NAVELEX 0967-LP-438-9010

TECHNICAL MANUAL

DESCRIPTION, OPERATION AND MAINTENANCE

RADIO SETS

AN/SRC-20, AN/SRC-20A,
AN/SRC-21, AN/SRC-21A
AND AN/URC-9A

FOR OFFICIAL USE ONLY

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LIST OF EFFECTIVE PAGES

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3-89 and 3-90.	0	5-215/(5-216 blank)	0
3-91/(3-92 blank).	0	5-217/(5-218 blank)	0
3-93 and 3-94.	0	5-219/(5-220 blank)	0
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4-1 and 4-2	0	5-229/(5-230 blank)	0
4-3/(4-4 blank).	0	5-231/(5-232 blank)	0
5-1 thru 5-94	0	5-233/(5-234 blank)	0
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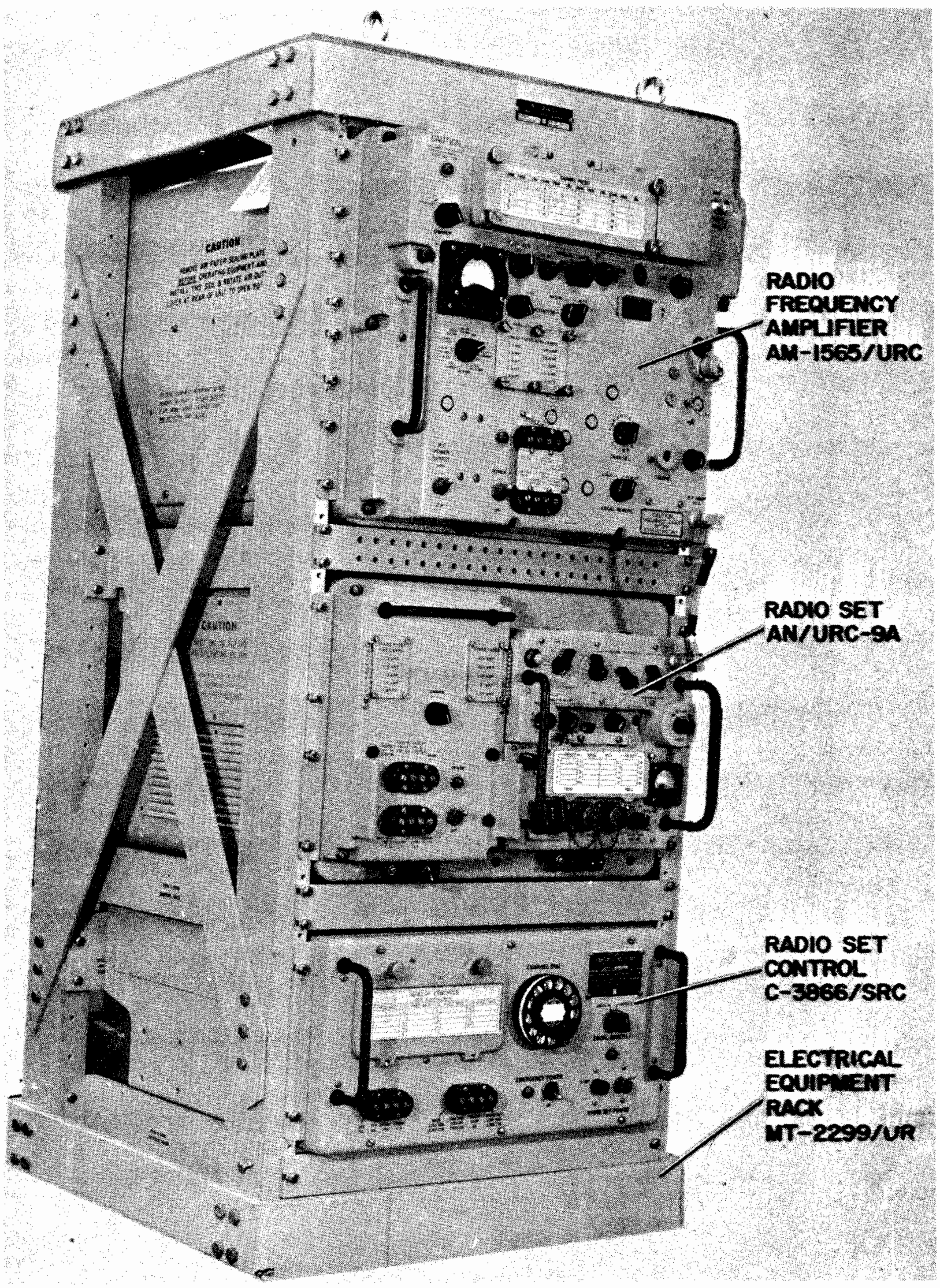
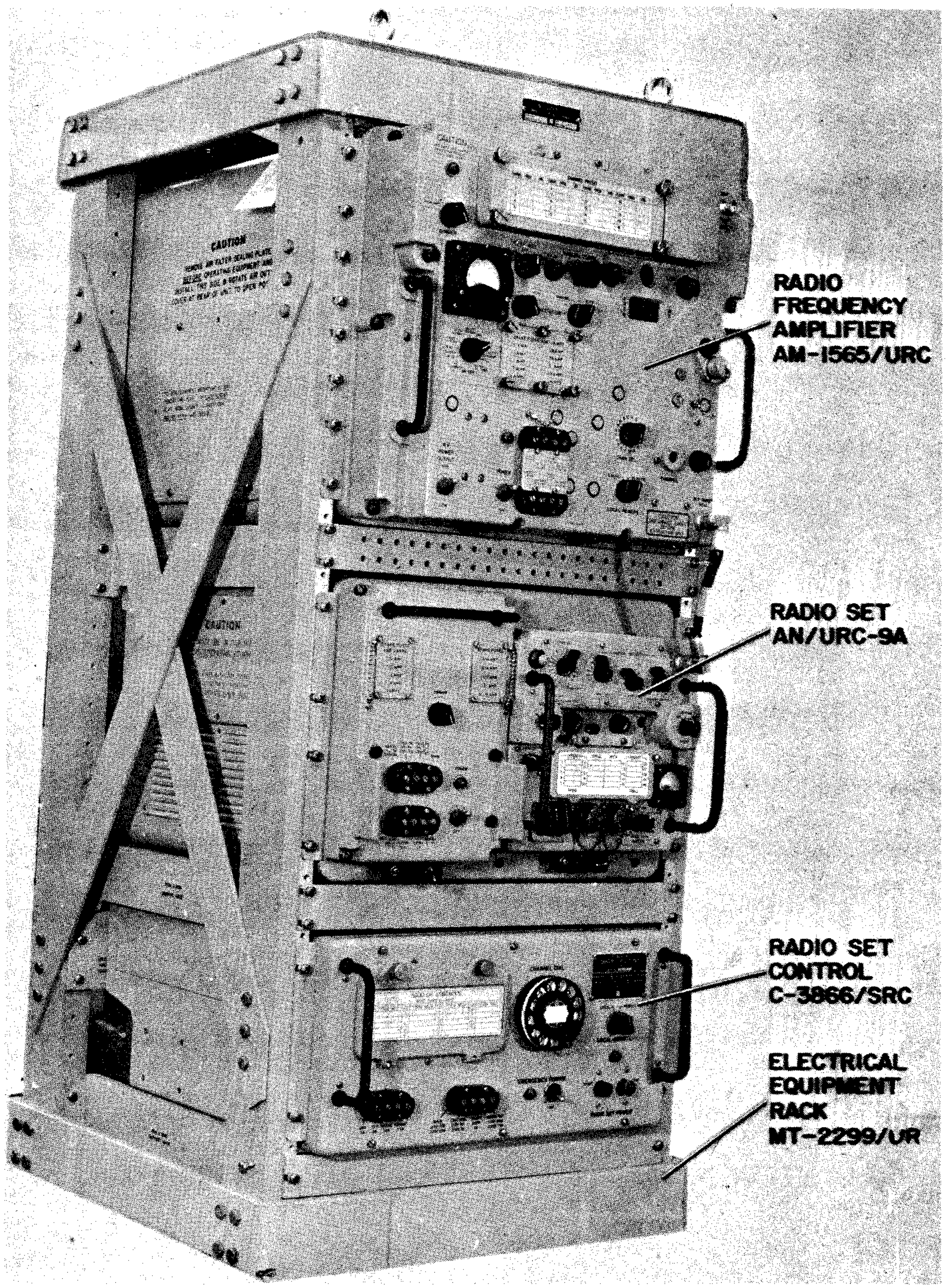


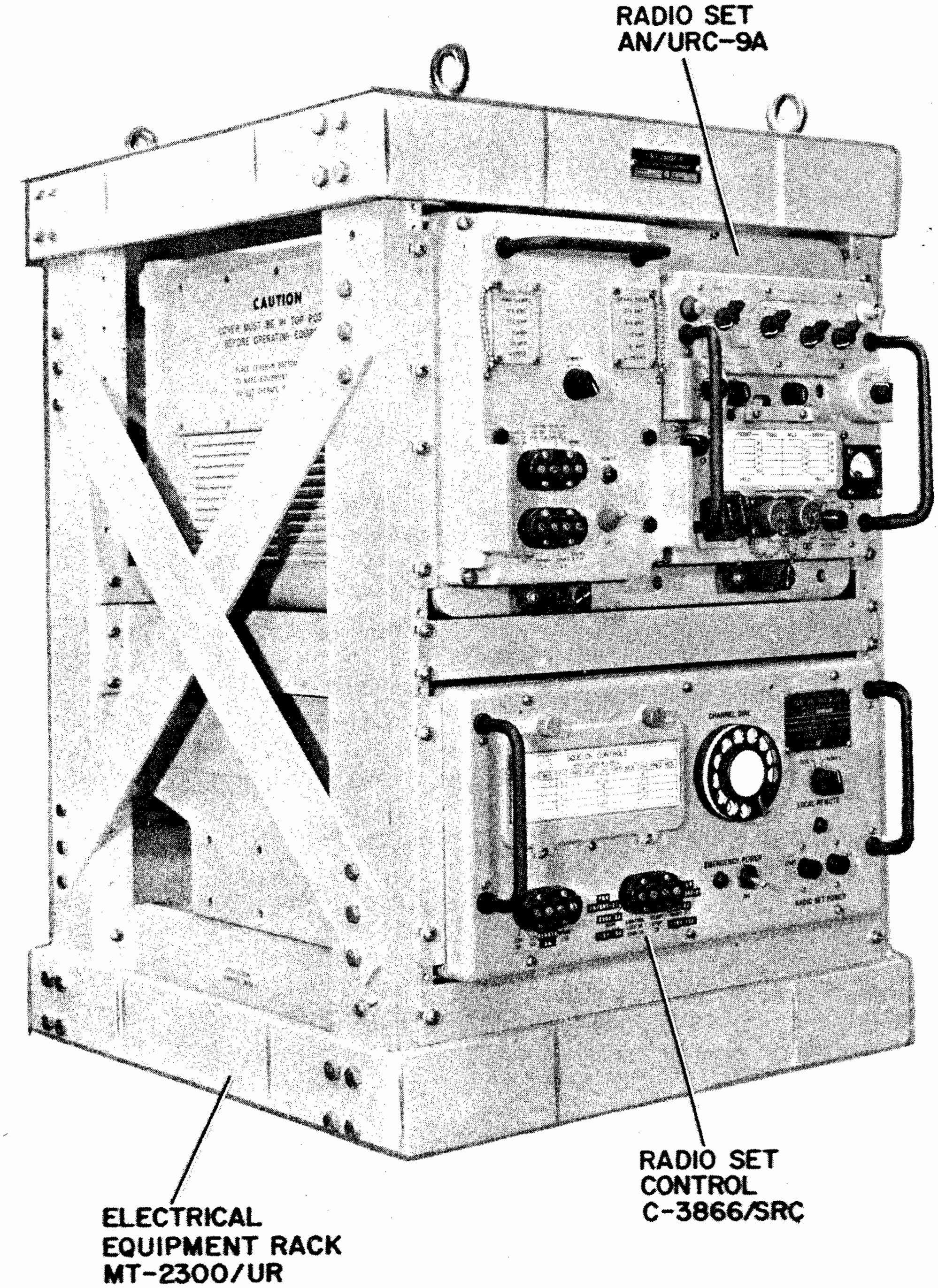
A. Radio Set AN/SRC-20( )

Figure 1-1. Radio Sets AN/SRC-20( ) and AN/SRC-21( ) (Sheet 1 of 2)



A. Radio Set AN/SRC-20( )

Figure 1-1. Radio Sets AN/SRC-20( ) and AN/SRC-21( ) (Sheet 1 of 2)



B. Radio Set AN/SRC-21( )

Figure 1-1. Radio Sets AN/SRC-20( ) and AN/SRC-21( ) (Sheet 2 of 2)

CHAPTER 1

GENERAL INFORMATION

1-1. SCOPE.

1-2. This Technical Manual contains installation and operating instructions, operating principles, maintenance procedures, and a parts list for Radio Sets AN/SRC-20, AN/SRC-20A, AN/SRC-21, and AN/SRC-21A. This manual is effective upon receipt. Extracts from this publication may be made to facilitate the preparation of other Department of Defense publications.

NOTE

The expression, ( ), following an equipment nomenclature indicates both models (i.e., AN/SRC-20( ) includes AN/SRC 20 and AN/SRC-20A; AN/SRC-21( ) includes AN/SRC-21 and AN/SRC 21A; AN/URC-9( ) includes AN/URC-9 and AN/URC-9A, and RT-581( ) includes RT-581/ URC-9 and RT-581A/URC-9).

1-3. GENERAL DESCRIPTION.

1-4. Radio Sets AN/SRC-20( ) and AN/SRC-21( ), shown in figure 1-1A and B, respectively, are designed for shipboard or fixed station operation. The AN/SRC-20 and AN/SRC-21 provide amplitude modulated (am) voice and tone signals on any of 1750 channels spaced 0.1 MHz apart in the 225.0 to 399.9-MHz frequency range. Nineteen of the 1750 channels can be preset. The AN/SRC-20A and AN/SRC-21A provide am voice and tone signals on any of 3500 channels spaced 0.01 MHz apart in the 225.00 to 399.95-MHz frequency range.

1-5. Complete control, including the selection of preset channels, can be exercised from a maximum of four remote-control points. In addition, circuits are incorporated which permit the connection of two sets for two-way automatic retransmission and broadband transmit and receive operation.

1-6. The AN/SRC-20 is composed of three basic units: Radio Frequency Amplifier AM-1565/URC, Radio Set AN/URC-9, and Radio Set Control C-3866/SRC. The AN/SRC-20A is composed of the same units as the AN/SRC-20, except that Radio Set AN/URC-9 is replaced with Radio Set AN/URC-9A. The AN/SRC-21 is composed of two basic units: Radio Set AN/URC-9 and Radio Set Control C-3866/SRC. The AN/SRC-21A is composed of the same units as the AN/SRC-21 except that Radio Set AN/URC-9 is replaced by Radio Set AN/URC-9A.

1-7. To provide the control and selection of preset channels from the remote control stations, the AN/SRC-20( ) and AN/SRC-21( ) systems require remote control units Radio Set Control C-1138/UR or C-1207/UR and Indicator Control C-3868/SRC. These remote station control units are not supplied with the AN/SRC-20 and AN/SRC-21( ) systems.

1-8. DESCRIPTION OF UNITS.

1-9. The basic units which comprise Radio Sets AN/SRC-20( ) and AN/SRC-21( ) are briefly described in the following paragraphs.

1-10. RADIO FREQUENCY AMPLIFIER AM-1565/URC. Radio Frequency Amplifier AM-1565/URC, shown in figure 1-2, is an automatically tuned, fixed-station, 100-watt uhf linear power amplifier operating class AB in the frequency range of 225.00 to 399.95 MHz. The AM-1565/URC is continuously tunable over the frequency range, with provisions for presetting 19 channels for remote or local selection; a twentieth channel allows manual tuning. A dial calibrated in frequency, and a logarithmically calibrated dial are provided to assist in the presetting of channels. All channel information is made available to Radio Set AN/URC-9( ).

The rf input can be controlled automatically by a variable ferrite attenuator which compensates for variation in the rf output of Radio Set AN/URC-9( ).

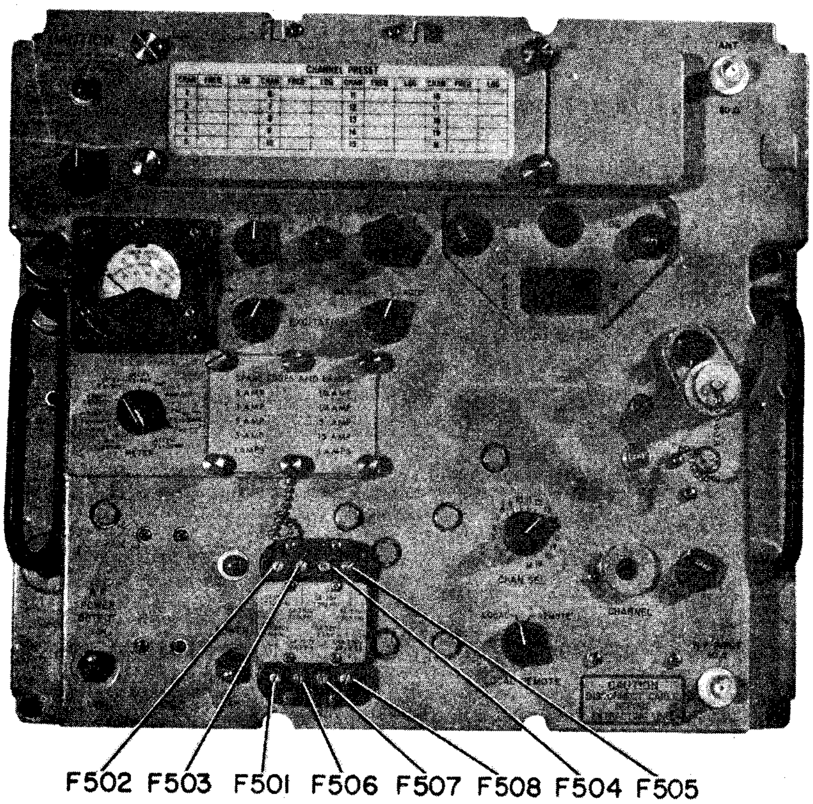


Figure 1-2. Radio Frequency Amplifier AM-1565/URC

1-11. The AM-1565/URC has an internal power supply operating from a 115/230 volts, 50/60 Hz ac power source. The AM-1565/URC, with integral power supply, is contained in the equipment case on a tilting slide mechanism; this slide mechanism allows the unit to be withdrawn from the case for servicing (see figures 5-85 and 5-86). Major subassemblies such as the Power Amplifier and Servo Amplifier, can be removed from the chassis. An internal blower provides forced air cooling. Connections for an antenna coupler, radio set exciter, ac power, and remote control are provided at the rear of the case; all fuses, except for voltage fuse F301, are located on the front panel (see figure 1-2).

CAUTION

The servo system in Radio Frequency Amplifier AM-1565/URC is factory tuned for 60 Hz; when Radio Set AN/SRC-20( ) is used on 50 Hz, the system must be retuned to 50 Hz using the procedure in Chapter 5, paragraph 5-106.

1-12. RADIO SET AN/URC-9. Radio Set AN/URC-9 is the major unit of both the

AN/SRC-20 and the AN/SRC-21. The unit, shown in figure 1-3, functions as a triple conversion, superheterodyne receiver during non-transmitting conditions. When the microphone push-to-talk switch is activated, a series of t/r (transmit-receive) relays convert the unit to a transmitter. Three crystal controlled oscillators provide stable radio and intermediate frequencies (rf and if) in both transmit and receive. When operating independently (outside the AN/SRC 20( ) or AN/SRC-21( )), Radio Set Control C-2383/URC-9 provides remote control of Radio Set AN/URC-9( ).

1-13. Receiver-Transmitter RT-581/URC-9. The Receiver-Transmitter RT-581/URC-9 operates on any of 1750 channels spaced at 0.1 MHz intervals within the 225.0 to 399.9-MHz frequency range. Frequency selection is determined by the position of the CHAN SEL switch, which has 19 preset channel positions, a MANUAL position and a REMOTE PRESET position. The 19 preset channel frequencies can be set on a memory drum, accessible through a door in the front panel. When the CHAN SEL switch is in the MANUAL position, any one of the 1750 channels can be selected using the MANUAL FREQUENCY TENS, UNITS, and TENTHS controls on the front panel of the AN/URC-9. When the CHAN SEL switch is in REMOTE PRESET, channel selection is exercised from a fixed control station.

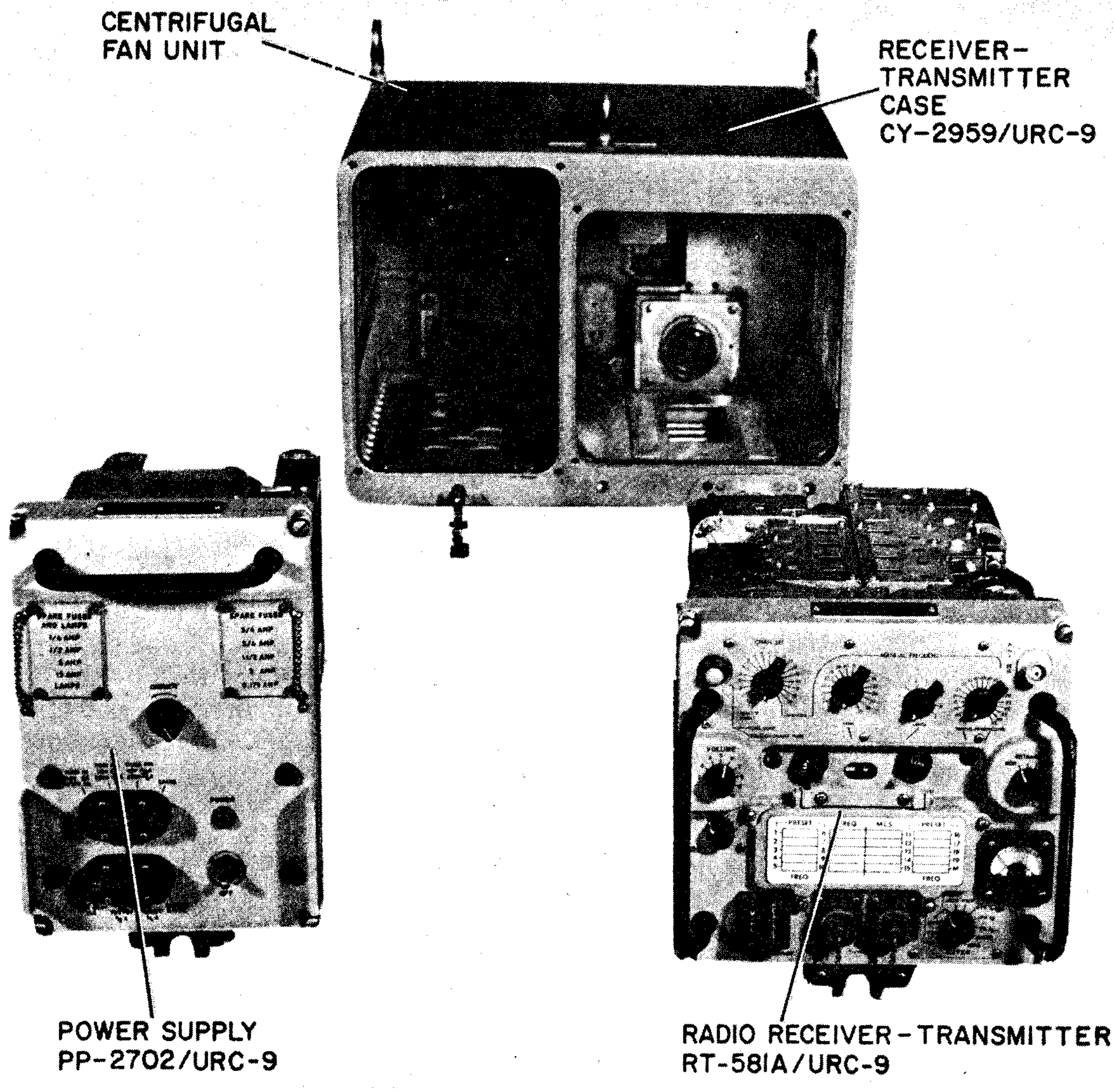
1-14. Power Supply PP-2702/URC-9. Power Supply PP-2702/URC-9 provides all operating voltages required by the receiver-transmitter. The power supply operates on 115 or 230 volts, 50 or 60 Hz ac. The power supply provides 115 volts ac to a blower within Receiver-Transmitter Case CY-2959/URC-9. The power supply also provides 115 volts ac to a centrifugal fan which mounts on the Receiver-Transmitter RT-581( )/URC-9 main frame. The centrifugal fan supplies cooling air to the receiver-transmitter subassemblies, in particular, the RF and PA Amplifier and Audio Amplifier and Modulator output tubes.

1-15. Receiver-Transmitter Case CY-2959/URC-9. Receiver-Transmitter Case CY-2959/URC-9 contains two compartments (see figure 1-3); one for Power Supply PP-2702/URC-9, and one for Receiver-Transmitter RT-581/URC-9. The blower in the top of the power supply compartment circulates cooling air around the heat exchanger case and through the power supply compartment. The louvered ports on each side of the case are covered with plates to make the equipment immersion-proof during transmit. During operation, the plates are detached and relocated above the louvered ports.

1-16. RADIO SET AN/URC-9A. Radio Set AN/URC-9A is the major unit of both the AN/SRC-20A and AN/SRC-21A. The AN/URC-9A is functionally identical to the AN/URC-9 except that Receiver-Transmitter RT-581A/URC-9 is used instead of RT-581/URC-9. The RT-581A/URC-9 operates on any of 3500 channels spaced at 0.01 MHz intervals within the 225.00 to 399.95-MHz frequency range.

1-17. RADIO SET CONTROL C-3866/SRC. Radio Set Control C-3866/SRC, shown in figure 1-4, provides all the necessary control functions for both local and remote control of Radio Set AN/SRC-20( ) or Radio Set AN/SRC-21( ) when either of these sets is operated in the preset mode. The C-3866/SRC enables the operator to select any one of 19 preset radio channels on Radio Set AN/SRC-20( ) or Radio Set AN/SRC-21( ) and Antenna Coupler Group AN/SRA-33 (when used in either radio set). When used in conjunction with Indicator Control C-3868/SRC and Radio Set Control C-1138/UR or C-1207/UR (figure 1-5), the C-3866/SRC provides receive-transmit and channel selection from as many as four remote control stations. Audio transformers in the C-3866/SRC convert the unbalanced inputs from Radio Set AN/SRC-20( ) or AN/SRC-21( ) to the balanced outputs required by the remote stations.

1-18. When Radio Set AN/SRC-20( ) or AN/SRC-21( ) is set for remote preset



NOTE: TENTHS-HUNDREDTHS control graduated in TENTHS on RT-581/URC-9

Figure 1-3. Units of Radio Set AN/URC-9( )

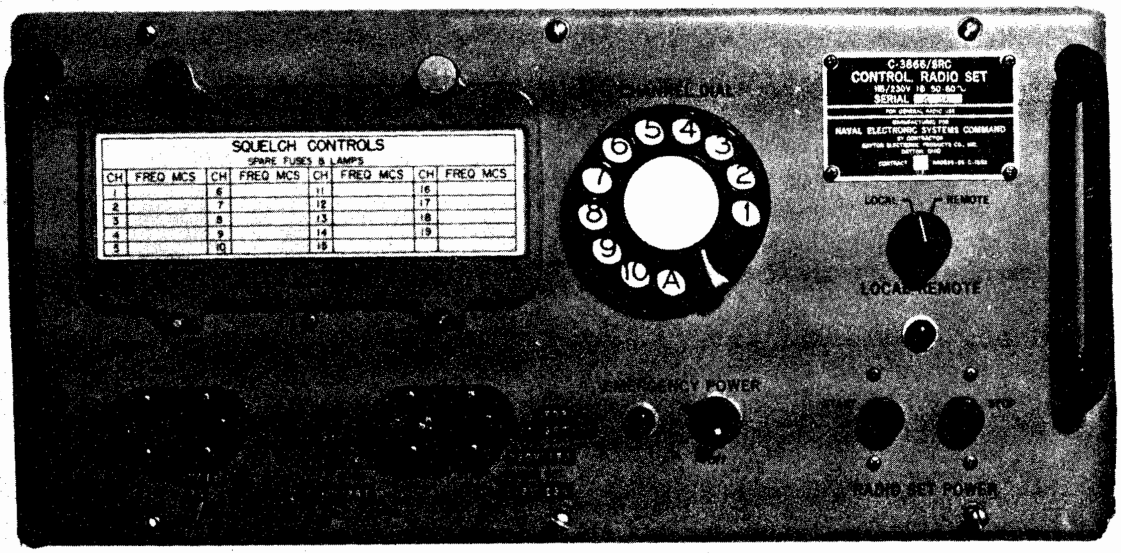


Figure 1-4. Radio Set Control C-3866/SRC

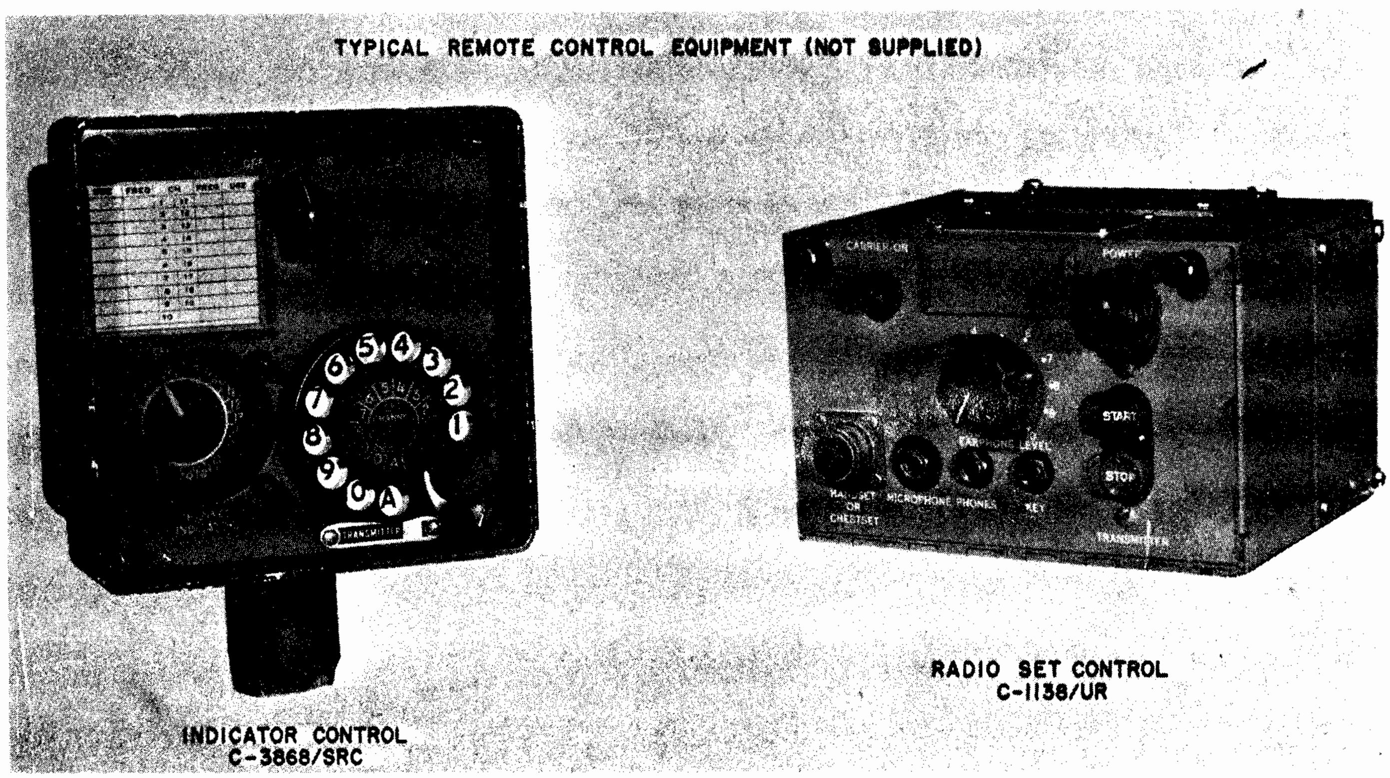


Figure 1-5. Typical Remote Control Station

channel operation, any one of the preset channels can be selected locally from the C-3866/SRC or from the C-3868/SRC at the remote control station on a telephone type dial. The C-3866/SRC contains a stepping relay and programming relay which converts the dial pulses into 5-wire channel information for Radio Set AN/URC-9( ), Radio Frequency Amplifier AM-1565/URC, and Antenna Coupler Group AN/SRA-33. Channel information is also supplied to the C-3868/SRC at the remote control station. A separate squelch level control is provided for each remote preset channel. These controls are accessible through a door in the C-3866/SRC front panel.

1-19. The C-3866/SRC contains a pushbutton start-stop circuit which controls primary power delivered to the AN/URC-9( ), and the AM-1565/URC. All primary power is fused within this unit. In addition, the C-3866/SRC contains three relay power supplies which provide the energizing voltages for relays located therein.

1-20. REFERENCE DATA.

1-21. Detailed reference data for Radio Sets AN/SRC-20( ) and AN/SRC-21( ) are given in the following tables:

a. Table 1-1 - Reference data for Frequency Amplifier AM-1565/URC (AN/SRC-20( ) only).

b. Table 1-2 - Reference data for Radio Set AN/URC-9( ).

c. Table 1-3 - Control Crystal Frequencies, Radio Set AN/URC-9( ).

d. Table 1-4 - Reference data for Radio Set Control C-3866/SRC.

1-22. EQUIPMENT SUPPLIED.

1-23. Table 1-5 lists the equipment supplied with Radio Sets AN/SRC-20( ) and AN/SRC-21( ).

NOTE

Cables required for installation, listed in table 7-1, are also supplied with the radio sets.

1-24. EQUIPMENT REQUIRED BUT NOT SUPPLIED.

1-25. Table 1-6 lists the equipment required, but not supplied, for Radio Sets AN/SRC-20( ) and AN/SRC-21( ).

Table 1-1. Reference Data for Radio Frequency Amplifier AM-1565/URC

CHARACTERISTIC	NUMBER-RANGE-VALUE
FREQUENCY	225.00 to 399.95 MHz
WAVELENGTH	1.33 to 0.75 meters
TUNING:	
Channel spacing	Continuously tuned
Preset channels	19 plus one manual
Channel selection time	10 seconds maximum
Excitation required	16 to 24 watts
Impedance	50 ohms

Table 1-1. Reference Data for Radio Frequency Amplifier AM-1565/URC (Continued)

CHARACTERISTIC	NUMBER-RANGE-VALUE
OUTPUT DATA:	
Minimum power	100 watts, average carrier
Impedance	50 ohms
Envelope distortion	4% maximum above drive signal distortion at 80% modulation
Noise modulation	Not less than 30db when driven by a source having a noise modulation at least 35db below 80% modulation at 1000 Hz
AMBIENT TEMPERATURE RANGE:	
Operating	$-54^{\circ}C$ to $+65^{\circ}C$ ($-65^{\circ}F$ to $+149^{\circ}F$)
Storage	$-62^{\circ}C$ to $+75^{\circ}C$ ($-79^{\circ}F$ to $+167^{\circ}F$)
AMBIENT HUMIDITY	0% to 95%
ALTITUDE	Up to 10,000 ft

Table 1-2. Reference Data for Radio Set AN/URC-9( )

CHARACTERISTIC	NUMBER-RANGE-VALUE
FREQUENCY:	
Range Selection	225.0 to 399.9 MHz 1750 automatically selectable channels spaced 0.1 MHz apart for AN/URC-9 225.00 to 399.95 MHz 3500 automatically selectable channels spaced 0.05 MHz apart for AN/URC-9A
CHANNEL PRESETTING	19 preset channels available on local or remote control; manual frequency selection on local control
ACCURACY	At $150^{\circ}F$, ± 12 kHz; at $100^{\circ}F$, ± 10 kHz; at ambient temperature, ± 10 kHz; at $-40^{\circ}F$, ± 15 kHz; at $-65^{\circ}F$, ± 20 kHz

Table 1-2. Reference Data for Radio Set AN/URC-9( ) (Continued)

CHARACTERISTIC	NUMBER-RANGE-VALUE
CRYSTAL CONTROL:	
First IF Amplifier;	
crystal designation	Type CR-55/U
type of cut	AT-cut
frequency range of crystal circuit	17.0 to 26.0 MHz
oscillation frequency	(see table 1-3)
temperature coefficient	Classed as 0
operating temperature	$-55^{\circ}C$ to $+105^{\circ}C$ ($-67^{\circ}F$ to $+221^{\circ}F$)
accuracy	±0.005%
stability	±0.0005% over temperature range
Second IF Amplifier;	
crystal designation	CR-18A/U for AN/URC-9 Similar to type CR-18A/U, with two crystal circuits in each mounting for AN/URC-9A
type of cut	AT-cut
frequency range of crystal channel	3.0 to 3.9 MHz for AN/URC-9 3.00 to 3.95 MHz for AN/URC-9A
oscillation frequency	(see table 1-3)
temperature coefficient	Classed as 0
operating temperature	$-55^{\circ}C$ to $+105^{\circ}C$ ($-67^{\circ}F$ to $+221^{\circ}F$)
accuracy	±0.005%
stability	±0.0005% over temperature range
Frequency Multiplier-Oscillator;	
crystal designation	Type CR-76/U

Table 1-2. Reference Data for Radio Set AN/URC-9( ) (Continued)

CHARACTERISTIC	NUMBER-RANGE-VALUE
Frequency Multiplier-Oscillator (cont);	
type of cut	AT-cut
frequency range of crystal circuit	31.1 to 45.0 MHz
oscillation frequency	(see table 1-3)
temperature coefficient	Classed as 0
operating temperature	$-55^{o}C$ to $+105^{o}C$ ($-67^{o}F$ to $+221^{o}F$)
accuracy	±0.0025%
stability	±0.0005%
RECEIVER CHARACTERISTICS:	
Type	Triple-conversion superheterodyne, with automatic noise limiting and carrier-operated squelch relay circuits
Input impedance	50 ohms
Sensitivity	6 uv or less for 10db signal-plus-noise to noise ratio
Selectivity (third if bandwidth)	80 Hz minimum at 6db attenuation, 150 Hz maximum at 60db attenuation
Intermediate frequencies	20.0 to 29.9 MHz (variable), 3.0 to 3.9 MHz (variable), 500 kHz (fixed) for AN/URC-9
	20.00 to 39.95 MHz (variable), 3.00 to 3.95 MHz (variable), 500 kHz (fixed) for AN/URC-9A
AVC characteristics	Audio output constant within ±2db from 10 uv to 0.25 v with 100 uv, modulated 30% at 1000 Hz 500 mw audio output level as reference
Frequency response:	
normal	300 Hz; ±5db; 500 Hz; ±4db; 100 Hz; 0db; 3500 Hz; ±4db

Table 1-2. Reference Data for Radio Set AN/URC-9( ) (Continued)

CHARACTERISTIC	NUMBER-RANGE-VALUE
Frequency response (cont);	
broadband	Within -3db at 100 Hz to -7db at 25,000 Hz, 1000 Hz reference
Audio outputs;	
local output	2 watts, 600 ohms
remote output	2 watts, 600 ohms
audio distortion	10% maximum
Squelch;	
S+N/N squelch	3db signal-plus-noise to noise ratio
carrier squelch	3 uv carrier level
TRANSMITTER CHARACTERISTICS:	
Power output	16 watts minimum into 50 ohm resistive load
Modulation	Amplitude modulation
Frequency response;	
normal	Within ±3db from 300 to 3500 Hz, 1000 Hz reference
broadband	300 Hz = +0.0 to -3.0db 1000 Hz = 0.0 (ref) 10,000 Hz = 1 ±1.0db 25,000 Hz = +0 to -6db
audio distortion	Less than 7.5% at 3db below 80% modulation
broadband sidetone	175 mw, 300 to 3000 Hz into 600 ohms
Spurious radiation	All spurious radiation suppressed 60db below carrier level from 245.0 to 380.0 MHz. On any frequency outside this range, not more than one spurious radiation which must be at least 30db below carrier
Operating temperature	-54°C to +65°C (-67°F to +149°F)
Types of emission	Radio telephone (A3); tone (A2)

Table 1-2. Reference Data for Radio Set AN/URC-9( ) (Continued)

CHARACTERISTIC	NUMBER-RANGE-VALUE
TRANSMITTER CHARACTERISTICS (Continued):	
Audio inputs;	
microphone	0.08 volt, 82 ohms
retransmission	0.31 volt
broadband	1.55 volts peak-to-peak
Sidetone output	175 mw, 300 to 3500 Hz, from 600 ohm receiver audio output
Fidelity	Within ±3db from 300 to 3500 Hz, 100 Hz reference
Duty cycle	Continuous transmission with 80% modulation at +65°C (+149°F)
PRIMARY VOLTAGE REQUIREMENTS	115 vac, 50/60 Hz single phase or 230 vac, 50/60 Hz single phase
POWER REQUIREMENTS	210 watts on receive 360 watts on transmit

Table 1-3. Control Crystal Frequencies, Radio Set AN/URC-9( )

SUBUNIT	CRYSTAL	FREQUENCY (MHz)	
		AN/URC-9A	AN/URC-9
First IF Amplifier:	Y301	17.00	17.0
20.00 to 29.95 MHz AN/URC-9A	Y302	18.00	18.0
	Y303	19.00	19.0
20.0 to 29.9 MHz AN/URC-9	Y304	20.00	20.0
	Y305	21.00	21.0
	Y306	22.00	22.0
	Y307	23.00	23.0
	Y308	24.00	24.0

Table 1-3. Control Crystal Frequencies, Radio Set AN/URC-9( ) (Continued)

SUBUNIT	CRYSTAL	FREQUENCY (MHz)	
		AN/URC-9A	AN/URC-9
First IF Amplifier (Continued)	Y309	25.00	25.0
	Y310	26.00	26.0
Second IF Amplifier:	Y401	3.00/3.05	3.0
3.00 to 3.95 in AN/URC-9A	Y402	3.10/3.15	3.1
	Y403	3.20/3.25	3.2
3.0 to 3.9 MHz in AN/URC-9	Y404	3.30/3.35	3.3
	Y405	3.40/3.45	3.4
	Y406	3.50/3.55	3.5
	Y407	3.60/3.65	3.6
	Y408	3.70/3.75	3.7
	Y409	3.80/3.85	3.8
	Y410	3.90/3.95	3.9
Frequency Multiplier-Oscillator:	Y202	35.00000	35.00000
	Y204	38.33333	38.33333
200 to 370 MHz	Y206	41.66666	41.66666
	Y207	43.33333	43.33333
	Y208	45.00000	45.00000
	Y209	31.11111	31.11111
	Y210	32.22222	32.22222
	Y211	33.33333	33.33333
	Y212	34.44444	34.44444
	Y213	35.55555	35.55555
	Y214	36.66666	36.66666
	Y215	37.77777	37.77777

Table 1-3. Control Crystal Frequencies, Radio Set AN/URC-9( ) (Continued)

SUBUNIT	CRYSTAL	FREQUENCY (MHz)	
		AN/URC-9A	AN/URC-9
Frequency Multiplier-Oscillator (continued):	Y216	38.88888	38.88888
	Y217	40.00000	40.00000
	Y218	41.11111	41.11111

Table 1-4. Reference Data for Radio Set Control C-3866/SRC

CHARACTERISTIC	NUMBER-RANGE-VALUE
Number of channels	19
Channel code	5-wire (plus ground)
Channel selection	By telephone dial
Duty cycle	Continuous, unattended
Operating modes	Local or remote
Maximum primary power switching	SRC-20( ) 1550 watts SRC-21( ) 455 watts
Output voltage and power	12 vdc positive ground optional 24 watts maximum
Ambient temperature range	$-54^{\circ}C$ to $+65^{\circ}C$ ($-65^{\circ}F$ to $+149^{\circ}F$)
Ambient humidity	Up to 95% rh
Power requirements	20 watts on standby 60 watts on channeling

Table 1-5. Equipment Supplied for Radio Sets AN/SRC-20( ) and AN/SRC-21( )

QTY PER EQUIP	NOMENCLATURE		OVERALL DIMENSIONS (in.)			VOL (cu ft)	WT (lb)
	NAME	DESIGNATION	HEIGHT	WIDTH	DEPTH		
1	*Radio Frequency Amplifier; including Installation Kit	AM-1565/URC MK-621/UR	16	19-5/8	25/7-8	4.7	222

Table 1-5. Equipment Supplied for Radio Sets AN/SRC-20( ) and AN/SRC-21( ) (Cont)

QTY PER EQUIP	NOMENCLATURE		OVERALL DIMENSIONS (in.)			VOL (cu ft)	WT (lb)
	NAME	DESIGNATION	HEIGHT	WIDTH	DEPTH		
1	Radio Set Including: Receiver-Transmitter Power Supply Receiver-Transmitter Case Installation Kit	AN/URC-9( ) RT-581( )/ URC-9 PP-2702/ URC-9 CY-2959/ URC-9 MK-620/UR	13-13/16	19	19-1/2	3.1	157
1	Maintenance Cable, Receiver-Transmitter	CX-7260/ URC-9			3 ft long		
1	Maintenance Cable, Power Supply	CX-7300/ URC-9			3 ft long		
1	Retransmission Cable	CX-7259/ URC-9			5 ft long		
1	Receiver-Transmitter RT-581( )/URC-9 Relay Unit Extension Cable	CX-8521/ URC-9			2 ft long		
1	Radio Set Control: including; Installation Kit	C-3866/SRC MK-622/UR	9-11/16	19	19-5/16	2.40	66
1 or 1	*Rack, Electrical Equipment (for AN/SRC-20( )) Rack, Electrical Equipment,(for AN/SRC-21( ))	MT-2299/UR MT-2300/UR	52-23/32 35-7/32	22-1/16 22-1/15	23-7/32 23-7/32		84 72
2 ea	Technical Manual VOL I VOL II	NAVELEX 0967-438-9010 0967-438-9020	11.5	9.5	2		
1	Reference Standards Book	NAVELEX 0967-438-9050	11	8.5			

Table 1-5. Equipment Supplied for Radio Sets AN/SRC-20( ) and AN/SRC-21( ) (Cont)

QTY PER EQUIP	NOMENCLATURE		OVERALL DIMENSIONS (in.)			VOL (cu ft)	WT (lb)
	NAME	DESIGNATION	HEIGHT	WIDTH	DEPTH		
1	Operator's Instruction Chart	NAVELEX 0967-438-9030	11	8.5			
1	Performance Standards Sheet	NAVELEX 0967-438-9040	11	8.5			

* Not included with Radio Set AN/SRC-21( )

Table 1-6. Equipment Required (Not Supplied)

QTY PER EQUIP	NOMENCLATURE		REQUIRED USE	REQUIRED CHARACTERISTICS
	NAME	DESIGNATION		
1 and 1 or 1	Headset Microphone Headset	NT-49985-A M-58/U H-169/U	Local operation of AN/SRC-20( ) or AN/SRC-21( )	600 ohms Carbon microphone 82 ohms, with push-to-talk button
as reqd	Radio Set Control	C-1138/UR or C-1207/UR	Remote control.	(see applicable Technical Manual)
1	Indicator Control	C-3868/SRC	Remote Control	
1 and 1	Radio Frequency Wattmeter	TS-1771/U and AN/URM-120	Radio frequency wattage check	(see table 5-1)
1	Electronic Multimeter	AN/USM-116	Voltage check	
1	Electronic Voltmeter	AN/USM-143	Voltage check	
1 and 1	Signal Generator	AN/USM-44A and AN/USM-25D	Signal generation, for checking	

Table 1-6. Equipment Required (Not Supplied) (Continued)

QTY PER EQUIP	NOMENCLATURE NAME	NOMENCLATURE DESIGNATION	REQUIRED USE	REQUIRED CHARACTERISTICS
1	Audio Oscillator	AN/URM-127	Signal generator for checking	
1	Dummy Load	DA-91A/U	Antenna termination	
1	Multimeter	AN/PSM-4	Troubleshooting	
1	Frequency Counter	AN/USM-207	Troubleshooting and alignment	

1-26. FIELD CHANGE INDEX.

1-27. Table 1-7 lists the field changes applicable to Radio Sets AN/SRC-20( ) and AN/SRC-21( ). For the complete field change identification guide index, refer to Section 3 of the Electronics Installation and Maintenance Book (EIMB), NAVSHIPS 0967-000-0100.

1-28. TRANSMISSION RANGE.

1-29. The transmission range of Radio Sets AN/SRC-20( ) and AN/SRC-21( ) is a function of the heights of the transmitting and receiving antennas. The monogram in table 1-8 provides the radio-path length and tangential distance for transmission between the transceiver and receiving equipment as a function of the heights of the antennas.

1-30. PREPARATION FOR RESHIPMENT.

1-31. The reshipment preparation of Radio Sets AN/SRC-20( ) and AN/SRC-21( ) does not require any extraordinary precautions. The equipment should be placed in an aircell padded carton with a sufficient amount of silica-gel desiccant.

1-32. This package should be placed in a water-resistant carton and sealed. For final packaging, the equipment is placed in a wooden crate which is nailed closed.

Table 1-7. Field Change Index for Radio Sets AN/SRC-20( ) and AN/SRC-21( )

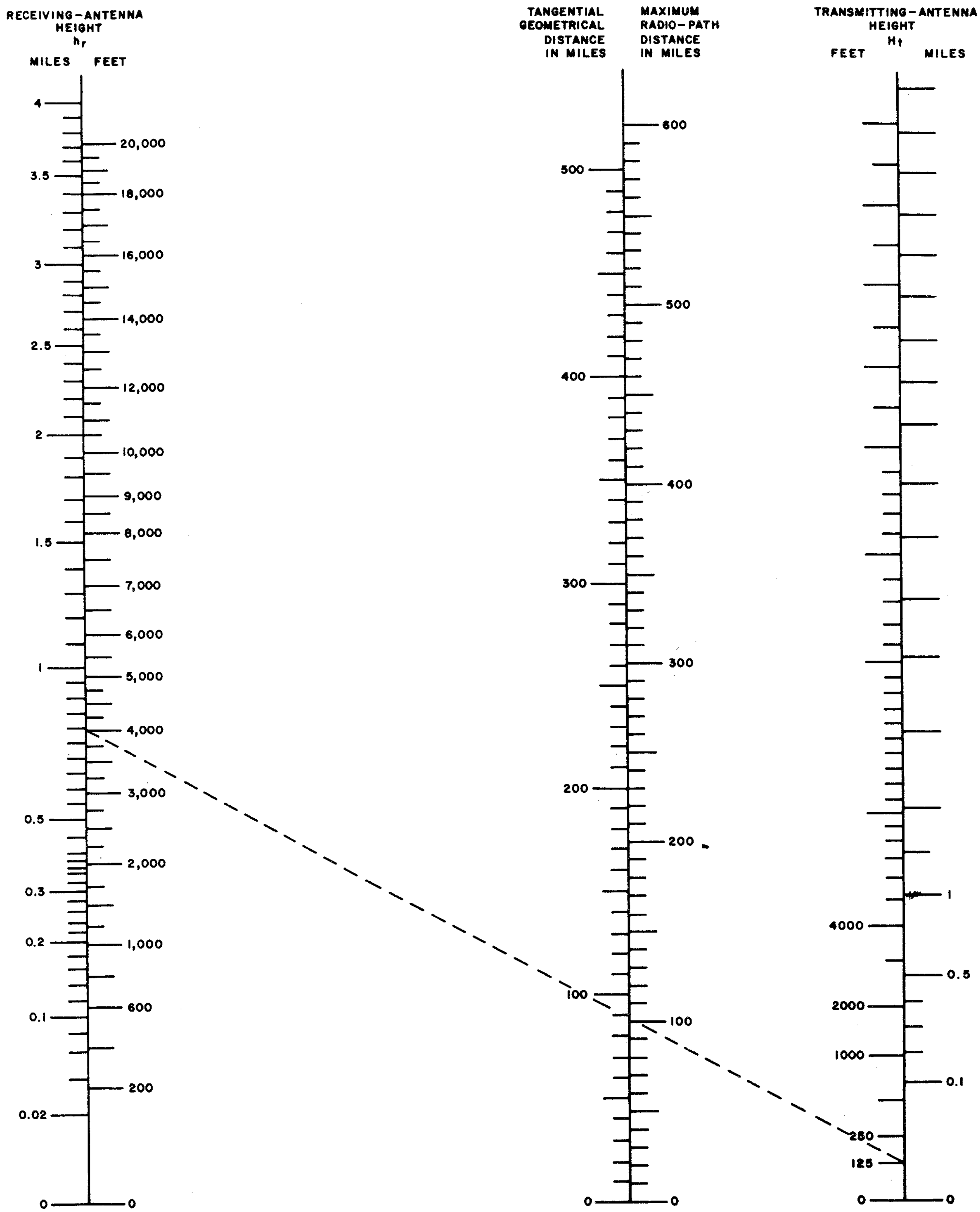
FIELD CHANGE NO. RADIO SET AN/SRC- 20	20A	21	21A	PURPOSE
1	*	1	*	1. Deletes remote start-stop function 2. Stops power leak through power-on light of C-1138 when equipment is off 3. Stops carrier-on light from energizing when power is off (EIB 658 & EIB 667)

Table 1-7. Field Change Index for Radio Sets AN/SRC-20( ) and AN/SRC-21( ) (Cont)

FIELD CHANGE NO. RADIO SET AN/SRC- 20	20A	21	21A	PURPOSE
2		2		Allows keying of tone for homing beacon on applicable equipment (EIB 668 & EIB 682) (cancelled by EIB 751)
3	*	3	*	Provides more reliable operation of CR-1501 thru CR-1504 (EIB 665)
4	*	4	*	Provides more realistic fusing for F204 and F206 (EIB 671)
5	*	5	*	Provides for hardening equipment against shock and vibration (EIB 703) (EIB 724)
6	*	6	*	Reduces contact failure of relay K601 thru addition of resistor & capacitor (EIB 723)
7		7		Not incorporated in this manual (see EIMB)
8	2	8	2	Prolongs life of indicator lamps in Radio Set Control C-3866/SRC (EIB 749)
9	*			Ruggedized drawer slides for AM-1565/URC RF Amplifier (EIB 749)
10	*	9	*	Protects RF and PA Amplifier Assembly of RT-581/URC-9 from damage due to excessive heat (thermal switch) (EIB 749)
11	3	10	3	Reduces failure of contacts in relay K802 by the supression of excessive arcing (EIB 756 & EIB 793)
12	2	11	2	Emission Control (AN/SSQ-54 equipped ships only)
13	3			AM-1565/URC high voltage protection (EIB 764 and EIB 793)
14	3	12	3	Wiring change - elimination of potential safety hazard (EIB 763)
15	*	13	*	Removes voltage regulator (CR-201) from FMO oscillator
16	3	14	3	Reduces coil failures of relay K601 and standardizes the grid bias voltage of the power amplifier in the RT-581( )/URC-9

* Included in radio sets during manufacture

Table 1-8. Radio-Path Transmission Distance As a Function of Antenna Height



EXAMPLE SHOWN: HEIGHT OF RECEIVING-ANTENNA AIRPLANE 4000 FEET (0.76 MILES), HEIGHT OF TRANSMITTING-ANTENNA 125 FEET (0.02); MAXIMUM RADIO-PATH DISTANCE = 100 MILES.

CHAPTER 2

OPERATION

2-1. Refer to Volume 2, Operator's Manual for Radio Sets AN/SRC-20( ) and AN/SRC-21, for a description of the: (1) operating principles, (2) controls and indicators, (3) operating procedures, and (4) operator maintenance instructions.

CHAPTER 3

FUNCTIONAL DESCRIPTION

3-1. OVERALL FUNCTIONAL DESCRIPTION.

3-2. Radio Sets AN/SRC-20 and AN/SRC-21 are shipboard units designed to operate in the ultra-high-frequency (uhf) range. These units are transceivers capable of both transmitting and receiving amplitude-modulated telephone signals (A3) and tone modulated signals (A2), in a frequency range of 225.0 to 399.9 MHz. This range is covered in 0.1-MHz steps by 1750 crystal-controlled channels.

3-3. Radio Sets AN/SRC-20A and AN/SRC-21A are identical to the AN/SRC-20 and AN/SRC-21 in design and capability with the exception that they operate in a frequency range of 225.00 to 399.95 MHz. This range is covered in 0.05 MHz steps by 3500 crystal-controlled channels.

3-4. The AN/SRC-20 is composed of three basic units: Radio Frequency Amplifier AM-1565/URC, Radio Set AN/URC-9, and Radio Set Control C-3866/SRC. The AN/SRC-20A is composed of the same units as the AN/SRC-20 except that Radio Set AN/URC-9 is replaced with an AN/URC-9A. The AN/SRC-21 is compoeed of two basic units: Radio Set AN/URC-9 and Radio Set Control C-3866/SRC. The AN/SRC-21A is composed of the same units as the AN/SRC-21 except that Radio Set AN/URC-9 is replaced with an AN/URC-9A.

NOTE

The expression, ( ), following an equipment nomenclature indicates both models (e.g., AN/SRC-20( ) includes AN/SRC-20 and SRC-20A, etc.).

3-5. The minimum carrier output of Radio Set AN/SRC-20( ) is 100 watts. The minimum carrier output of Radio Set AN/SRC-21( ) is 16 watts. All models of both radio sets have a modulation capability of 80%.

3-6. An overall block diagram of the radio sets is shown in figure 3-1. The figure illustrates the relationship of the basic units to each other, and to external equipment. Refer to paragraphs 1-8 through 1-19 for a description of the basic units comprising the radio sets.

3-7. MODES OF OPERATION. Radio Sets AN/SRC-20( ) and AN/SRC-21( ) each have four modes of operation. These are: normal, retransmit, tone, and broadband. The operating mode is determined by the position of the AN/URC-9( ) front panel MODE selector switch and the PLAIN-BROADBAND switch at the rear of the unit.

3-8. Normal Mode. With the MODE switch on the Radio Set AN/URC-9( ) front panel in the NOR (normal) position and PLAIN-BROADBAND switch on the rear of the AN/URC-9( ) in the PLAIN position, the radio set receives. Squelch control is available at the front panel of the AN/URC-9( ) when the CHAN SEL switch is in the MANUAL or any of the 19 preset positions. Squelch control is available at Radio Set Control C-3866/SRC when the CHAN SEL switch is in the REMOTE PRESET position. Either signal-plus-noise or carrier-operated squelch may be selected by a wire link in the Audio Amplifier and Modulator assembly of the AN/URC-9( ). The local audio output level is controlled by a front panel VOLUME control. When the local or remote microphone push-to-talk button is pressed, or, in the case of an AN/SRC-20( ) installation, when the TEST KEY on the AM-1565/URC is set to ON or LOCK ON, the radio set is keyed to transmit.

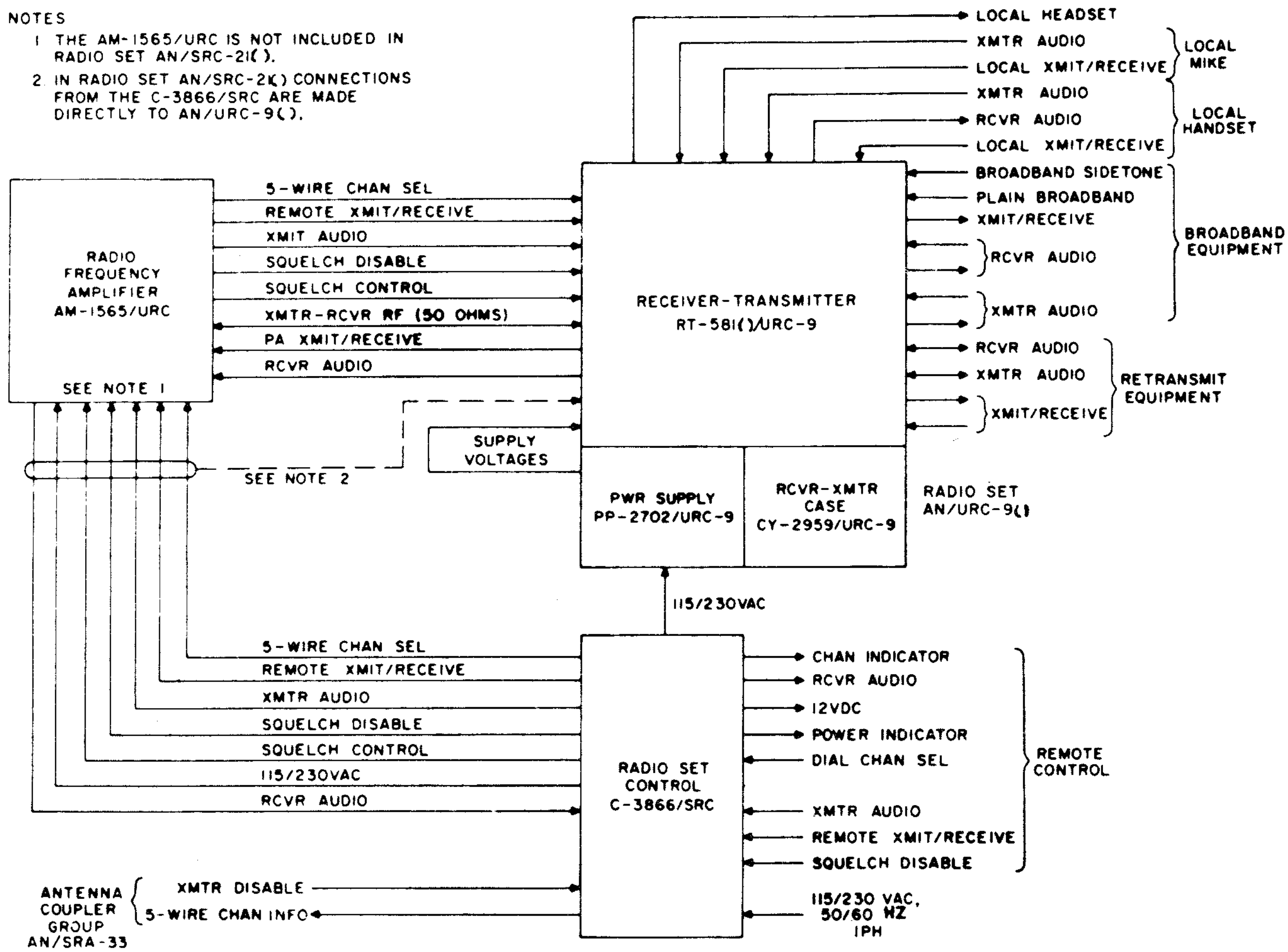


Figure 3-1. Radio Sets AN/SRC-20( ) and AN/SRC-21( ), Overall Functional Block Diagram

3-9. Retransmit Mode. When the AN/SRC-20( ) or AN/SRC-21( ) is properly connected to a similar set, automatic relaying is performed by setting the MODE selector on the front panel of each AN/URC-9( ) to RETRANS (retransmit). The radio sets will then automatically relay signals in either direction. Both radio sets operate as receivers until one of the sets receives a signal strong enough to operate the carrier-controlled squelch circuit. The squelch circuit of the receiving set keys the other set to transmit, and the audio of the receiving set is applied to the transmit audio input of the transmitting set. A normal audio signal is heard in the headset of the receiving set and a sidetone audio signal is heard in the headset of the transmitting set. When the signal is no longer present, the transmitting set returns to receive operation. When the microphone push-to-talk switch on either set is actuated, both sets are keyed to transmit and the microphone audio signal is applied to both radio sets for simultaneous (duplex) transmission.

NOTE

When operating in the RETRANS mode, avoid using the same channel frequency on both sets as feedback between the respective antennas will prevent relaying of signals; a 5 MHz channel separation is recommended. Also, automatic keying of the radio sets depends on proper adjustment of the squelch controls; for adjustment, refer to Volume 2, Operator's Manual for Radio Sets AN/SRC-20( ) and AN/SRC-21( ).

3-10. Tone Mode. With the MODE switch on Radio Set AN/URC-9( ) in the TONE position, a 1000 Hz (1 kHz) tone oscillator is connected in place of the normal microphone circuit. Keying the transmitter results in the emission of a carrier modulated not less than 70% at 1 kHz. A 1 kHz tone is audible in the headset, and the percent of modulation indicated on the meter should be at midscale. In equipments modified for homing beacon operation, the 1000 Hz tone oscillator can be keyed to modulate the carrier, thereby providing a modulated continuous wave (mcw) output during transmit.

3-11. Broadband Mode. Broadband operation, selected by setting the PLAIN-BROADBAND switch at the rear of the receiver-transmitter to BROADBAND, is similar to normal (NOR) operation except for the following:

a. During receive, the audio signals are rerouted through broadband equipment and the squelch function is not performed by the AN/URC-9( ). The decoded broadband audio is then applied to the headsets through the Audio Amplifier and Modulator assembly.

b. During transmit, the microphone signal is applied to the broadband equipment, and the encoded output of the broadband equipment is connected to the Audio Amplifier and Modulator assembly; the resultant signal is then transmitted in the normal manner.

c. Normal sidetone is replaced by unencoded sidetone from the broadband equipment and amplified by the broadband sidetone amplifier in the AN/URC-9( ).

3-12. CHANNEL SELECTION. Local channel selection is accomplished by direct dial from Radio Set Control C-3866/SRC. Nineteen channel frequencies are preset on the 19-channel memory drum which is accessible through a door in the front panel of the AN/URC-9( ). When the CHAN SEL switch is in the MANUAL position, the frequency of operation is controlled by the MANUAL FREQUENCY TENS, UNITS, AND TENTHS (or TENTHS-HUNDREDTHS) switches on the front panel of the AN/URC-9( ). When the CHAN SEL switch is in the REMOTE PRESET position, channel information is received from Radio Set Control C-3866/SRC. The C-3866/SRC also provides channel selection from as many as four remote control stations. Any one of the 19 preset channels can be selected from the remote control stations on a telephone-type dial. The C-3866/SRC contains a stepping relay and programming relays which convert the dial pulses into 5-wire channel information for Radio Set AN/URC-9( ), Radio Frequency Amplifier AM-1565/URC, and Antenna Coupler Group AN/SRA-33. Channel information is also supplied to the remote Indicator Control C-3868/SRC. A separate squelch-level control is provided for each channel. These controls are located on the front panel of the C-3866/SRC.

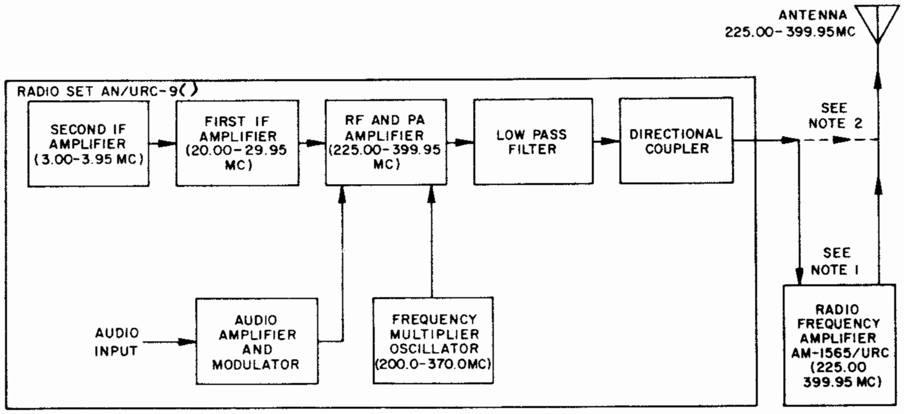
3-13. TRANSMIT FUNCTION.

NOTE

Frequencies in the following description are applicable to the AN/SRC-20A and AN/SRC-21A; frequencies for the AN/SRC-20 and AN/SRC-21 are the same less the hundredths position, (e.g., 399.95 MHz becomes 399.9 MHz for the AN/SRC-20 and AN/SRC-21.)

3-14. SIGNAL PATH. (Figure 3-2.) The transmit rf signal originates in a 3.00 to 3.95-MHz crystal-controlled oscillator in the Second IF Amplifier. This signal is amplified and sent to the First

IF Amplifier where it is heterodyned with a 17 to 26-MHz signal from a crystal-controlled oscillator, producing a sum frequency of one of 200 frequencies in the 20.00 to 29.95-MHz range. This signal is amplified and passed to the Radio Frequency and Power Amplifier (RF and PA amplifier) where it is mixed with one of 18 frequencies in the 200 to 370-MHz range as injected by the Frequency Multiplier-Oscillator (FMO). The resultant signal, in the range of 225.00 to 399.95 MHz, is applied to the power amplifier. The rf power output is modulated by a signal from the Audio Amplifier and Modulator and is routed through a low-pass filter and directional coupler to Radio Frequency Amplifier AM-1565/URC in Radio Set AN/SRC-20( ), or directly to the antenna in Radio Set AN/SRC-21( ).



NOTES:

1. THE AM-1565/URC IS NOT INCLUDED IN RADIO SET AN/SRC-21( ).
2. IN RADIO SET AN/SRC-21( ) CONNECTION FROM THE AN/URC-9( ) IS MADE DIRECTLY TO THE ANTENNA.
3. FREQUENCIES SHOWN ARE FOR THE AN/SRC-20A AND AN/SRC-21A. FREQUENCIES FOR THE AN/SRC-20 AND AN/SRC-21 ARE THE SAME LESS THE HUNDREDTHS DIGIT.

Figure 3-2. Radio Sets AN/SRC-20( ) and AN/SRC-21( ), Transmit Function, Block Diagram

3-15. DETAILED DESCRIPTION. The transmit function encompasses part of all assemblies (except the Third IF Amplifier) in Receiver-Transmitter RT-581( )/ URC-9 of Radio Set AN/URC-9( ). In addition, the transmit signal for Radio Set AN/SRC-20( ) passes from the output of Radio Set AN/URC-9( ) through Radio Frequency Amplifier AM-1565/URC to the antenna.

3-16. The initial frequency, in the range of 3.00 to 3.95 MHz, is generated in the Second IF Amplifier of Radio Set AN/URC-9( ) (see figure 5-1). The signal is generated by third oscillator V401B and amplified by V401A, which functions as a buffer amplifier during transmit. The signal is then sent to first transmit mixer V304 in the First IF Amplifier where it is mixed with a frequency in the range of 17 to 26 MHz which is generated by second oscillator V305. The resultant sum frequency, in the 20.00 to 29.95-MHz range is then sent to if amplifiers V301 and V302 for amplification.

3-17. After amplification, the signal passes to second transmit mixer V101 in the RF and PA Amplifier. Here it is heterodyned with the 200 to 370-MHz signal from the FMO (comprised of first oscillator-multiplier V201; frequency tripler V202; and injection amplifiers V203, V204, and V205) to produce a frequency in the range of 225.00 to 399.95 MHz. This signal is then sent to rf amplifiers V102, V103, and V104. Following amplification, the 225.00 to 399.95-MHz signal is applied through transmit driver V105 to transmit power amplifier V106.

3-18. The audio input from the microphone (figure 5-3) is applied to audio amplifier V803 in the Audio Amplifier and Modulator through MODE switch S702 and microphone transformer T601. After amplification, the signal is routed through audio and modulator driver V804 and phase-splitting transformer T801 to audio output amplifiers V805 through V808. The amplifier audio signal is then applied to the plate of transmit driver V105, and to the plate and screen grid of transmit power amplifier V106 where it modulates the 225.00 to 399.95-MHz rf carrier. The modulated rf output of V106 (figure 5-1), a minimum of 16 watts, passes through low-pass filter FL1101 and the directional coupler to the antenna for Radio Set AN/SRC-21( ), or through Radio Frequency Amplifier AM-1565/URC for Radio Set AN/SRC-20( ).

3-19. When the AN/SRC-20( ) is keyed to transmit, the 225.00 to 399.95-MHz signal from the AN/URC-9( ) passes through input coaxial relay K201 in the AM-1565/URC Power Amplifier subassembly (figure 5-11) to variable magnetic ferrite attenuator AT401, which aids in compensating for variations in the AN/URC-9( ) output and drive requirements over the entire frequency range. The signal is then amplified in rf amplifiers V201 and V202 and passed through directional coupler DC201 (used to monitor forward and reverse antenna power), low-pass filter FL201 (used to minimize harmonic radiation), and output coaxial relay K202 to the antenna for transmission.

3-20. STAGE AND SPECIAL CIRCUIT DESCRIPTION. The conventional taansmitter electronic circuits are briefly described at the stage level; special and unique circuits are described in greater detail. Block diagrams and simplified schematics in this chapter and the maintenance schematic diagrams in Chapter 5, are used to support the descriptive text.

3-21. Functional Relationship of Assemblies. The overall functional relationship of the assemblies within Radio Sets AN/SRC-20( ) and AN/SRC-21( ) for the transmit function is illustrated in figure 3-1.

3-22. Radio Set AN/URC-9( ). The overall functional relationship of the assemblies within Radio Set AN/URC-9( ), for both the transmit and receive functions, are illustrated in figure 3-3. The Frequency Selector controls the tuning of the Second IF Amplifier, First IF Amplifier, RF and PA Amplifier, and FMO assemblies. The mode of operation (NOR, RETRANS, OR TONE) is selected by the MODE switch. When in the TONE position, the MODE switch substitutes the output of the 1 kHz tone oscillator in place of the normal microphone or retransmit audio inputs. Broadband or plain operation is selected by placing the BROADBAND-PLAIN switch, S1401, in the desired position. All operating voltages for the circuits within Receiver-Transmitter RT-581( )/URC-9 for Radio Set AN/URC-9( ) are furnished by Power Supply PP-2702/URC-9.

3-23. Second IF Amplifier-AN/URC-9A. The Second IF Amplifier generates the initial frequency that is eventually converted to the final rf carrier. The Second IF Amplifier (figure 5-8) in Radio Set AN/URC-9A, consists of third oscillator V401B and crystals Y401 (A and B) through Y410 (A and B) that range from 3.00 to 3.95 MHz in 0.05-MHz steps. Tube V401A, a buffer amplifier at transmit, functions as a mixer at receive. The tuning of all stages of this assembly is controlled by the 10-position, 0.1-MHz shaft of the Frequency Selector.

3-24. Refer to figure 5-144 during the following discussion. When the radio set is keyed to transmit, t/r relay K401 energizes and transfers the control grid circuit of third oscillator V401B from contact 8 to contact 4 of hundredths relay K402, thus enabling the selection of crystals relative to the frequency in use. (Refer to table 3-1.) Relay K402 provides a connection through contacts 6 or 7 to S401 or S402, depending on whether the last digit of the frequency selected is x.x0 or x.x5, respectively. Switches S401 and S402, driven by the 10-position, 0.1-MHz shaft, select crystals corresponding to the next to the last digit of the frequency selected (x.0x through x.9x). For example, when the radio set is tuned to a frequency with the last digits of xxx.90, the 3.90-MHz crystal Y410A is connected between ground and the grid of V401B through contacts 6 and 5 of S401, contacts 6 and 4 of K402, and contacts 3 and 8 of K401 (energized on transmit).

Table 3-1. Second IF Amplifier RF Injection Chart, AN/URC-9A Only

	TRANSMIT		RECEIVE		
SELECTED CHANNEL FREQUENCY (MHz)	SELECTED CRYSTAL FREQUENCY (MHz)	INJECTION TO 1ST TRANSMIT MIXER (MHz)	SELECTED CRYSTAL FREQUENCY (MHz)	INJECTION TO 3RD RECEIVE MIXER (MHz)	INPUT FROM 1ST IF AMPL (MHz)
xxx.95	3.95	3.95	3.45	3.45	3.95
xxx.90	3.90	3.90	3.40	3.40	3.90
xxx.85	3.85	3.85	3.35	3.35	3.85
xxx.80	3.80	3.80	3.30	3.30	3.80
xxx.75	3.75	3.75	3.25	3.25	3.75
xxx.70	3.70	3.70	3.20	3.20	3.70
xxx.65	3.65	3.65	3.15	3.15	3.65
xxx.60	3.60	3.60	3.10	3.10	3.60
xxx.55	3.55	3.55	3.05	3.05	3.55
xxx.50	3.50	3.50	3.00	3.00	3.50
xxx.45	3.45	3.45	3.95	3.95	3.45
xxx.40	3.40	3.40	3.90	3.90	3.40
xxx.35	3.35	3.35	3.85	3.85	3.35
xxx.30	3.30	3.30	3.80	3.80	3.30
xxx.25	3.25	3.25	3.75	3.75	3.25
xxx.20	3.20	3.20	3.70	3.70	3.20
xxx.15	3.15	3.15	3.65	3.65	3.15
xxx.10	3.10	3.10	3.60	3.60	3.10
xxx.05	3.05	3.05	3.55	3.55	3.05
xxx.00	3.00	3.00	3.50	3.50	3.00

3-25. A voltage divider consisting of series-connected capacitors C412 and C413 determines the electrical position of the cathode of third oscillator V401B relative to the grid of V401B. The tuned circuit of the third oscillator consists of the selected crystal (Y410A in this case), capacitors C412 and C413, plus the grid-to-ground and cathode-to-ground capacitance of V401B. The third oscillator is a Colpitts type with the crystal acting as an inductance. The value of the total capacitance is such that oscillation is maintained at the fundamental frequency of the crystal. Cathode resistor R404 provides additional bias to protect V401B in case oscillation stops. Coil L407 isolates bias resistor R404 from the crystal circuit. Plate voltage is from the +125 vdc supply through R407 and filter FL404. Test point J404 provides for measuring the voltage developed across third oscillator grid resistor R403. Resistor R402 isolates J404 from the crystal circuit. Coupling capacitor C417 couples the signal from the cathode of V401B to the control grid of V401A.

3-26. On transmit, V401A functioning as a buffer amplifier, amplifies the output

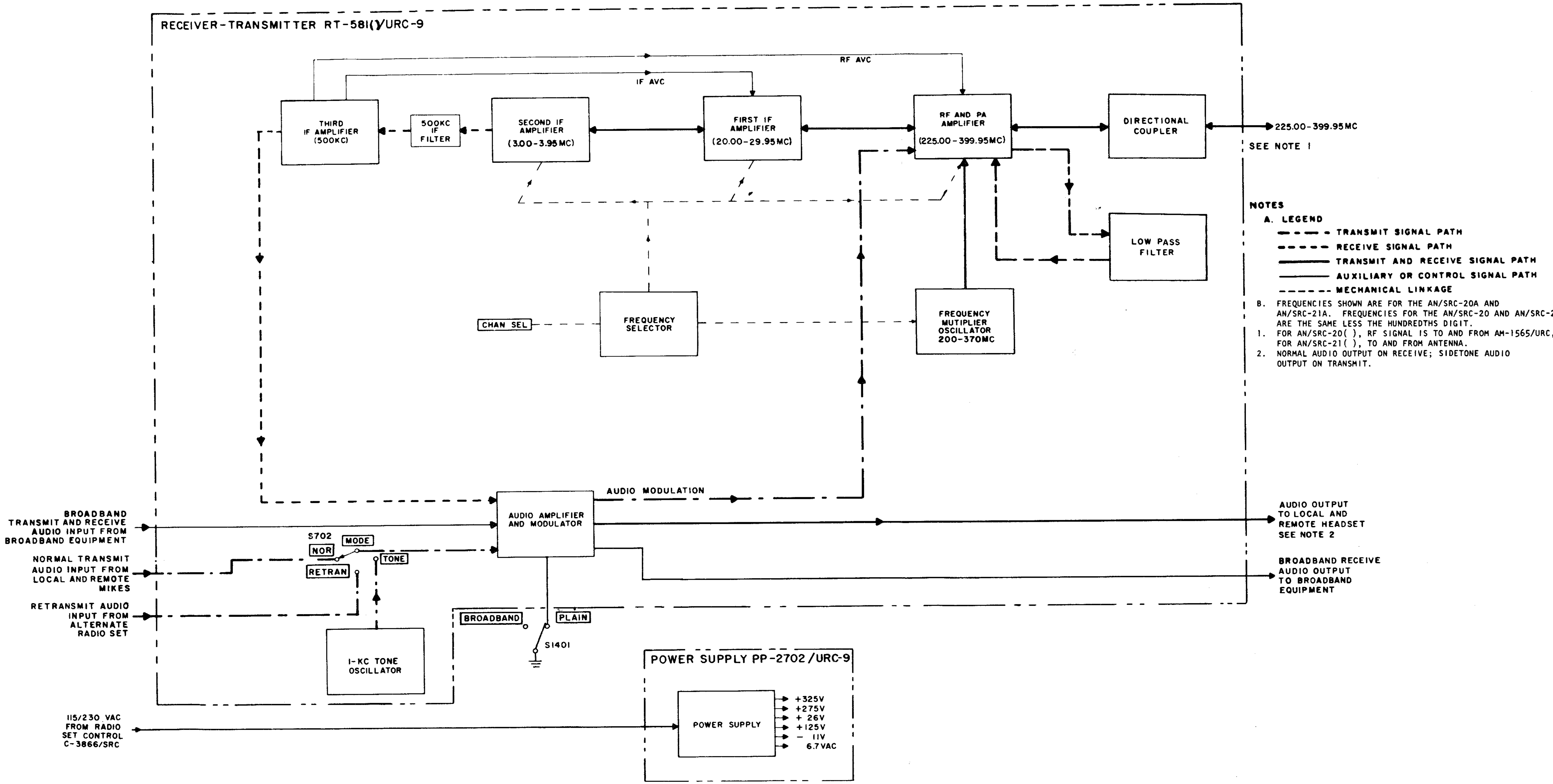


Figure 3-3. Radio Set AN/URC-9( ), Functional Block Diagram

of third oscillator V401B. Resistor R409 is disconnected from the plate circuit by contacts 4 and 6 of relay K401 (energized on transmit). This increases the plate voltage applied to V401A and, in turn, plate current and the level of the output signal developed across cathode load resistor R405. The output voltage, taken across cathode resistor R405 is coupled through C411, and bandpass filters Z403, Z402, and Z401 to first transmit mixer V304 of the First IF Amplifier. The three parallel-resonant tank circuits (Z403, Z402, and Z401) form a 3.00 to 3.95-MHz bandpass filter. Test point J402 provides for measuring the 3.00 to 3.95-MHz output signal and resistor R406 provides the grid return for V401A.

3-27. Second IF Amplifier-AN/URC-9. The Second IF Amplifier (figure 5-7) in Radio Set AN/URC-9 consists of third oscillator V401B and crystals Y401 through Y410 which range from 3.0 to 3.9 MHz in 0.1-MHz steps. Tube V401A, a buffer amplifier at transmit, functions as a mixer at receive. The 10-position, 0.1-MHz shaft of the Frequency Selector, controls the tuning of this assembly during both the receive and transmit functions.

3-28. Refer to figure 5-143 during the following discussion. When the radio set is keyed to transmit, t/r relay K401 energizes and transfers the control-grid circuit of third oscillator V401B from selector switch S401 to S402, thus enabling the selection of crystals relative to the frequency in use. (Refer to table 3-2.) Switch S402, driven by the 10-position, 0.1-MHz shaft, selects a crystal that corresponds to the frequency to which filter network Z401, Z402, and Z403 are tuned. Thus, when the radio set is tuned to xxx.9 MHz, the 3.9-MHz crystal (Y410) is connected across the grid of V401B through contacts 9 and 10 of switch S402 and contacts 3 and 2 of relay K401 (energized on transmit). The 3.9-MHz output of V401B is coupled through C417 and across R406 of the V401A grid circuit.

Table 3-2. Second IF Amplifier RF Injection Chart, AN/URC-9 Only

	TRANSMIT		RECEIVE		
SELECTED CHANNEL FREQUENCY (MHz)	SELECTED CRYSTAL FREQUENCY (MHz)	INJECTION TO 1ST TRANSMIT MIXER (MHz)	SELECTED CRYSTAL FREQUENCY (MHz)	INJECTION TO THIRD RECEIVE MIXER (MHz)	INPUT FROM 1ST IF AMPL (MHz)
xxx.9	3.9	3.9	3.4	3.4	3.9
xxx.8	3.8	3.8	3.3	3.3	3.8
xxx.7	3.7	3.7	3.2	3.2	3.7
xxx.6	3.6	3.6	3.1	3.1	3.6
xxx.5	3.5	3.5	3.0	3.0	3.5
xxx.4	3.4	3.4	3.9	3.9	3.4
xxx.3	3.3	3.3	3.8	3.8	3.3
xxx.2	3.2	3.2	3.7	3.7	3.2
xxx.1	3.1	3.1	3.6	3.6	3.1
xxx.0	3.0	3.0	3.5	3.5	3.0

3-29. During transmit, resistor R409 is disconnected from the plate circuit of V401A by contacts 4 and 5 of relay K401. This action increases plate voltage and, in turn, plate current, thereby, amplifying the output signal developed across cathode load resistor R405. The output signal is then coupled through C411 and bandpass filters Z403, Z402, and Z401 and applied to first transmit mixer V304 of the First IF Amplifier.

NOTE

The remaining components operate as described in paragraphs 3-25 and 3-26.

3-30. First IF Amplifier. The First IF Amplifier generates a signal in the 17 to 26-MHz range that is mixed with the input signal from the Second IF Amplifier. The resultant sum signal of 20.00 to 29.95 MHz is then amplified and applied to the RF and PA Amplifier (see figure 5-6).

3-31. The First IF Amplifier, on transmit, consists of stages V301, V302, V304 and V305, and crystals Y301 through Y310 ranging from 17 to 26-MHz in 1-MHz steps. On transmit, the 3.00 to 3.95-MHz signal from the Second IF Amplifier is applied to the control grid of first transmit mixer V304 where it is mixed with the 17 to 26-MHz signal injected from second oscillator V305. The subsequent 20.00 to 29.95-MHz signal, the first if signal, is amplified by V301 and V302 and then applied to the RF and PA Amplifier. The 100-position, 0.1-MHz shaft of the Frequency Selector controls the tuning of V301 and V302; the 10-position, 1-MHz shaft controls frequency selection and the tuning of V304 and V305.

3-32. Refer to figure 5-142 during the following discussion. On transmit, first transmit mixer V304 heterodynes the 3.00 to 3.95-MHz signal from the Second IF Amplifier with the 17 to 26-MHz output of the second oscillator V305 to produce the first if signal between 20.00 and 29.95 MHz (see table 3-3). Capacitor C339 couples the 3.00 to 3.95-MHz signal from the Second IF Amplifier to first transmitter mixer V304. Test point J304 provides means for measuring the 3.00 to 3.95-MHz injection signal. Resistor R319 provides grid leak for V304, and inductors L318 and L319 are harmonic suppressors on the input line.

Table 3-3. First IF Amplifier RF Injection Chart

SELECTED CHANNEL FREQUENCY (MHz)	17 to 26-MHZ OSCILLATOR		INPUT/OUTPUT IF (MHz)
	SELECTED CRYSTAL FREQUENCY (MHz)	INJECTION TO SECOND RECEIVE MIXER OR TO FIRST TRANSMIT MIXER (MHz)	
xx9.xx	26	26	29.xx
xx8.xx	25	25	28.xx
xx7.xx	24	24	27.xx
xx6.xx	23	23	26.xx
xx5.xx	22	22	25.xx
xx4.xx	21	21	24.xx
xx3.xx	20	20	23.xx
xx2.xx	19	19	22.xx
xx1.xx	18	18	21.xx
xx0.xx	17	17	20.xx

3-33. Second oscillator V305 is controlled by crystals Y301 through Y310. Crystal switches S301 and S302 select the proper crystal according to the setting of the Frequency Selector. One half (pins 6, 7, and 8) of tube V305A is a grounded-grid amplifier working into parallel-tuned tank Z307, which constitutes its plate load. The tank is ganged with the crystal switches driven by the 10-position, 1-MHz shaft of the Frequency Selector. Capacitor C343 couples the output from the plate (pin 6) of grounded-grid amplifier V305A to the control grid (pin 3) of cathode follower V305B, the other half of the tube. The crystal couples the output (pin 2) of the cathode follower to the cathode (pin 8) of the grounded-grid amplifier. The crystals operate at series resonance to provide low impedance coupling with zero phase shift. The phase shift through the cathode follower is also zero. Thus, an in-phase voltage is routed back to the cathode of the grounded-grid amplifier sustaining conditions for oscillation. Coil L311 resonates the crystal socket capacitance and prevents it from affecting the operation of the circuit. Resistors R321 and R322 provide the coupling impedance at the cathodes and bias for the two sections of the tube.

3-34. The 17 to 26-MHz output of second oscillator V305 is coupled to the cathode of V304 from oscillator plate load Z307 through capacitive voltage divider C337 and C338. Cathode resistor R317 provides bias for V304 and coupling impedance for the 17 to 26-MHz signals; inductors L314, and L315 and capacitor C348 form a harmonic suppression network. Plate and screen-grid voltages for the first transmit mixer are supplied from the +125-vdc supply via contacts 19 and 20 (closed on transmit) of t/r relay K602 in the Relay-Filter (figure 5-133), and feed-through capacitor C334. Capacitors C334, C331, C341, and C342 provide a low-impedance path to ground for rf in the plate and screen-grid circuits.

3-35. The signal (between 20.00 and 29.95 MHz) developed across first transmit mixer plate load L309, is coupled to the control grid of if amplifier V301 through capacitors C335 and C305 and parasitic suppressor R324; inductors L316 and L317 are harmonic suppressors in the coupling path. The if avc bus input to the grid circuit of V301 is grounded by contacts 19 and 20 (closed on transmit) of relay K802 in the Audio Amplifier and Modulator (figure 5-146), and the ground is removed from V301 screen-grid voltage divider resistor R303 by contacts 15 and 16 (open on transmit) of relay K602 in the Relay-Filter (see figure 5-148). The latter action causes the screen-grid voltage of V301 to rise to a value higher on transmit than on receive. Capacitor C319 grounds the cathode of V301 for rf. Series resistors R304, R305, and R303 form a voltage divider that provides proper plate and screen-grid voltages to V301. Resistor R304 is also connected to the +125-vdc supply.

3-36. Parallel-tuned tank Z303 is the plate load for V301. Capacitor C308 couples the if signal to the next parallel-tuned tank, Z304. Capacitor C311 couples the if signal to the control grid of second if amplifier V302 through parasitic suppressor R307. A similar network (Z305, C314, Z306, and C315) couples the amplified 20.00 to 29.95-MHz signal to V101 in the RF and PA Amplifier (see figure 5-140). Series resistors R309, R325, and R326 form a voltage divider that provides proper plate and screen-grid voltages to V302. The dc voltage developed across R308 is applied to the S meter circuit (figure 5-149) to provide an indication of the input signal strength. Parallel tank circuits Z303 and Z304, are tuned by the 100-position, 0.1-MHz shaft of the Frequency Selector. Trimmer capacitors C306 and C309 are adjusted to set the inductance-to-capacitance ratio for proper tracking.

3-37. Frequency Multiplier-Oscillator. The FMO (figure 5-5) generates frequencies in the 200 to 370-MHz range. These frequencies are injected into the RF and PA Amplifier during both transmit and receive operations. Operation of the FMO is identical during both transmit and receive operations.

3-38. First oscillator-multiplier V201 is a crystal-controlled, cathode-coupled oscillator especially designed for use with overtone crystals (see figure 5-141). The right half of the twin triode tube operates as a grounded-grid amplifier and is capacitively coupled to the left half, which acts as a cathode follower. Capacitor C207 couples the signal from the plate (pin 4) of the grounded-grid amplifier to the control grid (pin 7) of the cathode follower. The crystal, which couples the output of the cathode follower to the cathode (pin 2) of the amplifier, operates at series resonance to provide low impedance coupling with zero phase shift. The phase shift through the amplifier is also zero; thus, an in-phase signal is fed back to the grounded-grid amplifier satisfying the conditions required for sustained oscillation.

3-39. Crystals Y202, Y204, and Y206 through Y218 have one common side connected through C204 to pin 2 of V201. The grounded crystal cases produce a large capacitance to ground at pin 2 of V201; however, L219 resonates with this capacitance and cancels its effect on the circuit. In a similar manner, L220 resonates with the crystal socket capacitance, thereby cancelling its effect on the operation of the circuit. Trimmer coils L201 through L218, inclusive, are used with their respective crystals to tune the plate of the grounded-grid amplifier to resonance. Capacitor C201 prevents the plate voltage of pin 4 of V201 from being grounded through the trimmer coils. Capacitor C236 is a temperature-compensating capacitor. The grid (pin 3) of the grounded-grid amplifier is grounded through parasitic suppressor R202; resistors R203 and R204 provide the coupling impedances (and bias) at the cathodes for the two halves of V201.

3-40. Plate voltage for the cathode follower is supplied through step tuner Z201, trimmer coil L222, and parasitic suppressor R206. The step tuner in the oscillator output tank is tune to the second harmonic of the crystal frequency by the 18-position, 10-MHz shaft of the Frequency Selector when the set operates in the 220 to 299.95-MHz range. When the radio set operates in the 300 to 399.95-MHz range, the tank circuit is tuned to the third harmonic. Thus, the output of the crystal oscillator is either two or three times the crystal frequency, depending upon the operating frequency of the set (see table 3-4). Capacitor C208 and coil L222 are trimmers for oscillator output tank Z201.

Table 3-4. Frequency Multiplier-Oscillator UHF Injection Chart

CHANNEL FREQUENCY (MHz)	FIRST OSCILLATOR-MULTIPLIER V201		FREQ TRIPLER V202		INJECTION FREQUENCY TO RF AND PA AMPL (MHz)
	CRYSTAL FREQUENCY (MHz)	MULT FACTOR	OUTPUT FREQUENCY (MHz)	MULT FACTOR	
39x.xx	41.11111	3	123.33333	3	370
38x.xx	*40.00000	3	120.00000	3	360
37x.xx	38.88888	3	116.66664	3	350
36x.xx	37.77777	3	113.33331	3	340
35x.xx	*36.66666	3	109.99998	3	330
34x.xx	35.55555	3	106.66665	3	320
33x.xx	34.44444	3	103.33332	3	310
32x.xx	*33.33333	3	99.99999	3	300
31x.xx	32.22222	3	96.66666	3	290
30x.xx	31.11111	3	93.33333	3	280
29x.xx	45.00000	2	90.00000	3	270
28x.xx	43.33333	2	86.66666	3	260
27x.xx	41.66666	2	83.33332	3	250
26x.xx	*40.00000	2	80.00000	3	240
25x.xx	38.33333	2	76.66666	3	230
24x.xx	*36.66666	2	73.33332	3	220
23x.xx	35.00000	2	70.00000	3	210
22x.xx	*33.33333	2	66.66666	3	200

* These crystals used for two frequencies each.

3-41. Capacitor C210 couples the first oscillator-multiplier output signal to the control grid of V202, which operates as a frequency tripler. The tripling action is accomplished by tuning plate tank Z202 to the third harmonic (200 to 370 MHz) of the signal applied to the grid. Thus, the signal in the plate tank is either six times or nine times that of the selected crystal frequency in the first oscillator-multiplier V201. Test point J201 provides an indication of the drive to V202, and capacitor C211 bypasses rf signals to ground preventing them from interfering with dc measurements being made at J201. The cathode of V202 is grounded; therefore, the tube depends entirely upon the voltage developed across the grid-leak circuit for bias. Plate voltage of +125 vdc is supplied to V202 through R213 and L224. Capacitor C214 couples the rf signal to parallel-tuned plate tank Z202; trimmer C215 sets the minimum capacitance point of the plate tank circuit. Capacitor C216 couples the rf signal from the plate tank to the cathode of grounded-grid amplifier V203, the first of three injection amplifiers.

3-42. The cathode circuit of first injection amplifier V203 consists of resistor R215, which provides cathode bias. Plate voltage for V203 is supplied from the +125-vdc supply through R210 and L226. Capacitor C220 couples the rf signal from the plate of V203 to parallel-tuned tank circuit Z204. Capacitor C222 couples the signal to the cathode of second injection amplifier V204. Injection amplifiers V204 and V205 each provide a stage of amplification identical to that of V203. Capacitors C234 and C235 form a voltage divider from which the 200 to 370-MHz uhf signal is injected through J205 to contact 6 of injection relay K102 in the RF and PA Amplifier (see figure 5-140). Test points J202, J203, and J204 are used to measure the rf signals at the cathodes of the injection amplifiers during alignment or to inject a signal during troubleshooting. Tank circuits Z202, Z204, Z206 and Z208 are tuned by the 18-position, 10-MHz shaft of the Frequency Selector. (When the tank circuits are tuned, both capacitance and inductance are varied, improving stage gain by maintaining a good inductance to capacitance ratio.)

3-43. RF and PA Amplifier. The RF and PA Amplifier (figure 5-4) contains second transmit mixer V101; rf amplifiers V102, V103, and V104; transmit power amplifier V106 and its output load, resonant cavity Z108. (Tube V104 functions as the first receive mixer during the receive function of the radio set.) On transmit, injection relay K102 is energized and the 200 to 370-MHz signal from the FMO is injected into second transmit mixer V101 where it heterodynes with the 20.00 to 29.95-MHz signal from the First IF Amplifier. The output of the second transmit mixer, in the frequency range of 225.00 to 399.95 MHz, is coupled to V102, the first of three amplifiers. After amplification in V102, V103, and V104, the rf signal is applied through transmit driver V105 to transmit power amplifier V106. Audio modulation signals from the Audio Amplifier and Modulator are applied to V105 and V106; hence, the output from V106 is audio-modulated rf in the operating range of 225.00 to 399.95 MHz. This signal is coupled from resonant cavity Z108 through low-pass filter FL1101 (not part of the RF and PA Amplifier) and contacts 1 and 2 (closed on transmit) of antenna relay K101 to the directional coupler.

3-44. Refer to figure 5-140 during the following discussion. The 200 to 370-MHz signal from the FMO is applied to the cathode of second transmit mixer V101 through contacts 6 and 8 (closed on transmit) of injection relay K102. Concurrently, the 20.00 to 29.95-MHz signal from the First IF Amplifier is applied to the plate of V101 through rf choke L102. Choke coil L102 presents a low impedance to the signal from the First IF Amplifier and high impedance to the mixer output frequency. Plate voltage for V101 is supplied from the +125-vdc supply through choke coils L102 and L103, feed-through capacitor C104, resistor R115, and contacts 19 and 20 (closed on transmit) of t/r relay K602 in the Relay-Filter (see figure 5-133).

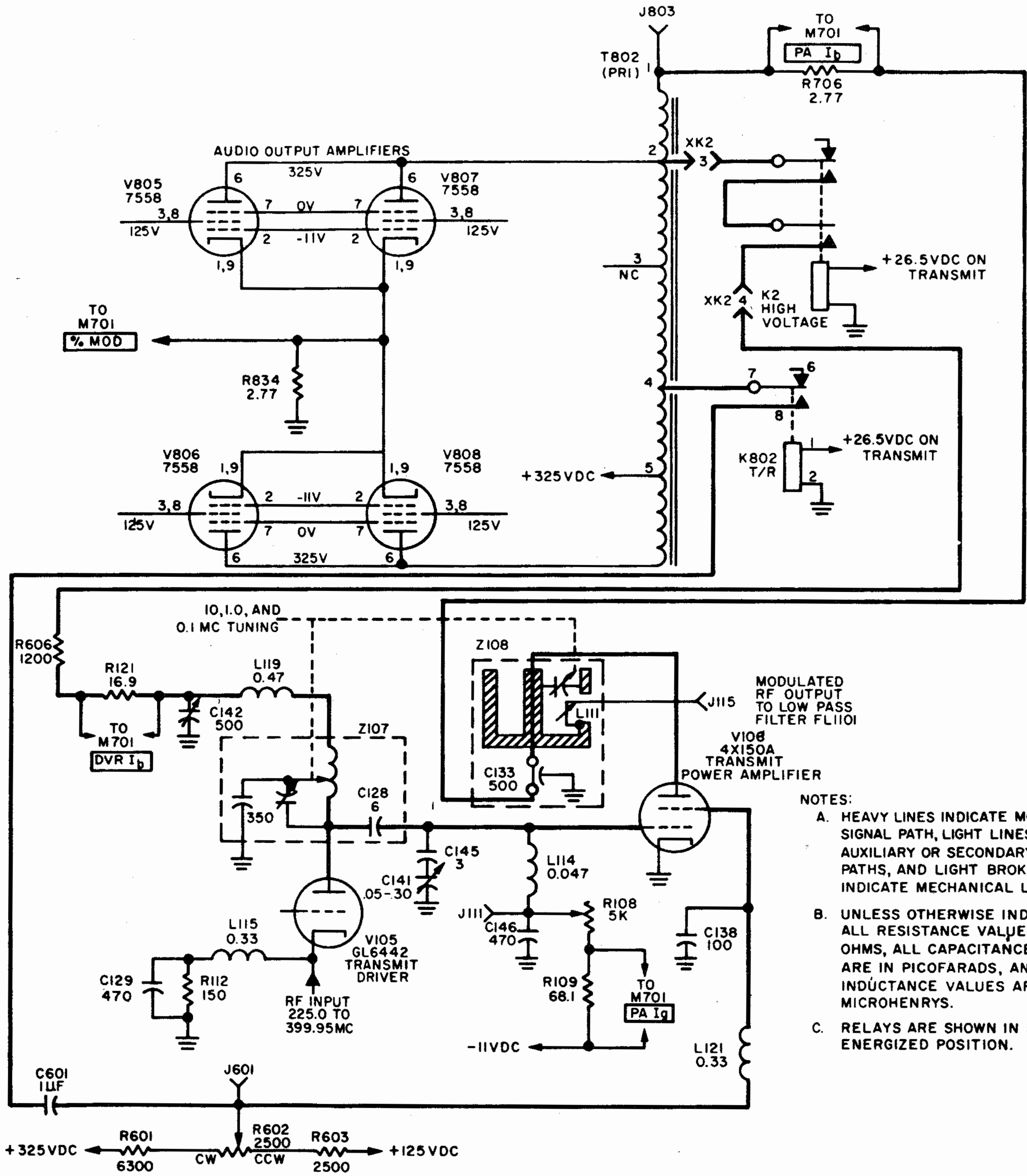
3-45. Test jack J103 provides a means for measuring the plate voltage or the 20.00 to 29.95-MHz signal applied to the plate of V101 , rf choke L103 and C104 decouples the rf from the +125-vdc supply. Resistors R101 and R102 form the grid-leak circuit to ground. J104 is a test point for measuring the grid bias on V101. Capacitors C101 and C102 ground rf at the grid. Cathode bias resistor R103 is wirewound the thereby also provides an rf choke in the cathode circuit. Resistor R114, in the cathode input line from the FMO, provides the correct termination for the injection cable.

3-46. The 200 to 370-MHz signal and the 20.00 to 29.95-MHz signal mix in V101 to produce sum frequencies, ranging from 225.00 to 399.95 MHz, in the plate circuit. Capacitor C105 couples the 225.00 to 399.95-MHz rf signal to a parallel-tuned tank, Z101, and capacitor C110 couples the rf signal developed across Z101 to the cathode of rf amplifier V102. The cathode of V102 consists of network Z102, which provides a high coupling impedance for the rf signal and resistor R122 which provides cathode bias for the tube. On transmit, contacts 1 and 2 of injection relay K102 ground the control-grid rf avc bus. Plate voltage of +125 vdc is supplied through L105 and dropping resistor R116. Capacitor C113 isolates rf signals from the +125-vdc supply. Capacitor C114 couples the rf signal to plate tank Z103. Capacitor C117 couples the rf signal developed across Z103 to rf amplifier V103 which provides a stage of rf amplification similar to that of V102. Test jack J105 provides for measuring the bias developed by the rf input to V103, and test jack J110 allows for measuring the rf signal voltage on the cathode of V103.

3-47. After amplification in V103, the rf signal is coupled through C121, Z105, and C123 to the cathode of transmit rf amplifier V104. On transmit, V104 receives plate voltage from the +125-vdc supply through L109, L113, and contacts 5 and 4 (closed on transmit) of t/r relay K602 in the Relay-Filter (see figure 5-133). Coil L113 and capacitor C134 isolate rf signals from the +125-vdc supply. Output jack J102, used during receive, is disconnected from the plate circuit of V104 and grounded by contacts 3 and 4 (closed on transmit) of injection relay K102. Test jack J106 provides for measuring the grid bias developed by the rf drive to V104.

3-48. The amplified 225.00 to 399.95-MHz rf output of V104 is coupled by C126 to parallel-tuned network Z106 which offers a high impedance to the rf signal. Capacitor C127 is a trimmer for network Z106. The signal developed across Z106 is coupled through C139 to the cathode of transmitter driver V105, which functions as a grounded-grid amplifier. Coil L115 provides the cathode impedance for the input signal and R112 provides cathode bias for V105. Capacitor C129 is a cathode bypass capacitor. Capacitor C140 provides rf ground for the the grid of V104, and R120 is a grid-return circuit to ground. Test point J114 is used to measure grid bias developed on V105 by the rf signal.

3-49. Transmit driver V105 (figure 3-4) receives audio-modulated plate voltage from the +325-vdc supply. The audio modulation is impressed on the plate-voltage line in the primary (pin 2) of output transformer T802 by audio power amplifiers V805 through V808 in the Audio Amplifier and Modulator. The amplifier output of V105 is developed across tuned circuit Z107 which (in parallel with C145 and trimmer capacitor C141) is tuned to present a high impedance to rf signals in the 225.00 to 399.95-MHz range. Coil L119 and capacitor C142 are an rf choke which acts as a plate-decoupling network for V105. Resistor R121 is a meter shunt for metering the plate current of driver V105.



NOTES:

A. HEAVY LINES INDICATE MODULATION SIGNAL PATH, LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS, AND LIGHT BROKEN LINES INDICATE MECHANICAL LINKAGE.

B. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN PICOFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRYS.

C. RELAYS ARE SHOWN IN DE-ENERGIZED POSITION.

Figure 3-4. Radio Set AN/URC-9( ), Modulation Circuit, Simplified Schematic Diagram

3-50. The output of transmit driver V105, developed across Z107, is coupled by C128 to the grid of transmit power amplifier V106. An rf choke, L114, provides a high impedance for the rf driving signal. Resistor R108 and capacitor C146 provide grid-leak bias for V106; R108 provides a means for adjusting the fixed protective bias from the -11-vdc supply and grid-leak bias for the desired power amplifier grid current. Resistor R109 is a meter shunt for metering the grid current of transmit power amplifier V106. Test jack J111 provides a means for measuring the fixed bias of V106.

3-51. The screen-grid voltage for V106 is obtained from a variable bleeder circuit in the Relay-Filter consisting of R601, R602, and R603. This circuit is connected between the +125 and +325-vdc supplies. Audio modulation is impressed on the screen-grid voltage line in the primary (pin 4) of output transformer T802 by audio power amplifiers V805 through V808 in the Audio Amplifier and Modulator. Capacitor C138 and coil L121 form a screen-grid rf decoupling network; C601 is a dc blocking capacitor. Power amplifier V106 receives modulated plate voltage through the insulated inner conductor of resonant cavity Z108 and feedthrough rf bypass capacitor C133; the audio modulation is impressed on the plate voltage line in the primary (pin 1) of output transformer T802 in the Audio Amplifier and Modulator.

3-52. The output signal of power amplifier V106 (figure 5-140) is developed across plate tank Z108, a coaxial resonant cavity. The rotor of the cavity tuning capacitor is ganged with the rf amplifier tank circuits and is tuned by the 1750-position, 0.1-MHz shaft of the Frequency Selector. Blocking capacitor C131 insulates the stator of the cavity tuning capacitor and prevents grounding of dc plate voltage on V106. Trimmer capacitor C132 sets the minimum capacitance point of Z108. Coupling loop L111 is adjusted and locked for optimum coupling at a frequency of 399.95 MHz.

3-53. The modulated 225.00 to 399.95-MHz rf signal coupled from Z108 by L111 is applied to low-pass filter FL1101 through J115-P11. Low-pass filter FL1101 attenuates all frequencies above 400 MHz to reduce harmonic output. After passing through the low-pass filter, the 225.00 to 399.95-MHz rf signal is returned through P1101-J108 to the RF and PA Amplifier where it is coupled through contacts 1 and 2 (closed on transmit) of antenna relay K101 to the directional coupler.

3-54. Audio Amplifier and Modulator. The Audio Amplifier and Modulator (figure 5-10) contains audio amplifier V803, audio modulator and driver V804, and audio output amplifiers V805 through V808 which provide audio-modulated B+ to the RF and PA Amplifier during the transmit function. In addition, the Audio Amplifier and Modulator contains compression rectifier V802B, broadband relay K803, and t/r relay K802 which are utilized during the normal transmit, retransmit, duplex transmit, and broadband transmit functions.

3-55. The audio signal during the normal (NOR) mode passes through parts of the Front Panel, the Relay-Filter, and the Audio Amplifier and Modulator. In addition, the audio modulation signal is applied to the transmit driver and power amplifier in the RF and PA Amplifier.

3-56. Refer to the normal mode transmit audio circuits in figure 5-3 during the following discussion. The normal transmit audio from the Front Panel assembly passes through FL702 to contact 1 (NOR) of MODE switch S702A. (Remote transmit audio is applied to this same contact through pin U of P701.) The audio signal is routed through contact 4 of S702A to the 10-ohm (dc resistance) primary winding of transformer T601. The voltage for the operation of the microphone is obtained from the -11-vdc bias supply across R611 in the primary circuit of T601. The audio signal, transformer-coupled to the secondary of T601, is routed through

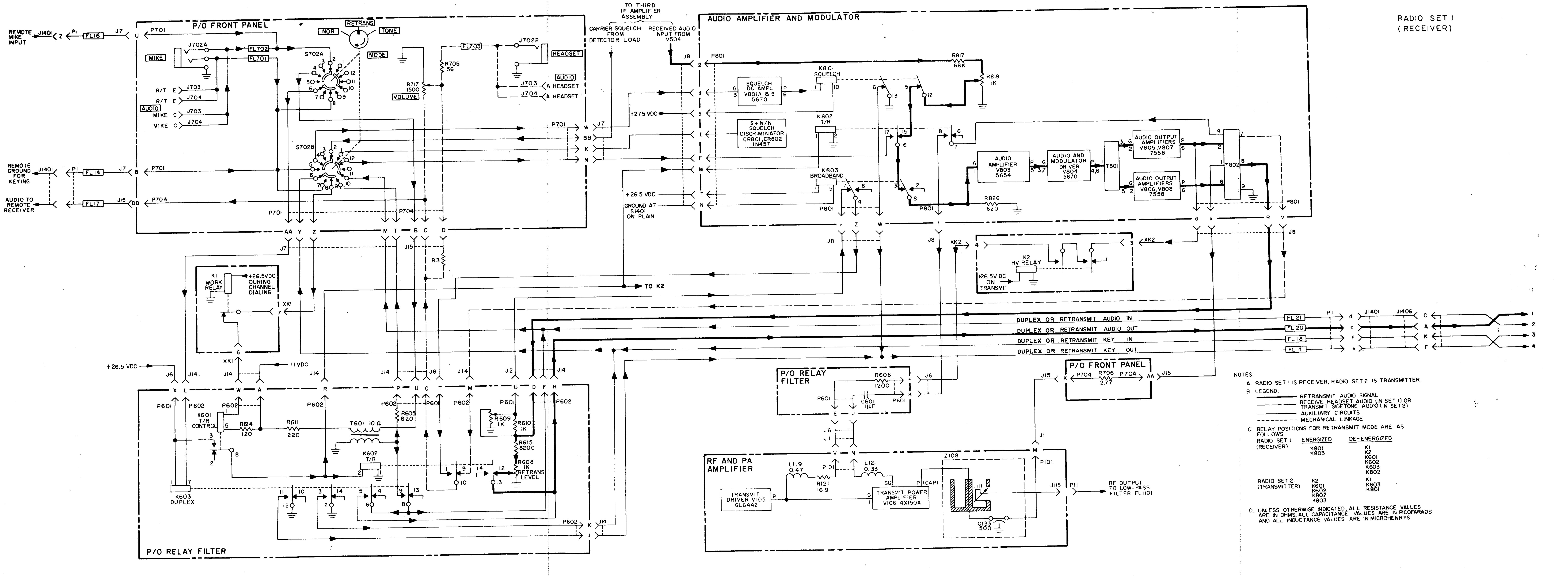
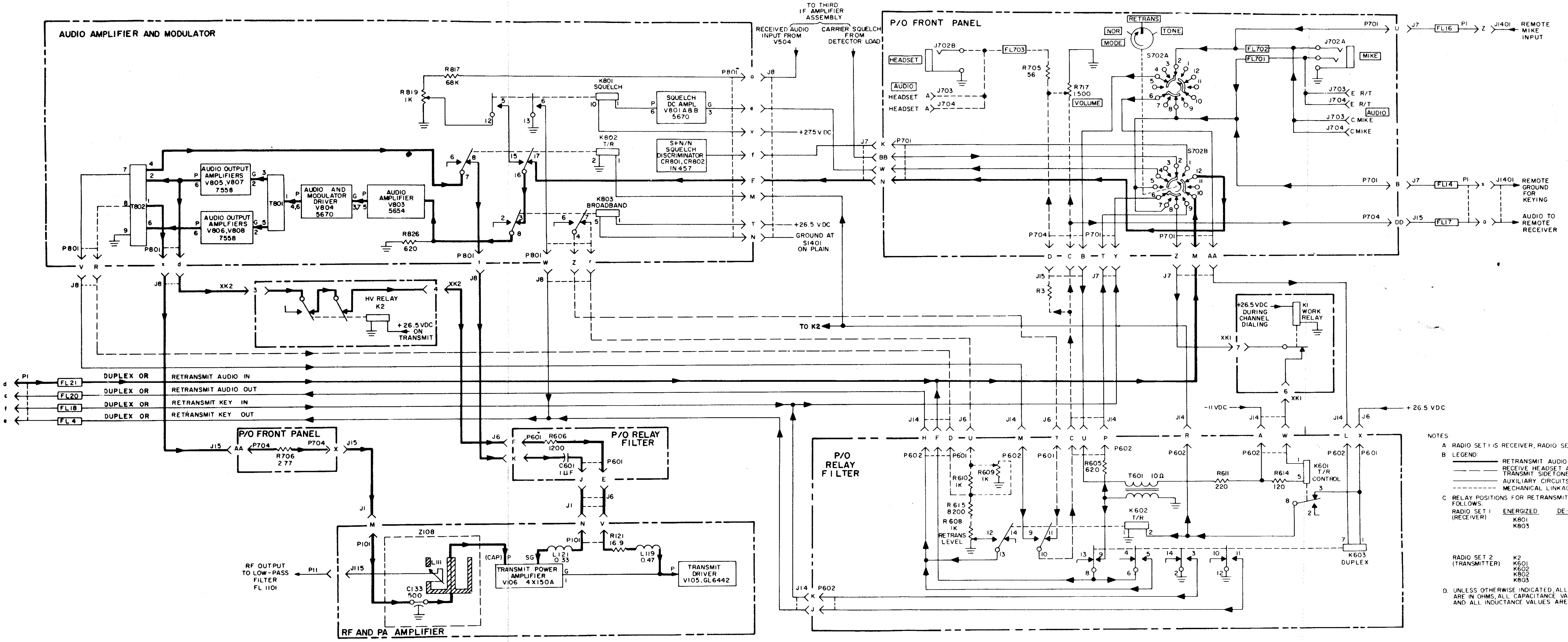


Figure 3-5. Radio Set AN/URC-9( ), Retransmission and Duplex Transmission Modes, Simplified Schematic Diagram (Sheet 1 of 2)



NOTES:

A. RADIO SET 1 IS RECEIVER, RADIO SET 2 IS TRANSMITTER.

B. LEGEND:
- RETRANSMIT AUDIO SIGNAL
- RECEIVE HEADSET AUDIO (IN SET 1) OR TRANSMIT SIDETONE AUDIO (IN SET 2)
- AUXILIARY CIRCUITS
- MECHANICAL LINKAGE

C. RELAY POSITIONS FOR RETRANSMIT MODE ARE AS FOLLOWS:

	ENERGIZED	DE-ENERGIZED
RADIO SET 1 (RECEIVER)	K801 K803	K1 K2 K601 K602 K603 K802
RADIO SET 2 (TRANSMITTER)	K2 K601 K602 K802 K803	K1 K603 K801

D. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN PICOFARADS AND ALL INDUCTANCE VALUES ARE IN MICROHENRYS.

Figure 3-5. Radio Set AN/URC-9( ), Retransmission and Duplex Transmission Modes, Simplified Schematic Diagram (Sheet 2 of 2)

R605, contacts 9 and 12 of S702B, pin F of P801, contacts 17 and 16 (closed on transmit) of t/r relay K802, contacts 3 and 8 (closed in PLAIN operation) of broadband relay K803 to the grid input circuit of audio amplifier V803 (see figure 5-146). The input, developed across resistor R826, is coupled to the control grid of V803 through C809, the parallel combination of C817 and R847, and R854. Jack J805 is a test point used either to measure audio signals or to inject audio signals at the control grid of V803 during test and troubleshooting. Plate and screen voltages for V803 are obtained from the +125-vdc supply through a voltage divider consisting of resistors R828 and R829 of this assembly, and resistors R616, R617, and R618 of the Relay-Filter assembly.

3-57. Audio and modulator driver V804 is a parallel-operated dual-triode. The cathode bias for both sections is obtained from R832 which is bypassed by C815. The V803 audio output is developed across resistor R830 and is coupled through C814 to potentiometer R831 which adjusts the input level to audio and modulator driver V804 during normal operation. The audio level determined by the setting of R831 is coupled to the parallel-connected grids of V804 through C818 and parasitic suppressors R855 and R856. Test point J802 is used to measure audio signals or to inject audio signals at the control grid of V804. Plate voltage for the stage is obtained from the +325-vdc supply through contacts 13 and 14 (closed on transmit) of the t/r relay K802 and transformer T801.

3-58. Audio output amplifiers V805 through V808 are parallel-connected and push-pull operated. Tubes V805 and V807 comprise a parallel pair, as do tubes V806 and V808. The output signal of audio and modulator driver V804 is developed across T801 and applied to the control grids of the audio output amplifiers. The signal at pin 3 of the secondary winding is coupled directly to the parallel-connected grids of V805 and V807; and the signal at pin 5 of the transformer, which is 180 degrees out of phase with the pin 3 signal, is coupled directly to the control grids of V806 and V808. A fixed bias of -11 vdc is applied to the control grids through the transformer center tap, pin 4. Cathode resistor R834 of audio output amplifiers V805 through V808, in conjunction with the front panel meter, provides an indication of the percentage of modulation. Screen-grid voltages for the output amplifiers are supplied from the +125-vdc supply through parasitic suppressers R843 through R846. Test points J803 and J804 are used to measure the audio modulation and the input to V806, respectively. Modulation B+ voltages of transmit driver V105, and the plate and screen grid of transmit power amplifier V106 in the RF and PA Amplifier are obtained from the primary of modulation transformer T802. (The manner in which the audio signal is superimposed on the carrier and transmitted is described in paragraph 3-43.)

3-59. The transmit sidetone audio output is coupled from pin 8 of T802 (figure 5-3) through audio-level control network R610 and R609, and contacts 7 and 4 (closed in PLAIN operation) of broadband relay K803 to contacts 11 and 10 (closed on transmit) of t/r relay K602. From contact 10 of K602, the sidetone audio is then applied through FL17 to the remote station headset or speakers; and through R3, R717 (VOLUME control), R705, and FL703 to HEADSET jack J702B and AUDIO jacks J703 and J704 on the front panel.

3-60. During transmit, the compression rectifier circuit maintains 80% to 90% modulation by compensating for variations in voice level applied to the microphone. High voice levels, which cause overmodulation and distortion, are reduced while low voice levels are passed unchanged. During receive, the compression circuit compensates for variations in output loading caused by parallel operation of local and remote receive audio stations.

3-61. During transmit, a delay bias voltage from the +125-vdc supply is developed by R840 and CR803 (figure 5-146) and passed through R838 and the center tap of R839 to the cathode of compression rectifier V802B. During receive, the bias is reduced by applying a ground to R841 through contacts 3 and 4 of t/r relay K802. Reducing the bias allows the compression rectifier to operate at a lower level during receive.

3-62. During both transmit and receive, terminals 10 and 11 of T802 sample the output of the Audio Amplifier and Modulator and apply an audio voltage across compression control potentiometer R839. Capacitor C816 presents a low impedance to audio from terminal 11 to ground. Part of the sample audio, from the center tap of R839, is applied to the cathode of compression rectifier V802B. When the output of the Audio Amplifier and Modulator rises above a pre-determined level, the sample audio overcomes the delay bias and V802B develops a negative bias voltage across R824. The negative bias voltage is filtered by C811 and applied to the control grid of V803 which holds the output of the modulator nearly constant.

3-63. Refer to the retransmit mode circuit in figure 3-5 during the following discussion. Operation of the Audio Amplifier and Modulator in the retransmission (RETRANS) mode is the same as in the normal (NOR) transmit mode. However, operation in the RETRANS mode requires that two radio sets be interconnected. The same channel frequency should not be used for each set as feedback between the respective antennas will prevent relaying of signals. A minimum of 5 MHz channel separation is recommended.

3-64. The following example describes the retransmission circuits. In this example, radio set 1 (sheet 1) is the receiving set and radio set 2 (sheet 2) is the transmitting set. The following conditions are established by placing MODE switch S702 (on both sets) in the RETRANS position:

a. Connects the microphone push-to-talk switch to the solenoid of duplex relay K603 through contacts 6 and 8 of S702A. This permits duplex operation (see paragraph 3-68) of both radio sets.

b. Connects t/r control relay K601 key line to the retransmit key-in line through contacts 6 and 8 of S702B.

c. Connects squelch dc amplifier V801 to the carrier squelch input from the audio detector load through contacts 2 and 4 of S702B.

d. Connects the Audio Amplifier and Modulator input to the retransmit audio input through contacts 10 and 12 of S702B.

3-65. In the quiescent state (no signal input) both sets operate as receivers. For purposes of explanation, assume that an rf signal is received by set 1; the signal is detected and amplified as described under the receive function. The carrier squelch from the detector load in the Third IF Amplifier is coupled through contacts 2 and 4 of S702B to squelch dc amplifier V801, causing V801 to conduct and energize squelch relay K801. When K801 energizes, contacts 5 and 12 couple the receive audio input to the grid of audio amplifier V803 where it is processed as the normal receive audio signal of set 1. Energized relay K801 also applies a ground (through contacts 6 and 13) to the retransmit key-out line in set 1 and the retransmit key-in line in set 2. The input to set 2 energizes t/r control relay K601. Contacts 3 and 8 of K601 close and energize K602, K802, and K2 which, in turn, key set 2 to transmit.

3-66. The receiver audio signal of set 1 is routed from sidetone output pin 8 of T802 through R615, retransmit audio level control R608, contacts 12 and 13 of K602 and out on the retransmit audio output line. At set 2 (sheet 2), the signal is routed over the retransmit audio input line through contacts 10 and 12 of S702B, contacts 17 and 16 of K802, and contacts 3 and 8 of K803 to the Audio Amplifier and Modulator where it is processed as the normal transmit modulation signal of set 2. Thus, the receiver audio signal from set 1 modulates the transmitter output of set 2. Full receiver audio output is available at the headset jack of set 1 while sidetone output appears at the headset jack of set 2.

3-67. If the input signal is received first by set 2, then set 2 functions as the receiver and set 1 acts as the transmitter. The operation described in the foregoing paragraphs will be the same except that the carrier squelch and squelch relay of set 2 will key set 1 to transmit, and the received output of set 2 will modulate the rf carrier of set 1. Also, full receiver audio output will be available at the headset jack of set 2, and sidetone output will appear at the headset jack of set 1.

3-68. Refer to the duplex transmission circuit in figure 3-5 during the following discussion. As in the retransmit mode, duplex operation requires that two radio sets be interconnected and the MODE switch of both radio sets be set to the RETRANS position. When the push-to-talk switch of either set is closed, both sets are keyed to transmit and the microphone audio signal modulates the output of both sets. The microphone push-to-talk switch applies a ground to duplex relay K603 which, in turn, applies a ground to the retransmit key-in and retransmit key-out lines through contacts 2 and 3, and 12 and 11, respectively. This energizes t/r control relay K601 of both sets which, in turn, energize relays K602, K802, and K2, thereby keying both sets to transmit.

3-69. The microphone input is fed to audio input amplifier V803 through contacts 2 and 4 of S702A, modulation transformer T601, contacts 9 and 8 of K603, contacts 10 and 12 of S702B, contacts 16 and 17 of K802, and contacts 3 and 8 of broadband relay K803. This same microphone signal is also routed through contacts 6 and 5 of K603, retransmit audio output line, retransmit audio input line, contacts 10 and 12 of S702B, contacts 17 and 16 of K802, and contacts 3 and 8 of K803, thus modulating set 2. Sidetone audio appears at the headset of both sets. It should be noted that duplex relay K603 is energized during duplex operation only.

3-70. Refer to the broadband transmit circuit in figure 5-3 during the following discussion. For operation with the broadband equipment, relay K803 is deenergized by placing PLAIN-BROADBAND switch S1401 (on the rear of the receiver-transmitter case) to the BROADBAND position. During broadband transmit operation, the microphone output from contact 12 of S702B is connected to the input of the broadband transmit equipment through filter FL30 and pin j of P1. The transmit output of the broadband equipment is routed to audio amplifier V803 through pin k of P1, FL28, pin n of P801, resistor network R851, R852, and R853, contacts 10 and 11 (closed on transmit) of t/r relay K802, and contacts 2 and 8 (normally closed on BROADBAND) of K803. The remainder of the circuits in the Audio Amplifier and Modulator operate in the same manner as for normal transmit operation except that broadband sidetone is obtained from the broadband sidetone amplifier; this signal is coupled to the headset through contacts 4 and 6 (closed on BROADBAND) of broadband relay K803.

3-71. The broadband sidetone, supplied by the broadband equipment, is routed to the primary of T1601 via pin H of P1601, R1602, and potentiometer R1601 (see figure 5-147). The secondary of phase-splitting transformer T1601 is connected to the base of push-pull amplifier Q1601 and Q1602. The outputs of Q1601 and Q1602 are connected to the primary of T1602; the amplified signal is routed from the secondary of T1602 to the Audio Amplifier and Modulator via pin M of P1601. Transistor base bias voltage is supplied from the +26.5-vdc supply via R612 and CR601 in the Relay-Filter (figure 5-148), pin F of P1601, R1606, R1604, and R1603 to the center tap of T1601. Collector bias is supplied via the center tap of T1602. Resistor R1607 and thermistor RT1601 act as a voltage regulating circuit to maintain the voltage supplied to the bases of Q1601 and Q1602 at a fairly constant level. Capacitor C1603 filters the power supplied to the collectors of Q1601 and Q1602, and C1602 is used to filter transients. Resistor R1605 is the common load for the transistor emitters, and R1601 is used to vary the level of the input signal.

3-72. Refer to the tone mode circuit in figure 5-3 during the following discussion. Although the 1 kHz tone oscillator (Q701) is a part of the Front Panel assembly (figure 5-149), its application is covered at this time in order to complete the discussion of the Audio Amplifier and Modulator during the transmit function of the equipment.

3-73. In the tone mode, the 1 kHz tone oscillator is substituted in place of the normal transmit microphone input (see figure 5-3). By setting MODE switch S702 to the TONE position, the collector of Q701 is grounded through contacts 5 and 4 (closed in transmit) of t/r relay K802. The 1 kHz tone output from the emitter of Q701 is routed to the grid of audio Amplifier V803 through contacts 3 and 4 of S702A and over the same common audio line used on the normal transmit and retransmit modes of operation. The remainder of the circuits in the Audio Amplifier and Modulator operate as described in the normal transmit and retransmit modes.

3-74. In equipments modified for homing beacon operation, the ground for the collector of Q701 is not provided by t/r relay K802 but, instead, is routed to an external keyer which provides mcw keying.

3-75. Directional Coupler. (Figure 5-139). Transmit and receive rf signals travel to and from the AN/URC-9( ) antenna jack J701 on a transmission line through the directional coupler. The Directional Coupler samples the incident waves of transmitter power (traveling toward the antenna) and the reflected waves of transmitter power (traveling toward the RF and PA Amplifier) and provides a front panel meter indication of power. (The SWR and PWR metering circuits are discussed in paragraphs 3-182 and 3-183, respectively). Both Directional Coupler circuits are identical except for reference symbols.

3-76. Current flowing in the short section of transmission line is a result of inductive and capacitive coupling with the main transmission line. The inductive current is reinforced in one direction and cancelled in the other by the capacitive current. In the swr directional coupler, R1002 terminates the transmitter end of the swr line in its characteristic impedance and absorbs the currents induced by the incident wave. Crystal diode CR1301, at the antenna end of the swr line, rectifies the currents induced by the reflected wave. The voltage developed across diode load resistor R1301 and applied to the metering circuits is proportional to the reflected power.

3-77. Resistor R1301 terminates the antenna end of the pwr line in its characteristic impedance and absorbs the currents induced by the reflected wave. Diode CR1302, at the transmitter end of the pwr line, rectifies the currents induced by the incident wave. The voltage developed across load resistor R1304 and coupled to the metering circuit is proportional to the power output. Capacitors C1301 and C1304 are rf filters. Capacitors C1302 and C1303 compensate for the variations in the output frequency which inherently varies directly with frequency and power.

3-78. The 225.00 to 399.95-MHz rf signal output from the AN/URC-9( ) antenna jack (ANT. J701) is coupled to the antenna for transmission in Radio Set

AN/SRC-21( ) and to Radio Frequency Amplifier AM-1565/URC in Radio Set AN/SRC-20( ). The manner in which the rf signal is processed is described in the following paragraphs.

3-79. Radio Frequency Amplifier AM-1565/URC. When Radio Set AN/SRC-20( ) is operating on the transmit function, the signal at AN/URC-9( ) ANT jack J701 is coupled to the input of the AM-1565/URC. When Radio Set AN/SRC-21( ) is operating on the transmit function, the signal at ANT jack J701 of the AN/URC-9( ) is coupled directly to the antenna for transmission.

3-80. Refer to figure 3-6 for the functional block diagram of Radio Frequency Amplifier AM-1565/URC. The circuits directly relating to the transmit signal flow include the input and output coaxial relays, variable magnetic ferrite attenuator, rf amplifiers, directional coupler, and low-pass filter. The automatic drive control detector circuits, in conjunction with the variable magnetic ferrite attenuator and front panel controls, compensate for variations in AN/URC-9( ) exciter output and drive requirements over the required frequency range. Automatic tuning of the rf amplifiers is performed by a servo system, together with the 20-channel autopositioner and preset channel potentiometers. All operating voltages for the circuits within Radio Frequency Amplifier AM-1565/URC are furnished by an internal power supply.

3-81. Power Amplifier Subassembly. The servicing block diagram for the Power Amplifier subassembly is shown in figure 5-11. The functional blocks contained within this subassembly are rf amplifiers V201 and V202, automatic drive control detector V203, and electromechanical parts (follow-up potentiometer R203 and servo motor-rate generator MG201) of the servo system. During transmit operation of Radio Set AN/SRC-20( ), the 16 to 24-watt rf input signal from the AN/URC-9( ) is coupled through the contacts (closed on transmit) of input coaxial relay K201 and variable magnetic ferrite attenuator AT401 to the rf amplifiers. After amplification, the 100-watt signal passes through directional coupler DC201, low-pass filter FL201, and the contacts (closed on transmit) of output coaxial relay K202 to the antenna for transmission. (In receive operation of Radio Set AN/SRC-20( ), the signal passes from the antenna through the output and input coaxial relays, which are normally de-energized on receive, to the input of the AN/URC-9( ).)

3-82. On Radio Set AN/SRC-20( ), actuating the push-to-talk switch on the microphone or setting the TEST KEY to ON or LOCK ON transfers equipment operation from receive to transmit (see figure 5-155). The 225.00 to 399.95-MHz, 16 to 24-watt signal from Radio Set AN/URC-9( ) is coupled through the contacts (closed on transmit) of input relay K201 and variable magnetic ferrite attenuator AT401 to the cathodes of rf power amplifiers V201 and V202 through capacitors C212 and C213, respectively. Capacitor C214 and inductor L201 aid in maintaining an input impedance that is essentially constant from 225.00 to 399.95 MHz.

3-83. Power amplifiers V201 and V202 are ceramic tetrodes operated in a parallel, grounded-grid configuration. The cathode (input) and plate (output) tuned circuits are high-Q coaxial cavities ganged and tuned to the desired frequency by motor-tachometer generator MG201 servo motor. The input resonant cavity is connected between the cathodes and grids and the output resonant cavity is connected between the plates and grids of the two power amplifier tubes. The cavities are tuned by a movable contact ring to represent a quarter-wave transmission line; the rf signal is coupled into and out of the cavities by means of coaxial coupling devices. Capacitors C217 and C218 are connected across the input cavity to ensure proper tracking between the input and output cavities.

3-84. The rf signal, amplified by tubes V201 and V202, is applied to the high-Q output resonant cavity through capacitors C202 and C203. The signal is coupled from the output cavity through impedance-matching network C208 and C209, which transforms the plate-cavity impedance into the 50-ohm output line impedance. Capacitor C209 allows proper loading at any frequency (within the 225.00 to 399.95-MHz range) or into loads that present a vswr of up to 2 to 1 on the coaxial cable. Capacitor C209 is made variable by the spring loaded plunger of L209 assuming the proper position as determined by the setting of any one of the 20 output loading screws (manual channel and 19 preset channels).

3-85. When a new channel is selected (figure 3-21), L209 energizes and pulls its springloaded plunger clear of the output loading screws, closes S201, and applies a ground to autopositioner motor B501 allowing the motor to position switch S503 and the output loading screws to the proper channel.

3-86. The amplified rf signal, now 100 watts, passes from the output cavity (figure 5-155) through directional coupler DC201, low-pass filter FL201, and the contacts (closed on transmit) of output coaxial relay K202 to the antenna for transmission. The directional coupler serves to monitor forward and reverse antenna power, and the low-pass filter minimizes harmonic radiation.

3-87. Plate voltage for rf amplifiers V201 and V202 is obtained from the +1800 -vdc supply through inductor L208 (see figure 5-135). Screen voltage for V201 and V202 is obtained from the +300-vdc supply through inductors L202 and L203, respectively, and contacts 6 and 8 of screen protection relay K304 which is energized by the +1800-vdc power supply during transmit. Bias voltage for the control grids of V201 and V202 is obtained from the -60-vdc supply; potentiometers R304 and R303 adjust the control-grid bias of V201 and V202, respectively.

3-88. Automatic drive control detector diode V203 is used when automatic control of the rf excitation by variable magnetic ferrite attenuator AT401 is desired. For this purpose, a portion of the output from V201 and V202 is coupled via capacitor C207 to the plate of diode V203. The complete operation of the automatic drive control circuits is discussed in paragraph 3-95.

3-89. Servo Amplifier Subassembly. Refer to figure 5-12, the servicing block diagram for the Servo Amplifier subassembly. The functional blocks contained within this assembly include servo system circuits V401, V402, V403, and V404; and the automatic drive control circuits, V405 and V406. Voltage regulator V407 is used to regulate the plate voltage of V405 and V406. Automatic tuning of the resonant cavities of rf amplifiers V201 and V202 in the Power Amplifier subassembly is performed by the servo system in connection with the autopositioner and preset channel potentiometers on the front panel. Variations in exciter output and drive requirements over the applicable frequency range are compensated for by the automatic drive control circuits.

3-90. A simplified schematic diagram of the servo system is shown in figure 3-7; the detailed circuitry of servo amplifiers V401 through V404 is shown in figure 5-156. The servo system is of the rate-generator feedback type. As the servo motor rotates, it drives the rate generator and a follow-up potentiometer. The output of the rate generator is applied to the servo amplifiers in opposition to the original input from the follow-up potentiometer; this action prevents hunting and overshoot.

3-91. Motor-tachometer generator MG201, used to tune the resonant cavities of rf power amplifiers V201 and V202, operates on power supplied by servo amplifiers V401 through V404. The normal input to the servo amplifiers is obtained from

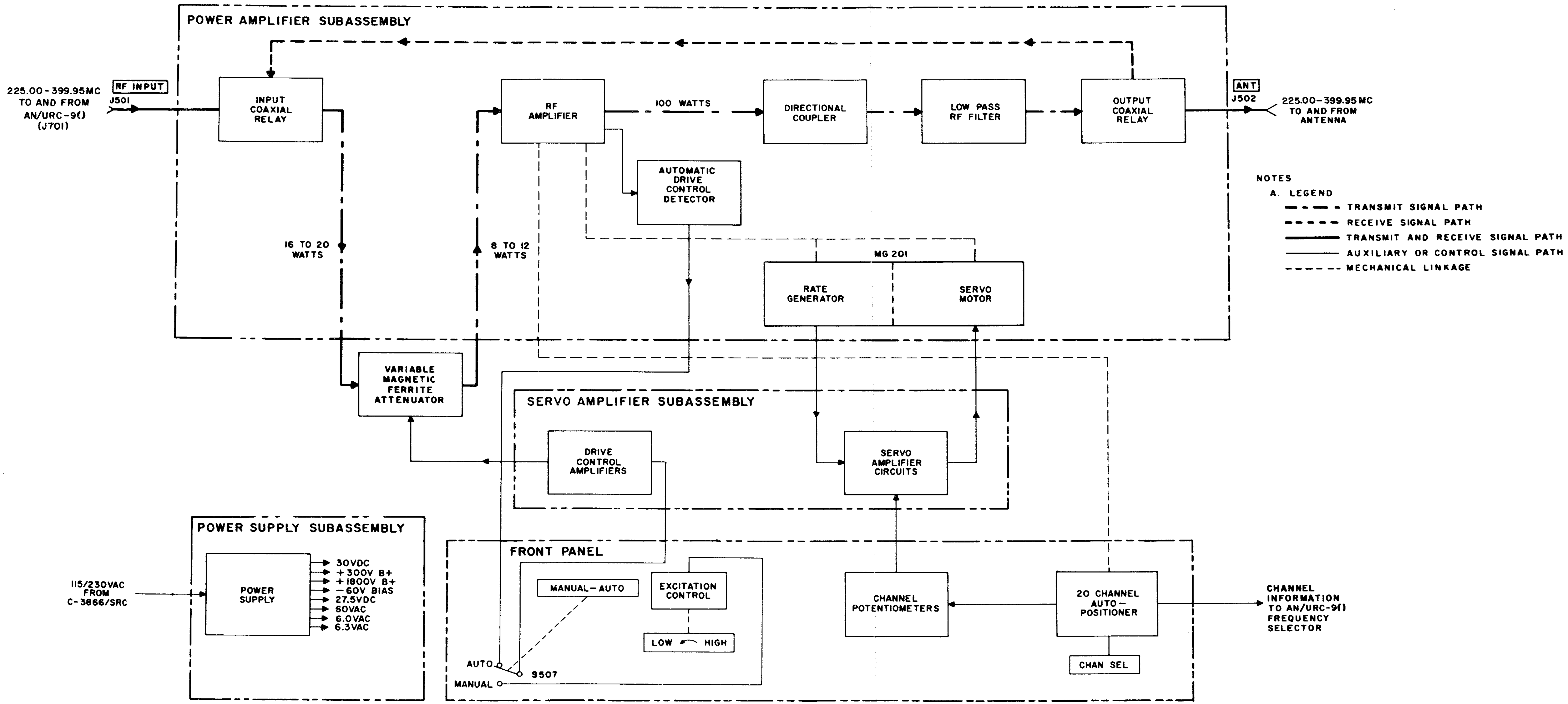
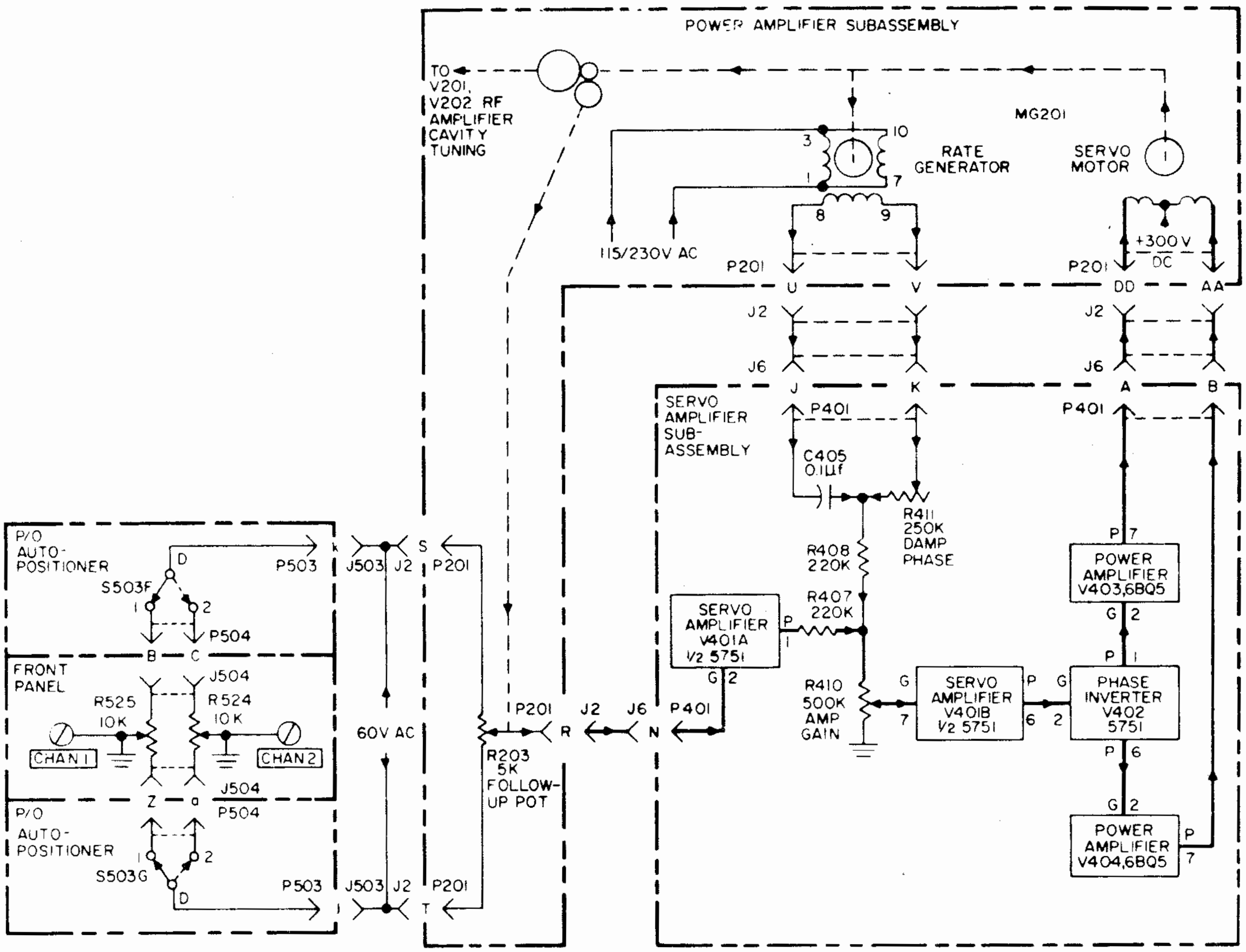


Figure 3-6. Radio Frequency Amplifier AM-1565/URC, Functional Block Diagram



NOTES:

A. HEAVY LINES INDICATE MAIN SIGNAL PATH, LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS, AND LIGHT BROKEN LINES INDICATE MECHANICAL LINKAGE.

B. LETTERS AND NUMBERS OUTSIDE CIRCUIT BLOCKS INDICATE ELEMENT AND PIN NUMBERS. NUMBERS ON COMPONENTS INDICATE TERMINAL NUMBERS.

Figure 3-7. Radio Frequency Amplifier AM-1565/URC, Servo System, Simplified Schematic Diagram follow-up potentiometer R203, which is part of an ac bridge circuit that is balanced when the AM-1565/URC is operating on a given channel. For example, when the equipment is operating on channel 1, preset channel 1 potentiometer R525 and follow-up potentiometer R203 form the bridge circuit, which is excited by a 60-vac signal. As long as the equipment operates on channel 1, the bridge will be in balance (at a null position) and the servo system will be inactive; the resonant cavities of the rf amplifiers will remain tuned to the frequency of channel 1.

3-92. When a different preset channel is selected, auto-positioner switches S503F and S503G both move to the position corresponding to that channel. For example, when channel 2 is selected, potentiometer R524 is placed in the bridge circuit, thereby causing the bridge to become unbalanced and produce an output voltage that activates the servo system. The MG201 servo motor drives the rate generator directly; it also drives the tuning elements in the resonant cavities of the rf amplifiers and the wiper arm of follow-up potentiometer R203 through a gear train. As the servo motor rotates, the wiper arm of R203 seeks the null point. When the null is reached and the bridge is again balanced, the servo system comes to rest; the tuning elements in the rf amplifier resonant cavities are then set to the proper position to tune the amplifier resonant cavities to the frequency of channel 2.

3-93. Refer to figure 5-156 for the following description of the servo amplifier circuit operation. The unbalanced voltage developed across follow-up potentiometer R203 in the bridge circuit is clipped by diodes CR401 and CR402 and applied to the control grid of V401A. Servo amplifier V401A, R405, and C403 cause the signal applied across AMP GAIN control R410 to be 90° out of phase with the signal applied to the grid of V401A and the voltage applied to the fixed phase winding of the servo motor. The phase of the rate generator output is shifted by the network consisting of DAMP GAIN control R409, DAMP PHASE control R411, resistors R412 and R413, and capacitor C405; thus, the shifted signal is 180° out of phase with the signal from V401A. These two signals are passed through isolation resistors R407 and R408 and are added across AMP GAIN control R410. Sufficient rate feedback from the rate generator is added to the signal to prevent the servo system from hunting. The resulting signal is applied to the grid of servo amplifier V401B.

3-94. The signal is amplified by V401B and applied to the grid of phase inverter V402. The output of V402A is applied to the grid of V402B and to the grid of power amplifier V403. The output of V402B is applied to the grid of power amplifier V404. The plates of V403 and V404 are connected to the control winding of the servo motor part of MG201 in the Power Amplifier subassembly through which the tubes are supplied B+; thus, the ac output of these tubes causes the servo motor to run. The plates of V401 through V404 and the screens of V403 and V404 are furnished an operating voltage from the +300-vdc supply (see figure 5-135).

3-95. The rf input to the Power Amplifier subassembly from Radio Set AN/URC-9 ( ) is controlled by the drive control regulator circuit. This circuit, which is controlled automatically or manually through front panel controls, varies the rf conducting properties of variable magnetic ferrite attenuator AT401 through which the rf signal must pass before being amplified. The drive control regulator circuit will maintain effective control of the AM-1565/URC output power in the range of 50 to 130 watts by controlling the rf input from the AN/URC-9 ( ). When the output power of the AM-1565/URC is 50 watts or below, the attenuation of the rf input from the AN/URC-9( ) is minimum. When the output power is 130 watts or above, the attenuation of the rf input is maximum.

3-96. A simplified schematic diagram of the drive control regulator circuit is shown in figure 3-8; refer to the schematic diagrams in figures 5-155 and 5-156 for locations of the particular tubes in this circuit. Due to the multiple voltage dividers and feedback paths, various voltages under certain conditions will be utilized in the text discussion. The voltages given with respect to ground can be used as a guide; they are not absolute values.

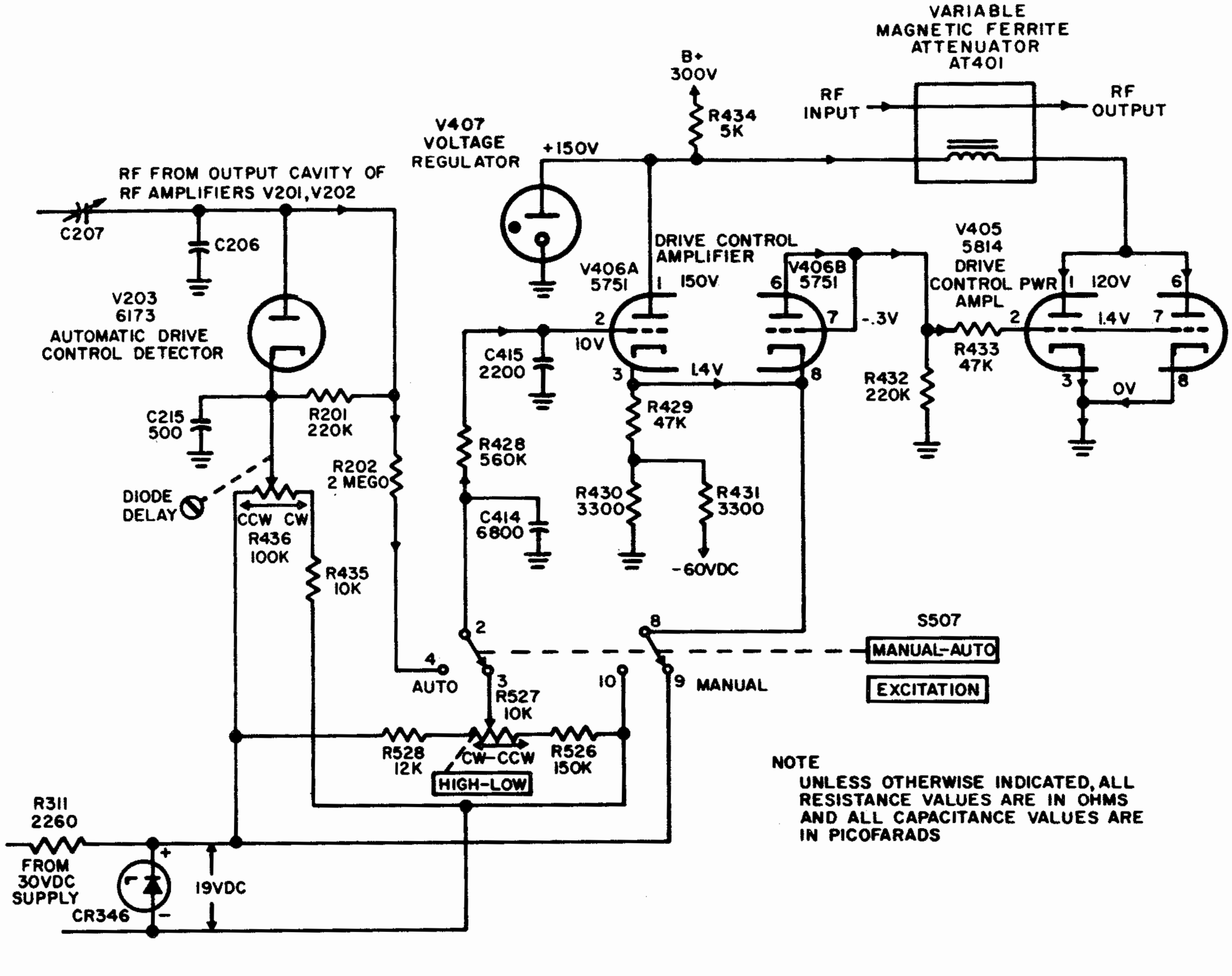


Figure 3-8. Radio Frequency Amplifier AM-1565/URC, Drive Control Regulator, Simplified Schematic Diagram

3-97. When both sections of drive control amplifier V406 are cut off (V406 effectively removed from the circuit), the -60 vdc divides equally across resistors R430 and R431 causing the cathode of V406 to be at -30 vdc with respect to ground. Also, the bias is removed from drive control power amplifier V405 thereby producing maximum conduction and maximum current through variable magnetic ferrite attenuator AT401 causing the attenuation of AT401 to be minimum.

3-98. When V406A is allowed to conduct, the grid assumes control and the conduction is determined by the setting of HIGH-LOW control R527 in MANUAL operation. In automatic (AUTO) operation, the conduction of V406A is determined by the setting of diode delay potentiometer

R436 in conjunction with a sampling of the rf from the output cavity of rf amplifiers V201 and V202; the sampled rf is detected by automatic drive control detector V203. A difference in potential of 19 vdc (the Zener voltage of diode CR346) is maintained across voltage divider resistors R526, R527, and R528 (manual operation) and voltage divider resistors R435 and R436 (automatic operation). Zener diode CR346, in series with R311, is connected directly across the 30-vdc supply. When the 19-vdc potential tends to change, the current through CR346 causes a corresponding voltage drop across R311 and maintains the 19-vdc potential across the voltage dividers.

3-99. The plate voltage of V406A and one side of variable magnetic ferrite attenuator AT401 is held at +150 vdc by voltage regulator V407. When V406A is allowed to conduct, it forms a voltage divider between the +150-vdc level and the -60-vdc supply.

3-100. When EXCITATION MANUAL-AUTO switch S507 is in the MANUAL position, drive control regulator circuit operation is controlled manually by HIGH-LOW control R527 which, along with R526 and R528 forms a voltage divider network. The function of Zener diode CR346 is to hold the voltage constant across the voltage divider network; it does not establish a reference to ground. The ground reference is established at the cathode of drive control amplifier V406 by the conduction of V406A which is controlled by the setting of HIGH-LOW control R527.

3-101. When R527 is set to the HIGH (cw) position, the cathode of V406 will be +18 vdc with respect to ground. When R527 is set to the LOW (ccw) position, the cathode voltage of V406 will be -13 vdc with respect to ground. The grid of V406A will always be from 1.5 to 2.5 vdc negative with respect to the cathode due to the voltage drip across R528 and R527.

3-102. Although the cathode voltage range of drive control amplifier V406 is quite broad (+18 to -13 vdc), only a small range of voltage (from 0 to -5 vdc) will affect the attenuation of variable magnetic ferrite attenuator AT401. When the setting of R527 is such that the cathode voltage of V406 is zero or positive with respect to ground, V406B will be cut off. Drive control power amplifier V405 will conduct maximum and the current through AT401 will cause minimum attenuation of the rf drive from the AN/URC-9( ). The power output of the AM-1565/URC then will be maximum when the radio set is in the keyed position.

3-103. When the setting of HIGH-LOW control R527 causes the cathode voltage of V406 to become negative with respect to ground, V406B conducts and the current through R432 develops bias on the control grids of drive control power amplifier V405. The bias on V405 decreases its conduction thereby decreasing current flow through variable attenuator AT401 causing the attenuation of AT401 to increase. Continued rotation of HIGH-LOW control R527 in the LOW (ccw) direction causes a corresponding increase in current through V406B and decrease in current through V405 and AT401 which results in a further increase in attenuation of AT401. When the setting of R527 is such that the cathode of V406 is -5 vdc with respect to ground, the attenuation of AT401 will be maximum and any further rotation of R527 in the LOW (ccw) direction will not affect the attenuation of AT401. When the radio set is in the keyed condition, the power output of the AM-1565/URC will be minimum.

3-104. When EXCITATION MANUAL-AUTO switch S507 is in the AUTO position, the drive control regulator circuit is controlled automatically by the rectified output of automatic drive control detector V203 in the Power Amplifier subassembly. Automatic operation is similar to that discussed for manual operation with two exceptions. In AUTO operation, the cathode of drive control amplifier V406 is connected to the more-negative side of the voltage divider, R435 and R436, across Zener diode CR346. Also when the radio set is in the unkeyed condition, the cathode of V406 remains positive with respect to ground. (When R436 is in the ccw position, the voltage is +63 vdc, and when R436 is in the cw position, the voltage is +50 vdc.)

3-105. When the radio set is in the keyed condition, a portion of the output from rf amplifiers V201 and V202 is applied through capacitor C207 to the plate of automatic drive control detector V203 and is rectified (see figures 3-8 and 5-155). The rectified voltage across V203 and R201 is filtered by R202, C414, R428 and C415 and coupled (via contacts 4 and 2 of S507 in the AUTO position) to the control grid of drive control amplifier V406A. When the rf power output increases, the grid of V406A becomes more negative with respect to the cathode and reduces the conduction of V406A.

3-106. When diode delay potentiometer R436 is in the ccw position (corresponding to the HIGH position in manual operation), the cathode voltage of V406 is +56 vdc with respect to ground, the attenuation of variable attenuator AT401 is minimum, and the power output of the AM-1565/URC is 130 watts. When R436 is in the cw position (corresponding to the LOW position in manual operation), the cathode voltage of V406 with respect to ground is -27 vdc; V406B conducts, developing a bias in the grid circuits that will cut off drive control power amplifier V405; the attenuation of AT401 is maximum and the power output of the AM-1565/URC is 50 watts or less.

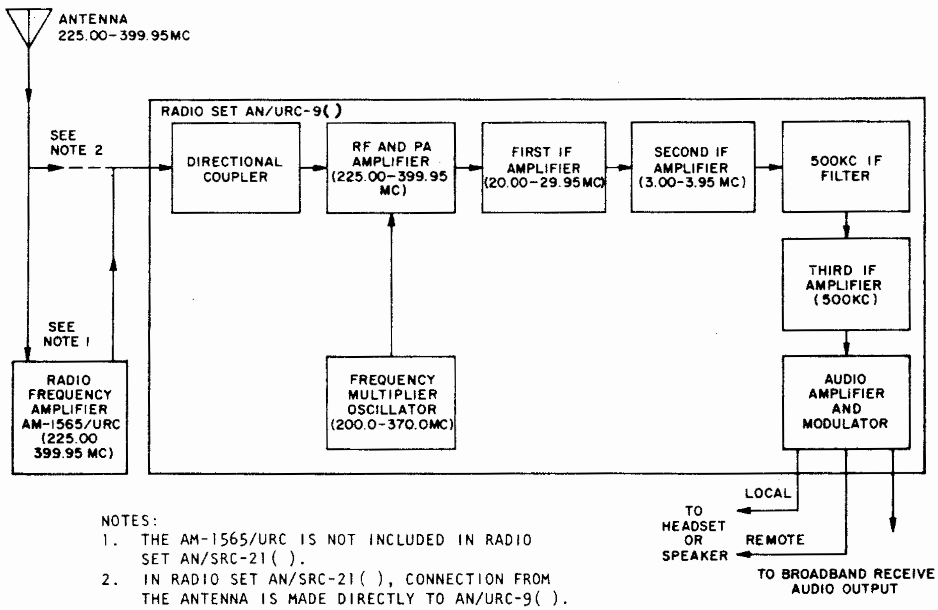
3-107. As in manual operation, only a small range of voltages applied to the cathode of drive control amplifier V406 will affect the attenuation of attenuator AT401. A combination of approximately 50 watts output from the AM-1565/URC (caused by low rf input from the AN/URC-9( )) and a setting of diode delay potentiometer R436 that will cause the cathode voltage of V406 to be zero with respect to ground will cut off V406B thereby removing the bias from V405 and allowing maximum conduction, in turn, causing the attenuation of AT401 to be minimum. As the power output of the AM-1565/URC increases toward 130 watts (caused by an increase in rf input from the AN/URC-9( )), the rectified voltage at the cathode of automatic drive control detector V203 has the effect of applying a negative-going potential to the grid of V406A, which causes the cathode of V406 to go negative with respect to ground. With a negative-going potential on the cathode, V406B conducts and develops a bias in the grid circuits of V405 which reduces the conduction of V405, thereby causing the attenuation of AT401 to increase. When the voltage at the cathode of V406 reaches -5 vdc, the attenuation of AT401 will be maximum and any further increase in rf output of the AM-1565/URC will not affect the attenuation of AT401.

3-108. RECEIVE FUNCTION.

NOTE

Frequencies in the following description are applicable to Radio Sets AN/SRC-20A and AN/SRC-21A; frequencies for the AN/SRC-20 and AN/SRC-21 are the same, less the hundredths digit.

3-109. SIGNAL PATH. (Figure 3-9.) During receive operation, the 225.00 to 399.95-MHz signal from the antenna is applied through the Directional Coupler to the RF and PA Amplifier in Radio Set AN/URC-9( ). In Radio Set AN/SRC-20( ) only, the signal passes through Radio Frequency Amplifier AM-1565/URC before routing to the AN/URC-9( ). The signal applied to the RF and PA Amplifier is mixed with a frequency in the 200 to 370-MHz range (injected by the FMO) to obtain a difference frequency in the 20.00 to 29.95-MHz range. This signal is passed to, and amplified in, the First IF Amplifier; the amplified 20.00 to 29.95-MHz signal is mixed with a frequency in the range of 17 to 26 MHz which is generated by a crystal-controlled oscillator in the First IF Amplifier. The difference frequency, in the range of 3.00 to 3.95 MHz, is passed to the Second IF Amplifier where it is mixed with a crystal-controlled oscillator frequency which is removed 500 kHz from the difference frequency, thereby producing a 500 kHz output signal. This output signal is routed through a 500-kHz if filter to the Third IF Amplifier where it is demodulated, passed through a noise limiter, amplified, and then applied to the Audio Amplifier and Modulator. The amplified audio signal is sent to the local and remote headsets (or speakers), or to the broadband audio output jack.



NOTES:
1. THE AM-1565/URC IS NOT INCLUDED IN RADIO SET AN/SRC-21( ).
2. IN RADIO SET AN/SRC-21( ), CONNECTION FROM THE ANTENNA IS MADE DIRECTLY TO AN/URC-9( ).
3. FREQUENCIES SHOWN ARE FOR THE AN/SRC-20A AND AN/SRC-21A. FREQUENCIES FOR THE AN/SRC-20 AND AN/SRC-21 ARE THE SAME LESS THE HUNDREDTHS DIGIT.

Figure 3-9. Radio Set AN/SRC-20( ) and AN/SRC-21( ), Receive Function, Block Diagram

3-110. DETAILED DESCRIPTION. (Figure 5-2). The 225.00 to 399.95-MHz received signal is coupled from either the Radio Frequency Amplifier AM-1565/URC (for Radio Set AN/SRC-20( )) or the antenna (for Radio Set AN/SRC-21( )) through the Directional Coupler to rf amplifiers V102 and V103 in the RF and PA Amplifier. The amplified signal, one of 3500 in the range of 225.00 to 399.95 MHz, is mixed in first receive mixer V104 with one of the frequencies between 200 to 370 MHz which is injected by the FMO. The FMO is composed of first oscillator multiplier V201, frequency tripler V202, and injection amplifier comprised of V203, V204 and V205. The difference frequency output (in the range of 20.00 to 29.95 MHz) of first receive mixer V104, is applied through if amplifiers V301 and V302 in the First IF Amplifier to second receiver mixer V303. In V303, the signal is mixed with a frequency in the range of 17 to 26 MHz from second oscillator V305.

3-111. The resultant difference frequency output of second receive mixer V303 (in the range of 3.00 to 3.95 MHz) is then sent to the Second IF Amplifier, where the doubly converted signal is applied to the third receiver mixer, V401A. There, the signal is mixed with a selected frequency from third oscillator

V401B. The selected frequency is based on the value of the received signal. For example, when the converted incoming signal is from 3.00 to 3.45 MHz, it is mixed with a frequency selected from the 3.50 to 3.95-MHz range; when the incoming signal is from 3.50 to 3.95 MHz, it is mixed with a frequency within the 3.00 to 3.45-MHz range. In either case, the resultant signal of 500 kHz is obtained at the output of the third receive mixer in the Second IF Amplifier.

3-112. The triply converted signal is sent through 500-kHz if filter FL901 to the Third IF Amplifier where the signal is amplified by if amplifiers V501, V502, and V503 and passed to detector CR501, series noise limiter CR503, and audio amplifier V504. The amplified audio-frequency signal is then applied to the Audio Amplifier and Modulator. Following amplification in V803, the signal is sent through audio and modulator driver V804 to phase-splitting transformer T801 where it is split and applied in push-pull to audio output amplifiers V805 through V808. The audio output signal is then transformer-coupled through output transformer T802 to the receiver-transmitter front panel headset or speaker jacks.

3-113. STAGE AND SPECIAL CIRCUIT DESCRIPTION. The conventional receiver electronic circuits are briefly described at the stage level; special and unique circuits are described in greater detail. Block diagrams and simplified schematics in this chapter and the maintenance schematic diagrams in Chapter 5 are used to support the descriptive text.

3-114. Functional Relationship of Assemblies. The overall functional relationship of the assemblies within Radio Sets AN/SRC-20( ) and AN/SRC-21( ) are illustrated in figure 3-1.

3-115. Radio Frequency Amplifier AM-1565/URC. Radio Frequency Amplifier AM-1565/URC is used only with Radio Set AN/SRC-20( ). Thus, when Radio Set AN/SRC-20( ) is operating on the receive function, the signal received at the antenna is coupled through the contacts of the output and input coaxial relays, respectively (figure 3-6), in the AM-1565/URC to antenna input jack J701 of Radio Set AN/URC-9( ). When Radio Set AN/SRC-21( ) is operating on the receive function, the signal received at the antenna is coupled directly to the antenna input jack of Radio Set AN/URC-9( ). The remainder of the circuits in Radio Frequency Amplifier AM-1565/URC are used during the transmit function; their operation is described in paragraph 3-79.

3-116. Radio Set AN/URC-9( ). Refer to figure 3-3, a functional block diagram illustrating the overall relationship of the assemblies within Radio Set AN/URC-9 ( ) for both the receive and transmit functions. The signal flow for the received signal is as described in paragraph 3-109. Note that the Third IF Amplifier supplies an if avc signal to the First IF Amplifier and an rf avc signal to the RF and PA Amplifier. The Frequency Selector controls the tuning of the Second IF Amplifier, First IF Amplifier, RF and PA Amplifier, and Frequency Multiplier-Oscillator assemblies. Broadband or plain operation is selected by placing BROADBAND-PLAIN switch S1401 in the desired position. All operating voltages for the circuits within Receiver-Transmitter RT-581( )/URC-9 are furnished by Power Supply PP-2702/URC-9.

3-117. Directional Coupler. Since the major function of the Directional Coupler is to sample the incident and reflected waves of the transmitted rf power, the description of Directional Coupler operation is given in the discussion of transmitter operation in paragraph 3-75. During the receive function, the received rf signal is coupled from the Radio Set AN/URC-9( ) front-panel mounted antenna jack J701 through the directional coupler to input jack J109 on the RF and PA Amplifier.

3-118. RF and PA Amplifier. The RF and PA Amplifier active circuits during receive are rf amplifiers V102 and V103 and first receive mixer V104. (Refer to figure 5-4.) On receive, a signal in the 225.00 to 399.95-MHz range is applied to rf amplifiers V102 and V103 through deenergized relay K101. The first receive mixer V104, heterodynes the amplified rf input signal (in the 225.00 to 399.95-MHz range) with the 200 to 370-MHz injection frequency signal from the Frequency Multiplier-Oscillator. The result of this heterodyning action is the generation of the first if signal in the 20.00 to 29.95-MHz range which is coupled to the First IF Amplifier. The 1750-position 0.1-MHz shaft of the Frequency Selector controls the tuning of the rf amplifiers and first receive mixer stages during the receive function. The remainder of the circuits in the RF and PA Amplifier are used during the transmit function; the operation of these circuits is described in paragraph 3-43.

3-119. The signal in the 225.00 to 399.95-MHz range from the Directional Coupler is applied to J109 of the RF and PA Amplifier (see figure 5-140). Contacts 1 and 3 of antenna relay K101 (deenergized on receive) couple the received signal to parallel-tuned rf input tank Z101 through a network consisting of capacitors C106 and C108. Resistor R117 provides a dc path to ground for static charges developed on the antenna. Capacitor C110 couples the signal voltage developed across parallel-tuned rf input tank Z10o to the cathode of rf amplifier V102. The cathode circuit of V102 consists of, network Z102, which provides a high coupling impedance for the rf signal, and resistor R122, which provides a cathode bias for the tube. Resistor R104 connects the control grid of V102 to the rf avc bus and, in conjunction with capacitor C109, isolates rf signals from the rf avc bus. Plate voltage of +125 vdc is supplied through coil L105 and dropping resistor R116. Capacitor C113 isolates rf signals from the +125-vdc supply. Capacitor C114 couples the rf signal to plate tank Z103. Capacitor C117 couples the rf signal developed across plate tank Z103 to rf amplifier V103 which provides a stage of rf amplification similar to that of V102.

3-120. The network (C121, Z105, and C123) between V103 and V104 couples the amplified rf signal to the cathode of first receive mixer V104. The cathode circuit of V104 consists of rf coupling choke L110, cathode bias resistor R111, and C125, the bypass capacitor for R111. Capacitor C137 grounds the control grid of V104 for rf and capacitor C144 provides additional filtering in the grid circuit.

3-121. The cathode of V104 also receives a signal in the 200 to 370-MHz range from the FMO through contacts 6 and 7 of injection relay K102 and capacitor C135. This signal mixes with the rf signal to produce a difference frequency in the range of 20.00 to 29.95 MHz. The difference frequency, developed at the plate of V104, is coupled to J102 through L109 and contacts 4 and 5 of injection relay K102 (deenergized in receive). First receive mixer V104 receives plate voltage from the +125-vdc supply through L109, L113, in the RF and PA Amplifier, and resistor R607 in the Relay-Filter (see figure 5-134).

3-122. When the tank circuits (Z101, Z103, and Z105) are tuned by the Frequency Selector, both capacitance and inductance are varied. This improves the sensitivity by maintaining a high tank efficiency over the 225.00 to 399.95-MHz frequency range. Trimmer capacitors C107, C115, and C122 set the minimum capacitance points of the tank circuits.

3-123. Frequency Multiplier-Oscillator (FMO). The FMO (figure 5-5) generates frequencies in the 200 to 370-MHz range. These frequencies are injected into the RF and PA Amplifier during both receive and transmit operations. Operation of the FMO is identical during both receive and transmit operation. The 18-position, 10-MHz shaft of the Frequency Selector controls the tuning of all stages within this assembly.

3-124. First oscillator-multiplier V201 is a crystal-controlled, cathode-coupled oscillator especially designed for use with overtone crystals (see figure 5-141). The right half of the twin triode tube operates as a grounded-grid amplifier and is capacitively coupled to the left half, which acts as a cathode follower. Capacitor C207 couples the signal from the plate (pin 4) of the grounded-grid amplifier to the control grid (pin 7) of the cathode follower. The crystal, which couples the output of the cathode follower to the cathode (pin 2) of the amplifier, operates at series resonance to provide low impedance coupling with zero phase shift. The phase shift through the amplifier is also zero; thus, an in-phase signal is fed back to the grounded-grid amplifier satisfying the conditions required for sustained oscillation.

3-125. Crystals Y202, Y204, and Y206 through Y218 have one common side connected through C204 to pin 2 of V201. The grounded crystal cases produce a large capacitance to ground at pin 2 of V201; however, L219 resonates with this capacitance and cancels its effect on the circuit. In a similar manner, L220 resonates with the crystal socket capacitance, thereby canceling its effect on the operation of the circuit. Trimmer coils L201 through L218, inclusive, are used with their respective crystals to tune the plate of the grounded-grid amplifier to resonance. Capacitor C201 prevents the plate voltage on pin 4 of V201 from being grounded through the trimmer coils. Capacitor C236 is a temperature-compensating capacitor. The grid (pin 3) of the grounded-grid amplifier is grounded through parasitic suppressor R202; resistors R203 and R204 provide the coupling impedances (and bias) at the cathodes for the two halves of V201.

3-126. Plate voltage for the cathode follower is supplied through step tuner Z201, trimmer coil L222, and parasitic suppressor R206. The step tuner in the oscillator output tank is tuned to the second harmonic of the crystal frequency by the 18-position, 10-MHz shaft of the Frequency Selector when the set operates in the 220 to 299.95-MHz range. When the radio set operates in the 300 to 399.95-MHz range, the tank circuit is tuned to the third harmonic. Thus, the output of the crystal oscillator is either two or three times the crystal frequency, depending upon the operating frequency of the set (see table 3-4). Capacitor C208 and coil L222 are trimmers for oscillator output tank Z201.

3-127. Capacitor C210 couples the first oscillator-multiplier output signal to the control grid of V202, which operates as a frequency tripler. The tripling action is accomplished by tuning plate tank Z202 to the third harmonic (200 to 370 MHz) of the signal applied to the grid. Thus, the signal in the plate tank is either six times or nine times that of the selected crystal frequency in first oscillator-multiplier V201. Test point J201 provides an indication of the drive to V202, and capacitor C211 bypasses rf signals to ground preventing them from interfering with dc measurements being made at J201. The cathode of V202 is grounded; therefore, the tube depends entirely upon the voltage developed across the grid-leak circuit for bias. Plate voltage of +125 vdc is supplied to V202 through R213 and L224. Capacitor C214 couples the rf signal to parallel-tuned plate tank Z202; trimmer C215 sets the minimum capacitance point of the plate tank circuit. Capacitor C216 couples the rf signal from the plate tank to the cathode of grounded-grid amplifier V203, the first of three injection amplifiers.

3-128. The cathode circuit of first injection amplifier V203 consists of resistor R215, which provides cathode bias. Plate voltage for V203 is supplied from the +125-vdc supply through R210 and L226. Capacitor C220 couples the rf signal from the plate of V203 to parallel-tuned tank circuit Z204. Capacitor C222 couples the signal to the cathode of second injection amplifier V204.

Injection amplifiers V204 and V205 each provide a stage of amplification identical to that of V203. Capacitors C234 and C235 form a voltage divider from which the 200 to 370-MHz uhf signal is injected through J205 to contact 6 of injection relay K102 in the RF and PA Amplifier (see figure 5-140).

3-129. Test points J202, J203, and J204 are used to measure the rf signals at the cathodes of the injection amplifiers during alignment or, during troubleshooting, to inject a signal to locate a defective stage. Tank circuits Z202, Z204, Z206, and Z208 are tuned by the 18-position, 10-MHz shaft of the Frequency Selector. When the tank circuits are tuned, both capacitance and inductance are varied, improving stage gain by maintaining a good inductance to capacitance ratio.

3-130. First IF Amplifier. On receive, a signal in the 20.00 to 29.95-MHz range from the RF and PA Amplifier is applied to the control grid of V301 in the First IF Amplifier (see figure 5-6). After amplification by V301 and V302, the 20.00 to 29.95-MHz signal is applied to the control grid of second receive mixer V303 where it is heterodyned with a 17 to 26-MHz signal injected from second oscillator V305. The output of the second receive mixer is a signal in the 3.00 to 3.95-MHz range which is coupled to the Second IF Amplifier. The 100-position, 0.1-MHz shaft of the Frequency Selector controls the tuning of if amplifiers V301 and V302 and second receive mixer V303 during the receive function; crystal selection and second oscillator V305 tuning are controlled by the 10-position, 1-MHz shaft.

3-131. Refer to figure 5-142 during the following discussion. The 20.00 to 29.95-MHz input signal from V104 in the RF and PA Amplifier is coupled through capacitor C301 to parallel-tuned tank Z301. Capacitor C303 couples the if signal to the adjacent parallel-tuned tank, Z302 and avc blocking capacitor C302 couples the signal to the control grid of if amplifier V301 through parasitic suppressor R324. Resistor R301, in conjunction with bypass capacitor C326, isolates the if signal from the if avc bus. Capacitor C319 grounds the cathode of V301 for rf. Series resistors R304, R305, and R303 form a voltage divider that provides proper plate and screen-grid voltages to V301. Resistor R304 is connected to the +125- vdc supply, and R303 is grounded by contacts 15 and 16 of t/r relay K602 in the Relay-Filter (see figure 5-134).

3-132. Parallel-tuned tank Z303 is the plate load for V301. Capacitor C308 couples the if signal to the next parallel-tuned tank, Z304. Capacitor C311 couples the if signal to the control grid of second if amplifier V302 through parasitic suppressor R307. A similar network (Z305, C314, Z306 and C316) couples the amplifier 20.00 to 29.95-MHz signal to the control grid of second receiver mixer V303. Series resistors R309, R325, and R326 form a voltage divider that provides proper plate and screen-grid voltages to V302. The dc voltage developed across R308 is applied to the S METER circuit (figure 5-149) to provide an indication of the input signal strength. Parallel tank circuits Z301 through Z306 are tuned by the 100-position, 0.1-MHz shaft of the Frequency Selector. Trimmer capacitors C302, C304, C305, C309, C312, and C317 are adjusted to set the inductance to capacitance ratio for proper tracking. Test points J301 and J302 provide for measuring if avc voltage at the control grids of V301 and V302, respectively. Test point J303 provides for measuring the bias developed by the 20.00 to 29.95-MHz signal on the control grid of V303.

3-133. Second oscillator V305 is controlled by crystals Y301 through Y310. Crystal switches S301 and S302 select the proper crystal according to the setting of the Frequency Selector. One half (pins 6, 7, and 8) of tube V305A is a grounded-grid amplifier working into parallel-tuned tank Z307, which constitutes its plate load. The tank is ganged with the crystal switches driven by the 10-position, 1-MHz shaft of the Frequency Selector. Capacitor C343 couples the output from the plate (pin 6) of grounded-grid amplifier V305A to the control grid (pin 3) of cathode follower V305B, the other half of the tube. The crystal couples the output (pin 2) of the cathode follower to the cathode (pin 8) of the grounded-grid amplifier. The crystals operate at series resonance to provide low impedance coupling with zero phase shift. The phase shift through the cathode follower is also zero. Thus, an in-phase voltage is routed back to the cathode of the grounded-grid amplifier sustaining conditions for oscillation. Coil L311 resonates the crystal socket capacitance and prevents it from affecting the operation of the circuit. Resistors R321 and R322 provide the coupling impedance at the cathodes and bias for the two sections of the tube. Test point J305 provides for measuring the dc bias developed across R320. Resistor R318 isolates J305 from the control grid, pin 3, of the cathode follower and prevents loading of the grid circuit by test instruments. The plate, pin 4, of the cathode follower receives voltage from the +125-vdc supply through isolation resistor R315. The plate, pin 6, of the grounded-grid amplifier receives voltage from the +125-vdc supply through R313 and L310.

3-134. The 17 to 26-MHz output of second oscillator V305 is taken from the cathode, pin 2, of the cathode follower section, V305B, and routed to the cathode of second receive mixer V303 through coupling capacitor C325. The 17 to 26-MHz oscillator signal mixes with the 20.00 to 29.95-MHz if signal applied to the grid of V303, producing a difference frequency in the range 3.00 to 3.95 MHz. This difference frequency is coupled to the Second IF Amplifier through plug P304. Plate voltage for V303 is supplied from the +125-vdc supply through L312, P304, J401, Z401, C406, and R401 in the Second IF Amplifier, and contacts 18 and 19 of t/r relay K602 in the Relay-Filter (see figure 5-134). (Table 3-3 shows how frequencies in the 17 to 26-MHz range are used with a particular channel frequency by the First IF Amplifier.)

3-135. Second IF Amplifier-AN/URC-9A. The Second IF Amplifier generates a signal at a frequency which, when mixed with the received signal, produces a 500-kHz signal.

3-136. The Second IF Amplifier (figure 5-8) consists of V401 and crystals Y401 (A and B) through Y410(A and B) which range from 3.00 to 3.95 MHz in 0.05-MHz steps. At receive, third oscillator V401B and its associated crystals provide frequencies which are mixed in third receive mixer V401A with the 3.00 to 3.95-MHz input signal from the First IF Amplifier. This mixing action produces a 500-kHz signal which is coupled through 500-kHz if filter FL901 to the Third IF Amplifier. The 10-position, 0.1-MHz shaft of the Frequency Selector controls the tuning of all stages during receive and transmit.

NOTE

The input frequency and the crystal-controlled oscillator frequency both range from 3.00 to 3.95 MHz. However, by displacing the two signals by 500 kHz at the third receiver mixer, a difference frequency of 500 kHz is obtained.

3-137. Refer to figure 5-144 during the following discussion. The 3.00 to 3.95-MHz signal is applied through J401 to parallel-resonant tank circuit Z401. This tank circuit is the plate load for second receive mixer V303 in the First If Amplifier. The signal is coupled through two more parallel-resonant tank circuits (Z402 and Z403) by C403 and C407, respectively. The signal is then applied through C411 to the cathode of third receive mixer V401A. The three parallel-resonant tank circuits, Z401 through Z403, form a 3.00 to 3.95-MHz bandpass filter. The 10-position, 0.1-MHz shaft of the Frequency Selector tunes this filter by positioning powdered-iron cores in main tuning coils L401, L403, and L405. Trimmer coils L402, L404, and L406 are adjustable for proper tracking.

3-138. Third oscillator V401B is controlled by crystals Y401 (A or B) through Y410 (A or B). The t/r relay, K401 (de-energized at receive), connects the control grid of V401B to the proper crystal switching network. Switches S401 and S402 are driven by the 10-position, 0.1-MHz Frequency Selector shaft. Each switch selects one of ten crystals spaced in 0.10-MHz steps. At each switch position, the crystal frequency selected by S402 is 0.05 MHz (50 kHz) above that selected by S401. For example, when S401 is positioned to select the 3.40-MHz crystal, S402 is positioned to select the 3.45-MHz crystal so that there is always a 0.05 MHz difference in the frequency of the crystals selected. Hundredths relay K402 connects either switch S401 or S402 to the control grid of V401B through the contacts of relay K401.

3-139. The crystal switching network selects crystals of a value that provides a 500 kHz (0.5 MHz) difference between the third oscillator frequency and the if signal (ranging from 3.00 to 3.95 MHz) applied to the cathode of V401A. For example, when the radio set is tuned to receive a frequency, the last two digits of which are xxx.95, the if signal is 3.95 MHz. Selector switches S401 and S402 are positioned by the 0.1-MHz tuning shaft so that they are making contact (through contacts 12 and 11 of each switch) with the 3.40 and 3.45-MHz crystals, respectively. Relay K402 is energized in this case to complete the circuit between S402 and the oscillator control grid (through contacts 3 and 8 of K401) so that the 500-kHz difference in frequency is maintained. Table 3-1 shows how frequencies in the 3.00 to 3.95-MHz range are used by the Second IF Amplifier.

3-140. A voltage divider consisting of series-connected capacitors C412 and C413 determines the electrical position of the cathode of third oscillator V401B relative to the grid of V401B. The tuned circuit of the third oscillator consists of the selected crystal (Y405A in this case), capacitors C412 and C413, plus the grid-to-ground and cathode-to-ground capacitance of V401B. The third oscillator is a Colpitts type with the crystal acting as an inductance. The value of the total capacitance is such that oscialation is maintained at the fundamental frequency of the crystal. Cathode resistor R404 provides additional bias to protect V401B in case oscillation stops. Coil L407 isolates bias resistor R404 from the crystal circuit.

3-141. Third oscillator V401B receives plate voltage from the +125-vdc supply through R407 and filter FL404. Test point J404 provides for measuring the voltage developed across third oscillator grid resistor R403. Resistor R402 isolates J404 from the crystal circuit. Coupling capacitor C417 couples the signal from the cathode of V401B to the control grid of V401A.

3-142. The incoming if and third oscillator signals mix in second receive mixer V401A to produce the 500-kHz difference frequency. Third receive mixer V401A receives plate voltage from FL404 and voltage dividers R410 and R409, via R408. Resistor R405 provides cathode bias and the coupling impedance for the injection signal from the 3.00 to 3.95-MHz bandpass filter (Z401, Z402, and Z403). Test point J402 provides for measuring the 3.00 to 3.95-MHz injection signal. Resistor R406 provides the grid return for V401A.

3-143. Second IF Amplifier-AN/URC-9. (Figure 5-7.) The Second IF Amplifier consists of V401 and crystals Y401 through Y410 which range from 3.0 to 3.9 MHz in 0.1-MHz steps. At receive, V401A is used as the third receive mixer which produces a 500-kHz signal by mixing the input signal with the output of oscillator V401B. The 10-position, 0.1-MHz shaft of the Frequency Selector controls the tuning of all stages during both the receive and transmit conditions. V401A, which is a mixer at receive, functions as a buffer amplifier at transmit.

NOTE

The input frequency and the self-contained oscillator frequency both range from 3.0 to 3.9 MHz. However, by displacing the two signals by 500 kHz at the third receiver mixer, a difference frequency of 500 kHz is obtained.

3-144. Refer to figure 5-143 during the following discussion. The 3.0 to 3.9-MHz signal is applied to parallel-resonant tank circuit Z401 via J401. This tank circuit is the plate load for the second receive mixer in the First IF Amplifier. The signal is coupled through two more parallel-resonant tank circuits, Z402, and Z403, by C403 and C407, respectively. The signal is then applied to the cathode of third receive mixer V401A via C411. The three parallel-resonant tanks, Z401 through Z403, form a 3.0 to 3.9-MHz bandpass filter. The 10-position, 0.1-MHz shaft of the Frequency Selector tunes this filter by positioning powdered-iron cores in main tuning coils L401, L403, and L405. Trimmer coils L402, L404, and L406 are adjustable for proper tracking.

3-145. Third oscillator V401B is controlled by crystals Y401 through Y410. The t/r relay K401 (deenergized at receive), connects crystal selector switch S401 to the control grid of V401B. The switch, in turn, is driven by the 10-position, 0.1-MHz shaft of the Frequency Selector. The switch selects a crystal of a value that provides a 500-kHz difference between the third oscillator frequency and the 3.0 to 3.9-MHz if input signal. For example, when the radio set is tuned to receive a frequency of xxx.9, the resultant if signal is 3.9 MHz. Selector switch S401 is positioned by the 0.1-MHz tuning shaft so that the rotor of S401 is in contact with terminal 4. With switch S401 in position and with relay K401 deenergized, the 3.4-MHz crystal, Y405, is connected through contacts 1 and 2 of the relay to the grid circuit of third oscillator V401B.

3-146. Table 3-2 illustrates frequency development for the Second IF Amplifier. When the 0.1-MHz shaft of the Frequency Selector is set to a frequency in the x.0 to x.4-MHz range, the oscillator frequency during receive is in the 3.5 to 3.9-MHz range and the if signal is in the 3.0 to 3.4-MHz range (500 kHz difference). When the 0.1-MHz shaft of the Frequency Selector is set to a frequency in the x.5 to x.9-MHz range, the oscillator frequency during receive is in the 3.0 to 3.4-MHz range and the if signal is in the 3.5 to 3.9-MHz frequency range (500 kHz difference).

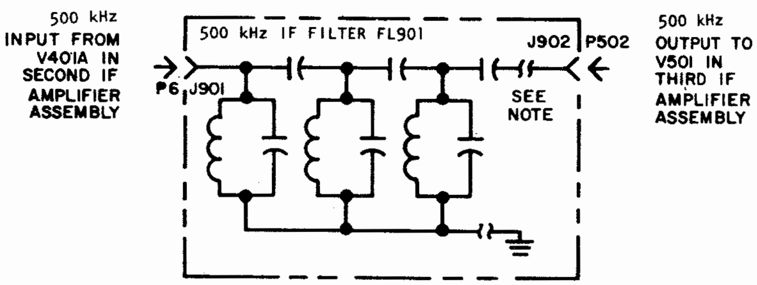
3-147. A voltage divider consisting of series-connected capacitors C412 and C413 determines the electrical position of the cathode of third oscillator V401B relative to the grid of V401B. The tuned circuit of the third oscillator consists of the selected crystal, capacitors C412 and C413, plus the grid-to-ground and cathode-to-ground capacitance of V401B. The third oscillator is a Colpitts type with the crystal acting as an inductance. The value of the total capacitance is such that oscillation is maintained at the fundamental frequency of the crystal. Cathode resistor R404 provides additional bias to protect V401B in case oscillation stops. Coil L407 isolates bias resistor R404 from the crystal circuit.

3-148. Third oscillator V401B receives plate voltage from the +125-vdc supply through R407 and filter FL404. Test point J404 is used to measure the voltage developed across third oscillator grid resistor R403. Resistor R402 isolates J404 from the crystal circuit. Coupling capacitor C417 couples the signal from the cathode of V410B to the control grid of V401A.

3-149. The incoming if and third oscillator signals mix in second receive mixer V401A to produce the 500-kHz difference frequency. Third receive mixer V401A receives plate voltage from voltage dividers R410 and R409 via R408. Resistor R405 provides cathode bias and the coupling impedance for the injection signal from the 3.0 to 3.9-MHz bandpass filter (Z401, Z402, and Z403). Test point J402 is used to measure the 3.0 to 3.9-MHz injection signal. Resistor R406 provides the grid return for V401A.

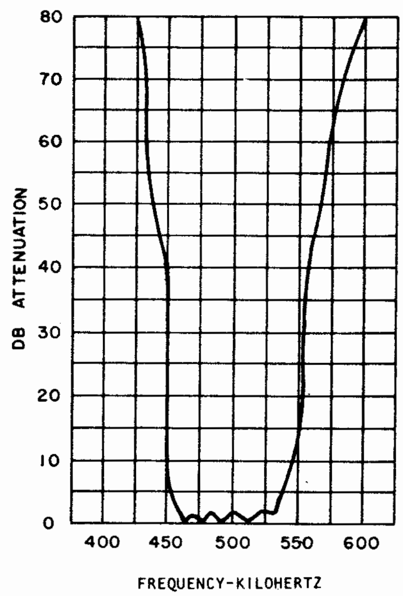
3-150. The 500-kHz if filter (figure 3-10) provides the filtering in the Second IF Amplifier that establishes the receiver selectivity; in turn, the filter output is applied to the Third IF Amplifier.

3-151. The filter consists of ten parallel-tuned, cascaded circuits which are capacitively coupled. (Since each section is identical, only three elements are shown in figure 3-10.) The filter is factory-tuned to the bandpass characteristics shown in figure 3-10. On transmit, the filter is non-operational.



A. SCHEMATIC DIAGRAM

NOTE:
FL901 IS COMPOSED OF TEN SECTIONS OF FILTER ELEMENTS.



B. BANDPASS CHARACTERISTICS

Figure 3-10. Radio Set AN/URC-9( ), 500-kHz Filter, Schematic Diagram and Bandpass Characteristics

3-152. Third IF Amplifier. The Third IF Amplifier (operational only during receive operation) amplifies the final if signal and detects and amplifies the audio component (see figure 5-9). The Third IF Amplifier consists of three stages of if amplification (V501, V502, and V503), diode detector CR501, a series noise filter, and first audio amplifier V504. In addition, the assembly contains an if avc gate, CR504, and an rf avc gate, CR505.

3-153. Refer to figure 5-145 during the following discussion of the input stages. The 500-kHz if signal from the plate of second receive mixer V401A in the Second IF Amplifier is applied through filter FL901 to the control grid of first if amplifier V501. Resistor R501 connects the control grid of stage to the if avc bus, and capacitor C504 provides a low impedance rf path from the screen grid to the cathode. The plate of V501 receives voltage through L501 and R504 from the +125-vdc supply. Capacitor C502 couples the 500-kHz if signal to the control grid of if amplifier V502. Resistor R505 connects the control grid of V502 to the if avc bus.

3-154. Capacitor C503 couples the 500-kHz if signal to the control grid of if amplifier V503. The control grid of V503 is connected to ground through grid-leak resistor R509. The if amplifier receives plate voltage through R512 and the primary of if output transformer T501 from the +125-vdc supply. The output of V503 is coupled through transformer T501 to detector CR501, series noise limiter CR503, and first audio amplifier V504. Test points J503 and J505 are used to inject a signal into V501 and V503, respectively, for troubleshooting.

3-155. The if signal is coupled from V503 to audio detector CR501 (figure 3-11) by transformer T501. Capacitor C520 is an rf filter and resistor R539, connected across the secondary of T501, improves the frequency response of the transformer. Detector CR501 demodulates the input signal and produces an audio signal across load resistors R516, R517, and R518. The detected audio is coupled from the junction of resistors R518 and R517 through resistor R538, series noise limiter diode CR503, and capacitor C522 to the grid circuit of first audio amplifier V504. Capacitor C524 grounds the cathode of detector CR501 for audio and rf voltages. Resistor R538 and capacitor C521 filter rf components (from the 500-kHz if signal) from the audio signal.

3-156. The audio and dc voltage developed across the diode load is applied as the carrier squelch through resistors R515 and R541, and through MODE switch S702B to the squelch amplifier of the Audio Amplifier and Modulator; it is also applied to the broadband audio amplifier of the Audio Amplifier and Modulator, as the broadband audio output. Test point J508 is used to measure the detected audio as well as the broadband audio output. Resistor R532 prevents loading of the detector circuit by test instruments. A low-impedance path to ground for the 500-kHz if components is provided by C528 and L503.

3-157. Series noise limiter CR503 (figure 3-11) clips audio peaks exceeding 60% modulation. The series noise limiter does not affect that part of the signal produced by modulation troughs. The cathode of the noise limiter is connected to the negative end of the detector load (bottom of R516) through resistors R519 and R520. Resistor R519, in conjunction with capacitor C523, filters the audio signal and produces, at the junction of resistors R519 and R520, a negative dc voltage proportional to the voltage at the negative end of the detector load. The peak audio signal voltage at the anode of CR503 is approximately 90% of the average (or dc) voltage at the negative end of the detector load. Thus, at modulation percentages up to approximately 60%, the cathode of series noise limiter CR503 is negative with respect to its anode, and the audio signal is faithfully reproduced across series noise -limiter load resistor R520. When modulation peaks exceed a value representing 60% modulation, the anode of CR503 goes negative with respect to its cathode and the diode stops conducting. Thus, that part of the signal representing more than 60% modulation is clipped off.

3-158. Refer to the if avc circuit in figure 3-11 during the following discussion. During receive, approximately +4.5 vdc is applied to the cathode of audio detector CR501. This bias voltage delays the development of the avc voltage until the signal reaches an amplitude sufficient to overcome it. The bias voltage is obtained from the +275-vdc supply by way of a voltage divider which consists of Audio Amplifier and Modulator resistors R813, R814, and R816.

3-159. The voltage at the negative end of the audio detector load (bottom of R516) is the algebraic sum of the positive bias voltage and a negative voltage of approximately equal to the average rms voltage of the if signal. Since the cathode of if avc gate diode CR504 is returned to the negative end of the audio detector load through R529, CR504 cannot conduct until the algebraic sum of the positive bias voltage and the negative voltage developed across the detector load results in a net negative voltage at its cathode. When the input signal amplitude causes the voltage at the bottom of R516 to become more negative than -4.5 vdc, the cathode of if avc gate CR504 becomes negative; the diode conducts and develops a voltage across load resistor R531. This voltage controls the gain of if amplifiers V301 and V302 in the First IF Amplifier, and if amplifiers V501 and V502 in the Third IF Amplifier. Test point J504 is used to measure the if avc voltage developed by if avc gate CR504.

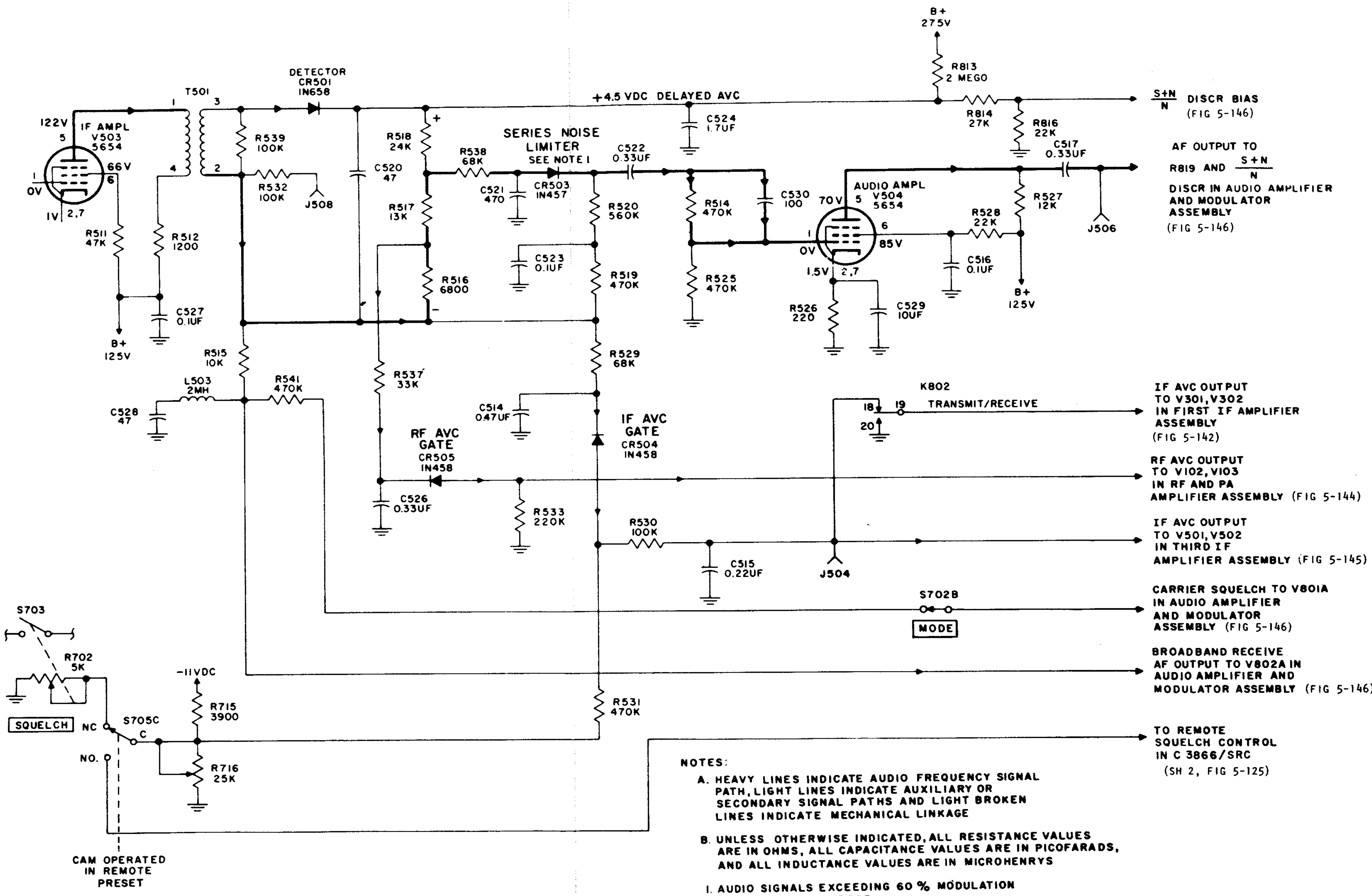
3-160. The if avc gate, CR504, isolates the if avc line from the positive bias voltage applied to the cathode of CR501. Resistors R529 and R530, in conjunction with capacitors C514 and C515, filter the audio signal from the if avc line. A bias voltage is applied to the if avc line through if avc gate load resistor R531 from the -11-vdc supply by a voltage divider consisting of R715 in series with R716 and SQUELCH control R702. In local operation, the bias level is set by SQUELCH control R702 on the front panel (see figure 5-151). In remote operation, S705C connects to the S9 SQUELCH controls in the C-3866/SRC. Each squelch control is adjusted for operation with its assigned channel. The exact voltage that causes if gate CR504 to conduct can be varied by means of the remote squelch circuit.

3-161. Refer to rf avc circuit in figure 3-11 during the following discussion. A portion of the audio signal developed across audio detector load resistors R516, R517, and R518 is coupled from the junction of R516 and R517 to the cathode of rf avc gate CR505 via R537. Although connected to a less negative voltage level (the top of R516), the rf avc gate serves the same purpose as the if avc gate.

3-162. The voltage appearing at the cathode of the rf avc gate is always more positive than the voltage at the cathode of if avc gate CR504. Thus, the signal amplitude must be higher to overcome the delay bias. This results in more delay for rf avc and improves the sensitivity of the radio set. Resistor R533 is the load resistor for rf avc gate CR505; resistor R537 with capacitor C526 filters the audio signal from the rf avc lkne. The rf avc voltage developed across load resistor R533 is used to control the gain of the rf amplifiers, V102 and V103, in the RF and PA Amplifier.

3-163. Refer to the audio amplifier circuit in figure 3-11 during the following discussion. Audio signals developed across series noise-limiter load resistor R520 are coupled to the grid of audio amplifier V504 through coupling capacitors C522 and C530, and resistors R514 and R525. These resistors form a voltage divider which decreases the amplitude of the input signals thereby decreasing distortion. Cathode resistor R526 is bypassed by capacitor C529. Capacitor C516 provides a low-impedance path to ground for audio signals on the screen grid of audio amplifier V504. Plate and screen voltages are supplied from the +125-vdc supply through plate load resistor R527 and screen dropping resistor R528. The audio output is developed across resistor R527 and coupled through capacitor C517 to the normal receiver volume control, R819, in the Audio Amplifier and Modulator (see figure 5-146).

3-164. Audio Amplifier and Modulator. During receive operation, tubes V803 through V808 amplify the received and detected audio signals to the level necessary to drive both the local and remote headsets; during transmit, these amplifier stages are used to modulate the carrier in the RF and PA Amplifier (see figure 5-10). In addition to the basic amplifier and modulator circiuts, the Audio Amplifier and Modulator contains dc squelch amplifiers V801A and



NOTES:

A. HEAVY LINES INDICATE AUDIO FREQUENCY SIGNAL PATH, LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS AND LIGHT BROKEN LINES INDICATE MECHANICAL LINKAGE

B. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN PICOFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRYS

1. AUDIO SIGNALS EXCEEDING 60 % MODULATION ARE CLIPPED BY CR503

2. UNLESS OTHERWISE INDICATED, ALL VOLTAGES ARE D.C. TAKEN WITH A HIGH INPUT IMPEDANCE VTVM, AND MEASURED TO GROUND (CHASSIS)

Figure 3-11. Radio Set AN/URC-9( ), Detector, Noise Limiter, and AVC Circuits, Simplified Schematic Diagram

V801B and squelch relay K801, signal-plus-noise to noise (S+N/N) squelch discriminator CR801 and CR802, broadband cathode follower V802A, and compression rectifier V802B.

3-165. Refer to the audio amplifier and driver circuits in figure 5-146 during the following discussion. The audio input from the Third IF Amplifier is applied to the control grid of audio amplifier V803. The signal is applied through closed contacts 12 and 5 of squelch relay K801, contacts 15 and 16 of t/r relay K802, and contacts 3 and 8 of broadband relay K803. (This latter relay is closed when the PLAIN-BROADBAND switch is in the PLAIN position.) The input is developed across resistor R826 and is coupled to the control grid of V803 through C809, the parallel combination of C817 and R847, and R854. Jack J805 is a test point used either to measure audio signals or to inject audio signals at the control grid of V803 during test and troubleshooting. Plate and screen voltages for V803 are obtained from the +125-vdc supply through a voltage divider consisting of resistors R828 and R829 of this assembly, and resistors R616, R617, and R618 of the Relay-Filter.

3-166. Audio and modulator driver V804 is a parallel-operated dual-triode. The cathode bias for both sections is obtained from R832 which is bypassed by C815. The V803 audio output is developed across resistor R830 and is coupled through C814 to potentiometer R831 which adjusts the input level to audio and modulator driver V804 during normal operation. The audio level determined by the setting of R831 is coupled to the parallel-connected grids of V804 through C818 and parasitic suppressors R855 and R856. Test point J802 is used to measure audio signals or to inject audio signals at the control grid of V804. Plate voltage for the stage is obtained from the +275-vdc supply through the primary of phase-splitting transformer T801.

3-167. Audio output amplifiers V805 through V808 are parallel-connected and push-pull operated. Tubes V805 and V807 comprise a parallel pair, as do tubes V806 and V808. The output signal of audio and modulator driver V804 is developed across T801 and applied to the control grids of the audio output amplifiers. The signal at pin 3 of the secondary winding is coupled directly to the parallel-connected grids of V805 and V807; and the signal at pin 5 of the transformer, which is 180 degrees out of phase with the pin 3 signal, is coupled directly to the control grids of V806 and V808. A fixed bias of -11 vdc is applied to the control grids through the transformer center tap, pin 4. The cathodes of V805 through V808 are returned to ground through R834 which is a meter shunt. (The voltage developed across the resistor during transmit indicates the percentage of modulation.) Screen grid voltages for the output amplifiers are supplied from the +125-vdc supply through parasitic suppressors R843 through R846. Plate voltages are supplied from the +275-vdc supply through the primary of the output transformer. Test points J803 and J804 are used to measure the audio modulation (during transmit) and the input to V806, respectively.

3-168. The receive audio output signal is obtained from the tapped secondary winding (pins 7, 8, and 9) of T802 (see figure 3-5). The normal receive audio output is coupled from pin 7 of T802 to contacts 9 and 10 of t/r relay K602 of the Relay-Filter. The remote audio from pin 10 of K602 is coupled directly to the remote audio output jack; the local audio is routed through the parallel combination of resistor R3 and VOLUME control R117, and resistor R705 to local HEADSET J702B and AUDIO output jacks J703 and J704.

3-169. Refer to the squelch circuit in figure 3-12 during the following discussion. The squelch circuit deenergizes the audio stages when the input signal level drops below the squelch threshold level. The front panel SQUELCH control enables the circuit and controls the gain of the receiver by applying a negative bias to the if avc line. Thus, the setting of the SQUELCH control determines the input signal level that deactivates the squelch circuit.

3-170. With reference to figure 3-12, note the MODE switch S702B is modified by link connections. When the link is connected across pins 1 and 2, the equipment is connected for S+N/N squelch; and when the link is connected across pins 1 and 3, the equipment is connected for carrier squelch. Thus, the squelch dc amplifiers receive a grid voltage from a route determined by the setting of MODE switch S702B and the squelch connections. At the NOR (normal) and TONE settings of the MODE switch, and with the link connected between 1 and 2, grid voltage is applied to V801A from S+N/N discriminator control R804 through R805 and contacts 1 or 3 of the MODE switch. In the RETRANS (retransmit) mode, the grid of V801A is connected to the negative side of audio detector load (R516, R517, and R518) through R515, R514, and contact 2 of the MODE switch.

NOTE

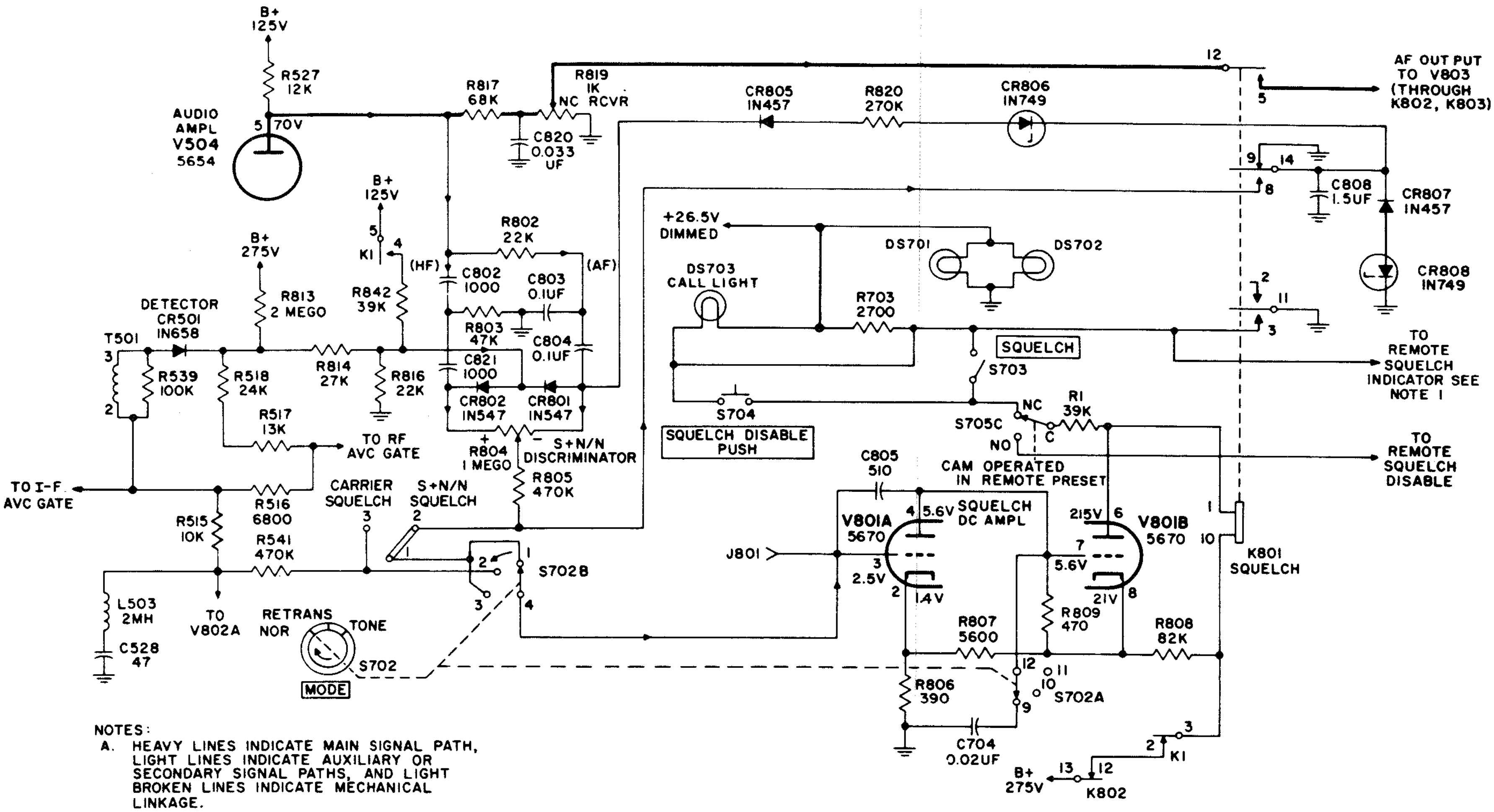
Regardless of the link connection, in RETRANS mode, the equipment is set for carrier squelch; and when the link is connected between pins 1 and 3, the grid of V801A is always connected to the negative side of the detector load.

3-171. Resistors R806, R807, and R808 comprise a voltage divider that provides operating voltages for squelch dc amplifiers V801A and V801B. The cathode of V801B is connected to the junction of resistors R807 and R808. Thus, the cathode of V801B is at a much higher positive potential than the cathode of V801A. The control grid of V801B and the plate of V801A are connected to the cathode of V801B through resistor R809. The plate of V801B is connected to the +275-vdc supply through the coil of squelch relay K801, contacts 3 and 2 of work relay K1, and contacts 12 and 13 of t/r relay K802 (see figure 5-134).

3-172. With no received signal, there is a positive bias on the control grid of V801A. This bias is the result of the delay bias on the detector load provided by R813, R814, and R816 during carrier squelch operation and during S+N/N operation, it is the reference bias developed by sensing diodes CR801 and CR802. With conditions as stated, tube V801A conducts, drawing current through R809 which causes the control grid of V801B to go negative with respect to the cathode. Tube V801B cannot conduct because of the negative bias on its control grid. Squelch relay K801 is deenergized and the audio line from audio amplifier V504 to audio amplifier V803 is open because contacts 12 and 5 of the squelch relay are open.

3-173. When a signal is received, the negative voltage developed by the carrier across the detector load (carrier squelch), or the negative voltage developed in the sensing circuit (S+N/N squelch) biases V801A to cutoff. With no current through V801A, there is no voltage drop across plate load resistor R809, and the grid of V801B approaches the same potential as the cathode. This causes V801B to conduct and squelch relay K801 to energize, thereby completing the circuit from audio amplifier V504 to audio amplifier V803 through contacts 5 and 12 of K801.

3-174. SQUELCH control R702 is normally adjusted for threshold at the frequency of minimum received signal strength. Weak signals or noise may cause squelch relay K801 to operate intermittently; this intermittent operation will be indicated by CALL LIGHT DS703 which will flicker on and off. SQUELCH DISABLE switch S704 may be used to determine whether noise or signals are causing the intermittent operation. When pressed, this switch provides a ground return for



NOTES:
A. HEAVY LINES INDICATE MAIN SIGNAL PATH, LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS, AND LIGHT BROKEN LINES INDICATE MECHANICAL LINKAGE.
B. RELAYS ARE SHOWN IN DE-ENERGIZED POSITION.
C. SWITCHES ARE VIEWED FROM OPPOSITE DRIVEN END.
D. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN PICOFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRYS.

1. THE REMOTE, SQUELCH INDICATOR, AND SQUELCH DISABLE FUNCTIONS ARE NOT USED ON AN/SRC-20( ) AND AN/SRC-21( ).
2. UNLESS OTHERWISE INDICATED, ALL VOLTAGES ARE DC TAKEN WITH A HIGH IMPEDANCE VTVM, AND MEASURED TO GROUND (CHASSIS).

Figure 3-12. AN/URC-9( ), Squelch Amplifier and Signal-Plus-Noise to Noise Discriminator, Simplified Schematic Diagram squelch relay K801, thus energizing K801. Relay K801 will remain energized as long as switch S703 is in the off position, or switch S704 is pushed. The audio output from the headset permits identification of the input signal

3-175. Refer to the S+N/N squelch discriminator circuit in figure 3-12 during the following discussion. The S+N/N squelch is put into operation automatically in the NOR (normal) and TONE modes when the grid of V801A is connected to the wiper arm of potentiometer R804. The voltage divider, consisting of resistors R816 and R814, provides a positive bias of approximately 2 vdc on receive, which is applied to the junction of diode rectifiers CR801 and CR802. The low-pass filter consisting of resistors R802 and capacitor C803 passes the audio signal to dc blocking capacitor C804 which couples the audio signal to CR801. Diode rectifier CR801 rectifies the signal and develops a negative voltage at the right end of R804. The high-pass filter consisting of capacitor C802 and resistor R803 passes the high frequency noise and develops a positive voltage at the left end of R804. Thus, the voltage distribution across R804 is dependent upon the ratio of the amplitude of the audio signal to the amplitude of the noise (S+N/N ratio).

3-176. The S+N/N ratio that will cut off V801A and open the squelch is determined by the setting of potentiometer R804. When squelch relay K801 is energized, contacts 8 and 14 connect C808 across the output of the S+N/N sensing circuit through R805. This switching of C808 provides a fast attack and slow release in the squelch operation. When C808 is not in the squelch circuit (i.e., K801 deenergized) it is discharged through contacts 9 and 14 of K801. Diode CR805 is a blocking diode used to prevent charge leakage on C808; Zener diode CR806 controls the charging of C808. Diode CR807 prevents the charging voltage from being grounded, and Zener CR808 limits the amount of charge across C808.

3-177. Refer to the carrier squelch circuit in figure 3-12 during the following discussion. When the link connection is made between 1 and 3 the control grid of squelch dc amplifier V801A is connected to the negative side of the diode detector load regardless of the setting of MODE switch S702B. Carrier squelch functions as previously described in paragraph 3-169.

3-178. Refer to the broadband receiving circuit in figures 5-3 and 5-146 during the following discussion. Operation with broadband equipment requires broadband relay K803 to be maintained in the deenergized condition. This is accomplished by placing the PLAIN-BROADBAND switch at BROADBAND which removes the ground return from K803 (see figure 5-3). The control grid of broadband cathode follower V802A is supplied by the broadband receive audio signal from T501 in the Third IF Amplifier. Capacitor C801 couples the input signal to the grid of V802A, and capacitor C806 couples the output signal from the cathode of the stage to the broadband equipment. Broadband cathode follower V802A receives plate voltage from the +275-vdc supply through contacts 12 and 13 of t/r relay K802. Bias for the control grid is provided through R810 from the junction of cathode resistors R811 and R818. The broadband receive audio input signal from the broadband equipment is applied to the grid of the audio amplifier V803. The path of the input signal is through contacts 9 and 10 of t/r relay K802, contacts 2 and 8 of broadband relay K803, coupling capacitor C809, and the network consisting of C817, R847, and R854. The subsequent amplification of the broadband signals is provided by conventional amplifying circuits.

3-179. METERING CIRCUITS.

3-180. RADIO SET AN/URC-9( ). Meter M701, together with switch S701, permits measurement of critical current and voltage levels throughout Radio Set AN/URC-9 ( ). METER switch S701 selects the circuits to be monitored and conditions the meter circuits. The metering circuits are designed such that normal outputs of the monitored circuits register in the NORMAL range on the meter scale. There are eleven active switch positions; the schematic of each position is shown in figure 3-13. The circuit for each switch position is described in the following paragraphs.

NOTE

Resistor R707 is connected in series with M701 in all switch positions (less SWR and PWR) to minimize the effect of temperature variations on meter accuracy.

3-181. S METER. When METER switch S701 is in the S METER position, meter M701 indicates the strength of the received signal. Switch S701A connects the negative side of meter M701 to resistor R308 which is part of the cathode-bias circuit for if amplifier V302 in the First IF Applifier. Switch S701B connects the positive side of the meter to a voltage divider comprised of resistors R710 and R712. Resistors R712 is adjusted to provide a voltage which balances the no-signal voltage developed across R308. Upon receipt of a signal, current flow through V302 is decreased through avc action. This results in a reduction of voltage across R308 that is proportional to the amplitude of the received signal.

3-182. SWR. When METER switch S701 is in the SWR position, meter M701 indicates the reflected power on the transmission line from the antenna. Switch S701A connects the negative side of the meter M701 to R1301 in the directional coupler; and switch S701B connects the positive side of the meter to ground. The rectified voltage drop across SWR detector load resistor R1301 causes current to flow through meter M701. Therefore, the applied voltage is proportional to the reflected power at the antenna.

3-183. PWR. When METER switch S701 is in the PWR position, meter M701 indicates the power delivered to the antenna. Switch S701A connects the negative side of meter M701 to R1304 in the directional coupler; and switch S701B connects the positive side of the meter to ground. The rectified voltage drop across PWR detector load resistor R1304 causes a current to flow through the meter. The amount of current flow is controlled by the voltage across R1304 and is proportional to the power delivered to the antenna.

3-184. DVR I_b. When METER switch S701 is in the DVR I_b position, meter M701 indicates the plate current of transmit driver V105 in the RF and PA Amplifier. Switch S701 connects meter M701 across shunt resistor R121. The negative side of the meter is connected through S701A to the plate of transmit driver V105A; the positive side is connected through S701B to the +325-vdc supply. The flow of V105 plate current through R121 produces a voltage which is proportional to the amount of plate current.

3-185. PA I_g. When METER switch S701 is in the PA I_g position, meter M701 indicates the grid current of transmit power amplifier V106 in the RF and PA Amplifier. Switch S701 connects the meter across shunt resistor R109, which is part of the grid-leak circuit for transmit power amplifier V106. Thus, the voltage developed across R109 is proportional to the power amplifier grid current. The negative side of the meter is connected through S701A to the control grid of V106; the positive side is connected through S701B to the -11-vdc bias supply. Resistor R108 provides a means for adjusting the plate current of V106.

3-186. PA I_b. When METER switch S701 is in the PA I_b position, meter M701 indicates the plate current of transmit power amplifier V106 in the RF and PA Amplifier. Switch S701 connects the meter across shunt resistor R706. The

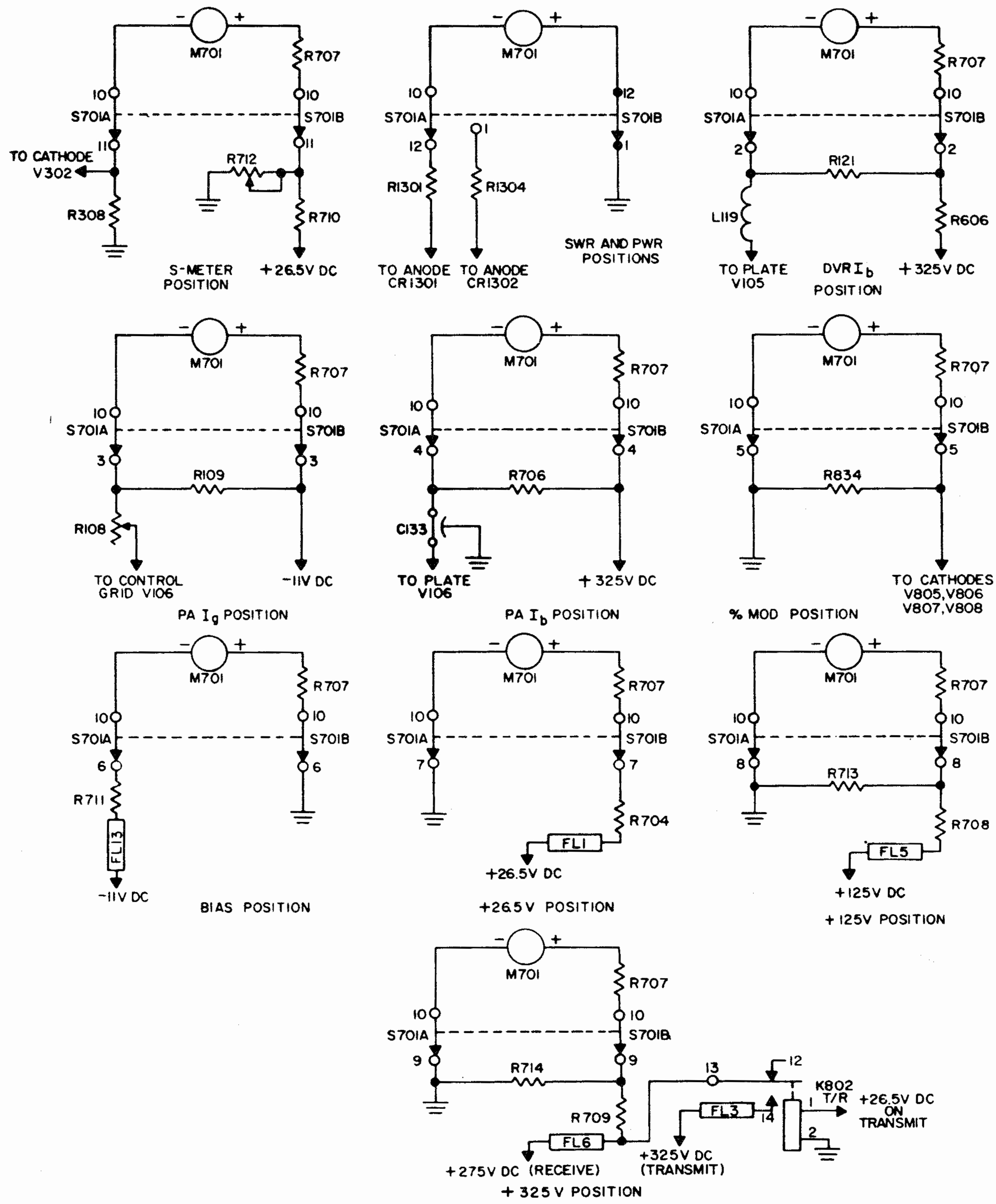


Figure 3-13. Radio Set AN/URC-9( ), Metering Circuits, Simplified Schematic Diagram

plate current of transmit power amplifier V106 develops a voltage across R706 which is proportional to the current through the tube. The negative side of the meter is connected through S701A to the plate of V106; the positive side is connected through S701B to the +325-vdc supply.

3-187. % MOD. When METER switch S701 is in the % MOD position, meter M701 indicates the percentage of modulation during transmit. Switch S701 connects meter M701 across shunt resistor R834, which is also the cathode return-to-ground for audio output amplifiers V805 through V808 in the Audio Amplifier and Modulator. The negative side of the m meter is connected to ground through S701A, and the positive side of the meter is connected to shunt resistor R834 through S701B. Modulator cathode current develops a voltage across R834 which is proportional to the amount of current flow. The meter reading, therefore, is proportional to the modulation cathode current.

3-188. BIAS. When METER switch S701 is in the BIAS position, meter M701 indicates the output voltage of the -11-vdc supply. The negative side of the meter is connected to the -11-vdc line through switch S701A, series resistor R711, and line filter FL13; the positive side is connected to ground through switch S701B.

3-189. +26.5V. When METER switch S701 is in the +26.5V position, meter M701 indicates the output voltage of the +26.5-vdc supply. The negative side of the meter is connected to ground through switch S701A; the positive side is connected to the +26.5-vdc line through switch S701B, series resistor R704, and line filter FL1.

3-190. +125V. When METER switch S701 is in the +125V position, meter M701 indicates the output voltage of the +125-vdc supply. The negative side of the meter is connected to ground through switch S701A; the positive side is connected to the junction of resistors R713 and R708 through switch S701B. Resistors R713 and R708 form a voltage divider that is series connected from the +125-vdc supply to ground through line filter FL5.

3-191. +325V. When METER switch S701 is in the +325V position, meter M701 indicates the output voltage of the +325-vdc supply on transmit and the output voltage of the +275-vdc supply in receive. The negative side of the meter is connected to the ground through switch S701A; the positive side is connected to the function of resistors R714 and R709 through switch S701B. In transmit, resistors R714 and R709 form a voltage divider that is series connected from the +325-vdc supply to ground through contacts 13 and 14 of energized t/r relay K802 and line filter FL3. In receive, resistors R714 and R709 are in series from the +275-vdc supply to ground through line filter FL6.

3-192. RADIO FREQUENCY AMPLIFIER AM-1565/URC. Meter M501, together with METER switch S502, permits measurement of critical current and voltage levels throughout the AM-1565/URC. The meter is set into the front panel assembly (see figures 5-88 and 5-153); METER switch S502 connects the meter to the various circuits in order to obtain the proper readings. Resistor R533 is connected permanently in series with meter M501 to reduce the effects of temperature on metering-circuit accuracy. Figure 3-14 contains simplified schematic diagrams for the metering circuits connected in the various positions of METER switch S502; the circuitry for the various switch positions is described in the following paragraphs.

3-193. HV. When METER switch S502 is in the HV position, meter M501 indicates the output of the +1800-vdc supply. The negative side of the meter is connected to ground through METER switch S502A, and the positive side of the meter is connected in series with screen protection

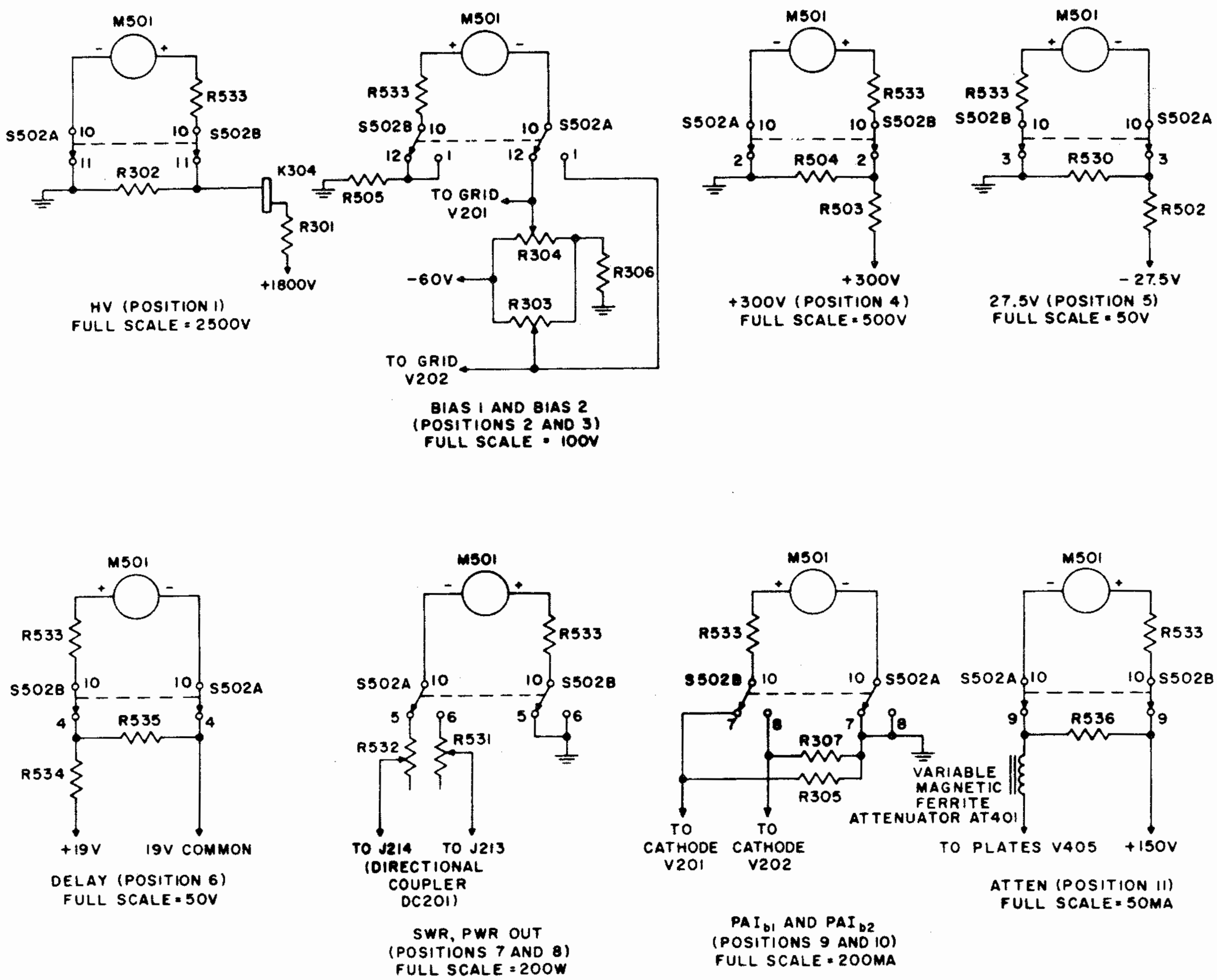


Figure 3-14. Radio Frequency Amplifier AM-1565/URC, Metering Circuits, Simplified Schematic Diagram

relay K304 and R301 to the +1800-vdc line through METER switch S502B; these connections place meter M501 across resistor R302. The voltage drop across R302 provides the voltage necessary to give an indication of the +1800-vdc supply operation.

3-194. BIAS 1. When METER switch S501 is in the BIAS 1 position, meter M501 indicates the negative voltage applied to the control grid of rf amplifier V201 in the Power Amplifier subassembly. The positive side of the meter is connected to ground through METER switch S502B and R505; the negative side of the meter is connected through METER switch S502A to the junction of the control grid of V201 and the wiper arm of R304. Potentiometers R304 and R303 and fixed resistor R306 form a voltage divider in the -60-vdc supply line to ground. The BIAS 1 reading on meter M501 is the negative voltage measured at the wiper arm of R304.

3-195. BIAS 2. When METER switch S502 is in the BIAS 2 position, meter M501 indicates the negative voltage applied to the control grid of rf amplifier V202 in the Power Amplifier subassembly. The positive side of the meter is connected to ground through METER switch S502B and R505; the negative side of the meter is connected through METER switch S502A to the junction of the control grid of V202 and the wiper arm of R303. Potentiometers R303 and R304 and fixed resistor R306 form a voltage divider in the -60-vdc supply line to ground. The BIAS 2 reading on meter M501 is the negative voltage measured at the wiper arm of R303.

3-196. +300V. When METER switch S502 is in the +300V position, meter M501 indicates the output voltage of the +300-vdc supply. The negative side of the meter is connected to ground through METER switch S502A, and the positive side of the meter is connected to the junction of resistors R503 and R504 through METER switch S502B. Resistors R503 and R504 form a voltage divider connected in series from the +300-vdc supply to ground.

3-197. 27.5V. When METER switch S502 is in the 27.5V position, meter M501 indicates the output voltage of the -27.5-vdc supply. The positive side of the meter is connected to ground through METER switch S502B, and the negative side of the meter is connected to the junction of resistors R502 and R530 through METER switch S502A. Resistors R502 and R530 form a voltage divider connected in series from the -27.5-vdc supply to ground.

3-198. DELAY. When METER switch S502 is in the DELAY position, meter M501 indicates the output voltage of the 30-vdc supply across Zener diode CR346 (see figure 5-135). This voltage (19 vdc) is applied as a delay bias for automatic drive control detector V203 in the Power Amplifier subassembly. The negative side of the meter is connectd to the 19-vdc supply common line through METER switch S502A, and the positive side of the meter is connected to the junction of resistors R534 and R535 through METER switch S502B. Resistors R534 and R535 form a voltage divider connected in series from the positive side to the common side of the 19-vdc line.

3-199. SWR. When METER switch S502 is in the SWR position, meter M501 indicates the reflected power on the transmission line from the antenna. METER switch S502A connects the negative side of meter M501 through potentiometer R532 to the directional coupler in the Power Amplifier subassembly, and METER switch S502B connects the positive side of the meter to ground. Potentiometer R532 is used to calibrate meter M501 for the SWR measurement.

3-200. PWR OUT. When METER switch S502 is in the PWR OUT position, meter M501 indicates the output power delivered to the antenna. METER switch S502A connects the negative side of the meter M501 through potentiometer R531 to the directional coupler in the Power

Amplifier subassembly, and METER switch S502B connects the positive side of the meter to ground. Potentiometer R531 is used to calibrate meter M501 for the power-output measurement.

3-201. PAI$_{b1}$. When METER switch S502 is in the PAI$_{b1}$ position, meter M501 indicates the plate current of rf amplifier V201 in the Power Amplifier subassembly. METER switch S502 connects the meter across shunt resistor R305, which is also the cathode return to ground for rf amplifier V201. The negative side of the meter is connected to ground through METER switch S502A, and the positive side of the meter is connected to shunt resistor R305 through METER switch S502B. The plate current of rf amplifier V201 flows through R305, developing across it a voltage which is proportional to the current through the tube.

3-202. PAI$_{b2}$. When METER switch S502 is in the PAI$_{b2}$ position, meter M501 indicates the plate current of rf amplifier V202 in the Power Amplifier subassembly. METER switch S502 connects the meter across shunt resistor R307, which is also the cathode return to ground for rf amplifier V202. The negative side of the meter is connected to ground through METER switch S502A, and the positive side of the meter is connected to shunt resistor R307 through METER switch S502B. The plate current of rf amplifier V202 flows through R307, developing across it a voltage which is proportional to the current through the tube.

3-203. ATTEN. When METER switch S502 is in the ATTEN position, meter M501 indicates the current through the winding in variable magnetic ferrite attenuator AT401. METER switch S502 connects the meter across shunt resistor R536. The positive side of the meter is connected through METER switch S502B to the +150-volt-regulated dc line, and the negative side of the meter is connected through METER switch S502A and the winding of attenuator AT401 to the plates of drive control power amplifier V405 in the Servo Amplifier subassembly.

3-204. POWER DISTRIBUTION.

3-205. AC POWER DISTRIBUTION. Radio Sets AN/SRC-20( ) and AN/SRC-21( ) operate from a primary power source of 115 or 230 volts, 50 or 60 Hz, single-phase ac. The primary windings of the power transformers are connected in parallel for 115-volt operation and in series for 230-volt operation. Except for the tube filaments, all other components (blower motors, servo motor, rate generator, etc.) requiring ac operate on 115 volts. When such a component is connected across the 230-vac line, a series dropping resistor or a switching arrangement is used to limit the voltage to 115 vac. All power transformer lines are fused, as are the main primary power lines in Radio Set Control C-3866/SRC, Radio Set AN/URC-9( ), and Radio Frequency Amplifier AM-1565/URC. The following paragraphs describe the ac power distribution for Radio Sets AN/SRC-21( ) and AN/SRC-20( ).

3-206. Radio Set AN/SRC-21( ) AC Power Distribution. The ac power distribution for Radio Set AN/SRC-21( ) is illustrated in the schematic diagram of figure 5-132. Primary ac power is applied to the equipment by setting EMERGENCY POWER switch S206 (on the front panel of Radio Set Control C-3866/SRC) to the on (up) position and pressing RADIO SET POWER START button S204 (also located on the front panel of the C-3866/SRC). EMERGENCY POWER indicator DS202 is connected to secondary winding 9-10 of power transformer T202, and is illuminated (red) when primary ac power is applied to the primary winding of T202. RADIO SET POWER indicator DS201 is connected to secondary winding 5-6 of start-stop transformer T201, and is illuminated (red) when primary ac power is applied to the primary winding of T201. R250 limits the current through DS201 and DS202. CONTROL fuse F205 protects the primary circuit of transformer T202, and thereby protects Radio Set Control C-3866/SRC; START-STOP fuse F203 protects the primary circuit of start-stop transformer T201; RADIO SET fuse F206 protects the controlled Radio Set AN/URC-9( ); and MAIN fuse F204 protects the entire installation.

3-207. The primary power (either 115 or 230 vac) is applied through power input jack J108 on Radio Set Control C-3866/SRC and P201-J201 to EMERGENCY POWER switch S206. When EMERGENCY POWER switch S206 is closed and RADIO SET POWER START button S204 is pressed, the primary ac power is applied to the primary windings of power transformer T202 through MAIN fuse F204, CONTROL fuse F205, the normally closed contacts of RADIO SET POWER STOP button S205, the normally open (now closed) contacts of RADIO SET POWER START button S204, and line filters FL201 and FL202. Links on terminal board TB202 connect the primary windings of T202 in parallel for 115 volt operation (shown in the figure), and in series for 230 vac operation.

3-208. In addition to the foregoing, closing RADIO SET POWER START button S204 applies the primary ac power to the primary winding of start-stop transformer T201. The path of this line for 115 vac operation is through MAIN fuse F204 and CONTROL fuse F205, the normally closed contacts of RADIO SET POWER STOP button S205, the normally open contacts (now closed) of RADIO SET POWER START button S204, the primary of T201, resistor R227, the link connecting terminals 4 and 1 of TB202, and START-STOP fuse F203. Resistor R228, shorted out for 115 vac operation, drops the primary winding voltage of T201 to 115 vac when the equipment is operated on 230 vac.

3-209. The 115-vac on the primary of start-stop transformer T201 is coupled to secondary winding 3-4, where it is then applied to bridge-rectifier diodes CR201 through CR204 of the 24-vdc supply. The rectified output of the 24-vdc supply energizes start-stop relay K208. Contacts L3-T3 of K208 are holding contacts that maintain the primary ac power on the primary windings of T201 and T202 after RADIO SET POWER START button S204 is released. Contacts L1-T1 and L2-T2 of K208 couple the primary ac power to Radio Set AN/URC-9( ); primary power cable W1902 connects output jack J106 of the C-3866/SRC to input jack J1404 of the AN/URC-9( ). The primary ac power, for the REMOTE POWER ON indicator, is simultaneously provided at pins K and N of J104 through REMOTE fuse F207 when LOCAL-REMOTE switch S201 is in the REMOTE position.

3-210. Power Supply PP-2702/URC-9 in the AN/URC-9( ) receives primary ac power through input jack J1404, line filter FL1401, and pins 13 and 14 of J1402-P1501. MAIN fuse F1501 provides protection for the AN/URC-9( ) primary power circuit; T1501 PRI fuse F1501 provides protection for the primary circuit of power transformer T1501; and T1502 PRI fuse F1503 provides protection for the primary circuit of power transformer T1502.

3-211. When POWER switch S1503 on Power Supply PP-2702/URC-9 is closed, the primary ac power is applied to the primary windings of power transformers T1501 and T1502. Each transformer has two primary windings, which are connected in parallel for 115 vac operation (shown in the figure) or in series for 230 vac operation. The position of switch S1501 determines whether the primary windings of T1501 are connected in parallel or in series; switch S1502 connects the primary windings of T1502 in parallel or in series for 115 vac or 230 vac operation.

3-212. The primary ac power for operation of r/t centrifugal fan B1051 and case centrifugal fan B1401 are obtained from the primary windings of T1501. Primary winding 1-2 of T1501 is connected through contact C1-C2 of POWER switch S1503 and pins 14 and 6 of P1501 to the case centrifugal fan; primary winding 3-4 of T1501 is connected through pins 13 and 16 of P1501, and line filters FL32 and FL33 in the receiver-transmitter, to the r/t centrifugal fan, B1051. In this manner the fans are supplied with 115 vac of primary power for both 115 vac and 230 vac operation.

3-213. The filament voltage supply for the RT-581( )/URC-9 is obtained from secondary winding 7-8 of power transformer T1502. Line filters FL22 through FL25 in the RT-581( )/URC-9 are in series with the transformer winding and the filaments. Although all tubes in the receiver-transmitter operate on 6.3 vac, the filament supply provides 6.7 vac to account for line drop. The filament voltage for transmit power amplifier V106 is routed through a centrifugal sensing switch located on the centrifugal fan assembly of the RT-581( )/URC-9 and a thermal sensing switch S101 located on the RF and PA Amplifier. (See figures 5-139 and 5-140.) In this manner, the filament voltage for V106 can be removed thereby shutting down the equipment in the transmit mode if the centrifugal fan fails to operate or if V106 should overheat.

NOTE

The centrifugal sensing switch is not included in all models of the centrifugal fan assembly. Refer to the notes on figure 5-138 to identify the fans that incorporate the sensing switch.

3-214. To turn off the power to Radio Set AN/SRC-21( ), first RADIO SET POWER STOP button S205 (on the C-3866/SRC) is pressed and the EMERGENCY POWER switch S206 (also on the C-3866/SRC) is set to OFF. Pressing RADIO SET POWER STOP button S205 shorts out primary winding 1-2 of start-stop transformer T201 which, in turn, removes the primary ac power applied to bridge rectifier diodes CR201 through CR204 of the 24-vdc supply thereby deenergizing start-stop relay K208. When K208 deenergizes, the primary ac power line to the AN/URC-9( ) is opened and the holding action of L3-T3 is removed. Setting EMERGENCY POWER switch S206 to OFF removes the primary ac power from Radio Set Control C-3866/SRC, and thereby turns off all power to Radio Set AN/SRC-21( ).

3-215. <u>Radio Set AN/SRC-20( ) AC Power Distribution</u>. The ac power distribution for Radio Set AN/SRC-20( ) is illustrated in the schematic diagram of figure 5-131. The power distribution for Radio Set Control C-3866/SRC and Radio Set AN/URC-9( ) is the same as described in paragraph 3-206; refer to figure 5-132 for the detailed circuitry of the ac power distribution within Radio Set AN/URC-9( ). The complete circuitry for the ac power distribution within Radio Set Control C-3866/SRC is included in figure 5-131 to illustrate the overall equipment tie-in between the C-3866/SRC and Radio Frequency Amplifier AM-1565/URC.

3-216. The primary power (either 115 or 230 vac) is applied through power input jack J108 on Radio Set Control C-3866/SRC. When EMERGENCY POWER switch S206 is closed and RADIO SET POWER START button S204 is pressed, the primary ac power is applied to the primary windings of power transformer T202 and start-stop transformer T201 in the C-3866/SRC. The rectified output of the 24-vdc supply energizes start-stop relay K208; contacts L1-T1 and L2-T2 of K208 couple the primary ac power through J106 and cable W1901 to Radio Set AN/URC-9( ), and through J107 and cable W1905 to Radio Frequency Amplifier AM-1565/URC. Refer to paragraph 3-206 for a detailed description of the primary ac power distribution within the C-3866/SRC and the AN/URC-9( ).

3-217. The AM-1565/URC receives primary ac power through input jack J101 (at the rear of the case), line filters FL101 and FL102, and P103-J8. Application of power to the unit is controlled by front panel-mounted POWER switch S501 and the normally closed contacts of safety interlock switch S303. (When the chassis is extended on its slides, the normally closed contacts of interlock switch S303 open and the power is removed from the equipment; however, the interlock switch can be manually bypassed to facilitate maintainance.) MAIN fuse F501 provides protection for the AM-1565/URC primary power circuit; T301 PRI fuses F502 and F503 provide protection for the primary circuit of high-voltage power transformer T301; and T302 PRI fuses F504 and F505 provide protection for the primary circuit of low-voltage power transformer T302. Power transformers T301 and T302 each have two primary windings. The two windings are connected in series for operation from a 230-vac primary source, and in parallel for operation from a 115-vac primary source (shown in the figure). Power selector switch S301C permits the selection of either 115 vac or 230 vac operation for the primary of T301; power selector switch S301B serves the same purpose for the primary of T302.

3-218. When POWER switch S501 is closed, primary ac power is applied to the primary windings of low-voltage power transformer T302 from contact 1 of S501 through MAIN fuse F501, and also from contact 3 of S501 through thermostat switch S1101, contacts 3 and 4 of time delay relay K302, and primary winding fuses F504 and F505. (Thermostat switch S1101 is closed unless the temperature inside the AM-1565/URC case exceeds 100°C, or 212°F.) At the same time, case blower B1101, which is in parallel with primary terminals 1 and 2 of T302, is energized by 115 vac, as are Power Amplifier subassembly servo motor rate generator unit MG201 and blower B1001, both of which are in parallel with primary winding terminals 3 and 4 of T302.

3-219. In addition to the foregoing, closing POWER switch S501 applies ac power to the time delay relay motor and clutch (winding of relay K302). Relay K302 has a 60 second delay, after which the delay motor is removed from the circuit and the power connection to it is broken. Air-actuated switch S1001, which is closed by the air stream of Power Amplifier subassembly blower B1001 before the time delay relay contacts open, is paralleled by contacts 3 and 4 of the time delay relay. This configuration allows primary ac power to be applied to the primary windings of transformer T302 and blower B1101 prior to the closing of S1001. After the time delay, if Power Amplifier subassembly blower B1101 stops, switch S1001 opens, breaking the low-voltage power transformer primary circuit and removing all power from the tubes in the other assemblies of the AM-1565/URC. When power selector switch S301A is set for 230 vac operation tion, resistor R313 is placed in series with time delay relay K302, and, upon operation of contacts 3 and 5 of time delay relay K302, resistor R312 is connected in place of the time delay motor to maintain a constant 115 vac across the time delay clutch.

3-220. After the 60 second time delay, contacts 6 and 8 of K302 close and apply -27.5 vdc to contact 6 of t/r relay K303. When the AM-1565/URC is keyed relay K303 energizes and routes -27.5 vdc through contacts 6 and 7 to relay K301. When K301 energizes and the contacts close, the primary ac power is applied from POWER switch S501 to the primary windings of high-voltage power transformer T301 through MAIN fuse F501 and primary winding fuses F502 and F503.

3-221. The filament voltage supply for the AM-1565/URC is obtained from secondary windings of low-voltage power transformer T302. Secondary winding terminals 5 and 6 supply 6 vac for the filament of rf amplifier V201 in the Power Amplifier subassembly, and secondary winding terminals 7 and 8 supply 6 vac for the filament of rf amplifier V202. Secondary winding terminals 9, 10, and 11 supply 6.3 vac for the filament of the following tubes: automatic drive control detector V203 in the Power Amplifier subassembly, servo amplifier V401, phase splitter V402, power amplifiers V403 and V404, and drive-control amplifiers V405 and V406 in the Servo Amplifier subassembly. Center tap terminal 10 of T302 is grounded to reduce hum.

3-222. The ac bridge network in the AM-1565/URC servo system is excited by 60 vac from secondary winding terminals 12 and 13 of T302. This ac voltage is applied across follow-up potentiometer R203 in the Power Amplifier subassembly and one of the channel potentiometers (R525, CHAN 1, in this case) of the Front Panel assembly.

3-223. The power of Radio Set AN/SRC-20( ) is turned off in the same manner as the power to Radio Set AN/SRC-21( ) (see paragraph 3-215). Pressing RADIO SET POWER STOP button S205 on the C-3866/SRC stops the power to the AN/URC-9( ) and the AM-1565/URC, and setting EMERGENCY POWER switch S206 (also on the C-3866/SRC) to OFF removes all power from Radio Set AN/SRC-20( ).

3-224. DC POWER DISTRIBUTION. Each of the units that make up Radio Sets AN/SRC-20( ) and AN/SRC-21( ) has its own power supply to provide the required dc operating voltages throughout that unit. Power Supply PP-2702/URC-9 provides the dc voltages for Receiver-Transmitter RT-581( )/URC-9 of Radio Set AN/URC-9( ); Radio Frequency Amplifier AM-1565/URC and Radio Set Control C-3866/SRC have self-contained power supplies that serve their needs. Each power supply uses semiconductor diodes in a full-wave bridge rectifier circuit configuration; also, most of the power supplies are fused for overload protection. The following paragraphs describe the circuitry of the dc power supplies and the dc power distribution for the AN/URC-9( ), the AM-1565/URC, and the C-3866/SRC.

3-225. <u>Radio Set AN/URC-9( ) DC Power Supply</u>. Power Supply PP-2702/URC-9 provides dc voltages for Receiver-Transmitter RT-581( )/URC-9 of Radio Set AN/URC-9( ). The power supply provides dc operating voltages of +26.5 volts, +325 volts, +275 volts, +125 volts, and -11 volts required by the receiver-transmitter. Although five different operating voltages are supplied, the power supply uses only three semiconductor-diode, full-wave, bridge-rectifier circuits to provide the voltages. Refer to figure 5-136 during the following discussion.

3-226. +26.5-Volt DC Supply. The +26.5-vdc supply consists of T1501 secondary winding 7-8 and diodes CR1505 through CR1508 which are connected in a conventional full wave bridge-rectifier circuit. Overload protection is provided by RECT 26.5V fuse F1505. In addition to the +26.5-vdc unfiltered output, a panel and indicator light output is provided through DIMMER control R1506. POWER indicator light DS1501 is illuminated (red) when power switch S1503 is set to on (up) position.

3-227. +325-Volt and +275-Volt DC Supply. The +325 and +275-vdc supplies are furnished by the same bridge-rectifier circuit. This circuit consists of T1501 secondary winding 5-6, full-wave bridge-rectifier diodes CR1501 through CR1504, and the +26.5-vdc supply. The bridge-rectifier develops approximately 300 vdc; the negative output of this circuit is connected to the positive output of the +26.5-vdc supply, thus placing the positive output of the 300-vdc rectifier at 325 vdc above ground. The output of the +325-vdc supply is filtered by choke-input filter L1501-C1501 and L1502-C1502. Diode CR1513 provides suppression of transient signals developed across L1502 when the radio set is changed from transmit to receive. Resistors R1501 through R1504 form a bleeder network for the rectifier. Overload protection for the +325-vdc line is provided by 325V B+ fuse F1504 (on both transmit and receive). Resistor R1505 reduces the +325-vdc output to +275 vdc in receive. Overload protection for the +275-vdc line is provided by 325V B+ fuse F1507 (receive only).

3-228. +125-Volt and -11-Volt DC Supply. The +125 and -11-vdc supplies are furnished by the same bridge-rectifier circuit. This circuit consists of T1502 secondary winding 5-6 of full-wave bridge-rectifier diodes CR1509 through CR1512. The +125 and -11-vdc outputs are filtered by double-section choke-input filters L1503-C1504 and L1504-C1505. Capacitors C1503 and C1506 resonate with choke coils L1503 and L1504, respectively, to present a high impedance to the 120 Hz ripple. Resistor R1507 is the bleeder across the +125-vdc output. The -11-vdc output is obtained from the junction of R1508 and Zener diode CR1514. The Zener diode, which has a range of -9.1 to -11 vdc, controls the -11-vdc output. Overload protection is provided by +125V B+ fuse F1506.

3-229. Radio Set AN/URC-9( ) DC Power Distribution - Transmit. The dc power distribution for the transmit function of Radio Set AN/URC-9( ) is illustrated in figure 5-133. The power supply outputs are coupled to J1401-P1 of Receiver-Transmitter RT-581( )/URC-9. The +275-volt output is not used on transmit.

3-230. +325-Volt DC Distribution. The +325-vdc from pin C of P1 is routed from line filter FL3 through contacts 7 and 8 (closed on transmit) of t/r relay K602 to voltage-divider resistors R601, R602, and R603 in the Relay-Filter and through contacts 13 and 14 (closed on transmit) of t/r relay K802 to voltage-divider resistors R813, R814, and R816 in the Audio Amplifier and Modulator. The +325 vdc across voltage divider R813, R814, and R816 is applied to meter M701 on the front panel. On transmit, closed contacts 13 and 14 of t/r relay K802 bypass fuse F1507 and resistor R1505 of the +275-vdc line. Front panel meter M701 indicates +275 vdc until the equipment is keyed to transmit; the meter then indicates +325 vdc.

3-231. The +325 vdc across voltage divider R813, R814, and R816 is applied as B+ to the parallel-connected plate of audio and modulator driver V804, and to the plates of audio output amplifiers V805 through V808. The audio-modulated +325-vdc is coupled as B+ from the primary of transformer T802 as follows: from terminal 1 of T802 through meter-shunt resistor R706 of the Front Panel assembly to the plate of transmit power amplifier V106 in the RF and PA Amplifier; and from terminal 2 of T802 through contacts 3 and 4 (closed on transmit) of high-voltage relay K2 and R606 in the Relay-Filter to the plate of transmit driver V105 in the RF and PA Amplifier.

3-232. Voltages from the voltage divider are also applied as delayed bias to the if and rf avc gates in the Third IF Amplifier and to the S+N/N squelch discriminator and the squelch dc amplifier in the Audio Amplifier and Modulator; these circuits, however, are not shown since they are not used during the transmit function.

3-233. Voltage dividers R601, R602, and R603 in the Relay-Filter are connected between the +325 and +125-vdc power supplies. The voltage at the wiper arm of potentiometer R602 is modulated through C601 and applied as B+ to the screen grid of transmit power amplifier V106 in the RF and PA Amplifier.

3-234. +125-Volt DC Distribution. The +125 vdc from pin E of P1 is routed through line filter FL5 to the Relay-Filter, where it is applied directly across voltage-divider resistors R616, R617, and R618, and through contacts 19 and 20 (closed on transmit) of t/r relay K602, across voltage-divider resistors R601, R602, and R603. Since R601 is returned to +325 vdc, voltage divider R601, R602, and R603 provide a voltage of less than +325 vdc but greater than +125 vdc. (The distribution of the dc voltage from the wiper arm of potentiometer R602 is described in the preceding paragraph.) From the bottom of R603, the +125 vdc is applied as B+ to the plate of second transmit mixer V101 in the RF and PA Amplifier and to the plate and screen of first transmit mixer V304 in the First IF Amplifier.

3-235. From the top of voltage-divider resistors R616, R617, and R618, the +125 vdc is coupled directly to the following: meter M701 on the front panel; the plates of first oscillator-multiplier V201 and injection amplifiers V203 through V205, and the plate and screen of frequency tripler V202 in the FMO; the plates of rf amplifiers V102 and V103 in the RF and PA Amplifier; the plates and the screens of if amplifiers V301 and V302 and the plates of second oscillator V305 in the First IF Amplifier; the plate of transmit buffer amplifier V401A and the plate of third oscillator V401B in the Second IF Amplifier; and to the cathode of compression rectifier V802B and the screens of audio output amplifiers V805 through V808 in the Audio Amplifier and Modulator. This +125-vdc line is also connected to the plate and screen of audio amplifier V504 in the Third IF Amplifier; this circuit, however, is not shown in figure 5-133 since it is not used during the transmit function.

3-236. The +125-vdc is coupled from the top of voltage divider R616, R617, and R618 in the Relay-Filter through contacts 4 and 5 (closed on transmit) of t/r relay K602 as B+ for transmit rf amplifier V104 in the RF and PA Amplifier. The dc voltage at the junction of voltage-divider resistors R616 and R617 is applied as B+ to the plate and screen of audio amplifier V803 in the Audio Amplifier and Modulator.

3-237. -11-Volt DC Distribution. The -11 vdc from pin J of P1 is routed through line filter FL13 to meter M701 on the front panel; to the control grid of transmit power amplifier V106 in the RF and PA Amplifier, as bias; and to the Relay-Filter where it is further distributed throughout the equipment.

3-238. From the Relay-Filter, the -11 vdc is applied as bias directly to the control grids of audio output amplifiers V805 through V808 in the Audio Amplifier and Modulator. The -11 vdc is also routed through Relay-Filter resistor R611 and the microphone transformer T601, front panel MODE switch S702A (in NOR and RETRANS), and line filter FL702 to the MIKE jacks on the front panel. When the MODE switch is in the TONE position, the -11-vdc supply provides power for the 1 kHz tone generator. The -11 vdc is further routed to the remote microphone through line filter FL16 and pin Z of P1-J1401. In addition, the -11 vdc is applied through resistor R614 as the energizing voltage for t/r control relay K601 in the Relay-Filter.

3-239. +26.5-Volt DC Distribution. The +26.5 vdc from pin P of P1 is routed through line filter FL1 to meter M701 on the front panel and is used as the energizing voltage for all relays (except K601 and K801) in the RT-581( )/URC-9. The +26.5 vdc is applied to the solenoids of autopositioner relays K1201, K1202, K1203, and K1204 of the Frequency Selector (figure 5-150 or 5-157), and through contacts 3 and 4 of these relays (closed during channel switching) to energize tuning motor B1201 and work relay K1. The same +26.5 vdc is also applied as the energizing voltage for broadband relay K803 in the Audio Amplifier and Modulator; K803 is energized by setting PLAIN-BROADBAND switch S1401 (at the rear of the equipment case) to the PLAIN position. (For AN/URC-9A only, the +26.5 vdc is applied through contacts 3 and 5 of K1204 to the solenoid of K402 in the Second IF Amplifier when not channeling). The +26.5 vdc is applied directly to the coil of duplex relay K603 in the Relay-Filter; K603 is energized through the microphone ground when the equipment is operating in the RETRANS mode.

3-240. When t/r control relay K601 in the Relay-Filter is energized, contacts 3 and 8 close and apply +26.5 vdc to the solenoids of the following relays: t/r relay K602 in the Relay-Filter; high voltage relay K2 and t/r relay K802 in the Audio Amplifier and Modulator; t/r relay K401 in the Second IF Amplifier; and antenna relay K101 and injection relay K102 in the RF and PA Amplifier. In addition, contacts 3 and 8 of t/r control relay K601 close, the +26.5 vdc is applied through R612 to the broadband sidetone amplifier as B+ for that stage (see figure 5-147).

3-241. Radio Set AN/URC-9( ) DC Power Distribution - Receive. The dc power distribution for the receive function of Radio Set AN/URC-9( ) is illustrated in figure 5-134. The power supply outputs are coupled to J1401-P1 of Receiver-Transmitter RT-581( )/URC-9. The +325-volt line is not used in receive.

3-242. +275-Volt DC Distribution. The +275 vdc from pin G of P1 is routed through line filter FL6 to meter M701 on the front panel and voltage-divider resistors R813, R814, and R816 in the Audio Amplifier and Modulator. From the top of this voltage divider, the +275 vdc is applied to the parallel-connected plates of audio and modulator driver V804 and to the plates of audio output amplifiers V805 through V808.

3-243. Since t/r relay K802 is deenergized on receive, the +275 vdc is applied through normally closed contacts 12 and 13 directly to the plate of broadband cathode follower V802A, and through normally closed contacts 2 and 3 of work relay K1 (energized during channeling) to voltage-divider resistors R806 through R808 in squelch dc amplifier V801. The voltage on the plate of V801A and on the grid of V801B is obtained from the voltage divider through resistor R809; the voltage on the plate of V801B is obtained through the solenoid of squelch relay K801.

3-244. The dc voltage at the junction of +275 voltage-divider resistors R813 and R814 is applied as a delayed bias to the if and rf avc gates in the Third IF Amplifier. The dc voltage at the junction of voltage-divider resistors R814 and R816 biases the S+N/N squelch discriminator in the Audio Amplifier and Modulator.

3-245. +125-Volt DC Distribution. The +125 vdc from pin E of P1 is routed through line filter FL5 of voltage-divider resistors R616, R617, and R618 in the Relay-Filter. From the top of the voltage divider, the +125 vdc is coupled through resistor R607 as B+ for the plate of first receive mixer V104 in the RF and PA Amplifier. The +125 vdc is coupled directly from the top of the voltage divider to the following: meter M701 on the front panel; the cathode of compression rectifier V802B, and the screens of audio output amplifiers V805 through V808 in the Audio Amplifier and Modulator; through contacts 4 and 5 of work relay K1 (energized during channeling) to the S+N/N squelch discriminator in the Audio Amplifier and Modulator; the plates of first oscillator-multiplier V201 and injection amplifiers V203 through V205, and the plate and screen frequency tripler V202 in the FMO; the plates of rf amplifiers V102 and V103 in the RF and PA Amplifier; the plates and screens of if amplifiers V301 and V302, and the plates of second oscillator V305 in the First IF Amplifier; the plate of third receive mixer V401A, and the plate of third oscillator V401B in the Second IF Amplifier; and to the plate and screen of audio amplifier V504 in the Third IF Amplifier.

3-246. The +125 vdc is coupled from the top of voltage divider R616, R617, and R618 in the Relay-Filter through normally closed (on receive) contacts 18 and 19 of t/r relay K602 as B+ for the plates and screens of if amplifier V501 through V503 in the Third IF Amplifier. The same +125-vdc line also applies B+ to the plate and screen of second receive mixer V303 in the First IF Amplifier; this signal path is through line filter FL403, resistor R401, feedthrough capacitor C406, and impedance network Z401 in the Second IF Amplifier. The dc voltage at the junction of voltage-divider resistors R616 and R617 is applied as B+ to the plate and screen of audio amplifier V803 in the Audio Amplifier and Modulator.

3-247. -11-Volt DC Distribution. The -11 vdc from pin J of P1 is routed through line filter FL13 to meter M701 on the front panel and is used as a bias voltage for the control grids of audio output amplifiers V805 through V808 in the Audio Amplifier and Modulator. The -11 vdc is also applied directly to the control grid of transmit power amplifier V106; this circuit, however, is not shown since it is not used during the receive function.

3-248. +26.5-Volt DC Distribution. The +26.5 vdc from pin P of P1 is routed through line filter FL1 to meter M701 on the front panel and is used as an energizing voltage for broadband relay K803 in the Audio Amplifier and Modulator. Relay K803 is energized by setting PLAIN-BROADBAND switch S1401 (on the equipment case) to the PLAIN position.

3-249. Radio Frequency Amplifier AM-1565/URC DC Power Distribution. The dc power distribution for Radio Frequency Amplifier AM-1565/URC is illustrated in figure 5-135. The self-contained power supplies in this unit provide dc operating voltages of +1800 volts, +300 volts, -60 volts, -27.5 volts, and 19 volts from a 30 volt supply. All of the power supplies except the +1800-vdc supply operate from secondary windings of low-voltage power transformer T302; the +1800-vdc supply operates from a secondary winding of high-voltage power transformer T301. When Radio Frequency Amplifier AM-1565/URC is turned on, primary ac power is applied directly to the primary winding of T302; primary ac power is applied to the primary winding of T301 only after a 60-second time delay has elapsed and Radio Set AN/SRC-20( ) is keyed to transmit (see paragraph 3-215). All of the power supplies in the AM-1565/URC use semiconductor diodes in a full-wave bridge-rectifier circuit configuration; also, all power supplies except the 30-vdc supply are fused for overload protection.

3-250. +1800-Volt High-Voltage DC Supply and Distribution. The +1800-vdc high-voltage supply consists of high-voltage transformer T301 secondary winding 5-6 and diodes CR301 through CR324 connected in a full-wave bridge-rectifier circuit. Overload protection is provided by fuse F301, and the output voltage is filtered by choke-input filter L301-C301. The output of +1800 vdc is applied directly to the plates of rf amplifiers V201 and V202 in the Power Amplifier subassembly. Also, the +1800 vdc is routed through bleeder resistor R301 and the solenoid of screen protection relay K304 to meter M501 on the front panel; resistor R302 is the meter shunt.

3-251. +300-Volt DC Supply and Distribution. The +300-vdc supply consists of low-voltage transformer T302 secondary winding 16-17 and diodes CR325 through CR332 connected in a full-wave bridge-rectifier circuit. Overload protection is provided by 300V B+ fuse F506 on the front panel; the output voltage is filtered by double-section choke-input filter L302-C302 and L303-C303. Resistors R308 and R309 form the bleeder network for the rectifier.

3-252. The filtered output of +300 vdc is coupled through contacts 6 and 8 (closed on transmit) of screen protection relay K304 to the screen grids of rf amplifiers V201 and V202 in the Power Amplifier subassembly.

3-253. The filtered +300 vdc is coupled directly to meter M501 on the front panel, and through the windings of the servo motor, part of MG201, in the Power Amplifier subassembly as B+ to the plates of power amplifiers V403 and V404 in the Servo Amplifier subassembly. Also, the +300 vdc is routed directly to the Servo Amplifier subassembly, where it is applied as B+ to the plates of servo amplifier V401 and phase inverter V402, and the screen grids of power amplifiers V403 and V404.

3-254. In addition to the foregoing, the +300 vdc coupled to the Servo Amplifier subassembly is applied through series-limiting resistor R434 to the anode of voltage regulator V407, which regulates the voltage at +150 vdc. The +150-volt regulated dc is applied as B+ to the plates of drive control amplifier V406 and drive control power amplifier V405; the plate voltage for V405 is routed through attenuator-current meter-shunt resistor R536 and variable magnetic ferrite attentuator AT401.

3-255. -60-Volt DC Supply and Distribution. The -60-vdc supply consists of low-voltage transformer T302 secondary winding 18-19 and diodes CR338 through CR341 connected in a full-wave bridge-rectifier circuit. Overload protection is provided by -60V BIAS fuse F508 on the front panel; the output voltage is filtered by single-section pi-filter C305, L304 and C306. Resistors R303, R304, and R306 form the bleeder network for the rectifier. Resistors R303 and R304 are variable, and thereby vary the bias on the control grids of rf amplifiers V201 and V202 in the Power Amplifier subassembly. The bias voltages selected by R303 and R304 are also coupled to meter M501 on the front panel.

3-256. The full -60 vdc developed across bleeder resistors R303, R304, and R306 is applied to voltage-divider resistors R430 and R431 in the cathode circuit of drive control amplifier V406 in the Servo Amplifier subassembly. Since both voltage-divider resistors are of the same value, a fixed bias of -30 vdc is present at their junction; hence, a fixed bias of -30 vdc is applied to the cathode of V406.

3-257. 30-Volt DC Supply and Distribution. The 30-vdc supply consists of low-voltage transformer T302 secondary winding 20-21 and diodes CR342 through CR345 connected in a full-wave bridge-rectifier circuit. The output of 30 vdc is filtered by C304 and applied across series resistor R311 and Zener diode CR346; R311 drops the voltage to 19 vdc, the Zener voltage of CR346.

3-258. The 19-vdc output is applied across voltage-divider resistors R435 and R436 in the Servo Amplifier subassembly, and across voltage-divider resistors R526, R527, and R528 of the Front Panel assembly. The voltage at the wiper arm of diode delay potentiometer R436 is applied as a delay bias for the cathode of automatic drive control detector V203 in the Power Amplifier subassembly and the control grid of drive control amplifier V406A in the Servo Amplifier subassembly during automatic operation of the drive control circuits; this occurs when EXCITATION MANUAL-AUTO switch S507 on the front panel is set to the AUTO position.

3-259. The drive control circuit operation is controlled manually when S506 is set to the MANUAL position. The bias on the control grid of drive control amplifier V406A is adjusted manually by EXCITATION HIGH-LOW control R527 on the front panel. Contacts 2 and 4 of S507 are opened on manual operation, thereby disabling automatic drive control detector V203.

3-260. In addition to the foregoing, the 19 vdc across voltage-divider resistors R526, R527, and R528 is routed to front panel meter M501 via voltage divider R534 and R535. The voltage measured across R535 provides an indication of the bias-voltage output of the 30-vdc supply.

3-261. -27.5 Volt DC Supply and Distribution. The -27.5-vdc supply consists of low-voltage transformer T302 secondary winding 14-15 and diodes CR333 through CR336 connected in a full-wave bridge-rectifier circuit. The unfiltered -27.5 vdc is routed to the Front Panel assembly, where it is fused for overload protection by 27.5V fuse F507 and applied to front panel meter M501. Panel and indicator lights DS501 through DS505 are illuminated via DIMMER control R501; HV B+ indicator light DS501 is returned to ground through diode CR501 and closed contacts 2 and 4 of screen-protection relay K304 in the transmit condition. CAUTION indicator light DS506 is illuminated through the normally open contacts of interlock switch S303C when the interlock switch is pulled out.

3-262. The -27.5 vdc is applied as the energizing voltage directly to input and output coaxial relays K201 and K202 in the Power Amplifier subassembly; the ground for these relays is through closed contacts 2 and 4 of screen-protection relay K304 in the transmit condition.

Also, the -27.5 vdc along the same line is applied through normally open contacts 8 and 6 of time delay relay K302 (K302 energizes 60 seconds after power is applied to the equipment) to normally open contact 6 of t/r relay K303.

3-263. Within the Front Panel assembly, the -27.5 vdc is routed to the solenoid of autopositioner relay K501, and through its normally closed contacts 1 and 2 (open during channeling) and RF POWER OUTPUT HIGH-LOW switch S508 to the solenoid of t/r relay K303. During channel switching the -27.5 vdc is applied through contacts 2 and 3 of K501 to autopositioner motor B501.

3-264. Keying the AM-1565/URC by using the TEST KEY switch on the front panel, or by actuating the microphone key switch, places a ground on pin 9 of relay K303 and energizes the relay. When 303 energizes, contacts 6 and 7 close and apply -27.5 vdc to the solenoid of t/r relay K301 which energizes and applies the primary ac power to the primary winding of high-voltage transformer T301 (see paragraph 3-220).

3-265. Radio Set Control C-3866/SRC DC Power Distribution. The self-contained power supplies in Radio Set Control C-3866/SRC provide dc operating voltages of 24 volts, -28 volts, and 12 volts for the relays and synchro system within the unit and the units at the remote stations (Radio Set Control C-1138/UR or Radio Set Control C-1207/UR and Indicator Control C-3868/SRC). The dc power supplies and distribution in the C-3866/SRC are illustrated in the schematic diagram of figure 5-157.

3-266. 24-Volt DC Supply and Distribution. The 24-vdc supply consists of start-stop transformer T201 secondary winding 3-4 and semiconductor diodes CR201 through CR204 connected in a full-wave bridge-rectifier circuit. The 24-vdc output is isolated from ground, unfiltered, and is not fused. The output is applied only to the solenoid of start-stop relay K208 as the energizing voltage. The operation of the start-stop circuit is described in paragraph 3-206.

3-267. -28-Volt DC Supply and Distribution. The -28-vdc supply consists of power transformer T202 secondary winding 5-6 and semiconductor diodes CR205 through CR208 connected in a full-wave bridge-rectifier circuit. The unfiltered -28-vdc output of this supply is fused by F201 for over-load protection. The -28 vdc is distributed as the energizing voltage to channel-dialing relays K201 through K206 and transfer relay K209. The solenoids of relays K202, K203, K204, K206, and K209 are tied directly to the -28-vdc line. The path for the energizing voltage of K201 is through LOCAL-REMOTE switch S201 and CHANNEL DIAL selector S202 in the C-3866/SRC (or the channel dial selector in the C-3868/SRC). The path for the energizing voltage of K205 is through LOCAL-REMOTE switch S201. In addition, the -28 vdc is used as the excitation voltage for the synchro system which serves to indicate, at the remote station, the preset channel selected for use. The synchro transmitter is located in Radio Set Control C-3866/SRC, and the synchro receiver is located in Indicator Control C-3868/SRC at the remote station.

3-268. 12-Volt DC Supply and Distribution. The 12-vdc supply consists of power transformer T201 secondary winding 7-8 and semiconductor diodes CR209 through CR212 connected in a full-wave bridge-rectifier circuit. Overload protection is provided by fuse F202, and the output voltage is filtered by double-section choke-input filter L202-C203 and L201-C202. Resistor R248 is the bleeder resistor. Both sides of this supply are isolated from ground; however, if desired, the positive side can be grounded through a link on terminal board TB201.

3-269. The filtered 12 vdc from this supply is routed through LOCAL-REMOTE switch S201 to Radio Set Control C-1138/UR or C-1207/UR, and used as the energizing voltage for t/r relay K207 in Radio Set Control C-3866/SRC.

3-270. FREQUENCY SELECTION.

NOTE

Frequencies in the following descriptions are applicable to Radio Set AN/URC-9A; frequencies for the AN/URC-9 are the same, less the hundredths digit.

3-271. FREQUENCY CONVERSION. Frequency conversions during receive and transmit functions are described under the transmit and receive function headings in the prec-ding paragraphs. The following summary of frequency conversion requirements is presented as an introduction to the frequency selection descriptions in the subsequent paragraphs. Refer to figure 3-15 during the following discussion.

3-272. When operating in the receive condition, the uhf signal (225.00 to 399.95 MHz) received at the antenna is applied through Radio Frequency Amplifier AM-1565/URC (in Radio Set AN/SRC-20 ( )) or directly (in Radio Set AN/SRC-21 ( )) to rf amplifiers V102 and V103 in the RF and PA Amplifier. These amplifiers are tuned in 0.1-MHz steps to frequencies in the 225.00 to 399.95-MHz range. The FMO is tuned in 10-MHz steps in the frequency range of 200 to 370 MHz. Both the received and FMO frequencies are mixed in V104 to produce the first if in the range of 20.00 to 29.95 MHz. The if amplifiers, V301 and V302, are tuned to one of 100 frequencies (between 20.00 and 29.95 MHz) spaced 0.1 MHz apart. Second oscillator V305 in the First IF Amplifier generates one of ten frequencies in the range of 17 to 26 MHz. These frequencies are then mixed in second receive mixer V303 with the output of the if amplifiers (20.00 to 29.95 MHz) to produce the second if in the range of 3.00 to 3.95 MHz.

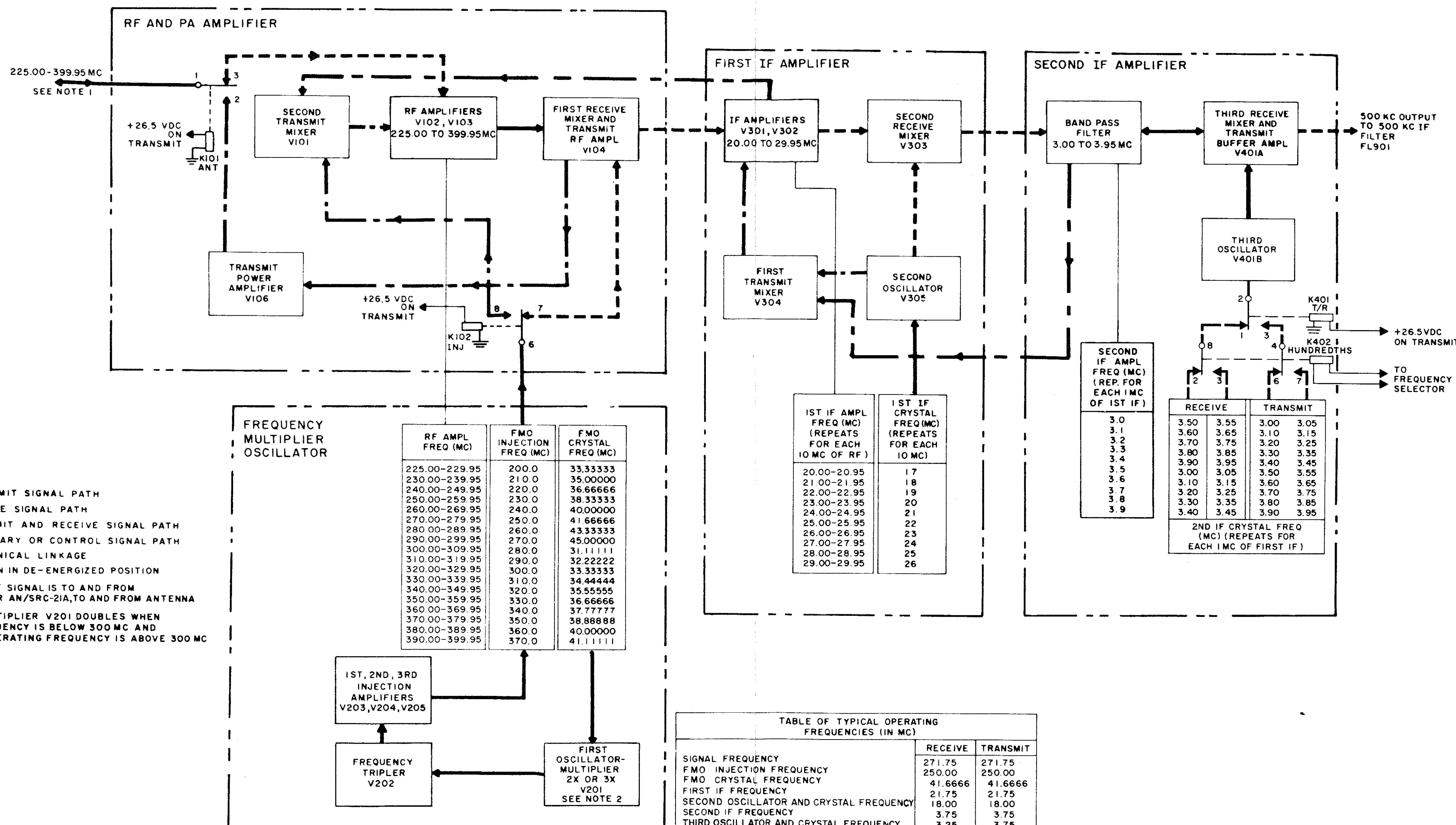
3-273. For Radio Set AN/URC-9A, the Second IF Amplifier is tuned to one of 10 steps spaced 0.1 MHz apart. The hundredths relay K402 selects one of 2 crystals at each step, for a total of 20 available frequencies. Third oscillator V401B generates one of twenty frequencies in the 3.50 to 3.95-MHz range and 3.00 to 3.45-MHz range. When the second if frequency is between 3.00 and 3.45 MHz, V401B operates between 3.50 and 3.95 MHz to produce the third if of 500 kHz. When the second if is between 3.50 to 3.95 MHz, V401B operates between 3.00 to 3.45 MHz to produce the third if of 500 kHz.

3-274. For Radio Set AN/URC-9, the Second IF Amplifier is tuned to one of ten frequencies spaced 0.1 MHz apart. (See figure 3-16.) Third oscillator V401B generates one of ten frequencies in the 3.5 to 3.9-MHz range, and 3.0 to 3.4-MHz range. When the second if is between 3.0 and 3.5 MHz, V401B operates between 3.5 and 3.9-MHz to produce the third if of 500 kHz; and when the second if is between 3.5 and 3.9 MHz, V401B operates between 3.0 and 3.9 MHz.

NOTE

During the following example, refer to figure 3-15 for Radio Set AN/URC-9A and to figure 3-16 for Radio Set AN/URC-9.

3-275. For explanatory purposes, assume the receiver is tuned to 271.75 MHz. Since this frequency falls within the 270.00 to 279.95-MHz range, the FMO crystal frequency is 41.66666 MHz and the FMO injection frequency is 250 MHz. The FMO generates the 250-MHz signal by multiplying the 41.66666 MHz crystal frequency by six (doubled in first oscillator-multiplier V201 and tripled in frequency tripler V202). The FMO injection frequency is applied to first receive mixer V104 in the RF and PA Amplifier where it is mixed with the incoming 271.75-MHz signal, resulting in a first if of 21.75-MHz. Since this frequency falls in the 21.00 to 21.95-MHz range, the first if crystal frequency is 18 MHz. The 21.75-MHz and 18-MHz signals are applied to second receive mixer V303 in the First IF Amplifier which produces the second if of 3.75 MHz. This signal is coupled through a 3.00 to 3.95-MHz



NOTES

A. LEGEND
- TRANSMIT SIGNAL PATH
- RECEIVE SIGNAL PATH
- TRANSMIT AND RECEIVE SIGNAL PATH
- AUXILIARY OR CONTROL SIGNAL PATH
- MECHANICAL LINKAGE

B. RELAYS ARE SHOWN IN DE-ENERGIZED POSITION

1. FOR AN/SRC-20A, RF SIGNAL IS TO AND FROM AM-1565/URC; FOR AN/SRC-21A, TO AND FROM ANTENNA

2. OSCILLATOR-MULTIPLIER V201 DOUBLES WHEN OPERATING FREQUENCY IS BELOW 300 MC AND TRIPLES WHEN OPERATING FREQUENCY IS ABOVE 300 MC

TABLE OF TYPICAL OPERATING FREQUENCIES (IN MC)

	RECEIVE	TRANSMIT
SIGNAL FREQUENCY	271.75	271.75
FMO INJECTION FREQUENCY	250.00	250.00
FMO CRYSTAL FREQUENCY	41.6666	41.6666
FIRST IF FREQUENCY	21.75	21.75
SECOND OSCILLATOR AND CRYSTAL FREQUENCY	18.00	18.00
SECOND IF FREQUENCY	3.75	3.75
THIRD OSCILLATOR AND CRYSTAL FREQUENCY	3.25	3.75
THIRD IF FREQUENCY	0.500	—

Figure 3-15. Radio Set AN/URC-9A, Frequency Conversion System, Functional Block Diagram

bandpass filter to third receiver mixer V401A in the Second IF Amplifier. In V401A, the 3.75-MHz signal is mixed with the 3.25-MHz second if crystal frequency to produce a 500-kHz if signal. This signal is then coupled through the 500-kHz if filter to the Third IF Amplifier.

3-276. At transmit, the operating frequency is obtained by generating low radio frequency and then heterodyning it to the uhf operating frequency. In the heterodyning process, all circuits except V401B of the Second IF Amplifier operate on the same frequency for transmit as for receive; the latter oscillator is shifted 500 kHz so that the transmit channel frequency is the same as receive. Thus, when the equipment is keyed to transmit, third oscillator V401B is switched from 3.25 to 3.75 MHz. This frequency is amplified and mixed in first transmit mixer V304 with an 18-MHz signal generated in the First IF Amplifier. The resulting 21.75-MHz signal is then amplified and routed to the RF and PA Amplifier where it is mixed in second transmit mixer V101 with a 250-MHz signal injection from the FMO. The resultant 271.75-MHz signal is then amplified and applied through the AM-1565/URC (in Radio Set AN/SRC-20( )) or directly to the antenna (in Radio Set AN/SRC-21( )) for transmission.

3-277. ELECTROMECHANICAL TUNING ELEMENTS. (Figure 5-151 for Radio Set AN/URC-9A; figure 5-150 for Radio Set AN/URC-9). The frequency-conversion circuits of Radio Set AN/URC-9( ) and the rf circuitry of Radio Frequency Amplifier AM-1565/URC are automatically tuned by electromechanical units called autopositioners. The autopositioner is a motor-driven, electrically controlled mechanism that comprises a motor and its gear-reduction train, a slip clutch that drives a rotating shaft fastened to a notched stop wheel (detent wheel), and a relay which controls a pawl for the stop wheel and also starts and stops the motor.

3-278. The control system for the autopositioner consists of the front panel-mounted selection switches and electrically similar seeking switches that are driven by the autopositioner shaft. The control system is the open-circuit-seeking type. Whenever the control and seeking switches are not set to the same physical position, the autopositioner energizes and drives its shaft to the proper position, at which point a pawl drops into a notch in the stop wheel and opens the motor control contacts.

3-279. Each positioning unit consists of a relay, notched stop wheel, and pawl, and is adjusted to prevent opening of the contact supplying power to the motor unless the pawl is in a notch in the stop wheel. Tuning motor B1201 drives the autopositioners through slip clutches which permit the motor to run without damage to the gear train when any or all of the autopositioners are at rest.

3-280. In Radio Set AN/URC-9( ), four autopositioners are part of the Frequency Selector (figures 5-67 through 5-81) and are controlled by the front panel CHAN SEL switch. The following can be selected with the CHAN SEL switch: 1 through 19, which allows local selection of a preset channel; REMOTE PRESET, which allows control of the 19 preset channels from a remote equipment; and MANUAL, which allows any one of the available frequencies (i.e., 3500 for AN/URC-9A and 1750 for AN/URC-9) to be selected by the MANUAL FREQUENCY switches.

3-281. The shafts of the autopositioners in the AN/URC-9( ) are driven by tuning motor B1201. The three autopositioner output shafts associated with relays K1201, K1202, and K1203 correspond to the positions of the MANUAL FREQUENCY TENS AND UNITS switches, and to the 0.1-MHz increments of the TENTHS (or TENTHS-HUNDREDTHS) switch. For the AN/URC-9A only, the 0.05-MHz increments of the TENTHS-HUNDREDTHS switch are represented by electrical signals rather than shaft positions. The 10-MHz shaft rotates in 18 incremental steps with each increment representing 10 MHz; the 1-MHz shaft rotates in 10 incremental steps with each increment representing 1 MHz; and the 0.1-MHz shaft also rotates in 10 incremental steps, with each increment representing 0.1 MHz. The Frequency Selector combines the 0.1 MHz and 1-MHz shaft positions to obtain 100 incremental steps steps, each of which represents 0.1 MHz. By combining the outputs of the 10 MHz, 1 MHz, and 0.1-MHz shafts, 1750 incremental steps, each representing 0.1 MHz, are obtained.

3-282. The 0.1-MHz shaft tunes V401A and B in the Second IF Amplifier (figure 5-143 or 5-144) in 10 increments of 0.1 MHz each. Crystal selection in the Second IF Amplifier of the AN/URC-9A depends on both the 0.1-MHz shaft position (for the 0.1-MHz increment) and an electrical signal (for the 0.05-MHz increment). For the AN/URC-9, crystal selection is dependent only on shaft position. The 10-MHz shaft tunes second oscillator V305 and first transmit mixer V304 in the First IF Amplifier (figure 5-142) in 10 increments of 1 MHz each; the 0.1-MHz shaft tunes if amplifiers V301 and V302 and second receive mixer V303 in the first IF Amplifier in 100 increments of 0.1 MHz each. The 10-MHz shaft selects one of 18 crystals and tunes the circuits in the FMO (figure 5-141) in 18 increments of 10 MHz each. The RF and PA Amplifier is tuned in 1750 increments of 0.1 MHz each by a combination of 10 MHz, 1 MHz and 0.1-MHz shafts (see figure 5-140). The tuned circuits of the RF and PA, First IF, and Second IF Amplifiers are tuned by the frequency selection system to the nearest 0.1-MHz increment of their operating frequency.

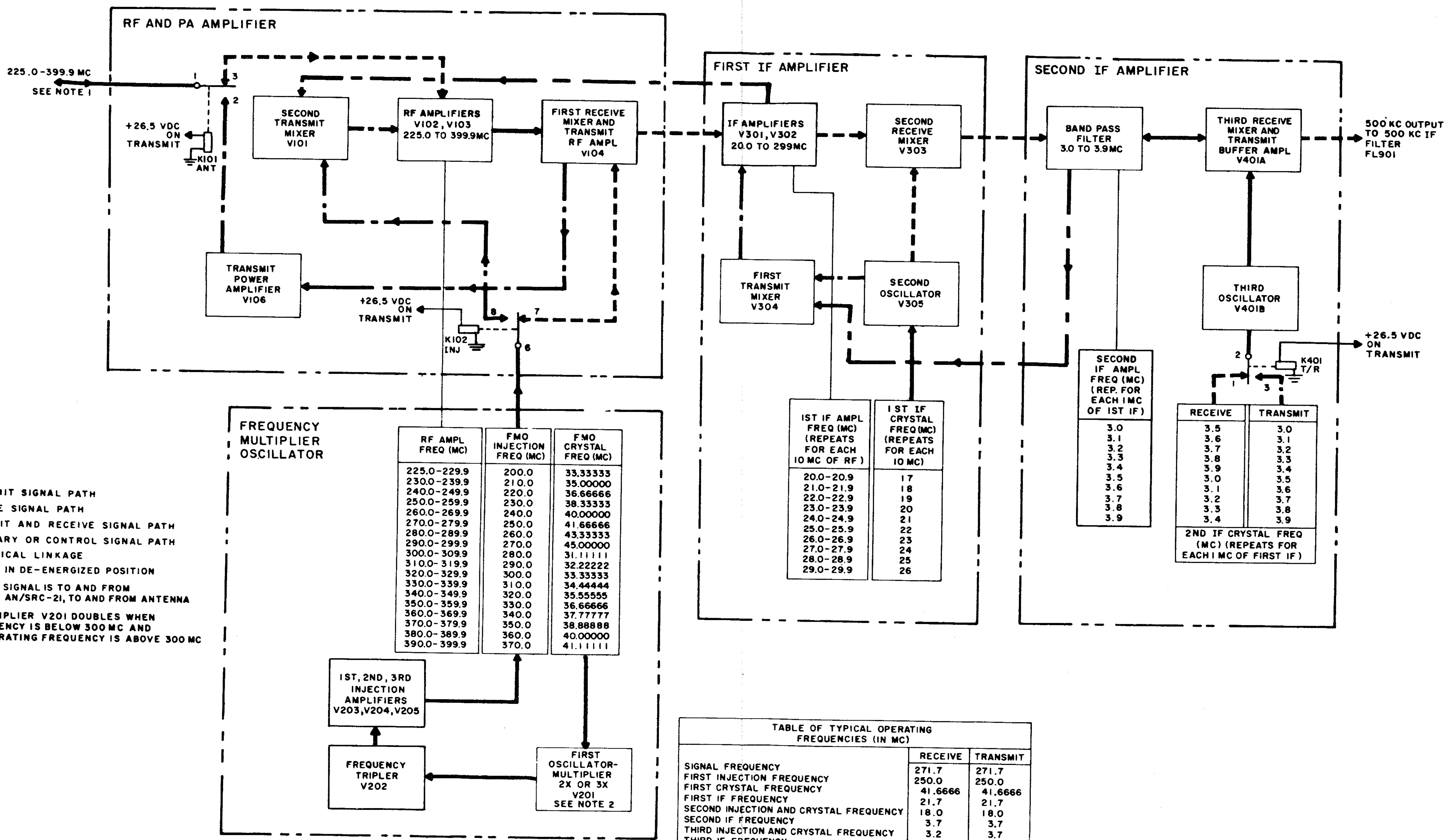
3-283. The fourth autopositioner is associated with channel selector relay K1204. This autopositioner converts the 5-wire channel information presented to local-seeking switch S1205 (or remote-seeking switch S1206) into mechanical rotation and positions the memory drum to the selected channel. The memory drum, in turn, supplies a ground or no-ground condition, as required, to the autopositioner associated with frequency selection relays K1201, K1202, and K1203. Thus, the frequency selection circuits convert the channel information into the frequency preset on the memory drum and position the shafts to the frequency that corresponds to the channel selected.

3-284. In Radio Frequency Amplifier AM-1565/URC, a single autopositioner (figures 5-96 through 5-100 and 5-154) is mounted on the back of the front panel. This autopositioner, in conjunction with the servo system, automatically tunes the AM-1565/URC to the frequency preset by one of the 20 channel (1 through 19 or manual) potentiometers. For a detailed discussion of preset channel selection from the AM-1565/URC, refer to paragraph 3-364.

3-285. FREQUENCY SELECTOR. (Figure 5-151 for Radio Set AN/URC-9A; figure 5-150 for Radio Set AN/URC-9). The Frequency Selector provides automatic channel selection on 19 preset channels which may be selected locally or from Radio Frequency Amplifier AM-1565/URC, Radio Set Control C-3866/SRC, or remote station Indicator Control C-3868/SRC. In addition, the Frequency Selector provides for local manual frequency selection.

3-286. General. Information is electrically transferred from a channel-selector switch to the autopositioners in the Frequency Selector where it is converted to mechanical tuning information for the various oscillators and amplifiers in the radio set. Five accurately positioned tuning shafts, driven by the frequency selector autopositioners, automatically tune the radio set to the desired frequency. This process requires 1 to 5 seconds, the exact time depending upon the sequence of selection.

3-287. The autopositioners always rotate in the same direction, from a high to a



RF AMPL FREQ (MC)	FMO INJECTION FREQ (MC)	FMO CRYSTAL FREQ (MC)
225.0-229.9	200.0	33.33333
230.0-239.9	210.0	35.00000
240.0-249.9	220.0	36.66666
250.0-259.9	230.0	38.33333
260.0-269.9	240.0	40.00000
270.0-279.9	250.0	41.66666
280.0-289.9	260.0	43.33333
290.0-299.9	270.0	45.00000
300.0-309.9	280.0	31.11111
310.0-319.9	290.0	32.22222
320.0-329.9	300.0	33.33333
330.0-339.9	310.0	34.44444
340.0-349.9	320.0	35.55555
350.0-359.9	330.0	36.66666
360.0-369.9	340.0	37.77777
370.0-379.9	350.0	38.88888
380.0-389.9	360.0	40.00000
390.0-399.9	370.0	41.11111

1ST IF AMPL FREQ (MC) (REPEATS FOR EACH 10 MC OF RF)	1ST IF CRYSTAL FREQ (MC) (REPEATS FOR EACH 10 MC)
20.0-20.9	17
21.0-21.9	18
22.0-22.9	19
23.0-23.9	20
24.0-24.9	21
25.0-25.9	22
26.0-26.9	23
27.0-27.9	24
28.0-28.9	25
29.0-29.9	26

SECOND IF AMPL FREQ (MC) (REP. FOR EACH 1 MC OF 1ST IF)
3.0
3.1
3.2
3.3
3.4
3.5
3.6
3.7
3.8
3.9

RECEIVE	TRANSMIT
3.5	3.0
3.6	3.1
3.7	3.2
3.8	3.3
3.9	3.4
3.0	3.5
3.1	3.6
3.2	3.7
3.3	3.8
3.4	3.9
2ND IF CRYSTAL FREQ (MC) (REPEATS FOR EACH 1 MC OF FIRST IF)	

NOTES

A. LEGEND

- — — TRANSMIT SIGNAL PATH
- - - - - RECEIVE SIGNAL PATH
- ——— TRANSMIT AND RECEIVE SIGNAL PATH
- ——— AUXILIARY OR CONTROL SIGNAL PATH
- - - - - - MECHANICAL LINKAGE

B. RELAYS ARE SHOWN IN DE-ENERGIZED POSITION

1. FOR AN/SRC-20, RF SIGNAL IS TO AND FROM AM-1565/URC; FOR AN/SRC-21, TO AND FROM ANTENNA

2. OSCILLATOR-MULTIPLIER V201 DOUBLES WHEN OPERATING FREQUENCY IS BELOW 300 MC AND TRIPLES WHEN OPERATING FREQUENCY IS ABOVE 300 MC

TABLE OF TYPICAL OPERATING FREQUENCIES (IN MC)

	RECEIVE	TRANSMIT
SIGNAL FREQUENCY	271.7	271.7
FIRST INJECTION FREQUENCY	250.0	250.0
FIRST CRYSTAL FREQUENCY	41.6666	41.6666
FIRST IF FREQUENCY	21.7	21.7
SECOND INJECTION AND CRYSTAL FREQUENCY	18.0	18.0
SECOND IF FREQUENCY	3.7	3.7
THIRD INJECTION AND CRYSTAL FREQUENCY	3.2	3.7
THIRD IF FREQUENCY	0.500	—

Figure 3-16. Radio Set AN/URC-9( ), Frequency Conversion System, Functional Block Diagram

lower frequency position. The channel selector autopositioner always rotates from a low-numbered channel to a higher-numbered channel. For this reason, tuning from a lower to a higher frequency takes longer than tuning in the opposite direction. Also, tuning from a higher numbered channel to a lower-numbered channel takes longer than when tuning in the opposite direction.

3-288. Preset Channel Selection from Radio Set AN/URC-9( ). (Figure 5-151 for AN/URC-9A; figure 5-150 for AN/URC-9.) Any one of 19 preset channels can be selected by CHAN SEL switch S705. When the CHAN SEL switch is rotated, terminal 2 of channel selector autopositioner relay K1204 is grounded through the contacts of S705C (upper section), local seeking switch S1205, and S705B. When energized, K1204 opens the circuit to autopositioner relays K1201, K1202, and K1203; applies +26.5 vdc to tuning motor B1201; and lifts the pawl from the notched stop wheel associated with K1204, thus permitting motor B1201 to rotate. The +26.5 vdc is also applied to the coil of work relay K1 which energizes to disable the key line.

3-289. Motor B1201 drives the channel indicator dial, preset memory drum, and local and remote seeking switches S1205 and S1206, respectively, through a slip clutch. Although the motor is physically connected to the 10 MHz, 1 MHz, and 0.1-MHz autopositioner notched stop wheels through the slip clutch, these wheels do not turn at this time because they are locked by pawls controlled by relays K1201, K1202, and K1203.

3-290. Local seeking switch S1205, which is ganged to the memory drum, turns until the rotor finds the one position that opens the ground path to terminal 2 of K1204. When S1205 reaches this position, K1204 deenergizes and drops the pawl into a notch of the stop wheel preventing further rotation of the channel indicator dial, preset memory drum, and local and remote seeking switches. The memory drum is now positioned to the desired channel. When K1204 deenergizes, contacts 2 and 4 open and contacts 3 and 5 close; the +26.5 vdc is thus switched from the tuning motor to the coils of the autopositioned relays. Due to the applied voltage through contacts 3 and 4 of either K1201, K1202, or K1203, work relay K1 remains energized and the motor continues to rotate until the tuning sequence is completed.

3-291. Automatic Frequency Selection. (Figure 5-151 for AN/URC-9A; figure 5-150 for AN/URC-9.) The 19 channel frequencies are preset on the direct-reading memory drum which is accessible through the door in the front panel of Radio Set AN/URC-9( ). Five pins, which open or close selected switch contacts, must be positioned for each preset channel on Radio Set AN/URC-9A. (Radio Set AN/URC-9 has only four pins for presetting channel frequencies.) Reference numbers adjacent to the pin tracks indicate the preset channel frequency.

NOTE

Frequencies in the following description are for Radio Set AN/URC-9A; frequencies for Radio Set AN/URC-9 are the same, less the hundredths digit.

3-292. When the preset channel memory drum has been positioned, the pins representing the selected preset channel frequency operate selected contacts on memory drum switch S1210. The left pin opens one of the two normally closed contacts of switch S1210A; the open contact represents the hundreds megahertz digit (2xx.xx MHz or 3xx.xx MHz) of the preset channel frequency. The left-center pin (second pin from the left) opens one of the ten normally closed contacts of switch S1210B; the open contact respresents the tens megahertz digit (x0x.xx MHz, x1x.xx MHz, x2x.xx MHz, etc.) of the preset channel frequency. Together, the contacts of switches S1210A and S1210B control the selection of the first two digits (22 through 39) of the preset frequency, as indicated by 10-MHz seeking switch S1201.

3-293. A combination of memory drum switches S1210A and S1210B, 10-MHz seeking switch S1201, and blanking switch S1202, allow the selection of 18 frequencies (22x.xx through 39x.xx) with 12 switch positions on S1210A and S1210B. On switch S1210A, the eight positions of 22 through 29 are in parallel with the eight positions of 32 through 39, respectively; these eight positions and the two positions of 30 and 31 effectively make S1201 a 10-position switch. To select the proper frequency, relay K1201 remains energized to allow motor B1201 to drive 10-MHz seeking switch S1201 and blanking switch S1202 until both switches are positioned to the open switch positions of S1210A and S1210B.

3-294. The third pin from the left closes one of the ten normally open contacts of switch S1210C; the closed contact represents the units megahertz digit (xx0.xx MHz, xx1.xx MHz, xx2.xx MHz, etc) of the preset channel frequency, as indicated by 1-MHz seeking switch S1203. The fourth pin from the left on AN/URC-9A (right hand pin on AN/URC-9) closes one of the ten normally open contacts of switch S1210D; the closed contact represents the tenths megahertz digit (xxx.0x MHz, xxx.1x MHz, xxx.2x MHz, etc.) of the preset channel frequency, as indicated by 0.1-MHz seeking switch S1204. The right hand pin on AN/URC-9A only, represents the hundredths megahertz digit and controls the single normally open contact of S1210E. When closed, (pin set in left track), 5 is selected as the hundredths megahertz digit (xxx.x5 MHz); the open contact represents an 0 as the hundredths megahertz digit (xxx.x0 MHz). Switch S1210E directly controls hundredths relay K402 in the Second IF Amplifier and does not affect the mechanical operation of the frequency selector.

3-295. The following is an example of the automatic frequency selection. Assume that a frequency of 399.95 MHz is preset on channel 19, that preset channel 19 is selected, and that the preset channel selection cycle (described in paragraph 3-291) is complete. The left pin of the preset channel memory drum opens the normally closed contact of switch S1210A that represents the hundredths digit 3; this action removes the ground from contact 7 on blanking switch S1202 (front). The left center pin of preset channel memory drum opens the normally closed contact of switch S1210B that represents the tens digit 9; this action removes the ground from the positions designated as 29 and 39 (these positions are in parallel) of switch S1201. The 10-MHz autopositioner relay, K1201, energizes because of the completed ground circuit through the normally closed contacts of S1210A, contacts 2 and 17 of phasing switch S1202 (rear), normally closed contacts 0 through 8 of S1210B, and switch S1201 and its permanent connection to contact 17 of S1202. When relay K1201 energizes, contacts 3 and 4 close applying +26.5 vdc to tuning motor B1201 which causes the pawl to be lifted away from the 10-MHz notched stop wheel. Through the slip-clutch arrangement, motor B1202 drives the 10-MHz indicator, notched stop wheel, switches S1201 and S1202, and the 18-position, 10-MHz shaft.

3-296. Since the first and second digits of the assigned frequency are 3 and 9, 10-MHz seeking switch S1201 must find 39, not 29. To prevent the seeking switch from stopping at contact 29, phasing switch S1202 (rear) returns terminal 2 of K1202 to ground when seeking switch S1201 reaches contact 29. Phasing switch S1202 rotates at one-half the speed of seeking switch S1201 because of a 2:1 gear reduction. At the instant the rotor contact on S1201 makes with ungrounded contact 29, the rotor contact of S1202 makes with fixed contact 2 which is returned to ground through the normally closed contact of S1210A; thus relay K1201 remains energized.

3-297. Tuning motor B1201 continues to drive the 10-MHz autopositioner until the rotor contact of seeking switch S1201 makes with ungrounded contact 39. At this instant, relay K1201 deenergizes and releases the pawl which drops into a notch of the 10-MHz stop wheel. Thus, further rotation of the 10-MHz indicator, notched stop wheel, seeking switch S1201, and phasing and blanking switch S1202 is prevented.

3-298. The front section of S1202 is a blanking switch that blanks out 180° of rotation. This blanks out alternate cycles of 10-MHz seeking switch S1201 by grounding terminal 2 of K1201 when the uhf tuning elements are tuned below 225.00 MHz. During the blanked alternation of the tuning cycle, the tuning elements are returned to the 399.99 MHz position.

3-299. Concurrently with the operation of the 10-MHz autopositioner, the third pin from the left closes the normally open contact of switch S1210C that represents the units digit 9; this action completes the ground circuit for 1-MHz autopositioner relay K1202. When relay K1202 energizes, contacts 3 and 4 close and simultaneously apply power to tuning motor B1201 and lift the pawl from the 1-MHz notched stop wheel. Through the slip-clutch arrangement, motor B1201 drives the 1-MHz indicator, the notched stop wheel, seeking switch S1203, and the 10-position, 1-MHz shaft. Tuning motor B1201 continues to drive the 1-MHz autopositioner until the open position on the rotor of the front section of seeking switch S1203 makes with grounded contact 9 of switch S1210C. This opens the ground circuit to relay K1202 causing the relay to deenergize and release the pawl allowing it to drop into a notch in the 1-MHz stop wheel. Thus, further rotation of the 1-MHz indicator, the notched stop wheel, and seeking switch S1203 is prevented.

3-300. Pin 2 of the 10-MHz autopositioner relay K1201 is momentarily grounded (through switches S1201 or S1202) by the rear section of 1-MHz seeking switch S1203 whenever this switch passes through the position designated as A. Thus, the 10-MHz autopositioner is recycled to prevent error in the 10-plus-1-MHz differential gear train output; the error may be introduced when the differential cam follower passes over the high point of the cam as the 1-MHz autopositioner passes from 0 to 9.

3-301. Concurrently with the operation of the 10 MHz and 1-MHz autopositioners, the fourth pin from the left on the AN/URC-9A (right hand pin on the AN/URC-9) closes the normally open contact of switch S1210D that represents the tenths digit 0.9. This action closes the ground circuit for the 0.1-MHz autopositioner relay K1203. When relay K1203 energizes, the operation of the 0.1-MHz autopositioner is the same as that of 1-MHz autopositioner described previously. Contact A of 0.1-MHz seeking switch S1204 is connected to the common contact of 1-MHz seeking switch S1203; this applies a ground to 1-MHz autopositioner relay K1202 whenever seeking switch S1204 passes through position A. Thus, relay K1202 is momentarily energized, causing the 1-MHz autopositioner to recycle to the same frequency position and eliminate the possibility of error in the 1-plus-0.1-MHz differential gear train. Without this preventive cycle, an error could be introduced when the differential cam follower passes over the high point of the cam as the 0.1 MHz autopositioner passes from 0.0 to 0.9.

3-302. The right hand pin of AN/URC-9A only, being positioned in the left track, closes S1210E providing a ground path for hundredths relay K402 in the Second IF Amplifier. The +26.5-vdc energizing power is applied to relay K402 through contacts 3 and 5 of K1204 which supplies power to autopositioners K1201, K1202, and K1203 when the channel selection cycle is complete.

3-303. In summary, once the preset channel memory drum reaches the selected channel, channel selector relay K1204 deenergizes and the +26.5-vdc supply is reapplied to the 10, the 1, and the 0.1-MHz autopositioner relays with the selection of the individual digits of the preset channel occuring simultaneously.

Tuning motor B1201 drives the autopositioners through a slip clutch that permits motor rotation when any or all of the autopositioners are at rest. When autopositioner relays K1202, K1202, and K1203 deenergize, the +26.5-vdc is removed from tuning motor B1201 and work relay K1. With the key-line disabled, the radio set is tuned to a new channel frequency, after which the key line is again enabled.

3-304. Manual Frequency Selection. (Figure 5-151 for AN/URC-9A; figure 5-150 for AN/URC-9.) When CHAN SEL switch S705 on the AN/URC-9( ) is rotated to the MANUAL position, any one of the available channel frequencies can be selected by physically positioning the MANUAL FREQUENCY TENS, (S706), UNITS, (S707) and TENTHS (or TENTHS-HUNDREDTHS) (S708) switches, respectively.

3-305. When the CHAN SEL switch is positioned at manual, the preset channel drum rotates to position M. In this position, a nylon bar opens all contacts on memory drum switches S1210A and S1210B; all contacts on switches S1210C, S1210D, and S1210E are normally open. Switch S705A (both front and rear) is operated by a cam to connect TENS switch S706 to 10-MHz autopositioner seeking switch S1201 in place of memory drum switches S1210A and S1210B. UNITS switch S707 is connected to 1-MHz autopositioner seeking switch S1203 in place of memory drum switch S1210C. In a similar manner, TENTHS (or TENTHS-HUNDREDTHS) switch S708 (front) is connected to 0.1-MHz autopositioner seeking switch S1204 in place of memory drum switch S1210D. On AN/URC-9A only, switch S708 (rear) is connected to hundredths relay K402 in place of S1210E. The wafers of the TENS, UNITS, AND TENTHS (or TENTHS-HUNDREDTHS) switches, S706, S707, and S708 respectively, are grounded through contacts 20, 21, 24, and 26 of CHAN SEL switch S705A (front). Contact 26 of S705A is also used to ground both the front and rear sides of the S708 wafer so decoupling diodes CR701 and CR702 are included in both ground paths to prevent interaction that might otherwise occur.

3-306. Frequency selection is accomplished by setting the MANUAL FREQUENCY switches to the desired frequency. The Frequency Selector operates the same as for automatic frequency selection described in preceding paragraphs except the MANUAL FREQUENCY switches substitute for memory drum switches S1210A through S1210E.

3-307. FUNCTIONAL DESCRIPTION OF RADIO SET CONTROL C-3866/SRC.

3-308. OVERALL FUNCTIONAL DESCRIPTION. Radio Set Control C-3866/SRC provides all necessary control functions for local and remote control of Radio Set AN/SRC-20( ) or AN/SRC-21( ) when either of these sets is operated in the preset mode.

3-309. Refer to the functional block diagram of Radio Set Control C-3866/SRC, shown in figure 3-17. The C-3866/SRC contains a pushbutton start-stop circuit which controls the primary ac power delivered to either the AN/SRC-20( ) or the AN/SRC-21( ); all primary ac power is fused in this unit. The channel select dial is a telephone-type dial used to select any one of 19 preset channels. The programming relays and the stepping relay generate a 5-wire code used to deliver channel information to the Autopositioners in Radio Set AN/URC-9( ) and Radio-Frequency Amplifier AM-1565/URC, and for Antenna Coupler Group AN/SRA-33 (when used with the system). In addition, the stepping relay provides dc voltages (coupled from the dc power supply) for a synchro system used for positioning a remote channel indicator in Indicator Control C-3868/SRC. When the radio set is controlled from a remote station by Radio Set Control C-1138/UR or Radio Set Control C-1207/UR, the C-3866/SRC provides matching facilities for the receiver and transmit audio lines.

3-310. ANCILLARY CIRCUIT DESCRIPTION. The ancillary circuits in Radio Set

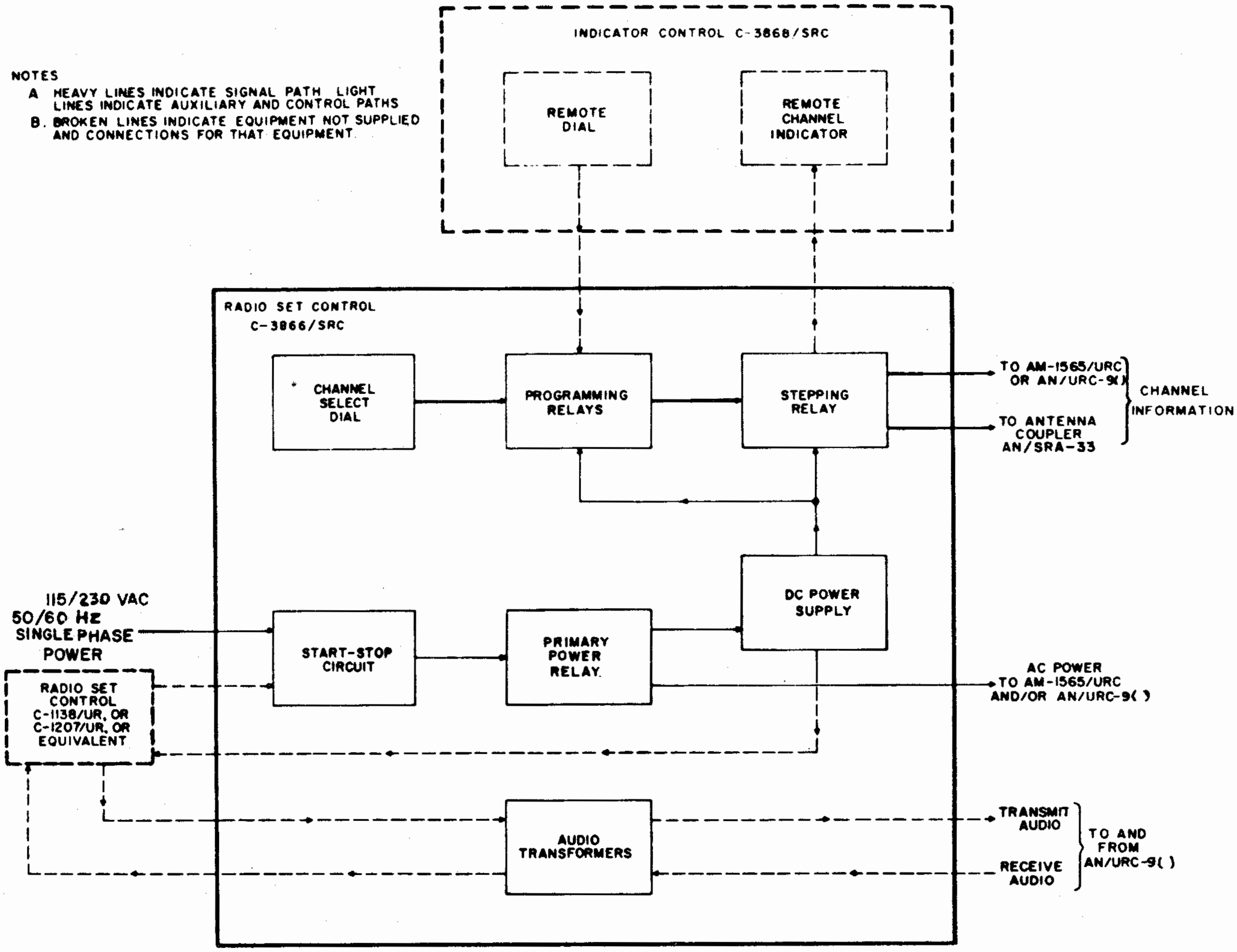


Figure 3-17. Radio Set Control C-3866/SRC, Functional Block Diagram

Control C-3866/SRC, considered here, are the LOCAL-REMOTE switch, the audio matching transformers, and the transmit-receive relay. The start-stop circuit and the primary power relay circuit are described in the discussion of the ac power distribution for Radio Set AN/SRC-21( ) in paragraph 3-206. The dc power supply circuits are described in the discussion of the dc power distribution for Radio Set Control C-3866/SRC in paragraph 3-265.

3-311. LOCAL-REMOTE Switch S201. LOCAL-REMOTE switch S201 transfers several functions from local control at Radio Set Control C-3866/SRC to a remote control station (see figure 5-157). The functions of the LOCAL-REMOTE switch are summarized as follows:

a. Contacts 2-3-4 of S201C switch channel dialing from local CHANNEL DIAL S202 to a similar channel dial on the C-3868/SRC at the remote station.

b. Contacts 8-9-10 of S201 and contacts 5-6-7 of S201B switch the synchro indicator voltages to the channel indicator circuits of the C-3868/SRC at the remote control station when the radio set is under local control.

c. Contacts 2-3-4 of S201B disable power to reset indicator relay K205 and prevent a reset indication from being shown at the remote control station when the radio set is under local control.

d. Contacts 1-11-12 of S201B disconnect the squelch disable line from the remote control station when the radio set is under local control.

e. Contacts 8-9-10 of S201B disconnect the receiver audio line (transformer T204) from the remote control station when the radio set is under local control.

f. Contacts 5-6-7 of S201A disconnect the transmitter audio line (transformer T203) from the remote control station when the radio set is under local control.

g. Contacts 2-3-4 of S201A disable power to the on-off light at the remote control station and extinguish this light when the radio set is under local control.

h. Contacts 8-9-10 of S201A disable the transmit-receive control line at the remote control station when the radio set is under local control.

i. Contacts 1-11-12 of S201A remove the 12-vdc power from the remote control station when the radio set is under local control.

3-312. Audio Matching Transformers. Radio Set Control C-3866/SRC contains two matching transformers (see figure 5-157). Transformer T203 matches the 82-ohm unbalanced microphone line of Radio Set AN/URC-9( ) to the 600-ohm balance line required by the remote control station. Transformer T204 matches the 600-ohm unbalanced receiver line of Radio Set AN/URC-9( ) to the 600-ohm balanced line required by the remote control station.

3-313. Transmit-Receive Relay K207. Transmit-receive relay K207 (figure 3-22) enables the t/r key line of Radio Set AN/SRC-20( ) or Radio Set AN/SRC-21( ) to be controlled by Radio Set Control C-1138/UR or C-1207/UR. To key the AN/SRC-20( ) or AN/SRC-21( ), 12 vdc is applied to the Radio Set Control and is routed through pin C of J104, line filter FL126, contacts 8 and 10 of LOCAL-REMOTE switch S201A (in REMOTE), line filter FL117, pin G of J102, Antenna Coupler Group AN/SRA-33 (when used), pin H of J102, and line filter FL118 to the solenoid (pin 1) of K207.

CAUTION

When Antenna Coupler Group AN/SRA-33 is not used, a jumper must be installed between line filters FL117 and FL118 (pins G and H of J102) to enable the t/r key line.

3-314. CHANNEL DIALING CIRCUIT. A simplified diagram and an operational sequence chart for the channel dialing circuitry in Radio Set Control C-3866/SRC are illustrated in figure 3-18. Selecting one of the 19 preset channels from the C-3866/SRC requires the use of telephone-type CHANNEL DIAL S202, programming relays K201 through K204, stepping relay K206, and transfer relay K209. Reset indicator relay K205 is disabled on local opearation and prevents a reset indication from being shown on Indicator Control C-3868/SRC at the remote control station when the radio set is under local control. When in remote operation, lockout relay K202 and reset indicator relay K205 both are deenergized; -28 vdc and ground are passed through their normally closed contacts and decks 11 and 12 of stepping relay K206 to position the synchro receiver in the C-3868/SRC to indicate the channel previously dialed. Refer to paragraph 3-347 for a detailed description of synchro system operation. Although transfer relay K209 is energized throughout the dialing operation, and contacts 4 and 7 are closed, the main function of the energized relay is maintain a ground on slow-release relay K203 after the normal slow-release time of K203 has elapsed when channels higher than 10 are dialed. Semiconductor diode CR213 provides isolation for transfer relay K209. Stepping relay K206 is a 13-deck 26-position, spring-driven rotary switch (see figure 5-157). This switch advances one position each time K206 is deenergized, after a stepping pulse has energized K206 which cocks the spring-driven mechanism.

3-315. Dialing Channels 1 through 10. (Refer to figure 3-18.) The desired channel is selected by the telephone-type CHANNEL DIAL S202, which has two sets of contacts connected in series. The off-normal contacts are open when the dial is at its home position; they are closed at all times when the dial is moved from its home position. The impulse contacts are normally closed when the dial is at home and during the time the dial is turned clockwise to the finger stop. When the dial is released from the finger-stop and allowed to return home, the impulse contacts alternately open and close so that one opening and reclosing is accomplished for each channel number. Dial speed is adjusted for approximately 10 periods per second; therefore, each period, which corresponds to a channel number, is 0.1 second in duration. The impulse contacts are adjusted so that they are open about 30% of a period and closed about 70% of a period.

3-316. Refer to column A of the operational sequence chart. Initially, programming relays K201 through K204 and transfer relay K209 are deenergized, CHANNEL DIAL S202 is at the home position with the impulse and off-impulse contacts closed and off-normal contacts open; stepping relay K206, which is also deenergized, is at the last channel dialed.

3-317. For purposes of explanation, assume that channel 2 is dialed. As the dial rotates clockwise from the home position to the finger-stop, the off-normal contacts of the dial close energizing impulse relay K201. When impulse relay K201 energizes, contacts 2 and 3 close and apply a ground to slow-release relay K203, thereby energizing K203. When K203 energizes, a ground is placed on contact 6 and grounds are removed from contacts 1 and 3. The ground on contact 6 is applied to the solenoid of transfer relay K209, and to the solenoid of stepping relay K206, thus, both K209 and K206 now energize. When ground is applied to the solenoid of K206 and the relay energizes, its self-interrupting and pulsing action causes it to step to its home position. When the home position is reached, the cam-operated off-normal contacts in the ground line open and deenergize the relay. (The operation of stepping relay K206 is described in detail in paragraph 3-339.)

3-318. The foregoing action is summarized in column B of the operational sequence chart. When CHANNEL DIAL S202 is at the finger-stop, both the impulse contacts and the off-normal contacts of the dial are closed; impulse relay K201, slow-release relay K203, and transfer relay K209 are energized; and stepping relay K206, having stepped to the home position, is deenergized. Slow-release relay K203 and transfer relay K209 remain energized until the dialing sequence is completed. (Because of its built-in slow-release time of 0.2 second, slow-release relay K203 remains energized until 0.2 second after the dialing operation is complete.) Lockout relay K202 and pulse relay K204 are still deenergized.

3-319. The grounds removed from contacts 1 and 3 of slow-release relay K203 are normally routed through rotary switch contacts decks 1 through 5 and decks 6 through 10 of stepping relay K206 and are used to provide 5-wire channel information to Radio Set AN/URC-9( ), Radio Frequency Amplifier AM-1565/URC, and Antenna Coupler Group AN/SRA-33. When these grounds are removed, as is the case during channel dialing, the AN/URC-9( ), AM-1565/URC, and the AN/SRA-33 are prevented from following stepping relay K206 as it resets and positions to a new channel.

3-320. When CHANNEL DIAL S202 is released from the finger-stop and the dial begins to return toward its home position, the impulse contacts open and impulse relay K201 immediately deenergizes. When K201 deenergizes, contacts 4 and 5 close and apply a ground to the solenoid of lockout relay K202. (The ground is obtained from closed contacts 5 and 6 of slow-release relay K203, which remains energized throughout the dialing operation.) When lockout relay K202 energizes, contacts 2 and 3 and 5 and 6 close. Contacts 5 and 6 are holding contacts that keep lockout relay K202 energized for the remainder of the dialing operation.

3-321. The foregoing action is summarized in column C of the operational sequence chart. Note that the impulse contacts of the dial have opened and impulse relay K201 has deenergized. Slow-release relay K203, transfer relay K209, and lockout relay K202 are energized; these relays remain energized for the remainder of the dialing sequence. Pulse relay K204 is not energized and stepping relay K206 is deenergized by its off-normal contacts.

3-322. As the channel dial continues to rotate toward home, it next passes through the rest (70% closed) part of the first 0.1-second period; during this time (column D) the impulse contacts of the dial close and reenergize impulse relay K201.

3-323. When impulse relay K201 reenergizes (column D), a ground is coupled from contacts 2 and 3 of K201 through closed contacts 2 and 3 of lockout relay K202 to terminal A of pulse relay K204. K204 energizes and remains energized for the remainder of the dialing operation through holding contacts 2 and 3 which apply a ground to terminal D of K204. Note in column D, that transfer relay K209 and programming relays K201 through K204 all are energized, and that stepping relay K206 is still deenergized. Programming of the relays is now complete and the only concern is the completion of the operational sequence for CHANNEL DIAL S202, impulse relay K201 and stepping relay K206.

3-324. The channel dial continues to rotate counterclockwise toward its home position, During the return (30% open) part of its second 0.1-second period (channel dial digit 2), the impulse contacts of the channel dial open and again deenergize impulse relay K201 (column E). When impulse relay K201 deenergizes, contacts 1 and 2 close; the ground at contact 2 is routed through closed contacts 4 and 5 of pulse relay K204 and terminal A23 to the solenoid of stepping relay K206, and K206 energizes (column E). When K206 energizes, its spring-driven mechanism cocks, that is, the spring is compressed as the driving pawl is pulled through one notch of the ratchet-driven shaft, so that the rotary switches of K206 decks 1 through 13 will be advanced (stepped) one position the next time stepping relay K206 is deenergized.

3-325. As the channel dial continues to rotate toward home, it next passes through the rest (70% closed) part of the second 0.1-second period; the impulse contacts of the dial close and reenergize impulse relay K201 (column F). When impulse relay K201 energizes, contacts 1 and 2 open and remove the ground from K206 causing it to deenergize. The spring-driven mechanism of K206 pushes the ratchet-driven shaft and advances the rotary switches of K206 decks 1 through 13 one step which corresponds to channel 1.

3-326. Since channel 2 was originally dialed, the couterclockwise rotation of CHANNEL DIAL S 202 to its home position is completed at the end of the second (channel dial digit 2) 0.1-second period. When the CHANNEL DIAL reaches the home position, the off-normal contacts of the dial open (column G). This causes impulse relay K201 to deenergize and reapply ground through contacts 1 and 2 to relay K206. When K206 energizes, its spring-driven mechanism is again cocked so that the rotary switch of K206 will again be advanced (stepped) one position the next time stepping relay K206 is deenergized. Also, when impulse relay K201 deenergizes (column G), the ground is removed from slow-release relay K203. However, because of its built-in slow-release time, K203 remains energized for an additional 0.2 second after the CHANNEL DIAL reaches its home position. For this reason, transfer relay K209 and programming relays K202 through K204 remain energized.

3-327. After the 0.2-second time delay, slow-release relay K203 deenergizes (column H) grounding contacts 1 and 3 which present the 5-wire channel information to the AN/URC-9( ), AM-1565/URC, and AN/SRA-33. The removal of ground from contact 6 opens the circuits to the solenoids of transfer relay K209, lockout relay K202, and pulse relay K204. When pulse relay K204 denergizes, contacts 4 and 5 open and remove the ground from K206 causing it to deenergize. The K206 spring-driven mechanism pushes the ratchet-driven shaft and advances the rotary switches of K206, decks 1 through 13, one step which corresponds to channel 2. Since channel 2 was originally dialed, the channel dialing operation is completed.

3-328. In summary, the operational sequences of columns A through F are repeated for each channel selected from 1 through 10, and A is used when dialing channels higher than 10. The operational sequences of columns G and H are repeated at the end of each dialing operation, except for dial selection A. Thus, if channel 8 is dialed, the operational sequences of columns A and B occur as the operator rotates the dial clockwise to the finger-stop; stepping relay K206 energizes, steps to its home position, then deenergizes. When the dial is released from the finger-stop, it begins to rotate counterclockwise. On its way to the home position, the dial passes through eight 0.1-second periods; the sequences of columns C and D occur during the first (channel dial digit 1) 0.1-second period and the sequences of columns E and F occur during the second through eighth (channel dial digits 2 through 8) 0.1-second periods. When the channel dial reaches its home position at the end of the eighth 0.1-second period, the sequences of columns G and H occur. The last operation of stepping relay K206 is to advance its rotary switch to position 8, which corresponds to channel 8.

3-329. Note that impulse relay K201 energizes only when both the impulse contacts and the off-normal contacts of the channel dial are closed. Also, deenergizing impulse relay K201 causes stepping relay K206 to energize and cock its spring-driven mechanism; energizing impulse relay K201 then causes stepping relay K206 to deenergize and release its spring-driven mechanism which advances (steps) the rotary switches of decks 1 through 13 one position. This action continues until 0.2 second after the channel dial reaches its home position. At this time the remainder of the programing relays and stepping relay K206 deenergize, and the rotary switches of K206 decks 1 through 13 advance a last time to the position corresponding to the channel selected.

3-330. <u>Dialing Channels 11 through 19</u>. To dial any channel higher than 10, dial A then the last digit in the desired channel number. For example, to dial channel 12, dial A then 2.

3-331. When A is dialed, the action of columns A through F of the operational sequence chart occurs (see figure 3-18); the sequences in columns E and F repeat until the dial returns to its home position. Normally, when any channel from 1 through 10 is dialed, and the dial has returned to its home position, the sequences of columns G and H occur. However, when channel A is dialed, eleven stepping pulses are received by stepping relay K206, and its rotary switches are held at position 10 until the second digit (2, in this case) of the desired channel is dialed. The operational sequence occuring when the channel dial returns home after A is dialed is depicted in column I; column J depicts the condition of the channel dial circuitry 0.2 second after the dial reaches home and the built-in slow-release time of K203 has elapsed.

3-332. The holding action depicted in column J is provided by terminals B10 and B27 of stepping relay K206 rotary switch deck 13. Terminal B27 of deck 13 applies ground directly to all channel squelch control potentiometers, except channel 10. The ground for the channel 10 squelch control potentiometer from terminal B27 through B10 is transferred through contacts 4 and 7 of transfer relay K209 to the solenoid of slow-release K203; thus, K203 is held energized after its normal 0.2-second release time elapses. Since K203 is held energized, the ground at contact 6 holds transfer relay K209, lockout relay K202 and pulse relay K204 energized; stepping relay K206 is held in the cocked position; the off-normal contacts of CHANNEL DIAL S202 are open, and impulse relay K201 is deenergized.

3-333. The condition of the channel dialing circuitry prior to dialing the second digit of the selected channel is depicted in column K of the operational sequence chart; note that all relays, except impulse relay K201, are energized. As the operator dials the second digit (2, in this case) and rotates CHANNEL DIAL S202 clockwise from the home position to the finger-stop, the off-normal contacts of the dial close and energize impulse relay K201 (column L). When K201 energizes contacts 1 and 2 open removing the ground from and deenergizing K206; its spring-driven mechanism pushes the ratchet-driven shaft and advances the rotary switches of K206 decks 1 through 13 one step to position 11.

3-334. When the channel dial is released from the finger-stop and rotates through the 30% open part of the first 0.1-second period (channel dial digit 1, column M), the impulse contacts of the dial open and deenergize impulse relay K201. When K201 deenergizes, contacts 1 and 2 close and apply a ground to K206 which energizes and cocks its spring-driven mechanism.

3-335. As the channel dial passes through the rest (70% closed) part of the first 0.1-second period (column N), the impulse contacts of the dial close and reenergize impulse relay K201. When K201 energizes, the ground is removed from K206 causing it to deenergize, thereby allowing its spring-driven mechanism to push the ratchet-driven shaft and advance the rotary switches of decks 1 through 13 one step to position 12.

3-336. The operational sequences of columns O through R are identical to those occurring in columns E through H, respectively. That is, the impulse contacts of the dial open and cause K201 to deenergize and K206 to energize and cock (column O). Next the channel dial impulse contacts close and cause K201 to energize, K206 to denergize, and advance the rotary switches of decks 1 through 13 one step (column P) to position 13; this position corresponds to channel 11.

3-337. The channel dial now reaches the home position (column Q), where its off-normal contacts open and cause K201 to deenergize and K206 to energize and cock. Also, when the 0.2-second delay of slow-release relay K203 elapses, (column R), K203 deenergizes, causing K209, K202, and K204 to deenergize. When K204 deenergizes, it removes the ground from K206, causing K206 to deenergize and advance the rotary switches of decks 1 through 13 one step to position 14; this position corresponds to channel 12.

3-338. In summary, when channel 12 is desired, A is dialed first, then 2 is dialed. When A is dialed, stepping relay

K206 advances to position 10 and remains cocked. Then, when 2 is dialed, K206 steps three more times from position 10 to position 13. Since stepping relay K206 advances only when its solenoid is deenergized, it advances one more position when slow-release relay K203 drops out 0.2 second after the dial returns to rest. Thus, the final step of K206 is to position 14, which corresponds to channel 12.

3-339. Stepping Relay K206. (Refer to figure 3-18.) Stepping relay K206 is a 13-deck, 26-position rotary switch which advances one position each time the energizing voltage is removed from the solenoid.

3-340. Stepping relay K206 is wired in a configuration which allows it to be self-resetting. Normally, -28 vdc is applied to terminal A22 of the K206 solenoid. When the channel dialing sequence is begun, a ground is applied through terminal A25 to the solenoid of K206. The path for current is through the off-normal contacts, the interrupter contacts, terminals A24 and A23 of K206, and the solenoid of K206. Stepping relay K206 energizes and the interrupter contacts open, allowing the relay to advance one position. When the stepping relay advances, the interrupter contacts close and pulse the coil once again. This self-interrupting and pulsing continues until the 13-deck, 26-position rotary switch reaches its home position and the off-normal contacts open and break the reset circuit, causing the relay to stop at the home position.

3-341. Stepping relay K206 receives stepping pulses through terminal A23. Each time the solenoid of stepping relay K206 is energized by the application of a stepping pulse ground, a driving pawl (figure 5-125 and 5-126) is pulled through one tooth on a ratchet and a spring is compressed (the spring-driven mechanism cocks). When the stepping pulse ground is removed and the solenoid of K206 deenergizes, the driving pawl moves back to its deenergized position under spring pressure. Each time the spring releases and drives the pawl back to its deenergized position, the stepping relay advances its 13-deck, 26-position rotary switch one step.

3-342. Refer to figure 5-157 and table 3-5. Rotary switch decks 1 through 5 generate the 5-wire channel information required by the autopositioners in Radio Set AN/URC-9( ) and Radio Frequency Amplifier AM-1565/URC. Stepping relay K206 terminals A1 through A5, which are connected to the wiper arms of rotary switch decks 1 through 5, respectively, couple the 5-wire channel information to the AN/URC-9( ) for Radio Set AN/SRC-20 ( ); terminal A6 is a common terminal and furnishes a ground for those rotary switch positions of decks 1 through 5 which require a ground. The ungrounded switch positions are connected together to provide the continuity required by the autopositioners in the AN/URC-9( ) and the AM-1565/URC.

3-343. In the following example, assume that channel 1 is selected and stepping relay K206 has positioned the rotary switches of decks 1 through 13 to channel 1. Ground is routed through contacts 1 and 2 of slow-release relay K203 (open during channeling), terminal A6 of stepping relay K206, and the wiper arm of rotary switch deck 1 to terminal A1. Terminals A2 through A5 (rotary switch decks 2 through 5, respectively) are tied together and not returned to ground. The 5-wire code is passed through pins J, K, L, M, and N of J101 to Radio Set AN/URC-9( ) or Radio Frequency Amplifier AM-1565/URC.

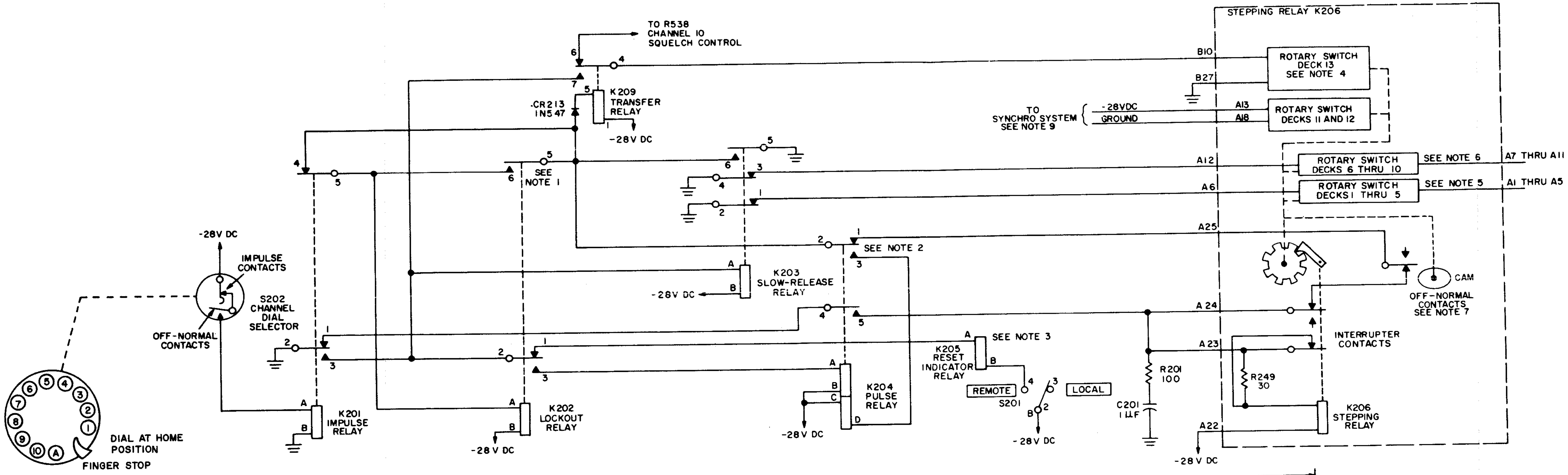
3-344. Rotary switch decks 6 through 10 generate the 5-wire channel information required by the autopositioners in the Antenna Coupler Group AN/SRA-33. Stepping relay K206 terminals A7 through A11, which are connected to the wiper arms of rotary switch decks 6 through 10 respectively, couple the 5-wire code to Antenna Coupler Group AN/SRA-33; terminal A12 is a common terminal and furnishes a ground for those rotary switch positions

Table 3-5. Five-Wire Channel Code Produced by Stepping Relay K206.

TO RADIO SET AN/URC-9( ) AND RADIO FREQUENCY AMPLIFIER AM-1565/URC							TO ANTENNA COUPLER GROUP AN/SRA-33					
CONNECTIONS TO J101		J	K	L	M	N	CONNECTIONS TO J102	A	B	C	D	J
CONNECTIONS TO P201 - J201		A	B	C	D	E	CONNECTIONS TO P201 - J201	L	M	n	O	p
STEPPING RELAY K206 TERMINAL		A1	A2	A3	A4	A5	STEPPING RELAY K206 TERMINAL	A7	A8	A9	A10	A11
CHANNEL DIALED	K206 SWITCH POS.	ROTARY SWITCH DECK						ROTARY SWITCH DECK				
		1	2	3	4	5		6	7	8	9	10
1	1	X	O	O	O	O		X	O	O	O	O
2	2	X	X	O	O	O		X	X	O	O	O
3	3	X	X	X	O	O		X	X	X	O	O
4	4	X	X	X	X	O		X	X	X	X	O
5	5	O	X	X	X	X		O	X	X	X	X
6	6	X	O	X	X	X		X	O	X	X	X
7	7	X	X	O	X	X		X	X	O	X	X
8	8	X	X	X	O	X		X	X	X	O	X
9	9	O	X	X	X	O		O	X	X	X	O
10	10	O	O	X	X	X		O	O	X	X	X
11	13	X	O	O	X	X		X	O	O	X	X
12	14	X	X	O	O	X		X	X	O	O	X
13	15	O	X	X	O	O		O	X	X	O	O
14	16	O	O	X	X	O		O	O	X	X	O
15	17	O	O	O	X	X		O	O	O	X	X
16	18	X	O	O	O	X		X	O	O	O	X
17	19	O	X	O	O	O		O	X	O	O	O
18	20	O	O	X	O	O		O	O	X	O	O
19	21	O	O	O	X	O		O	O	O	X	O

X - Indicates line is grounded when channel is selected.

O - Indicates line is ungrounded when channel is selected.
All O lines have continuity to all other O lines.



CHANNELS 11 THRU 19

CHANNELS 1 THRU 10

SWITCH OR RELAY		A	B	C	D	E	F	G	H
S202 CHANNEL DIAL SELECTOR	MOVEMENT	HOME	CHANNEL NUMBER TO FINGER STOP	DIAL DIGIT 1 RETURN (OPEN)	DIAL DIGIT 1 REST (CLOSED)	DIAL DIGIT 2 RETURN (OPEN)	DIAL DIGIT 2 REST (CLOSED)	HOME	K203 0.2 SEC DELAY ELAPSE
	IMPULSE CONTACTS								
	OFF-NORMAL CONTACTS								
K201 IMPULSE RELAY		▽	▲	▽	▲	▽	▲	▽	▽
K203 SLOW-RELEASE RELAY		▽	▲	▲	▲	▲	▲	▲	▽
K209 TRANSFER RELAY		▽	▲	▲	▲	▲	▲	▲	▽
K202 LOCKOUT RELAY		▽	▽	▲	▲	▲	▲	▲	▽
K204 PULSE RELAY		▽	▽	▽	▲	▲	▲	▲	▽
K206 STEPPING RELAY		▽ LAST CHANNEL DIALED	▲ STEPS HOME (RESETS) ▽	▽	▽	▲ COCKS	▽ STEPS 1 POSITION	▲ COCKS	▽ STEPS 1 POSITION

B: RELAY PROGRAMMING; K206 STEPS TO HOME. C–D: RELAY PROGRAMMING. E–F: REPEATS FOR EACH CHANNEL DIALED; 3 THRU 10, AND A. G–H: OPERATES AT END OF EACH DIALING OPERATION 1 THRU 10, EXCEPT A.

SWITCH OR RELAY		I	J	K	L	M	N	O	P	Q	R
S202 CHANNEL DIAL SELECTOR	MOVEMENT	HOME	K203 0.2 SEC DELAY ELAPSE	HOME	SECOND CHANNEL NUMBER TO FINGER STOP	DIAL DIGIT 1 RETURN (OPEN)	DIAL DIGIT 1 REST (CLOSED)	DIAL DIGIT 2 RETURN (OPEN)	DIAL DIGIT 2 REST (CLOSED)	HOME	K203 0.2 SEC DELAY ELAPSE
	IMPULSE CONTACTS										
	OFF-NORMAL CONTACTS										
K201 IMPULSE RELAY		▽	▽	▽	▲	▽	▲	▽	▲	▽	▽
K203 SLOW-RELEASE RELAY		▲	▲ SEE NOTE 8	▲	▲	▲	▲	▲	▲	▲	▽
K209 TRANSFER RELAY		▲	▲	▲	▲	▲	▲	▲	▲	▲	▽
K202 LOCKOUT RELAY		▲	▲	▲	▲	▲	▲	▲	▲	▲	▽
K204 PULSE RELAY		▲	▲	▲	▲	▲	▲	▲	▲	▲	▽
K206 STEPPING RELAY		▲ COCKS	▲ HOLDS COCKED	▲ HOLDS COCKED	▽ STEPS 1 POSITION	▲ COCKS	▽ STEPS 1 POSITION	▲ COCKS	▽ STEPS 1 POSITION	▲ COCKS	▽ STEPS 1 POSITION

I–J: OPERATES AT END OF DIALING A. O–P: REPEATS FOR EACH CHANNEL DIALED 3 THRU 9. Q–R: OPERATES AT END OF EACH DIALING OPERATION FOR SECOND CHANNEL NUMBER.

OPERATIONAL SEQUENCE CHART (SEE NOTE 10)

NOTES:

A RELAYS ARE SHOWN IN DE-ENERGIZED POSITION

1. HOLDING CONTACTS FOR LOCKOUT RELAY K202.
2. HOLDING CONTACTS FOR PULSE RELAY K204.
3. RESET INDICATOR RELAY K205 DISABLED ON LOCAL OPERATION FROM RADIO SET CONTROL C-3866/SRC.
4. CONTACT B10 OF DECK 13 CLOSED WHEN STEPPING RELAY K206 ADVANCES TO POSITION 10 TO ENABLE LOCAL DIALING ABOVE CHANNEL 10.
5. TERMINALS A1 THROUGH A5 FOR 5-WIRE CHANNEL INFORMATION TO RADIO SET AN/URC-9( ) OR RADIO FREQUENCY AMPLIFIER AM-1565/URC.
6. TERMINALS A7 THROUGH A11 FOR 5-WIRE CHANNEL INFORMATION TO ANTENNA COUPLER GROUP AN/SRA-33.
7. CAM-OPERATED OFF-NORMAL CONTACTS OF STEPPING RELAY K206 OPEN WHEN K206 ROTARY SWITCH SHAFT REACHES HOME POSITION.
8. SLOW-RELEASE RELAY K203 HELD ENERGIZED BY GROUND FROM STEPPING RELAY K206 ROTARY SWITCH DECK 13 WHEN LETTER A IS DIALED.
9. SEE FIGURE 3-20 FOR SIMPLIFIED SCHEMATIC DIAGRAM OF SYNCHRO SYSTEM.
10. ▲ FILLED-IN ARROW INDICATES RELAY ENERGIZED
    ▽ OPEN ARROW INDICATES RELAY DE-ENERGIZED

Figure 3-18. Radio Set Control C-3866/SRC, Channel Dialing Circuit, Simplified Schematic Diagram and Operational Sequence Chart of decks 6 through 10 which require a ground. The ungrounded switch positions are connected together to provide the continuity required by the autopositioners in the antenna coupler. The ground return for terminal A12 of stepping relay K206 is through contacts 3 and 4 (open during channeling) of slow-release relay K203.

3-345. Rotary-switch deck 13 applies a ground from terminal B27 to the selected channel squelch potentiometer (R229 through R247). Terminal B10 of deck 13 also enables channels higher than 10 to be dialed (see paragraph 3-330).

3-346. Rotary switch decks 11 and 12 form a resistive-type synchro transmitter that generates the synchro voltage required to position the CHANNEL INDICATOR in Indicator Control C-3868/SRC. The operation of the synchro system is described in the following paragraphs.

3-347. SYNCHRO SYSTEM. A synchro system is used in Radio Sets AN/SRC-20( ) and AN/SRC-21( ) to indicate channel selection at the remote station. The synchro transmitter is in Radio Set Control C-3866/SRC, and the synchro receiver is in Indicator Control C-3868/SRC at the remote station

3-348. Basic Synchro System. A basic synchro system is shown in figure 3-19. The synchro receiver is illustrated by three fixed windings (L1, L2, L3) placed 120 degrees apart, and the rotor which rotates around its center in response to a magnetic field that varies in strength and direction. The synchro transmitter consists of voltage source E and variable resistor R. When R is varied, the amplitude and polarity of the voltages at the synchro receiver windings are varied; in this manner the rotor may be positioned at points throughout 360 degrees of rotation. The setting of the rotor is determined only by the ratio of the currents through the three fixed windings of the receiver. For this reason, the operation of the synchro system is independent of line voltage changes since all windings are affected concurrently.

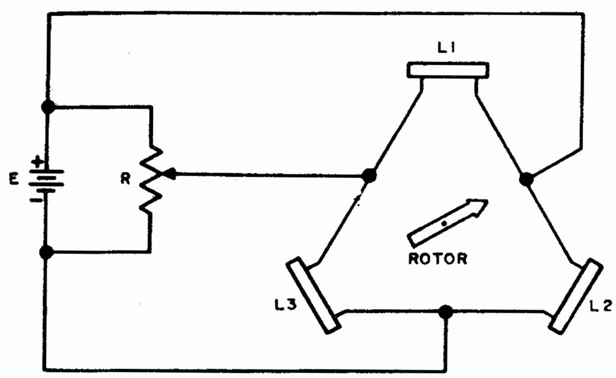


Figure 3-19. Basic Synchro System, Simplified Schematic Diagram

3-349. Synchro System In Radio Sets AN/SRC-20( ) and AN/SRC-21( ). The synchro system of Radio Sets AN/SRC-20( ) and AN/SRC-21( ) is shown in figure 3-20. The synchro transmitter, in Radio Set Control C-3866/SRC, consists essentially of circular resistance network R202 through R225 mounted on rotary switch decks 11 and 12 and thereby vary, in fixed steps, the voltage applied to synchro receiver M301 in Indicator Control C-3868/SRC. (The voltage is varied in essentially the same manner as illustrated by the variable resistor of the simplified synchro system shown in figure 3-19.) After stepping relay K206 has advanced the deck 11 and deck 12 rotary switches to the selected channel position, the circular resistance network output voltages applied to the synchro receiver position the channel indicator pointer at the number corresponding to the channel just dialed.

3-350. In the configuration of the synchro transmitter, positions 1 through 8 and 15 through 22 of K206 rotary switch decks 11 and 12 are common to each other (see figure 3-20). This is represented by the assignment of two numbers to one position; for example, 11-1 (deck 11, position 1), and 12-15 (deck 12, position 15). When the rotary switches of decks 11 and 12 are at position 1, -28 vdc is applied from terminal A13 to the rotary switch of deck 11, and ground is applied from terminal A18 to the rotary switch of deck 12. The -28 vdc is applied to resistors R202 and R225, and ground is applied to resistors R213 and R214. When the rotary switches of decks 11 and 12 are at position 15, -28 vdc is applied to resistors R213 and R214, and ground is applied to resistors R225 and R202. This represents an electrical rotation of 180 degrees.

3-351. The synchro system will function only when LOCAL-REMOTE switch S201 of Radio Set Control C-3866/SRC is set to REMOTE (see figure 3-20). In remote operation, contacts 2 and 4 of S201C apply -28 vdc to the channel dial selector of Indicator Control C-3868/SRC at the remote station; this connects the remote channel dial selector in place of the C-3866/SRC local channel dial selector. Contacts 2 and 4 of S201B apply -28 vdc to the solenoid of reset indicator relay K205. Contacts 5 and 7 of S201B, and contacts 8 and 10 of S201C, complete the circuit for the -28-vdc energizing voltage of the synchro transmitter resistance network. The -28 vdc side of the line is routed through contacts 5 and 7 of S201C and normally closed contacts 10 and 11 of lockout relay K202 to the deck 11 rotary switch; the ground side of the line is routed from the deck 12 rotary switch through normally closed contacts 7 and 8 of K202 and contacts 8 and 10 of S201C.

3-352. When selecting a channel from Indicator Control C-3868/SRC, the operator moves the remote channel dial from the home position to the finger-stop. With the channel dial at the finger-stop, the off-normal contacts of the remote channel dial close and apply -28 vdc to the solenoid of impulse relay K201. When K201 energizes, the ground at contacts 2 and 3 is applied to the solenoids of reset indicator relay K205 and slow-release relay K203, energizing both relays. When K203 energizes, the previously described channel dialing operation occurs; that is, the function and operational sequence of the channel dialing circuitry, including stepping relay K206 which now resets, is the same as when dialing a channel locally from Radio Set Control C-3866/SRC (see paragraph 3-314). The rotary switches of decks 11 and 12 are now at their reset positions and the -28 vdc and ground applied to terminals A13 and A18, respectively, will have no effect on the synchro transmitter resistive network during the time the channel dial travels from the home (rest) position to the finger-stop position. Lockout relay K202 remains deenergized at this instant (channel dial at the finger-stop) since impulse relay K201 is energized and contacts 4 and 5 are open, thereby preventing the ground at contact 6 of K203 from being applied to the solenoid of K202.

3-353. When K205 energizes, -28 vdc is coupled through contacts 1 and 2 and terminal A21 directly to stepping relay K206 deck 12 switch position 12-14. A ground is routed through contacts 3 and 4 and terminal A16 directly to deck 11 switch position 11-14; stepping relay K206 switch position 14 corresponds to the channel 12 setting. Normally, if channel 12 were dialed, the -28 vdc would be applied through the deck 11 rotary switch wiper arm to position 11-14, and the ground would be applied through the deck 12 rotary switch wiper arm to position 12-14. Therefore, since the polarity of the voltage routed through contacts

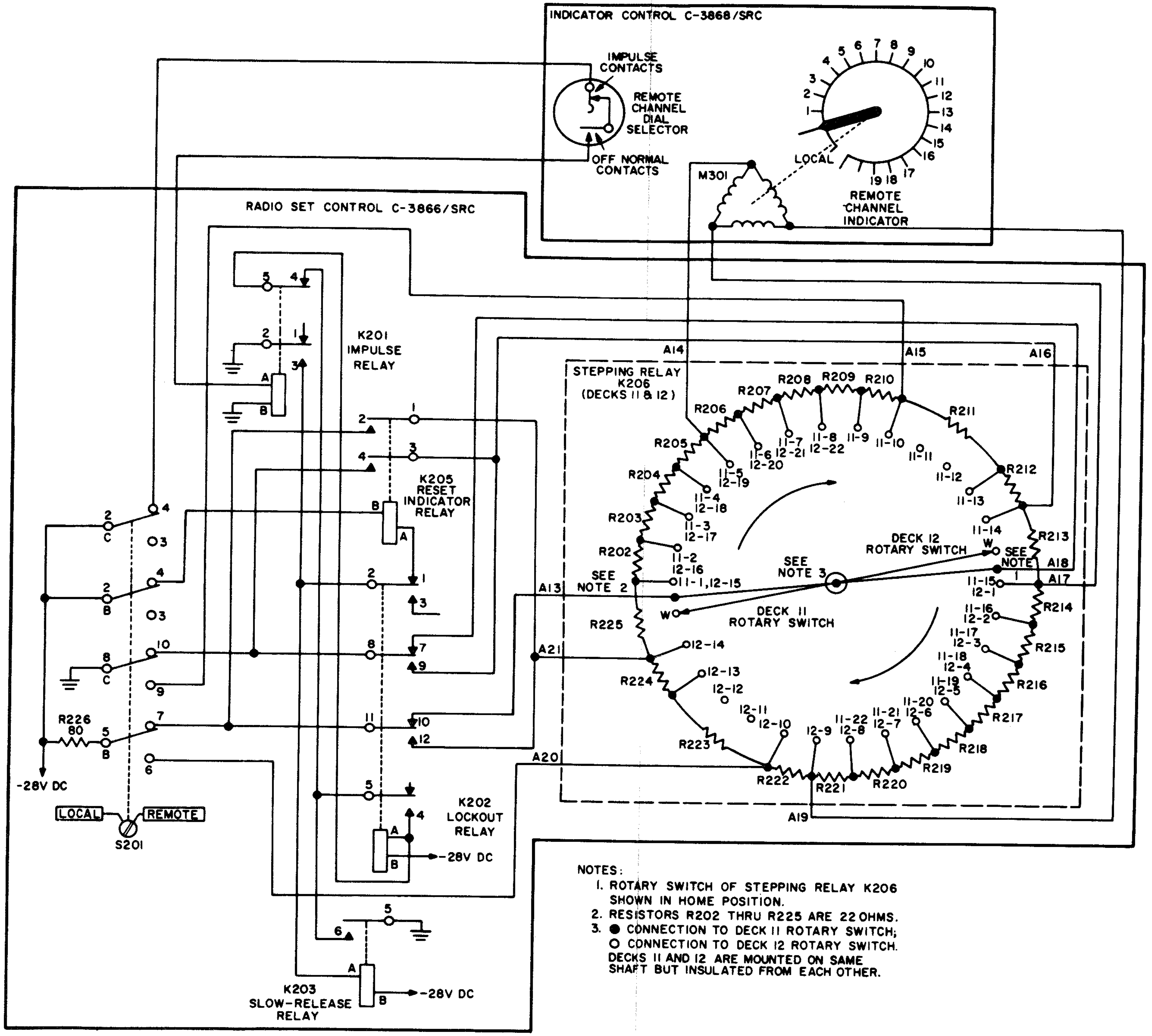


Figure 3-20. Radio Sets AN/SRC-20 and AN/SRC-21, Synchro System, Simplified Schematic Diagram

of the reset indicator relay, K205, and applied directly to switch positions 11-14 and 12-14 is reversed from the polarity that would normally be applied to these positions, the indicator pointer of the synchro receiver is caused to indicate a position directly opposite the normal channel 12 markings on the indicator. The indicator position directly opposite the normal channel 12 markings is the indicator reset position (the long line between the LOCAL and channel 1 markings). Thus, during the interval when stedping relay K206 resets at the start of the dialing sequence (when the channel dial is at the finger-stop), the synchro system causes the pointer on Indicator Control C-3868/SRC to reset, or rotate to the long line position between the LOCAL and channel 1 markings.

3-354. When the channel dial selector is released from the finger-stop and the dial begins to return to its home position, the impulse contacts of the dial open and cause the impulse relay K201 to deenergize. When K201 deenergizes, contacts 2 and 3 open and contacts 4 and 5 close. When contacts 2 and 3 open, the ground is removed from reset indicator relay K205 and slow-release relay K203; reset indicator relay K205 deenergizes immediately. However, the 0.2-second slow-release time of K203 keeps K203 energized for the remainder of the dialing operation. Since slow-release relay K203 is held energized, the ground at contact 6 is coupled through closed contacts 4 and 5 of impulse relay K201 to the solenoid of lockout relay K202, thereby causing K202 to energize.

3-355. When lockout relay K202 energizes, holding contacts 4 and 5 close and hold K202 energized for the remainder of the dialing operation. Also, contacts 1 and 2 open and ensure that the ground is removed from the solenoid of reset indicator relay K205 for the remainder of the dialing operation. Although contacts 1 and 2, and 3 and 4 of K205 open, the indicator pointer is held at the long line reset position by the action of lockout relay K202 contacts 11 and 12, and 8 and 9, which are now closed. Contacts 11 and 12 hold the -28 vdc at stepping relay K206 switch position 12-14, while contacts 8 and 9 of K202 hold the ground at switch position 11-14. In this manner, the opposite-polarity voltage is kept applied to the synchro transmitter and in turn, when coupled to the synchro receiver, holds the indicator pointer at the reset position (opposite the channel 12 position) during the remainder of the channel dialing operation.

3-356. In addition to the foregoing, when lockout relay K202 energizes contacts 10 and 11 and 7 and 8 open. Contacts 10 and 11 remove the -28 vdc energizing voltage from the deck 11 rotary switch of stepping relay K206. Thus, during the remainder of the channel dialing operation, the rotary switch circuits of stepping relay K206 decks 11 and 12 are made inoperative.

3-357. As the channel dial selector continues to rotate toward its home position, the impulse contacts of the dial alternately open and close as the dial passes through each 0.1 second period (each channel dial digit, see paragraph 3-314). Impulse relay K201 alternately deenergizes and reenergizes, in turn, causing stepping relay K206 to energize and deenergize alternately. Each time stepping relay K206 energizes, its spring-driven mechanism cocks so that when the relay is deenergized its rotary switch is advanced one step to the next switch position (channel number setting). Although the deck 11 and 12 rotary switches are advanced one step at a time by the action of stepping relay K206, the synchro receiver is held at the reset position because no voltage is applied to the deck 11 and deck 12 rotary switches.

3-358. When the channel dial reaches the home position, the off-normal contacts of the dial open and cause impulse relay K201 to deenergize and in turn, the ground is removed from the slow-release time circuit of K203. After the 0.2-second slow-release time elapses, K203 deenergizes and stepping relay K206 advances a final step which corresponds to the selected channel setting. Concurrently, lockout relay K202 deenergizes and the -28 vdc is transferred from position 14 of stepping relay K206 decks 11 and 12 to the rotary switch wiper arms of these decks. Since stepping relay K206 is now positioned at the selected channel setting, a signal is instantaneously coupled from the synchro transmitter to the synchro receiver and the indicator pointer jumps to the selected channel marking on Indicator Control C-3868/SRC as the channel dialing operation is completed.

3-359. When the radio set is controlled locally from Radio Set Control C-3866/-SRC the synchro system provides an indication of this condition on Indicator Control C-3868/SRC at the remote station. When LOCAL-REMOTE switch S201 is set to LOCAL, the -28 vdc at contact 5 of S201B is transferred from contact 7 to contact 6 and the ground at contact 8 is transferred from contact 10 to contact 9. This removes the synchro transmitter energizing voltage from the rotary switches of stepping relay K206 decks 11 and 12 making these circuits inoperative; and applies the -28 vdc directly to deck 12 switch position 12-10, and the ground to deck 11 switch position 11-10. Stepping relay K206 switch position 10 corresponds to the channel 10 setting.

3-360. Normally, if the equipment was on remote operation and channel 10 was dialed, the -28 vdc would be applied through the deck 11 rotary switch wiper arm to position 11-10, and the ground would be applied through deck 12 rotary switch wiper arm to position 12-10. Therefore, since the polarity of the voltage applied directly to switch positions 11-10 and 12-10 is reversed from the polarity that would normally be applied to these positions, the indicator pointer of the synchro receiver is caused to indicate a position directly opposite the normal channel 10 marking on the indicator. The indicator position directly opposite the normal channel 10 marking is the position marked LOCAL.

Thus, the instant that LOCAL-REMOTE switch S201 is set to the LOCAL position, the energizing voltage applied to the synchro transmitter resistance network is coupled to the synchro receiver resulting in an indication of LOCAL on the CHANNEL INDICATOR of the Indicator Control C-3868/SRC at the remote station.

3-361. <u>SYSTEM CHANNEL SELECTION.</u>

3-362. Various combinations of front panel control settings on Radio Set AN/URC-9( ), Radio Set Control C-3866/SRC, and Radio Frequency Amplifier AM-1565/URC yield various types of channel selection control. Figure 3-21 shows a system tie-together of the channel selection circuitry for the AN/SRC-20( ) and AN/SRC-21( ). When analyzing the AN/SRC-21 ( ), disregard the circuitry of Radio Frequency Amplifier AM-1565/URC and follow the dotted connections between Radio Set AN/URC-9( ) and Radio Set Control C-3866/SRC.

3-363. RADIO SET AN/SRC-20( ) CHANNEL SELECTION. Channel selection in Radio Set AN/SRC-20( ) can be accomplished from Radio Set AN/URC-9( ), Radio Frequency Amplifier AM-1565/URC, Radio Set Control C-3866/SRC, or remote station Indicator Control C-3868/SRC. Preset channel selection, automatic frequency selection, and manual frequency selection from Radio Set AN/URC-9( ) are covered in paragraphs 3-285 through 306; refer to these paragraphs for the description of channel selection from the AN/URC-9( ) in Radio Set AN/SRC-20( ).

3-364. <u>Preset Channel Selection From Radio Frequency Amplifier AM-1565/URC</u>. Any one of 19 preset channels can be selected from the front panel of the AM-1565/URC after setting the AN/URC-9( ) CHAN SEL switch S705 to REMOTE PRESET, the AM-1565/URC LOCAL-REMOTE switch, S505 S505, to LOCAL, and then rotating the CHAN SEL switch S504 on the AM-1565/URC to the desired channel. Operation of CHAN SEL switch S504 connects contacts together or to ground in various combinations for channel selection (see table

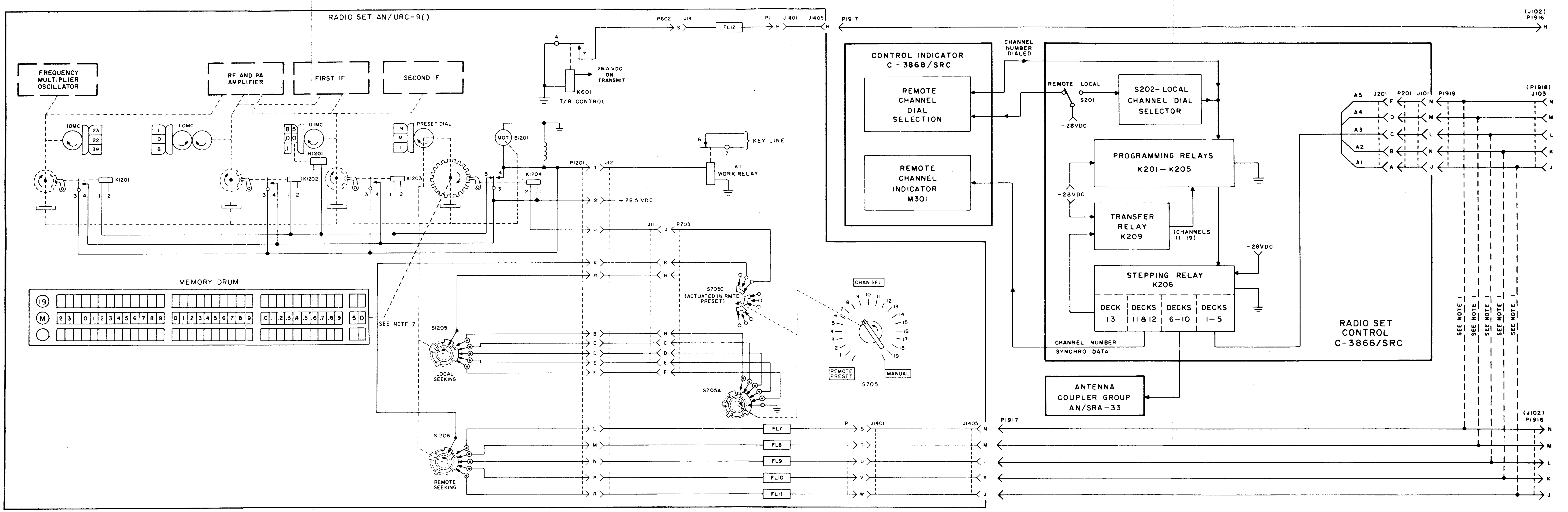


Figure 3-21. Radio Sets AN/SRC-20( ) and AN/SRC-21( ), System Channel Selection Circuitry, Simplified Schematic Diagram (Sheet 1 of 2)

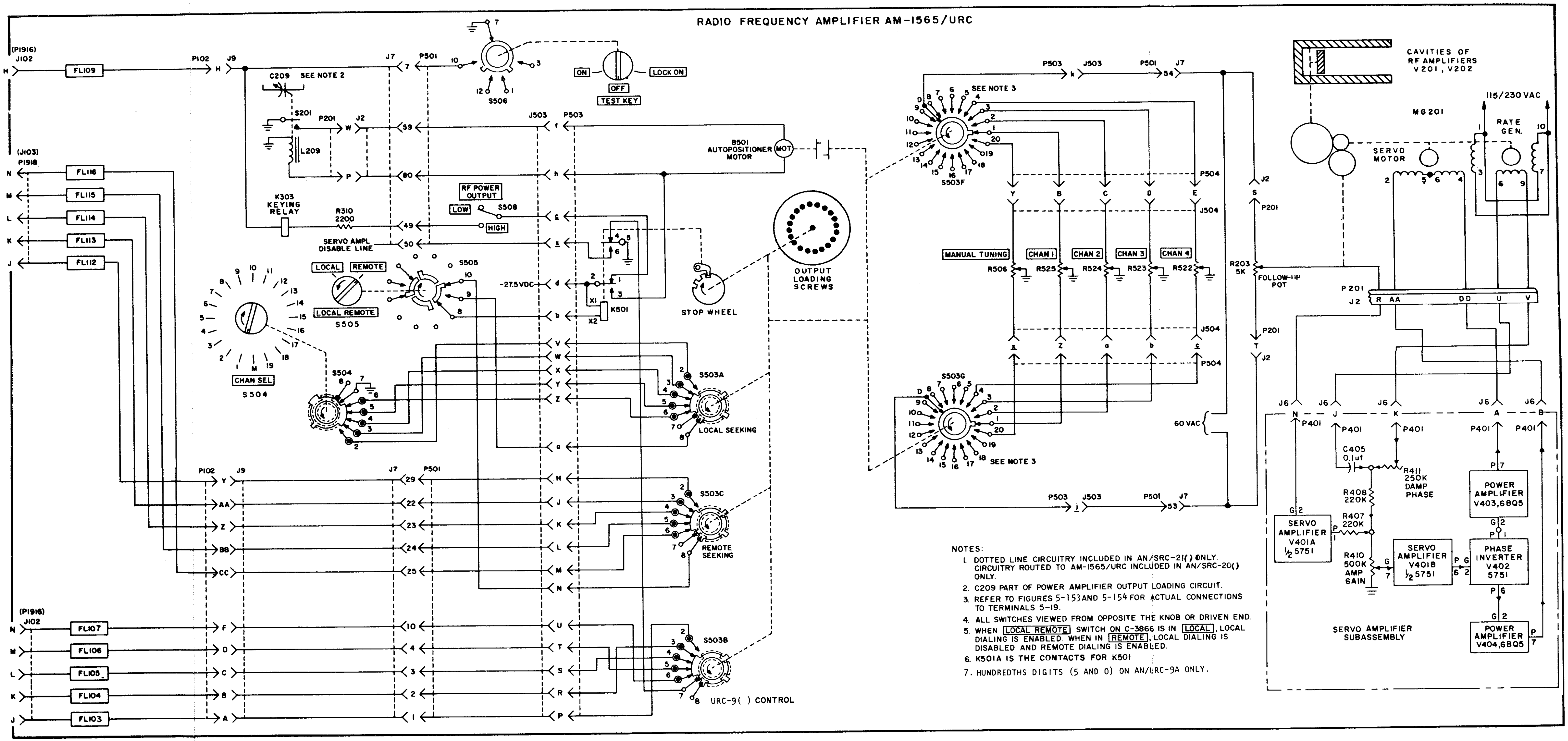


Figure 3-21. Radio Sets AN/SRC-20( ) and AN/SRC-21( ), System Channel Selection Circuitry, Simplified Schematic Diagram (Sheet 2 of 2)

3-6). Switch S503B (figure 3-21) supplies the 5-wire channel information to the AN/URC-9( ), causing it to be set up on the same channel as the AM-1565/URC. Antenna coupler channel selector switch S503E (figure 5-154) makes available channeling information for use with an antenna coupler. This switch and the information it supplies is not used on the AN/SRC-20( ) system.

Table 3-6. Radio Frequency Amplifier AM-1565/URC Switch Contact Combinations for Channel Selection

SWITCH (see figure 5-157)	CONTACT	CHANNEL																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	MANUAL
S504	2	X	X	X	X	0	X	X	X	0	0	X	X	0	0	0	X	0	0	0	0
and	3	0	X	X	X	X	0	X	X	X	0	0	X	X	0	0	0	X	0	0	0
S503B	4	0	0	X	X	X	X	0	X	X	X	0	0	X	X	0	0	0	X	0	0
	5	0	0	0	X	X	X	X	0	X	X	X	0	0	X	X	0	0	0	X	0
	6	0	0	0	0	X	X	X	X	0	X	X	X	0	0	X	X	0	0	0	X
S503E (see Note 1)	17	0	0	X	0	X	X	X	0	0	0	-	-	-	-	-	-	-	-	-	-
	18	0	0	0	X	0	X	X	X	0	0	-	-	-	-	-	-	-	-	-	-
	19	X	0	0	0	X	0	X	X	X	0	-	-	-	-	-	-	-	-	-	-
	20	0	X	0	0	0	X	0	X	X	X	-	-	-	-	-	-	-	-	-	-

X - Indicates line is grounded when channel is selected.

0 - Indicates line is ungrounded when channel is selected. All 0 lines have continuity to all other 0 lines.

NOTE 1 - Switch S503E is not used in the AN/SRC-20( ) system.

3-365. When CHAN SEL switch S504 is rotated to a new channel position, terminal X2 of autopositioner control relay K501 (figure 3-21) is grounded through contacts 8 and 9 of LOCAL-REMOTE switch S505 (on LOCAL), local seeking switch S503A, and S504. When energized, K501 applies a ground through contacts 4 and 5 to the grid of phase inverter V402A in the Servo Amplifier subassembly and thereby disables the servo system; removes the -27.5-vdc energizing voltage from keying relay K303 and thereby disables the keying circuit in the AM-1565/URC during channel selection when contacts 1 and 2 open; applies the -27.5-vdc energizing voltage to autopositioner motor B501 and the solenoid of L209 when contacts 2 and 3 close; and lifts the stop pawl from the notched stop wheel of the autopositioner in the AM-1565/URC.

3-366. When the solenoid of L209 is energized, it pulls its spring-loaded plunger (the shaft of power amplifier output tuning capacitor C209) clear of the output loading screws and closes switch S201. Switch S201 applies a ground to autopositioner motor B501 causing the motor to run which, in turn, drives the notched stop wheel, switch S503, and the output loading screws.

Switch S503 rotates until the combination of contacts 2, 3, 4, 5 and 6 on local seeking switch S503A are connected exactly as the corresponding contacts on CHAN SEL switch S504. When this occurs, the ground is removed from autopositioner control relay K501, and K501 deenergizes.

3-367. When K501 deenergizes, the stop pawl drops into the stop wheel notch and locks S503 into position. Concurrently, contacts 2 and 3 of K501 open and remove the -27.5-vdc energizing voltage from autopositioner motor B501 and the solenoid of L209. Because of the slip-clutch arrangement, motor B501 coasts to a stop while the pawl in the notched stop wheel keeps switch S503 locked in position. When contacts 1 and 2 of deenergized K501 close, the -27.5 vdc is reapplied to the solenoid of keying relay K303 thereby enabling the keying circuit in the AM-1565/URC. Also, contacts 4 and 5 of K501 open and remove the disabling ground from the servo system. Since the -27.5-vdc energizing voltage has been removed from the solenoid of L209, L209 deenergizes and causes its plunger (the shaft of tuning capacitor C209) to return against the output loading screw that has been positioned to the new channel by the autopositioner.

3-368. Switch decks S503G and S503F connect one of the preset channel potentiometers (R507 through R525), or the MANUAL TUNING potentiometer (R506) as part of the servo system unbalanced bridge network with follow-up potentiometer R203. This unbalanced bridge causes servo-motor-rate generator MG201 to operate until the bridge is balanced, and thereby tune the resonant cavities of rf amplifiers V201 and V202 in the AM-1565/URC (see paragraph 3-79).

3-369. The 5-wire channel information is transferred between the AM-1565/URC and the Frequency Selector assembly of Radio Set AN/URC-9( ) from switch deck S503B (AN/URC-9( ) control switch) via remote seeking switch S1206 in the AN/URC-9( ) and CHAN SEL switch S705C (in REMOTE PRESET position), to pin 2 of autopositioner control relay K1204. When K1204 energizes, it lifts the pawl from the notched stop wheel and applies the +26.5-vdc energizing voltage to work relay K1 thereby disabling the key line. Also, the +26.5 vdc enables tuning motor B1201 to drive the preset channel dial memory drum, and remote-seeking switch S1206 to the channel position selected by the AN/URC-9( ) control switch S503B in the AM-1565/URC. When S1206 is at the same position as S503B, the ground is removed from K1204 and the relay deenergizes. Refer to paragraph 3-288 for a complete description of the channel selection sequence and operation.

3-370. Manual Frequency Selection from Radio Frequency Amplifier AM-1565/URC. Manual frequency selection is accomplished from the AM-1565/URC by setting the AM-1565/URC CHAN SEL switch S504 to M (manual), LOCAL REMOTE switch S505 to LOCAL, and setting the AN/URC-9( ) CHAN SEL switch S705 to MANUAL. Next, the frequency desired is selected by setting the MANUAL FREQUENCY TENS, UNITS, and TENTHS (or TENTHS-HUNDREDTHS) switch on the AN/URC-9( ) (see paragraph 3-304). The final step requires tuning the AM-1565/URC by adjusting the MANUAL TUNING control and the manual output loading screw, which is accessible under the output loading access cap of the AM-1565/URC.

3-371. Local Preset Channel Selection from Radio Set Control C-3866/SRC. For local selection of preset channels from Radio Set Control C-3866/SRC in the AN/SRC-20( ) installation, CHAN SEL switch S705 on the AN/URC-9( ) (figure 3-21) is set to REMOTE PRESET, LOCAL-REMOTE switch S201 on the C-3866/SRC is set to LOCAL, and LOCAL-REMOTE switch S505 on the AM-1565/URC is set to REMOTE. Dialing the desired preset channel using CHANNEL DIAL selector S202 on the C-3866/SRC applies pulses to programming relays K201 through K205 and stepping relay K206 (refer to paragraph 3-314) where they are converted to the 5-wire channel code that completes the ground circuit to autopositioner control relay K501 in the AM-1565/URC. Thus, control of the frequency selector system (see paragraph 3-285) is transferred from CHAN SEL switch S705 of the AN/URC-9( ) or CHAN SEL switch S504 of the AM-1565/URC to the telephone-type CHANNEL DIAL selector of the C-3866/SRC.

3-372. The local dialing signal from the C-3866/SRC is routed through remote seeking switch S503C and LOCAL-REMOTE switch S505 (in REMOTE position) to energize the autopositioner control relay K501 in the AM-1565/URC. The sequence of channel selection is then the same as described in paragraph 3-364, except that ground is removed from autopositioner relay K501 by remote-seeking switch S503C instead of S503A.

3-373. <u>Remote Preset Channel Selection from Indicator Control C-3868/SRC</u>. For selection of preset channels from remote station Indicator Control C-3868/SRC in the AN/SRC-20( ) installation, CHAN SEL switch S705 on the AN/URC-9( ) is set to REMOTE PRESET, and both LOCAL-REMOTE switches S201 on the C-3866/SRC and S505 on the AM-1565/URC are set to REMOTE. Dialing the desired preset channel, using the channel dial selector on the C-3868/SRC at the remote station, applies pulses to programing relays K201 through K205 and stepping relay K206 (refer to paragraph 3-314) where they are converted to the 5-wire channel code that completes the ground circuit to autopositioner control relay K501 in the AM-1565/URC. Thus, control of the frequency selector system (see paragraph 3-285) is transferred from CHAN SEL switch S705 of the AN/URC-9( ) or CHAN SEL switch S504 of the AM-1565/URC to the telephone-type channel dial selector of the C-3868/SRC at the remote station.

3-374. The remote dialing signal from the C-3868/SRC is routed through Radio Set Control C-3866/SRC to the AM-1565/URC. The operation of the autopositioner in the AM-1565/URC and the frequency selector system of the AN/URC-9( ) is the same as described in paragraph 3-371 for local preset channel selection from Radio Set Control C-3866/SRC.

3-375. RADIO SET AN/SRC-21( ) CHANNEL SELECTION. Channel selection in Radio Set AN/SRC-21( ) can be accomplished from Radio Set AN/URC-9( ), Radio Set Control C-3866/SRC, or remote station Indicator Control C-3868/SRC. Preset channel selection, automatic frequency selection, and manual frequency selection from Radio Set AN/URC-9( ) are covered in paragraph 3-285; refer to that paragraph for the description of channel selection from the AN/URC-9( ) in Radio Set AN/SRC-21( ).

3-376. <u>Local Preset Channel Selection from Radio Set Control C-3866/SRC</u>. For local selection of preset channels from Radio Set Control C-3866/SRC in the AN-SRC-21( ) installation, CHAN SEL switch S705 on the AN/URC-9( ) (see figure 3-21) is set to REMOTE PRESET and LOCAL-REMOTE switch S201 on the C-3866/SRC is set to LOCAL. Dialing the desired preset channel, using CHANNEL DIAL selector S202 on the C-3866/SRC, applies pulses to programing relays K201 through K205 and stepping relay K206 (refer to paragraph 3-314) where they are converted to the 5-wire code that completes the ground circuit to autopositioner control relay K1204 in the AN/URC-9( ). Thus, control of the frequency selector system is transferred from CHAN SEL switch S705 of Radio Set AN/URC-9( ) to the telephone-type CHANNEL DIAL selector of Radio Set Control C-3866/SRC.

3-377. The local dialing signal (converted to 5-wire channel information) from the C-3866/SRC is routed through remote seeking switch S1206 and CHAN SEL switch S705C (in REMOTE PRESET position) to autopositioner control relay K1204 in the AN/URC-9( ). Relay K1204 energizes, lifting the pawl from the notched stop wheel and applies the +26.5-vdc energizing voltage to work relay K1 thereby disabling the key line. Also, the +26.5 vdc enables tuning motor B1201 to drive the preset channel dial, memory drum, and remote-seeking switch S1206 to the channel position selected by the 5-wire channel code from the C-3866/SRC. When remote-seeking switch S1206 is at the position to satisfy the 5-wire channel code, the ground is removed from K1204 and the relay deenergizes. Refer to paragraph 3-288 for a complete description of the channel selection sequence and operation.

3-378. Remote Preset Channel Selection from Indicator Control C-3868/SRC. For selection of preset channels from remote station Indicator Control C-3868/SRC in the AN/SRC-21( ) installation, CHAN SEL switch S705 on the AN/URC-9( ) is set to remote PRESET, and LOCAL-REMOTE switch S201 on the C-3866/SRC is set to REMOTE. Dialing the desired preset channel, using the channel dial selector on the C-3868/SRC at the remote station, applies pulses to programing relays K201 through K205 and stepping relay K206 (refer to paragraph 3-314) where they are converted to the 5-wire channel code that completes the ground circuit to autopositioner control relay K1204 in the AN/URC-9( ). Thus, control of the frequency selector system (see paragraph 3-285) is transferred from CHAN SEL switch S705 of the AN/URC-9( ) to the telephone-type dial selector of the C-3868/SRC at the remote station.

3-379. The remote dialing signal from the C-3868/SRC is routed through Radio Set Control C-3866/SRC to the AN/URC-9 ( ). The operation of the frequency selector system in the AN/URC-9( ) is the same as described in paragraph 3-376 for local preset channel selection from Radio Set Control C-3866/SRC.

3-380. SYSTEM KEYING IN THE NORMAL MODE.

3-381. Radio Sets AN/SRC-20( ) and AN/SRC-21( ) can be keyed by actuating the microphone push-to-talk switch of Radio Set AN/URC-9( ) at the local station or the microphone push-to-talk switch of Radio Set Control C-1138/UR or C-1207/UR at the remote station. In addition, Radio Set AN/SRC-20( ) can be keyed for test purposes by actuating TEST KEY S506 of Radio Frequency Amplifier AM-1565/URC. Refer to the keying circuit simplified schematic in figure 3-22 during the following discussion.

3-382. LOCAL KEYING. Local keying of the AN/SRC-21( ) is from the AN/URC-9( ). Local keying of the AN/SRC-20( ) is from either the AN/URC-9( ) or AM-1565/URC.

3-383. Radio Set AN/SRC-21( ). Local keying of Radio Set AN/SRC-21( ) is provided by the Radio Set AN/URC-9( ) local microphone push-to-talk switch. When the switch is actuated, the key-line ground circuit is completed through the AN/URC-9( ) MIKE input jack J702A to contacts 5 and 8 of MODE switch S702B. From contacts 5 and 8 of MODE switch S702B, the circuit path is through normally closed contacts 7 and 6 of work relay K1 to the solenoid (terminal 1) of t/r control relay K601. With -11 vdc applied directly to terminal 5 of its solenoid, K601 energizes when the ground is applied to terminal 1. When K601 energizes, +26.5 vdc is routed through contacts 3 and 8 to the solenoids of the following relays on the AN/URC-9( ): antenna relay K101 and injection relay K102 in the RF and PA Amplifier; t/r relays K401 in the Second IF Amplifier, K602 in the Relay-Filter and K802 in the Audio Amplifier and Modulator; and high-voltage relay K2. The functions provided by the foregoing relays completes the keying of Radio Set AN/SRC-21( ).

3-384. Radio Set AN/SRC-20( ). Local keying of Radio Set AN/SRC-20( ) is from either the Radio Set AN/URC-9( ) local microphone push-to-talk switch or the Radio Frequency Amplifier AM-1565/URC TEST KEY.

3-385. Keying from the AN/URC-9( ). When the local microphone push-to-talk switch is actuated, the key-line ground circuit is completed through the AN/URC-9( ) MIKE jack J702A to contacts 5 and 8 of MODE switch S702B. The resultant circuit action within the AN/URC-9( ) is as described in paragraph 3-383.

3-386. To complete the keying of Radio Set AN/SRC-20( ) the ground at contacts 4 and 7 of t/r control relay K601 in the AN/URC-9( ) is applied to the solenoid (terminal 9) of keying relay K303 in the AM-1565/URC. Keying relay K303 has -27.5 vdc applied to terminal 1 through fuse F507, normally closed contacts 2 and 1 of autopositioner relay K501, contacts of RF POWER OUTPUT switch S508 (in the HIGH position), and resistor R310. Thus, when the key-line ground is applied to terminal 9, keying relay K303 energizes and contacts 6 and 7 close, completing the circuit from the solenoid (terminal X2) of t/r relay K301 to contact 6 of time delay relay K302.

3-387. Time delay relay K302 has a 1-minute time delay which commences with the closing of the AM-1565/URC POWER switch S501. Thus, relay K302 energizes 1 minute after power is applied to the AM-1565/URC and remains energized until the POWER switch is opened. With K302 and K303 energized, the -27.5-vdc line to K301 is complete. When K301 energizes, 115 or 230 vac is applied to the primary winding of T301 through contacts C1-C2 and A1-A2. The ac voltage in the secondary of T301 is rectified by the 1800-vdc supply and applied to the plates of rf amplifiers V201 and V202 and through voltage-dropping resistor R301 to screen protection relay K304. When K304 energizes, +300 vdc is applied through contacts 6 and 7 to the screen grids of rf amplifiers V201 and V202. Also, ground is applied through contacts 2 and 3 of K304 to input and output coaxial relays K201 and K202, and HV B+ indicator DS501.

3-388. Contacts of energized relay K201 route the rf signal from the AN/URC-9( ) through variable magnetic ferrite attenuator AT401 (figure 5-11) to the cathode circuits of rf amplifiers V201 and V202. The amplified signal is then routed through directional coupler DC201 to low-pass filter FL201. The rf signal from FL201 is coupled through contacts of energized relay K202 to the antenna for transmission. Thus, the keying of Radio Set AN/SRC-20( ) is complete.

3-389. Keying from the AM-1565/URC. Keying from the AM-1565/URC is for maintenance and test purposes and is controlled by TEST KEY S506. When S506 is set to ON or LOCK ON, ground is applied to contacts 10-1 or 12-3. The ground applied to contact 1 or 3 is routed through contacts 3 and 2 of LOCAL-REMOTE switch S505 (in LOCAL) to contacts 5 and 8 of MODE switch S702B in the AN/URC-9 ( ). From this point, the AN/URC-9( ) keying circuit operation is the same as the circuit description in paragraph 3-383.

3-390. The ground from contact 10 or 12 of the AM-1565/URC TEST KEY switch is applied directly to the solenoid (terminal 9) of keying relay K303. With ground applied to relay K303, the AM-1565/URC keying circuits operate the same as described in paragraphs 3-386 through 3-388.

3-391. REMOTE KEYING. Remote keying is initiated at Radio Set Control C-1138/UR or C-1207/UR and is controlled from Radio Set Control C-3866/SRC.

3-392. Radio Set AN/SRC-21( ). When LOCAL-REMOTE switch S201A on the C-3866/SRC is in the REMOTE position, actuating the microphone push-to-talk switch of the C-1138/UR or C-1207/UR at the remote station energizes a relay which, in turn, completes the 12-vdc line of t/r relay K207 in the C-3866/SRC. When t/r relay K207 energizes, the remote key-line ground at contacts 2 and 3 is routed directly to AN/URC-9( ) MODE switch contacts 5 and 8 (in the NOR position) in Radio Set AN/SRC-21( ). The resultant circuit action to complete the keying within the AN/URC-9( ) is the same as described in paragraph 3-383.

3-393. When Antenna Coupler Group AN/SRA-33 is used in conjunction with the AN/SRC-21( ), the 12-vdc line from LOCAL-

REMOTE switch S201A to t/r relay K207 can be broken by transmit-disable relay K5 in the AN/SRA-33. The transmit-disable relay furnishes rf protection under the following conditions when operating with more than one radio set: when all channel frequencies are the same; when the radio sets are keye- from the remote station only; or when the channel selection of the AN/SRA-33 is made from the radio sets. When the AN/SRA-33 is not used, a jumper must be connected between pins G and H (filters FL117 and FL118) of J102 in the C-3866/SRC.

3-394. Radio Set AN/SRC-20( ). Remote keying circuit operation for the AN/SRC-20( ) is the same as described in paragraphs 3-392 and 3-393, except the key-line ground from contacts 2 and 3 of K207 is routed to the AN/URC-9( ) through contacts 4 and 2 of AM-1565/URC LOCAL-REMOTE switch S505 (in REMOTE position). The keying circuits in the AM-1565/URC operate the same as described in paragraphs 3-386 through 3-388.

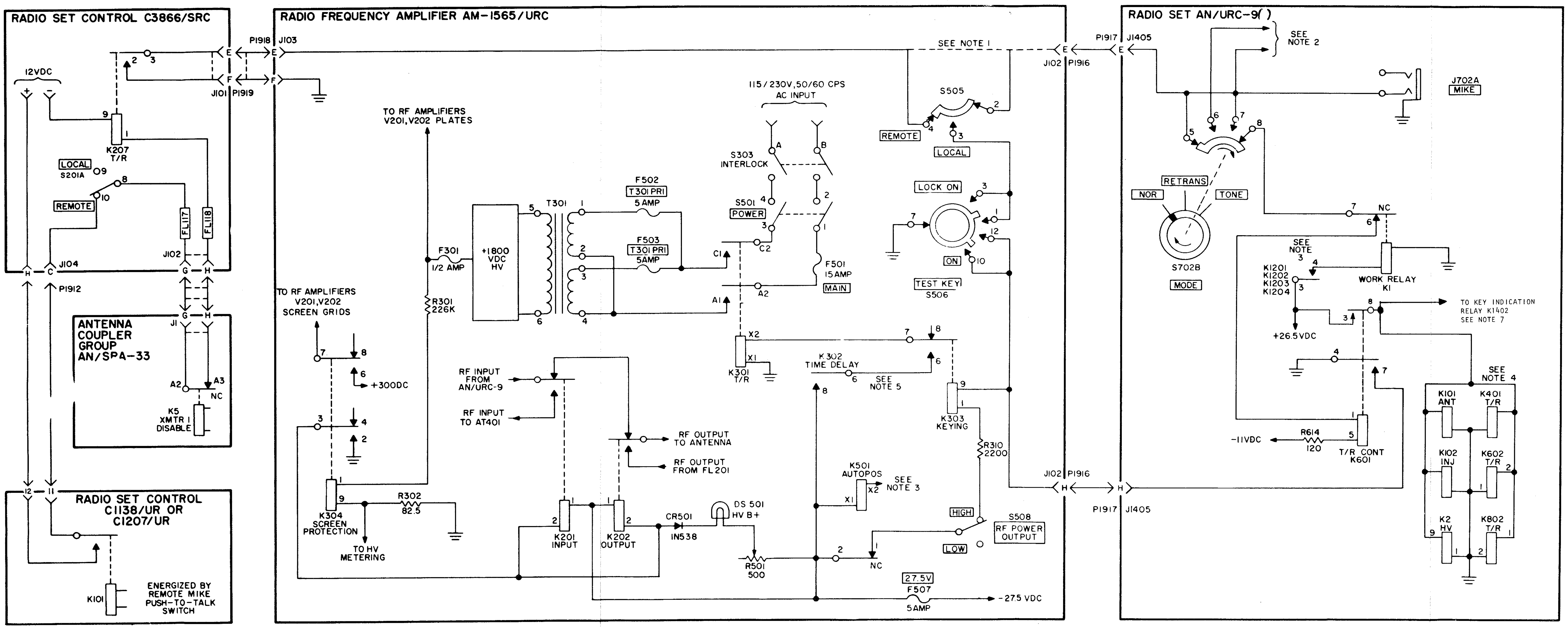
3-395. KEY-LINE DISABLING. During normal transmit operation, the key-line circuit is disabled whenever the microphone push-to-talk switch is not actuated, during channeling, and by positioning a LOCAL-REMOTE control switch to LOCAL when keying is from a remote station. In the AN/SRC-20( ) installation only, the key-line circuits may be enabled during maintenance or test by operating AM-1565/URC TEST KEY S506 to ON or LOCK ON (see paragraph 3-389).

3-396. Radio Set AN/SRC-21( ). During channeling, the key-line ground circuit is disabled so that the radio set cannot be keyed while the frequency selector system is in the process of selecting a new channel and frequency. In the AN/URC-9( ), +26.5 vdc is applied to the solenoid of work relay K1 through contacts 3 and 4 of autopositioner relays K1201 through K1204 at different stages of the channeling sequence. When K1 energizes, normally closed contacts 6 and 7 open disabling the key-line ground circuit between MODE switch S702B and the solenoid of t/r control relay K601. Since t/r control relay K601 cannot now be energized, normally open contacts 3 and 8 hold all keying relays in the AN/URC-9( ) inoperative, preventing Radio Set AN/SRC-21( ) from being keyed.

3-397. During remote keying only, the key-line circuit is disabled when either the remote microphone push-to-talk switch is open or when C-3866/SRC LOCAL-REMOTE switch S201 is in LOCAL.

3-398. Radio Set AN/SRC-20( ). The key-line circuit in Radio Set AN/SRC-20( ) is disabled during channeling by the action of autopositioner relay K501 in the AM-1565/URC, in addition to the disabling action described in paragraph 3-396. During channeling, ground is applied to autopositioner relay K501, opening normally closed contacts 1 and 2 which disables the -27.5-vdc line to AM-1565/URC keying relay K303. (The -27.5-vdc line to relay K303 can also be disabled by setting RF POWER OUTPUT switch S508 to the LOW position.) Since keying relay K303 cannot now be energized, normally open contacts 6 and 7 hold all keying relays in the AM-1565/URC inoperative, preventing Radio Frequency Amplifier AM-1565/URC from being keyed. If the AN/URC-9( ) is keyed while the AM-1565/URC key-line is disabled by the RF POWER OUTPUT switch S508 set to the LOW position (or if the AM-1565/URC is channeling), the output of the AN/URC-9( ) will be routed through the AM-1565/URC by the normally closed contacts of coaxial relays K201 and K202 to the antenna without being amplified.

3-399. During remote keying, the key-line circuit may be disabled by opening the microphone push-to-talk switch at the remote station or by positioning either the AM-1565/URC or C-3866/SRC LOCAL-REMOTE switch to LOCAL.



NOTES:

1. CONNECTIONS FROM C-3866/SRC MADE DIRECTLY TO AN/URC-9( ) IN RADIO SET AN/SRC-21( ).
2. REFER TO PARAGRAPH 3-63 FOR THE RETRANS AND 3-72 FOR THE TONE MODES OF OPERATION.
3. DISABLES KEY LINE DURING CHANNELING. REFER TO PARAGRAPH 3-395.
4. REFERENCES FOR RELAY PURPOSE AND ACTION:

K101	PARA 3-43	FIG 5-142
K102	PARA 3-43	FIG 5-142
K401	PARA 3-43	FIG 5-146
K602		FIG 5-151
K802		FIG 5-148
K2		FIG 5-141

5. ONE MINUTE TIME DELAY RELAY, K302. REFER TO PARAGRAPH 3-387 FOR OPERATION.
6. IF THE AN/SRA-33 IS NOT USED JUMPER PINS G AND H OF J102.
7. USED ON SHIPS WITH AN/SSQ-54 INDICATOR ONLY.

Figure 3-22. Radio Sets AN/SRC-20( ) and AN/SRC-21( ), Normal Mode Keying Circuitry, Simplified Schematic Diagram

CHAPTER 4

SCHEDULED MAINTENANCE

4-1. INTRODUCTION.

4-2. This chapter contains the recommended periodic maintenance schedule for Radio Sets AN/SRC-20( ) and AN/SRC-21( ). The detailed procedures for performance of the maintenance actions listed are contained in Reference Standards Book for Radio Sets AN/SRC-20( ) and AN/SRC-21( ) NAVELEX 0967-438-0050.

4-3. MAINTENANCE SCHEDULE.

4-4. The recommended periodic maintenance schedule, table 4-1, includes checks that are indicative of equipment performance levels (e.g., transmitter power output, receiver if bandwidth, receiver sensitivity, etc.) and the required lubrication and cleaning procedures. The schedule lists the maintenance actions required, the frequency at which they are to be performed (e.g., daily, weekly, etc.), and a reference to the detailed procedural steps in NAVELEX 0967-438-0050.

NOTE

The Naval Electronic System Command requirements for this schedule are cancelled when the Electronics Planned Maintenance System is implemented for this equipment.

4-5. IN-PORT PROCEDURES.

4-6. During periods in-port, the radio set should not be energized for the sole purpose of making daily checks. However, the equipment should be energized at least twice a week, and at least two days before getting underway.

Table 4-1. Recommended Periodic Maintenance Schedule

STEP NO.	ACTION REQUIRED	SECTION & STEP
DAILY		TIME REQD. 4 MIN
1	Check 325-volt B+ meter reading	B1
2	Check 125-volt B+ meter reading	B2
3	Check 26.5-volt meter reading	B3
4	Check BIAS meter reading	B4
5	Check % MOD meter reading	B5
6	Check $DVRI_b$ meter reading	B6
7	Check PAI_g meter reading	B7
8	Check PAI_b meter reading	B8
9	Check PWR meter reading	B9

Table 4-1. Recommended Periodic Maintenance Schedule (Continued)

STEP NO.	ACTION REQUIRED	SECTION & STEP
DAILY (Continued)		TIME REQD. 4 MIN
10	Check SWR meter reading	B10
11	Check high voltage supply	D1
12	Check 300 volt B+ supply	D2
13	Check 27.5-volt relay supply	D3
14	Check diode relay operating voltage	D4
15	Check V201 grid bias voltage	D5
16	Check V202 grid bias voltage	D6
17	Check forward power	D7
18	Check V201 plate current	D8
19	Check V202 plate current	D9
20	Check reflected power	D10
WEEKLY		TIME REQD. 4 MIN
1	Observe servo operation	D11
2	Check AN/URC-9( ) automatic frequency selection time	D12
3	Check C-3366/SRC automatic frequency selection time	D13
4	Check AM-1565/URC automatic frequency selection time	D14
MONTHLY		TIME REDQ. 60 MIN
1	Clean interior and exterior of radio set and check general condition of component parts	E1
2	Check receiver audio output	B11
3	Check receiver sensitivity	B23
4	Check AN/URC-9( ) power output	C4
QUARTERLY		TIME REQD. 150 MIN
1	Check third if bandwidth	B12
2	Check maximum signal-plus-noise to noise ratio	B24

Table 4-1. Recommended Periodic Maintenance Schedule (Continued)

STEP NO.	ACTION REQUIRED	SECTION & STEP
QUARTERLY (Continued)		TIME REQD. 150 MIN
3	Check receiver audio frequency response	B25
4	Check receiver audio frequency distortion	B26
5	Check modulation gain	C5
DURING MAJOR OVERHAUL OR EVERY 10,000 HOURS OF OPERATION		TIME REQD. 150 MIN
1	Lubricate Radio Frequency Amplifier gear train	E2
2	Lubricate Radio Frequency Amplifier autopositioner	E3
3	Lubricate Radio Frequency Amplifier rf cavity	E4
4	Lubricate receiver-transmitter RF and PA Amplifier subunit	E5
5	Lubricate receiver-transmitter RF and PA Amplifier subunit	E6
6	Lubricate receiver-transmitter Second IF Amplifier subunit	E7
7	Lubricate receiver-transmitter Frequency-Multiplier Oscillator	E8
8	Lubricate receiver-transmitter uhf injection unit	E9
9	Lubricate receiver-transmitter uhf injection unit	E10
10	Lubricate receiver-transmitter First IF Amplifier subunit	E11

CHAPTER 5

TROUBLESHOOTING AND CORRECTIVE MAINTENANCE

5-1. ORGANIZATIONAL MAINTENANCE RESPONSIBILITY.

NOTE

The expression, ( ), following an equipment nomenclature indicates both models (e.g., AN/URC-9( ) includes AN/URC-9 and AN/URC-9A, etc.).

5-2. Organizational level maintenance responsibility, as defined by the Department of Defense, is that maintenance which is the responsibility of and performed by a using activity on its assigned equipment. For Radio Sets AN/SRC-20( ), AN/SRC-21( ), and AN/URC-9( ), the shipboard electronic technician (ET) has full responsibility for the maintenance of all units and assemblies of the radio set, except for the following assemblies: Power Amplifier Cavity of Radio Frequency Amplifier AM-1565/URC; RF and PA Amplifier, Frequency Multiplier-Oscillator (FMO), First IF Amplifier and Frequency Selector of the RT-581( )/URC-9. In the case of these five, he has the full responsibility for complete mechanical and electrical alignment, and physical servicing, (e.g., cleaning and lubricating); but has limited responsibility for parts replacement. Those parts that are shipboard replaceable are as follows:

ASSEMBLY COLLOQUIAL NAME	PARTS REPLACEABLE BY ET
UNIT 1 - RADIO SET AN/URC-9( )	
RF and PA Amplifier	V-101, V-102, V-103, V-104, V-105, V-106, R-110, R-115, R-116, C-135, C-142, C-148, L-119, L-120, K-101, K-102, L-111, L-106, L-116, L-121, C-133, R-108, C-141, C-146, S-101, R-114, W-101, and Cable Harness
Frequency Multiplier-Oscillator (FMO)	V-201, V-202, V-203, V-204, V-205, R-209, R-210, R-211, R-212, R-213, C-240, C-241, W-201, C-203, L-219, Y-202, Y-204, Y-206, and Y-207 through Y-218
First IF Amplifier	V-301, V-302, V-303, V-304, V-305, Y-301, Y-302, Y-303, Y-304, Y-305, Y-306, Y-307, Y-308, Y-309, Y-310, 0-301, 0-302, 0-303, 0-304, 0-305, 0-306, 0-307, W-301, W-302, W-303, W-304,
Frequency Selector	K-1201, K-1202, K-1203, K-1204, S-1202, S-1203, S-1204, B-1201, J-1201, P-1201
UNIT 3 - RADIO FREQUENCY AMPLIFIER AM-1565/URC	
Power Amplifier Assembly	V-201, V-202, V-203, R-201, R-202, C-215, K-201, K-202, DC-201 Assembly and Parts, FL-201, FL-202, MG-201, R-203, Cable Repair, and Coaxial Cable Replacement

5-3. For disposition of defective assemblies that are beyond the capability of maintenance personnel to restore to operational use, refer to the current Consolidated Repairable Item List (CRIL) NAVSUP 4102, and current NAVSUP Publication 485, Chapter 5, paragraphs 5090 and 5155. All procedures of this publication are keyed to the organization maintenance responsibilities stated in this Chapter.

5-4. GENERAL INFORMATION.

5-5. MAINTENANCE AND MATERIAL MANAGEMENT (3-M) SYSTEM. The 3-M system provides:

a. A method to attain and maintain maximum operational efficiency of all fleet equipment at all times through the use of a Planned Maintenanced System (PMS).

b. A method to gather information as to the expenditure of resources of maintenance of equipments failure data, and other data directly related to maintenance through the use of the Maintenance Data Collection System (MDCS). All failures of equipment shall be reported on MDCS forms in accordance with OPNAV 43P2 (NAVSHIPS 0420-049-0060).

5-6. REFERENCE STANDARDS. Reference standard tests for Radio Sets AN/SRC-20( ) and AN/SRC-21( ) are in NAVELEX 0967-438-9050.

5-7. LIST OF TABLES. The following list is provided for quick reference:

5-8. REFERENCE DATA. Although this chapter is primarily concerned with troubleshooting and maintenance, information included here may also be applied to other chapters of the manual. These data are in the form of troubleshooting and servicing block diagrams, equipment and subassembly photographs, interconnection diagrams and schematic diagrams which include tube voltage-resistance charts. The reference data are located at the rear of this chapter.

5-9. UHF MAINTENANCE. The nature of uhf radio requires special circuit designs. Similarly, the maintenance of uhf equipment requires special care, techniques, and procedures as follows:

a. Circuit lead length and position of replacement parts must be the same as for the parts removed.

b. Vacuum tubes in uhf circuits are best tested by substitution and not by vacuum tube tester.

c. Vacuum tube shields, chassis covers, and plates with all securing hardware must be in place and tightened before rf alignments and adjustments are performed.

d. Intermittent operation in uhf circuits is generally a result of poor circuit grounds or rf connections in switches, rf tuners, and trimmer capacitors.

5-10. ALIGNMENT AND ADJUSTMENT PROCEDURE. When only one alignment procedure is performed, it is assumed that all other sections of the equipment are properly aligned. Read the complete alignment procedure to become familiar with the steps involved. Do not perform alignment of the equipment as a substitute for troubleshooting. Alignment should be performed only after electrical tests or troubleshooting procedures indicate the need for alignment.

NOTE

All adjustments and other pertinent circuit reference designations on illustrations are boxed.

5-11. TEST EQUIPMENT. Tables 5-1 through 5-3 list the test equipment and special tools required for maintenance. The following components are required for impedance matching and termination in conjunction with the test equipment:

Resistor:	1000 ohms, 1/2 watt (2 required)
Resistor:	600 ohms, 5 watts
Resistor:	82 ohms, 1/2 watt (2 required)
Capacitor:	25 uf/50 vdc

Table 5-1. Test Equipment Required For Maintenance of Radio Sets AN/SRC-20( ), AN/SRC-21( ), and AN/URC-9( )

QTY	EQUIPMENT	MODEL	REQUIRED CHARACTERISTICS
1	Electronic Voltmeter	AN/USM-143 (Alternate: CAQI-400-A)	Voltage range.. 0.001 to 300 volts ac in 12 scales Decibel range.. -60 to +50 in 12 scales Freq response.. 10 Hz to 4 MHz Accuracy....... 20 Hz to 1 MHz, ±2% 1 MHz to 4 MHz, ±5%
1	Electronic Multimeter	AN/USM-116 (Alternate: CAQI-410-B)	Voltage range.. 0-300 volts ac in 6 scales; 0-1000 volts dc in 7 scales Ohmmeter range. 0.2-500 megohms in 7 ranges Freq range..... 20 Hz to 700 MHz Accuracy....... ±3%

Table 5-1. Test Equipment Required For Maintenance of Radio Sets AN/SRC-20( ), AN/SRC-21( ), and AN/URC-9( ) (Continued)

QTY	EQUIPMENT	MODEL	REQUIRED CHARACTERISTICS
1	Radio Frequency Wattmeter	TS-1771/U (Alternate: AN/URM-43( ))	Power range... 0 to 60 watts in 2 ranges Freq range.... 30 to 600 MHz Use........... CW, FM, TV, AM Impedance..... 51.5 ohms Accuracy...... ±5% of full scale
1	Radio Frequency Wattmeter	AN/URM-120 (Alternate: AN/URM-96)	25-watt plug-in element for through-line power readings over required frequency range
1	Audio Oscillator	AN/URM-127 (Alternate: TS-382( )/U)	Freq range.... 20 to 200,000 Hz on 4 bands Output impedance.... 1000 ohms Freq response. 20 Hz; ±1 db, 150,000 Hz; ±1 db Freq accuracy. ±6% Freq stability ±2%
1	RF Signal Generator Set	AN/URM-25D (Alternate: AN/URM-25( ))	Freq.......... 10 kHz to 50 MHz in 8 bands Output Impedance.... 53.5,500, or 0 to 90 kohms Modulation.... AM: 0 to 80% ±10% Internal: 400 Hz and 1 kHz External: 100 to 15,000 Hz
1	Signal Generator	AN/USM-44A (Alternate: CAQI-608C)	Freq range.... 10 to 420 MHz in 5 bands Generator impedance.... 50 ohms, swr 1.2:1 max Internal modulation... 400 Hz ±10% and 1000 Hz ±10% External modulation... 0 to 95%, 20 Hz to 20 kHz Output level.. 0.1 microvolt to 0.5 volt into 50-ohm resistive load
1	Frequency Counter	AN/USM-207	100 MHz to 510 MHz plug-in unit for freq measurements over required freq range
1	Dummy Load	DA/412( )/U (Alternate: DA-91/U)	Input resistance... 0.50 ohms Dissipation... 500 watts over required freq range

Table 5-1. Test Equipment Required For Maintenance of Radio Sets AN/SRC-20( ), AN/SRC-21( ), and AN/URC-9( ) (Continued)

QTY	EQUIPMENT	MODEL	REQUIRED CHARACTERISTICS
1	RF Attenuator	CBSH-50-6	Freq range..... 225 to 400 MHz
1	Strobe Tachometer	CAG-1531A	Flashing Rate.. 110 to 25K F/min

Table 5-2. Special Tools Required (Not Supplied)

COMMERCIAL PART NUMBER	DESCRIPTION	FSN
GC-2522	**Turret Tuner Tool	9Q5120-975-9478
None	*Bristol, Spline Type, Screwdriver .094"	9Q5120-288-8853
None	*Bristol, Spline Type, Screwdriver .110"	9Q5120-540-4359
None	Alignment Tool, Electronic Equipment	9Q5120-720-1908
None	Extractor, Electron Tube (part peculiar)	9Q5120-293-3539
	Size 4 Retaining Ring Pliers for Speed Increaser	9Q5120-024-9529
	Extractor, Electron Tube Puller	9Q5120-293-0808
	Thickness (Feeler gauge)	9Q5120-246-2303
	Steel Machinist Ruler 12"	9Q5120-234-5224
	Troubleshooting Light (locally made)	(bulb 6240-155-7857 #328 bulb-6V
	1/8" Pencil Tip Soldering Iron-25Watt w/extra angle tip	1H3439-204-3856
	1/4" Spin-Tite wrench	-----

* Both needed since all assemblies are not identical

** Orange manicure sticks may be used as substitute

Table 5-3. Test Equipment To Be Made Locally

ITEM #	INSTRUMENT	DESCRIPTION AND USE
1.	Impedence Matching Network	This Impedence Matching Network is used to match the output impedence of the URM-127 to the input of the RT-581. It is used in the RT-581 Modulator checks.

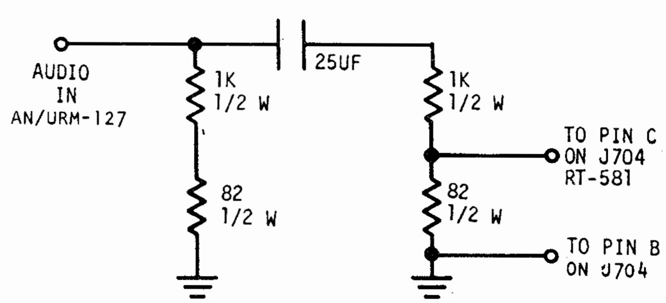


Table 5-3. Test Equipment To Be Made Locally (Continued)

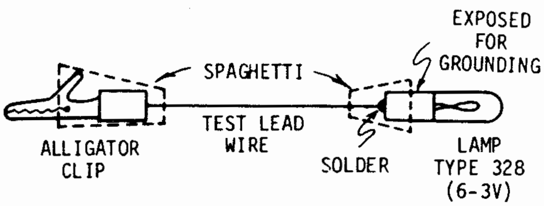
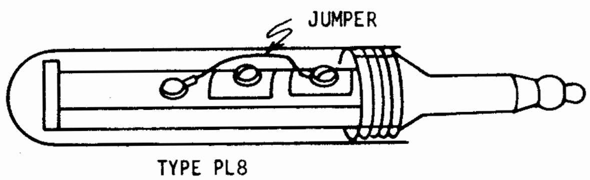
ITEM #	INSTRUMENT	DESCRIPTION AND USE
2.	Trouble-Shooting Light	 Connect Alligator clip to FL 201 on FMO Assembly. Ground side of lamp on Assembly being inspected. This Trouble Shooting light is used to illuminate the internal parts of each assembly while aligning the RT-581
3.	Transmit Key Plug	 This Transmitter Key Plug is used to key the RT-581 During the Trouble Shooting and Alignment Procedures.

Table 5-3. Test Equipment To Be Made Locally (Continued)

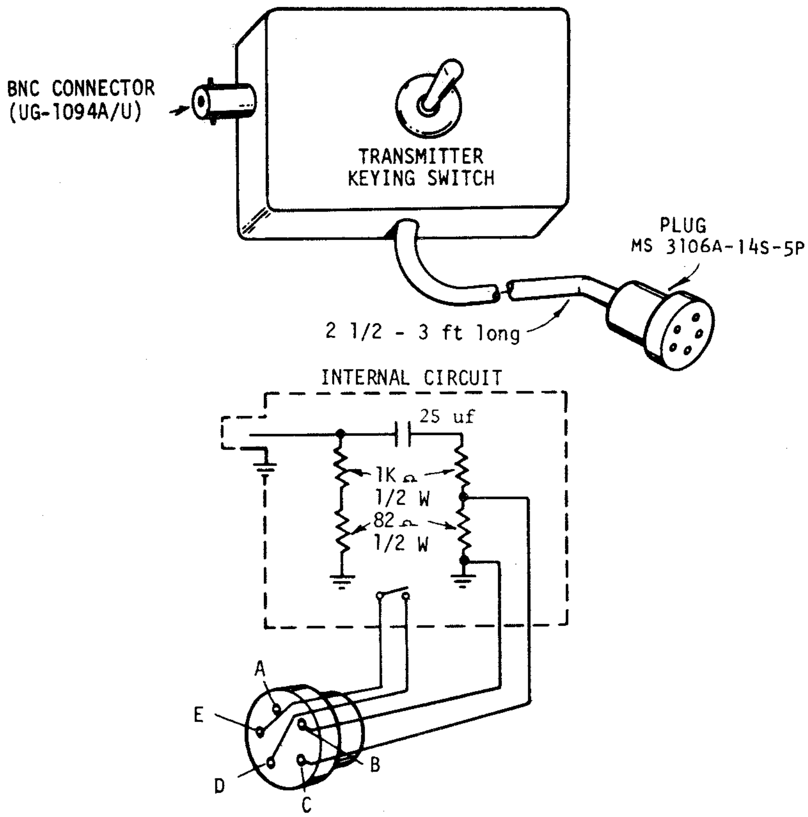
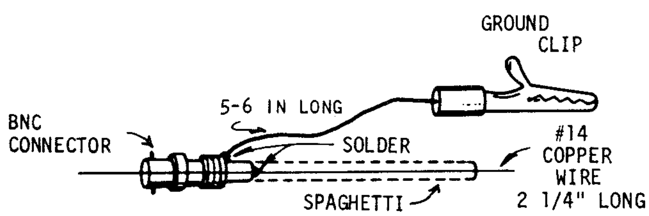
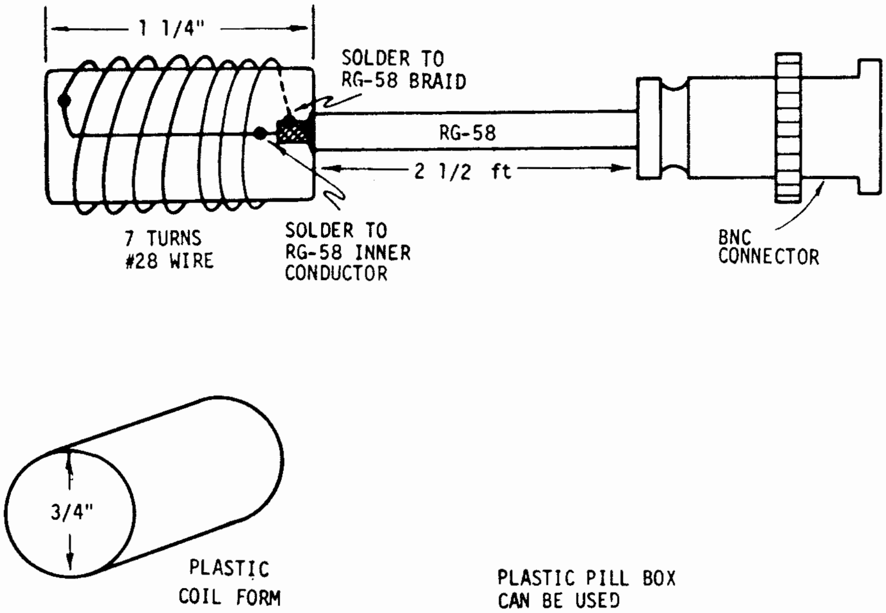
ITEM #	INSTRUMENT	DESCRIPTION AND USE
4.	Combining Alternate Method for Items I and 3.	
5.	Extender Probe	 FOR USE WITH USM-207 COUNTER TO PROBE HARD TO REACH TEST JACKS.

Table 5-3. Test Equipment To Be Made Locally (Continued)

ITEM #	INSTRUMENT	DESCRIPTION AND USE
6.	Oscillator Pickup Loop 	This pick-up loop is used with electronic frequency counters to verify various frequencies generated in RT-581. It is particularly useful for coupling RF from V201 into AN/USM 207 frequency counter.

5-12. TEST POINTS. The test points in the assemblies of Radio Set AN/URC-9( ) are color coded in accordance with the standard resistor color code. For example, in the First IF Assembly, test point J301 is brown; J302 is red; J303 is orange; J304 is yellow, etc. Some equipments contain a few white teflon test points which are exceptions to the color code system.

5-13. RF TUNERS. Special tuners are used in the last four stages of the FMO and six stages of the RF and PA Assembly. The tuners cover the frequency range by simultaneously changing both the capacitance and the inductance of their elements as they are positioned by the frequency selector.

5-14. Each section of the capacitors (with the exception of Z107 and Z108 in RF and PA Assembly) consists of two stator plates and three rotor plates. The two outside rotor plates are divided into segments (referred to as tabs). The capacitance can be changed (for tracking) by physically bending the tabs. The inductor consists of a fixed loop or ring and the inductor rotor arm.

5-15. Tracking of the rf tuners over the frequency range of the RT-581 is accomplished by bending the tabs of the outside rotor plates that are in half mesh with the stator plate at each of the tracking frequencies.

5-16. SAFETY. The attention of officers and operating personnel is directed to Chapter 9670 of the NAVSHIPS Technical Manual, or superseding instructions, for a description of applicable electronics safety precautions.

5-17. This equipment employs voltages which are dangerous and may be fatal if contacted by operating personnel. Extreme caution should be exercised when working with this equipment. While every practicable safety precaution has been incorporated in this equipment, the following rules must be strictly observed:

KEEP AWAY FROM LIVE CIRCUITS

Operating personnel must at all times observe all safety regulations. Do not change tubes or make adjustments inside equipment with high voltage supply on. Under certain conditions dangerous potentials may exist in circuits with power controls in the off position due to charges retained by capacitors. To avoid casualties always remove power and discharge and ground circuits prior to touching them.

DON'T SERVICE OR ADJUST ALONE

Under no circumstances should any person reach within or enter the enclosure for the purpose of servicing or adjusting the equipment without the immediate presence or assistance of another person capable of rendering aid.

DON'T TAMPER WITH INTERLOCKS

Do not depend upon door switches or interlocks for protection but always shut down motor generators or other power equipment. Under no circumstances should any access gate, door, or safety interlock switch be removed, short-circuited, or tampered with in any way, by other than authorized maintenance personnel, nor should reliance be placed upon the interlock switches for removing voltages from the equipment.

5-18. RADIO SET REFERENCE DESIGNATIONS. Tables 5-4, 5-5, and 5-6 list the assemblies of the radio sets and their respective numerical designations.

Table 5-4. Radio Set AN/URC-9( ) Assembly Numerical Designation

ASSEMBLY NAME	NUMERICAL DESIGNATION
RT-581( )/URC-9	1-99
Radio Frequency & Power Amplifier	101-199
Frequency Multiplier-Oscillator	201-299
First IF Amplifier	301-399
Second IF Amplifier	401-499
Third IF Amplifier	501-599
Relay-Filter	601-699
Front Panel	701-799
Audio Amplifier & Modulator	801-899
IF Filter	901-999
Centrifugal Fan	1001-1099
Low-Pass Filter	1101-1199
Frequency Selector	1201-1299

Table 5-4. Radio Set AN/URC-9( ) Assembly Numerical Designation (Continued)

ASSEMBLY NAME	NUMERICAL DESIGNATION
Directional Coupler	1301-1399
Broadband Side Tone Amplifier	1601-1699
Case CY-2959/URC-9	1401-1499
Power Supply PP-2702	1501-1599

Table 5-5. Radio Set Control C-3866/SRC Numerical Designation

ASSEMBLY NAME	NUMERICAL DESIGNATION
Radio Set Control C-3866	101-299

Table 5-6. Radio Frequency Amplifier AM-1565/URC Assembly Numerical Designation

ASSEMBLY NAME	NUMERICAL DESIGNATION
Electrical Equipment Cabinet	101-199
Power Amplifier Subassembly	201-299
Amplifier Subassembly Chassis	301-399
Servo Amplifier Subassembly	401-499
Chassis, Front Panel & Autopositioner	501-599
Blower Assembly (Amplifier Blower)	1001-1099
Blower Assembly (Case Blower)	1101-1199

5-19. TROUBLESHOOTING PHILOSOPHY. Every indication of abnormal operation in a radio set has a specific and significant meaning when locating a fault in a non-operating or marginally operating set. If a logical sequence of action is followed, suspected units, assemblies or subassemblies may be eliminated, or pinpointed for further check to locate the trouble in a faulty component, a circuit discontinuity, or in a mechanical or electrical misalignment. Such action should lead to the isolation of the defective unit, initially through front panel indicators (lights and meters). Then the defective unit can be returned to its proper operating condition by: removing it from its case or main frame if necessary; troubleshooting, repairing and aligning, both electrically and mechanically; replacing it in the case and again checking the entire radio set by means of the front panel indicators.

5-20. SPECIAL CABLES. Special cables include those used for maintenance and those used as intra-assembly connectors.

5-21. Maintenance. The following cables supplied with the radio sets are used externally to energize and operate units and assemblies removed from their normal operation position:

a. Maintenance Cable, Power Supply PP-2702, CX-7300/URC-9.

b. Maintenance Cable, Receiver-Transmitter RT-581, CX-7260/URC-9.

c. Maintenance Cable, Relay Filter Assembly, CX-8521/URC-9.

5-22. Intra-assembly. The following intra-assembly cables MUST be RETAINED for use when installing replacement assemblies:

a. RF and PA Assembly - cables W101 and W8.

b. FMO Assembly - cable W4

c. 2nd IF Amplifier - cable W5

5-23. RADIO SET OVERALL CHECKOUT AND TROUBLESHOOTING PROCEDURE. The checkout procedure verifies the proper operation of Radio Sets AN/SRC-20( ), AN/SRC-21( ), and AN/URC-9( ) using the front panel meters. The first step in the procedure is to set all front panel controls as indicated in the preliminary control settings listed in paragraph 5-24, with the equipment NOT energized. The equipment is then energized and checked out in a logical sequence to uncover any failure or marginal operation. The checkout procedure in table 5-7 provides an expected indication and fault correction for each action. Table 5-7 also contains the most likely remedial measures to correct the improper indication. Table 5-8 lists the fuse complement for Radio Sets AN/SRC-20( ), AN/SRC-21( ), and AN/URC-9( ). Fuse location is shown in figures 5-82 (AN/URC-9( )), 5-88 (AM-1565/URC) and 5-123 (C-3866/SRC).

NOTE

All front panel checks should be completed before beginning internal checks.

5-24. PRELIMINARY CONTROL SETTINGS. The following is a list of preliminary control settings:

a. Radio Set Control C-3866/SRC (figure 5-123):

1. LOCAL-REMOTE switch S201 to LOCAL

2. EMERGENCY POWER switch S206 to up position.

b. Radio Set AN/URC-9( ):

1. RT-581 (figure 5-65):

(a) SQUELCH control R702 to OFF

(b) VOLUME control R717 at desired level

(c) CHAN SEL switch S705 to MANUAL

(d) MODE switch S702 to NOR

(e) PLAIN-BROADBAND switch S1401 to PLAIN (figure 5-63)

(f) Handset HD169 connected to Audio Connector J704.

2. PP-2702 (figure 5-82):

(a) DIMMER control R1506 clockwise

(b) Power switch S1503 to OFF.

c. Radio Frequency Amplifier AM-1565/URC (figure 5-91).

1. LOCAL-REMOTE switch S505 to LOCAL

2. MANUAL-AUTO EXCITATION switch S507 to MANUAL

3. CHAN SEL switch S504 to any channel

4. TEST KEY S506 to OFF

5. DIMMER control R501 to clockwise

6. POWER switch S501 to OFF

7. RF POWER OUTPUT switch S508 to LOW

8. ANT CONNECTOR (J502) terminated in wattmeter AN/URM-120.

Table 5-7. Front Panel Checkout Procedure
(Use PRELIMINARY CONTROL SETTINGS, paragraph 5-24)

STEP	INITIAL ACTION	NORMAL INDICATION	FAULTS AND CORRECTIVE ACTION
	NOTE Every symptom of abnormal operation has a significant meaning. A suspected circuit is efficiently checked and either noted or eliminated as contributing to the cause of trouble when a logical procedure is followed. Steps 1 through 22 apply to Radio Set AN/SRC-21( ). Steps 2 through 22 apply to Radio Set AN/URC-9( ). Steps 1 through 43 apply to Radio Set AN/SRC-20( ).		
1.	Press and release RADIO SET POWER START switch S-204 (figure 5-123)	EMERGENCY POWER INDICATOR DS202 and RADIO SET POWER INDICATOR DS201 are lit	Refer to fig 5-132 1. Check DS202 and DS201 indicators 2. Check MAIN fuse F204, CONTROL fuse F205 and START-STOP fuse F203 3. Check main AC supply 4. Check T201 and T202 5. Check K208 6. Trace wiring and check for discontinuities
2.	On Power Supply PP-2702: Set power switch S1503 to up position (fig 5-82)	1. POWER indicator DS1501 lit (DIMMER control R1506 maximum clockwise position 2. Indicators DS701, DS702, and DS703 are lit 3. Operating blower motor B1401 (PP-2702) and blower motor B1051 (RT-581) are audible	Refer to fig 5-136, 5-150, 5-151 1. Check DS1501, DS701 and DS702, indicators 2. Check MAIN fuse F1501, T1501 PRI fuse F1502, and F1505 PP-2702 3. Check MAIN fuse F204 and RADIO SET fuse F206 in C-3866; B1051 and B1401 4. Check start-stop relay K208 and the 24-vdc supply in C-3866

Table 5-7. Front Panel Checkout Procedure (Continued)
(Use PRELIMINARY CONTROL SETTINGS, paragraph 5-24)

STEP	INITIAL ACTION	NORMAL INDICATION	FAULTS AND CORRECTIVE ACTION
2 cont.			5. Check rectifiers CR1505 through CR1508; trace wiring and check for discontinuities 6. Check S1505, S1503, and T1501; repair or replace as necessary in PP-2702
3	On RT-581; Set METER switch S701 to BIAS (fig 5-65)	Meter indicates within NORMAL range	Refer to fig 5-134, 5-133, 5-136 1. Check T1502 PRI fuse F1503 and 125V B+ F1506 2. Check S1502 and T1502; repair or replace as necessary 3. Check rectifiers CR1509 through CR1512, and CR-1514; trace wiring and check for discontinuities 4. Check filter and load circuits
4	On RT-581: Set METER switch S701 to +26.5V	Meter indicates within NORMAL range	Refer to fig 5-134, 5-133, 5-136 Check METER switch S701 and associated circuits NOTE Step 2 discloses possible causes for +26.5-vdc supply failure
5	On RT-581: Set METER switch S701 to +125V	Meter indicates within NORMAL range	Refer to fig 5-134, 5-133, 5-136 Check METER switch S701 and associated circuits NOTE Step 3 discloses possible causes for failure of +125 vdc supply

Table 5-7. Front Panel Checkout Procedure (Continued)
(Use PRELIMINARY CONTROL SETTINGS, paragraph 5-24)

STEP	INITIAL ACTION	NORMAL INDICATION	FAULTS AND CORRECTIVE ACTION
6	On RT-581: Set METER switch S701 to +325V NOTE Voltage checked is +275-vdc power supply output	Meter indicates within NORMAL range	Refer to fig 5-133, 5-136 1. Check fuses F1504 (325V B+ 1/2A) and F1507 (325V B+ 0.175A) 2. Check rectifiers CR1501 through CR1504 3. Check filters and load circuits 4. Check for discontinuities
7	CAUTION ANT connector J701 must be terminated in a proper load Key to transmit NOTE Voltage checked is the +325-vdc power supply output NOTE Unkey at the end of each step where instructed "key to transmit"	1. Meter indicates slightly higher than in step 6 2. Distinctive sound as relays energize (key to transmit)	Refer to fig 5-133 1. Check load circuits for discontinuities 2. Check T/R relay K601 and keying circuit discontinuities (fig 3-22)
8	On RT-581: Set METER switch S701 to S METER	Meter indication variable (indication is a function of noise or received signal when SQUELCH is OFF)	No action required
9	On RT-581: Return SQUELCH to desired level NOTE This level will depend on operating conditions	No indication expected during checkout using preliminary control settings	No action required

Table 5-7. Front Panel Checkout Procedure (Continued)
(Use PRELIMINARY CONTROL SETTINGS, paragraph 5-24)

STEP	INITIAL ACTION	NORMAL INDICATION	FAULTS AND CORRECTIVE ACTION
10	On RT-581: Set METER switch S701 to SWR; key to transmit	Meter indicates below NORMAL range	Refer to fig 5-1 Check discontinuities in RF signal path to wattmeter
11	On RT-581: Set METER switch S701 to PWR; key to transmit	Meter indicates center of NORMAL range or above; wattmeter indicates 16 watts or greater	Refer to para 5-29 for checks and troubleshooting of RT-581. The sequence to be followed is: 1 2nd IF Amplifier 2 1st IF Amplifier 3 FMO 4 RF and PA 5 Directional Coupler
12	On RT-581: Set METER switch S701 to $DVRI_b$; key to transmit	Meter indicates within NORMAL range	Check V105, K2 and circuit discontinuities
13	On RT-581: Set METER switch S701 to PAI_g; key to transmit	Meter indicates center of NORMAL range or above	Same as step 11
14	On RT-581: Set METER switch S701 to PAI_b; key to transmit	Meter indicates center of NORMAL range or above	Check V106 and circuit discontinuities
15	On RT-581: Set METER switch S701 to % MOD; key to transmit and MODULATE with voice signal	Meter peaks within NORMAL range	Refer to para 5-59 Check handset
16	On RT-581: Set MODE switch S702 to TONE; key to transmit	1. Meter indicates within lower portion of NORMAL range if FC 2 is not installed	Refer to fig 5-133, 5-149 1. Check MODE switch S702

Table 5-7. Front Panel Checkout Procedure (Continued)
(Use PRELIMINARY CONTROL SETTINGS, paragraph 5-24)

STEP	INITIAL ACTION	NORMAL INDICATION	FAULTS AND CORRECTIVE ACTION
16 (cont)	NOTE Return MODE switch to NOR upon completion of this check	2. Meter will not change relative indication when RT-581 is keyed if FC 2 is installed	2. Check tone oscillator circuits 3. Check T/R relay K802 4. Check Relay-Filter circuits
17	On RT-581: Operate CHAN SEL switch S705 from 1 through 19	1. Channel indicator numbers follow selected channel 2. Frequency indicator numbers follow to preset frequency for selected channel	Refer to para 5-64 and fig 5-150, 5-151 1. Check K1204, B1201, S705 B&C, and S1205, in that order 2. Check K1201, S1202, S1201 A&B, K1202, S1203, S1201C, K1203, S1203, and S1210D, in that order 3. Check mechanical synchronization (para 5-66)
18	On RT-581: Set CHAN SEL switch S705 to MANUAL; Set MANUAL FREQUENCY TENS, UNITS, AND TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches S706, S707, and S708 to 399.9 (or 399.95); key to transmit	1. Channel indicator moves to M 2. Frequency indicators move to 399.9 (or 399.95) 3. Wattmeter indicates 16 watts minimum	Refer to fig 5-150, 5-151 1. Check S705A, (front and rear), S706, S707, and S708 2. Check circuit and parts described in step 17 3. Same as step 11
19	On RT-581: Set METER switch S701 to PWR; key to transmit; Operate MANUAL FREQUENCY TENS switch S706 in steps from 39 to 22; return to 39	1. Meter indicates center of NORMAL range or above (16 watts min) 2. Frequency indicator TENS dial follows TENS switch position	Refer to para 5-29 1. Check 2nd IF Amplifier, 1st IF Amplifier, FMO, and RF and PA in that order 2. Check circuit and parts described in step 17

Table 5-7. Front Panel Checkout Procedure (Continued)
(Use PRELIMINARY CONTROL SETTINGS, paragraph 5-24)

STEP	INITIAL ACTION	NORMAL INDICATION	FAULTS AND CORRECTIVE ACTION
20	On RT-581: Key to transmit; operate MANUAL FREQUENCY UNITS switch S707 in steps from 9 to 0; return to 9	1. Meter indicates within NORMAL range or above (16 watts min) 2. Frequency indicator UNITS dial follow UNITS switch position	Same as step 19
21	On RT-581: Key to transmit; operate MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch S708 in steps from .9 to .0 (or .95 to .00); return to .9 (or .95)	1. Meter indicates center of NORMAL range or above (16 watts min) 2. Frequency indicator TENTHS (or TENTHS-HUNDREDTHS) dial follows TENTHS (or TENTHS-HUNDREDTHS) switch position	Same as step 19
22	NOTE Disregard this step unless RETRANSMIT operation is used On RT-581: Set MODE switch S702 to RETRANS NOTE Do not proceed with checkout until RT-581 meets minimum requirements	Refer to para 5-62 for operational checkout	Refer to para 5-93 for troubleshooting

Table 5-7. Front Panel Checkout Procedure (Continued)
(Use PRELIMINARY CONTROL SETTINGS, paragraph 5-24)

STEP	INITIAL ACTION	NORMAL INDICATION	FAULTS AND CORRECTIVE ACTION
23	On AM-1565: a. Set POWER switch S501 to POWER b. Set CHAN SEL switch S504 to M c. Adjust MANUAL TUNING control R506 for 399.9 (or 399.95) in FREQ-MC and LOG-LOG windows (Fig 5-91)	1. Indicators DS502 (POWER), DS503, DS504 and DS505 are lit (DIMMER control R501 maximum clockwise position) 2. Blower Motors B1001 and B1101 are audible 3. AM-1565 remains energized after 60 second time delay relay K302 energizes 4. Both AM-1565 and RT-581 frequency indicators are 399.9 (or 399.95)	Refer to fig 5-131, 5-135, 5-152, and 5-155 1. Check DS502 through DS505, MAIN fuse F501; T302 PRI fuse F504 and F505; and fuse F507 2. Check case interlock switch S303, intraconnection cables and circuit discontinuities 3. Check CR333 through CR336 and T302 4. Check AIR FLOW switch S1001 and B1001 5. Check thermostat S1101
24	On AM-1565: Set METER switch S502 to BIAS 1	Meter indicates approx 50 on BLACK (lower) scale	Refer to fig 5-131, 5-135, 5-152, and 5-155 1. Check 60V BIAS fuse F508 2. Check CR338 through CR341, V201, R304, and circuit discontinuities
25	On AM-1565: Set METER switch S502 to BIAS 2	Meter indicates approx 50 on BLACK scale	Same as Step 24 Check V202 and R303
26	On AM-1565: Set METER switch S502 to +300V	Meter indicates approx 60 on BLACK scale	Refer to fig 5-131, 5-135, 5-152, and 5-155 1. Check +300V fuse F506 2. Check CR325 through CR332 and circuit discontinuities

Table 5-7. Front Panel Checkout Procedure (Continued)
(Use PRELIMINARY CONTROL SETTINGS, paragraph 5-24)

STEP	INITIAL ACTION	NORMAL INDICATION	FAULTS AND CORRECTIVE ACTION
27	On AM-1565: Set METER switch S502 to 27.5V	Meter indicates approx 55 on BLACK scale	Refer to fig 5-153 Check METER switch S502 and circuit discontinuities
28	On AM-1565: Set METER switch S502 to DELAY	Meter indicates approx 38 on BLACK scale	Refer to fig 5-131, 5-135, 5-152, and 5-155 Check CR342 through CR346 and circuit discontinuities
29	On AM-1565: Set METER switch S502 to PWR; set RF POWER OUTPUT switch S508 to HIGH; set LOW-HIGH EXCITATION control R527 maximum counterclockwise (and readjust R527 as required) key to transmit; adjust MANUAL TUNING control R506 for maximum power output (399.9 or 399.95 MHz)	1. HVB+ indicator DS501 lit (DIMMER control R501 maximum clockwise); DS501 is lit whenever the radio set is keyed 2. Meter indicates 0-130 Watts on RED (upper) scale (dependent upon setting of 10W-HIGH EXCITATION control R527). Do not exceed 130 watts	Refer to fig 3-22, 5-131, 5-135, 5-152, and 5-155 1. Check DS501, T301, PRI fuses F502 and F503, F301, K304, S508, CR301 through CR324, and T301 2. Check Power Amplifier bias voltage adjustments (para 5-98), K201, K202, and Directional Coupler (para 5-112)
30	On AM-1565: Set METER switch S502 to SWR; key to transmit	Meter indication is 13 watts or less	Refer to fig 5-153 and 5-155 Check antenna cable, dummy load, and Directional Coupler DC201 adjustments (para 5-112)
31	On AM-1565: Set METER switch S502 to PAI_{b1}; key to transmit	Meter indicates 60 to 80 on BLACK scale	Refer to fig 5-131, 5-135, 5-152, 5-154, and 5-155 Check V201, rf drive, K201, K304 (screen grid interlock and protection relay) and circuit discontinuities

Table 5-7. Front Panel Checkout Procedure (Continued)
(Use PRELIMINARY CONTROL SETTINGS, paragraph 5-24)

STEP	INITIAL ACTION	NORMAL INDICATION	FAULTS AND CORRECTIVE ACTION
32	On AM-1565: Set METER switch S502 to PAI_{b2}; key to transmit	Meter indicates 60 to 80 on BLACK scale	Refer to fig 5-131, 5-135, 5-152, 5-153, and 5-155 Check V202, rf drive, K201, K304 (screen grid interlock and protection relay)
33	On AM-1565: Set METER switch S502 to ATTEN; key to transmit	Meter indication varies 0 to 40 on BLACK scale (dependent on LOW-HIGH EXCITATION control R527)	Refer to fig 3-21, 5-131, 5-135, 5-152, 5-153, and 5-155 1. Check S507, V406, V405, V407, and AT-401 2. Check alignment and adjustments (para 5-97)
34	On AM-1565: Set MANUAL-AUTO EXCITATION control S507 to AUTO; key to transmit	Meter indication varies 0 to 40 on BLACK scale	Check same items as in Step 33 and check V203, C207 and R436 (refer to para 5-97)
35	On AM-1565: Set METER switch S502 to HV; key to transmit	Meter indicates 70 to 72 on BLACK scale	Same as Step 29
36	On RT-581: Set CHAN SEL switch S705 to REMOTE PRESET: On the AM-1565: Remove OUTPUT LOADING adjustment cover 0528 (fig 5-88); operate CHAN SEL switch S504 from 1 through 19 NOTE Preset frequencies may be set up according to paragraph 2-39 or 2-40 in NAVELEX 0967-438-9020, VOLUME 2 of Technical Manual for AN/SRC-20( ) and AN/SRC-21( )	1. Audible sound as L209 energizes 2. Channel indicator numbers follow CHAN SEL switch S504 positions 3. FREQ-MC and LOG-LOG dials move to preset frequency 4. Channel and frequency indicators in RT-581 follow AM-1565	Refer to fig 3-21, 5-135, 5-152, 5-153 and 5-155 1. Check L209, K501, S505, S503C (refer to para 5-102) 2. Refer to para 5-98 and 5-102 3. Refer to para 5-98 and 5-102 4. Refer to para 5-98 and 5-102

Table 5-7. Front Panel Checkout Procedure (Continued)
(Use PRELIMINARY CONTROL SETTINGS, paragraph 5-24)

STEP	INITIAL ACTION	NORMAL INDICATION	FAULTS AND CORRECTIVE ACTION
37	On AM-1565: Set CHAN SEL switch S504 to M; operate MANUAL TUNING control R506 to maximum counterclockwise then maximum clockwise; replace cover 0528	1. Channel indicator follows CHAN SEL switch S504 to M 2. FREQ-MC and LOG-LOG dials move from beyond 400 to beyond 220	Refer to fig 3-21, 5-131, 5-135, 5-152, 5-153, and 5-155 Refer to para 5-98 and 5-102
38	On AM-1565: Set LOCAL-REMOTE switch S505 to REMOTE	Dependent on setting in C-3866	No action required
39	On C-3866; Dial a channel between 1 and 10 NOTE When a channel above 10 is required, dial A and the digit (Example: Channel 14 is required; dial A plus 4)	Channel and frequency indicators on AM-1565 and RT-581 follow the dialed channel	Refer to fig 3-18 and 5-157 1. Check 28V fuse F201; S202 (Refer to para 5-91) 2. Check K206, decks 11 and 12; decks 1 through 5
40	CAUTION DAMAGE to the C-3866 will occur if only A is dialed On C-3866: Dial a channel between 10 and 19	Channel and frequency indicators on AM-1565 and RT-581 follow the dialed channel	Same as Step 39
41	On C-3866: Set LOCAL-REMOTE switch S201 to REMOTE	Dependent on settings of remote C-3868	No action required

Table 5-7. Front Panel Checkout Procedure (Continued)
(Use PRELIMINARY CONTROL SETTINGS, paragraph 5-24)

STEP	INITIAL ACTION	NORMAL INDICATION	FAULTS AND CORRECTIVE ACTION
42	At REMOTE C-3868: Dial a channel below and a channel above 10	Channel and frequency indicators on AM-1565 and RT-581 follow dialed channels; channel indicator on C-3868 follows	Same as Step 40; check remote transmitter and receiver switchboards, and C-3868 dial switch
43	At a C-1138 (remote Radio Set Control): key to transmit; modulate	1. Carrier on indicator lit 2. Side tone audible in handset	1. Check remote transmitter and receiver switchboards 2. Check 12V fuse F202, CR209 through CR212, T203, T204, and K207 (fig 5-157) 3. Check C-1138

Table 5-8. Fuse Complement For Radio Sets AN/SRC-20( ), AN/SRC-21( ), and AN/URC-9( )

UNIT	SYMBOL	CURRENT RATING	CIRCUIT
Radio Set Control C-3866/SRC (fig 5-123)	F201	5A	-28vdc power supply output
	F202	2A	12vdc power supply output
	F203	1A	Primary ac power to START-STOP circuit (T201)
	*F204	25A(115V) 15A(230V)	Main primary ac power
	F205	3A	Primary ac power to T202
	*F206	25A(115V) 15A(230V)	Primary ac power to controlled radio set
	F207	3A	C-1138 power on light
Power Supply PP-2702 (fig 5-82)	F1501	5A(115V) 3A(230V)	Main primary ac power
	F1502	3A(115V) 1-1/2A(230V)	Primary ac power to T1501

Table 5-8. Fuse Complement For Radio Sets AN/SRC-20( ), AN/SRC-21( ), and AN/URC-9( ) (Continued)

UNIT	SYMBOL	CURRENT RATING	CIRCUIT
Power Supply PP-2702 (fig 5-82) (Cont)	F1503	1-1/2A(115V) 3/4A(230V)	Primary ac power to T1502
	F1504	1/2A	+325vdc power supply output (receive and transmit)
	F1505	15A	+26.5vdc power supply output
	F1506	1/4A	+125vdc and -11vdc power supply outputs
	F1507	0.175A	+275vdc power supply output (receive only)
Radio Frequency Amplifier AM-1565/URC (fig 5-92)	F301	1/2A	+1800vdc high voltage supply output
	F501	15A	Main primary ac power
	F502	5A	Primary ac power to T301
	F503	5A	Primary ac power to T301
	F504	3A	Primary ac power to T302
	F505	3A	Primary ac power to T302
	F506	1/4A	+300vdc power supply output
	F507	5A	-27.5vdc power supply output
	F508	1/4A	-60vdc power supply output

*F204 and F206 ratings are for AN/SRC-20( ) installation; for AN/SRC-21( ) installation the ratings of those fuses are 10A(115V), and 5A(230V).

5-25. INITIAL SETUP FOR ALIGNMENT AND ADJUSTMENT OF RT-581.

NOTE

All references to Radio Set AN/URC-9 are applicable to Radio Set AN/URC-9A, except where noted.

5-26. EQUIPMENT SETUP. Remove RT-581 from case and make equipment test connections as follows:

a. Press RADIO SET POWER STOP switch (S205).

b. Remove connection at ANT (J701).

c. Loosen four captive screws in corners of front panel (fig 5-65).

d. Turn extractor knob (01408, fig 5-62) fully counterclockwise; reverse rotation for three turns and stop with knob slot horizontal; push extractor down.

e. Pull RT-581 out of cabinet.

f. Connect P1 (fig 5-17) on the rear of RT-581 to J1401 (fig 5-62) on case CY-2959; use Cable Assembly CX-7260.

g. Connect the input of RF Wattmeter AN/URM-43( ) (60 w scale) to ANT connector (J701, fig 5-65) on RT-581.

h. Connect handset to AUDIO connector (J704, fig 5-65).

5-27. RADIO SET AN/URC-9( ) CONTROL SETTINGS. Set controls as follows:

a. CHAN SEL switch (S705) to MANUAL.

b. MANUAL FREQUENCY TENS, UNITS and TENTHS switches (S706, S707, and S708) on AN/URC-9, to 399.9 (fig 5-65). (On AN/URC-9A, switch S708 is calibrated in TENTHS-HUNDREDTHS; set S708 to 399.95.)

NOTE

399.9 MHz is the mechanical and electrical reference frequency for the AN/URC-9; 399.95 MHz is the reference frequency for AN/URC-9A.

c. MODE selector (S702) to NOR.

d. SQUELCH control (R702) to OFF.

e. Power switch (S1503) on PP-2702 to ON (up).

f. PLAIN-BROADBAND switch (S1401), at rear of CY-2959 case, (fig 5-63) to PLAIN.

g. VOLUME control (R717) as required.

5-28. RADIO SET CONTROL C-3866/SRC CONTROL SETTINGS. Set controls as follows:

a. LOCAL-REMOTE switch (S201) to LOCAL.

b. EMERGENCY POWER switch (S206) to ON.

CAUTION

Do not transmit unless RT-581 is terminated in a proper load (wattmeter, antenna, etc.).

c. Press RADIO SET POWER START switch (S204) to apply power. To remove power, press RADIO SET POWER STOP switch (S205).

5-29. RT-581 ALIGNMENT, ADJUSTMENT, AND TROUBLESHOOTING PROCEDURES.

NOTE

All references to RT-581/URC-9 are applicable to RT-581A/URC-9 except where noted.

5-30. The following alignment and adjustment procedures, due to the interdependancy of the assemblies, must be performed in the sequence as presented. The electrical checks and alignments in paragraphs 5-31 through 5-66 are performed in a transmit condition. The electrical checks and alignments in paragraphs 5-67 through 5-86 are performed in a receive condition. When a check or alignment can be made in either transmit or receive, the check or alignment is made in transmit and is not repeated for receive. These procedures are to be performed at 399.9 MHz (or 399.95 MHz for AN/URC-9A), unless otherwise indicated. Troubleshooting procedures are performed as required.

WARNING

Voltages dangerous to life are present. Use care when making alignments or adjustments.

5-31. SECOND IF AMPLIFIER ALIGNMENT, ADJUSTMENT, AND TROUBLESHOOTING. Alignment procedures need be performed only when indicated by unsatisfactory results received during checks. Troubleshooting is performed as required.

5-32. Second IF Amplifier Mechanical Check. Set up RT-581 as in paragraph 5-25. Use tuning tool FSN-9Q5120-720-1908 during following procedures:

a. Position RT-581 right side up (fig 5-14).

NOTE

When the observation is incorrect for a step, discontinue check at that point and perform mechanical alignment in accordance with paragraph 5-33.

b. Check that coupler (0405, fig 5-47) slot on end of the shaft is vertical and centered under the black guide post (fig 5-30); that the coupler keeper pin is in the upper right corner and in the open quadrant of Frequency Selector coupler half, (01295, fig 5-72), as viewed from the front of RT-581.

c. Insert tuning tool into coil L401 (fig 5-46).

d. Operate MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708) counterclockwise to .0. (Tuning tools should rise.)

e. Operate MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708) counterclockwise to .9 (or .95). (Tuning tool should fall.)

f. Repeat steps c through e for coils L403 and L405.

g. Remove tuning tool.

h. If mechanical check is satisfactory, proceed to Second IF Amplifier electrical check.

5-33. Second IF Amplifier Mechanical Alignment. Set up RT-581 as in paragraph 5-25. Use Bristol tool FSN-9Q5120-540-4359 or 9Q5120-288-8853 during the following procedures:

a. Position RT-581 right side up (fig 5-14).

b. Loosen locking collar on male coupler (01295, fig 5-72) on Frequency Selector and center coupler mating element in vertical position under black guide post. The cutout on male coupler should be in upper right corner as viewed from front of RT-581. Coupler keeper pin of coupler 0405 should be in the open quadrant of male coupler 01295.

c. Tighten locking collar.

5-34. Second IF Amplifier Electrical Check. Set up RT-581 as in paragraph 5-25. Refer to figures 5-14, 5-41, 5-46, 5-47, 5-48, 5-143, and 5-144 for the physical and electrical location of test points. Use Electronic Multimeter AN/USM-116 and Electronic Frequency Counter AN/USM-207. If abnormal indications are observed, refer to 2nd IF Amplifier troubleshooting (paragraph 5-36) only after completing all electrical checks.

NOTE

Steps a through d verify 3.0 to 3.9 MHz (or 3.00 to 3.95 MHz for AN/URC-9A) third oscillator V401B operation. (Fig 5-143, 5-144).

a. Set AN/USM-116 for negative DC voltage, 10V range, and connect dc probe to yellow test point J404 (fig 5-46).

b. Operate MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708) in steps from .9 to .0 (or .95 to .00) and observe indication (-6 vdc minimum) on AN/USM-116 at each step.

NOTE

A slow voltage rise indicates marginal crystal operation.

c. Key to transmit and repeat step b; observe AN/USM-116 (-6 vdc minimum).

d. Unkey the transmitter and remove probe.

NOTE

Steps e through g verify transmit buffer amplifier V401A operation in transmit. (Fig 5-143, 5-144).

NOTE

Do not use a probe extension in step e through g.

e. Set AN/USM-116 for DC voltage, 10V range, connect dc probe to red test point J402 (fig 5-46); and key to transmit.

f. Operate MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708) in steps from .9 to .0 (or .95 to .00) and observe indication (3 to 3.8 vdc) on AN/USM-116.

g. Unkey the transmitter and remove dc probe.

h. Using probe extension, connect AN/USM-207 to yellow test point J404 (fig 5-46).

i. Key to transmit.

j. Operate MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708) in steps from .9 to .0 (or .95 to .00) and observe that frequency indication on AN/USM-207 corresponds to those listed in table 5-9.

k. Unkey transmitter and remove AN/USM-207 probe.

l. Remove V304 on 1st IF Amplifier; set AN/USM-116 for AC voltage, 1V range; connect ac probe to pin 1 on tube socket (fig 5-41).

m. Key to transmit; operate MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708) in steps from .9 to .0 (or .95 to .00) and observe for (.5 to .0 vac) indication on AN/USM-116 at each step.

n. Unkey transmitter; remove test probe.

o. Replace V304.

p. If electrical check is satisfactory, proceed to 1st IF Amplifier mechanical check.

Table 5-9. Second IF Amplifier Crystal Frequencies (Transmit)

TENTHS/ TENTHS-HUNDREDTHS SWITCH POSITION	AN/USM-207 INDICATION AND CRYSTAL FREQUENCY (MHz)	FREQUENCY TOLERANCE (±Hz)
AN/URC-9		
.9	3.9	195
.8	3.8	190
.7	3.7	185
.6	3.6	180
.5	3.5	175
.4	3.4	170
.3	3.3	165
.2	3.2	160
.1	3.1	155
.0	3.0	150

Table 5-9. Second IF Amplifier Crystal Frequencies (Transmit)(Continued)

TENTHS/ TENTHS-HUNDREDTHS SWITCH POSITION	AN/USM-207 INDICATION AND CRYSTAL FREQUENCY (MHz)	FREQUENCY TOLERANCE ($\pm$Hz)
AN/URC-9A		
.95	3.95	197.5
.90	3.90	195.0
.85	3.85	192.5
.80	3.80	190.0
.75	3.75	187.5
.70	3.70	185.0
.65	3.65	182.5
.60	3.60	180.0
.55	3.55	177.5
.50	3.50	175.0
.45	3.45	172.5
.40	3.40	170.0
.35	3.35	167.5
.30	3.30	165.0
.25	3.25	162.5
.20	3.20	160.0
.15	3.15	157.5
.10	3.10	155.0
.05	3.05	152.5
.00	3.00	150.0

5-35. Second IF Amplifier Electrical Alignment. Set up RT-581 as in paragraph 5-25. Refer to figures 5-14, 5-41, 5-46, 5-47, 5-50, 5-143, and 5-144 for the physical and electrical locations of adjustments and test points. Use Electronic Multimeter AN/USM-116, Electronic Frequency Counter AN/USM-207, tuning tool FSN-9Q5120-720-1908, and steel ruler during following procedures:

NOTE

Mechanical alignment for 2nd IF Amplifier must be correct before proceeding.

NOTE

Make sure MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS) switch (S708) is on .9 (or .95) before proceeding.

a. Remove V304 on 1st IF Amplifier; set AN/USM-116 for AC voltage, 1V range; connect ac probe to pin 1 on tube socket (fig 5-41).

b. Key to transmit; then adjust L402, L404, and L406 (fig 5-46) for a peak indication (0.5 to 0.9 vac) on tube socket (fig 5-41).

c. Unkey transmitter.

NOTE

If no output is obtained in step b, adjust L401, L403, and L405 (fig 5-46) until tuning cores are 1-1/32 inches from top of can and repeat step b.

d. Operate MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708) to .0.

e. Key to transmit; adjust L401, L403, and L405 (fig 5-46)for a peak on AN/USM-116.

f. Unkey transmitter and remove probe.

g. Repeat steps b through f until no further change is noted on AN/USM-116.

h. Replace V304.

i. This completes 2nd IF Amplifier Electrical Alignment.

5-36. Second IF Amplifier Troubleshooting (Transmit). (Figures 5-133, 5-143, 5-144, 5-1, 5-7, and 5-8). Troubleshoot the second IF Amplifier in accordance with procedures in table 5-10.

Table 5-10. Second IF Amplifier Troubleshooting Procedures (Transmit)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
1. Abnormal indication at yellow test point J404 (-6 vdc minimum normal indication) - Keyed	1. Faulty mechanical alignment	1. Check according to para 5-32, and 5-33
	2. Faulty tube V401	2. Replace tube V401
	3. Faulty operating voltages	3. Check supply voltages at M701 (+125 vdc) and pins 4 and 6 of XV401 (fig 5-33)
	4. Faulty components	4. Make circuit checks (fig 5-143, 5-144)
	5. Faulty switch (S401 and S402) contacts	5. Clean contacts with a cleaner/lubricant such as CRAMOLIN, FSN-9G6850-880-7007
	6. Faulty electrical alignment	6. Check according to para 5-35
2. Abnormal indication at red test point J402 (3 to 3.8 vdc normal)- Keyed	Same as for faulty indication 1	Same as for faulty indication 1
3. Abnormal indication at pin 1 of XV304 (.5 to .9 vac normal indication) - Keyed (V304 removed)	1. Same as for faulty indication 1	1. Same as for faulty indication 1
	2. Faulty intra-assembly cable or connection	2. Check cable and connectors J401/P304 (fig 5-1, 5-7, 5-8)

TUBE	PIN NUMBER (disconnect P401)								
	1	2	3	4	5	6	7	8	9
V401	0	10K	100K	105K	0	210K	100K	290	00

5-37. FIRST IF AMPLIFIER ALIGNMENT, ADJUSTMENT, AND TROUBLESHOOTING. Alignment procedures need be performed only when indicated by unsatisfactory results received during checks. Troubleshooting is performed as required.

5-38. First IF Amplifier Mechanical Check. Set up RT-581 as in paragraph 5-25. Use tuning tool FSN 9Q5120-720-1908 during following procedures:

a. Position RT-581 right side up (fig 5-14.

NOTE

When the observation is incorrect for a step, discontinue check at that point and perform mechanical alignment in accordance with paragraph 5-39.

b. Check that both coupler slots (0316, 0317, fig 5-44) are vertical and centered under the black guide posts; that the coupler keeper pins are in the upper right corner and in the open quadrant of the Frequency Selector coupler halves (01293, 01294, fig 5-72) as viewed from the front of RT-581.

c. Insert tuning tool into coil L301 (fig 5-41).

d. Operate MANUAL FREQUENCY UNITS switch (S707) counterclockwise to 0. (Tuning tool should rise).

e. Operate MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708) counterclockwise to .0 (Tuning tool should rise slightly further.)

f. Operate MANUAL FREQUENCY UNITS switch (S707) counterclockwise to 9. (Tuning tool should fall).

g. Operate MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708) counterclockwise to .9 (or .95). (Tuning tool should fall slightly further.)

h. Repeat steps c through g, in turn, for coils L302, L303, L304, L305, L306 and L310.

NOTE

Coil L310 is driven by Frequency Selector units (1 MHz) shaft only.

i. Remove tuning tool.

j. If mechanical check is satisfactory, proceed to First IF Amplifier electrical check.

5-39. First IF Amplifier Mechanical Alignment. Set up RT-581 as in paragraph 5-25. Use Bristol tool FSN 9Q5120-540-4359 or FSN 9Q5120-288-8854 during the following procedures:

a. Position RT-581 right side up (fig 5-14).

b. Loosen locking collars on male couplers (01293, 01294 fig 5-72) on Frequency Selector; center coupler mating elements in vertical position under black guide posts. The cutouts on male couplers should be in upper right corner as viewed from the front of RT-581. Coupler keeper pins of couplers 0316 and 0317 should be in open quadrant of male couplers 01293 and 01294.

c. Tighten locking collar.

5-40. First IF Amplifier Electrical Check. Set up RT-581 as in paragraph 5-25. Refer to figures 5-14, 5-41 through 5-45, and 5-142 for the physical and electrical location of test points. Use Electronic Multimeter AN/USM-116 and Electronic Frequency Counter AN/USM-207, during the procedures that follow. If abnormal indications are observed, refer to 1st IF Amplifier troubleshooting (paragraph 5-44).

NOTE

The 2nd IF Amplifier electrical alignment (paragraph 5-35) must be correct before proceeding.

a. Set AN/USM-116 for negative DC voltage, 3V range, and connect dc probe to green test point J305 (fig 5-41).

b. Operate MANUAL FREQUENCY UNITS and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S707 and S708) to 9.9 (or 9.95); key to transmit and observe indication (-1.0 vdc minimum) on AN/USM-116.

c. Operate MANUAL FREQUENCY UNITS switch (S707) from 9 to 0, in turn, and observe indication (-1.0 vdc minimum) on AN/USM-116 at each switch position. Unkey transmitter.

NOTE
A slow voltage rise indicates marginal crystal operation.

d. Remove dc probe from green test point J305.

e. Connect AN/USM-207 to green test point J305.

NOTE
The frequency counter read-out varies with the input signal level. Use minimum input signal by adjusting counter input attenuator.

f. Operate MANUAL FREQUENCY UNITS switch (S707) in steps from 9 to 0, in turn, and observe that frequency indications on AN/USM-207 correspond to those listed in table 5-11.

NOTE
Satisfactory results verify 17 to 26 MHz second oscillator V305 operation in receive and transmit.

g. Operate MANUAL FREQUENCY TENS, UNITS, AND TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S706, S707, S708) to 399.9 (or 399.95) and remove AN/USM-207 probe.

h. Set AN/USM-116 for AC voltage, 10V range, and connect ac probe to orange test point J103 on RF and PA (fig 5-27).

i. Key to transmit; observe indication (5 to 8 vac) on AN/USM-116.

j. Operate MANUAL FREQUENCY UNITS and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S707 and S708) in steps from 9.9 to 0.0 (or 9.95 to 0.00), in turn, and observe indications (5 to 8 vac) on AN/USM-116 at each step.

k. Unkey transmitter and remove test probe.

NOTE
Steps 1 through p verify proper signal mixing of the 1st and 2nd IF Amplifiers in transmit.

l. Connect AN/USM-207 to orange test point J303 (fig 5-41).

m. Operate MANUAL FREQUENCY UNITS and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S707 and S708) to 9.9 (or 9.95).

n. Key to transmit; observe indication of 29.9 MHz (or 29.95 MHz) on AN/USM-207.

o. Operate MANUAL FREQUENCY UNITS and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S707 and S708) to 0.0; observe indication of 20.0 MHz (or 20.00 MHz) on AN/USM-207.

p. Unkey transmitter and remove test probe.

q. If electrical check is satisfactory, proceed to FMO mechanical check.

Table 5-11. First IF Amplifier Crystal Frequencies (Transmit)

UNITS SWITCH POSITION	AN/USM-207 INDICATION AND CRYSTAL FREQUENCY (MHz)	FREQUENCY TOLERANCE (±Hz)
9	26	1300
8	25	1250
7	24	1200
6	23	1150
5	22	1100
4	21	1050
3	20	1000
2	19	950
1	18	900
0	17	850

5-41. First IF Amplifier Electrical Alignment. Set up RT-581 as in paragraph 5-25. Refer to figures 5-14, 5-41 through 5-45, and 5-142 for the physical and electrical location of adjustments and test points. Use Electronic Multimeter AN/USM-116 and Electronic Frequency Counter AN/USM-207 during following procedures:

NOTE

The 2nd IF Amplifier electrical alignment (para 5-35) and the 1st IF Amplifier mechanical alignment (para 5-39) must be correct before proceeding.

a. Position RT-581 right side up (fig 5-14).

b. Operate MANUAL FREQUENCY UNITS switch (S707) to 9.

c. Set AN/USM-116 for negative DC voltage, 1V range; connect dc probe to green test point J305 (fig 5-41).

d. Adjust C340 for maximum indication on AN/USM-116 (-1 vdc minimum).

e. Operate MANUAL FREQUENCY UNITS switch (S707) to 0; adjust L310 (fig 5-41) for maximum indication on AN/USM-116 (-1 vdc minimum).

f. Repeat above steps until no further increase is observed on AN/USM-116.

g. Turn trimmer capacitors C304, C306, C309, C312, and C317 (fig 5-41) fully counterclockwise.

h. Set L302, L303, L304, L305, and L306 tuning cores (fig 5-41) for a depth of 1-3/32 inches from top of cover.

i. Operate MANUAL FREQUENCY UNITS and TENTHS (or TENTHS-HUNDREDTHS) switches (S707 and S708) to 9.9 (or 9.95).

j. Set AN/USM-116 for AC voltage, 1V range; connect ac probe to brown test point J301 (fig 5-41).

k. Key to transmit; adjust C304 for maximum indication on AN/USM-116.

l. Unkey transmitter; disconnect AN/USM-116 from test point J301.

m. Set AN/USM-116 for 3V range; connect ac probe to red test point J302.

WARNING

High voltages (B+) that are dangerous to life are present at trimmer shafts of capacitors C306 and C312. Use insulated tuning tool (FSN 9Q5120-720-1908).

n. Key to transmit; adjust C306 and C309 in small increments for maximum ac voltage indication on AN/USM-116. Unkey transmitter and disconnect AN/USM-116 from test point J302.

o. Connect AN/USM-207 to red test point J302; key to transmit; observe frequency 29.9 MHz (or 29.95 MHz for AN/URC-9A) on AN/USM-207; unkey transmitter and disconnect AN/USM-207.

p. Set AN/USM-116 for AC voltage, 10V range; connect ac probe to orange test point J103 on RF and PA (fig 5-27).

q. Key to transmit; adjust C312 and C317 in small increments for maximum ac voltage indication on AN/USM-116.

r. Unkey transmitter; remove ac probe.

s. Operate MANUAL FREQUENCY UNITS and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S707 and S708) to .0.

t. Set AN/USM-116 to 1V range; connect ac probe to brown test point J301.

u. Key to transmit; adjust L302 for maximum indication on AN/USM-116.

v. Unkey transmitter; disconnect AN/USM-116 from test point J301.

w. Set AN/USM-116 to 3V range; connect ac probe to red test point J302.

x. Key to transmit; adjust L303 and L304 in small increments for maximum ac voltage indication on AN/USM-116; unkey transmitter and disconnect AN/USM-116 from test point J302.

y. Connect AN/USM-207 to red test point J302; key to transmit; observe frequency of 20.0 MHz on AN/USM-207. Unkey transmitter and disconnect AN/USM-207 from test point J302.

z. Set AN/USM-116 for AC voltage; connect ac probe to orange test point J103 on RF and PA (fig 5-27).

aa. Key to transmit; adjust L305 and L306 in small increments for maximum ac voltage indication on AN/USM-116.

bb. Unkey transmitter and remove ac probe from test point J103.

cc. Repeat steps i through bb until no improvement is noted, and a level of 5 to 8 vac at test point J103 can be obtained for each position of the MANUAL FREQUENCY UNITS and TENTHS (or TENTHS-HUNDREDTHS) switches (S707 and S708).

dd. Adjust C302 clockwise until it is approximately the same physical position as C304.

ee. Adjust L301 until the depth of the tuning core from the top of the cover is approximately the same as L302.

NOTE

Final adjustment of C302 and L301 will be made in a receive condition.

5-42. S METER Zero Check. Set up RT-581 as in paragraph 5-25. Refer to figure 5-65. No tools or test equipments are required to perform following procedures.

a. Set METER switch (S701) to S METER position.

b. Operate MANUAL FREQUENCY TENS switch (S706) through complete range; check meter reading at each position.

c. Repeat step b, using MANUAL FREQUENCY UNITS switch (S707).

d. Repeat step b, using MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708).

e. Front panel meter should indicate zero, or slightly above, on all frequency channels.

5-43. S METER Zero Electrical Alignment. Set up RT-581 as in paragraph 5-25.

Refer to figures 5-16 and 5-149. No special tools or test equipments are required to perform the following procedures:

a. Set METER switch (S701) to S METER position.

b. Adjust variable resistor R712 (fig 5-16 and 5-149) so that indication on front panel meter is zero (first mark at left end of scale) with minimum noise throughout spectrum.

c. Operate MANUAL FREQUENCY TENS switch (S706) through complete range; at each position check meter reading. If meter reads down scale, reset R712 to zero the meter. Set MANUAL FREQUENCY TENS switch to position with lowest meter reading.

d. Repeat step c, using MANUAL FREQUENCY UNITS switch (S707).

e. Repeat step c, using MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708).

f. When adjustment is complete, front panel meter should read zero, or slightly above, on all frequency channels.

5-44. <u>First IF Amplifier Troubleshooting (Transmit), (Figures 5-1, 5-6, 5-133, and 5-142)</u>. Troubleshoot 1st IF Amplifier in accordance with procedures in table 5-12.

Table 5-12. First IF Amplifier Troubleshooting Procedures (Transmit)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
1. Abnormal indication at green test point J305 (1.0 vdc minimum) - Keyed	1. Faulty mechanical alignment	1. Check according to para 5-38 and 5-39
	2. Faulty oscillator tube V305	2. Replace tube V305
	3. Faulty operating voltages	3. Check supply voltages at M701 (+125 vdc) and at pins 4 and 6 of XV305 (fig 5-133)
	4. Faulty components	4. Make circuit checks (fig 5-142)

TUBE	PIN NUMBER (disconnect P301)						
	1	2	3	4	5	6	7
V301	∞	240	∞	∞	90K	130K	240
V302	∞	320	∞	∞	89K	78K	320
V303	130K	960	∞	∞	∞	∞	960
V304	100K	1K	∞	∞	∞	∞	1K
V305	∞	115	5K	90K	0	91K	0
V305; Pin 8-115; Pin 9-∞							

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
	5. Faulty switch (S'301 and S302) contacts	5. Clean contacts with a cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007
	6. Faulty electrical alignment	6. Check according to para 5-42

Table 5-12. First IF Amplifier Troubleshooting Procedures (Transmit) (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
2. Abnormal indication at orange test point J103 (5 to 8 vac normal) - Keyed	1. Faulty mechanical alignment	1. Check according to para 5-38 and 5-39
	2. Faulty IF Amplifier tubes V302, V301, and V304	2. Replace tubes V302, V301, and V304, one at a time
	3. Faulty operating voltages	3. Check supply voltages at M701 and all tube sockets (fig 5-133)
	4. Faulty components	4. Make circuit checks
	5. Faulty switch (S301 and S302) contacts	5. Clean contacts with a cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007
	6. Faulty electrical alignment; 2nd (V305) and 3rd (V401) oscillator may not be mixing in 1st transmit mixer (V304)	6. Check according to para 5-42
	7. Faulty cable (W304) or connectors P302/J101.	7. Repair/replace (fig 5-1, 5-6)

5-45. FREQUENCY MULTIPLIER-OSCILLATOR (FMO) ALIGNMENT, ADJUSTMENT, AND TROUBLESHOOTING. Alignment procedures need be performed only when indicated by unsatisfactory results received during checks. Troubleshooting is performed as required.

5-46. <u>FMO Mechanical Check</u>. Set up RT-581 as in paragraph 5-25. Refer to figures 5-31, 5-34, 5-37, and 5-72. No tools or test equipments are required to perform the following procedures:

a. Position RT-581 top side up (fig 5-13).

NOTE

If the observation is incorrect for a step, discontinue check at that point and perform mechanical alignment for FMO in accordance with paragraph 5-47.

b. Check that coupler (0220, fig 5-34) on the end of the shaft is vertical and centered under the black guide post (fig 5-72); that coupler keeper pin is in the upper right corner and in open quadrant of Frequency Selector coupler as viewed from front of RT-581.

c. Check that the position of the small tab on the front rotor plate of the main tuning capacitor (number 1 on front rotor plate fig 5-31) is in full mesh with stator plates Z202, Z204, Z206, and Z208 (fig 5-37).

NOTE

Ensure that capacitor rotor plates do not touch the stator plates in any position (39 through 22) as the TENS switch (S706) is set.

d. Operate MANUAL FREQUENCY TENS switch (S706) to 34. Check that S201 coil selector switch rotor arm is centered in the contact nearest to the center of the viewing hole located at the top rear of the FMO (fig 5-34).

e. If mechanical check is satisfactory proceed to the FMO electrical check.

5-47. FMO Mechanical Alignment. Set up RT-581 as in paragraph 5-25. Refer to figures 5-13, 5-72, and 5-34. Bristol tools FSN 9Q5120-288-8853 and FSN 9Q5120-540-4359 are required during the following procedures:

a. Position RT-581 top side up (fig 5-13).

b. Loosen locking collar on male coupler (01291, fig 5-72) on Frequency Selector and center coupler mating element in vertical position under black guide post; cutout on male coupler must be in upper right corner as viewed from front of RT-581. Coupler keeper pin of coupler 0220 should be in open quadrant of male coupler 01291.

c. Make fine adjustment by rotating coupler so that small rotor tab on main tuning capacitor (tab 1 on front plate, fig 5-31), is in full mesh with the stator plates in Z202, Z204, Z206, and Z208 (fig 5-37).

d. Tighten locking collar on coupler of Frequency Selector.

e. Operate MANUAL FREQUENCY TENS switch (S706) to gain access to screw on locking collar of drive gear (0202) between the oscillator and amplifier of FMO (fig 5-34). Loosen locking screw.

f. Operate MANUAL FREQUENCY TENS switch (S706) to 34.

g. Hold coupler (01291) and rotate drive gear counterclockwise until rotor arm of switch S201 is centered on contact nearest to center of viewing hole in oscillator dust cover (fig 5-34).

NOTE

Drive gear should be rotated in the normal direction of rotation (counterclockwise), to account for any back lash in S201.

h. Hold coupler 01291 and tighten locking collar loosened in step e.

5-48. FMO Electrical Check. Set up RT-581 as in paragraph 5-25. Refer to figures 5-13, 5-15, 5-34 through 5-40, and 5-141 for the physical and electrical location of test points. Use Electronic Multimeter AN/USM-116 and Electronic Frequency Counter AN/USM-207 during the procedures that follow. If abnormal indications are observed, refer to FMO troubleshooting, paragraph 5-50.

NOTE

FMO mechanical alignment must be correct before proceeding.

a. Position RT-581 top side up (fig 5-13).

b. Set AN/USM-116 for AC voltage, 3V range; connect ac probe to oscillator output link (Y, fig 5-34).

c. Observe indication (1.0 vac minimum) on AN/USM-116.

d. Operate MANUAL FREQUENCY TENS switch (S706), in turn, from 39 to 22 and observe indication (1.0 vac minimum) on AN/USM-116 at each step (voltage level may increase at 29).

NOTE

A slow voltage rise indicates marginal crystal operation.

NOTE

Tube V201 operation (steps b through d) must be correct before proceeding

e. Set AN/USM-116 for negative DC voltage, 1V range; connect dc probe to white teflon test point J106 on RF and PA (fig 5-13 and 5-140).

NOTE

Incorrect setting of Z105 trimmer capacitor C122 will cause a low voltage indication at test point J106.

f. Operate MANUAL FREQUENCY TENS switch (S706), in turn, from 39 to 22 and observe indication (-1.0 vdc minimum) on AN/USM-116 at each switch position.

g. Remove tube V203 (fig 5-35) and observe that indication on AN/USM-116 decreases to approximately -0.25 vdc.

h. Remove dc probe; replace V203.

i. Connect AN/USM-207 to yellow test point J204 (fig 5-35).

j. Operate MANUAL FREQUENCY TENS switch (S706), in turn, from 39 to 22 and observe that frequency indication on AN/USM-207 corresponds to those listed in table 5-13.

NOTE

The indication on the AN/USM-207 is not a direct readout of the FMO output frequency, but is the result of heterodyning. (Refer to the AN/USM-207 Technical Manual.)

Table 5-13. FMO Frequencies at Test Point J204

TENS SWITCH POSITION	TEST POINT J204 FREQUENCY (MHz)	* AN/USM-207 TUNING FREQUENCY MC. SWITCH POSITION	AN/USM-207 INDICATION AND FREQUENCY TOLERANCE (MHz)	(±Hz)
39	370	350	20	9250
38	360	350	10	9000
37	350	300	50	8750
36	340	350	10	8500
35	330	350	20	8250
34	320	350	30	8000
33	310	350	40	7750
32	300	350	50	7500
31	290	300	10	7250
30	280	300	20	7000
29	270	300	30	6750
28	260	300	40	6500
27	250	300	50	6250
26	240	250	10	6000
25	230	250	20	5750
24	220	250	30	5500
23	210	250	40	5250
22	200	250	50	5000

* DIRECT-HETERODYNE switch must be in HETERODYNE

k. Disconnect AN/USM-207.

NOTE

Steps e through j verify the FMO output frequency and level.

l. If electrical check is satisfactory proceed to the RF and PA mechanical check.

5-49. <u>FMO Electrical Alignment</u>. Set up RT-581 as in paragraph 5-25. Refer to figures 5-13, 5-15, 5-34 through 5-40, and 5-141 for the physical and electrical location of adjustments and test points. Electronic Multimeter AN/USM-116, Electronic Frequency Counter AN/USM-207, tuning tool FSN 9Q5120-720-1908, and capacitor tab bending tool FSN 9Q5120-975-9478 are required during the following procedures:

NOTE

Mechanical alignment of the FMO must be correct before proceeding. Tube shields and covers must be in place.

a. Position RT-581 top side up (fig 5-13).

b. Set AN/USM-116 for AC voltage, 3V range; connect ac probe to oscillator output link (Y, fig 5-34).

c. Operate MANUAL FREQUENCY TENS switch (S706) to 22.

d. Adjust C208 (fig 5-36) for maximum indication (1.0 vac minimum).

NOTE

At any point in step e that the minimum voltage cannot be obtained, replace V201 and V202 (one at a time) and readjust trimmers.

e. Operate MANUAL FREQUENCY TENS switch (S706), in turn, from 39 to 22, adjusting coils (L218 through L201, fig 5-17) at each step for maximum indication (1.0 vac minimum) on AN/USM-116. (Adjustments are made through holes rear plate of first oscillator.)

NOTE

Steps f through k should seldom be part of normal alignment.

f. Operate MANUAL FREQUENCY TENS switch (S706) to 22.

g. Readjust C208 for maximum indication on AN/USM-116.

h. Operate MANUAL FREQUENCY TENS switch (S706) to 39.

i. Adjust C208 slowly clockwise, then slowly counterclockwise (1 to 2 turns) from its position in step g; note changes on AN/USM-116. If indication increases with clockwise rotation, L222 must be compressed slightly; if indication increases with counterclockwise rotation, L222 must be spread slightly.

NOTE

To adjust L222 (fig 5-40) remove FMO from RT-581. (See paragraph 5-135).

j. Reinstall FMO assembly.

k. Repeat steps f through j until no further change is noted on AN/USM-116.

l. Remove V201 tube shield and place pickup loop (see table 5-3) over V201.

m. Connect pickup loop to AN/USM-207 plug-in unit.

n. Compare readout on AN/USM-207 for each switch position (39 through 22) of the MANUAL FREQUENCY TENS switch (S706) with those listed in table 5-14.

o. Disconnect AN/USM-207; remove pickup loop and replace tube shield.

p. Connect AN/USM-207 to red test point J202.

q. Operate MANUAL FREQUENCY TENS switch (S706) to 39.

NOTE

Ensure capacitor rotor plates do not touch the stator plates in any position (39 through 22) as TENS switch(S706)is set.

r. Turn trimmer capacitors C215, C221, C227, and C233 fully counterclockwise.

s. Adjust C215 clockwise (6 to 8 turns) for maximum indication on AN/USM-207 INPUT LEVEL METER.

Table 5-14. FMO Crystal Frequencies

TENS SWITCH POSITION	AN/USM-207 INDICATION AND FREQUENCY TOLERANCE (MHz)	(±Hz)
39	41.11111	1028
38	40.00000	1000
37	38.88888	972
36	37.77777	944
35	36.66666	916
34	35.55555	888
33	34.44444	860
32	33.33333	832
31	32.22222	804
30	31.11111	776
29	45.00000	1125
28	43.33333	1083
27	41.66666	1042
26	40.00000	1000
25	38.33333	958
24	36.66666	916
23	35.00000	875
22	33.33333	832

t. Connect AN/USM-207 to orange test point J203.

u. Adjust C221 clockwise (6 to 8 turns) for maximum indication on AN/USM-207 INPUT LEVEL METER.

v. Connect AN/USM-207 to yellow test point J204.

w. Adjust C227 clockwise (6 to 8 turns) for maximum indication on AN/USM-207 INPUT LEVEL METER.

x. Disconnect AN/USM-207.

y. Set AN/USM-116 for negative DC voltage, 3V range; connect dc probe to white teflon test point J106 on RF and PA (fig 5-13 and 5-140).

NOTE

Incorrect setting of Z105 trimmer C122 will cause a low voltage indication at J106.

z. Adjust C233 clockwise (6 to 8 turns) for maximum dedication (-1 vdc minimum) on AN/USM-116.

aa. Readjust C215, C221, and C227 for maximum indication (-1 vdc minimum on AN/USM-116; this completes FMO reference frequency alignment. Place pencil mark on the chassis cover next to trimmer capacitors C215, C221, C227, and C233 for reference during tracking procedure.

NOTE

Before proceeding with tracking steps bb through gg, steps 1 through aa MUST be accomplished. The voltage at J106 must not fall below -1.0 vdc during the following steps.

bb. Set AN/USM-116 for negative DC voltage, 3V range; connect dc probe to white teflon test point J106 on RF and PA (fig 5-13).

cc. Operate MANUAL FREQUENCY TENS switch (S706) to 38.

NOTE

The need for tab bending must be determined prior to adjustment of any tabs. See table 5-15 for Frequency Selector switch position and associated tab.

CAUTION

Do not bend capacitor tabs beyond 20 degrees from the vertical, or short tabs to stators.

dd. To determine the need for tab bending, observe AN/USM-116 and adjust C215 as follows: (1) one-half to one turn counterclockwise from pencil mark, (2) reset to mark; (3) one-half to one full turn clockwise from pencil mark, (4) reset to mark. If the voltage dipped as C215 was turned in both ccw and cw directions, the circuit was in resonance and required NO tab bending. If the voltage increased as C215 was turned in a ccw direction, the capacitance must be decreased by bending WHITE rotor tab of Z202 away from the stator for peak voltage indication. If the voltage increased as C215 was turned in a cw direction, the capacitance must be increased by bending WHITE rotor tab of Z202 toward stator for peak voltage indication. Repeat this procedure for C221 and Z204, C227 and Z206, C233 and Z208, at switch position 38.

ee. Operate MANUAL FREQUENCY TENS switch in steps from 38 to 30 and repeat step dd at each switch position.

NOTE

The voltage at test point J104 on the RF and PA must not fall below -.5 vdc during the following tracking procedure.

ff. Connect dc probe of AN/USM-116 to yellow test point J104 on RF and PA; key to transmit.

gg. Operate MANUAL FREQUENCY TENS switch (S706) in steps from 29 to 22 and repeat step dd at each switch position. Remove probe.

hh. Connect AN/USM-207 to test point J204.

ii. Compare readout on AN/USM-207 for each position of the MANUAL FREQUENCY TENS switch (S706) 39 through 22 with those listed in table 5-13.

NOTE

If readings on AN/USM-207 are not within tolerance listed in table 5-13, adjust the corresponding trimmer coils (L201 through L218). This completes FMO alignment.

Table 5-15. FMO Tracking Tabs

FREQUENCY SELECTOR POSITION (MHz) (NOTE 1)	CAPACITOR ROTOR TAB NUMBER (NOTES 2, 3, & 4)	CAPACITOR ROTOR TAB COLOR
399.9(5)	1-Back	Black
389.9(5)	2-Front	White
379.9(5)	2-Back	Yellow
369.9(5)	3-Front	Orange
359.9(5)	3-Back	Blue
349.9(5)	4-Front	Brown
339.9(5)	4-Back	Green
329.9(5)	5-Front	Red
319.9(5)	5-Back	White
309.9(5)	6-Front	Blue
299.9(5)	6-Back	Red

Table 5-15. FMO Tracking Tabs (Continued)

FREQUENCY SELECTOR POSITION (MHz) (NOTE 1)	CAPACITOR ROTOR TAB NUMBER (NOTES 2, 3, & 4)	CAPACITOR ROTOR TAB COLOR
289.9(5)	7-Front	Brown
279.9(5)	7-Back	Green
269.9(5)	8-Front	Yellow
259.9(5)	8-Back	White
249.9(5)	9-Front	Orange
239.9(5)	9-Back	Black
229.9(5)	10-Front	Yellow
225.0(0)	10-Back	Red

NOTES

1. Hundredths digit ( ) applicable to AN/URC-9A only.
2. Front indicates rotor plate(s) facing Oldham coupling.
3. Back indicates rotor plate(s) facing away from Oldham coupling.
4. The rotor tab being adjusted at a given frequency should be in half mesh with stator plate.

5-50. <u>FMO Troubleshooting (Transmit)</u>. (Figures 5-1, 5-5, 5-133 and 5-141.) Troubleshoot the FMO in accordance with procedures in table 5-16.

5-51. <u>FMO Intermittent Operation</u>. (Figures 5-34 through 5-40.) To correct FMO intermittent operations, perform procedures in table 5-17.

Table 5-16. FMO Troubleshooting Procedures (Transmit)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
1. Abnormal indication at oscillator output	1. Faulty mechanical alignment	1. Check according to para 5-46 and 5-47
	2. Faulty tube V201	2. Replace tube V201 (several times if needed)
	3. Faulty operating voltage	3. Check supply voltage at M701 (+125 vdc) and at pins 4 & 6 of XV201 (fig 5-133)
	4. Faulty components	4. Make resistance checks (see tube chart)
	5. Faulty switch (S201 and S202) contacts	5. Clean contacts with a cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007
	6. Faulty electrical alignment	6. Check according to para 5-49

Table 5-16. FMO Troubleshooting Procedures (Transmit) (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
2.Abnormal indication at red test point J202 (.38 to .43 vdc normal)	1.Faulty mechanical alignment	1.Check according to para 5-46 and 5-47
	2.Faulty tubes V202 and V203	2.Replace tubes V202 and V203, one at a time
	3.Faulty operating voltage	3.Check supply at R210, R213, R209, C212, C213, and pins 5 and 6 of XV202 (fig 5-141)
	4.Faulty components	4.Make resistance checks (see tube chart)
	5.Faulty rf tuner (Z201 and Z202) inductance rotor contacts	5.Clean contacts with a cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007
	6.Faulty electrical alignment	6.Check according to para 5-49
3.Abnormal indication at orange test point J203 (.8 to 1.1 vdc normal)	1.Faulty mechanical alignment	1.Check according to para 5-46 and 5-47
	2.Faulty tube V204	2.Replace tube V204
	3.Faulty operating voltages	3.Check supply at R211, C225 and pin 7 of XV204
	4.Faulty components	4.Make circuit checks
	5.Faulty rf tuner (Z204) inductance rotor contacts	5.Clean contacts with a cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007
	6.Faulty electrical alignment	6.Check according to para 5-49
4.Abnormal indication at yellow test point J204 (1.1 to 2.1 vdc normal)	1.Faulty mechanical alignment	1.Check according to para 5-46 and 5-47
	2.Faulty tube V205	2.Replace tube V205
	3.Faulty operating voltages	3.Check supply at R212, C231 and pin 7 of XV205

Table 5-16. FMO Troubleshooting Procedures (Transmit) (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
4. Abnormal indication at yellow test point J204 (1.1 to 2.1 vdc normal) (Cont)	4. Faulty components	4. Make circuit checks
	5. Faulty rf tuner (Z206) inductance rotor contacts	5. Clean contacts with a cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007
	6. Faulty electrical alignment	6. Check according to para 5-49
5. Abnormal indication at white teflon test point J106 (-1 vdc minimum) receive function	1. Faulty mechanical alignment	1. Check according to para 5-46, 5-47, 5-53, and 5-54
	2. Faulty tube V104	2. Replace tube V104
	3. Faulty operating voltages	3. Check supply (fig 5-133)
	4. Faulty components	4. Check cable W4, and connectors J204/P4 and J112/P3, and K102; make continuity checks (fig 5-1, 5-3)
	5. Faulty rf tuner (Z206 and Z105) inductance rotor contacts	5. Clean contacts with cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007
	6. Faulty electrical alignment	6. Check according to para 5-49 and 5-56

TUBE	PIN NUMBER (disconnect P201)								
	1	2	3	4	5	6	7	8	9
V201	∞	220	22	∞	0	∞	10K	220	∞
V202	140K	0	∞	∞	∞	∞	0	-	-
V203	0	100	∞	∞	0	0	∞	-	-
V204	0	100	∞	∞	0	0	∞	-	-
V205	0	100	∞	∞	0	0	∞	-	-

Table 5-17. FMO Intermittent Operations (Transmit)

CAUSE	CURE
Inadequate ground for C215, C221, C227, and C233	Remove FMO. Insert a small screwdriver into the bottom side of trimmer capacitor and rotate ccw until threaded portion clears slotted portion of mount. CAUTION Trimmer capacitor is glass foil. Carefully bend slotted portions of mount together. Insert small screwdriver into the bottom side of the trimmer capacitor and rotate cw until threaded screw extends above mount. Reinstall FMO.
Dirty contacts on S201, S202, and Z201	Remove FMO. Remove cover. Use cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007. Reinstall cover. Reinstall FMO.
Dirty wiper contacts on Z202, Z204, Z206, and Z208 inductors	Remove FMO. Remove covers. Clean inductor rings with cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007. Reinstall covers. Reinstall FMO.
Dirty grounding contacts on main tuning capacitor shaft	Remove FMO. Remove covers. Clean shaft with cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007. Reinstall covers. Reinstall FMO.

5-52. RF AND PA ALIGNMENT, ADJUSTMENT, AND TROUBLESHOOTING. Alignment procedures need be performed only when indicated by unsatisfactory results received during checks. Troubleshooting is performed as required.

5-53. RF and PA Mechanical Check. Set up RT-581 as in paragraph 5-15. Refer to figures 5-4, 5-22 through 5-33 and 5-140. No tools or test equipments are required to perform the following procedures:

a. Position RT-581 top side up (fig 5-13).

NOTE

When the observation is incorrect for a step, discontinue check at that point and perform mechanical alignment for RF and PA in accordance with paragraph 5-54.

b. Check that coupler 0126 slot (fig 5-27) on the end of the shaft is vertical and centered under the black guide post (fig 5-30); that coupler keeper pin is in the upper right corner and in open quadrant of Frequency Selector coupler as viewed from the front of RT-581 (fig 5-72.

c. Check that the position of the small tab on the front rotor plate of the main tuning capacitor (number 1 on the front rotor plate, fig 5-31) is in full mesh with stator plate in Z101, Z103, Z105, Z106 and Z108 (fig 5-27).

NOTE

Ensure that capacitor rotor plates do not touch the stator plates in any position (39 through 22), as the TENS switch (S706) is set.

d. Operate MANUAL FREQUENCY TENS, UNITS, AND TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S706, S707, and S708) to 375.0 (or 375.00).

e. Check that yellow rotor tab (first tab) in Z107 is in full mesh with the stator (fig 5-32).

f. If mechanical check is satisfactory, proceed to RF and PA electrical check.

5-54. RF and PA Mechanical Alignment. Set up RT-581 as in para 5-25. Refer to figures 5-13, 5-27, 5-30, 5-32, 5-33, and 5-72. Use Bristol tools FSN 9Q5120-288-8853 and FSN 9Q5120-540-4359 during the following procedures:

a. Position RT-581 top side up (fig 5-13).

b. Loosen locking collar on male coupler (01292, fig 5-72) on Frequency Selector and center coupler mating element in vertical position under black guide post. The cutout of male coupler should be in upper right corner as viewed from front of RT-581. Coupler keeper pin of coupler 0126 should be in open quadrant of male coupler 01292.

c. Make fine adjustment by rotating coupler and shaft so that the small rotor tab on the main tuning capacitor (tab 1 on front plate, fig 5-30) is in full mesh with the stator plate in Z101, Z103, Z105, Z106 (fig 5-27).

d. Operate MANUAL FREQUENCY TENS, UNITS, and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S706, S707, and S708) to 375.0 (or 375.00).

e. Remove power from RT-581.

WARNING

High voltages that are dangerous to life are present at Z107 and Z108. Before performing alignment of Z107 and Z108, remove all electrical power from RT-581.

f. Remove the large cover plate from RF and PA Amplifier for access to Z107.

CAUTION

Z107 is spring loaded. Care must be taken to maintain equal spring between capacitor stator and rotor plates.

g. Loosen Z107 locking collar; rotate rotor until yellow rotor tab (first tab) is in full mesh with the stator (fig 5-32).

h. Tighten locking collar.

i. Restore power to RT-581.

j. Operate MANUAL FREQUENCY TENS, UNIT UNITS, and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S706, S707, and S708) to 399.9 (or 399.95).

k. Remove small cover plate from PA stage (V106) for access to Z108.

CAUTION

Care must be taken to maintain equal spacing between capacitor stator and rotor plates.

l. Loosen Bristol screws holding rotor of Z108 to shaft (fig 5-33); position rotor of Z108 until small rotor tab is in full mesh with the stator and the rotor tab opposite it is in half mesh (fig 5-33).

m. Tighten Bristol screws.

n. Replace covers removed in steps f and k.

5-55. RF and PA Electrical Check. Set up RT-581 as in para 5-25. Refer to figures 5-13, 5-14, 5-22 through 5-34, and 5-140 for the physical and electrical location of test points. Use Power Meter AN/URM-43( ) and Electronic Multimeter AN/USM-116. If abnormal indications are observed, refer to RF and PA troubleshooting (paragraph 5-57).

a. Set AN/USM-116 for AC voltage, 10V range; connect ac probe to orange test point J103.

b. Key to transmit; observe indication (5 to 8 vac) on AN/USM-116.

NOTE
Step c verifies 1st and 2nd IF Amplifier signal mixing.

c. Remove tube V401 from 2nd IF Amplifier (fig 5-46); observe that indication on AN/USM-116 decreases near to zero.

d. Unkey transmitter and reinstall V401.

e. Set AN/USM-116 for negative DC voltage, 3V range; connect dc probe to yellow test point J104.

f. Key to transmit; observe indication (-0.5 to -3 vdc) on AN/USM-116.

NOTE
Step g verifies FMO and 1st IF Amplifier signal mixing.

g. Remove tube V401 from 2nd IF Amplifier; observe that indication on AN/USM-116 decreases to near zero.

h. Unkey transmitter; reinstall V401.

i. Connect dc probe of AN/USM-116 to white teflon test point J106; observe indication (-1 vdc minimum). This is the FMO output signal in receive.

j. Key to transmit; observe indication (-1 vdc minimum); unkey transmitter.

k. Connect dc probe of AN/USM-116 to test point J114.

l. Key to transmit; observe indication (-2 vdc minimum) on AN/USM-116.

m. Unkey transmitter; set AN/USM-116 to 30V range; connect dc probe to brown test point J111 (fig 5-14); observe indication (-9.5 to -12 vdc) of V106 bias.

n. Key to transmit; observe indication (-12 vdc minimum) on AN/USM-116 and power indication (16-24 watts) on AN/URM-43( ).

o. Unkey transmitter; connect dc probe of AN/USM-116 to brown test point J601 on Relay-Filter Assembly (fig 5-17 and 5-148); set meter to 300V dc range.

p. Key to transmit; observe indication (+170 vdc) on AN/USM-116.

q. Unkey transmitter; remove probe.

5-56. <u>RF and PA Electrical Alignment</u>. Set up RT-581 as in paragraph 5-25. Refer to figures 5-13, 5-14, 5-22 through 5-34, and 5-140 for the physical and electrical location of adjustments and test points. Use Electronic Multimeter AN/USM-116, Power Meter AN/URM-43( ), Alignment Tool FSN 9G5120-720-1908 and capacitor tab bending tool during the following procedures;

<u>CAUTION</u>
Do not make any electrical adjustment to the RF and PA until the FMO and 1st IF Amplifier input signals have been verified for amplitude and frequency. Refer to FMO and 1st IF Amplifier electrical checks (paragraphs 5-48 and 5-40).

a. Turn C107 (Z101), C115 (Z103), C122 (Z105), and C127 (Z106) fully counterclockwise.

b. Remove tube V102.

c. Set AN/USM-116 for AC voltage, 3V range; connect ac probe to pin 2 of V102 tube socket (fig 5-24).

d. Key to transmit; adjust C107 slowly clockwise approximately 6 turns for the first maximum indication (approximately 3 vac) on AN/USM-116.

e. Remove ac probe; connect AN/USM-207 to pin 2 of tube socket.

f. Observe AN/USM-207 for frequency readout of 399.9 MHz (or 399.95 on AN/URC-9A); unkey transmitter. This verifies that 1st IF Amplifier and FMO are mixing properly.

g. Reinstall tube V102; remove tube V103.

h. Connect ac probe of AN/USM-116 to pin 2 of V103 tube socket.

i. Key to transmit; adjust C115 approximately 6 turns for maximum indication (approximately 9 vac) on AN/USM-116.

j. Readjust C107 for maximum indication on AN/USM-116.

k. Release key; reinstall tube V103.

l. Set AN/USM-116 for negative DC voltage, 3V range; connect dc probe to J106.

m. Key to transmit; adjust C122 approximately 6 turns for maximum indication (-1 vdc minimum) on AN/USM-116.

n. Adjust C107, C115, and C122 for maximum indication (-1 vdc minimum) on AN/USM-116.

o. Unkey transmitter.

p. Connect dc probe of AN/USM-116 to J114.

q. Key to transmit.

r. Adjust C127 for maximum indication on AN/USM-116 (-2 vdc minimum).

s. Unkey transmitter; connect dc probe of AN/USM-116 to test point J111.

NOTE

Test probe at J111 may load circuit, requiring readjustment (in a later step) of C141 for maximum power with probe removed.

t. Key to transmit; adjust C141 (fig 5-14) for maximum indication (-12 vdc minimum) on AN/USM-116.

u. Adjust C132 (fig 5-13) for maximum power output on AN/URM-43( ).

v. Unkey transmitter; remove dc probe.

NOTE

Two Phillip screws must be loosened to adjust L111; L111 is attached to J115 (fig 5-14). Tighten screws upon completion of adjustment.

w. Key to transmit; rotate rf connectors P11 and J115 for maximum power on AN/URM-43( ).

x. Readjust C132 and C141 for maximum power on AN/URM-43.

y. Unkey transmitter.

z. Set AN/USM-116 for positive DC voltage, 300V range; connect dc probe to J601 on the Relay-Filter assembly (fig 5-17 and 5-148).

aa. Set front panel METER switch to PAI_g.

bb. Key to transmit; adjust R602 on Relay-Filter assembly (fig 5-17 and 5-148) for an indication of 170 vdc on AN/USM-116.

cc. Adjust R108 on RF and PA Amplifier (fig 5-24 and 5-140) for indication in upper half of NORMAL range on meter (M701).

dd. Repeat steps bb and cc until indication at J601 is 170 vdc and front panel meter indicates in upper half of NORMAL range.

NOTE

Excessive voltage at J601 can cause the rf output signal to become distorted.

ee. Remove AN/USM-116 dc probe; adjust C141 and C132 for maximum power on AN/URM-43( ).

ff. Unkey transmitter; this completes RF and PA reference frequency alignment. Place pencil mark on chassis cover plate to mark position of trimmer capacitors C107, C115, C127, C141, and C132 for reference during tracking procedure.

NOTE

Before proceeding with tracking steps gg through pp, steps a through ee must be accomplished.

gg. Set AN/USM-116 for negative DC voltage, 30V range; connect dc probe to white teflon test point J114.

hh. Operate MANUAL FREQUENCY TENS switch (S706) to 38; key to transmit.

NOTE

The need for tab bending must be determined prior to adjustment of any tab. See table 5-18 for Frequency Selector switch position and associated tab.

CAUTION

Do not bend capacitor tabs beyond 20 degrees from the vertical or short tabs to stators.

ii. To determine the need for tab bending, observe AN/USM-116 and adjust C107 one-half to one turn counterclockwise from pencil mark; reset to mark, then adjust C107 one-half to one turn clockwise from pencil mark; reset to mark. If the voltage dipped as C107 was turned, in both clockwise and counterclockwise directions, the circuit was in resonance and requires no tab bending. If the voltage increased as C107 was turned in a counterclockwise direction, the capacitance of Z101 must be decreased by bending WHITE rotor tab away from the stator for a peak voltage indication. If the voltage increased as C107 was turned in a clockwise direction, the capacitance of Z101 must be increased by bending WHITE rotor tab toward the stator for a peak voltage indication. Repeat this procedure for C115 and Z103, C122 and Z105, C127 and Z106 at switch position 38.

jj. Operate MANUAL FREQUENCY TENS switch (S706) in steps from 37 to 22 repeating procedure in step ii for each switch position.

NOTE

Ensure that capacitor rotor plates do not touch the stator plates in any position (39 through 22), as the TENS switch (S706) is set.

kk. Operate MANUAL FREQUENCY TENS, UNITS, and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S706, S707, S708) to 255.0 (or 255.00) and repeat procedure in step ii.

NOTE

Z107 is tracked in 20 MHz steps beginning at 375.0 (or 375.00).

ll. Set MANUAL FREQUENCY TENS, UNITS and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S706, S707, S708) to 375.0 (or 375.00).

mm. Connect AN/USM-116 dc probe to brown test point J111.

NOTE

Test probe at J111 may load circuit, requiring readjustment (in a later step) of C141 for maximum power with probe removed.

nn. Repeat procedures in step ii for C141 and Z107 to determine need for tab bending. Tab bending for Z107 is accomplished by bending rotor tabs that are meshed with the stator.

oo. Operate MANUAL FREQUENCY TENS switch (S706) in 20 MHz steps from 35 to 22, repeating procedure in step nn at each switch position.

pp. Operate MANUAL FREQUENCY TENS, UNITS, AND TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S706, S707, S708) in 10 MHz steps from 389.9 to 225.0 (or 389.95 to 225.00) and repeat procedures in step ii for C132 and Z108 at each switch position. Observe AN/URM-43( ) instead of AN/USM-116 for changes.

qq. This completes RF and PA alignment. Remove all test equipment.

Table 5-18. RF and PA Tracking Tabs

FREQUENCY SEL POS (MHz) (NOTE 1)	CAPACITOR ROTOR TAB NUMBER (Notes 2, 3, & 4)	CAPACITOR ROTOR TAB COLOR
399.9(5)	1-Back	Black
389.9(5)	2-Front	White
379.9(5)	2-Back	Yellow
369.9(5)	3-Front	Orange
359.9(5)	3-Back	Blue
349.9(5)	4-Front	Brown
339.9(5)	4-Back	Green
329.9(5)	5-Front	Red
319.9(5)	5-Back	White
309.9(5)	6-Front	Blue
299.9(5)	6-Back	Red
289.9(5)	7-Front	Brown
279.9(5)	7-Back	Green
269.9(5)	8-Front	Yellow
259.9(5)	8-Back	White
249.9(5)	9-Front	Orange
239.9(5)	9-Back	Black
229.9(5)	10-Front	Yellow
225.0(0)	10-Back	Red

NOTES:
1. Hundredths digit ( ) applicable to AN/URC-9A only.
2. Front indicates rotor plate(s) facing Oldham coupling.
3. Back indicates rotor plate(s) facing away from Oldham coupling.
4. Rotor tab being adjusted should be in half mesh with stator plate.

5-57. <u>RF and PA Troubleshooting (Transmit)</u>. (Figures 5-1, 5-4, 5-19, 5-133 and 5-140.) Troubleshoot the RF and PA Amplifier in accordance with procedures in table 5-19.

5-58. <u>RF and PA Intermittent Operation</u>. (Figures 5-22 through 5-29.) To correct RF and PA intermittent operation, perform procedures in table 5-20.

Table 5-19. RF and PA Troubleshooting Procedures (Transmit)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
1. Abnormal indication at orange test point J103 (5 to 8 vac normal indication) - Keyed	1. Faulty input from 1st IF Amplifier 2. Faulty 1st or 2nd IF Amplifiers	1. Check cable W302 and conn. P302/J101 (fig 5-1, 5-4) 2. Use 1st or 2nd IF Amplifier troubleshooting procedure

Table 5-19. RF and PA Troubleshooting Procedures (Transmit) (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
	3. Faulty tube V101	3. Replace tube V101
	4. Faulty FMO	4. Check FMO (para 5-44)
	5. Faulty components	5. Check circuits (fig 5-140)
2. Abnormal indication at yellow test point J104 (-.5 to -3 vdc normal indication) - Keyed	1. Faulty input from FMO	1. Check cable W101 and connectors P107/J107 and P103/J113, K102, R114, and cable W4; connector P3/J112 (fig 5-1)
	2. Faulty FMO	2. Check FMO (para 5-50)
	3. Faulty tube V101	3. Replace tube V101
	4. Faulty operating voltage	4. Check supply; +125 vdc at R115 and +26.5 vdc on M701 (fig 5-133)
	5. Faulty components	5. Make resistance checks
	6. Faulty rf tuner (Z101) inductance rotor contact; intermittent operation	6. Clean contacts with cleaner/ lubricant such as CRAMOLIN FSN 9G6850-880-7007.
	7. Faulty mechanical alignment	7. Check according to para 5-53 and 5-54
	8. Faulty electrical alignment	8. Check according to para 5-56
3. Abnormal indication at green test point J105 (-0.07 vdc minimum normal indication) - Keyed	1. Faulty mechanical alignment	1. Check according to para 5-53 and 5-54
	2. Faulty tubes V102 & V103	2. Replaces tubes V102 and V103, one at a time
	3. Faulty operating voltage	3. Check supply at R116, C113 and C120 (fig 5-133)
	4. Faulty rf tuner (Z103) inductance rotor contact; interminnent operation	4. Clean contact with cleaner/ lubricant such as CRAMOLIN FSN 9G6850-880-7007
	5. Components faulty	5. Check circuits (fig 5-140)

Table 5-19. RF and PA Troubleshooting Procedures (Transmit) (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
	6. Faulty electrical alignment	6. Check according to para 5-56
4. Abnormal indication at white teflon test point J106 (-1.0 vdc minimum normal indication) - Keyed	1. Faulty tube V104	1. Replace tube V104
	2. Faulty operating voltage	2. Check supply (fig 5-140)
	3. Faulty mechanical alignment	3. Check according to para 5-53 and 5-54
	4. Faulty components	4. Make circuit check (fig 5-133)
	5. Faulty rf tuner (Z105) inductance rotor contact; intermittent operation	5. Clean contacts with cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007
	6. Faulty electrical alignment	6. Check according to para 5-56
5. Abnormal indication at test point J114 (-2 vdc minimum) - Keyed	1. Faulty mechanical alignment	1. Check according to para 5-53 and 5-54
	2. Faulty tube V105	2. Replace tube V105
	3. Faulty operating voltage	3. Check supply M701 (+325 vdc)
	4. Faulty rf tuner (Z106) inductance rotor contact; intermittent operation	4. Clean contacts with cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007
	5. Faulty components	5. Make circuit check (fig 5-140)
	6. Faulty electrical alignment	6. Check according to para 5-56
6. Abnormal indication at test point J111 (-12 vdc minimum normal indication) - Keyed	1. Faulty mechanical alignment	1. Check according to para 5-53 and 5-54
	2. Faulty tube V105	2. Replace tube V105

Table 5-19. RF and PA Troubleshooting Procedures (Transmit) (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
	3.Faulty operating voltage	3.Check voltage supply
	4.Faulty components	4.Make resistance checks
	5.Faulty rf tuner (Z107) inductance rotor contact; intermittent operation	5.Clean contacts with cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007
	6.Faulty electrical alignment	6.Check according to para 5-56
7.Power loss exceeds 5 watts between J115 and J701	1.Antenna transfer relay K101	1.Repair/replace (fig 5-1, 5-4)
	2.FL1101 defective	2.Replace
	3.Broken solder connections on direction coupler (input & output jack)	3.Repair/replace
	4.W7 defective (fig 5-19)	4.Repair/replace

TUBE	PIN NO. (Disconnect P101)								
	1	2	3	4	5	6	7	8	9
V101	66K	10	0.6	0	66K	66K	∞	-	-
V102	∞	53	0	0.6	∞	∞	∞	-	-
V103	∞	96	0	0.6	∞	∞	∞	-	-
	(Filament)	(Filament)	(Cathode)	(Grid)	(Plate)	∞			
V104	0	0	68	98K	∞	∞	-	-	-
	(Filament)	(Filament)	(Cathode)	(Grid)	(Plate)	∞			
V105	0	0.7	150	1K	∞	∞	-	-	-
V106	∞	0	∞	0	0	0	0	0	-

Table 5-20. RF and PA Intermittent Operations (Transmit)

CAUSE	CURE
Inadequate ground for C107, C115, C122, C127, and C141	Remove RF & PA. Insert small screwdriver into the bottom side of trimmer capacitors and rotate ccw until threaded portion clears slotted portion of mount.

Table 5-20. RF and PA Intermittent Operations (Transmit) (Continued)

CAUSE	CURE
	CAUTION Trimmer capacitor is glass foil. Carefully bend slotted portions of mount together. Insert small screwdriver into the bottom side of trimmer capacitor and rotate cw until threaded screw extends above mount. Reinstall RF & PA.
Dirty wiper contacts on Z101, Z103, Z105, and Z106 inductors	Remove RF & PA. Remove cover. Clean inductor rings with a cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007. Reinstall covers. Reinstall RF & PA.
Dirty wiper surface on Z107; or poor contact	Remove RF & PA. Remove covers. Clean inductor surface with cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007. Check centering of capacitor stator plate between rotor plates. Reinstall covers. Reinstall RF & PA.
Dirty grounding contacts on main tuning capacitor shaft	Remove RF & PA. Remove covers. Clean shaft with cleaner/lubricant such as CRAMOLIN, FSN 9G6850-880-7007. Reinstall covers. Reinstall RF & PA.

5-59. AUDIO AMPLIFIER AND MODULATOR CHECKS, ADJUSTMENTS, AND TROUBLESHOOTING. Alignment procedures need be performed only when indicated by unsatisfactory results received during checks. Troubleshooting is performed as required.

5-60. Modulator Audio Level Check. No mechanical checks or alignments are required. Set up RT-581 as in paragraph 5-25. Refer to figures 5-15, 5-52, 5-53, and 5-146 for the physical and electrical location of test points. Use Audio Oscillator AN/URM-127, Electronic Voltmeter AN/USM-143, Power Meter AN/URM-43( ), and Impedance Matching Network (illustrated in table 5-3) during the following procedures:

a. Remove tube V802 from Audio Amplifier and Modulator assembly (fig 5-52).

b. Apply a 1000Hz audio signal to terminals B and C of AUDIO connector J704 through the impedance matching network.

c. Set AN/USM-143 to .1 vac range and connect to green test point J805.

d. Key to transmit; set output level of AN/URM-127 for .08 vac indication on AN/USM-143.

e. Unkey transmitter.

WARNING

High voltage (+325 vac) that is dangerous to life is present at test point J803.

f. Set AN/USM-143 to 300V ac range, and connect ac probe to orange test point J803.

g. Key to transmit and observe indication on AN/USM-143 (210 vac).

h. Unkey transmitter; reinstall V802.

i. Key to transmit; observe indication on AN/USM-143 (200 vac).

j. Unkey transmitter; remove test equipment.

5-61. Modulator Audio Level Adjustment. Set up for RT-581 as in paragraph 5-25. Refer to figures 5-15, 5-17, 5-52, 5-53, and 5-146 for the physical and electrical location of adjustments and test points. Use Audio Oscillator AN/URM-127, Electronic Voltmeter AN/USM-143, Power Meter AN/URM-43( ), and Impedance Matching Network (illustrated in table 5-3) during the following procedures.

NOTE

If indications are abnormal, refer to Audio Amplifier and Modulator troubleshooting (paragraph 5-63).

a. Remove tube V802 from Audio Amplifier and Modulator assembly (fig 5-52).

b. Apply a 1000 Hz audio signal to terminals B and C of AUDIO connector J704 through the impedance matching network.

c. Set AN/USM-143 to .1V ac range and connect to green test point J805.

d. Key to transmit; set level on AN/URM-127 for .08 vac indication on AN/USM-143.

e. Unkey transmitter

WARNING

High voltages (+325 vdc) that is dangerous to life is present at J803.

f. Set AN/USM-143 to 300V ac range; connect ac probe to orange test point J803.

g. Key to transmit; adjust R831 for 210 vac on AN/USM-143.

h. Unkey transmitter; reinstall V802.

i. Key to transmit; adjust R839 for 200 vac on AN/USM-143.

j. Unkey transmitter; remove all test equipment except AN/URM-43( ).

k. Connect handset to AUDIO connector J704.

l. Key to transmit; adjust R609 (fig 5-17) on Relay-Filter assembly and set VOLUME control (R717) for desired level in handset earpiece while speaking into mouthpiece.

m. Unkey transmitter; remove test equipment.

5-62. Retransmit Audio Level Check and Adjustment.

NOTE

This check is to be made only if a companion AN/URC-9 is installed to provide retransmit operation.

Set up RT-581 as in paragraph 5-25, except as instructed below. Refer to figures 5-15, 5-17, 5-52, 5-54, and 5-146 for physical and electrical location of test points. Use RF Signal Generator AN/USM-44, Electronic Voltmeter AN/USM-143, 6db attenuator, and Power Meter AN/URM-43( ) during the following procedures:

NOTE

Identify AN/URC-9 as SET #1 and SET #2 for this procedure.

a. Connect AN/URM-43( ) to ANT connector J701 on AN/URC-9 designated SET #1.

b. Set MANUAL FREQUENCY SELECTOR TENS, UNITS, and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S706, S707, S708) to 390.0 (or 390.00) on SET #1.

c. Set MODE SELECTOR switch (S702) to RETRANS on SET #1.

d. Deenergize SET #2 and remove Relay-Filter, reconnect Relay-Filter, using extension cable CX-8521; reenergize SET #2.

e. Set MANUAL FREQUENCY SELECTOR TENS, UNITS, and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S706, S707, and S708) to 399.9 (or 399.95) on SET #2.

f. Remove V802 (fig 5-52) from SET #2.

g. Set AN/USM-143 to 1V ac range; connect to contact number 12 of K602 (fig 5-54).

h. Connect AN/USM-44 through 6db attenuator to ANT connector J701 on SET #2; adjust AN/USM-44 for an 8 microvolt, 1000 Hz, 30% modulated signal at 399.9 MHz (or 399.95 MHz).

i. Observe that SET #1 keys to transmit and level on AN/USM-143 is .1 vac.

j. Adjust R608 (fig 5-17) if .1 vac indication is not obtained in step i. This completes check and adjustment of retransmit audio level for SET #2. Reinstall V802.

k. To check SET #1, reverse designation and repeat steps a through j.

5-63. Audio Amplifier and Modulator Troubleshooting (Transmit). (Figures 5-1, 5-3, 5-10, 5-133, and 5-146.) Troubleshoot the Audio Amplifier and Modulator in accordance with procedures in table 5-21.

Table 5-21. Audio Amplifier and Modulator Troubleshooting Procedures (Transmit)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
1. Abnormal indication at green test point J805 (.08 vac); V802 removed; using signal generator audio input	1. Microphone input circuitry	1. Make circuit checks (fig 5-146)
	2. Microphone transformer T601 or other component	2. Make resistance checks; replace if defective
	3. Excessive hum pick-up; improper shielding and grounding of matching network	3. Check shielding and grounding of matching network (fig 5-10)
2. Abnormal indication at orange test point J803 (210 vac normal with .08 vac input); V802 removed.	1. Faulty tubes V803 thru V808	1. Replace tubes V803 thru V808, one at a time
	2. Faulty operating voltage	2. Check supply at M701 (+125 and +325 vdc) and at tube sockets (fig 5-133)
	3. Faulty components	3. Make circuit checks (fig 5-146)
3. Abnormal indication at orange test point J803 (200 vac); V802 replaced	1. Faulty tube V802	1. Replace tubes
	2. Faulty components (compression circuit)	2. Check compression circuit components

Table 5-21. Audio Amplifier and Modulator Troubleshooting Procedures (Transmit) (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED							
		PIN NUMBER (Disconnect P801)							
	TUBE	1	2	3	4	5	6	7	8	9
	V801	0	390	4M	400K	-	15K	400K	5.2K	0
	V802	0	13K	340K	5K	-	210K	210K	14K	0
	V803	47K	720	0	0	58K	40K	720	-	-
	V804	0	820	200K	15K	-	15K	200K	820	0
	V805	-	15K	12K	0	0	470	2.3	12K	2.3
	V806	-	15K	12K	0	0	470	2.3	12K	2.3
	V807	-	15K	12K	0	0	470	2.3	12K	2.3
	V808	-	15K	12K	0	0	470	2.3	12K	2.3

5-64. FREQUENCY SELECTOR ALIGNMENT AND ADJUSTMENT. The Frequency Selector alignment and adjustment consist of mechanical checks and adjustments. No electrical checks are required.

5-65. Frequency Selector Mechanical Check. Set up RT-581 as in paragraph 5-25 and perform the following procedures:

NOTE

Steps a through h verify proper mechanical operation on the Frequency Selector from the RT-581 front panel. To verify operation from a remote frequency selecting (dialing) station, follow remote system checkout procedures.

a. Position RT-581 top side up (fig 5-13). Check that FMO male coupler 01291 and RF and PA male coupler 01292 (fig 5-72) mating elements are vertical, centered under black guide posts, and the cutout on each coupler is in the upper right corner as viewed from front of RT-581. Check that FMO coupler keeper pin and RF and PA coupler keeper pin are in same quadrant as the cutouts on the Frequency Selector couplers.

b. Position RT-581 right side up (fig 5-19). Check that 2nd IF Amplifier male coupler (01295, fig 5-72) and 1st IF Amplifier couplers (01293 and 01294, fig 5-72) mating elements are vertical, centered under black guide posts, and the cutout on each coupler is in the upper right corner as viewed from front of RT-581. Check that 2nd IF Amplifier and 1st IF Amplifier coupler keeper pins are in same quadrant as the cutouts on the Frequency Selector couplers.

NOTE

Check that couplers rotate 360° in steps c, d and e.

c. Operate MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708) counterclockwise in steps from .9 to .0 (or .95 to .00). Allow Frequency Selector to come to a complete stop. Return switch to the .9 (or .95 position.

d. Operate MANUAL FREQUENCY UNITS switch (S707) counterclockwise in steps from 9 to 0. Allow frequency Selector to come to a complete stop at each step. Return switch to the 9 position.

e. Operate MANUAL FREQUENCY TENS switch (S706) counterclockwise in steps from 39 to 22. Allow Frequency Selector to come to a complete stop at each step. Return switch to the 39 position.

f. Check that the five male couplers (01291 through 01295) are centered under the black guide posts as noted in steps a and b. The Bristol head screws of the coupler locking collar should be accessible for adjustment at this position.

g. Operate CHAN SEL switch counterclockwise in steps from 19 to 1. At each step, check that channel and frequency indicators (I1201 through I1204, fig 5-70) indicate correct channel numbers and the preset frequency for that channel.

h. Set CHAN SEL SWITCH to MANUAL and operate MANUAL FREQUENCY TENS, UNITS, and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S706, S707, S708) to 399.9 (or 399.95).

5-66. Frequency Selector Mechanical Adjustments. The Frequency Selector mechanical adjustments include synchronization of the autopositioners and relay and pawl adjustments.

a. Autopositioner Synchronization. These procedures must be performed when one or more of the couplers (01291 through 01295) operate in an abnormal manner.

1. Operate MANUAL FREQUENCY TENS, UNITS, and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches through their range from high frequency to low frequency while observing the appropriate coupler. A smooth rotation of the coupler in one direction indicates normal operation. A momentary reversal of direction or wavering indicates abnormal operation.

2. Set the CHAN SEL switch to 1 and set the pins on memory drum to 220.0 (or 220.00). (This sets channel 5).

3. Set CHAN SEL switch to 5. Observe that channel 5 appears in channel window and 220.0 (or 220.00) appears in frequency windows.

4. Deenergize radio set. Remove front panel as in paragraph 5-165.

5. To synchronize the TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) autopositioner at .0 (or .00), locate cam 01297 and cam follower 01299.9 (fig 5-68).

6. Loosen clamp 01244 (fig 5-68) and set cam follower on the high point of the cam as indicated by scribe mark on cam. Tighten clamp 01244.

7. Loosen clamp 01238 (fig 5-71), center the notch in the rotor of S1204 over the clip with the black wire (fig 5-79).

8. Tighten clamp 01238.

9. To synchronize the UNITS autopositioner at 0.0, locate cam follower 01299.4 and cam 01299.26 (fig 5-68 and 5-69). The scribe mark on this cam and the cam follower roller are visible through an inspection hole located just above and to the left of UNITS indicator wheel I1203 (fig 5-69 and 5-70).

10. Loosen clamp 01242 (fig 5-68). As viewed through the inspection hole, set the cam follower on the high point of the cam as indicated by the scribe mark; tighten clamp 01242.

11. Loosen clamp 01243 (fig 5-68); center the notch in the rotor of switch S-1203 over the clip with the black wire (fig 5-79).

12. Tighten clamp 01243.

NOTE

Steps 5 through 12 complete synchronization of the TENTHS (or TENTHS-HUNDREDTHS) and UNITS autopositioners.

13. Synchronization of the TENS autopositioner requires extensive disassembly procedures which are not

recommended for shipboard accomplishment. If TENS synchronization is indicated, replace the entire Frequency Selector and submit the defective one for depot repair.

b. Relay K1201, K1202, K1203, K1204 and Pawl Adjustments. These adjustments and observations should be made whenever the front panel is removed for other servicing or whenever relay adjustments are indicated. It is assumed that the front panel has been removed and the radio set is deenergized.

1. Locate relays K1201, K1202, K1203, and K1204 (fig 5-69 and 5-70). Note that the armature of each relay actuates a set of contacts. Note also that behind each relay coil is a notched stopwheel and that a pawl, actuated by the relay armature, engages or seats in the notches. Pawl action in the notches is directly observable on relays K1203 and K1204, therefore, make observations and adjustments first on these two relays.

2. Depress armature of K1203 with finger. Note that relay contacts close and that pawl is disengaged from notch.

3. Release armature of K1203 and note that pawl is fully seated in notch. Measure gap between relay contacts, Gap must be .030 inch minimum with armature released (deenergized) and pawls fully seated.

4. After gap adjustment, repeat step 2 to verify that contacts close and pawl disengages.

5. Repeat steps 2, 3 and for relays K1204, K1201 and K1202.

6. Replace front panel and restore equipment to normal operation.

5-67. THIRD IF AMPLIFIER AND AUDIO AMPLIFIER AND MODULATOR CHECK AND TROUBLESHOOTING (RECEIVE). The 3rd IF Amplifier and Audio Amplifier and Modulator do not require any mechanical checks or mechanical alignments.

5-68. Third IF Amplifier and Audio Amplifier and Modulator Check (Receive). Set up RT-581 as in paragraph 5-25. Refer to figures 5-15, 5-16, 5-46, 4-49, 5-52, 5-53, 5-65, 5-145, and 5-146 for physical and electrical location of test points. Use Electronic Voltmeter AN/USM-143, Electronic Frequency Counter AN/USM-207, RF Signal Generator AN/URM-25, and 600 ohm 5 watt resistor during the procedures that follow. Refer to paragraph 5-69 in case of abnormal indications.

NOTE

Modulator audio level checks and adjustments (transmit function) in paragraph 5-60 and 5-61 must be made prior to making the receive function check.

a. Position RT-581 bottom side up (fig 5-16).

b. Connect 600 ohm resistor across terminals A and B of AUDIO connector J704 (fig 5-65).

c. Set SQUELCH control to OFF; VOLUME control to position 5 (fig 5-65); and R819 (fig 5-15) fully counterclockwise.

d. Set AN/USM-143 to +10db range and connect across 600 ohm resistor.

e. Set AN/URM-25( ) for 500 kHz (check frequency with AN/USM-207) unmodulated output and connect to orange test point J503.

f. Adjust R819 for zero db noise level reference setting (-10db indication on AN/USM-143).

g. Set AN/URM-25 for 30% modulation of 1000 Hz and adjust output until a 10db increase over the noise level reference setting of step f is obtained. This is a 10db S+N/N ratio.

h. Output voltage of AN/URM-25( ) should not exceed 16 uv.

i. Remove test equipment.

5-69. Third IF Amplifier and Audio Amplifier and Modulator Troubleshooting (Receive). (Figures 5-2, 5-9, 5-134, and 5-145). Perform 3rd IF Amplifier and Audio Amplifier and Modulator troubleshooting in accordance with procedures in table 5-22.

Table 5-22. Third IF Amplifier and Audio Amplifier and Modulator Troubleshooting Procedures (Receive)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
1. Unable to achieve 10db $\frac{S+N}{N}$ ratio with 16 uv signal injected at orange test point J503	1. Faulty test setup	1. Recheck test equipment connections and set-up
	2. Faulty tubes V501, V502, V503, or V504	2. Replace tubes one at a time
	3. Faulty operating voltages	3. Check supply at M701 (+125 and +275 vdc) and tube sockets (fig 5-134)
	4. Faulty audio amplifier	4. Refer to para 5-59
	5. Faulty components	5. Make circuit check and audio checks through: receive path of 3rd IF Amplifier; squelch relay K801; and broadband relay K803 (fig 5-2, 5-9, 5-145)
	6. Faulty cables: from P501/J5 into J8/P801 (Modulator); J8 to J14 Relay-Filter; from Relay-Filter J14 to Front Panel J15; and VOLUME control to HEADSET	6. Repair/replace cable, connector and check audio path through Relay-Filter
	7. Faulty K602 in Relay-Filter	7. Repair/replace

5-70. SECOND IF AMPLIFIER CHECK AND TROUBLESHOOTING (RECEIVE). The 2nd IF Amplifier does not require any mechanical checks or mechanical adjustment.

5-71. Second IF Amplifier Electrical Check (Receive). Set up RT-581 as in paragraph 5-25. Refer to figures 5-14, 5-15, 5-41, 5-49, 5-65, 5-143, and 5-144 for the physical and electrical location of test points. Use Electronic Voltmeter AN/USM-143, RF Signal Generator AN/URM-25( ), Electronic Frequency Counter AN/USM-207, and 600 ohms 5 watt resistor during the procedures that follow. Refer to paragraph 5-72 in case of abnormal indication.

NOTE

The 2nd IF Amplifier checks and alignment in transmit (paragraphs 5-32 through 5-35) must be made prior to making this receive function check.

NOTE

The 3rd IF Amplifier and Audio Amplifier and Modulator must be operating satisfactorily before making this check.

a. Position RT-581 right side up (fig 5-14).

b. Connect 600 ohm resistor across pins A and B of AUDIO connector J705 (fig 5-65).

c. Set SQUELCH control OFF; VOLUME control to position 5 (fig 5-65); and R819 (fig 5-15) fully counterclockwise.

d. Set AN/USM-143 to +10db range and connect across 600 ohm resistor.

e. Set AN/URM-25( ) for 3.9 MHz (check frequency with AN/USM-207) unmodulated output and connect to red test point J402.

NOTE

Injection of 3.9 MHz at J402 will mix at V401 to produce 500 kHz 3rd if frequency.

f. Adjust R819 for a zero db noise level reference setting (-10db indication on AN/USM-143.

g. Set AN/URM-25( ) for 30% modulation at 1000 Hz and adjust output until a 10db increase over the noise level reference setting of step f is obtained. This is a 10db S+N/N ratio.

h. Output voltage of AN/URM-25( ) should not exceed 100 uv.

i. Repeat steps c through h using 3.0 MHz frequency as in step e, and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708) set to .0 (or .00).

j. Remove test equipment.

k. Connect AN/USM-207 to yellow test point J404.

l. Operate MANUAL FREQUENCY TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708) in steps from .9 to .0 (or .95 to .00); check that frequency indication on AN/USM-207 corresponds to table 5-23.

Table 5-23. Second IF Amplifier Frequencies at J404 Output

TENTHS/TENTHS-HUNDREDTHS SWITCH POSITION	AN/USM-207 INDICATION AND CRYSTAL FREQUENCY (MHz)	FREQUENCY TOLERANCE (±Hz)
AN/URC-9		
.9	3.4	170
.8	3.3	165
.7	3.2	160
.6	3.1	155
.5	3.0	150
.4	3.9	195
.3	3.8	190
.2	3.7	185
.1	3.6	180
.0	3.5	175
AN/URC-9A		
.95	3.45	172.5
.90	3.40	170.0
.85	3.35	167.5
.80	3.30	165.0

Table 5-23. Second IF Amplifier Frequencies at J404 Output (Continued)

TENTHS/TENTHS-HUNDREDTHS SWITCH POSITION	AN/USM-207 INDICATION AND CRYSTAL FREQUENCY (MHz)	FREQUENCY TOLERANCE (±Hz)
AN/URC-9A(Cont)		
.75	3.25	162.5
.70	3.20	160.0
.65	3.15	157.5
.60	3.10	155.0
.55	3.05	152.5
.50	3.00	150.0
.45	3.95	197.5
.40	3.90	195.0
.35	3.85	192.5
.30	3.80	190.0
.25	3.75	187.5
.20	3.70	185.0
.15	3.65	182.5
.10	3.60	180.0
.05	3.55	177.5
.00	3.50	175.0

5-72. Second IF Amplifier Troubleshooting (Receive). (Figures 5-2, 5-7, 5-134, 5-143, and 5-144). Perform 2nd If Amplifier Troubleshooting in accordance with procedures in table 5-24.

Table 5-24. Second IF Amplifier Troubleshooting Poocedures (Receive)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
1.Unable to achieve 10db (S+N/N) ratio with 100 uv (max) signal (3.9 or 3.0 MHz) injected at red test point J402	1.Faulty test setup	1.Recheck test equipment and setup
	2.Faulty 3rd IF Amplifier	2.Check 3rd IF Amplifier (para 5-67)
	3.Faulty 2nd IF Amplifier	3.Check 2nd IF Amplifier (Transmit) (para 5-31)
	4.Faulty 500 kHz filter FL901 or cables W5 and W502	4.Replace filter (fig 5-2, 5-7, 5-8)
2.Abnormal frequency indication at yellow test point J406 (see table 5-23)	1.Faulty crystals	1.Refer to crystal replacement (para 5-126)
	2.Faulty relay K401	2.Replace relay (fig 5-143, 5-144)
	3.Faulty relay K402 (AN/URC-9A only)	3.Replace relay (fig 5-144)

5-73. FIRST IF AMPLIFIER ALIGNMENT, ADJUSTMENT, AND TROUBLESHOOTING (RECEIVE). The 1st IF Amplifier does not require any mechanical checks or adjustments.

5-74. First IF Amplifier Electrical Check (Receive). Set up RT-581 as in paragraph 5-25. Refer to figures 5-14, 5-15, 5-41, 5-65, and 5-142 for the physical and electrical location of test points. Use Electronic Voltmeter AN/USM-143, RF Signal Generator AN/USM-44, Electronic Frequency Counter AN/USM-207, and 600 ohm 5 watt resistor during the procedures that follow. Refer to paragraph 5-76 in case of abnormal indication.

NOTE

This check does not include coil assemblies Z301 and Z302. Z301 and Z302 are covered in 1st IF Amplifier alignment (receive) in paragraph 5-75.

NOTE

The 1st IF Amplifier checks and alignments in paragraphs 5-37 through 5-41 must be made prior to making this receive function check.

NOTE

The 2nd IF Amplifier and 3rd IF Amplifier and Audio Amplifier and Modulator must be operating satisfactorily before making this check.

a. Position RT-581 right side up (fig 5-14).

b. Connect 600 ohm resistor across terminals A and B of AUDIO connector J704 (fig 5-65).

c. Set SQUELCH control to OFF; VOLUME control to position 5 (fig 5-65); and R819 (fig 5-15) fully counterclockwise.

d. Set AN/USM-143 to +10db range and connect across 600 ohm resistor.

e. Set AN/USM-44 to 29.9 MHz (check frequency with AN/USM-207) unmodulated output and connect to brown test point J301 (fig 5-41).

f. Adjust R819 for a zero db noise level reference setting (-10db indication on AN/USM-143).

g. Set AN/USM-44 for 30% modulation at 1000 Hz and adjust output until a 10db increase over the noise level reference setting of step f is obtained. This is a 10db S+N/N ratio.

h. Output voltage of AN/USM-44 should not exceed 16 uv.

i. Repeat steps c through h using 20.0 MHz frequency as in step e, and UNITS and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S707, S708,) set to 0.0 (or 0.00).

j. Remove test equipment.

5-75. First IF Amplifier Electrical Alignment (Receive). Set up RT-581 as in paragraph 5-25. Refer to figures 5-13, 5-14, 5-41 through 5-45, 5-49, 5-142, and 5-145 for physical and electrical location of adjustments and test points. Use Electronic Multimeter AN/USM-116, RF Signal Generator AN/USM-44, Electronic Frequency Counter AN/USM-207, and Tuning Tool FSN 9Q5120-720-1908 during the following procedures:

NOTE

The 1st IF Amplifier checks and alignment in paragraphs 5-37 through 5-41 must be made prior to making this alignment.

NOTE

The 2nd IF Amplifier, 3rd IF Amplifier, FMO, and Audio Amplifier and Modulator must be operating satisfactorily before making this alignment.

a. Position RT-581 right side up (fig 5-14).

b. Set AN/USM-44 to 399.9 MHz (check frequency with AN/USM-207) modulated 30% at 1000 Hz and connect to green test point J105.

c. Set AN/USM-116 for DC voltage, 3V range; connect dc probe to yellow test point J504 on 3rd IF Amplifier (fig 5-49).

d. Adjust output of AN/USM-44 for an indication of -2 vdc on AN/USM-116.

e. Adjust C302 for maximum indication on AN/USM-116.

f. Set MANUAL FREQUENCY UNITS and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches (S707, S708) to 0.0 (or 0.00).

g. Set AN/USM-44 to 390.0 MHz (check frequency with AN/USM-207) modulated 30% at 1000 Hz. Adjust output for an indication of -2 vdc on AN/USM-116.

h. Adjust L301 for maximum indication on AN/USM-116.

i. Repeat procedure in steps b through h until no further improvement is noted.

j. Remove test equipment.

5-76. First IF Amplifier Troubleshooting (Receive). (Figures 5-2, 5-6, 5-134, and 5-142). Perform 1st IF Amplifier troubleshooting in accordance with procedures in table 5-25.

NOTE

Check transmit function of 1st IF Amplifier according to procedure given in paragraphs 5-37 through 5-41 before using procedures in Table 5-25. Refer to paragraph 5-44 for transmit troubleshooting procedures.

5-77. FREQUENCY MULTIPLIER-OSCILLATOR (FMO) ALIGNMENT AND ADJUSTMENT (RECEIVE). The FMO is checked and aligned in paragraphs 5-45 through 5-49. No further checks or adjustments are required.

5-78. RF AND PA CHECK AND TROUBLESHOOTING (RECEIVE). The RF and PA does not require any mechanical checks or adjustments.

Table 5-25. First IF Amplifier Troubleshooting Procedures (Receive)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
1. Unable to achieve 10db S+N/N ratio with 16 uv (max) signal injected at brown test point J301	1. Faulty test setup	1. Recheck test equipment, connectors and setup
	2. Faulty 3rd IF or 2nd IF Amplifiers	2. Check 3rd and 2nd IF Amplifiers (Check 2nd IF Amplifier in transmit)
	3. Faulty relay contact K102	3. Repair/replace K102 (fig 5-142)
	4. Faulty adjustment of Z301 and Z302	4. Recheck alignment of Z301 and Z302
	5. Faulty cable W303 and connectors	5. Repair/replace cable and connectors (fig 5-2, 5-6)
	6. Faulty tubes V103 or V104	6. Replace tubes

Table 5-25. First IF Amplifier Troubleshooting Procedures (Receive) (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
	7.Faulty FMO output	7.Refer to para 5-45
2.Unable to adjust C302 or L301	Faulty Z301	Replace 1st IF Amplifier

5-79. RF and PA Electrical Check (Receive). Set up RT-581 as in paragraph 5-25. Refer to figures 5-15, 5-16, 5-65, and 5-146 for physical and electrical location of test points. Use Electronic Voltmeter AN/USM-143, Electronic Frequency Counter AN/USM-207, RF Signal Generator AN/USM-44, 6db attenuator, and 600 ohm 5 watt resistor during the procedures that follow. Refer to paragraph 5-80 in case of abnormal indications.

NOTE

The RF and PA checks and alignment in paragraphs 5-53 through 5-56 must be made prior to making this receive function check.

NOTE

The 1st IF Amplifier, 2nd IF Amplifier, 3rd IF Ampiifier, FMO, and Audio Amplifier and Modulator must be operating satisfactorily before making this check.

CAUTION

Do not key to transmit.

a. Position RT-581 top side up (fig 5-16).

b. Connect 600 ohm resistor across pins A and B of AUDIO connector J704 (fig 5-65).

c. Set SQUELCH control to OFF: VOLUME control to position 5 (fig 5-65); and R819 (fig 5-15) fully counterclockwise.

d. Set AN/USM-143 to +10db range and connect across 600 ohm resistor.

e. Set AN/USM-44 for 399.9 MHz (check frequency with AN/USM-207) unmodulated output and connect to ANT connector J701 (fig 5-65) through the 6db attenuator.

f. Adjust R819 (fig 5-15 and 5-146) for a zero db noise level reference setting (-10db indication on AN/USM-143).

g. Set AN/USM-44 for 30% modulation at 1000 Hz and adjust output until a 10db increase over the noise level reference setting of step f is obtained. This is a 10db S+N/N ratio.

h. Output voltage of AN/USM-44 should not exceed 6 uv.

i. Set AN/USM-143 to +40db range.

j. Adjust AN/USM-44 for 6 uv output, 30% modulation at 1000 Hz.

k. Adjust R819 for -7db indication on AN/USM-143.

l. Remove test equipment.

NOTE

This check is also an overall receiver sensitivity check. For a complete check of the receive signal path, connect the AN/USM-44( ) to the ANT connector (J502 on the AM-1565).

5-80. RF and PA Troubleshooting (Receive). (Figures 5-2, 5-4, 5-134, and 5-140). Perform RF and PA troubleshooting in accordance with procedures in table 5-26.

Table 5-26. RF and PA Troubleshooting Procedures (Receive)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
NOTE: Check RF and PA according to paragraphs 5-53 through 5-56 before using this procedure. Refer to paragraph 5-57 for transmit troubleshooting procedures.		
Greater than 6 microvolts necessary to achieve 10db (S+N/N ratio)	1. Faulty relay contacts K101 and K102	1. Continuity check (fig 5-140); replace if necessary
	2. Faulty tubes V102 V103 and V104	2. Check tubes one at a time
	3. Faulty components	3. Refer to para 5-57; check cables and connectors; and directional coupler between J701 and K101 (fig 5-2)

5-81. SQUELCH LEVEL CHECK, ALIGNMENT, AND TROUBLESHOOTING (RECEIVE). There are no mechanical squelch level checks and alignments.

5-82. Carrier Squelch Level Check (Receive). Set up RT-581 as in paragraph 5-25. Use RF Signal Generator AN/USM-44( ) and a 6db attenuator during the following procedures:

CAUTION
Do not key transmitter

a. Connect AN/USM-44( ) through 6db attenuator to ANT connector J701 (fig 5-65).

b. Set METER switch (S701) to S METER position; MODE switch (S702) to RETRANS; and SQUELCH control (R702) to OFF.

c. With no signal input, operate MANUAL FREQUENCY TENS switch (S706) through its range; set to position with highest S METER indication. Repeat with UNITS switch (S707); then with TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708).

d. Set AN/USM-44( ) to frequency indicated on MANUAL FREQUENCY TENS, UNITS, and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches, and adjust output to 90 uv, 30% modulated at 1000 Hz. Adjust AN/USM-44( ) frequency slightly for maximum S METER reading.

e. Set SQUELCH control (R702) fully clockwise and observe that CALL LIGHT is off.

f. Increase AN/USM-44( ) output and observe that CALL LIGHT comes on at 100 uv.

5-83. Carrier Squelch Level Electrical Alignment (Receive). Set up RT-581 as in paragraph 5-25. Refer to figures 5-16, 5-65, 5-150, and 5-151 for physical and electrical location of adjustments and test points. Use RF Signal Generator AN/USM-44( ) and a 6 db attenuator during the procedures that follow. Refer to paragraph 5-86 in case of abnormal indications.

CAUTION
Do not key transmitter.

a. Connect AN/USM-44( ) through 6db attenuator to ANT connector J701 (fig 5-65).

b. Set METER switch (S701) to S METER position; MODE switch (S702)) to RETRANS, and SQUELCH control R702 to the OFF position.

c. With no signal input, operate MANUAL FREQUENCY TENS switch (S706) through its range and set to position with highest S METER reading. Repeat with UNITS switch (S707); then with TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switch (S708).

d. Set AN/USM-44( ) to frequency indicated on MANUAL FREQUENCY TENS, UNITS, and TENTHS (or TENTHS-HUNDREDTHS on AN/URC-9A) switches, and adjust output to 100 uv, modulated 30% ot 1000 Hz. Adjust AN/USM-44( ) frequency slightly for maximum S METER reading.

e. Set SQUELCH control (R702) fully clockwise.

f. Set R716 (fig 5-16, 5-150 and 5-151) counterclockwise until CALL LIGHT comes on.

g. Reduce AN/USM-44( ) output, and check that CALL LIGHT goes out. Slowly increase AN/USM-44( ) output and check that CALL LIGHT comes on at 100 uv.

5-84. Signal-Plus-Noise To Noise (S+N/N) Squelch Check (Receive). Set up RT-581 as in paragraph 5-25. Refer to figure 5-65. Use RF Signal Generator AN/USM-44( ), Electronic Voltmeter AN/USM-143, a 600 ohm 5 watt resistor, and a 6 db attenuator during the following procedures:

NOTE

Factory-wired equipment has S+N/N squelch set up on NOR position of MODE switch S702; equipment in the field may have been changed for carrier squelch operation.

CAUTION

Do not key transmitter.

a. Connect AN/USM-44( ) through 6db attenuator to ANT connector J701.

b. Connect 600 ohm 5 watt resistor to AUDIO Connector J704 pins A and B.

c. Set AN/USM-143 to ac range; connect probe across the 600 ohm resistor.

d. Set AN/USM-44( ) to 399.9 MHz (or 399.95 MHz), modulated 30% at 1000 Hz; adjust output of AN/USM-44( ) for an indication on S METER,

e. Fine tune AN/USM-44( ) frequency for maximum indication on S METER,

f. Decrease AN/USM-44( ) output to zero.

g. Set VOLUME control fully clockwise and set SQUELCH control to OFF.

h. Increase AN/USM-44( ) output from zero microvolts for an indication on AN/USM-143.

i. Continue increasing AN/USM-44( ) output while alternately switching MOD SELECTOR switch from 1000 Hz to CW until the ratio of audio output with modulation to the audio output without modulation is 10db. Observe AN/USM-44( ) output level required to produce the 10db S+N/N ratio.

j. Rotate squelch control clockwise until SQUELCH DISABLE switch (S703) clicks.

k. Reduce AN/USM-44( ) output until CALL LIGHT goes off. Slowly increase AN/USM-44( ) output to level observed in step i; CALL LIGHT should come on at this point. There should be 10db S+N/N ratio between level when the CALL LIGHT goes off and the level when the CALL LIGHT comes one.

5-85. Signal-Plus-Noise To Noise S+N/N N) Squelch Electrical Alignment (Receive). Set up RT-581 as in paragraph 5-25. Refer to figures 5-15, 5-65, and 5-146 for physical and electrical location of adjustments and test points. Use RF Signal Generator AN/USM-44( ), Electronic Voltmeter AN/USM-143, 600 ohm

5 watt resistor, and a 6 db attenuator during the following procedures:

NOTE

Factory-wired equipment has S+N/N squelch set up on NOR position of MODE switch S702; equipment in the field may have been changed for carrier squelch operation.

CAUTION

Do not key transmitter.

a. Connect AN/USM-44( ) through 6db attenuator to ANT connector J701.

b. Connect 600 ohm 5 watt resistor to AUDIO connector J704 terminals A and B.

c. Set AN/USM-143 to ac range; connect probe across the 600 ohm resistor.

d. Set AN/USM-44( ) to 399.9 MHz, modulated 30% at 1000 Hz, adjust output of AN/USM-44( ) for an indication on S METER.

e. Fine tune AN/USM-44( ) frequency for maximum indication on S METER.

f. Decrease AN/USM-44( ) output to zero.

g. Set VOLUME control fully clockwise and set SQUELCH control to OFF.

h. Increase AN/USM-44( ) output from zero microvolts for an indication on AN/USM-143.

i. Continue increasing AN/USM-44( ) output while alternately switching MOD SELECTOR switch from 1000 Hz to CW until the ratio of the audio output with modulation to the audio output without modulation of 10db. Observe AN/USM-44( ) output level required to produce the 10db S+N/N ratio.

j. Decrease AN/USM-44( ) output to zero.

k. Rotate R804 (fig 5-15 and 5-146) fully counterclockwise.

l. Rotate SQUELCH control (R702, fig 5-65) clockwise until SQUELCH DISABLE switch (S708) clicks.

m. Set AN/USM-44( ) to output level observed in step i.

n. Rotate R804 slowly clockwise until CALL LIGHT comes on.

o. Rotate AN/USM-44( ) output and check that CALL LIGHT goes out. Slowly increase AN/USM-44( ) output and check that CALL LIGHT comes on at output level observed in step i.

p. Adjust R804, while alternately, switching AN/USM-44( ) MODE SELECTOR Switch from 1000 Hz to CW until the ratio of the audio output with modulation to the audio output without modulation is 10db.

5-86. Squelch Level Troubleshooting (Receive). (Figures 5-2, 5-10, 5-134 and 5-146). Perform squelch level troubleshooting in accordance with procedures in table 5-27.

Table 5-27. Squelch Level Troubleshooting Procedures (Receive)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
1. Abnormal carrier squelch	1. Faulty tube V801	1. Replace V801

Table 5-27. Squelch Level Troubleshooting Procedures (Receive) (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
	2. Faulty components	2. Check squelch controls R702 and R716; check cables and squelch relay K801 (fig 5-146)
2. Abnormal $\frac{S+N}{N}$ squelch setting	Faulty component on $\frac{S+N}{N}$ circuit board	Make circuit checks (fig 5-2, 5-10, 5-134)

5-87. R/T CENTRIFUGAL FAN STROBE CHECK AND TROUBLESHOOTING. The following procedure is performed on R/T centrifugal fans that are not equipped with electronic speed increaser assemblies.

5-88. R/T Centrifugal Fan Strobe Check. Refer to figure 5-15 for physical location of the centrifugal fan. Use Strobotac CAG-1531A, FSN 2Z6680-799-7616 or FSN 2Z6680-880-1844 during the following procedures:

a. Remove RT-581 from case as in paragraph 5-121.

b. Place RT-581 with rear facing forward (fig 5-17).

c. Attach a small piece of masking tape to one of the squirrel cage fan blades (01004, fig 5-61).

d. Turn on Strobotac and set controls to measure approximately 8000 rpm.

e. Energize RT-581.

f. Strobe the fan; rpm should be 7000 or more. If speed is less than 7000 rpm, perform lubrication of centrifugal fan (paragraph 5-157).

NOTE

Motor speed should be 2900 to 3200 rpm at 115 vac 60 Hz input. Four-bladed fan on motor end may be strobed to determine this speed.

g. Remove masking tape from fan blade.

5-89. R/T Centrifugal Fan Troubleshooting. (Figures 5-57 through 5-61). Perform Centrifugal Fan troubleshooting in a accordance with procedures in table 5-28.

Table 5-28. R/T Centrifugal Fan Troubleshooting Procedures

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
Fan speed less than 7000 rpm	1. Lubrication required	1. Lubricate according to para 5-157
	2. Faulty speed increaser	2a. If replaceable type (small bronze coupler), replace speed increaser FSN IN3020-201-6906
		2b. If non-replaceable type (large phenolic coupler), replace entire blower assembly

5-90. RADIO SET CONTROL C-3866/SRC ADJUSTMENT AND TROUBLESHOOTING PROCEDURES.

NOTE

Mechanical adjustment should only be made after troubleshooting procedures indicate a need.

5-91. ADJUSTMENT OF PROGRAMMING RELAYS. The telephone-type programming relays, K201 through K205 and K209 (figures 5-119 and 5-121), may occasionally require adjustment and cleaning. Cleaning should be done with a standard burnishing tool. A small piece of bond paper may be substituted if no burnishing tool is available. In no instance should any file, sandpaper, or steel wool be used to clean relay contacts. If contacts require cleaning, place the contact burnisher between the contacts to be cleaned and pull it back and forth about four times. Normally closed contacts should be cleaned while under normal pressure. Adjust the relay contacts, if necessary, using relay adjustment pliers (or a pair of small needle-nose or chain-nose pliers). When the armature is operated by hand, there must be perceptible follow of the breaking contacts and perceptible deflection of the making contacts. The contact gaps must not be less than 0.010 inch.

5-92. ADJUSTMENT OF STEPPING RELAY K206. The stepping relay (figures 5-125 through 5-127) normally requires adjustment only after each 500,000 dialing operations. Because correct lubricant is important to continued reliable operation, lubrication instructions are included in paragraph 5-188. Lubrication should be performed after each estimated 100,000 operations, even if no mechanical adjustment is required.

5-93. Stepping Mechanism Adjustment. Adjust the stepping mechanism as follows:

a. Eliminate excessive forward play of the wiper tips by advancing the pawl stop toward the pawl until both touch (figures 5-125 and 5-126). Tighten the pawl screw carefully to avoid changing the adjustment.

NOTE

The pawl stop is located to the right of the ratchet and pawl.

b. Eliminate excessive reverse play of the wiper tips by moving the detent spring toward the ratchet, but not so far as to prevent its dropping freely into each ratchet tooth during manual stepping. Center the detent spring on the ratchet to ensure even wear.

c. Check to see that the armature arm rests against the armature backstop by inserting a 0.0015 inch feeler gauge between the armature arm and the backstop; the gauge should drag during removal. If the gauge does not drag, loosen the back stop screw and the nearest coil frame adjusting screw. Lift the backstop and backstop support against the armature, but not to the extent of lifting the pawl from its stop. After tightening the two screw, recheck for gauge drag and for positive action of the detent spring during manual stepping of the switch. An ideal adjustment is to have the armature arm and pawl strike their stops simultaneously.

5-94. Off-Normal Contacts. Inspect the off-normal contact (figure 5-126) for proper operation by performing the following steps:

a. Manually step the relay; on either side of the home position there should be clearance between the cam contact and the cam.

b. Manually step the relay slowly through both home positions. Check that the moving contact leaves the normally closed contact and then touches the normally open contact, causing the latter to be visibly deflected. The contacts must be separated by 0.008 inch minimum when open.

c. Make necessary adjustments by bending the fixed contacts at a point near the insulator stacks. Make adjustments a little at a time. It is better to adjust contacts by several small bends in the right direction than to overshoot and be forced to reverse-bend the contacts.

5-95. Interrupter and Auxiliary Contacts. Adjust the interrupter and auxiliary contacts as follows:

a. Operate the relay several times and check for smooth, fast, resetting of these contacts (figure 5-125). The normally closed contacts are used for self-interrupted resetting of the relay. If necessary, adjust the contacts before performing steps c, d, and e.

b. Manually close the armature against the heel-piece (figure 5-126) to insure that the armature contact deflects the normally open contact. If necessary, adjust the contacts by performing steps c, d, and e.

c. Bend the normally open contact toward the armature contact to restore its deflection.

d. Bend the normally closed contact slightly to restore smooth, fast resetting.

e. Do not decrease the normally open clearance to less than 0.008 inch, nor the normally closed gap to less than 0.006 inch.

5-96. RADIO SET CONTROL C-3866/SRC TROUBLESHOOTING. (Figures 3-18, 5-157, and 5-158.) Troubleshoot the Radio Set Control C-3866/SRC in accordance with procedures in table 5-29.

Table 5-29. Radio Set Control C-3866/SRC Troubleshooting Procedures

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
1. Stepping Relay K206 fails to operate properly:		
a. When dial moved to finger stop	a. (1) Fuse	a. (1) Check 28V fuse F201 on front panel
	(2) -28-vdc supply	(2) Check voltage supply (fig 5-157)
	(3) Faulty dial	(3) Check for -28 vdc at K201 (fig 3-18)
	(4) Faulty relays K201, K203, K204 or K206	(4) Check relays, coils and contacts (fig 3-18)
b. When dial released from finger stop	b. (1) Faulty dial	b. (1) Check dial
	(2) Faulty relays K201, K202, K203, K204, or K206	(2) Check relays, coils and contacts (fig 3-18)

Table 5-29. Radio Set Control C-3866/SRC Troubleshooting Procedures (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
c. When channel above 10 dialed (proper operation observed for channel below 10)	c. Faulty lockout relay K209 and K206 deck 13	c. Check relay K209
2. Abnormal remote channel indication	Faulty reset indication relay K205	Check relay K205
3. Abnormal channel sequence observed; above procedure indicates all relays operational	1. Faulty relay contact alignment 2. Dirty contacts	1 & 2. See para 5-91 and 5-92

5-97. RADIO FREQUENCY AMPLIFIER AM-1565/URC ALIGNMENT, ADJUSTMENT, and TROUBLESHOOTING PROCEDURES.

NOTE
Allow 15 minutes warm-up before making the following checks and adjustments.

5-98. POWER AMPLIFIER BIAS VOLTAGE CHECK, ADJUSTMENT, AND TROUBLESHOOTING. Perform the following check and adjustment; perform troubleshooting as required.

5-99. Power Amplifier Bias Voltage Check. No tools or test equipments are required to perform the following procedure:

a. Set power switch S1503 on Power Supply PP-2702/URC-9 to OFF (fig 5-82).

b. On AM-1565 set POWER-OFF switch S501 to POWER and RF POWER OUTPUT switch S508 to HIGH.

c. Set LOCAL-REMOTE switch S505 to LOCAL.

d. Set TEST KEY S506 to LOCK-ON.

e. Set METER switch S502 to PAI_b1; note indication of 65 milliamperes.

f. Set METER switch S502 to PAI_b2; note indication of 65 milliamperes.

g. Set TEST KEY switch S506 to OFF.

h. Perform autopositioner electromechanical check if bias voltage check is satisfactory.

5-100. Power Amplifier Bias Voltage Adjustment. The bias voltage adjustments are made whenever the power amplifier tubes are changed. Refer to paragraph 5-101 in case of difficulty.

a. Set POWER switch S1503 on Power Supply PP-2702/URC-9 to OFF.

b. On AM-1565 set POWER-OFF switch S501 to OFF.

c. Remove as in paragraph 5-192.

CAUTION
Do not pull switch S303 with POWER-OFF switch S501 set to POWER.

d. Pull out interlock override switch S303 on rear of assembly (fig 5-89).

e. Set POWER-OFF switch S501 to POWER, wait 60 second for time delay relay K302 to operate.

NOTE
When switch S303 is on, CAUTION indicator DS506 will light when POWER-OFF switch S501 is set to POWER.

f. Set METER switch S502 to PAI_b1 and TEST KEY switch S506 to LOCK ON.

NOTE
Refer to fig 5-93 for location of R304 and R303.

g. Adjust power amplifier V201 bias-adjust control R304 until front panel meter indicates 65 milliamperes.

h. Set METER switch S502 to PAI_b2 position.

i. Adjust power amplifier V202 bias-adjust control R303 until front panel meter indicates 65 milliamperes.

j. Set TEST KEY switch S506 to OFF, and POWER-OFF switch S501 to OFF.

k. Replace as in paragraph 5-193.

5-101. Power Amplifier Troubleshooting. (Figure 5-135.) Troubleshoot the Power Amplifier in accordance with procedures in table 5-30.

Table 5-30. Power Amplifier Troubleshooting Procedures

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
Abnormal indication on METER for PAI_b1 (V201) or PAI_b2 (V202) (32 on black scale normal) - Keyed	1. Faulty tube V201 or V202	1. Replace tubes one at a time
	2. Faulty voltage supply	2. Check voltage: +1800vdc, +300vdc, - 60vdc (fig 5-135)
	3. If unable to adjust, faulty R303 and R304	3. Check R303 and R304
	4. Faulty relays, K301, K302, K303, and K304	4. Check relays and voltage distribution (fig 5-135)

5-102. AUTOPOSITIONER CHECK, ALIGNMENT, AND TROUBLESHOOTING. Perform the following check and adjustment; perform troubleshooting as required.

5-103. Autopositioner Electro-Mechanical Check. In addition to the autopositioner check, this procedure also checks the operation of the Servo Amplifier. Refer to Servo Amplifier alignment, paragraph 5-106, if frequency dials do not respond properly. Perform the following:

a. Set front panel controls as follows (fig 5-91 and 5-92): LOCAL-REMOTE switch S505 to LOCAL: CHAN SEL switch S504 to M, POWER-OFF switch S501 to POWER.

b. Observe that M appears in CHANNEL window.

c. Rotate MANUAL TUNING CONTROL (R506) fully clockwise and observe that indication on FREQ-MC dial indicates greater than 400.

d. Rotate MANUAL TUNING CONTROL fully counterclockwise and observe indication on FREQ-MC dial indicates less than 225.

e. Set CHAN SEL switch (S504) to 1; observe that 1 appears in CHANNEL window.

f. Lift cover to expose PRESET TUNING CHANNEL POTENTIOMETERS R507 through R525 (fig 5-92).

g. Loosen locking nut on CHANNEL 1 PRESET TUNING POTENTIOMETER R525.

h. Note the exact indication on LOG dial. Rotate PRESET TUNING CHANNEL 1 POTENTIOMETER R525 1/2 turn counter-clockwise and note that indication on FREQ-MC dial and LOG dials change. Rotate PRESET TUNING CHANNEL 1 POTENTIOMETER clockwise until the LOG dial is returned to the exact position as noted above. Tighten the locking nut.

i. Perform steps e, g, and h for each of the positions 2 through 19 on CHAN SEL switch (S504).

j. Go to automatic drive control regulator circuit check if auto positioner electro-mechanical check is satisfactory.

5-104. <u>Autopositioner Electro-Mechanical Alignment</u>. No test equipment is required during the following procedures:

a. Set CHAN SEL switch S504 to 5.

b. Set LOCAL-REMOTE switch S505 to LOCAL.

c. Secure power to AN/SRC-20( ).

d. Remove according to procedures in paragraph 5-198.

e. Loosen four set screws 36 and 73, (fig 5-99) and position S503 as shown in fig 5-97.

f. Tighten the four set screws.

g. Check relay K501; (fig 5-96, and 5-98). Ensure that only contacts 1 and 2A and contacts 4 and 5A are closed when the pawl is fully engaged.

h. Check relay K501; ensure that contacts 2B and 3 and contacts 5B and 6 make and break exactly together (fig 5-96 and 5-98).

i. Observe the following: as the pawl approaches the stop wheel, contacts 2B and 3 of relay K501 should stay closed until the pawl is positively engaged in a stop-wheel notch.

j. If steps g, h, and i do not check out, proceed with steps k, l, m, and n.

k. On relay K501, adjust contacts 1, 3, 4 and 6 only.

l. When relay K501 is energized, contacts 1 and 2A and contacts 4 and 5A must have a minimum gap of 0.020 inch (fig 5-98). When relay is deenergized, contacts 1 and 4 should have moved a minimum of 0.015 inch.

m. When relay K501 is deenergized the pawl tip is fully seated in a stop-wheel notch, contracts 2 and 3 should have a minimum gap of 0.020 inch (fig 5-98).

n. When relay K501 is deenergized contacts 5B and 6 must have a minimum gap of 0.020 inch. When relay is energized, contact 6 should have moved a minimum of 0.015 inch.

o. Replace according to procedure in paragraph 5-202.

5-105. <u>Autopositioner Troubleshooting</u>. (Figures 3-21 and 5-135.) Troubleshoot the Autopositioner in accordance with procedures in table 5-31.

Table 5-31. Autopositioner Troubleshooting Procedures

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
Failure to channel properly	1.Faulty supply voltage	1.Check -27.5vdc supply (fig 5-135)

Table 5-31. Autopositioner Troubleshooting Procedures (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
	2. Faulty Circuit components (S201, S504, S505, L209, K501, B501, wiring etc.)	2. Check circuit components (fig 3-21)
	3. Output loading screw position (binding, too far in)	3. Check adjustment of output loading screws

5-106. Servo Amplifier Electrical Alignment. The Servo Amplifier subassembly is factory adjusted for 60-Hz power operation and normally requires no adjusting. If components are replaced or the equipment is used on 50-Hz power, the following adjustments must be made:

a. Set power switch S1503 on Power Supply PP-2702/URC-9 to OFF (fig 5-82).

b. Remove according to procedure in paragraph 5-208.

c. Pull out safety interlock override switch S303 on rear of assembly (fig 5-89).

d. Loosen locknuts, and turn R405, R409, R410, and R411 fully counterclockwise (fig 5-93 and 5-156).

e. On AM-1565, set LOCAL-REMOTE switch S505 to LOCAL and POWER-OFF switch S501 to POWER.

f. Set CHAN SEL switch S504 to CHANNEL 2; note exact indication of FREQ-MC and LOG dials.

g. Set CHAN SEL switch to CHANNEL 2; note exact indication of FREQ-MC and LOG dials.

h. Set CHANNEL 1 POTENTIOMETER R525 approximately three-fourths toward fully counterclockwise and CHANNEL 2 POTENTIOMETER R524 approximately three-fourths toward fully clockwise.

i. Turn CHAN SEL switch S504 to channel 1.

j. Adjust AMP GAIN potentiometer R410 clockwise until servo drives to new position and oscillates at this position as indicated by movement of FREQ-MC dial.

NOTE

If servo does not oscillate, increase setting of R410 slightly, turn CHAN SEL switch to other channel (1 or 2) and repeat step k.

k. Set AMP GAIN potentiometer R410 for point of maximum oscillation (widest dial movement), then tighten locknut.

l. Adjust DAMP GAIN potentiometer R409 until oscillations cover 2 divisions of FREQ-MC dial, then tighten locknut.

m. Adjust AMP PHASE potentiometer R405 for fastest oscillations of FREQ-MC dial, then tighten locknut.

n. Adjust DAMP PHASE potentiometer R411 until oscillations of FREQ-MC dial stop.

o. Turn CHAN SEL switch (S504) to other channel (1 or 2) and readjust R411 slightly until there are approximately 2 oscillations before stopping. Repeat this step as necessary, then tighten locknut on R411.

p. Upon completion of adjustment, set R525 and R524 to obtain same indications on FREQ-MC and LOG dial noted in steps f and g.

q. Replace assembly per paragraph 5-210.

r. Proceed to autopositioner subassembly electromechanical check (paragraph 5-103) when servo alignment is satisfactory.

5-107. Servo Amplifier Troubleshooting. (Figures 5-131, 5-153, 5-154, 5-156, and 3-21.) Troubleshoot the Servo Amplifier in accordance with procedures in table 5-32.

Table 5-32. Servo Amplifier Troubleshooting Procedures

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
1. FREQ-MC dial fails to respond to selected PRESET TUNING CHANNEL POTENTIOMETERS R506 to R525 (fig 5-92)	1. No error voltage at TP-401 when adjusting potentiometer:	1. Perform the following as required;
	a. Faulty S503 (F&G)	a. Check switch and wiring (fig 5-153 and 5-154)
	b. Faulty potentiometer	b. Check appropriate potentiometer
	c. Faulty supply voltage	c. Check 60vac supply (fig 5-131)
	d. Faulty follow-up potentiometer	d. Check follow-up potentiometer R203 (fig 3-21)
	2. Error voltage present at TP401 continuously (when not adjusting potentiometers):	2. Perform the following as required:
	a. Faulty Servo Amplifier tubes (V401, V402, V403, V404)	a. Check/replace tubes
	b. Faulty Servo Amplifier voltages	b. Check filament supply voltage; check circuits
	3. Error voltage (120-150vac normal) present at TP-403 continuously (when not adjusting potentiometer):	3. Perform the following as required:
	a. Faulty MG-201	a. Check MG-201
	b. Faulty (binding) gear train	b. Refer to para 5-189

Table 5-32. Servo Amplifier Troubleshooting Procedures (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
2. Adjustments of AMP GAIN DAMP GAIN, AMP PHASE and DAMP PHASE fail to achieve desired results	Faulty Servo Amplifier subassembly	Refer to troubleshooting procedures outlined for step 1

5-108. AUTOMATIC DRIVE CONTROL REGULATOR CIRCUIT CHECK, ALIGNMENT, AND TROUBLESHOOTING. Perform the following check and adjustment; perform troubleshooting as required.

5-109. Automatic Drive Control Regulator Circuit Check. No test equipment is required during the following procedures.

a. Set up RT-581 as in paragraph 5-27 and 5-28.

b. On AM-1565 set LOCAL-REMOTE switch S505 to LOCAL; POWER-OFF switch S501 to POWER.

c. Set CHANNEL SELECT switch S504 to M.

d. Set EXCITATION AUTO-MANUAL switch S507 to MANUAL.

e. Operate MANUAL tuning control (R506) for a frequency of 399.95 MHz (399.9 MHz on AN/URC-9) as observed on FREQ-MC dial. Set RF power output switch S508 to HIGH.

f. Set TEST KEY switch (S506) to LOCK ON.

g. Set Meter M501 switch S502 to PWR adjust MANUAL TUNING R506 for maximum indication on M-501.

h. Set M501 switch S502 to ATTEN; observe indication (0-40 on black scale).

i. Set TEST KEY switch S506 to OFF.

j. Go to directional coupler DC201 electrical check if automatic drive control regulator circuit check is satisfactory.

5-110. Automatic Drive Control Regulator Circuit Electrical Alignment. Radio Frequency Wattmeter AN/URM-120 and Dummy Load DA-91/U are required during the following procedures:

a. Set up RT-581 as in paragraph 5-26 except as noted below.

b. On AM-1565; set TEST KEY switch S506 to OFF; POWER-OFF switch S501 to OFF.

c. Remove AM-1565 according to paragraph 5-192.

d. Connect ANT connector J701 on RT-581( ) to RF input connection J501 on AM-1565. Connect ANT connector J502 to AN/URM-120 (25 watt scale) and the wattmeter to Dummy Load DA-91/U.

e. Key RT-581 to transmit; adjust C132 (fig 5-13) for 16 watts on AN/URM-120. Unkey and set AN/URM-120 to 250 Watt scale.

f. Pull out safety interlock override switch S303 on REAR of RF Amplifier chassis (fig 5-89).

g. Set POWER-OFF switch S501 to POWER; RF POWER OUTPUT switch (S508) to HIGH.

h. On AM-1565; set CHANNEL SELECT switch S504 to M; operate MANUAL TUNING control R506 for 399.95 MHz (or 399.9 MHz) in FREQ-MC window; set MANUAL-AUTO EXCITATION switch S507 to MANUAL; set LOCAL-REMOTE switch S505 to LOCAL; and METER switch S502 to PWR OUT.

i. Loosen locknut on DIODE DELAY control R436 (fig 5-93). Remove 10 screws from red plate.

j. Remove OUTPUT LOADING screw cover 0528 (fig 5-88); turn screw maximum clockwise.

k. Set TEST KEY switch S506 to LOCK ON.

l. Adjust MANUAL TUNING control R506 for maximum power output on AN/URM-120 and at the same time adjust LOW-HIGH EXCITATION control R527 to keep power output at 100 watts.

m. Adjust OUTPUT LOADING screw two turns counterclockwise.

n. Repeat steps l and m until power output starts to fall. Then readjust MANUAL TUNING control R506 and OUTPUT LOADING screw for maximum power on AN/URM-120. Note output power. Set EXCITATION switch S507 to AUTO.

o. Adjust DIODE DELAY control R436 maximum counterclockwise; set EXCITATION switch S507 to AUTO.

p. Set METER switch S502 to ATTEN; note indication; set TEST KEY switch S506 to OFF:

q. Remove five screws, and cover of C207 (fig 5-102). Loosen locknut on C207.

r. Set TEST KEY switch S506 to LOCK ON. Use nonmetallic tool and adjust C207 maximum clockwise then counterclockwise for peak ATTEN indications. (Note indication on black scale.)

s. Set EXCITATION switch S507 to MANUAL: Adjust MANUAL TUNING control R506 for maximum power on AN/URM-120, (note ATTEN indication). Set EXCITATION switch S507 to AUTO.

t. Adjust C207 clockwise to decrease ATTEN indication.

u. Repeat steps s and t until ATTEN indication in MANUAL is 4% less than value noted in step r. Set TEST KEY switch S506 to OFF. Tighten locknut on C207 and replace cover.

NOTE

Readjustment of C207 may be necessary to compensate for effects of cover replacement.

v. Set EXCITATION switch S507 to AUTO. Set TEST KEY switch S506 to LOCK ON; adjust DIODE DELAY control R436 for 130 watts on AN/URM-120; tighten locknut on R436 and set TEST KEY switch S506 to OFF.

w. Set RF POWER OUTPUT switch S508 to LOW.

x. Key RT-581 to transmit; adjust C132 for maximum power output on AN/URM-120. Unkey and replace RT-581( ) in its case.

y. Use AM-1565 replacement procedures (paragraph 5-193).

5-111. Automatic Drive Control Regulator Troubleshooting. (Figures 3-8 and 5-135.) Troubleshoot the automatic drive control regulator in accordance with table 5-33.

Table 5-33. Automatic Drive Control Regulator Troubleshooting Procedures.

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
1. Abnormal indication (0-40, black scale); METER switch set to ATTEN; EXCITATION switch S507 set to MANUAL	1. Faulty drive control amplifier V405 or V406 tubes	1. Replace tubes one at a time
	2. Faulty voltage regulator V407	2. Replace

Table 5-33. Automatic Drive Control Regulator Troubleshooting Procedures. (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
	3. Faulty AT401 to ferrite attenuator	3. Replace
	4. Faulty supply voltages	4. Check supply voltages (+30vdc, -60vdc, 30vdc (fig 5-135)
	5. Faulty circuit components	5. Check circuits, (fig 3-8)
2. Abnormal indication (0-40, black scale); METER switch set to ATTEN; EXCITATION switch S507 set to AUTO	1. Faulty automatic drive control detector V203	1. Replace tube
	2. Faulty or misaligned C207 or R436	2. Adjust, replace as necessary
	3. Faulty circuit components	3. Check circuit, (fig 3-8)

5-112. DIRECTIONAL COUPLER DC-201 CHECK, ALIGNMENT, AND TROUBLESHOOTING. Perform the following check and alignment; perform troubleshooting as required.

5-113. Directional Coupler DC-201 Electrical Check. Radio Frequency Wattmeter AN/URM-120 is used during the following procedures:

a. Connect AN/URM-120 to ANT J-502 and terminate with Dummy Load DA-91/U.

b. Set AM-1565 LOCAL-REMOTE switch (S505) to LOCAL; CHAN SEL switch(S504)to M; POWER-OFF switch (S501) to POWER; RF POWER OUTPUT HIGH-LOW SWITCH (S507) to HIGH; and operate MANUAL-TUNING CONTROL (R506) until 299.95 MHz (299.9 MHz on AN/URC-9) is indicated on FREQ-MC dial.

c. On RT-581 set CHAN SEL switch (S705) to MANUAL; operate MANUAL FREQUENCY SELECTOR switches (S706, S707 and S708) to 299.95 MHz (299.9 MHz on AN/URC-9).

d. On AM-1565 set METER switch (S502) to PWR; TEST KEY switch (S506) to LOCK ON; adjust EXCITATION HIGH-LOW control (R527) for a 100 watt indication on meter (M501).

e. Observe indication on AN/URM-120 (100 watts).

f. Set METER switch (S502) to SWR. Indication should be zero.

g. Operate TEST KEY switch (S506) to OFF.

h. AM-1565 checks complete when directional coupler electrical check satisfactory.

5-114. Directional Coupler DC-201 Electrical Alignment. Radio Frequency Wattmeter AN/URM-120 is used during the following procedures:

a. Set power switch (S1503) on Power Supply PP-2702/URC-9 to OFF.

b. Perform removal procedure in paragraph 5-192.

c. Connect AN/URM-120 wattmeter to ANT connector (J502) and terminate with Dummy Load DA-91/U.

d. Connect rf output (J701) of RT-581 ( ) to RF INPUT (J501) of AM-1565.

e. Set power switch (S1503) on PP-2702/URC-9 to on (up).

f. On RT-581 set CHAN SEL switch (S705) to MANUAL; operate MANUAL FREQUENCY switches (S706, S707 and S708) to 299.95 MHz (299.9 MHz on AN/URC-9).

g. On AM-1565 pull out safety interlock override switch (S303) (fig 5-89) and set front panel controls as follows:

LOCAL-REMOTE switch (S505) to LOCAL; CHAN SEL switch (S501) to M; POWER-OFF switch (S501) to POWER; RF POWER OUTPUT HIGH LOW switch (S508) to HIGH; EXCITATION switch (S507) to MANUAL; Operate MANUAL TUNING control (R506) until 299.95 MHz (299.9 MHz on AN/URC-9) is indicated on FREQ-MC dial; set METER switch (S502) to POWER OUT.

h. Set TEST KEY (S506) to LOCK ON and adjust EXCITATION HIGH-LOW control (R527) for 100 watt indication on AN/URM-120.

i. Adjust R531 (fig 5-94) until M501 indicates 100 watts.

j. Set TEST KEY (S506) to OFF.

NOTE

If unable to set M501 to 100 watts with R531, loosen the hex head (or Allen) screw holding J213 (brown) and crystal holder to DC-201 (fig 5-87). (This screw is located on top of DC-201 directly in line with J213 and P213; on some directional couplers the screw is covered by the name plate.) Slide crystal holder and J213 in or out as necessary to set M501 to 100 watts with R531 set at midrange.

k. Set METER switch (S502) to SWR and operate TEST KEY (S506) to LOCK ON.

l. Adjust R532 until M501 indication is zero.

m. Set TEST KEY (S506) to OFF.

NOTE

If unable to set M501 with R533, loosen the hex head (or Allen) screw holding J214 (yellow) and crystal holder to DC-201 (fig 5-87). (This screw is located on top of DC-201 directly in line with J214 and P214; on some directional couplers the screw is covered by the name plate.) Slide crystal holder in or out as necessary to set M501 to zero, with R532 set at midrange.

5-115. Directional Coupler DC-201 Troubleshooting. (Figures 3-13 and 5-155.) Troubleshoot the Directional Coupler DC-201 in accordance with table 5-34.

5-116. REPAIR PROCEDURES FOR RADIO SET AN/URC-9( ).

5-117. The following data is for removal, repair, and replacement of parts, assemblies, and units of Radio Set AN/URC-9( ). Deenergize equipment before removal.

Table 5-34. Directional Coupler Troubleshooting Procedures.

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
1. Unable to achieve minimum of 100 watts power output by adjusting R531	1. Faulty R531 or faulty metering circuit	1. Check R531; replace/repair as necessary, check metering circuit (fig 3-13)
	2. Faulty DC-201	2. Replace or align using procedure in para 5-114; check crystal diode and R204 (fig 5-155)

Table 5-34. Directional Coupler Troubleshooting Procedures (Continued)

FAULTY INDICATION	POSSIBLE CAUSE	ACTION-CORRECT AS REQUIRED
2.Unable to achieve a SWR indication of 10% or less of POWER OUT indication by adjusting R532	1.Faulty R532, or faulty metering circuit	1.Check R532; repair/replace as necessary, check metering circuit (fig 3-13)
	2.Faulty dC-201	2.Adjust/replace DC-201 (adjust using procedure in para 5-114; check crystal diode and R205 (fig 5-155)
	3.Faulty dummy load	3.Change dummy load

5-118. POWER SUPPLY PP-2702. Power Supply PP-2702 is shipboard repairable. All parts are replaceable aboard ship.

5-119. Removal. Remove power supply as follows:

a. Loosen four captive screws in the corners of the power supply (fig 5-82).

b. Turn extractor knob fully counterclockwise; reverse rotation for three turns, stop with knob slot horizontal, and push extractor down.

c. Pull the power supply from the case.

5-120. Replacement. Reverse the removal procedures.

5-121. RECEIVER-TRANSMITTER RT-581( )/URC-9.

CAUTION

Before removal of assemblies, set CHAN SEL switch to MANUAL and set MANUAL FREQUENCY TENS, UNITS, and TENTHS-HUNDREDTHS (or TENTHS on AN/URC-9) switches to 399.95 MHz (or 399.9 MHz). These setting must be made while power is applied to the equipment.

5-122. Removal. Remove RT-581 as follows:

a. Loosen four captive screws in corners of the front panel.

b. Turn extractor knob fully counterclockwise; reverse rotation for three turns, stop with knob slot horizontal, and push extractor down.

c. Pull the RT-581 from the case.

WARNING

This equipment contains high voltages that are dangerous to life. Make certain to remove all power from equipment before attempting to remove assemblies.

5-123. Replacement. Reverse the removal procedures.

5-124. SECOND IF AMPLIFIER. This assembly is shipboard repairable. All parts are replaceable aboard ship.

5-125. Removal. Remove RT-581 as in paragraph 5-122 (observing the caution in paragraph 5-121). Refer to figures 5-19, 5-46, 5-47, and 5-48 during the following procedures:

a. Position RT-581 right side up (fig 5-19).

b. Disconnect plugs P5, P304, and P401 from jacks J403, J401, and J4, respectively (fig 5-19).

c. Loosen three captive screws, two at front and one at rear (D, fig 5-19), that hold 2nd IF Amplifier.

d. Lift 2nd IF Amplifier from RT-581.

5-126. Crystal Replacement. Remove RT-581 as in paragraph 5-122 (observing the caution in paragraph 5-121).

a. Position RT-581 right side up (fig 5-19).

b. Remove 2nd IF Amplifier as in paragraph 5-125.

c. Remove two flathead machine screws from sides of cover.

d. Lift lip of dust cover straight out and away from tube V401.

e. Replace defective crystal.

f. Replace cover and screws; reinstall assembly.

g. Perform 2nd IF Amplifier mechanical alignment as in paragraph 5-33.

5-127. Selector Switch Replacement (S401 and S402). Remove RT-581( ) as in paragraph 5-122 (observing the caution in paragraph 5-121).

a. Remove 2nd IF Amplifier as in paragraph 5-125.

b. Unsolder two wires from relay K401 and one ground wire routed to switches S401 and S402 (fig 5-46 and 5-47). For AN/URC-9A only, unsolder four additional wires from relay K402 and one additional ground wire routed to crystal socket XY401.

c. Remove the three screws holding switch assembly to tube chassis; slide units apart so that the slugs will slide out of L401, L403, and L405.

d. Scribe lines on shaft and coupler before removing, retaining pin from coupler and shaft.

e. Slide coupler from shaft.

f. Remove the two Phillips-head machine screws from switch bracket.

g. Remove the two small nuts holding switch to bracket.

h. Slip bracket from shaft. Remove the four corner crystals from crystal socket. (Note the positions of the crystals.)

i. Remove the four Phillips-head screws holding crystal socket to frame.

j. Unsolder wires from switch and slide wafer from shaft.

k. To reassemble, reverse order of foregoing disassembly.

l. Perform 2nd IF Amplifier mechanical alignment as in paragraph 5-33.

5-128. Lubrication. Lubrication of the unit is only required during servicing or cleaning. Lubricate unit as follows:

a. Lubricate cam face with a thin film of grease (MIL-G-23827A).

b. Lubricate cam followers with one drop of oil (MIL-L-6085A).

5-129. Replacement. Set coupler on assembly. Make sure the slot in the coupler is vertical and the keeper pin is in the upper right corner when viewed from the front. Reverse removal procedures.

5-130. FIRST IF AMPLIFIER. This assembly is partially repairable aboard ship. Refer to paragraph 5-2 for parts that are shipboard replaceable.

NOTE

Lubrication is only required during servicing or cleaning.

5-131. Removal. Remove RT-581 as in paragraph 5-122 (observing caution in paragraph 5-121) and proceed as follows:

a. Position RT-581 right side up (fig 5-19).

b. Disconnect plugs P301, P302, P303, and P304 from jacks J3, J101, J102, and J401, respectively (fig 5-19).

c. Remove cover plate H-4 (fig 5-14).

d. For convenience, disconnect plugs P6 and P502 (fig 5-19) from jacks J901 and J902, respectively. Slide cables W5 and W6 from under clip.

e. Loosen three captive screws (fig 5-19).

f. Lift 1st IF Amplifier from RT-581.

5-132. Tuning Core Replacement (0301 through 0307). Remove 1st IF Amplifier as in paragraph 5-131 and proceed as follows:

a. Position 1st IF Amplifier as in figure 5-44.

b. Rotate coupler 0317 clockwise (approximately 170°) to position tuning cores 0301, 0302, 0303, 0304, 0305, and 0306 to the highest position in the coils. Rotate coupler 0316 counterclockwise (approximately 170°) to position tuning core 0307 to the highest position in L310.

NOTE

Tuning cores 0301 through 0306 are identical. Tuning core 0307 is slightly shorter. Do not interchange tuning cores.

c. Remove defective tuning core(s) and clean core hole(s).

d. Replace defective tuning core(s). Ensure that threaded slot is projecting through core rack at bottom of assembly for all cores. Lubricate threads with one drop of oil (MIL-L-6085A).

e. Position assembly as in fig 5-44; set couplers 0316 and 0317 with slots vertical and coupler pin in upper right corner. Reverse removal procedure.

5-133. Crystal Replacement (Y301 through Y310). Remove 1st IF Amplifier as in paragraph 5-131 and proceed as follows:

a. Position 1st IF Amplifier as in fig 5-44.

b. Remove dust cover; location of crystal(s) is marked on dust cover (fig 5-44).

NOTE

Use a pencil type soldering iron (15 to 25 watts) to remove crystals. If access to rear (S302) crystal is difficult, remove screws from crystal bracket; slide bracket and switch assembly slightly forward. Avoid misaligning or disengaging switch rotor from shaft.

c. Install new crystal(s), avoiding use of excessive heat and solder.

d. Ensure that switch rotor arm is in the full contact with tab for Y310 (26.0 or 26.00 MHz) when coupler 0316 slot is vertical and coupler keeper pin is in upper right corner.

e. Replace dust cover.

5-134. Replacement. Set couplers 0316 and 0317 on assembly so that slots are vertical and keeper pins are in upper right corner (fig 5-44). Reverse removal procedures.

5-135. FREQUENCY MULTIPLIER-OSCILLATOR (FMO). The FMO is partially repairable aboard ship. Refer to paragraph 5-2 for those parts that are shipboard replaceable.

5-136. Removal. Remove RT-581 as in paragraph 5-122 (observing the caution in paragraph 5-121) and proceed as follows:

a. Position RT-581 top side up (fig 5-13).

b. Remove cover plate H-3 (fig 5-18).

c. Disconnect plug P4 from jack J205 (fig 5-18). Use a screwdriver to pull plug straight off.

d. Disconnect plug P201 from jack J2 (fig 5-20).

e. Loosen three captive screws. (B, fig 5-18).

f. Lift FMO from RT-581.

5-137. General Maintenance. These procedures contribute to the reduction and elimination of intermittent FMO operation. They should be done whenever the assembly is removed for repair.

NOTE

The FMO reference position in the following procedures is: coupler 0220 forward; slot vertical; keeper pin in upper right corner; and amplifier tubes pointing left.

a. RF Tuner Trimmer Capacitors. The following procedure is to ensure proper mounting and grounding of trimmer capacitors C215, C221, C227, and C233 (fig 5-34).

CAUTION

These capacitors are glass foil type. Use care to avoid damaging or breaking.

1. Remove covers from multiplier-amplifier section; retain all screws and washers.

2. Insert thin screwdriver or tuning tool into bottom of trimmer capacitors C215, C221, C227, and C233; rotate each capacitor counterclockwise until threaded portion clears the slotted portion of mount.

3. Check that capacitor mounting lock nuts are secure; do not over-tighten.

4. Bend slotted portions together slightly with long nose plier.

5. Insert screwdriver or tuning tool into bottom of capacitors and rotate clockwise until threaded portion extends above slotted portion of the mount.

b. RF Tuner Inductors. The following procedure is to ensure positive contact of the inductor rings and positive grounding of the main tuning shaft (fig 5-37).

1. Clean both sides of each of the four semicircular inductor rings with CRAMOLIN, FSN 9Q6850-880-7007. These inductor rings are a part of the stator assembly for Z202, Z204, Z206, and Z208.

2. Eight sets of finger contacts provide grounding for the main tuning shaft. Rotate the shaft and clean the surface under each of these contacts with CRAMOLIN.

3. Apply one small drop of MIL-L-6085A oil to each ball bearing (0208 and 0209, fig 5-37).

4. When no further servicing or repair in this section of the assembly is required, replace covers and install all screws and washers previously removed.

c. Oscillator-Multiplier. The following procedure is to ensure positive contact of the wiper arm of S201, S202, and Z201 with the stationary contacts (fig 5-40).

1. Remove oscillator-multiplier cover; retain all screws and washers.

2. Remove tuning coil access plate.

3. Clean the contacting surfaces of S201, S202, and Z201 with CRAMOLIN, FSN 9Q6850-880-7007.

4. When no further servicing or repair in this section of the assembly is required, replace coil access cover, oscillator-multiplier cover and install all screws and washers previously removed.

5-138. Crystal Replacement. Crystals in the FMO may be replaced aboard ship. Disassembly of S201, S202, and Z201 (fig 5-40) is not recommended aboard ship. Careful techniques and the proper soldering tool will result in satisfactory crystal replacement without complicated disassembly. Replace crystals as follows:

a. Remove oscillator-multiplier cover; retain all screws and washers (fig 5-34).

b. Remove tuning coil access plate.

c. Refer to figure 5-36 for location of crystals.

NOTE

Use pencil type soldering iron (15 to 25 watts) to remove crystals.

d. Install new crystal(s), avoiding use of excessive heat and solder.

e. Replace coil access plate. Ensure that spring wafer attached to plate properly grounds each crystal case.

f. Replace oscillator-multiplier cover and install all screws and washers previously removed.

5-139. Tube and Other Component Replacement. The following are general procedures for tube and miscellaneous parts replacements:

NOTE

Tube shields and tube shield liners must be in place during test and normal operation.

a. Tubes in the FMO must be evaluated on a comparison basis. When a tube is suspect, set the AN/URC-9A to 399.95 MHz (399.9 MHz on AN/URC-9). Locate a test point to which the stage is supplying output. Peak the input and output trimmers for that stage. Note the output level. Replace the tube under evaluation with a new tube. Repeak trimmers for maximum output. If the new tube shows improvement in output, retain the new tube. It may be necessary to repeat this procedure several times in order to select a satisfactory tube.

b. When replacing components in this assembly, the lead length and location of replacement part must be the same as the part removed.

5-140. Replacement. When replacing the FMO, set the assembly into the RT-581 with the slot in coupler 0220 vertical and the keeper pin in the upper right corner as viewed from the front. Reverse removal procedures.

5-141. RF AND PA AMPLIFIER. This assembly is partially repairable aboard ship. Refer to paragraph 5-2 for those parts which are shipboard replaceable. Replacement of components which require disassembly of the RF and PA into two sections or removal of V101, V102, and V103 tube chassis, is not recommended aboard ship.

5-142. Removal. Remove RT-581 as in paragraph 5-122 (observing the caution in paragraph 5-121) and proceed as follows:

a. Remove cover plates H-3 and H-5 (fig 5-14 and 5-18).

b. Disconnect plugs P3, P101, P10, P302, P303, P1101, and P1301 from jacks J112, J1, J1101, J101, J102, J108, and J109, respectively (fig 5-19).

c. Loosen three captive screws (A, fig 5-18).

d. Lift RF and PA up and to the right.

5-143. General Maintenance. These procedures contribute to the reduction and elimination of intermittent RF and PA operation. They should be performed whenever the assembly is removed for repair.

a. RF Tuner Trimmer Capacitors. The following procedure is to ensure proper mounting and grounding of trimmer capacitors C107, C115, C122, C127, and C141 (fig 5-29).

CAUTION

Trimmer capacitors are glass foil type. Use care to avoid damaging or breaking.

1. Remove side, bottom, and air minifold covers from assembly; retain all screws and washers.

2. Insert thin screwdriver or tuning tool into bottom of capacitors C107, C115, C122, C127, and C141 (fig 5-29); rotate each capacitor counter-clockwise until the threaded portion clears the slotted portion of the mount.

3. Check that capacitor mounting locknuts are secure; do not over-tighten.

4. Bend slotted portions of each capacitor mount together slightly with long nose plier.

5. Insert screwdriver or tuning tool into bottom of capacitors and rotate clockwise until threaded portion extends above slotted portion of mount.

b. RF Tuner Inductors. The following procedure is to ensure positive contact of the inductor rings and positive grounding of the main tuning shaft (fig 5-23, 5-27, 5-29).

1. Clean both side of the four semicircular inductor rings with CRAMOLIN, FSN 9Q6850-880-7007. These inductor rings are a part of the stator assembly Z101, Z103, Z105, and Z106 (fig 5-27).

2. Clean and lubricate the inductor ring surface of Z107 with CRAMOLIN. The Z107 inductor is a brass semicircular ring mounted on the ceramic plate of Z107 stator assembly (fig 5-27 and 5-32).

3. Eight sets of finger contacts provide grounding for the main tuning shaft. Rotate the shaft and clean the surface under each of these contacts with CRAMOLIN.

4. The rotor of Z108 is grounded by flange rings which bear or circular finger contacts (fig 5-27 and 5-33). Clean these surfaces with CRAMOLIN. Avoid bending or displacement of the finger contacts.

5. Remove tubes V104 and V105 (fig 5-27).

6. Inspect ceramic portions of tubes for imbedded metal particles or other foreign matter. (A pointed typewriter eraser may be used to remove foreign matter).

7. Clean metal portions of tubes with eraser.

8. Ensure tubes are clean and reinstall tubes.

9. If no further servicing in assembly is required, replace covers and install all screws and washers previously removed.

5-144. Tube and Other Component Replacement. The following are general procedures for tube and miscellaneous parts replacement.

NOTE

Tube shields and tube shield liners must be in place during all tests and when assembly is restored to normal operation.

a. Tubes in the RF and PA must be evaluated on a comparison basis. When a tube is suspect, set the AN/URC-9A to 399.95 MHz (399.9 MHz on AN/URC-9). Locate a test point to which the stage is supplying output. Peak the input and output trimmers for that stage. Note the output level. Replace the tube under evaluation with a new tube. Repeak trimmers for maximum output. If the new tube shows improvement in output, retain the new tube. It may be necessary to repeat this procedure several times in order to select a satisfactory tube.

b. When replacing components in this assembly, the lead length and location of replacement part must be the same as for the part removed.

5-145. Replacement. When replacing the RF and PA, set the assembly into the RT-581 with the slot in coupler 0126 (fig 5-27) vertical and the keeper pin in the upper right corner when viewed from the front. Reverse removal procedure.

5-146. AUDIO AMPLIFIER AND MODULATOR. This assembly is shipboard repairable. All components are replaceable aboard ship.

5-147. Removal. Remove RT-581 as in paragraph 5-122 (observing the caution in paragraph 5-121). Refer to figures 5-15, 5-20, 5-52, and 5-53 during the following procedures:

a. Position RT-581 left side up (fig 5-20).

b. Disconnect plug P801 from jack J8 (fig 5-20).

c. Loosen five captive screws (F, fig 5-20).

d. Lift Audio Amplifier and Modulator from RT-581.

5-148. Replacement. Ensure that interconnecting cables are not damaged by pinching and chafing when replacing in case. Reverse removal procedures.

5-149. THIRD IF AMPLIFIER. This assembly is shipboard repairable. All components are replaceable aboard ship.

5-150. Removal. Remove RT-581 as in paragraph 5-122 (observing the caution in paragraph 5-121). Refer to figures 5-16, 5-21, and 5-49 through 5-51 during the following procedures:

a. Position RT-581 bottom side up (fig 5-21).

b. Disconnect plugs P502 and P501 from jacks J902 and J4, respectively (fig 5-16).

c. Loosen four captive screws (E, fig 5-21).

d. Lift 3rd IF Amplifier from RT-581.

5-151. Replacement. Ensure that interconnecting cables are not damaged by pinching and chafing when replacing in case. Cable W502 can be dressed and protected from damage by the installation of a nylon clamp. Instructions for installing this clamp are in EIB 731. Reverse removal procedures.

5-152. RELAY-FILTER. This assembly is shipboard repairable. All components are replaceable aboard ship.

5-153. Removal. Remove RT-581 as in paragraph 5-122 (observing the caution in paragraph 5-121). Refer to figures 5-17, 5-55, 5-56, and 5-57 during the following procedures:

CAUTION

It may be necessary to energize Relay-Filter (with CX-8521 cable) to assist in fault location. Special attention is required in the use of test probes and tools to prevent damage to the assembly.

a. Position RT-581 top side up and its rear facing the front (fig 5-17).

b. Loosen two captive screws that hold Relay-Filter to rear of chassis.

c. Pull Relay-Filter out of RT-581 with the handle provided (fig 5-17).

5-154. Replacement. Reverse the removal procedures.

CAUTION

After the Relay-Filter is replaced, check that blower hose is properly connected between blower outlet and the air duct for the RF and PA.

5-155. R/T CENTRIFUGAL FAN. Centrifugal fan assemblies with electronic speed increasers are not shipboard repairable.

5-156. Removal. Remove RT-581 as in paragraph 5-122 (observing the caution in paragraph 5-121). Refer to figures 5-14, 5-20, and 5-60 during the following procedures:

a. Position RT-581 left side up (fig 5-20).

b. Remove cover plate H-2 (fig 5-20).

c. Disconnect plug P1051 from jack J10 (fig 5-15).

d. Loosen four screws (H, fig 5-20).

e. Lift R/T Centrifugal Fan from RT-581 assembly; slide fan hose from the fan air output duct.

5-157. Lubrication and Repair. These procedures assume that the motor portion of the assembly is functioning properly. They should be performed whenever strobe measurement of the centrifugal fan speed is below standard (7000 rpm minimum at 115 vac input), or whenever there are other indications that the speed increaser requires lubrication or repair.

NOTE

Centrifugal fan assemblies with electronic speed increasers are not lubricated and are not shipboard repairable (fig 5-59, 5-60, and 5-61).

a. Remove R/T Centrifugal Fan as in paragraph 5-156.

b. Remove screws and front plate from centrifugal blower housing

c. Loosen blower fan set screws; remove fan.

CAUTION

Care must be taken to prevent damage to electrical wiring.

d. Remove capacitor(s) retaining screws and swing capacitor(s) away from speed increaser.

e. Remove blower housing retaining screws; remove blower housing.

f. Remove speed increaser retaining screws; remove speed increaser.

NOTE

For all speed increasers which have the small bronze coupler-driver, a paper gasket is required between the speed increaser block and the motor end bell housing. If this gasket is missing or damaged during disassembly, a new one must be provided for reassembly. Make a gasket or order one by FSN 9Z5330-290-8495.

g. Remove the lock ring from the coupler-driver end of the speed increaser.

h. Gently tap the shaft of the speed increaser against a non-metallic surface until both bearings and the shaft can be lifted free of the speed increaser block. Use care that loose ball bearings do not drop out.

i. Use soft bristle brush and P-D-680 solvent to clean old lubricant from bearings and shaft. Clean inside of speed increaser block and coupler-driver with solvent.

j. Pack the space between the two bearings solid with grease to the diameter of the bearings. Use MIL-G-23827 grease for metal coupler-driver and MIL-C-15793 grease for phenolic coupler.

k. Reverse the procedure in steps b through i to reassemble. During reassembly, ensure that shim and compression washers inside the block are in proper position; that paper gasket is in place between speed increaser and motor housing; and that screws holding speed increaser to motor housing are tightened alternately to avoid misalignment of coupler-driver.

l. Reinstall assembly in RT-581 and perform fan speed measurement of paragraph 5-88.

m. Allow blower to turn for 20 to 30 minutes and make another speed measurement (7000 rpm minimum).

n. If minimum speed requirement cannot be obtained after lubrication, and the speed increaser is of the metal coupler-driver type (fig 5-58), do not discard the assembly. Procure a replacement speed increaser FSN IN3020-201-6906, discard the old speed increaser and install new one. New speed increaser is pre-packed with grease. If speed increaser is a phenolic type coupler-driver, and minimum speed cannot be obtained, no further repair or replacement can be accomplished; this type may be discarded.

NOTE

As a further aid in identifying the type of assembly, figure 5-58 shows the repairable type. The repairable type has two motor capacitors and red lubrication decals. The non-repairable type has one motor capacitor and no lubrication decals.

5-158. Replacement. When replacing the R/T centrifugal fan, ensure that fan hose is properly connected between blower outlet and air duct to the RF and PA. If fan hose becomes cracked or otherwise damaged, procure a replacement (FSN IN 4720-023-6753). Reverse the removal procedures.

5-159. 500 KHz FILTER (FL901) AND LOW-PASS FILTER (FL1101). These items are not shipboard repairable.

5-160. Removal. Remove RT-581 as in paragraph 5-122 (observing the caution in paragraph 5-121). Refer to figures 5-14, and 5-19 during the following procedures:

a. Position RT-581 right side up (fig 5-19).

b. Disconnect plugs P6, P502, P10 and P1101 from jacks J901, J902, J1101, and J108 respectively (fig 5-19).

c. Loosen three captive screws (I, fig 5-19).

d. Lift the Filter Assembly from RT-581.

e. Separate filters FL901 and FL1101 by removing the screws which fasten them together.

5-161. Replacement. Before replacing the Filter Assembly fasten FL901 and FL1101 together with the screws removed during step e above. Reverse the removal procedure.

5-162. BROADBAND SIDETONE AMPLIFIER. This assembly is shipboard repairable. All components are replaceable aboard ship.

5-163. Removal, Remove RT-581 as in paragraph 5-122 (observing the caution in paragraph 5-121). Refer to figures 5-14 and 5-19 during the following procedures.

a. Position RT-581 right side up (fig 5-19).

b. Disconnect plug P1601 from jack J9 (fig 5-19).

c. Loosen two captive screws (K, fig 5-19) that hold broadband sidetone assembly to RT-581.

d. Lift broadband sidetone assembly from RT-581.

5-164. Replacement. Reverse the removal procedures.

5-165. FRONT PANEL. This assembly is shipboard repairable. All components are replaceable aboard ship.

5-166. Removal. Remove RT-581 as in paragraph 5-122 (observing the caution in paragraph 5-121). Refer to figures 5-18 through 5-21, 5-65 and 5-66 during the following procedures:

a. Position RT-581 top side up (fig 5-18).

b. Remove four flat head and four round head screws, two of each are located on top and one of each is located on the right and left sides (J, fig 5-18, 5-19 and 5-20), that fasten shroud to RT-581 Front Panel.

c. Lift shroud straight up and off RT-581.

d. Disconnect plug P703 from jack J11 (fig 5-20).

e. Loosen coaxial connector P8 from jack J706 (fig 5-9).

f. Position RT-581 bottom side up; remove four roundhead screws (J, in fig 5-21) and lockwashers that fasten bottom of Front Panel to RT-581.

g. Carefully pull Front Panel straight off at RT-581, check that plug P8 disengages from jack J706.

5-167. Replacement. When replacing Front Panel, make certain that plug P8 mates with jack J706 as assembly is slid into position. Do not tighten any screws until all screws are in place. Reverse removal procedure.

5-168. FREQUENCY SELECTOR. This assembly is partially repairable aboard ship. Refer to paragraph 5-2 for those parts which are shipboard replaceable.

5-169. Removal. Remove RT-581 as in paragraph 5-122 (observing the caution in paragarph 5-121). Refer to figures 5-18 through 5-21 and 5-65 through 5-81 during the following procedures:

a. Remove Audio Amplifier and Modulator as in paragraph 5-147.

b. Remove R/T Centrifugal Fan as in paragraph 5-156.

c. Remove Front Panel as in paragraph 5-166.

d. Position RT-581 left side up (fig 5-20).

e. Remove two screws (K, fig 5-20) and lockwashers on the rear of the Frequency Selector adjacent to the space occupied by the R/T Centrifugal Fan.

f. Position RT-581 bottom side up. Remove three screws (L, fig 5-21) and Lockwashers on the bottom of the chassis.

g. Remove hexhead screw (M, fig 5-20) on rear of Frequency Selector by inserting 1/4 inch Spin Tite wrench through cutout on chassis.

h. Disconnect plug P1201 from jack J12 (fig 5-20).

i. Position RT-581 top side up. Pull out plate mounting for jacks J7, J10, and J15 from clamp; remove two screws (N, fig 5-18) and lockwashers on the upper left corner.

j. Remove screws (P, fig 5-18) adjacent to the Directional Coupler in the upper right corner.

k. Remove two screws and lockwashers below and behind the memory drum; lift Frequency Selector from RT-581.

5-170. Component Replacement. Refer to figures 5-69, 5-70, 5-78, and 5-79 during the following procedures:

a. When relays K1201, K1202, K1203, or K1204 are replaced, refer to paragraph 5-66 for pawl action and gap adjustment procedures.

b. If drive motor B1201 requires replacement or repair, observe the dress or motor input leads and repeat this dress upon reassembly. Minor repairs (brushes & commutator) should be performed aboard ship.

c. Inspect wafer switch section S1202, S1203, and S1204 for broken wafers, loose contacts, and burned or pitted rotor or fixed contacts. Replace defective switch wafers as required. When replacing these switches, the rotor contacts must be in the correct position after replacement. Remove leads from defective switch one at a time; after each lead removal, solder that lead to the new switch. Position rotor of new switch exactly as the old rotor was positioned. Figure 5-69 (or 5-70) indicates correct position of switches when at rest on Channel M (399.95 MHz on AN/URC-9A; 399.9 MHz on AN/URC-9). Figure 5-79 indicates correct switch position when at rest on Channel 5 (220.05 MHz on AN/URC-9A; 220.0 MHz on AN/URC-9).

5-171. Lubrication. Lubrication of the Frequency Selector should be accomplished at least once a year but no more often than once every six months. Lubricate only those points which are accessible without disassembly of the gear plates.

CAUTION

Do not permit grease or oil to get into clutch assemblies. Oil or grease on clutch faces will cause operational failure of the Frequency Selector.

a. Lubricate teeth of all gears with a thin film of grease (MIL-G-23827A).

b. Lubricate cam faces with a thin film of grease (MIL-G-23827A).

c. Lubricate bore of cam follower O1299.4 (fig 5-73) with a thin film of grease (MIL-G-23827A).

d. Lubricate porous bronze bearings with one drop of oil (MIL-L-6085A).

e. Lubricate bores of differential planetary gears with one drop of oil (MIL-L-6085A).

f. Lubricate pawl pivot studs with one drop of oil (MIL-L-6085A).

5-172. Replacement. Adjust couplers of all assemblies to mate with Frequency Selector before replacing in RT-581. Do not tighten any screws until all screws are in place. Reverse the removal procedures.

5-173. RECEIVER-TRANSMITTER CASE CY-2969/URC-9. This unit is shipboard repairable. All components are repairable aboard ship.

5-174. Removal of Case CY-2959/URC-9 Centrifugal Fan. Remove power supply as in paragraph 5-119. Refer to figures 5-15, 5-62, and 5-64 during the following procedures:

a. While supporting the centrifugal fan, disconnect plug P1401 and loosen four screws and associated hardware that hold the fan to the case.

b. Remove the centrifugal fan.

5-175. Cleaning of Case and Fan. Cleaning of the case and fan must be accomplished at least once every six months. Cleaning of the filter is required at least once each month. Refer to figure 5-62 during the following procedures.

a. Remove power supply and centrifugal fan as in paragraph 5-174.

b. Remove RT-581 as in paragraph 5-122 (observing the caution in paragraph 5-121).

c. Cover the power supply and RT-581 with paper or thin plastic to avoid contamination by dirt and dust.

d. Remove the left louver screen and right exhaust grill from sides of case. If case is installed in cabinet type enclosure, it may be necessary to remove it from the enclosure before this step is performed.

e. Brush and vacuum all accumulated dirt and dust from both louver screen and exhaust grill.

f. Remove filter through opening created by removal of left louver screen. (Filter may also be removed from inside power supply cavity by removing 6 screws from front retainer clip.)

g. Brush and vacuum all accumulated dirt and dust from filter.

h. Brush and vacuum all accumulated dirt and dust from the fan blades and fan housing of the case centrifugal fan.

i. Brush and vacuum all dirt and dust from the space between the case walls and the corrugated liners.

j. Vacuum remaining dust and dirt from the power supply cavity and the receiver-transmitter cavity.

k. Reinstall filter.

l. Reinstall left screen louver and right exhaust grill.

m. Reinstall fan.

n. Reinstall power supply and RT-581.

o. Restore AN/URC-9 to normal condition.

5-176. Replacement of Case Centrifugal Fan. Reverse the removal procedure.

5-177. REPAIR PROCEDURES FOR RADIO SET CONTROL C-3866/SRC.

5-178. The following data is for removal, repair, and replacement of the entire C-3866/SRC or parts of the C-3866/SRC. Deenergize equipment before removal.

5-179. RADIO SET CONTROL C-3866/SRC. Radio Set Control C-3866/SRC is shipboard repairable. All parts are replaceable aboard ship.

5-180. C-3866 Removal. Remove the C-3866 as follows (figures 5-116 through 5-121):

a. Loosen six screws (fig 5-116); pull forward to extend chassis.

b. If entire chassis must be removed, loosen two knurled screws on bottom of chassis just behind front panel. Remove plug P201 (fig 5-117); pull chassis up and forward.

c. To disengage plug P201 from jack J201, turn thumbwheel (fig 5-117) counterclockwise as far as it will go.

d. Loosen, but do not remove screws A and B (figure 5-117). Slide thumbwheel out of the way, and remove plug P201 and cable.

e. Remove chassis.

5-181. Replacement of C-3866. Reverse removal procedures. Be sure to press down on thumb-release catches (fig 5-116) before sliding chassis back into cabinet.

5-182. Removal of Rear Cabinet Panel. Remove eight screws holding rear panel to cabinet (figure 5-120).

5-183. Replacement of Rear Cabinet Panel. Reverse removal procedures.

5-184. Removal of Dust Cover for Relays K201 through K205. Remove the C-3866 as in paragraph 5-180. Loosen six fasteners and lift cover off (fig 5-118).

5-185. Replacement of Dust Cover for Relays K201 through K205. Reverse removal procedure.

5-186. Removal of Dust Cover for Stepping Relay K206. Remove the C-3866 as in paragraph 5-180. Remove two screws from top of cover and lift cover off (fig 5-118).

5-187. Replacement of Dust Cover for Stepping Relay K206. Reverse removal procedure.

5-188. Lubrication of Stepping Relay K206. After each 100,000 dialing operations, perform a complete lubrication of stepping relay K206 using lubricant MIL-G-23827A. Use the minimum amount of lubricant practicable throughout this procedure. The amount of lubricant applied should be vapor thin. DO NOT OVER-LUBRICATE. The lubricant is applied to the stepping relay mechanism (fig 5-125 through 5-127) by using either clean linen, bond paper, wooden stick, or a brush, in the following manner:

a. Remove dust cover as in paragraph 5-186.

b. Withdraw the wiper assembly bearing pin approximately 1/4 inch; apply minimum lubricant to each pin; replace the pin.

c. Apply minimum lubricant to each side of a small strip of bond paper. Pass the strip between each pair of wiper tips. After lubricating four wiper pairs, renew the lubricant. Repeat until all wiper tips have been lubricated. Be sure to lubricate both sets of wiper tips. Rotate wiper assembly several times to distribute the lubricant to the deck contacts.

d. Apply minimum lubricant among four decks of wipers at the inner surfaces where the brush contacts ride. Repeat for each additional four decks, then rotate the wiper assembly several times to distribute the lubricant.

e. Apply minimum lubricant to each side of a small strip of bond paper. Pass the strip between each armature arm bushing and the contact it deflects.

f. Apply minimum lubricant between the lobes of the off-normal cam. Apply the lubricant to the lifting of wearing surfaces only.

g. Remove the armature bearing pin; apply minimum lubricant into each armature bearing, and replace the pin.

h. Apply minimum lubricant to the pawl bearing, working the lubricant in between the bearing, armature arm, and pawl.

i. Apply minimum lubricant to each pawl spring hook at the point where the spring eyelets make contact.

j. Apply minimum lubricant evenly over the ratchet teeth while rotating the wiper assembly.

k. Replace all covers; reverse removal procedures.

5-189. REPAIR PROCEDURES FOR RADIO FREQUENCY AMPLIFIER AM-1565/URC.

5-190. The following provides data for removal, repair, and replacement of assemblies, subassemblies and parts of AM-1565.

5-191. RADIO FREQUENCY AMPLIFIER AM-1565. This subassembly is partially repairable aboard ship. Refer to paragraph 5-2 for those parts that are shipboard replaceable.

5-192. Removal. Refer to figures 5-85 through 5-88 during removal procedures. Remove the AM-1565 from the case:

WARNING

Two persons are required to remove the AM-1565 from the case. Do not slide the AM-1565 chassis out unless the AN/SRC-20( ) is bolted down.

a. Disconnect rf cables from input connector J501 and antenna connector J502.

b. Release ten screws (fig 5-85) from edge of front panel.

c. Use handles and pull AM-1565 out of case on the chassis slides (fig 5-85).

d. Depress the two black release buttons (2, fig 5-85) above the handle and tilt chassis (fig 5-86).

5-193. Replacement. Reverse the removal procedure.

5-194. FRONT PANEL. This unit is shipboard repairable. All components are replaceable aboard ship.

WARNING

Do not slide the AM-1565 chassis out of case unless the AN/SRC-20( ) is bolted down.

5-195. Removal. Remove the AM-1565 as in paragraph 5-192. Refer to figures 5-85, 5-86, 5-87, and 5-94 during the following procedures:

a. Loosen two set-screws (3, fig 5-85) on the front ends of the tilting mechanisms. There is one set-screw on each mechanism of the stop plungers at the rear of the front panel.

b. Remove screws holding the tilt mechanism to the front panel. (There is one screw located behind the handle on each side of the front panel.) Remove the stop lever arms by sliding the connecting wires (4, fig 5-85), out from under the set-screws loosened in step a.

c. Remove the four large slotted studs that secure the two handles. (There are two studs at each side on the back of the front panel.)

d. Disconnect plugs P203 and P211 from the front end of coaxial relays K201 and K202, respectively (fig 5-87).

e. Tilt the chassis so the front panel is facing upward (fig 5-86).

f. Remove eight hex-head bolts (H541, fig 5-88) and their sealing washers located on the front panel.

g. Carefully rock front panel to disengage plug P501 and then lift straight up and away.

5-196. Replacement. Reverse the removal procedure.

5-197. AUTOPOSITIONER. This subassembly is shipboard repairable. All components are replaceable aboard ship.

WARNING

Do not slide the AM-1565 chassis out of case unless the AN/SRC-20( ) is bolted down.

5-198. Removal. Remove the AM-1565 as in paragraph 5-192 and the Front Panel assembly as in paragraph 5-195. Refer to figures 5-94 through 5-100 during the following procedures:

NOTE

Before removing autopositioner, note which channel number appears in the CHANNEL window, and mark the loading screw that appears directly in the center of the output loading screw hole. The output loading screw must be centered directly in the hole to ensure proper alignment when the unit is replaced.

a. Remove four screws (on front of panel) and their seals holding the autopositioner to the front panel.

NOTE

Retain the two metal spacers which are detached when the screws holding the autopositioner to the front panel are removed.

b. Release plugs P-503 and P-504 from their respective receptacles (fig 5-94).

c. Remove the retaining rings from the large flat gear 0-501 connected to the front panel. Carefully lift the bottom of the autopositioner out and up so the dial clears the flat gear; then lift straight up and free from the chassis. The large gear is not connected to the autopositioner, but does prevent direct removal of the autopositioner due to the location of the dial.

5-199. Disassembly and Reassembly. Refer to figures 5-96 and 5-99 during this procedure. Do not disassemble the gear train unless necessary; if necessary, begin with item 1 in figure 5-99. If part of switch S503 needs to be replaced, begin disassembly with item 85, then 84 and 83. Next, depending upon which part of the switch needs to be replaced, continue with items 73 and 72, or 36 and 35. Reassembly is the reverse of whichever disassembly procedure is undertaken.

5-200. Lubrication. Lubrication of the autopositioner subassembly should be accomplished at least once each year as follows:

a. Apply a thin film of MIL-G-23827A grease to all gear teeth.

b. Apply one drop of MIL-L-6085A oil to each bronze sleeve bearing and each ball bearing in the subassembly.

5-201. Replacement. Reverse the removal procedures in paragraph 5-198. Before final mounting of subassembly, ensure that channel number and loading screw are positioned as noted during the removal procedure.

5-202. POWER AMPLIFIER. This subassembly is partially repairable aboard ship. Refer to paragraph 5-2 for those parts which are shipboard replaceable.

WARNING

Do not slide the AM-1565 chassis out of case unless the AN/SRC-20( ) is bolted down.

5-203. Removal. Remove the AM-1565 as in paragraph 5-192. Refer to figures 5-87, and 5-101 through 5-111 during the following procedures:

a. Disconnect the following plugs from their connectors: P201, P1, P402, P215, P211, and P203 (fig 5-87).

b. Remove four screws on the right-hand side of the Power Amplifier cavity flange which hold the assembly to the chassis. Remove two screws at the rear and one on the front of the subassembly which secure the unit to the chassis.

c. Pull the Power Amplifier subassembly straight up and slightly toward the rear and free from the chassis; be careful not to bend output loading capacitor plunger that engages stop wheel.

5-204. Automatic Drive Control Detector Diode (V203) Replacement. Refer to figures 5-101 through 5-111.

a. Remove four screws form the top of the detector diode housing on the Power Amplifier subassembly, and remove the top cover of the housing.

b. Using a small screwdriver, carefully slide the diode toward the rear of the cavity until the pins disengage the socket.

c. Loop a piece of wire or string over the rear end of the diode. Lift the rear of the diode free of the back clip, be careful not to bend the heater pins.

d. Grasp the rear of the tube and carefully pull straight back to remove the tube from the front clip.

e. To replace the diode, lay it on top of the two clips with the heater pins in line vertically and clear the tube socket.

NOTE
Ensure the pins do not strike the socket during the following steps.

f. Press on both ends of the tube directly over the clips until it is seated.

g. Align the tube pins with the socket and carefully push the tube forward until the pins are fully seated. The socket may have to be rocked slightly to align the pins properly.

h. Replace the top cover and secure with the four screws.

5-205. Cavity Tube (V201 and V202) Replacement. Refer to figures 5-101 through 5-111.

a. Remove six screws holding the back cover to the cavity; remove the cover.

b. Loosen two tube clamp screws.

c. Insert a tube puller between the tube fins so that the puller hooks over the outer rim and not over a fin.

d. Remove the tube carefully.

e. To replace the tube, insert tube into socket and seat firmly without forcing.

f. Tighten the tube clamp screws, and replace the back cover of the cavity.

5-206. Lubrication. Lubrication of the Power Amplifier subassembly is a requirement under the Preventative Maintenance Program and is scheduled quarterly. If it is verified that lubrication has been accomplished as scheduled, do not repeat the procedures during repair.

a. Lubrication is performed while the subassembly is removed from AM-1565 chassis; for removal, refer to paragraph 5-203.

b. Remove covers from lead screws 0202 and 0203 (fig 5-105). Clean foreign matter and old lubricant from threads.

c. Apply two or three drops of MIL-L-6085A oil to each lead screw; distribute oil evenly over length of screws.

d. Apply one or two drops of oil to the top of each lead screw follower.

e. Apply one drop of oil to each ball bearing at the ends of each lead screw.

f. Remove excess oil. Replace lead screw covers.

NOTE
Disassembly of inner cavities for lubrication of inner lead screws is not an authorized maintenance procedure aboard ship.

g. Apply one drop of oil to tachometer MG-201 where its shaft enters motor housing (fig 5-102).

h. Apply one drop of oil to each ball bearing in each of the gear plates. Apply one drop of oil to each bronze oilite bearing in each of the gear plates. (fig 5-103 and 5-104).

i. Remove excess oil.

5-207. Replacement. Reverse the removal procedure.

5-208. SERVO AMPLIFIER. This subassembly is shipboard repairable. All components are replaceable aboard ship.

WARNING
Do not slide the AM-1565 chassis out of case unless the AN/SRC-20( ) is bolted down.

5-209. Removal. Remove the AM-1565 as in paragraph 5-192. Refer to figures 5-89, 5-112, 5-113, and 5-114 during the following procedures:

a. Tilt AM-1565 so that the front panel faces upward (fig 5-86).

b. Remove bottom cover; loosen four captive screws that hold Servo Amplifier subassembly in place; disconnect plug P401 (fig 5-89).

c. Lift the Servo Amplifier subassembly out.

5-210. Replacement. Reverse the removal procedure.

5-211. AIR FILTER AND CASE CENTRIFUGAL FAN. The centrifugal fan and air filter must be cleaned at least once every six months. Those portions of the procedure verified accomplished under scheduled preventive maintenance need not be repeated.

WARNING

Do not slide the AM-1565 chassis out of case unless the AN/SRC-20( ) is bolted down.

5-212. Removal and Cleaning. Remove the air filter and fan as follows:

a. Extend AM-1565 from case as in figure 5-85.

b. Release cable assembly from rear of AM-1565 chassis (fig 5-90).

c. Two persons required: each depresses a safety stop located on each drawer slide (5, fig 5-85) and while supporting the weight of the chassis, withdraw it completely from the case. Place chassis on deck or bench.

d. Disconnect plug P-1101 from J-105 (fig 5-90).

e. Hold centrifugal fan with one hand while removing eight mounting nuts with other hand.

f. Lift out the fan assembly.

g. Remove the air filter from the bottom of the case (0107, fig 5-90).

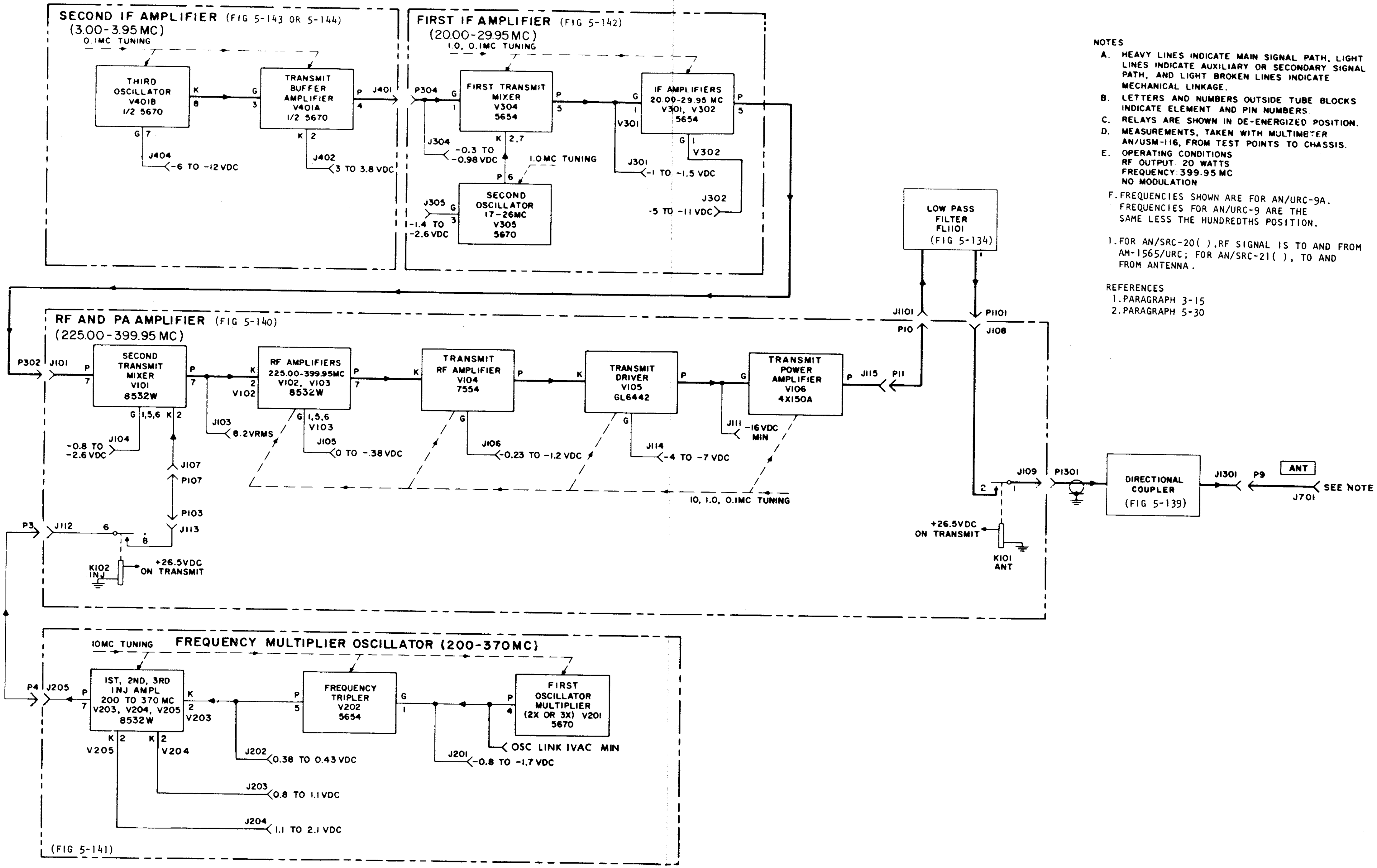
h. Brush and vacuum accumulated dirt from fan blades and fan housing. Tap the air filter gently on deck while vacuuming out dust and dirt.

i. Replace air filter.

j. Replace centrifugal fan; reverse removal procedures.

k. Using two persons; restore the AM-1565 chassis to its normal position in the case.

5-213. Replacement. Reverse the removal procedure.



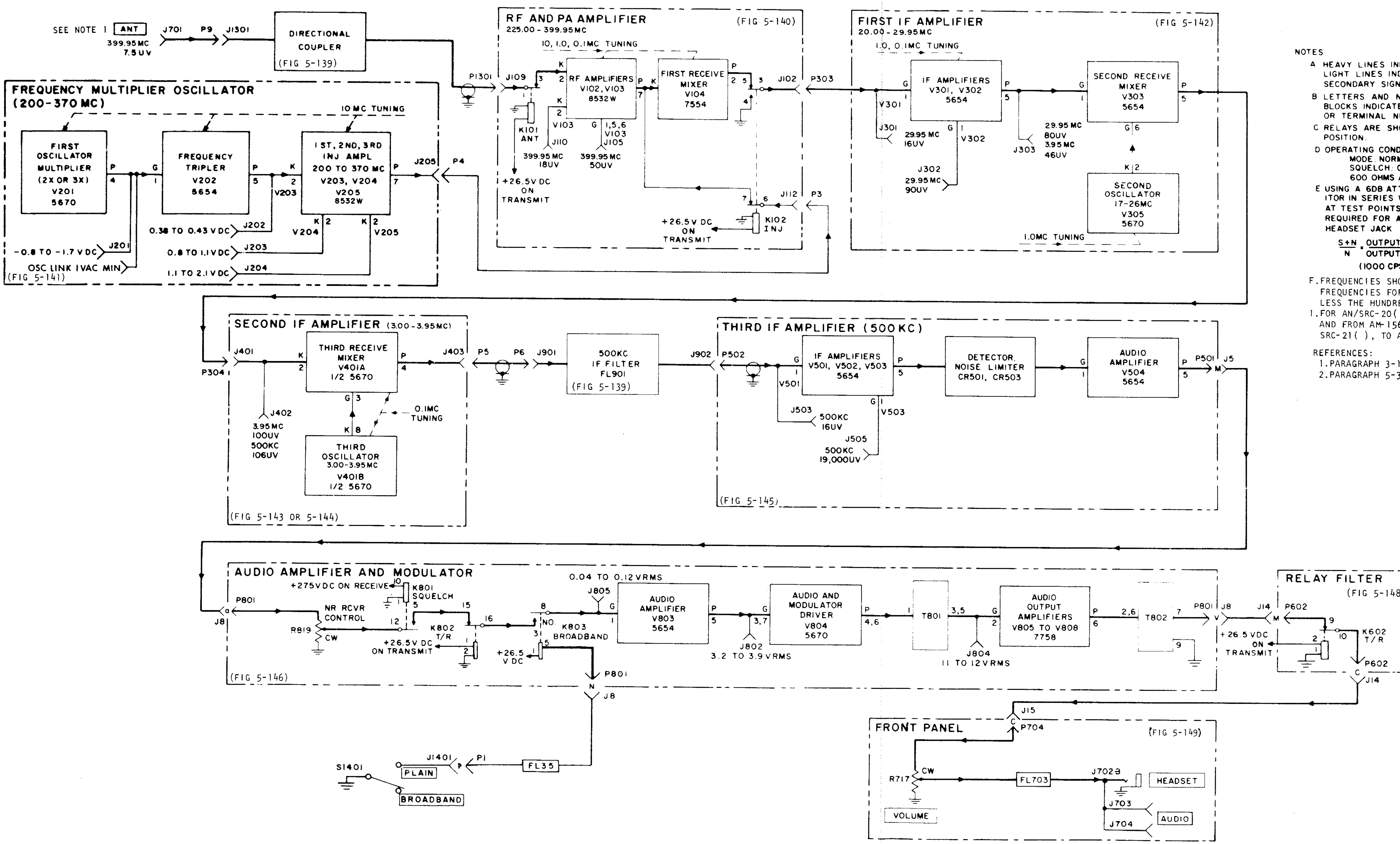
NOTES

A. HEAVY LINES INDICATE MAIN SIGNAL PATH, LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATH, AND LIGHT BROKEN LINES INDICATE MECHANICAL LINKAGE.
B. LETTERS AND NUMBERS OUTSIDE TUBE BLOCKS INDICATE ELEMENT AND PIN NUMBERS.
C. RELAYS ARE SHOWN IN DE-ENERGIZED POSITION.
D. MEASUREMENTS, TAKEN WITH MULTIMETER AN/USM-116, FROM TEST POINTS TO CHASSIS.
E. OPERATING CONDITIONS
RF OUTPUT 20 WATTS
FREQUENCY 399.95 MC
NO MODULATION
F. FREQUENCIES SHOWN ARE FOR AN/URC-9A. FREQUENCIES FOR AN/URC-9 ARE THE SAME LESS THE HUNDREDTHS POSITION.

1. FOR AN/SRC-20( ), RF SIGNAL IS TO AND FROM AM-1565/URC; FOR AN/SRC-21( ), TO AND FROM ANTENNA.

REFERENCES
1. PARAGRAPH 3-15
2. PARAGRAPH 5-30

Figure 5-1. Radio Set AN/URC-9( ), Transmit RF Function Troubleshooting Block Diagram



NOTES

A. HEAVY LINES INDICATE MAIN SIGNAL PATH, LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS.

B. LETTERS AND NUMBERS OUTSIDE TUBE BLOCKS INDICATE ELEMENT AND PIN OR TERMINAL NUMBERS.

C. RELAYS ARE SHOWN IN DE-ENERGIZED POSITION.

D. OPERATING CONDITIONS
MODE: NORMAL
SQUELCH: OFF
600 OHMS ACROSS HEADSET JACK

E. USING A 6DB ATTENUATOR AND 0.01UF CAPACITOR IN SERIES WITH TEST EQUIPMENT, VALUES AT TEST POINTS ARE INJECTION LEVELS REQUIRED FOR A S+N/N RATIO OF 10DB AT HEADSET JACK

$$\frac{S+N}{N} = \frac{\text{OUTPUT 30\% MODULATED}}{\text{OUTPUT NOT MODULATED}}$$

(1000 CPS MODULATION)

F. FREQUENCIES SHOWN ARE FOR AN/URC-9A. FREQUENCIES FOR AN/URC-9 ARE THE SAME LESS THE HUNDREDTHS POSITION.

1. FOR AN/SRC-20( ), RF SIGNAL IS TO AND FROM AM-1565/URC; FOR AN/SRC-21( ), TO AND FROM ANTENNA.

REFERENCES:
1. PARAGRAPH 3-110
2. PARAGRAPH 5-30

Figure 5-2. Radio Set AN/URC-9( ), Receive Function Troubleshooting Block Diagram

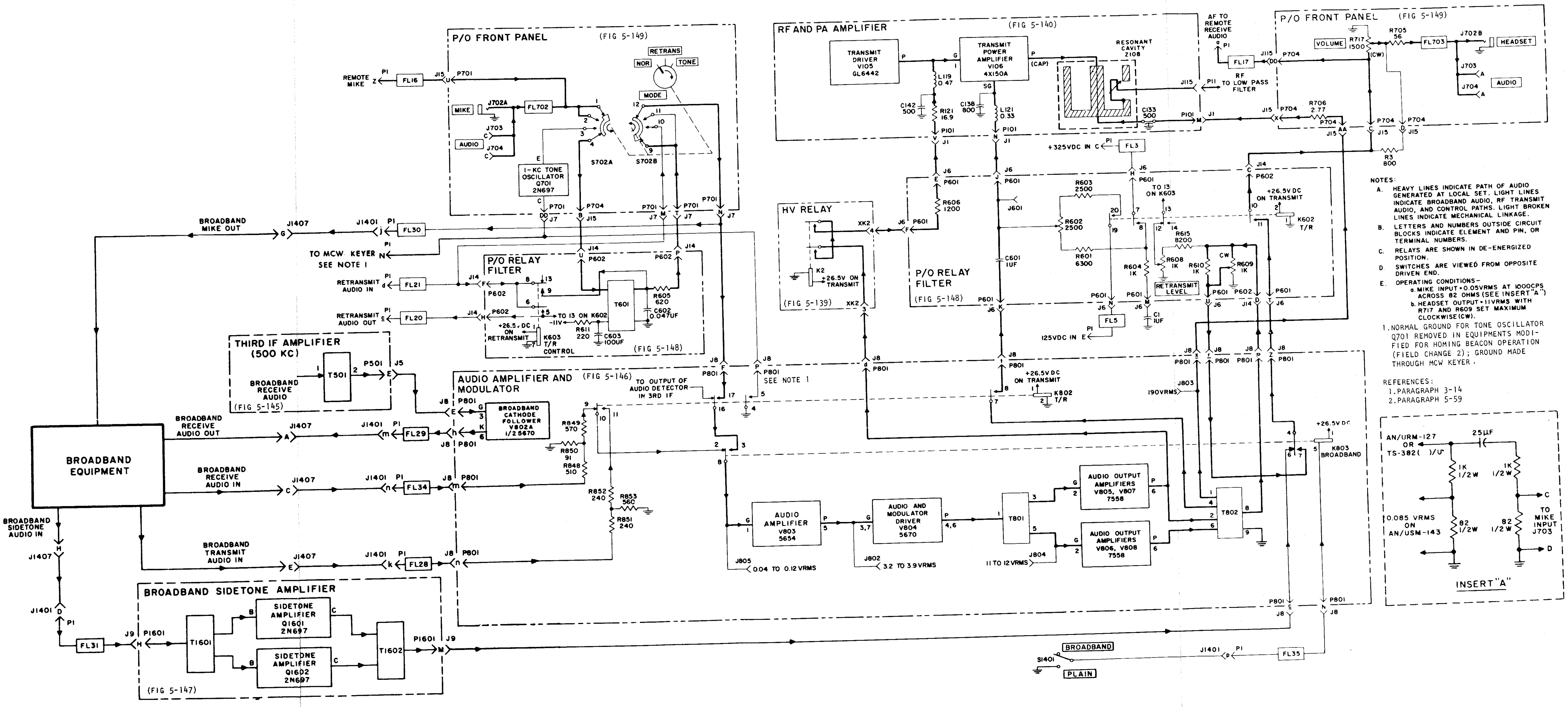


Figure 5-3. Radio Set AN/URC-9( ), Transmit Audio Function and Broadband Mode Troubleshooting Block Diagram

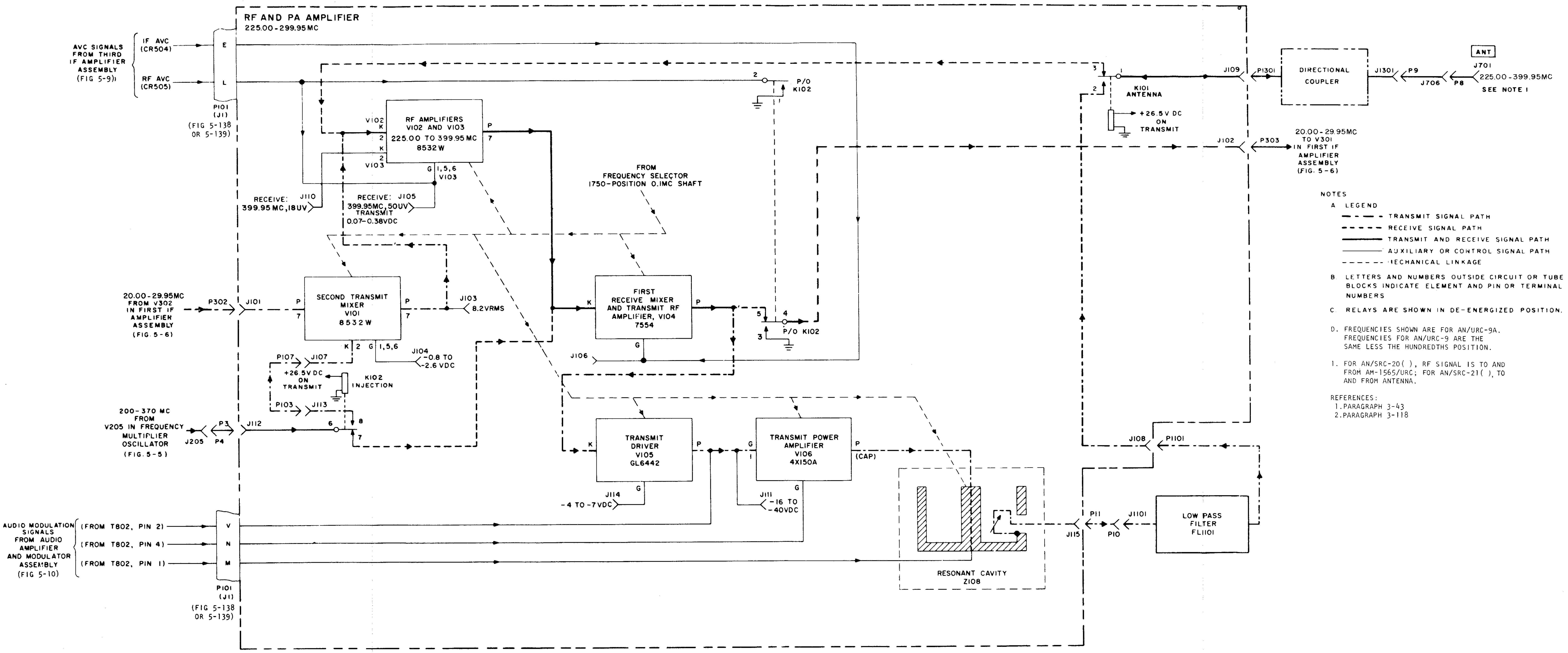
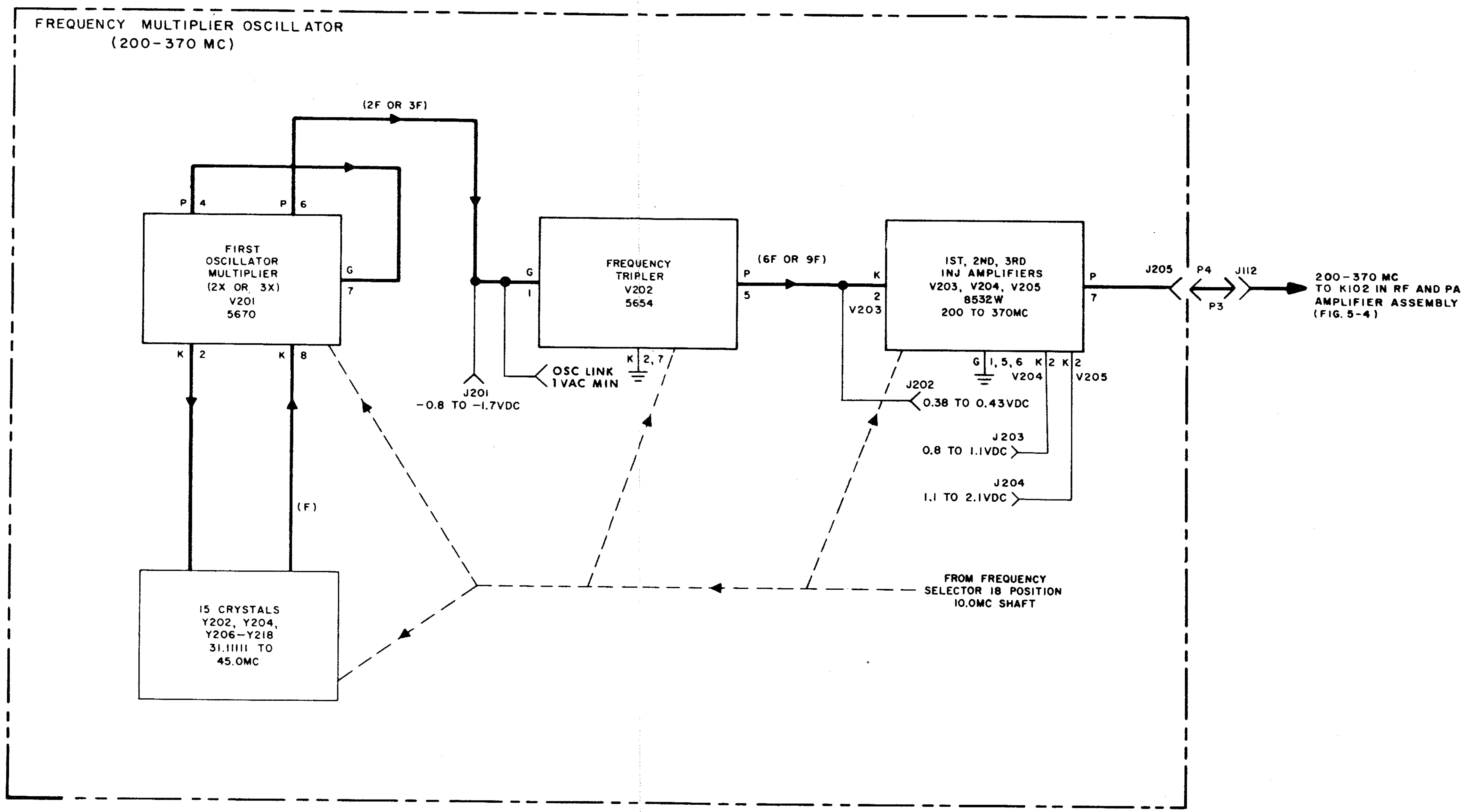


Figure 5-4. Radio Set AN/URC-9( ), RF and PA Amplifier Assembly, Servicing Block Diagram



NOTES:

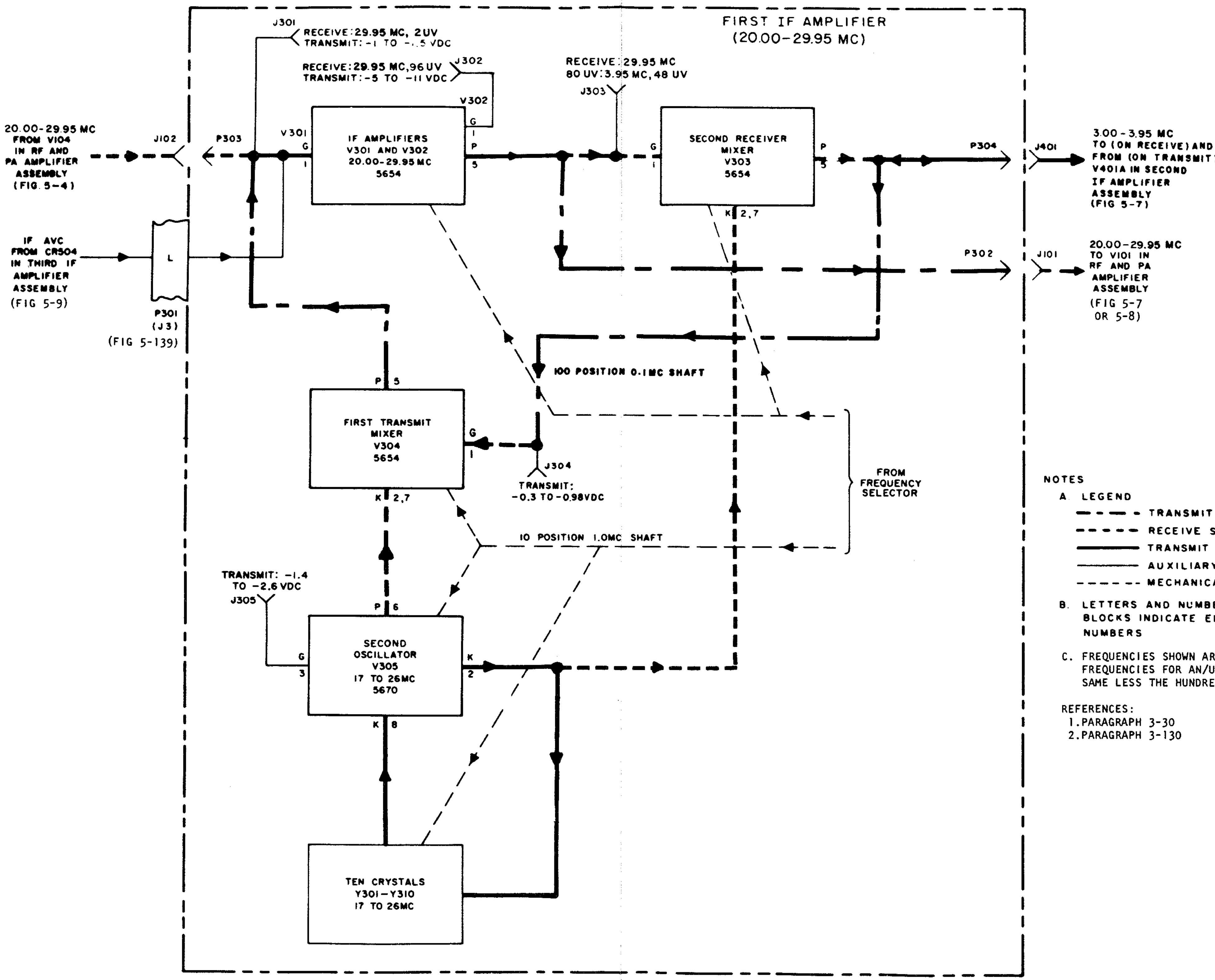
A. HEAVY LINES INDICATE SIGNAL PATH DURING TRANSMIT AND RECEIVE. LIGHT BROKEN LINES INDICATE MECHANICAL LINKAGE.

B. LETTERS AND NUMBERS OUTSIDE CIRCUIT BLOCKS INDICATE ELEMENT AND PIN NUMBER.

REFERENCE

PARAGRAPH 3-37

Figure 5-5. Radio Set AN/URC-9( ), Frequency Multiplier-Oscillator Assembly, Servicing Block Diagram



NOTES

A. LEGEND

- TRANSMIT SIGNAL PATH
- RECEIVE SIGNAL PATH
- TRANSMIT AND RECEIVE SIGNAL PATH
- AUXILIARY OR CONTROL SIGNAL PATH
- MECHANICAL LINKAGE

B. LETTERS AND NUMBERS OUTSIDE CIRCUIT OR TUBE BLOCKS INDICATE ELEMENT AND PIN OR TERMINAL NUMBERS

C. FREQUENCIES SHOWN ARE FOR AN/URC-9A. FREQUENCIES FOR AN/URC-9 ARE THE SAME LESS THE HUNDREDTHS POSITION.

REFERENCES:
1. PARAGRAPH 3-30
2. PARAGRAPH 3-130

Figure 5-6. Radio Set AN/URC-9( ), First IF Amplifier Assembly, Servicing Block Diagram

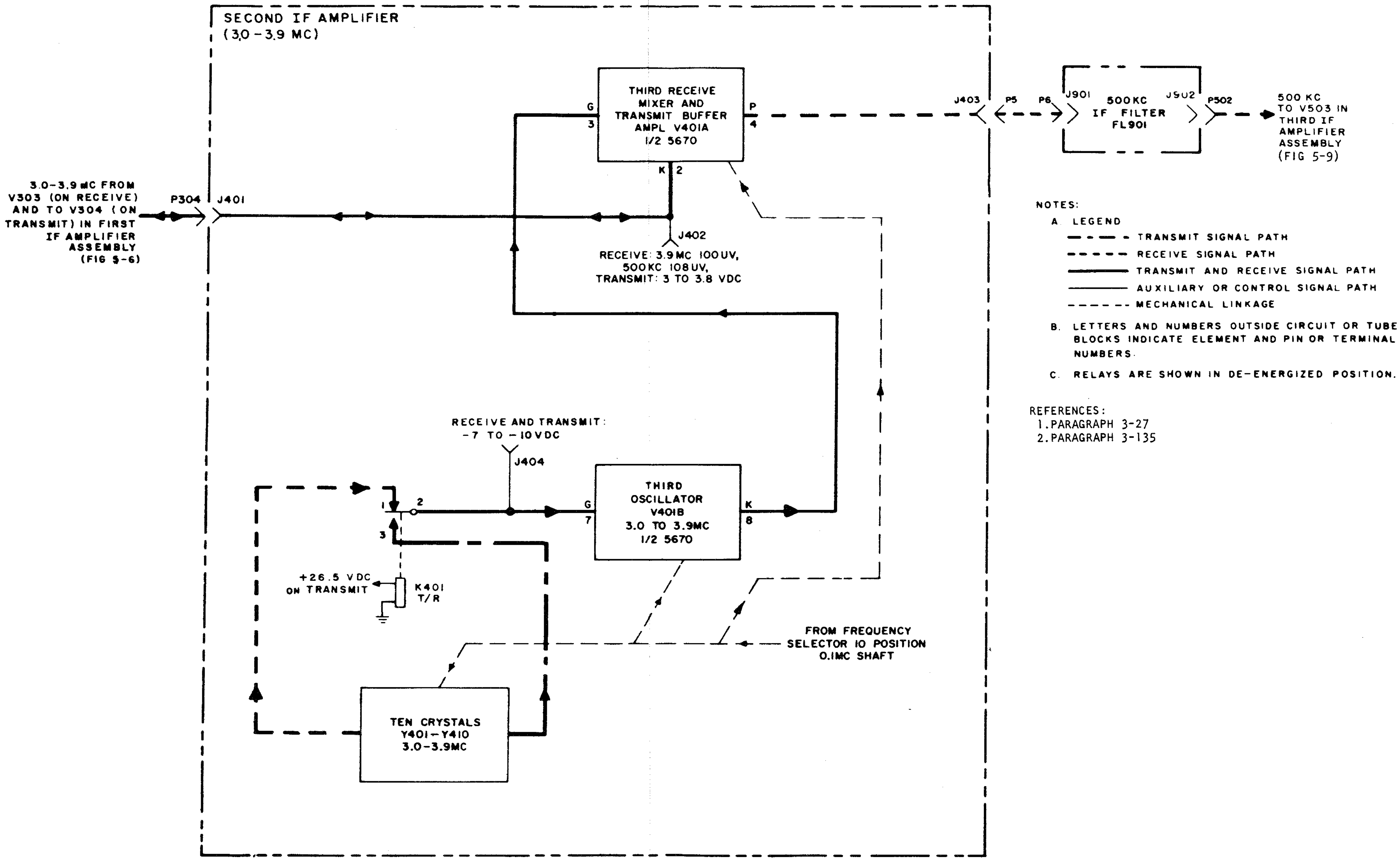


Figure 5-7. Radio Set AN/URC-9, Second IF Amplifier Assembly, Servicing Block Diagram

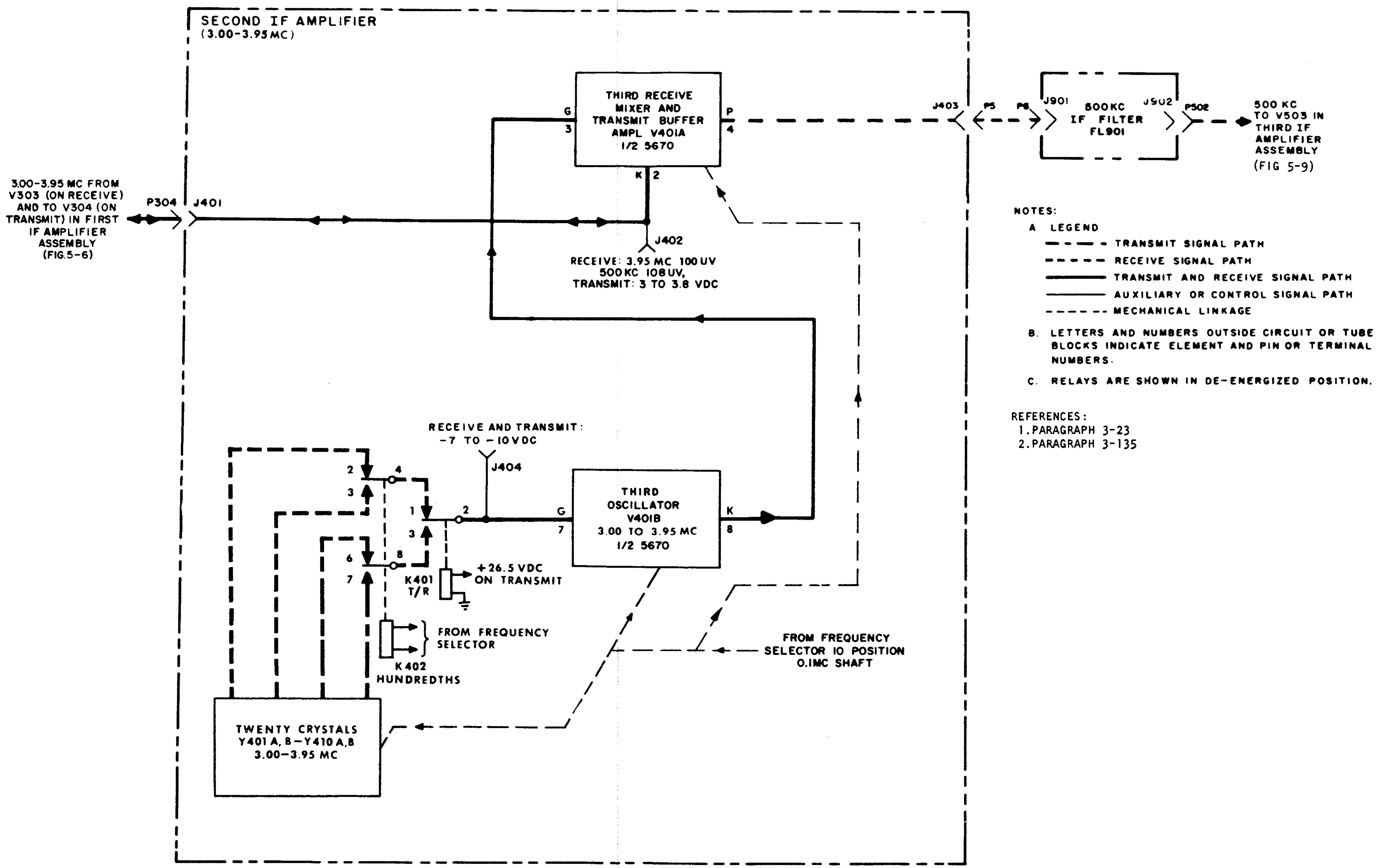
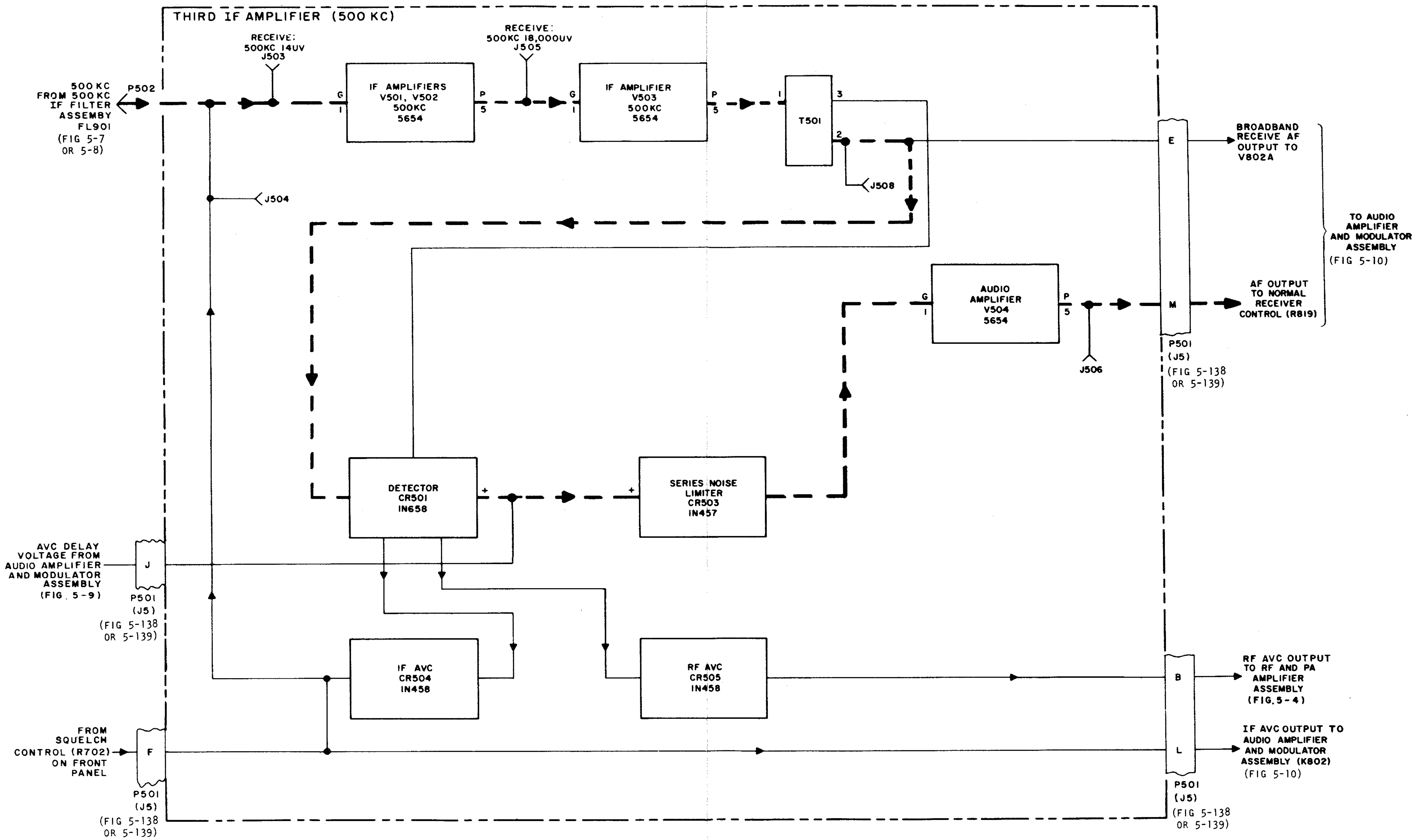


Figure 5-8. Radio Set AN/URC-9A, Second IF Amplifier Assembly, Servicing Block Diagram



NOTES:

A. HEAVY BROKEN LINES INDICATE RECEIVE SIGNAL PATH; LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS.

B. LETTERS AND NUMBERS OUTSIDE CIRCUIT BLOCKS INDICATE ELEMENT AND PIN OR TERMINAL NUMBERS.

REFERENCE:

PARAGRAPH 3-152

Figure 5-9. Radio Set AN/URC-9( ), Third IF Amplifier Assembly, Servicing Block Diagram

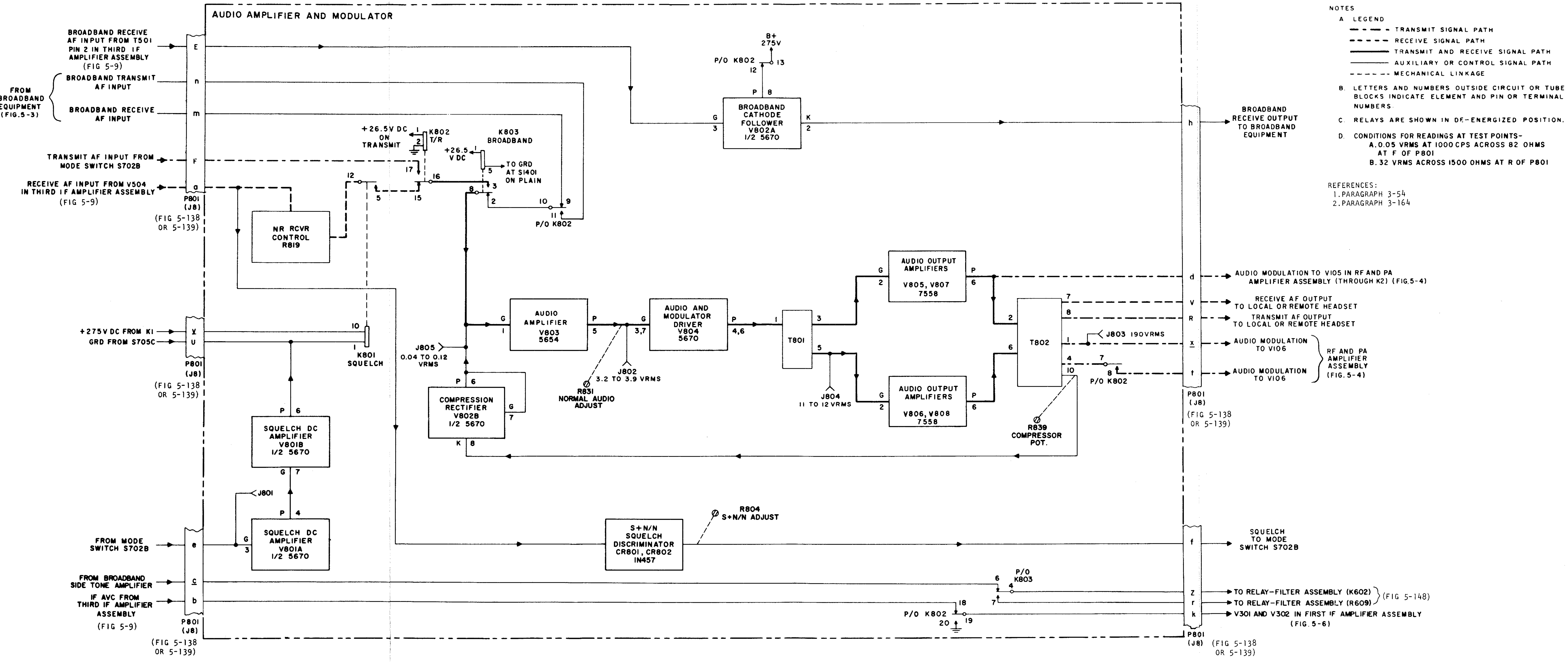
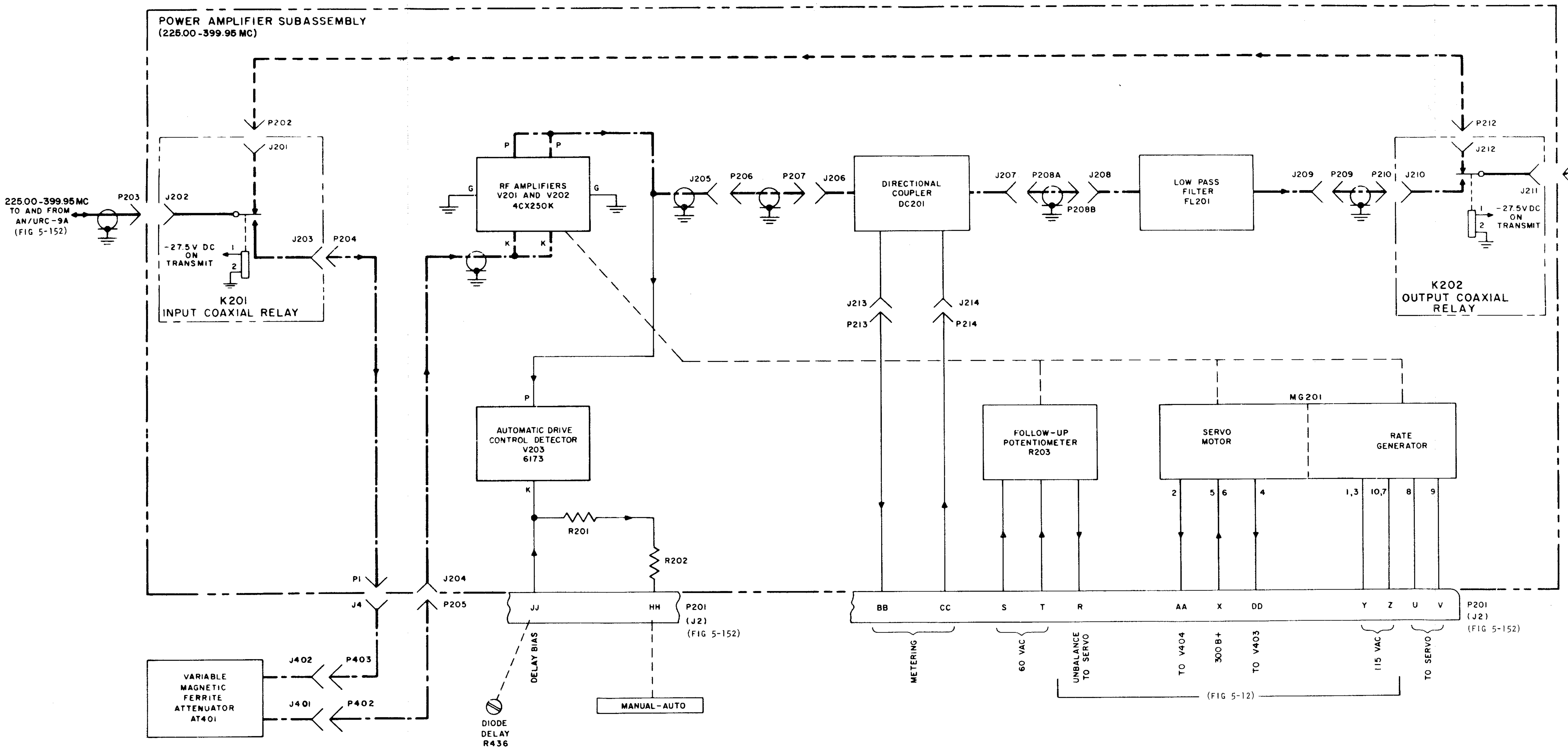


Figure 5-10. Radio Set AN/URC-9( ), Audio Amplifier and Modulator Assembly, Servicing Block Diagram



NOTES

A. LEGEND

- TRANSMIT SIGNAL PATH
- RECEIVE SIGNAL PATH
- TRANSMIT AND RECEIVE SIGNAL PATH
- AUXILIARY OR CONTROL SIGNAL PATH
- MECHANICAL LINKAGE

B. LETTERS AND NUMBERS OUTSIDE CIRCUIT OR TUBE BLOCKS INDICATE ELEMENT AND PIN OR TERMINAL NUMBERS.

C. RELAYS ARE SHOWN IN DEENERGIZED POSITION.

D. FREQUENCIES SHOWN ARE FOR AN/SRC-20A. FREQUENCIES FOR AN/SRC-20 ARE THE SAME LESS THE HUNDREDTHS DIGIT.

REFERENCE:
PARAGRAPH 3-81

Figure 5-11. Radio Frequency Amplifier AM-1565/URC, Power Amplifier Subassembly, Servicing Block Diagram

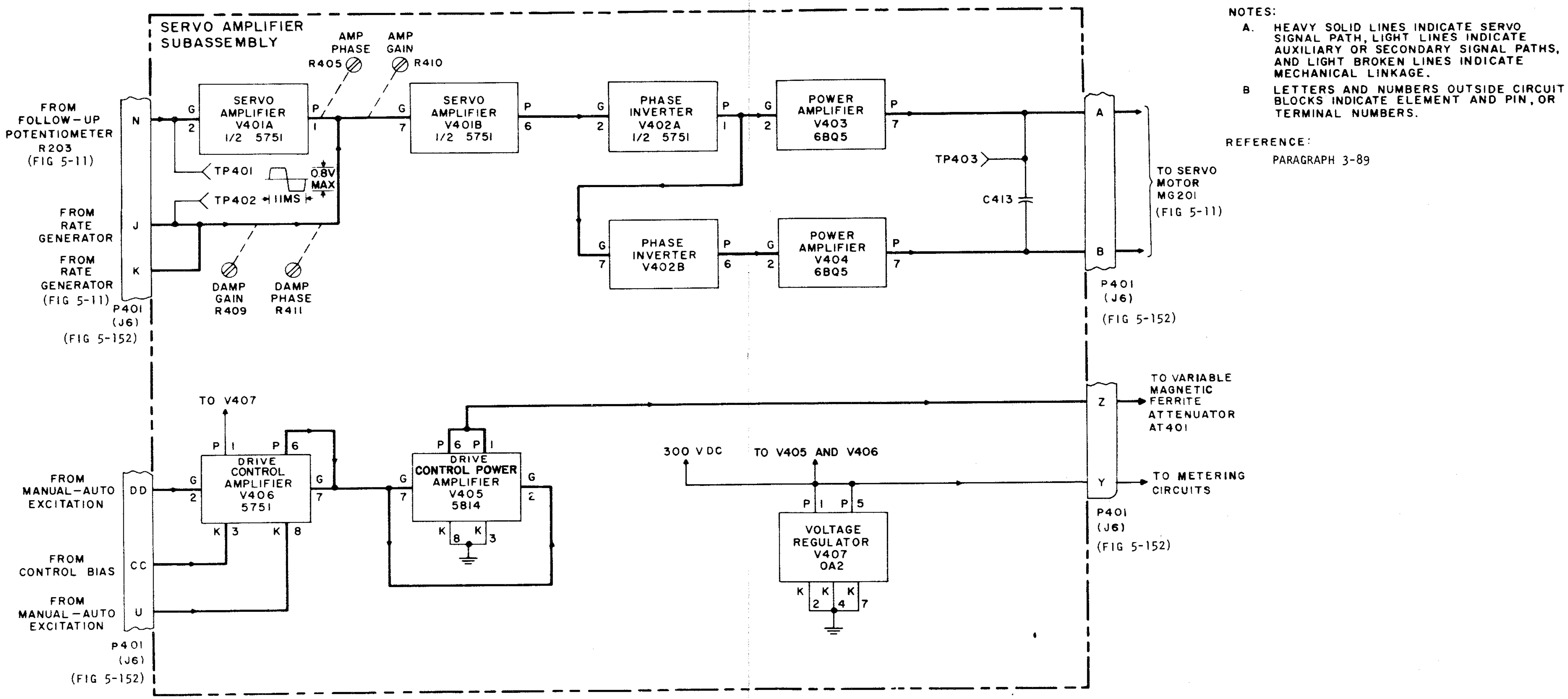


Figure 5-12. Radio Frequency Amplifier AM-1565/URC, Servo Amplifier Subassembly, Servicing Block Diagram

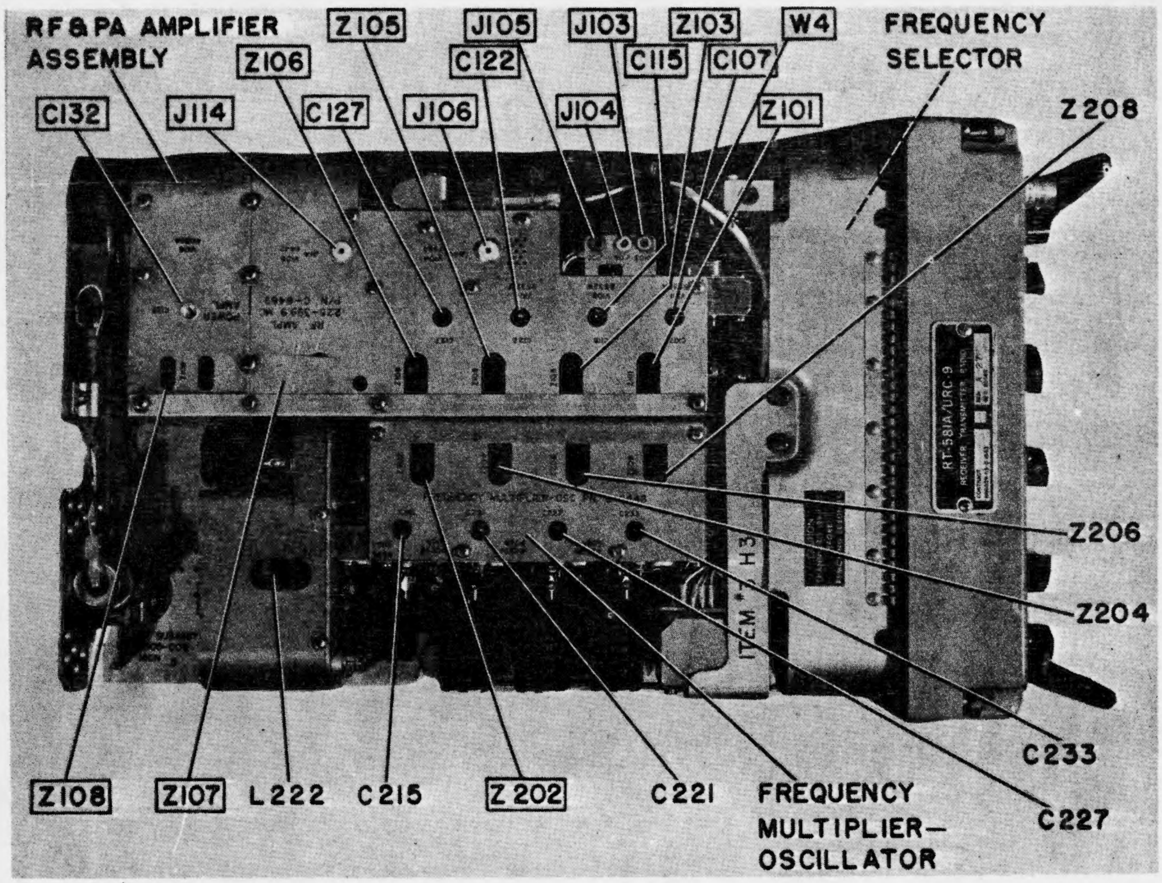


Figure 5-13. Receiver-Transmitter RT-581( )/URC-9, Top View

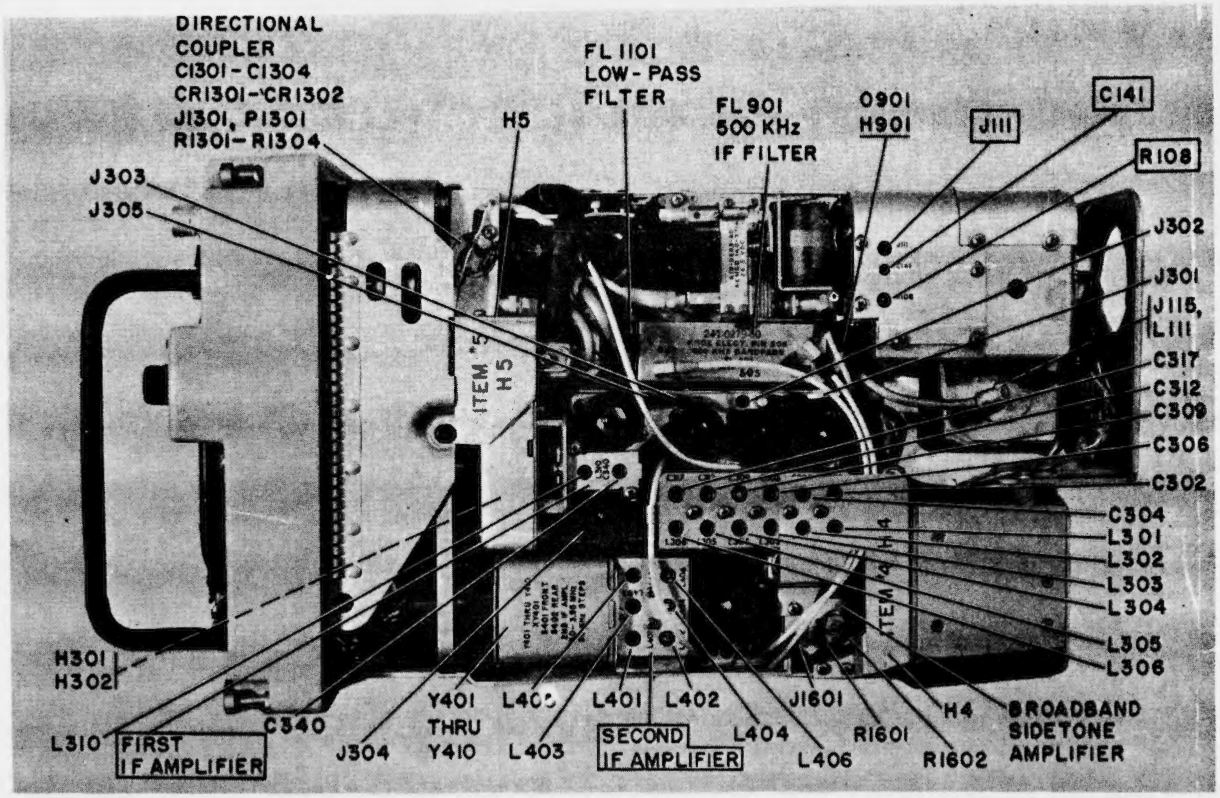


Figure 5-14. Receiver Transmitter RT-581( )/URC-9, Right Side

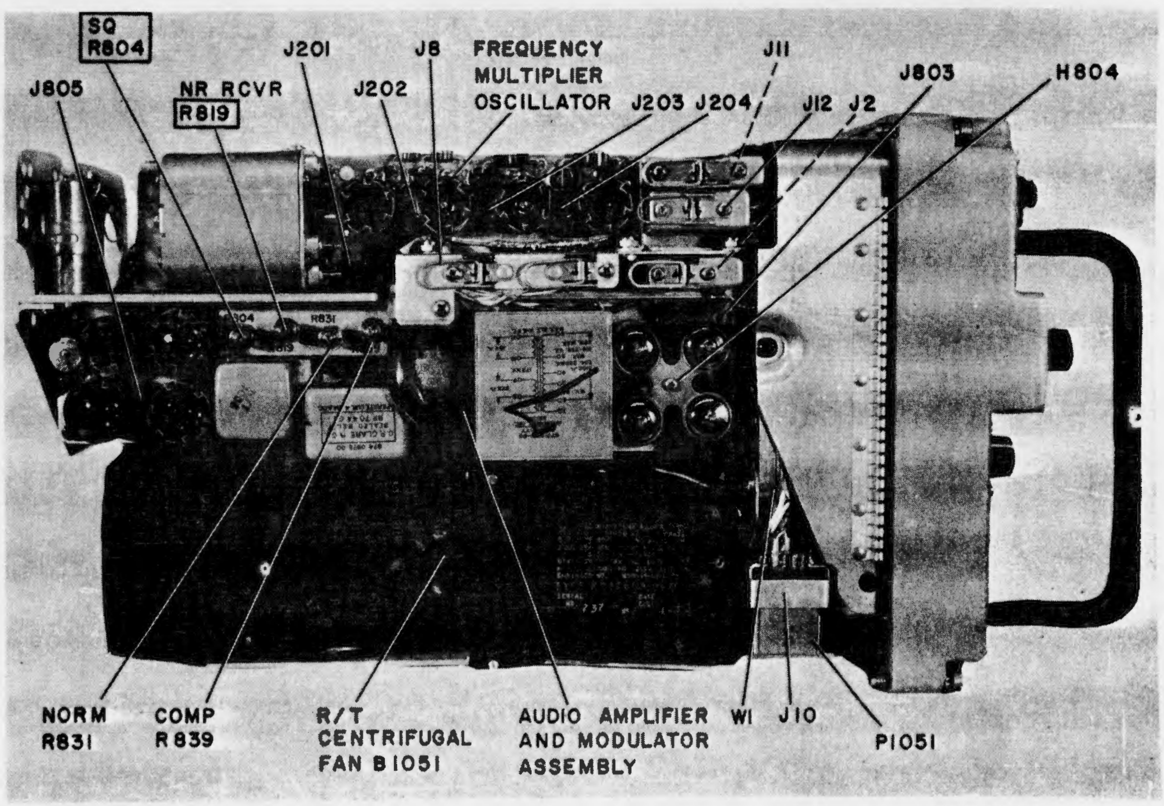


Figure 5-15. Receiver-Transmitter RT-581( )/URC-9, Left Side

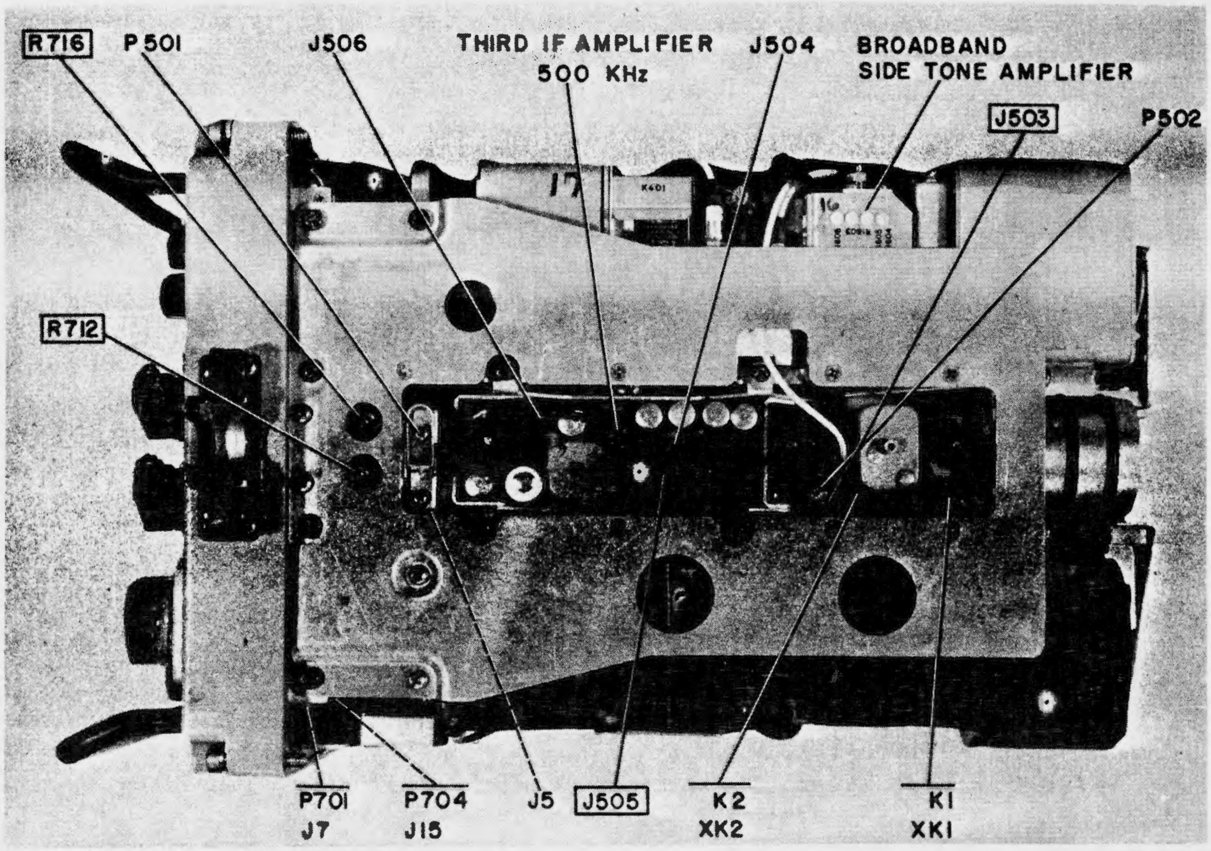


Figure 5-16. Receiver-Transmitter RT-581( )/URC-9, Bottom View

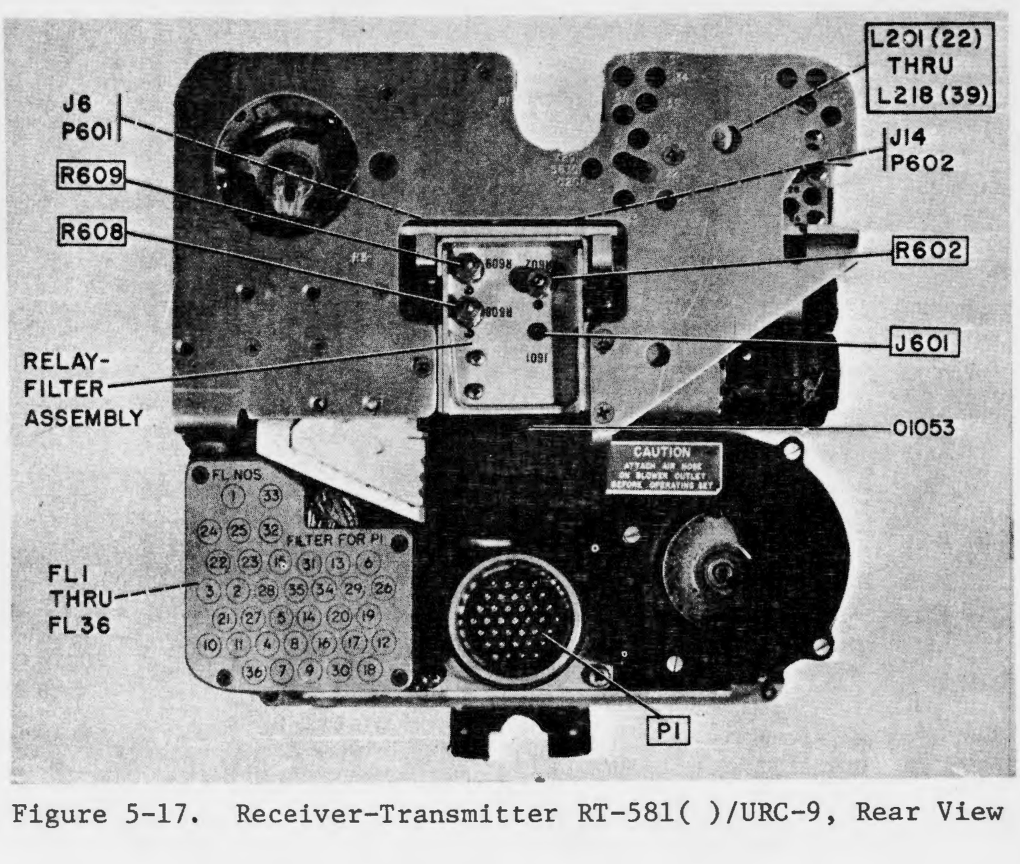


Figure 5-17. Receiver-Transmitter RT-581( )/URC-9, Rear View

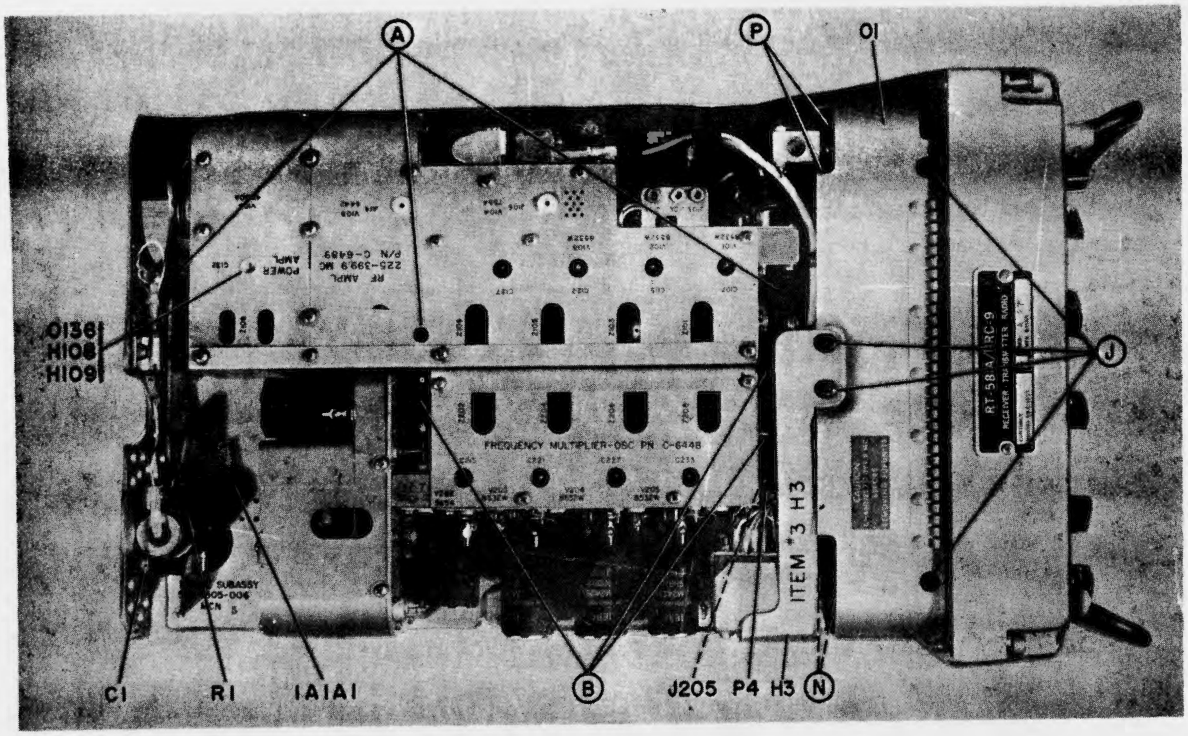


Figure 5-18. Receiver-Transmitter RT-581( )/URC-9, Top View. Subassembly Removal

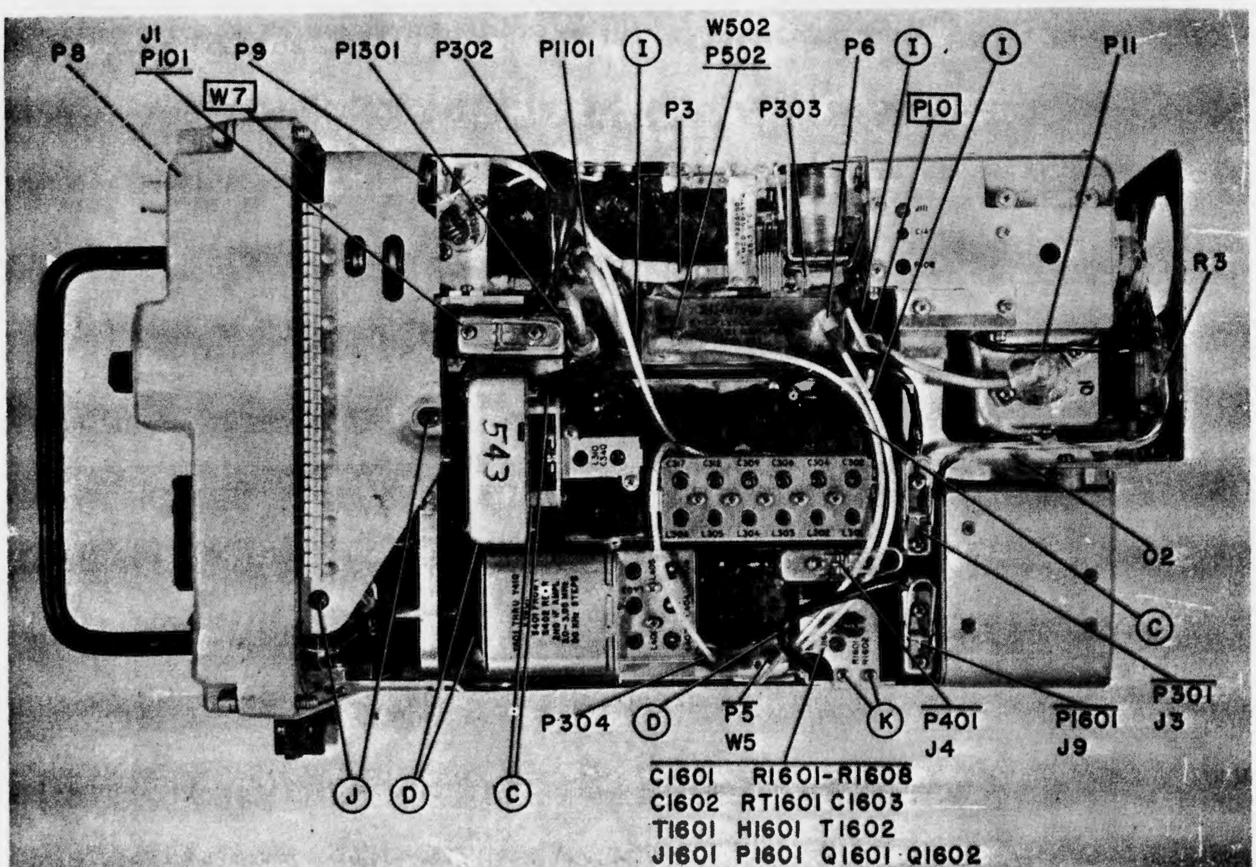


Figure 5-19. Receiver-Transmitter RT-581( )/URC-9, Right Side, Subassembly Removal

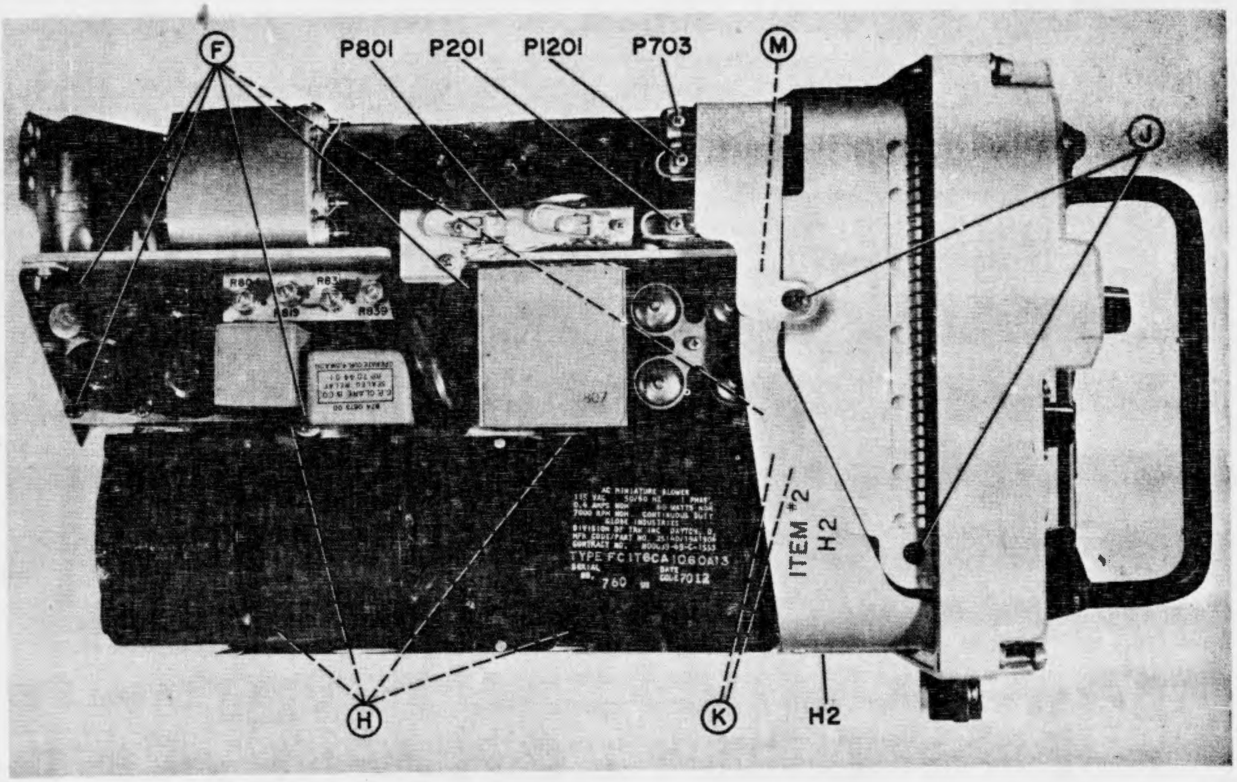


Figure 5-20. Receiver-Transmitter RT-581( )/URC-9, Left Side, Subassembly Removal

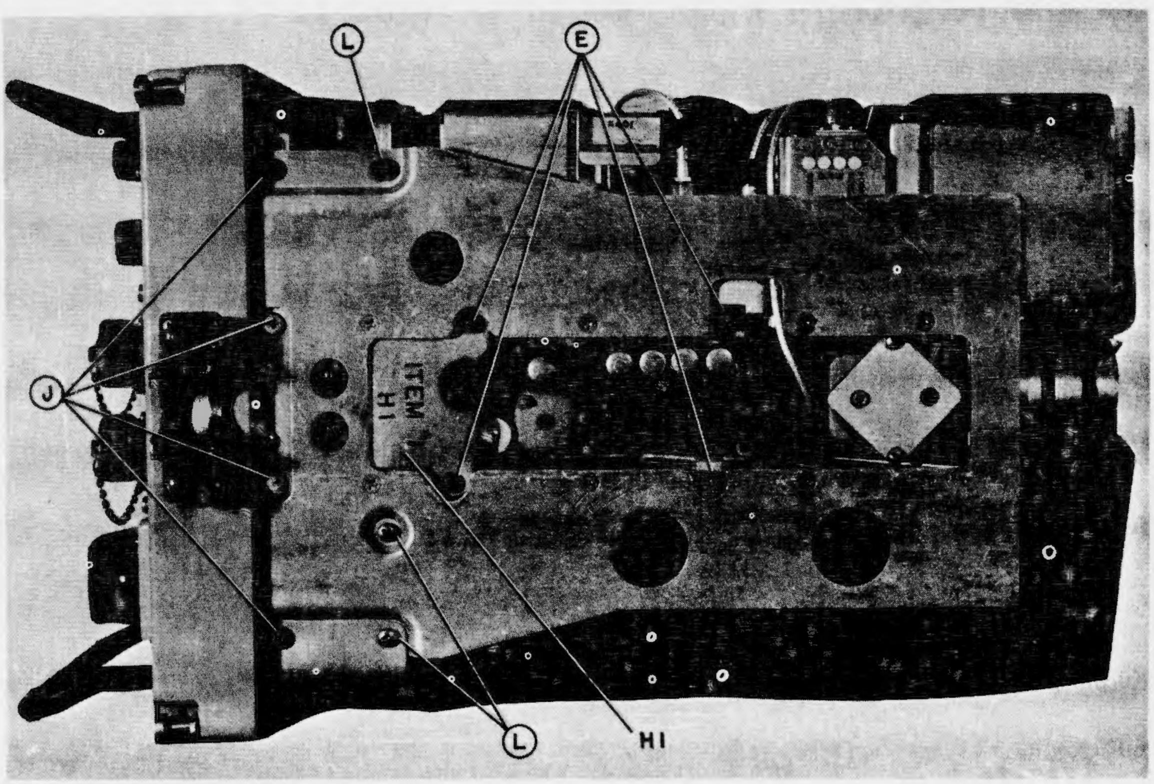


Figure 5-21. Receiver-Transmitter RT-581( )/URC-9, Bottom View, Subassembly Removal

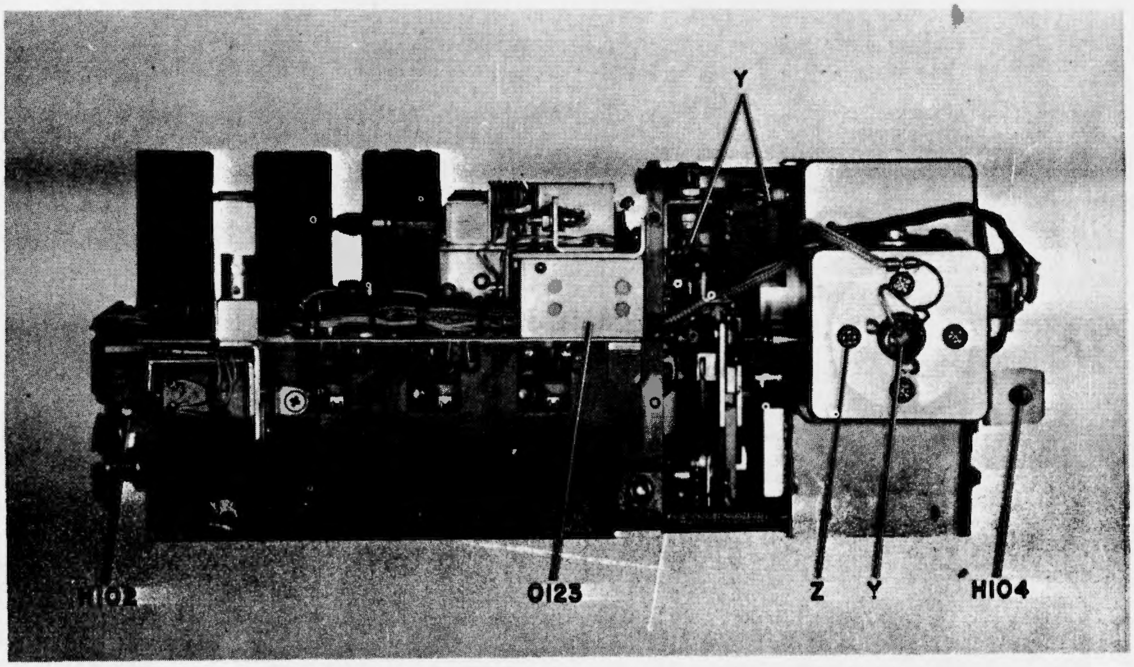


Figure 5-22. RT-581( )/URC-9, RF and PA Amplifier Assembly, Right Side, Disassembly Points

DO NOT DISCARD FILAMENT
ADAPTER 0140 ON V105

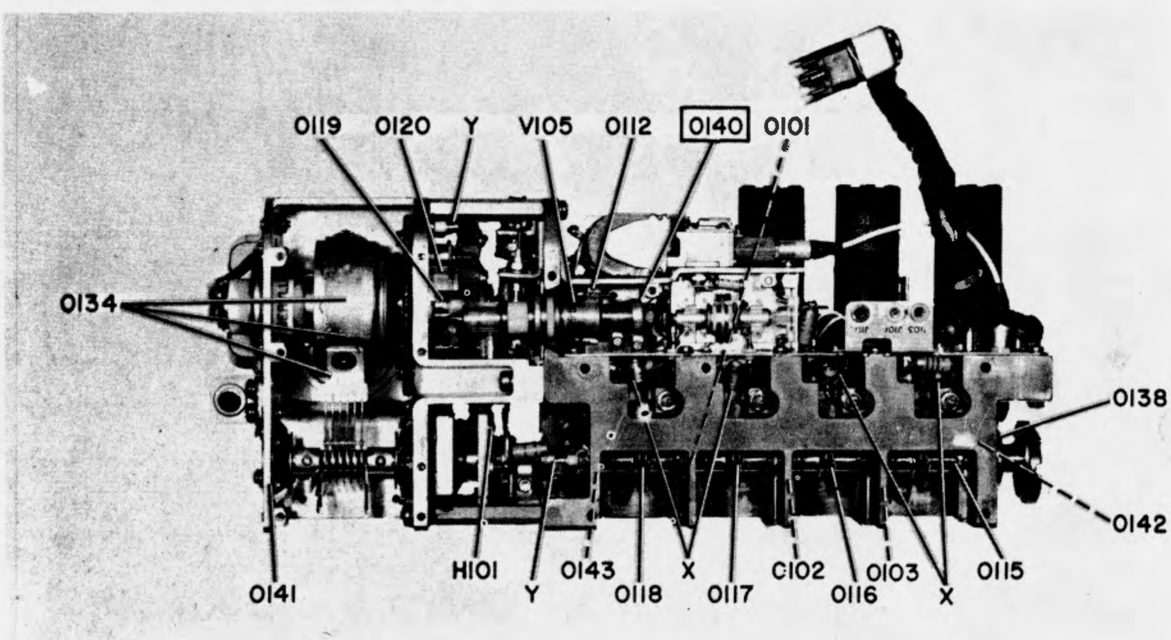


Figure 5-23. RT-581( )/URC-9, RF and PA Amplifier Assembly, Left Side, Disassembly Points

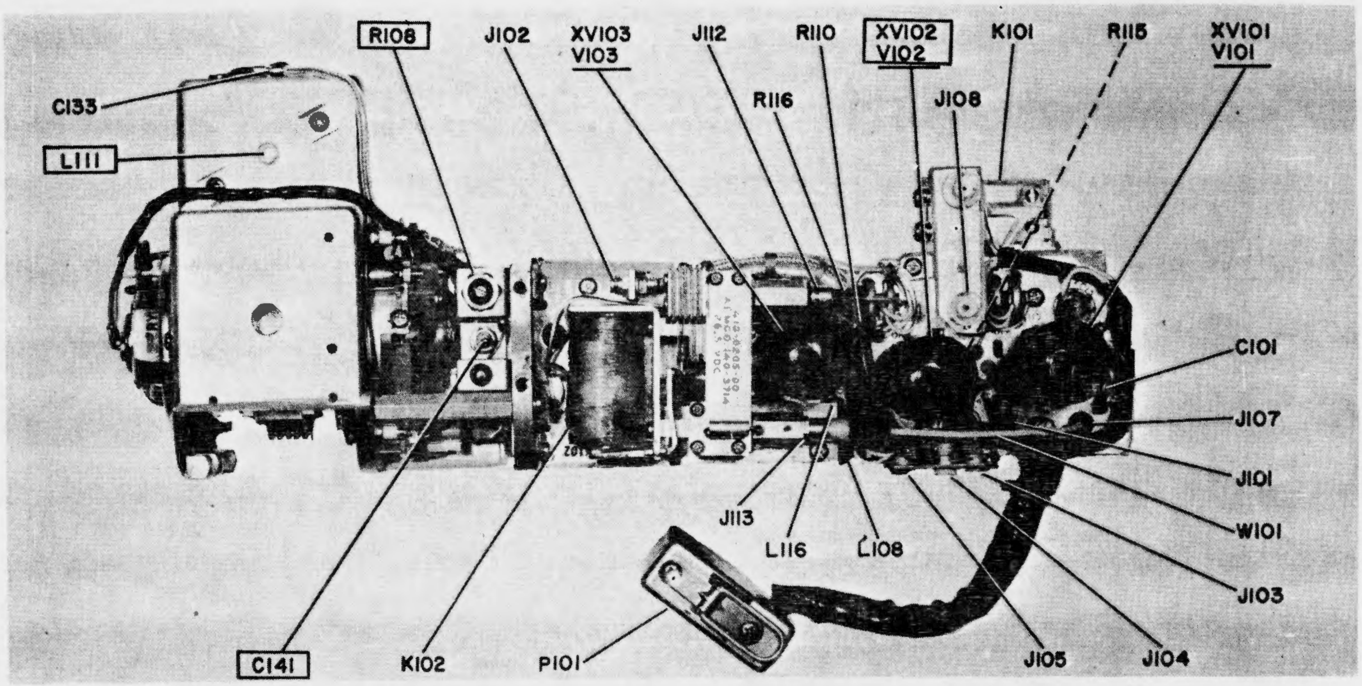


Figure 5-24. RT-581( )/URC-9, RF and PA Amplifier Assembly, Top View

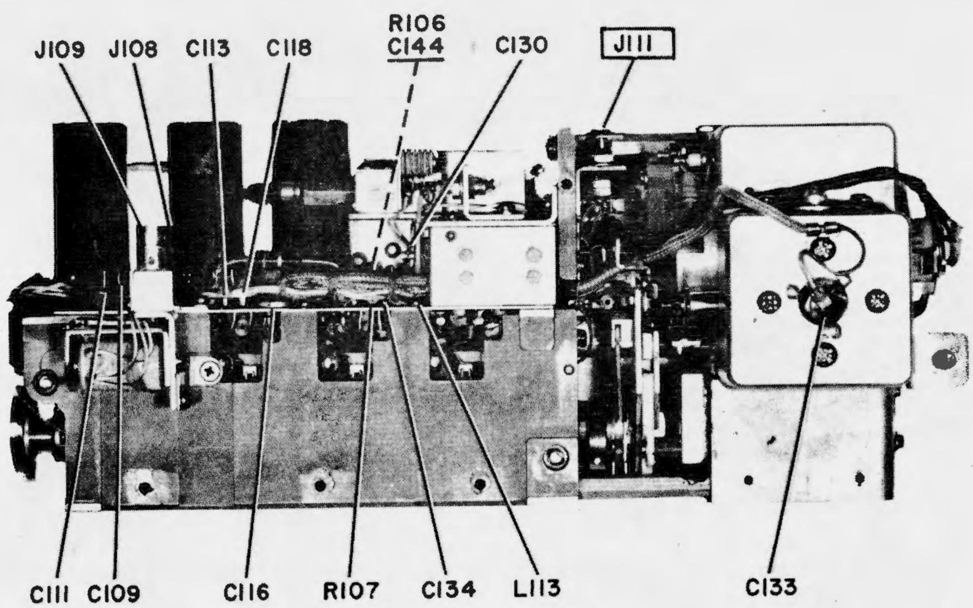


Figure 5-25. RT-581( )/URC-9, RF and PA Amplifier Assembly, Right Side

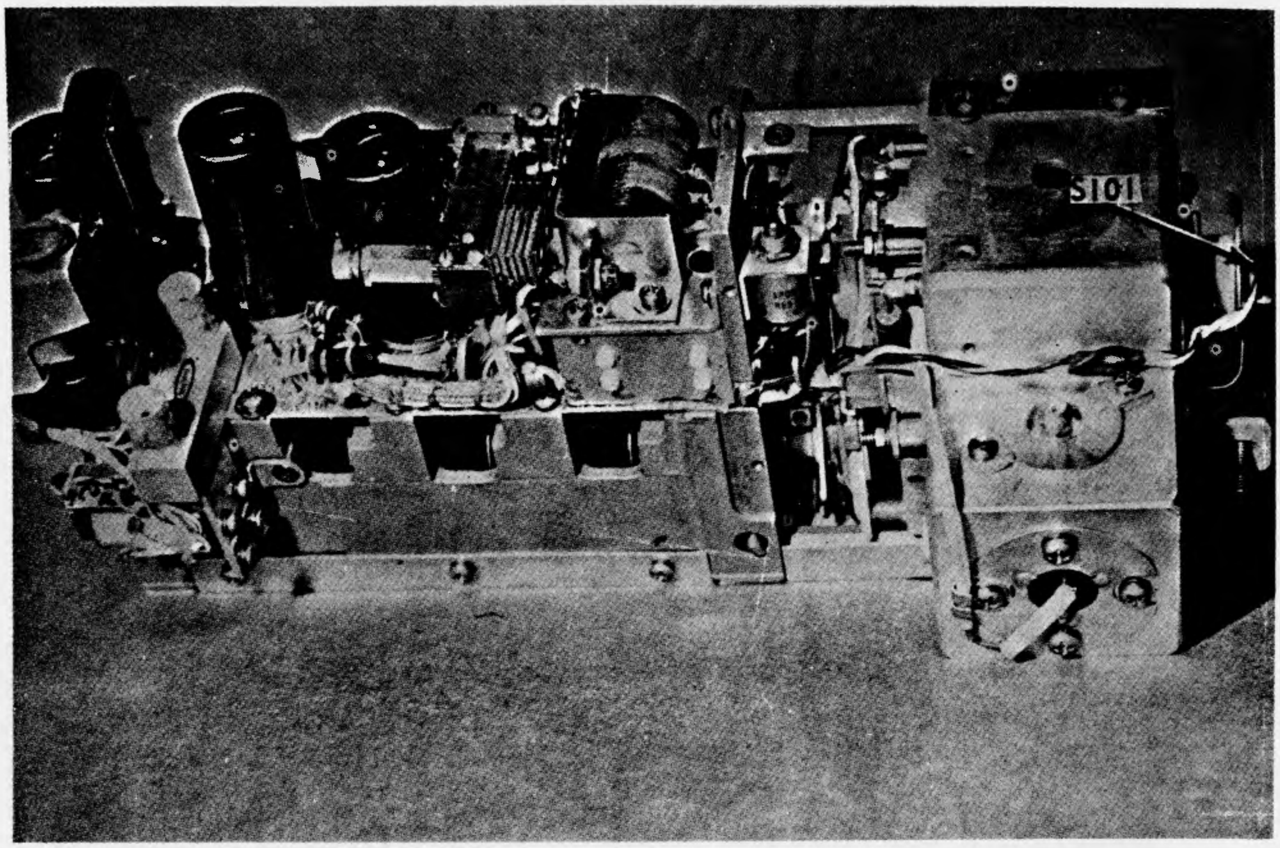


Figure 5-26. RT-581( )/URC-9, RF and PA Amplifier Assembly, Side View Showing Thermal Sensor

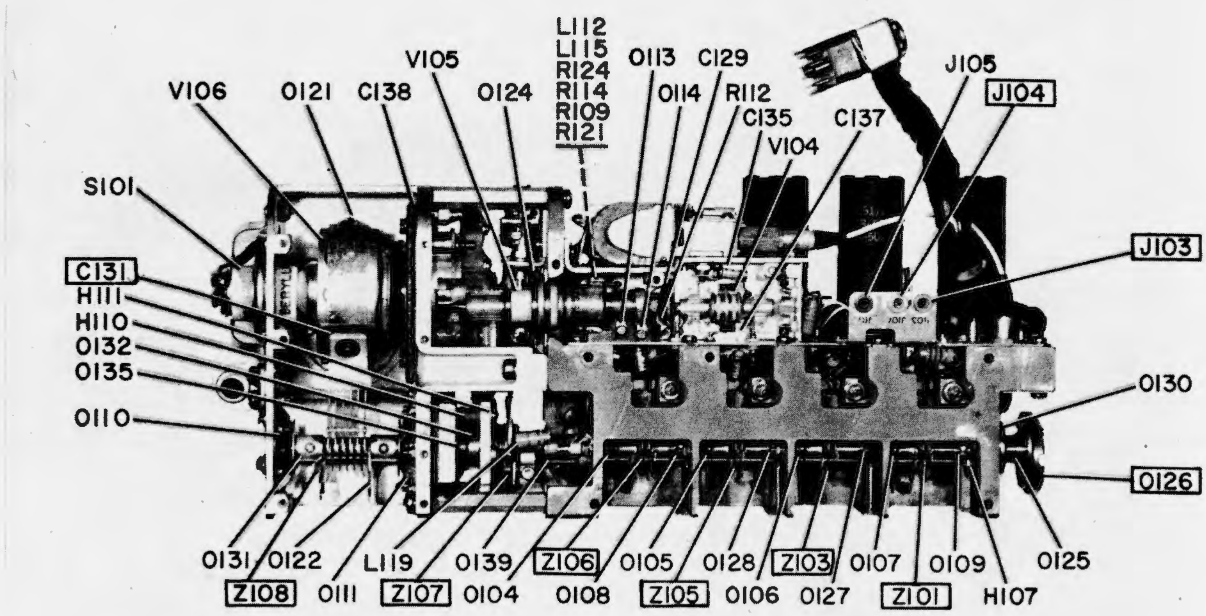


Figure 5-27. RT-581( )/URC-9, RF and PA Amplifier Assembly, Left Side

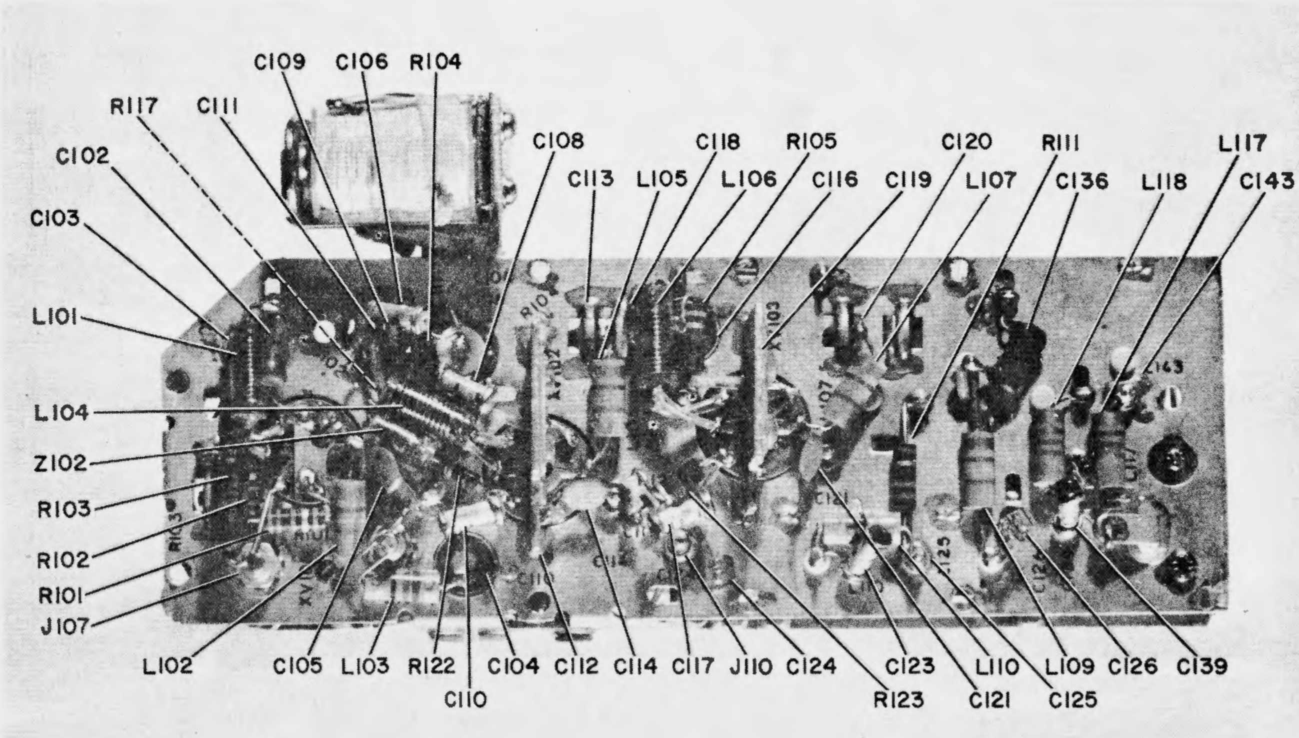


Figure 5-28. RT-581( )/URC-9, RF and PA Amplifier Assembly, Bottom View

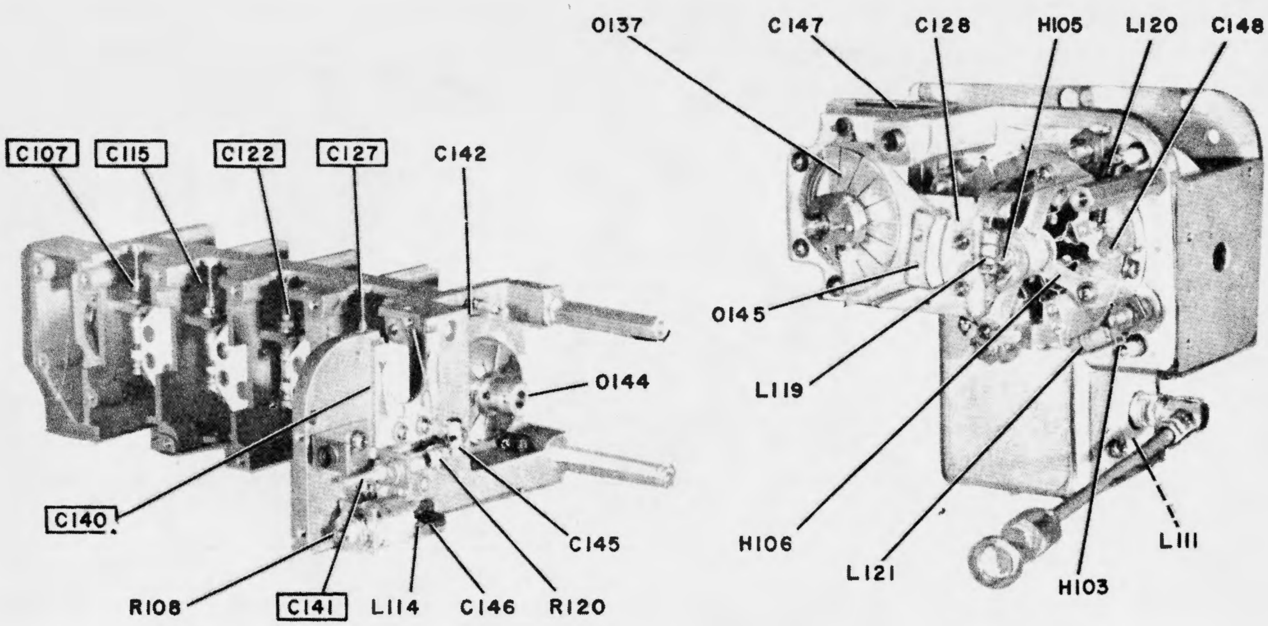


Figure 5-29. RT-581( )/URC-9, RF and PA Amplifier Assembly, Power Amplifier Stage Removed

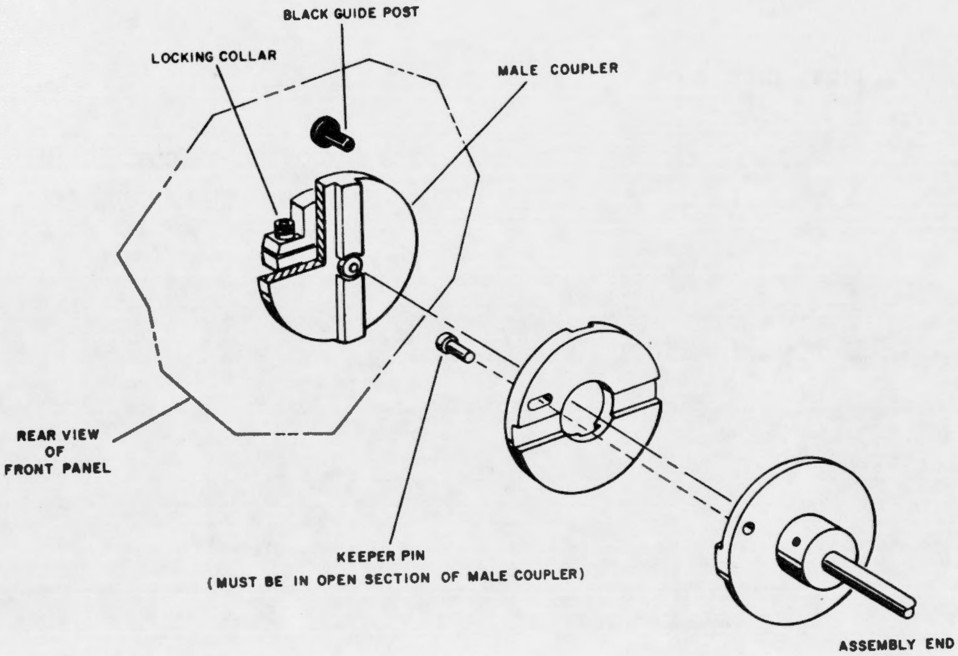


Figure 5-30. RT-581( )/URC-9, Oldham Coupler Alignment

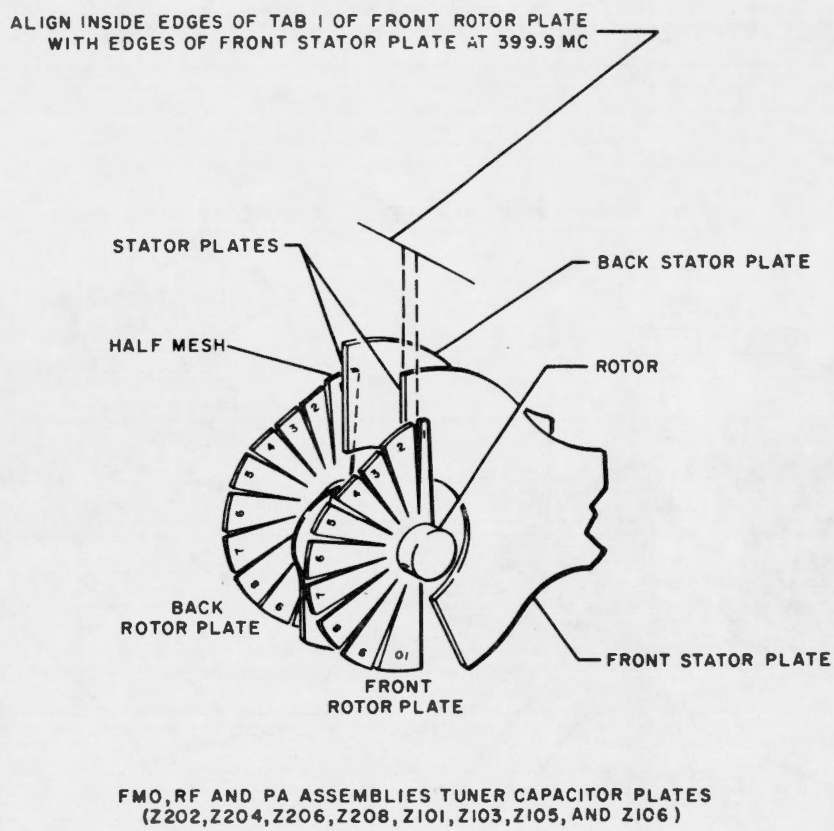


Figure 5-31. RT-581( )/URC-9, RF and PA Amplifier and Frequency Multiplier-Oscillator Assemblies, Tuner Capacitor Plates

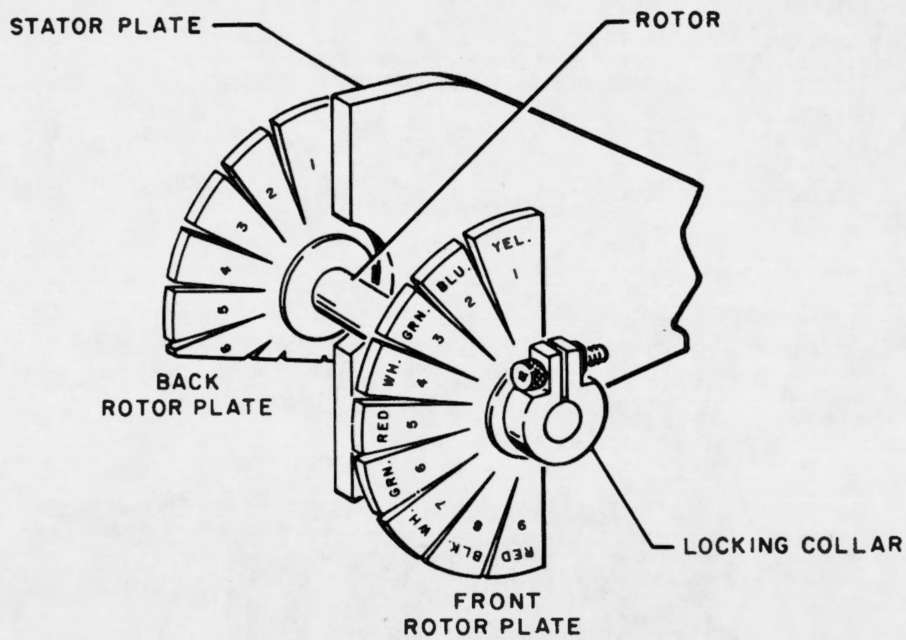


Figure 5-32. RT-581( )/URC-9, RF and PA Amplifier Assembly, Tuner Z107

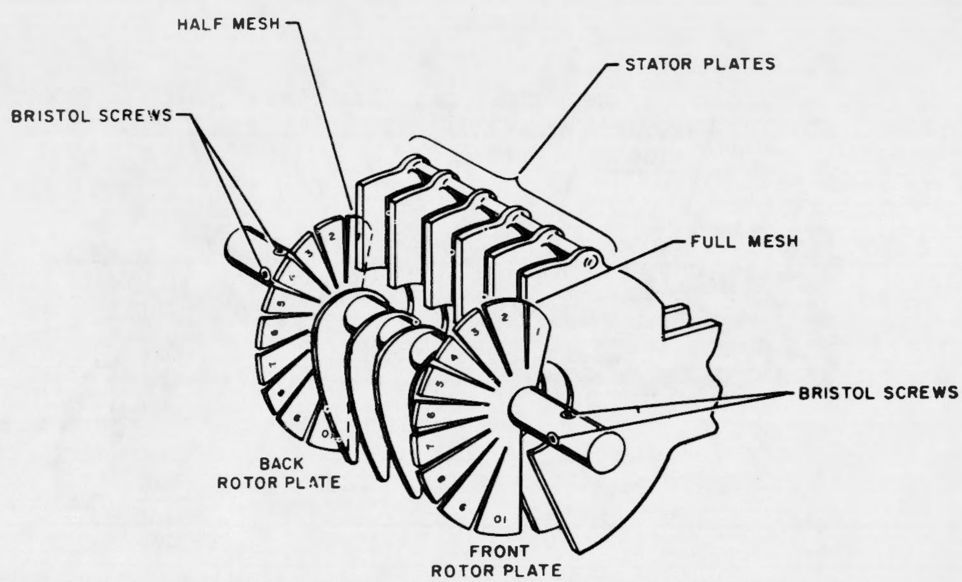


Figure 5-33. RT-581( )/URC-9, RF and PA Amplifier Assembly, Tuner Z108

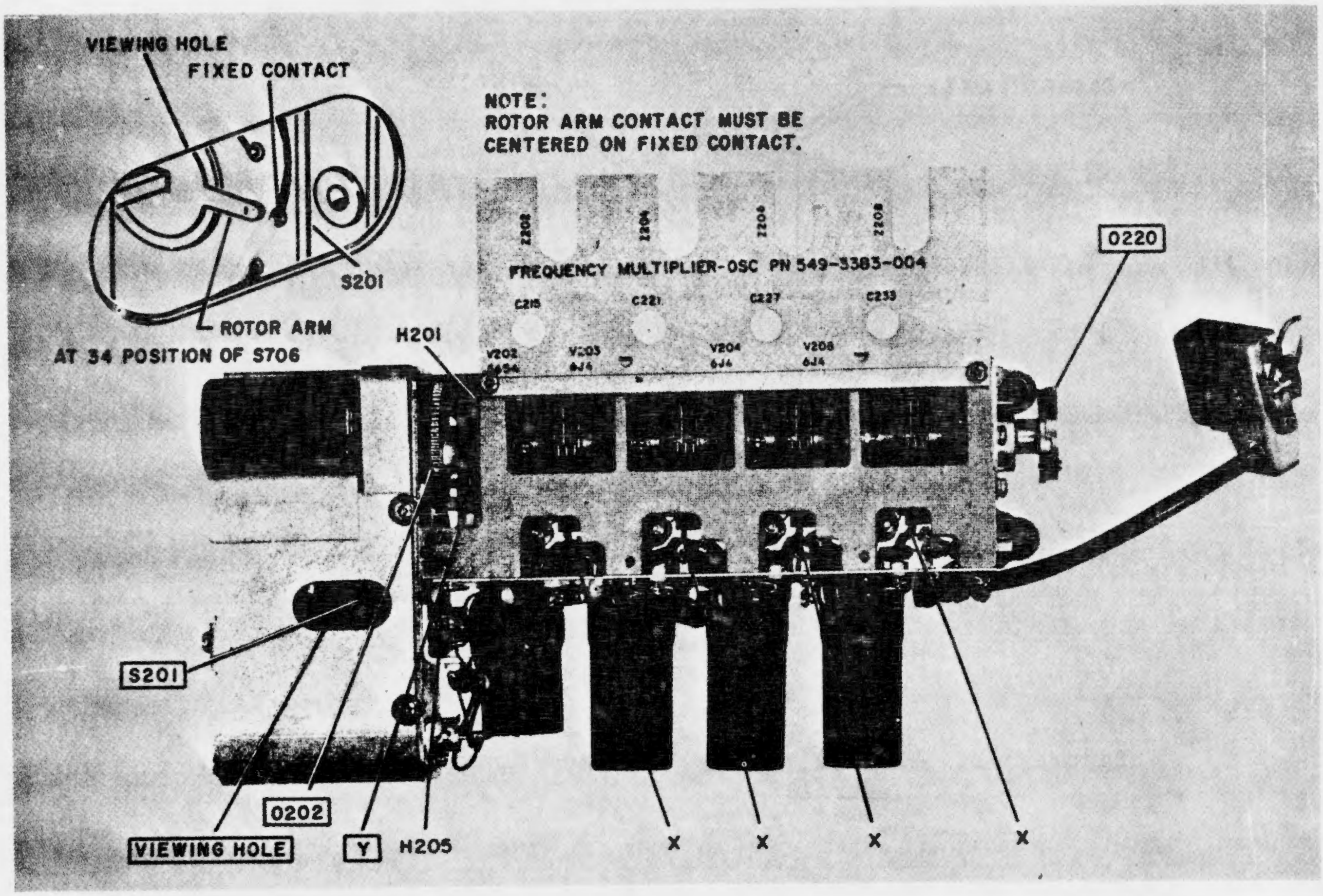


Figure 5-34. RT-581( )/URC-9, Frequency Multiplier-Oscillator, Disassembly Points (A)

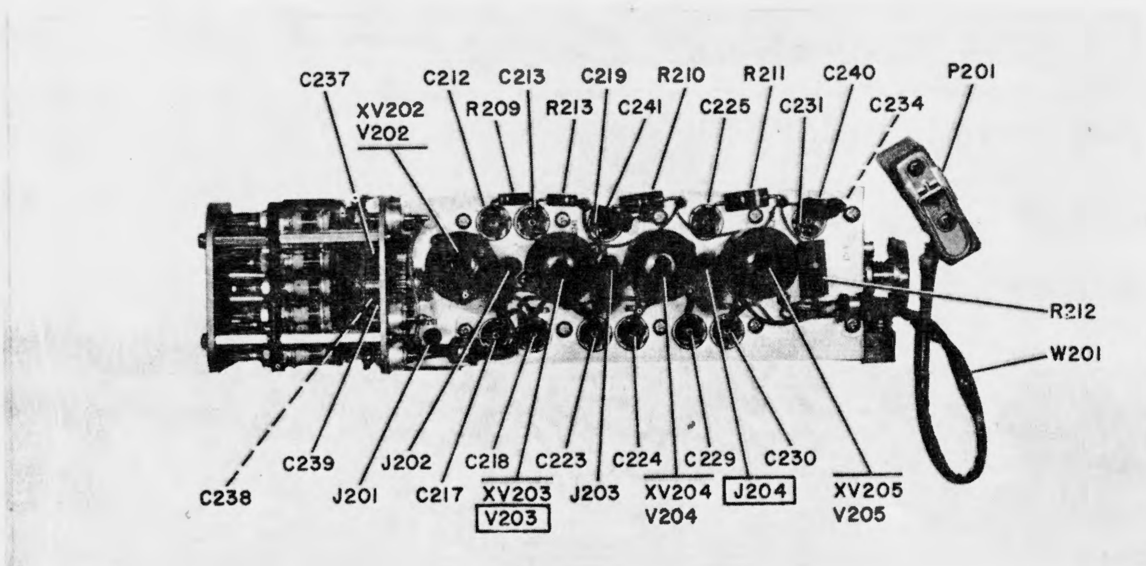


Figure 5-35. RT-581( )/URC-9, Frequency Multiplier-Oscillator, Disassembly Points (B)

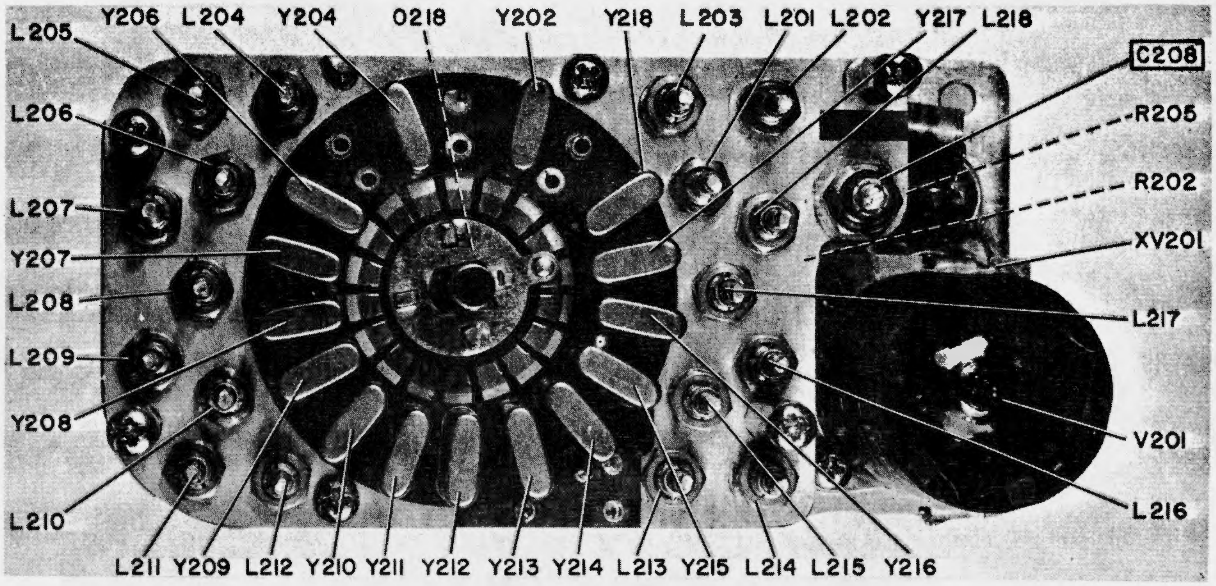


Figure 5-36. RT-581( )/URC-9, Frequency Multiplier-Oscillator, Master Oscillator (V201), Rear View

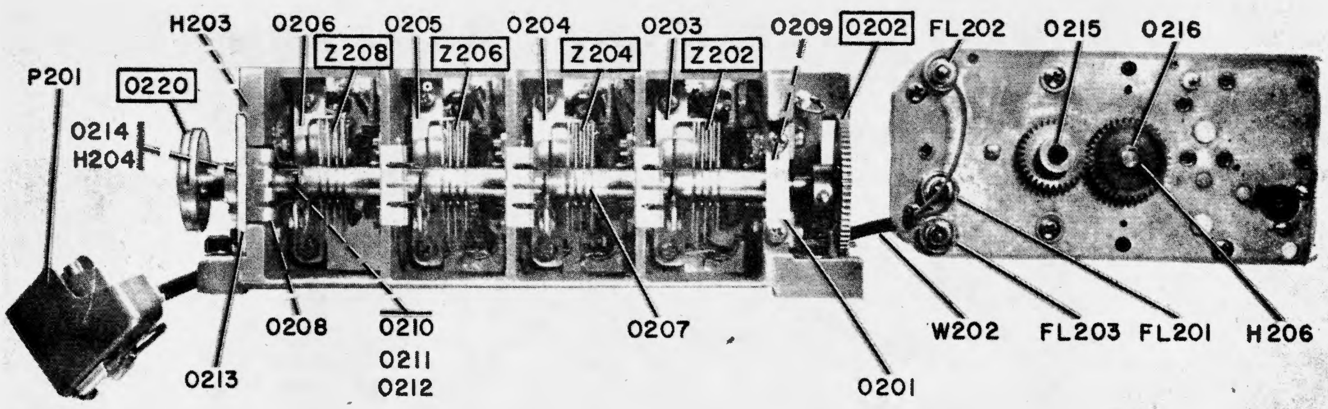


Figure 5-37. RT-581( )/URC-9, Frequency Multiplier-Oscillator, Bottom View, Master Oscillator Removed

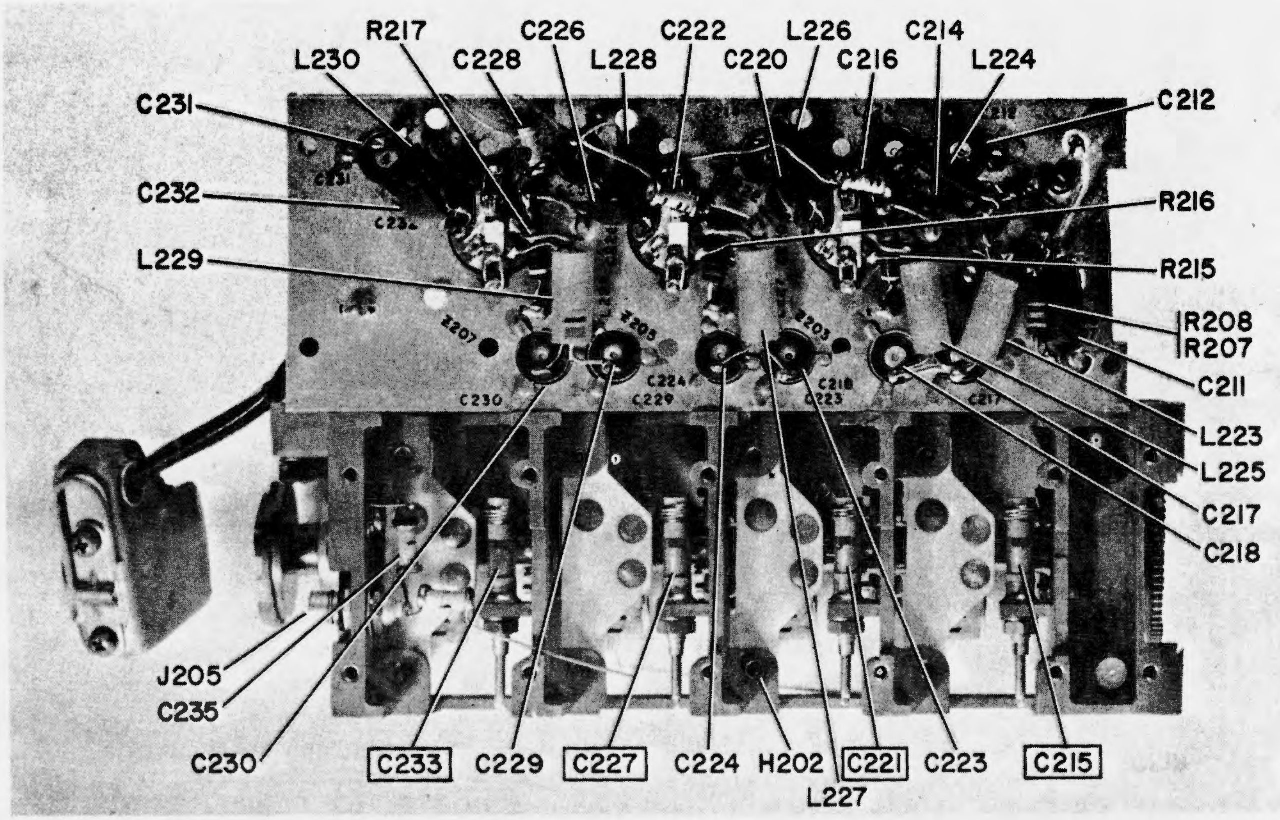


Figure 5-38. RT-581( )/URC-9, Frequency Multiplier-Oscillator Chassis, Bottom View

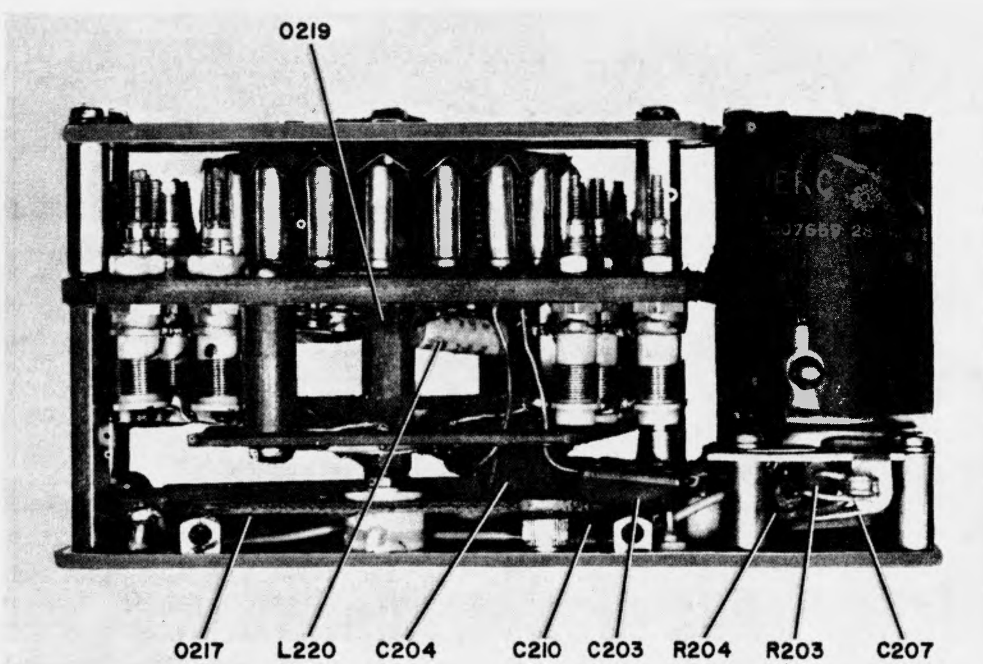


Figure 5-39. RT-581( )/URC-9, Frequency Multiplier-Oscillator, Master Oscillator, Left Side

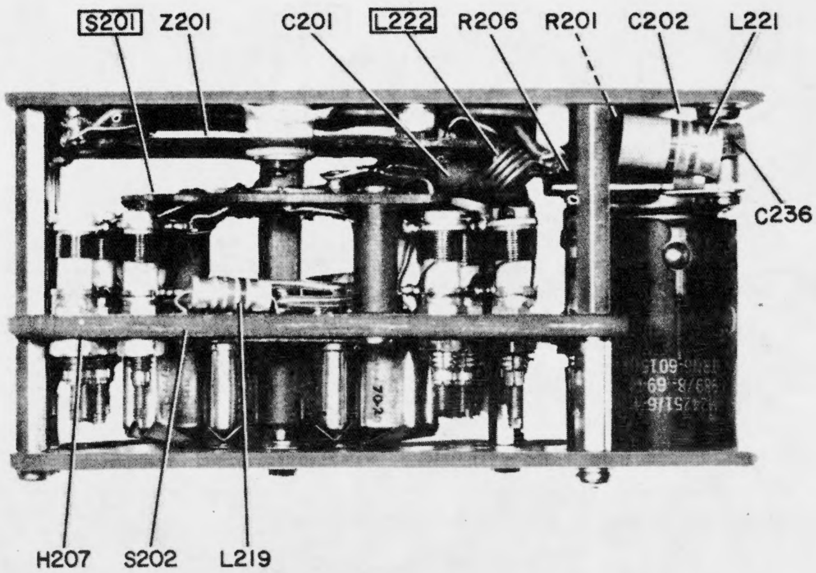


Figure 5-40. RT-581( )/URC-9, Frequency Multiplier-Oscillator, Master Oscillator, Right Side

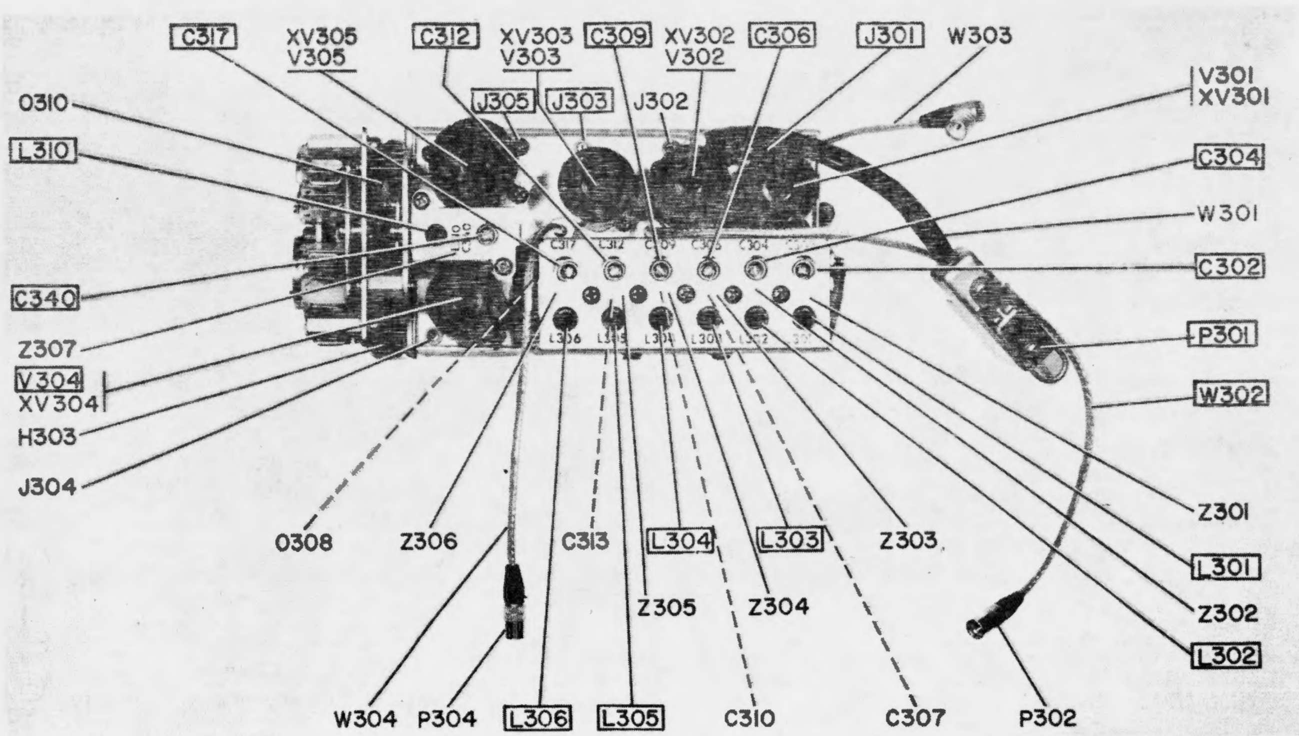


Figure 5-41. RT-581( )/URC-9, First IF Amplifier, Top View

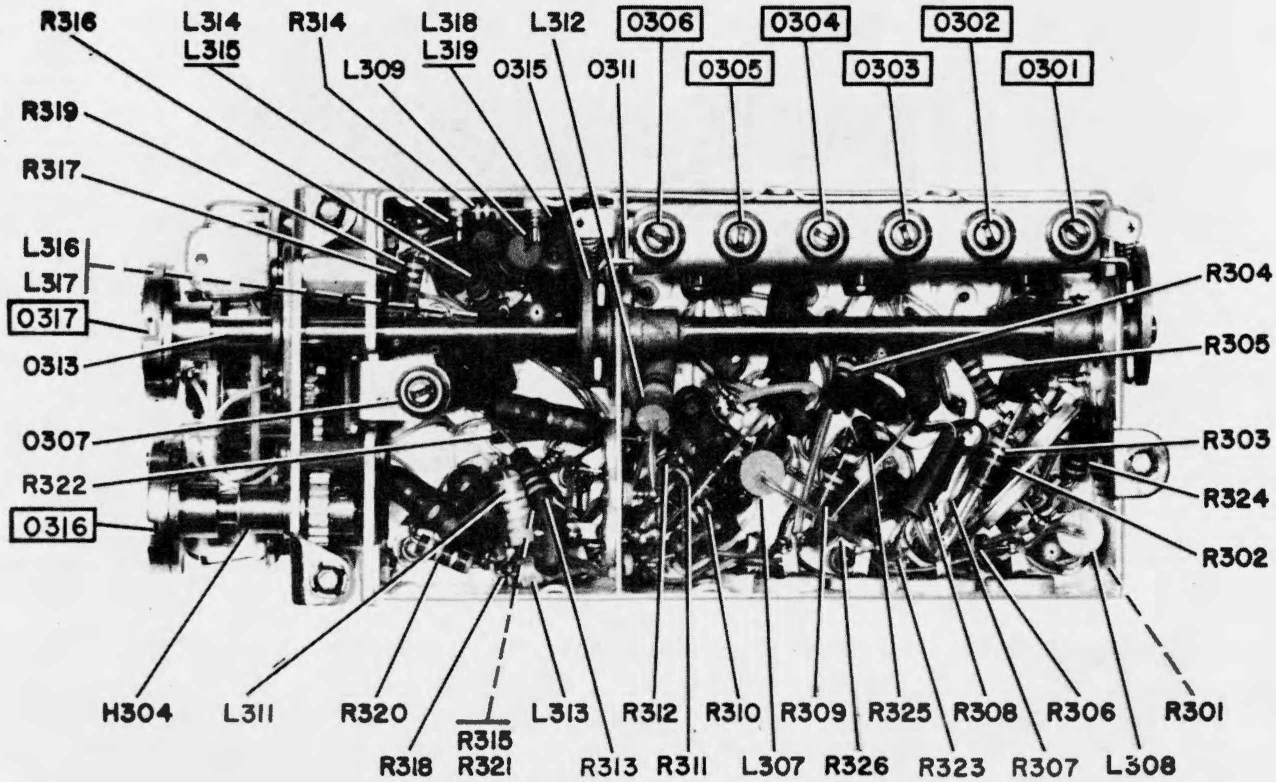


Figure 5-42. RT-581( )/URC-9, First IF Amplifier, Bottom View (A)

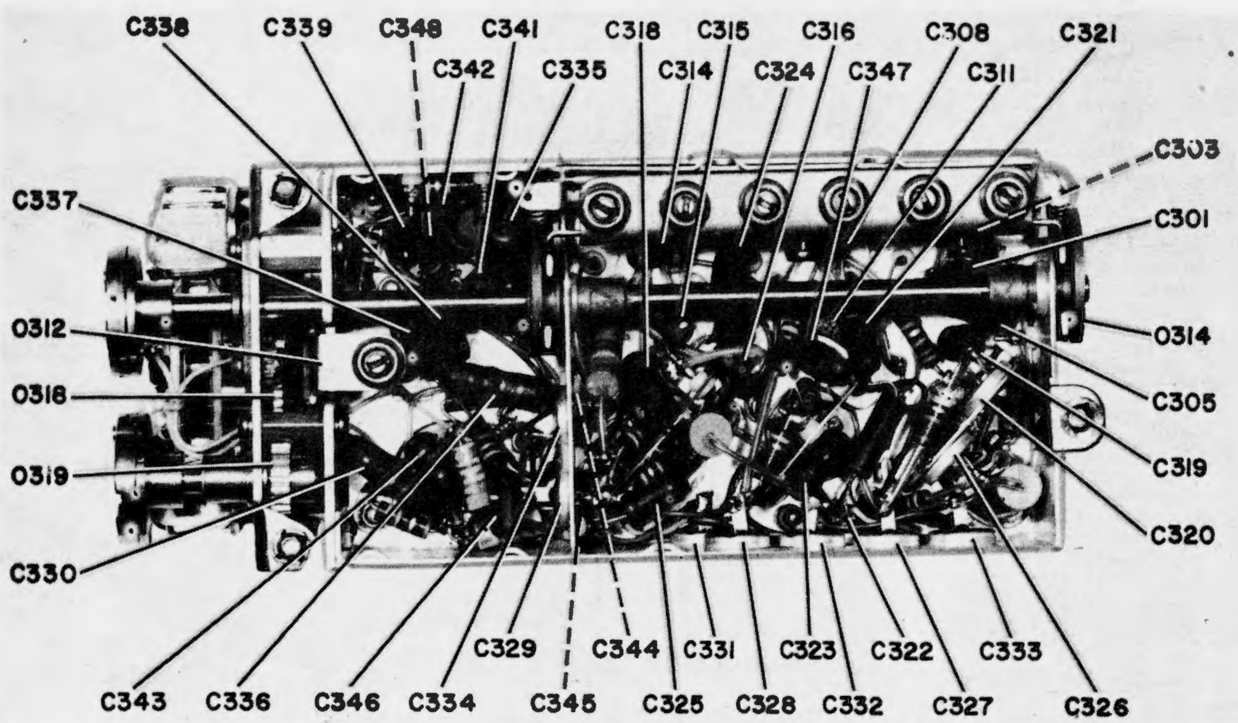


Figure 5-43. RT-581( )/URC-9, First IF Amplifier, Bottom View (B)

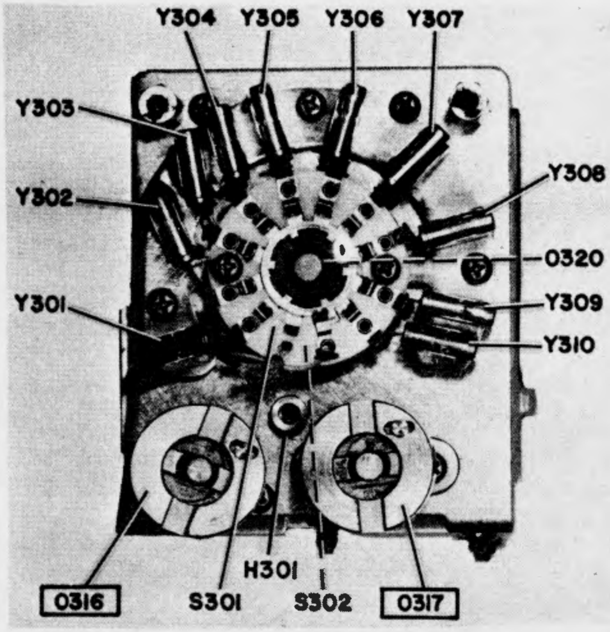


Figure 5-44. RT-581( )/URC-9, First IF Amplifier, Front View

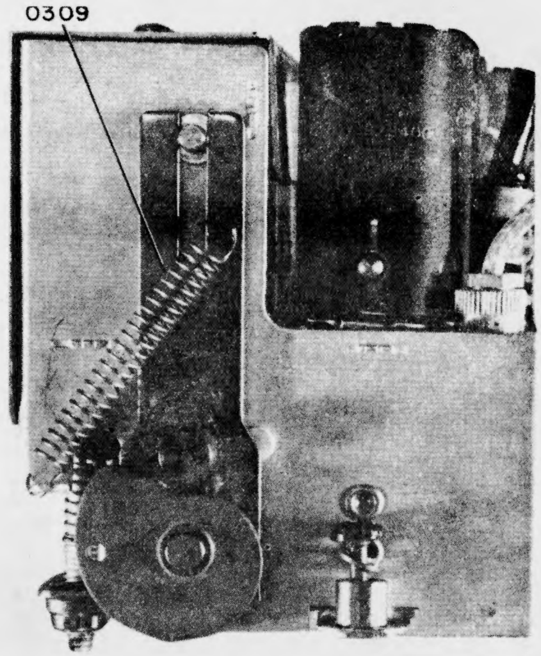


Figure 5-45. RT-581( )/URC-9, First IF Amplifier, Synchronization

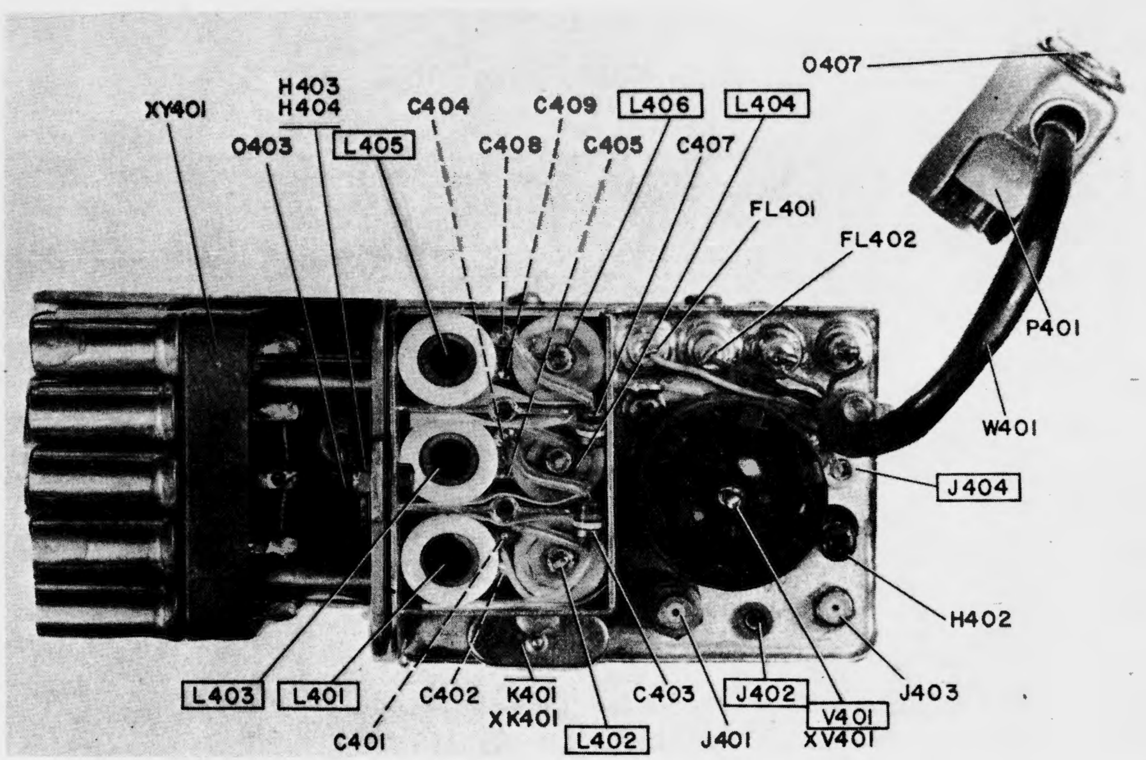


Figure 5-46. RT-581( )/URC-9, Second IF Amplifier, Top View

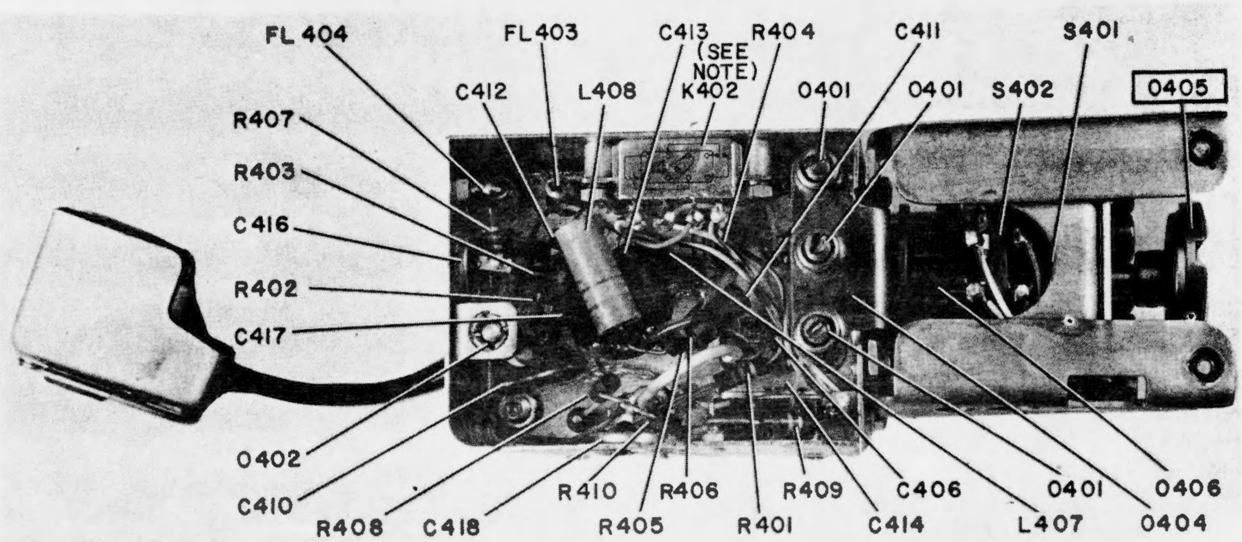


Figure 5-47. RT-581( )/URC-9, Second IF Amplifier, Bottom View

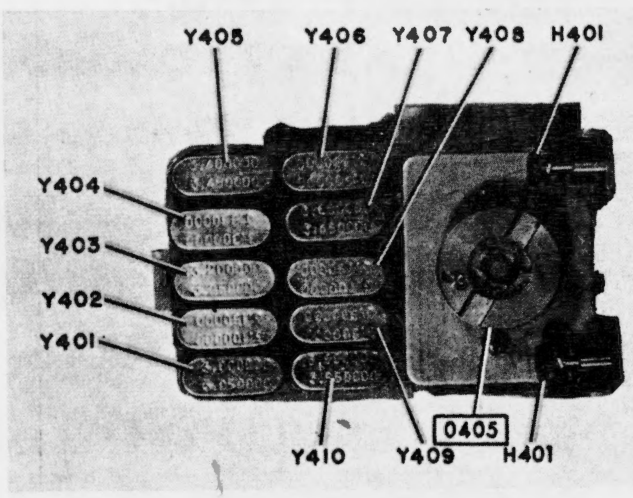


Figure 5-48. RT-581( )/URC-9, Second IF Amplifier, Front View

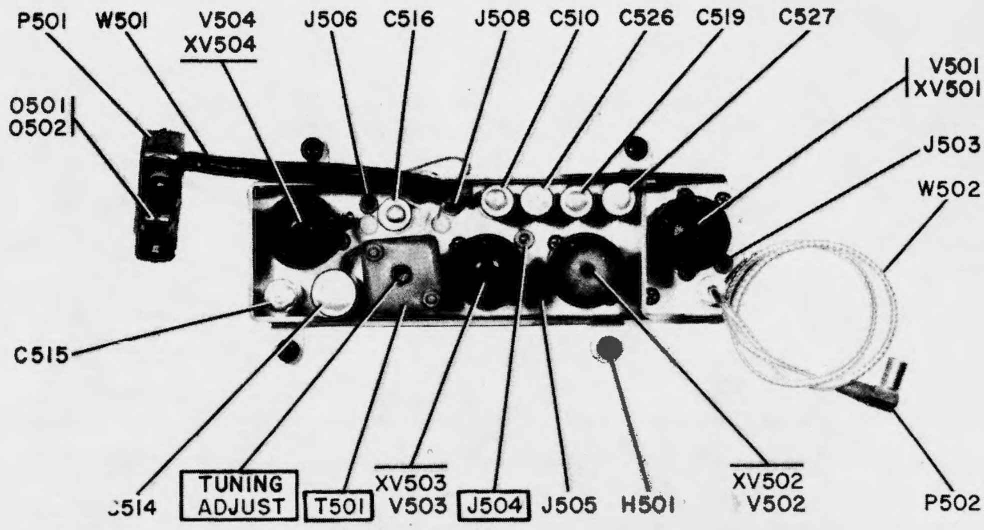


Figure 5-49. RT-581( )/URC-9, Third IF Amplifier, Top View

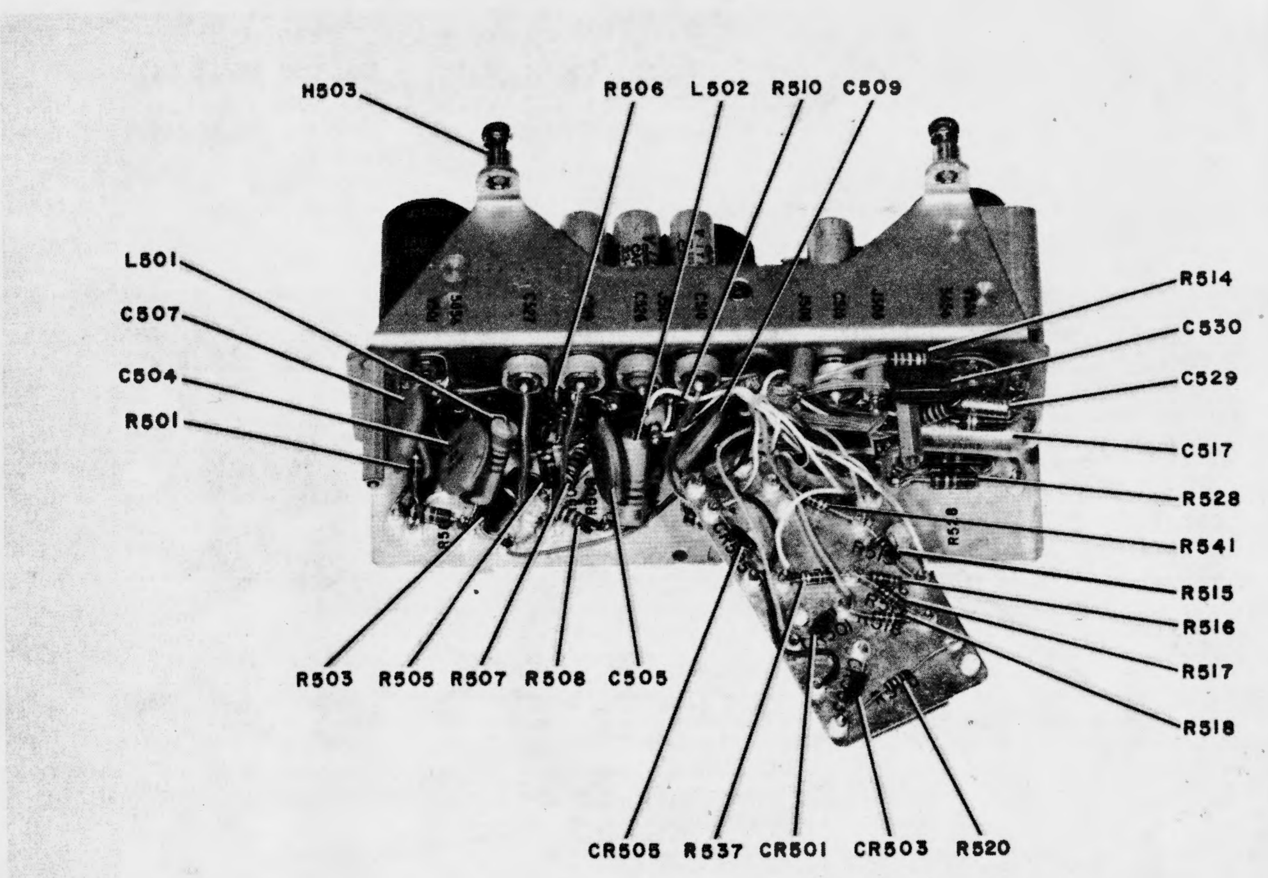


Figure 5-50. RT-581( )/URC-9, Third IF Amplifier, Bottom View (A)

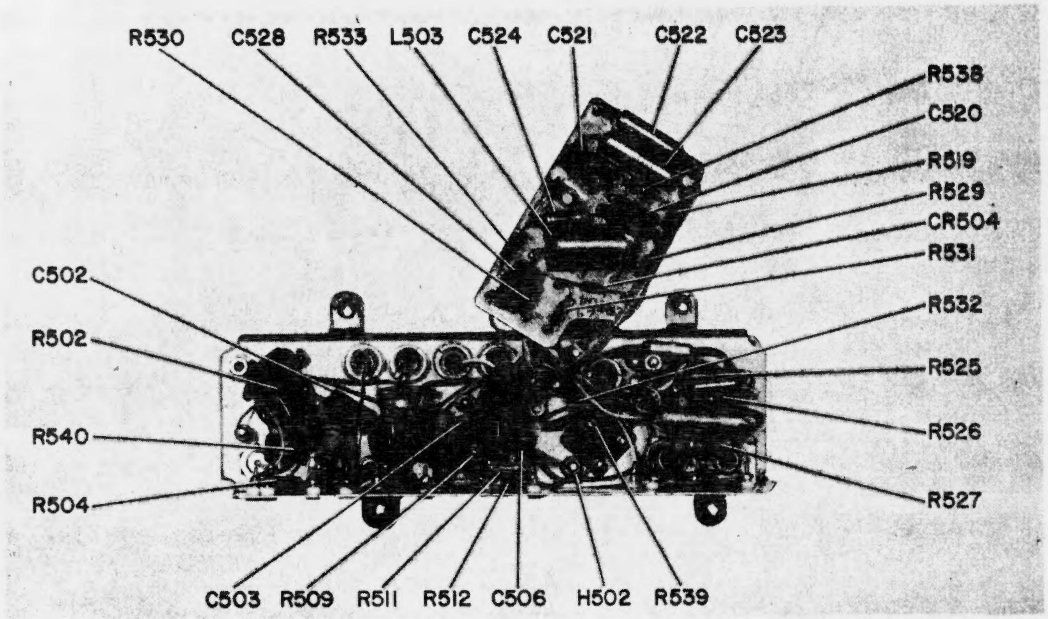


Figure 5-51. RT-581( )/URC-9, Third IF Amplifier, Bottom View (B)

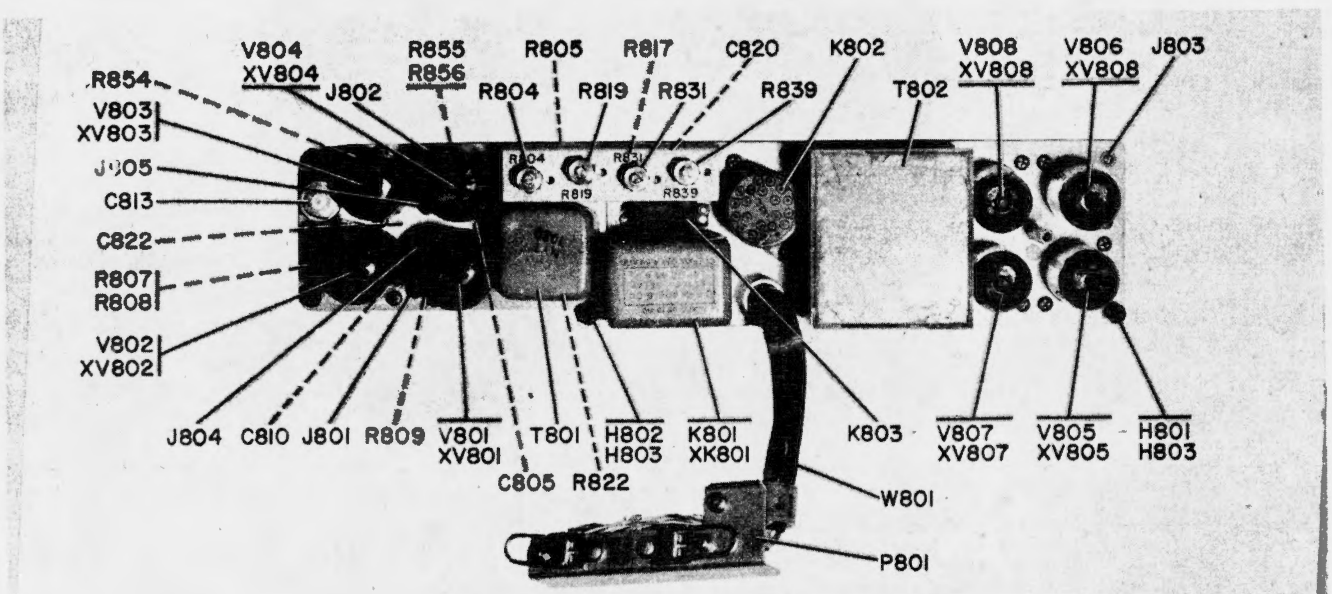


Figure 5-52. RT-581( )/URC-9, Audio Frequency Amplifier and Modulator Assembly, Top View

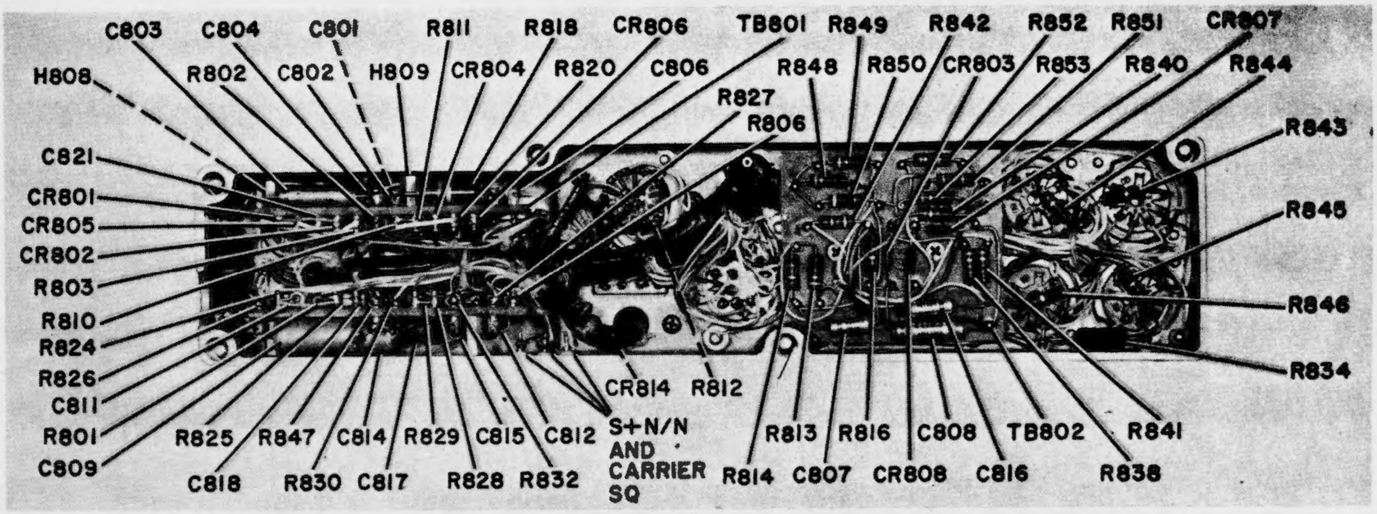


Figure 5-53. RT-581( )/URC-9, Audio Frequency Amplifier and Modulator Assembly, Bottom View

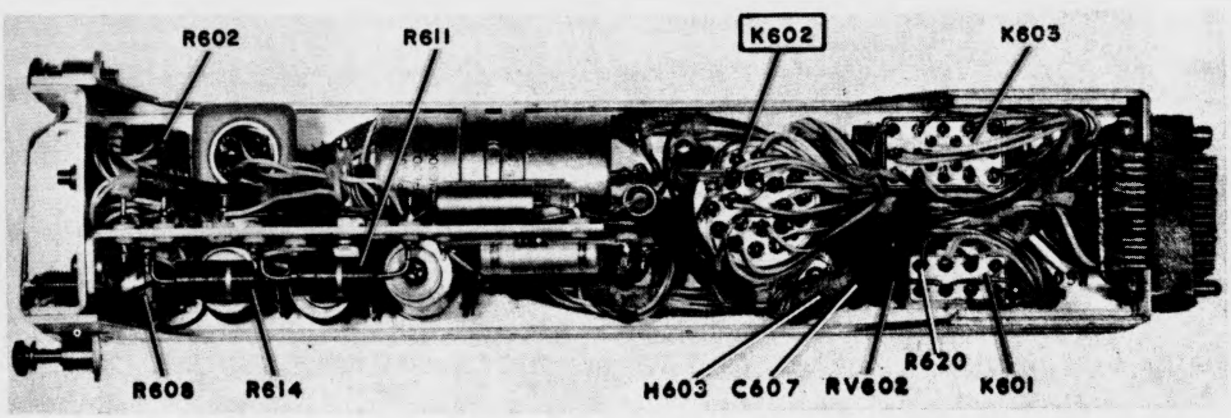


Figure 5-54. RT-581( )/URC-9, Relay-Filter, Top View

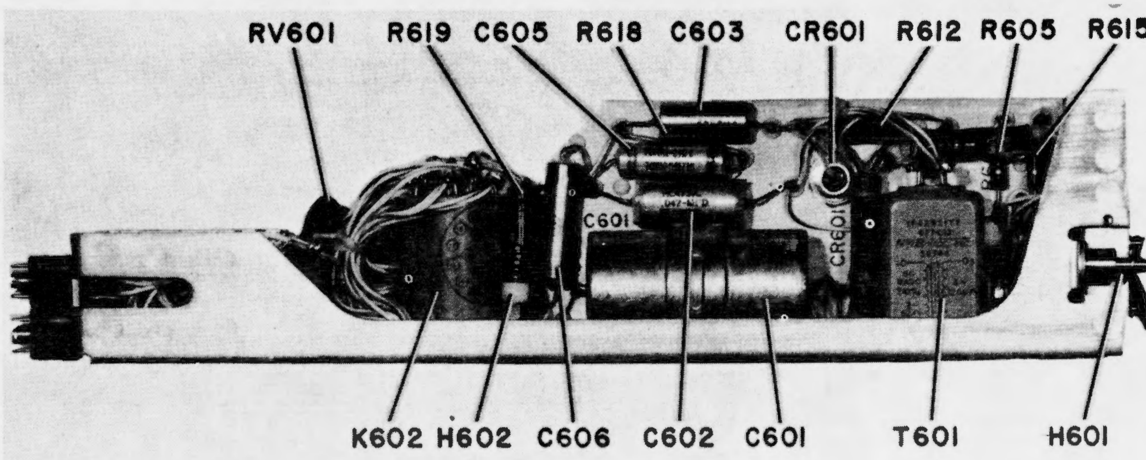


Figure 5-55. RT-581( )/URC-9, Relay-Filter, Left Side

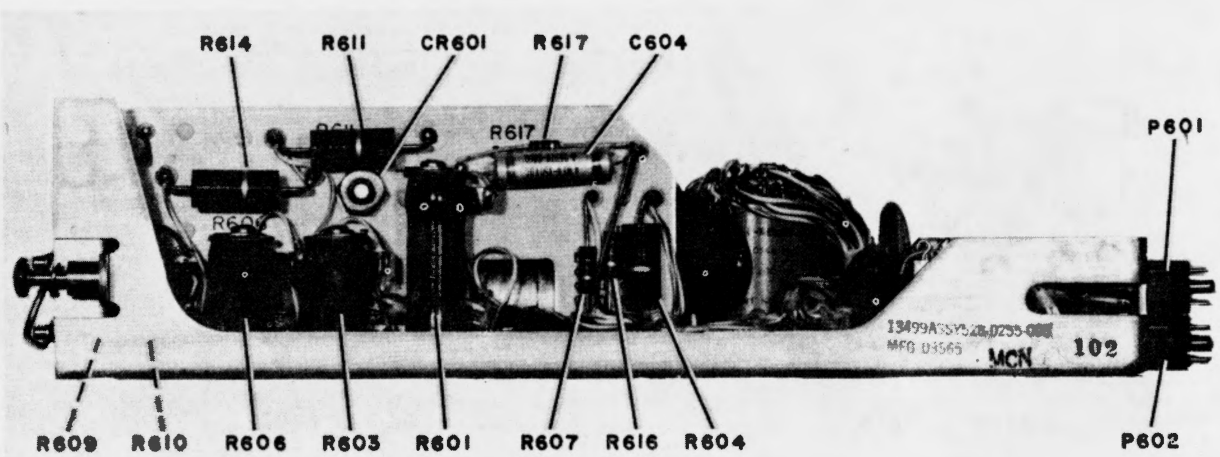


Figure 5-56. RT-581( )/URC-9, Relay-Filter, Right Side

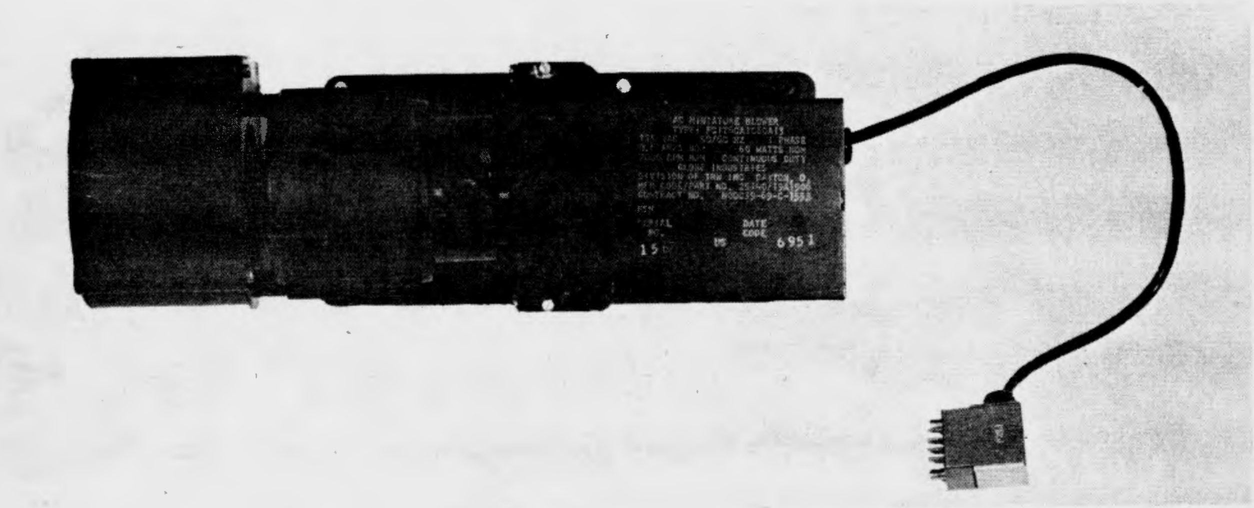
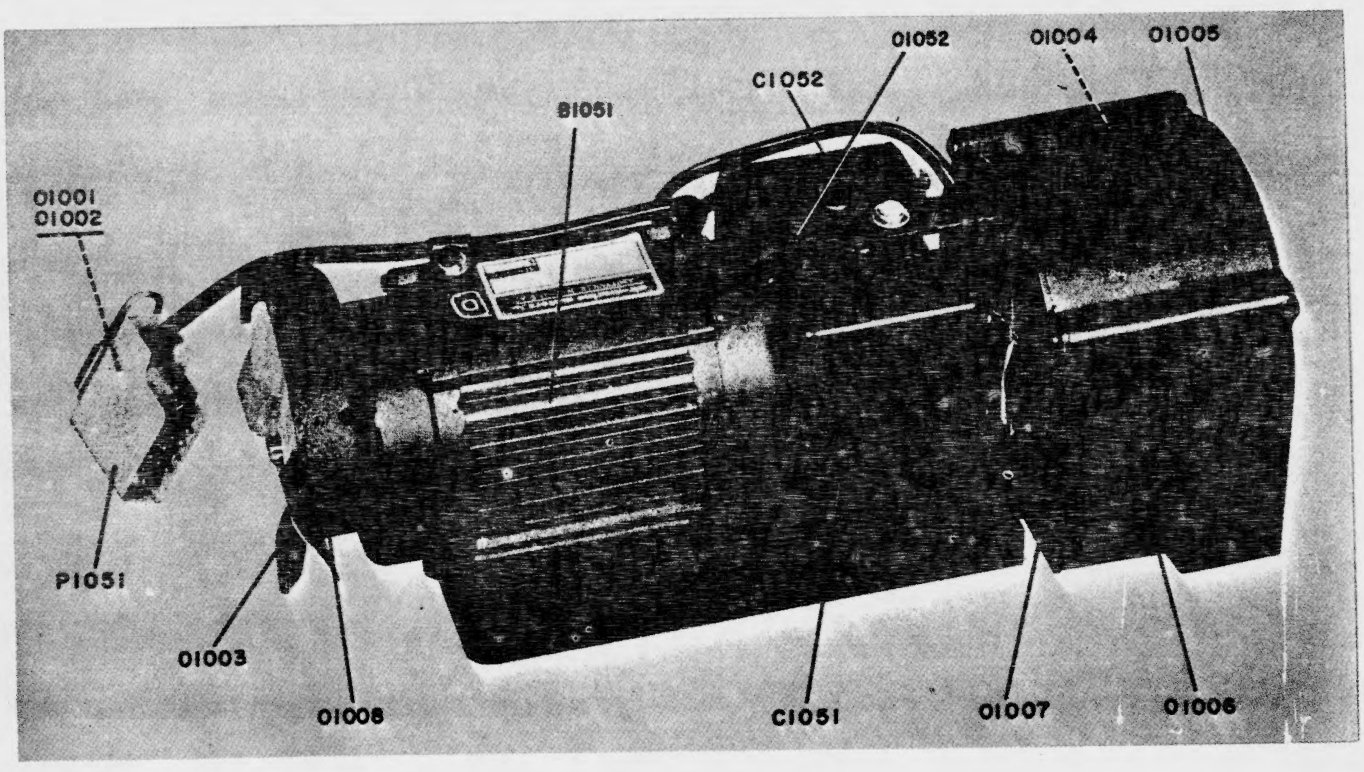
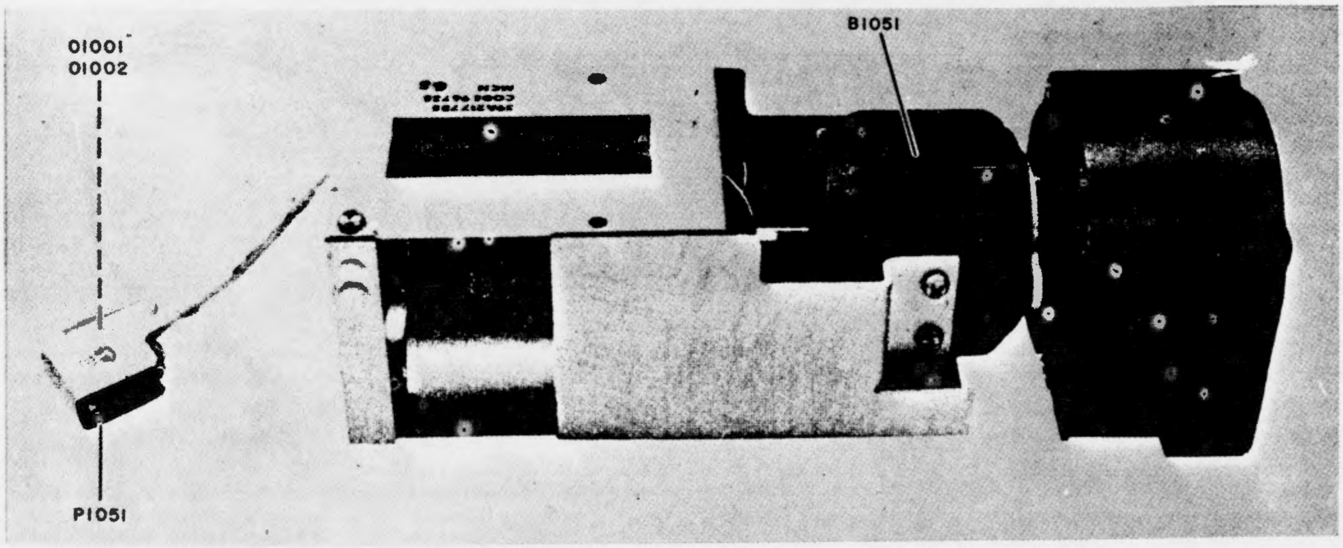


Figure 5-57. RT-581( )/URC-9, R/T Centrifugal Fan (Globe Industries)



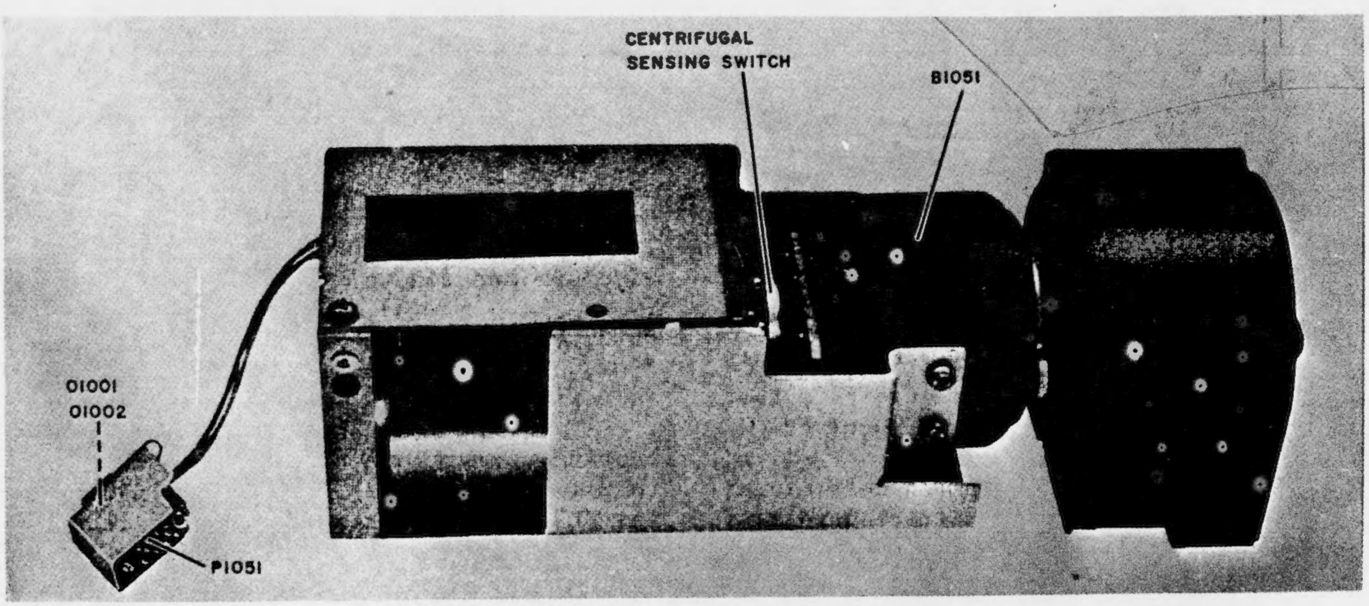
SHIPBOARD REPAIRABLE

Figure 5-58. RT-581( )/URC-9, R/T Centrifugal Axial Fan (Collins Radio Company Contracts NObsr 87290 and NObsr 89509)



NOT SHIPBOARD REPAIRABLE

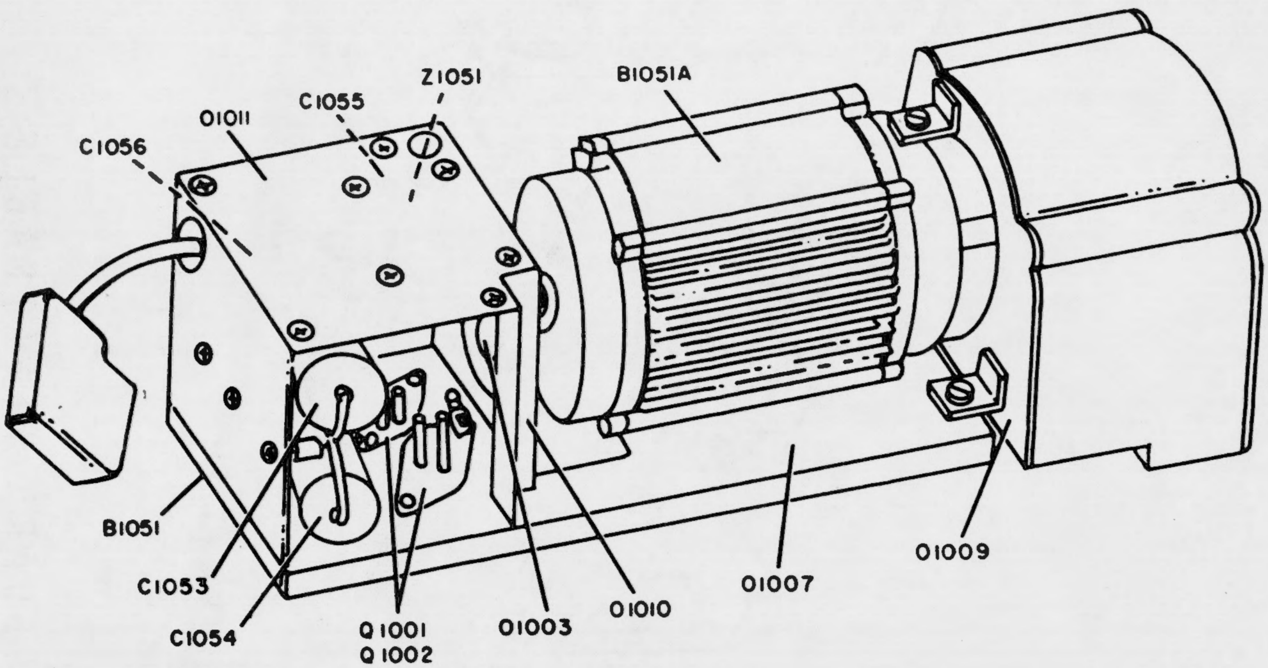
A. MCN 1 Through 185 Only



NOT SHIPBOARD REPAIRABLE

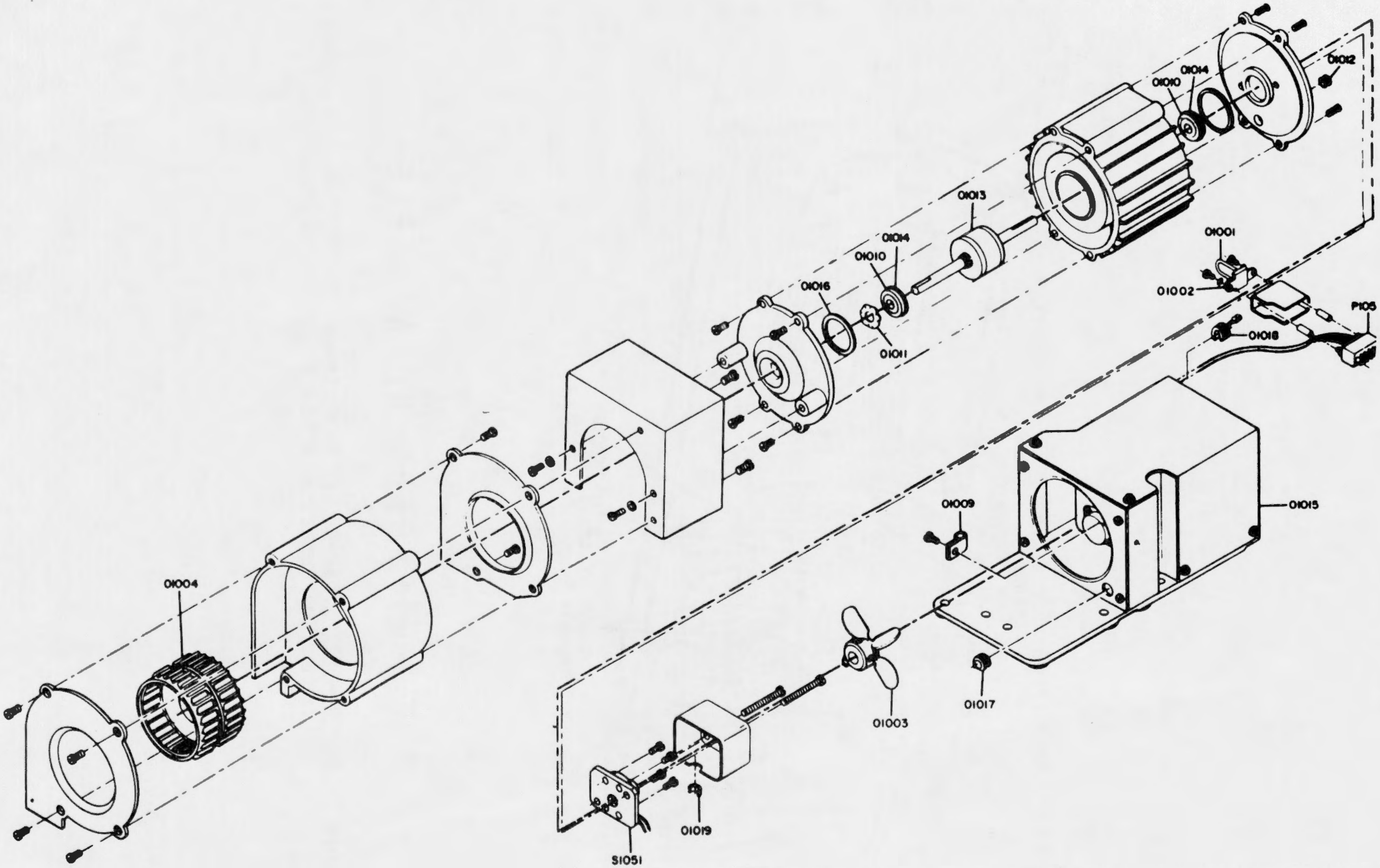
B. MCN 186 and Over

Figure 5-59. RT-581( )/URC-9, R/T Centrifugal Axial Fan (Stewart-Warner Electronics Contract NObsr 91068)



NOT SHIPBOARD REPAIRABLE

Figure 5-60. RT-581( )/URC-9, R/T Centrifugal Fan (Dubrow Electronics Industries Contracts NObsr 91149, 91284, and 93164)



NOT SHIPBOARD REPAIRABLE

Figure 5-61. RT-581( )/URC-9, R/T Centrifugal Axial Fan (Contract NObsr 95140)

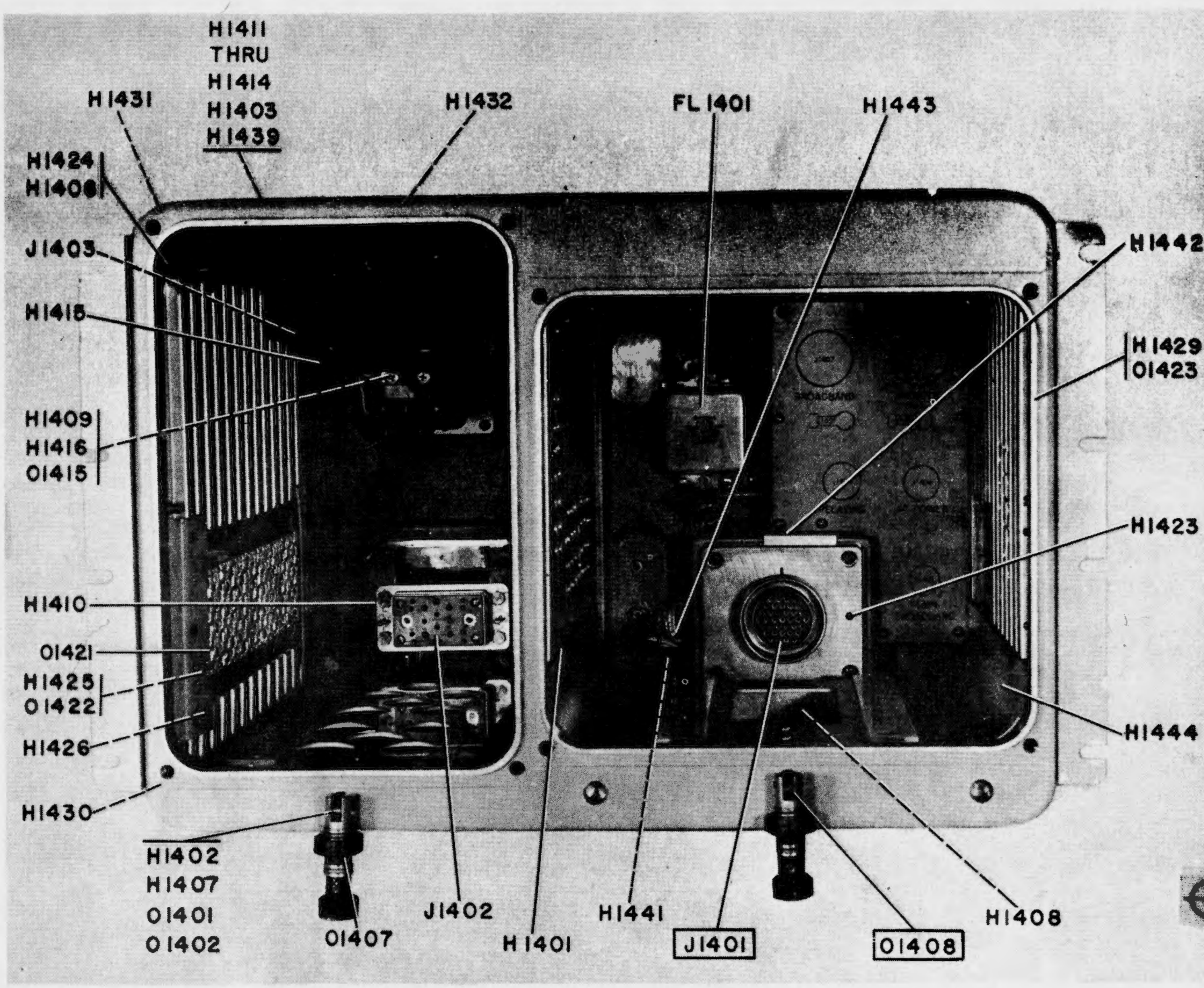
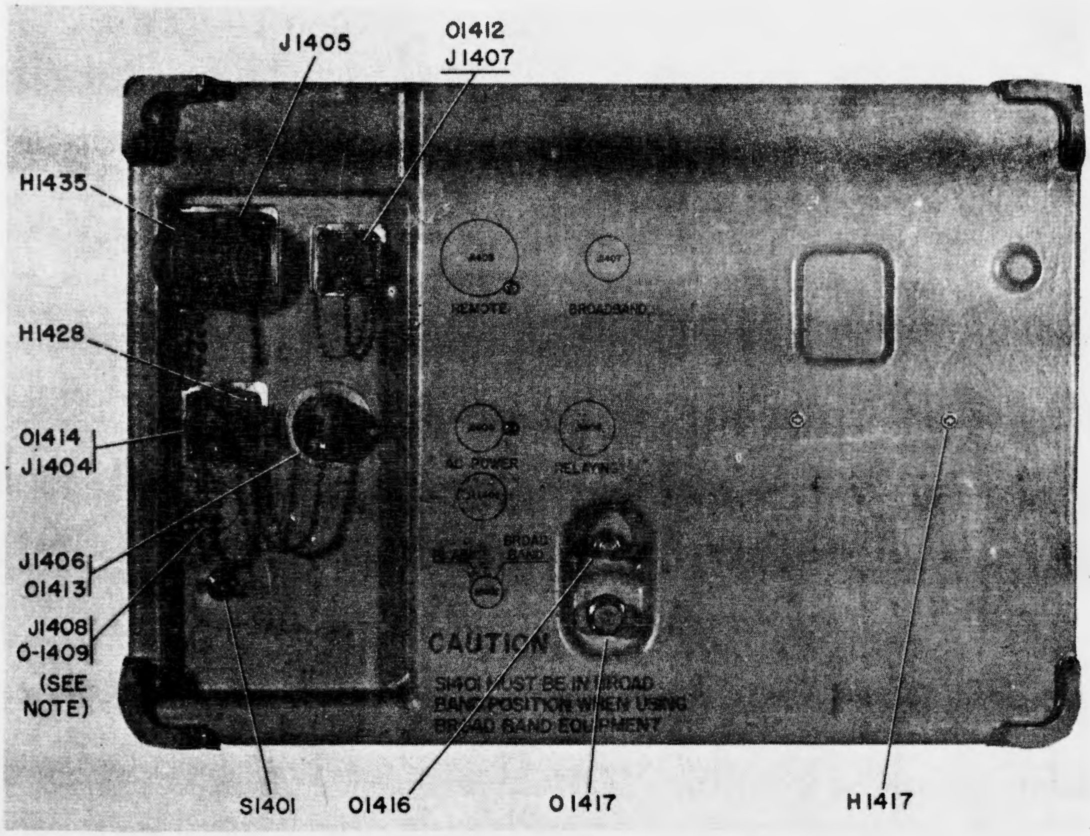


Figure 5-62. RT-581( )/URC-9, Receiver-Transmitter Case CY-2959/URC-9, Front View



NOTE: Used on ships with AN/SSQ-54 Indicator only.

Figure 5-63. RT-581( )/URC-9, Receiver-Transmitter Case CY-2959/URC-9, Rear View

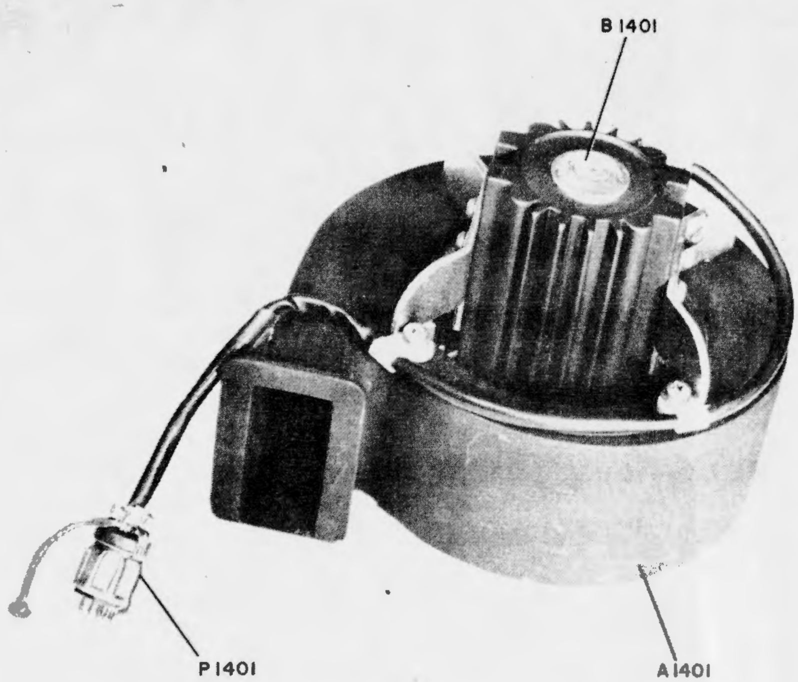
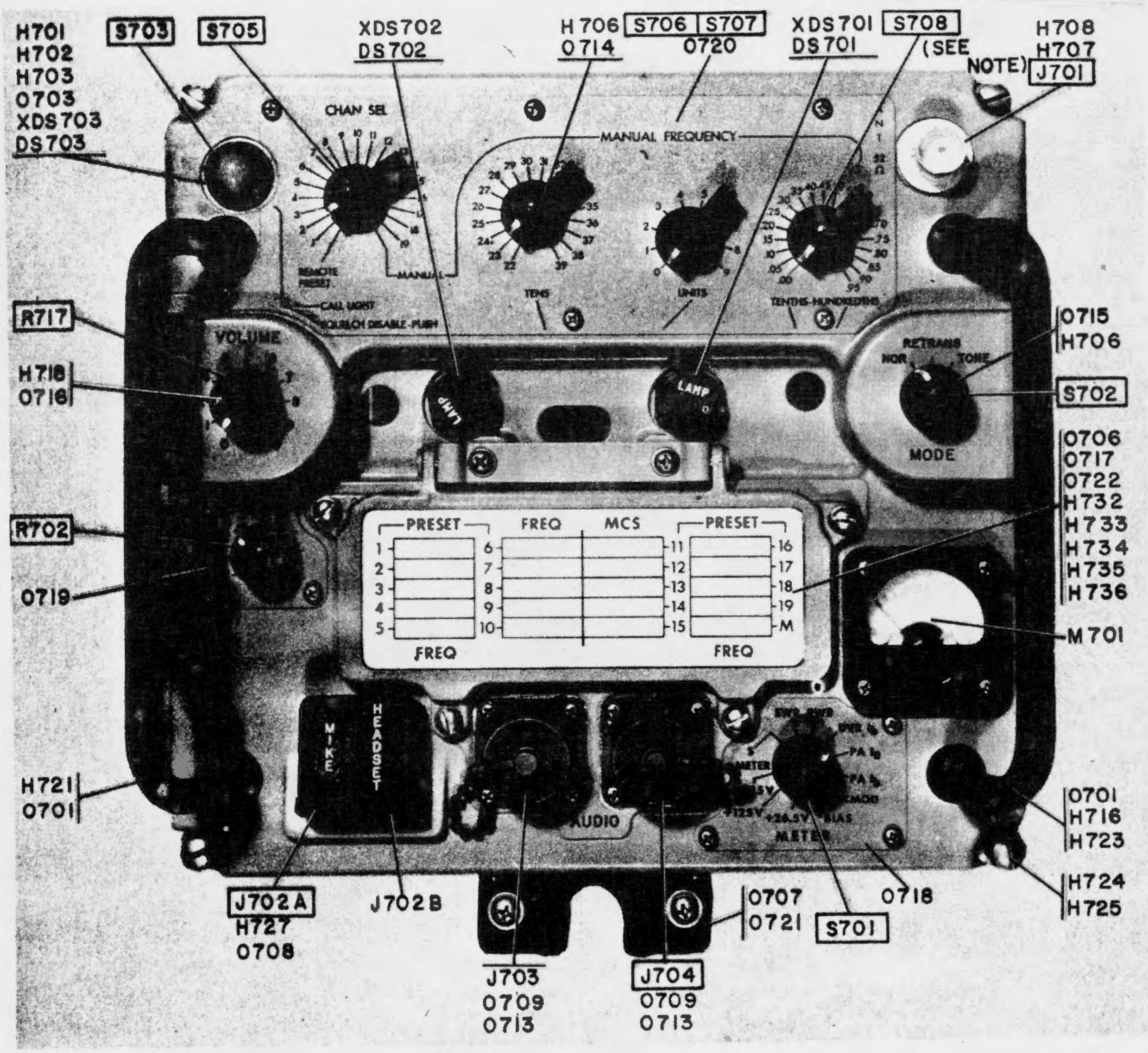


Figure 5-64. RT-581( )/URC-9, Case CY-2959/URC-9, Centrifugal Fan



NOTE: Graduated in TENTHS (.1 MHz) on RT-581/URC-9 only

Figure 5-65. RT-581( )/URC-9, Front Panel, Front View

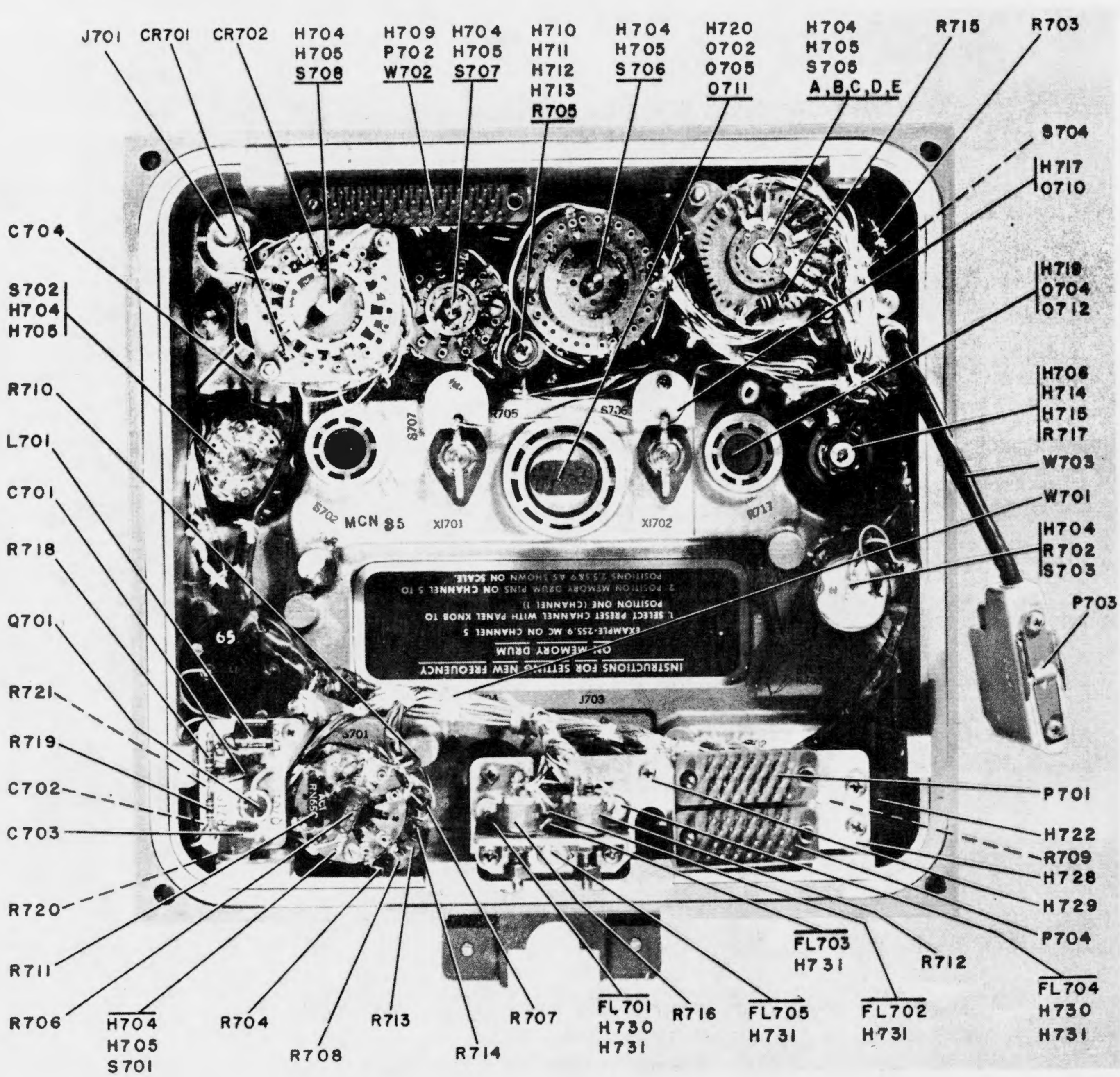


Figure 5-66. RT-581( )/URC-9, Front Panel, Rear View

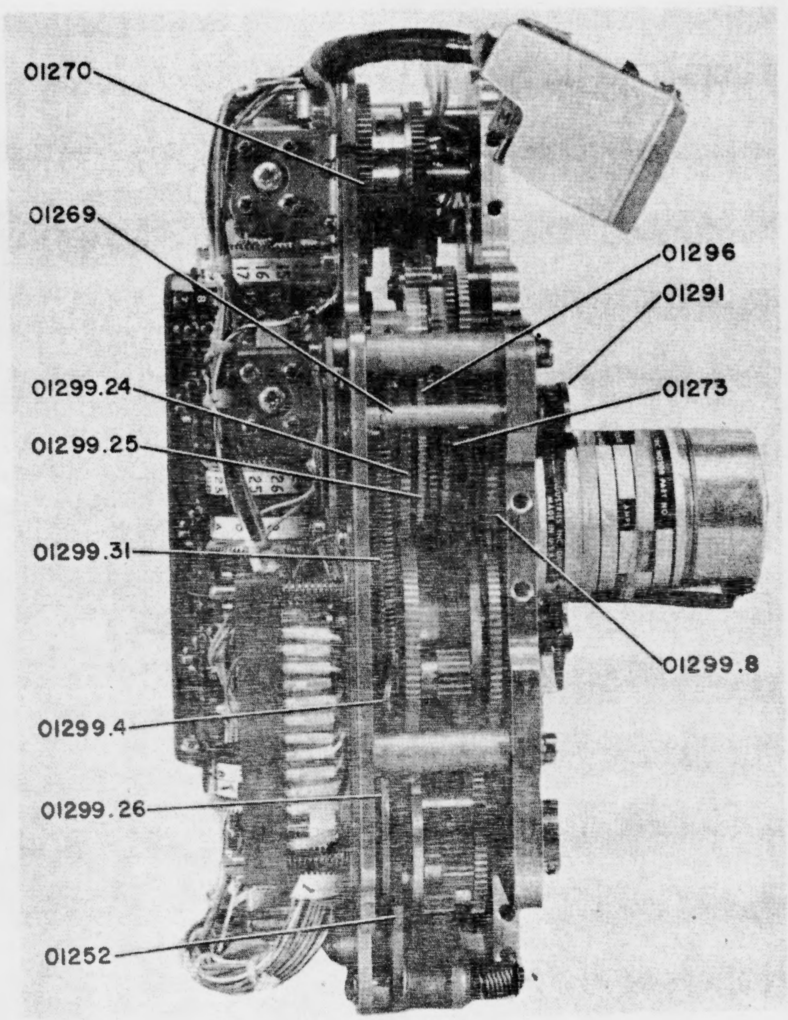


Figure 5-67. RT-581( )/URC-9, Frequency Selector, Top View

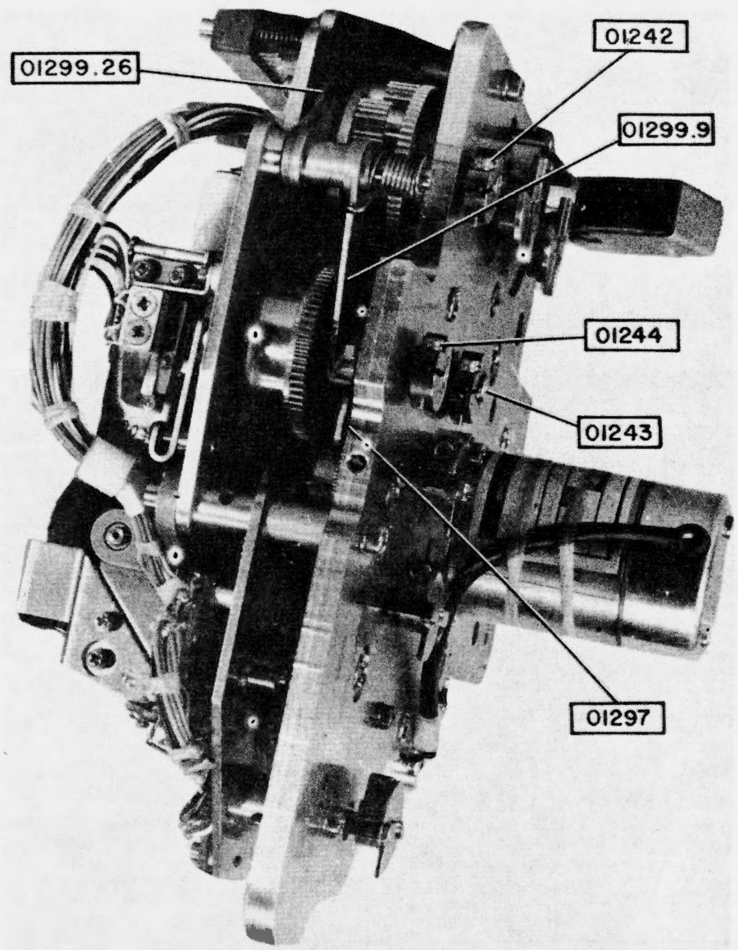


Figure 5-68. RT-581( )/URC-9, Frequency Selector, Right Rear View

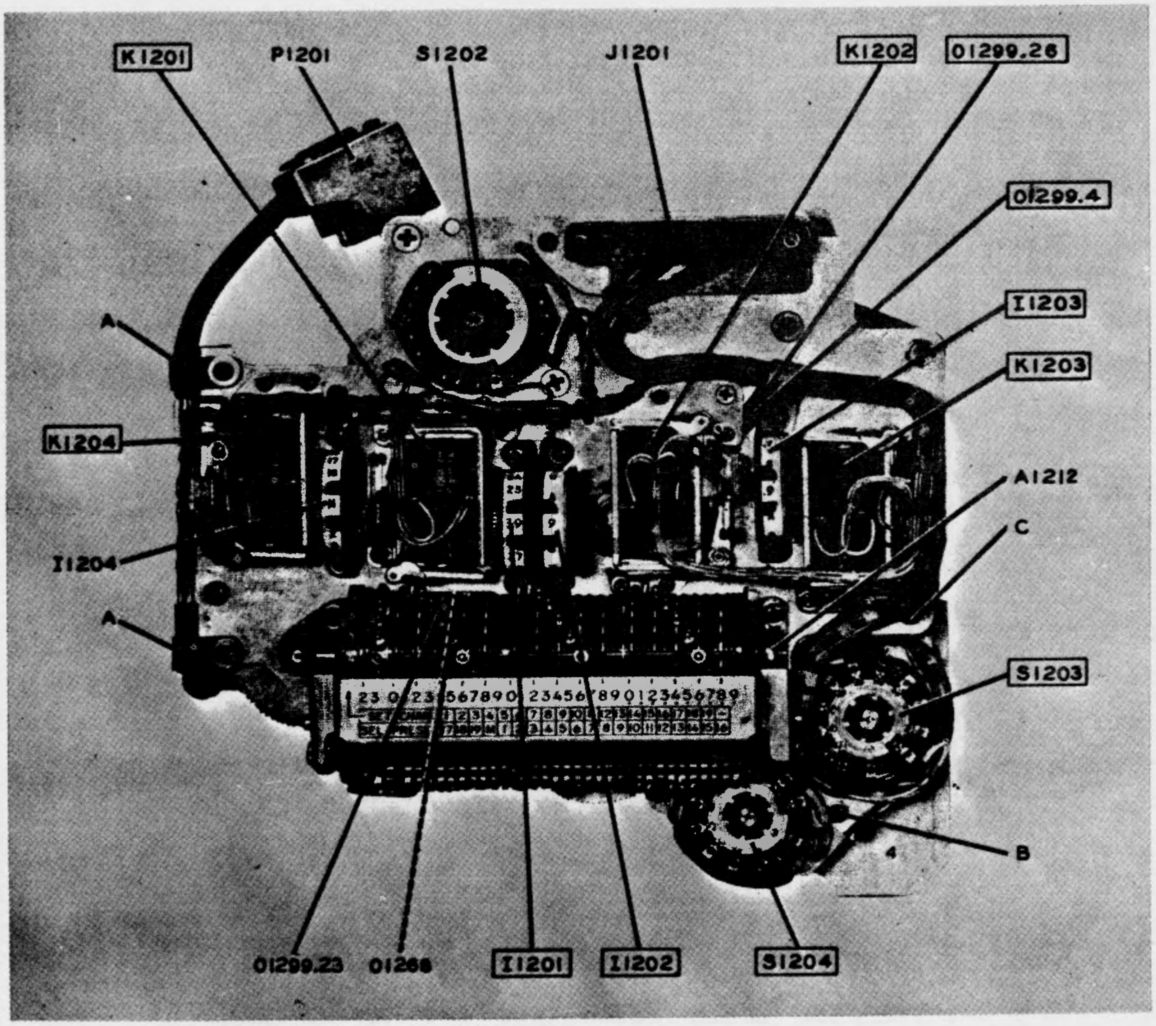


Figure 5-69. RT-581/URC-9, Frequency Selector, Front View

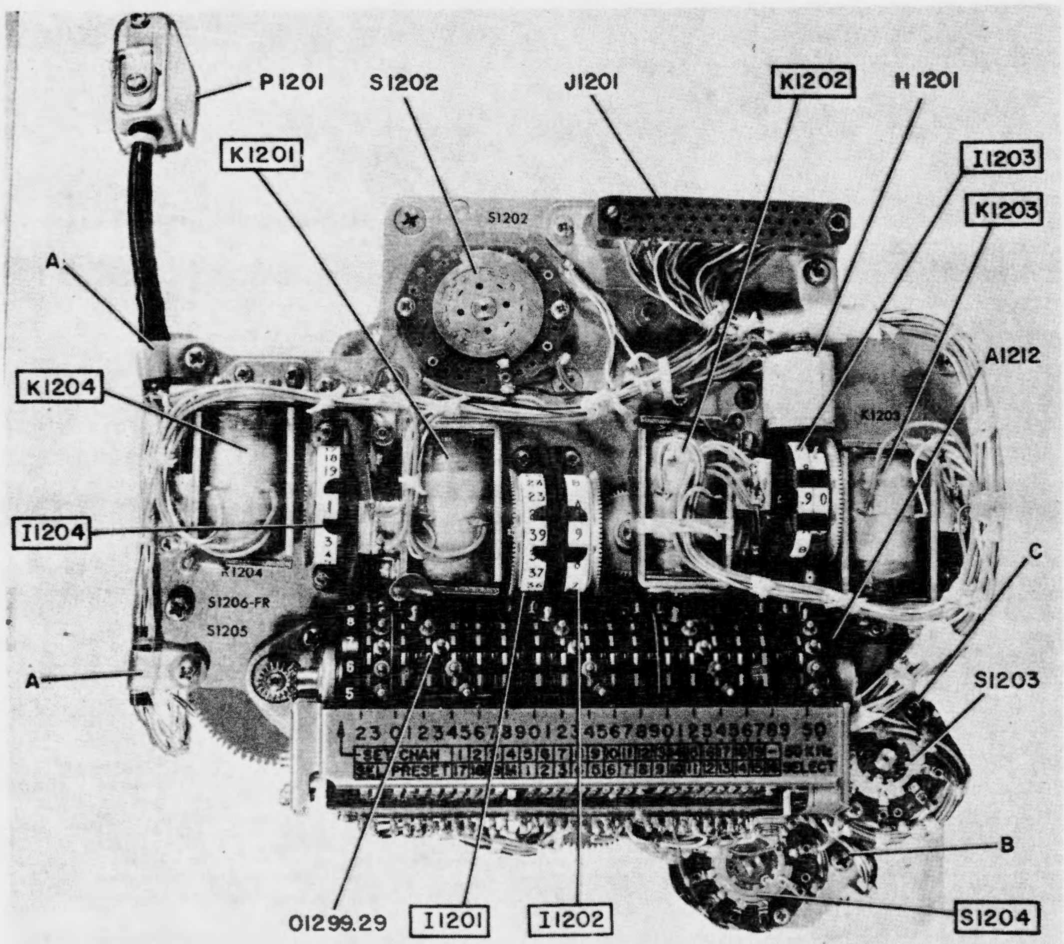


Figure 5-70. RT-581A/URC-9, Frequency Selector, Front View

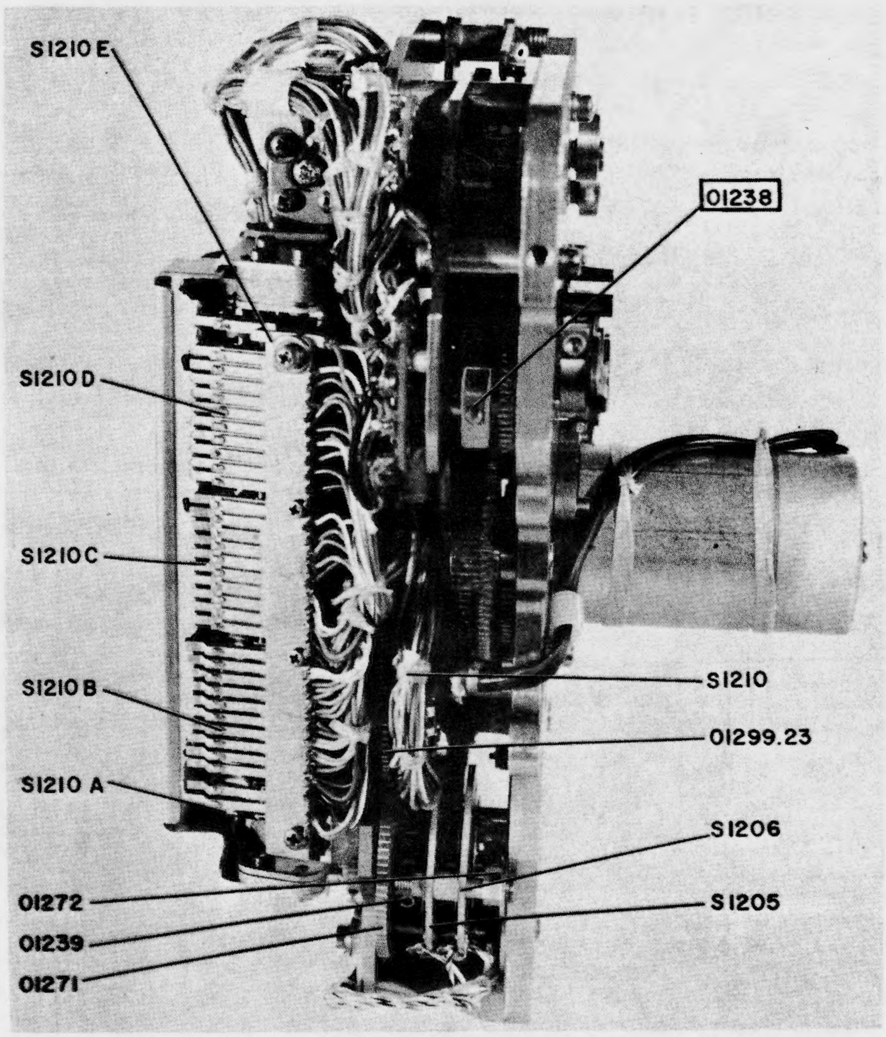


Figure 5-71. RT-581( )/URC-9, Frequency Selector, Bottom View

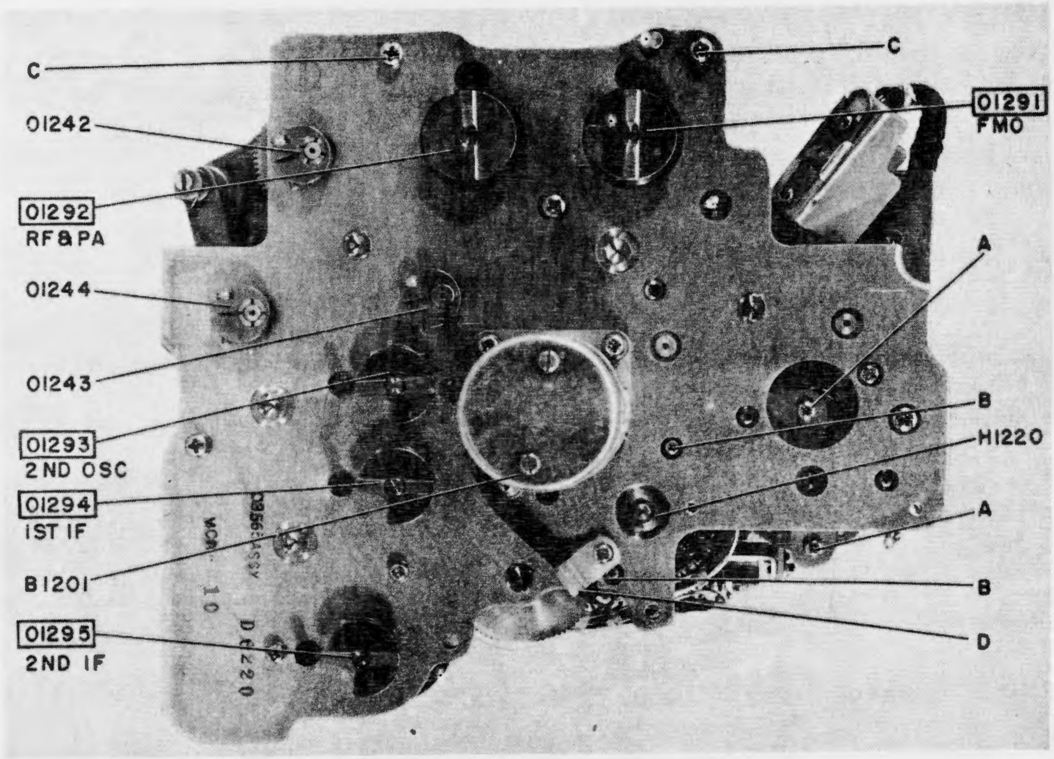


Figure 5-72. RT-581( )/URC-9, Frequency Selector, Rear View

Figure 5-73. RT-581/URC-9, Frequency Selector, Front View of Rear Plate

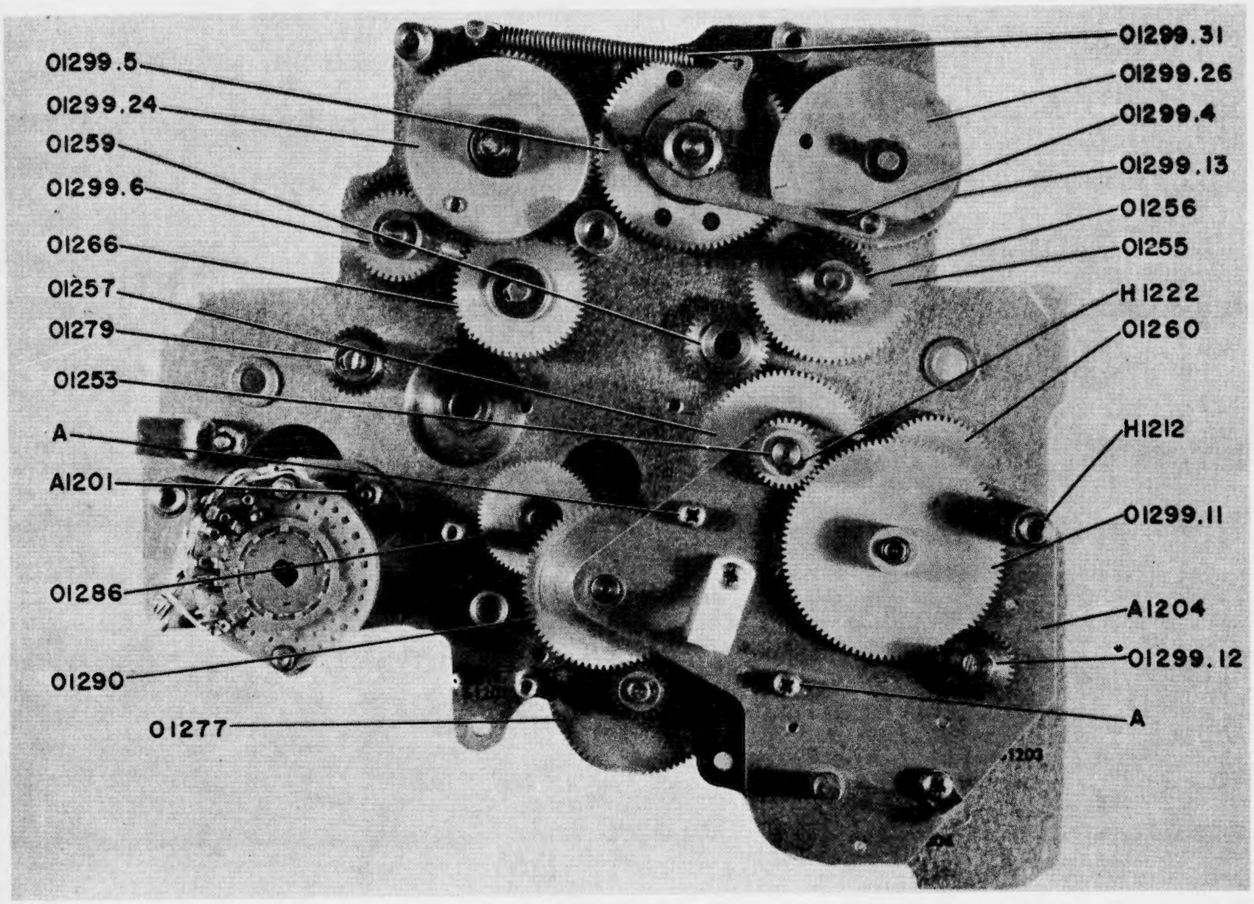


Figure 5-74. RT-581A/URC-9, Frequency Selector, Front View of Rear Plate

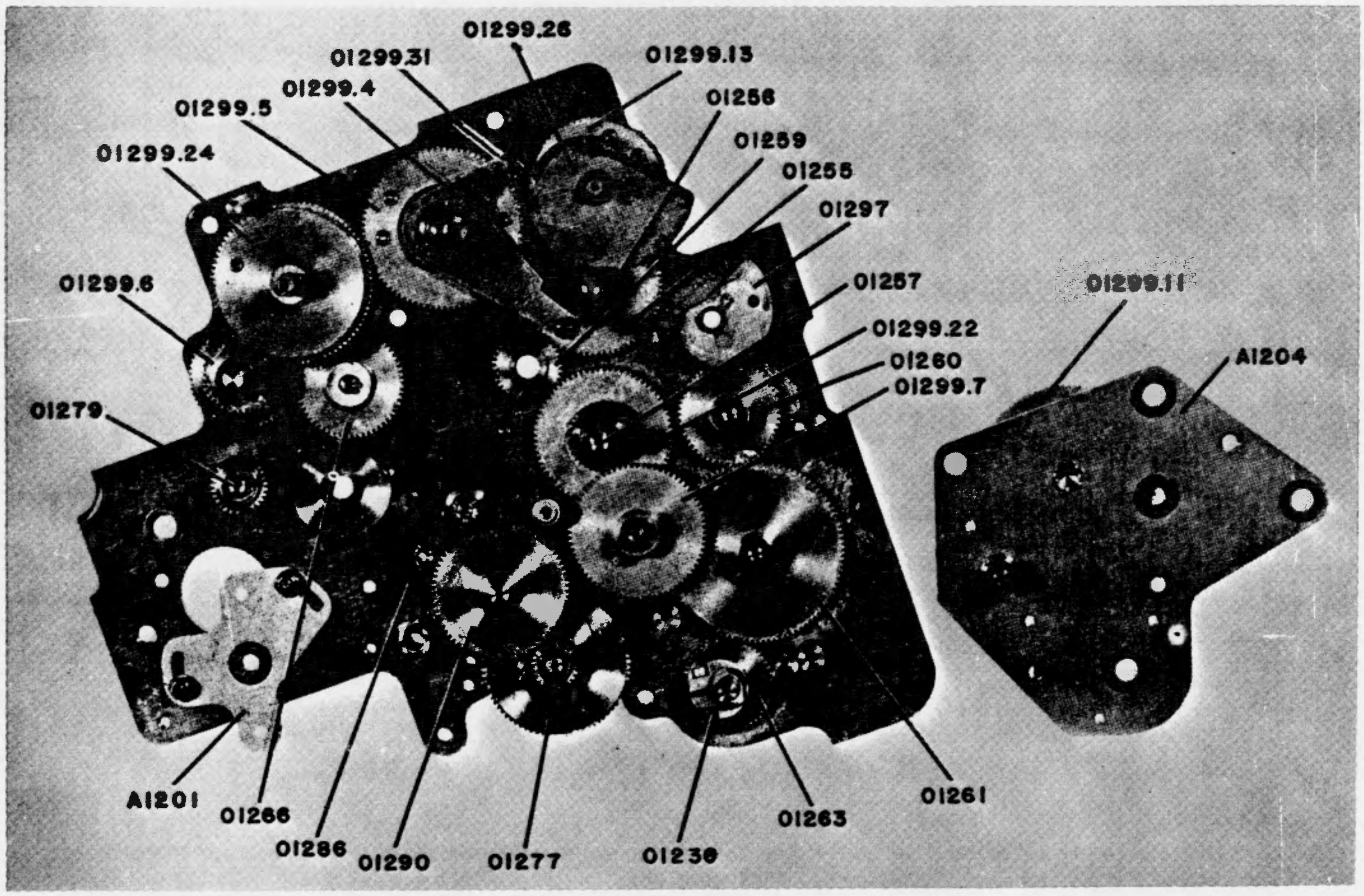


Figure 5-75. RT-581/URC-9, Frequency Selector, Front View of Rear Plate, Small Gear Removed

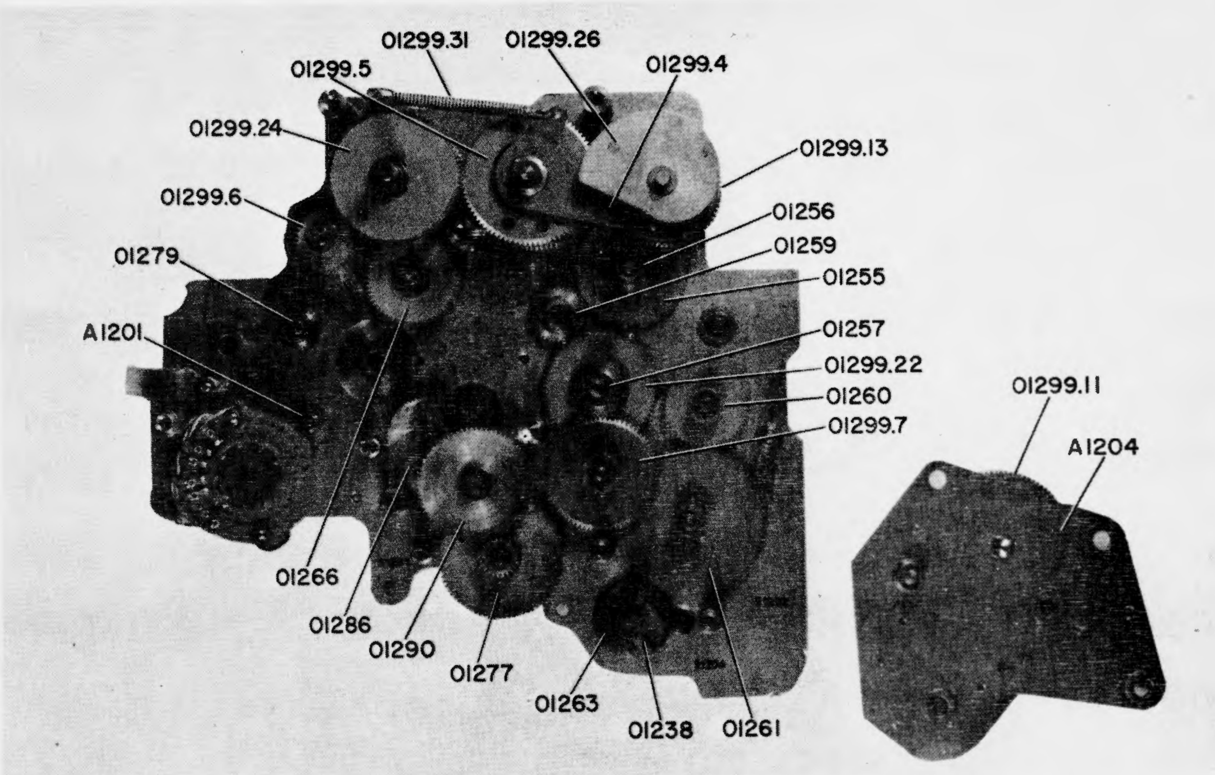


Figure 5-76. RT-581A/URC-9, Frequency Selector, Front View of Rear Plate, Small Gear Plate Removed

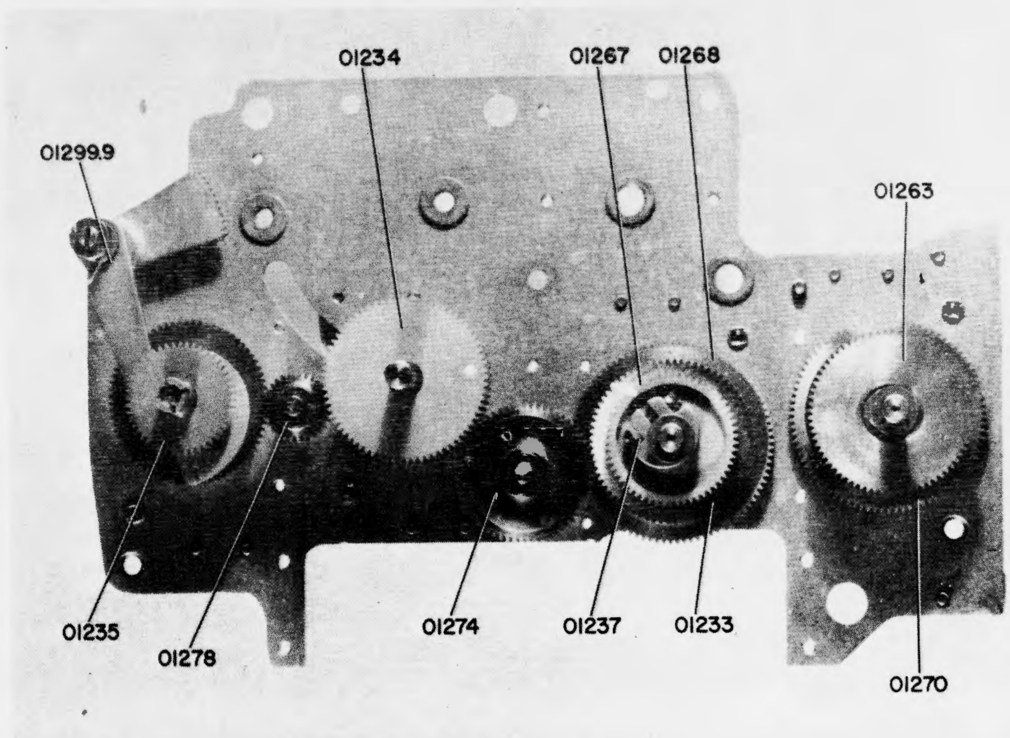


Figure 5-77. RT-581( )/URC-9, Frequency Selector, Rear View of Front Plate

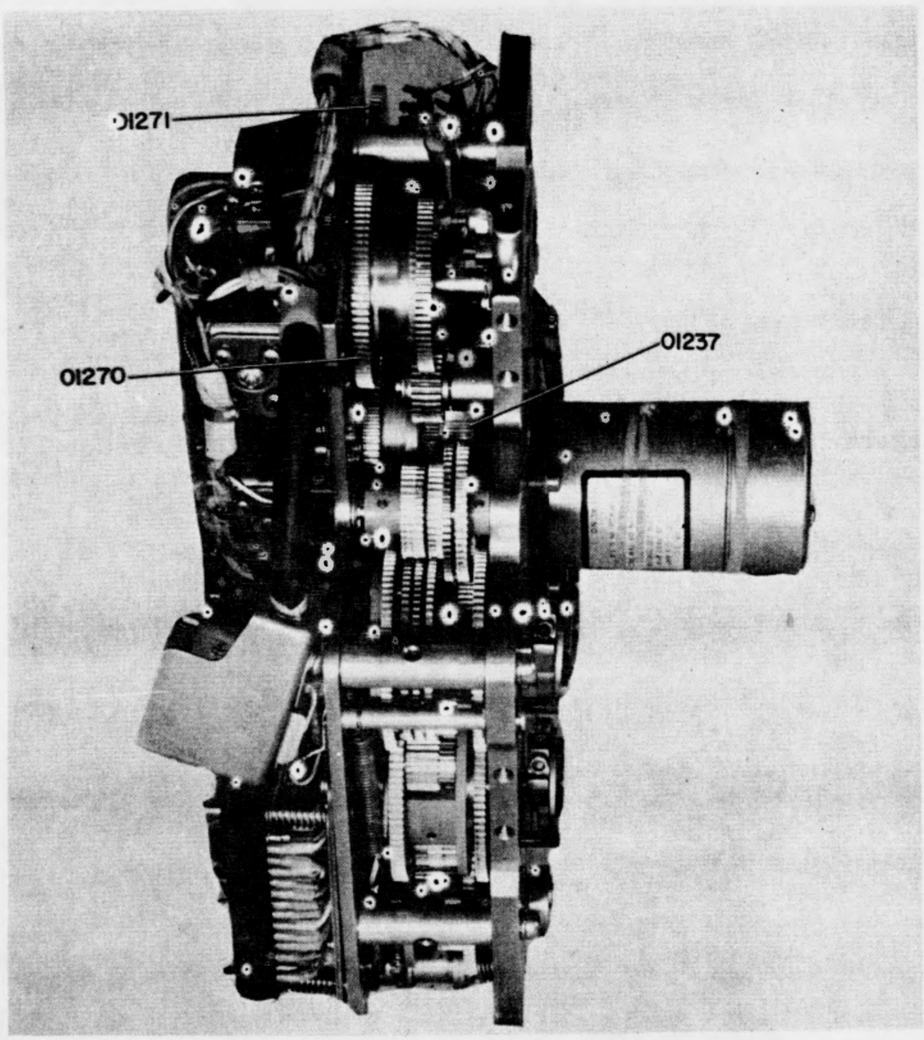
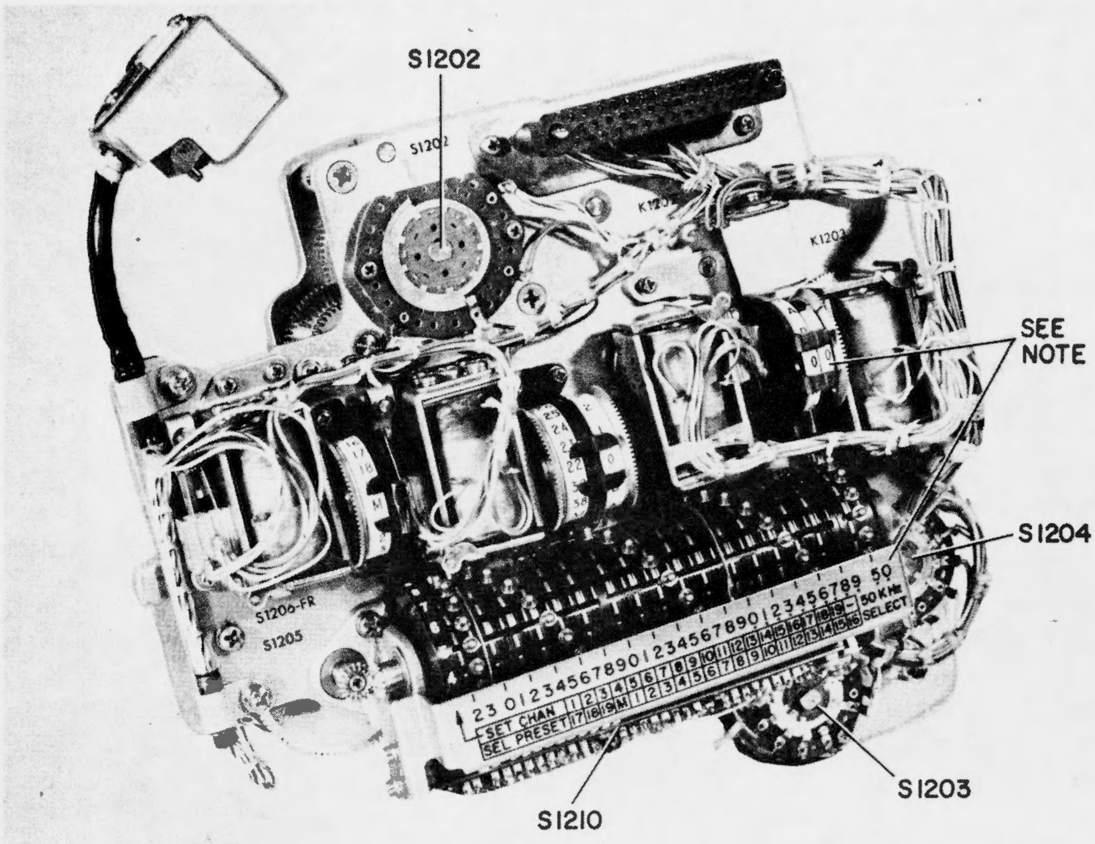


Figure 5-78. RT-581( )/URC-9, Frequency Selector, Left Top View



NOTE: Graduated in TENTHS (.1 MHz) on RT-581/URC-9

Figure 5-79. RT-581A/URC-9, Frequency Selector, Front View, Set to Preselect 220 MHz

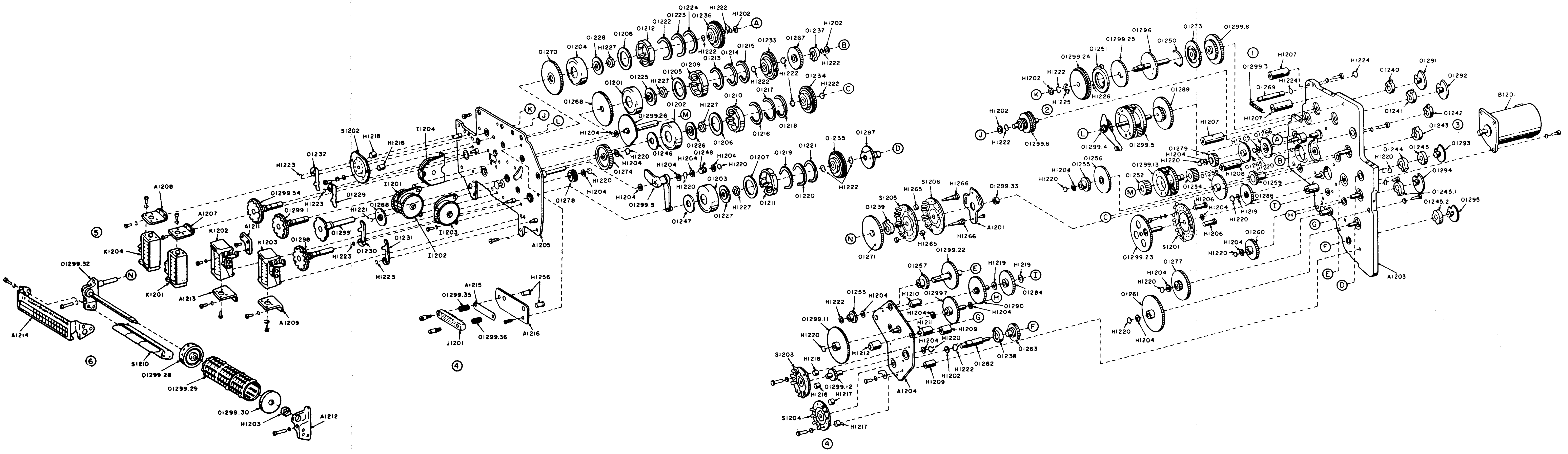


Figure 5-80. RT-581/URC-9, Frequency Selector, Exploded View

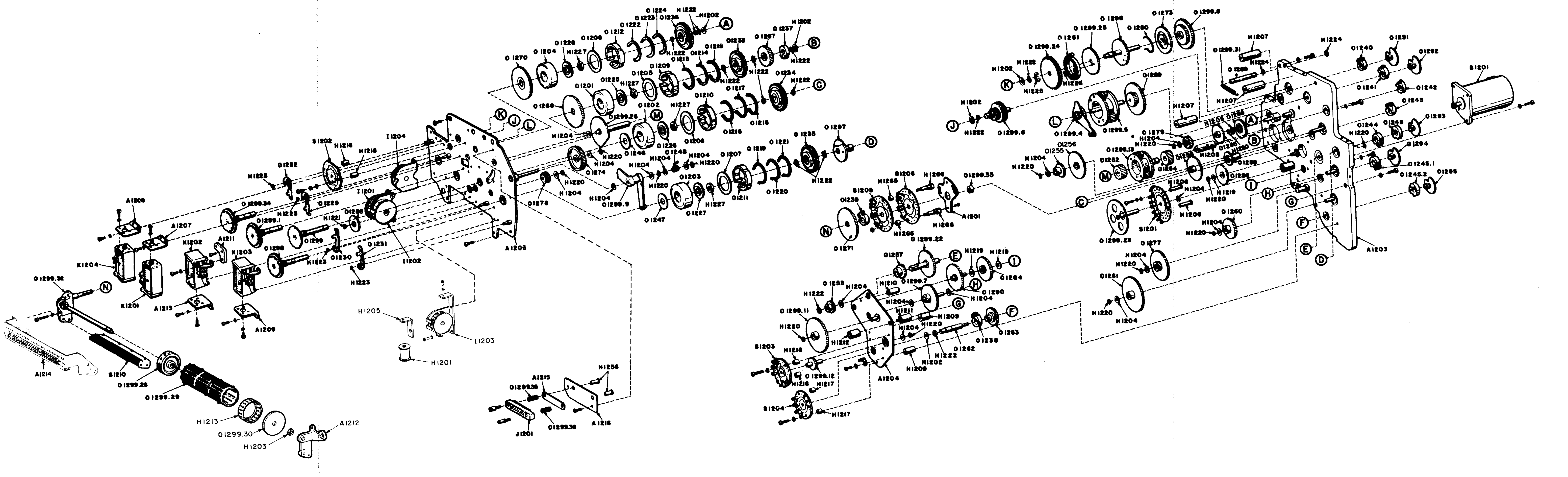


Figure 5-81. RT-581A/URC-9, Frequency Selector, Exploded View

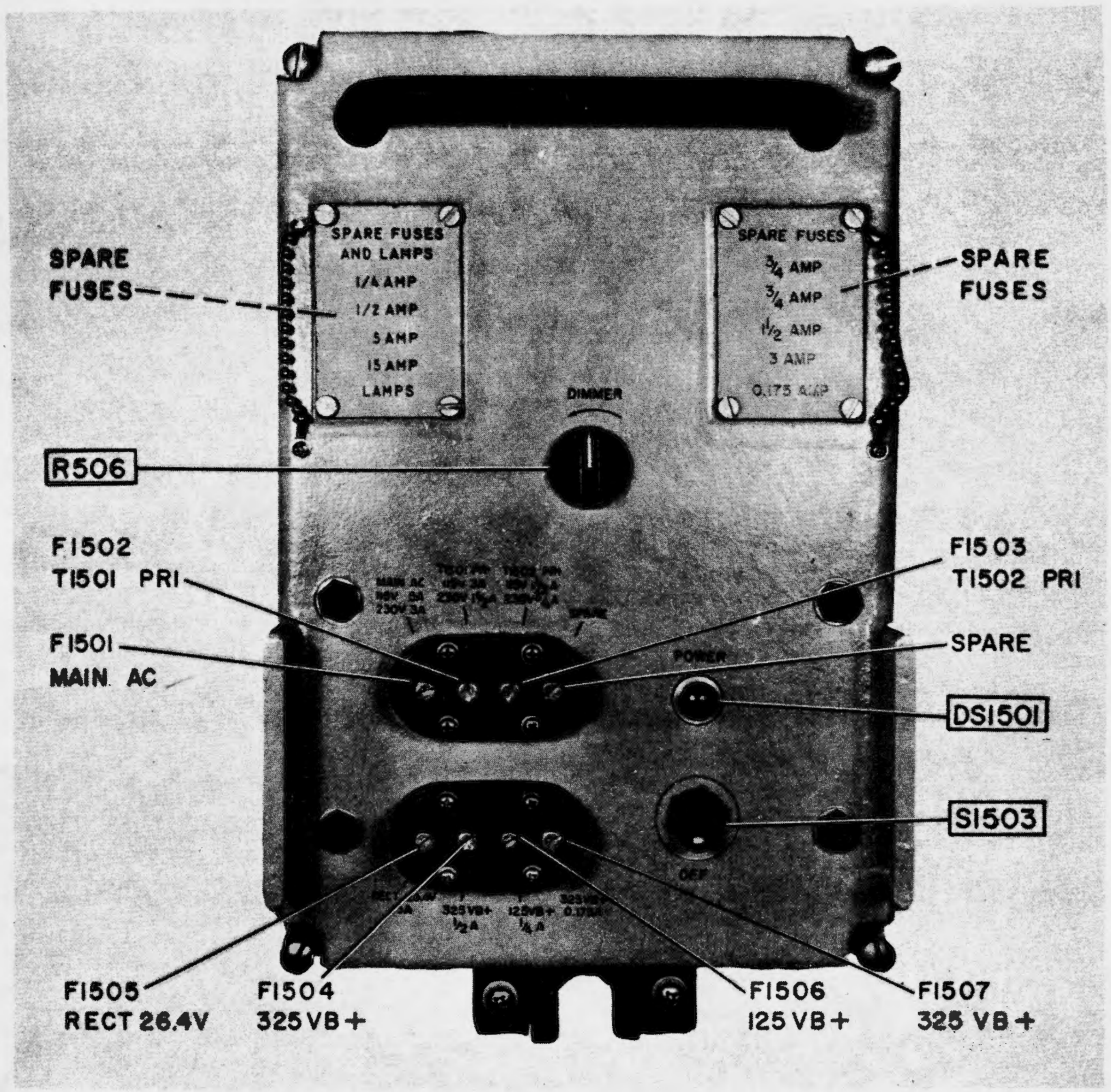


Figure 5-82. Power Supply PP-2702/URC-9, Front View

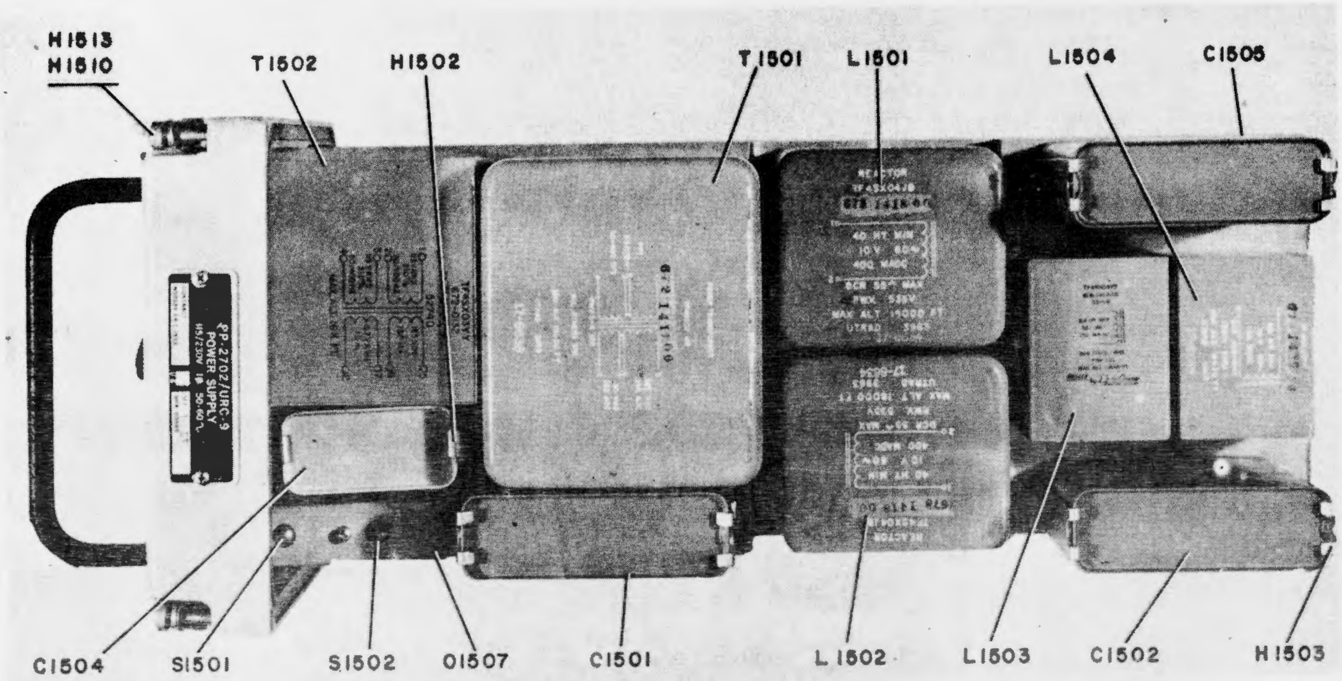


Figure 5-83. Power Supply PP-2702/URC-9, Top View

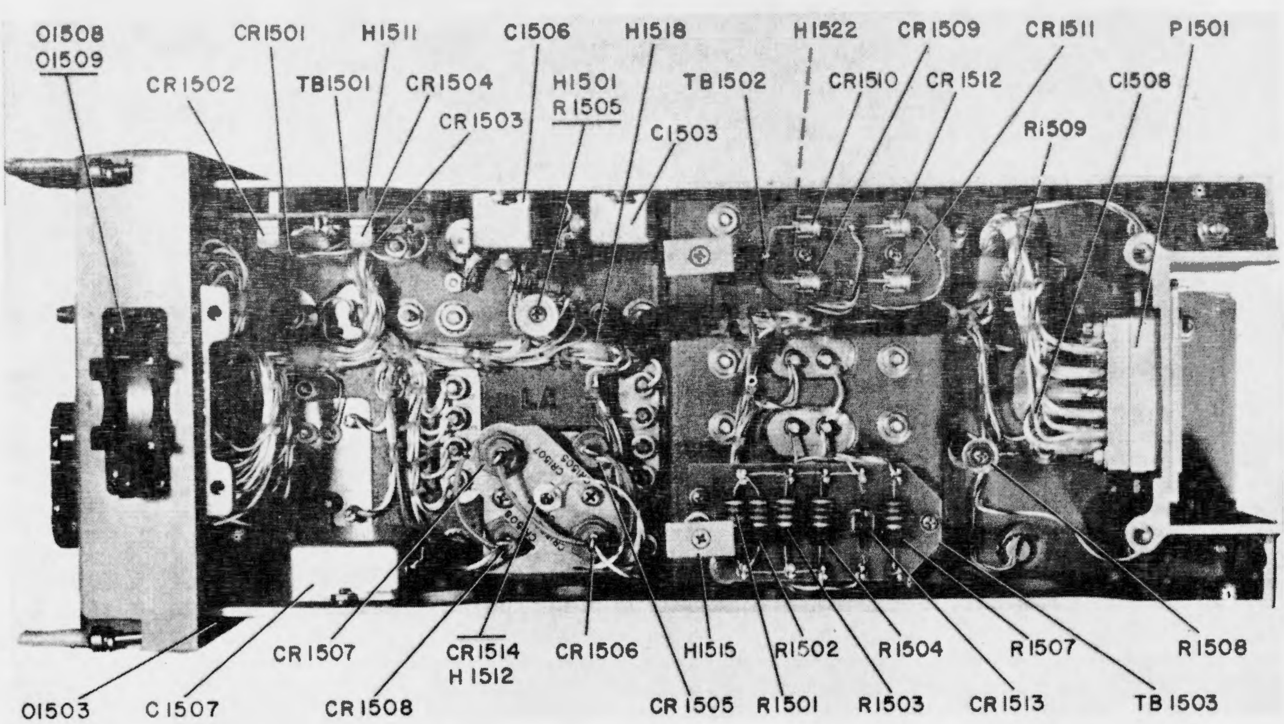


Figure 5-84. Power Supply PP-2702/URC-9, Bottom View

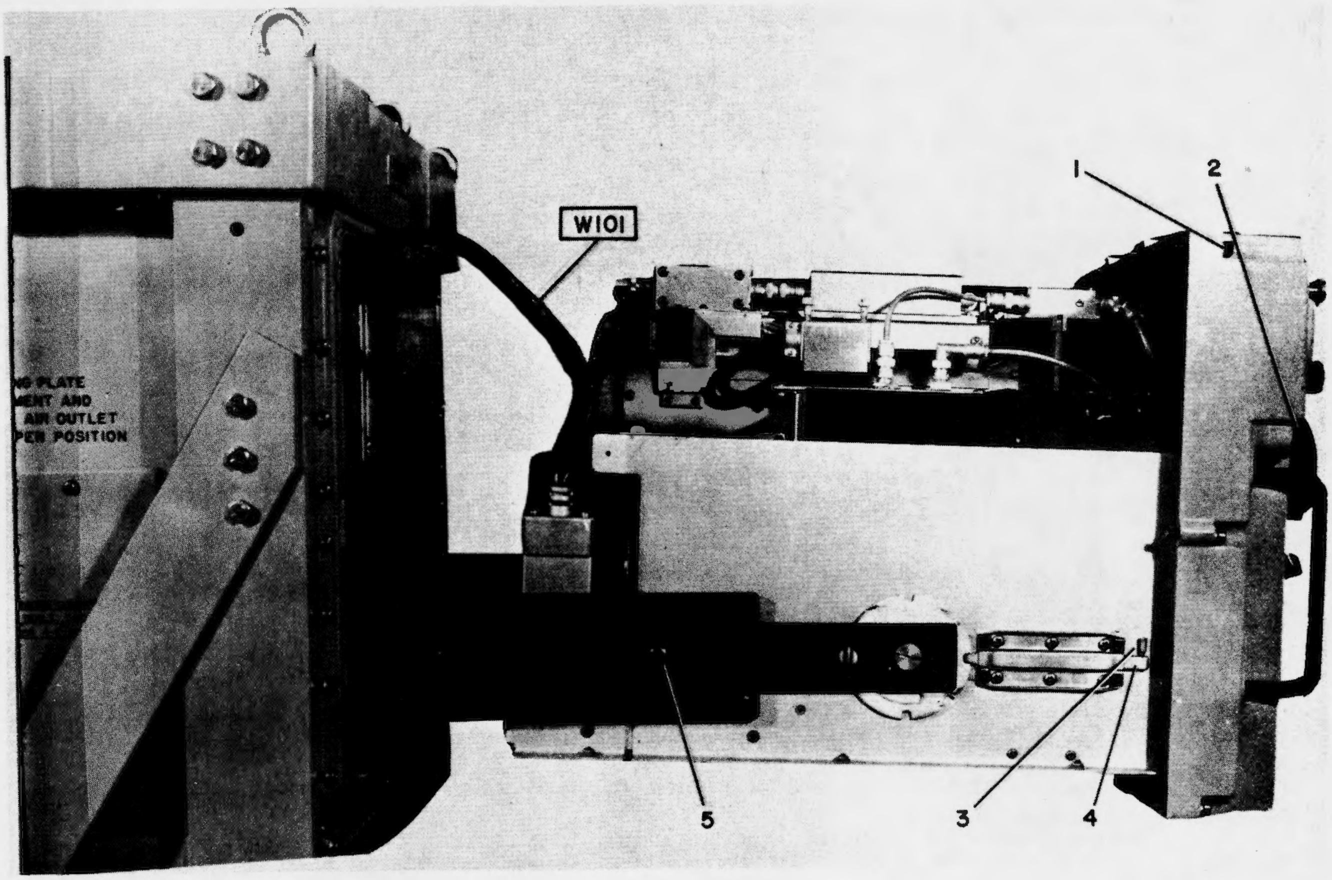


Figure 5-85. Radio Frequency Amplifier AM-1565/URC, Extended on Slides

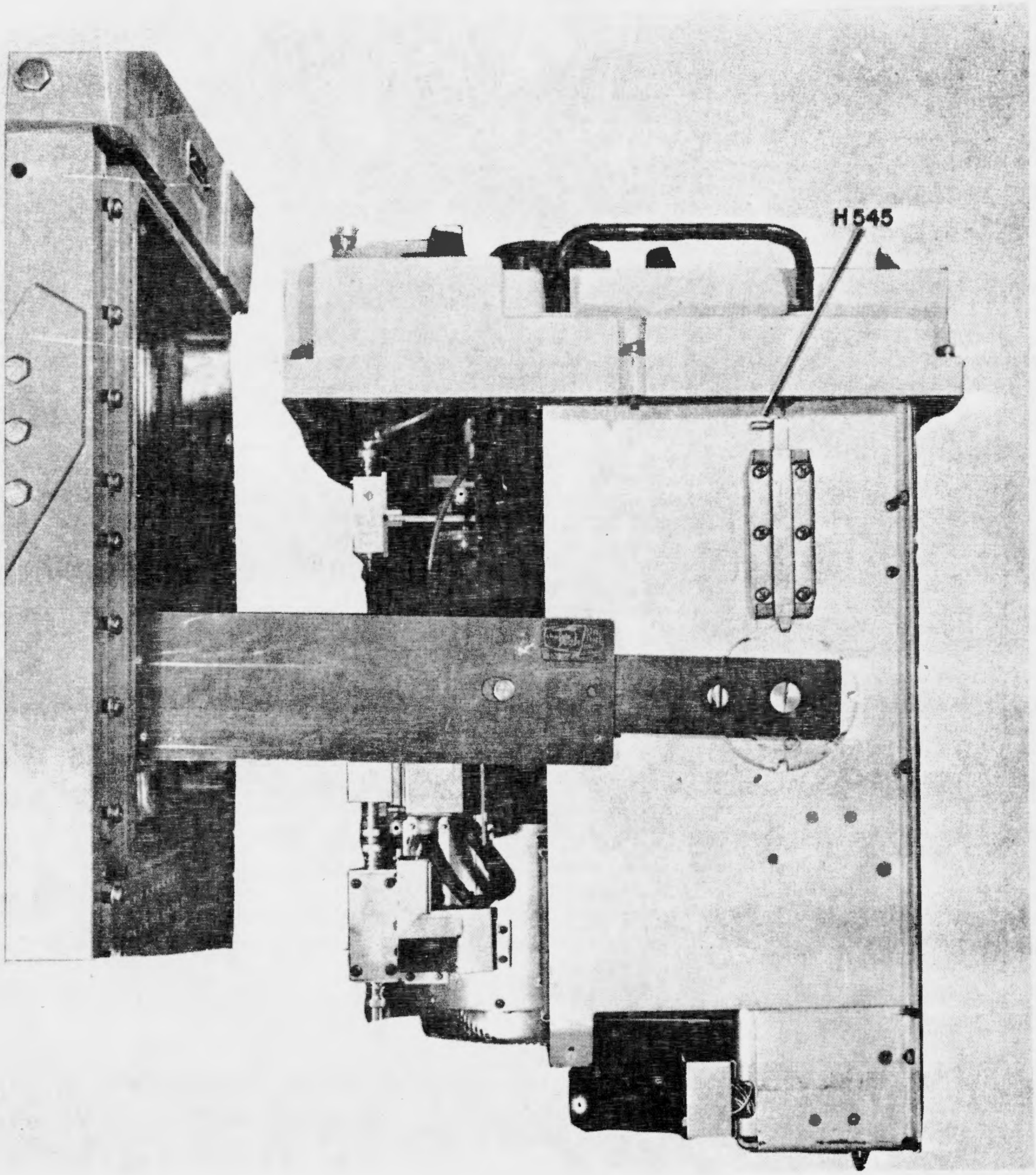


Figure 5-86. Radio Frequency Amplifier AM-1565/URC, Extended and Tilted

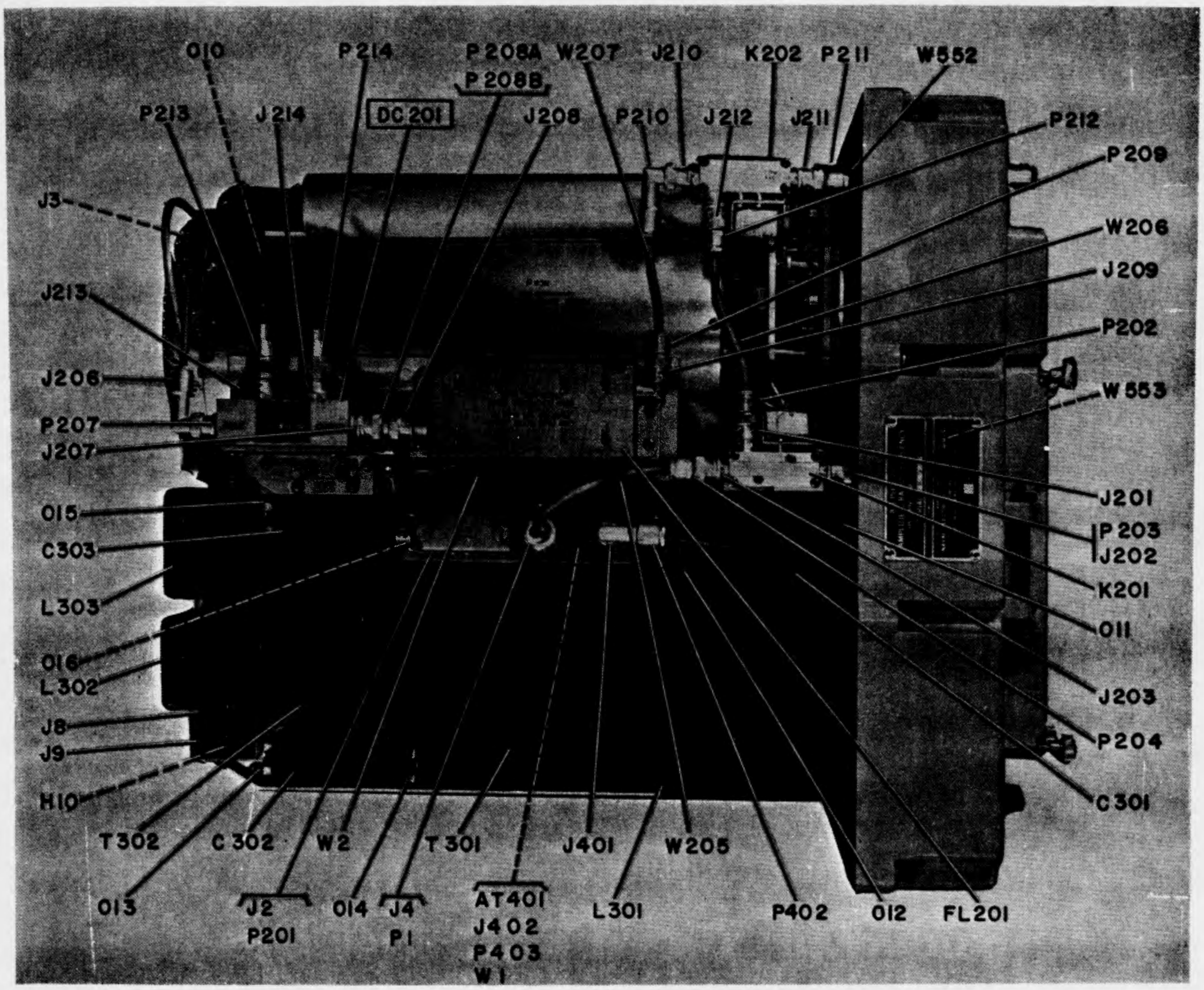


Figure 5-87. Radio Frequency Amplifier AM-1565/URC, Top View

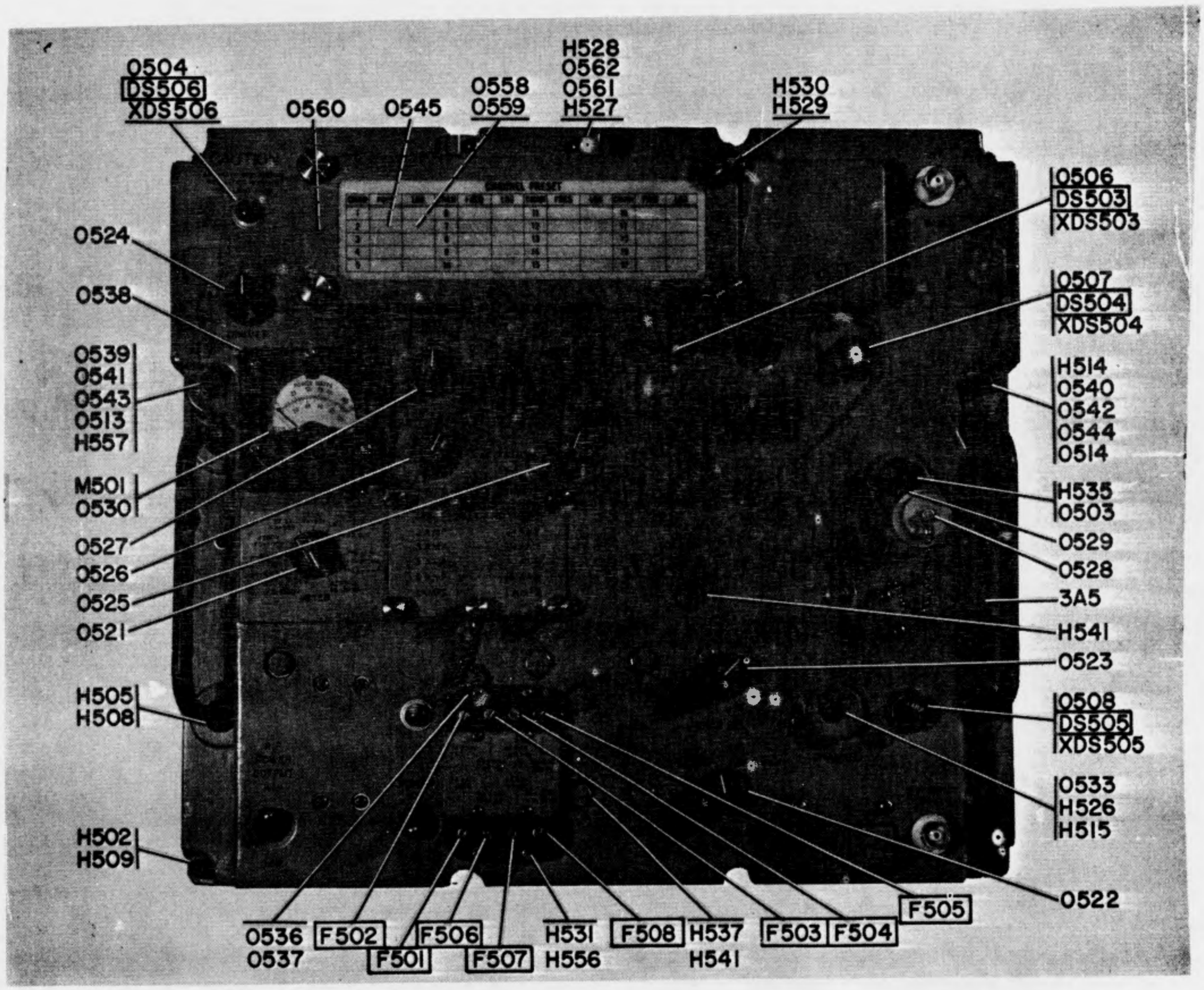


Figure 5-88. Radio Frequency Amplifier AM-1565/URC, Front View, Parts Location

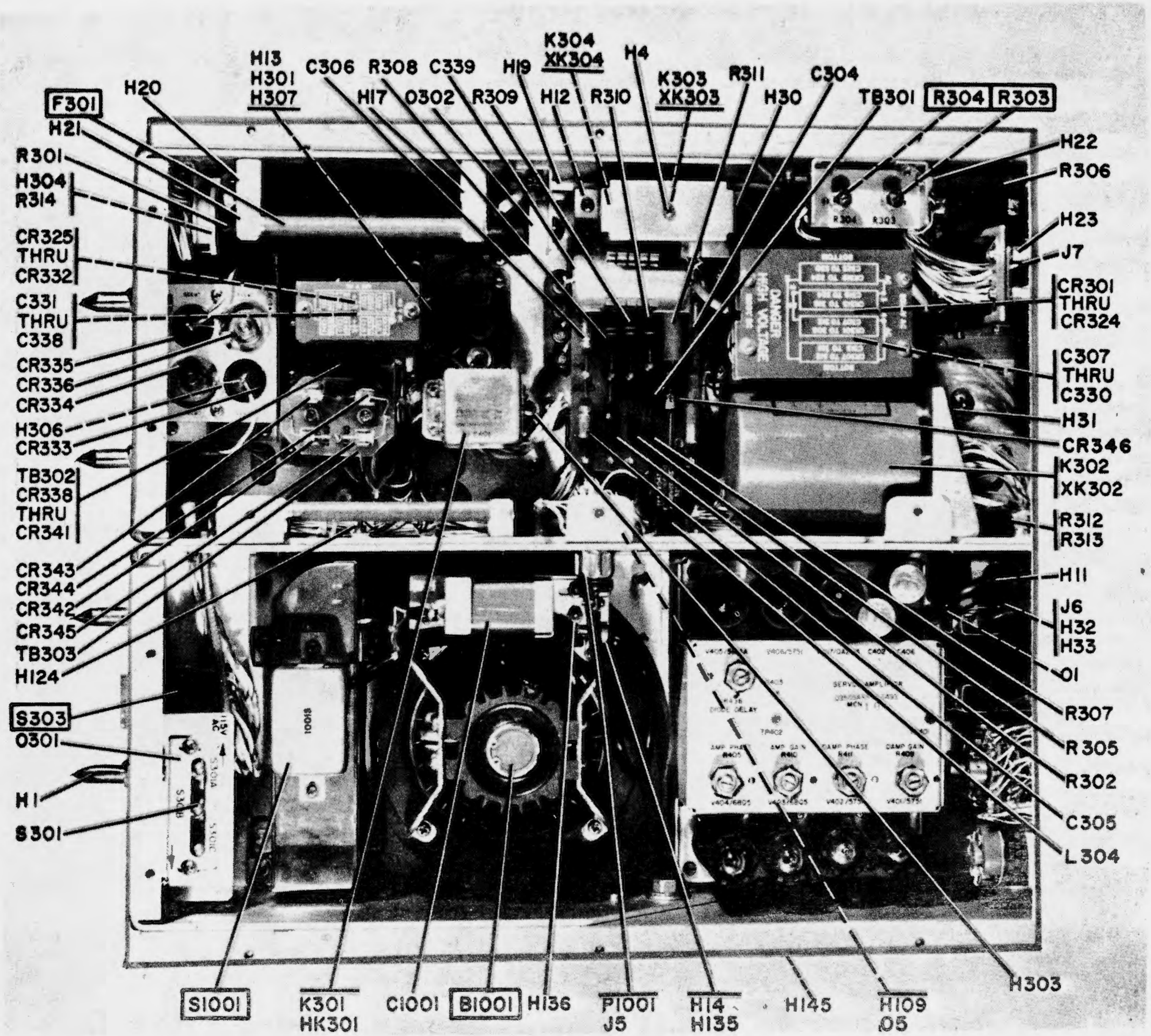


Figure 5-89. Radio Frequency Amplifier AM-1565/URC, Bottom View

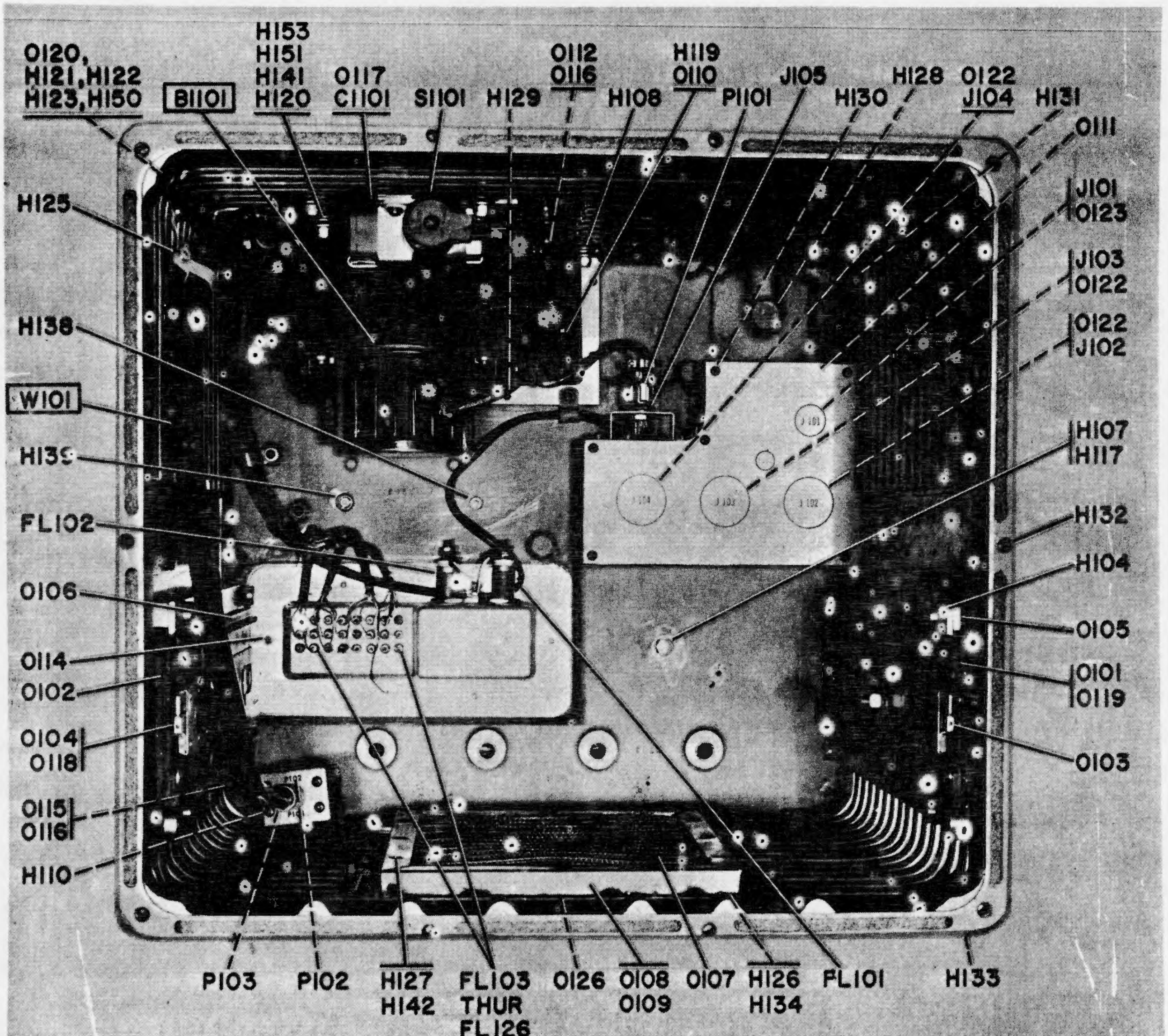


Figure 5-90. Radio Frequency Amplifier AM-1565/URC, Inside of Case

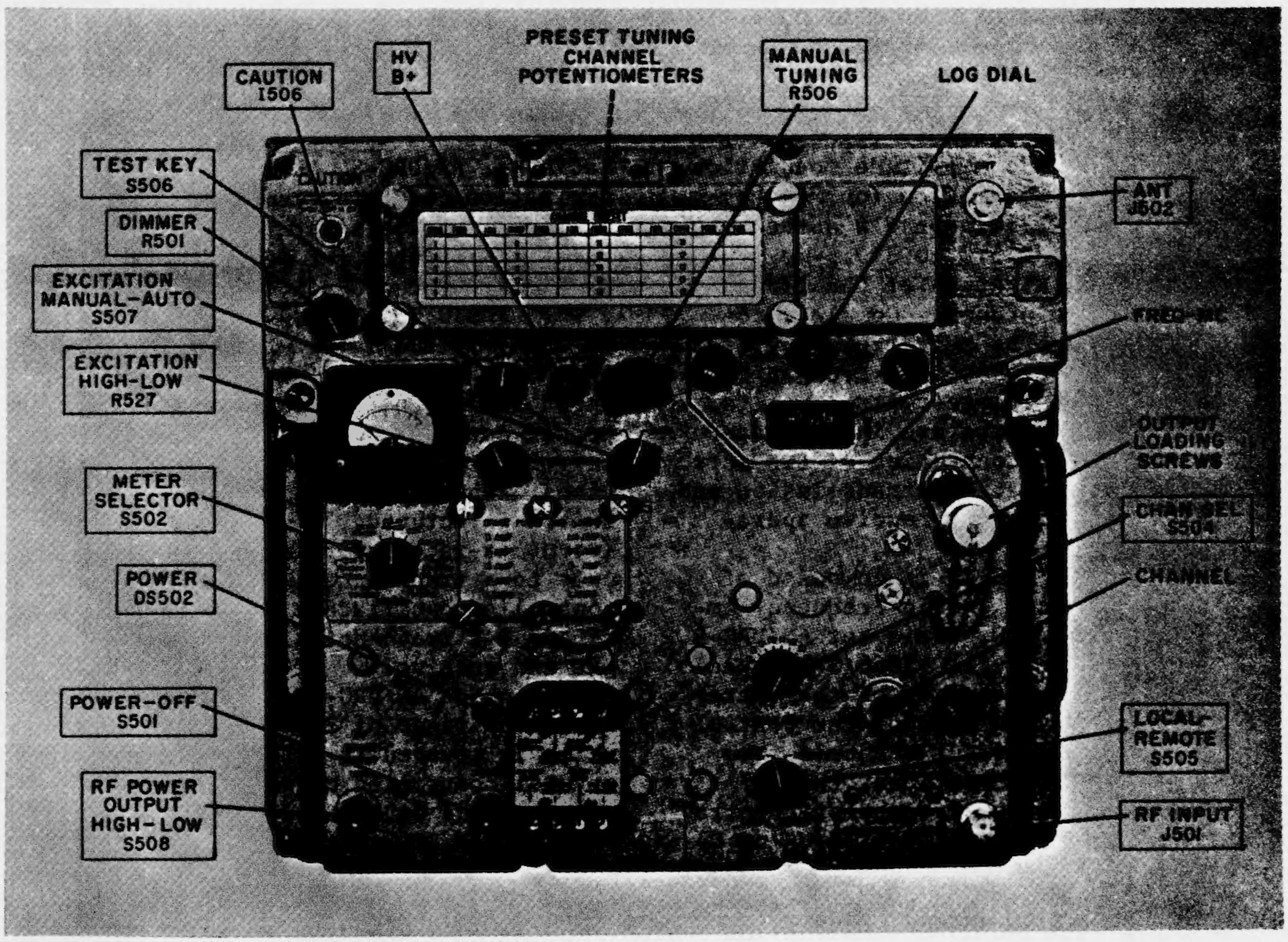


Figure 5-91. AM-1565/URC, Controls and Indicators

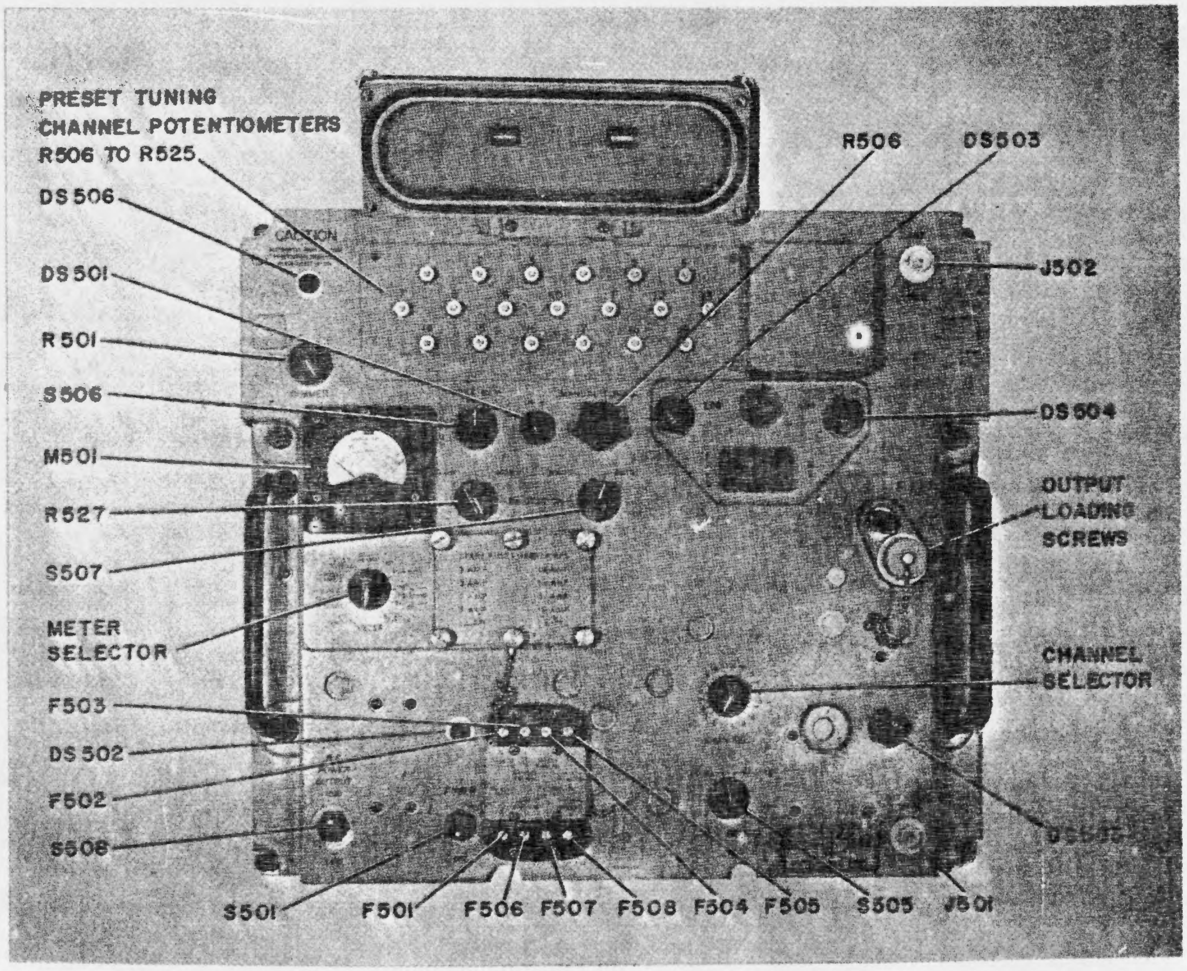


Figure 5-92. AM-1565/URC, Preset Tuning Potentiometers

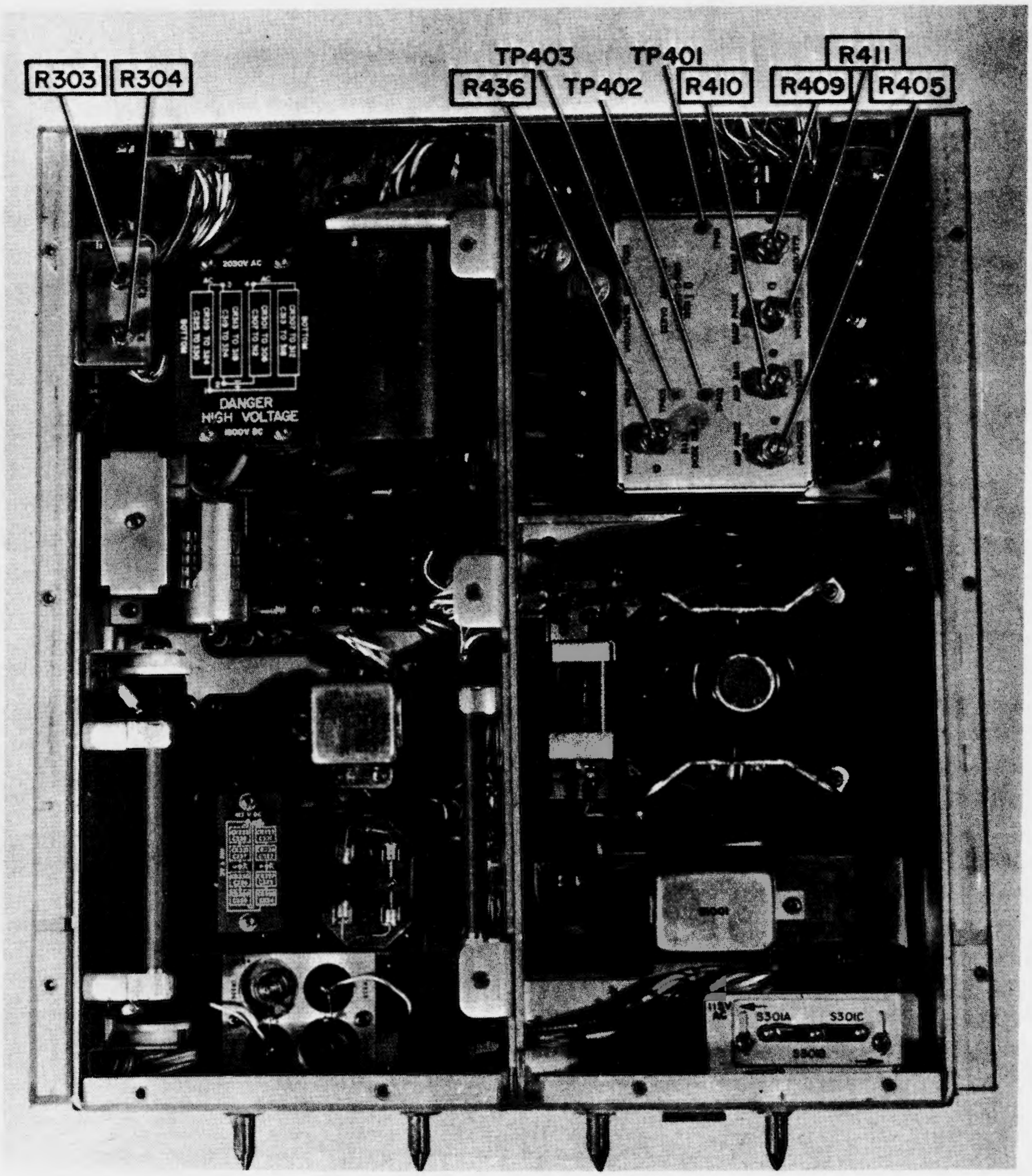


Figure 5-93. AM-1565/URC, Location of Alignment Points

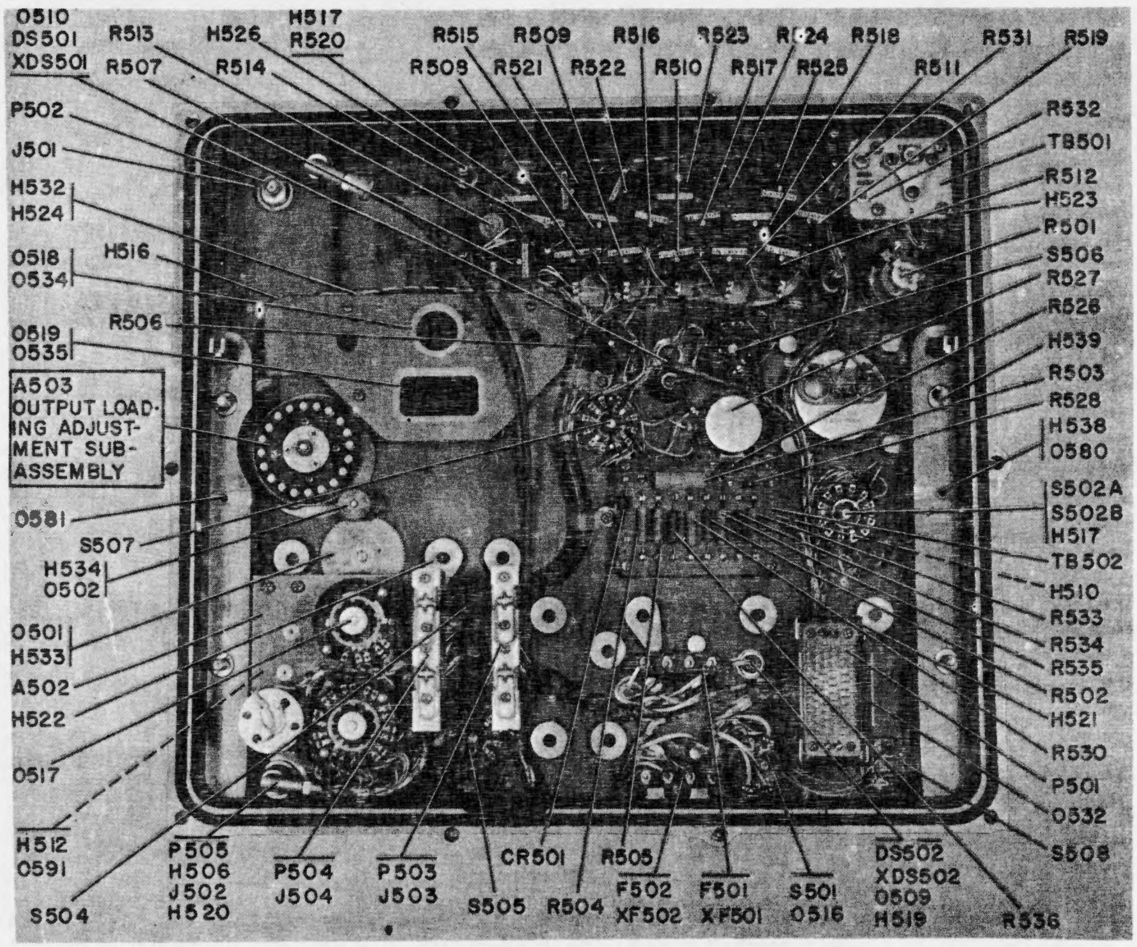


Figure 5-94. AM-1565/URC, Front Panel Rear View

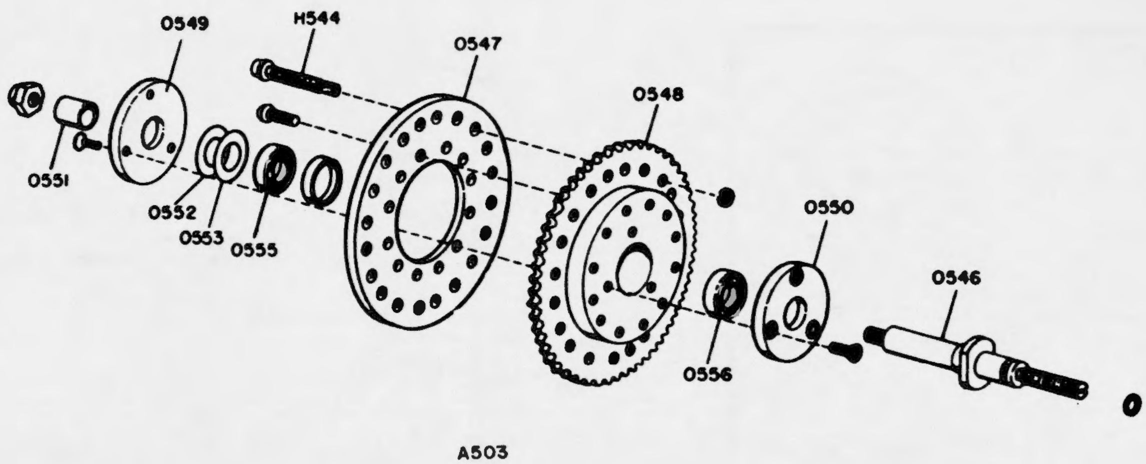


Figure 5-95. AM-1565/URC, Output Loading Adjustment Subassembly, Exploded View

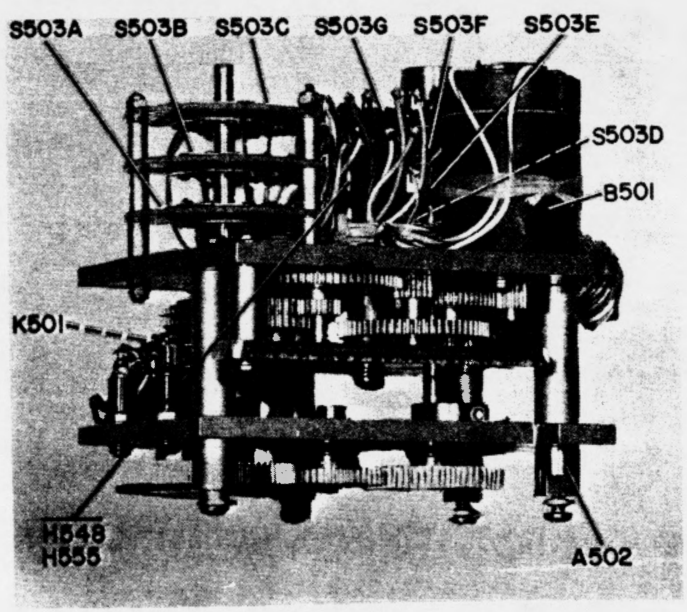


Figure 5-96. AM-1565/URC, Autopositioner

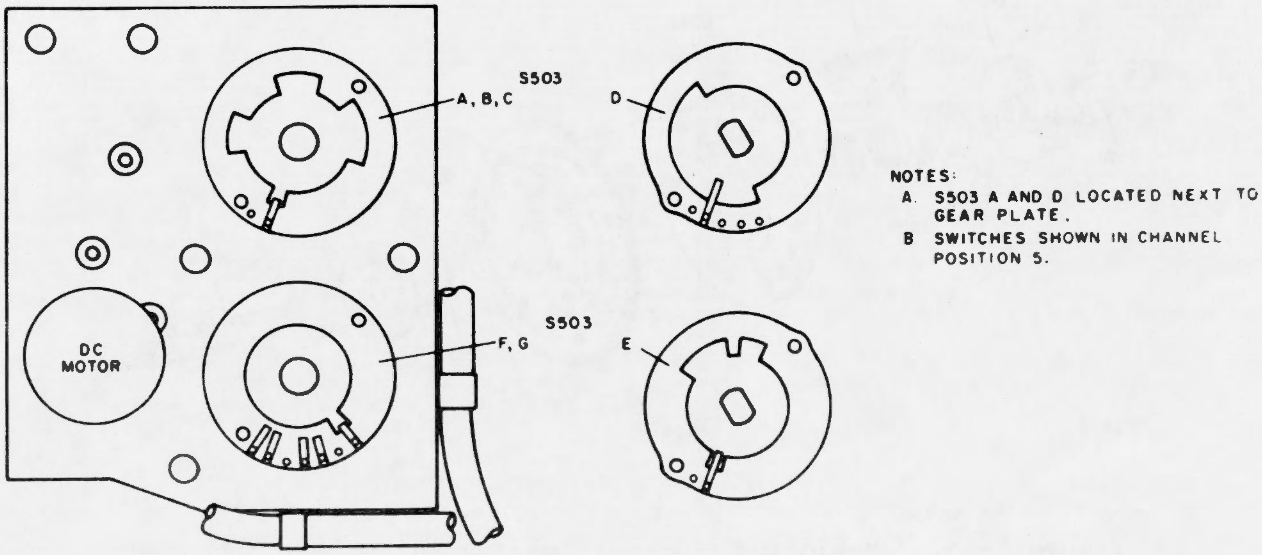


Figure 5-97. AM-1565/URC, Autopositioner, Switch Section Orientation

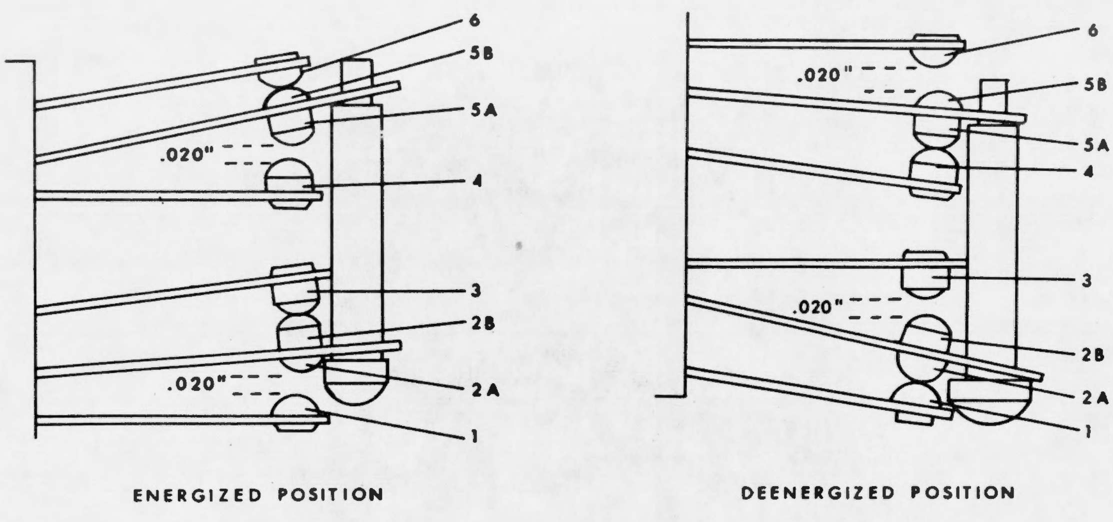
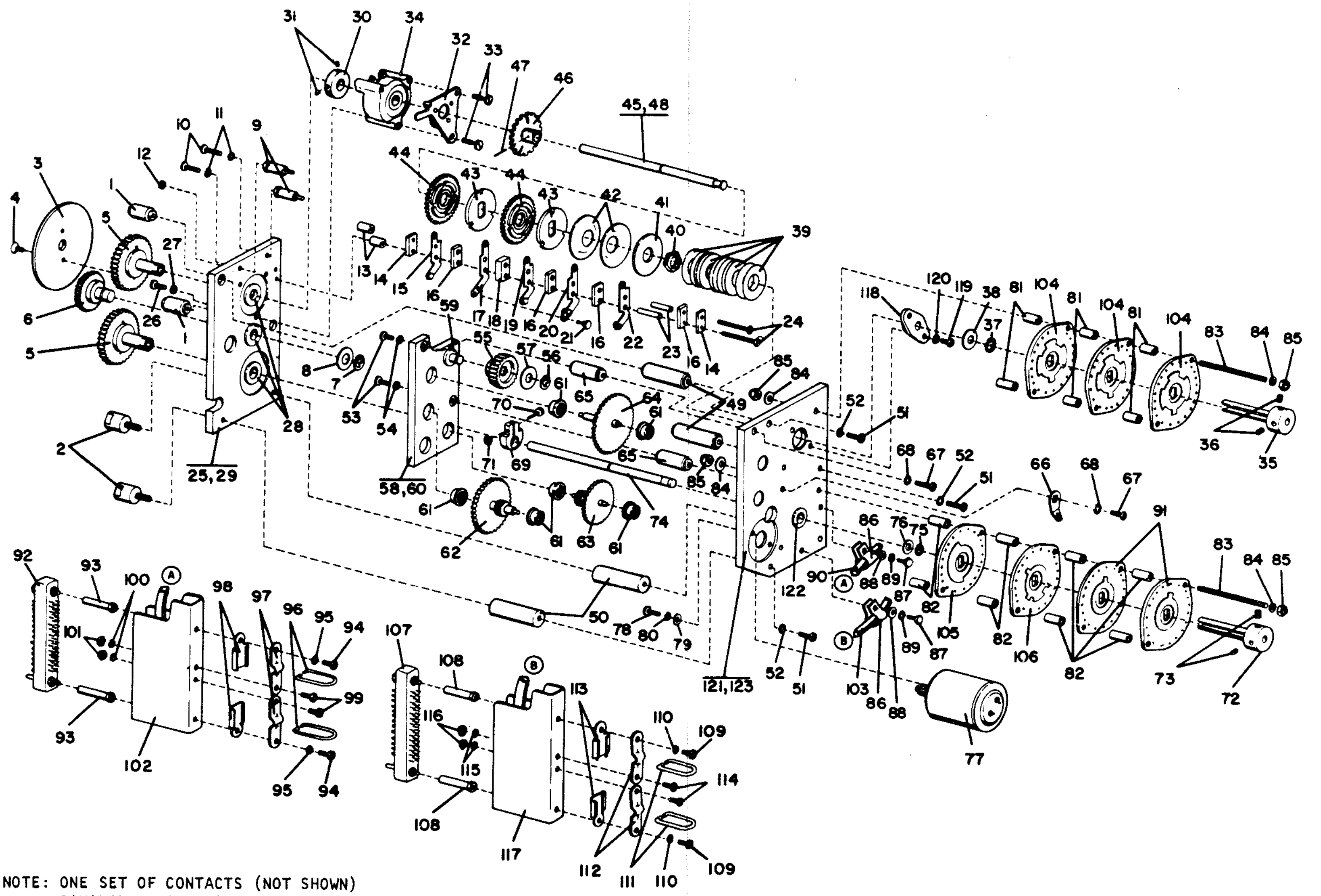
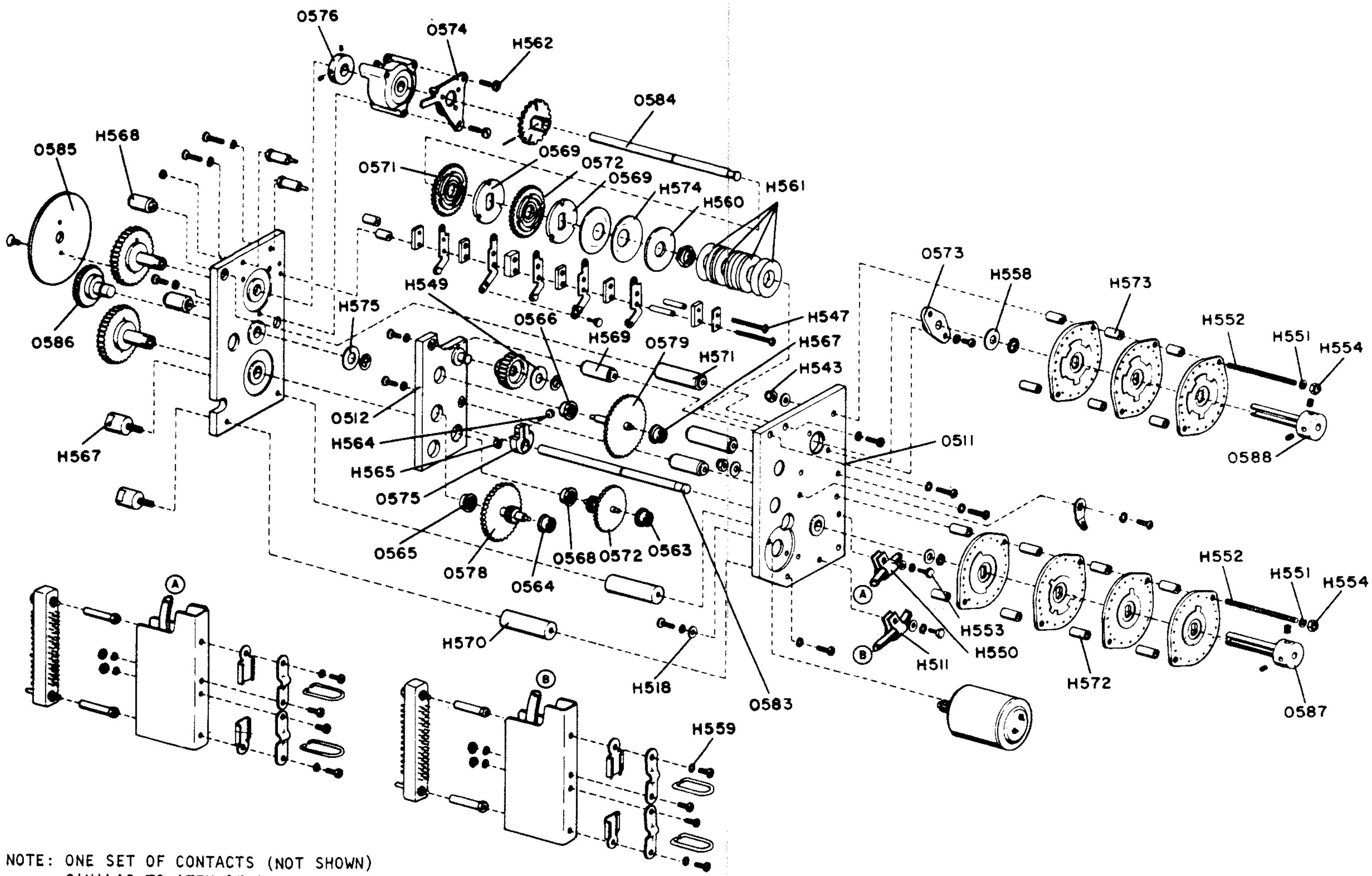


Figure 5-98. AM-1565/URC, Autopositioner, Relay K501, Contact Adjustment



NOTE: ONE SET OF CONTACTS (NOT SHOWN) SIMILAR TO ITEM 15 ADDED BETWEEN ITEMS 17 AND 18.

Figure 5-99. AM-1565/URC, Autopositioner, Exploded View, Disassembly Procedure



NOTE: ONE SET OF CONTACTS (NOT SHOWN) SIMILAR TO ITEM 15 ADDED BETWEEN ITEMS 17 AND 18.

Figure 5-100. AM-1565/URC, Autopositioner, Exploded View, Parts Location

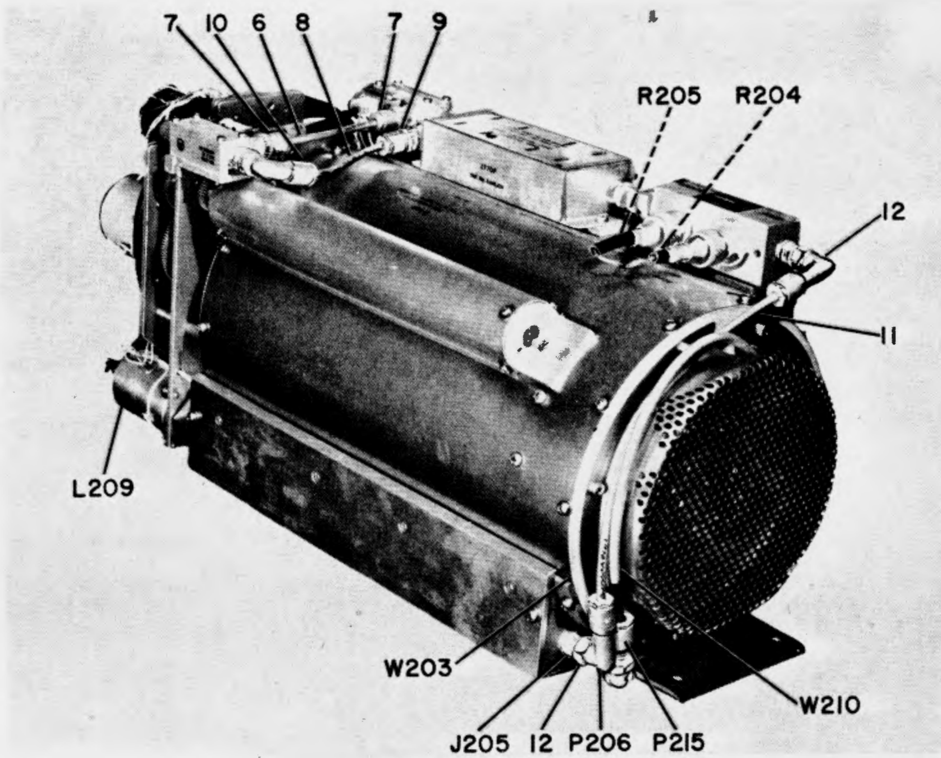


Figure 5-101. AM-1565/URC, Power Amplifier Subassembly, Parts Location (A)

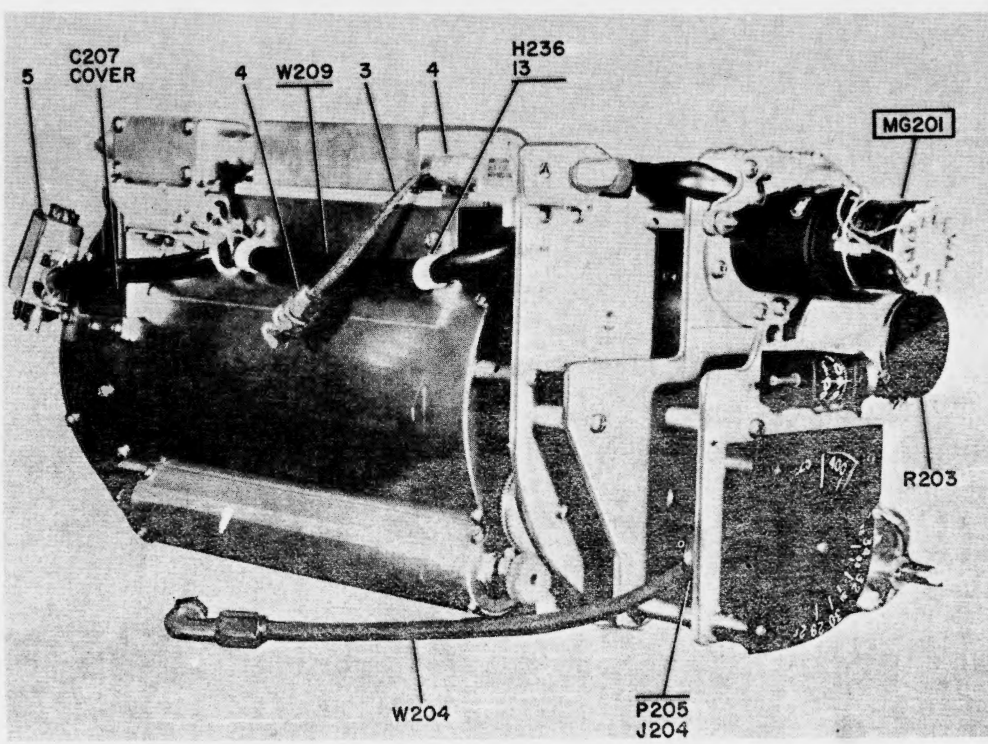


Figure 5-102. AM-1565/URC, Power Amplifier Subassembly, Parts Location (B)

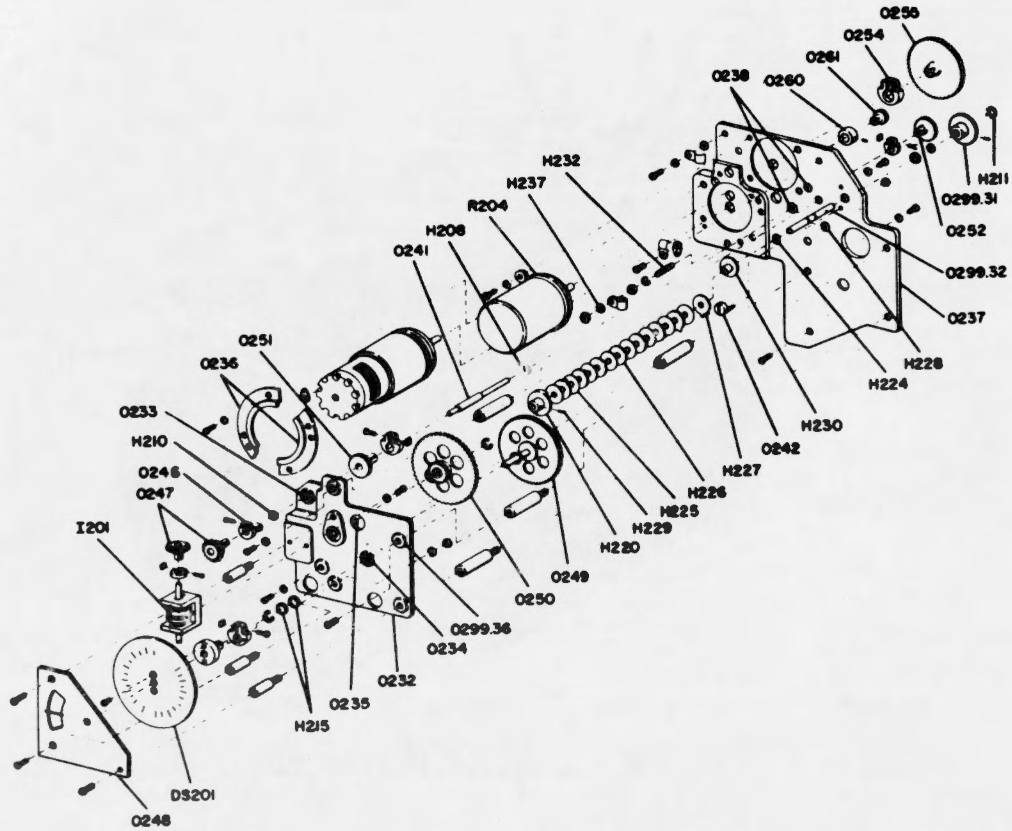


Figure 5-103. AM-1565/URC, Power Amplifier Subassembly, Parts Location (C)

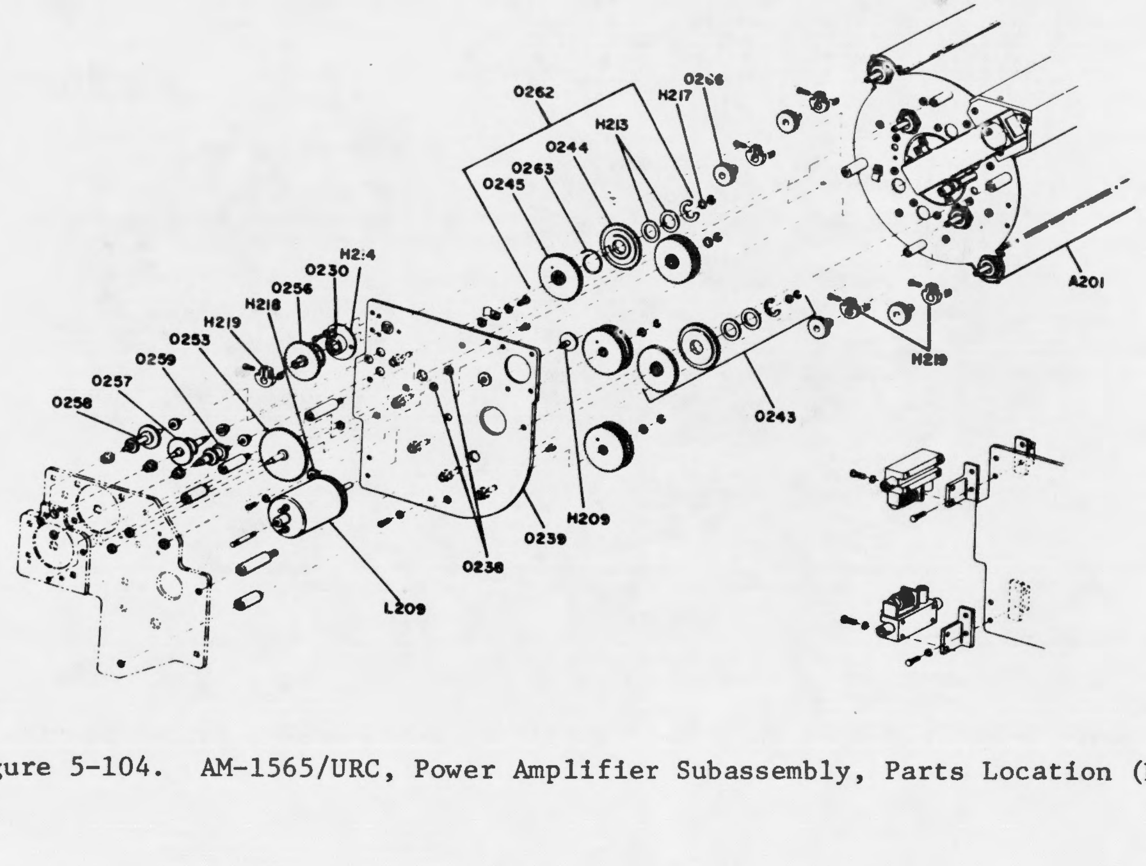


Figure 5-104. AM-1565/URC, Power Amplifier Subassembly, Parts Location (D)

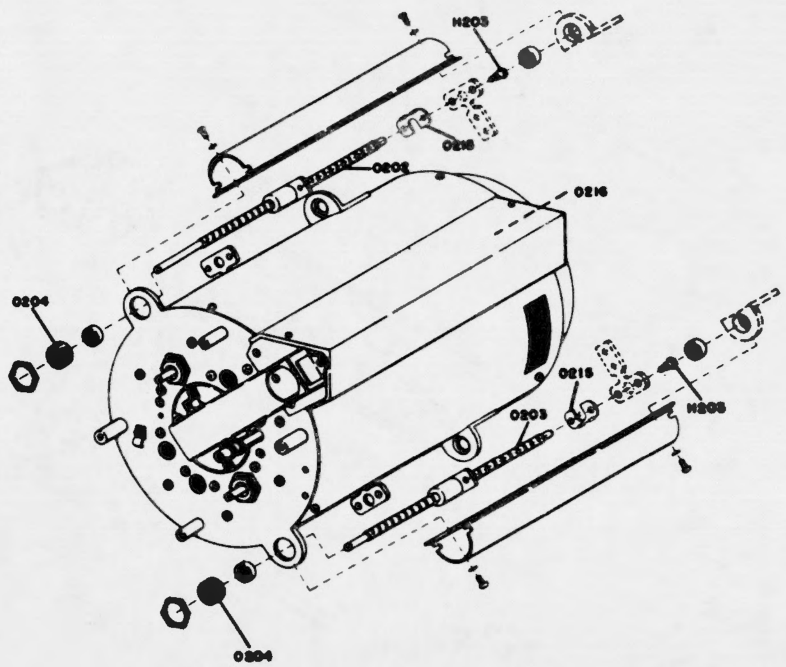


Figure 5-105. AM-1565/URC, Power Amplifier Subassembly, Parts Location (E)

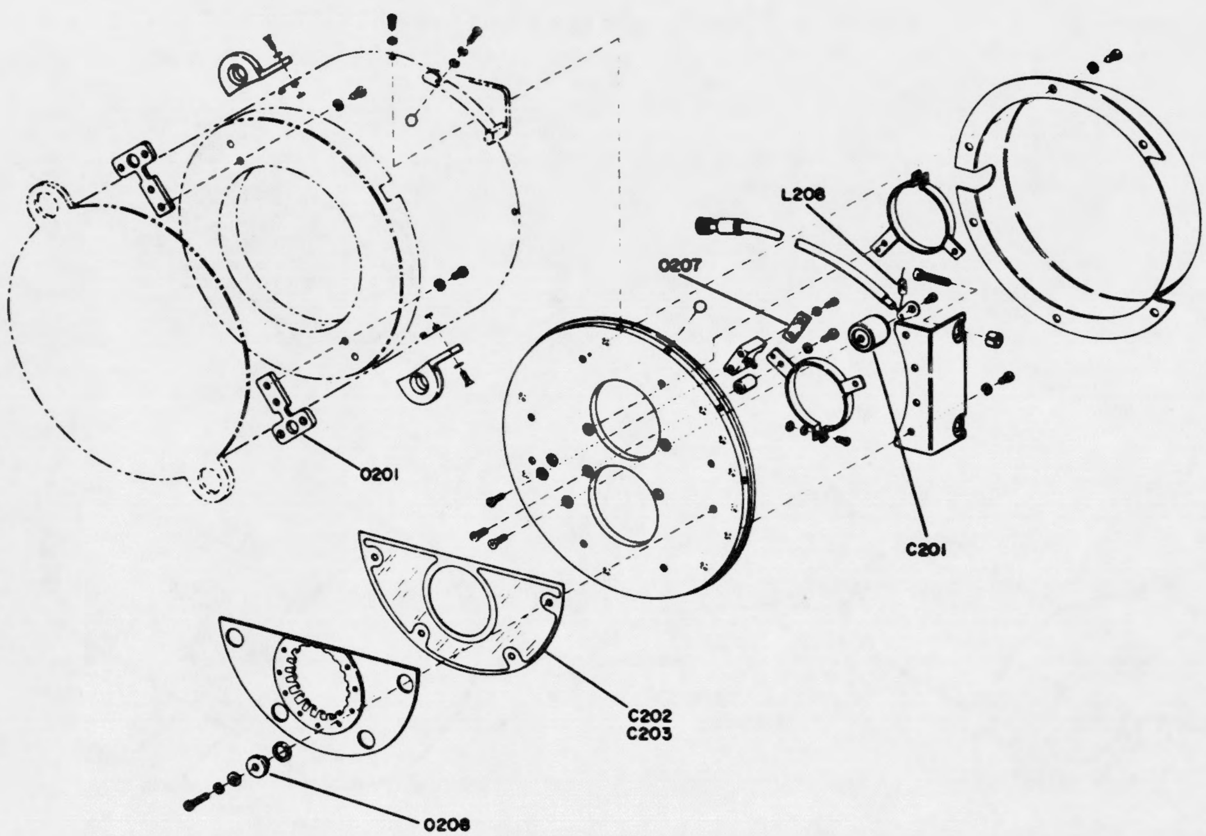


Figure 5-106. AM-1565/URC, Power Amplifier Subassembly, Parts Location (F)

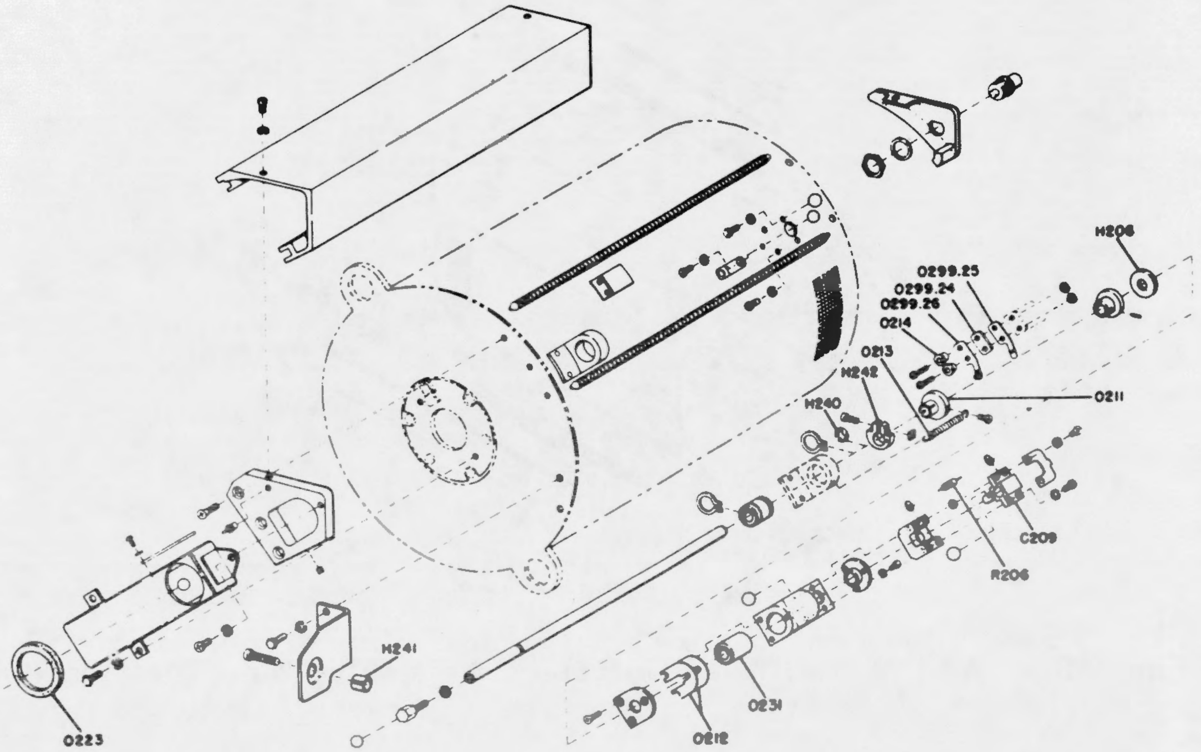


Figure 5-107. AM-1565/URC, Power Amplifier Subassembly, Parts Location (G)

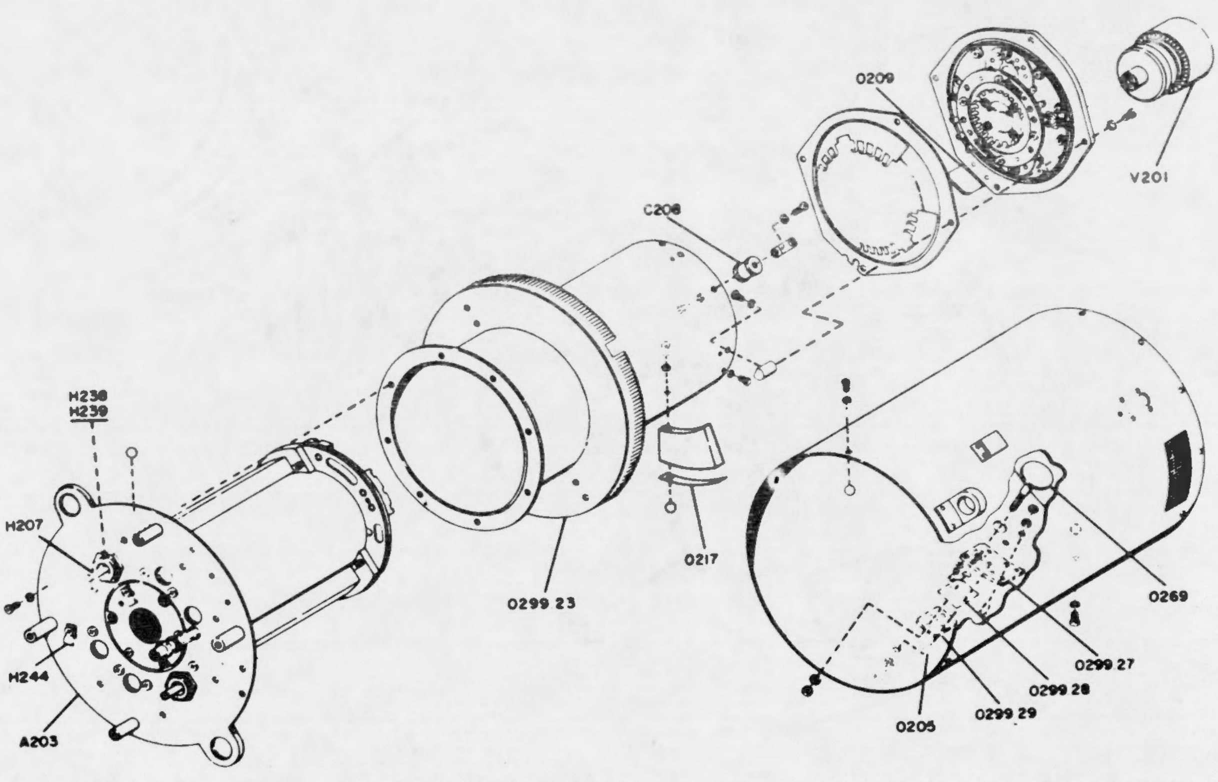


Figure 5-108. AM-1565/URC, Power Amplifier Subassembly, Parts Location (H)

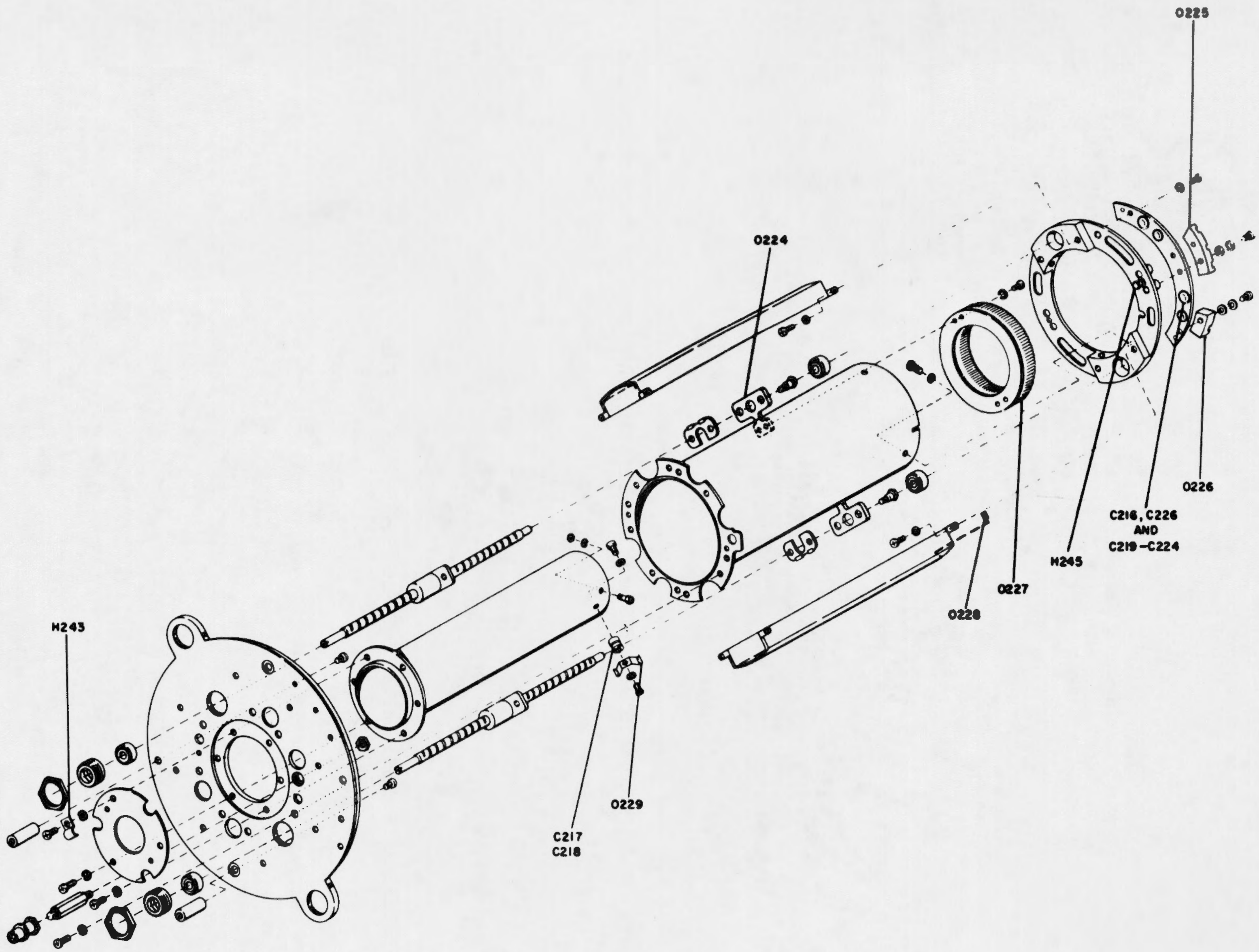


Figure 5-109. AM-1565/URC, Power Amplifier Subassembly, Parts Location (I)

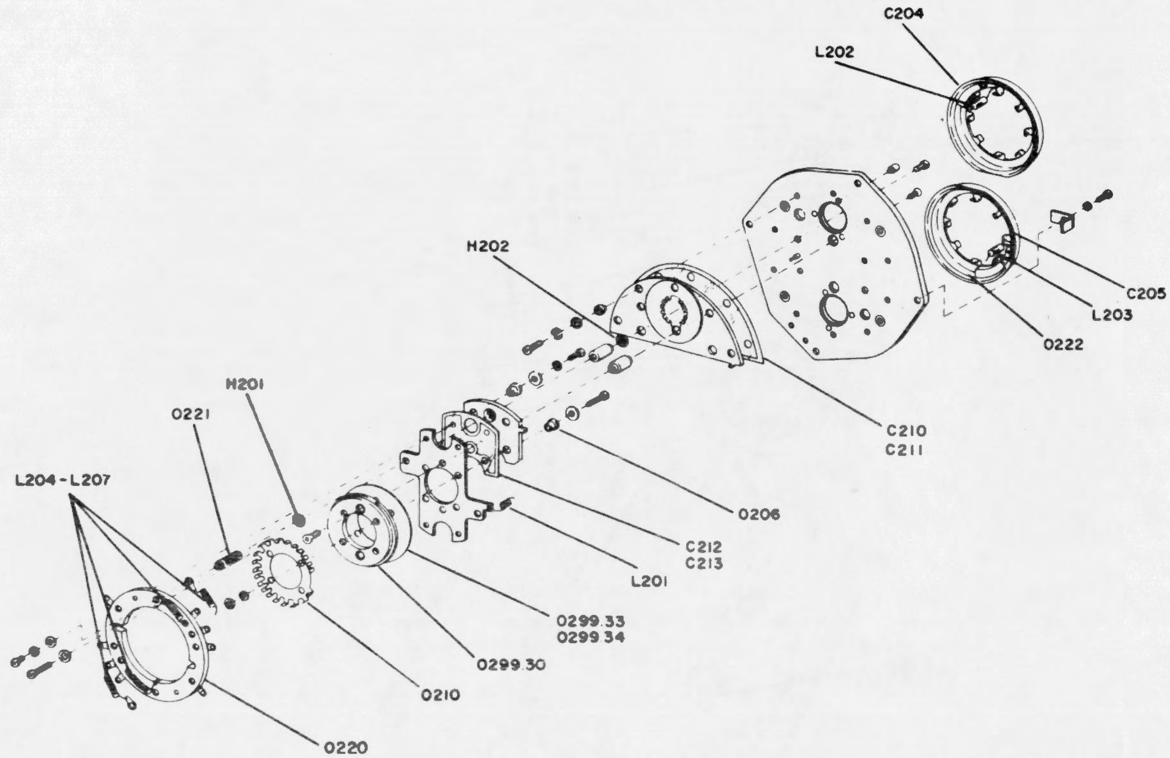


Figure 5-110. AM-1565/URC, Power Amplifier Subassembly, Parts Location (J)

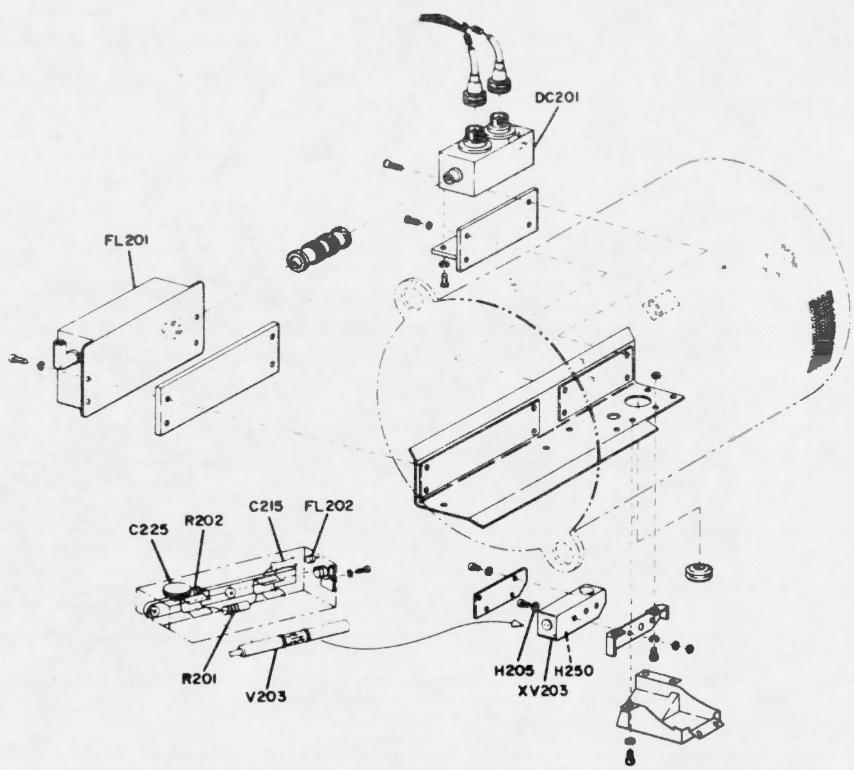


Figure 5-111. AM-1565/URC, Power Amplifier Subassembly, Parts Location (K)

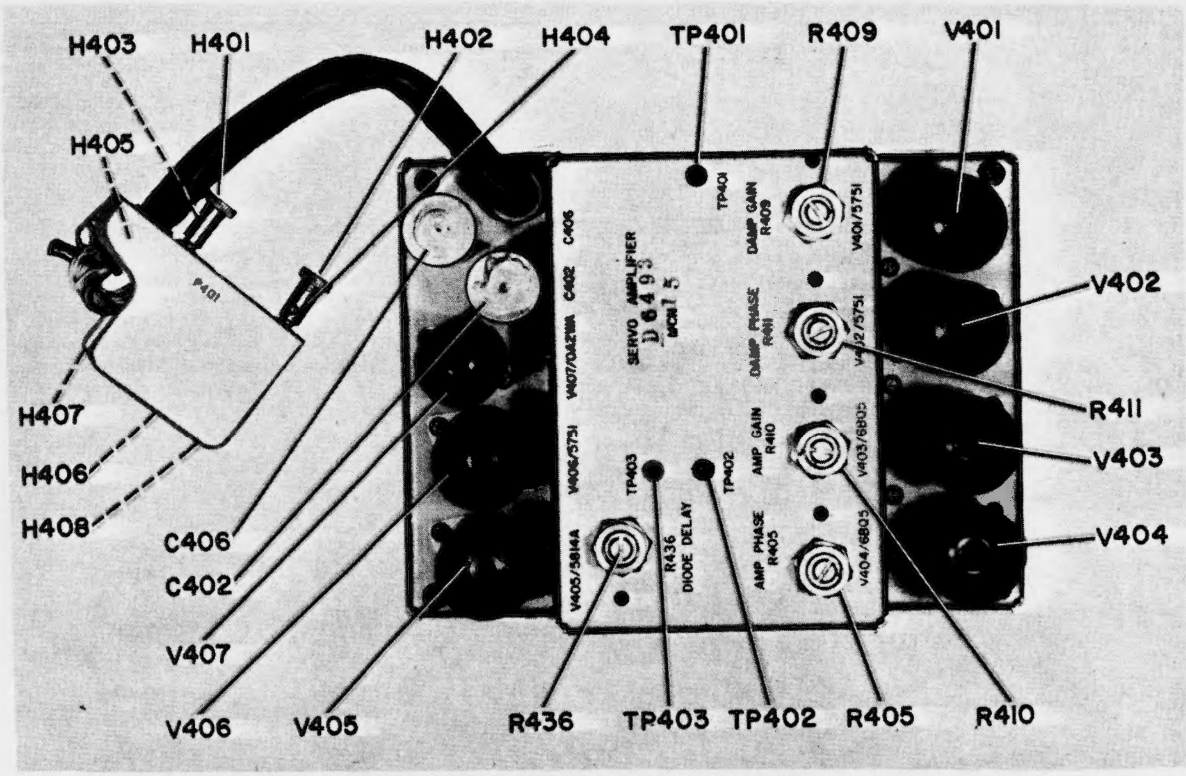


Figure 5-112. AM-1565/URC, Servo Amplifier Subassembly, Top View

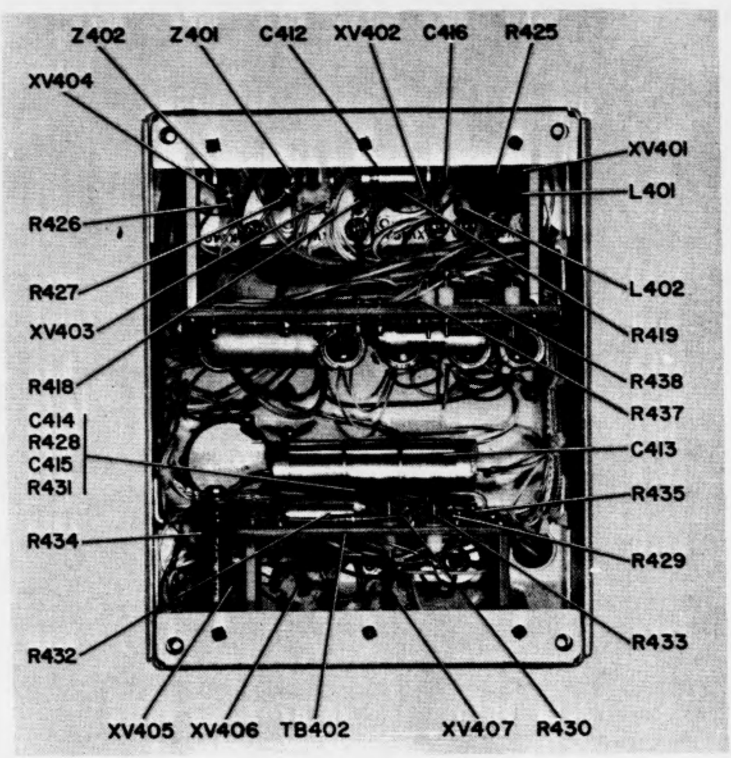


Figure 5-113. AM-1565/URC, Servo Amplifier Subassembly, Bottom View (A)

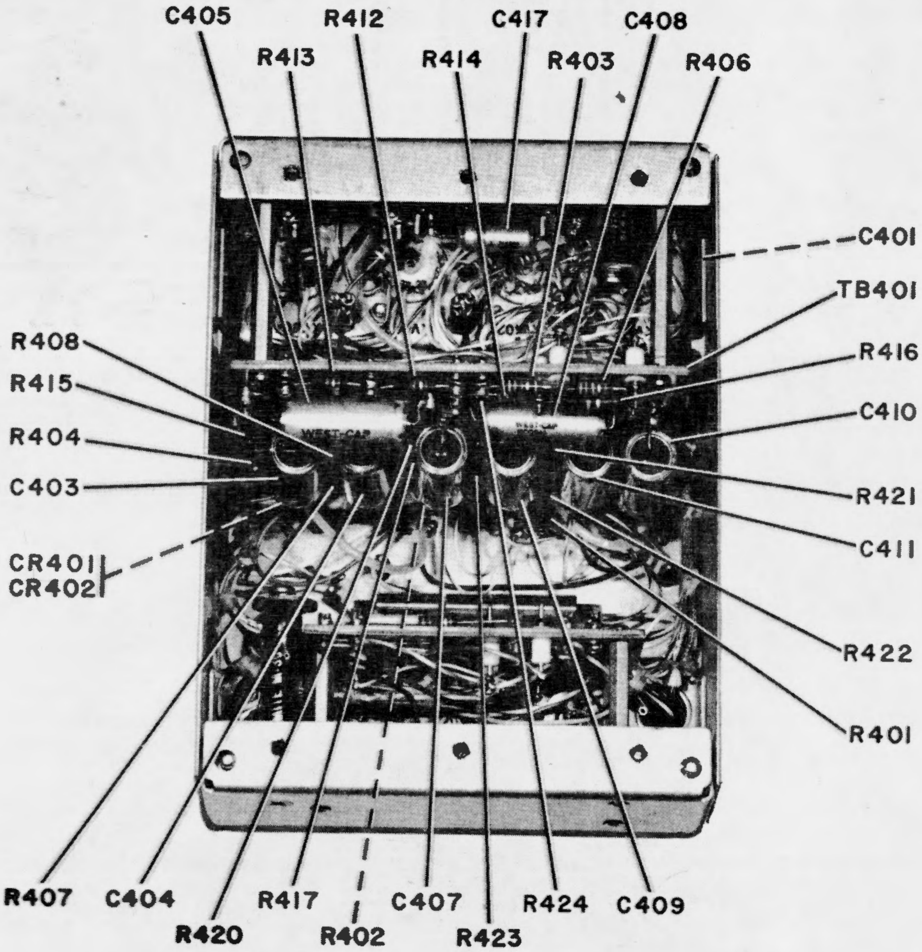


Figure 5-114. AM-1565/URC, Servo Amplifier Subassembly, Bottom View (B)

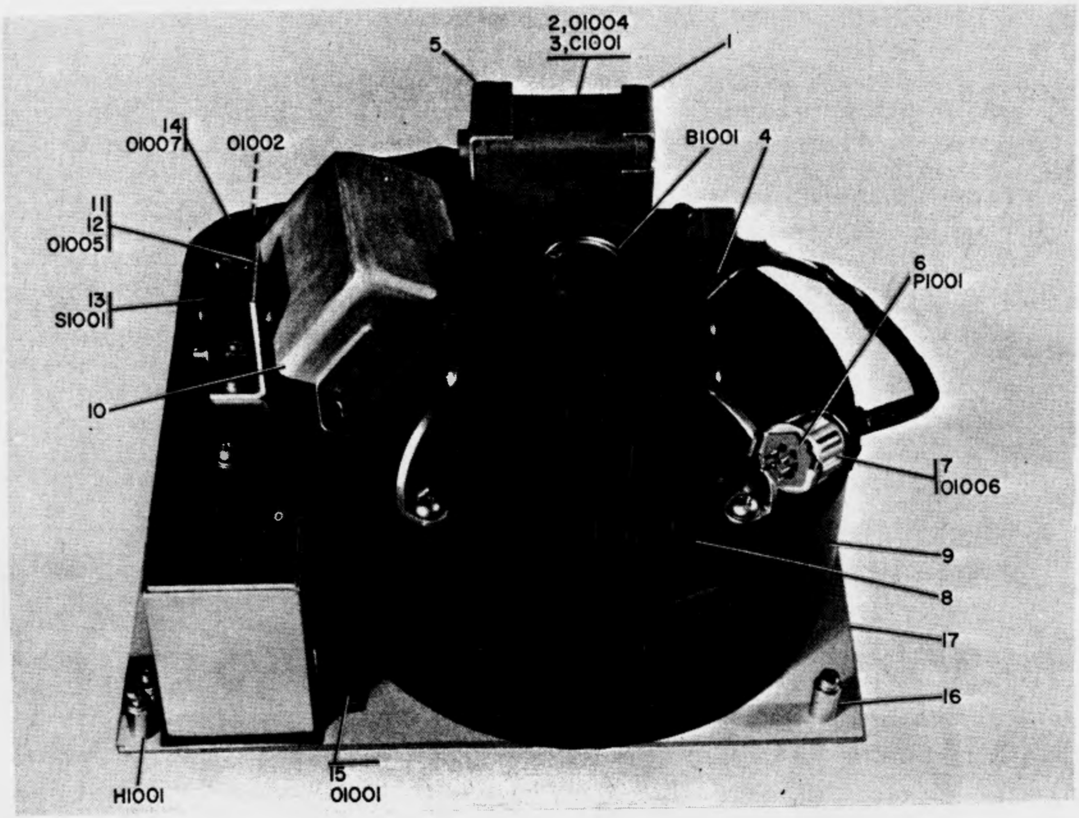


Figure 5-115. AM-1565/URC, Amplifier Blower Assembly

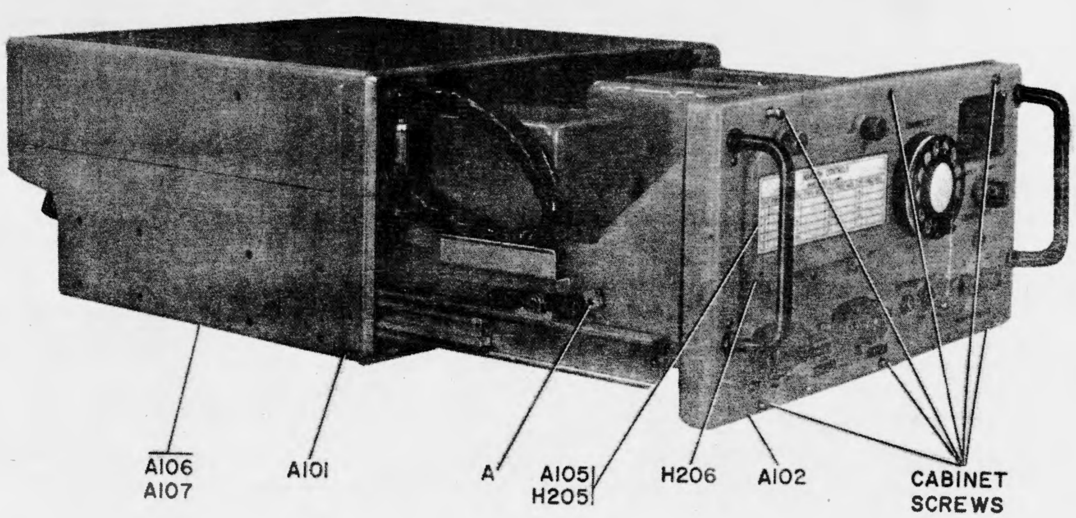


Figure 5-116. Radio Set Control C-3866/SRC, Removal of Chassis

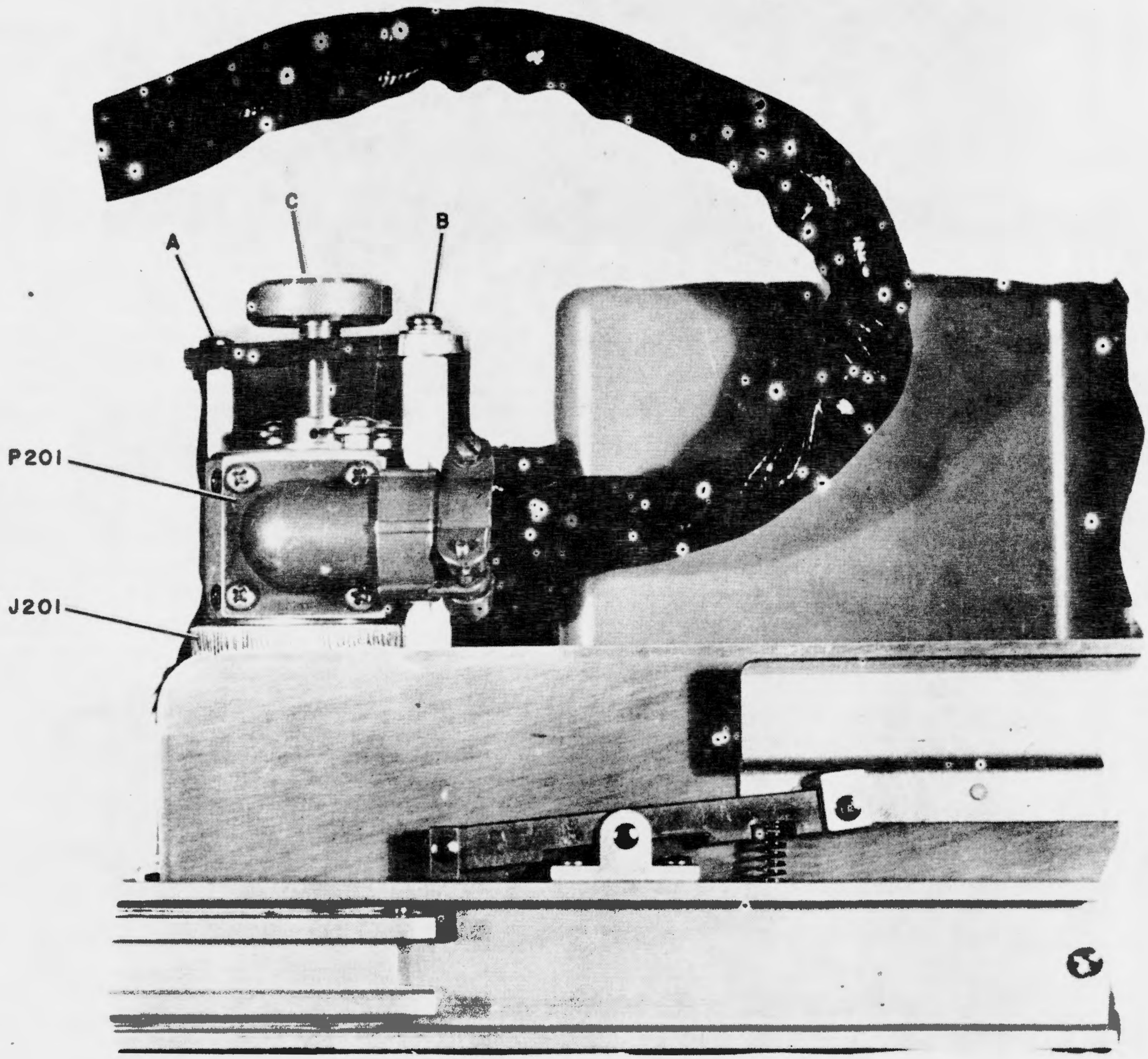


Figure 5-117. Radio Set Control C-3866/SRC, Plug P201 Removed

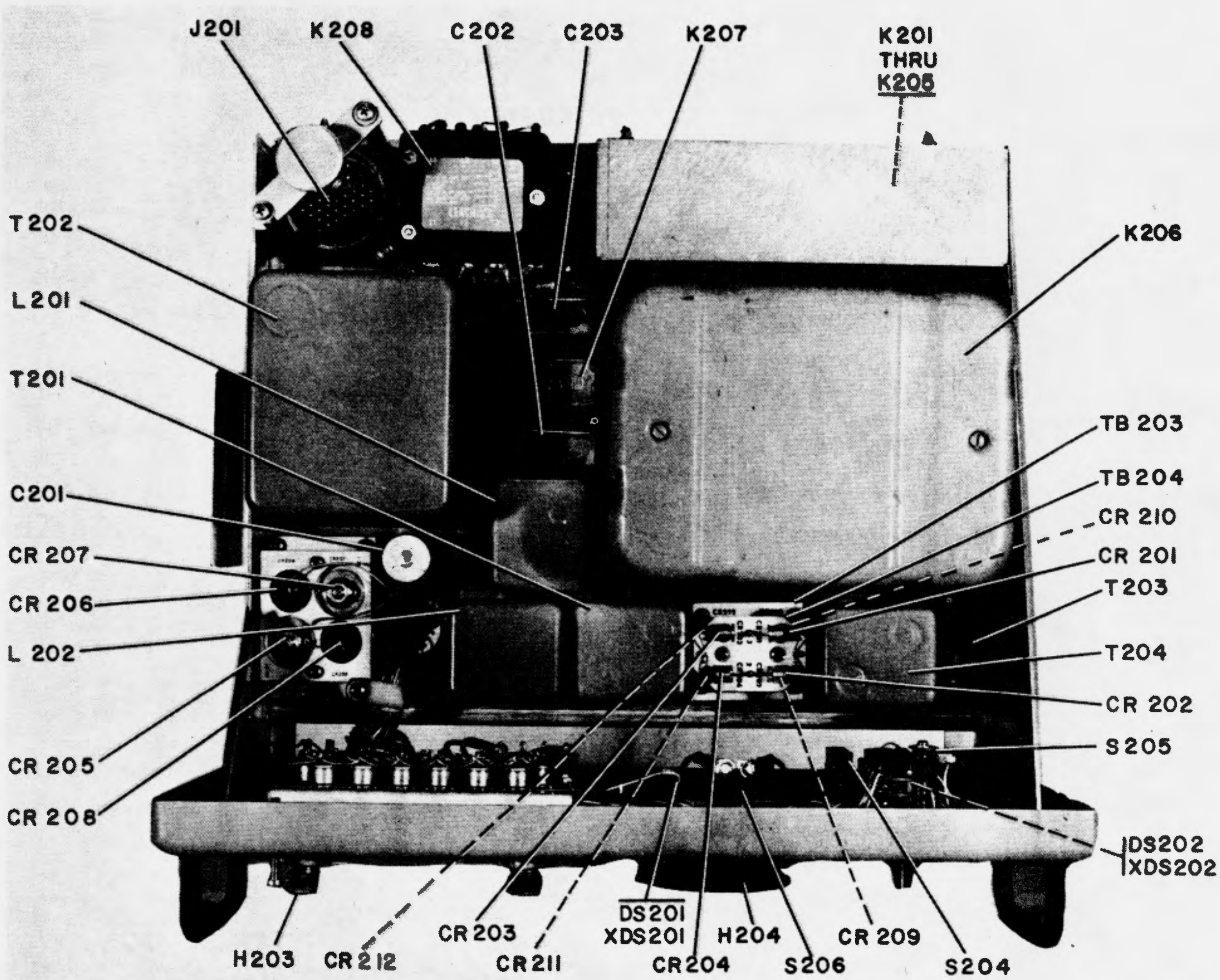


Figure 5-118. Radio Set Control C-3866/SRC, Top View

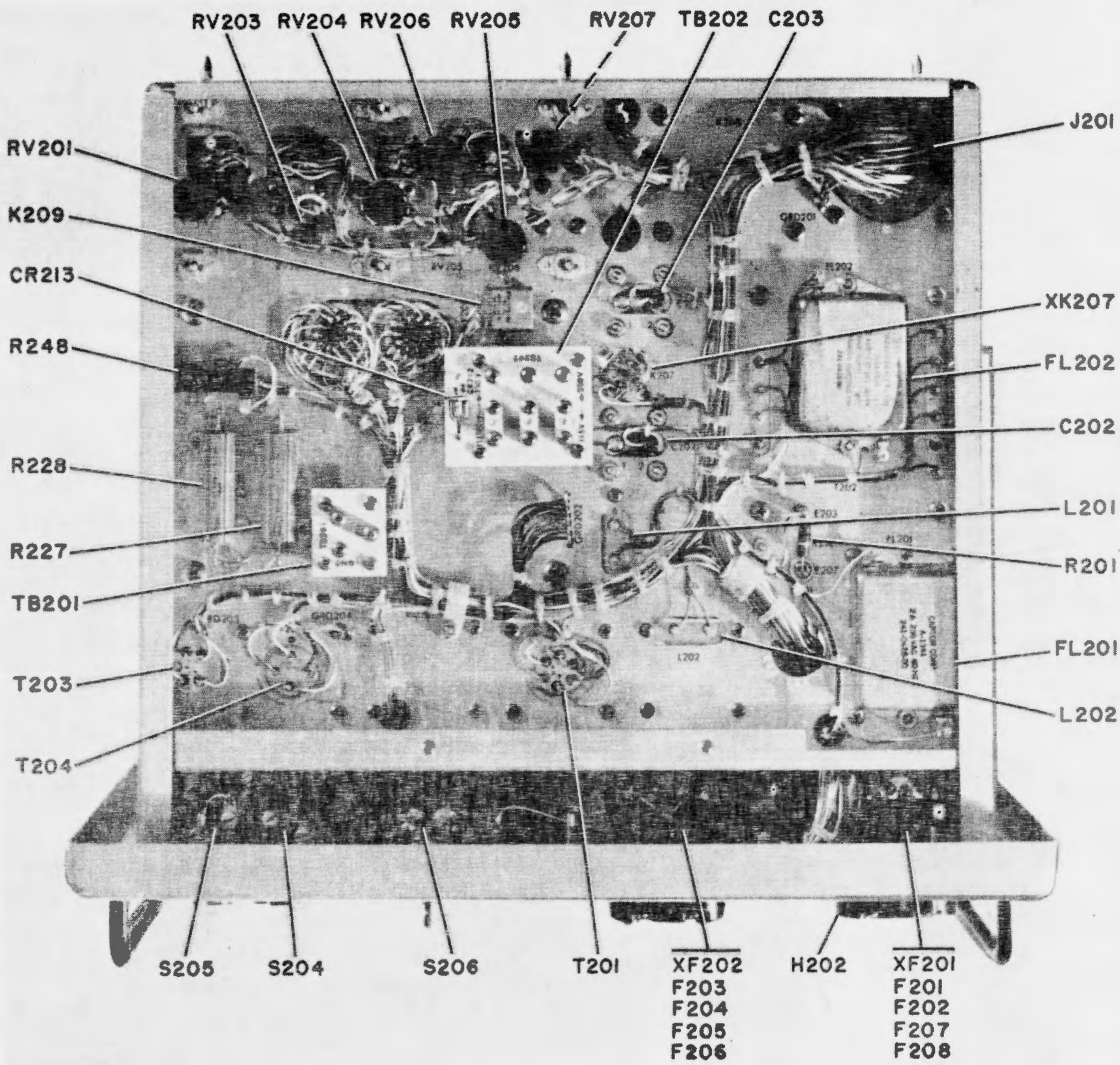


Figure 5-119. Radio Set Control C-3866/SRC, Bottom View

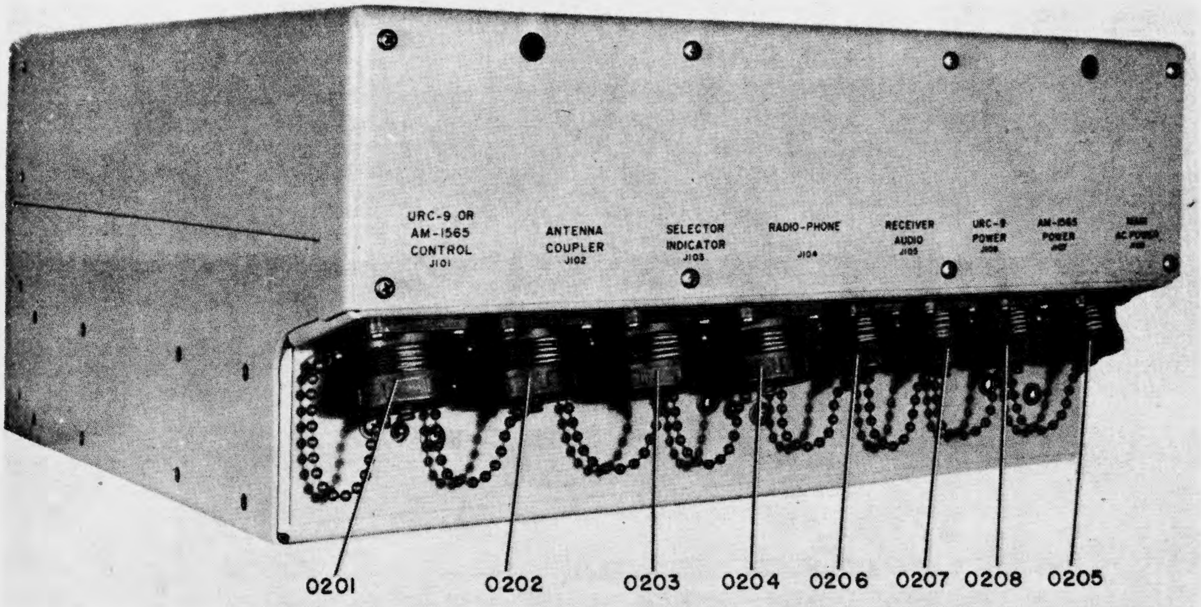


Figure 5-120. Radio Set Control C-3866/SRC, Rear View (A)

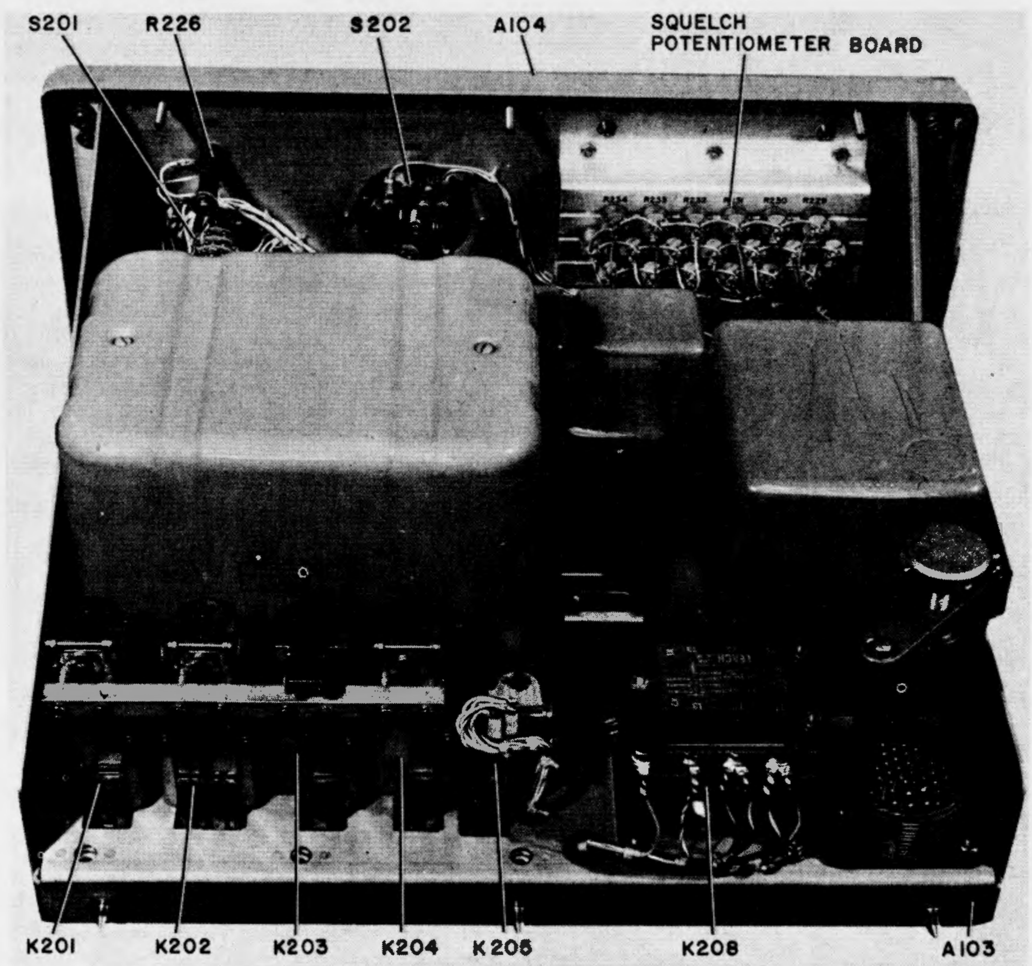


Figure 5-121. Radio Set Control C-3866/SRC, Rear View (B)

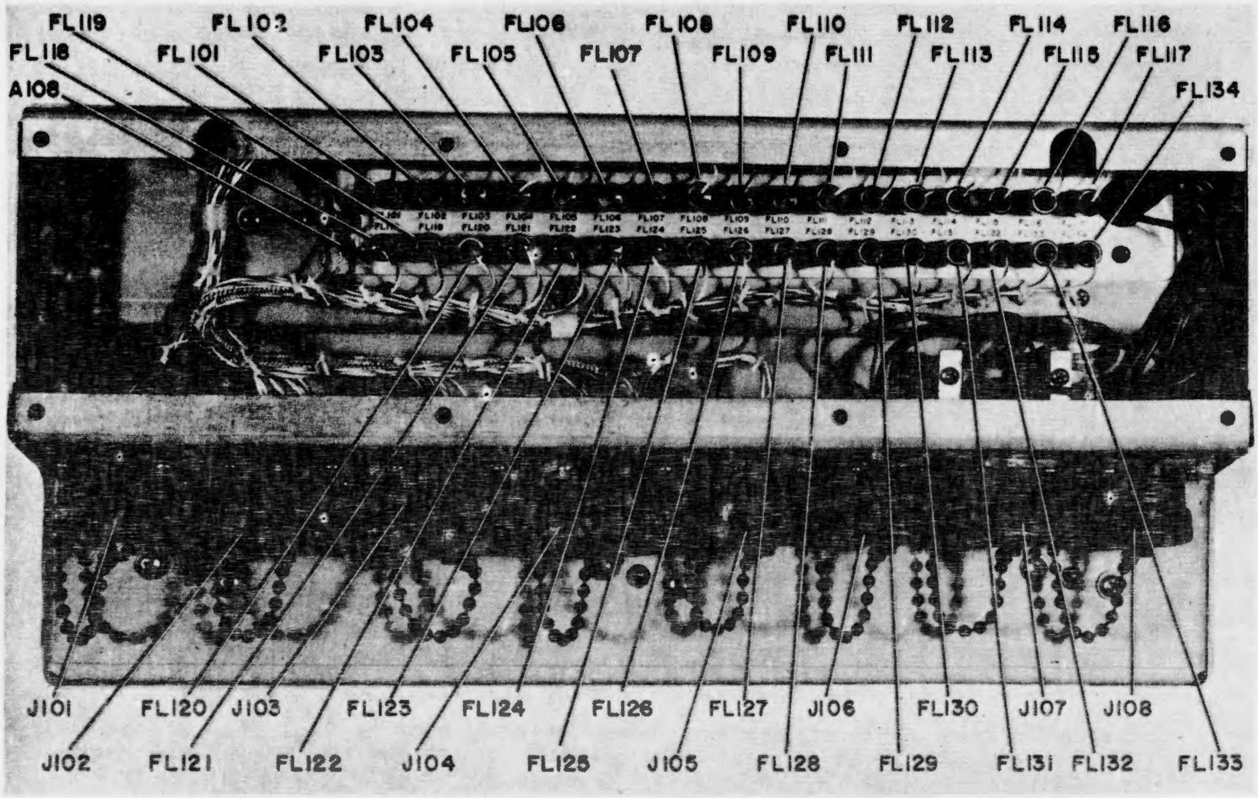


Figure 5-122. Radio Set Control C-3866/SRC, Rear View, Cover Plate Removed

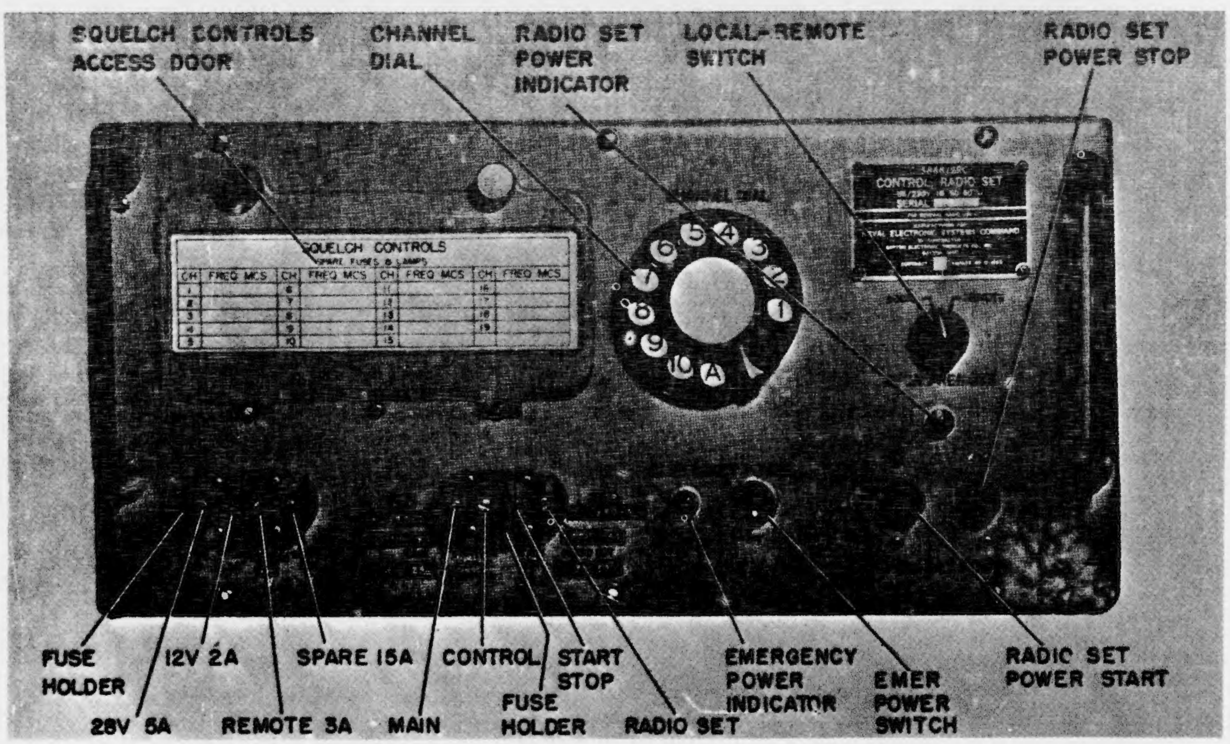


Figure 5-123. C-3866/SRC, Controls and Indicators

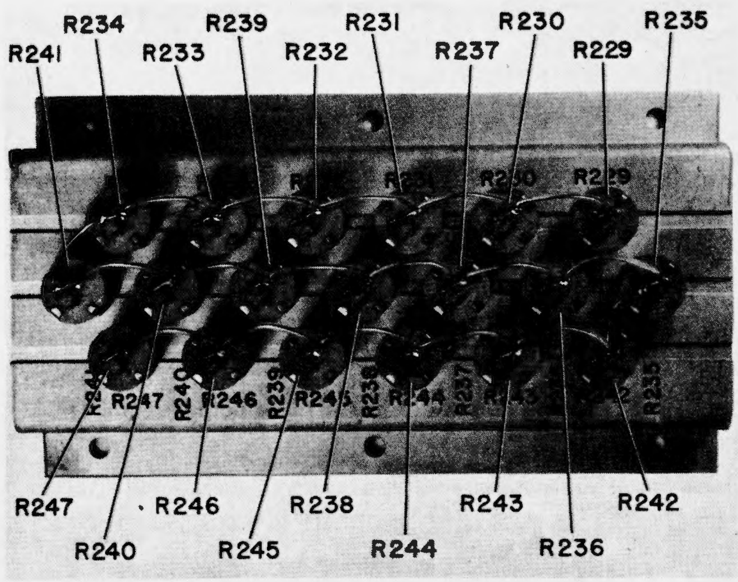


Figure 5-124. C-3866/SRC, Squelch Control Board

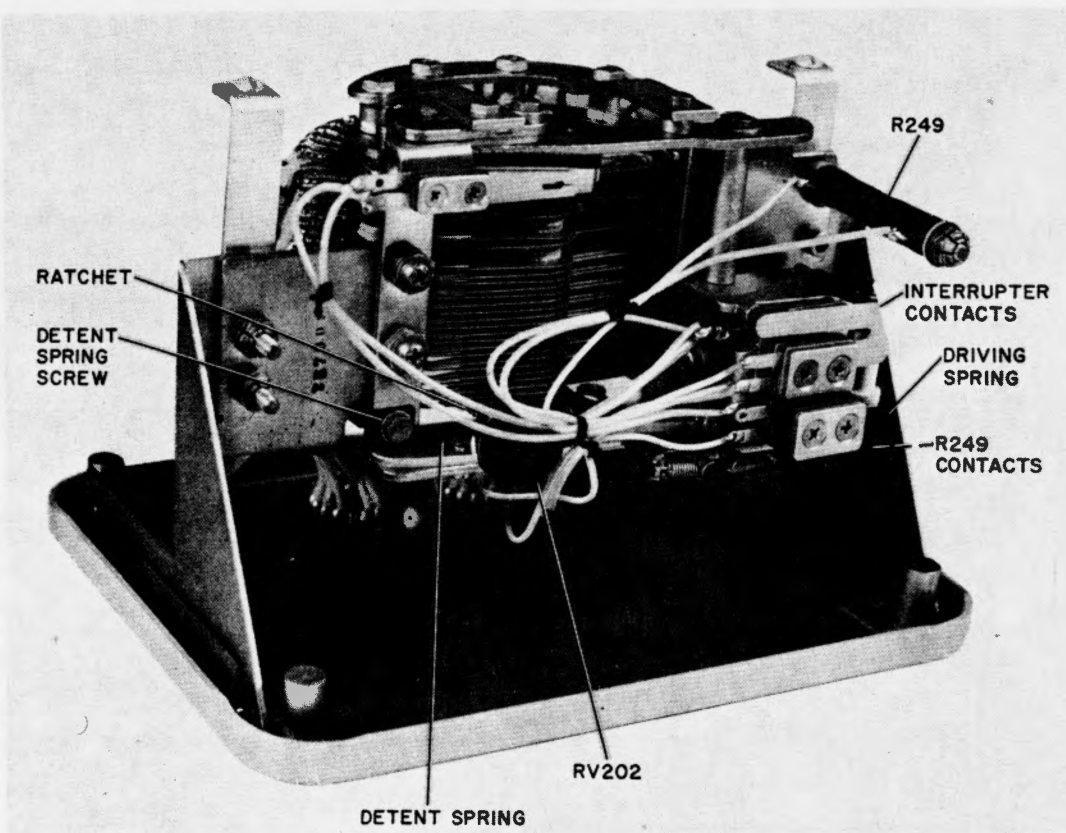


Figure 5-125. C-3866/SRC, Stepping Relay K206, Front View

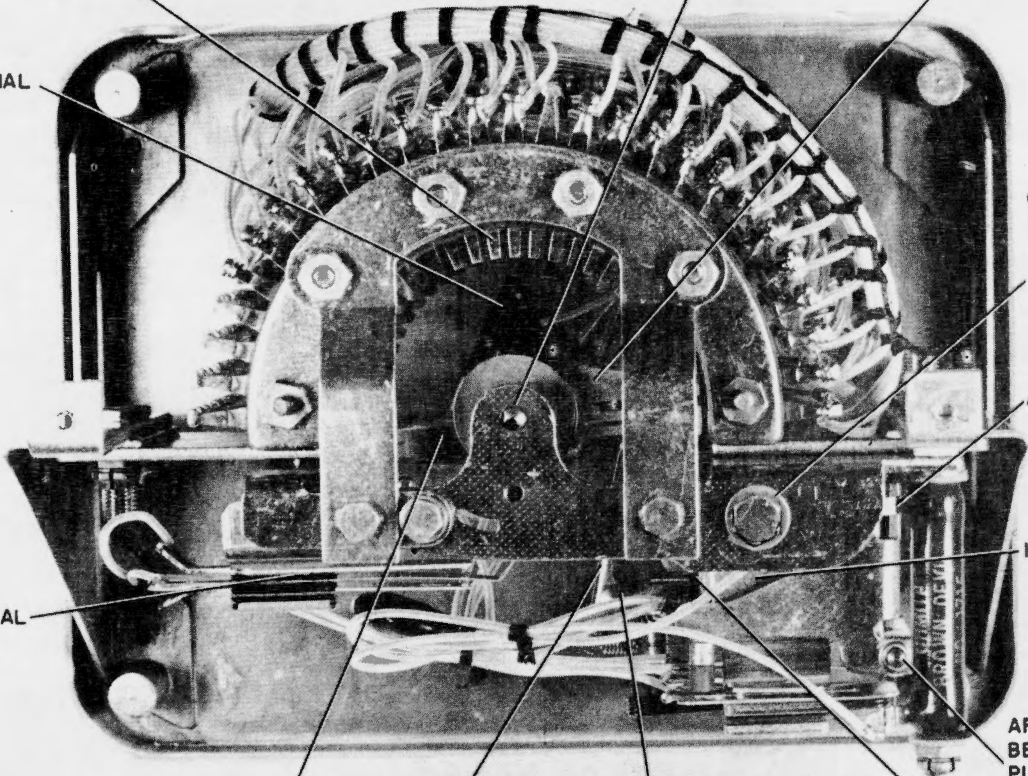


Figure 5-126. C-3866/SRC, Stepping Relay K206, Top View

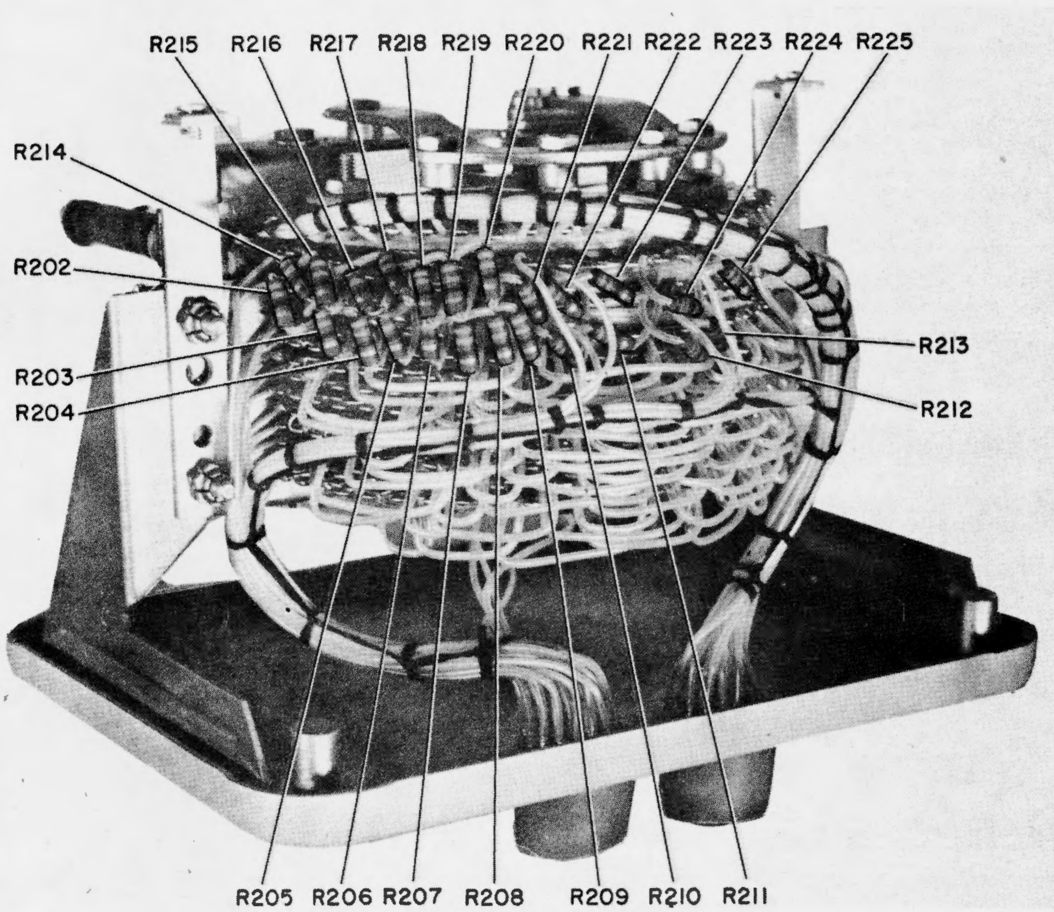
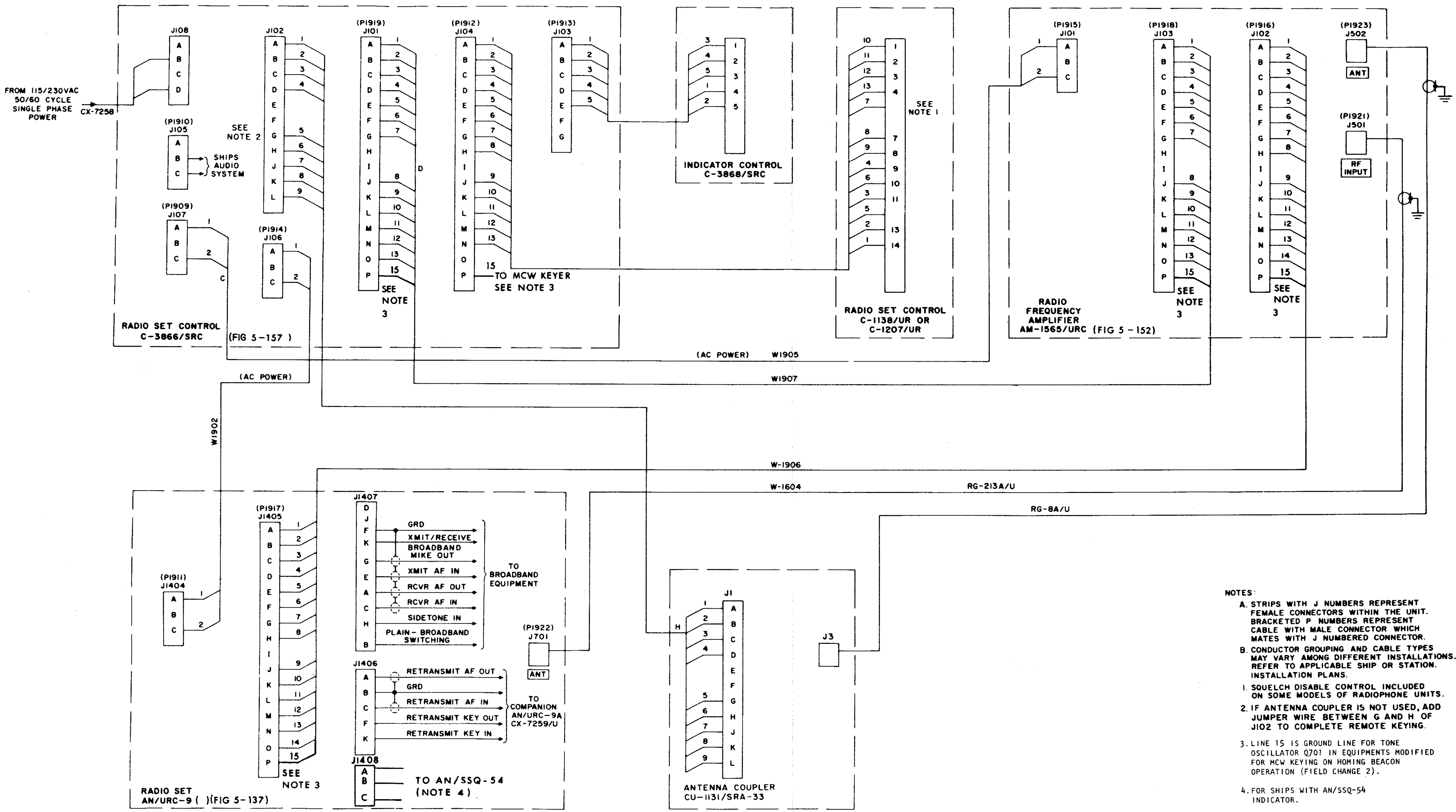


Figure 5-127. C-3866/SRC, Stepping Relay K206, Rear View



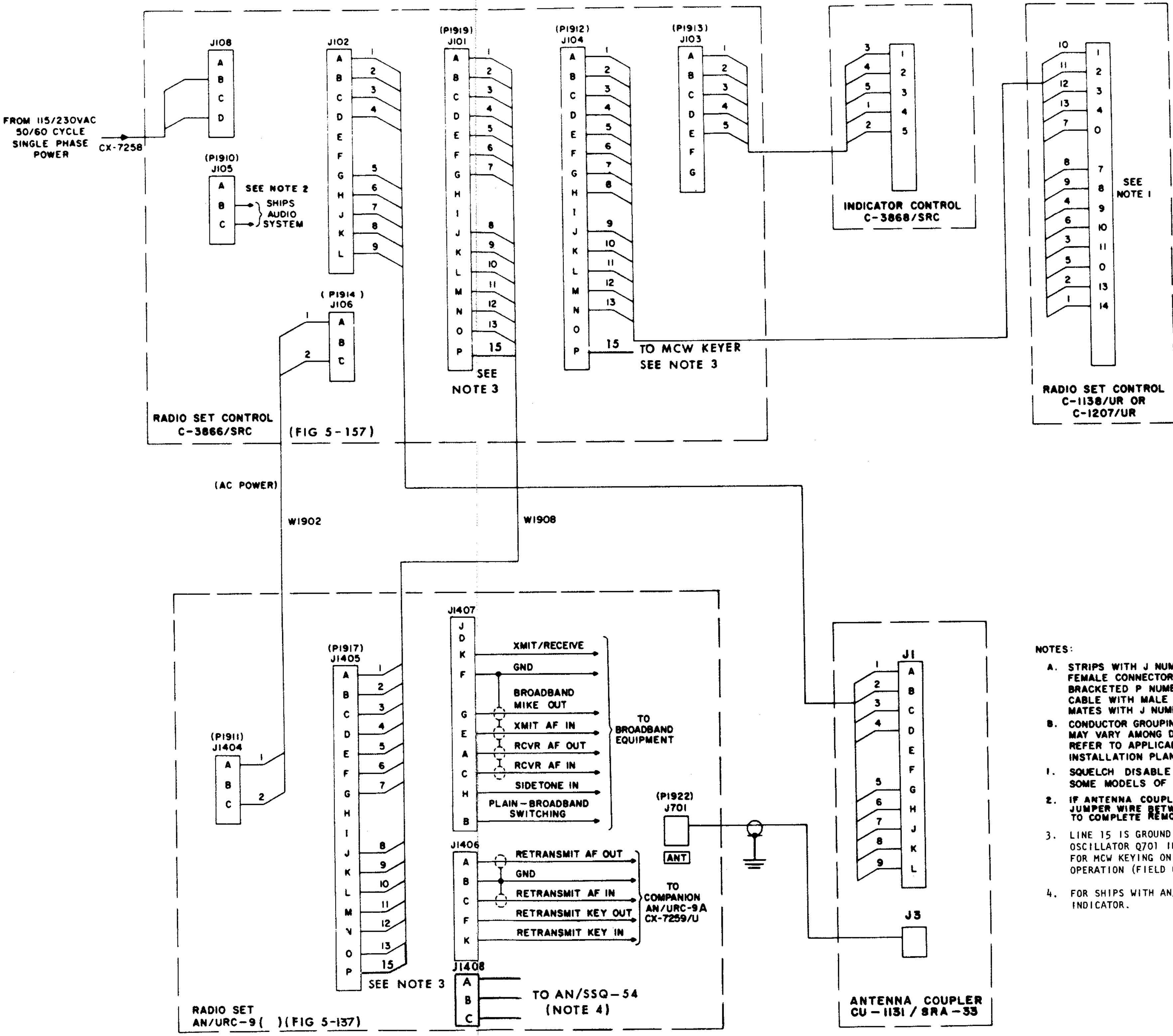
NOTES:

A. STRIPS WITH J NUMBERS REPRESENT FEMALE CONNECTORS WITHIN THE UNIT. BRACKETED P NUMBERS REPRESENT CABLE WITH MALE CONNECTOR WHICH MATES WITH J NUMBERED CONNECTOR.

B. CONDUCTOR GROUPING AND CABLE TYPES MAY VARY AMONG DIFFERENT INSTALLATIONS. REFER TO APPLICABLE SHIP OR STATION. INSTALLATION PLANS.

1. SQUELCH DISABLE CONTROL INCLUDED ON SOME MODELS OF RADIOPHONE UNITS.
2. IF ANTENNA COUPLER IS NOT USED, ADD JUMPER WIRE BETWEEN G AND H OF J102 TO COMPLETE REMOTE KEYING.
3. LINE 15 IS GROUND LINE FOR TONE OSCILLATOR Q701 IN EQUIPMENTS MODIFIED FOR MCW KEYING ON HOMING BEACON OPERATION (FIELD CHANGE 2).
4. FOR SHIPS WITH AN/SSQ-54 INDICATOR.

Figure 5-128. Radio Set AN/SRC-20( ), Interconnection Diagram



NOTES:

A. STRIPS WITH J NUMBERS REPRESENT FEMALE CONNECTORS WITHIN THE UNIT. BRACKETED P NUMBERS REPRESENT CABLE WITH MALE CONNECTOR WHICH MATES WITH J NUMBERED CONNECTOR.

B. CONDUCTOR GROUPING AND CABLE TYPES MAY VARY AMONG DIFFERENT INSTALLATIONS. REFER TO APPLICABLE SHIP OR STATION INSTALLATION PLANS.

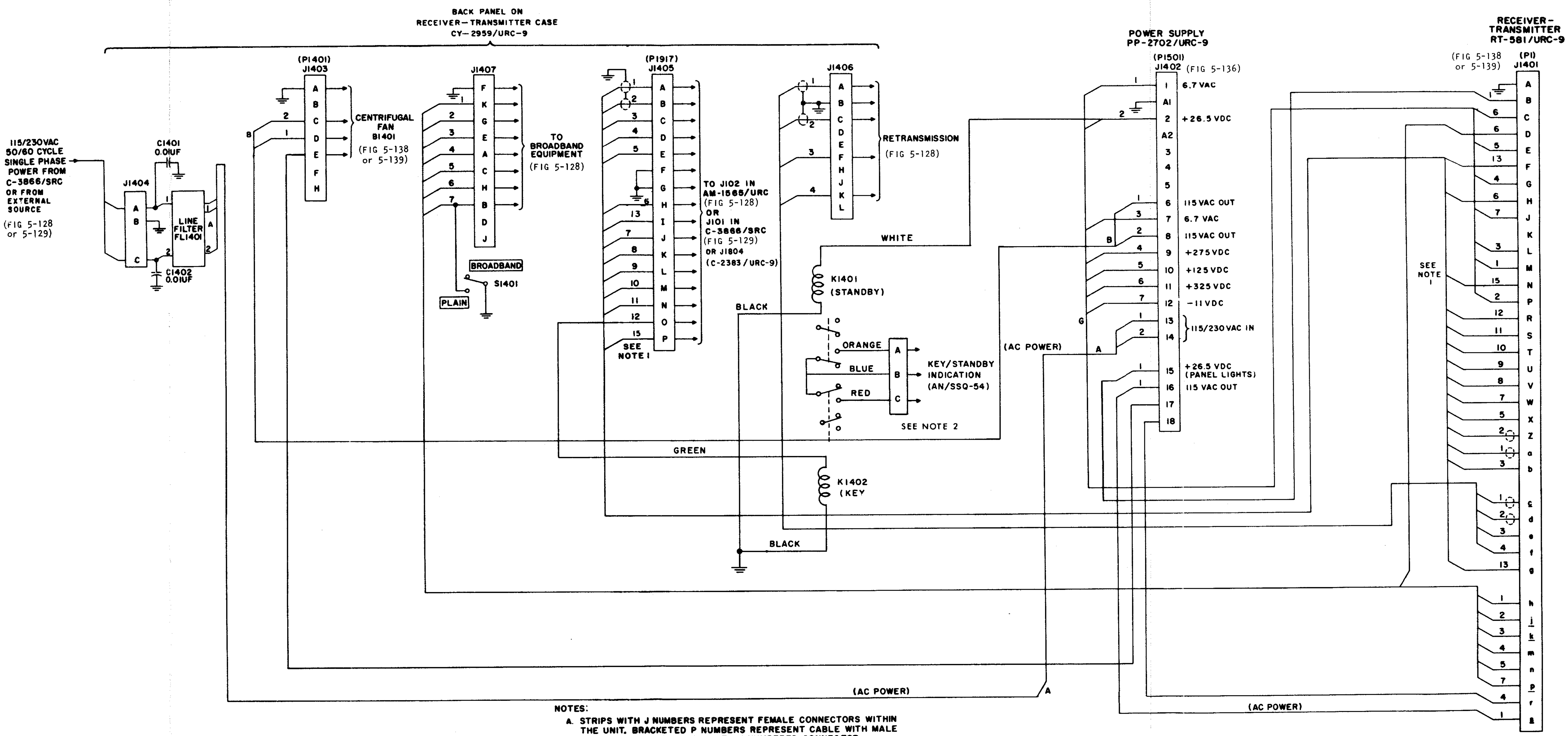
1. SQUELCH DISABLE CONTROL INCLUDED ON SOME MODELS OF RADIOPHONE UNITS.

2. IF ANTENNA COUPLER IS NOT USED, ADD JUMPER WIRE BETWEEN G AND H OF J102 TO COMPLETE REMOTE KEYING.

3. LINE 15 IS GROUND LINE FOR TONE OSCILLATOR Q701 IN EQUIPMENTS MODIFIED FOR MCW KEYING ON HOMING BEACON OPERATION (FIELD CHANGE 2).

4. FOR SHIPS WITH AN/SSQ-54 INDICATOR.

Figure 5-129. Radio Set AN/SRC-21( ), Interconnection Diagram



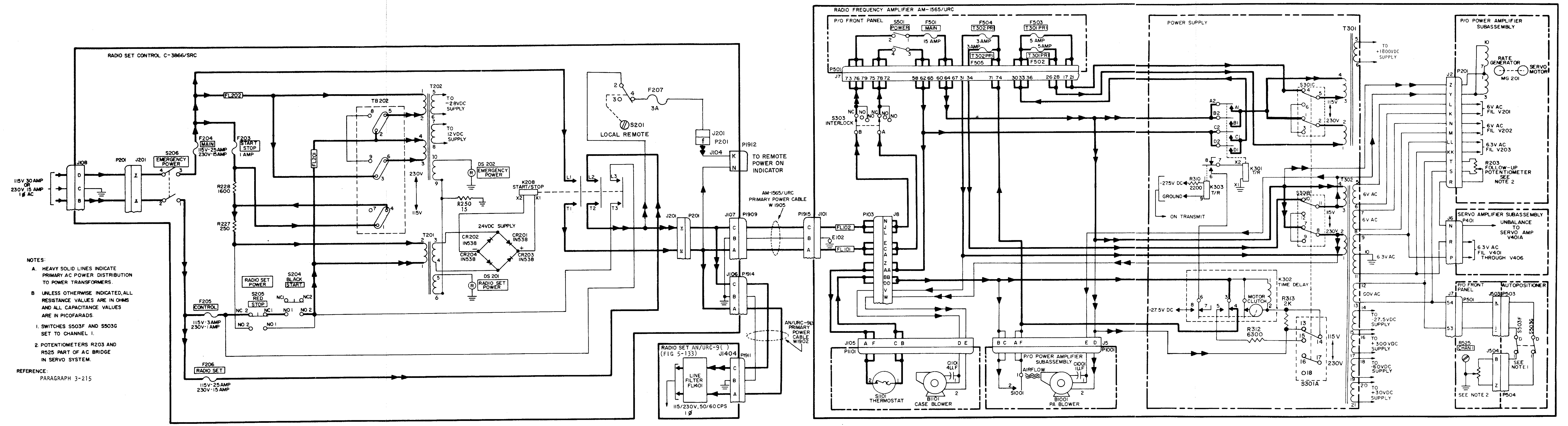
NOTES:

A. STRIPS WITH J NUMBERS REPRESENT FEMALE CONNECTORS WITHIN THE UNIT. BRACKETED P NUMBERS REPRESENT CABLE WITH MALE CONNECTORS WHICH MATES WITH J NUMBERED CONNECTOR.

1. LINE 15 IS GROUND LINE FOR TONE OSCILLATOR Q701 IN EQUIPMENTS MODIFIED FOR MCW KEYING ON HOMING BEACON OPERATION (FIELD CHANGE 2)

2. FOR SHIPS WITH AN/SSQ-54 INSTALLED

Figure 5-130. Radio Set AN/URC-9( ), Interconnection Diagram



NOTES:

A. HEAVY SOLID LINES INDICATE PRIMARY AC POWER DISTRIBUTION TO POWER TRANSFORMERS.

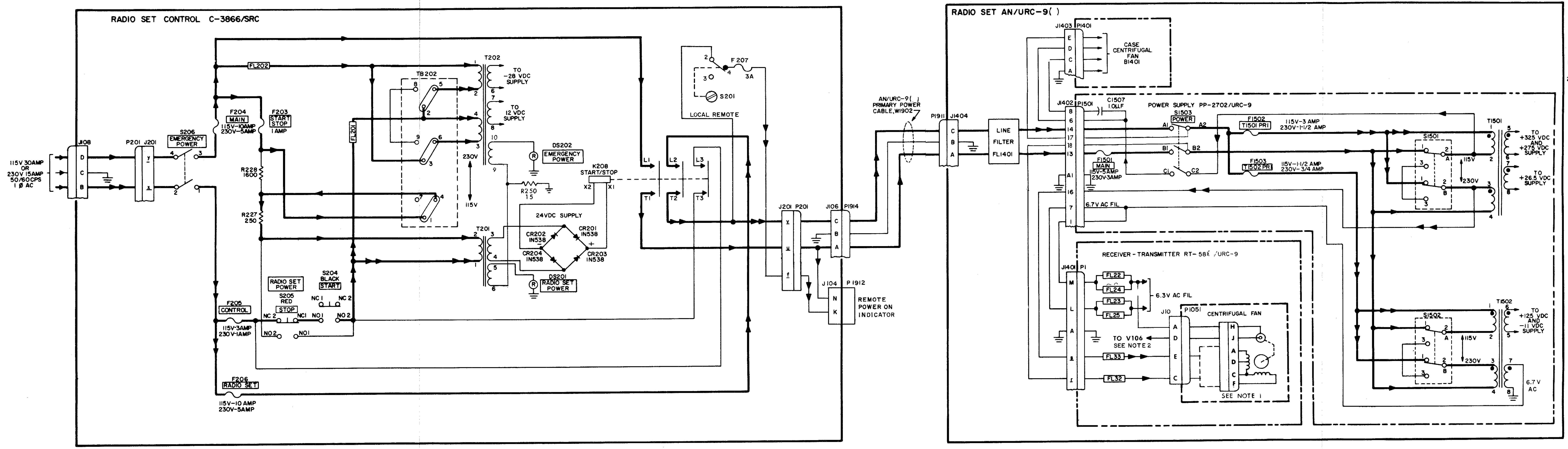
B. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS AND ALL CAPACITANCE VALUES ARE IN PICOFARADS.

1. SWITCHES S503F AND S503G SET TO CHANNEL 1.

2. POTENTIOMETERS R203 AND R525 PART OF AC BRIDGE IN SERVO SYSTEM.

REFERENCE:
PARAGRAPH 3-215

Figure 5-131. Radio Set AN/SRC-20( ), AC Power Distribution, Schematic Diagram



NOTES:

A. HEAVY SOLID LINES INDICATE PRIMARY AC POWER DISTRIBUTION TO POWER TRANSFORMERS.

B. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS AND ALL CAPACITANCE VALUES ARE IN PICOFARADS.

1. OTHER STYLE CENTRIFUGAL FANS MAY BE USED IN SOME EQUIPMENTS

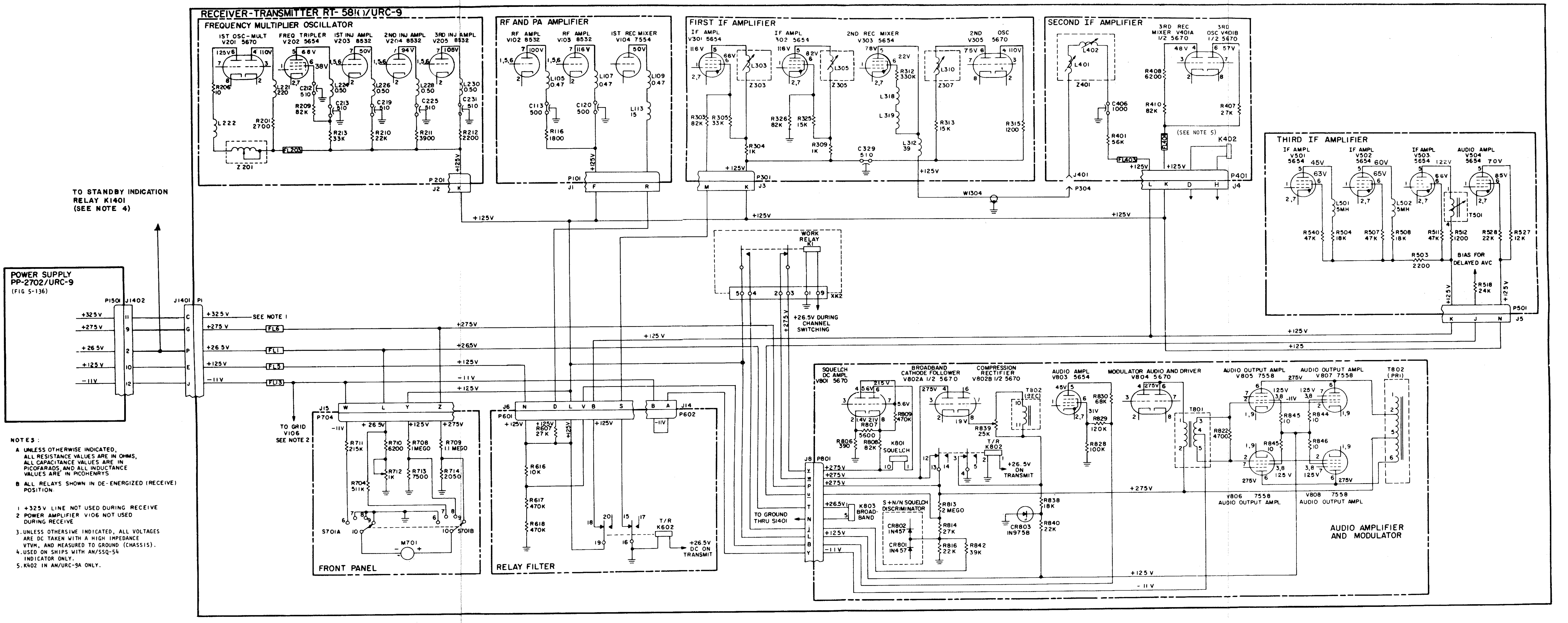
2. THE FILAMENT VOLTAGE FOR TRANSMIT POWER AMPLIFIER V106 IS ROUTED THROUGH THERMAL SENSING SWITCH S101

REFERENCE:

PARAGRAPH 3-206

Figure 5-132. Radio Set AN/SRC-21( ), AC Power Distribution, Schematic Diagram

Figure 5-133. Radio Set AN/URC-9( ), DC Power Distribution, Transmit Function, Schematic Diagram



NOTES:
A UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN PICOFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRYS.
B ALL RELAYS SHOWN IN DE-ENERGIZED (RECEIVE) POSITION.

1 +325V LINE NOT USED DURING RECEIVE
2 POWER AMPLIFIER V106 NOT USED DURING RECEIVE
3. UNLESS OTHERWISE INDICATED, ALL VOLTAGES ARE DC TAKEN WITH A HIGH IMPEDANCE VTVM, AND MEASURED TO GROUND (CHASSIS).
4. USED ON SHIPS WITH AN/SSQ-54 INDICATOR ONLY.
5. K402 IN AN/URC-9A ONLY.

Figure 5-134. Radio Set AN/URC-9( ), DC Power Distribution, Receive Function, Schematic Diagram

NOTES:

A. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN PICOFARADS AND ALL INDUCTANCE VALUES ARE IN PICOHENRYS.

B. ALL RELAYS SHOWN IN DE-ENERGIZED POSITION.

C. ☠ SIGNIFIES DANGEROUSLY HIGH VOLTAGES EXIST. KEEP CLEAR! USE EXTREME CARE WHEN MEASURING.

I. UNLESS OTHERWISE INDICATED, ALL VOLTAGES ARE DC TAKEN WITH A HIGH INPUT IMPEDANCE VTVM, AND MEASURED TO GROUND (CHASSIS).

REFERENCE:

PARAGRAPH 3-249

Figure 5-135. Radio Frequency Amplifier AM-1565/URC, DC Power Distribution, Schematic Diagram

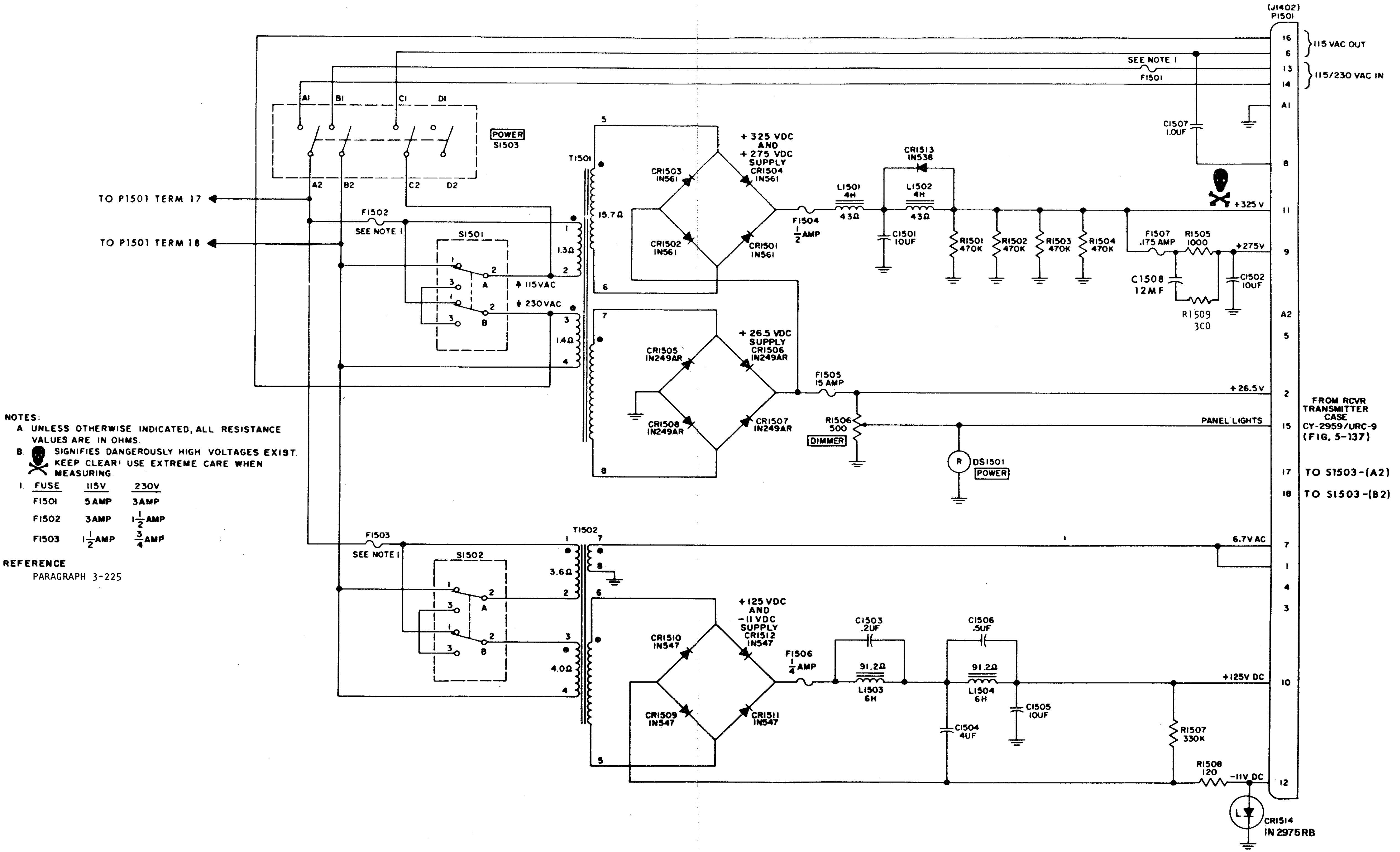
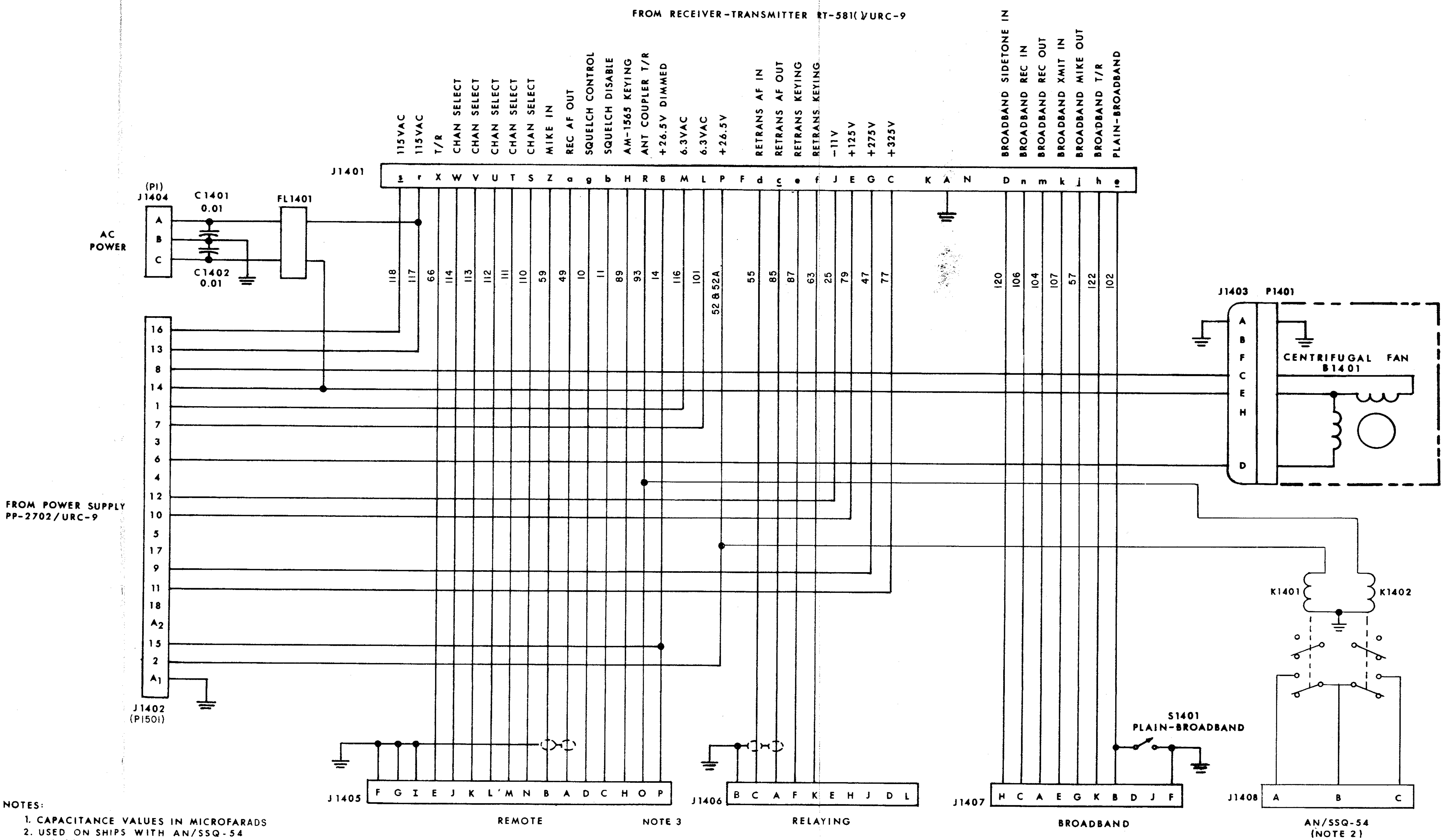


Figure 5-136. Power Supply PP-2702/URC-9, Schematic Diagram



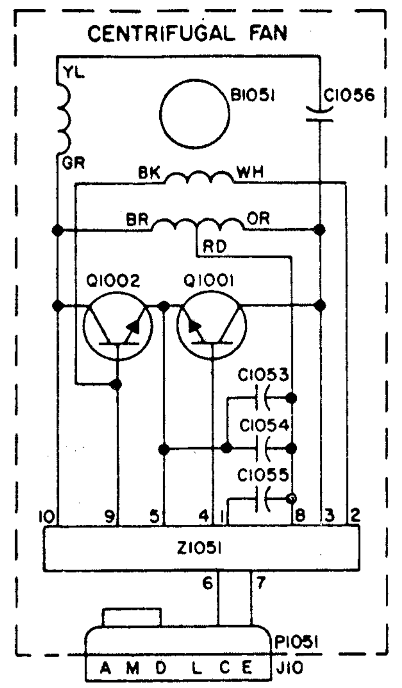
NOTES:

1. CAPACITANCE VALUES IN MICROFARADS
2. USED ON SHIPS WITH AN/SSQ-54 INDICATOR ONLY
3. KEYES TONE OSCILLETOR (MCW), WHEN GROUNDED, ON EQUIPMENTS MODIFIED FOR HOMING BEACON SERVICE (FIELD CHANGE 2); ON ALL OTHERS-26.5 VDC DIMMED

Figure 5-137. Receiver-Transmitter Case CY-2959/URC-9, Schematic Diagram

NOTES:

1. FOR AN/SRC-20, RF SIGNAL IS TO AND FROM AM-1565/URC; FOR AN/SRC-21, TO AND FROM ANTENNA.
2. LINE 128 IS GROUND LINE FOR TONE OSCILLATOR Q701 IN EQUIPMENTS MODIFIED FOR MCW KEYING ON HOMING BEACON OPERATION (FIELD CHANGE 2).
3. USED ONLY ON COLLINS RADIO COMPANY CONTRACTS NObsr 87290 AND 89509 (115-VOLT AC OPERATION, SEE FIGURE 5-132)
4. ON DUBROW ELECTRONIC INDUSTRIES CONTRACTS NObsr 91149, 91284, AND 93164 CENTRIFUGAL FAN B1051 CHANGED AS SHOWN BELOW (115-VOLT AC OPERATION, SEE FIGURE 5-132)



5. ON STEWART-WARNER ELECTRONICS CONTRACT NObsr 91068 MCN 186 AND OVER CENTRIFUGAL FAN B1051 CHANGED AS SHOWN BELOW. IN MCN 1 THRU 185 ON THIS CONTRACT, CENTRIFUGAL SENSING SWITCH NOT IN CIRCUIT; A JUMPER WIRE IS CONNECTED BETWEEN PINS A AND D OF P1051. CONNECTIONS TO PINS L AND M OF J10-P1051 USED ONLY ON THIS CONTRACT (+26.5-VOLT DC OPERATION, SEE FIGURES 5-133 AND 5-134).

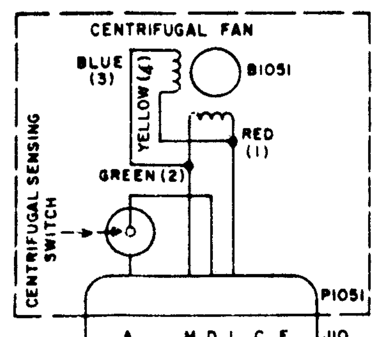


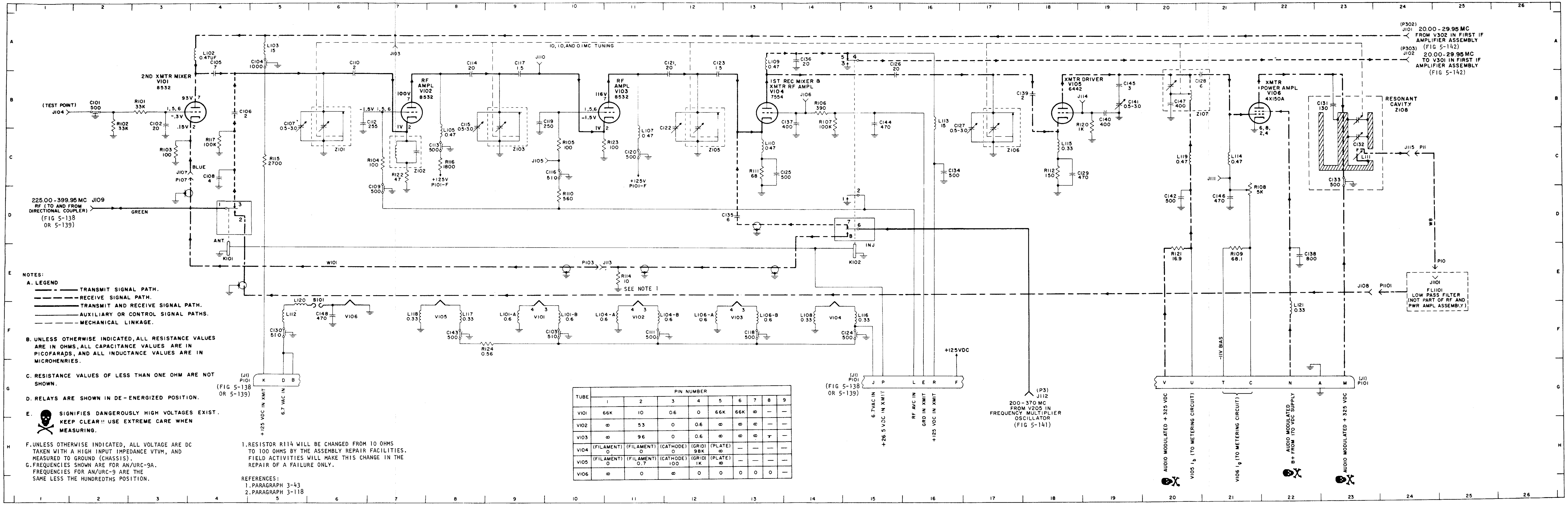
Figure 5-138. Receiver-Transmitter RT-581/URC-9, Interconnection Diagram and Directional Coupler Schematic (AN/URC-9 ONLY)

NOTES:

1. FOR AN/SRC-20( ), RF SIGNAL IS TO AND FROM AM-1565/URC; FOR AN/SRC-21( ), TO AND FROM ANTENNA.

2. LINE 128 IS GROUND LINE FOR TONE OSCILLATOR Q701 IN EQUIPMENTS MODIFIED FOR MCW KEYING ON HOMING BEACON OPERATION (FIELD CHANGE 2).

Figure 5-139. Receiver-Transmitter RT-581A/URC-9, Interconnection Diagram and Directional Coupler Schematic (AN/URC-9A ONLY)



NOTES:

A. LEGEND
- TRANSMIT SIGNAL PATH.
- RECEIVE SIGNAL PATH.
- TRANSMIT AND RECEIVE SIGNAL PATH.
- AUXILIARY OR CONTROL SIGNAL PATHS.
- MECHANICAL LINKAGE.

B. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN PICOFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRIES.

C. RESISTANCE VALUES OF LESS THAN ONE OHM ARE NOT SHOWN.

D. RELAYS ARE SHOWN IN DE-ENERGIZED POSITION.

E. SIGNIFIES DANGEROUSLY HIGH VOLTAGES EXIST. KEEP CLEAR!! USE EXTREME CARE WHEN MEASURING.

F. UNLESS OTHERWISE INDICATED, ALL VOLTAGE ARE DC TAKEN WITH A HIGH INPUT IMPEDANCE VTVM, AND MEASURED TO GROUND (CHASSIS).

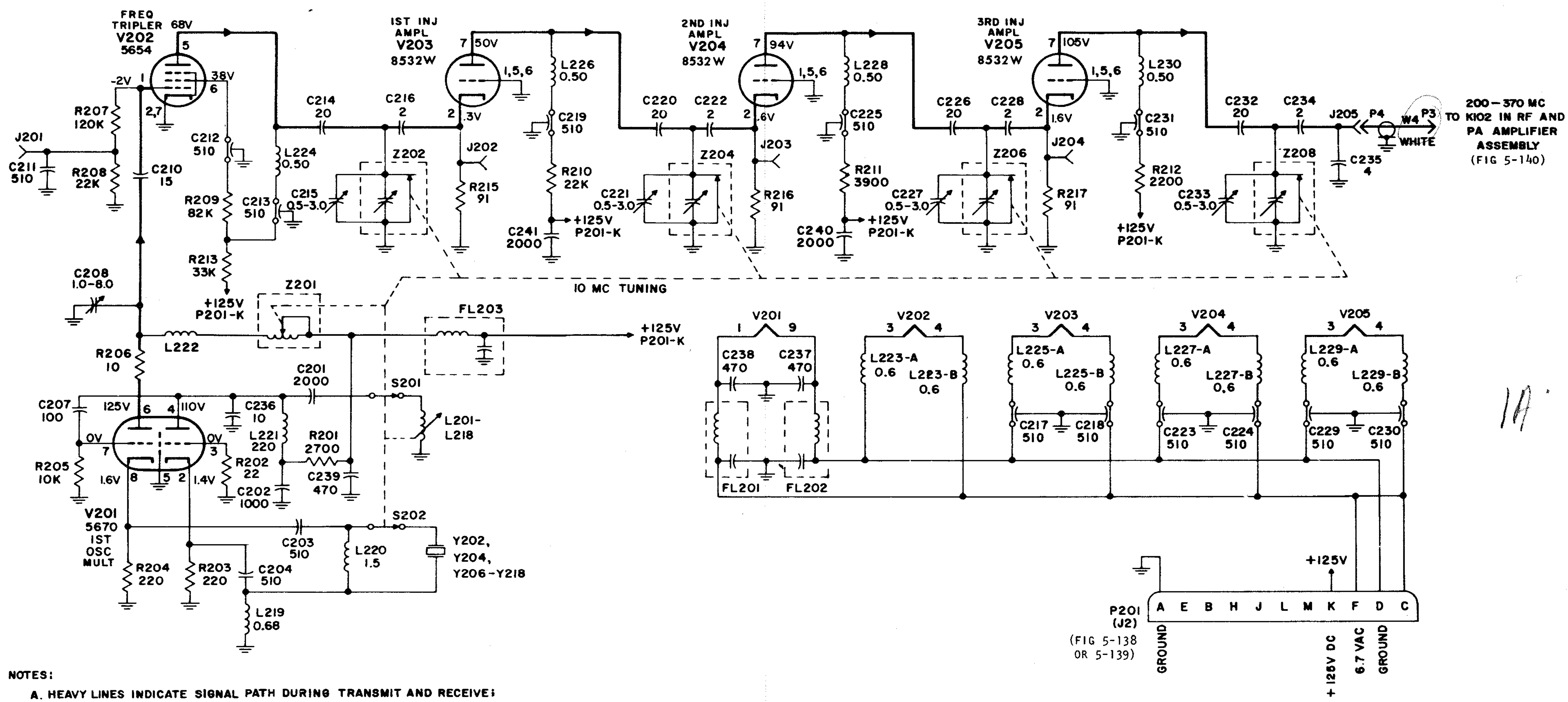
G. FREQUENCIES SHOWN ARE FOR AN/URC-9A. FREQUENCIES FOR AN/URC-9 ARE THE SAME LESS THE HUNDREDTHS POSITION.

1. RESISTOR R114 WILL BE CHANGED FROM 10 OHMS TO 100 OHMS BY THE ASSEMBLY REPAIR FACILITIES. FIELD ACTIVITIES WILL MAKE THIS CHANGE IN THE REPAIR OF A FAILURE ONLY.

REFERENCES:
1. PARAGRAPH 3-43
2. PARAGRAPH 3-118

TUBE	PIN NUMBER								
	1	2	3	4	5	6	7	8	9
V101	66K	10	0.6	0	66K	66K	∞	—	—
V102	∞	53	0	0.6	∞	∞	∞	—	—
V103	∞	96	0	0.6	∞	∞	∞	⊤	—
V104	(FILAMENT) 0	(FILAMENT) 0	(CATHODE) 0	(GRID) 98K	(PLATE) ∞	—	—	—	—
V105	(FILAMENT) 0	(FILAMENT) 0.7	(CATHODE) 100	(GRID) 1K	(PLATE) ∞	—	—	—	—
V106	∞	0	∞	0	0	0	0	0	—

Figure 5-140. RT-581( )/URC-9, RF and PA Amplifier Assembly, Schematic Diagram



NOTES:

A. HEAVY LINES INDICATE SIGNAL PATH DURING TRANSMIT AND RECEIVE; LIGHT SOLID LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS, AND LIGHT BROKEN LINES INDICATE MECHANICAL LINKAGE.

B. UNLESS OTHERWISE INDICATED; ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN PICOFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRYS.

C. RESISTANCE VALUES OF LESS THAN ONE OHM ARE NOT SHOWN.

1. UNLESS OTHERWISE INDICATED, ALL VOLTAGES ARE DC TAKEN WITH A HIGH IMPEDANCE VTVM, AND MEASURED TO GROUND (CHASSIS)

REFERENCE:

PARAGRAPH 3-37
PARAGRAPH 3-123

TUBE	PIN NUMBER								
	1	2	3	4	5	6	7	8	9
V201	∞	220	22	∞	0	∞	10K	220	∞
V202	140K	0	∞	∞	∞	∞	0	—	—
V203	0	100	∞	∞	0	0	∞	—	—
V204	0	94	∞	∞	0	0	∞	—	—
V205	0	94	∞	∞	0	0	∞	—	—

1A

1A1A3

Figure 5-141. RT-581( )/URC-9, Frequency Multiplier-Oscillator Assembly, Schematic Diagram

ROADMAP FOR FIGURE 5-142

RESISTORS

R301 - 5C
R302 - 6B
R303 - 6C
R304 - 7C
R305 - 7C
R306 - 10C
R307 - 9B
R308 - 9D
R309 - 11C
R310 - 13B
R311 - 14B
R312 - 14C
R313 - 6F
R314 - 4D
R315 - 9F
R316 - 4D
R317 - 5E
R318 - 8E
R319 - 5E
R320 - 8F
R321 - 9F
R322 - 8F
R323 - 10B
R324 - 5B
R325 - 11C
R326 - 11C

PLUGS

P301 - 1C
P302 - 1A
P303 - 1B
P304 - 15B

CAP

C301 - 2B
C302 - 2B
C303 - 3B
C304 - 4B
C305 - 5B
C306 - 7B
C307 - 7B
C308 - 8B
C309 - 8B
C310 - 9B
C311 - 9B
C312 - 11B
C313 - 11B
C314 - 12A
C315 - 13A
C316 - 13B
C317 - 13B
C318 - 14C
C319 - 6B
C320 - 6C
C321 - 7C
C322 - 10D
C323 - 10B
C324 - 11C
C325 - 14B
C326 - 5D
C327 - 6C
C328 - 11C
C329 - 6G
C330 - 9E
C331 - 3D
C332 - 2F
C333 - 2F
C334 - 2E
C335 - 5C
C336 - 6F
C337 - 6E
C338 - 6E
C339 - 6D
C340 - 6E
C341 - 4E
C342 - 4D
C343 - 8E
C344 - 3F
C345 - 3F
C346 - 14F
C347 - 10C
C348 - 5E

COILS

L301 - 3B
L302 - 4B
L303 - 7B
L304 - 8B
L305 - 12B
L306 - 12B
L307 - 2F
L308 - 2F
L309 - 4D
L310 - 7E
L311 - 8F
L312 - 14B
L313 - 10F
L314 - 5E
L315 - 5E
L316 - 5B
L317 - 5C
L318 - 14C
L319 - 14B

NETWORKS

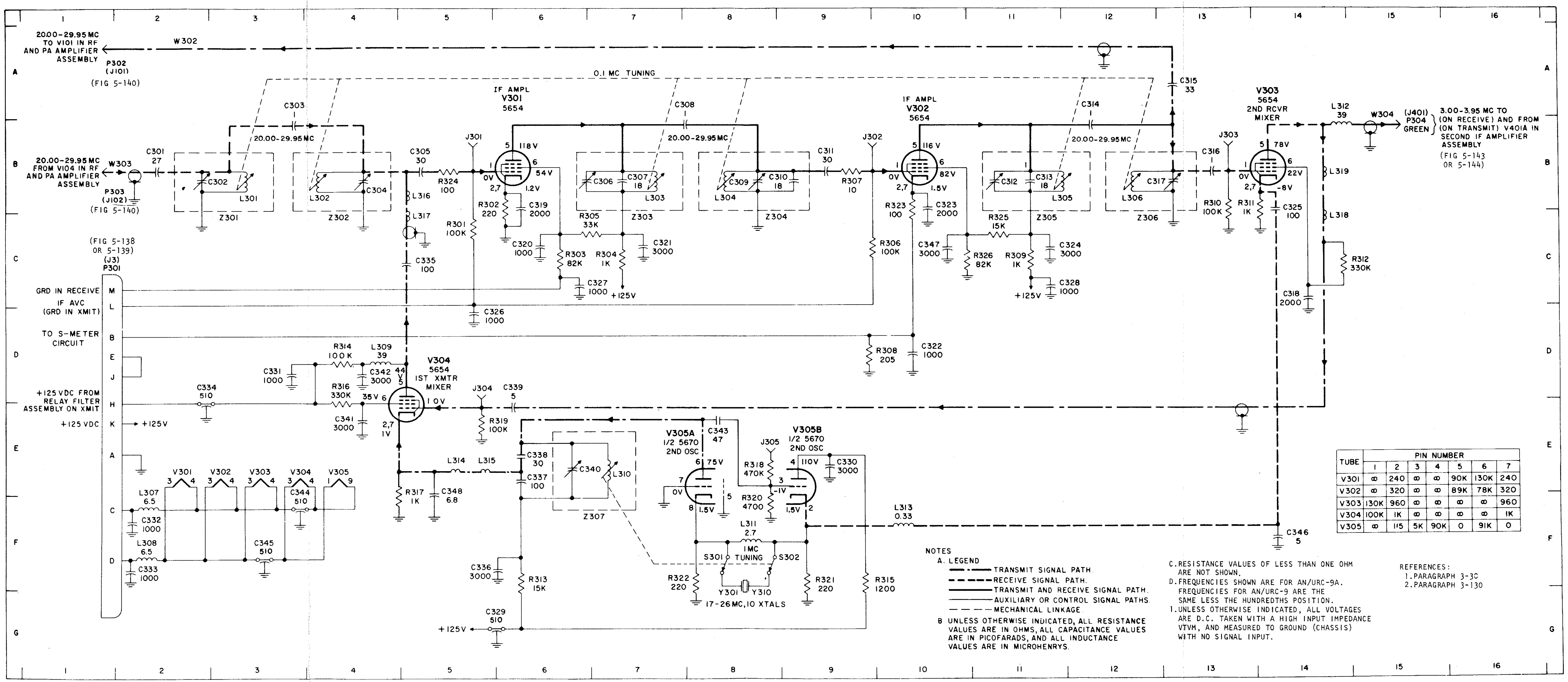
Z301 - 3B
Z302 - 4B
Z303 - 7B
Z304 - 8B
Z305 - 11B
Z306 - 12B
Z307 - 7E

JACKS

J301 - 5B
J302 - 9B
J303 - 13B
J304 - 5D
J305 - 8E

TUBES

V301 - 6B
V302 - 10B
V303 - 14B
V304 - 5E
V305A - 8E
V305B - 9E



TUBE	PIN NUMBER						
	1	2	3	4	5	6	7
V301	∞	240	∞	∞	90K	130K	240
V302	∞	320	∞	∞	89K	78K	320
V303	130K	960	∞	∞	∞	∞	960
V304	100K	1K	∞	∞	∞	∞	1K
V305	∞	115	5K	90K	0	91K	0

NOTES

A. LEGEND
- TRANSMIT SIGNAL PATH.
- RECEIVE SIGNAL PATH.
- TRANSMIT AND RECEIVE SIGNAL PATH.
- AUXILIARY OR CONTROL SIGNAL PATHS.
- MECHANICAL LINKAGE.

B UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN PICOFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRYS.

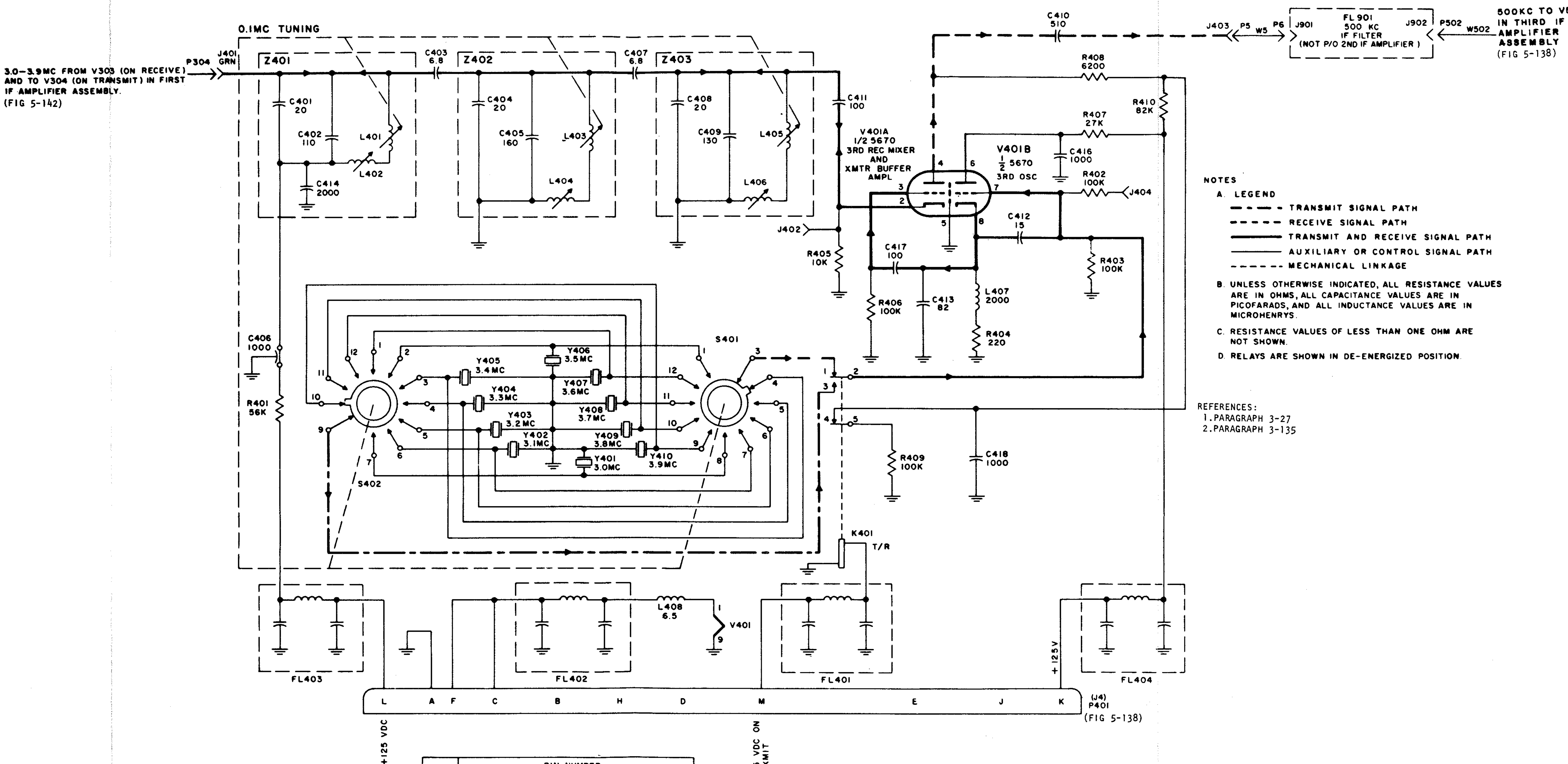
C. RESISTANCE VALUES OF LESS THAN ONE OHM ARE NOT SHOWN.

D. FREQUENCIES SHOWN ARE FOR AN/URC-9A. FREQUENCIES FOR AN/URC-9 ARE THE SAME LESS THE HUNDREDTHS POSITION.

1. UNLESS OTHERWISE INDICATED, ALL VOLTAGES ARE D.C. TAKEN WITH A HIGH INPUT IMPEDANCE VTVM, AND MEASURED TO GROUND (CHASSIS) WITH NO SIGNAL INPUT.

REFERENCES:
1. PARAGRAPH 3-30
2. PARAGRAPH 3-130

Figure 5-142. RT-581( )/URC-9, First IF Amplifier Assembly, Schematic Diagram



NOTES
A. LEGEND
- TRANSMIT SIGNAL PATH
- RECEIVE SIGNAL PATH
- TRANSMIT AND RECEIVE SIGNAL PATH
- AUXILIARY OR CONTROL SIGNAL PATH
- MECHANICAL LINKAGE

B. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN PICOFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRYS.

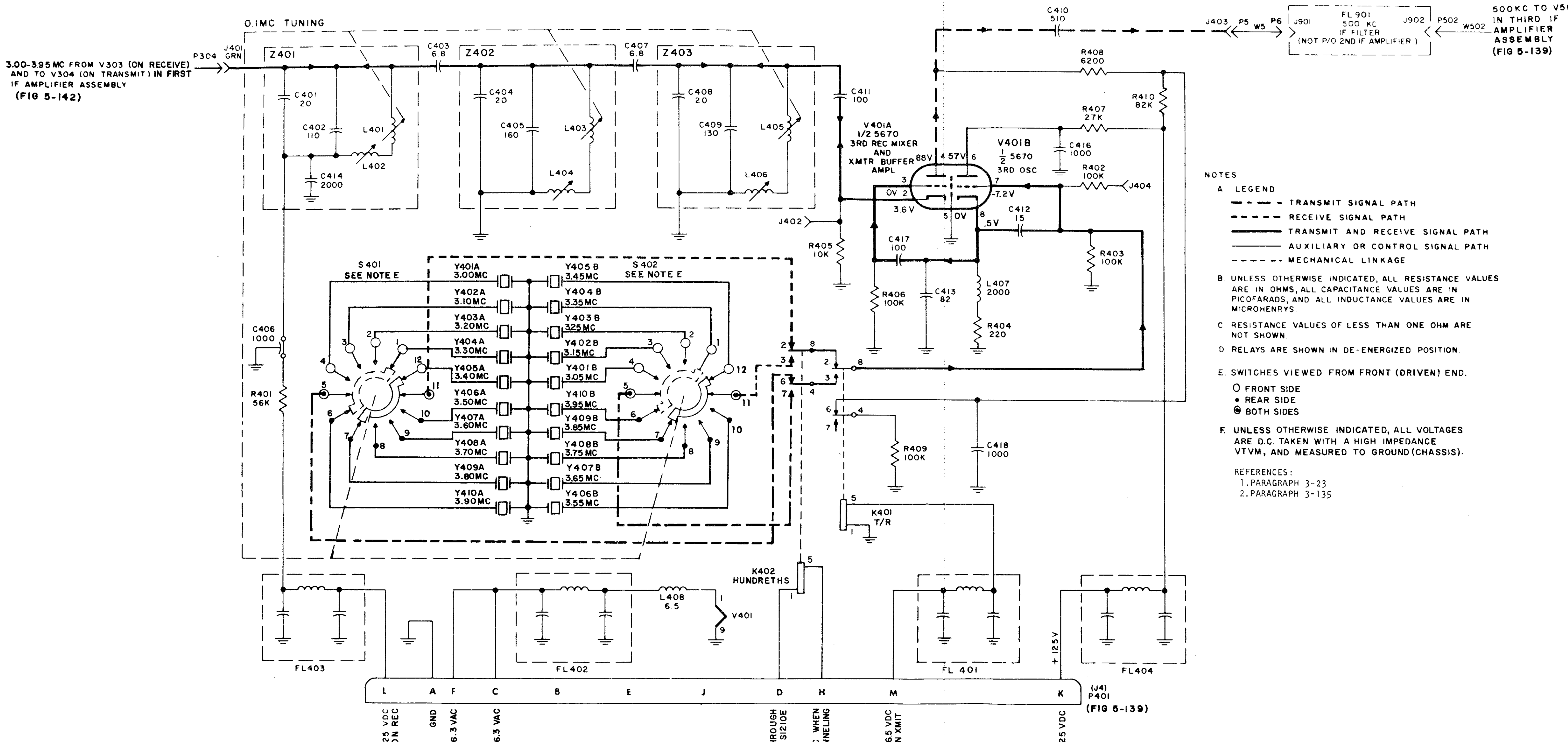
C. RESISTANCE VALUES OF LESS THAN ONE OHM ARE NOT SHOWN.

D. RELAYS ARE SHOWN IN DE-ENERGIZED POSITION.

REFERENCES:
1. PARAGRAPH 3-27
2. PARAGRAPH 3-135

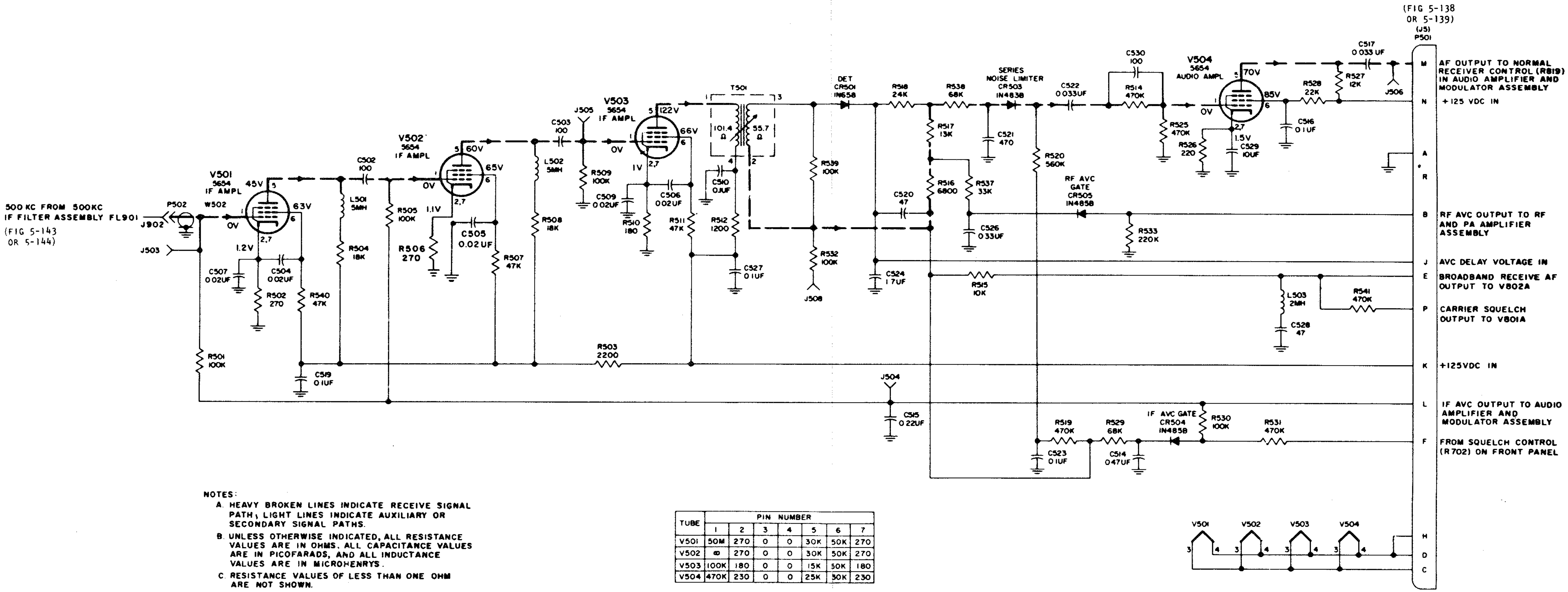
TUBE	PIN NUMBER								
	1	2	3	4	5	6	7	8	9
V401	0	10K	100K	105K	0	210K	100K	290	∞

Figure 5-143. RT-581/URC-9, Second IF Amplifier Assembly, Schematic Diagram (AN/URC-9 ONLY)



TUBE	PIN NUMBER 1	2	3	4	5	6	7	8	9
V401	0	10K	100K	105K	0	210K	100K	290	∞

Figure 5-144. RT-581A/URC-9, Second IF Amplifier Assembly, Schematic Diagram (AN/URC-9A ONLY)



NOTES:

A. HEAVY BROKEN LINES INDICATE RECEIVE SIGNAL PATH, LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS.

B. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS. ALL CAPACITANCE VALUES ARE IN PICOFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRYS.

C. RESISTANCE VALUES OF LESS THAN ONE OHM ARE NOT SHOWN.

D. UNLESS OTHERWISE INDICATED, ALL VOLTAGES ARE DC TAKEN WITH A HIGH INPUT IMPEDANCE VTVM, AND MEASURED TO GROUND (CHASSIS).

REFERENCE:

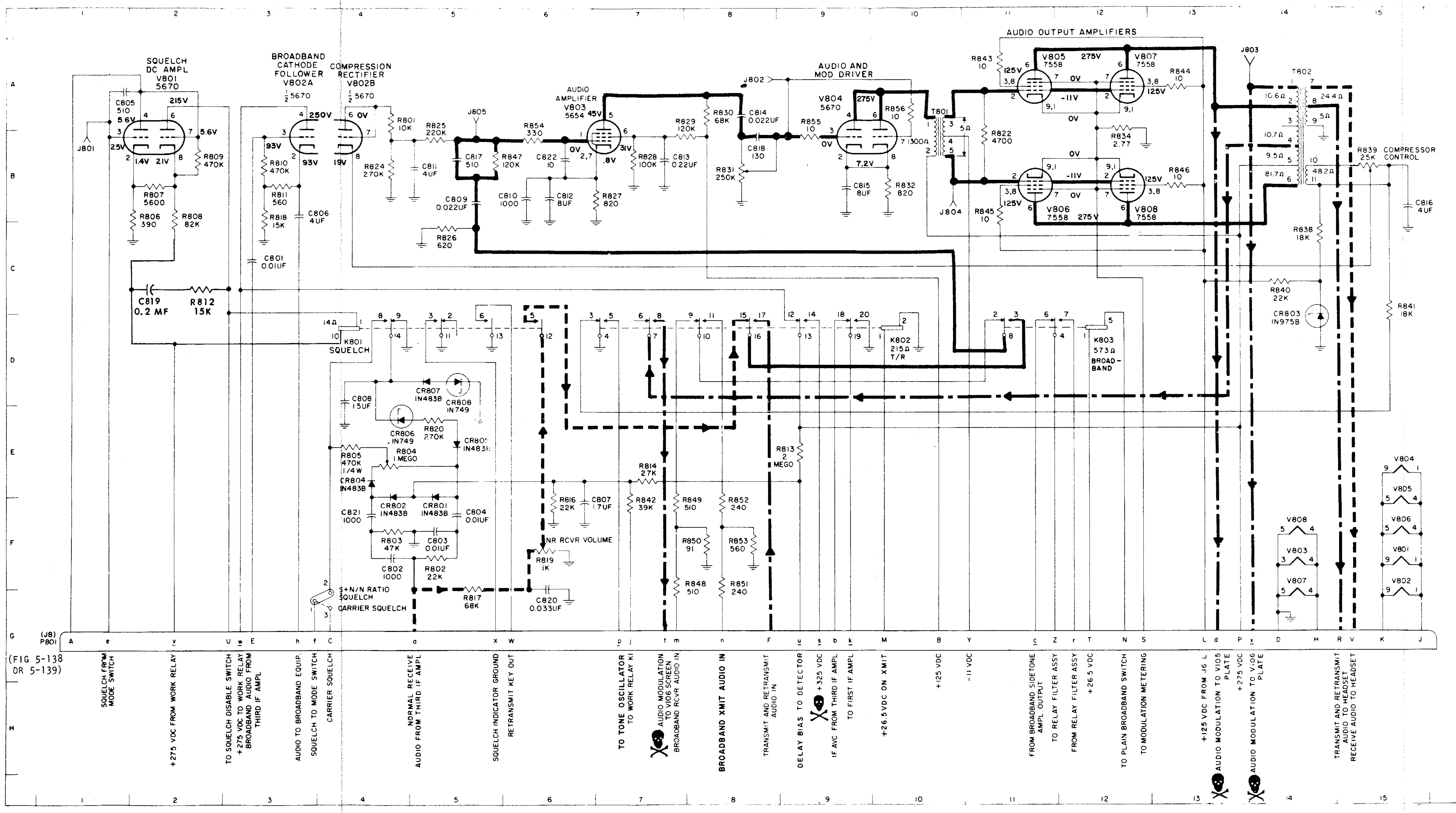
PARAGRAPH 3-152

TUBE	PIN NUMBER						
	1	2	3	4	5	6	7
V501	50M	270	0	0	30K	50K	270
V502	∞	270	0	0	30K	50K	270
V503	100K	180	0	0	15K	50K	180
V504	470K	230	0	0	25K	50K	230

Figure 5-145. RT-581( )/URC-9, Third IF Amplifier Assembly, Schematic Diagram

ROADMAP FOR FIGURE 5-146

RESISTORS	RESISTORS
R801 - 4A	R852 - 8F
R802 - 5F	R853 - 8F
R803 - 4F	R854 - 6A
R804 - 4E	R855 - 9B
R805 - 4E	R856 - 10A
R806 - 2B	
R807 - 2B	**CAPACITORS**
R808 - 2B	
R809 - 2B	C801 - 3C
R810 - 3B	C802 - 4F
R811 - 3B	C803 - 5F
R812 - 2C	C804 - 5F
R813 - 9E	C805 - 1A
R814 - 7E	C806 - 3B
R815	C807 - 6F
R816 - 6F	C808 - 4D
R817 - 5F	C809 - 5B
R818 - 3B	C810 - 6B
R819 - 6F	C811 - 5B
R820 - 5E	C812 - 6B
R821	C813 - 7B
R822 - 11B	C814 - 8A
R823	C815 - 9B
R824 - 4B	C816 - 15B
R825 - 5B	C817 - 5B
R826 - 5C	C818 - 8B
R827 - 7B	C819 - 2C
R828 - 7B	C820 - 6G
R829 - 8B	C821 - 4F
R830 - 8A	C822 - 6B
R831 - 8B	
R832 - 10B	**INDUCTORS**
R833	
R834 - 12B	T801 - 10B
R835	T802 - 14A
R836	
R837	**RELAYS**
R838 - 14C	
R839 - 15B	K801 - 4D
R840 - 14C	K802 - 10D
R841 - 15C	K803 - 12D
R842 - 7F	
R843 - 11A	**DIODES**
R844 - 13A	CR801 - 5F
R845 - 11B	CR802 - 4F
R846 - 13B	CR803 - 14D
R847 - 5B	CR804 - 4E
R848 - 7F	CR805 - 5E
R849 - 7F	CR806 - 4E
R850 - 8F	CR807 - 5D
R851 - 8F	CR808 - 5D



NOTES

A LEGEND

- TRANSMIT SIGNAL PATH
- RECEIVE SIGNAL PATH
- TRANSMIT AND RECEIVE SIGNAL PATH
- AUXILIARY OR CONTROL SIGNAL PATH
- MECHANICAL LINKAGE

B. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS; ALL CAPACITANCE VALUES ARE IN PICOFARADS.

C. RESISTANCE VALUES OF LESS THAN ONE OHM ARE NOT SHOWN.

D. RELAYS ARE SHOWN IN DE-ENERGIZED POSITION.

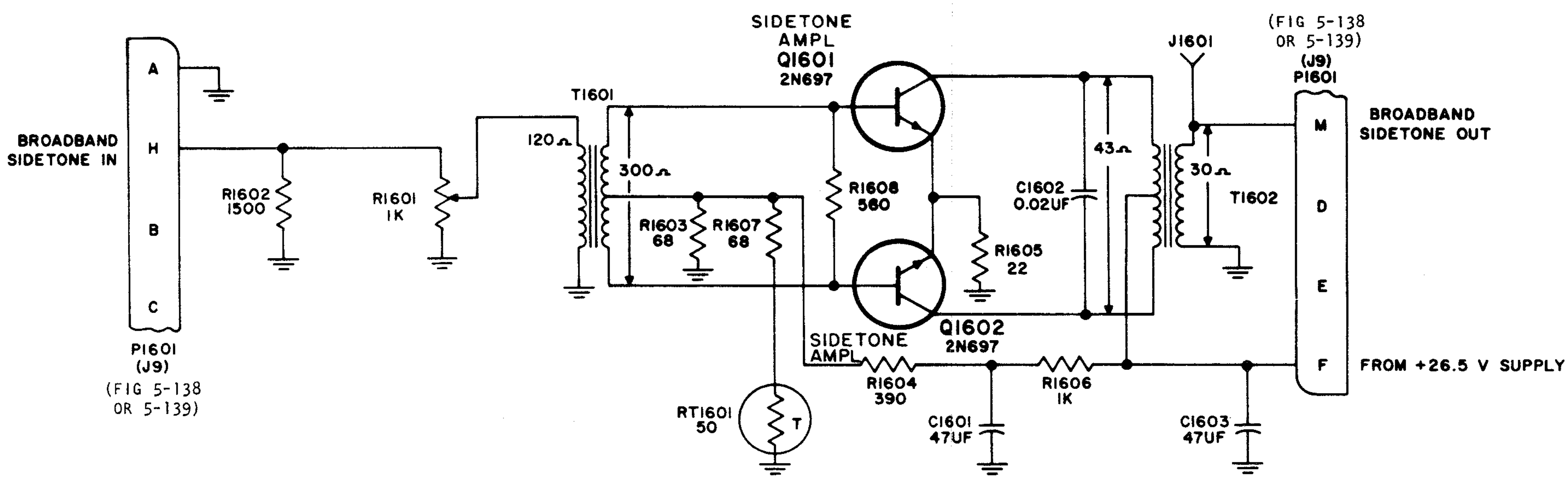
E. SIGNIFIES DANGEROUSLY HIGH VOLTAGES EXIST. KEEP CLEAR!! USE EXTREME CARE WHEN MEASURING.

I. UNLESS OTHERWISE INDICATED, ALL VOLTAGES ARE DC TAKEN WITH A HIGH INPUT IMPEDANCE VTVM. AND MEASURED TO GROUND (CHASSIS).

REFERENCES:
1. PARAGRAPH 3-54
2. PARAGRAPH 3-164

TUBE	PIN NUMBER								
	1	2	3	4	5	6	7	8	9
V801	0	390	4M	400K	—	15K	400K	5.2K	0
V802	0	13K	340K	5K	—	210K	210K	14K	0
V803	47K	720	0	0	58K	40K	720	—	—
V804	0	820	200K	15K	—	15K	200K	820	0
V805	—	15K	12K	0	0	470	2.3	12K	2.3
V806	—	15K	12K	0	0	470	2.3	12K	2.3
V807	—	15K	12K	0	0	470	2.3	12K	2.3
V808	—	15K	12K	0	0	470	2.3	12K	2.3

Figure 5-146. RT-581( )/URC-9, Audio Amplifier and Modulator Assembly, Schematic Diagram



NOTES:

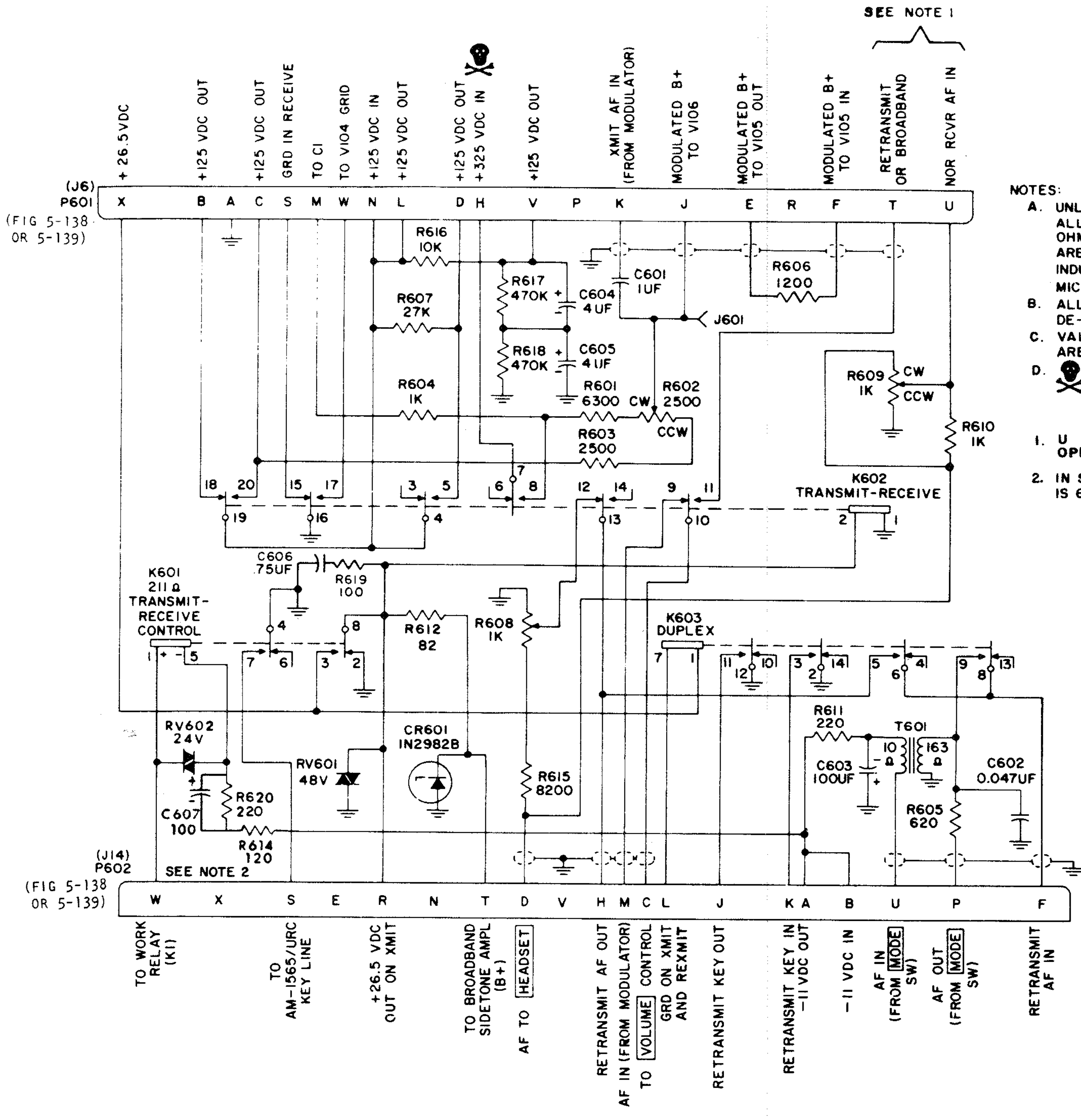
A. UNLESS OTHERWISE INDICATED; ALL RESISTANCE VALUES ARE IN OHMS, AND ALL CAPACITANCE VALUES ARE IN PICOFARADS.

B. RESISTANCES LESS THAN ONE OHM NOT SHOWN.

REFERENCE:

PARAGRAPH 3-70

Figure 5-147. RT-581( )/URC-9, Broadband Sidetone Amplifier Assembly, Schematic Diagram



NOTES:

A. UNLESS INDICATED OTHERWISE ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN PICOFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRYS.

B. ALL RELAYS ARE SHOWN IN DE-ENERGIZED POSITION.

C. VALUES LESS THAN 1 OHM ARE NOT SHOWN.

D. ☠ SIGNIFIES DANGEROUSLY HIGH VOLTAGES EXIST. KEEP CLEAR! USE EXTREME CARE WHEN MEASURING.

1. U SHORTS TO T IN PLAIN OPERATION.

2. IN SOME EQUIPMENTS R614 IS 62 OHMS.

Figure 5-148. RT-581( )/URC-9, Relay-Filter Assembly, Schematic Diagram

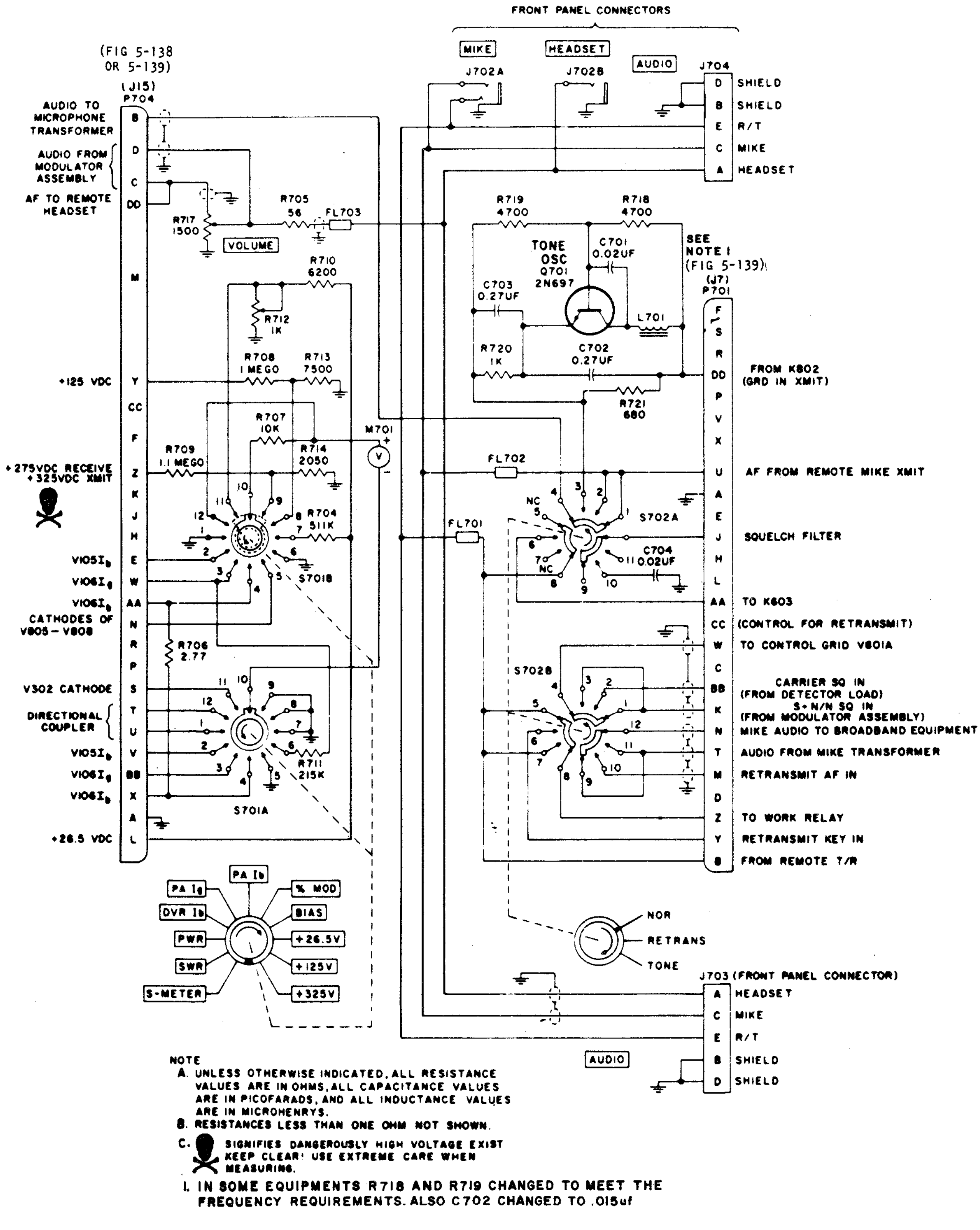


Figure 5-149. RT-581( )/URC-9, Part of Front Panel Assembly, Schematic Diagram

NOTES

A. UNLESS OTHERWISE INDICATED ALL RESISTANCE VALUES ARE IN OHMS
B. NUMBERS ON SWITCHES INDICATE FUNCTION NUMBERS AND NOT SWITCH NUMBERS
C. A BLACK DOT ON SWITCH WAFERS INDICATES FRONT AND BACK WAFERS ARE CONNECTED ELECTRICALLY
D. ALL SWITCHES ARE VIEWED FROM OPPOSITE DRIVEN END
- KNOB OR DRIVEN END.
- SIDE OPPOSITE KNOB OR DRIVEN END.
- BOTH SIDES

1. CONTACTS OF MEMORY DRUM SWITCH S1210 SET FOR AUTOMATIC FREQUENCY SELECTION OF 399.9 MC
2. SWITCH S705A SHOWN IN MANUAL POSITION.

REFERENCE:
PARAGRAPH 3-285

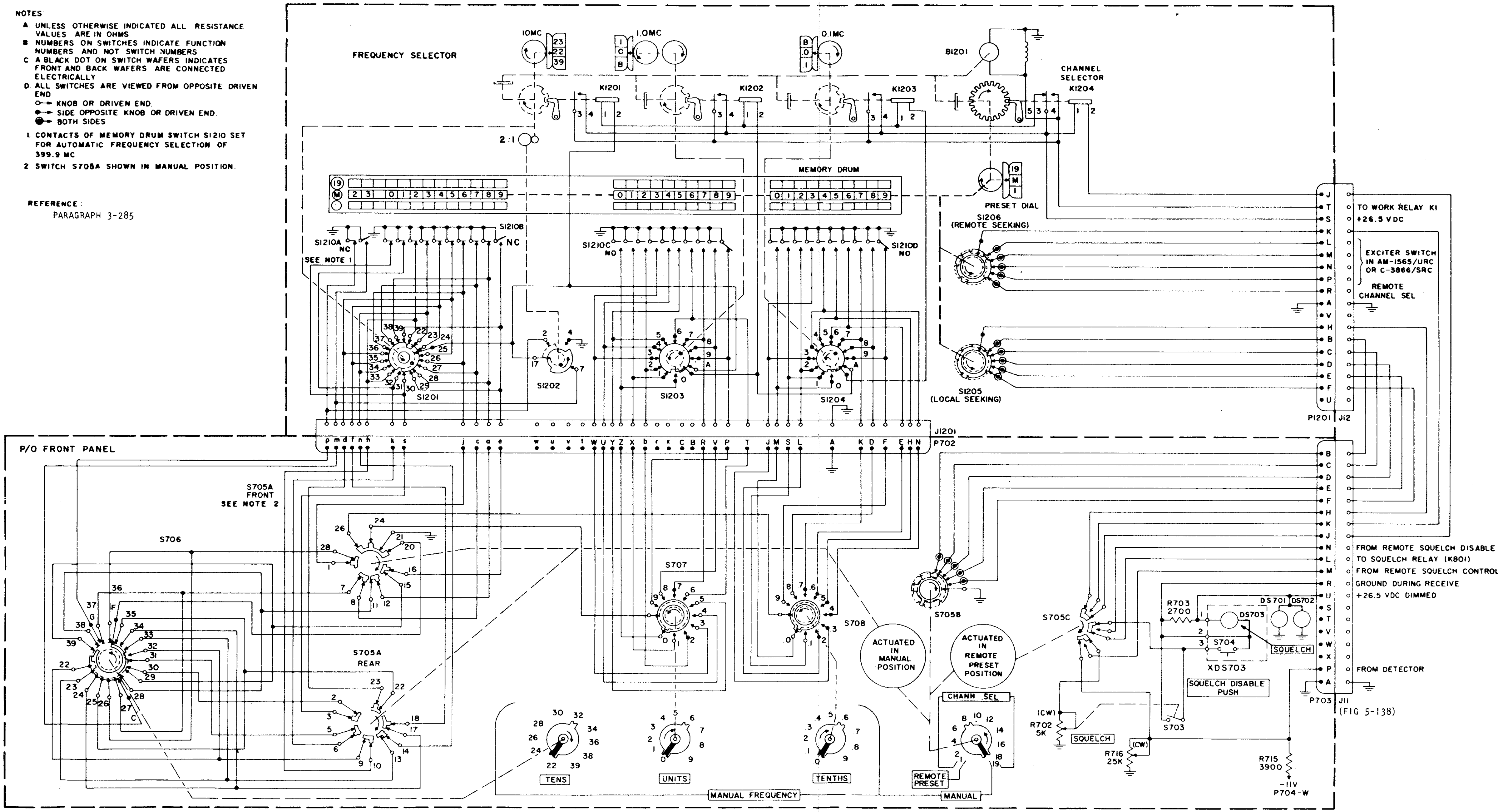


Figure 5-150. RT-581/URC-9, Part of Front Panel Assembly and Frequency Selector Assembly, Schematic Diagram (AN/URC-9 Only)

NOTES:

A. UNLESS OTHERWISE INDICATED ALL RESISTANCE VALUES ARE IN OHMS.
B. NUMBERS ON SWITCHES INDICATE FUNCTION NUMBERS AND NOT SWITCH NUMBERS.
C. A BLACK DOT ON SWITCH WAFERS INDICATES FRONT AND BACK WAFERS ARE CONNECTED ELECTRICALLY.
D. ALL SWITCHES ARE VIEWED FROM OPPOSITE DRIVEN END.
- ○— KNOB OR DRIVEN END.
- ●— SIDE OPPOSITE KNOB OR DRIVEN END.
- ◉— BOTH SIDES.

1. CONTACTS OF MEMORY DRUM SWITCH S1210 SET FOR AUTOMATIC FREQUENCY SELECTION OF 399.90 MC.
2. SWITCH S705A SHOWN IN MANUAL POSITION.

REFERENCE:
PARAGRAPH 3-285

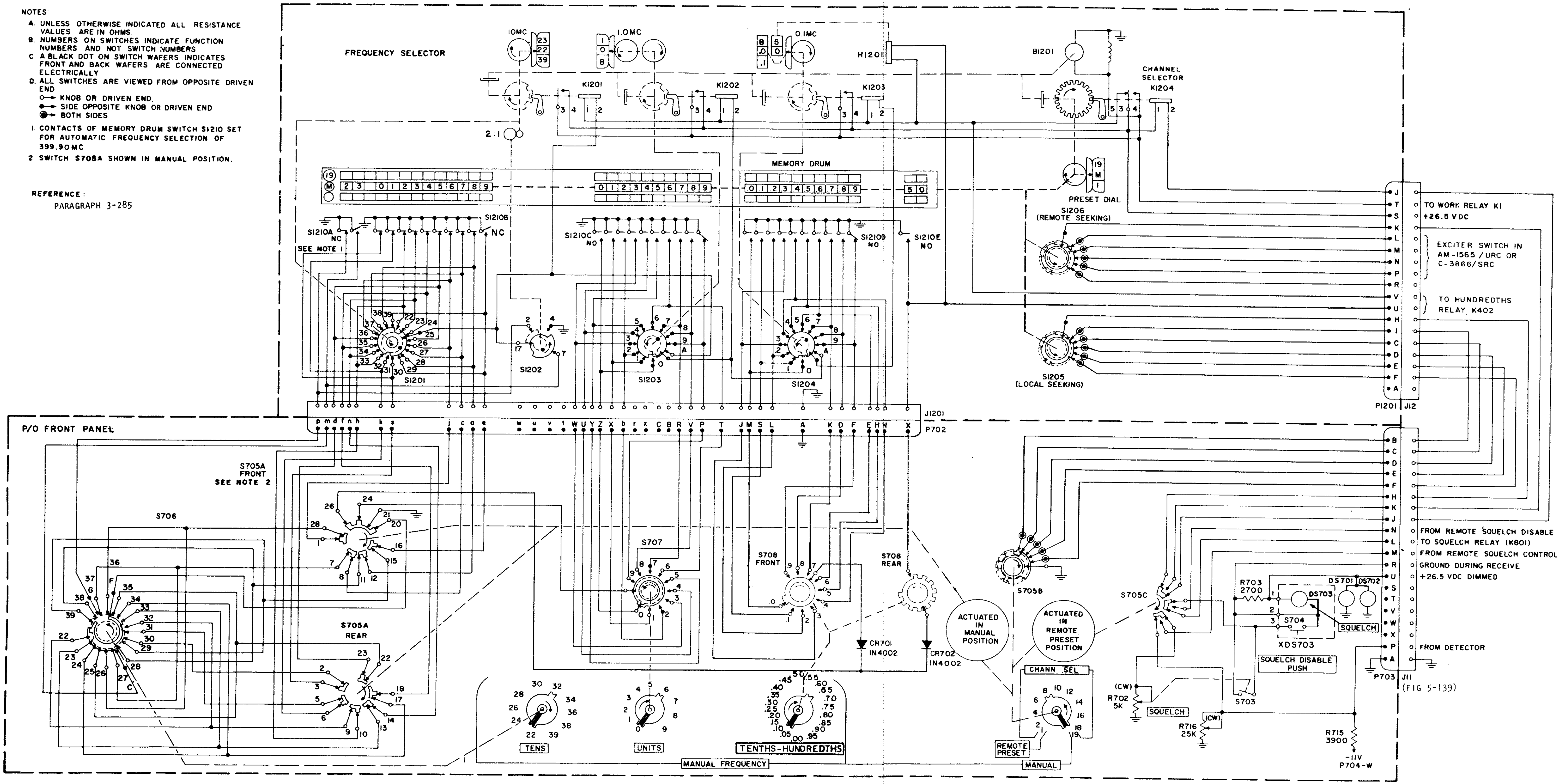


Figure 5-151. RT-581A/URC-9, Part of Front Panel Assembly and Frequency Selector Assembly, Schematic Diagram (AN/URC-9A ONLY)

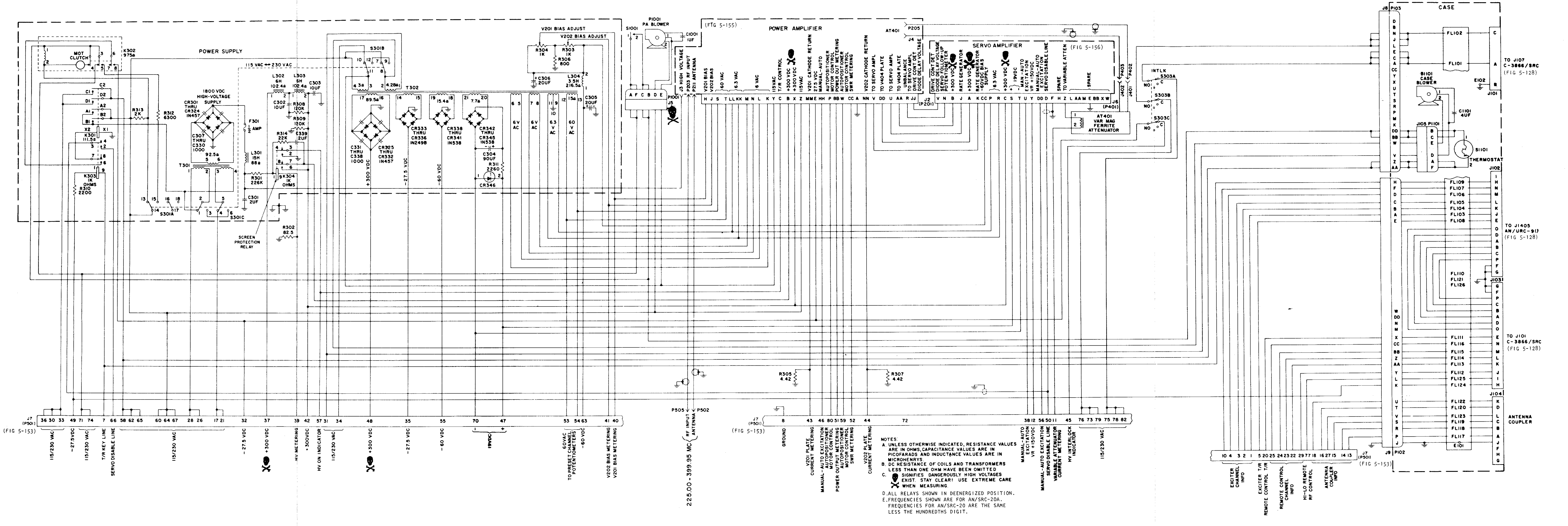


Figure 5-152. Radio Frequency Amplifier AM-1565/URC, Power Supply and Interconnection Schematic Diagram

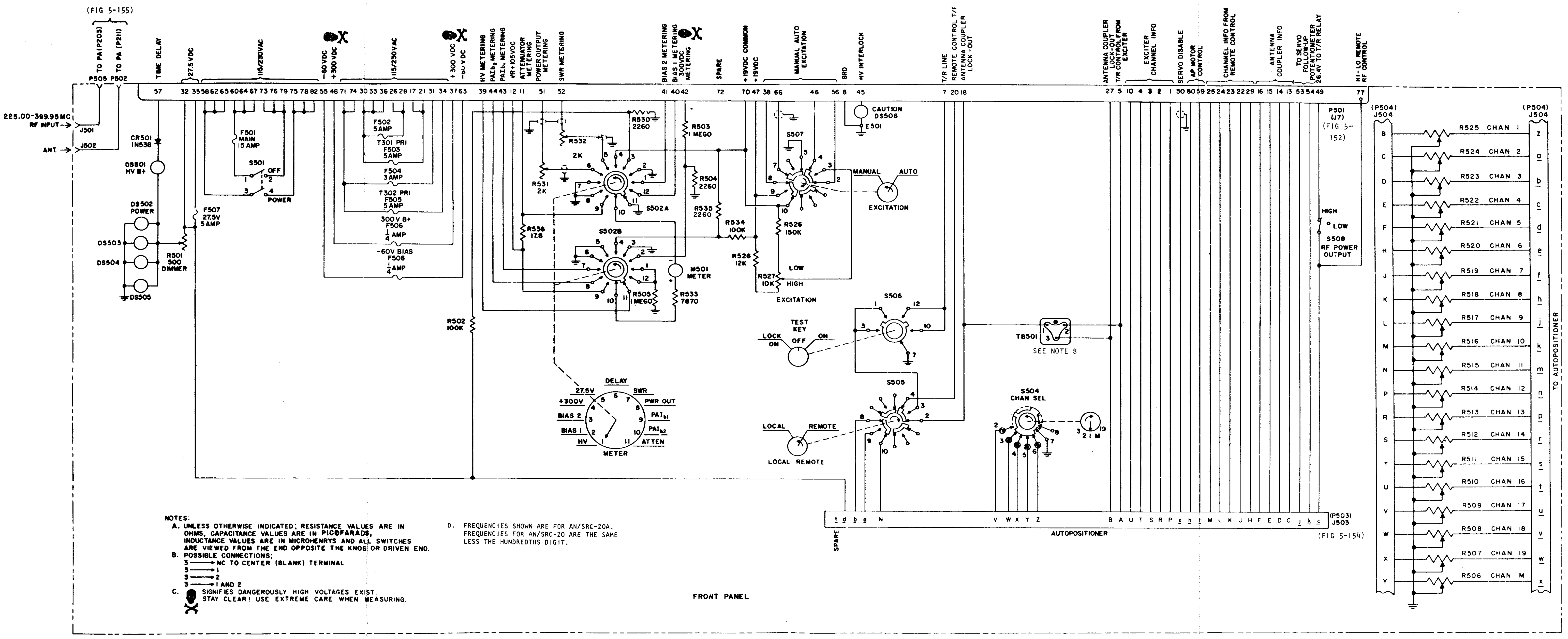


Figure 5-153. AM-1565/URC, Front Panel Assembly, Schematic Diagram

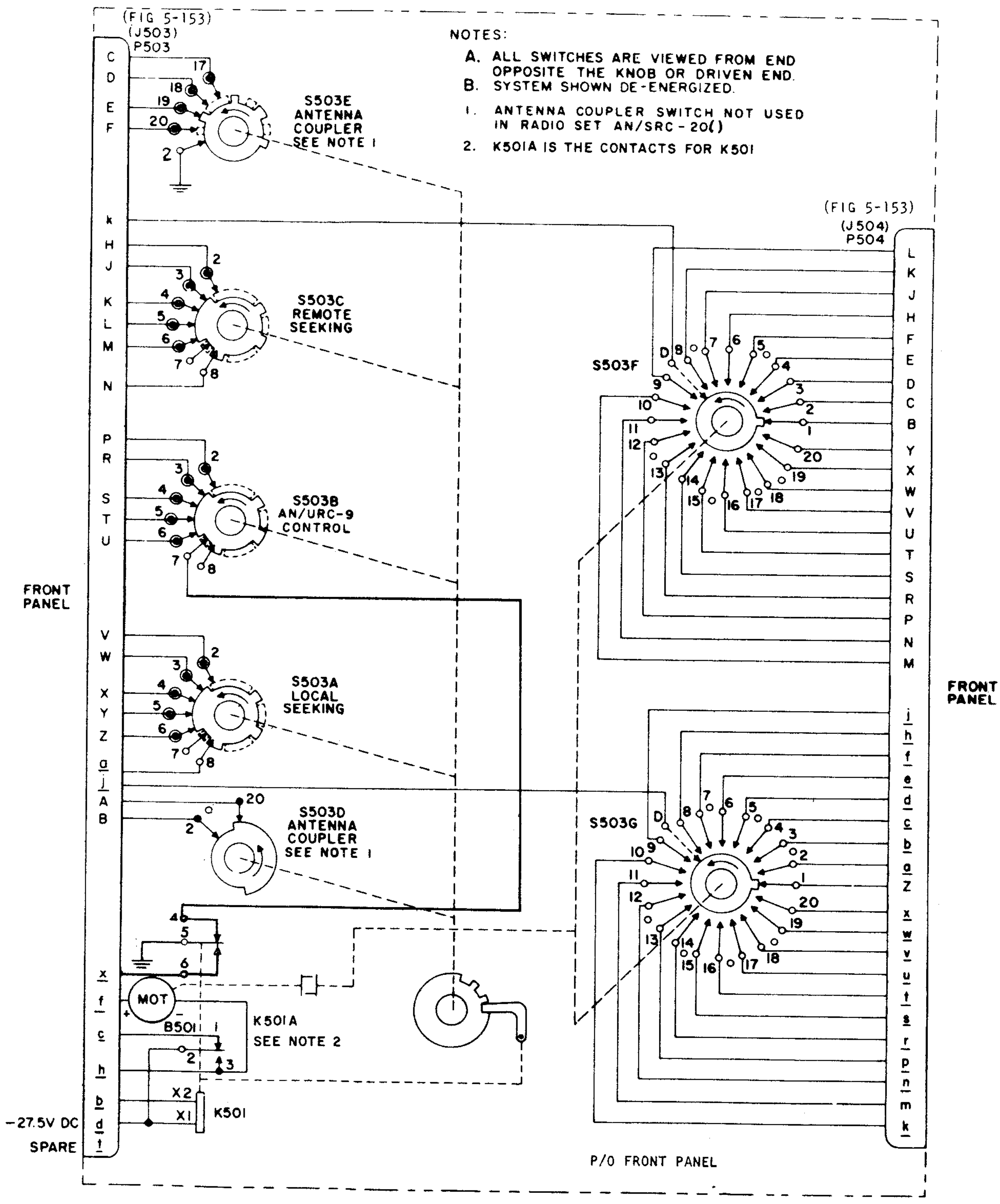
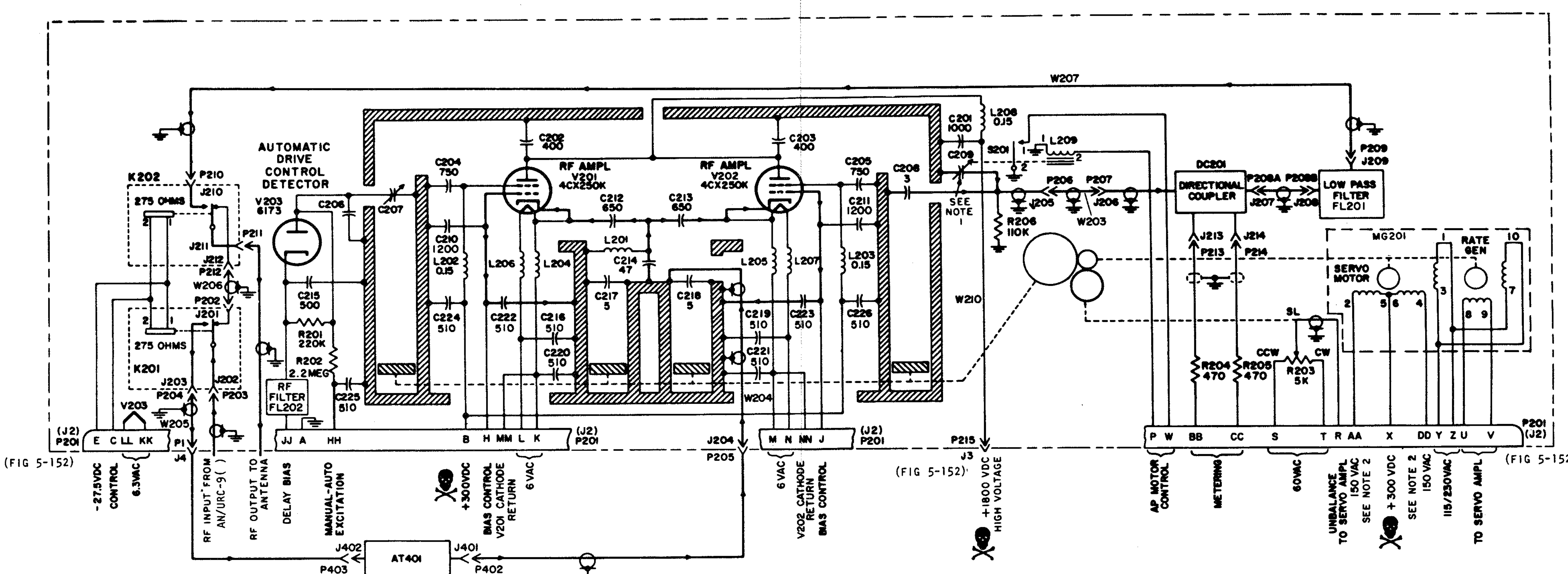


Figure 5-154. AM-1565/URC, Autopositioner, Schematic Diagram



NOTES:

A. HEAVY SOLID LINES INDICATE TRANSMIT SIGNAL PATH, LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS, AND LIGHT BROKEN LINES INDICATE MECHANICAL LINKAGE.

B. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN PICOFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRYS.

C. RESISTANCE VALUES OF LESS THAN ONE OHM ARE NOT SHOWN.

D. RELAYS ARE SHOWN IN DE-ENERGIZED POSITION

E. ☠ SIGNIFIES DANGEROUSLY HIGH VOLTAGES EXIST. KEEP CLEAR: USE EXTREME CARE WHEN MEASURING.

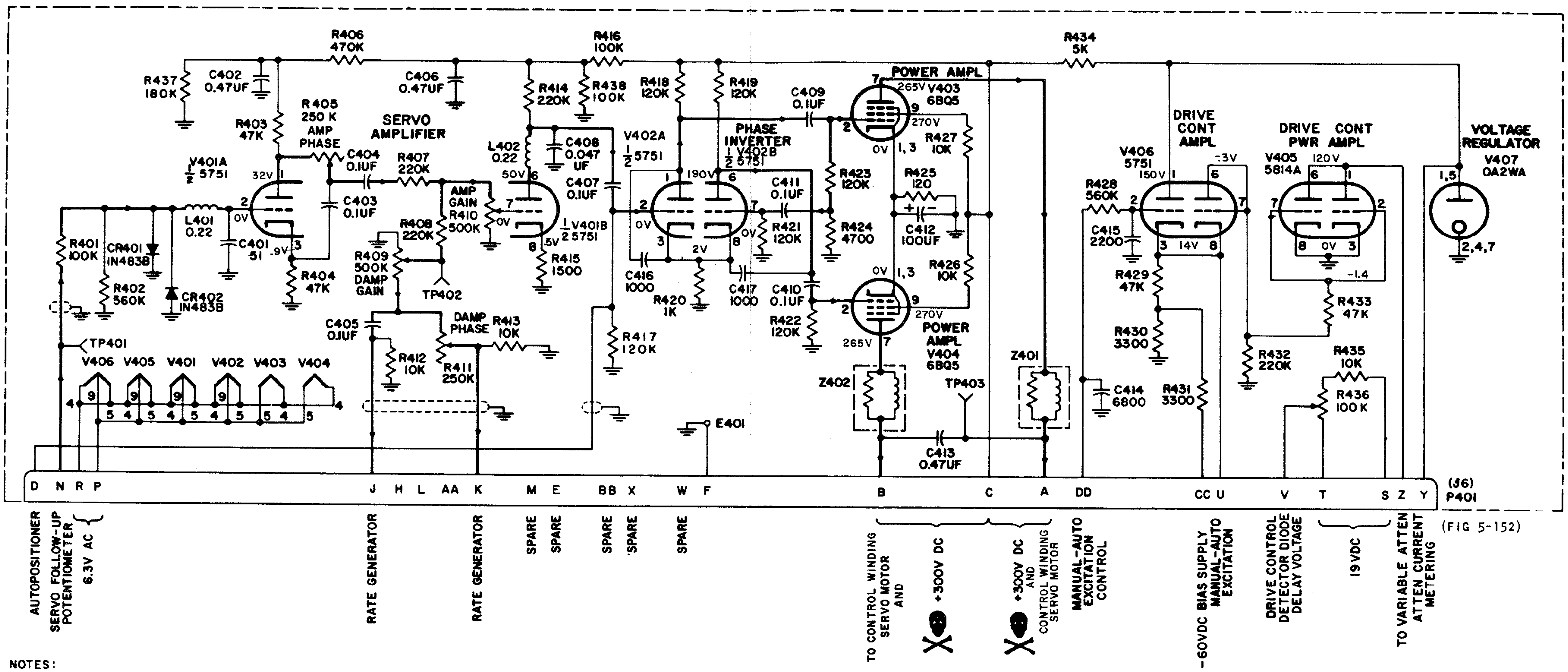
1. C209 SETTING DETERMINED BY ONE OF 20 OUTPUT LOADING SCREWS.

2. 150 VAC APPLIED TO SERVO MOTOR DURING CHANNELING.

REFERENCE:

PARAGRAPH 3-81

Figure 5-155. AM-1565/URC, Power Amplifier Subassembly, Schematic Diagram



NOTES:

A. UNLESS OTHERWISE INDICATED: ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN PICOFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRYS.

B. DC RESISTANCE OF COILS AND TRANSFORMERS LESS THAN ONE OHM HAS BEEN OMITTED.

C. ALL VOLTAGE AND RESISTANCE MEASUREMENTS TAKEN TO GROUND WITH VTVM. ALL RESISTANCE MEASUREMENTS TAKEN WITH SUBASSEMBLY REMOVED AND POSITIVE LEAD TO GROUND. ALL VOLTAGE MEASUREMENTS TAKEN WITH SUBASSEMBLY PLUGGED IN, POWER APPLIED, NO SIGNAL INPUT AND NEGATIVE LEAD TO GROUND.

D. ☠ SIGNIFIES DANGEROUSLY HIGH VOLTAGES EXIST. KEEP CLEAR! USE EXTREME CARE WHEN MEASURING.

E. HEAVY SOLID LINES INDICATE SERVO SIGNAL PATH; LIGHT LINES INDICATE AUXILIARY SIGNAL PATHS.

REFERENCE:

PARAGRAPH 3-89

TUBE	PIN NUMBER								
	1	2	3	4	5	6	7	8	9
V401	150K	2500	47K	∞	∞	300K	500K (TO 0)	1500	∞
V402	300K	120K	1K	∞	∞	300K	120K	1K	∞
V403	∞	125K	120	∞	∞	∞	∞	∞	200K
V404	∞	120K	120	∞	∞	∞	∞	∞	200K
V405	∞	275K	0	∞	∞	∞	270K	0	∞
V406	200K	∞	50K	∞	∞	220K	270K	50K	∞
V407	180K	∞	∞	∞	∞	∞	∞	—	—

Figure 5-156. AM-1565/URC, Servo Amplifier Subassembly, Schematic Diagram

NOTES

A. ROTARY SWITCH SHOWN IN HOME POSITION (NO 26)

B. CHANNEL DIAL SELECTOR IS IN FINGER-STOP POSITION

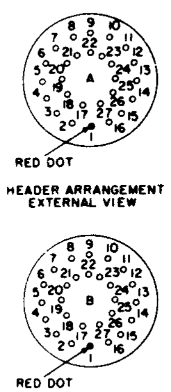
C. ALL RESISTOR VALUES ARE IN OHMS

1. OFF-NORMAL CONTACTS OF K206 OPERATE IN POSITION 26 ONLY

2. RV202 IS A 24-VOLT VARISTOR

REFERENCE

PARAGRAPH 3-314



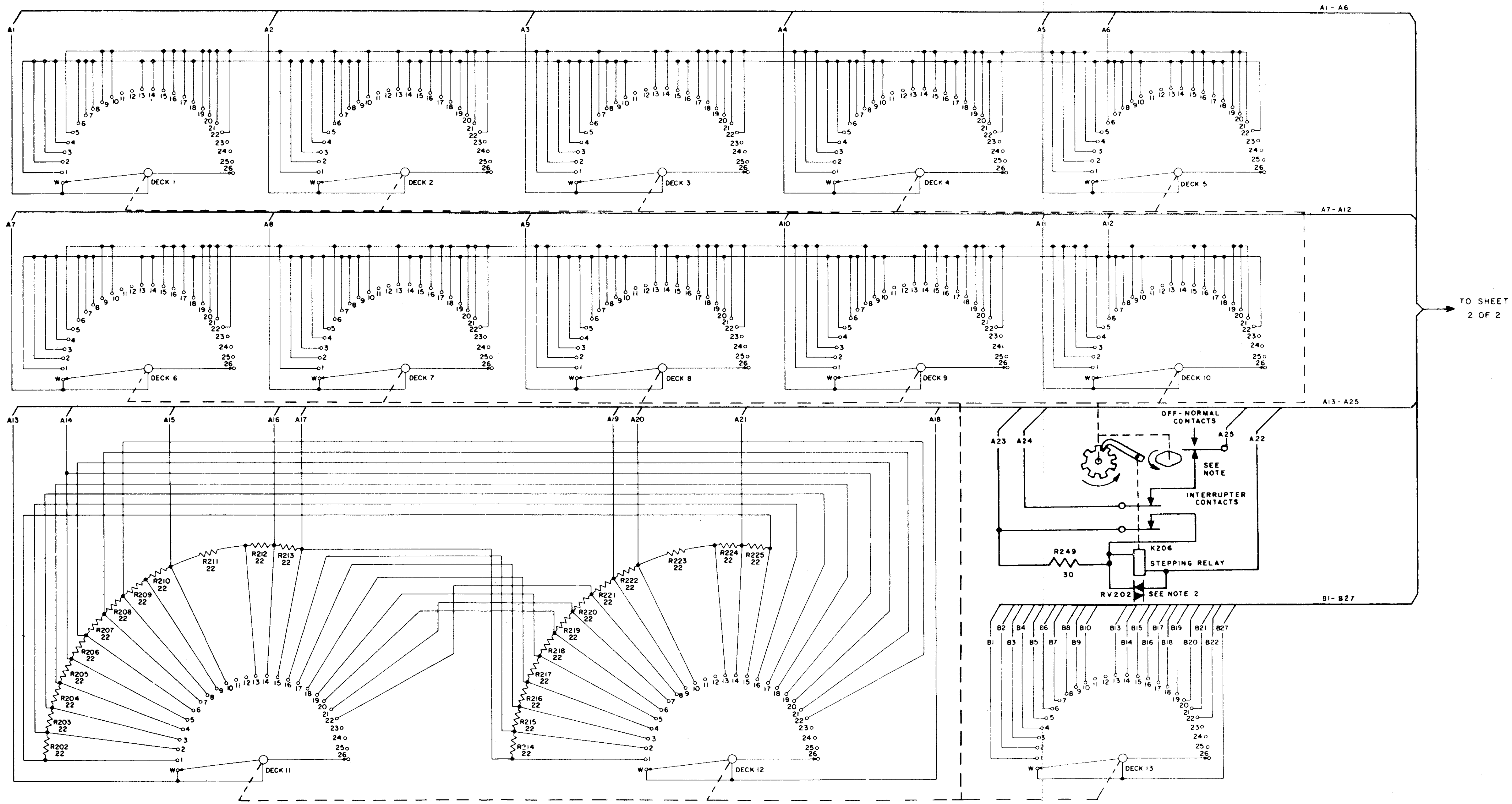


Figure 5-157. Radio Set Control C-3866/SRC, Schematic Diagram (Sheet 1 of 2)

ROADMAP FOR FIGURE 5-157

RESISTORS

R201-C15
R226-A17
R227-A22
R228-A23
R229-D10
R230-D10
R231-D10
R232-D11
R233-D11
R234-D12
R235-D12
R236-D13
R237-D13
R238-D7
R239-D14
R240-D15
R241-D15
R242-D16
R243-D16
R244-D16
R245-D17
R246-D17
R247-D18
R248-D19
R250-D22
R251-A14

CAPACITORS

C201-C15
C202-D19
C203-D20
C204-A14

DIODES

CR201-A21
CR202-A21
CR203-A21
CR204-A21
CR205-B21
CR206-B21
CR207-C21
CR208-B21
CR209-C21
CR210-C21
CR211-D21
CR212-C21
CR213-B10

RELAYS

K201-A9
K202-A11
K203-A12
K204-B14
K205-B15
K206-C5
K207-F5
K208-F20
K209-C10

VARISTOR

RV201-B9
RV203-A10
RV204-A12
RV205-A13
RV206-A14
RV207-A15

COILS

L201-C19
L202-C20

SWITCHES

S201-A19
S202-B18
S203-F8
S204-D21
S205-D22
S206-G22

FUSES

F201-B20
F202-C20
F203-A23
F204-G23
F205-F23
F206-F22
F207-G19

TRANSFORMERS

T201-A22
T202-B22
T203-F10
T204-G10

FILTERS

FL101-H1
FL102-H2
FL103-H3
FL104-H3
FL106-H3
FL107-H4
FL108-H4
FL109-H3
FL110-H4
FL111-H4
FL112-H12
FL113-H12
FL114-H12
FL115-H13
FL116-H13
FL117-H11
FL118-H11
FL119-H14
FL120-H14
FL121-H14
FL122-H14
FL123-H15
FL124-H17
FL125-H17
FL126-H17
FL127-H18
FL128-H18
FL129-H17
FL130-H18
FL131-H18
FL133-H19
FL134-H19
FL132-H20
FL201-D23
FL202-E23

JACKS

J101-G1
J102-I13
J103-I15
J104-I20
J105-I16
J106-I22
J107-I21
J108-I23

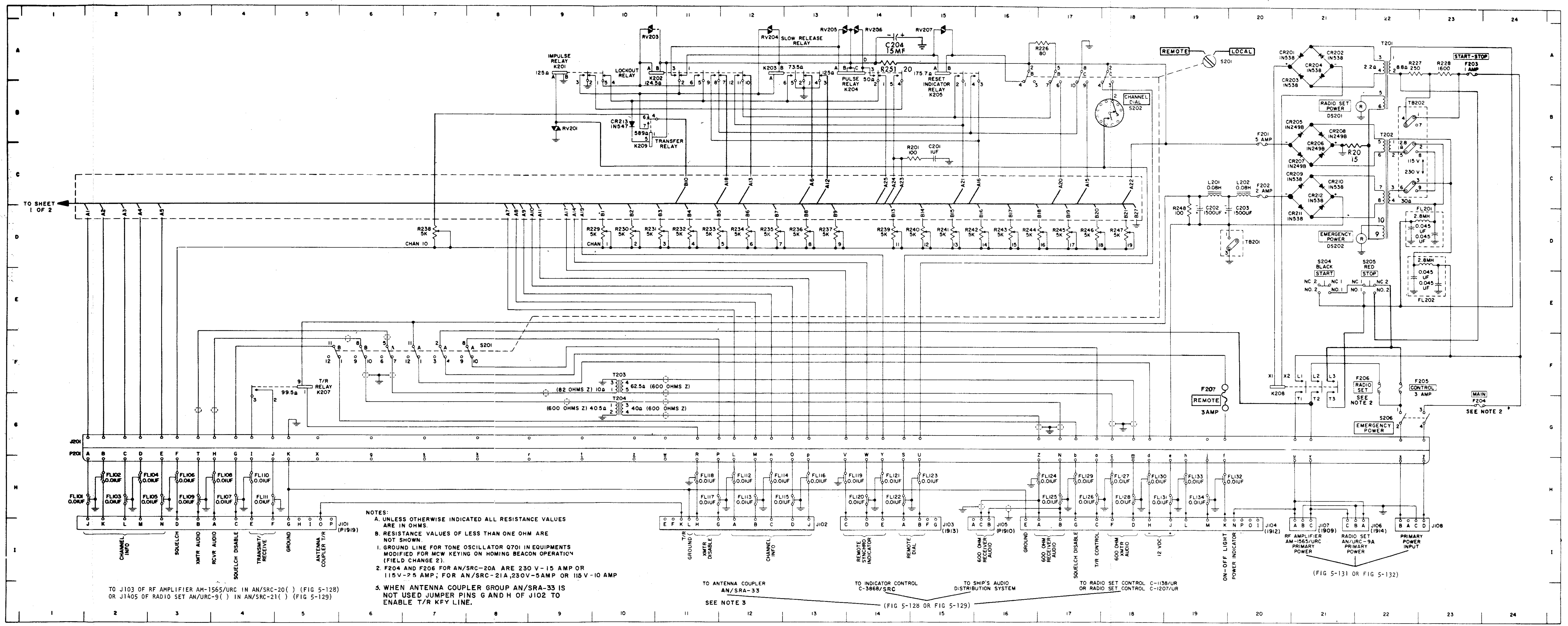


Figure 5-157. Radio Set Control C-3866/SRC, Schematic Diagram (Sheet 2 of 2)

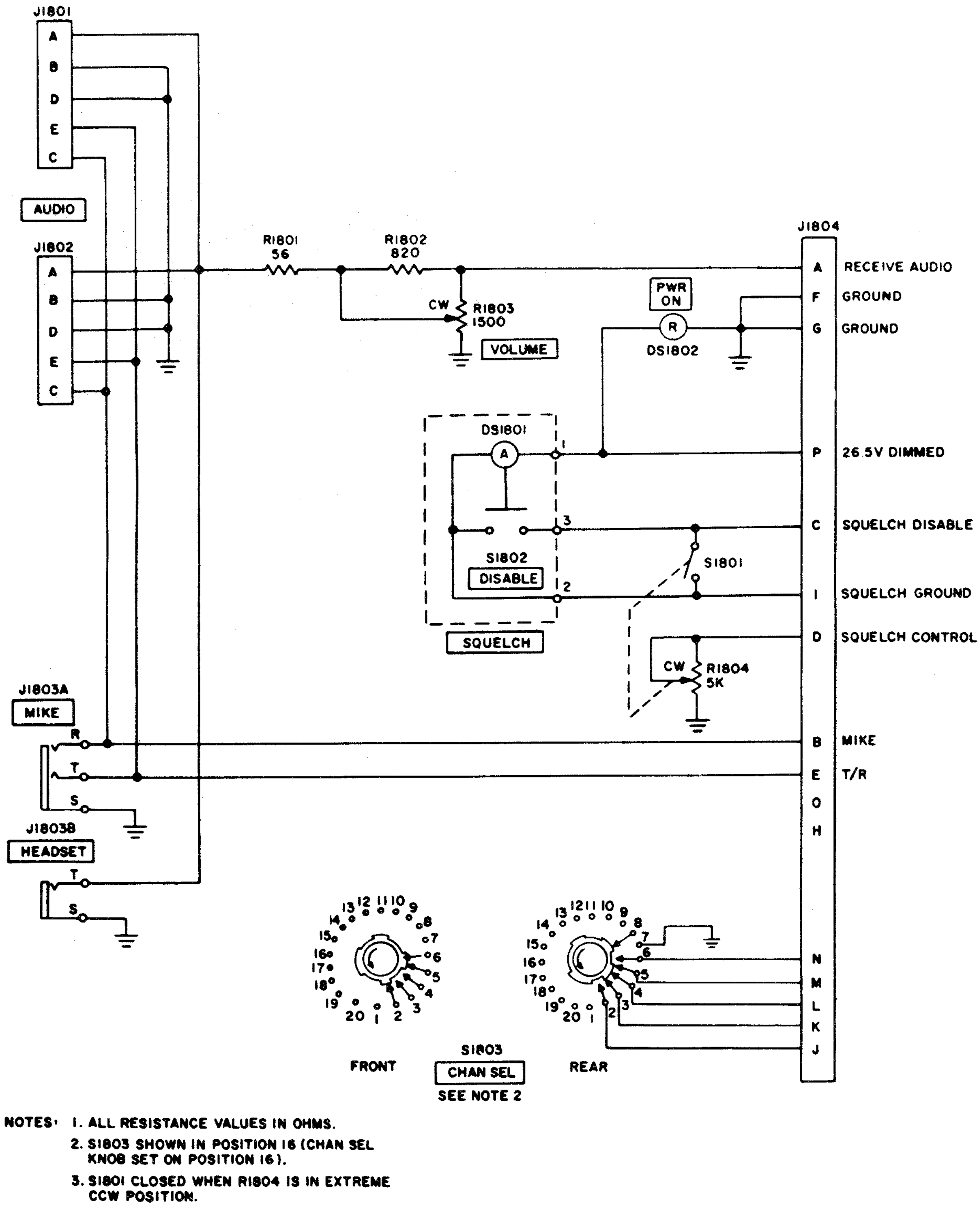


Figure 5-158. Radio Set Control C-2383/URC-9, Schematic Diagram

CHAPTER 6

PARTS LIST

6-1. INTRODUCTION.

6-2. This section provides reference designation data used to identify the units, assemblies, and parts of Radio Sets AN/SRC-20( ) and AN/SRC-21( ). The reference designation data is primarily in tabular form and is intended to supplement the troubleshooting, maintenance, and repair information presented in other chapters of the manual. The following is an example of the referenced designations used:

EXAMPLE:

1A1 A1 FL2

Unit Designation | Assembly Designation | Item class and number

READ AS: Second (2) filter (FL) of frame assembly (A1) of Radio Set AN/URC-9( ) receiver-transmitter (1A1).

6-3. LIST OF UNITS.

6-4. The equipment units of Radio Sets AN/SRC-20( ) and AN/SRC-21( ) are listed in numerical order, by unit number, in table 6-1. Table 6-1 provides the following information for each unit: (1) quantity per equipment, (2) official name, (3) designation, (4) colloquial name, and (5) location of the first page of the unit maintenance parts listing in table 6-2.

6-5. MAINTENANCE PARTS LIST.

6-6. Table 6-2 lists all units and their maintenance parts. The table is arranged in the same unit numerical order as table 6-1 and provides the following information: (1) complete reference designation of each unit, assembly, and part, (2) noun name and brief description, and (3) identification of the illustration which pictorially locates the part. Maintenance parts for each unit are arranged in alpha-numerical sequence by class (generic group). Unless otherwise indicated, referenced drawings apply to the equipment manufacturer, and all type numbers apply to the part manufacturer.

NOTE

Some units listed in table 6-2 are only contained in certain configurations of the radio set. These units are identified by a parenthetical suffix which lists the specific radio set that contains the unit.

6-7. LIST OF MANUFACTURERS.

6-8. Table 6-3 lists the manufacturers of the parts used in the radio sets and includes the manufacturer's federal identification code referenced in table 6-2.

6-9. SUPPLY SUPPORT INFORMATION.

6-10. The Allowance Parts List (APL) issued by the Electronics Supply Office (ESO) includes federal stock numbers (FSN) and source maintenance and recoverability codes. Separate APL's are issued for each configuration (i.e., AN/SRC-20, AN/SRC-20A, etc.) of each radio set. Refer to the APL prepared for the applicable equipment to identify stock numbers and other pertinent information. The Consolidated Repairable Item List (NAV SUP Publication 4102), and Mandatory Turn-In Repairable Material Policy and Procedures for Handling (NAV-SANDA Instruction 4440.117) contains information concerning the current modular classification and turn-in procedure; and ESO Instruction 4410 provides information relating to the addition of spare modules to the APL.

Table 6-1. Equipment Units of Radio Sets AN/SRC-20( ) and AN/SRC-21( )

UNIT NO.	QTY	NAME OF UNIT	DESIGNATION	COLLOQUIAL NAME	PAGE
1	1	Radio Set	AN/URC-9 or AN/URC-9A	Radio Set	6-3
1A1	1	Receiver-Transmitter	RT-581/URC-9 or RT-581A/URC-9	R-T Unit	6-3
1A1A1	1	Main Frame	N/A	Main Frame	6-3
1A1A2	1	Amplifier Assembly	N/A	RF and PA Amplifier	6-6
1A1A3	1	Frequency Multiplier	N/A	Frequency Multiplier-Oscillator	6-12
1A1A4	1	1st IF Amplifier	N/A	1st IF Amplifier	6-17
1A1A5	1	2nd IF Amplifier	N/A	2nd IF Amplifier	6-22
1A1A6	1	3rd IF Amplifier	N/A	3rd IF Amplifier	6-28
1A1A7	1	Relay-Filter	N/A	Relay-Filter	6-31
1A1A8	1	Front Panel	N/A	Front Panel	6-32
1A1A9	1	Audio Amplifier and Modulator Assembly	N/A	Audio Amplifier	6-42
1A1A10	1	Filter Assembly	N/A	Filter Assembly	6-45
1A1A11	1	Fan, Centrifugal	N/A	Fan	6-46
1A1A12	1	Frequency Selector	N/A	Frequency Selector	6-48
1A1A13	1	Directional Coupler	N/A	Directional Coupler	6-63
1A1A14	1	Broadband Sidetone Amplifier	N/A	Broadband Amplifier	6-64
1A2	1	Case, Receiver-Transmitter	CY-2959/URC-9	Case	6-64
1A3	1	Power Supply	PP-2702/URC-9	Power Supply	6-67
1A4	1	Installation Kit	MK-620/UR	Installation Kit	6-71
1W1	1	Cable Assembly	CX-7258/U	Cable Assembly	6-71
1W2	1	Cable Assembly	CX-7259/U	Cable Assembly	6-71
1W3	1	Cable Assembly	CX-8521/URC-9	Cable Assembly	6-71
1W1605	1	Cable Assembly	CX-7300/URC-9	Cable Assembly	6-71
1W2202	1	Cable Assembly	CX-7260/URC-9	Cable Assembly	6-71
2	1	Control, Radio Set	C-3866/SRC	Control	6-72
2A101	1	Installation Kit	MK-622/UR	Installation Kit	6-72
3	1	Amplifier, Radio Freq.	AM-1565/URC	RF Amplifier	6-78
3A1	1	Chassis Assembly	N/A	Chassis	6-79
3A2	1	Cabinet, Electrical Equipment	N/A	Case	6-85
3A3	1	Power Amplifier Assembly	N/A	Power Amplifier	6-89
3A4	1	Servo Amplifier Assembly	N/A	Servo Amplifier	6-100
3A5	1	Front Panel Assembly	N/A	Front Panel	6-103
3A6	1	Blower Assembly	N/A	Blower	6-114
3A7	1	Blower Assembly	N/A	Blower	6-115
3A8	1	Installation Kit	MK-621/UR	Installation Kit	6-115
4W1604	1	Cable Assembly	CG-2232/U	Cable Assembly	6-115
5W1902	1	Cable Assembly	CX-6102 (2 ft)	Cable Assembly	6-115
6W1905	1	Cable Assembly	CX-6102(3.5 ft)	Cable Assembly	6-115
7W1906	1	Cable Assembly	CX-6105(1.5 ft)	Cable Assembly	6-115
8W1907	1	Cable Assembly	CX-6105(3.5 ft)	Cable Assembly	6-115
9W1908	1	Cable Assembly	CX-6104	Cable Assembly	6-116
10		Rack Assemblies	MT-2299/UR MT-2300/UR	Rack Assemblies	6-116

Table 6-2. Maintenance Parts List

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RADIO SET AN/URC-9		
UNIT 1	RADIO SET: AN/URC-9; 225.0 to 399.9 MHz freq range, 115 vac single phase, 50 to 60 Hz; 16 watt radiated power; 13-13/16 in. by 19 in. by 19-1/2 in. o/a dim.; Mfr 13499 part no. 522-2974-004	1-3
UNIT 1A1	RECEIVER-TRANSMITTER: RT-581/URC-9; 16 watts pwr output; 225.0 to 399.9 MHz; 1750 channels; 10 in. by 11-3/4 in. by 15-1/2 in. o/a dim.; Mfr 13499 part no. 593-8265-006	1-3
RADIO SET AN/URC-9A		
UNIT 1	RADIO SET: AN/URC-9A; 225.00 to 399.95 MHz freq range, 115 vac or 230 vac, single phase, 50 to 60 Hz; 16 watt radiated power; 13-13/16 in. by 19 in. by 19-1/2 in. o/a dim.; Mfr 03565 part no. D6299	1-3
UNIT 1A1	RECEIVER-TRANSMITTER: RT-581A/URC-9; 16 watts pwr output; 225.00 to 399.95 MHz; 3500 channels; 10 in. by 11-3/4 in. by 15-1/2 in. o/a dim.; Mfr 03565 part no. D-6282	1-3
RT-581( )/URC-9, FRAME ASSEMBLY (MAIN)		
1A1A1 (1-100)	FRAME ASSEMBLY (MAIN): Mfr 03565 part no. D6098	5-18
C1	CAPACITOR, FIXED, PAPER DIELECTRIC: 1.0 uf $\pm$20% 400 vdc, Mfr 03565 part no. B6442	5-18
FL1	FILTER: MIL type CZ24BKB474	5-17
FL2	FILTER: 0.375 in. dia by 1.781 in. lg o/a dim.; excl end loops; Mfr 13499 part no. 553-2099-003	5-17
FL3	FILTER: Same as FL2	5-17
FL4	FILTER: 0.375 in. dia by 1.781 in. lg o/a dim.; excl end loops; Mfr 13499 part no. 553-2102-003	5-17
FL5	FILTER: Same as FL2	5-17
FL6	FILTER: Same as FL2	5-17
FL7	FILTER: Same as FL4	5-17
FL8	FILTER: Same as FL4	5-17
FL9	FILTER: Same as FL4	5-17
FL10	FILTER: Same as FL4	5-17
FL11	FILTER: Same as FL4	5-17
FL12	FILTER: Same as FL4	5-17
FL13	FILTER: Same as FL4	5-17
FL14	FILTER: Same as FL2	5-17
FL15	FILTER: MIL type CZ24BKB224	5-17
FL16	FILTER: Same as FL2	5-17
FL17	FILTER: Same as FL2	5-17
FL18	FILTER: Same as FL4	5-17

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FRAME ASSEMBLY (MAIN) (Continued)		
FL19	FILTER: Same as FL2	5-17
FL20	FILTER: Same as FL2	5-17
FL21	FILTER: Same as FL2	5-17
FL22	FILTER: Same as FL15	5-17
FL23	FILTER: Same as FL15	5-17
FL24	FILTER: Same as FL15	5-17
FL25	FILTER: Same as FL15	5-17
FL26	FILTER: Same as FL2	5-17
FL27	FILTER: Same as FL2	5-17
FL28	FILTER: Same as FL2	5-17
FL29	FILTER: Same as FL2	5-17
FL30	FILTER: Same as FL4	5-17
FL31	FILTER: Same as FL4	5-17
FL32	FILTER: MIL type CZ24BKF473	5-17
FL33	FILTER: Same as FL32	5-17
FL34	FILTER SUBASSEMBLY: Same as FL2	5-17
FL35	FILTER SUBASSEMBLY: Same as FL2	5-17
FL36	FILTER: Same as FL15	5-17
H1	CONNECTOR COVER PLATE: 3 in. by 2 in. by 0.032 in. thick; aluminum; retains P501; BuShips Dwg STD 404SK1659332/4	5-21
H2	CONNECTOR COVER PLATE: 6-7/32 in. by 2-3/4 in. by 0.032 in. thick; aluminum; retains P1051; BuShips Dwg STD 404SK1659332/5	5-20
H3	CONNECTOR COVER PLATE: 8-3/16 in. by 1-3/4 in. by 0.032 in. thick; aluminum; retains P201, P703, and P1201; BuShips Dwg STD 404SK1659332/6	5-18
H4	CONNECTOR COVER PLATE: 3-7/16 in. by 1-3/16 in. by 0.032 in. thick; aluminum; retains P301, P401, and P1601; BuShips Dwg STD 404SK1659332/7	5-14
H5	CONNECTOR COVER PLATE: 6-15/32 in. by 1-5/16 in. by 0.032 in. thick; aluminum, retains P101; BuShips Dwg STD 404SK1659332/8	5-14
J1	CONNECTOR, RECEPTACLE, ELECTRICAL: 18 female contacts, 7.5 amps; straight shape; p/o W1; Mfr 80586 part no. FM18F79	5-19
J2	CONNECTOR, RECEPTACLE, ELECTRICAL: 11 female contacts, 7.5 amps; straight shape; p/o W1; Mfr 91491 part no. MS20-11DG030	5-15
J3	CONNECTOR, RECEPTACLE, ELECTRICAL: 14 female contacts, 7.5 amps; straight shape; p/o W1; Mfr 11453 part no. 1040-14S	5-19
J4	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J2 p/o W1	5-19
J5	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J3 p/o W1	5-16
J6	CONNECTOR, RECEPTACLE, ELECTRICAL: 20 female contacts, 7.5 amps; straight shape; p/o W1; Mfr 80586, P/N GM20F79	5-17
J7	CONNECTOR, RECEPTACLE, ELECTRICAL: 26 female contacts, arc resistant plastic dielectric, copper alloy contacts, silver plated; 500 v; 7.5 amps dc; p/o W1; Mfr 80586, P/N GM26F79	5-16
J8	CONNECTOR, RECEPTACLE, ELECTRICAL: 41 female contacts, 7.5 amps; straight shape; Mfr 80586 part no. GM41F79	5-15

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FRAME ASSEMBLY (MAIN) (Continued)		
J9	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J2 p/o W1	5-19
J10	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J2 p/o W1	5-15
J11	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J6 p/o W1	5-15
J12	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J1 p/o W1	5-15
J13	NOT USED	
J14	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J6 p/o W1	5-17
J15	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J7 p/o W1	5-16
K1	RELAY ARMATURE: 1A, 10 ma at 300 vdc, 1B, 10 ma at 125 vdc, 1B, 400 ma at 28 vdc inductive load; 28 vdc nom coil; 237 ohms ±10% at +25°C coil resistance; continuous duty; hermetically sealed; Mfr 77523 part no. 22320-1	5-16
K2	RELAY, ARMATURE: 1C, n.o. Side rated at 235 ma at 300 vdc +190 vac rms superimposed N.C. side 20 ma at 150 vac rms resistive; 1A, 500 ma at 50 vdc; 28 vdc nom coil; 237 ohms ±10% coil resistance; continuous duty; hermetically sealed; Mfr 77523 part no. 22320-0	5-16
01	BRACKET ASSEMBLY: Aluminum Bracket; 2.062 in. by 7.393 in. by 8.849 in.; incl 3 gold plated springs; Mfr 13499 part no. 553-1415-003	5-18
02	MANIFOLD ASSEMBLY: Brass manifold w/silicone rubber gasket; 2-1/2 in. by 3-1/64 in. by 4.265 in. approx; Mfr 03565 part no. B6619	5-19
P1	CONNECTOR, PLUG ELECTRICAL: 37 #16 male contacts; pressurized; 700 vdc, 500 vac, rms; Mfr 02660 part no. 7-8721	5-17
P2	NOT USED	
P3	P/O W4	5-19
P4	P/O W4	5-18
P5	P/O W5	5-19
P6	P/O W5	5-19
P7	NOT USED	
P8	CONNECTOR, PLUG, ELECTRICAL: straight shape; low loss plastic dielectric; 5 amps; Mfr 94375 part no. 131B110-0A	5-19
P9	CONNECTOR, PLUG, ELECTRICAL: Low loss plastic dielectric; Mfr 13499 part no. 357-9739-00	5-19
P10	CONNECTOR, PLUG, ELECTRICAL: Same as P8	5-19
P11	CONNECTOR, PLUG, ELECTRICAL: Low loss plastic dielectric; 50 ohms, 500 vac rms; Mfr 94375 part no. 0722-50	5-19
R1	RESISTOR, FIXED, COMPOSITION: 39,000 ohms ±10%, 4W; Mfr 01121 part no. HM3931	5-18
R2	NOT USED	
R3	RESISTOR, FIXED, WIREWOUND: MIL type RE70G8060	5-19
W1	WIRING HARNESS, BRANCHED: c/o J-1 through J-12, J-14, P3 and J-15; Mfr 03565 part no. D-6199	5-15
W4	CABLE ASSEMBLY RF: Mfr 98278 part no. 30-188-1	5-13
W5	CABLE ASSEMBLY RF: Mfr 98278 part no. 30-189-1	5-19

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FRAME ASSEMBLY (MAIN) (Continued)		
W7	CABLE ASSY RF: Mfr 13499 part no. 549-3376-002	
W8	CABLE ASSY RF: Mfr 13499 part no. 549-3368-002	
XK1	SOCKET, RELAY: MIL type M12883/09-03	5-16
XK2	SOCKET, RELAY: Same as XK1	5-16
RT-581( )/URC-9, RF and PA AMPLIFIER ASSEMBLY		
1A1A2 (101-199)	AMPLIFIER ASSEMBLY: RF and PA; Mfr 03565 part no. C-6489	5-22
C101	CAPACITOR, FIXED, MICA DIELECTRIC: 500 uuf ±20%, 500 vdc; Mfr 00853 part no. M79500500VEPORM20PCT	5-24
C102	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL type CC22CH200J	5-28
C103	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CB11RE511J	5-28
C104	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CB11RE102K	5-28
C105	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 7 uuf ±0.25 uuf 500 vdc; Mfr 90177 part no. CD8C070C	5-28
C106	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20B type CC20CK020C	5-28
C107	CAPACITOR, VARIABLE, GLASS DIELECTRIC: 1 section; 0.5 uuf to 3.0 uuf; 1-9/16 in. lg o/a, 1-5/32 in. body lg, 1/4 in. w across flats; Mfr 14674 part no. 680081	5-29
C108	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20B type CC20CH040C	5-28
C109	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C101	5-25
C110	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20D type CC20SK020C	5-28
C111	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C101	5-25
C112	CAPACITOR, SHEET, MICA DIELECTRIC: 255 uuf; 0.718 in. by 0.796 in.; Mfr 13499 part no. 553-2035-002	5-28
C113	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C101	5-25
C114	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 20 uuf ±10% 500 vdc; Mfr 90177 part no. CD8R200K	5-28
C115	CAPACITOR, VARIABLE, GLASS DIELECTRIC: Same as C107	5-29
C116	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C103	5-25
C117	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20D type CC20SK1R5C	5-28
C118	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C101	5-25
C119	CAPACITOR, SHEET, MICA DIELECTRIC: Copper; 0.094 in. by 0.812 in. by 0.905 in.; Mfr 13499 part no. 553-2033-002	5-28
C120	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C101	5-28
C121	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C114	5-28
C122	CAPACITOR, VARIABLE GLASS DIELECTRIC: Same as C107	5-29
C123	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C117	5-28
C124	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 500 uuf, GMV, 300 vdc w; Mfr 71590 part no. DA718-001	5-18
C125	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C124	5-28
C126	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C114	5-28
C127	CAPACITOR, VARIABLE, GLASS DIELECTRIC: Same as C107	5-29
C128	CAPACITOR ASSEMBLY: Brass, gold flash/silver plate finish; 0.107 in. by 3/8 in, by 1-1/8 in; p/o Z107; Mfr 13499 part no. 553-2287-003	5-29

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, RF and PA AMPLIFIER ASSEMBLY (Continued)		
C129	CAPACITOR, FIXED: MIL type CK61BX471K	5-27
C130	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C103	5-25
C131	CAPACITOR ASSEMBLY: Glass supported teflon, copper both sides, gold plate finish; 0.007 in. by 11/16 in. by 2-5/8 in. p/o 0/34; Mfr 13499 part no. 553-2057-002	5-27
C132	C/O 0-136; H-109; p/o Z108	5-13
C133	CAPACITOR, FIXED, MICA DIELECTRIC: 500 uuf $\pm$10%, 1000 vdc; p/o Z108; Mfr 00853 part no. M4-500K	5-25
C134	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C101	5-25
C135	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20D type CC20CH060C	5-27
C136	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C102	5-28
C137	CAPACITOR: p/o 0123 Mfr 13499 part no. 553-2239-002	5-27
C138	CAPACITOR ASSEMBLY: Incl 2 capacitors, 4 plates and hardware; p/o Z108; Mfr 13499 part no. 553-2061-002	5-27
C139	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C106	5-28
C140	CAPACITOR: 400 uuf $\pm$20%; 1000 vdc test voltage; Mfr 13499 part no. 553-2238-002	5-29
C141	CAPACITOR, VARIABLE, GLASS DIELECTRIC: Same as C107	5-29
C142	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 500 uuf $\pm$20% 1000 vdc; Mfr 71590 part no. DD501	5-29
C143	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C124	5-28
C144	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C129	5-25
C145	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20B type CC20CJ030C	5-29
C146	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C129	5-29
C147	CAPACITOR, FIXED, MICA: 400 uuf $\pm$20%; 1000 vdc test voltage; Mfr 13499 part no. 553-2240-002	5-29
C148	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C129	5-29
H101	WASHER, FLAT: Copper, bright alloy; 0.125 in. id, 0.250 in. od, 0.016 in thk; Mfr 13499 part no. 543-5575-003	5-23
H102	SCREW, MACHINE: Stainless steel, passivate finish; phillips recessed fillister head; 8-32 NC-2A thd, 1/2 in. lg; Mfr 13499 part no. 553-1853-002	5-22
H103	WASHER, FLAT: Cres; 0.127 in. id, 0.250 in. od, 0.033 in. thk; Mfr 13499 part no. 553-1854-002	5-29
H104	SCREW, MACHINE: Stainless steel, passivate finish; phillips cross-recessed fillister head; 8-32 NC-2A thd, 5/8 in. lg; Mfr 13499 part no. 553-1987-002	5-22
H105	NUT, PLAIN, HEXAGON: Brass; 3/8 in. w across flats by 1/16 in. thk; 4-40 thd; Mfr 13499 part no. 553-2006-002	5-29
H106	BUMPER, PLASTIC: 0.093 in. by 0.250 in. by 0.312 in.; Mfr 13499 part no. 553-2004-002	5-29
H107	WASHER, FLAT: Cres; 0.255 in. id, 0.437 in. od, 0.012 in. thk; Mfr 13499 part no. 553-1421-002	5-29
H108	NUT, SLEEVE: Brass; 0.312 in. dia by 0.437 in. lg o/a; 8-32 internal thd, 0.276 in. lg; Mfr 13499 part no. 553-2247-002	5-18

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO..
RT-581( )/URC-9, RF and PA AMPLIFIER ASSEMBLY (Continued)		
H109	SCREW, EXTERNALLY RELIEVED BODY: Brass; 3/8 in. dia by 3/64 in. h head; 8-32 thd, 0.579 in. lg; 11/16 in lg o/a; Mfr 13499 part no. 553-2248-002	5-18
H110	WASHER, NONMETALLIC: Teflon; 0.187 in. id, 0.250 in. od, 0.095 in thk; Mfr 13499 part no. 553-2250-002	5-27
H111	WASHER, FLAT: Brass, bright alloy plate; 0.130 in. dia hole, 0.245 in. dia, 0.016 in thk outside dim.; Mfr 13499 part no 504-0736-002	5-27
J101	CONNECTOR, RECEPTACLE, ELECTRICAL: 850 v rms peak voltage; 70 ohms impedance, low loss plastic dielectric; 5/8 in. lg; Mfr 94375 part no. R700	5-24
J102	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J101	5-24
J103	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps; Mfr 98291 part no. SKT5BCORANGE	5-27
J104	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps; continuous duty; Mfr 98291 part no. SKT5BCYELLOW	5-27
J105	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps; continuous duty; Mfr 98291 part no. SKT5BCGREEN	5-27
J106	CONNECTOR, BUSHING: Teflon; 3/32 in. id, 0.281 in. od, 0.133 in. lg; Mfr 13499 part no. 553-2023-002	5-13
J107	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J101	5-28
J108	P/O K101	5-24
J109	P/O K101	5-25
J110	TERMINAL, FEEDTHRU, INSULATED: Brass w/teflon insulation; 0.172 in. dia; 0.515 in. lg o/a; Mfr 98291 part no. FTSM1	5-28
J111	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps, continuous duty; Mfr 98291 part no. SKT5BCBROWN	5-25
J112	P/O K102	5-24
J113	P/O K102	5-24
J114	BUSHING, Teflon; 3/32 in. id, 0.281 in. od, 0.155 in. lg; Mfr 13499 part no. 553-2022-002	5-13
J115	CONNECTOR, RECEPTACLE, ELECTRICAL: 1 rd male contact; 500 vdc; low loss plastic dielectric; straight shape; Mfr 94375 part no. 0750	5-14
K101	RELAY, ARMATURE: 1C contact, 30 w at max rated current; 1 inductive winding, 275 ohms dc coil resistance; 1.562 in. h, 1.750 in. w. 2.030 in. lg o/a; continuous duty; air arc quenching; Mfr 74868 part no. 304-11348	5-24
K102	RELAY, ARMATURE: 2C contact; 500 vdc electrical rating; 1 inductive winding; 100 ohms dc coil resistance; 13/16 in. h., 2-3/4 in. lg; continuous duty; Mfr 04221 part no. 140-3714	5-24
L101	CHOKE ASSEMBLY: 13 turns close bifilar wound; 0.050 ohms ea winding; 0.192 in. dia by 0.547 in. lg; Mfr 13499 part no. 533-2282-002	5-28
L102	COIL, RADIO FREQUENCY: MIL type MS75008-24	5-28

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, RF and PA AMPLIFIER ASSEMBLY (Continued)		
L103	COIL, RADIO FREQUENCY: MIL type MS75008-42	5-28
L104	CHOKE ASSEMBLY: Same as L101	5-28
L105	COIL, RADIO FREQUENCY: Same as L102	5-28
L106	CHOKE ASSEMBLY: Same as L101	5-28
L107	COIL, RADIO FREQUENCY: Same as L102	5-28
L108	COIL, RADIO FREQUENCY: MIL-type MS75008-30	5-24
L109	COIL, RADIO FREQUENCY: Same as L102	5-28
L110	COIL, RADIO FREQUENCY: Same as L102	5-28
L111	LOOP, RADIO FREQUENCY COUPLING: Silver plated brass; 1 in. dia by 15/16 in. h o/a; Mfr 13499 part no. 549-3367-002 P/O Z108	5-29
L112	COIL, RADIO FREQUENCY: 21 turns of no. 22 AWG wire; 0.172 in dia by 0.525 in. lg excl terminals; Mfr 13499 part no. 548-8643-002	5-27
L113	COIL, RADIO FREQUENCY: Same as L103	5-25
L114	COIL, RADIO FREQUENCY: Same as L102	5-29
L115	COIL, RADIO FREQUENCY: Same as L108	5-27
L116	COIL, RADIO FREQUENCY: Same as L108	5-24
L117	COIL, RADIO FREQUENCY: Same as L108	5-28
L118	COIL, RADIO FREQUENCY: Same as L108	5-28
L119	COIL, RADIO FREQUENCY: Same as L102	5-27
L120	COIL, RADIO FREQUENCY: Same as L112	5-29
L121	COIL, RADIO FREQUENCY: Same as L108	5-29
0101	SPRING ASSEMBLY: Gold plated copper clip and support; 1/4 in. by 0.593 in. by 0.750 in. o/a; Mfr 13499 part no. 553-1857-002	5-23
0102	SPRING ASSEMBLY: Same as 0101	5-23
0103	SPRING ASSEMBLY: Same as 0101	5-23
0104	SPRING ASSEMBLY: Silver alloy contact points on gold plated copper plate; 0.093 in. by 19/32 in. by 1 in.; Mfr 13499 part no. 553-1883-002	5-27
0105	SPRING ASSEMBLY: Same as 0104	5-27
0106	SPRING ASSEMBLY: Same as 0104	5-27
0107	SPRING ASSEMBLY: Same as 0104	5-27
0108	SPRING ASSEMBLY: Same as 0104	5-27
0109	SPRING ASSEMBLY: Silver alloy contact points on gold plated copper plate; 0.093 in. by 0.842 in. by 1.187 in.; Mfr 13499 part no. 553-1890-002	5-27
0110	SPRING: Silver alloy; 1-9/16 in. dia by 9/32 in. thk; Mfr 13499 part no. 553-1966-003	5-27
0111	SPRING: Same as 0110	5-27
0112	SPRING: Copper; 0.063 in. by 0.437 in. by 0.718 in.; Mfr 13499 part no. 553-1969-002	5-23
0113	SPRING: Copper; 0.125 in. by 0.500 in. by 0.629 in.; Mfr 13499 part no. 553-1972-002	5-27
0114	SPRING: Same as 0113	5-27

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, RF and PA AMPLIFIER ASSEMBLY (Continued)		
0115	STATOR ASSEMBLY: 0.718 in. by 1-9/32 in. by 1-1/2 in approx o/a; Mfr 13499 part no. 553-1988-003 P/O Z101	5-23
0116	STATOR ASSEMBLY: Same as 0115; P/O Z103	5-23
0117	STATOR ASSEMBLY: Same as 0115; P/O Z105	5-23
0118	STATOR ASSEMBLY: Same as 0115; P/O Z106	5-23
0119	RING, HOUSING, Bronze; 2.125 in. dia by 0.475 in. thk; Mfr 13499 part no. 553-2002-003	5-23
0120	RING, INSULATOR: Plastic; 1.998 in. dia by 0.470 in. thk; Mfr 13499 part no. 553-2001-002	5-23
0121	CAVITY ASSEMBLY: 3.562 in. by 4.156 in. by 4.186 in. o/a; Mfr 13499 part no. 553-2010-002	5-27
0122	ROTOR ASSEMBLY: 0.687 in. by 1.375 in. by 1.375 in. approx o/a; Mfr 13499 part no. 553-2013-003 P/O C132	5-27
0123	WALL ASSEMBLY: Mfr 13499 part no. 553-2042-003	5-22
0124	SPRING: Copper; 0.094 in. by 0.812 in. by 0.905 in. o/a dim; Mfr 13499 part no. 553-2038-002	5-27
0125	SHAFT ASSEMBLY: 1.120 in. by 1.353 in. by 5.593 in. approx o/a dim.; Mfr 13499 part no. 553-2046-003 P/O 0144	5-27
0126	COUPLING ASSEMBLY: Cres; 1 in. dia by 7/16 in. lg o/a; Mfr 13499 part no. 553-1880-002 P/O 0144	5-27
0127	SPRING ASSEMBLY: Silver Alloy contact points on gold plated copper plate; 0.093 in. by 0.765 in. by 1-1/32 in; Mfr 13499 part no. 553-2058-002	5-27
0128	SPRING ASSEMBLY: Same as 0127	5-27
0129	NOT USED	
0130	SPRING: Copper, gold plated; 31/64 in. dia by 0.113 in. h o/a; Mfr 13499 part no. 553-2131-003	5-27
0131	SHAFT, SHOULDERED: Brass, gold plated; 0.155 in. dia by 2-5/16 in. lg o/a; Mfr 13499 part no. 553-2233-002	5-27
0132	SHAFT ASSEMBLY: Gold plated brass shaft, plastic sleeve; 0.375 in. dia by 2 in. lg; Mfr 13499 part no. 553-2009-002	5-27
0133	NOT USED	
0134	PA CAP ASSEMBLY: Mfr 89114 part no. 717SK113	5-23
0135	SPRING: Copper, gold plated; 1-1/16 in. dia by 7/32 in. h o/a; Mfr 13499 part no. 553-2241-002	5-27
0136	SPRING, LOCKING: Steel wire; 0.0300 in. dia; accommodates 0.250 in. dia component; Mfr 13499 part no. 502-6005-002	5-18
0137	ROTOR ASSEMBLY: 0.875 in. by 1.077 in. by 1.562 in.; Mfr 13499 part no. 553-2242-003	5-29
0138	FLANGE ASSEMBLY: Brass flange; 0.527 in. by 1.312 in. by 1.483 in.; Mfr 13499 part no. 553-2246-002	5-23
0139	COUPLER, SHAFT, RIGID: Brass, gold plated; 0.187 in. id, 0.375 in. od. 7/16 in. lg, Mfr 13499 part no. 553-2251-002	5-27
0140	ADAPTER ASSEMBLY: TEFLON LINER, brass cup; 0.390 in. dia by 1/8 in. lg; w/copper contact; brass post; Mfr 13499 part no. 553-1961-002 Plate Cap for V105	5-23

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, RF and PA AMPLIFIER ASSEMBLY (Continued)		
O141	BEARING, BALL, ANNULAR: Single row, radial; 0.125 in. bore dia, 0.375 in. od, 0.145 in. w o/a; 2 stainless steel shields; Mfr 21335 part no. AM33KDD3FS168	5-23
O142	BEARING, BALL, ANNULAR: Single row, radial; 0.250 in. bore dia; 0.625 in. od, 0.196 in. w o/a; 2 stainless steel shields; Mfr 21335 part no. AMS1KDD7FS168	5-23
O143	BEARING, BALL, ANNULAR: Single row, radial; 0.1875 in. bore dia, 0.500 in. od, 0.1960 in. w o/a; 2 stainless steel shields, Mfr 21335 part no. AM22KDD5FS227	5-23
O144	SHAFT ASSEMBLY: 1 in. dia by 6.601 in. lg approx.; Mfr 13499 part no. 553-2045-002 P/O Z101, Z103, Z105 and Z106	5-29
O145	PLATE ASSEMBLY: P/O Z107 Mfr 13499 part no. 553-2258-003	5-29
P101	CONNECTOR, RECEPTACLE, ELECTRICAL: Arc resistant plastic dielectric; Mfr 80586 part no. GM18M79	5-24
R101	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF333K	5-28
R102	RESISTOR, FIXED, COMPOSITION: Same as R101	5-28
R103	RESISTOR, FIXED, WIREWOUND: 1 w, 100 ohms ±3%, Mfr 91637 part no. RS1A100ROG	5-28
R104	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF101K	5-28
R105	RESISTOR, FIXED, COMPOSITION: Same as R104	5-28
R106	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF391J	5-25
R107	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF104K	5-25
R108	RESISTOR, VARIABLE, WIREWOUND: 5000 ohms ±5%, 1.25 w; Mfr 02297 part no. AP05C554	5-29
R109	RESISTOR, FIXED, FILM: MIL type RN65B68R1F	5-27
R110	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF561K	5-24
R111	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF680K	5-25
R112	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF151K	5-27
R113	NOT USED	
R114	RESISTOR, FIXED, COMPOSITION: Same as R104	5-27
R115	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF272K	5-25
R116	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF182K	5-25
R117	RESISTOR, FIXED, COMPOSITION: Same as R107	5-25
R118	NOT USED	
R119	NOT USED	
R120	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF102K	5-29
R121	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B16R9F	5-27
R122	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF470K	5-28
R123	RESISTOR, FIXED, COMPOSITION: Same as R104	5-28
R124	RESISTOR, FIXED, WIREWOUND: 0.56 ohm ±3%, 2.5 w; Mfr 44655 part no. 47683DETO-56	5-27
S101	SWITCH, THERMAL SENSING: SPST.action type mi-340-190-122 encapsulated in ceramic cup fabricated from beryllium oxide (BEO) NAVSEC NORDIV Dwg 450SK2170029	5-27
V101	ELECTRON TUBE: MIL-E-1 type 8532	5-24
V102	ELECTRON TUBE: Same as V101	5-24

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9 RF and PA AMPLIFIER ASSEMBLY (Continued)		
V103	ELECTRON TUBE: Same as V101	5-24
V104	ELECTRON TUBE: MIL-E-1 type 7554	5-27
V105	ELECTRON TUBE: MIL-E-1 type 6442	5-22
V106	ELECTRON TUBE: MIL-E-1 type 4X150A	5-27
W101	CABLE ASSEMBLY, RADIO FREQUENCY: Coaxial; 50 ohms nom impedance, 7 strands of 0.004 in. dia; teflon; single shield; Mfr 98728 part no. 30-187-1	5-24
XV101	SOCKET, ELECTRON TUBE: 7 contact miniature; 520 0.125 in. dia mtg holes spaced 0.875 in. c to c; Mfr 80368 part no. V24-6034	5-24
XV102	SOCKET, ELECTRON TUBE: Same as XV101	5-24
XV103	SOCKET, ELECTRON TUBE: Same as XV101	5-24
Z101	C/O 0-115, 0-114, C-107	5-27
Z102	SUPPRESSOR: Single layer wound; 8 turns no. 30 AWG; Mfr 13499 part no. 553-1996-002	5-28
Z103	C/O 0-116, 0-144, C-115	5-27
Z104	NOT USED	
Z105	C/O 0-117, 0-114, C-122	5-27
Z106	C/O 0-118, 0-144, C-127	5-27
Z107	C/O 0-145, C-128, C-147, 0-139, 0-135, 0-132, 0-137	5-27
Z108	C/O C-131, C-132, C-133, L-111, 0-122, 0-131, 0-134	
RT-581( )/URC-9, FREQUENCY MULTIPLIER-OSCILLATOR ASSEMBLY		
1A1A3 (201-299)	FREQUENCY MULTIPLIER: Mfr 03565 part no. C-1448	5-34
C201	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 2000 uf -20% +1000%, 350 vdc; Mfr 72972 part no. 246700W5T0202A	5-40
C202	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CB11PE102M	5-40
C203	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM15ED511G03	5-39
C204	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C203	5-39
C205	NOT USED	
C206	NOT USED	
C207	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM15CD101J03	
C208	CAPACITOR, VARIABLE, GLASS DIELECTRIC: 1.0 uuf to 8.0 uuf, 500 vdc; Mfr 73899 part no. VC3G	5-36
C209	NOT USED	
C210	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM15ED150J03	5-39
C211	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C302	5-38
C212	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CB11RD511J	5-35
C213	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C212	5-35
C214	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 20 uuf ±10%, 500 vdc; Mfr 90177 part no. CD8R200K	5-38
C215	CAPACITOR, VARIABLE, GLASS DIELECTRIC: 1 section; 0.5 uuf to 3.0 uuf; 1-9/16 in. lg o/a, 1-5/32 in. body lg, 1/4 in. w across flats; Mfr 14674 part no. 680081	5-38
C216	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20D type CC20SK020C	5-38

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FREQUENCY MULTIPLIER-OSCILLATOR ASSEMBLY (Continued)		
C217	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C212	5-35
C218	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C212	5-35
C219	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C212	5-35
C220	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C214	5-38
C221	CAPACITOR, VARIABLE, GLASS DIELECTRIC: Same as C215	5-38
C222	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C216	5-38
C223	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C212	5-35
C224	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C212	5-35
C225	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C212	5-35
C226	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C214	5-38
C227	CAPACITOR, VARIABLE, GLASS DIELECTRIC: Same as C215	5-38
C228	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C216	5-38
C229	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C212	5-35
C230	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C212	5-35
C231	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C212	5-35
C232	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C214	5-38
C233	CAPACITOR, FIXED, GLASS DIELECTRIC: Same as C215	5-38
C234	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C216	5-35
C235	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C108	5-38
C236	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 10 uuf ±20% 500 vdc; Mfr 71590 part no. DA933-043	5-40
C237	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL type CK61BX471K	5-35
C238	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C237	5-35
C239	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C237	5-35
C240	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C201	5-35
C241	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C201	5-35
FL201	FILTER, RADIO INTERFERENCE: 500 vdc; 5 amp, 1000 uuf; 5/16 in. by 7/16 in. overall Mfr 01121 part no. FCS1	5-37
FL202	FILTER, RADIO INTERFERENCE: Same as FL201	5-37
FL203	FILTER, RADIO INTERFERENCE: Same as FL201	5-37
H201	SCREW, MACHINE: Stainless steel, passivate finish; phillips recessed fillister head; 8-32NC-2A thd; 1/2 in lg; Mfr 13499 part no. 553-1853-002	5-34
H202	WASHER, FLAT: Copper, bright alloy; 0.125 in. id, 0.250 in. od, 0.016 in. thk; Mfr 13499 part no. 553-1910-002	5-38
H203	WASHER, FLAT: Cres; 0.406 in. id, 0.600 in. od, 0.018 in. thk; Mfr 13499 part no. 553-1870-002	5-37
H204	WASHER, FLAT: Cres; 0.255 in. id, 0.437 in. od, 0.012 in. thk; Mfr. 13499 part no. 553-1421-002	5-37
H205	NOT USED	
H206	SHIM: Cres, passivate finish; 0.0190 in. id, 0.275 in. od, 0.003 in. thk; Mfr 13499 Part no. 544-8773-003	5-37
H207	SHIM: Copper, beryllium, bright alloy; 0.166 in. id, 0.250 in. od, 0.0126 in. thk; Mfr 13499 part no. 553-2072-002	5-40
J201	JACK, TIP: For use with 0.080 diameter male contact; Teflon; 5.5 amps continuous duty; Mfr 98291 part no. SKT5BCBROWN	5-35

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FREQUENCY MULTIPLIER-OSCILLATOR ASSEMBLY (Continued)		
J202	JACK, TIP: For use with 0.080 diameter male contact, 5.5 amps continuous duty; Mfr 98291 part no. SKT5BCRED	5-35
J203	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps continuous duty; Mfr 98291 part no. SKT5BCORANGE	5-35
J204	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps continuous duty; Mfr 98291 part no. SKT5BCYELLOW	5-35
J205	CONNECTOR, RECEPTACLE: 850 v peak voltage; 93 ohms impedance; low loss plastic dielectric; 0.710 in. lg; Mfr 98278 part no. 31-85	5-38
L201	COIL ASSEMBLY: Single layer wound; 12 turns no. 28 AWG; Mfr 13499 part no. 553-1944-002	5-36
L202	COIL ASSEMBLY: Same as L201	5-36
L203	COIL ASSEMBLY: Single layer wound; 11 turns no. 28 AWG; Mfr 13499 part no. 553-1943-002	5-36
L204	COIL ASSEMBLY: Single layer wound; 10 turns no. 28 AWG; Mfr 13499 part no. 553-1942-002	5-36
L205	COIL ASSEMBLY: Single layer wound; 9 turns, no 28 AWG; Mfr 13499 part no. 553-1941-002	5-36
L206	COIL ASSEMBLY: Same as L205	5-36
L207	COIL ASSEMBLY: Single layer wound; 8 turns no. 28 AWG; Mfr 13499 part no. 553-1940-002	5-36
L208	COIL ASSEMBLY: Same as L207	5-36
L209	COIL ASSEMBLY: Same as L201	5-36
L210	COIL ASSEMBLY: Same as L201	5-36
L211	COIL ASSEMBLY: Same as L201	5-36
L212	COIL ASSEMBLY: Same as L201	5-36
L213	COIL ASSEMBLY: Same as L203	5-36
L214	COIL ASSEMBLY: Same as L203	5-36
L215	COIL ASSEMBLY: Same as L204	5-36
L216	COIL ASSEMBLY: Same as L204	5-36
L217	COIL ASSEMBLY: Same as L205	5-36
L218	COIL ASSEMBLY: Same as L205	5-36
L219	COIL, RADIO FREQUENCY: MIL type MS75008-26	5-40
L220	COIL, RADIO FREQUENCY: MIL type LT4K036	5-39
L221	COIL, RADIO FREQUENCY: MIL type MS75053-2	5-40
L222	COIL, Single layer wound; 4 turns no. 20 AWG; Mfr 13499 part no. 553-1946-002	5-40
L223	COIL, RADIO FREQUENCY: 38 turns, no. 26 AWG wire, 0.6 uh inductance, 0.9 amp current rating; 9/32 in. dia, 5/8 in. lg o/a; 4 wire lead type terminals; Mfr 90526 part no. P449A	5-38
L224	COIL, RADIO FREQUENCY: 20 turns, no. 26 AWG wire; 0.5 uh inductance, 100 ma current rating; 11/64 in. dia, 1/2 in lg o/a; 2 wire lead type terminals; Mfr 99800 part no. BP866	5-38
L225	COIL, RADIO FREQUENCY: Same as L223	5-38
L226	COIL, RADIO FREQUENCY: Same as L224	5-38
L227	COIL, RADIO FREQUENCY: Same as L223	5-38

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FREQUENCY MULTIPLIER-OSCILLATOR ASSEMBLY (Continued)		
L228	COIL, RADIO FREQUENCY: Same as L224	5-38
L229	COIL, RADIO FREQUENCY: Same as L223	5-38
L230	COIL, RADIO FREQUENCY: Same as L224	5-38
0201	SPRING: Copper; 0.098 in. by 7/32 in. by 1.125 in; Mfr 13499 part no. 553-1856-002	5-37
0202	GEAR, SPUR: Aluminum; 66 teeth; 1.416 in. dia by 0.343 in. lg o/a; 0.187 in. dia bore; Mfr 13499 part no. 553-1861-002	5-37
0203	STATOR ASSEMBLY: 0.312 in. by 0.952 in. by 1.437 in.; Mfr 13499 part no. 553-1862-003 P/O Z202	5-37
0204	STATOR ASSEMBLY: Same as 0203 P/O Z204	5-37
0205	STATOR ASSEMBLY: Same as 0203 P/O Z206	5-37
0206	STATOR ASSEMBLY: Same as 0203 P/O Z208	5-37
0207	ROTOR ASSEMBLY: 1 in. by 1.062 in. by 6.401 in. approx o/a dim.; Mfr 13499 part no. 553-1868-003 P/O Z202, Z204, Z206, Z208	5-37
0208	BEARING, BALL, ANNULAR: Single row, radial; 0.250 in. bore dia, 0.625 in. od, 0.196 in. w o/a; 2 stainless steel shields; Mfr 21335 part no. AMS1KDD7FS168	5-37
0209	BEARING, BALL, ANNULAR: Same as 0208	5-37
0210	SPRING, HELICAL COMPRESSION: Steel; 0.075 in. id, 0.130 in. od, 0.165 in. compressed lg; 8 coils; Mfr 13499 part no. 553-1871-002	5-37
0211	SPRING, HELICAL, COMPRESSION: Same as 0210	5-37
0212	SPRING, HELICAL, COMPRESSION: Same as 0210	5-37
0213	FLANGE ASSEMBLY: Brass flange; 0.527 in. by 1.312 in. by 1.483 in; Mfr 13499 part no. 553-2246-002	5-37
0214	SPRING: Copper, gold plated; 31/64 in. dia by 0.113 in. h o/a; Mfr 13499 part no. 553-2131-003	5-37
0215	GEAR, SPUR: Aluminum; 33 teeth; 0.729 in. dia by 5/16 in. lg o/a; Mfr 13499 part no. 553-1902-002	5-37
0216	GEAR, SPUR: Bronze; 39 teeth; 0.854 in. dia by 0.125 in. lg; Mfr 13499 part no. 553-1903-002	5-37
0217	TUNER ASSEMBLY: 0.349 in. by 2.062 in. by 3.906 in. approx o/a dim.; Mfr 13499 part no. 553-1907-003	5-39
0218	SPRING: Copper; 1.812 in. dia by 0.250 in. thk; 15 fingers; Mfr 13499 part no. 553-1934-003	5-36
0219	SHAFT ASSEMBLY: Ceramic shaft, cres sleeve ea end; 0.187 in. dia by 2-9/16 in. lg o/a; Mfr 13499 part no. 553-1936-002	5-39
0220	SAME AS 0126.	5-34
P201	CONNECTOR, RECEPTACLE, ELECTRICAL: 11 male contacts; 5 amps; 7/16 in. dia, 1-3/32 in. lg; Mfr 80586 part no. GM11M79 P/O W201	5-35
R201	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF272K	5-40
R202	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF220K	5-36
R203	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF221K	5-39
R204	RESISTOR, FIXED, COMPOSITION: Same as R203	5-39

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FREQUENCY MULTIPLIER-OSCILLATOR ASSEMBLY (Continued)		
R205	RESISTOR, FIXED, COMPOSITION: MIL-R-11 RC20GF103K	5-36
R206	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF100K	5-40
R207	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF124K	5-38
R208	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF223K	5-38
R209	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF823K	5-35
R210	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF223K	5-35
R211	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF392K	5-35
R212	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF222K	5-35
R213	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF333K	5-35
R214	NOT USED	
R215	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF910J	5-38
R216	RESISTOR, FIXED, COMPOSITION: Same as R215	5-38
R217	RESISTOR, FIXED, COMPOSITION: Same as R215	5-38
S201	SWITCH, ASSEMBLY: 0.395 in. by 1-7/8 in. by 2-1/16 in. o/a dim.; Mfr 13499 part no. 553-1915-003	5-40
S202	SWITCH ASSEMBLY: 0.750 in. by 1.875 in. by 2.062 in. approx. o/a dim.; Mfr 13499 part no. 553-1924-003	5-40
V201	ELECTRON TUBE: MIL-E-1 type 5670	5-36
V202	ELECTRON TUBE: MIL-E-1 type 5654	5-35
V203	ELECTRON TUBE: MIL-E-1 type 8532	5-35
V204	ELECTRON TUBE: Same as V203	5-35
V205	ELECTRON TUBE: Same as V203	5-35
W201	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 6 conductors; Mfr 03565 part no. C-6614 P/O P201	5-35
W202	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 3 conductors; ends stripped and tinned; Mfr 13499 part no. 553-1897-003	5-35
XV201	SOCKET, ELECTRON TUBE: Phospher bronze, silver plated; Mfr 91662 part no. BRTL669SPHSPTD125	5-36
XV202	SOCKET, ELECTRON TUBE: 7 contact miniature; two 0.125 in. dia mtg holes spaced 0.875 in. c to c; Mfr 80368 part no. V24-6034	5-35
XV203	SOCKET, ELECTRON TUBE: Same as XV202	5-35
XV204	SOCKET, ELECTRON TUBE: Same as XV202	5-35
XV205	SOCKET, ELECTRON TUBE: Same as XV202	5-35
Y201	NOT USED	
Y202	CRYSTAL UNIT QUARTZ: MIL-C-3098/53 type CR76U35-00000 MHz	5-36
Y203	NOT USED	
Y204	CRYSTAL UNIT, QUARTZ: MIL-C-3098/53 type CR76U38-33333 MHz	5-36
Y205	NOT USED	
Y206	CRYSTAL UNIT, QUARTS: MIL-C-3098/53 type CR76U41-66666 MHz	5-36
Y207	CRYSTAL UNIT, QUARTZ: MIL-C-3098/53 type CR76U43-33333 MHz	5-36
Y208	CRYSTAL UNIT, QUARTZ: MIL-C-3098/53 type CR76U45-00000 MHz	5-36
Y209	CRYSTAL UNIT, QUARTZ: MIL-C-3098/53 type CR76U31-11111 MHz	5-36
Y210	CRYSTAL UNIT, QUARTZ: MIL-C-3098/53 type CR76U32-22222 MHz	5-36
Y211	CRYSTAL UNIT, QUARTZ: MIL-C-3098/53 type CR76U33-33333 MHz	5-36
Y212	CRYSTAL UNIT, QUARTZ: MIL-C-3098/53 type CR76U34-44444 MHz	5-36

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FREQUENCY MULTIPLIER-OSCILLATOR ASSEMBLY (Continued)		
Y213	CRYSTAL UNIT, QUARTZ: MIL-C-3098/53 type CR76U35-55555 MHz	5-36
Y214	CRYSTAL UNIT, QUARTZ: MIL-C-3098/53 type CR76U36-66666 MHz	5-36
Y215	CRYSTAL UNIT, QUARTZ: MIL-C-3098/53 type CR76U37-77777 MHz	5-36
Y216	CRYSTAL UNIT, QUARTZ: MIL-C-3098/53 type CR76U38-88888 MHz	5-36
Y217	CRYSTAL UNIT, QUARTZ: MIL-C-3098/53 type CR76U40-00000 MHz	5-36
Y218	CRYSTAL UNIT, QUARTZ: MIL-C-3098/53 type CR76U41-11111 MHz	5-36
Z201	TUNER, ASSEMBLY: Copper clad glass cloth, gold plated 0.00005/.00007 thk; 0.062 in. by 2-1/16 in. by 2.656 in. incl. 3 tubelets; Mfr 13499 part no. 553-1911-002	5-40 5-40
Z202	C/O 0-203, 0-207	5-37
Z203	NOT USED	
Z204	C/O 0-204, 0-207	5-37
Z205	NOT USED	
Z206	C/O 0-205, 0-207	5-37
Z207	NOT USED	
Z208	C/O 0-206, 0-207	5-37
RT-581( ), FIRST IF AMPLIFIER ASSEMBLY		
1A1A4 (301-399)	FINAL ASSEMBLY - 1ST IF AMPLIFIER: Mfr 03565 part no. C-6490	5-41
C301	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM05ED270J03	5-43
C302	CAPACITOR, VARIABLE, GLASS DIELECTRIC: 1.0 uuf to 8.0 uuf, 500 vdc; Mfr 73899 part no. VC3G1 P/O Z301	5-41
C303	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL type CC22CK010C	5-43
C304	CAPACITOR, VARIABLE, GLASS DIELECTRIC: Same as C302; P/O Z302	5-41
C305	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 30 uuf ±5%; 500 vdc at 85°C, 400 vdc at 100°C, 250 vdc at 125°C; Mfr 72982 part no. 338026COHO300J	5-43
C306	CAPACITOR, VARIABLE, GLASS DIELECTRIC: Same as C302 P/O Z303	5-41
C307	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20B type CC22CH180J P/O Z303	5-41
C308	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C303	5-43
C309	CAPACITOR, VARIABLE, GLASS DIELECTRIC: Same as C302; P/O Z304	5-41
C310	CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: Same as C307; P/O Z304	5-41
C311	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C305	5-43
C312	CAPACITOR, VARIABLE, GLASS DIELECTRIC: Same as C302; P/O Z305	5-41
C313	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307; P/O Z305	5-41
C314	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C303	5-43
C315	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 33 uuf ±10%, 500 vdc; Mfr 13499 part no. 928-4013-00	5-43
C316	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C303	5-43
C317	CAPACITOR, VARIABLE, GLASS DIELECTRIC: Same as C302; P/O Z306	5-41
C318	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 2000 uuf -20%, +100%, 350 vdc; Mfr 04222 part no. 2467001W5T0202Z	
C319	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C318	5-43

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FIRST IF AMPLIFIER ASSEMBLY (Continued)		
C320	CAPACITOR, FIXED, MICA DIELECTRIC: 100 uuf ±20%, 500 vdc; per MIL-C-10950 part no. CB11PE102M	5-43
C321	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 3,000 uuf -20 +100%, 350 vdc; Mfr 72982 part no. 2462000W5T0302Z	5-43
C322	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C320	5-43
C323	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C318	5-43
C324	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C321	5-43
C325	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 100 uuf ±2%, 500 vdc at 100°C; Mfr 72982 part no. 338026T2H0101G	5-43
C326	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C320	5-43
C327	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C320	5-43
C328	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C320	5-43
C329	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CB11RE511J	5-43
C330	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C321	5-43
C331	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C320	5-43
C332	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C320	5-43
C333	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C320	5-43
C334	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C329	5-43
C335	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C325	5-43
C336	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C321	5-43
C337	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C325	5-43
C338	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C305	5-43
C339	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL type CC22CH050C	5-43
C340	CAPACITOR, VARIABLE, GLASS DIELECTRIC: Same as C302 P/O Z307	5-41
C341	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C321	5-43
C342	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C321	5-43
C343	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 47 uuf ±5%, 500 vdc at 85°C, 400 vdc at 100°C, 250 vdc at 125°C; Mfr 72982 part no. 338026COH0470J	5-43
C344	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C329	5-43
C345	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C329	5-43
C346	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C339	5-43
C347	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C321	5-43
C348	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 6.8 uuf ±5%, 500 vdc Mfr 78488 part no. GA6-8UUFPORM5PCT	5-43
H301	SCREW, MACHINE: Cres; phillips fillister head; 6-32 NC-2A thd, 7/16 in. lg; Mfr 13499 part no. 553-1662-002	5-14
H302	SCREW, MACHINE: Cres; phillips fillister head; 6-32NC-2A thd, 7/16 in. lg; Mfr 13499 part no. 553-1663-002	5-14
H303	SCREW, MACHINE: Cres; phillips pan head; 6-32NC-2A thd, 1/2 in. lg; Mfr 13499 part no. 553-1664-002	5-41
H304	WASHER, FLAT: Cres; 0.101 in. id, 0.375 in. od, 0.0156 in. thk; Mfr 13499 part no. 553-1431-002	5-42
J301	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amp continuous duty; Mfr 98291 part no. SKT5BCBROWN	5-41

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FIRST IF AMPLIFIER ASSEMBLY (Continued)		
J302	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps continuous duty; Mfr 98291 part no. SKT5BCRED	5-41
J303	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps; continuous duty; Mfr 98291 part no. SKT5BCORANGE	5-41
J304	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps; continuous duty; Mfr 98291 part no. SKT5BCYELLOW	5-41
J305	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps continuous duty, Mfr 98291 part no. SKT5BCGREEN	5-41
L301	COIL, RADIO FREQUENCY: 125 turns of no. 34 AWG wire; 0.406 in. by 0.936 in. by 1.500 in. o/a dim.; Mfr 13499 part no. 553-1701-003 P/O Z301, C/O 0-301	5-41
L302	COIL, RADIO FREQUENCY: Same as L301 P/O Z302, C/O 0-302	5-41
L303	COIL, RADIO FREQUENCY: Same as L301 P/O Z303, C/O 0-303	5-41
L304	COIL, RADIO FREQUENCY: Same as L301 P/O Z304, C/O 0-304	5-41
L305	COIL, RADIO FREQUENCY: Same as L301 P/O Z305, C/O 0-305	5-41
L306	COIL, RADIO FREQUENCY: Same as L301 P/O Z306, C/O 0-306	5-41
L307	COIL, RADIO FREQUENCY: Single layer wound, 46 turns, #25 AWG wire; 6.5 uh nominal inductance, 0.05 ohms dc resistance, 1.5 amps current rating; Mfr 99800 part no. BP868	5-42
L308	COIL, RADIO FREQUENCY: Same as L307	5-42
L309	COIL, RADIO FREQUENCY: Single layer wound; magnet wire; 39 uh inductance, 2.00 ohms dc; 500 ma current rating; Mfr 82142 part no. 4422-11-117	5-42
L310	COIL, RADIO FREQUENCY: 132 turns of no. 34 AWG wire; 0.406 in. by 0.936 in. by 1.500 in. o/a dim.; Mfr 13499 part no. 553-1697-003 P/O Z307, C/O 0-307	5-41
L311	COIL, RADIO FREQUENCY: MIL type MS75008-33	5-42
L312	COIL, RADIO FREQUENCY: Same as L309	5-42
L313	COIL, RADIO FREQUENCY: MIL type MS75008-23	5-42
L314	SUPPRESSOR, PARASITIC: Ferrite; 0.16 uh, 80 ohms; 0.047 in. id, 0.318 in. od by 0.118 in. lg; Mfr 02114 part no. 56-590-65-3B	5-42
L315	SUPPRESSOR, PARASITIC: Same as L314	5-42
L316	SUPPRESSOR, PARASITIC: Same as L314	5-42
L317	SUPPRESSOR, PARASITIC: Same as L314	5-42
L318	SUPPRESSOR, PARASITIC: Same as L314	5-42
L319	SUPPRESSOR, PARASITIC: Same as L314	5-42
0301	CORE ASSEMBLY: 0.200 in. dia by 2.208 in. lg o/a dim.; Mfr 13499 part no. 553-1674-002 P/O L301	5-42
0302	CORE ASSEMBLY: Same as 0301 P/O L302	5-42
0303	CORE ASSEMBLY: Same as 0301 P/O L303	5-42
0304	CORE ASSEMBLY: Same as 0301 P/O L304	5-42
0305	CORE ASSEMBLY: Same as 0301 P/O L305	5-42
0306	CORE ASSEMBLY: Same as 0301 P/O L306	5-42
0307	CORE ASSEMBLY: 0.200 in. dia by 2.083 in. o/a lg; Mfr 13499 part no. 553-1678-002 P/O L310	5-42

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FIRST IF AMPLIFIER ASSEMBLY (Continued)		
O308	SPRING, HELICAL, EXTENSION: Cres; 28, 0.017 in. dia wire coils, 0.825 ±0.032 in. free length inside loops; Mfr 13499 part no. 553-1690-002	5-41
O309	SPRING, HELICAL, EXTENSION: Cres; 24, 0.020 in. dia wire coils, 0.167 in. dia, 0.790 in. lg; Mfr 13499 part no. 553-1691-002	5-45
O310	SPRING, HELICAL, EXTENSION: Same as O309	5-41
O311	TABLE ASSEMBLY: 0.800 in. by 2.437 in. by 3.796 in. o/a dim; Mfr 13499 part no. 553-1709-002	5-42
O312	TABLE ASSEMBLY: 0.656 in. by 0.748 in. by 2.718 in. o/a dim; Mfr 13499 part no. 553-1714-002	5-43
O313	SHAFT: Cres; 0.1870 in. dia, 6.250 in. lg; Mfr 13499 part no. 553-1719-002	5-42
O314	CAM ASSEMBLY: Brass cam, cres hub; 0.625 in. lg o/a; Mfr 13499 part no. 553-1720-002	5-43
O315	CAM ASSEMBLY: Brass cam, cres hub; 0.625 in. lg o/a; Mfr 13499 part no. 553-1723-002	5-42
O316	COUPLING ASSEMBLY: 0.875 in. dia by 0.483 in. lg o/a dim.; Mfr 13499 part no. 553-1724-002	5-44
O317	COUPLING ASSEMBLY: Same as O316	5-44
O318	GEAR: Brass; 51 teeth, 48 diametral pitch; 1.104 in. dia by 0.125 in. lg o/a dim.; Mfr 03565 part no. B-6613	5-43
O319	SHAFT ASSEMBLY: 21 teeth, 48 diametral pitch; 0.479 in. dia by 1.125 in. lg o/a dim.; Mfr 13499 part no. 553-1741-002	5-43
O320	SHAFT ASSEMBLY: 21 teeth, 48 diametral pitch; 1.281 in. lg o/a dim; Mfr 13499 part no. 553-1744-002	5-44
P301	CONNECTOR, RECEPTACLE, ELECTRICAL: 14 male contacts, 5 amps, 300 vac, straight shape; Mfr 80586 part no. GM14M79	5-41
P302	P/O W302	5-41
P303	P/O W303	5-19
P304	P/O W304	5-41
R301	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF104K	5-42
R302	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF221K	5-42
R303	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF823K	5-42
R304	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF102J	5-42
R305	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF333K	5-42
R306	RESISTOR, FIXED, COMPOSITION: Same as R301	5-42
R307	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF100K	5-42
R308	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B2050F	5-42
R309	RESISTOR, FIXED, COMPOSITION: Same as R304	5-42
R310	RESISTOR, FIXED, COMPOSITION: Same as R301	5-42
R311	RESISTOR, FIXED, COMPOSITION: Same as R304	5-42
R312	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF334K	5-42
R313	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF153K	5-42
R314	RESISTOR, FIXED, COMPOSITION: Same as R301	5-42
R315	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF122K	5-42
R316	RESISTOR, FIXED, COMPOSITION: Same as R312	5-42

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FIRST IF AMPLIFIER ASSEMBLY (Continued)		
R317	RESISTOR, FIXED, COMPOSITION: Same as R304	5-42
R318	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF474K	5-42
R319	RESISTOR, FIXED, COMPOSITION: Same as R301	5-42
R320	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF472K	5-42
R321	RESISTOR, FIXED, COMPOSITION: Same as R302	5-42
R322	RESISTOR, FIXED, COMPOSITION: Same as R302	5-42
R323	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B1000F	5-42
R324	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF101K	5-42
R325	RESISTOR, FIXED, COMPOSITION: Same as R313	5-42
R326	RESISTOR, FIXED, COMPOSITION: Same as R303	5-42
S301	SWITCH SECTION, ROTARY: 1 circuit, 1 pole, 12 position; 2 moving and 11 fixed contacts; Mfr 76854 part no. 101165F	5-44
S302	SWITCH SECTION, ROTARY: 1 circuit; 1 pole, 12 position; 2 moving and 11 fixed contacts, Mfr 76854 part no. 100914F	5-44
V301	ELECTRON TUBE: MIL-E-1 type 5654	5-41
V302	ELECTRON TUBE: Same as V301	5-41
V303	ELECTRON TUBE: Same as V301	5-41
V304	ELECTRON TUBE: Same as V301	5-41
V305	ELECTRON TUBE: MIL-E-1 type 5670	5-41
W301	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL, BRANCHED: 9 conductors terminated on one end w/connector; 5.375 in. o/a lg excl wire leads; Mfr 13499 part no. 553-1766-003	5-41
W302	CABLE ASSEMBLY, RADIO FREQUENCY: Terminated one end w/connector 12.250 in. o/a lg; Mfr 13499 part no. 553-1765-002	5-41
W303	CABLE ASSEMBLY, RADIO FREQUENCY: Terminated one end w/connector 5.812 in. o/a lg; Mfr 13499 part no. 553-1763-002	5-41
W304	CABLE ASSEMBLY, RADIO FREQUENCY: Terminated one end w/connector 7.437 in. o/a lg; Mfr 13499 part no. 533-1764-002	5-41
XV301	SOCKET, ELECTRON TUBE: 7 contact miniature; two 0.125 in. dia mtg holes spaced 0.875 in. c to c; Mfr 13499 part no. 220-1273-00	5-41
XV302	SOCKET; ELECTRON TUBE: Same as XV301	5-41
XV303	SOCKET; ELECTRON TUBE: Same as XV301	5-41
XV304	SOCKET; ELECTRON TUBE: Same as XV301	5-41
XV305	SOCKET; ELECTRON TUBE: Phosphor bronze, silver plated; Mfr 13499 part no. 220-1359-00	5-41
Y301	CRYSTAL UNIT, QUARTZ: MIL-C-3098 type CR55U17-00000 MHz	5-44
Y302	CRYSTAL UNIT, QUARTZ: MIL-C-3098 type CR55U18-00000 MHz	5-44
Y303	CRYSTAL UNIT, QUARTZ: MIL-C-3098 type CR55U19-00000 MHz	5-44
Y304	CRYSTAL UNIT, QUARTZ: MIL-C-3098 type CR55U20-00000 MHz	5-44
Y305	CRYSTAL UNIT, QUARTZ: MIL-C-3098 type CR55U21-00000 MHz	5-44
Y306	CRYSTAL UNIT, QUARTZ: MIL-C-3098 type CR55U22-00000 MHz	5-44
Y307	CRYSTAL UNIT, QUARTZ: MIL-C-3098 type CR55U23-00000 MHz	5-44
Y308	CRYSTAL UNIT, QUARTZ: MIL-C-3098 type CR55U24-00000 MHz	5-44
Y309	CRYSTAL UNIT, QUARTZ: MIL-C-3098 type CR55U25-00000 MHz	5-44
Y310	CRYSTAL UNIT, QUARTZ: MIL-C-3098 type CR55U26-00000 MHz	5-44

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FIRST IF AMPLIFIER ASSEMBLY (Continued)		
Z301	COIL ASSEMBLY: 0.437 in. by 0.912 in. by 1.500 in. o/a dim., excl wire leads; Mfr 13499 part no. 553-1702-004 C/O C302 & L301	5-41
Z302	COIL ASSEMBLY: Same as Z301 C/O C304 & L302	5-41
Z303	COIL ASSEMBLY: 0.437 in. by 0.912 in. by 1.500 in. o/a dim. excl wire leads; Mfr 13499 part no. 553-1700-004 C/O C306, C307, & L303	5-41
Z304	COIL ASSEMBLY: Same as Z303 C/O C309, C310 & L304	5-41
Z305	COIL ASSEMBLY: Same as Z303 C/O C313, L305, & C312	5-41
Z306	COIL ASSEMBLY: Same as Z301 C/O C317 & L306	5-41
Z307	COIL ASSEMBLY: 0.437 in. by 0.912 in. by 1.500 in. o/a dim. excl wire leads; Mfr 13499 part no. 553-1693-003 C/O C340 & L310	5-41
RT-581A/URC-9, SECOND IF AMPLIFIER ASSEMBLY (AN/URC-9A ONLY)		
1A1A5 (401-499)	FINAL ASSEMBLY - 2nd IF AMPLIFIER: Mfr 03565 Part no. D-6239	5-46
C401	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 200 uuf ±20%, 500 vdc, Mfr 71590 part no. DA933-048 P/O Z401	5-46
C402	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM05FD111G03 P/O Z401	5-46
C403	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 6.8 uuf ±5%, 500 vdc; Mfr 78488 part no. GA6-8UUFPORM5PCT	5-46
C404	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C401, P/O Z402	5-46
C405	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM05FD161G03 P/O Z402	5-46
C406	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1,000 uuf -0% +100% 500 vdc; Mfr 72982 part no. 2465-009W5T0102P	5-47
C407	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C403	5-46
C408	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C401, P/O Z403	5-46
C409	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM05FD131G03 P/O Z403	5-46
C410	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM06FD511G03	5-47
C411	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 100 uuf ±2%, 500 vdc at 85°C, 400 vdc at 100°C, 250 vdc at 125°C; Mfr 72982 part no. 338026T2H0101G	5-47
C412	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL type CC22H150G	5-47
C413	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 82 uuf ±2%, 500 vdc at 85°C, 400 vdc at 100°C, 250vdc at 125°C; Mfr 72982 part no. 338026U2J0820G	5-47
C414	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 2000 uuf - 20% +100%, 350 vdc; Mfr 72982 part no. 2467001W5T0202Z	5-47
C415	NOT USED	
C416	CAPACITOR, FIXED, MICA DIELECTRIC: 1000 uuf ±20%, 500 vdc, MIL type CB11PE102M	5-47

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581A/URC-9, SECOND IF AMPLIFIER ASSEMBLY (AN/URC-9A ONLY) (Continued)		
C417	CAPACITOR, FIXED CERAMIC DIELECTRIC: Same as C411	5-47
C418	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C416	5-47
FL401	FILTER, RADIO INTERFERENCE: 500 vdc, 5 amps; metal case; 2 feed thru type terminals; 21/32 in. lg, 21/64 in. dia o/a excluding wire leads; Mfr 01121 part no. FISA	5-46
FL402	FILTER, RADIO INTERFERENCE: Same as FL401	5-46
FL403	FILTER, RADIO INTERFERENCE: Same as FL401	5-47
FL404	FILTER, RADIO INTERFERENCE: Same as FL401	5-47
H401	SCREW, MACHINE: Cres; phillips pan head; 6-32NC-2A thd, 1/2 in. lg; Mfr 13499 part no. 553-1664-002	5-48
H402	SCREW: Cres; phillips fillister head; 6-32NC-2A thd, 1-9/16 in. lg; Mfr 13499 part no. 553-1824-002	5-46
H403	WASHER, FLAT: Brass; 0.125 in. id, 0.1875 in. od, 0.010 in. thk; Mfr 13499 part no. 553-1784-002	5-46
H404	WASHER, FLAT: Cres; 0.125 in. id, 0.250 in. od, 0.031 in. thk; Mfr. 13499 part no. 553-1785-002	5-46
J401	CONNECTOR, RECEPTACLE, ELECTRICAL: 850 v rms peak voltage; 70 ohms impedance; low loss plastic dielectric; 5/8 in. lg; Mfr 94375 part no. R700	5-46
J402	JACK, TIP: For use with 0.080 in. dia plug tip; 5.5 amps; Mfr 98291 part no. SKT10RED	5-46
J403	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J401	5-46
J404	JACK, TIP: For use with 0.080 diameter plug tip; part no. SKT10YELLOW Mfr 98291	5-46
K401	RELAY, ARMATURE: 1C, 30 UA at 50 mv dry circuit, 1C, 10 MA at 125 vdc resistive; 26.5 vdc nom coil, 552 ohms $\pm$10% -20% at +25°C; continuous duty; hermetically sealed; Mfr 01526 part no. 3S2791G200A16C	5-46
K402	RELAY, ARMATURE: MIL type M5757/9-005	5-47
L401	COIL ASSEMBLY: 23 turns of no. 34 AWG wire; 0.406 in. by 0.906 in. by 1.500 in. o/a dim.; Mfr 13499 part no. 553-1970-002 P/O Z401	5-46
L402	COIL ASSEMBLY: 19 turns of no. 32 AWG wire; 0.250 in. w. across flats by 1.186 in. lg o/a dim.; excl terminals; Mfr 13499 part no. 553-1789-002 P/O Z401	5-46
L403	COIL ASSEMBLY: Same as L401 P/O Z402	5-46
L404	COIL ASSEMBLY: Same as L402 P/O Z402	5-46
L405	COIL ASSEMBLY: Same as L401 P/O Z403	5-46
L406	COIL ASSEMBLY: Same as L402 P/O Z403	5-46
L407	COIL, RADIO FREQUENCY: 3 universal wound pi sections, 225 turns ea section; 2.0 uh inductance, 35 ma current; Mfr 99800 part no. BP123	5-47
L408	COIL, RADIO FREQUENCY: Single layer wound, 46 turns #25 AWG wire; 6.5 uh nominal inductance, 0.05 ohms dc resistance, 1.5 amps current rating; Mfr 99800 part no. BP868	5-47

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRPTION	FIG NO..
RT-581A/URC-9, SECOND IF AMPLIFIER ASSEMBLY (AN/URC-9A ONLY) (Continued)		
0401	CORE ASSEMBLY: 0.200 in. dia by 1.942 in lg o/a dim., Mfr 13499 part no. 553-1778-002 U/W L401, L403, L405	5-47
0402	RETAINER, CRYSTAL HOLDER: Cooper; 0.125 in. by 0.735 in. by 1.687 in. o/a dim.; Mfr 13499 part no. 553-1781-002	5-47
0403	SPRING, HELICAL, EXTENSION: Cres; 24, 0.020 in. dia wire coils, 0.167 in. dia, 0.790 in. lg; Mfr 13499 part no. 553-1691-002	5-46
0404	CAM FOLLOW, NEEDLE BEARING: 0.406 in. by 1.425 in. by 2.499 in. o/a dim.; Mfr 03565 part no. B-6181	5-47
0405	COUPLING ASSEMBLY: 0.875 in. dia by 0.483 in. lg o/a dim.; Mfr 13499 part no. 553-1724-002	5-47
0406	SHAFT ASSEMBLY: Brass cam, cres; shaft; 2.094 in. lg o/a, Mfr 13499 part no. 553-1812-003	5-47
0407	SPRING: Copper; 0.156 in. by 0.511 in. by 0.718 in. o/a dim.; Mfr 13499 part no. 553-1650-002	5-46
P401	CONNECTOR, RECEPTACLE, ELECTRICAL: 11 male contacts; 5 amps; 7/16 in. dia, 13/32 in. lg; Mfr 80586 part no. GM11M79	5-46
R401	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF563K	5-47
R402	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF104K	5-47
R403	RESISTOR, FIXED, COMPOSITION: Same as R402	5-47
R404	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF221K	5-47
R405	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF103K	5-47
R406	RESISTOR, FIXED, COMPOSITION: Same as R402	5-47
R407	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF273K	5-47
R408	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF262J	5-47
R409	RESISTOR, FIXED, COMPOSITION: Same as R402	5-47
R410	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF823K	5-47
S401	SWITCH SECTION, ROTARY: 2 circuit, 2 pole, 12 position; Mfr 03565 part no. B-6241	5-47
S402	SWITCH SECTION, ROTARY: Same as S401	5-47
V401	ELECTRON TUBE: MIL-E-1 type 5670	5-46
W401	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL, BRANCHED: 8 conductors terminated one end w/connector; 5.075 in. lg o/a excl wire leads; Mfr 03565 part no. D-6206	5-46 5-46
XK401	SOCKET, RELAY: Copper base alloy contacts; silver plated; 8 contact position; 0.234 in. h, 0.291 in. w, 0.719 in. lg; Mfr 71785 part no. 54A20730	5-46
XV401	SOCKET, ELECTRON TUBE: Phosphor bronze, silver plated; Mfr 91662 part no. BRTL669SPHSPTC125	5-46
XY401	SOCKET, CRYSTAL: Copper base alloy contacts, silver plated; 20 contact position; 0.343 in. h, 1.5000 in. w, 1.725 in. lg; Mfr 03565 part no. B-6238	5-46
Y401	CRYSTAL UNIT, QUARTZ: Mfr 03565 part no. B-6177-1	5-48
Y402	CRYSTAL UNIT, QUARTZ: Mfr 03565 part no. B-6177-2	5-48
Y403	CRYSTAL UNIT, QUARTZ: Mfr 03565 part no. B-6177-3	5-48
Y404	CRYSTAL UNIT, QUARTZ: Mfr 03565 part no. B-6177-4	5-48
Y405	CRYSTAL UNIT, QUARTZ: Mfr 03565 part no. B-6177-5	5-48

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581A/URC-9, SECOND IF AMPLIFIER ASSEMBLY (AN/URC-9A ONLY) (Continued)		
Y406	CRYSTAL UNIT, QUARTZ: Mfr 03565 part no. B-6177-6	5-48
Y407	CRYSTAL UNIT, QUARTZ: Mfr 03565 part no. B-6177-7	5-48
Y408	CRYSTAL UNIT, QUARTZ: Mfr 03565 part no. B-6177-8	5-48
Y409	CRYSTAL UNIT, QUARTZ: Mfr 03565 part no. B-6177-9	5-48
Y410	CRYSTAL UNIT, QUARTZ: Mfr 03565 part no. B-6177-10	5-48
Z401	COIL ASSEMBLY: 0.468 in. by 0.718 in. by 1.875 in. o/a dim.; Mfr 13499 part no. 553-1793-003 C/O C401, C402, L401, L402, C414	5-48
Z402	COIL ASSEMBLY: 0.937 in. by 0.406 in. by 1.812 in. o/a dim; Mfr 13499 part no. 553-1787-003 C/O C404, C405, L403, L404	
Z403	COIL ASSEMBLY: 0.468 in. by 0.718 in. by 1.875 in. o/a dim.; Mfr 13499 part no. 553-1848-004 C/O C408, C409, L405, L406	
RT-581/URC-9, SECOND IF AMPLIFIER ASSEMBLY (AN/URC-9, ONLY)		
1A1A5 (401-499)	FINAL ASSEMBLY - 2nd IF AMPLIFIER: Mfr 13499 part no. 553-1776-004	5-46
C401	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 200 uuf ±20%, 500 vdc, Mfr 71590 part no. DA933-048 P/O Z401	5-46
C402	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM05F111G03 P/O Z401	5-46
C403	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 6.8 uuf ±5%, 500 vdc; Mfr 78488 part no. GA6-8UUFPORM5PCT	5-46
C404	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C401 P/O Z402	5-46
C405	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM05FD161G03 P/O Z402	5-46
C406	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1,000 uuf -0%, +100% 500 vdc; Mfr 72982 part no. 2465-009W5T0102P	5-47
C407	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C403	5-46
C408	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C401 P/O Z403	5-46
C409	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM05F131G03 P/O Z403	5-46
C410	CAPACITOR, FIXED, MICA DIELECTRIC: 510 uuf ±2%, 300 vdc, Mfr 72136 part no. DM15F10G03	5-47
C411	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 100 uuf ±2%, 500 vdc at 85°C, 400 vdc at 100°C, 250 vdc at 125°C, Mfr 72982 part no. 338026T2H0101G	5-47
C412	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL type CC22CH150G	5-47
C413	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 82 uuf ±2%, 500 vdc at 85°C, 400 vdc at 100°C, 250 vdc at 125°C, Mfr 72982 part no. 338026U2J0820G	5-47
C414	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 2000 uuf -20% +100%, 350 vdc; Mfr 72982 part no. 2467001W5T02022	5-47
C415	NOT USED	
C416	CAPACITOR, FIXED, MICA DIELECTRIC: 1000 uuf ±20%, 500 vdc; Mfr 72982 part no. 650256A4102M	5-47

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, SECOND IF AMPLIFIER ASSEMBLY (AN/URC-9, ONLY) (Continued)		
C417	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 100 uuf $\pm$2%, 500 vdc at 85°C, 400 vdc at 100°C, 250 vdc at 25°C, Mfr 72982 part no. 338026T2H0101G	5-47
C418	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C416	5-47
FL401	FILTER, RADIO INTERFERENCE: 500 vdc, 5 amps; metal case; 2 feed thru type terminals; 21/32 in. lg, 21/64 in. dia o/a excluding wire leads; Mfr 01121, part no. FISA	5-46
FL402	FILTER, RADIO INTERFERENCE: Same as FL401	5-46
FL403	FILTER, RADIO INTERFERENCE: Same as FL401	5-47
FL404	FILTER, RADIO INTERFERENCE: Same as FL401	5-47
H401	SCREW, MACHINE, Cres; phillips pan head; 6-32NC-2A thd, 1/2 in. lg; Mfr 13499 part no. 553-1654-002	5-48
H402	SCREW: Cres; phillips fillister head; 6-32NC-2A thd, 1-9/16 in. lg; Mfr 13499 part no. 553-1824-002	5-46
H403	WASHER, FLAT: Brass; 0.125 in. id, 0.1875 in. od, 0.010 in. thk; Mfr 13499 part no. 553-1784-002	5-46
H404	WASHER, FLAT: Cres; 0.125 in. id, 0.250 in. od, 0.031 in. thk, Mfr 13499 part no. 553-1785-002	5-46
J401	CONNECTOR, RECEPTACLE, ELECTRICAL: 850 v rms peak voltage; 70 ohms impedance; low loss plastic dielectric; 5/8 in. lg; Mfr 94375 part no. R700	5-46
J402	JACK, TIP: For use with 0.080 in. dia plug tip; 5.5 amps; Mfr 98291 part no. SKT10RED	5-46
J403	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J401	5-46
J404	JACK, TIP: For use with 0.080 diameter plug tip; part no. SKT10 YELLOW, Mfr 98291	5-46
K401	RELAY, ARMATURE: 1C, 30 ua at 50 mv dry circuit, 1C, 10 ma at 125 vdc resistive; 26.5 vdc nom coil, 552 ohms +10% - 20% at +25°C, continuous duty; hermetically sealed; Mfr 01526 part no. 3S2791G200A16C	5-46
L401	COIL ASSEMBLY: 23 turns of no. 34 AWG wire; 0.406 in. by 0.906 in. by 1.500 in. o/a dim.; Mfr 13499 part no. 553-1790-002 P/O Z401	5-46
L402	COIL ASSEMBLY: 19 turns of no. 32 AWG wire; 0.250 in. w across flats by 1.186 in. lg o/a dim., excl terminals; Mfr 13499 part no. 553-1789-002 P/O Z401	5-46
L403	COIL ASSEMBLY: Same as L401 P/O Z402	5-46
L404	COIL ASSEMBLY: Same as L402 P/O Z402	5-46
L405	COIL ASSEMBLY: Same as L401 P/O Z403	5-46
L406	COIL ASSEMBLY: Same as L402 P/O Z403	5-46
L407	COIL, RADIO FREQUENCY: 3 universal wound pi sections, 225 turns ea section; 2.0 uh inductance, 35 ma current; Mfr 99800 part no. BP123	5-47
L408	COIL, RADIO FREQUENCY: Single layer wound, 46 turns #25 AWG wire; 6.5 uh nominal inductance, 0.05 ohms dc resistance, 1.5 amps current rating; Mfr 99800 part no. BP868	5-47

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, SECOND IF AMPLIFIER ASSEMBLY (AN/URC-9 ONLY) (Continued)		
O401	CORE ASSEMBLY: 0.200 in. dia by 1.942 in. lg o/a dim., Mfr 13499 part no. 553-1778-002 U/W L401, L403, L405	5- +7
O402	SPRING: Copper; 0.125 in. by 0.735 in. by 1.687 in. o/a dim.; Mfr 13499 part no. 553-1781-002	5-47
O403	SPRING: HELICAL, EXTENSION: Cres; 24, 0.020 in. dia wire coils, 0.167 in. dia, 0.790 in. lg; Mfr 13499 part no. 553-1691-002	5-46
O404	TABLE ASSEMBLY, SHAFT: 0.406 in. by 1.425 in. by 2.499 in. o/a dim.; Mfr 13499 part no. 553-1809-002	5-47
O405	COUPLING ASSEMBLY: 0.875 in. dia by 0.483 in. lg o/a dim.; Mfr 13499 part no. 553-1724-002	5-47
O406	SHAFT ASSEMBLY: Brass cam, cres; shaft; 2.094 in. lg o/a, Mfr 13499 part no. 553-1812-003	5-47
O407	SPRING: Copper, 0.156 in. by 0.511 in. by 0.718 in. o/a dim.; Mfr 13499 part no. 553-1650-002	5-46
P401	CONNECTOR, RECEPTACLE, ELECTRICAL: 11 male contacts; 5 amps; 7/16 in. dia, 13/32 in. lg; Mfr 80586 part no. GM11M79	5-46
R401	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF563K	5-47
R402	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF104K	5-47
R403	RESISTOR, FIXED, COMPOSITION: Same as R402	5-47
R404	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF221K	5-47
R405	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF103K	5-47
R406	RESISTOR, FIXED, COMPOSITION: Same as R402	5-47
R407	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF273K	5-47
R408	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF622J	5-47
R409	RESISTOR, FIXED, COMPOSITION: Same as R402	5-47
R410	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF823K	5-47
S401	SWITCH, SECTION ROTARY: 1 circuit, 1 pole, 12 position; 2 moving and 11 fixed contacts; Mfr 76854 part no. 217387FX	5-47
S402	SWITCH SECTION, ROTARY: 1 circuit, 1 pole, 12 position; 2 moving and 11 fixed contacts; Mfr 76854 part no. 218282FX	5-47
V401	ELECTRON TUBE: MIL-E-1 type 5670	5-46
W401	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL, BRANCHED: 6 conductors terminated one end w/connector; 5.075 in. lg o/a excl wire leads; Mfr 13499 part no. 553-1820-004	5-46
XK401	SOCKET, RELAY: Cooper base alloy contacts; silver plated; 8 contact position; 0.234 in. h. 0.291 in. w, 0.719 in. lg; Mfr 71785 part no. 54A20730	5-46
XV401	SOCKET, ELECTRON TUBE: Phosphor bronze, silver plated; Mfr 91662 part no. BRTL669SPHSPTD125	5-46
XY401	SOCKET, CRYSTAL: Copper base alloy contacts, silver plated; 20 contact position; 0.343 in. h, 1.5000 in. w, 1.725 in. lg; Mfr 02660 part no. 33-819	5-46
Y401	CRYSTAL UNIT, QUARTZ: MIL-C-3098C type CR18AU3-000000 MHz	5-48
Y402	CRYSTAL UNIT, QUARTZ: MIL-C-3098C type CR18AU3-100000 MHz	5-48
Y403	CRYSTAL UNIT, QUARTZ: MIL-C-3098C type CR18AU3-200000 MHz	5-48
Y404	CRYSTAL UNIT, QUARTZ: MIL-C-3098C type CR18AU3-300000 MHz	5-48

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, SECOND IF AMPLIFIER ASSEMBLY (AN/URC-9 ONLY) (Continued)		
Y405	CRYSTAL UNIT, QUARTZ: MIL-C-3098C type CR18AU3-400000 MHz	5-48
Y406	CRYSTAL UNIT, QUARTZ: MIL-C-3098C type CR18AU3-500000 MHz	5-48
Y407	CRYSTAL UNIT, QUARTZ: MIL-C-3098C type CR18AU3-600000 MHz	5-48
Y408	CRYSTAL UNIT, QUARTZ: MIL-C-3098C type CR18AU3-700000 MHz	5-48
Y409	CRYSTAL UNIT, QUARTZ: MIL-C-3098C type CR18AU3-800000 MHz	5-48
Y410	CRYSTAL UNIT, QUARTZ: MIL-C-3098C type CR18AU3-900000 MHz	5-48
Z401	COIL ASSEMBLY: 0.468 in. by 0.718 in. by 1.875 in. o/a dim.; Mfr 13499 part no. 553-1793-003 C/O C401, C402, L401, L402	5-48
Z402	COIL ASSEMBLY: 0.937 in. by 0.406 in. by 1.812 in. o/a dim; Mfr 13499 part no. 553-1787-003 C/O C404, C405, L403, L404	5-48
Z403	COIL ASSEMBLY: 0.468 in. by 0.718 in. by 1.875 in. o/a dim; Mfr 13499 part no. 553-1848-004 C/O C408, C409, L405, L406	
RT-581( )/URC-9, THIRD IF AMPLIFIER ASSEMBLY		
1A1A6 (501-599)	THIRD IF AMPLIFIER: Mfr 03565 part no. C-6491	5-49
C501	NOT USED	
C502	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM15CD101J03	5-51
C503	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C502	5-51
C504	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 0.02 uf -20% +100%, 500 vdc, Mfr 72982 part no. 841011W5V0203Z	5-50
C505	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C504	5-50
C506	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C504	5-51
C507	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C504	5-50
C508	NOT USED	
C509	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C504	5-50
C510	CAPACITOR, FIXED, PAPER DIELECTRIC: 0.1 uf ±20%, 300 vdc; Mfr 56289 part no. 186P10403S15	5-49
C511	NOT USED	
C512	NOT USED	
C513	NOT USED	
C514	CAPACITOR, FIXED, PAPER DIELECTRIC: 0.47 uf ±20%, 100 vdc; Mfr 56289 part no. 186P47401S15	5-49
C515	CAPACITOR, FIXED, PAPER DIELECTRIC: 220,000 uuf ±20%, 100 vdc, Mfr 56289 part no. 186P22401S15	5-49
C516	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C510	5-49
C517	CAPACITOR, FIXED, PAPER DIELECTRIC: MIL type CQ09A1KC333K3	5-50
C518	NOT USED	
C519	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C510	5-49
C520	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM15CD470J03	5-51
C521	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM15ED471G03	5-51
C522	CAPACITOR, FIXED, PAPER DIELECTRIC: 0.033 uuf ±20%, 100 vdc; Mfr 14655 part no. TWU1S33-4P	5-51
C523	CAPACITOR, FIXED, PAPER DIELECTRIC: 0.10 uf ±20%, 100 vdc; Mfr 56289 part no. 86P10401S1	5-51

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, THIRD IF AMPLIFIER ASSEMBLY (Continued)		
C524	CAPACITOR, FIXED, ELECTROLYTIC: MIL type CL64BP1R7MPE	5-51
C525	NOT USED	
C526	CAPACITOR, FIXED, PAPER ELECTRIC: 0.33 ±20%, 100 vdc; Mfr 56289 part no. 86P33401T15	5-49
C527	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C510	5-49
C528	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C520	5-51
C529	CAPACITOR, FIXED, ELECTROLYTIC: MIL type CSR13E106MP	5-50
C530	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C502	5-50
CR501	SEMICONDUCTOR DEVICE, DIODE: MIL type IN658	5-50
CR502	NOT USED	
CR503	SEMICONDUCTOR DEVICE, DIODE: MIL type IN483B	5-50
CR504	SEMICONDUCTOR DEVICE, DIODE: MIL type IN485B	5-51
CR505	SEMICONDUCTOR DEVICE, DIODE: Same as CR504	5-50
H501	SCREW, MACHINE: Cres; phillips pan head; 6-32NC-2A thd, 1/2 in. lg; Mfr 13499 part no. 553-1664-002	5-49
H502	WASHER, FLAT: Cres; 0.127 in. id, 0.250 in. od, 0.033 in. thk; Mfr 13499 part no. 553-1854-002	5-51
H503	NUT, PLAIN, CLINCH: Cres; 6-32 thd; 0.250 in. dia by 0.281 in. lg o/a dim.; Mfr 13499 part no. 553-1671-002	5-50
J501	NOT USED	
J502	NOT USED	
J503	JACK, TIP: For use with 0.080 diameter plug tip; Mfr 98291 part no. SKT10ORANGE	5-49
J504	JACK, TIP: For use with 0.080 diameter plug tip; Mfr 98291 part no SKT10YELLOW	5-49
J505	JACK, TIP: u/w 0.080 in. dia plug tip; 5.5 amps; Mfr 98291 part no. SKT10GREEN	5-49
J506	JACK, TIP: For u/w 0.080 in. dia plug tip; 5.5 amps; Mfr 98291 part no. SKT10BLUE	5-49
J507	NOT USED	
J508	JACK, TIP: For use with 0.080 diameter plug tip; 5.5 amps; Mfr 98291 part no. SKT10GRAY	5-49
L501	COIL, RADIO FREQUENCY: 500 Mh nom inductance, 48.3 ohms dc resistance, 82 ma current rating; Mfr 99800 part no. 2500-62	5-50
L502	COIL, RADIO FREQUENCY: Same as L501	5-50
L503	COIL, RADIO FREQUENCY: 2.0 Mh nom inductance, 35 ma current rating, Mfr 13499 part no. 548-7661-002	5-51
0501	RING, CRES: Cres; 0.062 in. by 9.437 in. by 0.937 in. o/a dim.; Mfr 13499 part no. 553-1413-002	5-49
0502	SPRING, FAN: Copper. 0.156 in. by 0.511 in. by 0.718 in. o/a dim.; Mfr 13499 part no. 553-1650-002	5-49
P501	CONNECTOR, RECEPTACLE, ELECTRICAL: 14 male contacts 5 amps, 300 vac, straight shape; Mfr 80586 part no. GM14M79 P/O W501	5-49
P502	CABLE ASSEMBLY, RADIO FREQUENCY: Stranded conductor, single shield, teflon jacket; 75 ohms impedance; terminated one end w/angle plug connector; 16.234 in. lg o/a; P/O W502; Mfr 98278 part no. 30-186-2	5-49

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, THIRD IF AMPLIFIER ASSEMBLY (Continued)		
R501	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF104K	5-50
R502	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF271K	5-51
R503	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF222K	5-50
R504	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF183K	5-51
R505	RESISTOR, FIXED, COMPOSITION: Same as R501	5-50
R506	RESISTOR, FIXED, COMPOSITION: Same as R502	5-50
R507	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF473K	5-50
R508	RESISTOR, FIXED, COMPOSITION: Same as R504	5-50
R509	RESISTOR, FIXED, COMPOSITION: Same as R501	5-51
R510	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF181K	5-50
R511	RESISTOR, FIXED, COMPOSITION: Same as R507	5-51
R512	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF122K	5-51
R514	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF474K	5-50
R515	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF103J	5-50
R516	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF682J	5-50
R517	RESISTOR, FIXED, COMPOSITION: MIL type RC07GF133J	5-50
R518	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF243J	5-50
R519	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF474K	5-51
R520	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF564K	5-50
R525	RESISTOR, FIXED, COMPOSITION: Same as R514	5-51
R526	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF221K	5-51
R527	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF123K	5-51
R528	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF223K	5-50
R529	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF683K	5-51
R530	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF104K	5-51
R531	RESISTOR, FIXED, COMPOSITION: Same as R519	5-51
R532	RESISTOR, FIXED, COMPOSITION: Same as R501	5-51
R533	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF224K	5-51
R537	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF333K	5-50
R538	RESISTOR, FIXED, COMPOSITION: Same as R529	5-51
R539	RESISTOR, FIXED, COMPOSITION: Same as R501	5-51
R540	RESISTOR, FIXED, COMPOSITION: Same as R507	5-51
R541	RESISTOR, FIXED, COMPOSITION: Same as R519	5-50
T501	TRANSFORMER, INTERMEDIATE FREQUENCY: Glass tubing; 485KC-515 kHz frequency range; unshielded; 1.500 in. lg, 0.875 in. w, 0.875 in. h; two screw type terminals; Mfr 81815 part no. X144-1	5-49
V501	ELECTRON TUBE: MIL-E-1 type 5654	5-49
V502	ELECTRON TUBE: Same as V501	5-49
V503	ELECTRON TUBE: Same as V501	5-49
V504	ELECTRON TUBE: Same as V501	5-49
W501	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 11 conductors, terminated w/connector shield assy one end, other end stripped and tinned; Mfr 13499 part no. 549-2244-004	5-49
W502	CABLE ASSEMBLY, RADIO FREQUENCY: One end terminated w/connector; Mfr 13499 part no. 549-3372-002	5-19

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, THIRD IF AMPLIFIER ASSEMBLY (Continued)		
XV501	SOCKET, ELECTRON TUBE: 7 contact miniature; two 0.125 in. dia mtg holes spaced 0.875 in. c to c; Mfr 80368 part no. V24-6034	5-49
XV502	SOCKET, ELECTRON TUBE: Same as XV501	5-49
XV503	SOCKET, ELECTRON TUBE: Same as VX501	5-49
XV504	SOCKET, ELECTRON TUBE: Same as XV501	5-49
RT-581( )/URC-9, RELAY-FILTER ASSEMBLY		
1A1A7 (601-699)	RELAY-FILTER: Mfr 13499 part no. 528-0255-005	5-54
C601	CAPACITOR, FIXED, PAPER DIELECTRIC: 1 uf ±20%, 600 vdc; Mfr 56289 part no. 118P10506T13	5-55
C602	CAPACITOR, FIXED, PAPER DIELECTRIC: MIL type CQ09A1KC473K3	5-55
C603	CAPACITOR, FIXED, ELECTROLYTIC: MIL type CSR1E107MP	5-55
C604	CAPACITOR, FIXED, ELECTROLYTIC: MIL type CL21BQ040SPE	5-56
C605	CAPACITOR, FIXED, ELECTROLYTIC: Same as C604	5-55
C606	CAPACITOR, FIXED, ELECTROLYTIC: MIL type CL33BZR75LNG	5-55
C607	CAPACITOR, FIXED, ELECTROLYTIC: Same as C603	5-54
CR601	SEMICONDUCTOR DEVICE DIODE: MIL-S-19500/124 (SIG C) type IN2982B	5-55
H601	SCREW, MACHINE: Stainless steel, passivate finish; 8-32NC-2A thd, 5-8 in. lg; Mfr 13499 part no. 553-1847-002	5-55
H602	STUD, TERMINAL INSULATED: 6 in. lg; 1/4 in. hex base with 6-32 threaded hole; diallyl phthalate or similar insulation	5-55
J601	JACK, TIP: For use on 0.080 diameter male contacts; 5.5 amps; Mfr 98291 part no. SKT5BCBROWN	5-17
K601	RELAY, ARMATURE: 2C, 2 amps at 28 vdc, or 120 vac resistive; 35 ma at 125°C coil current; 200 ohms ±10% at 125°C coil resistance; continuous duty cycle; hermetically sealed; Mfr 78277 part no. 95263	5-54
K602	RELAY, ARMATURE: 6C contact; 28 vdc; 1 amp resistive; 1 inductive winding, 200 ohms dc coil resistance; hermetically sealed; air arc quenching; Mfr 99699 part no. 26SJ18SD	5-55
K603	RELAY, ARMATURE: 4PDT; 2 amps at 28 vdc resistive circuit; 26.5 vdc coil voltage; 500 ±10% ohms at 25°C coil resistance; continuous duty cycle, micro-miniature; hermetically sealed; Mfr 01526 part no. 3SAH1072	5-54
P601	CONNECTOR, RECEPTACLE, ELECTRICAL: Arc resistant plastic dielectric; Mfr 80586 part no. GM20M79	5-56
P602	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as P601	5-56
R601	RESISTOR, FIXED, WIREWOUND: MIL type RW31V632	5-56
R602	RESISTOR, VARIABLE: 2500 ohms ±10%, 12.5w; Mfr 44655 part no. E2500S1	5-54
R603	RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW30V252	5-56
R604	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF102K	5-56
R605	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF621J	5-55
R606	RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW30V122	5-56
R607	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF273K	5-56

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, RELAY-FILTER ASSEMBLY (Continued)		
R608	RESISTOR, VARIABLE, COMPOSITION: MIL-R-94 type RV6LAYS102B	5-54
R609	RESISTOR, VARIABLE, COMPOSITION: Same as R608	5-17
R610	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF102K	5-56
R611	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF221K	5-54
R612	RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW69V820	5-55
R613	NOT USED	
R614	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF121K	5-54
R615	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF822K	5-55
R616	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF103K	5-56
R617	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF474K	5-56
R618	RESISTOR, FIXED, COMPOSITION: Same as R617	5-55
R619	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF101K	5-55
R620	RESISTOR, FIXED, COMPOSITION: Same as R611	5-54
RV601	RESISTOR, VOLTAGE SENSITIVE: Silicon carbide body; 48 vdc nom; 42 to 56 vdc range; 7/8 in. dia. by 1/4 in. w; 2 wire leads, 1-1/2 in. lg; Mfr 04773 part no. RY57	5-55
RV602	RESISTOR, VOLTAGE, SENSITIVE: Zero ohms at 120 vdc, 5000 ohms at 80 vdc, 75,000 ohms at 40 vdc, 290,000 ohms at 25 vdc; 0.250 in. h, 0.875 in. w, 2.375 in. lg; Mfr 04773 part no. RY56	5-54
T601	TRANSFORMER, AUDIO FREQUENCY: 82 ohms, 50 ma ±10% primary; 1200 ohms secondary; 300 Hz to 5000 Hz frequency response; continuous duty cycle; Mfr 97965 part no. 31487	5-55
RT-581A/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9A ONLY)		
1A1A8 (701-799)	FRONT PANEL ASSEMBLY: Mfr 03565 part no. D-6218	5-65
C701	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL type CK14BX223M	5-66
C702	CAPACITOR, FIXED, ELECTROLYTIC: MIL type CSR09G274KP	5-66
C703	CAPACITOR, FIXED, ELECTROLYTIC: Same as C702	5-66
C704	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 0.02 uf -20%, +100%, 500 vdc; Mfr 72982 part no. 841011W5V0203A	5-66
CR701	SEMICONDUCTOR, DIODE: MIL type IN4002	5-66
CR702	SEMICONDUCTOR, DIODE: Same as CR701	5-66
DS701	LAMP, INCANDESCENT: MIL-L-6363 type MS25237-327	5-65
DS702	LAMP, INCANDESCENT: Same as DS701	5-65
DS703	LAMP, INCANDESCENT: Same as DS701	5-65
FL701	FILTER, ASSEMBLY: 0.375 in. dia by 1.015 in. lg excl terminal; Mfr 13499 part no. 553-2124-003	5-66
FL702	FILTER, ASSEMBLY: Same as FL701	5-66
FL703	FILTER, ASSEMBLY: Same as FL701	5-66
FL704	FILTER, ASSEMBLY: Same as FL701	5-66
FL705	FILTER, ASSEMBLY: Same as FL701	5-66
H701	WASHER, FLAT: Cres; 0.515 in. id, 0.828 in. od, 0.031 in. thk; Mfr 13499 part no. 553-2115-002	5-65
H702	WASHER, LOCK: Mfr 78189 part no. 1724-02	5-65

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581A/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9A ONLY) (Continued)		
H703	NUT, PLAIN, ROUND: Cres; 0.687 in. dia by 0.125 in. thk; 1/2 - 32 thd; Mfr 13499 part no. 553-2119-002	5-65
H704	WASHER, LOCK: Mfr 78189 part no. 1220-02	5-66
H705	NUT, PLAIN, ROUND: Cres; 0.562 in. dia by 0.125 in. thk; Mfr 13499 part no. 553-2079-002	5-66
H706	SCREW, SELF-LOCKING: Stainless steel, chemical black finish; slotted head; 6-32NC-2A thd, 5/16 in. lg; Mfr 02615 part no. M36CR632-5B0	5-65
H707	WASHER, LOCK: Stainless steel, passivate finish; internal teeth; 0.659 in. id, 0.883 in. od, 0.022 in. thk; Mfr 78189 part no. 1728-02	5-65
H708	NUT, PLAIN, ROUND: Cres; 0.843 in. dia by 0.125 in. thk; 5/8 - 24 thd; Mfr 13499 part no. 553-2113-002	5-65
H709	POST: Cres; 1/4 in. h head; 4-40 thd, 0.258 in. lg; 23/32 in. lg o/a; Mfr 13499 part no. 593-4471-002	5-66
H710	STUD, CONTINUOUS THREAD: Stainless steel; 6-32NC-2 thd. 7/16 in. lg o/a; Mfr 13499 part no. 312-0074-00	5-66
H711	POST: Aluminum, chromate dip; open end type; hex. head; 6-32NC-2B thd, 0.922 in. lg; Mfr 13499 part no. 015-0552-00	5-66
H712	INSULATOR, WASHER: Mica; red, flat, 0.4375 in. dia, 0.007 in. to 0.025 in. thk; 13/64 in. dia hole; Mfr 13499 part no. 302-0087-00	5-66
H713	WASHER, FLAT: Stainless steel, passivate finish; 0.0312 in. thk, 0.147 in. id, 0.437 in. od; Mfr 13499 part no. 310-0447-00	5-66
H714	WASHER, LOCK: Stainless steel, 0.267 in. od, 0.408 in. od, 0.018 in. thk; Mfr 78189 part no. 1714-05PLAIN	5-66
H715	NUT, PLAIN, ROUND: Cres; 0.437 in. dia by 0.125 in. thk; 1/4 - 32 thd; Mfr 13499 part no. 553-2116-002	5-66
H716	WASHER, LOCK: Stainless steel, cadmium plated; .018 in. thk; 0.267 in. id, 0.408 in. od; Mfr 78189 part no. 1214-05	5-65
H717	SCREW, MACHINE: Stainless steel, passivate finish; phillips recessed pan head; 3-48NC-2A thd, 7/16 in. lg; Mfr 13499 part no. 343-2717-00	5-66
H718	SETSCREW: Stainless steel, plain finish; multiple spline oval point; 4-40UNC-3A thd, 1/4 in. lg; Mfr 08664 part no. 4-40X1-4 6SPINEOVPT18-8SST	5-65
H719	WASHER, THRUST: Aluminum alloy; 0.437 in. id, 0.740 in. od, 0.0280 in. thk; Mfr 13499 part no. 553-2111-002	5-66
H720	WASHER, THRUST: Aluminum alloy; 0.812 in. id, 1.240 in. id, 0.280 in. thk; Mfr 13499 part no. 553-2112-002	5-66
H721	NUT: Cres; 1/2 in. w across flat by 1-9/16 in. lg; 1/4-20 internal thd, 0.437 in. deep; Mfr 13499 part no. 593-4473-002	5-65
H722	POST: Cres; 1/4 in. w across flats by 0.266 in. h head; 6-32 thd, 0.421 in. lg o/a; Mfr 13499 part no. 553-2117-002	5-66
H723	NUT: Cres; 0.500 in. dia by 0.125 in. thk; 1/4 - 20 thd; Mfr 13499 part no. 548-8957-002	5-65

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG No.
RT-581A/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9A ONLY) (Continued)		
H724	SCREW: Cres; 0.406 in. dia by 0.218 in. h fillister head; 1/4 - 20 thd, 15/32 in. lg; 1.468 in. lg o/a; Mfr 13499 part no. 553-2114-002	5-65
H725	WASHER, STAINLESS steel, passivate finish; 0.250 in. thk; Mfr 13499 part no. 506-5173-002	5-65
H726	NOT USED	
H727	SCREW, MACHINE: Stainless steel, passivate finish; 4-40NC-2A thd, 9/16 in. lg; Mfr 13499 part no. 343-0282-00	5-65
H728	POST: 3/16 in. w across flats by 0.453 in. h head; 4-40 thd, 0.187 in. lg; 41/64 in. lg o/a; Mfr 13499 part no. 553-2123-002	5-66
H729	NUT, SELF-LOCKING, HEXAGON: Aluminum; 4-40UNC-3B thd, 0.190 in. hex., 0.110 in. h; Mfr 72962 part no. 68-1660-40	5-66
H730	WASHER, LOCK: Stainless steel, passivate finish; split helical ring; 0.397 in. od, 0.3125 in. screw size, 0.031 in. thk material; Mfr 13499 part no. 310-0421-00	5-66
H731	NUT: Brass, bright alloy; 0.281 in. id, 0.385 in. od, 0.156 in. thk; Mfr 13499 part no. 544-5050-002	5-66
H732	WASHER, SPRING TENSION: Phosphor bronze, cadmium plated; 0.203 in. id, 0.375 in. od, 0.0154 in. thk; 0.0625 in. h o/a; Mfr 13499 part no. 310-4780-00	5-65
H733	PIN, SPRING: MIL part no. MS16562-191	5-65
H734	SLEEVE, SPRING: Sleeve type, copper; 0.185 in. dia, for size 8 screw; Mfr 13499 part no. 340-0642-00	5-65
H735	WASHER: Cres; 0.187 in. id, 0.312 in. od, 0.020 in. thk; Mfr 13499 part no. 500-1099-003	5-65
H736	SCREW, MACHINE: Stainless steel, passivate finish; fillister head, slot drive; 8-32NC-2A thd, 9/16 in. lg; Mfr 13499 part no. 321-0388-00	5-65
J701	ADAPTER, CONNECTOR: Brass body, teflon insulation; two female contacts; 0.812 in. dia by 1.703 in. lg o/a dim; Mfr 94375 part no. 0991	5-65
J702A,B	JACK ASSEMBLY, TIP: Incl 2 tip jacks; 1.281 in. by 1.312 in. by 1.421 in.; Mfr 13499 part no. 593-4479-003	5-65
J703	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015D type MS3102R14S5S	5-65
J704	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J703	5-65
L701	REACTOR: Swinging inductance type; 0.3 hy to 0.15 hy, 0.020 amp, 25 ohms; 11/32 in. dia by 15/32 in. lg; Mfr 80223 part no. DOT28	5-66
M701	METER, ARBITRARY SCALE: Dc panel type; 0 to 100 cw scale, 8 scale linear; scale marked "NORMAL" spaced 20° either side of center; 1 in. deep to mtg flange, 1.750 in. lg of flange, 1.750 in. w of flange, 1.510 in. dia body; Mfr 13499 part no. 476-0228-00	5-65
0701	GASKET: MIL-P-5516 type AN6227-5	5-65
0702	GASKET: MIL-P-5516 type AN6227-1	5-66

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581A/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9A ONLY) (Continued)		
H703	NUT, PLAIN, ROUND: Cres; 0.687 in. dia by 0.125 in. thk; 1/2 - 32 thd; Mfr 13499 part no. 553-2119-002	5-65
H704	WASHER, LOCK: Mfr 78189 part no. 1220-02	5-66
H705	NUT, PLAIN, ROUND: Cres; 0.562 in. dia by 0.125 in. thk; Mfr 13499 part no. 553-2079-002	5-66
H706	SCREW, SELF-LOCKING: Stainless steel, chemical black finish; slotted head; 6-32NC-2A thd, 5/16 in. lg; Mfr 02615 part no. M36CR632-5B0	5-65
H707	WASHER, LOCK: Stainless steel, passivate finish; internal teeth; 0.659 in. id, 0.883 in. od, 0.022 in. thk; Mfr 78189 part no. 1728-02	5-65
H708	NUT, PLAIN, ROUND: Cres; 0.843 in. dia by 0.125 in. thk; 5/8 - 24 thd; Mfr 13499 part no. 553-2113-002	5-65
H709	POST: Cres; 1/4 in. h head; 4-40 thd, 0.258 in. lg; 23/32 in. lg o/a; Mfr 13499 part no. 593-4471-002	5-66
H710	STUD, CONTINUOUS THREAD: Stainless steel; 6-32NC-2 thd. 7/16 in. lg o/a; Mfr 13499 part no. 312-0074-00	5-66
H711	POST: Aluminum, chromate dip; open end type; hex. head; 6-32NC-2B thd, 0.922 in. lg; Mfr 13499 part no. 015-0552-00	5-66
H712	INSULATOR, WASHER: Mica; red, flat, 0.4375 in. dia, 0.007 in. to 0.025 in. thk; 13/64 in. dia hole; Mfr 13499 part no. 302-0087-00	5-66
H713	WASHER, FLAT: Stainless steel, passivate finish; 0.0312 in. thk, 0.147 in. id, 0.437 in. od; Mfr 13499 part no. 310-0447-00	5-66
H714	WASHER, LOCK: Stainless steel, 0.267 in. od, 0.408 in. od, 0.018 in. thk; Mfr 78189 part no. 1714-05PLAIN	5-66
H715	NUT, PLAIN, ROUND: Cres; 0.437 in. dia by 0.125 in. thk; 1/4 - 32 thd; Mfr 13499 part no. 553-2116-002	5-66
H716	WASHER, LOCK: Stainless steel, cadmium plated; .018 in. thk; 0.267 in. id, 0.408 in. od; Mfr 78189 part no. 1214-05	5-65
H717	SCREW, MACHINE: Stainless steel, passivate finish; phillips recessed pan head; 3-48NC-2A thd, 7/16 in. lg; Mfr 13499 part no. 343-2717-00	5-66
H718	SETSCREW: Stainless steel, plain finish; multiple spline oval point; 4-40UNC-3A thd, 1/4 in. lg; Mfr 08664 part no. 4-40X1-4 6SPINEOVPT18-8SST	5-65
H719	WASHER, THRUST: Aluminum alloy; 0.437 in. id, 0.740 in. od, 0.0280 in. thk; Mfr 13499 part no. 553-2111-002	5-66
H720	WASHER, THRUST: Aluminum alloy; 0.812 in. id, 1.240 in. id, 0.280 in. thk; Mfr 13499 part no. 553-2112-002	5-66
H721	NUT: Cres; 1/2 in. w across flat by 1-9/16 in. lg; 1/4-20 internal thd, 0.437 in. deep; Mfr 13499 part no. 593-4473-002	5-65
H722	POST: Cres; 1/4 in. w across flats by 0.266 in. h head; 6-32 thd, 0.421 in. lg o/a; Mfr 13499 part no. 553-2117-002	5-66
H723	NUT: Cres; 0.500 in. dia by 0.125 in. thk; 1/4 - 20 thd; Mfr 13499 part no. 548-8957-002	5-65

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG No.
RT-581A/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9A ONLY) (Continued)		
H724	SCREW: Cres; 0.406 in. dia by 0.218 in. h fillister head; 1/4 - 20 thd, 15/32 in. lg; 1.468 in. lg o/a; Mfr 13499 part no. 553-2114-002	5-65
H725	WASHER, STAINLESS steel, passivate finish; 0.250 in. thk; Mfr 13499 part no. 506-5173-002	5-65
H726	NOT USED	
H727	SCREW, MACHINE: Stainless steel, passivate finish; 4-40NC-2A thd, 9/16 in. lg; Mfr 13499 part no. 343-0282-00	5-65
H728	POST: 3/16 in. w across flats by 0.453 in. h head; 4-40 thd, 0.187 in. lg; 41/64 in. lg o/a; Mfr 13499 part no. 553-2123-002	5-66
H729	NUT, SELF-LOCKING, HEXAGON: Aluminum; 4-40UNC-3B thd, 0.190 in. hex., 0.110 in. h; Mfr 72962 part no. 68-1660-40	5-66
H730	WASHER, LOCK: Stainless steel, passivate finish; split helical ring; 0.397 in. od, 0.3125 in. screw size, 0.031 in. thk material; Mfr 13499 part no. 310-0421-00	5-66
H731	NUT: Brass, bright alloy; 0.281 in. id, 0.385 in. od, 0.156 in. thk; Mfr 13499 part no. 544-5050-002	5-66
H732	WASHER, SPRING TENSION: Phosphor bronze, cadmium plated; 0.203 in. id, 0.375 in. od, 0.0154 in. thk; 0.0625 in. h o/a; Mfr 13499 part no. 310-4780-00	5-65
H733	PIN, SPRING: MIL part no. MS16562-191	5-65
H734	SLEEVE, SPRING: Sleeve type, copper; 0.185 in. dia, for size 8 screw; Mfr 13499 part no. 340-0642-00	5-65
H735	WASHER: Cres; 0.187 in. id, 0.312 in. od, 0.020 in. thk; Mfr 13499 part no. 500-1099-003	5-65
H736	SCREW, MACHINE: Stainless steel, passivate finish; fillister head, slot drive; 8-32NC-2A thd, 9/16 in. lg; Mfr 13499 part no. 321-0388-00	5-65
J701	ADAPTER, CONNECTOR: Brass body, teflon insulation; two female contacts; 0.812 in. dia by 1.703 in. lg o/a dim; Mfr 94375 part no. 0991	5-65
J702A,B	JACK ASSEMBLY, TIP: Incl 2 tip jacks; 1.281 in. by 1.312 in. by 1.421 in.; Mfr 13499 part no. 593-4479-003	5-65
J703	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015D type MS3102R14S5S	5-65
J704	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J703	5-65
L701	REACTOR: Swinging inductance type; 0.3 hy to 0.15 hy, 0.020 amp, 25 ohms; 11/32 in. dia by 15/32 in. lg; Mfr 80223 part no. DOT28	5-66
M701	METER, ARBITRARY SCALE: Dc panel type; 0 to 100 cw scale, 8 scale linear; scale marked "NORMAL" spaced 20° either side of center; 1 in. deep to mtg flange, 1.750 in. lg of flange, 1.750 in. w of flange, 1.510 in. dia body; Mfr 13499 part no. 476-0228-00	5-65
O701	GASKET: MIL-P-5516 type AN6227-5	5-65
O702	GASKET: MIL-P-5516 type AN6227-1	5-66

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581A/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9A ONLY) (Continued)		
0703	GASKET: MIL-P-5516 type AN6227-10	5-65
0704	GASKET: MIL-P-5516 type AN6227-11	5-66
0705	GASKET: Synthetic rubber; 0.924 in. dia aperture, 1.130 in. od, 0.103 in. thk material; Mfr 86579 part no. 914-19-711-70	5-66
0706	GASKET: Synthetic rubber; 4.032 in. dia aperture, 4.282 in. od, 0.125 in. thk material; Mfr 13499 part no. 200-1572-00	5-65
0707	BRACKET: MOUNTING: Cres; 0.671 in. by 0.875 in. by 1-5/32 in.; black enamel finish; Mfr 13499 part no. 593-1404-002	5-65
0708	GASKET, JACK: Rubber; 1/32 in. by 1-5/16 in. by 1-11/32 in. o/a; Mfr 13499 part no. 593-4458-002	5-65
0709	GASKET CONNECTOR: Aluminum mesh cloth, neoprene impregnated; 0.020 in. by 1.187 in. by 1.187 in. o/a; Mfr 13499 part no. 593-4470-002	5-65
0710	LAMPHOLDER: Plastic; 5/16 in. by 11/16 in. by 23/32 in.; Mfr 13499 part no. 593-4463-002	5-66
0711	RING, RETAINING: Steel, cadmium or zinc plated; 0.938 in. id, 1.250 in. od, 0.015 in. thk; Mfr 79136 part no. 5005-125	5-66
0712	RING, RETAINING: Steel, cadmium or zinc plated; 0.500 in. id, 0.750 in. od, 0.015 in. thk; Mfr 79136 part no. 5005-75	5-66
0713	CAP, PROTECTIVE DUST AND MOISTURE SEAL: W/chain; 1-1/16 in. dia by 7/16 in. deep; 7/8-20 thd; Mfr 02660 part no. 9760-14	5-65
0714	KNOB: Aluminum body, black enamel finish; accommodates 0.150 in. dia shaft; 23/32 in. dia by 1.146 in. thk; Mfr 13499 part no. 593-4459-002	5-65
0715	KNOB: Aluminum alloy; 0.718 in. dia by 0.484 in. lg o/a dim.; Mfr 13499 part no. 593-4460-003	5-65
0716	KNOB: Aluminum alloy; 0.718 in. dia by 0.484 in. lg o/a dim; Mfr 13499 part no. 593-4461-003	5-65
0717	PIVOT DOOR: Cres; 5/16 in. dia by 23/64 in. lg o/a; Mfr 13499 part no. 593-1825-002	5-65
0718	PLATE, SWITCH: Brass, light gray enamel finish; 0.025 in. by 1-11/16 in. by 2-11/32 in.; Mfr 13499 part no. 593-4466-002	5-65
0719	PLATE, SQUELCH CONTROL: Brass, light gray enamel finish; 0.025 in. by 1-9/32 in. by 1-1/2 in. Mfr 13499 part no. 593-4468-002	5-65
0720	PLATE, CONTROL SWITCH: Brass, gray enamel finish; 0.025 in. by 2-5/8 in. by 7-15/32 in.; Mfr 03565 part no. C-6201	5-65
0721	BUSHING, EXTRACTOR: Beryllium copper; 0.875 in. by 1-1/8 in. by 2-5/8 in.; Mfr 13499 part no. 593-1429-003	5-65
0722	DOOR, ACCESS: Aluminum door, 3/8 in. by 3.248 in. by 6.093 in.; incl. bracket, pivot and hardware; Mfr 13499 part no. 593-4486-003	5-65
P701	CONNECTOR, RECEPTACLE, ELECTRICAL: 26 male contacts; 5 amps; arc resistant plastic dielectric; Mfr 80586 part no. GM26M79 P/O W701	5-66
P702	CONNECTOR, RECEPTACLE, ELECTRICAL: 41 male contacts; 5 amps; 7/16 in. dia, 2-5/8 in. lg; Mfr 80586 part no. GM41M79 P/O W702	5-66

REF DESIG	NAME AND DESCRIPTION	FIG NO
	RT-581A/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9A ONLY) (Continued)	
P703	CONNECTOR, RECEPTACLE, ELECTRICAL: Arc resistant plastic dielectric; Mfr 80586 part no. GM20M79	5-66
P704	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as P701 P/O W701	5-66
Q701	TRANSISTOR: MIL type 2N697	5-66
R701	NOT USED	
R702	RESISTOR, VARIABLE, COMPOSITION: 5,000 ohms ±20% 1/2 w; Mfr 71450 part no. KQ22582	5-66
R703	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF272K	5-66
R704	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B5113F	5-66
R705	RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW30G560	5-66
R706	RESISTOR, FIXED: 2.77 ohms ±1%, 2.5w; Mfr 44655 part no. 47682DET2-77	5-66
R707	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B1002F	5-66
R708	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B1004F	5-66
R709	RESISTOR, FIXED, FILM: MIL-R-10509 type RN70B1104F	5-66
R710	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF622J	5-66
R711	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B2153F	5-66
R712	RESISTOR, VARIABLE, COMPOSITION: MIL-R-94 type RV6LAYSA102B	5-66
R713	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B7501F	5-66
R714	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B2051F	5-66
R715	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF392K	5-66
R716	RESISTOR, VARIABLE, COMPOSITION: MIL-R-94 type RV6LAYSA253B	5-66
R717	RESISTOR, WIREWOUND POWER: 1500 ohms ±10%, 125 w; Mfr 13499 part no. 749-4626-00	5-66
R718	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF472K	5-66
R719	RESISTOR, FIXED, COMPOSITION: Same as R718	5-66
R720	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF102K	5-66
R721	RESISTOR, FIXED: MIL-R-11 type RC07GF681K	5-66
S701	SWITCH, ROTARY: 3 circuit, 3 pole, 12 position, 2 section, 3 moving and 26 fixed contacts; Mfr 76854 part no. 221782F3	5-66
S702	SWITCH, ROTARY: 6 circuit, 6 pole, 3 position, 3 section; 6 moving and 24 fixed contacts; Mfr 76854 part no. 221781A2	5-66
S703	P/O R702	5-66
S704	LIGHT INDICATOR: Anodized aluminum; 28 vdc; plastic lens, translucent amber; Mfr 05402 part no. L20028AMI	5-66
S705	SWITCH, ROTARY: 15 circuit, 15 pole, 21 position; Mfr 82104 part no. B50244-724LR3	5-66
S706	SWITCH, ROTARY: 20 position; "nonpile-up" type, 2 moving contacts, 21 fixed contacts, 1 pole, 19 throws; 230 vac or vdc; 0.25 amp current rating; Mfr 76854 part no. 221783RK1	5-66
S707	SWITCH, ROTARY: 12 position; "nonpile-up" type, 2 moving contacts, 11 fixed contacts, 1 pole, 11 throws; 230 vac or vdc at 0.25 amp nom current rating; Mfr 76854 part no. 227658F1	5-66
S708	SWITCH, ROTARY: Mfr 03565 part no. C-6124	5-66
W701	WIRING HARNESS BRANCHED: C/O P701, P704, Mfr 13499 part no. 593-4494-00	5-66

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581A/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9A ONLY) (Continued)		
W702	WIRING HARNESS BRANCHED: C/O P702, Mfr 13499 part no. 593-4495-00	5-66
W703	CABLE ASSEMBLY SPECIAL PURPOSE ELECTRICAL: 20 conductors terminated w/plug connector and shield assembly one end, other end stripped and tinned; C/O P703, Mfr 13499 part no. 593-4497-00	5-66
XDS701	LIGHT, INDICATOR: Accommodates a T-1-3/4 midget flange base lamp; Mfr 72914 part no. A8630-1C	5-65
XDS702	LIGHT, INDICATOR: Same as XDS701	5-65
XDS703	P/O S704	5-65
RT-581/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9 ONLY)		
1A1A8 (701-799)	FRONT PANEL ASSEMBLY: Mfr 13499 part no. 593-4492-005	5-65
C701	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL type CK15AX223M	5-66
C702	CAPACITOR, FIXED, ELECTROLYTIC: 0.27 uf ±10% 35 vdc; Mfr 56289 part no. 150D274X9035A2	5-66
C703	CAPACITOR, FIXED, ELECTROLYTIC: Same as C702	5-66
C704	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 0.02 uf -20% +100%, 500 vdc; Mfr 72982 part no. 841011W5V0203Z	5-66
DS701	LAMP, INCANDESCENT: MIL-L-6363 type MS25237-327	5-65
DS702	LAMP, INCANDESCENT: Same as DS701	5-65
DS703	LAMP, INCANDESCENT: Same as DS701	5-65
FL701	FILTER, ASSEMBLY: 0.375 in. dia by 1.015 in. lg excl terminal; Mfr 13499 part no. 553-2124-003	5-66
FL702	FILTER, ASSEMBLY: Same as FL701	5-66
FL703	FILTER, ASSEMBLY: Same as FL701	5-66
FL704	FILTER, ASSEMBLY: Same as FL701	5-66
FL705	FILTER, ASSEMBLY: Same as FL701	5-66
H701	WASHER, FLAT: Cres; 0.515 in. id, 0.828 in. od, 0.031 in. thk; Mfr 13499 part no. 553-2115-002	5-65
H702	WASHER, LOCK: Mfr 78189 part no. 1724-02	5-65
H703	NUT, PLAIN, ROUND: Cres; 0.687 in. dia by 0.125 in. thk; Mfr 13499 part no. 553-2119-002	5-65
H704	WASHER, LOCK: Mfr 78189 part no. 1220-02	5-66
H705	NUT, PLAIN, ROUND: Cres; 0.562 in. dia. by 0.125 in. thk; Mfr 13499 part no. 553-2079-002	5-66
H706	SCREW, SELF-LOCKING: Stainless steel, chemical black finish; slotted head; 6-32NC-2A thd, 5/16 in. lg; Mfr 02615 part no. M36CR632-5BO	5-65
H707	WASHER, LOCK: Stainless steel, passivate finish; internal teeth; 0.659 in. id, 0.883 in. od, 0.022 in. thk; Mfr 78189 part no. 1728-02	5-65
H708	NUT, PLAIN, ROUND: Cres; 0.843 in. dia by 0.125 in. thk; 5/8 - 24 thd; Mfr 13499 part no. 553-2113-002	5-65

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9 ONLY) (Continued)		
H709	SPACER: Cres; 1/4 in. h head; 4-40 thd, 0.258 in. lg; 23/32 in. lg o/a; Mfr 13499 part no. 593-4471-002	5-66
H710	STUD, CONTINUOUS THREAD: Stainless steel; 6-32NC-2 thd, 7/16 in. lg o/a; Mfr 13499 part no. 312-0074-00	5-66
H711	NUT, SLEEVE: Aluminum, chromate dip; open end type; hex. head; 6-32NC-2B thd, 0.922 in. lg; Mfr 13499 part no. 015-0552-00	5-66
H712	INSULATOR, WASHER: Mica; rd, flat, 0.4375 in. dia, 0.007 in. to 0.025 in. thk; 13/64 in. dia hole; Mfr 13499 part no. 302-0087-00	5-66
H713	WASHER, FLAT: Stainless steel, passivate finish; 0.0312 in thk, 0.147 in. id, 0.437 in. od; Mfr 13499 part no. 310-0447-00	5-66
H714	WASHER, LOCK: Stainless steel, 0.267 in. id, 0.408 in. od, 0.018 in. thk; Mfr 78189 part no. 1714-05PLAIN	5-66
H715	NUT, PLAIN, ROUND: Cres; 0.437 in. dia by 0.125 in. thk; 1/4 - 32 thd; Mfr 13499 part no. 553-2116-002	5-66
H716	WASHER, LOCK: Stainless steel, cadmium plated; .018 in thk; 0.267 in. id, 0.408 in. od; Mfr 78189 part no. 1214-05	5-65
H717	SCREW, MACHINE: Stainless steel, passivate finish; phillips recessed pan head; 3-48NC-2A thd, 7/16 in. lg; Mfr 13499 part no. 343-2717-00	5-66
H718	SETSCREW: Stainless steel, plain finish; multiple spline oval point; 4-40UNC-3A thd, 1/4 in lg; Mfr 08664 part no. 4-40X1-4 6SPINEOVPT18-8SST	5-65
H719	WASHER, THRUST: Aluminum alloy; 0.437 in. id, 0.740 in. od, 0.0280 in. thk Mfr 13499 part no. 553-2111-002	5-66
H720	WASHER, THRUST: Aluminum alloy; 0.812 in. id, 1.240 in. od, 0.280 in. thk; Mfr 13499 part no. 553-2112-002	5-66
H721	NUT: Cres; 1/2 in. w across flat by 1-9/16 in. lg; 1/4-20 internal thd. 0.437 in deep; Mfr 13499 part no. 593-4473-002	5-65
H722	SPACER: Cres; 1/4 in. w across flats by 0.266 in. h head; 6-32 thd, 0.421 in. lg o/a; Mfr 13499 part no. 553-2117-002	5-66
H723	NUT: Cres; 0.500 in. dia by 0.125 in. thk; 1/4 - 20 thd; Mfr 13499 part no. 548-8957-002	5-65
H724	SCREW: Cres; 0.406 in. dia by 0.218 in h fillister head; 1/4 - 20 thd, 15/32 in. lg; 1.468 in. lg o/a; Mfr 13499 part no. 553-2114-002	5-65
H725	WASHER: Stainless steel, passivate finish; 0.250 in. thk; Mfr 13499 part no. 506-5173-002	5-65
H726	NOT USED	
H727	SCREW, MACHINE: Stainless steel, passivate finish; 4-40NC-2A thd, 9/16 in. lg; Mfr 13499 part no. 343-0282-00	5-65
H728	STANDOFF: 3/16 in. w across flats by 0.453 in. h head; 4-40 thd, 0.187 in. lg; 41/64 in. lg o/a; Mfr 13499 part no. 553-2123-002	5-66

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9 ONLY) (Continued)		
H729	NUT. SELF-LOCKING, HEXAGON: Aluminum; 4-40UNC-3B thd, 0.190 in. hex., 0.110 in. h; Mfr 72962 part no. 68-1660-40	5-66
H730	WASHER, LOCK: Stainless steel, passivate finish; split helical ring; 0.397 in. od, 0.3125 in. screw size. 0.031 in. thk material; Mfr 13499 part no. 310-0421-00	5-66
H731	NUT: Brass, bright alloy; 0.281 in. id, 0.385 in. od, 0.156 in. thk; Mfr 13499 part no. 544-5050-002	5-66
H732	WASHER, SPRING TENSION: Phosphor bronze, cadmium plated; 0.203 in. id, 0.375 in. od, 0.0154 in. thk; 0.0625 in. h o/a; Mfr 13499 part no. 310-4780-00	5-65
H733	PIN, SPRING: MIL part no. MS16562-191	5-65
H734	SLEEVE, SPRING: Sleeve type, copper; 0.185 in. dia. for size 8 screw; Mfr 91314 part no. 340-0642-00	5-65
H735	WASHER: Cres; 0.187 in. id, 0.312 in. od, 0.020 in. thk; Mfr 13499 part no. 500-1099-003	5-65
H736	SCREW, MACHINE: Stainless steel, passivate finish; fillister head, slot drive; 8-32NC-2A thd, 9/16 in. lg; Mfr 13499 part no. 321-0388-00	5-65
J701	ADAPTER, CONNECTOR: Brass body, teflon insulation; two female contacts; 0.812 in. dia by 1.703 in. lg o/a dim; Mfr 94375 part no. 0991	5-65
J702A,B	JACK ASSEMBLY, TIP: Incl 2 tip jacks; 1.281 in. by 1.312 in. by 1.421 in.; Mfr 13499 part no. 593-4479-003	5-65
J703	CONNECTOR, RECEPTACLE, ELECTRICAL; MIL-C-5015D type MS3102R14S5S	5-65
J704	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J703	5-65
L701	REACTOR: Swinging inductance type; 0.3 hy to 0.15 hy, 0.020 amp, 25 ohms; 11/32 in. dia by 15/32 in. lg; Mfr 80223 part no. DOT28	5-66
M701	METER, ARBITRARY SCALE: Dc panel type; 0 to 100 cw scale, 8 scale linear; scale marked "NORMAL" spaced 20° either side of center; 1 in. deep to mtg flange, 1.750 in. lg of flange, 1.750 in. w of flange, 1.510 in. dia body; Mfr 13499 part no. 476-0228-00	5-65
0701	GASKET: MIL-P-5516 type AN6227-5	5-65
0702	GASKET: MIL-P-5516 type AN6227-1	5-66
0703	GASKET: MIL-P-5516 type AN6227-10	5-65
0704	GASKET: MIL-P-5516 type AN6227-11	5-66
0705	GASKET: Synthetic rubber; 0.924 in. dia aperture, 1.130 in. od, 0.103 in. thk material; Mfr 86579 part no. 914-19-711-70	5-66
0706	GASKET: Synthetic rubber; 4.032 in. dia aperture, 4.282 in. od, 0.125 in. thk material; Mfr 13499 part no. 200-1572-00	5-65
0707	BRACKET, MOUNTING: Cres; 0.671 in. by 0.875 in. by 1-5/32 in.; black enamel finish; Mfr 13499 part no. 593-1404-002	5-65
0708	GASKET: JACK: Rubber; 1/32 in. by 1-5/16 in. by 1-11/32 in. o/a Mfr 13499 part no. 593-4458-002	5-65

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9 ONLY) (Continued)		
0709	GASKET CONNECTOR: Aluminum mesh cloth, neoprene impregnated; 0.020 in. by 1.187 in. by 1.187 in. o/a; Mfr 13499 part no. 593-4470-002	5-65
0710	KEY, LAMP: Plastic; 5/16 in. by 11/16 in. by 23/32 in.; Mfr 13499 part no. 593-4463-002	5-66
0711	RING, RETAINING: Steel, cadmium or zinc plated; 0.938 in. id, 1.250 in. od, 0.015 in. thk; Mfr 89462 part no. 5005-125	5-66
0712	RING, RETAINING: Steel, cadmium or zinc plated; 0.500 in. id, 0.750 in. od, 0.015 in. thk; Mfr 89462 part no. 5005-75	5-66
0713	CAP, PROTECTIVE DUST AND MOISTURE SEAL: W/chain; 1-1/16 in. dia by 7/16 in. deep; 7/8-20 thd; Mfr 02660 part no. 9760-14	5-65
0714	KNOB: Aluminum body, black enamel finish; accommodates 0.150 in, dia shaft; 23/32 in. dia by 1.146 in. thk; Mfr 13499 part no. 593-4459-002	5-65
0715	KNOB: Aluminum alloy; 0.718 in. dia by 0.484 in. lg o/a dim.; Mfr 13499 part no. 593-4460-003	5-65
0716	KNOB: Aluminum alloy; 0.718 in. dia by 0.484 in. lg o/a dim.; Mfr 13499 part no. 593-4461-003	5-65
0717	PIVOT DOOR: Cres; 5/16 in. dia by 23/64 in. lg o/a; Mfr 13499 part no. 593-1825-002	5-65
0718	PLATE, SWITCH: Brass, light gray enamel finish; 0.025 in. by 1-11/16 in. by 2-11/32 in.; Mfr 13499 part no. 593-4466-002	5-65
0719	PLATE, SQUELCH CONTROL: Brass, light gray enamel finish; 0.025 in. by 1-9/32 in. by 1-1/2 in. Mfr 13499 part no. 593-4468-002	5-65
0720	PLATE, CONTROL SWITCH: Brass, gray enamel finish; 0.025 in. by 2-5/8 in. by 7-15/32 in.; Mfr 13499 part no. 593-448-003	5-65
0721	BUSHING, EXTRACTOR: Beryllium copper; 0.875 in. by 1-1/8 in by 2-5/8 in.; Mfr 13499 part no. 593-1429-003	5-65
0722	DOOR, ACCESS: Aluminum door, 3/8 in. by 3.248 in. by 6.093 in.; incl bracket, pivot and hardware; Mfr 13499 part no. 593-4486-003	5-65
P701	CONNECTOR, RECEPTACLE, ELECTRICAL: 26 male contacts; 5 amps; arc resistant plastic dielectric; Mfr 80586 part no. GM26M79 P/O W701	5-66
P702	CONNECTOR, RECEPTACLE, ELECTRICAL: 41 male contacts; 5 amps; 7/16 in. dia 2-5/8 in. lg; Mfr 80586 part no. GM41M79 P/O W702	5-66
P703	CONNECTOR, RECEPTACLE, ELECTRICAL: Arc resistant plastic dielectric; Mfr 80586 part no. GM20M79 P/O W703	5-66
P704	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as P701 P/O W701	5-66
Q701	TRANSISTOR: MIL type 2N697	5-66
R701	NOT USED	
R702	RESISTOR, VARIABLE, COMPOSITION: 5,000 ohms $\pm 20\%$, 1/2 w; Mfr 71450 part no. KQ22582	5-66

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9, ONLY) (Continued)		
R703	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF272K	5-66
R704	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B5113F	5-66
R705	RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW30G560	5-66
R706	RESISTOR, FIXED: 2.77 ohms ±1%, 2.5 w; Mfr 44655 part no. 47682DET2-77	5-66
R707	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B1002F	5-66
R708	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B1004F	5-66
R709	RESISTOR, FIXED, FILM: MIL-R-10509 type RN70B1104F	5-66
R710	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF622J	5-66
R711	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B2153F	5-66
R712	RESISTOR, VARIABLE, COMPOSITION: MIL-R-94 type RV6LAYSA102B	5-66
R713	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B7501F	5-66
R714	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B2051F	5-66
R715	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF392K	5-66
R716	RESISTOR, VARIABLE, COMPOSITION: MIL-R-94 type RV6LAYSA253B	5-66
R717	RESISTOR, WIREWOUND POWER: 1500 ohms ±10%, 12 5w; Mfr 13499 part no. 749-4626-00	5-66
R718	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF472K	5-66
R719	RESISTOR, FIXED, COMPOSITION: Same as R718	5-66
R720	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF102K	5-66
R721	RESISTOR, FIXED: MIL-R-11 type RC07GF681K	5-66
S701	SWITCH, ROTARY: 3 circuit, 3 pole, 12 position, 2 section, 3 moving and 26 fixed contacts; Mfr 76854 part no. 221782F3	5-66
S702	SWITCH, ROTARY: 6 circuit, 6 pole, 3 position, 3 section; 6 moving and 24 fixed contacts; Mfr 76854 part no. 221781A2	5-66
S703	P/O R702	
S704	LIGHT INDICATOR: Anodized aluminum; 28 vdc; plastic lens, translucent amber; Mfr 05402 part no. L20028AMI	5-66
S705	SWITCH, ROTARY: 15 circuit, 15 pole, 21 position; Mfr 82104 part no. B50244-724LR3	5-66
S706	SWITCH, ROTARY: 20 position; "nonpile-up" type, 2 moving contacts, 21 fixed contacts, 1 pole, 19 throws, 230 vac or vdc, 0.25 amp current rating; Mfr 76854 part no. 221783RK1	5-66
S707	SWITCH ROTARY: 12 position; "nonpile-up" type, 2 moving contacts, 11 fixed contacts, 1 pole, 11 throws; 230 vac or vdc at 0.25 amp nom current rating; Mfr 76854 part no. 227658F1	5-66
S708	SWITCH, ROTARY: Same as S707	
W701	WIRING HARNESS BRANCHED: C/O P701, P704, Mfr 13499 part no. 593-4494-00	5-66
W702	WIRING HARNESS BRANCHED: C/O P702, Mfr 13499 part no. 593-4495-00	5-66
W703	CABLE ASSEMBLY SPECIAL PURPOSE ELECTRICAL: 20 conductors terminated w/plug connector and shield assy. one end, other end stripped and tinned; C/O P703, Mfr 13499 part no. 593-4497-00	5-66
XDS701	LIGHT, INDICATOR: Accommodates at T-1-3/4 midget flange base lamp; Mfr 72914 part no. A8630-1C	5-65

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, FRONT PANEL ASSEMBLY (AN/URC-9 ONLY) (Continued)		
XDS702	LIGHT, INDICATOR: Same as XDS701	5-65
XDS703	P/O S704	5-65
RT-581( )/URC-9, AUDIO AMPLIFIER AND MODULATOR ASSEMBLY		
1A1A9 (801-899)	AUDIO AMPLIFIER AND MODULATOR ASSEMBLY: Mfr 03565 part no. C6492	5-52
C801	CAPACITOR, FIXED, PAPER DIELECTRIC: 0.01 uf ±20% 100 vdc; Mfr 53021 part no. SDB1K01103M	5-53
C802	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1000 uuf -20% 500 vdc up to 85°C, 200 vdc at 125°C; Mfr 72982 part no. 301633W5T0102A	5-53
C803	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C801	5-53
C804	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C801	5-53
C805	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM15ED511G03	5-52
C806	CAPACITOR, FIXED, ELECTROLYTIC: MIL-C-3965 type CL21BQ040SPE	5-53
C807	CAPACITOR, FIXED, ELECTROLYTIC: MIL-C-3965B type CL64BPIR7MPE	5-53
C808	CAPACITOR, FIXED, ELECTROLYTIC: MIL type CL23BL1R5TNE	5-53
C809	CAPACITOR, FIXED, PAPER DIELECTRIC: MIL type CQ09A1KF223K3	5-53
C810	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C802	5-52
C811	CAPACITOR, FIXED, ELECTROLYTIC: MIL-C-3965B type CL64BK040TPE	5-53
C812	CAPACITOR, FIXED, ELECTROLYTIC: MIL-C-3965B type CL64BH080TPE	5-53
C813	CAPACITOR, FIXED, PAPER DIELECTRIC: 0.22 uf ±20%, 200 vdc; Mfr 56289 part no. 186P22402S15	5-52
C814	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C809	5-53
C815	CAPACITOR, FIXED, ELECTROLYTIC: Same as C812	5-53
C816	CAPACITOR, FIXED, ELECTROLYTIC: Same as C811	5-53
C817	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM15ED511G03	5-53
C818	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CM15CD131G03	5-53
C819	CAPACITOR, TANTALUM ELECTROLYTIC: 0.2 mfd, 375w vdc, ±20% tol; Mfr 56289 part no. 110D204X8375D; with revised lead length	5-54
C820	CAPACITOR, FIXED, PAPER DIELECTRIC: 100 vdc, 0.033 uf, ±20%; Mfr 14655 part no. TWU1S33-4P	5-52
C821	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C802	5-53
C822	CAPACITOR, FIXED: MIL type CM05CD100K03	5-52
CR801	SEMICONDUCTOR DEVICE, DIODE: MIL type 1N483B	5-53
CR802	SEMICONDUCTOR DEVICE, DIODE: Same as CR801	5-53
CR803	SEMICONDUCTOR DEVICE: MIL type 1N975B	5-53
CR804	SEMICONDUCTOR DEVICE: Same as CR801	5-53
CR805	SEMICONDUCTOR DEVICE: Same as CR801	5-53
CR806	SEMICONDUCTOR DEVICE: MIL type 1N749A	5-53
CR807	SEMICONDUCTOR DEVICE: Same as CR801	5-53
CR808	SEMICONDUCTOR DEVICE: Same as CR806	5-53
H801	SCREW, MACHINE: Stainless steel, passivate finish; phillips cross recessed fillister head; 8-32NC-2A thd, 1 in. lg; Mfr 13499 part no. 553-2077-002	5-52

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, AUDIO AMPLIFIER AND MODULATOR ASSEMBLY (Continued)		
H802	SCREW, MACHINE: Steel, cadmium plated; phillips cross recessed fillister head; 8-32NC-2A thd 1-5/8 in. lg; Mfr 13499 part no. 553-2078-002	5-52
H803	SLEEVE, SPRING: Sleeve type, copper; 0.185 in. dia, for size 8 screw; Mfr 91314 part no. 340-0642-00	5-52
H804	RETAINER: Beryllium copper, bright alloy; 4 holes; 11/16 in. id, 13/16 in. od; Mfr 13499 part no. 553-2303-002	5-15
H805	NOT USED	
H806	NOT USED	
H807	NOT USED	
H808	STANDOFF: Aluminum chromate dip; 4-40 UNC-2B thd, 0.375 in. lg; 0.187 in. w across flats; Mfr 13499 part no. 540-9037-003	5-53
H809	STANDOFF: Same as H808	5-53
J801	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps, continuous duty; Mfr 98291 part no. SKT5BCBROWN	5-52
J802	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps, continuous duty; Mfr 98291 part no. SKT5BCRED	5-52
J803	JACK, TIP: For use with 0.080 diameter male contacts; teflon; 5.5 amps, continuous duty; Mfr 98291 part no. SKT5BCORANGE	5-15
J804	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps, continuous duty; Mfr 98291 part no. SKT5BCYELLOW	5-52
J805	JACK, TIP: For use with 0.080 diameter male contact; teflon; 5.5 amps, continuous duty; Mfr 98291 part no. SKT5BCGREEN	5-52
K801	RELAY, ARMATURE: 1A, 30 u amps at 50 milliwatts (low level RF) 1A, 2C, 150 vdc, 0.5 amps; 14,000 ohms $\pm$10% at +25°C; continuous duty cycle; hermetically sealed; Mfr 71482 part no. RP7044G1	5-52
K802	RELAY, ARMATURE: 6C, 1 amp at 28 vdc or 115 vac, and/or low level; 26 vdc coil voltage; 200 ohms $\pm$10% at +25°C; continuous duty cycle; Mfr 99699 part no. 26TD18SA	5-52
K803	RELAY, ARMATURE: MIL type M5757/10-141	5-52
P801	CONNECTOR, RECEPTACLE, ELECTRICAL: 41 male contacts, 5 amps; 7/16 in. dia, 2-5/8 in. lg; Mfr 80586 P/O W801 part no. GM41M79	5-52
R801	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF103K	5-53
R802	RESISTOR, FIXED, COMPOSITION: MIL type RC20GF223K	5-53
R803	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF473K	5-53
R804	RESISTOR, VARIABLE: MIL-R-94 type RV6LAYSA105B	5-52
R805	RESISTOR, FIXED, COMPOSITION: MIL type RC07GF474K	5-52
R806	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF391K	5-53
R807	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF562J	5-52
R808	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF823J	5-52
R809	RESISTOR, FIXED, COMPOSITION: Same as R805	5-52
R810	RESISTOR, FIXED, COMPOSITION: MIL type RC20GF474K	5-53
R811	RESISTOR, FIXED: MIL-R-11 type RC20GF561K	5-53
R812	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF153J	5-54
R813	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF205J	5-53
R814	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF273K	5-53

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, AUDIO AMPLIFIER AND MODULATOR ASSEMBLY (Continued)		
R815	NOT USED	
R816	RESISTOR, FIXED, COMPOSITION: Same as R802	5-53
R817	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF683K	5-52
R818	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF153K	5-53
R819	RESISTOR, VARIABLE, COMPOSITION: MIL-R-94 type RV6LAYSA102B	5-52
R820	RESISTOR, FIXED, COMPOSITION: MIL type RC20GF274K	5-53
R821	NOT USED	
R822	RESISTOR, FIXED, COMPOSITION: MIL type RC20GF472K	5-52
R823	NOT USED	
R824	RESISTOR, FIXED, COMPOSITION: Same as R820	5-53
R825	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF224K	5-53
R826	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF621J	5-53
R827	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF821K	5-53
R828	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF104K	5-53
R829	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF124K	5-53
R830	RESISTOR, FIXED, COMPOSITION: MIL type RC20GF683K	5-53
R831	RESISTOR, VARIABLE, COMPOSITION: MIL-R-94 type RV6LAYSA254B	5-52
R832	RESISTOR, FIXED, COMPOSITION: Same as R827	5-53
R833	NOT USED	
R834	RESISTOR, FIXED, WIREWOUND: 2.77 ohms ±1%, 2.5 w; Mfr 44655 part no. 47682DET2-77	5-53
R835	NOT USED	
R836	NOT USED	
R837	NOT USED	
R838	RESISTOR, FIXED, COMPOSITION: MIL type RC20GF183K	5-53
R839	RESISTOR, VARIABLE, COMPOSITION: MIL-R-94 type RV6LAYSA253B	5-52
R840	RESISTOR, FIXED, COMPOSITION: Same as R802	5-53
R841	RESISTOR, FIXED, COMPOSITION: Same as R838	5-53
R842	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF393K	5-53
R843	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF100K	5-53
R844	RESISTOR, FIXED, COMPOSITION: Same as R843	5-53
R845	RESISTOR, FIXED, COMPOSITION: Same as R843	5-53
R846	RESISTOR, FIXED, COMPOSITION: Same as R843	5-53
R847	RESISTOR, FIXED, COMPOSITION: Same as R829	5-53
R848	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF511J	5-53
R849	RESISTOR, FIXED, COMPOSITION: Same as R848	5-53
R850	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF910J	5-53
R851	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF241J	5-53
R852	RESISTOR, FIXED, COMPOSITION: Same as R851	5-53
R853	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF561J	5-53
R854	RESISTOR, FIXED, COMPOSITION: MIL type RC20GF311K	5-52
R855	RESISTOR, FIXED, COMPOSITION: Same as R843	5-52
R856	RESISTOR, FIXED, COMPOSITION: Same as R843	5-52
T801	TRANSFORMER, AUDIO FREQUENCY: Driver and interstage; 32,000 ohms at 8 ma input, 900 ohms center tapped, 0 to 5 ma, secondary; 1-7/32 in. by 1-7/32 in. by 2.125 in. o/a; Mfr 97965 part no. 21917	5-52

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, AUDIO AMPLIFIER AND MODULATOR ASSEMBLY (Continued)		
T802	TRANSFORMER, AUDIO FREQUENCY: Modulation and output; 29 w power level; 2-1/8 in. by 2-5/16 in. by 2-3/8 in. Mfr 97965 part no. 29396	5-52
TB801	TERMINAL BOARD: Plastic; 0.093 in. by 1 in. by 3-5/32 in.; incl 23 terminals; Mfr 13499 part no. 593-7924-003	5-53
TB802	TERMINAL BOARD: Mfr 13499 part no. 593-7926-003	5-53
V801	ELECTRON TUBE: MIL-E-1 type 5670	5-52
V802	ELECTRON TUBE: Same as V801	5-52
V803	ELECTRON TUBE: MIL-E-1 type 5654	5-52
V804	ELECTRON TUBE: Same as V801	5-52
V805	ELECTRON TUBE: MIL-E-1 type 7558	5-52
V806	ELECTRON TUBE: Same as V805	5-52
V807	ELECTRON TUBE: Same as V805	5-52
V808	ELECTRON TUBE: Same as V805	5-52
W801	WIRING HARNESS, BRANCHED: Mfr 13499 part no. 593-7908-00 C/O P801	5-52
XK801	SOCKET, ELECTRON: MIL-S-12883 type TS1405P01	5-52
XK802	NOT USED	
XK803	NOT USED	
XV801	SOCKET, ELECTRON TUBE: Phosphor bronze, silver plated, Mfr 00614 part no. BRTL669SPHSPT0125	5-52
XV802	SOCKET, ELECTRON TUBE: Same as XV801	5-52
XV803	SOCKET, ELECTRON TUBE: 7 contact miniature; two 0.125 in. dia mtg holes spaced 0.875 in. c to c; Mfr 80368 part no. V24-6034	5-52
XV804	SOCKET, ELECTRON TUBE: Same as XV801	5-52
XV805	SOCKET, ELECTRON TUBE: 9 pin contact, copper; phenolic insulation; 1.125 in. lg, 15/16 in. w; 13/32 in. h; Mfr 94991 part no. 7490-0203	5-52
XV806	SOCKET, ELECTRON TUBE: Same as XV805	5-52
XV807	SOCKET, ELECTRON TUBE: Same as XV805	5-52
XV808	SOCKET, ELECTRON TUBE: Same as XV805	5-52
RT-581( )/URC-9, FILTER ASSEMBLY		
1A1A10 (901-999, 1101-1199)	FILTER ASSEMBLY, ELECTRICAL: C/O 1 radio interference filter w/500 kHz freq, and one low pass filter w/220 to 420 MHz pass band; incl mtg plate and hardware; Mfr 13499 part no. 549-3371-003	5-14
FL901	FILTER, BANDPASS: 6 db at 10 kHz, 60 db at 150 kHz; 5.6 ohms source impedance; 100 k ohms load impedance; 0.812 in. by 1.012 in. by 3.187 in. o/a dim.; excl terminals; Mfr 81815 part no. X005-2 C/O J901 and J902	5-14
FL902	NOT USED	
H901	SCREW, MACHINE: Phillips recessed fillister head; cres, green enamel finish; 6-32 thd, 1/2 in. lg; Mfr 13499 part no. 553-1956-002	5-14

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, FILTER ASSEMBLY (Continued)		
J901	P/O FL901	
J902	P/O FL901	
0901	PLATE ASSEMBLY: Aluminum plate, 0.687 in. by 1.039 in. by 4.351 in. approx., Mfr 13499 part no. 553-1952-002	5-14
FL1101	FILTER, LOW PASS: 50 ohms nom impedance, 220 to 420 MHz pass band; Mfr 70998 part no. 5259 c/o J1101 and P1101	5-14
J1101	P/O FL1101	
P1101	P/O FL1101	
RT-581( )/URC-9 FAN CENTRIFUGAL (Globe Industries, Division of TRW, Contract N00039-69-C-1553.)		
1A1A11 (1001-1099)	FAN, CENTRIFUGAL: Per MIL-B-23071/13	5-57
B1051	FAN, CENTRIFUGAL: Per MIL-B-23071/13, Mfr 25140 part no. 19A1906	5-57
	NOT SHIPBOARD REPAIRABLE	
RT-581( )/URC-9 FAN, CENTRIFUGAL (Collins Radio Contracts NObsr 87290 and 89509.)		
1001-1099	FAN, CENTRIFUGAL: ac; 115 v, 50/60 Hz; w/double ended blower and speed increaser; 8000 rpm, w/connector; Mfr 13499 part no. 553-2422-004	5-58
B1051	FAN, CENTRIFUGAL: 115 vac ±10%, 50/60 Hz; 8000 rpm impeller speed continuous duty cycle; Mfr 17771 part no. E1321-300	5-58
C1051	CAPACITOR: 17771 part no. 2-635948-01	5-58
C1052	Same as C1051	5-58
01001	RING, CRESS:	5-58
01002	SPRING, FAN: Copper, 0.156 in. by 0.511 in. by 0.718 in. o/a dim.; Mfr 13499 part no. 553-1650-002	5-58
01003	IMPELLER, FAN, CENTRIFUGAL: Anodized aluminum, 4 blades; ccw rotation; 0.250 in. dia bore; Mfr 60399 part no. 0-327-4	5-58
01004	IMPELLER, FAN, CENTRIFUGAL: 2 section; steel, cadmium plated; double inlet; cw rotation; Mfr 60399 part no. 200D119	5-58
01005	COVER: Aluminum alloy, anodized finish; 3/16 in. by 3.190 in. by 3.217 in. approx; Mfr 13499 part no. 553-2133-003	5-58
01006	SCROLL: Aluminum; 2 in. by 3.062 in. by 3.062 in. by 3.298 in. approx; Mfr 13499 part no. 553-2134-004	5-58

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9 FAN, CENTRIFUGAL (Collins Radio Contracts NObsr 87290 and 89509.) (Continued)		
01007	PLATE, ALUMINUM: Anodized finish; 0.531 in. by 3.156 in. by 3.312 in,; Mfr 13499 part no. 553-2135-003	5-58
01008	GUARD: Aluminum; 11/16 in. by 1.875 in. by 3.750 in.; Mfr 13499 part no. 553-2138-002	5-58
01052	SPEED INCREASER: Mechanical; 3300-8000 rpm; Mfr 13499	5-58
P1051	CONNECTOR, RECEPTACLE, ELECTRICAL: 11 male contacts; 5 amps; 7/16 in. dia; 1-3/32 in. lg; Mfr 80586 part no. GM11M79	5-58
RT-581( )/URC-9 FAN, CENTRIFUGAL (Stewart-Warner Electronics Contract NObsr 91068 MCN 1 thru 185 only.)		
1001-1099	FAN, CENTRIFUGAL: dc; +26.5 v ±10%; 7000 rpm nominal; w/connector; Mfr 98738 part no. 59A217785	5-59A
B1051	FAN, CENTRIFUGAL: Same as above, less connector; Mfr 82877 part no. AO-60500	5-59A
	NOT SHIPBOARD REPAIRABLE	
RT-581( )/URC-9 FAN, CENTRIFUGAL (Stewart-Warner Electronics Contract 91068 MCN 168 and over.)		
1001-1099	FAN, CENTRIFUGAL: dc; +26.5 v, ±10%; 7000 rpm nominal; w/connectors; Mfr 98738 part no. 59A217792	5-59B
B1051	FAN, CENTRIFUGAL: Same as above, less connector; Mfr 82877 part no. AO-60500	5-59B
	NOT SHIPBOARD REPAIRABLE	
RT-581( )/URC-9 FAN, CENTRIFUGAL (DuBrow Electronic Industries Contracts NObsr 91149, 91284, and 93164.)		
1001-1099	FAN, CENTRIFUGAL: ac; 115 v, 50/60 Hz; w/double-ended blower; 8000 rpm w/connector; Mfr 89114 part no. 717-C021	5-60
B1051	FAN, CENTRIFUGAL: 115 vac; ±10%, 50/60 Hz; 8000 rpm impeller continuous duty cycle; Mfr 89114 part no. 717-D9900	5-60
	NOT SHIPBOARD REPAIRABLE	

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581A/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9A ONLY)		
1A1A12 (1201-1299)	FREQUENCY SELECTOR, FINAL ASSEMBLY: Mfr 03565 part no. D-6220	5-81
A1201	PLATE, MOUNTING: Aluminum; 0.040 in. by 2.162 in. by 2.185 in.; Mfr 13499 part no. 553-1458-002	5-81
A1202	NOT USED	
A1203	PLATE, ASSEMBLY, BEARING: Aluminum plate; 0.250 in. by 8.093 in. by 8-11/16 in. excl components Mfr 13499 part no. 553-1583-004	5-81
A1204	PLATE ASSEMBLY, GEAR: Aluminum plate; 59/64 in. by 4.124 in. by 4.405 in.; includes 2 gears; Mfr 13499 part no. 553-1575-002	5-81
A1205	PLATE, ASSEMBLY, BEARING: Aluminum plate; 0.125 in. by 5.625 in. by 8-21/32 in. excl components; Mfr 13499 part no. 553-1592-004	5-81
A1206	NOT USED	
A1207	BRACKET, MOUNTING: Cres; 0.374 in. by 0.984 in. by 1-1/32 in.; Mfr 13499 part no. 553-1455-002	5-81
A1208	BRACKET, MOUNTING: Same as A1207	5-81
A1209	BRACKET, MOUNTING: Same as A1207	5-81
A1210	NOT USED	
A1211	PLATE, MOUNTING: Aluminum; 0.125 in. by 0.821 in. by 1.092 in.; Mfr 13499 part no. 553-1456-002	5-81
A1212	BRACKET ASSEMBLY: Aluminum bracket; Mfr 03565 part no. B-6225	5-81
A1213	BRACKET, MOUNTING: Cres; 0.374 in. by 0.984 in. by 1.032 in.; Mfr 13499 part no. 553-1462-002	5-81
A1214	SCALE, MEMORY DRUM: Aluminum; 1.218 in. by 1.352 in. by 5.314 in.; Mfr 03565 part no. D-6207	5-81
A1215	PLATE, MOUNTING: Cres; 0.025 in. by 0.436 in. by 2.748 in.; Mfr 13499 part no. 553-1424-002	5-81
A1216	PLATE, MOUNTING: Cres; 0.050 in. by 25/32 in. by 3.133 in.; Mfr 13499 part no. 553-1425-002	5-81
B1201	MOTOR, DIRECT CURRENT: 0.044 hp at 7400 rpm; 30 vdc max voltage; 6 sec on 24 sec off duty cycle; Mfr 13499 part no. 553-1465-002	5-81
H1201	ELECTROMAGNETIC ACTUATOR COIL: Mfr 03565 part no. B-6192	5-81
H1202	WASHER, FLAT: Cres; 0.251 in. id, 0.4375 in. od,0.0156 in. thk; Mfr 13499 part no. 553-1429-002	5-81
H1203	NUT, SELF-LOCKING, HEXAGON: Steel; 1/4-28 thd; 7/16 in. w across flats by 0.110 in. thk; Mfr 77122 part no. 14L28	5-81
H1204	WASHER, FLAT: Cres; 0.191 in. id, 0.375 in. od, 0.0156 in. thk; Mfr 13499 part no. 553-1431-002	5-81
H1205	BRACKET, ANGLE: Mfr 03565 part no. B-6191	5-81
H1206	POST, ELECTRICAL, MECHANICAL, EQUIPMENT: Aluminum alloy; 0.250 in. hex, 0.187 in. dia. 0.718 in. lg; Mfr 13499 part no. 553-1445-002	5-81
H1207	POST, ELECTRICAL, MECHANICAL, EQUIPMENT: Aluminum; 0.375 in. dia, 1.156 in. lg; Mfr 13499 part no. 553-1447-002	5-81

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581A/URC-9 FREQUENCY SELECTOR ASSEMBLY (AN/URC-9A ONLY) (Continued)		
H1208	POST, ELECTRICAL, MECHANICAL, EQUIPMENT: Aluminum, 0.312 in. dia small end, 0.375 in. dia large end, 1.250 in. lg; Mfr 13499 part no. 553-1448-002	5-81
H1209	POST, ELECTRICAL, MECHANICAL, EQUIPMENT: Aluminum, 0.312 in. dia. 0.562 in. lg; Mfr 13499 part no. 553-1449-002	5-81
H1210	POST ELECTRICAL, MECHANICAL, EQUIPMENT: Aluminum, 0.312 in. dia, 0.640 in. lg; Mfr 13499 part no. 553-1450-002	5-81
H1211	POST, ELECTRICAL, MECHANICAL, EQUIPMENT: Aluminum; 0.375 in. dia, 0.640 in. lg; Mfr 13499 part no. 553-1451-002	5-81
H1212	POST, ELECTRICAL, MECHANICAL, EQUIPMENT: Aluminum; 0.375 in. dia, 0.583 in. lg; Mfr 13499 part no. 553-1452-002	5-81
H1213	SWITCH ACTUATOR: Mfr 03565 part no. C-6223	5-81
H1214	NOT USED	
H1215	NOT USED	
H1216	SPACER, SLEEVE: Aluminum; 0.113 in. id, 0.187 in. od, 0.156 in. lg; Mfr 13499 part no. 553-1459-002	5-81
H1217	SPACER, SLEEVE: Aluminum; 0.113 in. id, 0.187 in. od, 0.281 in. lg; Mfr 13499 part no. 553-1460-002	5-81
H1218	SPACER, SLEEVE: Aluminum; 0.135 in. id, 0.225 in. od, 0.125 in. lg; Mfr 13499 part no. 502-1664-001	5-81
H1219	WASHER, FLAT: Cres; 0.158 in. id, 0.375 in. od, 0.156 in. thk; Mfr 13499 part no. 553-1430-002	5-81
H1220	RING, RETAINING: MIL type MS16624-18	5-81
H1221	RING, RETAINING: MIL type MS16624-15	5-81
H1222	RING, RETAINING: Beryllium copper; external type; 0.225 in. id, 0.025 in. thk material; Mfr 89462 part no. 5100-25-C	5-81
H1223	RING, RETAINING: Copper, type "E", 0.094 in. id, 0.015 in. thk; Mfr 89462 part no. 5133-12-C	5-81
H1224	RING, RETAINING: Copper, type "E", 0.145 in. id, 0.025 in. thk; Mfr 89462 part no. 5133-18-C	5-81
H1225	RING, RETAINING: Copper, type "E", 0.207 in. id, 0.025 in. thk; Mfr 89462 part no. 5133-25-C	5-81
H1226	RING, RETAINING: Steel, type "E", 0.051 in. id, 0.010 in. thk; Mfr 89462 part no. 5133-6-C	5-81
H1227	NUT, PLAIN, HEXAGON: Cres; 5/16-24 thd; 0.500 in. w across flats; by 0.103 in. thk; Mfr 13499 part no. 334-0249-00	5-81
H1228 thru H1255	NOT USED	
H1256	POST, MOUNTING: Cres; 0.310 in. dia by 0.609 in. lg; Mfr 13499 part no. 553-1422-002	5-81
H1257 thru H1264	NOT USED	
H1265	SPACER, SLEEVE: Aluminum; 0.196 in. id, 0.250 in. od, 0.218 in. lg; Mfr 13499 part no. 553-1651-002	5-81

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581A/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9A ONLY) (Continued)		
H1266	STUD, MOUNTING: Aluminum; 1/4 in. w across flats by 29/32 in. lg; 5-40 thd, 9/32 in. lg; Mfr 13499 part no. 553-1652-002	5-81
I1201	INDICATOR, FREQUENCY: 0.453 in. by 1.343 in. by 1.812 in. o/a dim.; Mfr 13499 part no. 553-1627-002	5-81
I1202	INDICATOR, FREQUENCY: 0.453 in. by 1.343 in. by 1.812 in. o/a dim.; Mfr 13499 part no. 553-1625-002	5-81
I1203	INDICATOR, FREQUENCY: Mfr 03565 part no. C-6196	5-81
I1204	INDICATOR, CHANNEL: 0.453 in. by 1.343 in. by 1.812 in. o/a dim.; Mfr 13499 part no. 553-1629-002	5-81
J1201	CONNECTOR, RECEPTACLE, ELECTRICAL: 41 female sockets; arc resistant plastic dielectric; 5 amps; Mfr 80586 part no. GM41F79	5-81
K1201	RELAY, ARMATURE: 1A, 32 vdc, 5 amps, 1 inductive winding, 20 ohms dc coil resistance; Mfr 04221 part no. 41-3889	5-81
K1202	RELAY, ARMATURE: Same as K1201	5-81
K1203	RELAY, ARMATURE: Same as K1201	5-81
K1204	RELAY, ARMATURE: 1C, 32 vdc, 5 amps; 1 inductive winding; 20 ohms dc coil resistance; Mfr 04221 part no. 41-3608	5-81
01201	HOUSING: Cres; 0.314 in. dia by 0.449 in. lg; Mfr 13499 part no. 553-1427-002	5-81
01202 thru 01204	HOUSING: Same as 01201	5-81
01205	WASHER, NONMETALLIC: Plastic; 0.859 in. id, 1.187 in. od, 0.070 in. thk; Mfr 13499 part no. 502-1164-002	5-81
01206 thru 01208	WASHER, NONMETALLIC: Same as 01205	5-81
01209	CLUTCH, FRICTION: Consists of 4 clutch linings, 1 clutch shoe, and 1 solder strip; 1.252 in. dia by 0.375 in. lg; Mfr 13499 part no. 502-1825-002	5-81
01210 thru 01212	CLUTCH, FRICTION: Same as 01209	5-18
01213	RING, RETAINING: Stainless steel; 0.320 in. id, 1.156 in. od, 0.0418 in. thk; Mfr 13499 part no. 502-7031-002	5-81
01214 thru 01224	RING, RETAINING: Same as 01213	5-81
01225	WASHER, SHOULDERED: Cres; 0.313 in. id, 0.843 in. od, 0.093 in. thk; Mfr 13499 part no. 553-1428-002	5-81
01226 thru 01228	WASHER, SHOULDERED: Same as 01225	5-81
01229	PAWL: Copper; 0.250 in. by 0.250 in. by 1.247 in.; Mfr 13499 part no. 503-5079-002	5-81

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581A/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9A ONLY) (Continued)		
01230 thru 01232	PAWL: Same as 01229	5-81
01233	GEAR, SPUR: Bronze; 72 teeth, incl bearing; 1.541 in. dia by 0.326 in. lg; Mfr 13499 part no. 504-7200-002	5-81
01234 thru 01236	GEAR, SPUR: Same as 01233	5-81
01237	CLAMP, LOOP: Stainless steel; accommodates 0.312 in. dia material; Mfr 03565 part no. B-6276	5-81
01238 thru 01244	CLAMP, LOOP: Same as 01237	5-81
01245	CLAMP, LOOP: Same as 01237	5-81
01245.1	CLAMP, LOOP: Same as 01237	5-81
01245.2	CLAMP, LOOP: Same as 01237	5-81
01246	WASHER, FLAT: Cres; 0.3140 in. id, 0.8125 in. od, 0.062 in. thk; Mfr 13499 part no. 553-1420-002	5-81
01247	WASHER, FLAT: Same as 01246	5-81
01248	SPRING, HELICAL, COMPRESSION: Cres; 6.5 coils; 0.040 in. dia wire; 0.330 in. dia by 0.491 in. lg. o/a dim; Mfr 13499 part no. 553-1432-002	5-81
01249	NOT USED	
01250	SPRING: Cres; 0.928 in. dia by 0.271 in. lg o/a dim.; Mfr 13499 part no. 553-1435-002	5-81
01251	SPRING, HELICAL, TORSION: Cres; 2.75 coils; 30 to 40 oz. in. torque at 135°; 8.500 in lg; o/a; Mfr 13499 part no. 553-1436-002	5-81
01252	GEAR, SPUR: 36 teeth; 20° pressure angle; 48 diametral pitch; 0.790 in. dia by 0.187 in. lg o/a dim.; Mfr 13499 part no. 553-1467-002	5-81
01253	GEAR, SPUR: 30 teeth; 20° pressure angle; 48 diametral pitch; 0.666 in. dia by 0.368 in. lg o/a dim.; Mfr 13499 part no. 553-1437-002	5-81
01254	GEAR, SPUR: Bronze; 36 teeth; 0.812 in. dia by 0.365 in. lg o/a; 0.3125 in. dia bore; with bearing; Mfr 13499 part no. 553-1469-003	5-81
01255	GEAR, SPUR: 36 teeth; 20° pressure angle; 48 diametral pitch; 0.790 in. dia by 0.375 in. lg o/a dim.; Mfr 13499 part no. 553-1472-002	5-81
01256	GEAR, SPUR: 72 teeth; 20° pressure angle; 48 diametral pitch; 1.541 in. dia by 0.250 in. lg o/a dim.; Mfr 13499 part no. 553-1470-002	5-81
01257	GEAR, SPUR: 36 teeth; 20° pressure angle; 48 diametral pitch; Mfr 13499 part no. 553-1474-002	5-81

Table [illegible]. Maintenance Parts List (Continued)

[illegible]	NAME AND DESCRIPTION	FIG NO.
	[illegible]-581a/GRC-9, FREQUENCY SELECTOR ASSEMBLY (AN/GRC-9A ONLY) (Continued)	
01258	GEAR, SPUR: 72 teeth; 20° pressure angle; 48 diametral pitch; 1.541 in. dia by 0.312 in. lg o/a dim.; Mfr 13499 part no. 553-1504-002	5-81
01259	GEAR, SPUR: 36 teeth; 20° pressure angle; 48 diametral pitch; 0.790 in. dia by 0.687 in. lg o/a dim.; Mfr 13499 part no. 553-1438-002	5-81
01260	GEAR, SPUR: 54 teeth; 20° pressure angle; 48 diametral pitch; 1.166 in. dia by 0.375 in. lg o/a dim.; Mfr 13499 part no. 553-1476-002	5-81
01261	GEAR, SPUR: 96 teeth; 20° pressure angle; 48 diametral pitch; 2.040 in. dia by 0.375 in. lg o/a dim.; Mfr 13499 part no. 553-1478-002	5-81
01262	SHAFT, SHOULDERED: Cres; 0.248 in. by 1.656 in. o/a dim.; Mfr 13499 part no. 553-1433-002	5-81
01263	GEAR, SPUR: 48 teeth; 20° pressure angle; 48 diametral pitch; 1.040 in. dia by 0.437 in. lg o/a dim.; Mfr 13499 part no. 553-1439-002	5-81
01264	NOT USED	
01265	GEAR, SPUR: 57 teeth; 20° pressure angle; 48 diametral pitch; 1.229 in. dia by 0.156 in. lg o/a dim.; Mfr 13499 part no. 553-1442-002	5-81
01266	GEAR, SPUR: 57 teeth; 20° pressure angle; 48 diametral pitch; 1.229 in. dia by 0.375 in. lg o/a dim.; Mfr 13499 part no. 553-1480-002	5-81
01267	GEAR, SPUR: 57 teeth; 20° pressure angle; 48 diametral pitch; 1.229 in. dia by 0.444 in. lg o/a dim.; Mfr 13499 part no. 553-1443-002	5-81
01268	GEAR, SPUR: 90 teeth; 20° pressure angle; 48 diametral pitch; 1.916 in. dia by 0.140 in. lg o/a dim.; Mfr 13499 part no. 553-1444-002	5-81
01269	SHAFT, STRAIGHT: Aluminum alloy; 0.187 in. dia by 1.593 in. lg o/a dim.; Mfr 13499 part no. 553-1446-002	5-81
01270	GEAR, SPUR: 86 teeth; 20° pressure angle; 48 diametral pitch; 1.854 in. dia by 0.140 in. lg o/a dim.; Mfr 13499 part no. 553-1453-002	5-81
01271	GEAR, SPUR: 86 teeth; 20° pressure angle; 48 diametral pitch; 1.854 in. dia by 0.344 in. lg o/a dim.; Mfr 13499 part no. 553-1454-002	5-81
01272	NOT USED	
01273	GEAR, SPUR: 76 teeth; 20° pressure angle; 48 diametral pitch; 1.625 in. dia by 0.187 in. lg o/a dim.; Mfr 13499 part no. 553-1461-002	5-81
01274	GEAR, SPUR: 60 teeth; 20° pressure angle; 48 diametral pitch; 1.291 in. dia by 0.370 in. lg o/a dim.; Mfr 13499 part no. 553-1482-002	5-81
01275	NOT USED	

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581A/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9A) (Continued)		
01276	NOT USED	
01277	GEAR, SPUR: Mfr 13499 part no. 553-1484-003	5-81
01278	GEAR, SPUR: 29 teeth; 20° pressure angle; 48 diametral pitch; 0.645 in. dia by 0.370 in. lg o/a dim.; Mfr 13499 part no. 553-1487-002	5-81
01279	GEAR, SPUR: Same as 01278	5-81
01280 thru 01283	NOT USED	
01284	GEAR, CLUSTER, SPUR: Two complements of 18 and 68 teeth; 20° pressure angle for both gears; 48 diametral pitch for both gears; 1.458 in. dia by 0.281 in. lg o/a dim.; Mfr 13499 part no. 553-1489-002	5-81
01285	NOT USED	
01286	GEAR CLUSTER, SPUR: Two complements of 18 and 68 teeth; 20° pressure angle for both gears; 48 and 64 diametral pitches; 1.093 in. dia by 0.245 in. lg o/a dim.; Mfr 13499 part no. 553-1492-002	5-81
01287	NOT USED	
01288	GEAR SPUR: 57 teeth; 20° pressure angle; 64 diametral pitch; 9.928 in. dia by 0.178 in. lg o/a dim.; Mfr 13499 part no. 553-1495-002	5-81
01289	GEAR CLUSTER, SPUR: Two complements of 42 and 84 teeth; 20° pressure angle for both gears; 48 diametral pitch for both gears; 1.791 in. dia by 0.432 in. lg o/a dim.; Mfr 13499 part no. 553-1497-002	5-81
01290	GEARSHAFT, SPUR: 72 teeth; 20° pressure angle; 48 diametral pitch; 1.541 in. dia by 0.843 in. lg o/a dim.; Mfr 13499 part no. 553-1501-002	5-81
01291	COUPLING HALF, POSITIVE, Cres; 1 in. dia by 0.343 in. lg; 0.1875 in. dia bore; Mfr 13499 part no. 553-1463-003	5-81
01292	COUPLING HALF, POSITIVE: Same as 01291	5-81
01293 thru 01295	COUPLING HALF, POSITIVE: Cres; 0.875 in. dia by 0.343 in. o/a 0.187 in. dia bore; Mfr 13499 part no. 553-1464-003	5-81
01296	GEARSHAFT, SPUR: 76 teeth; 20° pressure angle; 48 diametral pitch; 1.625 in. dia by 2.093 in. lg o/a dim.; Mfr 13499 part no. 553-1522-002	5-81
01297	GEAR AND CAM ASSEMBLY: 48 teeth; 20° pressure angle; 48 diametral pitch; 0.828 in. o/a lg; Mfr 13499 part no. 553-1525-002	5-81
01298	GEARSHAFT, SPUR: 80 teeth; 20° pressure angle; 64 diametral pitch; 1.281 in. dia by 2.031 in. lg o/a dim.; Mfr 13499 part no. 553-1528-002	5-81
01299	GEARSHAFT, SPUR: 40 teeth; 20° pressure angle; 64 diametral pitch; 1.125 in. dia by 3.031 in. lg o/a dim.; Mfr 13499 part no. 553-1532-002	5-81

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581A/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9A ONLY) (Continued)		
01299.1	GEARSHAFT, SPUR: 80 teeth; 20° pressure angle; 64 diametral pitch; 1.281 in. dia by 1.750 in. lg o/a dim.; Mfr 13499 part no. 553-1536-002	5-81
01299.2	NOT USED	
01299.3	NOT USED	
01299.4	ARM ASSEMBLY: Cres cam; 0.531 in. by 1.437 in. by 2.295 in. o/a dim. approx; Mfr 13499 part no. 553-1544-003	5-81
01299.5	GEAR ASSEMBLY: Aluminum gear with 84 teeth, bronze gear with 21 teeth; 1.791 in. dia by 0.656 in. lg; Mfr 13499 part no. 553-1550-003	5-81
01299.6	SHAFT AND GEAR ASSEMBLY: 1.229 in. dia by 1.500 in. lg o/a; Mfr 13499 part no. 553-1555-003	5-81
01299.7	GEARSHAFT, SPUR: 72 teeth; 20° pressure angle; 48 diametral pitch; 1.541 in. dia by 1.296 in. lg o/a dim.; Mfr 13499 part no. 553-1562-002	5-81
01299.8	GEAR CLUSTER, SPUR: Two complements of 57 and 84 teeth; 20° pressure angle for both gears; 48 diametral pitch for both gears; 1.791 in. dia by 0.380 in. lg o/a dim.; Mfr 13499 part no. 553-1565-002	5-81
01299.9	CAM FOLLOWER: Cres arm; includes brass gear with 108 teeth Mfr 13499 part no. 553-1568-002	5-81
01299.10	NOT USED	
01299.11	GEAR, SPUR: Aluminum; 96 teeth; with bearing; 2.041 in. dia by 0.312 in. lg; Mfr 13499 part no. 553-1577-002	5-81
01299.12	GEARSHAFT, SPUR: Cres; 30 teeth; 0.666 in. dia by 59/64 in. lg o/a; Mfr 13499 part no. 553-1576-002	5-81
01299.13	GEAR CLUSTER, SPUR: Aluminum gear with 72 teeth, bronze gear with 18 teeth; 1.541 in. dia by 1.374 in. lg approx; Mfr 13499 part no. 553-1599-003	5-81
01299.14 thru 01299.21	NOT USED	
01299.22	GEARSHAFT, SPUR: 72 teeth; 20° pressure angle; 48 diametral pitch; 4.541 in. dia by 1.718 in. lg o/a dim.; Mfr 13499 part no. 553-1506-002	5-81
01299.23	GEARSHAFT, SPUR: 90 teeth; 20° pressure angle; 48 diametral pitch; 1.916 in. dia by 1.328 in. lg o/a dim.; Mfr 13499 part no. 553-1509-002	5-81
01299.24	GEAR, SPUR: 84 teeth; 20° pressure angle; 48 diametral pitch; 1.791 in. dia by 0.290 in. lg o/a dim.; Mfr 13499 part no. 553-1515-002	5-81
01299.25	GEAR, SPUR: 76 teeth; 20° pressure angle; 48 diametral pitch; 1.625 in. dia by 0.290 in. lg o/a dim.; Mfr 13499 part no. 553-1512-002	5-81
01299.26	SHAFT-CAM ASSEMBLY: Brass cam, cres shaft; irregular shape; Mfr 13499 part no. 553-1519-002	5-81

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581A/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9A ONLY) (Continued)		
01299.27	NOT USED	
01299.28	HUB ASSEMBLY: Aluminum alloy; 1.625 in. dia by 0.359 in. lg o/a dim.; Mfr 13499 part no. 553-1617-002	5-81
01299.29	SWITCH ACTUATOR: Mfr 03565 part no. C-6221	5-81
01299.30	HUB: Aluminum; 0.254 in. id, 1.500 in. od, 0.093 in. lg; Mfr 13499 part no. 553-1611-002	5-81
01299.31	SPRING, HELICAL, EXTENSION: Cres; 40.75 coils; 0.023 in. wire dia.; 2.312 lb load at 2.656 in. total lg; 0.190 in. dia by 1.515 in. lg o/a dim.; Mfr 13499 part no. 553-1434-002	5-81
01299.32	DRIVE, CONSTANT SPEED, MECHANICAL: Mfr 03565 part no. C-6215	5-81
01299.33	HUB, SHAFT: Mfr 13499 part no. 553-1440-002	
01299.34	GEARSHAFT, SPUR: 80 teeth; 20° pressure angle; 64 diametral pitch; 1.281 in. dia by 1.687 in. lg o/a dim.; Mfr 13499 part no. 553-1539-002	5-81
01299.35	SPRING, HELICAL, COMPRESSION: Cres; 12 coils; 0.032 in. wire dia; supports 5 lbs at 0.531 in.; 0.245 in. dia by 8.75 in. lg o/a dim.; Mfr 13499 part no. 553-1423-002	5-81
01299.36	SPRING, HELICAL, COMPRESSION: Same as 01299.35	5-81
P1201	CONNECTOR, RECEPTACLE, ELECTRICAL: Arc resistant plastic dielectric; Mfr 80586 part no. GM18M79	5-81
S1201	SWITCH SECTION, ROTARY: 1 circuit, 1 pole, 18 position; 1 moving and 18 fixed contacts; Mfr 76854 part no. 190311LK	5-81
S1202	SWITCH SECTION, ROTARY: 1 circuit, 1 pole, 18 position; 1 moving and 3 fixed contacts; Mfr 76854 part no. 190312LK	5-81
S1203	SWITCH SECTION, ROTARY: 1 circuit, 1 pole, 12 position; 1 moving and 10 fixed contacts; Mfr 76854 part no. 190313K	5-81
S1204	SWITCH SECTION, ROTARY: Same as S1203	5-81
S1205	SWITCH, SECTION, ROTARY: 1 section, 2 pole, 20 position; 2 moving and 10 fixed contacts; Mfr 76854 part no. 189665RK	5-81
S1206	SWITCH SECTION, ROTARY: Same as S1205	5-81
S1207 thru S1209	NOT USED	
S1210	SWITCH ASSEMBLY: 0.531 in. by 1.437 in. by 5.046 in. approx.; o/a dim.; Mfr 03565 part no. D-6227	5-81
RT-581/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9 ONLY)		
1A1A12 (1201-1299)	FREQUENCY SELECTOR, FINAL ASSEMBLY: Mfr 13499 part no. 553-1418-004	5-80
A1201	PLATE, MOUNTING: Aluminum; 0.040 in. by 2.162 in. by 2.185 in.; Mfr 13499 part no. 553-1458-002	5-80
A1202	NOT USED	
A1203	PLATE ASSEMBLY, BEARING: Aluminum plate; 0.250 in. by 8.093 in. by 8-11/16 in. excl components; Mfr 13499 part no. 553-1583-004	5-80

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9 ONLY) (Continued)		
A1204	PLATE ASSEMBLY, GEAR: Aluminum plate; 59/64 in. by 4.124 in. by 4.405 in.; Includes 2 gears; Mfr 13499 part no. 553-1575-002	5-80
A1205	PLATE ASSEMBLY, BEARING: Aluminum plate; 0.125 in. by 5.625 in. by 5.625 in. by 8-21/32 in. excl components; Mfr 13499 part no. 553-1592-004	5-80
A1206	NOT USED	
A1207	BRACKET, MOUNTING: Cres; 0.374 in. by 0.984 in. by 1-1/32 in.; Mfr 13499 part no. 553-1455-002	5-80
A1208	BRACKET, MOUNTING: Same as A1207	5-80
A1209	BRACKET, MOUNTING: Same as A1207	5-80
A1210	NOT USED	
A1211	PLATE, MOUNTING: Aluminum; 0.125 in. by 0.821 in. by 1.092 in.; Mfr 13499 part no. 553-1456-002	5-80
A1212	BRACKET, ASSEMBLY: Aluminum bracket; includes bearing; 0.375 in. by 1.062 in. by 2.005 in. o/a approx.; Mfr 13499 part no. 553-1542-002	5-80
A1213	BRACKET, MOUNTING: Cres; 0.374 in. by 0.984 in. by 1.032 in. Mfr 13499 part no. 553-1462-002	5-80
A1214	SCALE, MEMORY DRUM: Aluminum; 1.218 in. by 1.352 in. by 5.314 in.; Mfr 13499 part no. 553-1426-004	5-80
A1215	PLATE, MOUNTING: Cres; 0.025 in. by 0.436 in. by 2.748 in.; Mfr 13499 part no. 553-1424-002	5-80
A1216	PLATE, MOUNTING: Cres; 0.050 in. by 25/32 in. by 3.113 in.; Mfr 13499 part no. 553-1425-002	5-80
B1201	MOTOR, DIRECT CURRENT: 0.044 hp at 7400 rpm; 30 vdc max voltage; 6 sec on 24 sec off duty cycle; Mfr 13499 part no. 553-1465-002	5-80
H1201	NOT USED	
H1202	WASHER, FLAT: Cres; 0.251 in. id, 0.4375 in. od, 0.0156 in. thk; Mfr 13499 part no. 553-1429-002	5-80
H1203	NUT, SELF-LOCKING, HEXAGON: Steel; 1/4-28 thd; 7/16 in. w across flats by 0.110 in. thk; Mfr 77122 part no. 14L28	5-80
H1204	WASHER, FLAT: Cres; 0.191 in. id, 0.375 in. od, 0.0156 in. thk; Mfr 13499 part no. 553-1431-002	5-80
H1205	NOT USED	
H1206	NUT, SLEEVE: Aluminum alloy; 0.250 in. hex, 0.187 in. dia. 0.718 in. lg; Mfr 13499 part no. 553-1445-002	5-80
H1207	POST, MOUNTING: Aluminum; 0.375 in. dia, 1.156 in. lg; Mfr 13499 part no. 553-1447-002	5-80
H1208	POST, MOUNTING: Aluminum; 0.312 in. dia small end, 0.375 in. dia large end, 1.250 in. lg; Mfr 13499 part no. 553-1448-002	5-80
H1209	POST, MOUNTING: Aluminum; 0.312 in. dia, 0.562 in. lg; Mfr 13499 part no. 553-1449-002	5-80
H1210	POST, MOUNTING: Aluminum; 0.312 in. dia, 0.640 in. lg; Mfr 13499 part no. 553-1450-002	5-80
H1211	POST, MOUNTING: Aluminum; 0.375 in. dia, 0.640 in. lg; Mfr 13499 part no. 553-1451-002	

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9 ONLY) (Continued)		
H1212	POST, MOUNTING: Aluminum; 0.375 in. dia, 0.583 in. lg; Mfr 13499 part no. 553-1452-002	5-80
H1213 thru H1215	NOT USED	
H1216	SPACER, SLEEVE: Aluminum; 0.113 in. id, 0.187 in. od, 0.156 in. lg; Mfr 13499 part no. 553-1459-002	5-80
H1217	SPACER, SLEEVE: Aluminum; 0.113 in. id, 0.187 in. od, 0.281 in. lg; Mfr 13499 part no. 553-1460-002	5-80
H1218	SPACER, SLEEVE; Aluminum; 0.135 in. id, 0.255 in. od, 0.125 in. lg; Mfr 13499 part no. 502-1664-001	5-80
H1219	WASHER, FLAT: Cres; 0.158 in. id, 0.375 in. od, 0.156 in. thk; Mfr 13499 part no. 553-1430-002	5-80
H1220	RING, RETAINING: MIL type MS16624-18	5-80
H1221	RING, RETAINING: MIL type MS16624-15	5-80
H1222	RING, RETAINING: Beryllium copper; external type; 0.225 in. id, 0.025 in. thk material; Mfr 89462 part no. 5100-25-C	5-80
H1223	RING, RETAINING: Copper, type "E", 0.094 in. id, 0.015 in. thk; Mfr 89462 part no. 5133-12-C	5-80
H1224	RING, RETAINING: Copper, type "E", 0.145 in. id, 0.025 in. thk; Mfr 89462 part no. 5133-18-C	5-80
H1225	RING, RETAINING: Copper, type "E"; 0.207 in. id, 0.025 in. thk; Mfr 89462 part no. 5133-25-C	5-80
H1226	RING, RETAINING: Steel, type "E"; 0.051 in. id, 0.010 in. thk; Mfr 89462 part no. 5133-6-C	5-80
H1227	NUT, PLAIN, HEXAGON: Cres; 5/16-24 thd; 0.500 in. w across flats by 0.103 in. thk; Mfr 13499 part no. 334-0249-00	5-80
H1228 thru H1255	NOT USED	
H1256	POST, MOUNTING: Cres; 0.310 in. dia by 0.609 in. lg; Mfr 13499 part no. 553-1422-002	5-80
H1257 thru H1264	NOT USED	
H1265	SPACER, SLEEVE: Aluminum; 0.196 in. id, 0.250 in. od, 0.218 in. lg; Mfr 13499 part no. 553-1651-002	5-80
H1266	STUD, MOUNTING: Aluminum; 1/4 in. 2 across flats by 29/32 in. lg; 5-40 thd, 9/32 in. lg; Mfr 13499 part no. 553-1652-002	5-80
I1201	WHEEL ASSEMBLY, COUNTER: 0.453 in. by 1.343 in. by 1.812 in. o/a dim.; Mfr 13499 part no. 553-1627-002	5-80
I1202	WHEEL ASSEMBLY, COUNTER: 0.453 in. by 1.343 in. by 1.812 in. o/a dim.; Mfr 13499 part no. 553-1625-002	5-80
I1203	WHEEL ASSEMBLY, COUNTER: 0.453 in. by 1.343 in. by 1.812 in. o/a dim.; Mfr 13499 part no. 553-1603-002	5-80
I1204	WHEEL ASSEMBLY, COUNTER: 0.453 in. by 1.343 in. by 1.812 in. o/a dim.; Mfr 13499 part no. 553-1629-002	5-80

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9 ONLY) (Continued)		
J1201	CONNECTOR, RECEPTACLE, ELECTRICAL: 41 female sockets; arc resistant plastic dielectric; 5 amps; Mfr 80586 part no. GM41F79	5-80
K1201	RELAY, ARMATURE: 1A, 32 vdc, 5 amps, 1 inductive winding, 20 ohms dc coil resistance; Mfr 04221 part no. 41-3889	5-80
K1202	RELAY ARMATURE: Same as K1201	5-80
K1203	RELAY ARMATURE: Same as K1201	5-80
K1204	RELAY ARMATURE: 1C, 32 vdc, 5 amps; 1 inductive winding, 20 ohms dc coil resistance; Mfr 04221 part no. 41-3608	5-80
01201	DRUM, CLUTCH: Cres; 0.314 in. dia by 0.449 in. lg; Mfr 13499 part no. 553-1427-002	5-80
01202 thru 01204	DRUM, CLUTCH: Same as 01201	5-80
01205	WASHER, NONMETALLIC: Plastic; 0.859 in. id, 1.187 in. od, 0.070 in. thk; Mfr 13499 part no. 502-1164-002	5-80
01206 thru 01208	WASHER, NONMETALLIC: Same as 01205	5-80
01209	CLUTCH, FRICTION: Consists of 4 clutch linings; 1 clutch shoe, and 1 solder strip; 1.252 in. dia by 0.375 in. lg; Mfr 13499 part no. 502-1825-002	5-80
01210 thru 01212	CLUTCH, FRICTION: Same as 01209	5-80
01213	RING, RETAINING: Stainless steel; 0.320 in. id, 1.156 in. od, 0.0418 in. thk; Mfr 13499 part no. 502-7031-002	5-80
01214 thru 01224	RING, RETAINING: Same as 01213	5-80
01225	WASHER, SHOULDERED: Cres; 0.313 in. id, 0.843 in. od, 0.093 in. thk; Mfr 13499 part no. 553-1428-002	5-80
01226 thru 01228	WASHER, SHOULDERED: Same as 01225	5-80
01229	PAWL: Copper; 0.250 in. by 0.250 in. by 1.247 in.; Mfr 13499 part no. 503-5079-002	5-80
01230 thru 01232	PAWL: Same as 01229	5-80
01233	GEAR, SPUR: Bronze; 72 teeth, incl bearings; 1.541 in. dia by 0.326 in. lg; Mfr 13499 part no. 504-7200-002	5-80
01234 thru 01236	GEAR, SPUR: Same as 01233	5-80
01237	CLAMP, LOOP: Aluminum; accommodates 0.312 in. dia material Mfr 13499 part no. 553-1772-002	5-80

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9 ONLY) (Continued)		
01238 thru 01244	CLAMP, LOOP: Same as 01237	5-80
01245	CLAMP, LOOP: Same as 01237	5-80
01245.1	CLAMP, LOOP: Same as 01237	5-80
01245.2	CLAMP, LOOP: Same as 01237	5-80
01246	WASHER,FLAT: Cres; 0.3140 in. id, 0.8125 in. od, 0.062 in. thk; Mfr 13499 part no. 553-1420-002	5-80
01247	WASHER, FLAT: Same as 01246	5-80
01248	SPRING, HELICAL, TORSION: Cres; 6.5 coils; 0.040 in. dia wire; 0.330 in. dia by 0.491 in. lg o/a dim.; Mfr 13499 part no. 553-1432-002	5-80
01249	NOT USED	
01250	SPRING: Cres; 0.928 in. dia by 0.271 in. lg o/a dim.; Mfr 13499 part no. 553-1435-002	5-80
01251	SPRING, HELICAL, TORSION: Cres; 2.75 coils; 30 to 40 oz. in. torque at 135°, 8.500 in. lg o/a; Mfr 13499 part no. 553-1436-002	5-80
01252	GEAR, SPUR: 36 teeth; 20° pressure angle; 48 diametral pitch; 0.790 in. dia by 0.187 in. lg o/a dim.; Mfr 13499 part no. 553-1467-002	5-80
01253	GEAR, SPUR: 30 teeth; 20° pressure angle; 48 diametral pitch; 0.666 in. dia by 0.368 in. lg o/a dim.; Mfr 13499 part no. 553-1437-002	5-80
01254	GEAR, SPUR: Bronze; 36 teeth; 0.812 in. dia by 0.365 in. lg o/a; 0.3125 in. dia bore; with bearing; Mfr 13499 part no. 553-1469-003	5-80
01255	GEAR, SPUR: 36 teeth; 20° pressure angle; 48 diametral pitch; 0.790 in. dia by 0.375 in. lg o/a dim.; Mfr 13499 part no. 553-1472-002	5-80
01256	GEAR, SPUR: 72 teeth; 20° pressure angle; 48 diametral pitch; 1.541 in. dia by 0.250 in. lg o/a dim.; Mfr 13499 part no. 553-1470-002	5-80
01257	COUPLING HALF, SHAFT: Cres; 0.875 in. dia by 0.343 in. lg o/a; 0.187 in. dia bore; Mfr 13499 part no. 553-1464-003	5-80
01258	GEAR, SPUR: 72 teeth; 20° pressure angle; 48 diametral pitch; 1.541 in. dia by 0.312 in. lg; o/a dim.; Mfr 13499 part no. 553-1504-002	5-80
01259	GEAR, SPUR: 36 teeth; 20° pressure angle, 48 diametral pitch; 0.790 in. dia by 0.687 in. lg o/a dim.; Mfr 13499 part no. 553-1438-002	5-80
01260	GEAR, SPUR: 54 teeth; 20° pressure angle; 48 diametral pitch; 1.166 in. dia by 0.375 in. lg o/a dim.; Mfr 13499 part no. 553-1476-002	5-80
01261	GEAR, SPUR: 96 teeth; 20° pressure angle; 48 diametral pitch; 2.040 in. dia by 0.375 in. lg o/a dim.; Mfr 13499 part no. 553-1478-002	5-80

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9 ONLY) (Continued)		
01262	SHAFT, SHOULDERED: Cres; 0.248 in. by 1.656 in. o/a dim.; Mfr 13499 part no. 553-1433-002	5-80
01263	GEAR, SPUR: 48 teeth; 20^{o} pressure angle; 48 diametral pitch; 1.040 in. dia by 0.437 in. lg o/a dim.; Mfr 13499 part no. 553-1439-002	5-80
01264	NOT USED	
01265	GEAR SPUR: 57 teeth; 20^{o} pressure angle; 48 diametral pitch; 1.229 in. dia by 0.156 in. lg o/a dim.; Mfr 13499 part no. 553-1442-002	5-80
01266	GEAR, SPUR: 57 teeth; 20^{o} pressure angle; 48 diametral pitch; 1.229 in. dia by 0.375 in. lg o/a dim.; Mfr 13499 part no. 553-1480-002	5-80
01267	GEAR, SPUR: 57 teeth; 20^{o} pressure angle; 48 diametral pitch; 1.229 in. dia by 0.444 in. lg o/a dim.; Mfr 13499 part no. 553-1443-002	5-80
01268	GEAR, SPUR: 90 teeth; 20^{o} pressure angle; 48 diametral pitch; 1.916 in. dia by 0.140 in. lg o/a dim.; Mfr 13499 part no. 553-1444-002	5-80
01269	SHAFT, STRAIGHT: Aluminum alloy; 0.187 in. dia by 1.593 in. lg o/a dim.; Mfr 13499 part no. 553-1446-002	5-80
01270	GEAR, SPUR: 86 teeth; 20^{o} pressure angle; 48 diametral pitch; 1.854 in. dia by 0.140 in. lg o/a dim.; Mfr 13499 part no. 553-1453-002	5-80
01271	GEAR, SPUR: 86 teeth; 20^{o} pressure angle; 48 diametral pitch; 1.854 in. dia by 0.344 in. lg o/a dim.; Mfr 13499 part no. 553-1454-002	5-80
01272	NOT USED	
01273	GEAR, SPUR: 76 teeth; 20^{o} pressure angle; 48 diametral pitch; 1.625 in. dia by 0.187 in. lg o/a dim.; Mfr 13499 part no. 553-1461-002	5-80
01274	GEAR, SPUR: 60 teeth; 20^{o} pressure angle; 48 diametral pitch; 1.291 in. dia by 0.370 in. lg o/a dim.; Mfr 13499 part no. 553-1482-002	5-80
01275	NOT USED	
01276	NOT USED	
01277	GEAR SPUR: Same as 01261	5-80
01278	GEAR, SPUR: 29 teeth; 20^{o} pressure angle; 48 diametral pitch; 0.645 in. dia by 0.370 in. lg o/a dim.; Mfr 13499 part no. 553-1487-002	5-80
01279	GEAR, SPUR: Same as 01278	5-80
01280 thru 01283	NOT USED	
01284	GEAR, CLUSTER, SPUR: Two complements of 18 and 68 teeth; 20^{o} pressure angle for both gears; 48 diametral pitch for both gears; 1.458 in. dia by 0.281 in. lg o/a dim.; Mfr 13499 part no. 553-1489-002	5-80

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9 ONLY) (Continued)		
01285	NOT USED	
01286	GEAR, CLUSTER, SPUR: Two complements of 18 and 68 teeth; 20° pressure angle for both gears; 48 and 64 diametral pitches; 1.093 in. dia by 0.245 in. lg o/a dim.; Mfr 13499 part no. 553-1492-002	5-80
01287	NOT USED	
01288	GEAR, SPUR: 57 teeth; 20° pressure angle; 64 diametral pitch; 9.928 in. dia by 0.178 in. lg o/a dim.; Mfr 13499 part no. 553-1495-002	5-80
01289	GEAR CLUSTER, SPUR: Two complements of 42 and 84 teeth; 20° pressure angle for both gears; 48 diametral pitch for both gears; 1.791 in. dia by 0.432 in. lg o/a dim.; Mfr 13499 part no. 553-1497-002	5-80
01290	GEARSHAFT, SPUR: 72 teeth; 20° pressure angle; 48 diametral pitch; 1.541 in. dia by 0.843 in. lg o/a dim.; Mfr 13499 part no. 553-1501-002	5-80
01291	COUPLING HALF, SHAFT: Cres; 1 in. dia by 0.343 in. lg; 0.1875 in. dia bore; Mfr 13499 part no. 553-1463-003	5-80
01292	COUPLING HALF, SHAFT: Same as 01291	5-80
01293 thru 01295	COUPLING HALF, SHAFT: Same as 01257	5-80
01296	GEARSHAFT, SPUR: 76 teeth; 20° pressure angle; 48 diametral pitch; 1.625 in. dia by 2.093 in. lg o/a dim.; Mfr 13499 part no. 553-1522-002	5-80
01297	GEAR AND CAM ASSEMBLY: 48 teeth; 20° pressure angle; 48 diametral pitch; 0.828 in. o/a lg; Mfr 13499 part no. 553-1525-002	5-80
01298	GEARSHAFT, SPUR: 80 teeth; 20° pressure angle; 64 diametral pitch; 1.281 in. dia by 2.031 in. lg o/a dim.; Mfr 13499 part no. 553-1528-002	5-80
01299	GEARSHAFT: SPUR: 40 teeth; 20° pressure angle; 64 diametral pitch; 1.125 in. dia by 3.031 in. lg o/a dim.; Mfr 13499 part no. 553-1532-002	5-80
01299.1	GEARSHAFT, SPUR: 80 teeth; 20° pressure angle; 64 diametral pitch; 1.281 in. dia by 1.750 in. lg o/a dim.; Mfr 13499 part no. 553-1536-002	5-80
01299.2	NOT USED	
01299.3	NOT USED	
01299.4	ARM ASSEMBLY: Cres cam; 0.531 in. by 1.437 in. by 2.295 in. o/a dim. approx; Mfr 13499 part no. 553-1544-003	5-80
01299.5	GEAR ASSEMBLY: Aluminum gear with 84 teeth, bronze gear with 21 teeth; 1.791 in. dia by 0.656 in. lg; Mfr 13499 part no. 553-1550-003	5-80
01299.6	SHAFT AND GEAR ASSEMBLY: 1.229 in. dia by 1.500 in. lg o/a; Mfr 13499 part no. 553-1555-003	5-80

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9 FREQUENCY SELECTOR ASSEMBLY (AN/URC-9 ONLY) (Continued)		
01299.7	GEARSHAFT, SPUR: 72 teeth; 20° pressure angle; 48 diametral pitch; 1.541 in. dia by 1.296 in. lg o/a dim.; Mfr 13499 part no. 553-1562-002	5-80
01299.8	GEAR CLUSTER, SPUR: Two complements of 57 and 84 teeth; 20° pressure angle for both gears; 48 diametral pitch for both gears; 1.791 in. dia by 0.380 in. lg o/a dim.; Mfr 13499 part no. 553-1565-002	5-80
01299.9	ARM ASSEMBLY: Cres arm; includes brass gear with 108 teeth; Mfr 13499 part no. 553-1568-002	5-80
01299.10	NOT USED	
01299.11	GEAR SPUR: Aluminum; 96 teeth; with bearing; 2.041 in. dia by 0.312 in. lg; Mfr 13499 part no. 553-1577-002	5-80
01299.12	GEARSHAFT, SPUR: Cres; 30 teeth; 0.666 in. dia by 59/64 in. lg o/a; Mfr 13499 part no. 553-1576-002	5-80
01299.13	GEAR ASSEMBLY: Aluminum gear with 72 teeth; bronze gear with 18 teeth; 1.541 in. dia by 1.374 in. lg approx; Mfr 13499 part no. 553-1599-003	5-80
01299.14 thru 01299.21	NOT USED	
01299.22	GEARSHAFT, SPUR: 72 teeth; 20° pressure angle; 48 diametral pitch; 4.541 in. dia by 1.718 in. lg o/a dim.; Mfr 13499 part no. 553-1506-002	5-80
01299.23	GEARSHAFT, SPUR: 90 teeth; 20° pressure angle; 48 diametral pitch; 1.916 in. dia by 1.328 in. lg o/a dim.; Mfr 13499 part no. 553-1509-002	5-80
01299.24	GEAR, SPUR: 84 teeth; 20° pressure angle; 48 diametral pitch; 1.791 in. dia by 0.290 in. lg o/a dim.; Mfr 13499 part no. 553-1515-002	5-80
01299.25	GEAR, SPUR: 76 teeth; 20° pressure angle; 48 diametral pitch; 1.625 in. dia by 0.290 in. lg o/a dim.; Mfr 13499 part no. 553-1512-002	5-80
01299.26	SHAFT-CAM ASSEMBLY: Brass cam, cres shaft; irregular shape; Mfr 13499 part no. 553-1519-002	5-80
01299.27	NOT USED	
01299.28	HUB ASSEMBLY: Aluminum alloy; 1.625 in. dia by 0.359 in. lg o/a dim.; Mfr 13499 part no. 553-1617-002	5-80
01299.29	DRUM ASSEMBLY: Mfr 13499 part no. 553-1610-003	5-80
01299.30	HUB: Aluminum; 0.254 in. id, 1.500 in. od, 0.093 in. lg; Mfr 13499 part no. 553-1611-002	5-80
01299.31	SPRING, HELICAL, EXTENSION: Cres; 40.75 coils; 0.023 in. wire dia.; 2.312 lb load at 2.656 in. total lg; 0.190 in. dia by 1.515 in. lg o/a dim.; Mfr 13499 part no. 553-1434-002	5-80
01299.32	DRUM ASSEMBLY: Mfr 13499 part no. 553-1612-003	5-80
01299.33	NOT USED	

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581/URC-9, FREQUENCY SELECTOR ASSEMBLY (AN/URC-9 ONLY) (Continued)		
01299.34	GEARSHAFT, SPUR: 80 teeth; 20° pressure angle; 64 diametral pitch; 1.281 in. dia by 1.687 in. lg o/a dim.; Mfr 13499 part no. 553-1539-002	5-80
01299.35	SPRING, HELICAL, COMPRESSION: Cres; 12 coils; 0.032 in. wire dia; supports 5 lbs at 0.531 in. dia by 9.75 in. lg o/a dim.; Mfr 13499 part no. 553-1423-002	5-80
01299.36	SPRING, HELICAL, COMPRESSION: Same as 01299.35	5-80
P1201	CONNECTOR, RECEPTACLE, ELECTRICAL: Arc resistant plastic dielectric; Mfr 80586 part no. GM1-8M79	5-80
S1201	SWITCH SECTION, ROTARY: 1 circuit, 1 pole, 18 position; 1 moving and 18 fixed contacts; Mfr 76854 part no. 190311LK	5-80
S1202	SWITCH SECTION, ROTARY: 1 circuit, 1 pole, 18 position; 1 moving and 3 fixed contacts; Mfr 76854 part no. 190312LK	5-80
S1203	SWITCH SECTION, ROTARY: 1 circuit, 1 pole, 12 position; 1 moving and 10 fixed contacts; Mfr 76854 part no. 190313K	5-80
S1204	SWITCH SECTION, ROTARY: Same as S1203	5-80
S1205	SWITCH, SECTION, ROTARY: 1 section, 2 pole, 20 position; 2 moving and 10 fixed contacts; Mfr 76854 part no. 189665RK	5-80
S1206	SWITCH SECTION, ROTARY: Same as S1205	5-80
S1207 thru S1209	NOT USED	
S1210	SWITCH ASSEMBLY: 0.531 in. by 1.437 in. by 5.046 in. approx o/a dim.; Mfr 13499 part no. 553-1631-004	5-80
RT-581/URC-9, DIRECTIONAL COUPLER		
1A1A13 (1301-1399)	COUPLER, DIRECTIONAL: Mfr 13499 part no. 549-3352-004	5-14
C1301	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 500 uuf -0% +100%, 250 vdc; Mfr 71590 part no. DA718-001	5-14
C1302	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 9.1 uuf ±5%, 500 vdc; Mfr 78488 part no. GA9-1UUFPORM5PCT	5-14
C1303	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C1302	5-14
C1304	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C1301	5-14
CR1301	SEMICONDUCTOR DEVICE, DIODE: Mfr 07688 part no. 1N82A	5-14
CR1302	SEMICONDUCTOR DEVICE, DIODE: Same as CR1301	5-14
J1301	CONNECTOR, RECEPTACLE, ELECTRICAL: 1 rd male contact, 500 vdc; low loss plastic dielectric; straight shape; Mfr 94375 part no. 0750	5-14
P1301	CONNECTOR, PLUG, ELECTRICAL: Straight shape; low loss plastic dielectric; 5 amps; Mfr 94375 part no. 131B1100	5-14
R1301	RESISTOR, FIXED, FILM: MIL-R-10509 type RN60B8251F	5-14
R1302	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF101K	5-14
R1303	RESISTOR, FIXED, COMPOSITION: Same as R1302	5-14
R1304	RESISTOR, FIXED, FILM: Same as R1301	5-14

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RT-581( )/URC-9, BROADBAND SIDETONE AMPLIFIER		
1A1A14 (1601-1699)	AMPLIFIER, AUDIO FREQUENCY: Mfr 13499 part no. 549-6408-004	5-19
C1601	CAPACITOR, FIXED, ELECTROLYTIC: MIL type CSR13F476MP	5-19
C1602	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL type CK14BX223M	5-19
C1603	CAPACITOR, FIXED, ELECTROLYTIC: Same as C1601	5-19
H1601	SHELL, ELECTRICAL CONNECTOR: Aluminum; for use w/DPD connectors; end bracket mtg w/bushings; 1.875 in. by 2.546 in. by 3.281 in. approx dim.; Mfr 71468 part no. DPD2-19941-2	5-19
J1601	JACK, TIP: For use with 0.080 diameter male contact; teflon insulation; 5.5 amps, continuous duty cycle; Mfr 98291 part no. SKT5BCBROWN	5-19
P1601	CONNECTOR, RECEPTACLE, ELECTRICAL: Arc resistant plastic dielectric; Mfr 80586 part no. GM11M79	5-19
P1602	NOT USED	
P1603	NOT USED	
P1604	NOT USED	
P1605	NOT USED	
P1606	NOT USED	
P1607	NOT USED	
Q1601	TRANSISTOR: MIL-S-19500 type 2N697	5-19
Q1602	TRANSISTOR: Same as Q1601	5-19
R1601	RESISTOR, VARIABLE, COMPOSITION: MIL-R-94 type RV6LAYSA102B	5-19
R1602	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF152K	5-19
R1603	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF820K	5-19
R1604	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF391K	5-19
R1605	RESISTOR, FIXED, COMPOSITION: MIL type RC20GF220K	5-19
R1606	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF102K	5-19
R1607	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF680K	5-19
R1608	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF561K	5-19
RT1601	RESISTOR, THERMAL: 50 ohms ±10%, at 25° C, 1 w; Mfr 10646 part no. 763F92	5-19
T1601	TRANSFORMER, AUDIO FREQUENCY: Plate coupling type; 500 ohms center tapped at 5.5 ma, primary, 600 ohms secondary; 300 to 5000 Hz, 500 mw; Mfr 70764 part no. A12808	5-19
T1602	TRANSFORMER, AUDIO FREQUENCY: 500 ohms ct primary; 300 ohms secondary; 200 Hz to 4000 Hz frequency response; continuous duty cycle; Mfr 80223 part no. DOT20	5-19
AN/URC-9( ) CASE, RECEIVER-TRANSMITTER CY-2959/URC-9		
1A2 (1401-1499)	CASE, RECEIVER-TRANSMITTER GROUP - CY-2959/URC-9; Mfr 03365 part no. D-6434	1-4

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AN/URC-9( )	CASE, RECEIVER-TRANSMITTER CY-2959/URC-9 (Continued)	
A1401	FAN, CENTRIFUGAL: ac; direct connected; 115 v, 60 Hz, single phase; 0.38 amps running, 0.6 amps stalled, current; 40 w; 3350 rpm; incl connector, gaskets and hdw; Mfr 13499 part no. 593-8140-004	5-64
B1401	FAN, CENTRIFUGAL: Single unit, direct drive; 115 vac, 60 Hz, single phase motor 3350 rpm; Mfr 02598 part no. NBCM20B3	5-64
FL1401	FILTER, RADIO INTERFERENCE: Dual section; 130 vac, 5 amps, 60 cps per sect; 0.05 ohms dc res; Mfr 56289 part no. JN14-901A	5-62
H1401	GROMMET, RUBBER: Neoprene; black synthetic rubber; 7/16 in. id, 3/4 in. od, 1/4 in. thk; Mfr 79497 part no. G1161NEOPRENE45-55	5-62
H1402	NUT, SELF-LOCKING, HEXAGON: MIL type MS21044-D08	5-62
H1403	WASHER, SEALING: Bolt or stud seal (one piece); 0.234 in. id, 0.364 in. od, 0.041 in. thk; Mfr 86579 part no. 110-8	5-62
H1404	NOT USED	
H1405	NOT USED	
H1406	SCREW, MACHINE: Cres; 0.279 in. dia by 0.500 in. lg o/a dim.; 6-32 thd, 1/4 in. lg; Mfr 13499 part no. 553-2178-002	5-62
H1407	PIN, STRAIGHT, HEADLESS: Cres; 0.093 in. dia by 0.515 in. lg o/a dim.; Mfr 13499 part no. 553-2168-002	5-62
H1408	NUT: Bronze; 0.368 in. by 0.718 in. by 0.937 in. o/a dim.; Mfr 13499 part no. 553-2170-002	5-62
H1409	NUT, PLAIN, HEXAGON: Nickel plated brass; 1/4-20UNF-2B thd, 0.5625 in. hex by 0.125 in. h overall; Mfr 13499 part no. 334-0260-00	5-62
H1410	SCREW, SHOULDERED: Cres; 0.312 in. w across flats by 0.500 in. lg o/a dim.; 6-32 thd; Mfr 13499 part no. 553-2172-002	5-62
H1411	WASHER, NONMETALLIC: 0.219 in. id, 0.4375 in. od, 0.125 in. thk; Mfr 13499 part no. 553-2174-002	5-62
H1412	WASHER, NONMETALLIC: Rubber; 0.250 in. id, 0.6875 in, od, 0.125 in. thk; Mfr 13499 part no. 553-2175-002	5-62
H1413	WASHER, THRUST: Cres; 0.171 in. id, 0.812 in. od, 0.062 in. thk; Mfr 13499 part no. 553-2176-002	5-62
H1414	SPACER, SLEEVE: Cres; 0.171 in. id, 0.250 in. od, 0.312 in. lg; Mfr 13499 part no. 553-2177-002	5-62
H1415	CLAMP, LOOP: MIL type MS25281-F3	5-62
H1416	WASHER, LOCK: Mfr 78189 part no. 1724-02	5-62
H1417	SCREW, MACHINE: Brass, black oxide, oil strain finish; cross recess drive pan head; 3-48NC-2A thd, 3/16 in. lg; Mfr 13499 part no. 343-1735-00	5-63
H1423	PIN, SPRING: MIL type MS16562-221	5-62
H1424	NUT, BLIND RIVET: Steel, cadmium plated; flat head, closed end, keyless; 0.010 in. to 0.075 in. thk; 0.625 in. lg; Mfr 25472 part no. S6B75	5-62
H1425	NUT, BLIND RIVET: Steel, cadmium plated; flat head, open end, keyless 4-40 thd size, 0.370 in. lg; Mfr 25472 part no. 4-60	5-62

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AN/URC-9( )	CASE, RECEIVER-TRANSMITTER CY-2959/URC-9 (Continued)	
H1426	RIVNUT: Steel, cadmium plated; flat head, closed end; keyless; 0.328 in. dia, 0.4695 in. lg; Mfr 06827 part no. 2R1083-1	5-62
H1428	INSERT, SCREW THREAD: MIL type MS21209C0420	5-63
H1429	INSERT, SCREW THREAD: MIL type MS124655	5-62
H1430	INSERT, SCREW THREAD: MIL type MS21209C4-15	5-62
H1431	INSERT, SCREW THREAD: MIL type MS122123	5-62
H1432	INSERT, SCREW THREAD: MIL type MS21209C0815	5-62
H1435	INSERT, SCREW THREAD: MIL type MS21209C0615	5-63
H1439	SCREW, MACHINE: Stainless steel, plain finish; 8-32NC-2A thd, 5/8 in. lg; Mfr 13499 part no. 553-220-002	5-62
H1441	SCREW, MACHINE: Brass; Mfr 13499 part no. 313-0140-00	5-62
H1442	SCREW, MACHINE: Stainless steel, passivate finish; 6-32NC-2A thd, 1/4 in. lg; Mfr 13499 part no. 330-2295-00	5-62
H1443	GROMMET, RUBBER: MIL type MS35489-9	5-62
H1444	BED PLATE ASSEMBLY: 0.080 in. thk; aluminum with nylon slides attached; Mfr 03565 part no. C-6284	5-62
J1401	CONNECTOR, RECEPTACLE, ELECTRICAL: 37 female contacts 700 vdc; 500 vac rms; Mfr 02660 part no. 7-8720	5-62
J1402	CONNECTOR, RECEPTACLE, ELECTRICAL: Aluminum body, plastic insert, 20 female contacts; 1300 v; 1.249 in. by 1.687 in. by 1.687 in. by 3.375 in. o/a dim.; Mfr 71468 part no. DPDF20-33SICPOSNA101	5-62
J1403	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type MS24039	5-62
J1404	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 part no. MS3102R16-10P	5-63
J1405	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R24-7S	5-63
J1406	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-10544, type U79U	5-63
J1407	CONNECTOR, RECEPTACLE, ELECTRICAL: Mfr 13499 part no. 371-6645-00	5-63
01401	GASKET: MIL-P-5516 type AN6227-5	5-62
01402	GASKET: Same as 01401	5-62
01403	NOT USED	
01404	NOT USED	
01405	NOT USED	
01406	NOT USED	
01407	PIVOT ASSEMBLY: 0.938 in. by 2.250 in. o/a dim.; Mfr 13499 part no. 553-2189-002	5-62
01408	PIVOT ASSEMBLY: Same as 01407	5-62
01409	COVER, ELECTRICAL CONNECTOR: With chain, type MS25043-14C	5-63
01410	NOT USED	
01411	NOT USED	
J1408	CONNECTOR, RECEPTACLE, ELECTRICAL: 3 female contacts, type MS3102R14S-7S	5-63
K1401	RELAY, ARMATURE: 26 vdc coil, DPDT, Miniature case; Mfr 82768 part no. MV2C600D13-26V, Mfr 70309 part no. KHYX41	

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AN/URC-9( ) CASE, RECEIVER-TRANSMITTER CY-2959/URC-9 (Continued)		
K1402	RELAY, ARMATURE: Same as K1401	
01412	COVER, ELECTRICAL CONNECTOR: Cadmium plated finish; 1.687 in. dia by 0.437 in. lg approx; incl chain; Mfr 02660 part no. 9760-24	5-63
01413	COVER, ELECTRICAL CONNECTOR: Same as 01412	5-63
01414	COVER, ELECTRICAL CONNECTOR: With rubber gasket and chain; 1-1/8 in. dia gasket, 4-5/8 in. lg chain; Mfr 02660 part no. 9760-16	5-63
01415	LOCK RING, CONNECTOR: Brass; 0.155 in. by 0.625 in. by 0.725 in. overall; 0.510 in. dia to accommodate connector; Mfr 02660 part no. 126-1069	5-62
01416	VALVE, PNEUMATIC TANK: Brass; 1/8-27 thd on outlet connection; 0.302-32 thd on inlet connection; 0.437 in. w across flats by 0.906 in. lg o/a dim.; Mfr 17875 part no. 26-20420BB655-13	5-63
01417	VALVE, SAFETY RELIEF: Brass; 3.5 psi cracking pressure, 2.5 psi min reseating pressure; minus 80 to plus 400 deg F temperature; 0.630 in. w across flats by 1.200 in. lg o/a dim.; Mfr 91816 part no. 524B2M3-5	5-63
01418	NOT USED	
01419	NOT USED	
01420	NOT USED	
01421	FILTER, AIR-CONDITIONING: Aluminum mech., 5 in. by 3.25 in. by 10.75 in. approx. o/a dim.; Mfr 95347 part no. F-249	5-62
01422	GASKET: Rubber; 0.187 in. by 5.124 in. by 12.437 in. o/a dim.; Mfr 13499 part no. 553-2182-004	5-62
01423	GASKET: Same as 01422	5-62
P1402	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type MS24040	5-64
S1401	SWITCH, ROTARY WAFER: 2 circuit, 2 pole, 2 position, 1 section; 2 moving and 4 fixed contact; Mfr 76854 part no. 22525F1	5-63
POWER SUPPLY, PP-2702/URC-9		
1A3 (1501-1599)	POWER SUPPLY: PP-2702/URC-9; metallic type rectification, full wave; 115 vac, 50 to 60 Hz, single phase, operating power, 230 vac, 50 to 60 Hz, single phase, alternate operating power; 7-1/32 in. by 11-13/16 in. by 19 in. o/a; Mfr 03565 part no. D-6441	5-82
C1501	CAPACITOR, FIXED, PAPER DIELECTRIC. 10 uf $\pm$10%, 600 vdc; Mfr 56289 part no. P50816	5-83
C1502	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C1501	5-83
C1503	CAPACITOR, FIXED, PAPER DIELECTRIC: MIL-C-25 type CP53B4EF104V1	5-84

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
POWER SUPPLY, PP-2702/URC-9 (Continued)		
C1504	CAPACITOR, FIXED, PAPER DIELECTRIC: MIL-C-25 type CP70B1EF405K1	5-83
C1505	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C1501	5-83
C1506	CAPACITOR, FIXED, PAPER DIELECTRIC: MIL Type CP54B1KE504K1	5-84
C1507	CAPACITOR, FIXED, PAPER DIELECTRIC: 1 uf -10% +20%, 330 vac, 60 cps; Mfr 13499 part no. 931-1100-00	5-84
C1508	CAPACITOR, ELECTROLYTIC: 12 mfd 250w vdc, ±50%, -10% tol; MIL-C-62 type M62/02-045	5-85
CR1501	SEMICONDUCTOR DEVICE: MIL type 1N561	5-84
CR1502	SEMICONDUCTOR DEVICE: Same as CR1501	5-84
CR1503	SEMICONDUCTOR DEVICE: Same as CR1501	5-84
CR1504	SEMICONDUCTOR DEVICE: Same as CR1501	5-84
CR1505	SEMICONDUCTOR DEVICE, DIODE: Mfr 07688 type 1N249AR	5-84
CR1506	SEMICONDUCTOR DEVICE, DIODE: Same as CR1505	5-84
CR1507	SEMICONDUCTOR DEVICE, DIODE: Same as CR1505	5-84
CR1508	SEMICONDUCTOR DEVICE, DIODE: Same as CR1505	5-84
CR1509	SEMICONDUCTOR DEVICE, DIODE: MIL type 1N547	5-84
CR1510	SEMICONDUCTOR DEVICE, DIODE: Same as CR1509	5-84
CR1511	SEMICONDUCTOR DEVICE, DIODE: Same as CR1509	5-84
CR1512	SEMICONDUCTOR DEVICE, DIODE: Same as CR1509	5-84
CR1513	SEMICONDUCTOR DEVICE, DIODE: MIL type 1N538	5-84
CR1514	SEMICONDUCTOR DEVICE, DIODE: MIL type IN2975RB	5-84
F1501	FUSE, CARTRIDGE: Brass, nickel, or bright alloy plated; 5 amps rating; 125 v max; 1-1/4 in. lg o/a; Mfr 71400 part no. MDX5	5-82
F1502	FUSE, CARTRIDGE: MIL-F-15160 type FO2B125V3AS	5-82
F1503	FUSE, CARTRIDGE: MIL-F-15160 type FO2B125V1 1-2AS	5-82
F1504	FUSE, CARTRIDGE: MIL-F-15160 type FO2A250V1-2AS	5-82
F1505	FUSE, CARTRIDGE: MIL type FO3A250V15A	5-82
F1506	FUSE, CARTRIDGE: MIL-F-15160 type FO2A250V1-4AS	5-82
F1507	FUSE, CARTRIDGE: 250 v, 0.175 amps; glass case, 0.250 in. dia by 1-1/4 in. lg; Mfr 71400 part no. AGC175-1000	5-82
F1508	FUSE, CARTRIDGE: MIL-F-15160 type FO2B250V3-4AS (SPARE)	5-82
H1501	NUT, SLEEVE: Aluminum; tapped no. 6-32 thd. 0.375 in. lg ea end; 0.094 in. h head; 0.433 in. hex by 3.016 in. lg o/a dim.; Mfr 13499 part no. 015-0555-00	5-84
H1502	BRACKET, MOUNTING: Accommodate CP70 capacitors; MIL type CP07SB5	5-83
H1503	BRACKET, MOUNTING: Accommodate CP70 capacitors; MIL type CP07SB4	5-83
H1504	WASHER, KEY: For toggle switch, 0.484 in. id, 0.719 in. od, 0.032 in. thk; Mfr 13499 part no. 139-0261-00	5-82
H1505	BOOT, DUST AND MOISTURE SEAL: MIL type MILB5423-2	5-82
H1506	NOT USED	
H1507	NOT USED	
H1508	WASHER, FLAT: Cres 0.127 in. id, 0.250 in. od, 0.033 in. thk; Mfr 13499 part no. 553-1854-002	5-82

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
POWER SUPPLY, PP-2702/URC-9 (Continued)		
H1509	NUT, PLAIN, KNURLED: Brass, nickel plated; 3/8-32NF-2 thd; 0.094 in. h, 0.052 in. w, 0.515 in. od, 0.437 in. dia small end; Mfr 13499 part no. 503-8686-002	5-82
H1510	WASHER, FLAT: Stainless steel, passivate finish; 0.250 in. dia rd hole; 0.406 in. dia, 0.025 in. thk; Mfr 13499 part no. 506-5173-002	5-83
H1511	POST, SPACING: Aluminum; chromate dip; #6-32 thd; 0.375 in. lg; Mfr 13499 part no. 540-9205-003	5-84
H1512	POST: Aluminum, chromate dip. 0.375 in. od, 0.089 in. thk; 0.750 in. lg; no. 10 screw size; Mfr 13499 part no. 541-6141-002	5-84
H1513	SCREW, EXTERNALLY RELIEVED BODY: Cres; 0.406 in. dia by 0.218 in. h fillister head; 1/4-20 thd, 15/32 in. lg; 1.468 in. lg o/a; Mfr 13499 part no. 553-2114-002	5-83
H1514	NOT USED	
H1515	POST, ELECTRICAL-MECHANICAL EQUIPMENT: Aluminum alloy; 0.312 in. w across flats by 1.600 in. lg o/a dim.; Mfr 13499 part no. 553-2225-002	5-84
H1516	SCREW, CAP, HEXAGON HEAD: Cres; 1/4-20UNC-2A thd, 1-1/4 in. lg/ Mfr 13499 part no. 553-2227-002	5-82
H1517	NOT USED	
H1518	CLAMP, LOOP: Nylon; accommodates 0.42 in. dia component; 0.38 in. w, 0.045 in. thk material; MIL type MS25281-7P	5-84
H1519	NOT USED	
H1520	COLLAR, SHAFT: Cres; 0.625 in. dia by 0.125 in. lg o/a dim.; Mfr 13499 part no. 553-2224-002	5-82
H1521	WASHER, SEALING: Synthetic rubber and steel; 0.280 in. id, 0.516 in. od, 0.054 in. thk; Mfr 86579 part no. 110 1-4CADPL	5-82
H1522	POST: Aluminum, chromate dipped; 6-32NC-2 thd; 1/4 in. w across flats, 5/8 in. h o/a; Mfr 13499 part no. 540-9213-003	5-84
I1501	LAMP, INCANDESCENT: MIL-L-6363 type MS25237-327	5-82
L1501	REACTOR: 4 henries inductance, 400 ma dc current, 55 ohms dc res, 150 v, 110 to 130 to 800 Hz; 3.062 in. by 3.562 in. by 4.375 in. o/a dim; Mfr 97965 part no. 21913	5-83
L1502	REACTOR: Same as L1501	5-83
L1503	REACTOR: 6 henries inductance; 150 ma dc current; 100 ohms dc res, 75 v, 110 to 130 to 800 Hz; 2.125 in. by 2.750 in. by 3.375 in. o/a dim; Mfr 97965 part no. 21914	5-83
L1504	REACTOR: Same as L1503	5-83
01501	GASKET: MIL-P-5516 type AN6227-7	5-82
01502	GASKET: MIL-P-5516 type AN6227-5	5-82
01503	GASKET: Synthetic rubber; 10.142 in. dia aperture, 10.562 in. od, 0.210 in. thk; Mfr 13499 part no. 200-1600-00	5-84
01504	NOT USED	
01505	GASKET: Rubber; 0.062 in. by 1.093 in. by 2.156 in. o/a dim.; Mfr 13499 part no. 553-2108-002	5-82

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
POWER SUPPLY, PP-2702/URC-9 (Continued)		
01506	KNOB: Setscrew type; rd w/bar face, plain gripping surface; zinc alloy body; 15/16 in. od, 3/4 in. thk o/a; Mfr 81183 part no. 15015	5-82
01507	BRACKET, LOCK: Aluminum; 11/16 in. by 15/16 in. by 3 in.; including post; Mfr 13499 part no. 593-7793-002	5-83
01508	BRACKET, MOUNTING: Cres; 0.671 in. by 0.875 in. by 1-5/32 in.; black enamel finish; Mfr 13499 part no. 593-1404-002	5-84
01509	BUSHING, EXTRACTOR: Beryllium copper; 0.875 in. by 1-1/8 in. by 2-5/8 in.; Mfr 13499 part no. 593-1429-003	5-84
P1501	CONNECTOR, PLUG, ELECTRICAL: Aluminum body, plastic insert, 20 copper male contacts; 1300 v; 1.390 in. by 1.687 in. by 3.375 in. o/a dim.; Mfr 71468 part no. DPDF20-34PILPOSNA101	5-84
R1501	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF474K	5-84
R1502	RESISTOR, FIXED, COMPOSITION: Same as R1501	5-84
R1503	RESISTOR, FIXED, COMPOSITION: Same as R1501	5-84
R1504	RESISTOR, FIXED, COMPOSITION: Same as R1501	5-84
R1505	RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW33V102	5-84
R1506	RESISTOR, VARIABLE: Wirewound power type; 500 ohms $\pm 10\%$, 25 w; Mfr 12697 part no. CM25550	5-82
R1507	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF334K	5-84
R1508	RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW29V121	5-84
R1509	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF301J	5-85
S1501	SWITCH, TOGGLE: MIL-S-3950A type SM35059-23	5-83
S1502	SWITCH, TOGGLE: Same as S1501	5-83
S1503	SWITCH, TOGGLE: 4 pstl lever up, off; lever down, on; Mfr 15605 part no. 7661K6	5-82
T1501	TRANSFORMER, POWER STEP-DOWN AND STEP-UP: 115 v; primary; 300 vdc, 26.5 vdc secondaries; 4 in. by 4.687 in. by 5.499 in. o/a dim.; Mfr 97965 part no. 24565	5-83
T1502	TRANSFORMER, POWER STEP-DOWN AND STEP-UP: 115 v primary; 155 vdc at 150 ma and 6.7 vac at 13 amps secondary, 50 to 60 to 400 cps; 3.062 in. by 3.562 in. by 4.500 in. o/a dim.; Mfr 97965 part no. 31793	5-83
TB1501	TERMINAL BOARD: 0.282 in. by 1.500 in. by 3.000 in. o/a dim.; incl 4 terminals; Mfr 13499 part no. 593-7804-002	5-84
TB1502	TERMINAL BOARD: 0.282 in. by 1.500 in. by 3.000 in. o/a dim.; incl 4 terminals; Mfr 13499 part no. 593-7805-002	5-84
TB1503	TERMINAL BOARD: 0.437 in. by 1.750 in. by 3.875 in. o/a dim.; incl 8 terminals; Mfr 13499 part no. 593-7800-002	5-84
XF1501	FUSEHOLDER: c/o four extractor post type fuseholders inclosed in phenolic; accommodates four cartridge type fuses, 1/2 in. dia by 1-1/4 in. lg; 300 vdc at 0.5 amps, 26 vdc at 30 amps; 1.125 in. by 2.093 in. by 2.280 in. o/a; Mfr 75915 part no. 340129	5-82
XF1502	FUSEHOLDER: Same as XF1501	5-82

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
POWER SUPPLY, PP-2702/URC-9 (Continued)		
XI1501	LIGHT, INDICATOR: Supplied with lens; 7/16 in. dia; nylon clear smooth face frosted back, flange mtd lens holder, nickel plated; Mfr 99707 part no. L1020R	5-82
AN/URC-9( ) CABLE ASSEMBLIES AND INSTALLATION KIT		
1A4	INSTALLATION KIT ELECTRONIC EQUIPMENT: MK-620/UR incl 2 mtg angles and 12 screws in bag; Mfr 13499 part no. 593-8149-00	Table 1-5
1W1	CABLE ASSEMBLY, POWER ELECTRICAL (AN/URC-9, 9A ONLY); CX-7258/U (10 ft 6 in.) 3 conductors, No. 16 AWG; 600 v; terminated ea end w/connector; 10 ft 6 in. lg o/a; C/O P1905, and P1906; Mfr 13499 part no. 593-7852-002	Table 1-5
1W1	CABLE ASSEMBLY, POWER ELECTRICAL (AN/URC-9Y, -9AY ONLY): CX-10332/URC-9Y	Table 1-5
1W2	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: CX-7259/U; 5 conductors, no. 22 awg, stranded, plastic insulation; terminated ea end w/connector; 5 ft lg o/a; C/O P1907 and P1908; Mfr 13499 part no. 593-7858-003	Table 1-5
1W3	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: CX-8521/URC-9; 32 conductors, no. 26 AWG, 1 conductor, no. 22 AWG; rubber jacket; 25 ft 0.500 in. lg o/a; terminated one end w/2 plug connectors, other end w/2 jack connectors; C/O P-1, P-2, J-1, J-2, Mfr 13499 part no. 548-9031-004	Table 1-5
1W1605	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: CX-7300/URC-9; 23 conductors, six no. AWG, twelve no. 18 AWG, five no. 22 AWG; 3 ft lg, excl terminations; C/O P1606 & C1607; Mfr 13499 part no. 593-1515-003	Table 1-5
1W2202	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: CX-7260/URC-9; 40 conductors terminated ea end w/one connector and one adapter; 36 in. lg o/a; C/O items C462 & C463; Mfr 13499 pt. no. 549-3384-004	Table 1-5
J1	CONNECTOR, RECEPTACLE, ELECTRICAL: 20 female contacts; 7.5 amps, straight shape; Mfr 80586 part no. GM20F79	
J2	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J1	
P1	CONNECTOR, RECEPTACLE, ELECTRICAL: Arc resistant plastic dielectric; Mfr 80586 part no. GM20M79	
P2	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as P1	
P1606	CONNECTOR, PLUG, ELECTRICAL: Aluminum body, plastic insert, 20 copper male contacts; 1300 v; 1.390 in. by 1.687 in. by 3.375 in. o/a dim.; Mfr 71468 part no. DPDF20-34PILPOSN P/O CX-7300/URC-9	
P1607	CONNECTOR, PLUG, ELECTRICAL: Aluminum body, plastic insert, 20 female contacts; 1300 v; 1.249 in. by 1.687 in. by 3.375 in. o/a dim.; Mfr 71468 part no. DPDF20-33ICPOSN	
P1905	CONNECTOR, PLUG, ELECTRICAL: MIL type MS3108R16-10S	

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AN/URC-9( ) CABLE ASSEMBLIES AND INSTALLATION KIT (Continued)		
P1906	CONNECTOR, PLUG, ELECTRICAL: Female contacts, 1 connector mating end; synthetic rubber dielectric; straight shape; w/enclosing shell, 1-11/32 in. lg by 1-17/32 in. lg by 1-17/32 in. dia; Mfr 74545 part no. 7567	
P1907	CONNECTOR, PLUG, ELECTRICAL: 10 female contacts; 1-9/32 in. by 3-7/32 in. o/a; Mfr 09299 part no. U77U	
P1908	CONNECTOR, PLUG, ELECTRICAL: Same as P1907	
P2201	CONNECTOR, PLUG, ELECTRICAL: 37 female contacts, 22 amps; straight shape; Mfr 71468 part no. CA2631-2874	
P2202	CONNECTOR, PLUG, ELECTRICAL: 37 female contacts, 22 amps; straight shape; Mfr 71468 part no. CA301E28-21 PME	
RADIO SET CONTROL C-3866/SRC		
Unit 2 (101-299)	CONTROL, RADIO SET-C-3866/SRC; Mfr 03365 part no. C-6438	
A101	INSTALLATION KIT, ELECTRONIC EQUIPMENT: MK-622/UR; incl 2 mtg angles and 8 machine screws in draw string bag; Mfr 13499 part no. 522-3134-00	5-116
A102	CONTROL SUB ASSEMBLY-CHASSIS: Mfr 13499 part no. 548-9092-005	5-116
A103	CHASSIS, ELECTRICAL EQUIPMENT: aluminum, chromate dip finish; 6.859 in. by 14-1/4 in. by 16.624 in.; Mfr 13499 part no. 548-9090-005	5-121
A104	COVER, CONTROL: Aluminum; 1.031 in. by 8.468 in. by 17.260 in.; Mfr 13499 part no. 548-9081-004	5-121
A105	DOOR, ACCESS: 1/4 in. by 4.109 in. by 7.124 in. approx; incl fuseholder, plate & hardware; Mfr 13499 part no. 548-9075-003	5-116
A106	CABINET ASSEMBLY, ELECTRICAL EQUIPMENT: Mfr 13499 part no. 548-9093-005	5-116
A107	CABINET, ELECTRICAL EQUIPMENT: Aluminum; 8.468 in. by 16.718 in. by 17.250 in.; Mfr 13499 part no. 548-9088-005	5-116
A108	BRACKET, FILTER: aluminum; 8.468 in. by by 2-1/2 in. by 13-7/16 in.; Mfr 13499 part no. 548-9069-003	5-116
FL101	CAPACITOR, FIXED, PAPER DIELECTRIC: MIL type CX24BKF103	5-122
FL102	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as FL101	5-122
FL103	CAPACITOR, FIXED: Same as FL101	5-122
FL104	CAPACITOR, FIXED: Same as FL101	5-122
FL105	CAPACITOR, FIXED: Same as FL101	5-122
FL106	CAPACITOR, FIXED: Same as FL101	5-122
FL107	CAPACITOR, FIXED: Same as FL101	5-122
FL108	CAPACITOR, FIXED: Same as FL101	5-122
FL109	CAPACITOR, FIXED: Same as FL101	5-122
FL110	CAPACITOR, FIXED: Same as FL101	5-122
FL111	CAPACITOR, FIXED: Same as FL101	5-122

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RADIO SET CONTROL C-3866/SRC (Continued)		
FL112	CAPACITOR, FIXED: Same as FL101	5-122
FL113	CAPACITOR, FIXED: Same as FL101	5-122
FL114	CAPACITOR, FIXED: Same as FL101	5-122
FL115	CAPACITOR, FIXED: Same as FL101	5-122
FL116	CAPACITOR, FIXED: Same as FL101	5-122
FL117	CAPACITOR, FIXED: Same as FL101	5-122
FL118	CAPACITOR, FIXED: Same as FL101	5-122
FL119	CAPACITOR, FIXED: Same as FL101	5-122
FL120	CAPACITOR, FIXED: Same as FL101	5-122
FL121	CAPACITOR, FIXED: Same as FL101	5-122
FL122	CAPACITOR, FIXED: Same as FL101	5-122
FL123	CAPACITOR, FIXED: Same as FL101	5-122
FL124	CAPACITOR, FIXED: Same as FL101	5-122
FL125	CAPACITOR, FIXED: Same as FL101	5-122
FL126	CAPACITOR, FIXED: Same as FL101	5-122
FL127	CAPACITOR, FIXED: Same as FL101	5-122
FL128	CAPACITOR, FIXED: Same as FL101	5-122
FL129	CAPACITOR, FIXED: Same as FL101	5-122
FL130	CAPACITOR, FIXED: Same as FL101	5-122
FL131	CAPACITOR, FIXED: Same as FL101	5-122
FL132	CAPACITOR, FIXED: Same as FL101	5-122
FL133	CAPACITOR, FIXED: Same as FL101	5-122
FL134	CAPACITOR, FIXED: Same as FL101	5-122
J101	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R24-7SX	5-122
J102	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R24-20S	5-122
J103	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R24-27S	5-122
J104	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R24-7SY	5-122
J105	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R16-10SX	5-122
J106	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R16-10S	5-122
J107	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J106	5-122
J108	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R20-24P	5-122
P101	NOT USED	
P102*	CONNECTOR, PLUG, ELECTRICAL: MIL-C-5015 type MS3108R24-20P	7-1
P103*	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3108R24-27P	7-1
P104*	CONNECTOR, PLUG, ELECTRICAL: MIL-C-5015 type MS3108R-24-7PY	7-1
	*Part of connector kit supplied with radio set control C-3866/SRC (P102 mates with J102 etc.)	

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RADIO SET CONTROL C-3866/SRC (Continued)		
P105*	CONNECTOR, PLUG, ELECTRICAL: MIL-C-5015 type MS3108R16-10PX	7-1
P106	NOT USED	
P107	NOT USED	
P108*	CONNECTOR, PLUG, ELECTRICAL: MIL-C-5015 type MS3108R20-24S	7-1
C201	CAPACITOR, FIXED, PAPER DIELECTRIC: 1 uf $\pm$20%, 400 v dc; part no. 186P10504T15; Mfr 56289	5-118
C202	CAPACITOR, FIXED, ELECTROLYTIC: MIL type CL53CF132UP3	5-118
C203	CAPACITOR, FIXED, ELECTROLYTIC: Same as C202	5-118
C204	CAPACITOR, FIXED, ELECTROLYTIC: MIL type CE-13-C-151-G	5-119
CR201	SEMICONDUCTOR DEVICE, DIODE: MIL type 1N538	5-118
CR202	SEMICONDUCTOR DEVICE, DIODE: Same as CR201	5-118
CR203	SEMICONDUCTOR DEVICE, DIODE: Same as CR201	5-118
CR204	SEMICONDUCTOR DEVICE, DIODE: Same as CR201	5-118
CR205	SEMICONDUCTOR DEVICE, DIODE: MIL-S-19500/134 (SIGC). type 1N249B	5-118
CR206	SEMICONDUCTOR DEVICE, DIODE: Same as CR205	5-118
CR207	SEMICONDUCTOR DEVICE, DIODE: Same as CR205	5-118
CR208	SEMICONDUCTOR DEVICE, DIODE: Same as CR205	5-118
CR209	SEMICONDUCTOR DEVICE, DIODE: Same as CR201	5-118
CR210	SEMIDONDUCTOR DEVICE, DIODE: Same as CR201	5-118
CR211	SEMIDONDUCTOR DEVICE, DIODE: Same as CR201	5-118
CR212	SEMICONDUCTOR DEVICE, DIODE: Same as CR201	5-118
CR213	SEMICONDUCTOR DEVICE, DIODE: MIL type 1N547	5-119
DS201	LAMP, INCANDESCENT: MIL type MS25237-328	5-118
DS202	LAMP, INCANDESCENT: Same as DS201	5-118
F201	FUSE, CARTRIDGE: MIL type FO3A250V5AS	5-119
F202	FUSE, CARTRIDGE: MIL type FO2A250V2AS	5-119
F203	FUSE, CARTRIDGE: MIL type FO3A250V1AS	5-119
F204	FUSE, CARTRIDGE: MIL type FO3A250V10AS for AN/SRC-21; and 25A, 125 V ferrule type 1-1/4 in. lg by 1/4 in. dia., Bussmann Mfg. Co., part no. MBO25 for AN/SRC-20	5-119
F205	FUSE, CARTRIDGE: MIL type FO3A250V3AS	5-119
F206	FUSE, CARTRIDGE: Same as F204	5-119
F207	FUSE, CARTRIDGE: Same as F205	5-119
F208	FUSE, CARTRIDGE: MIL type FO3A250V15AS	5-119
FL201	FILTER, RADIO INTERFERENCE: 230 v ac, 60 Hz, 2 amps; 0.5 ohms dc resistive; Mfr 56289 part no. JN14-806A	5-119
FL202	FILTER, RADIO INTERFERENCE: Same as FL201	5-119
H201	WASHER, FLAT: cres, passivate finish; 0.120 in. id, 0.375 in. od, 0.018 in. thk; Mfr 13499 part no. 504-0730-003	5-119
H202	GASKET: synthetic rubber; oval shape; 1-29/32 in. id, 2-5/32 in. od; Mfr 13499 part no. 548-9062-002	5-119
	*Part of connector kit supplied with radio set control C-3866/SRC (P102 mates with J102 etc.)	

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RADIO SET CONTROL C-3866/SRC (Continued)		
H203	THUMBSCREW: cres; 8-32NC-2A thd, 1 in. lg; Mfr 13499 part no. 548-9061-002	5-118
H204	GASKET: synthetic rubber; 2-9/32 in. id, 2-61/64 in. od; Mfr 13499 part no. 548-9056-002	5-118
H205	GASKET: synthetic rubber; 5.859 in. aperture, 6.137 in. dia by 0.139 in. thk o/a; Mfr 86579 part no. 909-35-711-70	5-116
H206	SCREW: cres; 6-32 NC-2B thd, 0.250 in. dia, 0.5625 in. lg; Mfr 13499 part no. 593-8029-002	5-116
J201	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102A36-7P	5-118
K201	RELAY, ARMATURE: 1B, 1C, 3 amps at 28 v dc or 115 v ac, nom inductive; 300 ma nom coil current; 40 ohms $\pm$10% at +25°C coil resistance; 1/2 on and 1/2 off duty cycle; Mfr 71482 part no. A106786	5-121
K202	RELAY, ARMATURE: 4C, 3 amps at 28 v dc or 115 v ac, non inductive; 100 ma nom coil current; 125 ohms $\pm$10% at +25°C coil resistance; continuous duty cycle; Mfr 71482 part no. B106786	5-121
K203	RELAY, ARMATURE: 1A, 2B, 3 amps at 28 v dc or 115 v ac, non inductive; 370 ma dc max operating current; 75 ohms coil resistance; continuous duty cycle; Mfr 71482 part no. C106786	5-121
K204	RELAY, ARMATURE: 1A, 1C contact arrangement, 3 amps at 28 v dc or 115 v ac; 240 ma dc, 50 ohms, one coil, 96 ma, 125 ohms other coil; Mfr 71482 part no. D106786	5-121
K205	RELAY, ARMATURE: 2A contact arrangement; 3 amps at 28 v dc or 115 v ac; 1 winding, 70 ma, 175 ohms; Mfr 71482 part no. E106786	5-121
K206	SWITCH, TELEPHONE, ROTARY: 26 point, 13 level, spring driven 24v, 20 ohms, coil ratings; 3 amps carrying capacity, 0.1 amps interrupting capacity at 115 v ac non inductive or 0.1 amp at 30 v dc resistive, contact ratings; Mfr 71482 part no. RP12360G2	5-118
K207	RELAY, ARMATURE: 2C contact arrangement; 2 amps at 28 v dc, or 115 v ac; 1 winding, 15 ma dc, 1000 ohms dc res; Mfr 78377 part no. 92397	5-118
K208	RELAY, ARMATURE: 3 pole st; 25 amps at 115/200v ac, 400 Hz, 29 v dc, resistive; 1 winding, 28 v dc, 100 ohms resistance, coil rating; Mfr 35344 part no. 9071	5-118
K209	RELAY, ARMATURE: 2C contact arrangement; 3 amps at 28 v dc or 2 amps at 115 v ac; 1 winding, 26.5 v dc, 600 ohms; Mfr 01526 part no. 3SAF1242	5-119
L201	REACTOR: fixed inductance type; 0.08 henries, measured at 10 v ac, 60 Hz; 1 amp, 1.0 ohms dc res; metal case, hermetically sealed; Mfr 88063 part no. 96-0362-00	5-118
L202	REACTOR: Same as L201	5-118

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RADIO SET CONTROL C-3866/SRC (Continued)		
0201	CAP, PROTECTIVE, DUST AND MOISTURE SEAL: aluminum, cadmium plated w/supplementary chromat treatment, olive drab color; w/internal rubber gasket; 1-1/2 -18 thd; 1-7/16 in. dia by 7/16 in. thk; Mfr 02660 part no. 9760-24	5-120
0202	CAP, PROTECTIVE, DUST AND MOISTURE SEAL: Same as 0201	5-120
0203	CAP, PROTECTIVE, DUST AND MOISTURE SEAL: Same as 0201	5-120
0204	CAP, PROTECTIVE, DUST AND MOISTURE SEAL: Same as 0201	5-120
0205	CAP, PROTECTIVE, DUST AND MOISTURE SEAL: Aluminum, cadmium plated w/supplementary chromate treatment, olive drab color; w/internal rubber gasket; 1-1/4 -18 thd; 1-7/16 in. dia by 7/16 in. thk; Mfr 02660 part no. 9760-20	5-120
0206	CAP, PROTECTIVE, DUST AND MOISTURE SEAL: Aluminum, cadmium plated w/supplementary chromate treatment, olive drab color; w/internal rubber gasket; 1-20 thd; 1-1/8 in. dia by 7/16 in. thk; Mfr 02660 part no. 9760-16	5-120
0207	CAP, PROTECTIVE, DUST AND MOISTURE SEAL: Same as 0206	5-120
0208	CAP, PROTECTIVE, DUST AND MOISTURE SEAL: Same as 0206	5-120
P201	CONNECTOR, PLUG, ELECTRICAL: 47 female contacts; 7 #12 contacts 41 amps; 40 #16 contacts 22 amps; Mfr 02660 part no. 97-3106A36-7S212	5-117
R201	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF101K	5-119
R202	RESISTOR, FIXED, COMPOSITION: 22 ohms ±5%, 1/2 watt, 3.3 maximum dcwv; Mfr 75042 part no. GBT1-222M5 (P/O K206)	5-127
R203	P/O K206, Same as R202	5-127
R204	P/O K206, Same as R202	5-127
R205	P/O K206, Same as R202	5-127
R206	P/O K206, Same as R202	5-127
R207	P/O K206, Same as R202	5-127
R208	P/O K206, Same as R202	5-127
R209	P/O K206, Same as R202	5-127
R210	P/O K206, Same as R202	5-127
R211	P/O K206, Same as R202	5-127
R212	P/O K206, Same as R202	5-127
R213	P/O K206, Same as R202	5-127
R214	P/O K206, Same as R202	5-127
R215	P/O K206, Same as R202	5-127
R216	P/O K206, Same as R202	5-127
R217	P/O K206, Same as R202	5-127
R218	P/O K206, Same as R202	5-127
R219	P/O K206, Same as R202	5-127
R220	P/O K206, Same as R202	5-127
R221	P/O K206, Same as R202	5-127
R222	P/O K206, Same as R202	5-127
R223	P/O K206, Same as R202	5-127
R224	P/O K206, Same as R202	5-127
R225	P/O K206, Same as R202	5-127

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RADIO SET CONTROL C-3866/SRC (Continued)		
R226	RESISTOR, FIXED, WIREWOUND: MIL type RW29V800	5-121
R227	RESISTOR, FIXED, WIREWOUND: 250 ohms ±3%, 50 w; Mfr 91637 part no. RH50-250R0G	5-119
R228	RESISTOR, FIXED, WIREWOUND: 1600 ohms ±3%, 50 w; Mfr 91637 part no. RH50-16000G	5-119
R229	RESISTOR, VARIABLE, COMPOSITION: MIL-R-94 type RV6LAYSA502B	5-124
R230	RESISTOR, VARIABLE: Same as R229	5-124
R231	RESISTOR, VARIABLE: Same as R229	5-124
R232	RESISTOR, VARIABLE: Same as R229	5-124
R233	RESISTOR, VARIABLE: Same as R229	5-124
R234	RESISTOR, VARIABLE: Same as R229	5-124
R235	RESISTOR, VARIABLE: Same as R229	5-124
R236	RESISTOR, VARIABLE: Same as R229	5-124
R237	RESISTOR, VARIABLE: Same as R229	5-124
R238	RESISTOR, VARIABLE: Same as R229	5-124
R239	RESISTOR, VARIABLE: Same as R229	5-124
R240	RESISTOR, VARIABLE: Same as R229	5-124
R241	RESISTOR, VARIABLE: Same as R229	5-124
R242	RESISTOR, VARIABLE: Same as R229	5-124
R243	RESISTOR, VARIABLE: Same as R229	5-124
R244	RESISTOR, VARIABLE: Same as R229	5-124
R245	RESISTOR, VARIABLE: Same as R229	5-124
R246	RESISTOR, VARIABLE: Same as R229	5-124
R247	RESISTOR, VARIABLE: Same as R229	5-124
R248	RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW29V101	5-119
R249	P/O K206	5-125
R250	RESISTOR, FIXED, COMPOSITION: Type RC42GF150J	5-119
R251	RESISTOR, FIXED, WIREWOUND: 20 ohms, ±1% 30 watts, MIL-R-39009/2A Mfr 91637 Part No. ARH-50-13	5-119
RV201	RESISTOR, VOLTAGE SENSITIVE: Silicon-carbide body; 24 v dc; black insulation; Mfr 04773 part no. RY56	5-119
RV202	P/O K206	5-125
RV203	RESISTOR, VOLTAGE SENSITIVE: Same as RV201	5-119
RV204	RESISTOR, VOLTAGE SENSITIVE: Same as RV201	5-119
RV205	RESISTOR, VOLTAGE SENSITIVE: Same as RV201	5-119
RV206	RESISTOR, VOLTAGE SENSITIVE: Same as RV201	5-119
RV207	RESISTOR, VOLTAGE SENSITIVE: Same as RV201	5-119
S201	SWITCH, ROTARY: 3 section, 12 poles, 2 position; 12 moving and 36 fixed contacts; Mfr 76854 part no. 225250F3	5-121
S202	DIAL, TELEPHONE: 11 hole; "C" type normally open shunt springs; w/shield cover under dial plate; black paint finish housing; Mfr 04773 part no. Z26277-1	5-121
S203	NOT USED	
S204	SWITCH, PUSH: normally open and closed; black push button; 440/550 v ac at 1 amp, 110 v ac at 3 amps, 230 v dc at 0.5 amp, 115 v dc at 1 amp; Mfr 04009 part no. B-2BLACK	5-118

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
RADIO SET CONTROL C-3866/SRC (Continued)		
S205	SWITCH, PUSH: Normally open and closed; red pushbutton; 440/550 v ac at 1 amp, 110 v ac at 3 amp, 230 v dc at 0.5 amp, 115 v ac at 1 amp; Mfr 04009 part no. B-2 RED	5-118
S206	SWITCH, TOGGLE: MIL type MS35059-22	5-118
T201	TRANSFORMER, POWER STEP-DOWN: 115 v ac input; 27.5 v dc at 275 ma, 6.0 v ac at 200 ma outputs; metal case, hermetically sealed; Mfr 95105 part no. 94-0708-672	5-118
T202	TRANSFORMER, POWER STEP-DOWN: 115 v ac, 230 v inputs 57 to 63 Hz, 27.5 v dc, 13.5 v dc, 6.3 v at 0.5 amps outputs; hermetically sealed; Mfr 13499 part no. 672-0117-00	5-118
T203	TRANSFORMER, AUDIO FREQUENCY: Primary impedance 820 ohms and 32 ohms; 15 ma dc; secondary impedance 600 ohms; Mfr 13499 part no. 677-0134-00	5-118
T204	TRANSFORMER, AUDIO FREQUENCY: 600 ohms input, 600 ohms output, 300 to 500 Hz ±0.5 db; 4 w power level; Mfr 70674 part no. A12241	5-118
TB201	TERMINAL BOARD: Plastic; 0.093 in. by 1-5/16 in. by 1-9/16 in. incl 3 terminals; Mfr 13499 part no. 593-8042-002	5-119
TB202	TERMINAL BOARD: Plastic; 0.093 in. by 2-1/8 in. by 2-5/8 in. incl 11 terminals, 1 clip; Mfr 13499 part no. 593-8040-002	5-119
TB203	TERMINAL BOARD: Plastic; 0.062 in. by 2-1/4 in.; incl 4 terminals and 4 clips; Mfr 13499 part no. 593-8055-002	5-118
TB204	TERMINAL BOARD: Plastic; 0.062 in. by 1-1/2 in. by 2-1/4 in.; incl 4 terminals; Mfr 13499 part no. 593-8056-002	5-118
XDS201	LIGHT, INDICATOR: Panel mtd; w/red transparent plastic lens; Mfr. 99707 part no. L102R-GR	5-118
XDS202	LIGHT, INDICATOR: Same as XDS201	5-118
XF201	FUSEHOLDER: Extractor post type; accommodates four 1-1/4 by 1/4 fuses; phenolid body; Mfr 75915 part no. 340129	5-119
XF202	FUSEHOLDER ASSEMBLY: Same as XF201	5-119
XK201	NOT USED	
XK202	NOT USED	
XK203	NOT USED	
XK204	NOT USED	
XK205	NOT USED	
XK206	NOT USED	
XK207	SOCKET, RELAY: 9 silver plated copper contacts; phenolic insulation; 0.738 in. dia body accommodation hole required; Mfr 78277 part no. C-132	5-119
AM-1565/URC, RF AMPLIFIER		
UNIT 3	AMPLIFIER, RADIO FREQUENCY: AM-1565/URC; 225 to 399.9 MHz freq range; 100 w, 50 ohm output; 16 w, 50 ohms input; 115 v ac, 50 to 60 Hz operating power; 16 in. by 19-5/8 in. by 26-1/4 in.; Mfr 03565 part no. C-6437	1-2

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, CHASSIS		
UNIT 3A1		
H1	PIN, REAR, HOLD DOWN: cres, passivate finish; 11/16 in. dia, 1-3/4 in. lg; mfr 13499 part no. 548-8302-002	5-89
H2	NOT USED	
H3	NOT USED	
H4	SPACER: Aluminum, chromate dip finish; 0.250 in. hex; 1.937 in. lg; mfr 13499 part no. 548-8305-002	5-89
H5	NOT USED	
H6	NOT USED	
H7	NOT USED	
H8	NOT USED	
H9	NOT USED	
H10	POST, SHIELD, CONNECTOR: Brass bright alloy; 0.1875 in. hex., 0.500 in. lg; mfr 13499 part no. 548-8947-002	5-87
H11	POST, ELECTRICAL MECHANICAL EQUIPMENT: Aluminum, chromate dip finish; 1/4 in. hex; 6-32 thd, 1.250 in. lg; mfr 13499 part no. 540-9184-003	5-89
H12	POST, ELECTRICAL MECHANICAL EQUIPMENT: Aluminum, chromate dip finish; 0.250 in. hex by 1.500 in. lg; tapped 6-32 thd ea end, 0.375 in. deep; chamfered ends; mfr 13499 part no. 540-9229-003	5-89
H13	POST, ELECTRICAL MECHANICAL EQUIPMENT: Aluminum; chromate dip, #6-32 thd; 1.000 in. lg; mfr 13499 part no. 540-9221-003	5-89
H14	POST, ELECTRICAL MECHANICAL EQUIPMENT: Aluminum; chromate dip finish; open end type; headless; 4-40NC-2B thd, 0.187 in. w across flats; 1.000 in. lg o/a; mfr 13499 part no. 540-9053-003	5-89
H15	NOT USED	
H16	NOT USED	
H17	WASHER, NONMETALLIC: Acetate; 17/64 in. id, 5/8 in. od, 0.015 in. thk; mfr 13499 part no. 303-1034-00	5-89
H18	NOT USED	
H19	CLAMP, LOOP: MIL type MS25281-F6	5-89
H20	INSULATOR, STANDOFF: MIL type NS5W0206	5-89
H21	CLIP, ELECTRICAL: Silver plated copper; accommodates 13/32 in. dia fuse; mfr 71400 part no. 4464	
H22	POST, ELECTRICAL MECHANICAL EQUIPMENT: Aluminum alloy, chromate dip finish; 4-40 thd, 0.312 in. deep both ends; 0.343 in. w across flats by 1.769 in. lg o/a; Mfr 13499 part no. 015-0558-00	5-89
H23	POST, ELECTRICAL, MECHANICAL EQUIPMENT: Aluminum; 4-40 internal thd ea end; 0.312 in. w across flats by 1.219 in. lg o/a dim; Mfr 13499 part no. 548-8303-002	5-89
H30	NUT, SELF-LOCKING, HEXAGON: Aluminum, chromate finish; 4-40 UNC-3B thd; 0.190 in. w across flats, 0.110 in. h o/a; Mfr 72962 part no. 68-1660-40	5-89

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC RF, AMPLIFIER, CHASSIS (Continued)		
H31	NUT, SELF-LOCKING, HEXAGON: MIL type MS20365-440A	5-89
H32	CONNECTOR, MALE: 3/16 in. by 11/16 in. lg; stainless steel; 4-40 thread one end and 6-32 thread other end; mounts in J6 and mates with H407; BuShips Dwg. STD 404SK1659334/8	5-89
H33	CONNECTOR, FEMALE: 3/16 in. by 51/64 in. lg; stainless steel; 4-40 thread one end and 6-32 threaded receptacle other end; mounts in J6 and mates with H408; BuShips Dwg STD 404/SK1659334/9	5-89
J2	CONNECTOR, RECEPTACLE, ELECTRICAL: 34 female contacts, 7.5 amps; arc resistant plastic dielectric; Mfr 81312 part no. MRE34SJ6TYPE11	5-14
J3	CONNECTOR, RECEPTACLE, ELECTRICAL: ITT Cannon Mfr Part no. TNC-PL-M-55, High Voltage (5000 vdc) P/O W210	5-87
J4	CONNECTOR, PLUG, ELECTRICAL: Modified UG-909B; bulkhead mounted; brass teflon insulation; one beryllium copper coax contact; Mfr 94375 part no. 100B3000C75 P/O W-1	5-87
J5	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type MS24039	5-89
J6	CONNECTOR, RECEPTACLE, ELECTRICAL: 26 female contacts with two polarizing guide pins; 5 amps; arc resistant plastic dielectric, Mfr 80586 part no. GM26F79	5-89
J7	CONNECTOR, RECEPTACLE, ELECTRICAL: 75 female contacts and 2 male and 2 female guide pins; 7.5 amps; arc resistant plastic dielectric; Mfr 81312 part no. MRE75SNSSTYPE11	5-89
J8	CONNECTOR, RECEPTACLE, ELECTRICAL: 26 male contacts with two polarizing guide pins; 5 amps; arc resistant plastic dielectric; Mfr 80586 part no. GM26M79	5-87
J9	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J8	5-87
01	SPRING, RETAINING, PULL RING: Beryllium copper, bright alloy; 0.018 in. thk, 0.781 in. lg; Mfr 13499 part no. 548-8960-002	5-89
05	RING, RETAINING: Brass; 0.155 in. by 0.625 in. by 0.725 in. o/a; 0.510 in. dia to accommodate connector, Mfr 02660 part no. 126-1069	5-89
010	GASKET, MOUNTING BRACKET: Chemically blown cellular; rubber; 1-3/32 in. dia, 1-13/32 in. lg, 1/16 in. thk Mfr 13499 part no. 548-8348-002	5-87
011	RETAINER, CAPACITOR: MIL-C-25 type CP072FE6	5-87
012	RETAINER, CAPACITOR: Same as 011	5-87
013	RETAINER, CAPACITOR: MIL type CP072SB5	5-87
014	RETAINER, CAPACITOR: Same as 013	5-87
015	RETAINER, CAPACITOR: Same as 013	5-87
016	RETAINER, CAPACITOR: Same as 013	5-87
P1	CONNECTOR, PLUG, ELECTRICAL: MS35168-88E; type UG-88E/U P/O W-205	5-87
W1	CABLE ASSEMBLY, RADIO FREQUENCY: Terminated ea end w/connectors; 7.937 in. o/a lg; mfr 13499 part no. 548-8328-002 C/O J-4 & P-403	5-87

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, CHASSIS (Continued)		
W2	WIRING HARNESS, BRANCHED-CHASSIS, AM1565: Mfr 13499 part no. 548-8300-00	5-87
C301	CAPACITOR, FIXED, PAPER DIELECTRIC: 2 uf ±20%, 3000 v dc; mfr 56289 part no. P52408	5-87
C302	CAPACITOR, FIXED, PAPER DIELECTRIC: 10 uf ±10%, 600 v dc; mfr 56289 part no. P50816	5-87
C303	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C302	5-87
C304	CAPACITOR, FIXED, ELECTROLYTIC: MIL-C-3965 type CL21BL101TPG	5-87
C305	CAPACITOR, FIXED, ELECTROLYTIC: MIL type CL64BN220MPE	5-89
C306	CAPACITOR, FIXED, ELECTROLYTIC: Same as C305	5-89
C307	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 0.001 uf ±20%, 1000 vdc; mfr 01939 part no. 40C286A	5-89
C308	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C309	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C310	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C311	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C312	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C313	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C314	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C315	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C316	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C317	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C318	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C319	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C320	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C321	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C322	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C323	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C324	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C325	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C326	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C327	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C328	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C329	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C330	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C331	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C332	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C333	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C334	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C335	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C336	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C337	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C338	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C307	5-89
C339	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 2 uf ±20%, 600 v dc; mfr 56289 part no. 118P20506S4	5-89

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, CHASSIS (Continued)		
CR301	SEMICONDUCTOR DEVICE, DIODE: MIL type 1N547	5-89
CR302	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR303	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR304	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR305	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR306	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR307	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR308	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR309	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR310	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR311	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR312	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR313	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR314	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR315	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR316	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR317	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR318	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR319	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR320	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR321	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR322	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR323	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR324	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR325	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR326	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR327	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR328	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR329	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR330	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR331	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR332	SEMICONDUCTOR DEVICE, DIODE: Same as CR301	5-89
CR333	SEMICONDUCTOR DEVICE, DIODE: MIL-S-19500/134 type 1N249B	5-89
CR334	SEMICONDUCTOR DEVICE, DIODE: Same as CR333	5-89
CR335	SEMICONDUCTOR DEVICE, DIODE: Same as CR333	5-89
CR336	SEMICONDUCTOR DEVICE, DIODE: Same as CR333	5-89
CR337	NOT USED	
CR338	SEMICONDUCTOR DEVICE, DIODE: MIL-S-19500/202 type 1N538	5-89
CR339	SEMICONDUCTOR DEVICE, DIODE: Same as CR338	5-89
CR340	SEMICONDUCTOR DEVICE, DIODE: Same as CR338	5-89
CR341	SEMICONDUCTOR DEVICE, DIODE: Same as CR338	5-89
CR342	SEMICONDUCTOR DEVICE, DIODE: Same as CR338	5-89
CR343	SEMICONDUCTOR DEVICE, DIODE: Same as CR338	5-89
CR344	SEMICONDUCTOR DEVICE, DIODE: Same as CR338	5-89
CR345	SEMICONDUCTOR DEVICE, DIODE: Same as CR338	5-89

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, CHASSIS (Continued)		
CR346	SEMICONDUCTOR DEVICE, DIODE: Silicon; hermetically sealed; Mfr 04713 part no. S2578	5-89
F301	FUSE, CARTRIDGE: MIL type F28LR500A	5-89
H301	SPACER, SLEEVE: Plastic nylon; 0.250 in. dia, 0.625 in. lg; Mfr 13499 part no. 548-8351-002	5-89
H302	NOT USED	
H303	POST, ELECTRICAL-MECHANICAL: Cres; 4-40 and 6-32 thds; 0.250 in. w across flats by 1 in. lg o/a dim.; Mfr 03565 part no. B-6615	5-89
H304	POST, ELECTRICAL-MECHANICAL: Aluminum, 8-32 thd ea end; 0.312 in. dia by 4.875 in. lg o/a dim.; Mfr 13499 part no. 548-8308-002	5-89
H305	NOT USED	
H306	SPACER, SLEEVE: Aluminum, chromate dip; 0.250 in. od, 0.049 in. thk, 0.312 in. lg; no. 6 screw size; Mfr 13499 part no. 541-6023-002	5-89
H307	STUD, CONTINUOUS THREAD: Stainless steel, passivate finish; 4-40 UNC-2A thd, 1/2 in. lg; Mfr 13499 part no. 312-0009-00	5-89
H308	NOT USED	
H309	NOT USED	
H310	NOT USED	
H311	NOT USED	
H312	NOT USED	
H313	NOT USED	
K301	RELAY, ARMATURE: 4C, 5 amps at 230 vac or 10 amps at 115 vac; 27.5 vdc nom coil voltage; 110 ohms ±10%, at +25°C coil resistance; continuous duty cycle; Mfr 35344 part no. 9224-3951	5-89
K302	RELAY, MOTOR DRIVEN: dpdt, 5 amps at 30 vdc or 115 v, 50 Hz; 2.500 in. dia by 4.155 in. lg o/a dim.; Mfr 82227 part no. N11449	5-89
K303	RELAY, ARMATURE: 2C, 2 amps at 28 vdc or 115 vac, resistive load and/or low current at 300 vdc; 15 ma dc 1000 ohms ±10% at 20°C coil resistance; continuous duty cycle; Mfr 78277 part no. 92397	5-89
K304	RELAY, ARMATURE: Same as K303	5-89
L301	REACTOR: 15 henries inductance, 0.350 amp dc, 90 ohms dc res; Mfr 49956 part no. 292-5744G1	5-87
L302	REACTOR: 6 henries inductance, 0.200 amps dc, 113 ohms dc res, 195 vac, 100 to 130 Hz; 2.375 in. by 2.750 in. by 4.124 in. o/a dim.; Mfr 97965 part no. 29420	5-87
L303	REACTOR: Same as L302	5-87
L304	REACTOR: 3.5 henries inductance, 0.060 amps dc, 200 ohms dc res; Mfr 97965 part no. 27825	5-89
O301	LOCK, SELECTOR: Aluminum, marked S301A, S301B, S301C; 0.090 in. by 1.125 in. by 2.562 in. o/a dim.; Mfr 13499 part no. 548-8336-002	5-89

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, CHASSIS (Continued)		
O302	INSULATOR, BUSHING: Teflon; 1.312 in. dia by 0.875 in. lg o/a dim.; Mfr 13499 part no. 548-8307-002	5-89
R301	RESISTOR, FIXED, FILM: MIL-R-11804 type RD37P2263G	5-89
R302	RESISTOR, FIXED, FILM: MIL-R-10509 type RN70B82R5F	5-89
R303	RHEOSTAT: 1000 ohms ±10%, 12.5 w; Mfr 44655 part no. 44968DET1000	5-89
R304	RHEOSTAT: Same as R303	5-89
R305	RESISTOR, FIXED, WIREWOUND: MIL type RW79U4R42F	5-89
R306	RESISTOR, FIXED, WIREWOUND: MIL type RW29V801	5-89
R307	RESISTOR, FIXED, WIREWOUND: Same as R305	5-89
R308	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF124K	5-89
R309	RESISTOR, FIXED, COMPOSITION: Same as R308	5-89
R310	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF222K	5-89
R311	RESISTOR, FIXED, COMPOSITION: MIL-R-10509 type RN75B2261F	5-89
R312	RESISTOR, FIXED, WIREWOUND: MIL type RE70G632	5-89
R313	RESISTOR, FIXED, WIREWOUND: MIL type RE70G202	5-89
R314	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF223K	5-89
S301A	SWITCH, TOGGLE: MIL-S-3950 type MS35059/23	5-89
S301B	SWITCH, TOGGLE: Same as S301A	5-89
S301C	SWITCH, TOGGLE: Same as S301A	5-89
S302	NOT USED	
S303	SWITCH, INTERLOCKING: spdt; 30 vdc; 60 amp and 10 amp; Mfr 13499 part no. 548-8943-003	5-89
S303A	SWITCH, SENSITIVE: MIL type MS25253-1	5-89
S303B	SWITCH, SENSITIVE: Same as S303A	5-89
S303C	SWITCH, SENSITIVE: Same as S303A	5-89
T301	TRANSFORMER, POWER, STEP-UP: 115v, 115v primary; 1800v at 350 ma secondary; 50/60 cps; continuous duty cycle; Mfr 97965 part no. 29423	5-87
T302	TRANSFORMER, POWER, STEP-DOWN AND STEP-UP: 115 v at 1 amp, 115v at 0.6 amp primary, 6v at 2.6 amp, 6v at 2.6 amp, 6.3v center tapped at 3.2 amp, 60v at .05 amp, 31v at 1.69 amp, 300v at 130 ma, 50v at .06 amp and 30v at 0.02 amp secondaries, 3.500 in. by 4.125 in. by 4.125 in.; Mfr 97965 part no. 29422	5-87
TB301	AMPLIFIER SUBASSEMBLY: 0.514 in. by 2.562 in. by 3.750 in. o/a dim.; Mfr 13499 part no. 548-8389-002	5-89
TB302	TERMINAL BOARD: Plastic; incl 4 terminals; 0.062 in. by 2 in. by 2.250 in. board dim.; Mfr 13499 part no. 548-8334-002	5-89
TB303	TERMINAL BOARD: Plastic; incl 4 terminals; 0.062 in. by 1.500 in. by 2.250 in. board dim.; Mfr 13499 part no. 548-8335-002	5-89
XK301	SOCKET, RELAY: MIL type MS25328-4	5-89
XK302	SOCKET, ELECTRON TUBE: MIL-S-12883 type TS101P01	5-89
XK303	SOCKET, RELAY: 9 contact relay socket for use with Sigma type 22KNCC series relay of equivalent contact positions are regularly spaced. Copper contacts silver plated; Mfr 78277 part no. E132	5-89

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, CHASSIS (Continued)		
XK304	SOCKET, RELAY: Same as XK303	5-89
AM-1565/URC, RF AMPLIFIER, ELECTRICAL EQUIPMENT CABINET		
3A2 (101-199)	CABINET, ELECTRICAL EQUIPMENT: Mfr 13499 part no. 756-0460-001	5-90
FL101	FILTER, RADIO INTERFERENCE: 250 vac or 400 vdc; 50 amps; 0.875 in. w across flats by 3.188 in. lg; Mfr 56289 part no. JN17-936A1	5-90
FL102	FILTER, RADIO INTERFERENCE: Same as FL101	5-90
FL103	FILTER, RADIO INTERFERENCE: 500 vdc; 1/4 amp rf current, 25 amp dc and low freq ac current; 21/64 in. dia by 1.187 in. lg; Mfr 01121 part no. FISA	5-90
FL104	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL105	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL106	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL107	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL108	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL109	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL110	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL111	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL112	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL113	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL114	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL115	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL116	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL117	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL118	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL119	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL120	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL121	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL122	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL123	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL124	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL125	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
FL126	FILTER, RADIO INTERFERENCE: Same as FL103	5-90
H101	NOT USED	
H102	NOT USED	
H103	NOT USED	
H104	MOUNT, RESILIENT: Brass rigid member, neoprene rubber resilient member; 1.2 lbs load rating; Mfr 82877 part no. B2	5-90
H105	NOT USED	
H106	NOT USED	
H107	SLEEVE-ADJUSTMENT SCREW: Cres; 1/4-20 thd, 0.500 in. dia by 0.437 in. lg o/a dim.; Mfr 13499 part no. 548-8426-002	5-90

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, ELECTRICAL EQUIPMENT CABINET (Continued)		
H108	STUD, FAN PLATE: Cres; 0.500 in. dia. by 0.842 in. lg o/a dim.; Mfr 13499 part no. 548-8416-002	5-90
H109	RING, RETAINING: Brass; 0.118 in. by 0.625 in. by 0.725 in. approx o/a dim.; Mfr 02660 part no. 126-1069	5-89
H110	SPACER, CONNECTOR: Cres; 0.312 in. w across flats by 0.875 in. lg o/a dim.; Mfr 13499 part no. 548-8413-002	5-90
H111	NOT USED	
H112	NOT USED	
H113	NOT USED	
H114	NOT USED	
H115	NOT USED	
H116	NOT USED	
H117	SCREW, SWITCH ADJUSTING: Cres, passivate finish; 1/4-20NC-2A thd, 1-1/8 in. lg; Mfr 13499 part no. 548-8423-002	5-90
H118	NOT USED	
H119	SHIELD, ELECTRICAL CONNECTOR: Metallic and nonmetallic material; 0.781 in. dia, 1.281 in. lg; friction mounted; Mfr 02660 part no. 126-834	5-90
H120	SPACER, SLEEVE: Aluminum, chromate dip; 0.125 in. thk, 0.312 in. dia.; no. 8 screw size; Mfr 13499 part no. 541-6087-002	5-90
H121	TERMINAL, LUG: Brass, hot tin dipped; 0.172 in. by 0.187 in. thk, 0.531 in. lg o/a; Mfr 71785 part no. 14690	5-90
H122	EYELET, METALLIC: Brass; 0.105 in. dia by 0.093 in. lg; flanged; Mfr 07707 part no. SE23PLAIN	5-90
H123	BUTTON, CABLE: Plastic; 4-40NC-2B internal thd; 0.250 in. hex by 0.187 in. lg; Mfr 13499 part no. 541-5177-002	5-90
H124	CLAMP, LOOP: MIL type MS25281-F7	5-89
H125	CLAMP, LOOP: MIL type MS25281-F5	5-90
H126	WASHER, SEALING: Synthetic rubber inner seal bonded to outer steel ring; 0.184 in. id, 0.364 in. od, 0.041 in. thk; Mfr 86579 part no. 110-8	5-90
H127	SCREW, MACHINE-FILTER: Stainless steel, hexagon head machine screw; 6-32NC-2 thd, 0.562 in. lg; Mfr 13499 part no. 548-8435-002	5-90
H128	INSERT, SCREW THREAD: MIL type MS122123	5-90
H129	INSERT, SCREW THREAD: MIL type MS122116	5-90
H130	INSERT, SCREW THREAD: MIL type MS122118	5-90
H131	INSERT, SCREW THREAD: MIL type MS122119	5-90
H132	INSERT, SCREW THREAD: MIL type MS122121	5-90
H133	INSERT, SCREW THREAD: MIL type MS124695	5-90
H134	NUT, BLIND, RIVET: Flat head, open end, 0.357 in. dia by 0.460 in. lg; Mfr 25472 part no. 8-75	5-90
H135	CLAMP, LOOP: MIL type MS25281-F3	5-89
H136	CLAMP, LOOP: Nylon; accommodates 1.05 in. dia component; 0.070 in. thk material; Mfr 09922 part no. HP18N	5-89
H137	NOT USED	

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
	AM-1565/URC, RF AMPLIFIER, ELECTRICAL EQUIPMENT CABINET (Continued)	
H138	VALVE, PNEUMATIC TANK: Nickel plated brass; 1/8-27 N.P.T. thd, 11/32 in. lg one end, 0.305-32 thd, 5/16 in. lg other end; w/valve cap; Mfr 13499 part no. 013-3131-00	6-67
H139	VALVE, SAFETY RELIEF: Body and internal parts brass; valve seat and exposed surface chromium plated; 1/4 in. pipe thd; 0.63 in. w across flats by 1.20 in. lg; Mfr 91816 part no. 524B2M3-5	6-67
H140	NOT USED	
H141	NUT, SELF-LOCKING, HEXAGON: MIL type MS20365D832A	6-67
H142	WASHER; Steel; 0.140 in. id, 0.500 in. od, 0.3125 in. thk; Mfr 13499 part no. 540-3017-003	6-67
H143	NOT USED	
H144	NOT USED	
H145	WASHER, LOCK: Type 302 stainless steel; split helical ring; 0.221 in. id, 0.380 in. od, 0.056 in. thk; Mfr 13499 part no. 310-0286-00	6-66
H146	NOT USED	
H147	NOT USED	
H148	NOT USED	
H149	NOT USED	
H150	WASHER: Cres; 0.018 in. thk, 0.120 in. id, 0.375 in. od; Mfr 13499 part no. 504-0730-003	6-67
H151	EYELET, METALLIC: Brass; cadmium plated; flanged; 0.188 in. dia by 0.216 in. lg; Mfr 01881 part no. A382BRSCADPL	6-67
H152	NOT USED	
H153	RIVET, SOLID: MIL type MS20426AD5-6	6-67
J101	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R16-10P	6-67
J102	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R24-7SX	6-67
J103	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R24-7S	6-67
J104	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R24-20S	6-67
J105	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type MS24039	6-67
0101	ADJUSTER, SLIDE: Aluminum; 0.581 in. by 4.499 in. by 14.000 in. o/a dim.; Mfr 13499 part no. 548-8436-003	6-67
0102	ADJUSTER, SLIDE: Same as 0101	6-67
0103	SLIDE, DRAWER: Right hand; 175 lb vertical load per pair; Mfr 01561 part no. CTRD118MODRH	6-67
0104	SLIDE, DRAWER: Left hand; 175 lb vertical load per pair; Mfr 01561 part no. CTRD118MODLH	6-67
0105	ADJUSTER, SLIDE: Aluminum; 0.662 in by 4.380 in. by 14 in. approx o/a dim.; Mfr 13499 part no. 548-8458-004	6-67
0106	ADJUSTER, SLIDE: Same as 0105	6-67

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, ELECTRICAL EQUIPMENT CABINET (Continued)		
0107	FILTER, AIR-CONDITIONING: Aluminum wire cloth media, cres frame; 0.687 in. by 7.609 in. by 10.218 in.; Mfr 13499 part no. 548-8986-004	5-89
0108	GASKET, AIR FILTER: Rubber, black synthetic; 7-3/4 in. w 10-1/4 in. lg, 1/8 in. thk; Mfr 13499 part no. 548-8443-003	5-90
0109	GASKET, AIR FILTER; R.F.: Aluminum; 7-3/4 in. w 10-1/4 in. lg, 0.020 in. w; Mfr 13499 part no. 548-8445-003	5-90
0110	GASKET, CASE, FAN: Rubber; 2-1/4 in. w, 3-25/64 in. lg 1/8 in. thk; Mfr 13499 part no. 548-8419-002	5-90
0111	GASKET, ACCESS PLATE: Aluminum; 5-1/4 in. w, 7-1/2 in. lg, 0.020 in. thk; Mfr 13499 part no. 548-8452-003	5-90
0112	GASKET: Synthetic rubber; 2.859 in. id, 3.137 in. od, 0.139 in. thk; Mfr 86579 part no. 909-11-711-70	5-90
0113	NOT USED	
0114	SHIELDING GASKET, ELECTRONIC: Aluminum wire; 1/8 in. dia, 23-1/4 in. lg; Mfr 13499 part no. 548-8429-002	5-90
0115	GASKET, SYNTHETIC RUBBER: 13.672 in. id. 14.092 in. od, 0.210 in. thk; Mfr 13499 part no. 200-1784-00	5-90
0116	SLEEVE, SPRING: Beryllium, copper; for no. 8 screw size, 0.185 in. dia, by 0.156 in. lg; Mfr 91314 part no. 340-0642-00	5-90
0117	PAD, CAPACITOR MOUNTING: Black synthetic rubber; 2 in. w, 2-1/2 in. lg, 1/8 in. thk; Mfr 13499 part no. 548-8420-002	5-90
0118	SLIDE, LEFT: Left hand; 175 lb vertical load per pair, 0.047 per slide side play; Mfr 13499 part no. 548-8438-003	5-90
0119	SLIDE, RIGHT: Right hand; 175 lb vertical load per pair; 0.047 per slide side play; Mfr 13499 part no. 548-8439-003	5-90
0120	SPRING, HELICAL, TORSION: .018 dia music wire; cadmium plated; 5/32 in. id, 3/16 in. od, 3-7/32 free coil length; full rounded hook ends; right hand wound; Mfr 13499 part no. 340-2180-00	5-90
0121	NOT USED	
0122	SHIELDING GASKET, ELECTRONIC: Woven aluminum cloth impregnated w/synthetic rubber; 0.020 in. by 1.281 in. by 1.281 in.; accommodates 1 in. dia connector; Mfr 82805 part no. 40-016	5-90
0123	SHEILDING GASKET, ELECTRONIC: Woven aluminum cloth impregnated w/synthetic rubber; 0.020 in. by 1.750 in. by 1.750 in.; accommodates 1.500 in. dia connector; Mfr 82805 part no. 40-024	5-90
0124	SHIELDING GASKET, ELECTRONIC: Same as 0123	5-90
0125	SHIELDING GASKET, ELECTRONIC: Same as 0123	5-90
0126	PLATE, SEALING FILTER: Aluminum and rubber; 0.126 in. by 10.625 in. o/a dim.; Mfr 13499 part no. 548-8444-003	5-90
0127	SLEEVE, SPRING: Same as 0116	
0128	SLEEVE, SPRING: Same as 0116	
0129	SLEEVE, SPRING: Same as 0116	

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, ELECTRICAL EQUIPMENT CABINET (Continued)		
0130	SLEEVE, SPRING: Same as 0116	
0131	SLEEVE, SPRING: Same as 0116	
0132	SLEEVE, SPRING: Same as 0116	
0133	SLEEVE, SPRING: Same as 0116	
0134	SLEEVE, SPRING: Same as 0116	
0135	SLEEVE, SPRING: Same as 0116	
0136	SLEEVE, SPRING: Same as 0116	
0137	NOT USED	
0138	NOT USED	
0139	NOT USED	
P101	NOT USED	
P102	CONNECTOR, RECEPTACLE, ELECTRICAL: 26 female contacts; 5 amps; arc resistant plastic dielectric; Mfr 80586 part no. GF26F79	5-90
P103	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as P102	5-90
W101	WIRING HARNESS, BRANCHED-PENDANT CABINET: incl 28 conductor cable, 1 filter, 2 connectors and hardware; Mfr 13499 part no. 548-8486-004	5-90
AM-1565/URC, RF AMPLIFIER, POWER AMPLIFIER ASSEMBLY		
UNIT 3A3 (201-299)	POWER AMPLIFIER ASSEMBLY: 7.500 in. by 8.187 in. by 19.500 in.; Mfr 03565 part no. D-6607	5-101
A201	CAVITY, TUNED: Mfr 13499 part no. 548-8786-005	5-104
A202	STOP ASSEMBLY: 1.104 in. dia by 2-9/16 in. lg approx; Mfr 13499 part no. 548-8781-003 (composed of H220, 224, 225, 226, 227, 230, 0299.31 and 0299.32)	5-93
A203	CAVITY TUNED: Mfr 13499 part no. 548-8764-005	5-108
C201	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1000 uuf ±20%, 5000 v dc; Mfr 71590 part no. DA858-003	5-106
C202	CAPACITOR, FIXED, MICA DIELECTRIC: 5000 v dc test voltage, 400 uuf capacitance; 0.006 in. by 3.187 in. by 6.374 in. o/a dim.; Mfr 13499 part no. 548-8716-003	5-106
C203	CAPACITOR, BLOCKING: Same as C202	5-106
C204	SOCKET, ELECTRON TUBE: Capacitor and screen contact assembly for use w/4CX250X type tube; Mfr 06980 part no. Y307	5-110
C205	SOCKET ELECTRON TUBE: Same as C204	5-110
C206	C/O 0-299.27 thru 0-299.29	5-108
C207	C/O 0-209 thru 0-269	5-102
C208	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 3 uuf ±0.5 uuf; 5000 v dc; Mfr 13499 part no. 913-0758-00	5-108
C209	BLOCK, COUPLING, CAPACITOR: 0.625 in. by 1.000 in. by 1.188 in.; Mfr 13499 part no. 548-8974-002	5-107
C210	CAPACITOR, FIXED, MICA DIELECTRIC: Grid bypass; 1200 uuf, 500 v dc test voltage; 0.005 in. by 2.062 in. by 4.124 in.; Mfr 13499 part no. 548-8546-002	5-110

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, POWER AMPLIFIER ASSEMBLY (Continued)		
C211	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C210	5-110
C212	CAPACITOR, FIXED, MICA DIELECTRIC: Cathode blocking; 500 v dc min test voltage, 0.004 in. by 1.450 in. by 1.540 in. o/a dim.; Mfr 13499 part no. 548-8535-002	5-110
C213	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C212	5-110
C214	C/O 0-299.30, 0-299.33, 0-299.34	5-110
C215	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 500 uuf ±10%, 350 v dc; Mfr 72982 part no. 331031W5P0501K	5-111
C216	CAPACITOR, FIXED, MICA DIELECTRIC: MIL type CB11RE511J	5-109
C217	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 5 uuf ±1 uuf, 5000 v dc; Mfr 71590 part no. DA855-013	5-109
C218	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C217	5-109
C219	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C216	5-109
C220	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C216	5-109
C221	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C216	5-109
C222	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C216	5-109
C223	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C216	5-109
C224	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C216	5-109
C225	CAPACITOR, FIXED, MICA DIELECTRIC: 500 uuf ±20%, 500 v dc; Mfr 72982 part no. 65401706B3501M	5-111
C226	CAPACITOR, FIXED, MICA DIELECTRIC: Same as C216	5-109
DC201	COUPLER, DIRECTIONAL: 220 to 400 MHz; rf power monitor consisting of an assembly of 2 couplers, one for forward power and one for reflected power; 0 to 200 w; 50 ohms nom impedance; 1 v dc output v; 100 ua output current; Mfr 82144 part no. 576BP	5-87
DS201	DIAL, SCALE: Aluminum, nonlinearly marked from 23 to 400; 3 in. dia by 0.063 in. thk o/a dim.; Mfr 13499 part no. 548-8687-002	5-103
FL201	FILTER, LOW PASS: 50 ohms nom impedance; 220 to 400 MHz pass band; 150 w nom; Mfr 70998 part no. 526100	5-87
FL202	FILTER, RADIO INTERFERENCE: 5500 uuf, GMV; 200 v dc; 0.25 amp rf current, 5 amp dc and loss freq current; designed to suppress radio noise over freq range from 100 to 1000 MHz; Mfr 01121 part no. SMFBA2	5-111
H201	SHIM: Teflon; 0.203 in. id, 0.375 in. od, 0.010 in. thk; Mfr 13499 part no. 547-2303-003	5-110
H202	WASHER, FLAT: Teflon; 0.413 in. id, 0.625 in. od, 0.010 in. thk; Mfr 13499 part no. 547-2304-003	5-110
H203	SCREW, SHOULDERED: Cres, passivate finish; no. 6-32 NC-2A, 0.107 in. lg; 0.312 in. w across flats by 0.374 in. lg o/a; Mfr 13499 part no. 548-8569-002	5-105
H204	NOT USED	
H205	WASHER, FLAT: Brass, bright alloy plate; 0.120 in. id, 0.218 in. od, 0.093 in. thk; Mfr 13499 part no. 547-2306-003	5-111

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, POWER AMPLIFIER ASSEMBLY (Continued)		
H206	WASHER, BUMPER: Elastomer; 0.265 in. id, 0.625 in. od, 0.125 in. thk; Mfr 13499 part no. 548-8619-002	5-107
H207	SHAFT, SHOULDERED: Cres, passivate finish; 1/4 in. hex, 1-1/16 in. lg; Mfr 13499 part no. 548-8401-002	5-108
H208	WASHER, FLAT: Cres; 0.128 in. id, 0.312 in. od, 0.031 in. thk; Mfr 13499 part no. 547-2307-003	5-103
H209	SCREW, ADJUSTMENT: Cres; 6-32 thd; 0.625 in. dia by 0.500 in. lg o/a dim.; Mfr 13499 part no. 548-8710-002	5-104
H210	WASHER: Cres, passivate finish; 0.1875 in. id, 0.4375 in. od, 0.031 in. thk; Mfr 13499 part no. 547-2310-002	5-103
H211	WASHER, THRUST: Cres, 0.437 in. dia by 0.062 in. thk o/a dim.; Mfr 13499 part no. 548-8692-002	5-103
H212	NOT USED	
H213	RING, RETAINING: MIL type MS16632-1050	5-104
H214	RETAINER, BEARING: Aluminum; 0.265 in. by 1.250 in. o/a dim.; Mfr 13499 part no. 548-8670-002	5-104
H215	WASHER, FLAT: Cres, passivate finish; 0.191 in. id, 0.375 in. od, 0.156 in. thk; Mfr 13499 part no. 547-2319-003	5-103
H216	NOT USED	
H217	WASHER, FLAT: Cres, passivate finish; 0.196 in. id, 0.375 in. od, 0.010 in. thk; Mfr 13499 part no. 543-5656-003	5-104
H218	CLAMP, RIM CLENCHING: Cres; 0.368 in. dia by 0.126 in. lg o/a dim.; Mfr 13499 part no. 548-8700-002	5-104
H219	CLAMP, LOOP: Stainless steel; 0.200 in. by 0.656 in. by 0.656 in. o/a dim.; Mfr 03565 part no. B-6457	5-104
H220	WASHER, STOP: Cres; 0.812 in. dia by 0.346 in. lg o/a dim.; Mfr 13499 part no. 548-8707-002	5-103
H221	NOT USED	
H222	NOT USED	
H223	NOT USED	
H224	WASHER, SPRING TENSION: Beryllium copper; bright alloy plating; 0.193 in. id, 0.312 in. od, 0.063 in. thk; 0.062 in. h o/a; Mfr 13499 part no. 505-8341-002	5-103
H225	WASHER, FLAT: Brass, bright alloy; 0.187 in. id, 0.625 in. od, 0.010 in. thk; Mfr 13499 part no. 506-2938-002	5-103
H226	WASHER, KEY: Steel; passivate finish; 1 external key; 0.187 in. hole dia, 0.7125 in. o/a dim. including key, 0.043 in. washer thk; Mfr 13499 part no. 506-2937-002	5-103
H227	WASHER, KEY: Steel; passivate finish; 1 external key; 0.187 in. hole dia., 0.750 in. o/a dim.; including key, 0.062 in. washer thk; Mfr 13499 part no. 506-2936-002	5-103
H228	RING, RETAINING: MS type MS16633-1018	5-103
H229	PIN, SPRING: MIL type MS16562-192	5-103
H230	SPACER, SLEEVE: Aluminum; 0.625 in. dia by 0.218 in. lg o/a dim.; Mfr 13499 part no. 548-8694-002	5-103
H231	NOT USED	

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
	AM-1565/URC, RF AMPLIFIER, POWER AMPLIFIER ASSEMBLY (Continued)	
H232	STUD, CONTINUOUS THREAD: Cres; 8-32 thd, 1 in. lg; Mfr 13499 part no. 312-0099-00	5-103
H233	NOT USED	
H234	NOT USED	
H235	NOT USED	
H236	CLAMP, LOOP: MIL type MS25281-F5	5-102
H237	WASHER, FLAT: Cres; 0.172 in. id, 0.437 in. od, 0.036 in. thk; Mfr 13499 part no. 310-0048-00	5-103
H238	PIN, SPRING: MS type MS16562-193	5-108
H239	RING, RETAINING: MIL type MS16624-1050	5-108
H240	RING, RETAINING: Beryllium copper; external type; 0.225 in. id, 0.025 in. thk material; Mfr 89462 part no. 5100-25C	5-107
H241	SLEEVE, SPRING: Copper; 0.215 in. dia for size 10 screw; Mfr 91314 part no. 340-0643-00	5-107
H242	CLAMP, LOOP: Aluminum, anodized, 0.200 in. by 0.344 in. 0.656 in. o/a; Mfr 13499 part no. 504-7537-002	5-107
H243	CLAMP, LOOP: MIL type MS25281-F3	5-109
H244	STRAP, RETAINING: Carbon steel; accommodates 7/16 in. dia component; Mfr 13499 part no. 139-0647-00	5-108
H245	BUTTON, CABLE: Plastic; 4-40NC-2B thd, 0.312 in. hex, 0.250 in. lg o/a; Mfr 13499 part no. 541-5178-002	5-109
H246	NOT USED	
H247	NOT USED	
H248	NOT USED	
H249	NOT USED	
H250	FASTENER, ANGLE: Brass, 4-40 thd, 0.187 in. by 0.187 in. by 0.280 in. o/a dim.; Mfr 13499 part no. 504-7699-002	5-111
I201	COUNTER, ROTATING, FIXED, MOUNTING: 2 wheel, non-reset; 0.734 in. dia unit wheel, 50 graduations; number increases as wheels rotate CCW; Mfr 18911 part no. 2Y8823SAC	5-102
J201	P/O K-201	5-87
J202	P/O K-201	5-87
J203	P/O K-201	5-87
J204	CONNECTOR, PLUG, ELECTRICAL: MIL type MS35169-89C type no. UG89CU	5-102
J205	CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type UG625BU	5-101
J206	P/O DC-201	5-87
J207	P/O DC-201	5-87
J208	P/O FL-201	5-87
J209	P/O FL-201	5-87
J210	P/O K-202	5-87
J211	P/O K-202	5-87
J212	P/O K-202	5-87
J213	P/O DC-201	5-87
J214	P/O DC-201	5-87

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, POWER AMPLIFIER ASSEMBLY (Continued)		
K201	RELAY, ARMATURE: spdt, 1 inductive winding, 26.5 v dc, 275 ohms, 220 to 400 MHz frequency range; 0.750 in. by 1.687 in. by 1.937 in. o/a dim.; excl terminals; Mfr 74868 part no. 300-11399	5-87
K202	RELAY, ARMATURE: Same as K201	5-87
L201	COIL, RADIO FREQUENCY: Two turns of no. 20 AWG wire, 0.215 in. dia by 0.156 approx dim. excl terminals; Mfr 13499 part no. 548-8644-002	5-110
L202	COIL, RADIO FREQUENCY: MIL type MS75008-21	5-110
L203	COIL, RADIO FREQUENCY: Same as L202	5-110
L204	COIL, RADIO FREQUENCY: 21 turns of no. 22 AWG wire; 0.172 in. dia by 0.525 in. lg; excl terminals; Mfr 13499 part no. 548-8643-002	5-110
L205	COIL, RADIO FREQUENCY: Same as L204	5-110
L206	COIL, RADIO FREQUENCY: Same as L204	5-110
L207	COIL, RADIO FREQUENCY: Same as L204	5-106
L208	COIL, RADIO FREQUENCY: Same as L202	5-106
L209	SOLENOID, ELECTRICAL: 4 amps at 28 v dc, 2 sec on, 10 sec off duty cycle; 1.500 in. dia by 3.624 in. lg o/a dim.; Mfr 13499 part no. 548-8637-002	5-101
MG201	MOTOR-TACHOMETER GENERATOR: 115 v ac, 60 Hz fixed phase, 288 v ac, 60 Hz control phase, motor, 2900 rpm at 60 Hz, no load; 115 v, 60 Hz, excitation phase generator, 750 mv at 1000 rpm, 570 mv at 1000 rpm voltage gradient, output phase; 1.750 in. dia by 3.680 in. lg; Mfr 73138 part no. 1018-131-011	5-102
0201	ARM, SHORTING BAR: Cres, passivate finish; 0.125 in. by 1.125 in. by 1.577 in. o/a dim.; Mfr 13499 part no. 548-8525-002	5-106
0202	LEAD SCREW, AMPLIFIER: Copper, 0.233 in. dia by 11.156 in. lg o/a dim.; right hand bolt thd groove, 0.250 in. ball circle dia.; Mfr 13499 part no. 548-8720-003	5-105
0203	LEAD SCREW, AMPLIFIER: Copper; 0.233 in. dia by 9.656 in. lg o/a dim.; rh ball groove, 0.250 in. ball circle dia.; Mfr 13499 part no. 548-8719-003	5-105
0204	SLEEVE, BEARING: Cres; 21/32-48 external thd, 0.250 in. lg; 0.375 in. dia counterbore to 0.500 in. id; Mfr 13499 part no. 548-8526-002	5-105
0205	INSULATOR, BUSHING: Ceramic; shoulder type; 0.281 in. dia by 0.117 in.lg o/a dim.; 0.120 in. dia conductor passage hole; Mfr 13499 part no. 548-8541-002	5-108
0206	INSULATOR, BUSHING: Ceramic, shoulder type; 0.281 in. dia by 0.184 in. lg o/a dim.; 0.120 in. dia conductor passage hole; Mfr 13499 part no. 548-8542-002	5-110
0207	BAR, CLAMPING: Brass, alloy plated; 0.125 in. by 0.312 in. by 0.875 in. o/a dim.; two 0.156 in. dia holes spaced 0.531 in. c to c; Mfr 13499 part no. 548-8574-002	5-106

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, POWER AMPLIFIER ASSEMBLY (Continued)		
0208	INSULATOR, BUSHING: Ceramic; 0.120 in. dia conductor passage hole; rd shank type; 0.562 in. dia by 0.187 in. lg o/a dim.; Mfr 13499 part no. 548-8522-002	5-106
0209	BRACKET, COUPLING: Brass, silver plated finish; 90 deg angle; 1.093 in. lg leg A, 0.499 in. lg leg B, 1.000 in. w leg A, 0.875 in. w leg B; 0.051 in. thk material of both legs two 0.156 in. dia holes spaced 0.500 in. c to c leg B; Mfr 13499 part no. 548-8591-002	5-108
0210	CONTACT, ELECTRICAL: Copper, gold-plated finish; 1.670 in. dia by 0.250 in. lg o/a dim.; four 0.128 in. dia holes on a 1.187 in. dia bolt circle; Mfr 13499 part no. 548-8730-003	5-110
0211	HUB, SLOTTED: Aluminum; 0.625 in. dia by 0.438 in. lg o/a dim.; one no. 2-56 thd hole, 0.125 in. deep, two slots 0.040 in. w spaced 90 deg apart, Mfr 13499 part no. 548-8623-002	5-107
0212	SHIM, OUTPUT COUPLING: Brass; 0.010 in. by 0.875 in. by 0.921 in o/a dim.; Mfr 13499 part no. 548-8624-002	5-107
0213	SPRING, HELICAL, EXTENSION: Music wire; cadmium plated finish; 0.200 in. max od, 0.125 in. min id; 1.312 in. free lg; 0.022 in. wire dia, 0.182 in. od, 41 coils; 1 lb initial tension; load 1.6 lbs at 1.625 in.; Mfr 13499 part no. 548-8625-002	5-107
0214	INSULATOR, BUSHING: Plastic; 0.099 in. id, 0.218 in. od, 0.125 in. lg o/a dim.; Mfr 13499 part no. 548-8627-002	5-107
0215	SPRING, LEAD SCREW: Copper; 0.008 in. by 0.500 in. by 1.062 in. o/a dim.; 150,000 P.S.I. min tensile strength; Mfr 13499 part no. 548-8634-002	5-105
0216	SHAFT, OUTPUT COUPLING: Copper shaft, aluminum hub; 0.625 in. dia by 9.875 in. lg o/a dim.; Mfr 13499 part no. 548-8638-002	5-105
0217	SHIM, SPACER: Brass, chemical polish finish; 0.010 in. by 0.312 in. by 2.062 in. o/a dim.; Mfr 13499 part no. 548-8639-002	5-108
0218	ARM, SHORTING: Same as 0201	
0219	LEAD SCREW, AMPLIFIER: Same as 0203	
0220	CONTACT ASSEMBLY, ELECTRICAL: 8 contacts; 2.687 in. dia by 0.437 in. lg o/a dim.; 8 terminals solder stud type; two 0.169 in. dia holes spaced 2.312 in. c to c; Mfr 13499 part no. 548-8560-002	5-110
0221	CONTACT, ELECTRICAL: Copper contact surface; silver-plated contact surface finish; 0.164 in. dia by 0.610 in. lg o/a dim.; one hole type terminal located at base; Mfr 13499 part no. 548-8533-002	5-110
0222	CONTACT, ELECTRICAL: 1 copper, gold plated finish, point; 0.171 in. thk by 0.343 in. w by 0.625 in. lg; copper contact surface; 0.406 in. by 0.770 in. by 1.250 in. o/a dim.; mtd by two no. 4-40 holes spaced 25 deg c to c; Mfr 13499 part no. 548-8563-002	5-110

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, POWER AMPLIFIER ASSEMBLY (Continued)		
0223	SEAL, SOLENOID: 0.953 in. id, 1.250 in. od, 0.187 in. lg; Mfr 13499 part no. 548-8709-002	5-107
0224	ARM, SHORTING: Cres, passivated finish; 0.125 in. by 1.062 in. by 1.125 in. o/a dim.; Mfr 13499 part no. 548-8524-002	5-109
0225	CONTACT ASSEMBLY, ELECTRICAL: 3 contacts; 0.437 in. by 1.625 in. by 1.625 in. o/a dim.; 3 terminals, solder stud type; three 0.152 in. dia holes spaced 70 deg apart; Mfr 13499 part no. 548-8561-002	5-109
0226	CONTACT, ELECTRICAL: 1 copper point, gold plated finish; 0.119 in. thk by 0.312 in. w by 0.693 in. lg; 0.693 in. by 0.500 in. by 0.875 in. o/a dim.; 1 solder stud type terminal located at base, Mfr 13499 part no. 548-8562-002	5-109
0227	CONTACT ASSEMBLY, ELECTRICAL: Incl 3 contacts; 0.343 in. lg by 3.097 in. dia o/a dim.; four 0.161 in. dia holes spaced on 2.280 in. dia bolt circle; Mfr 13499 part no. 548-9007-003	5-109
0228	CLIP, CABLE: Brass; 0.0159 in. by 0.156 in. 0.187 in. o/a dim.; Mfr 13499 part no. 548-8585-002	5-109
0229	CONTACT, ELECTRICAL: Copper, silver plated finish; 0.010 in. by 0.180 in. by 0.587 in. o/a dim.; Mfr 13499 part no. 548-8633-002	5-109
0230	BEARING, BALL, ANNULAR: Single row, radial, two removable shields; 0.187 in. id, 0.500 in. od, 0.196 in. w; Mfr 21335 part no. AM33KDD5FS227	5-104
0231	BEARING, BALL BUSHING: Cres; 3 ball circuits; 1/16 in. dia balls; 0.250 in. id, 0.500 in. od, 0.750 in. lg; Mfr 01471 part no. A4812SSMILL6085	5-107
0232	PLATE: Aluminum plate; 0.900 in. by 4.187 in. by 4.625 in. by 4.625 in. o/a dim.; includes cres bearing and shaft; Mfr 13499 part no. 548-8703-002	5-103
0233	BEARING, SLEEVE: Bronze; flanged; 0.1895 in. id, 7/16 in. od, 1/4 in. lg; Mfr 13499 part no. 309-0081-00	5-103
0234	BEARING, SLEEVE: Bronze, flanged; 0.187 in. id, 3/8 in. od, 3/8 in. lg; Mfr 13499 part no. 309-0078-00	5-103
0235	SHAFT, SHOULDER: Cres, passivated finish; 0.375 in. dia by 0.890 in. lg o/a dim.; Mfr 13499 part no. 548-8651-002	5-103
0236	CLAMP, RIM CLENCHING: Aluminum, chromate dipped finish 0.375 in. dia by 0.968 in. lg o/a dim.; tapped no. 8-32 thd, 0.312 in. deep both ends; Mfr 13499 part no. 548-8752-003	5-103
0237	PLATE, GEAR, NO. 2: Aluminum plate; 0.568 in. by 7 in. by 7.562 in. o/a dim.; Mfr 13499 part no. 548-8762-004	5-103
0238	BEARING, SLEEVE: Flanged, porous bronze; 5/16 in. dia undercut to 0.252 in. dia, 1/4 in. lg; Mfr 70417 part no. F207-2MILL6085A	5-103
0239	PLATE, GEAR NO. 1: Aluminum plate; 1.049 in. by 6.953 in. by 7.234 in. o/a dim.; includes shaft and bearing; cres: Mfr 13499 part no. 548-8751-003	5-104

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, POWER AMPLIFIER ASSEMBLY (Continued)		
0240	GEARSHAFT, SPUR: Cres gear; cres shaft; 1.104 in. dia by 2.562 in. lg o/a dim.; 51 teeth complement, 20 degree pressure angle; Mfr 13499 part no. 548-8696-002 c/o 0299.31 and P/N 311-0420-00	5-104
0241	SHAFT, SHOULDERED: Cres, passivated finish; 0.187 in. dia by 3.453 in. lg o/a dim.; Mfr 13499 part no. 548-8688-002	5-103
0242	STOP ECCENTRIC: Cres, passivated finish; 0.375 in. dia by 0.687 in. lg o/a dim.; Mfr 13499 part no. 548-8693-002	5-103
0243	GEAR ASSEMBLY: Aluminum gears, two complements of 76 teeth; 1.625 in. dia by 0.500 in. lg o/a dim.; Mfr 13499 part no. 548-8750-003	5-104
0244	GEAR, SPUR: Aluminum; 1.625 in. dia by 0.132 in. lg o/a dim.; 0.500 in. dia bore, 0.070 in. w face; 76 teeth complement; Mfr 13499 part no. 548-8650-002	5-104
0245	GEAR, IDLER: 76 teeth; 20 deg pressure angle; 0 deg helix angle; 48 diametral pitch; 1.623 in. dia by 0.500 in. lg o/a dim.; Mfr 13499 part no. 548-8746-003	5-104
0246	CLAMP, LOOP: Stainless steel; 0.219 in. dia bore; 0.156 in. axial lg; 0.500 in. lg o/a; Mfr 03565 part no. B-6456	5-103
0247	GEAR, BEVEL: Cres; 0.792 in. dia by 0.530 in. lg o/a dim.; beveled 0.156 in.; face angle 47 deg 40 to 48 deg oo' to 44 deg 54'; 36 teeth complement; Mfr 13499 part no. 548-8689-002	5-103
0248	MASK, DIAL: Aluminum; 0.063 in. by 3-1/16 in. by 3-3/8 in.; w/indicator; Mfr 13499 part no. 548-8785-003	5-103
0249	GEARSHAFT, SPUR: Cres shaft, aluminum gear; 1.468 in. lg by 2.208 in. dia o/a dim. 104 teeth complement; 20 deg pressure angle; Mfr 13499 part no. 548-8685-002	5-103
0250	GEAR CLUSTER, SPUR: Bronze; 2.354-in. dia by 0.504 in. lg o/a dim.; two complements of teeth 111 and 33; Mfr 13499 part no. 548-8682-002	5-103
0251	GEAR, SPUR: Aluminum; 0.771 in. dia by 0.531 in. lg o/a dim.; 20 degree pressure angle; 35 teeth complement; Mfr 13499 part no. 548-8679-002	5-103
0252	GEAR, SPUR: Cres; 0.792 in. dia by 0.469 in. lg o/a dim.; 36 teeth complement; 20 deg pressure angle; Mfr 13499 part no. 548-8678-002	5-103
0253	GEARSHAFT, SPUR: Cres shaft & aluminum gear; 1.854 in. dia by 1.375 in. lg o/a dim.; 87 teeth complement; Mfr 13499 part no. 548-8677-002	5-104
0254	CLAMP, LOOP: Stainless steel; 0.343 in. bore dia, 0.200 in. axial lg, 0.760 in. lg o/a one 0.116 in. dia securing hole; Mfr 03565 part no. B-6458	5-103
0255	GEAR CLUSTER, SPUR: Aluminum; 2.104 in. dia by 0.656 in. lg o/a dim.; two complements of teeth; 99 and 36; Mfr 13499 part no. 548-8673-002	5-103

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, POWER AMPLIFIER ASSEMBLY (Continued)		
0256	GEAR CLUSTER, SPUR: Aluminum; 1.396 in. od by 0.625 in. lg o/a dim.; two complements of teeth; 40 and 65; Mfr 13499 part no. 548-8669-002	5-104
0257	GEARSHAFT, SPUR: Aluminum; 0.875 in. dia by 1.219 in. lg o/a dim.; two complements of teeth; 40 and 29, Mfr 13499 part no. 548-8666-002	5-104
0258	GEAR SHAFT, SPUR: Aluminum 0.792 in. dia by 1.219 in. lg o/a dim.; two complements of teeth; 36 and 22; Mfr 13499 part no. 548-8663-002	5-104
0259	GEARSHAFT, SPUR: Aluminum; 0.542 in. dia by 1.219 in. lg o/a; two complements of teeth 24 and 22; Mfr 13499 part no. 548-8660-002	5-104
0260	COLLAR, SHAFT: Cres, passivated finish; 0.2812 in. bore dia, 0.562 in. od, 0.218 in. axial lg; two no. 4-40 securing holes spaced 90 degrees apart; Mfr 13499 part no. 548-8658-002	5-103
0261	GEAR, SPUR: Cres; 0.375 in. dia by 0.500 in. lg o/a; 16 teeth complement; 20 deg pressure angle; Mfr 13499 part no. 548-8656-002	5-103
0262	LOADING ASSEMBLY, GEAR: Includes two aluminum gears; two complements of 76 teeth; 20 degree pressure angle, 1 steel loading spring; 1.625 in. dia by 0.500 in. lg o/a dim.; Mfr 13499 part no. 548-8749-003 c/o 0244, 245, 263, washer 547-2309-00 and ring 340-0118-00	5-104
0263	SPRING, LOADING: Steel, 1.045 in. od, by 0.295 in. lg o/a dim.; w/90 deg opening; Mfr 13499 part no. 548-8655-002	5-104
0264	GEAR, IDLER: Same as 0245	
0265	GEAR, SPUR: Same as 0244	
0266	GEAR, SPUR: Aluminum; 0.833 in. dia by 0.562 in. lg o/a dim.; 0.280 in. dia hub slotted w/38 teeth complement; Mfr 13499 part no. 548-8649-002	5-104
0267	BEARING, BALL, BUSHING: Same as 0231	
0268	CLAMP, RIM CLENCHING: Same as 0236	
0269	SCREW ASSEMBLY, COUPLING: Brass disk, silver plated brass screw; 0.875 in. dia by 1.113 in. lg; 8-32 thd, 0.438 in. lg; Mfr no. 13499 Part no. 548-8593-002	5-108
0270	STOP, ECCENTRIC: Same as 0242	
0271	GEAR ASSEMBLY: Same as 0243	
0272	GEAR, BEVEL: Same as 0247	
0273	LOADING ASSEMBLY, GEAR: Same as 0262	
0274	LOADING ASSEMBLY, GEAR: Same as 0262	
0275	GEAR: Same as 0266	
0276	GEAR: Same as 0266	
0277	GEAR: Same as 0266	
0278	SHAFT, OUTPUT COUPLING: Same as 0216	
0279	SLEEVE, BEARING: Same as 0204	
0280	BEARING, BALL, ANNULAR: Same as 0230	

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, POWER AMPLIFIER ASSEMBLY (Continued)		
0281	BEARING, BALL, ANNULAR: Same as 0230	
0282	BEARING, BALL, ANNULAR: Same as 0230	
0283	BEARING, BALL, ANNULAR: Same as 0230	
0284	SHIM, SPACER: Same as 0217	
0285	SHIM, SPACER: Same as 0217	
0286	SHIM, SPACER: Same as 0217	
0287	SPRING, LEAD SCREW: Same as 0215	
0288	INSULATOR, BUSHING: Same as 0214	
0289	SHIM, COUPLING: Same as 0212	
0290	BEARING, BALL, ANNULAR: Same as 0230	
0291	BEARING, BALL, ANNULAR: Same as 0230	
0292	BEARING, BALL, ANNULAR: Same as 0230	
0293	ARM, SHORTING: Same as 0224	
0294	LEAD SCREW, AMPLIFIER: Same as 0203	
0295	CONTACT, ASSEMBLY, ELECTRICAL: Same as 0225	
0296	CONTACT, ELECTRICAL: Same as 0226	
0297	CONTACT, ELECTRICAL: Same as 0229	
0298	BEARING, SEEEVE: Same as 0238	
0299	INSULATOR, BUSHING: Same as 0205	
0299.1	INSULATOR, BUSHING: Same as 0205	
0299.2	INSULATOR, BUSHING: Same as 0205	
0299.3	INSULATOR, BUSHING: Same as 0205	
0299.4	INSULATOR, BUSHING: Same as 0205	
0299.5	INSULATOR, BUSHING: Same as 0205	
0299.6	INSULATOR, BUSHING: Same as 0205	
0299.7	INSULATOR, BUSHING: Same as 0205	
0299.8	INSULATOR, BUSHING: Same as 0205	
0299.9	INSULATOR, BUSHING: Same as 0205	
0299.10	INSULATOR, BUSHING: Same as 0205	
0299.11	CONTACT, ELECTRICAL: Same as 0221	
0299.12	INSULATOR, BUSHING: Same as 0206	
0299.13	INSULATOR, BUSHING: Same as 0206	
0299.14	INSULATOR, BUSHING: Same as 0206	
0299.15	CONTACT, ELECTRICAL: Same as 0222	
0299.16	INSULATOR, BUSHING: Same as 0208	
0299.17	INSULATOR, BUSHING: Same as 0208	
0299.18	INSULATOR, BUSHING: Same as 0208	
0299.19	INSULATOR, BUSHING: Same as 0208	
0299.20	INSULATOR, BUSHING: Same as 0208	
0299.21	INSULATOR, BUSHING: Same as 0208	
0299.22	INSULATOR, BUSHING: Same as 0208	
0299.23	CONTACT ASSEMBLY: Mfr 13499 part no. 548-9013-004	5-114
0299.24	INSULATOR, PLATE: Plastic; 0.062 in. by 3/8 in. by 21/32 in. P/O S-201; Mfr 13499 part no. 548-8626-002	5-107
0299.25	CONTACT, ELECTRICAL: Bronze contact arm w/silver point; 0.062 in. by 0.312 in. by 1.217 in. approx P/O S-201; Mfr 13499 part no. 548-8640-002	5-107

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, POWER AMPLIFIER ASSEMBLY (Continued)		
0299.26	CONTACT, ELECTRICAL: Bronze contact arm w/silver point; incl actuator button; 0.144 in. by 0.312 in. by 1.217 in. approx; P/O S-201; Mfr 13499 part no. 548-8641-002	5-107
0299.27	SUPPORT, COUPLING: Brass, silver plated; 0.312 in. by 1.250 in. by 1.562 in. approx; P/O C-206; Mfr 13499 part no. 548-8586-002	5-108
0299.28	INSULATOR, COUPLING: Mica; 0.030 in. by 0.875 in. by 1.375 in.; P/O C-206; Mfr 13499 part no. 548-8597-002	5-108
0299.29	PLATE, COUPLING: Silver plated brass; 0.189 in. by 0.750 in. by 1.281 in. approx; P/O C-206; Mfr 13499 part no. 548-8592-002	5-108
0299.30	PLATE, CATHODE COUPLING: Silver plated brass; 1.720 in. dia by 0.120 in. thk; P/O C-214; Mfr 13499 part no. 548-8536-002	5-110
0299.31	GEAR, SPUR: Cres; 1.104 in. dia by 0.390 in. lg o/a dim.; 51 teeth complement; 20 degree pressure angle; Mfr 13499 part no. 548-8691-002	5-103
0299.32	SHAFT, STRAIGHT: Cres; 0.187 in. dia by 2.562 in. lg o/a dim; two 0.147 in. dia by 0.028 in. lg groove; Mfr 13499 part no. 548-8695-002	5-103
0299.33	INSULATOR, COUPLING: Teflon; 0.812 in. id, 1-27/32 in. od, 0.015 in. thk; P/O C-214; Mfr 13499 part no. 548-8537-002	5-110
0299.34	INSULATOR, DISK: Teflon; 0.812 in. id; 1-27/32 in. od; 0.005 in. thk; P/O C-214; Mfr 13499 part no. 548-8609-002	5-110
0299.35	BEARING, BALL, ANNULAR: Same as 0230	
0299.36	BEARING, BALL, ANNULAR: Single row; radial, flanged, double shielded; cres 0.125 in. id, 0.319 in. od, 0.140 in. w; Mfr 40920 part no. S518FCHHP37L02	5-103
0299.37	BEARING, BALL, ANNULAR: Same as 0299.36	5-103
0299.38	BEARING, BALL, ANNULAR: Same as 0299.36	5-103
0299.39	BEARING, BALL, ANNULAR: Same as 0299.36	5-103
0299.40	BEARING, BALL, ANNULAR: Same as 0299.36	5-103
0299.41	BEARING, BALL, ANNULAR: Same as 0299.36	5-103
0299.42	BUSHING, SHIELD: Same as 0205	5-103
P201	CONNECTOR, RECEPTACLE, ELECTRICAL: Arc resistant plastic dielectric; Mfr 81312 part no MRE34PJTC6H1	5-87
P202	CONNECTOR, PLUG, ELECTRICAL: MS35168-88E type UG-88E/U P/O W-206	5-87
P203	CONNECTOR, PLUG, ELECTRICAL: UG-913A/U brass shell, teflon insulation; silver plated finish; rt angle; one coaxial contact; P/O W-553	5-87
P204	CONNECTOR, PLUG, ELECTRICAL: P/O W-205 same as P202	5-87
P205	CONNECTOR, PLUG, ELECTRICAL: P/O W-204 same as P203	5-102
P206	CONNECTOR, PLUG, ELECTRICAL: P/O W-203 same as P203	5-101
P207	CONNECTOR, PLUG, ELECTRICAL: P/O W-203 same as P203	5-87
P208A, B	ADAPTER, CONNECTOR, ELECTRICAL: MS35176-491B, MIL type UG-491B/U	5-87

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, POWER AMPLIFIER ASSEMBLY (Continued)		
P209	CONNECTOR, PLUG, ELECTRICAL: P/O W-207 same as P202	5-87
P210	CONNECTOR, PLUG, ELECTRICAL: P/O W-207 same as P203	5-87
P211	CONNECTOR, PLUG, ELECTRICAL: P/O W-552 same as P202	5-87
P212	CONNECTOR, PLUG, ELECTRICAL: P/O W-206 same as P202	5-87
P213	P/O DC-201	5-87
P214	P/O DC-201	5-87
P215	CONNECTOR, PLUG, ELECTRICAL: ITT Cannon, Mfr part no. TNC-RL-12-M-55, High Voltage (5000 vdc) P/O W-210	5-101
R201	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF224K	5-111
R202	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF225K	5-111
R203	RESISTOR, VARIABLE, WIREWOUND: MIL type RR2100E2G91502	5-102
R204	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF471J	5-101
R205	RESISTOR, FIXED, COMPOSITION: Same as R204	5-101
R206	RESISTOR, FIXED, FILM: MIL-R-10509 type RN65B1103F	5-107
S201	C/O O-299.24 thru O-299.26	
V201	ELECTRON TUBE: Tetrode; Mfr 72902 part no. 4CX250K	5-108
V202	ELECTRON TUBE: Same as V201	5-108
V203	ELECTRON TUBE: Pencil diode; Mfr 49671 type 6173	5-111
W203	CABLE ASSEMBLY, RADIO FREQUENCY: Terminated both ends w/connector; 11.687 in. lg o/a dim.; Mfr 13499 part no. 548-8774-002 C/O P-206 & P-207	5-101
W204	CABLE ASSEMBLY: Terminated both ends w/connector; 10.375 in. o/a lg; Mfr 13499 part no. 548-8775-002 C/O P-205 & P-402	5-102
W205	CABLE ASSEMBLY, RADIO FREQUENCY: Terminated both ends w/connector; 6.562 in. o/a lg; Mfr 13499 part no. 548-8776-002 C/O P-1 & P-204	5-87
W206	CABLE ASSEMBLY, RADIO FREQUENCY: Terminated both ends w/connector; 5.250 in. o/a lg; Mfr 13499 part no. 548-8777-002 C/O P-202 & P-212	5-87
W207	CABLE ASSEMBLY, RADIO FREQUENCY: Terminated both ends w/connector; 4.687 in. o/a lg; Mfr 13499 part no. 548-8778-002 C/O P-209 & P-210	5-87
W208	NOT USED	
W209	WIRING HARNESS: 22 conductors, 1 clip; Mfr 13499 part no. 548-8520-00	5-102
W210	CABLE ASSEMBLY, RADIO FREQUENCY: Terminated one end w/connector; P-215; Cable type RG-142 B/U	5-101
XV201	NOT USED	
XV202	NOT USED	
XV203	SOCKET, ELECTRON TUBE: 2 contact; phenolic insulation; 0.0250 in. dia by 7/16 in. lg; Mfr 71785 part no. 131-52-12-016	5-111
AM-1565/URC, RF AMPLIFIER, SERVO AMPLIFIER SUBASSEMBLY		
UNIT 3A4 (401-499)	AMPLIFIER, ELECTRONIC CONTROL: Mfr 03565 part no. D-6493	5-112
AT401	ATTENUATOR, VARIABLE: 1330 ohms res, 500v, 25 ma current; Mfr 13499 part no. 548-8394-003 C/O J401 & J-402	5-87

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, SERVO AMPLIFIER SUBASSEMBLY (Continued)		
C401	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20B type CC31PG510F	5-114
C402	CAPACITOR, FIXED, PAPER DIELECTRIC: 0.47 uf ±20%, 50 vdc; Mfr 56289 part no. 186P47406T15	5-112
C403	CAPACITOR, FIXED, PAPER DIELECTRIC: MIL type CQ09A1KE104K3	5-114
C404	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C403	5-114
C405	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C403	5-103
C406	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C402	5-112
C407	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C403	5-114
C408	CAPACITOR, FIXED, PAPER DIELECTRIC: MIL type CQ09A1KE473K3	5-114
C409	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C403	5-114
C410	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C403	5-114
C411	CAPACITOR, FIXED, PAPER DIELECTRIC: Same as C403	5-114
C412	CAPACITOR, FIXED, ELECTROLYTIC: MIL type CL65BG101MPE	5-113
C413	CAPACITOR, FIXED, PAPER DIELECTRIC: 0.47 uf ±20%, 600 vdc; Mfr 56289 part no. 196P47406T4	5-113
C414	CAPACITOR, FIXED, PAPER DIELECTRIC: MIL type CQ09A1KF682K3	5-113
C415	CAPACITOR, FIXED, PAPER DIELECTRIC: MIL type CQ09A1KF222K3	5-113
C416	CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-11015B type CK60AW102M	5-113
C417	CAPACITOR, FIXED, CERAMIC DIELECTRIC: Same as C416	5-114
CR401	SEMICONDUCTOR DEVICE, DIODE: MIL type 1N483B	5-114
CR402	SEMICONDUCTOR DEVICE, DIODE: Same as CR401	5-114
H401	KNOB: 3/8 in. by 9/16 in.; stainless steel; p/o P401 retaining assembly. BuShips Dwg. STD 404SK1659334/4	5-112
H402	KNOB: Same as H401	5-112
H403	SETSCREW: 4-40 thread 3/16 in. lg; spline type; p/o knob H401	5-112
H404	SETSCREW: Same as H403; p/o H402	5-112
H405	SPACER: 1/4 in. dia by 13/16 in. lg; stainless steel; p/o P401 retaining assembly; BuShips DWG STD 404SK1659334/5	5-112
H406	SPACER: Same as H405	5-112
H407	KEY, FEMALE: 3/16 in. by 1-7/8 in. lg. stainless steel; 6-32 threaded receptacle; mates with H32; p/o P401 retaining assembly; BuShips Dwg. STD 404SK1659334/8	5-112
H408	KEY, MALE: 3/16 in. by 1-47/64 in. lg; stainless steel; 6-32 thread screw; mates with H33; p/o P401 retaining assembly; BuShips Dwg. STD 404SK1659334/6	5-112
J401	ADAPTER, CONNECTOR: 1500 vac test voltage, 60 Hz 50 ohms impedance; brass body, teflon insulation, 1 female contact, 0.593 in. dia by 1.000 in. lg o/a dim.; Mfr 94375 part no. 01069	5-87
J402	ADAPTER, CONNECTOR: Same as J401	5-87
L401	COIL, RADIO FREQUENCY: MIL type MS75008-22	5-113
L402	COIL, RADIO FREQUENCY: Same as L401	5-113
P401	CONNECTOR, RECEPTACLE, ELECTRICAL: 26 male contacts; 5 amps; arc resistant plastic dielectric; Mfr 80586 part no. GM26M79	5-112

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO:
AM-1565/URC, RF AMPLIFIER, SERVO AMPLIFIER SUBASSEMBLY (Continued)		
P402	CONNECTOR, PLUG, ELECTRICAL: MIL type UG-913A/U; Brass shell, teflon ins; silver pl finish; rt angle; one coaxial contact	5-87
P403	CONNECTOR, PLUG, ELECTRICAL: Same as P402	5-87
R401	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF104K	5-114
R402	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF564K	5-114
R403	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF473K	5-114
R404	RESISTOR, FIXED, COMPOSITION: Same as R403	5-114
R405	RESISTOR, VARIABLE, COMPOSITION: 250,000 ohms ±20%, 2 w; Mfr 13499 part no. 380-3466-00	5-112
R406	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF474K	5-114
R407	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF224K	5-114
R408	RESISTOR, FIXED, COMPOSITION: Same as R407	5-114
R409	RESISTOR, VARIABLE, COMPOSITION: 500,000 ohms, ±20%, 2 w; Mfr 13499 part no. 380-3467-00	5-112
R410	RESISTOR, VARIABLE, COMPOSITION: Same as R409	5-112
R411	RESISTOR, VARIABLE, COMPOSITION: Same as R405	5-112
R412	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF103K	5-114
R413	RESISTOR, FIXED, COMPOSITION: Same as R412	5-114
R414	RESISTOR, FIXED, COMPOSITION: Same as R407	5-114
R415	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF152K	5-114
R416	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF104K	5-114
R417	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF124K	5-114
R418	RESISTOR, FIXED, COMPOSITION: Same as R417	5-113
R419	RESISTOR, FIXED, COMPOSITION: Same as R417	5-113
R420	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF102K	5-114
R421	RESISTOR, FIXED, COMPOSITION: Same as R417	5-113
R422	RESISTOR, FIXED, COMPOSITION: Same as R417	5-114
R423	RESISTOR, FIXED, COMPOSITION: Same as R417	5-114
R424	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF472K	5-114
R425	RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW30V121	5-113
R426	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF103K	5-113
R427	RESISTOR, FIXED, COMPOSITION: Same as R426	5-113
R428	RESISTOR, FIXED, COMPOSITION: Same as R402	5-113
R429	RESISTOR, FIXED, COMPOSITION: Same as R403	5-113
R430	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF332K	5-113
R431	RESISTOR, FIXED, COMPOSITION: Same as R430	5-113
R432	RESISTOR, FIXED, COMPOSITION: Same as R407	5-113
R433	RESISTOR, FIXED, COMPOSITION: Same as R403	5-113
R434	RESISTOR, FIXED, COMPOSITION: MIL type RW29V502	5-113
R435	RESISTOR, FIXED, COMPOSITION: Same as R412	5-113
R436	RESISTOR, VARIABLE, COMPOSITION: 100,000 ohms ±20%, 2w; Mfr 13499 part no. 380-3465-00	5-112
R437	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF184K	5-113
R438	RESISTOR, FIXED, COMPOSITION: Same as R401	5-113
TB401	TERMINAL BOARD: Plastic; 0.093 in. by 3.250 in. by 4.437 in. o/a dim.; Mfr 13499 part no. 548-8512-003	5-114

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, SERVO AMPLIFIER SUBASSEMBLY (Continued)		
TB402	TERMINAL BOARD: Plastic; 0.093 in. by 1.375 in. by 3.250 in. o/a dim.; Mfr 13499 part no. 548-8514-002	5-113
TP401	JACK, TIP: For use with 0.080 diameter plug tip; Mfr 98291 part no. SKT10BROWN	5-112
TP402	JACK, TIP: For use with 0.080 diameter plug tip; Mfr 98291 part no. SKT10RED	5-112
TP403	JACK, TIP: For use with 0.080 diameter plug tip; Mfr 98291 part no. SKT10ORANGE	5-112
V401	ELECTRON TUBE: MIL type 5751	5-112
V402	ELECTRON TUBE: Same as V401	5-112
V403	ELECTRON TUBE: Pentode; Mfr 73445 part no. 6BQ5	5-112
V404	ELECTRON TUBE: Same as V403	5-112
V405	ELECTRON TUBE: MIL-E-1 type 5814A	5-112
V406	ELECTRON TUBE: Same as V401	5-112
V407	ELECTRON TUBE: MIL-E-1 type 0A2WA	5-112
XV401	SOCKET, ELECTRON TUBE: MIL type TS103C01	5-112
XV402	SOCKET, ELECTRON TUBE: Same as XV401	5-113
XV403	SOCKET, ELECTRON TUBE: Same as XV401	5-113
XV404	SOCKET, ELECTRON TUBE: Same as XV401	5-113
XV405	SOCKET, ELECTRON TUBE: Same as XV401	5-113
XV406	SOCKET, ELECTRON TUBE: Same as XV401	5-113
XV407	SOCKET, ELECTRON TUBE: MIL type TS102C01	5-113
Z401	SUPPRESSOR, PARASITIC: Single layer wound; #30 AWG wire; 100 ohms ±10%, 1/2 wa Mfr 13499 part no. 548-8506-002	5-113
Z402	SUPPRESSOR, PARASITIC: Same as Z401	5-113
AM-1565/URC, RF AMPLIFIER, FRONT PANEL ASSEMBLY		
UNIT 3A5 (501-599)	FRONT PANEL ASSEMBLY: Mfr 03565 part no. C-6496	5-94
A502	ACTUATOR, ROTARY: 27.5 vdc, 1.6 amp; 0.01 hp., 12,000 rpm motor; 5 sec on 10 sec off; intermittent operation; Mfr 13499 part no. 548-8900-005	5-99 5-100
A503	ADJUSTMENT COUPLING: 2.416 in. dia by 2.437 in. lg; Mfr 13499 part no. 548-8923-003	5-94
B501	MOTOR, DIRECT CURRENT: Permanent magnet; 27.5 v; 12,000 rpm no load speed; ccw rotation; fully enclosed; 5 sec on 10 sec off; 1.992 in. lg; 1.255 in. dia. by 0.382 in. lg shaft; Mfr 13499 part no. 230-0228-00	5-96
CR501	SEMICONDUCTOR DEVICE, DIODE: MIL type 1N538	5-94
DS501	LAMP, INCANDESCENT: MIL type MS25237-327	5-94
DS502	LAMP, INCANDESCENT: Same as DS501	5-94
DS503	LAMP, INCANDESCENT: Same as DS501	5-88
DS504	LAMP, INCANDESCENT: Same as DS501	5-88
DS505	LAMP, INCANDESCENT: Same as DS501	5-88
DS506	LAMP, INCANDESCENT: Same as DS501	5-88

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, FRONT PANEL ASSEMBLY (Continued)		
F501	FUSE, CARTRIDGE: MIL type F03A250V15AS	5-88
F502	FUSE, CARTRIDGE: MIL type F03A250V5AS	5-88
F503	FUSE, CARTRIDGE: Same as F502	5-88
F504	FUSE, CARTRIDGE: MIL type F02B125V3AS	5-88
F505	FUSE, CARTRIDGE: Same as P502	5-88
F506	FUSE, CARTRIDGE: MIL type F02GR250A	5-88
F507	FUSE, CARTRIDGE: MIL type F02B32V5AS	5-88
F508	FUSE, CARTRIDGE: Same as F506	5-88
H501	NOT USED	
H502	SCREW, SPECIAL: Cres, passivate finish; 1/4-20NC-2A thd, 0.406 dia head, 1.468 in. lg; Mfr 13499 part no. 548-8954-002	5-88
H503	NOT USED	
H504	NOT USED	
H505	NUT, CASTELLATED: Cres, passivate finish; 2 slots 0.093 in. w by 0.046 in. d; 1/4-20NC-2B thd, 0.125 in. thk, 0.500 in. dia.; Mfr 13499 part no. 548-8957-002	5-88
H506	NUT, CASTELLATED: Cres, passivate finish; 2 slots 0.093 in. w by 0.046 in. id, 5/8-24NX-2B, 0.125 in. thk, 0.843 in. dia; Mfr 13499 part no. 548-8953-002	5-94
H507	NUT, CASTELLATED: Cres, passivate finish; 2 slots 0.093 in. w by 0.046 in. d; 3/8-NEF-2B, 0.125 in. thk, 0.562 in. dia; Mfr 13499 part no. 548-8951-002	5-88
H508	WASHER, FLAT: Stainless steel, passivate finish; rd shape; 0.250 in. id, 0.406 in. od, 0.025 in. thk; Mfr 13499 part no. 506-5173-002	5-88
H509	WASHER, LOCK: Stainless steel, plain finish; split helical ring; 0.269 in. id, 0.373 in. od, 0.078 in. thk; Mfr 76665 part no. 6922D	5-88
H510	CLAMP, LOOP: MIL type MS25281-F4	5-94
H511	CLAMP, LOOP: MIL type MS25281-F5	5-100
H512	WASHER, SEALING: Inner sealing ring of synthetic rubber bonded to an outer confining steel ring; 0.208 in. id, 0.328 in. od, 0.041 in. thk; Mfr 86579 part no. 110-6	5-94
H513	NOT USED	
H514	RING, RETAINING: MIL type MS16633-1025	5-88
H515	RING, RETAINING: Steel, cadmium or zinc plated; internal, self-locking; 0.175 in. od, 0.010 in. thk; Mfr 89462 part no. 5005-75	5-88
H516	WASHER, LOCK: Steel, cadmium plated, internal teeth, 0.391 id, 0.507 od, 0.022 thk; use with 3/8 in. screw; Mfr 13499 part no. 373-0081-00	5-94
H517	WASHER, LOCK: Stainless steel, plain finish; flat internal teeth; 0.408 in. max od, 0.018 in. thk, 0.250 nom bolt size; Mfr 78189 part no. 1714-05	5-94
H518	WASHER, FLAT: Steel; rd shape; 0.127 in. id, 0.250 in. od, 0.033 in. thk; Mfr 13499 part no. 502-1515-002	5-100

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER FRONT PANEL ASSEMBLY (Continued)		
H519	WASHER, FLAT: Cres, passivate finish; 0.413 in. id, 0.640 in. od, 0.031 in. thk; Mfr 13499 part no. 547-2311-003	5-94
H520	CLAMP, CABLE: Brass, alloy-plated finish; 0.082 in. by 0.875 in. by 1. in. o/a dim.; 0.656 in. id; Mfr 13499 part no. 548-8829-002	5-94
H521	SPACER, CONNECTOR: Aluminum, chromate dip; 1/4 in. hex., 1 in. lg; Mfr 13499 part no. 548-8824-002	5-94
H522	STANDOFF: Cres, passivate finish; 1/4 hex, rod; 2 in. lg; Mfr 13499 part no. 548-8828-002	5-94
H523	STANDOFF: Cres, passivate finish; 1/4 in. hex. rod, 1-19/32 in. lg; Mfr 13499 part no. 548-8811-002	5-94
H524	CLIP, ELECTRICAL: Brass, alloy plated finish; 0.082 in. by 0.250 in. by 0.500 in. o/a dim.; Mfr 13499 part no. 548-8827-002	5-94
H525	WASHER, FLAT: Aluminum, black anodize; 0.437 in. id, 0.740 in. od, 0.031 in. thk; Mfr 13499 part no. 547-2312-003	5-88
H526	SPACER: Cres, passivate finish; 1-3/32 in. lg; Mfr 13499 part no. 548-8831-002	5-94
H527	WASHER, SPRING TENSION: Bronze; 13/64 in. id, 3/8 in. od, 0.0159 in.thk; Mfr 13499 part no. 310-4780-00	5-88
H528	PIN, SPRING: MS type MS16562-191	
H529	SLEEVE, SPRING: Beryllium copper; for No. 8 screw size; 0.185 in. dia; by 0.156 in. lg; Mfr 91314 part no. 340-0642-00	5-88
H530	WASHER, FLAT: Cres; 0.187 in. id, 0.312 in. od, 0.020 in. thk; Mfr 13499 part no. 500-1099-003	5-88
H531	RING, RETAINING: MIL type MS16624-18	5-88
H532	RING, RETAINING: Beryllium copper; MS type MS16624-12	5-94
H533	WASHER, FLAT: Cres, passivate finish; 0.203 in. id, 0.500 in. od, 0.006 in. thk; Mfr 13499 part no. 547-2316-003	5-94
H534	SHIM: Cres, passivate finish; 0.140 in. id, 0.296 in. od, 0.006 in. thk; Mfr 13499 part no. 547-2317-003	5-94
H535	NUT, SELF-LOCKING: Cres, passivate finish; 8-32NC-2B thd; 0.125 in. thk; 0.437 in. dia.; Mfr 13499 part no. 548-8902-002	5-88
H536	NOT USED	
H537	WASHER, SEALING: Synthetic rubber and steel; 0.280 in. id, 0.516 in. od, 0.054 in. thk; Mfr 86579 part no. 110 1-4CADPL	5-88
H538	WASHER, FLAT: Steel, passivate finish; 0.260 in. id, 0.500 in. od, 0.016 in. thk; Mfr 13499 part no. 540-3007-003	5-94
H539	NUT, RETAINING: Cres, passivate finish; 7/16 in. dia, 1/2 in. lg; Mfr 13499 part no. 548-8790-002	5-94
H540	NOT USED	
H541	SCREW, CAP, HEXAGON HEAD: Stainless steel, chemical black; 7/16 in. wide across flats; 1/4-20UNC-2A thd, 1 in. lg; Mfr 13499 part no. 548-8805-002	5-88
H542	NOT USED	

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO..
AM-1565/URC, RF AMPLIFIER, FRONT PANEL ASSEMBLY (Continued)		
H543	NUT, SELF-LOCKING, HEXAGON: MIL type MS21044-D08	5-100
H544	SCREW, ADJUSTMENT: Cres, passivate finish; 0.187 in. dia by 0.953 in. lg; 8-32 thd; 0.651 in. lg in center; Mfr 13499 part no. 548-8867-002	5-95
H545	SETSCREW: Stainless steel, passivate finish; fluted socket, oval point; 5-40NC-3A thd, 3/16 in. lg; Mfr 13499 part no. 335-0095-00	5-86
H546	NOT USED	
H547	SCREW, MACHINE: Stainless steel, passivate finish; phillips recessed pan head; 2-56NC-2A thd, 1-1/16 in. lg; Mfr 13499 part no. 343-2724-00	5-100
H548	SPACER, SLEEVE: Aluminum; Fed QQ-A-351, temp T4; Mfr 13499 part no. 548-7774-002	5-96
H549	WASHER, FLAT: Cres, passivate finish; 0.203 in. id, 0.375 in. od, 0.006 in. thk; Mfr 13499 part no. 547-2314-003	5-100
H550	CLAMP, LOOP: Same as H511	5-100
H551	WASHER, NONMETALLIC: Phenolic; 0.116 in. id, 0.187 in. od, 0.031 in. thk; Mfr 13499 part no. 302-0262-00	5-100
H552	STUD, CONTINUOUS THREAD: Stainless steel, passivate finish; 4-40UNC-2A thd, 1-7/8 in. lg; Mfr 13499 part no. 312-0024-00	5-100
H553	SCREW, MACHINE: Stainless steel, plain finish; 0.272 in. hex head; 6-32NC-2 thd, 3/8 in.lg; Mfr 13499 part no. 325-0064-00	5-100
H554	NUT, SELF-LOCKING; HEXAGON: Aluminum chromate dip; 4-40UNC-3B thd, 0.190 in. hex, 0.110 in. h; Mfr 13499 part no. 333-0605-00	5-100
H555	SETSCREW: Steel, cadmium plated; multiple spline, cup point; 6-40NF-2 thd, 3/16 in. lg; Mfr 13499 part no. 328-0007-00	5-96
H556	RING, RETAINING: Same as H531	5-88
H557	RING, RETAINING: MIL type MS16624-1025	5-88
H558	SHIM: Cres; 0.190 in. id, 0.406 in. od, 0.12 in. thk; Mfr 13499 part no. 500-2112-002	5-100
H559	WASHER, FLAT: Same as H518	5-100
H560	WASHER, FLAT: Cres, 0.020 in. thk by 0.3154 in. id by 13/16 in. od; Mfr 13499 part no. 540-3040-003	5-100
H561	WASHER, FLAT: Brass; 0.0030 in. thk by 0.191 in. id by 0.343 in. od; Mfr 13499 part no. 542-1589-003	5-100
H562	SCREW, PIVOT, NO. 4: Cres; 0.187 in. dia undercut & groved; 0.281 in. lg; thd 4-40NC-2A, 0.030 in w slot on head; Mfr 03565 part no. B-6468	5-100
H563	NOT USED	
H564	SCREW, CAP, SOCKET HEAD: Steel; fluted socket head; 4-40NC-2 thd, 1/2 in. lg; Mfr 08664 part no. 4-40X1-2 6SPLINECADC	5-100
H565	NUT, PLAIN, SQUARE: Steel; 4-40NC-2B thd, 3/16 in. w, 0.062 in. thk; Mfr 13499 part no. 334-0485-00	5-100
H566	WASHER, SEALING: Same as H512	5-100

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, FRONT PANEL ASSEMBLY (Continued)		
H567	SPACER, PLATE: Cres; 0.375 in. dia by 0.875 in. lg o/a dim.; no. 6-32 thd, 0.343 in. lg; tapped no. 6-32 thd, 0.312 in. deep; Mfr 13499 part no. 548-8890-002	5-100
H568	INDEX, GEARPLATE: Aluminum; 0.370 in. dia by 0.597 in. lg. o/a; stepped each end, 0.249 in. dia by 0.080 in. lg; 0.156 in. id; Mfr 13499 part no. 548-8889-002	5-100
H569	INDEX, GEARPLATE: Aluminum; 0.307 in. dia by 0.785 in. lg; o/a dim.; stepped each end 0.249 in. dia by 0.080 in. lg; no. 6-32 thd tapped; Mfr 13499 part no. 548-8891-002	5-100
H570	SPACER, GEARPLATE: NO. 3: Aluminum, chromate dip; 6-32NC-2B thd, 0.375 in. dia, 1.218 in. lg; Mfr 13499 part no. 548-8892-002	5-100
H571	INDEX, GEARPLATE: Aluminum; 0.370 in. dia by 1.378 in. lg o/a dim.; stepped each end 0.249 in. dia by 0.080 in. lg; no. 6-32 internal thd, 0.375 in. lg each end; Mfr 13499 part no. 548-8893-002	5-100
H572	SPACER, SWITCH: Aluminum, chromate dip; 0.116 in. id, 0.195 in. od, 0.0281 in. lg; Mfr 13499 part no. 542-4690-003	5-100
H573	SPACER, SWITCH: Aluminum, chromate dip; 0.116 in. id, 0.195 in. od, 0.375 in. lg; Mfr 13499 part no. 542-4691-003	5-100
H574	SPRING, CLUTCH: Copper; 0.020 in. thk by 0.328 in. id by 0.750 in. od; Mfr 13499 part no. 546-2213-002	5-100
H575	WASHER, THRUST: Cres, passivate finish; 0.265 in. id, 0.500 in. od, 0.006 in. thk; Mfr 13499 part no. 547-2315-003	5-100
J501	ADAPTER, CONNECTOR: Brass body, teflon insulation, two female contacts; 0.812 in. dia, 1.703 in. lg o/a dim.; Mfr 94375 part no. 0991	5-94
J502	ADAPTER, CONNECTOR: Same as J501	5-94
J503	CONNECTOR, RECEPTACLE, ELECTRICAL: 41 female contacts; arc resistant plastic dielectric; 5 amps; Mfr 80586 part no. GM41F79	5-94
J504	CONNECTOR, RECEPTACLE, ELECTRICAL: Same as J503	5-94
K501	SHELL ASSEMBLY: Single layer wound; 825 turns of #32 AWG wire; 500 vac; 2 solder lug type terminals 0.75 in. lg by 1.093 in. w by 1.312 in. h o/a dim.; excl terminals; Mfr 13499 part no. 542-4614-002	5-96
K501A	LEAF SWITCH: Contacts for K501, Mfr 13499 part no. 548-8924-003 FSN 5930-087-1496	5-96
M501	METER,ARBITRARY: 0 to 100 ua; 1090 ohms; 2.635 in. dia by 1.980 in.lg o/a dim.; Mfr 16688 part no. 26-5325	5-88
0501	GEAR, IDLER: Bronze; 1.854 in. dia by 0.250 in. lg o/a dim.; 87 teeth complement; diametral pitch, 48; 0.125 in. w across face; Mfr 13499 part no. 548-8885-002	5-94
0502	GEAR CLUSTER, SPUR: Bronze; 0.750 in. dia by 0.812 in. lg o/a dim; two complements of teeth, one 17 tooth complement, one 34 tooth complement, diametral pitch 48; Mfr 13499 part no. 548-8887-002	5-94

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, FRONT PANEL ASSEMBLY (Continued)		
0503	KNOB: Screw on type; rd shape; pos. gripping surface; aluminum body; 0.500 in. dia by 0.468 in. lg o/a dim.; straight shank; no. 8-32 internally thd, 0.468 in. lg; Mfr 13499 part no. 548-8903-002	5-88
0504	GASKET: MIL-P-5516 type AN6227-7	
0505	PLATE, GEAR: Aluminum; 0.250 in. by 2-1/2 in. by 3.968 in.; incl 3 sleeve bearings; Mfr 13499 part no. 548-8904-002	5-100
0506	GASKET: Same as 0504	5-88
0507	GASKET: MIL-P-5516 type AN6227-5	5-88
0508	GASKET: Same as 0507	5-88
0509	GASKET: Same as 0507	5-94
0510	GASKET: Same as 0507	5-94
0511	PLATE, GEAR: Aluminum plate, 0.187 in. by 3-3/16 in. by 3.968; inc. pin; Mfr 13499 part no. 548-8905-002	5-100
0512	PLATE, GEAR: Aluminum plate, 0.159 in. by 1-11/16 in. by 3in.; incl 1 pin; Mfr 13499 part no. 548-8906-002	5-100
0513	GASKET: Synthetic rubber; 0.114 in. id, 0.254 in. od, 0.070 in. thk; Mfr 88044 part no. AN6227-1	5-88
0514	GASKET: Same as 0513	5-88
0515	NOT USED	
0516	GASKET, RUBBER: 0.549 in. id, 0.755 in. od, 0.103 in. thk; Mfr 88044 part no. AN6227-11	5-94
0517	GASKET: Same as 0516	5-94
0518	GASKET: Synthetic rubber; 0.924 in. id, 1.130 od, 0.103 in. thk; Mfr 86579 part no. 914-19-711-70	5-94
0519	GASKET: Synthetic rubber; 1.737 in. id, 1.943 in. od, 0.103 in. thk; Mfr 86579 part no. 914-32-711-70	5-94
0520	NOT USED	
0521	KNOB: Setscrew type; rd w/bar face; plain gripping surface; zinc alloy body; 15/16 in. max od, 3/4 in. thk o/a; Mfr 81183 part no. 15015	5-89
0522	KNOB: Same as 0521	5-88
0523	KNOB; Same as 0521	5-88
0524	KNOB: Same as 0521	5-88
0525	KNOB: Same as 0521	5-88
0526	KNOB: Same as 0521	5-88
0527	KNOB: Same as 0521	5-88
0528	CAP, PROTECTIVE, DUST AND MOISTURE SEAL: Aluminum cap; rubber gasket; friction type; anodized finish; 0.937 in. dia by 0.750 in. lg o/a dim.; Mfr 02660 part no. 67-1464	5-88
0529	CONNECTOR, RECEPTACLE: Steel shell, cres ring, rubber "O" ring; cadmium plated finish; 0.815 in. w across flats by 0.850 in. lg. o/a dim.; 1.160 in. o/a dia; bayonet locking; Mfr 02660 part no. 100X3840-14	5-88
0530	GASKET, METER: Synthetic rubber, 2-3/16 in. id, 2-5/8 in. od, 0.062 in. thk; Mfr 13499 part no. 548-8825-002	5-88

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, FRONT PANEL ASSEMBLY (Continued)		
0531	NOT USED	
0532	SHIELD, ELECTRICAL CONNECTOR: Cres, passivated finish; 1.411 in. by 1.425 in. by 2.912 in. o/a dim.; Mfr 13499 part no. 548-8801-002	5-94
0533	WINDOW, DIAL: Glass; colorless; 0.586 in. dia, 0.093 in. thk o/a dim.; Mfr 13499 part no. 548-8949-002	5-88
0534	WINDOW, DIAL: Glass; colorless; 0.961 in. dia, 0.093 in. thk o/a dim.; Mfr 13499 part no. 548-8950-002	5-94
0535	WINDOW, DIAL: Glass; 0.093 in. by 1.046 in. by 1.890 in. o/a dim.; Mfr 13499 part no. 548-8807-002	5-94
0536	GASKET, FLAT: Synthetic rubber; 0.062 in. by 1.093 in. by 2.156 in. o/a dim.; four 0.116 in. dia holes mtg centers; 0.468 in. w by 1.906 in. lg aperture; Mfr 13499 part no. 548-8948-002	5-88
0537	GASKET, FLAT: Same as 0536	5-88
0538	GASKET, PLATE: Synthetic rubber; 0.062 in. by 2.750 in. by 2.750 in. o/a dim.; Mfr 13499 part no. 548-8810-002	5-88
0539	BUTTON, DETENT: Cres; 0.468 in. dia by 2.250 in. lg o/a dim.; no. 6-32 thd, 0.040 in. dia w/undercut; Mfr 13499 part no. 548-8792-002	5-88
0540	BUTTON, DETENT: Same as 0539	5-88
0541	EXTENTION, BUTTON: Cres, passivated finish; 0.312 in. by 0.312 by 0.750 in. o/a dim, no. 6-32 tapped hole, 0.250 in. deep one end; Mfr 13499 part no. 548-8793-002	5-88
0542	EXTENSION, BUTTON: Same as 0541	5-88
0543	SPRING, BUTTON: Cres, passivated finish 0.038 in. dia wire, squared and ground ends; 8-3/4 total coils; 6-3/4 active coils; 0.270 in. id; 0.346 in. od; 0.718 in. lg; Mfr 13499 part no. 548-8799-002	5-88
0544	SPRING, BUTTON: Same as 0543	5-88
0545	TOOL, ADJUSTMENT: Two working ends; 0.187 in. dia by 5.179 in. lg o/a dim.; Mfr 13499 part no. 548-8856-002	5-88
0546	SHAFT, BEARING: Cres, passivated finish; 0.500 in.dia by 2.437 in. lg; no. 8-32 external thd, 0.345 in. lg one end, 0.715 in. lg other end; Mfr 13499 part no. 548-8894-002	5-95
0547	INSERT, FRICTION: Vulkolon; 2.234 in. dia by 0.125 in. thk o/a dim.; twenty 0.140 in. dia holes equally spaced 18 degrees apart on a 1.875 in. dia bolt circle; 1.025 in. id; Mfr 13499 part no. 548-8895-002	5-95
0548	GEAR, SPUR: Bronze; 2.417 in. dia by 0.515 in. lg o/a dim.; 114 teeth; 20 degree pressure angle; 48 diametral pitch; Mfr 13499 part no. 548-8896-002	5-95
0549	RETAINER, BEARING: Aluminum, chromate dip; 0.305 in. id, 1.000 in. od, 0.125 in. thk; Mfr 13499 part no. 548-8899-002	5-95
0550	RETAINER, BEARING: Same as 0549	5-95

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, FRONT PANEL ASSEMBLY (Continued)		
0551	SLEEVE, BEARING, INNER: Cres, passivate finish; 0.1885 in. id; 0.250 in. od, 0.250 in. lg; Mfr 13499 part no. 548-8898-002	5-95
0552	WASHER, FLAT: Cres, passivate finish; 0.312 in. id, 0.498 in. od, 0.006 in. thk; Mfr 13499 part no. 547-2318-003	5-95
0553	WASHER, FLAT: Same as 0552	5-95
0554	SLEEVE, BEARING: Cres, passivate finish; 0.400 in. id, 0.4980 in. od, 0.118 in. thk; Mfr 13499 part no. 548-8897-002	5-95
0555	BEARING, BALL, ANNULAR: Stainless steel; extra small single row radial bearing, with two removable shields; 0.1875 in. by 0.1960 in. by 0.5000 in.; Mfr 21335 part no. AM33KDD5FS227	5-95
0556	BEARING, BALL, ANNULAR: Same as 0555	5-95
0557	NOT USED	
0558	HOLDER: Synthetic rubber; 0.281 in. by 0.375 in. by 0.500 in. o/a dim.; 0.093 in. w opening; Mfr 13499 part no. 548-8826-002	5-88
0559	HOLDER: Same as 0558	5-88
0560	GASKET: Synthetic rubber; 5.859 in. id, 6.137 in. od, 0.139 in. thk; Mfr 86579 part no. 909-35-722-70	5-88
0561	PIVOT, DOOR: Cres, enameled finish; 0.312 in. dia by 0.359 in. lg o/a dim; groove 0.047 in. w by 0.175 in. dia; Mfr 13499 part no. 548-8968-00	5-88
0562	PIVOT, DOOR: Same as 0561	5-88
0563	BEARING, BALL, ANNULAR: Single row; radial; flanged, double shielded; cres; 0.125 in. id, 0.319 in. od, 0.140 in. w; Mfr 40920 part no. S518FCHHP37L02	5-100
0564	BEARING, BALL, ANNULAR: Same as 0563	5-100
0565	BEARING, BALL, ANNULAR: Same as 0563	5-100
0566	BEARING, BALL, ANNULAR: Same as 0563	5-100
0567	BEARING, BALL, ANNULAR: Same as 0563	5-100
0568	BEARING, BALL, ANNULAR: Same as 0563	5-100
0569	DISK, CLUTCH: Cres, 0.0250 in. thk by 0.937 in. dia; 3 grooves 1/16 in. w; Mfr 13499 part no. 542-4525-002	5-100
0570	DISK, CLUTCH: Same as 0569	5-100
0571	GEAR, CLUTCH: C/O bronze bearing; 0.050 in. thk by 0.3130 in. id by 0.4395 in. od and copper spur gear w/52 teeth, diametral pitch 48, 20° pressure angle, 1.0833 in. std pitch dia, 0.040 in. w face, 0.070 in. w overall; Mfr 13499 part no. 542-4560-002	5-100
0572	GEAR, CLUTCH: Same as 0571	5-100
0573	BEARING, FLANGE: Bronze; flanged; 0.171 in. by 0.500 in. by 1.124 in. o/a; 0.1875 in. dia bore; Mfr 13499 part no. 542-4607-002	5-100
0574	PAWL ASSEMBLY: 0.128 in. by 1.118 in. by 1.147 in o/a dim; Mfr 13499 part no. 548-8911-002	5-100

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, FRONT PANEL ASSEMBLY (Continued)		
0575	CLAMP: Stainless steel, anodized finish; 0.200 in. w o/a 0.295 in. from loop center to nearest mtg hole center; 0.250 in. loop id; 0.468 in. approx distance from loop center to end of tongues; w/o fastening device; Mfr 03565 part no. B-6455	5-100
0576	CLAMP: Cres, passivate finish; two no. 6-40 securing holes spaced 90 degrees apart; 0.625 in. dia by 0.200 in. lg o/a dim.; 0.250 in. id; Mfr 13499 part no. 548-8907-002	5-100
0577	GEAR: Cres; 0.968 in. dia by 0.860 in. lg o/a dim.; two complements of teeth, 16 and 60; diametral pitch; 48 and 64 respectively; Mfr 13499 part no. 548-8870-002	5-100
0578	GEAR: Cres; 1.291 in. dia by 0.907 in. lg o/a dim.; two complements of teeth; 14 and 60; diametral pitch for both gears; 48; Mfr 13499 part no. 548-8873-002	5-101
0579	GEAR: Cres; 1.416 in. dia by 0.907 in. lg o/a dim, two complements of teeth, 16 and 66; diametral pitch for both gears; 48; Mfr 13499 part no. 548-8876-002	5-100
0580	ARM, LEFT, ACTUATING: 0.562 in. by 2.406 in. 6.281 in o/a dim.; Mfr 13499 part no. 548-8832-003	5-94
0581	ARM ASSEMBLY, RIGHT, ACTUATING: 0.562 in. by 2.406 in. by 6.281 in. o/a dim.; Mfr 13499 part no. 548-8833-003	5-94
0582	NOT USED	
0583	SHAFT, SWITCH: Cres, passivate finish; 0.186 in. dia by 3.750 in. lg o/a dim.; Mfr 13499 part no. 548-8879-002	5-100
0584	SHAFT: Cres shaft; 1.000 in. dia by 3.750 in. lg o/a dim.; Mfr 13499 part no. 548-8883-002	5-100
0585	DIAL, CHANNEL: Aluminum, black anodized finish; 1.937 in. dia by 0.063 in. thk o/a; two 0.136 in.dia holes countersunk to 0.230 in. dia, equally spaced on a 0.656 in. dia bolt circle; one 0.203 in. dia hole centrally located; marked w/numbers 1 thru 19, m; Mfr 13499 part no. 548-8884-002	5-100
0586	GEAR, IDLER: Cres; 0.896 in. dia by 0.687 in. lg o/a dim.; 41 teeth complement; diametral pitch; 48; 0.125 in. w across face; Mfr 13499 part no. 548-8918-003	5-100
0587	CLAMP: Cres; 0.562 in. dia by 1.687 in. lg o/a dim; two no. 6-40 thd holes spaced 90 deg c to c; Mfr 13499 part no. 548-8880-002	5-100
0588	CLAMP: Cres; 0.562 in. dia by 1.531 in. lg o/a dim.; two no. 6-40 thd holes spaced 90 deg apart; Mfr 13499 part no. 548-8881-002	5-100
0589	NOT USED	
0590	NOT USED	
0591	PIN, ACTUATING: Plastic, 0.140 in. dia by 0.449 in. lg o/a; Mfr 13499 part no. 548-7773-002	5-94
P501	CONNECTOR,RECEPTACLE, ELECTRICAL: 75 male contacts and 2 male and 2 female guide pins; 7.5 amps; arc resistant plastic dielectric; Mfr 81312 part no. MRE75PNSSTYPE11	5-94

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, FRONT PANEL ASSEMBLY (Continued)		
P502	CONNECTOR, PLUG, ELECTRICAL: MS35168-88E type UG-88E/U P/O W-552	5-94
P503	CONNECTOR, RECEPTACLE: 41 male contacts with 2 polarizing pins; arc resistant plastic dielectric; 5 amps; Mfr 80586 part no. GM41M79	5-94
P504	CONNECTOR, RECEPTACLE: Same as P503	5-94
P505	CONNECTOR, PLUG, ELECTRICAL: UG-913A/U; brass shell, teflon ins; silver plated finish; rt angel, one coaxial contact P/O W-553	5-94
R501	RESISTOR, VARIABLE: 500 ohms ±10%, 25 w; Mfr 13499 part no. 749-4715-00	5-94
R502	RESISTOR, FIXED; MIL-R-10509 type RN70B1003F	5-94
R503	RESISTOR, FIXED: MIL-R-10509 type RN75B10004F	5-94
R504	RESISTOR, FIXED: MIL-R-10509 type RN70B2261F	5-94
R505	RESISTOR, FIXED: MIL-R-10509 type RN70B10004F	5-94
R506	RESISTOR, VARIABLE: LINEAR PRECISION: One section 10,000 ohms ±5%, 5% independent linearity; Mfr 13499 part no. 381-1452-00	5-94
R507	RESISTOR, VARIABLE: 10,000 ohms ±5%, 1.5 w; Mfr 13499 part no. 381-1453-00	5-94
R508	RESISTOR, VARIABLE: Same as R507	5-94
R509	RESISTOR, VARIABLE: Same as R507	5-94
R510	RESISTOR, VARIABLE: Same as R507	5-94
R511	RESISTOR, VARIABLE: Same as R507	5-94
R512	RESISTOR, VARIABLE: Same as R507	5-94
R513	RESISTOR, VARIABLE: Same as R507	5-94
R514	RESISTOR, VARIABLE: Same as R507	5-94
R515	RESISTOR, VARIABLE: Same as R507	5-94
R516	RESISTOR, VARIABLE: Same as R507	5-94
R517	RESISTOR, VARIABLE: Same as R507	5-94
R518	RESISTOR, VARIABLE: Same as R507	5-94
R519	RESISTOR, VARIABLE: Same as R507	5-94
R520	RESISTOR, VARIABLE: Same as R507	5-94
R521	RESISTOR, VARIABLE: Same as R507	5-94
R522	RESISTOR, VARIABLE: Same as R507	5-94
R523	RESISTOR, VARIABLE: Same as R507	5-94
R524	RESISTOR, VARIABLE: Same as R507	5-94
R525	RESISTOR, VARIABLE: Same as R507	5-94
R526	RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF154K	5-94
R527	RESISTOR, VARIABLE: 10,000 ohms ±10%, 2 w; Mfr 13499 part no. 750-4625-00	5-94
R528	RESISTOR, FIXED: MIL-R-11 type RC20GF123K	5-94
R529	NOT USED	
R530	RESISTOR, FIXED: Same as R504	5-94
R531	RESISTOR, VARIABLE: 2000 ohms ±5%, 1 w; Mfr 80294 part no. 224S1-202M	5-94

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, FRONT PANEL ASSEMBLY (Continued)		
R532	RESISTOR, VARIABLE: Same as R531	5-94
R533	RESISTOR, FIXED: MIL-R-10509 type RN70B7871F	5-94
R534	RESISTOR, FIXED: Same as R502	5-94
R535	RESISTOR, FIXED: Same as R504	5-94
R536	RESISTOR, FIXED: MIL-R-10509 type RN70B17R8F	5-94
S501	SWITCH, TOGGLE: MIL type MS35059-22	5-94
S502	SWITCH, ROTARY: 2 circuit, 2 pole, 12 positions 2 section; 1 moving and 12 fixed contacts; Mfr 76854 part no. 217381F2	5-94
S503A	SWITCH SECTION, ROTARY: 2 poles, 2 moving and 12 fixed contacts; 2 amp, 28 vdc, 1 amp 100 vac; Mfr 76854 part no. 217317RK	5-96
S503B	SWITCH SECTION, ROTARY: Same as S503A	5-96
S503C	SWITCH, SECTION, ROTARY: Same as S503A	5-96
S503D	SWITCH, SECTION, ROTARY: 1 pole, 1 moving and 2 fixed contacts; 2 amp, 28 vdc, 1 amp 100 vac; Mfr 76854 part no. 217316RK	5-96
S503E	SWITCH SECTION, ROTARY: 1 pole, 2 moving and 9 fixed contacts; 2 amp, 28 vdc, 1 amp, 100 vac; Mfr 76854 part no. 217319RK	5-96
S503F	SWITCH SECTION, ROTARY: 1 pole, 1 moving and 21 fixed contacts; 2 amp, 28 vdc, 1 amp, 100 vac, Mfr 03565 part no. B-6469	5-96
S503G	SWITCH SECTION, ROTARY: Same as S503F	5-96
S504	SWITCH, ROTARY: 2 circuit, 2 pole, 20 position, 1 section; 2 moving and 12 fixed contacts; Mfr 76854 part no. 191996RK1	5-94
S505	SWITCH, ROTARY: 4 circuit, 4 pole, 12 position, 1 section; 4 moving and 12 fixed contacts; Mfr 76854 part no. 192194F1	5-94
S506	SWITCH, ROTARY: 1 circuit, 1 pole, 12 position, 1 section; 1 moving and 5 fixed contacts; Mfr 76854 part no. 192193F1	5-94
S507	SWITCH, ROTARY: Same as S505	5-94
S508	SWITCH, TOGGLE: MIL type MS35058-22	5-94
TB501	TERMINAL BOARD: Plastic; incl 4 terminals 0.093 in. by 1.750 in. by 2.125 in. board dim.; Mfr 13499 part no. 548-8841-002	5-94
TB502	TERMINAL BOARDS: Plastic; incl 24 terminals; 0.093 in. by 2.500 in. by 3.156 in. board dim.; Mfr 13499 part no. 548-8844-003	5-94
W500-551	NOT USED	
W552	CABLE ASSEMBLY: Coaxial cable terminated ea end w/plug connector; 3-9/16 in. lg o/a; Mfr 13499 part no. 548-8779-002 P/O P-211 & P-502	5-87
W553	CABLE ASSEMBLY: Coaxial cable terminated ea end w/plug connector; 20 in lg o/a; P/O P-203 & P-505; Mfr 13499 part no. 548-8780-002	5-87
XDS501	LIGHT, INDICATOR: Aluminum alloy case, ceramic insulation, silver plated brass contacts, red transperent plastic lens; 0.745 in. dia by 1.203 in. lg o/a dim.; Mfr 81640 part no. L5105BR1	5-94
XDS502	LIGHT, INDICATOR: Supplied with lens 7/16 in. dia, nylon clear smooth face frosted back; flange mtd lens holder, nickel plated; Mfr 99707 part no. L1025RGR	5-94

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, FRONT PANEL ASSEMBLY (Continued)		
XDS503	LIGHT, MODIFIED: w/lens, 0.406 in. dia, plastic black smooth face; lamp accommodation - 1 incandescent type midget flange base; T-1-3/4 bulb; 0.750 in. by 1.187 in. by 1.291 in. o/a dim.; 2 terminals solder lug w/white lacquer on end of bulb; Mfr 13499 part no. 548-8806-002	5-88
XDS504	LIGHT, MODIFIED: Same as XDS503	5-88
XDS505	LIGHT, INDICATOR: To accommodate T-1-3/4 midget flange base lamp; Mfr 72914 part no. A8630-1C	5-88
XDS506	LIGHT, INDICATOR: Same as XDS502	5-88
XF501	FUSEHOLDER: C/O four extractor post type fuseholders, inclosed in phenolic; accommodates four cartridge type fuses 1/4 dia by 1-1/4 in. lg; 300 vdc at 0.5 amps; 2.280 in. o/a; Mfr 75915 part no. 340129	5-94
XF502	FUSEHOLDER: Same as XF501	5-94
AM-1565/URC, RF AMPLIFIER, BLOWER ASSEMBLIES & INSTALLATION KIT		
UNIT 3A6 (1001-1099)	BLOWER ASSEMBLY: ac; direct connected, 115 v, 60 Hz, single phase; 0.38 amps running, 0.77 amps stalled; 40 w full load; 3350 rpm; incl mtg plate; Mfr 13499 part no. 548-8493-004	5-115
B1001	FAN, CENTRIFUGAL: 115 vac, 0.380 amp input, 60 cycle single phase; 40 w; 3350 rpm; 4.468 in. by 6.062 in. by 6.406 in. o/a dim.; Mfr 82877 part no. AO-34404	5-115
C1001	CAPACITOR, FIXED, PAPER DIELECTRIC: 220 vac, 1.0 uf ±20% - 10% metal case, uninsulated, hermetically sealed; 1-1/6 in. thk, 1-13/16 in. w, 2 in. high; Mfr 56289 part no. P47201	5-115
H1001	BUSHING, CAPTIVE: Cres; 0.312 in. dia by 0.671 in. lg o/a dim.; Mfr 13499 part no. 548-8961-002	5-115
01001	GASKET, BLOWER: Synthetic rubber; 0.375 in. by 1.140 in. by 2.453 in. o/a dim.; Mfr 13499 part no. 548-8490-003	5-115
01002	GASKET, DUCT: Synthetic rubber; 0.031 in. by 2.750 in. by 6.437 in. o/a dim.; Mfr 13499 part no. 548-8485-002	5-115
01003	NOT USED	
01004	PAD: Rubber; 0.093 in. by 1.062 in. by 2.031 in. o/a dim.; Mfr 13499 part no. 548-8963-002	5-115
01005	ARM, SWITCH ACTUATOR: Stainless steel, 2.65 in. lg, Vane no. 1350; Mfr 82877 part no. KM10935-2	5-115
01006	COVER, ELECTRICAL CONNECTOR: Metallic and nonmetallic materials 0.781 in. dia 1.281; Mfr 02660 part no. 26-834	5-115
01007	AIR DUCT: Brass; 2.500 in. by 2.643 in. by 6-19/64 in.; Mfr 13499 part no. 548-8495-004	5-115
P1001	CONNECTOR, RECEPTACLE: MIL type MS24040	5-115
S1001	SWITCH, SENSITIVE: spdt; 125 or 250 vac, 5 amps; Mfr 13499 part no. 260-3039-00	5-115

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AM-1565/URC, RF AMPLIFIER, BLOWER ASSEMBLIES & INSTALLATION KIT (Continued)		
UNIT 3A7 (1101-1199)	BLOWER ASSEMBLY: ac; direct connected; 115 v, 60 Hz, single phase; 1.0 amp running; 2.05 amp stalled; 110 w full load; 3200 rpm; incl mtg plate; Mfr 13499 part no. 548-8471-005	5-90
B1101	FAN, CENTRIFUGAL: 115 vac, 1 amp input, 60 cycle, single phase; 110 w; 3200 rpm; 2.250 in. by 7.218 in. by 7.781 in. o/a dim.; Mfr 82877 part no. AO-34403	5-90
C1101	CAPACITOR, FIXED, PAPER DIELECTRIC: 4 uf ±10%, 600 vdc; Mfr 01002 part no. 23F1011G2	5-90
P1101	CONNECTOR, RECEPTACLE: MIL type MS24040	5-90
S1101	SWITCH, THERMOSTATIC: Metal case; 5 amps at 240 vac resistive load; manual reset type; #18 wire; hermetically sealed; Mfr 96214 part no. C4391S14-37	5-90
UNIT 3A8	INSTALLATION KIT: MK-621/UR; incl 2 mtg angles, 2 supports and hardware in cotton bag; Mfr 13499 part no. 548-8409-00	5-90
AN/SRC-20( ) and AN/SRC-21( ) CABLE ASSEMBLIES		
4W-1604	CABLE ASSEMBLY, RADIO FREQUENCY: CG-2232/U, RG-213/U Coaxial cable terminated ea. end w/plug connector; 4-1/2 in. long excl termination; 7-1/2 in. lg. o/a; Mfr 13499 part no. 593-8294-002	7-1
P-1921	CONNECTOR, PLUG, ELECTRICAL: MIL type UG710AU	
P1922	CONNECTOR, PLUG, ELECTRICAL: Same as P1921	
5W-1902	CABLE ASSEMBLY, POWER ELECTRICAL: CX-6102/U (2 ft) 600 vac voltage rating; 2 conductors terminated ea end w/2 bushing and 1 plug connector; 1 ft 11-3/4 in. lg. o/a; Mfr 13499 part no. 593-7986-003	7-1 7-2
P1914	CONNECTOR, PLUG, ELECTRICAL: MIL type MS3108R16-10P	
P-1911	CONNECTOR, PLUG, ELECTRICAL: MIL type MS3108R16-10S	
6W-1905	CABLE ASSEMBLY, POWER, ELECTRICAL: CX-6102/U (3.5 ft) 600 vac voltage rating; 2 conductor cable; terminated ea end w/bushing and plug connector; 3 ft 8-3/4 in. lg. o/a; Mfr 13499 part no. 593-7989-003	7-1
P-1909	CONNECTOR, PLUG, ELECTRICAL: Same as P-1914	
P-1915	CONNECTOR, PLUG, ELECTRICAL: Same as P-1911	
7W-1906	CABLE ASSEMBLY, POWER ELECTRICAL: CX-6105/U (1.5 ft) 600 vac voltage rating; 16 conductor terminated ea end w/2 bushings and plug connector; 1 ft 6-5/32 in. lg. o/a; Mfr 13499 part no. 593-7990-003	7-1
P-1916	CONNECTOR, PLUG, ELECTRICAL: MIL type MS3108R24-7PY	
P-1917	CONNECTOR, PLUG, ELECTRICAL: MIL type MS3108R24-7P	
8W-1907	CABLE ASSEMBLY, POWER ELECTRICAL: CX-6105/U (3.5 ft) 600 vac voltage rating; 16 conductors terminated ea end w/2 bushings and plug connector; 3 ft 4-5/32 in. lg. o/a; Mfr 13499 part no. 593-7991-003	7-1

Table 6-2. Maintenance Parts List (Continued)

REF DESIG	NAME AND DESCRIPTION	FIG NO.
AN/SRC-20( ) and AN/SRC-21( ) CABLE ASSEMBLIES (Continued)		
P1918	CONNECTOR, PLUG, ELECTRICAL: Same as P-1917	
P-1919	CONNECTOR, PLUG, ELECTRICAL: Same as P-1916	
9W-1908	CABLE ASSEMBLY, POWER,ELECTRICAL: CX-6104/U 600 vac voltage rating; 16 conductors terminated ea end w/1 bushing and 1 plug connector; 2 ft 5/32 in. lg/ o/a; Mfr 13499 part no. 593-7992-003	7-2
P-1917	CONNECTOR, PLUG, ELECTRICAL: Same as P-1917	
P-1919	CONNECTOR, PLUG, ELECTRICAL: Same as P-1916	
ELECTRICAL EQUIPMENT RACKS MT-2299/UR and MT-2300/UR		
UNIT 10		
MT-2300/ UR	RACK, ELECTRICAL EQUIPMENT: MT-2300/UR; aluminum, gray enameled finish; 22.062 in. by 27 in. by 32.032 in. o/a dim. provides mtg. facilities for the AN/URC-9A and C-3866/SRC; Mfr 03565 part no. D-6439	1-1B
H2004	LEAD, GROUND: Bronze, silver plated; 0.010 in. by 3/4 in. by 6-1/2 in.; Mfr 13499 part no. 593-7969-002	7-2
H2005	SPACER, SLEEVE: Cres, cadmium plated; 0.390 in. id, 0.625 in. od, 0.515 in. lg; Mfr 13499 part no. 593-7967-002	7-2
H2006	MOUNT, RESILIENT: Aluminum and synthetic rubber; 2.53 in. by 3.25 in. by 3.25 in.; Mfr 76005 part no. HTC110	7-2
H2007	GUIDE PIN ASSEMBLY: 5/8 in. by 2-1/8 in. lg; stainless steel; threaded 3/8 - 16 one end with hex nut and lock washer; mounts on H2003 in MT-2299/UR and one 02003 in MT-2300/UR BuShips Dwg. STD 404/S6700-SK1659333	7-1, 7-2
H2008	GUIDE PIN ASSEMBLY: Same as H2007	7-1, 7-2
02001	ANGLE, HOLDDOWN: Steel w/rubber bumper; 1-1/4 in. by 1-1/2 in. by 13-3/4 in.; Mfr 13499 part no. 554-7068-003	7-2
02002	BAR, HOLDDOWN: Cres, grey enamel finish; 0.500 in. by 1-1/2 in. by 13-3/4 in.; Mfr 13499 part no. 756-3156-003	7-2
02003	PLATE, HOLDDOWN: Cres, grey enamel finish; 0.250 in. by 8 in. by 20-1/4 in.; Mfr 13499 part no. 554-7069-003	1-1A
MT-2299/ UR	RACK, ELECTRICAL EQUIPMENT MT-2299/UR: Aluminum, grey enameled finish; 22.062 in. by 27 in. by 52.593 in. o/a dim.; provides mtg facilities for the AN/URC-9A, C-3866/SRC and AM-1565/URC; Mfr 03565 part no. D-6440	7-1
H2004	LEAD, GROUND: Bronze, silver plated; 0.010 in. by 3/4 in. by by 6-1/2 in.; Mfr 13499 part no. 593-7969-002 (MT-2299/UR)	7-1
H2005	MOUNT, RESILIENT: Aluminum & synthetic rubber; 2.53 in. by 3.25 in. by 3.25 in.; Mfr 76005 part no. HTC-110	7-1
02001	ANGLE, HOLDDOWN: Steel w/rubber bumper; 1-1/4 in. by 1-1/2 in. by 13-3/4 in.; Mfr 13499 part no. 554-7068-003	7-1
02002	BAR, HOLDDOWN: Cres, grey enamel finish; 0.500 in. by 1-1/2 in by 13-3/4 in.; Mfr 13499 part no. 756-3156-003	7-1
02003	PLATE, HOLDDOWN: Cres, grey enamel finish; 0.250 in. by 8 in. by 20-1/4 in.; Mfr 13499 part no. 554-7069-003	7-1

Table 6-3. Manufacturer's Name and Code

MFR CODE	NAME	ADDRESS
00614	Leach Corp.	Compton, California
00853	Sangamo Electric Co. Pickens Division	Pickens, S.C.
01002	Capacitor Department GECO	Hudson Falls, N.Y.
01121	Allen-Bradley Co.	Milwaukee, Wisc.
01471	Thomas Industries Inc.	Fort Atkinson, Wisc.
01526	General Electric Co. Specialty Control Dept. GECO	Waynesboro, Virginia
01561	Chassi-Trak Corp.	Indianapolis, Indiana
01881	Anaconda American Brass Co.	Waterbury, Conn.
01939	Sprague Electric Co. of Wisconsin	Grafton, Wisc.
02114	Ferroxcube Corp. of America	Saugerties, N.Y.
02297	Ace Electronics Associates Inc.	Somerville, Mass.
02615	Nylok Corp.	Paramus, N.J.
02660	Amphenol-Borg Electronics Corp.	Broadview (Chicago), Ill.
03565	Dayton Electronic Products Co., Inc.	Dayton, Ohio
04009	Arrow-Hart and Hegeman Electric Co.	Hartford, Conn.
04221	Anemco Inc.	Mankato, Minn.
04713	Motorola Inc. Semiconductor Products Division	Phoenix, Arizona
04773	Automatic Electric Co.	Northlake, Ill.
05402	Controls Co. of America	Schiller Park, Ill.
06827	Goodrich, B.F. Industrial Products Co. Div. of Goodrich, B.F. Co, Akron Ohio	Marion, Ohio
06980	Eitel-McCullough Inc.	San Carlos, Calif.
07688	Joint Electron Device Engineering Council	Washington, D.C.

Table 6-3. Manufacturer's Name and Code (Continued)

MFR CODE	NAME	ADDRESS
07707	United Shoe Machinery Corp. Fastener Division	Shelton, Conn.
08664	Bristol Co., The	Waterbury, Conn.
09299	Frank Industries Division of Franklin Research and Development Corp.	Worcester, Mass.
09922	Burndy Corp.	Norwalk, Conn.
10646	Carborundum Co.	Niagara Falls, N.Y.
11453	Precision Connectors Inc.	Jamaica, N.Y.
12697	Clarostat Mfg. Co., Inc.	Dover, N.H.
13499	Collins Radio Company	Cedar Rapids, Iowa
14655	Cornell-Dublier Electric Corp.	Newark, N.J.
14674	Corning Glass Works	Corning, N.Y.
15605	Cutler-Hammer Inc.	Milwaukee, Wisc.
16688	Ideal Precision Meter Co. Inc. De Jur Meter Division	Brooklyn, N.Y.
17771	Singer Co. the Diehl Division Finderne Plant	Somerville, N.J.
17875	Diehl Mfg. Co., The	Cleveland, Ohio
18911	Durant Mfg. Co.	Milwaukee, Wisc.
21335	Fafnir Bearing Co., The	New Britian, Conn.
25117	Globe Co., The	Chicago, Ill
25140	Globe Industries, Inc., Div. of TRW	Dayton, Ohio
25472	Goodrich, B.F. Co., The	Akron, Ohio
35344	Leach Corp. Leech Relay Co. Division	Los Angeles, Calif.
44655	Ohmite Mfg. Co.	Skokie, Ill.
49671	Radio Corp. of America	New York, N.Y.

Table 6-3. Manufacturer's Name and Code (Continued)

MFR CODE	NAME	ADDRESS
49956	Raytheon Co.	Lexington, Mass.
53021	Sangamo Electric Co.	Springfield, Ill.
56289	Sprague Electric Co.	North Adams, Mass.
60399	Torrington Mfg. Co.	Torrington, Conn.
70417	Amplex Div. of Chrysler Corp.	Detroit, Mich.
70674	ADC Products Inc.	Minneapolis, Minn.
70764	Wilson Fastener	Cleveland, Ohio
70998	Bird Electronic Corp.	Cleveland, Ohio
71400	Bussmann Fuse Division of McGraw-Edison, Co.	St. Louis, Mo.
71450	C.T.S. Corp.	Elkhart, Ind.
71468	I.T.T. Cannon Electric Inc.	Los Angeles, Calif.
71482	Clare, C.P. and Co.	Chicago, Ill.
71590	Centralab Division of Globe-Union Inc.	Milwaukee, Wisc.
71785	Daval Rubber Co.	Providence, R.I.
72002	Eitel-McCullough Inc.	San Bruno, Calif.
72136	Electro Motive Mfg. Co.	Willimantic, Conn.
72914	Grimes Mfg. Co.	Urbana, Ohio
72962	Elastic Stop Nut Corp. of America	Union, N.J.
72982	Erie Technological Products Inc.	Erie, Pa.
73138	Helipot Division of Beckman Instruments Inc.	Fullerton, Calif.
73899	J.F.D. Electronics Corp.	Brooklyn, N.Y.
78468	FXR Division of Amphenol-Borg Electronics Corp.	Danbury, Conn.
75915	Littlefuse, Inc.	Des Plaines, Ill.

Table 6-3. Manufacturer's Name and Code (Continued)

MFR CODE	NAME	ADDRESS
76005	Lord Mfg. Co.	Erie, Pa.
76665	National Lock Washer Co.	Newark, N.J.
76854	Oak Mfg. Co.	Crystal Lake, Ill.
77523	R.B.M. Mfg. Co.	Fort Wayne, Ind.
78189	Shakeproof Division of Illinois Tool Works	Elgin, Ill
78277	Sigma Instruments Inc.	So. Braintree, Mass.
78488	Stackpole Carbon Co.	St. Marys, Pa.
79136	Waldes Kohinoor Inc.	Cambridge, Mass.
79497	Western Rubber Co.	Goshen, Ind.
80058	Joint Electronic Type Designation System	
80223	United Transformer Co.	New York, N.Y.
80294	Bourns Laboratories Inc.	Riverside, Calif.
80368	Sylvania Electric Products Inc.	New York, N.Y.
80586	Gorn Electric Co. Inc.	Stamford, Conn.
81183	Doehler Jarvis Corp. Division of National Lead Co.	Grand Rapids, Mich.
81312	Winchester Electronics Co. Inc.	Norwalk, Conn.
81349	Military Specifications Promulgated by Standardization Div. Directorate of Logistic Services DSA	
81350	Joint Army-Navy Specifications Promulgated by Standardization Div. Directorate of Logistic Services DSA	
81460	Control Switch Division Controls of America	Folcroft, Pa.
81815	Communications Coil Co.	Chicago, Ill.
81860	Barry Controls Division of Barry	Watertown, Mass.
82104	Grigsby Co. Inc., The	Arlington, Heights, Ill.

Table 6-3. Manufacturer's Name and Code (Continued)

MFR CODE	NAME	ADDRESS
82142	Jeffers Electronics Div. of Speer Carbon, Co.	DuBois, Pa.
82144	Jones M. C. Electronics Co.	Bristol, Conn.
82227	Haydon A. W. Co.	Waterbury, Conn.
82805	Metal Textile Corp.	Rosell, N.J.
82877	Rotron Mfg Co. Inc.	Woodstock, N.Y.
83827	Resistors, Inc.	Chicago, Ill.
86579	Precision Rubber Products Corp.	Dayton, Ohio
88044	Aeronautical Standards Group Dept. of Navy and Air Force	
88063	Collins Radio Company Components Div.	Santa Ana, Calif.
89114	DuBrow Electronic Industries, Inc.	Burlington, N.J.
90177	Solar Capacitor Sales Corp.	North Bergen, N.J.
90526	Clippard Instrument Laboratory Inc.	Cincinnati, Ohio
91314	Lewis Spring and Mfg Co.	Chicago, Ill.
91491	Lionel Electronic Laboratories Division of the Lionel Toy Corp.	Hillside, N.J.
91637	Dale Electronics Inc.	Columbus, Nebraska
91662	Elco Corp.	Willow Grove, Pa.
91816	James-Pond-Clark Co.	Pasadena, Calif.
91929	Honeywell Inc. Micro Switch Division	Freeport, Ill.
94375	Automatic Metal Products Co.	Brooklyn, N.Y.
94991	Sylvania Electric Products Inc. Wire, Metal and Plastics Parts Div.	Warren, Pa.
95105	Collins Radio Company Information Science Center	Newport Beach, Calif.
95238	Continental Connector Corporation	Woodside, N.Y.

Table 6-3. Manufacturer's Name and Code (Continued)

MFR CODE	NAME	ADDRESS
96214	Texas Instruments Inc. Apparatus Division	Dallas, Texas
96906	Military Standard Promulgated by Standardization Div. Directorate of Logistic Services DSA	
97954	U.S. Components, Inc.	Bronx, N.Y.
97965	Stancor Electronics Inc.	Chicago, Ill.
98278	Microdot Inc.	South Pasadena, Calif.
98291	Selectro Corp.	Mamaroneck, N.Y.
98738	Stewart-Warner Electronics	Chicago, Ill.
99699	Filtors Inc.	East Northport, N.Y.
99707	Control Switch Division Controls Co. of America	El Segundo, Calif.
99800	Delevan Electronics Corp.	East Aurora, N.Y.

CHAPTER 7

INSTALLATION

7-1. UNPACKING AND HANDLING.

CAUTION

Handle the equipment with care; use adequate lifting and transport gear to avoid mechanical shock which might cause component damage.

7-2. GENERAL. The radio set is packed for shipment in a single crate. When it is received, select a convenient location where it may be unpacked without exposure to the elements. Set the crate in the position indicated by crate markings before opening.

CAUTION

When removing nails from the packing crate, use a nail puller. Never use a bar or other tool that may damage the equipment.

7-3. MECHANICAL CHECK. Check the equipment against the packing slip and list of equipment supplied (see table 1-5). Check equipment for internal damage; determine that all tubes are in place. Immediately report any shortage of material or damaged parts.

7-4. POWER REQUIREMENTS.

7-5. Radio Sets AN/SRC-20( ) and AN/SRC-21( ) can be operated from a primary power source of 115 or 230 volts, 50/60 Hz.

CAUTION

The servo system in Radio Frequency Amplifier AM-1565/URC is factory-tuned for 60 Hz; when the AN/SRC-20( ) is to be used on 50 Hz, this servo system must be retuned to 50 Hz, using the procedure in Chapter 5, paragraph 5-106.

7-6. Primary power distribution is shown in figures 5-131, 5-132, and 5-134. Radio Set AN/SRC-20( ) requires 540 watts on receive and 1550 watts on transmit, both at 0.9 power factor; Radio Set AN/SRC-21( ) requires 290 watts at 0.92 power factor on receive and 455 watts at 0.95 power factor on transmit.

7-7. Both the AN/SRC-20( ) and the AN/SRC-21( ) are shipped ready for 115-volt operation. To operate either set on 230 volts, it is necessary to change the primary power fuses and voltage selectors; see paragraph 7-17, steps b through d.

7-8. SITE SELECTION.

7-9. The selected location should provide sufficient space and light to operate and maintain the equipment properly. It should be noted that sufficient space is required in front of the equipment to allow individual units to be extended or removed from the mounting rack.

7-10. INSTALLATION REQUIREMENTS.

7-11. SHIP INSTALLATION. The latest approved ship installation plans should be used for installation of this equipment. The installing personnel should be familiar with the operation of Radio Sets AN/SRC-20( ) and AN/SRC-21( ) before attempting installation.

7-12. EQUIPMENT MOUNTING. Radio Set AN/SRC-20( ) installation is shown in figure 1-A. Radio Set AN/SRC-21( ) installation is shown in figure 1-B. The corresponding outline and mounting dimensions for these installations are shown in figures 7-1 and 7-2.

7-13. INTERCONNECTING CABLING. All interconnecting cable drawings are contained in Chapter 5. For Radio Set AN/SRC-20( ), refer to figure 5-128; for Radio Set AN/SRC-21( ) refer to figure 5-129.

CAUTION

When Antenna Coupler Group AN/SRC-33 is not used, a jumper must be installed between line filters FL117 and FL118 (pins G and H of J102) in Radio Set Control C-3866/SRC (figure 5-157) to enable the transmit-receive (t/r) key line.

7-14. CABLE ASSEMBLIES.

7-15. The cable assemblies required for installation of Radio Sets AN/SRC-20( ) and AN/SRC-21( ) are listed in table 7-1.

Table 7-1. Cable Assemblies for Radio Sets AN/SRC-20( ) and AN/SRC-21( ) (Part of Equipment Supplied)

CABLE	LENGTH	AN/SRC-20( )	AN/SRC-21( )
Cable Assembly, Power CX-6102/U; W1902 (115/230 volts, 14.5 amp)	1 ft 11-3/4 in.	X	X
Cable Assembly, Power CX-6102/U; W1905 (115/230 volts, 14.5 amp)	3 ft 8-3/4 in.	X	
Cable Assembly, Special Purpose CX-6104/U, W1908	2 ft 5/32 in.		X
Cable Assembly, Special Purpose CX-6105/U; W1906	1 ft 6-5/32 in.	X	
Cable Assembly, Special Purpose CX-6105/U; W1907	3 ft 4-5/32 in.		
Cable Assembly, Radio Frequency CG-2232/U; W1604	7-1/2 in.	X	
Cable Assembly, Power CX-7258/U (Maintenance cable for AN/URC-9( ))	10 ft	X	X
Cable Assembly, Special Purpose CX-7259/U (Retransmission cable)	5 ft	X	X

7-16. INSPECTION AND ADJUSTMENT.

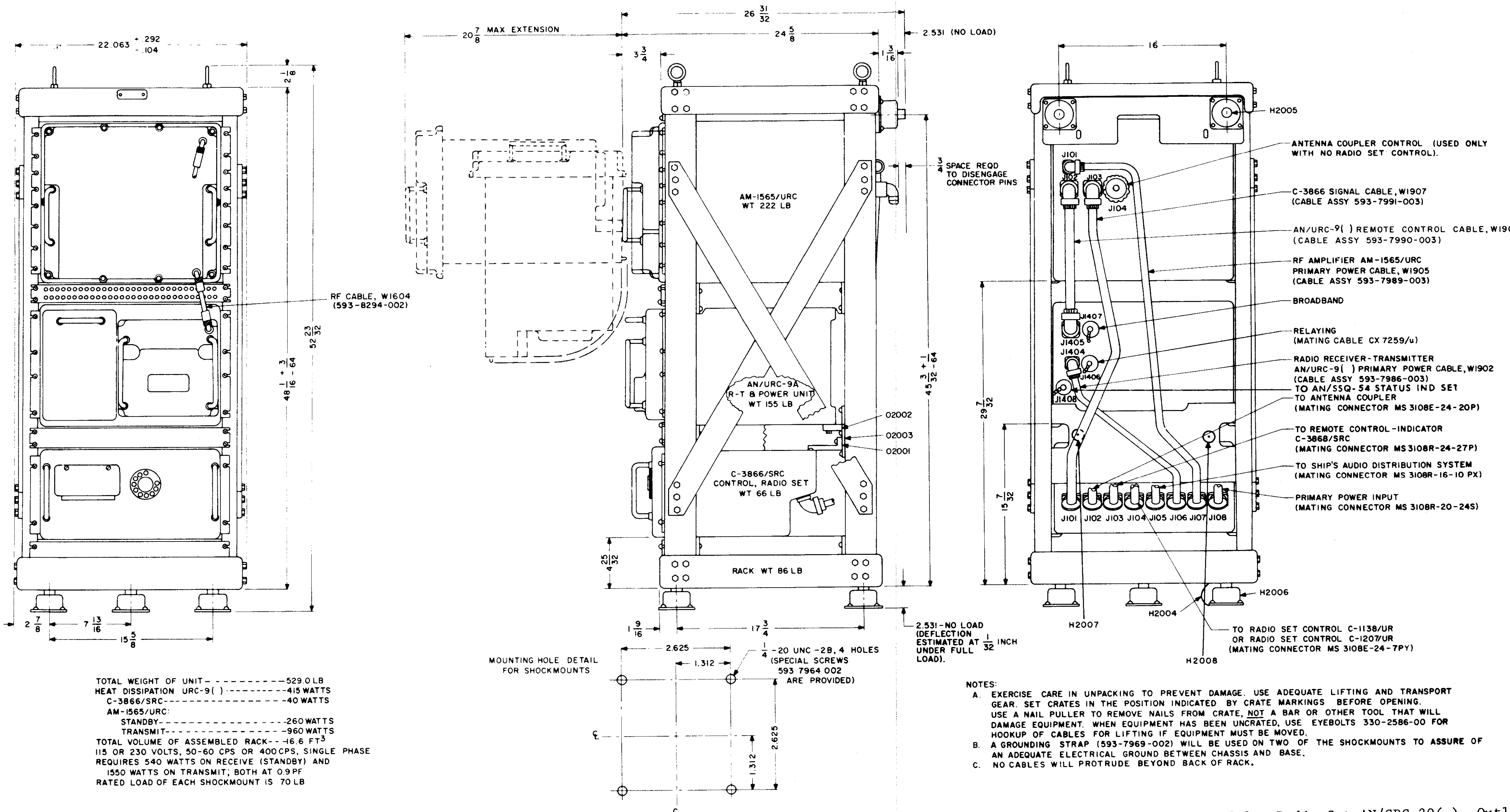
7-17. POST INSTALLATION CHECK. Perform the following before applying power to Radio Sets AN/SRC-20( ) and AN/SRC-21( ).

a. Check cabling against cabling diagrams.

b. Check for proper primary voltage operation and proper fusing; fuses are located on front panels with rating marked adjacent to the fuse holders.

NOTE

The equipment is supplied ready for 115-volt, 50/60 Hz operation. Perform steps



TOTAL WEIGHT OF UNIT----------529.0 LB
HEAT DISSIPATION URC-9( )----------415 WATTS
C-3866/SRC------------------40 WATTS
AM-1565/URC:
STANDBY------------------260 WATTS
TRANSMIT------------------960 WATTS
TOTAL VOLUME OF ASSEMBLED RACK---16.6 FT^3
115 OR 230 VOLTS, 50-60 CPS OR 400 CPS, SINGLE PHASE
REQUIRES 540 WATTS ON RECEIVE (STANDBY) AND
1550 WATTS ON TRANSMIT; BOTH AT 0.9 PF
RATED LOAD OF EACH SHOCKMOUNT IS 70 LB

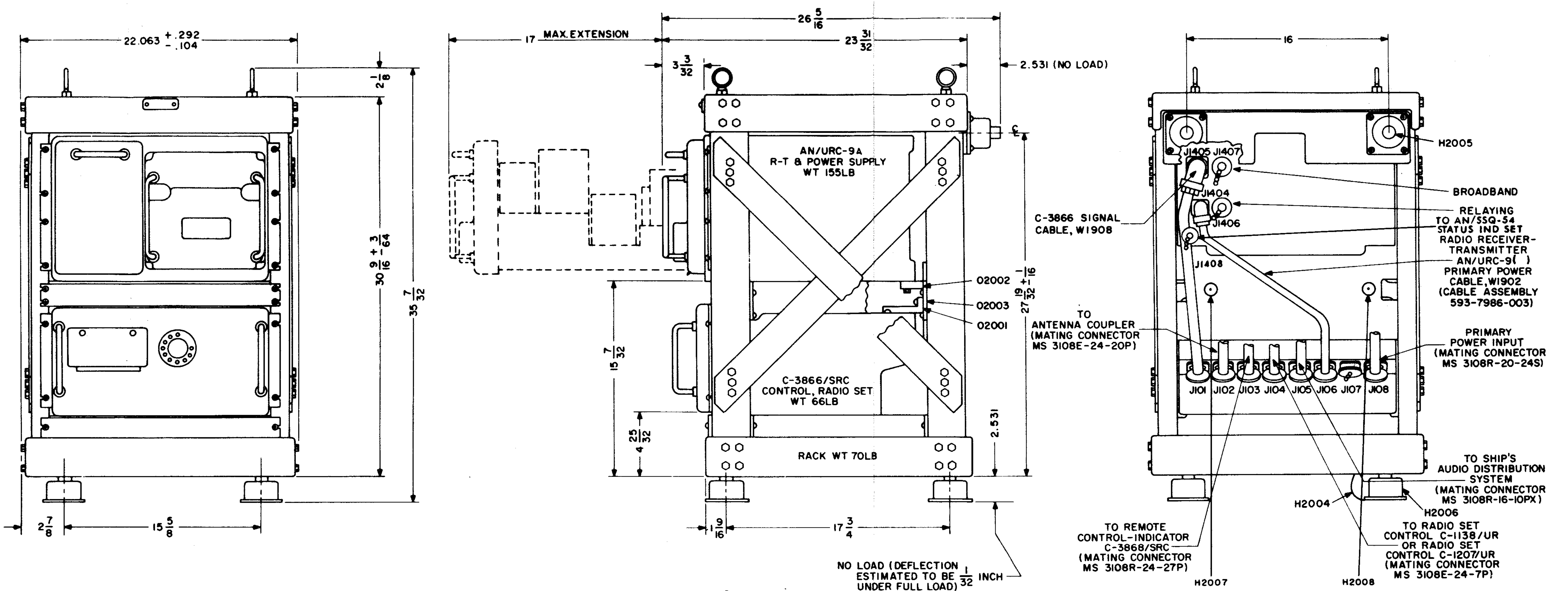
NOTES:

A. EXERCISE CARE IN UNPACKING TO PREVENT DAMAGE. USE ADEQUATE LIFTING AND TRANSPORT GEAR. SET CRATES IN THE POSITION INDICATED BY CRATE MARKINGS BEFORE OPENING. USE A NAIL PULLER TO REMOVE NAILS FROM CRATE, NOT A BAR OR OTHER TOOL THAT WILL DAMAGE EQUIPMENT. WHEN EQUIPMENT HAS BEEN UNCRATED, USE EYEBOLTS 330-2586-00 FOR HOOKUP OF CABLES FOR LIFTING IF EQUIPMENT MUST BE MOVED.

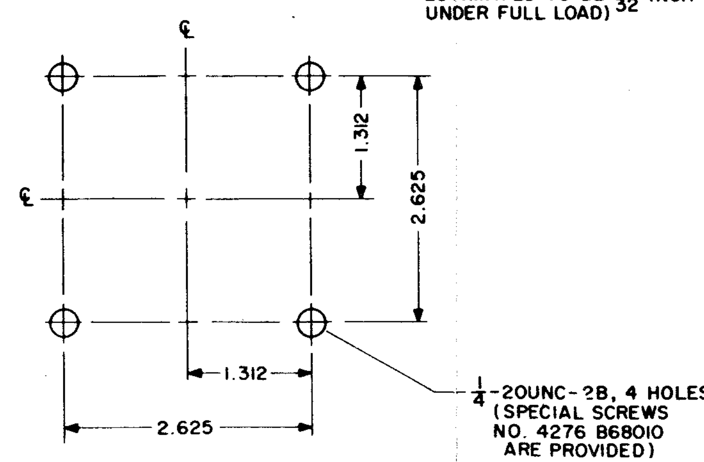
B. A GROUNDING STRAP (593-7969-002) WILL BE USED ON TWO OF THE SHOCKMOUNTS TO ASSURE OF AN ADEQUATE ELECTRICAL GROUND BETWEEN CHASSIS AND BASE.

C. NO CABLES WILL PROTRUDE BEYOND BACK OF RACK.

Figure 7-1. Radio Set AN/SRC-20( ), Outline and Mounting Dimensions



TOTAL WEIGHT OF UNIT------------295LB.
HEAT DISSIPATION URC-9( )--------415WATTS
C-3866/SRC------40WATTS
TOTAL VOLUME OF ASSEMBLED RACK----11.85FT.³
115 OR 230 VOLTS, 50-60CPS OR 400CPS SINGLE PHASE.
290 WATTS AT 0.95PF ON RECEIVER AND 455 WATTS AT 0.95PF ON TRANSMITTER.
RATED LOAD OF EACH SHOCKMOUNT IS 70LB.



MOUNTING HOLE DETAIL FOR SHOCKMOUNTS

NOTES:

A. EXERCISE CARE IN UNPACKING TO PREVENT DAMAGE. USE ADEQUATE LIFTING AND TRANSPORT GEAR. SET CRATES IN THE POSITION INDICATED BY CRATE MARKINGS BEFORE OPENING. USE A NAIL PULLER TO REMOVE NAILS FROM FROM CRATE, NOT A BAR OR OTHER TOOL THAT WILL DAMAGE EQUIPMENT. WHEN EQUIPMENT HAS BEEN UNCRATED, USE EYEBOLTS 330-2586-00 FOR HOOKUP OF CABLES FOR LIFTING IF EQUIPMENT MUST BE MOVED.

B. A GROUNDING STRAP (593-7969-002) WILL BE USED ON TWO OF THE SHOCKMOUNTS TO ASSURE OF AN ADEQUATE ELECTRICAL GROUND BETWEEN CHASSIS AND BASE.

C. NO CABLES WILL PROTRUDE BEYOND BACK OF RACK.

Figure 7-2. Radio Set AN/SRC-21( ), Outline and Mounting Dimensions c and d only when 230-volt operation is required.

c. For Radio Set AN/SRC-20( ):

1. Slide Radio Frequency Amplifier AM-1565/URC from case, remove bottom panel and place selector switch S301 in the 230-volt position (see figure 5-89). Return unit to normal position in case.

2. Slide out Power Supply PP-2702/URC-9 from Radio Set AN/URC-9( ) and set S1501 and S1502 (figure 5-83) to the 230-volt position. Return unit to normal position in case. On the front panel of the PP-2702/URC-9, change MAIN AC, T1501 PRI and T1502 PRI fuses to 230-volt ratings (fuses for 230-volt operation are in spare fuse holders).

3. Slide Radio Set Control C-3866/SRC out of case, remove bottom panel and set links on TB202 (figure 5-119) to the 230-volt position. Return unit to normal position. On the front panel of the C-3866/SRC, change MAIN, CONTROL, and RADIO SET fuses to 230-volt ratings (fuses are in spare fuse holders).

NOTE

Radio Set Control C-3866/SRC supplies 12 vdc for the radiophone. When shipped, this 12-volt supply is ungrounded. If required, the positive side may be grounded by placing link TB201 (figure 5-121) to GND position.

d. For Radio Set AN/SRC-21( ) perform foregoing steps c2 and c3 only.

e. Check that air vent covers on side of Radio Set AN/URC-9( ) are in operating position. That is, make sure that the covers are detached from the louvered ports and relocated above the louvered ports.

f. Remove air filter sealing plate in bottom of AM-1565/URC and install on left side; rotate air outlet cover at rear of unit to open.

g. Check that EMERGENCY POWER switch on Radio Set Control C-3866/SRC is in the OFF position.

7-18. POWER TURN ON. To apply power to Radio Set AN/SRC-20( ) and AN/SRC-21( ), perform the following:

a. For Radio Set AN/SRC-20( );

1. Set POWER switches on Radio Set AN/URC-9( ), Radio Frequency Amplifier AM-1565/URC, and Antenna Coupler Group AN/SRA-33 to the POWER position. (Power for the AN/SRA-33 is supplied and controlled separately from the AN/SRC-20( ).

2. To apply power to the START-STOP circuit, place the EMERGENCY POWER switch (on Radio Set Control C-3866/SRC) in the POWER position.

3. Press RADIO SET POWER START button. The EMERGENCY POWER indicator and the RADIO SET POWER indicator on the C-3866/SRC and the POWER indicators on the AN/URC-9( ) and the AM-1565/URC should light. The DIMMER controls on the AN/URC-9( ) and the AM-1565/URC adjust the intensity of the panel indicators.

4. Check Radio Set AN/URC-9( ) supply voltage by setting the METER switch to BIAS, +26.5V, +125V, and +325V positions. On all positions the meter pointer should be near the center mark on the meter scale.

5. Stop equipment by pressing RADIO SET POWER STOP button. Pressing the STOP button removes primary power from all operating circuits of Radio Set AN/SRC-20( ).

6. Disable the START-STOP circuit by placing EMERGENCY POWER switch to OFF.

b. For Radio Set AN/SRC-21( ), the power turn-on and turn-off sequence is the same except for reference to Radio Frequency Amplifier AM-1565/URC.

7-19. SQUELCH OPTION. Two types of squelch circuits are incorporated in Radio Sets AN/SRC-20( ) and AN/SRC-21( ); they are signal-plus-noise to noise (S+N/N) squelch and carrier squelch. When shipped, the equipment is connected for carrier squelch. To reconnect equipment for signal-plus-noise to noise (S+N/N) squelch, perform the following:

a. Remove power from equipment.

b. Remove Receiver-Transmitter RT-581( )/URC-9 from Radio Set AN/URC-9( ) (see paragraph 5-121).

c. Remove Audio Amplifier and Modulator from the RT-581( )/URC-9 (see paragraph 5-146).

d. Refer to figure 5-53 and the instructions lettered on the right side of the Audio Amplifier and Modulator; make the signal-plus-noise to noise squelch connection. (In the retransmit (RETRANS) mode, carrier squelch is selected regardless of the link connection.)

e. Return equipment to normal configuration and secure.

NOTE

It is recommended that the equipment be connected for carrier squelch operation. This connection allows one setting of the squelch potentiometers in Radio Set Control C-3866/SRC for the normal, retransmit, and tone modes. This connection eliminates the problem of slow reaction time of the signal-plus-noise to noise squelch circuit.

7-20. OVERALL PERFORMANCE CHECK. Instructions for checking the performance of Radio Sets AN/SRC-20( ) and AN/SRC-21( ) are covered in Volume 2, Chapter 2, paragraphs 2-29 and 2-36.

7-21. INTERFERENCE REDUCTION.

7-22. Under normal conditions of installation and operation, the equipment will not interact with other equipment. For best performance, interconnections to auxiliary equipment should be made with the shortest practicable cable lengths.

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