		PULLEY, GROOVE: Brass, cadmium plated finish; 2.000 in. od by 0.343 in. thk; 42498 dwg/type B18145.	5-34 (96)
A1A15MP10		SHAFT ASSY, SHOULDER: Passivated cres shaft; plastic shoulder; 0.732 in. od by 1.688 in. lg; 42498 dwg/type B18144-4.	5-34 (124)
A1A15MP11		SHAFT ASSY, SHOULDER: Passivated cres shaft; plastic shoulder; 0.732 in. od by 1.750 in. lg; 42498 dwg/type B18144-3.	5-34 (117)
A1A15MP12		SHAFT ASSY, SHOULDER: Passivated cres shaft; plastic shoulder; 0.732 in. od by 1.813 in. lg; 42498 dwg/type B18144-2.	5-34 (103)
A1A15MP13		SHAFT ASSY, SHOULDER: Passivated cres shaft; plastic shoulder; 0.732 in. od by 1.875 in. lg; 42498 dwg/type B18144-1.	5-34 (110)
A1A15MP14		GEAR, SPUR: Nylon; 8 teeth; 20 deg pressure angle; 0.250 pitch dia; 0.312 in. od by 0.218 in. h; 42498 dwg/type B17611.	5-34 (125)
A1A15MP15		Same as A1A15MP14.	5-34 (126)
A1A15MP16		Same as A1A15MP14.	5-34 (127)

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A15MP17		Same as A1A15MP14.	5-34 (129)
A1A15MP18		Same as A1A15MP14.	5-34 (130)
A1A15MP19		Same as A1A15MP14.	5-34 (131)
A1A15MP20		Same as A1A15MP14.	5-34 (133)
A1A15MP21		Same as A1A15MP14.	5-34 (134)
A1A15MP22		Same as A1A15MP14.	5-34 (135)
A1A15MP23		Same as A1A15MP14.	5-34 (137)
A1A15MP24		Same as A1A15MP14.	5-34 (138)
A1A15MP25		Same as A1A15MP14.	5-34 (139)
A1A15MP26		WHEEL, COUNTER: Plastic; white figures on black background; 0.158 in. id; 0.732 in. od; 0.298 in. thk; 42498 dwg B17610; 18911 type CY-2383-1NRWHITE.	5-34 (107)
A1A15MP27		Same as A1A15MP26.	5-34 (108)
A1A15MP28		Same as A1A15MP26.	5-34 (109)
A1A15MP29		Same as A1A15MP26.	5-34 (100)
A1A15MP30		Same as A1A15MP26.	5-34 (101)
A1A15MP31		Same as A1A15MP26.	5-34 (102)
A1A15MP32		Same as A1A15MP26.	5-34 (114)
A1A15MP33		Same as A1A15MP26.	5-34 (115)
A1A15MP34		Same as A1A15MP26.	5-34 (116)
A1A15MP35		Same as A1A15MP26.	5-34 (121)
A1A15MP36		Same as A1A15MP26.	5-34 (122)
A1A15MP37		Same as A1A15MP26.	5-34 (123)
A1A15MP38		GEAR, HELICAL: Aluminum, anodized finish; 40 teeth; 45 deg helix angle; 1.178 in. pitch dia; 1.220 in. od; 0.375 in. h; 42498 dwg/type A16985-1.	5-34 (73)
A1A15MP39		GEAR, HELICAL: Cres, passivated finish; 27 teeth; 45 deg helix angle; 0.795 in. pitch dia; 0.837 in. od; 0.344 in. h; 42498 dwg/type A16987-2.	5-34 (77)
A1A15MP40		RING, RETAINING: Steel, cadmium plated; 0.094 in. id; 0.230 in. od; 0.015 in. thk; 42498 dwg B19785-2; 97464 type 1000-15.	5-34 (80)

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A15MP41		Same as A1A15MP40.	5-34 (81)
A1A15MP42		WASHER, SPRING: Bronze; 0.158 in. id; 0.312 in. od; 0.218 in. thk; 42498 dwg A18598; 78189 type 3702-7.	5-34 (84)
A1A15MP43		GEAR, SPUR: Brass; 16 teeth; 14-1/2 deg pressure angle; 0.500 in. pitch dia; 0.562 in. od; 0.187 in. h; 42498 dwg/type A18632-1.	5-34 (54)
A1A15MP44		GEAR ASSY: Brass; 32 teeth; 14-1/2 deg pressure angle; 1.000 in. pitch dia; 1.062 in. od; 0.187 in. h; 42498 dwg/type B18645G1.	5-34 (66)
A1A15MP45		WASHER, KEY: Steel, cadmium plated; one external key; 0.252 in. id; 0.563 in. od; 0.048 in. thk; 42498 dwg/type A18644.	5-34 (67)
A1A15MP46		WASHER, KEY: Steel, cadmium plated finish; 0.252 in. id; 0.750 in. od; 0.031 in. thk; 0.875 in. w across two external keys; 42498 dwg/type A18109.	5-34 (69)
A1A15MP47		COLLAR, SHAFT: Steel, cadmium plated; one no. 4-40 tapped hole perpendicular to id; 0.252 in. id; 0.750 in. od; 0.187 in. thk; 42498 dwg/type A18631.	5-34 (70)
A1A15MP48		WASHER, KEY: Steel, cadmium plated; one external key; 0.252 in. id; 0.750 in. od; 0.031 in. thk; 42498 dwg/type A18110.	5-34 (68)
A1A15MP49		Same as A1A15MP48.	5-34 (68)
A1A15MP50		Same as A1A15MP48.	5-34 (68)
A1A15MP51		Same as A1A15MP48.	5-34 (68)
A1A15MP52		Same as A1A15MP48.	5-34 (68)
A1A15MP53		Same as A1A15MP48.	5-34 (68)
A1A15MP54		Same as A1A15MP48.	5-34 (68)
A1A15MP55		Same as A1A15MP48.	5-34 (68)
A1A15MP56		Same as A1A15MP48.	5-34 (68)
A1A15MP57		Same as A1A15MP48.	5-34 (68)
A1A15MP58		Same as A1A15MP48.	5-34 (68)
A1A15MP59		Same as A1A15MP48.	5-34 (68)
A1A15MP60		Same as A1A15MP48.	5-34 (68)
A1A15MP61		Same as A1A15MP48.	5-34 (68)
A1A15MP62		Same as A1A15MP48.	5-34 (68)

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A15MP63		Same as A1A15MP48.	5-34 (68)
A1A15MP64		Same as A1A15MP48.	5-34 (68)
A1A15MP65		Same as A1A15MP48.	5-34 (68)
A1A15MP66		Same as A1A15MP48.	5-34 (68)
A1A15MP67		Same as A1A15MP48.	5-34 (68)
A1A15MP68		Same as A1A15MP48.	5-34 (68)
A1A15MP69		Same as A1A15MP48.	5-34 (68)
A1A15MP70		Same as A1A15MP48.	5-34 (68)
A1A15MP71		Same as A1A15MP48.	5-34 (68)
A1A15MP72		Same as A1A15MP48.	5-34 (68)
A1A15MP73		Same as A1A15MP48.	5-34 (68)
A1A15MP74		Same as A1A15MP48.	5-34 (68)
A1A15MP75		Same as A1A15MP48.	5-34 (68)
A1A15MP76		Same as A1A15MP48.	5-34 (68)
A1A15MP77		SPRING, DETENT: Spring steel, cadmium plated finish; 0.015 in. thk; 0.312 in. w; 1.625 in. lg; one 0.140 in. by 0.187 in. slot; 42498 dwg/type B34595.	5-34 (142)
A1A15MP78		GEAR CLUSTER: Consists of gears B (52 teeth), C (63 teeth), and D (64 teeth) mtd on hub of gear A (37 teeth); brass; 1.031 in. od by 0.500 in h over-all dim; 42498 dwg/type C37497-1.	5-34 (87)
A1A15MP79		GEAR, SPUR: Brass; 26 teeth; 20 deg pressure angle; 0.406 in. pitch dia; 0.437 in. od; 0.281 in. h; 42498 dwg/type C37498-1.	5-34 (104)
A1A15MP80		GEAR, SPUR: Brass; 27 teeth; 20 deg pressure angle; 0.422 in. pitch dia; 0.453 in. od; 0.219 in. h; 42498 dwg/type C37499-1.	5-34 (97)
A1A15MP81		GEAR, SPUR: Brass; 53 teeth; 20 deg pressure angle; 0.828 in. pitch dia; 0.859 in. od; 0.219 in. h; 42498 dwg/type C37499-2.	5-34 (118)
A1A15MP82		GEAR, SPUR: Brass; 38 teeth; 20 deg pressure angle; 0.594 in. pitch dia; 0.625 in. od; 0.219 in. h; 42498 dwg/type C37499-3.	5-34 (111)
A1A15MP83		Same as A1A1MP4.	5-34 (11)
A1A15MP84		Same as A1A1MP4.	5-34 (59)
A1A15MP85		Same as A1A1MP2.	5-34 (65)

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A15MP86		Same as A1A1MP2.	5-34 (61)
A1A15MP87		SHAFT, STRAIGHT: Cres, passivated finish; 0.250 in. od; 4.125 in. lg; 42498 dwg/type B38415-1.	5-34 (76)
A1A15MP88		SPRING, HELICAL, EXTENSION: Steel per QQ-W-470; cadmium plated finish; 23-1/2 coils; 0.187 in. od by 0.720 in. free lg; 1.500 in. final extended hook lg; 42498 dwg/type B34511.	5-34 (29)
A1A15MP89		PULLEY, GROOVE: Brass, cadmium plated; 0.500 in. id; 0.906 in. od; 0.187 in. h; 42498 dwg/type A18140.	5-34 (34)
A1A15MP90		Same as A1A15MP89.	5-34 (39)
A1A15MP91		SHAFT, STRAIGHT: Cres, passivated finish; 0.250 in. od; 3.844 in. lg; 42498 dwg/type B37688-1.	5-34 (20)
A1A15MP92		RING, RETAINING: Cres, cadmium plated; 0.214 in. id; 0.330 in. od; 0.025 in. thk; 42498 dwg A19418-1; 79136 type 5103-25.	5-34 (13)
A1A15MP93		Same as A1A15MP92.	5-34 (19)
A1A15MP94		PULLEY, GROOVE: Brass pulley; steel stop; cadmium plated; 0.251 in. id; 1.312 in. od; 0.546 in. h; 42498 dwg/type B37969-1.	5-34 (14)
A1A15MP95		HUB, DETENT: Brass hub; steel detent; cadmium plated; 0.252 in. id; 4.624 in. od; 0.437 in. h; 42498 dwg/type B33512-1.	5-34 (16)
A1A15MP96		SHAFT, STRAIGHT: Cres, passivated finish; 0.156 in. od; 3.344 in. lg; 0.010 in. by 45 deg chamfer both ends; 42498 dwg/type B39831-1.	5-34 (85)
A1A15MP97		BEARING BALL, ANNULAR: Stainless steel; ABEC-3; 0.375 in. od by 0.125 in. w; 0.250 in. id of bore; 0.422 in. flange od by 0.036 in. flange w; 42498 dwg B23887-3; 83086 type SFR1683MM.	5-34 (145)
A1A15MP98		Same as A1A15MP97.	5-34 (146)
A1A15MP99		Same as A1A15MP97.	5-34 (147)
A1A15MP100		Same as A1A15MP97.	5-34 (148)
A1A15MP101		BEARING, BALL, ANNULAR: Stainless steel; ABEC-3; 0.313 in. od by 0.125 in. w; 0.156 in. od of bore; 0.359 in. flange dia by 0.036 in. flange w; 42498 dwg B23887-5; 83086 type SFR1553MM.	5-34 (149)
A1A15MP102		Same as A1A15MP101.	5-34 (150)
A1A15MP103		CABLE: Steel, flexible, 1/32 in. diameter; 3 strands of 7 wires; 42498 dwg/type A33820.	5-32
A1A15P1		Same as A1A2P1.	5-34 (50)
A1A16		SECONDARY TUNING ASSEMBLY: C/o single-drum counter, tuning control, rf gain control; counter illuminated; 42498 dwg/type E37883G1.	5-1

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A16DS1		Same as A1A15DS1.	5-35 (1)
A1A16DS2		Same as A1A15DS1.	5-35 (2)
A1A16MP1		COUPLING ASSY: Cadmium plated brass coupling; passivated stainless steel pin; 0.188 in. id; 1.000 in. od; 0.719 in. thk; 42498 dwg/type B31176-2.	5-33
A1A16MP2		Same as A1A6MP1.	5-4
A1A16MP3		KNOB: 1 to 1.5 inch-lbs torque; 1.875 in. od by 1.437 in. lg; 42498 dwg/type B33173-3.	5-4
A1A16MP4		Same as A1A15MP1.	5-4
A1A16MP5		Same as A1A15MP3.	5-4
A1A16MP6		Same as A1A15MP14.	5-35 (31)
A1A16MP7		Same as A1A15MP14.	5-35 (32)
A1A16MP8		Same as A1A15MP14.	5-35 (33)
A1A16MP9		RING, RETAINING: Spring steel, cadmium plated; 0.093 in. id; 0.250 in. od; 0.010 in. thk; 42498 dwg A18827-1; 79136 type 5105-9.	5-35 (29)
A1A16MP10		Same as A1A16MP9.	5-35 (30)
A1A16MP11		SHAFT, STRAIGHT: Cres, passivated finish; 0.094 in. od by 2.062 in. lg; 42498 dwg/type B34556.	5-35 (34)
A1A16MP12		GEAR, SPUR: Brass; 18 teeth; 20 deg pressure angle; 0.250 in. pitch dia; 0.278 in. od; 0.281 in. h; 42498 dwg/type A16984.	5-35 (16)
A1A16MP13		COLLAR, SHAFT: Cres; passivated finish; 0.156 in. id; 0.312 in. od; 0.156 in. thk; 42498 dwg/type B34555.	5-35 (14)
A1A16MP14		WHEEL, COUNTER: Plastic, white figures on black background; 0.157 in. id; 0.730 in. od; 0.298 in. thk; 42498 dwg B19561; 18911 type CY-2215-NRWHITE.	5-35 (13)
A1A16MP15		Same as A1A15MP26.	5-35 (12)
A1A16MP16		Same as A1A15MP26.	5-35 (11)
A1A16MP17		SHAFT ASSY, SHOULDER: Passivated cres shaft; plastic shoulder; 0.732 in. od by 3.093 in. lg; 42498 dwg/type B23934.	5-35 (10)
A1A16MP18		BEARING, BALL, ANNULAR: Stainless steel; ABEC-5; 0.312 in. od by 0.109 in. w; 0.125 in. id of base; 0.359 in. flange od by 0.023 in. flange w; 42498 dwg C34643-1; 40920 type S125312F.	5-35 (20)
A1A16MP19		Same as A1A16MP18.	5-35 (28)
A1A16MP20		Same as A1A16MP18.	5-35 (19)
A1A16MP21		Same as A1A16MP18.	5-35 (9)

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A16MP22		SHAFT, STRAIGHT: Cres, passivated finish; 0.125 in. dia; 3.312 in. lg; 42498 dwg/type B23833.	5-35 (24)
A1A16MP23		RING, RETAINING: Cres, cadmium plated; 0.101 in. id; 0.180 in. od; 0.015 in. thk; 42498 dwg A19418-3; 79136 type 5103-12.	5-35 (21)
A1A16MP24		GEAR, SPUR: Cres, passivated finish; 27 teeth; 20 deg pressure angle; 0.795 in. pitch dia; 0.837 in. od; 0.343 in. h; 42498 dwg/type A16987-2.	5-35 (25)
A1A16MP25		GEAR, HELICAL: Aluminum, anodized finish; 20 teeth; 45 deg helix angle; 0.590 in. pitch dia; 0.632 in. od; 0.343 in. h; 42498 dwg/type A18274-2.	5-35 (22)
A1A16MP26		GEAR, HELICAL: Stainless steel, passivated finish; 40 teeth; 45 deg helix angle; 1.178 in. pitch dia; 1.220 in. od; 0.375 in. h; 42498 dwg/type A18275-2.	5-35 (49)
A1A16MP27		COLLAR, STOP: Cadmium plated cres collar; cadmium plated steel pin, protruding; 0.250 in. dia; 0.750 in. od; 0.187 in. thk; 42498 dwg/type B23910.	5-35 (46)
A1A16MP28		COLLAR, STOP: Cres, passivated finish; one no. 4-40NC2 thd hole perpendicular to id; 0.250 in. id; 0.437 in. od; 0.218 in. thk; 42498 dwg/type A19268.	5-35 (56)
A1A16MP29		Same as A1A16MP28.	5-35 (51)
A1A16MP30		WASHER, KEY: Steel, cadmium plated; 0.252 in. id; 0.750 in. od; 0.031 in. thk; 0.875 in. w across two external keys; 42498 dwg/type A23917.	5-35 (45)
A1A16MP31		Same as A1A15MP48.	5-35 (44)
A1A16MP32		Same as A1A15MP48.	5-35 (44)
A1A16MP33		Same as A1A15MP48.	5-35 (44)
A1A16MP34		Same as A1A15MP48.	5-35 (44)
A1A16MP35		Same as A1A15MP48.	5-35 (44)
A1A16MP36		Same as A1A15MP48.	5-35 (44)
A1A16MP37		Same as A1A15MP48.	5-35 (44)
A1A16MP38		Same as A1A15MP48.	5-35 (44)
A1A16MP39		Same as A1A15MP48.	5-35 (44)
A1A16MP40		Same as A1A15MP48.	5-35 (44)
A1A16MP41		Same as A1A15MP48.	5-35 (44)
A1A16MP42		Same as A1A15MP48.	5-35 (44)

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A16MP43		WASHER, KEY: Steel, cadmium plated; one external key; 0.252 in. id; 0.750 in. od; 0.032 in. thk; 42498 dwg/type A23904.	5-35 (43)
A1A16MP44		SHAFT, STRAIGHT: Cres, passivated finish; 0.250 in. dia by 2.906 in. lg; 42498 dwg/type B23853-2.	5-35 (53)
A1A16MP45		SHAFT ASSY, IDLER: C/o 20-tooth helical gear; one ball bearing; one idler shaft, associated hardware; 42498 dwg/type B23898-2.	5-35 (38)
A1A16MP46		GEAR, HELICAL: Stainless steel, passivated finish; 20 teeth; 45 deg helix angle; 0.590 in. pitch dia; 0.632 in. od; 0.375 in. h; 42498 dwg/type A16994-1.	5-35 (59)
A1A16MP47		SHAFT, STRAIGHT: Cres, passivated finish; 0.250 in. od; 2.843 in. lg; 42498 dwg/type B23837-2.	5-35 (61)
A1A16MP48		Same as A1A15MP92.	5-35 (58)
A1A16MP49		Same as A1A15MP92.	5-35 (42)
A1A16MP50		BEARING, BALL, ANNULAR: Stainless steel; ABEC-5; 0.500 in. od by 0.125 in. w; 0.250 in. id of bore; 0.547 in. flange od by 0.023 in. flange w; 42498 dwg C34643-2; 40920 type S250500F.	5-35 (55)
A1A16MP51		Same as A1A16MP50.	5-35 (62)
A1A16MP52		Same as A1A16MP50.	5-35 (41)
A1A16MP53		Same as A1A16MP50.	5-35 (54)
A1A16P1		Same as A1A2P1.	5-33
A1A16R1		RESISTOR, VARIABLE: 10,000 ohms ±20%, 2.0 w first section; 2500 ohms ±20%, 0.83 w second section; linear B taper; 42498 dwg/type C20006-2.	5-33
A1A16R2		Same as A1A11R5.	5-33
A1A16R3		Same as A1A8R9.	5-33
A1A17		VOLTAGE REGULATOR, OSCILLATOR: Two regulating circuits; 120 vdc, 6.3 vac; no tubes; zener diodes; 42498 dwg/type C38472G1.	5-5
A1A17CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type 1N3008B.	5-29
A1A17CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type 1N3997A.	5-29
A1A17CR3		SEMICONDUCTOR DEVICE, DIODE: MIL type 1N2970RB.	5-29
A1A17R1		RESISTOR: MIL type RE65G1001.	5-29
A1A17R2		Same as A1A14R1.	5-29
A1A17R3		RESISTOR: MIL type RC32GF184J.	5-29
A1A17R4		Same as A1A8R9.	5-29
A1A18		600-KC FILTER ASSEMBLY: C/o 600-kc filter and tuned circuit; filter bandwidth at 6-db points 599.5 and 600.5 kc; no tubes; 42498 dwg/type C38479G1.	5-5

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A18C1		Same as A1A4C3.	5-21
A1A18C2		CAPACITOR: MIL type CM06D182J03.	5-21
A1A18FL1		FILTER, BANDPASS: 599.0 to 601.0 kc bandwidth at 40 db down; 1500 ohms; 42498 dwg/type A37367-2.	5-21
A1A18L1		Same as A1A5L1.	5-21
A1A19		CHASSIS SUBASSEMBLY: C/o drawer with clam-shell upper deck; upper deck contains all cables and connectors for plug-in assemblies A1A6, A1A9, A1A14, and A1A20 (or auxiliary A1A7); lower deck contains all cables and connectors for plug-in assemblies A1A1 through A1A18 with exception of assemblies A1A6, A1A7, A1A9, A1A14, and A1A20; 42498 dwg/type J37799G1.	5-1
A1A19C1		CAPACITOR, VARIABLE, AIR: Plate meshing type; 4 sections; 10 uuf to 240 uuf; 1000 vrms; 42498 dwg D39868-1; 42498 type D19580-2.	5-4
A1A19C2		CAPACITOR, VARIABLE, AIR: Plate meshing type; 4 sections; 24.5 uuf to 287.6 uuf; 1000 vrms; 42498 dwg D39858-1; 42498 type D38077G1.	5-4
A1A19C3		CAPACITOR, VARIABLE, AIR: Plate meshing type; 14.9 uuf to 67.4 uuf; 1000 vrms; 42498 dwg C32270; 42498 type C18642.	5-4
A1A19F1		FUSE, CARTRIDGE: MIL type F02B125V2A.	5-1
A1A19F2		Same as A1A19F1.	5-1
A1A19J1		CONNECTOR, RECEPTACLE, ELECTRICAL: 9 rd female contacts; straight; floating mount; 42498 dwg A38651-2; 71468 type DEMF9SC37A134.	5-5
A1A19J2		Same as A1A19J1.	5-5
A1A19J3		Same as A1A19J1.	5-5
A1A19J4		CONNECTOR, RECEPTACLE, ELECTRICAL: 15 rd female contacts; straight; floating mount; 42498 dwg A38532-3; 71468 type DBMF17W2SC37A134.	5-4
A1A19J5		CONNECTOR, RECEPTACLE: 15 rd female contacts; floating mount; straight; with 2 straight coaxial connectors for RG196/U cable; 42498 dwg/type A38532-1.	5-5
A1A19J6		Same as A1A19J5.	5-4
A1A19J7		Same as A1A6J1.	5-5
A1A19J8		Same as A1A19J1.	5-4
A1A19J9		Same as A1A19J1.	5-4
A1A19J10		Same as A1A5P1.	5-2
A1A19J11		Not used.	
A1A19J12		Same as A1A19J4.	5-3
A1A19J13		Same as A1A19J5.	5-3
A1A19J14		Same as A1A19J5.	5-3
A1A19J15		Same as A1A19J5.	5-3
A1A19J16		Same as A1A19J1.	5-4
A1A19J17		Same as A1A19J1.	5-4
A1A19J18		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type JJ034.	5-1
A1A19J19		Same as A1A19J18.	5-1

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A19M1		METER, ARBITRARY SCALE: MIL type MR13B100DCUAR.	5-1
A1A19M2		Same as A1A19M1.	5-4
A1A19M3		Same as A1A19M1.	5-4
A1A19MP1		HINGE, BUTT: Stainless steel, passivated finish; 10 knuckles; 0.063 in. thk; 1.250 in. w; 15.000 in. lg; 42498 dwg/type B18460.	5-2
A1A19MP2		ARM, MECHANICAL: Stainless steel, passivated finish; LH index arm; 0.500 in. id by 2.500 in. od; 7.937 in. o/a long; 42498 dwg/type C37620-1.	5-3
A1A19MP3		ARM, MECHANICAL: Stainless steel; passivated finish; RH index arm; 0.500 in. id by 2.500 in. od; 7.937 in. o/a long; 42498 dwg/type C37620-2.	5-3
A1A19MP4		RING, RETAINING: Cres, cadmium plated; 0.441 in. id; 0.600 in. od; 0.035 in. thk; 42498 dwg A19418-2; 79136 type 5103-50.	5-3
A1A19MP5		Same as A1A19MP4.	5-3
A1A19MP6		WASHER, SPRING TENSION: Stainless steel; 0.510 in. id; 0.875 in. od; 0.010 in. thk; 0.115 in. free ht; 42498 dwg B31236-6; 78189 type 3502-24-02.	5-3
A1A19MP7		Same as A1A19MP6.	5-3
A1A19MP8		ROD, STRAIGHT, HEADLESS: Stainless steel; passivated finish; 1.125 in. h shoulder on right end; 0.375 in. dia; 5.625 in. lg; 42498 dwg/type C40046G1.	5-2
A1A10MP9		ROD, STRAIGHT, HEADLESS: Stainless steel; passivated finish; 1.125 in. h shoulder on left end; 0.375 in. dia; 5.625 in. lg; 42498 dwg/type C40046G2.	5-2
A1A19MP10		SPRING, HELICAL, EXTENSION: Spring steel; cadmium plated; 33 coils; 0.200 in. od by 1.250 in. free lg; 2.312 in. final extended lg between loops; 42498 dwg/type B19383.	5-2
A1A19MP11		Same as A1A19MP10.	5-2
A1A19MP12		ARM, MECHANICAL: Stainless steel, passivated finish; 0.251 in. id by 0.625 in. od; 6.625 in. lg; 42498 dwg/type A19379-1.	5-3
A1A19MP13		Same as A1A19MP12.	5-3
A1A19MP14		WASHER, SPRING TENSION: Stainless steel; 0.257 in. id; 0.402 in. od; 0.008 in. thk; 0.050 in. free ht; 42498 dwg B31236-5; 78189 type 3502-14-17.	5-3
A1A19MP15		Same as A1A19MP14.	5-3
A1A19MP16		Same as A1A19MP14.	5-3
A1A19MP17		Same as A1A19MP14.	5-3
A1A19MP18		Same as A1A15MP92.	5-3
A1A19MP19		Same as A1A15MP92.	5-3
A1A19MP20		Same as A1A15MP92.	5-3
A1A19MP21		Same as A1A15MP92.	5-3
A1A19MP22		Same as A1A6MP1.	5-1
A1A19MP23		DISK, COUPLING: C/o two hub and spider subassys; brass disk; associated hardware; 42498 dwg B35174-2; 07886 type B28104-2.	5-4

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A19MP24		COUPLING DISK ASSY: P/o A1A19C2; c/o one 0.251 in. dia coupling; one beryllium copper spring; associated hardware; 42498 dwg/type B39849G1.	5-4
A1A19MP25		COUPLING DISK ASSY: C/o one 0.188 in. dia coupling; one beryllium copper spring; associated hardware; 42498 dwg/type B39849G2.	5-4
A1A19MP26		WASHER, FLAT: Cres, polished finish; 0.312 in. id; 0.750 in. od; 0.187 in. thk; 42498 dwg/type B39854.	5-5
A1A19MP27		Same as A1A19MP26.	5-5
A1A19MP28		HANDLE, BOW: Brass, nickel plated finish; 0.281 in. thk; 1.500 in. w; 4.752 in. lg; 42498 dwg A39683-2A; 71279 type 2111-2A02.	5-4
A1A19MP29		Same as A1A19MP28.	5-4
A1A19MP30		ARM, SWITCH: Brass, cadmium plated finish; four 0.105 in. dia holes countersunk 82 deg to 0.171 in. dia; 0.093 in. thk; 0.625 in. w; 8.000 in. lg; 42498 dwg/type B18234.	5-5
A1A19MP31		SLIDE ARM ASSY, SWITCH: Stainless steel; passivated finish sliding arm; 0.093 in. thk; 0.500 in. w; 0.688 in. lg; with stainless steel pin; 42498 dwg/type B18266G3.	5-5
A1A19MP32		Same as A1A19MP31.	5-5
A1A19MP33		Same as A1A19MP31.	5-5
A1A19MP34		Same as A1A19MP31.	5-5
A1A19MP35		Same as A1A19MP31.	5-5
A1A19MP36		SWITCH DRIVE ASSY: C/o crank subassy; bushing and bracket subassy; one 72-tooth brass gear; stainless steel shaft; associated hardware; 42498 dwg/type C18276-G1.	5-5
A1A19MP37		GEARSHAFT ASSY: Shaft-stainless steel, passivated finish; 0.250 in. od by 7.000 in. lg; gear, spur-stainless steel, passivated finish; 16 teeth; 14-1/2 deg pressure angle; 0.500 in. pitch dia; 0.543 in. od; 0.438 in. h; 42498 dwg/type B18259G3.	5-5
A1A19MP38		Same as A1A1MP2.	5-5
A1A19MP39		WASHER, SPRING TENSION: Bronze, nickel plated finish; 0.250 in. id; 0.500 in. od; 0.008 in. thk; 0.055 in. free ht; 42498 dwg B35177-1; 78189 type 3735-14.	5-5
A1A19MP40		COUPLING DISK ASSY: C/o one 0.251 in. dia coupling; one beryllium copper spring; associated hardware; 42498 dwg/type B39849G1.	5-5
A1A19MP41		COLLAR, SHAFT: Aluminum, chemical film finish; 0.125 in. thk; 0.875 in. w; 1.625 in. lg; with brass bushing; 42498 dwg/type B38090G1.	5-5
A1A19MP42		COLLAR, SHAFT: Aluminum, chemical film finish; 0.125 in. thk; 1.000 in. w; 1.625 in. lg; 42498 dwg/type B37751-1.	5-5
A1A19MP43		SHAFT LOCK: Brass, cadmium plated; 0.500 in. od; 0.969 in. lg; 7/16 (0.437) in. no. 27 thd; 42498 dwg/type B18247-1.	5-5

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A19MP44		NUT, SHAFT LOCK: Brass, cadmium plated finish; 7/16 (0.437) in. no. 27 thd; 0.625 in. w across flats; 0.312 in. h; 42498 dwg/type A18244-1.	5-5
A1A19MP45		SHAFT, STRAIGHT: Cres, passivated finish; 0.250 in. od; 6.688 in. lg; 42498 dwg/type B37753-1.	5-5
A1A19MP46		HUB, SPIDER: Brass, cadmium plated; 0.500 in. dia by 0.906 in. lg; 42498 dwg/type A18127G1.	5-5
A1A19MP47		Same as A1A19MP40.	5-5
A1A19MP48		Same as A1A1MP2.	5-5
A1A19MP49		Same as A1A1MP2.	5-5
A1A19MP50		Same as A1A19MP39.	5-5
A1A19MP51		ARM, SWITCH: Brass, cadmium plated finish; one 0.105 in. dia hole countersunk 82 deg to 0.171 in. dia; 0.093 in. thk; 0.625 in. w; 5.437 in. lg; 42498 dwg/type B37913-1.	5-5
A1A19MP52		HANDLE, BOW: Brass, nickel plated finish; 0.375 in. thk; 1.250 in. w; 2.940 in. lg; 42498 dwg/type A19365.	5-3
A1A19MP53		Same as A1A19MP52.	5-3
A1A19MP54		GROMMET, RUBBER: MIL type MS35489-33.	5-2
A1A19MP55		Same as A1A19MP54.	5-2
A1A19P1		Same as A1A2P2.	5-5
A1A19R1		RESISTOR, VARIABLE: 2 sections; each section 2500 ohms; ±20%; 2 w; standard C taper; 42498 dwg/type C19741.	5-2
A1A19S1		SWITCH, TOGGLE: MIL type MS35059-22.	5-1
A1A19S2		SWITCH, THERMOSTATIC: Disk type; hermetically sealed; normally open; contacts open at 85°F ±5°F; contacts close at 105°F ±5°F; 3 amp, 115 vac; 42498 dwg/type A39738-1.	5-3
A1A19TB1		TERMINAL STRIP: Glass fiber reinforced plastic; gray; barrier type; 1000 vrms rating without marker strip; 5 amp; 12 terminals; 42498 dwg/type D29967-12-410H.	5-3
A1A19TB2		Same as A1A19TB1.	5-3
A1A19TB3		TERMINAL STRIP: Glass fiber reinforced plastic; gray; barrier type; 1000 vrms rating without marker strip; 5 amp; 11 terminals; 42498 dwg/type D29967-11-410H.	5-3
A1A19TB4		TERMINAL STRIP: Glass fiber reinforced plastic; gray; barrier type; 1000 vrms rating without marker strip; 5 amp; 16 terminals; 42498 dwg/type D29967-16-410H.	5-5
A1A19XF1		FUSEHOLDER: MIL type FHL17G.	5-1
A1A19XF2		Same as A1A19XF1.	5-1
A1A20	2	AM AMPLIFIER-DETECTOR AM-4529/SRR-19 or AM-4529A/SRR-19: C/o 100-kc i-f amplifier A1A20A1; agc/af amplifier, A1A20A2; heterodyne detector/bfo, A1A20A3; panel section containing mode selector switch, bandwidth selector switch, noise limiter switch, level control, and output meter; 42498 dwg/type D38658G1 (AN/SRR-19) or D38658G2 (AN/SRR-19A).	5-1

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A20C1		Same as A1A6C2.	5-15
A1A20C2		Same as A1A6C1.	5-15
A1A20C3		Not used.	
A1A20C4		Not used.	
A1A20C5		Not used.	
A1A20FL1		FILTER, BANDPASS: Two-section; 99.5 kc to 100.5 kc ±100 cps first section; 98.5 kc to 101.5 kc ±250 cps second section; 0 to 70°C operating temp; 68,000 ohms impedance; 42498 dwg/type A39105-1.	5-15
A1A20J1		Same as A1A6J1.	5-15
A1A20J2		Same as A1A6J1.	5-15
A1A20J3		Same as A1A6J1.	5-15
A1A20L1		Same as A1A6L1.	5-15
A1A20M1	3	METER, AUDIO FREQUENCY: 1 mw into 600 ohms power level; -12 db to +22 db scale range; 0.775 volt at zero on scale; 42498 dwg/type C38653-1.	5-15
A1A20M1	4	Same as A1A6M1.	5-15
A1A20MP1		KNOB: MIL type MS91528-0E1B.	5-15
A1A20MP2		KNOB: MIL type MS91528-0K1B.	5-15
A1A20MP3		Same as A1A20MP2.	5-15
A1A20MP4		SHAFT, SWITCH: 30 deg index, fixed stop, limiting to 3 positions; nickel plated brass bushing 1/4 (0.250) in. -32NEF2A thd, 0.250 in. lg; shaft 0.438 in. lg from end of bushing; copper alloy index spring; stainless steel front and index plate; associated hardware; 42498 dwg/type A40049-1 (AN/SRR-19) or A40049-2 (AN/SRR-19A).	5-15
A1A20MP5		PIN, STRAIGHT, THREADED: Cres, passivated finish; 0.093 in. od; no. 2-56NC2 thd; 1.500 in. lg; 42498 dwg/type A38623-1.	5-15
A1A20MP6		Same as A1A20MP5.	5-15
A1A20MP7		Same as A1A20MP5.	5-15
A1A20MP8		Same as A1A20MP5.	5-15
A1A20MP9	3	SHAFT, STRAIGHT: Cres, passivated finish; 0.125 in. od; 7.000 in. lg; 42498 dwg/type A38624-1.	5-15
A1A20MP9	4	SHAFT, STRAIGHT: Cres, passivated finish; 0.125 in. od; 2.875 in. lg; 42498 dwg/type A38624-2.	5-15
A1A20MP10	3	COUPLING, SWITCH: Cres, passivated finish; 0.438 in. od by 0.563 in. lg; two no. 2-56NC2 holes diametrically opposed; 42498 dwg/type A38622-1.	5-15
A1A20MP10	4	COUPLING, SWITCH: Cres, passivated finish; 0.313 in. od by 0.563 in. lg; two no. 2-56NC2 holes at right angles to each other; 42498 dwg/type A38622-2.	5-15
A1A20P1		CONNECTOR, PLUG, ELECTRICAL: 15 rd male contacts; straight; with one straight coaxial termination; 42498 dwg/type A38531-4.	5-15
A1A20R1		Same as A1A6R5.	5-15
A1A20R2		Same as A1A1R5.	5-15
A1A20R3		Same as A1A2R8.	5-15
A1A20R4		Same as A1A1R5.	5-15
A1A20R5		Same as A1A6R3.	5-15

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A20R6		Same as A1A1R5.	5-15
A1A20R7		RESISTOR: MIL type RC20GF124J.	5-15
A1A20R8		Same as A1A6R3.	5-15
A1A20R9		Same as A1A6R4.	5-15
A1A20R10		Same as A1A6A1R24.	5-15
A1A20R11		Same as A1A6A1R24.	5-15
A1A20R12		Same as A1A1R5.	5-15
A1A20R13		Same as A1A1R5.	5-15
A1A20R14		Same as A1A1R5.	5-15
A1A20R15		Same as A1A6R4.	5-15
A1A20R16		Same as A1A8R7.	5-15
A1A20R17		RESISTOR: MIL type RV6NAYSD503C.	5-15
A1A20S1		SWITCH, ROTARY: Two 3-pole, 3-position, one section shorting type; 42498 dwg/type A39860-1.	5-15
A1A20S2		SWITCH, ROTARY: 4-pole, 4-position, 2 sections; 30 deg throw; 42498 dwg/type A38657-1.	5-15
A1A20S3		SWITCH, TOGGLE: MIL type MS24655-221.	5-15
A1A20A1		Same as A1A6A1.	5-15
A1A20A2		Same as A1A6A2.	5-15
A1A20A3		DETECTOR/BFO ASSY; C/o AM diode detector, no tubes; diode noise limiter, no tubes; heterodyne detector/amplifier, 1 tube; bfo, 1 tube; fil 6.3 vac, plate 165 vdc; 42498 dwg/type D40034G1.	5-15
A1A20A3C1		CAPACITOR: MIL type CM05D151J03.	5-16
A1A20A3C2		Same as A1A4C3.	5-16
A1A20A3C3		Same as A1A4C3.	5-16
A1A20A3C4		Same as A1A5C5.	5-16
A1A20A3C5		CAPACITOR: MIL type CM07E153J03.	5-16
A1A20A3C6		Same as A1A5C3.	5-16
A1A20A3C7		Same as A1A5C3.	5-16
A1A20A3C8		CAPACITOR: MIL type CK63AW103M.	5-16
A1A20A3C9		CAPACITOR: MIL type CM06D221J03.	5-16
A1A20A3C10		Same as A1A4C3.	5-16
A1A20A3C11		Same as A1A4C3.	5-16
A1A20A3C12		Same as A1A4C3.	5-16
A1A20A3C13		CAPACITOR: MIL type CM06E821J03.	5-16
A1A20A3C14		Same as A1A10C6.	5-16
A1A20A3C15		CAPACITOR, VARIABLE, AIR: Piston type; 1.0 uuf to 42.0 uuf; 1000 vdc; 42498 dwg A39906-1; 73899 type MC604YF.	5-16
A1A20A3C16		Not used.	
A1A20A3C17		Not used.	
A1A20A3C18		Not used.	
A1A20A3C19		Not used.	
A1A20A3C20		Same as A1A20A3C15.	5-16
A1A20A3CR1		Same as A1A6A2CR1.	5-16
A1A20A3CR2		Same as A1A6A2CR1.	5-16
A1A20A3J1		Same as A1A5J1.	5-16
A1A20A3J2		Same as A1A5J1.	5-16
A1A20A3J3		Same as A1A5J1.	5-16
A1A20A3L1		Same as A1A4L1.	5-16
A1A20A3L2		Same as A1A4L1.	5-16

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A1A20A3P1		Same as A1A5P1.	5-16
A1A20A3R1		Same as A1A20R7.	5-16
A1A20A3R2		RESISTOR: MIL type RC20GF393J.	5-16
A1A20A3R3		Same as A1A6A2R33.	5-16
A1A20A3R4		Same as A1A5R4.	5-16
A1A20A3R5		Same as A1A5R4.	5-16
A1A20A3R6		Same as A1A5R4.	5-16
A1A20A3R7		Same as A1A6A1R2.	5-16
A1A20A3R8		Same as A1A6R4.	5-16
A1A20A3R9		Same as A1A13R4.	5-16
A1A20A3R10		Same as A1A6A2R20.	5-16
A1A20A3R11		Same as A1A11R5.	5-16
A1A20A3R12		Same as A1A2R8.	5-16
A1A20A3R13		Same as A1A2R7.	5-16
A1A20A3R14		Same as A1A6A2R11.	5-16
A1A20A3V1		Same as A1A6A1V1.	5-16
A1A20A3V2		Same as A1A6A1V1.	5-16
A1A20A3XV1		Same as A1A6A1XV1.	5-16
A1A20A3XV2		Same as A1A6A1XV1.	5-16
A1A20A3XY1-1		CONNECTOR, RECEPTACLE, ELECTRICAL: 0.550 uuf; norm rating 1200 vrms at 60 cps frequency; 42498 dwg A29624; 98291 type SKT1WHITE.	5-16
A1A20A3XY1-2		Same as A1A20A3XY1-1.	5-16
A1A20A3XY2-1		Same as A1A20A3XY1-1.	5-16
A1A20A3XY2-2		Same as A1A20A3XY1-1.	5-16
A1A20A3Y1		CRYSTAL UNIT, QUARTZ: MIL type CR37A/U/W.	5-16
A1A20A3Y2		Same as A1A20A3Y1.	5-16
A2		BLISTER ASSEMBLY: C/o input/output cable terminations; contains power input and audio output filters; inputs: antenna, external 1 mc, ac power; outputs: LINE A, LINE B; no tubes; 42498 dwg/type D37628G1.	5-6
A2FL1		FILTER, BANDPASS: 14 kc to 400 mc at 40 db to 80 db attenuation; 3 amp; 105/125 vac; 50/400 cps; 250 vdc; 42498 dwg/type A39867-1.	5-30
A2FL2		FILTER, LOW PASS: 8 kc nom frequency; 150 ohms balanced impedance; 12 v at 40 ma rms working voltage; 0°C to plus 85°C operating temp range; 42498 dwg/type A39519-1.	5-30
A2FL3		Same as A2FL2.	5-30
A2J1		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type MS3102R16S5P.	5-30
A2J2		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type MS3102R10SL4P.	5-30
A2J3		Same as A2J2.	5-30
A2J4		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type UG58A/U.	5-30
A2J5		CONNECTOR RECEPTACLE, ELECTRICAL: MIL type UG290/U.	5-30
A2MP1		WASHER, LOCK: Stainless steel, passivated finish; 0.106 in. id; 0.220 in. od; 0.015 in. thk; 42498 dwg A19540; 78189 type 1203-00.	5-30

TABLE 6-2. MAINTENANCE PARTS LIST (Cont)

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
A2MP2		Same as A2MP1.	5-30
A2MP3		Same as A2MP1.	5-30
A2MP4		Same as A2MP1.	5-30
A2MP5		EYELET, METALLIC: 0.250 in. id; 0.385 in. od; brass; nickel plated; 42498 dwg/type SE-85-BN.	5-30
A2MP6		ARM, HINGE: Cres, cadmium plated finish; 0.059 in. thk; 2.000 in. w; 14.031 in. lg; 42498 dwg/type C37609G1.	5-30
A2MP7		SPRING, SPIRAL, TORSION: Spring steel, cadmium plated finish; 17 LH coils; 0.640 in. od; 1.625 in. free lg over coils; 42498 dwg/type B37642-1.	5-6
A2MP8		PIN, HOLLOW: Brass, cadmium plated; 0.257 in. id; 0.406 in. od; 1.515 in. lg; 42498 dwg/type B34619.	5-6
A2MP9		Same as A1A1MP2.	5-6
A2MP10		Same as A1A1MP2.	5-6
A2P1		Same as A1A19J5.	5-30
A2P2		CONNECTOR, PLUG, ELECTRICAL: 3 female contacts; 5 amps; straight; 42498 dwg A39822-1; 71468 type MC11E8-3SN-A160.	5-30
A3		FAN ASSEMBLY: C/o fan motor, venturi, air filters; rating 100/110/120 volts ac, 50-60 or 400 cycles, single phase; 42498 dwg/type C37624G1.	5-6
A3B1		FAN, TUBEAXIAL: 115 volts, 50/60/400 cps, single phase; 0.250 uf capacitor; 2420/3080/3350 rpm nom; 42498 dwg A39463-1; 82877 type 3B805ZS.	5-31
A3C1		CAPACITOR: MIL type CP54B1EC105K1.	5-31
A3J1		CONNECTOR, RECEPTACLE, ELECTRICAL: 3 rd male contacts; 5 amps; straight; 42498 dwg A39822-2; 71468 type MC14E8-3PN-A160.	5-31
A3MP1		GROMMET: MIL type MS35489-4.	5-31
		CABINET ASSY, MECHANICAL: 42498 dwg/type A37641G1.	5-6
MP1		TRACK, SLIDING DOOR: Left-hand; aluminum chassis and channel sections; cres component parts and hardware; 19.000 in. total slide travel; 42498 dwg/type D38412-1.	5-4
MP2		TRACK, SLIDING DOOR: Right hand; aluminum chassis and channel sections; cres component parts and hardware; 19.000 in. total slide travel; 42498 dwg/type D38412-2.	5-4
MP3		STUD, SNAPSLIDE: Stainless steel rod; passivated; 0.312 in. od by 0.250 in. h; no. 6(0.138 in.)-32 tapped hole; 42498 dwg/type A19071-1.	5-6
MP4		Same as MP3.	5-6
MP5		Same as MP3.	5-6
MP6		Same as MP3.	5-6
MP7		Same as MP3.	5-6
MP8		Same as MP3.	5-6
MP9		Same as MP3.	5-6
MP10		Same as MP3.	5-6

TABLE 6-3. LIST OF MANUFACTURERS

MFR CODE	NAME	ADDRESS
07886	National Radio Co., Inc.	Melrose, Mass.
09353	C and K Components Inc.	Newton, Mass.
18911	Durant Mfg. Co.	Milwaukee, Wis.
40920	Miniature Precision Bearings Inc.	Keene, N.H.
42498	National Co., Inc.	Melrose, Mass.
54753	General Inst. Corp., F.W. Sickles Div.	Chicopee, Mass.
56289	Sprague Electric Co.	North Adams, Mass.
71279	Cambridge Thermionic Corp.	Cambridge, Mass.
71468	ITT Cannon Electric Inc.	Los Angeles, Calif.
71785	Cinch Mfg. Co., Howard B. Jones Div.	Chicago, Ill.
73899	JFD Electronics Corp.	Brooklyn, N.Y.
75042	International Resistance Co.	Philadelphia, Pa.
75915	Littelfuse Inc.	Des Plaines, Ill.
76854	Oak Mfg. Co.	Crystal Lake, Ill.
78189	Shakeproof Div. of Illinois Tool Works	Elgin, Ill.
79136	Waldes-Kohinoor Inc.	Long Island City, N.Y.
82068	Burnell and Co., Inc.	Pelham Manor, N.Y.
82877	Rotron Mfg. Co., Inc.	Woodstock, N.Y.
83086	New Hampshire Ball Bearing	Peterborough, N.H.
89665	United Transformer Co.	Chicago, Ill.
97464	Industrial Retaining Ring Co.	Irvington, N.J.
98291	Sealectro Corp.	Manaroneck, N.Y.