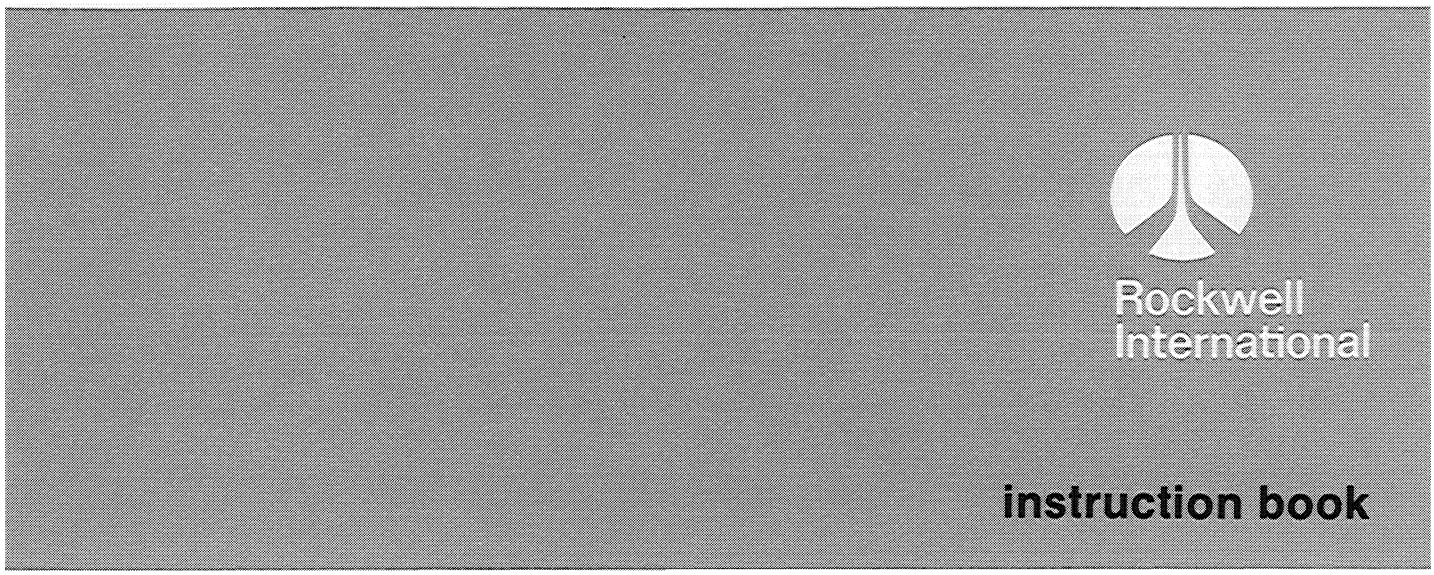

Collins Telecommunications Products Division

Collins KWM-2 and KWM-2A Transceivers

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Collins KWM-2 and KWM-2A Transceivers

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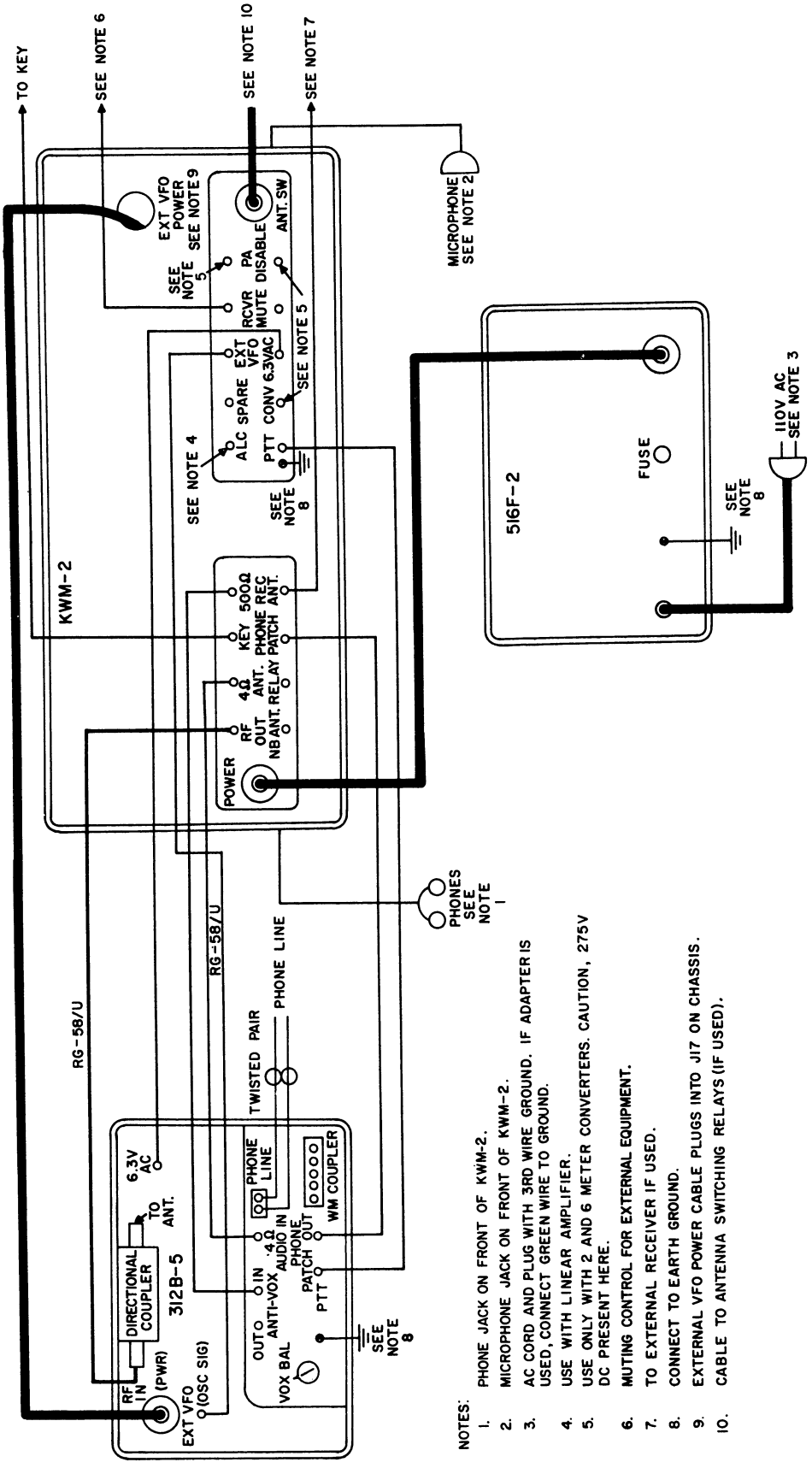


NOTES:

1. PHONE JACK ON FRONT OF KWM-2.
2. MICROPHONE JACK ON FRONT OF KWM-2.
3. AC CORD AND PLUG WITH 3RD WIRE GROUND. IF ADAPTER IS USED, CONNECT GREEN WIRE TO GROUND.
4. USE WITH LINEAR AMPLIFIER.
5. USE ONLY WITH 2 AND 6 METER CONVERTERS. CAUTION, 275V DC PRESENT HERE.
6. MUTING CONTROL FOR EXTERNAL EQUIPMENT.
7. TO EXTERNAL RECEIVER IF USED.
8. CONNECT TO EARTH GROUND.
9. EXTERNAL VFO POWER CABLE PLUGS INTO J17 ON CHASSIS.
10. CABLE TO ANTENNA SWITCHING RELAYS (IF USED).

Fixed Station Interconnections
Figure 1-1

section 1
installation

1.1 UNPACKING

Carefully lift the transceiver out of the packing material. Examine for visible damage. If transceiver has been damaged in shipment, save box and packing material, and notify the transportation company. Fill out and mail the equipment registration card. Check that all tubes and crystals are properly seated in sockets. Check tuning controls and switches for freedom of action. Check the equipment included with the receiver against table 1-1.

1.2 MOUNTING AND CABLING

1.2.1 General

Caution

The KWM-2/2A must be operated into a 50-ohm load with an swr not exceeding 2.0:1. Random-length wire antennas or light-bulb dummy loads cannot be used. Conventional half-wave dipoles and beam antennas may be used only at, or very near, their resonant frequency. Exceeding a vswr of 2.0:1 can destroy the components in the output stage of this transceiver.

For fixed station installation, refer to figure 1-1 or 1-3. For mobile installation, refer to figure 1-4. Traveling station interconnections are shown in figure 1-2.

1.2.2 Fixed Station Installation

1.2.2.1 Equipment Interconnection

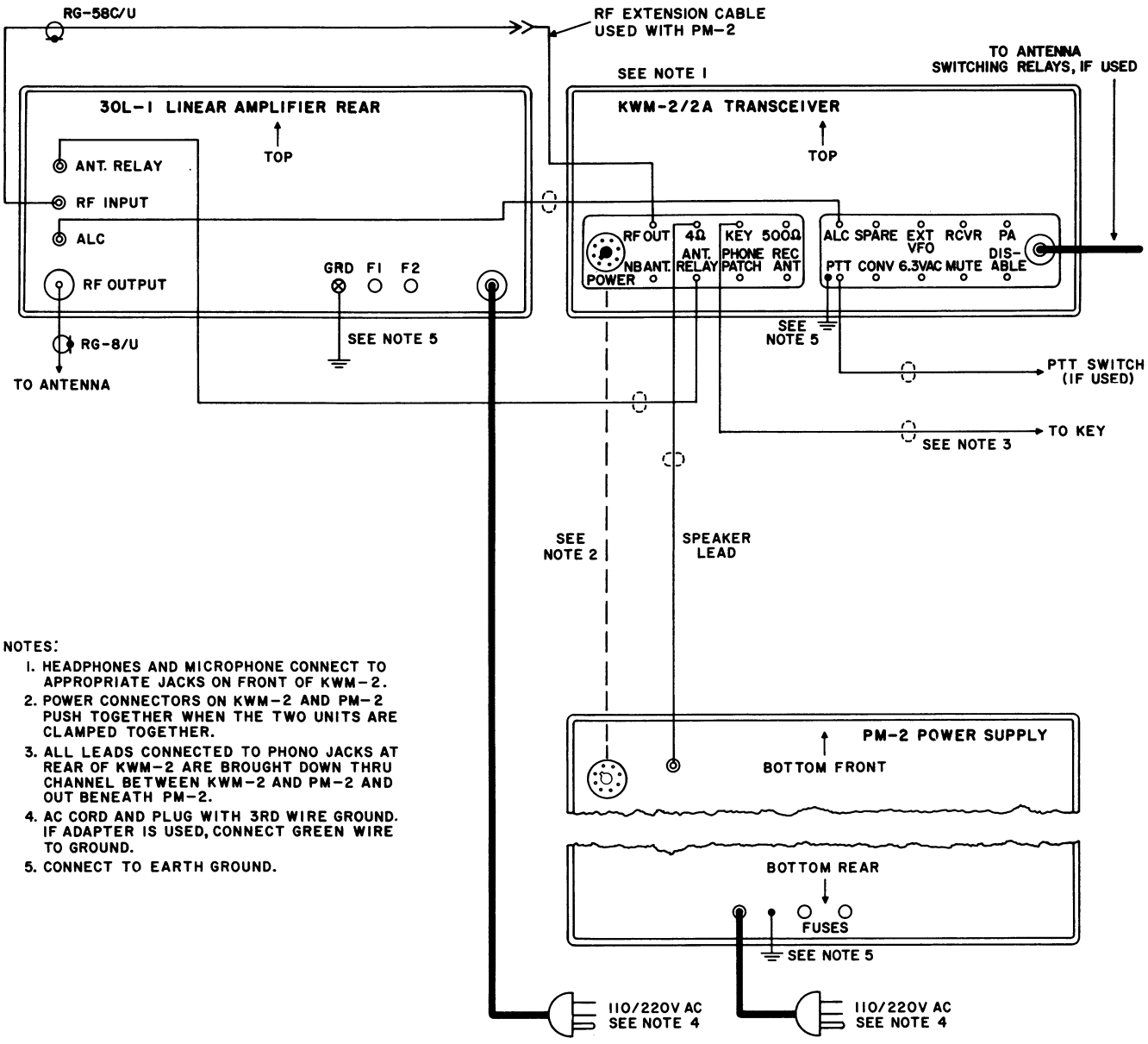
Connect associated equipment to the KWM-2 or KWM-2A as shown in figure 1-1 or 1-3. ANT. SW connector J25 supplies band information in the form of grounds for each 3.5-, 7-, 14-, 21-, and 28-MHz operating band. This system provides a convenient method of providing band information to automatically tuned antenna systems for both mobile and fixed station use.

1.2.2.2 Phone Patch Installation

The KWM-2/2A is set up for a high-impedance phone patch input (at the PHONE PATCH input J11) such as the phone patch supplied in a Collins 312B-4 and 312B-5 Station Control. A low-impedance phone patch, such as a Collins 189A-2, may be used by making the following change in the KWM-2/2A. Disconnect the two brown-white wires from pin F on terminal board E60 (figure 7-2). Using an ohmmeter, determine which of the two wires is connected

Table 1-1. Equipment Furnished With KWM-2/2A.

QUANTITY	DESCRIPTION	FUNCTION	PART NUMBER
1	Microphone plug	Microphone connection	361-0001-00
2	Phono plug	External connections	361-0062-00
1	Cable marker card	Cable callout	280-2946-00
1	Instruction book	Instructions	523-0176-000
1	Key SCH screw #10	Alignment	024-9710-00
1	Key SCH screw #8	Alignment	024-0019-00
1	Key SCH screw #6	Alignment	024-9730-00
1	Key SCH screw #4	Alignment	024-2900-00



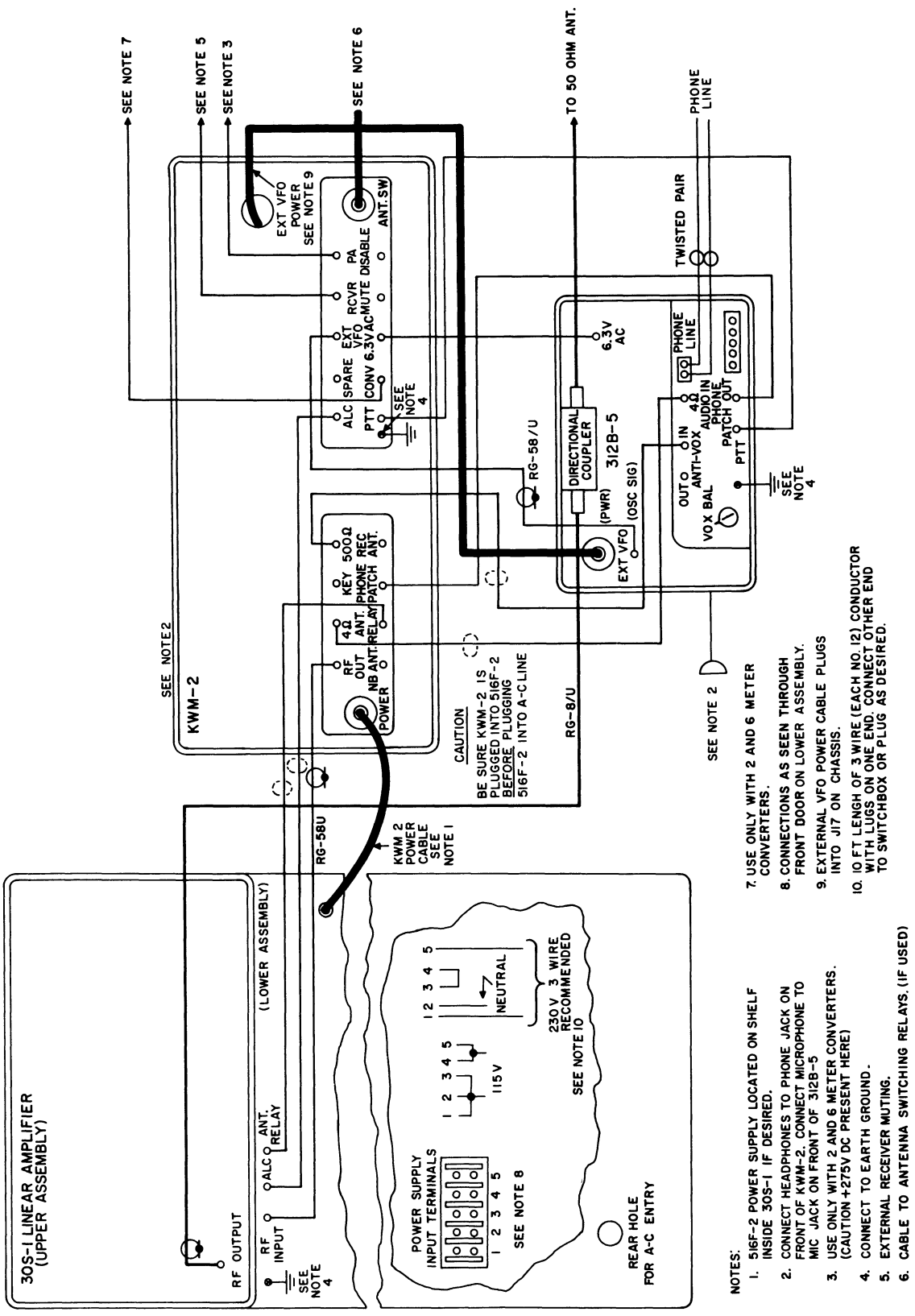
NOTES:
1. HEADPHONES AND MICROPHONE CONNECT TO APPROPRIATE JACKS ON FRONT OF KWM-2.
2. POWER CONNECTORS ON KWM-2 AND PM-2 PUSH TOGETHER WHEN THE TWO UNITS ARE CLAMPED TOGETHER.
3. ALL LEADS CONNECTED TO PHONO JACKS AT REAR OF KWM-2 ARE BROUGHT DOWN THRU CHANNEL BETWEEN KWM-2 AND PM-2 AND OUT BENEATH PM-2.
4. AC CORD AND PLUG WITH 3RD WIRE GROUND. IF ADAPTER IS USED, CONNECT GREEN WIRE TO GROUND.
5. CONNECT TO EARTH GROUND.

Traveling Station Interconnections With 30L-1
Figure 1-2

to PHONE PATCH jack J11. Connect this wire to pin 7 of V1. Resolder the other brown-white wire as originally connected.

1.2.3 Mobile Installation

a. Select a location in the car to install the transceiver. Allow clearance on all sides to assure adequate ventilation. If VOX operation is desired, leave enough space above the transceiver to allow opening the top cover for adjustment of VOX GAIN and ANTI-VOX GAIN controls, S-meter zero, etc. If a 351D-2 Mobile Mount is to be used, drill holes and fasten the adapter bracket to transmission hump with self-tapping screws. Attach the mount to the bracket. Swing the cantilever supports forward. Install the side slides in KWM-2/2A according to 351D-2 Mobile Mount Installation Instructions. Remove the plastic dust covers from the 351D-2 plugs, and store them in the



High-Power Station Interconnections
Figure 1-3

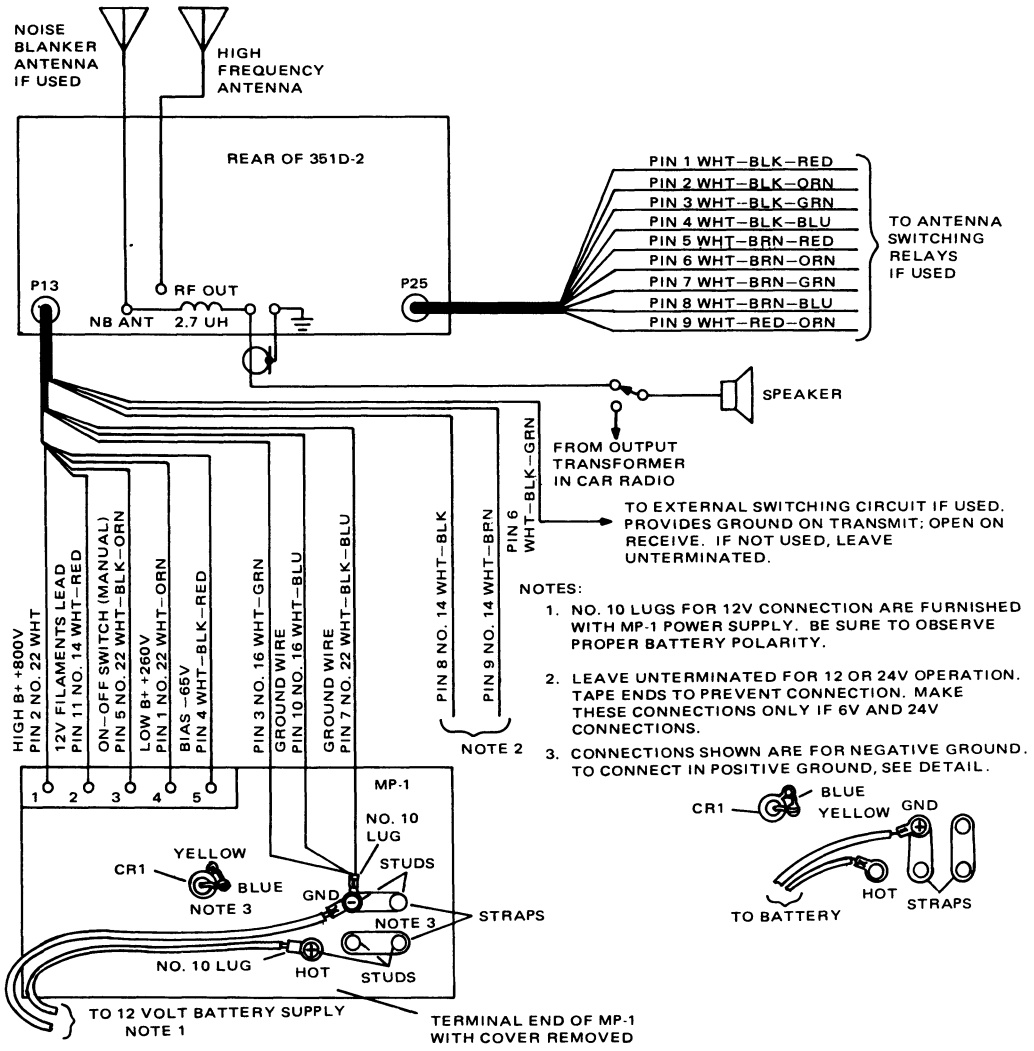
recesses of the mount. Slide the transceiver onto the mount and push back until the mount plugs have entered the transceiver sockets. Tighten the wing nuts on the sides of the transceiver. Refer to 351D-2 Instruction Sheet for mobile mount installation.

b. Select location in car for mounting MP-1 Power Supply. This location must be as clean and dry as possible. Location in luggage compartment, under seat, or on passenger side of fire wall is satisfactory. Mounting in the engine compartment is not recommended.

c. Install the power cable between the MP-1 and the KWM-2/2A. Connect power supply, speaker, and microphone as shown in figure 1-4.

Caution

Before making connections to the automobile electrical system, make sure



Mobile Station Interconnections
Figure 1-4

the primary circuits in the MP-1 are connected for proper ground polarity. Correct connections for either positive or negative ground systems are shown in figure 1-4.

The 440E-1 Power Cable may be used to connect the power supply to the transceiver when the 351D-2 is not used. Refer to table 5-2 for ordering information.

d. If operation is to be in boat or plane having a 115-volt, 400-Hz power supply, use 516F-2 Power Supply with C1 (0.05 μF) removed from across L1 in the filter circuit. If operation is to be in a boat or plane having a 24-volt dc power source, use a 516E-2 DC Power Supply with a 440E-1 cable to connect it to the transceiver. The 516F-2 can also be used with the 24-volt dc power source by using a dc-to-400-Hz converter capable of handling at least a 475-watt load (C1 should be removed from across L1 in the 516F-2 when using 400-Hz power for its operation).

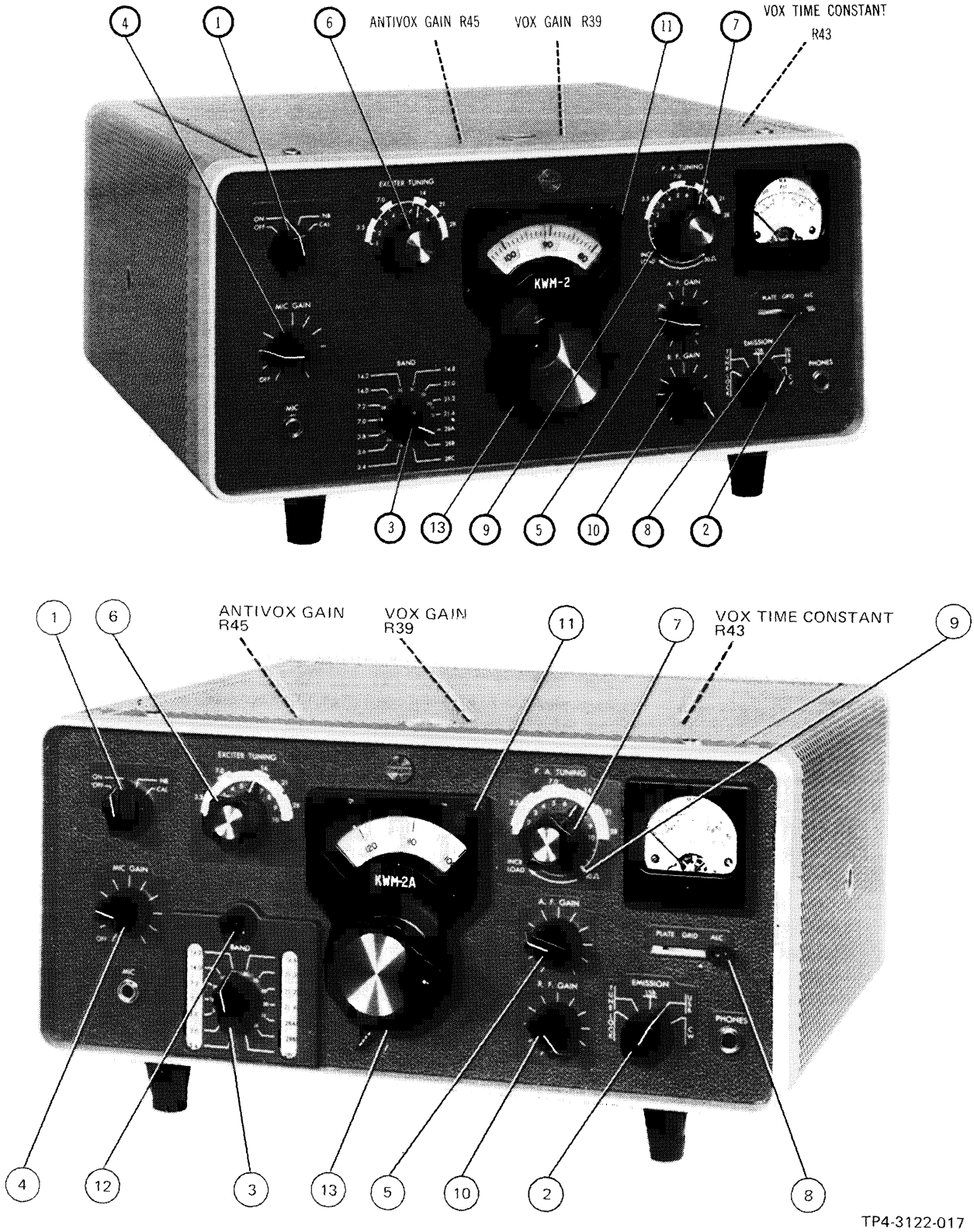
e. No mobile speaker is supplied. If desired, the speaker leads may be connected in parallel with the car radio voice coil terminals. If the car radio has a transistor output stage, connect the terminals of the car speaker as shown in figure 1-4. Break voice coil lead, and install a switch for transfer of speaker from car radio to KWM-2/2A. If installation is in boat or plane, use any good 4-ohm speaker and mount as desired.

For suppression of noise encountered in mobile operation, the following suggestions may be helpful.

1. Use resistor-type spark plugs.
2. Install coaxial bypass capacitors at ignition coil, generator, and voltage-regulator leads. Use bracket-mounted coaxial capacitors in the battery and generator leads to the voltage regulator and a 0.005- μF (or smaller) disc ceramic or mica capacitor from the field lead to ground. DO NOT use larger than 0.005-μF capacitor here unless a 4-ohm resistor is placed in series with it.
3. If capacitor bypasses are not satisfactory, remove them, and use chokes in series with the leads from field and armature terminals of generator. Place these chokes as close to the voltage regulator as possible.
4. For the field lead choke, wind 12 turns of #18 wire on a 1/4-inch diameter powdered-iron core. For the armature lead, wind 12 turns of #14 or larger wire on 1/4-inch diameter powdered-iron core.
5. Ground the rear end of the exhaust pipe to the car body with copper braid, using a radiator hose clamp to secure the braid to the tailpipe. General information concerning noise suppression is available in current handbooks.

1.3 INITIAL CHECKS (Refer to figure 2-1.)

Set MIC GAIN control (4) full counterclockwise until the switch clicks. Set OFF-ON-NB-CAL switch (1) to ON. Set meter switch (8) to PLATE and EMISSION switch (2) to LOCK. The transceiver is in receive condition during warmup, so the meter will read full scale until filaments have come to temperature. This is normal S-meter action. When the S-meter falls back to zero, the circuits will have switched to transmit condition, and the meter will indicate PA plate current. Read the no-signal PA plate current. It should be approximately 40 mA. If plate current is other than 40 mA, adjust BIAS ADJUST potentiometer on the power supply to set plate current to 40 mA. If the transceiver is to be used with a linear amplifier, set bias to produce 50-mA idling plate current.



KWM-2 and KWM-2A Transceivers, Operating Controls
Figure 2-1

section 2
operation

2.1 STARTING PROCEDURE

Caution

Set MIC GAIN control to OFF and EMISSION switch to LSB, USB, or CW to prevent accidental transmit condition before warmup or tuning.

To turn on the KWM-2/2A Transceiver, set the function switch (1) to ON. This turns on the power source being used with the KWM-2/2A. Allow a 1-minute warmup period.

2.2 SELECTING THE KWM-2/2A OPERATING FREQUENCY

Caution

The KWM-2/2A must be operated into a 50-ohm load with an swr not to exceed 2.0:1. Random-length wire antennas or light-bulb dummy loads cannot be used. Conventional half-wave dipoles and beam antennas may be used only at, or very near, their resonant frequency. Exceeding an swr of 2.0:1 can destroy the components in the output stage of this transceiver.

a. Set the EXCITER TUNING and P.A. TUNING controls to the desired operating frequency. Refer to the logging scale calibration curves in figure 2-2. If the operating frequency is outside an amateur band, ignore the amateur band markings on the dial scale and set the control according to figure 2-2.

Caution

If the transmitter drive is insufficient or receiver sensitivity is lacking, retune the trimmer capacitors according to paragraph 2.5.2.

b. If the operating frequency is in an amateur band, refer to table 2-1. Set the band switch to the proper position for the desired operating frequency. If the operating frequency is outside an amateur band, refer to paragraph 2.5. From this paragraph, determine the crystal frequency corresponding to the desired operating frequency. Insert the appropriate crystal in the crystal board and set the band switch to the proper position for the installed crystal.

Note

Be sure to insert the crystal in one of the sockets corresponding to the band in which the crystal belongs. A crystal in band C, for example, should be inserted in socket 1C, 2C, or 3C. Refer to table 2-3 for a list of crystal frequencies and operating bands.

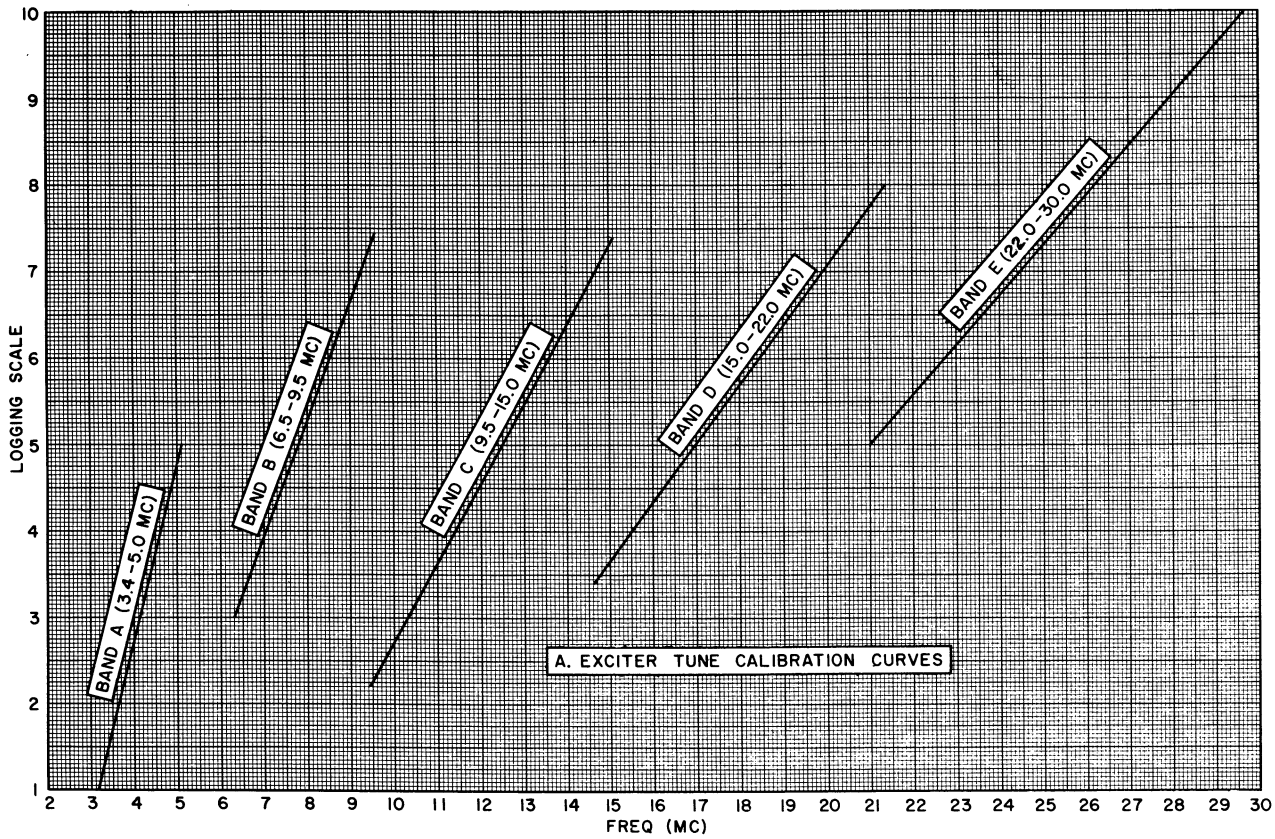
c. Set the vfo tuning dial so that the bandswitch setting (crystal band frequency lower limit in MHz) and the vfo tuning dial setting in kHz add to give the desired operating frequency.

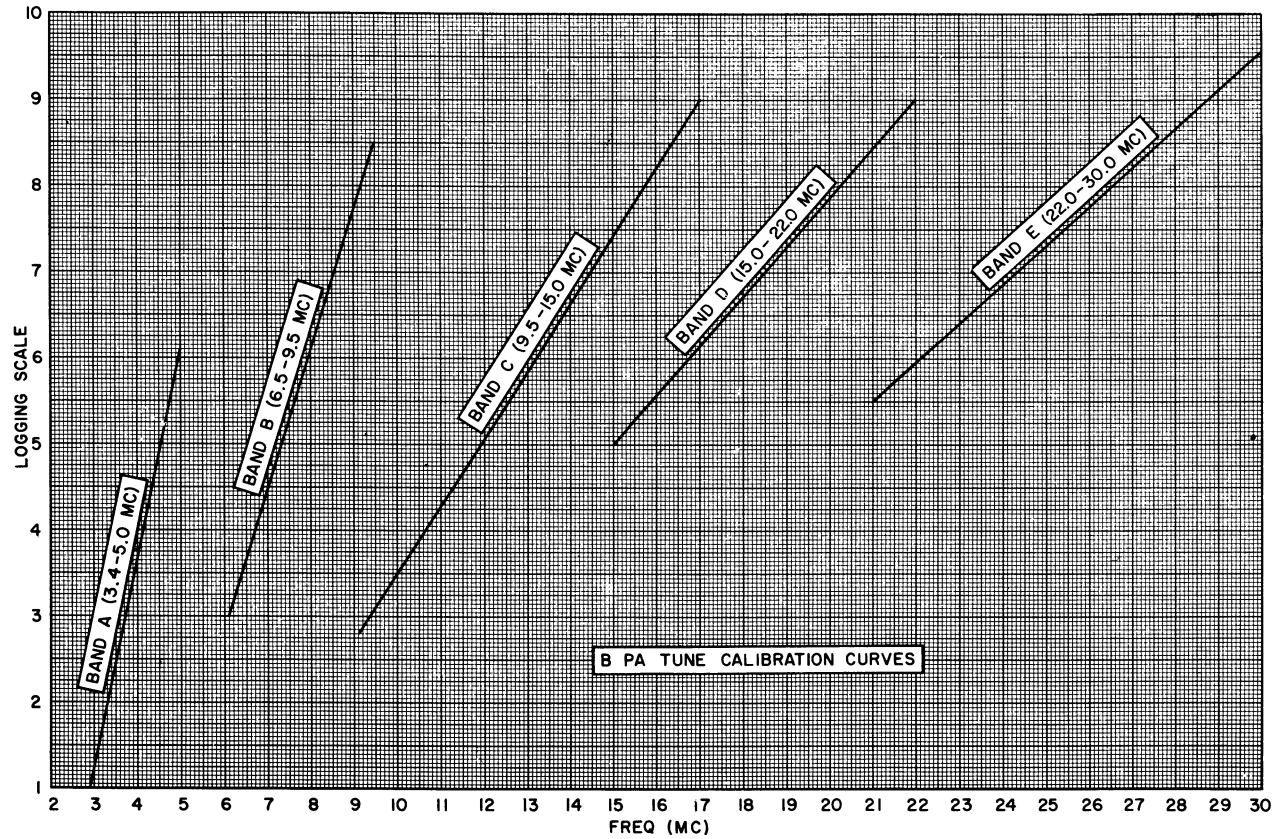
Note

Before setting the vfo tuning, calibrate the vfo by setting the function switch (1) to the CAL position and zero-beating the calibration signal at the 0, 100, or 200 dial marking, whichever is closest to the desired operating frequency. Adjust the dial hairline so that it is directly over the dial 0, 100, 200 marking at zero beat. Set the function switch to ON.

2.3 RECEIVER TUNING

a. Refer to figure 2-1. Set function switch (1) to ON. This is the switch labeled OFF-ON-NB-CAL. Refer to table 2-2.
b. Set EMISSION switch (2) to desired sideband (USB or LSB position). Set BAND switch





Logging Scale Calibration Curves
Figure 2-2

Table 2-1. Crystals Supplied in the KWM-2/2A Transceiver.

KWM-2/2A BAND-SWITCH SETTING		KWM-2/2A OPERATING FREQUENCY (MHz)	CRYSTAL FREQUENCY (kHz)
1A	3.4	3.4 to 3.6	6555.000
2A	3.6	3.6 to 3.8	6755.000
3A	3.8	3.8 to 4.0	6955.000
1B	7.0	7.0 to 7.2	10155.000
2B	7.2	7.2 to 7.4	10355.000
1C	14.0	14.0 to 14.2	8577.500
2C	14.2	14.2 to 14.4	8677.500
3C	14.8	14.8 to 15.0 (WWV)	8977.500
1D	21.0	21.0 to 21.2	12077.500
2D	21.2	21.2 to 21.4	12177.500
3D	21.4	21.4 to 21.6	12277.500
1E	28A	28.5 to 28.7	15827.500
*2E	28B		
3E	28C		

*Crystals may be inserted in these sockets to cover remaining part of 10-meter band.

(3) to desired band. If KWM-2A, set crystal board selector (12) so desired set of bands appears in window.

c. Set the MIC GAIN control (4) full counterclockwise. Set R.F. GAIN control (10) full clockwise.
d. Set VOX GAIN control (figure 4-1, R39) full counterclockwise.
e. Set ANTI-VOX GAIN control (figure 4-1, R45) full counterclockwise.
f. Adjust the A.F. GAIN control (5) until some receiver noise is heard in speaker.
g. Adjust the EXCITER TUNING control (6) to white portion of scale indicating the desired band. Adjust this control slightly to peak the receiver noise output. The transceiver is now ready to receive and the selected 200-kHz band may be tuned with the tuning control. The operating frequency can be determined by adding the dial reading to the BAND switch setting.
h. Turn function switch (1) to CAL position. Tune dial to nearest 100-kHz point (0, 100, or 200), and decrease A.F. GAIN control as necessary for comfortable listening level. Adjust tuning until the calibrate signal is zero beat. When the calibrate signal is zero beat in the receiver, set the hairline on the 100-kHz point with the zero set knob (11). Set function switch to ON and tune dial to the desired portion of the 200-kHz band selected. If checking calibrate circuit against WWV is desired, refer to paragraph 4.5.9.

Note

The crystal calibrator also will be heard at dial settings 55 and 155 when function switch is in CAL position. Ignore these responses.

Table 2-2. KWM-2/2A Operating Control Functions.

FIG 2-1 INDEX	CONTROL	FUNCTION
1	Function (S11)	
	OFF	Removes ac power from power supply.
	ON	Connects ac power to power supply.
	NB	Turns on accessory noise blanker when used.
	CAL	Turns on 100-kHz crystal calibrator.
4	MIC GAIN (R8, S10)	Controls audio amplifier gain for SSB operation, and controls tone level for CW operation.
6	EXCITER TUNING	Controls all ganged slug-tuned circuits in receiver and exciter portions of transceiver.
12	Crystal board selector (S15) (in KWM-2A only)	Selects second bank of crystals for additional coverage, and changes scale on BAND switch.
3	BAND (S2 through S8, S13)	Selects capacitors and crystals needed to tune transceiver to desired 200-kHz band. S13 grounds a different pin on J25 for each band for remote antenna selection.
7	P.A. TUNING (C150)	Resonates pa plate circuit to operating frequency.
5	A.F. GAIN (R92)	Controls receiving audio amplifier gain.
10	R.F. GAIN R84)	Controls gain of receiver-transmitter rf amplifier and receiving if amplifiers during receiving.
8	Meter switch (S12)	
	PLATE	Measures pa plate current by measuring pa cathode voltage changes.
	GRID	Measures pa grid current.
	ALC	Shows ALC action by measuring cathode voltage changes at transmitter if amplifier V4A.
2	EMISSION (S9)	
	LOCK	Grounds key line for continuous output in CW mode at full power. Used for tuning.
	TUNE	Reduces pa screen voltage with series resistor, and produces CW carrier for tuneup.
	LSB	Selects LSB bfo crystal, and raises vfo frequency for LSB operation.
	USB	Selects USB bfo crystal, and lowers vfo frequency for USB operation.
	CW	Selects USB bfo crystal, raises vfo frequency, and turns on tone oscillator. Keyed tone is applied to balanced modulator instead of voice signal.
*	ANTI-VOX GAIN (R45)	Controls level of antiVOX signal fed to VOX circuit.

Table 2-2. KWM-2/2A Operating Control Functions (Cont).

FIG 2-1 INDEX	CONTROL	FUNCTION
*	VOX GAIN (R39)	Controls gain of VOX amplifier for voice-controlled operation.
*	VOX TIME CONSTANT (R43)	Controls hcld-in time of VOX circuit.
9	INCR LOAD	Adjusts power amplifier output impedance level to match transmission line impedance for maximum power transfer.
11	Zero set knob	Permits calibration of frequency dial.
13	Vfo tuning dial	Selects the frequency to be added to the band frequency to establish the transceiver operating frequency.
*These operating controls are inside the cabinet.		

Warning

During amateur operation, DO NOT operate transmit circuits while the transceiver is tuned to receive outside the amateur band in use. The transmit frequency is always locked to the receive frequency. Return tuning to within the band before transmitting.

2.4 TRANSMITTER TUNING

2.4.1 General

a. Set up the KWM-2/2A for the receive function as in paragraph 2.3.
b. Turn EMISSION switch (2) to TUNE position.
c. Set meter switch (8) to GRID.
d. Adjust MIC GAIN control (4) for a 1/2 to 2/3-scale meter indication.
e. Adjust EXCITER TUNING control (6) for a peak on the meter. Reduce the MIC GAIN as necessary to maintain the 1/2- to 2/3-scale meter reading.
f. Set meter switch (8) to PLATE.
g. Dip the plate current with PA TUNING control (7).
h. Adjust the load (under PA TUNING control) for an increase in plate current: redip with PA TUNING control (7). Reduce MIC GAIN control (4) as necessary to keep the plate current below 200 mA.

Caution

TO PREVENT DESTROYING THE FINAL AMPLIFIER, THE FOLLOWING STEPS MUST BE MADE QUICKLY.

i. Turn EMISSION switch (2) to the LOCK position (leave meter switch (8) at PLATE).
j. Reduce MIC GAIN control (4) to keep plate current below 230 mA.
k. Adjust EXCITER TUNING control (6) for a peak plate current reading.
l. Readjust PA TUNING control (7) for a plate current dip.
m. Turn EMISSION switch (2) to either LSB, USB, or CW and meter switch (8) to ALC.

Caution

If the operating frequency is changed more than 50 kHz, recheck tuning and loading adjustments. Readjust if necessary.

2.4.2 Single-Sideband Operation

a. Set up receiver operation and transmitter operation according to paragraphs 2.3 and 2.4.1.

b. Close-talk into the microphone, increasing VOX GAIN control setting until VOX relay just operates. For VOX operation, it is desirable to close-talk the microphone to prevent background noises from tripping the KWM-2/2A into transmit function.
c. Set meter switch to ALC position. Increase setting of MIC GAIN control to obtain S6 average reading on voice.
d. Leave MIC GAIN control as set in step c above. Leave microphone in normal operating position. Set function switch to CAL position, tune in calibrate signal, and adjust A.F. GAIN control for comfortable listening level.
e. Adjust the tuning control for approximately 1000-Hz beat note. If the VOX relay trips, increase ANTIVOX GAIN (figure 4-1, R45) setting to minimum point necessary to prevent speaker output from tripping VOX. It may be necessary to increase VOX GAIN setting slightly after this antiVOX gain adjustment in order to compensate for the antiVOX gain.

Note

Do not use more VOX gain or more antiVOX gain than necessary to control VOX operation. If VOX circuits transfer between words, increase the release time constant by turning VOX TIME CONSTANT control (figure 4-1, R43) clockwise. If less release time is desired, turn the control counterclockwise.

f. Set function switch to ON position. The KWM-2/2A is now ready for transmit operation in SSB service. Speaking into the microphone transfers from receive function to transmit function through the VOX circuit action. If the receiver is tuned to a different frequency, the transmitter is also tuned to this new receiver frequency.
g. After changing frequency more than 50 kHz, perform steps i through m, paragraph 2.4.1.

2.4.3 CW Operation

Note

The CW output signal frequency is 1750 Hz higher than the dial reading. To set the CW output signal frequency, subtract 1750 Hz from the desired output signal frequency. Set the crystal and vfo dial for the resultant output in CW operation.

a. Set up receiver and transmitter operation according to paragraphs 2.3 and 2.4.1 with EMISSION switch set to CW.
b. Press key and adjust A.F. GAIN control for comfortable monitoring level.
c. Hold key down, and increase VOX GAIN control setting until the VOX relay operates. If it is desired to change the release time constant, adjust the VOX TIME CONSTANT potentiometer, R43. Clockwise rotation of this control increases the release time. This control is located on a bracket under the top cover, behind the meter.
d. Set meter switch to ALC position. While sending a series of dots, adjust MIC GAIN control for S3 meter indication of ALC.

Note

Component heating during operation may cause the ALC reading to decrease. Maintain the ALC reading at S3 by adjusting the MIC GAIN control as required.

e. When receiving, leave the A.F. GAIN control set for comfortable monitoring level, and adjust the receive level with the R.F. GAIN control. When the KWM-2/2A is receiving, the received signal is indicated in S-units. The S-meter will read correctly with the R.F. GAIN at less than maximum setting, provided the received signal level is high enough to actuate the S-meter. For example, if the R.F. GAIN control is set for no-signal reading of S8 and reads S9 with signal, the received signal is S9.

example, if the R.F. GAIN control is set for no-signal reading of S8 and reads S9 with signal, the received signal is S9.

2.4.4 FSK Operation

Note

The KWM-2/2A Transceiver has an audio response of 300- to 2400-Hz nominal, therefore any FSK audio input must be between 300 and 2400 Hz.

Usually in RTTY, the FSK signal is an 850-Hz total shift between mark and space signals. This shift is most often obtained by providing a 425-Hz shift to either side of a reference frequency. The reference frequency is the RTTY center frequency. To obtain the 850-Hz shift and reference frequency using the KWM-2A, follow the procedures listed below.

Caution

During RTTY operation of the KWM-2/2A, a small blower must be directed on the power amplifier cage to permit continuous operation.

a. Set the function switch to ON.
b. Connect a 1275- and 2125-Hz 2-tone keyer (850 Hz difference -- both frequencies in the 300- to 2400-Hz audio response of the KWM-2/2A) to the teletypewriter.
c. Connect the keyer audio output to the KWM-2/2A audio input and the KWM-2/2A audio output to the converter audio input. Adjust the keyer audio output level to provide an audio input level between 25 and 100 millivolts to the KWM-2/2A.
d. Set up receiver and transmitter operation at 1700 Hz above the desired RTTY center frequency operation. Refer to paragraphs 2.3 and 2.4.1. Set EMISSION switch to LSB.
e. Normally the 2-tone keyer provides a ptt key. If a ptt key is not provided, key the teletypewriter and increase the VOX GAIN control setting until the VOX relay just operates.
f. Using a phono plug, solder a connection from the inner conductor to the outer conductor. Connect this plug to the ALC phono jack (J4) to provide a short to ground for the ALC line.
g. Set meter switch to GRID position. Adjust setting of MIC GAIN control for S3 meter indication of grid current.
h. Adjust the R.F. GAIN control full clockwise. Adjust the A.F. GAIN control for the amount of receive power required by the converter. If audio is monitored, this should provide a comfortable monitoring level.

Note

These procedures are for high mark and low space RTTY operation. For additional information on FSK operation, refer to RTTY Operation of KWM-2/2A and S-Line Equipment Instruction Sheet 523-0182000.

2.4.5 Mobile Operation

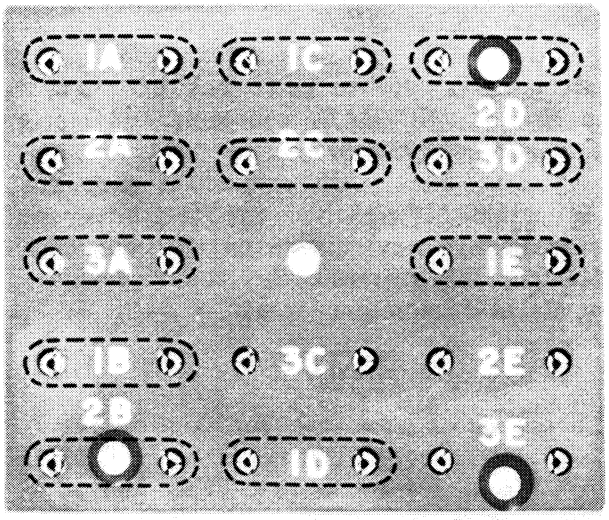
VOX and antiVOX circuits will operate in mobile operation, but push-to-talk operation is recommended, since high-level background noises will produce undesirable VOX switchover. Set VOX GAIN and ANTIVOX GAIN controls full counterclockwise before installation. If VOX operation is desired, leave clearance in installation so top cover can be opened. For mobile operation, load the power amplifier to 210-mA plate current. (In some installations, power amplifier plate current readings less than 210 mA will be obtained due to cable length, cable size, and battery condition.)

2.5 OPERATION OUTSIDE AMATEUR BANDS

2.5.1 Selection of Crystals

The crystals supplied provide for complete coverage of all amateur bands except the 10-meter band for which only one crystal is furnished (for 28.5 to 28.7 MHz). Two extra sockets are provided for additional crystals in the 10-meter band. Figure 2-3 shows crystal socket locations. Select these crystals as follows:

a. If the lower edge of the desired 200-kHz band is 11.8 MHz or less, the required frequency is equal to the lower edge of the desired band plus 3.155 MHz. As an example,



Crystal Socket Locations
Figure 2-3

if the desired band is 4.0 to 4.2 MHz, 4.0 MHz plus 3.115 MHz equals 7.155 MHz.

b. If lower edge of desired 200-kHz band is 12.00 MHz or higher, the required crystal frequency is half the sum of the lower edge of desired band plus 3.155 MHz. As an example, if the desired band is 14.4 to 14.6 MHz:

$$\frac{14.4 + 3.155}{2} = 8.7775 \text{ MHz.}$$

The plate circuit of the oscillator is tuned to twice the crystal frequency when required injection frequencies are this high.

Caution

Avoid transmitter operation between 5.0 and 6.5 MHz. In this range, the second harmonic of the vfo and the variable if frequency is nearly the same as the desired frequency. In transmit function, some of this energy will pass through the tuned circuits and become spurious emission.

c. Plug substitute or extra crystals into the appropriate socket on the mounting board according to band-switch position and crystal frequency columns in table 2-3. The example cited in step b above calls for placement of the crystal in one of the sockets marked C. If two additional 10-meter crystals are used, they must be plugged into the sockets marked E. Table 2-3 lists crystal socket designations, switch positions (BAND), and crystal frequencies furnished.

The KWM-2A is equipped with an extra crystal mounting board and a front-panel switch to allow selection of either board. The crystal mounting board for extra-band operation is located on the top of the chassis. If amateur band operation is not needed, extra-band crystals may be substituted in the crystal mounting board under the chassis. Be sure the crystals are plugged into appropriate sockets according to information of table 2-3 and figure 2-3. The transmitter can be operated at other frequencies outside the specified amateur bands or at other 10-meter frequencies by plugging the proper crystals into the mounting boards.

Mark the desired lower band edge information on the white card in the band-switch windows. Make sure this information is marked in the appropriate switch positions.

2.5.2 Adjustment of Tuned Circuits

For operation outside amateur bands, disregard amateur band markings on EXCITER TUNING and P.A. TUNING scales, and use logging scales. Figure 2-2 shows logging scale calibration curves. Operation at frequencies outside the amateur bands will result in slightly decreased receiver sensitivity and transmitter pa grid drive unless the tuned circuits of the transceiver are retuned to peak their responses in the desired portions of the high-frequency spectrum. For moderate excursions from the amateur bands, the decrease in performance is minor, and realignment of the rf circuits is usually not necessary unless optimum performance is desired. Adjustment of the trimmer capacitors only will normally be sufficient to peak the response outside the amateur bands. Figure 4-1 shows the location of these adjustments. The letter portions of the capacitor designations correspond to the frequency

ranges listed in the band-switch position column of table 2-3. For example, the E trimmers are normally peaked on 10 meters but may be reset to favor another portion of band E, which covers 22.0 to 30.0 MHz.

At the extremities of some bands the pa loading may be either too heavy or too light. This condition can be corrected by the following procedure:

a. If the plate current is too high, add a capacitor to the output to increase the output capacity and reduce the output current.

Warning

Be sure that all power is disconnected before working in the pa compartment. Dangerous voltages are present with power on.

b. If plate current is too low, reduce the output capacity and increase the output current as follows: Remove the KWM-2/2A cover. Adjust trimmers C152, C153, C154, and C155 as necessary to increase output current. Refer to paragraph 4.6.15 for pa loading trimmer adjustment. Adjust the trimmers for a compromise that best suits your operating frequency.

Table 2-3. Crystal Frequencies and Operating Bands.

KWM-2/2A OPERATING FREQUENCY (MHz)	CRYSTAL FREQUENCY (kHz)
Band-switch setting 1A, 2A, or 3A	
3.4 to 3.6	* 6555.0
3.6 to 3.8	* 6755.0
3.8 to 4.0	* 6955.0
4.0 to 4.2	7155.0
4.2 to 4.4	7355.0
4.4 to 4.6	7555.0
4.6 to 4.8	7755.0
4.8 to 5.0	7955.0
Band-switch setting 1B or 2B	
6.6 to 6.8	9755.0
6.8 to 7.0	9955.0
7.0 to 7.2	*10155.0
7.2 to 7.4	*10355.0
7.4 to 7.6	10555.0
7.6 to 7.8	10755.0
7.8 to 8.0	10955.0
8.0 to 8.2	11155.0
8.2 to 8.4	11355.0
8.4 to 8.6	11555.0
8.6 to 8.8	11755.0
8.8 to 9.0	11955.0
9.0 to 9.2	12155.0
9.2 to 9.4	12355.0
9.4 to 9.6	12555.0
Band-switch setting 1C, 2C, or 3C	
9.4 to 9.6	12555.0
9.6 to 9.8	12755.0
9.8 to 10.0	12955.0
10.0 to 10.2	13155.0
10.2 to 10.4	13355.0
10.4 to 10.6	13555.0
10.6 to 10.8	13755.0
10.8 to 11.0	13955.0
11.0 to 11.2	14155.0
11.2 to 11.4	14355.0

Table 2-3. Crystal Frequencies and Operating Bands (Cont).

KWM-2/2A OPERATING FREQUENCY (MHz)	CRYSTAL FREQUENCY (kHz)
11.4 to 11.6	14555.0
11.6 to 11.8	14755.0
11.8 to 12.0	14955.0
12.0 to 12.2	7577.5
12.2 to 12.4	7677.5
12.4 to 12.6	7777.5
12.6 to 12.8	7877.5
12.8 to 13.0	7977.5
13.0 to 13.2	8077.5
13.2 to 13.4	8177.5
13.4 to 13.6	8277.5
13.6 to 13.8	8377.5
13.8 to 14.0	8477.5
14.0 to 14.2	* 8577.5
14.1 to 14.3	8627.5
14.2 to 14.4	* 8677.5
14.4 to 14.6	8777.5
14.6 to 14.8	8877.5
14.8 to 15.0	* 8977.5
Band-switch setting 1D, 2D, or 3D	
15.0 to 15.2	9077.5
15.2 to 15.4	9177.5
15.4 to 15.6	9277.5
15.6 to 15.8	9377.5
15.8 to 16.0	9477.5
16.0 to 16.2	9577.5
16.2 to 16.4	9677.5
16.4 to 16.6	9777.5
16.6 to 16.8	9877.5
16.8 to 17.0	9977.5
17.0 to 17.2	10077.5
17.2 to 17.4	10177.5
17.4 to 17.6	10277.5
17.6 to 17.8	10377.5
17.8 to 18.0	10477.5
18.0 to 18.2	10577.5
18.2 to 18.4	10677.5
18.4 to 18.6	10777.5
18.6 to 18.8	10877.5
18.8 to 19.0	10977.5
19.0 to 19.2	11077.5
19.2 to 19.4	11177.5
19.4 to 19.6	11277.5
19.6 to 19.8	11377.5
19.8 to 20.0	11477.5
20.0 to 20.2	11577.5
20.2 to 20.4	11677.5
20.4 to 20.6	11777.5
20.6 to 20.8	11877.5
20.8 to 21.0	11977.5
21.0 to 21.2	*12077.5
21.2 to 21.4	*12177.5
21.4 to 21.6	*12277.5
21.6 to 21.8	12377.5
21.8 to 22.0	12477.5
Band-switch setting 1E, 2E, or 3E	
22.0 to 22.2	12577.5
22.2 to 22.4	12677.5
22.4 to 22.6	12777.5
22.6 to 22.8	12877.5

Table 2-3. Crystal Frequencies and Operating Bands (Cont).

KWM-2/2A OPERATING FREQUENCY (MHz)	CRYSTAL FREQUENCY (kHz)	KWM-2/2A OPERATING FREQUENCY (MHz)	CRYSTAL FREQUENCY (MHz)
22.8 to 23.0	12977.5	27.4 to 27.6	15277.5
23.0 to 23.2	13077.5	27.6 to 27.8	15377.5
23.2 to 23.4	13177.5	27.8 to 28.0	15477.5
23.4 to 23.6	13277.5	27.9 to 28.1	15527.5
23.6 to 23.8	13377.5	28.0 to 28.2	15577.5
23.8 to 24.0	13477.5	28.1 to 28.3	15627.5
24.0 to 24.2	13577.5	28.2 to 28.4	15677.5
24.2 to 24.4	13677.5	28.3 to 28.5	15727.5
24.4 to 24.6	13777.5	28.4 to 28.6	15777.5
24.6 to 24.8	13877.5	28.5 to 28.7	*15827.5
24.8 to 25.0	13977.5	28.6 to 28.8	15877.5
25.0 to 25.2	14077.5	28.7 to 28.9	15927.5
25.2 to 25.4	14177.5	28.8 to 29.0	15977.5
25.4 to 25.6	14277.5	28.9 to 29.1	16027.5
25.6 to 25.8	14377.5	29.0 to 29.2	16077.5
25.8 to 26.0	14477.5	29.1 to 29.5	16127.5
26.0 to 26.2	14577.5	29.2 to 29.4	16177.5
26.2 to 26.4	14677.5	29.3 to 29.5	16227.5
26.4 to 26.6	14777.5	29.4 to 29.6	16277.5
26.6 to 26.8	14877.5	29.5 to 29.7	16327.5
26.8 to 27.0	14977.5	29.6 to 29.8	16377.5
27.0 to 27.2	15077.5	29.8 to 30.0	16477.5
27.2 to 27.4	15177.5		

*Crystals supplied with the KWM-2/2A.

section 3
principles of operation

3.1 BLOCK DIAGRAM

Refer to figure 3-1. The KWM-2/2A is an SSB or CW transceiver operating in the range between 3.4 and 30.0 MHz. It consists of a double-conversion receiver and a double-conversion exciter-transmitter. The transmitter and receiver circuits use common oscillators and a common mechanical filter as well as a common rf amplifier. The transmitter low-frequency if and the receiver low-frequency if is 455 kHz. The high-frequency if for both is 2.955 to 3.155 MHz. This is a bandpass if that accommodates the full 200-kHz bandwidth. Figure 7-1 is a schematic diagram of the KWM-2/2A.

3.2 TRANSMITTER CIRCUITS

3.2.1 AF Circuits

Microphone or phone-patch input is connected to the grid of first audio amplifier V1A, amplified, and coupled to the grid of second audio amplifier V11B. Output from V11B is coupled to the grid of cathode follower V3A through MIC GAIN control R8. Output from the cathode follower is fed to the resistive balance point of the balanced modulator. In TUNE, LOCK, and CW positions of the EMISSION switch, output from tone oscillator V2B is fed to the grid of the second audio amplifier. The amplified tone oscillator signal is taken from the plate of V11B and coupled to the grid of VOX amplifier V14B to activate the VOX circuits in CW operation. This signal is also fed to the grid of first receiver af amplifier V16A for CW monitoring.

3.2.2 Balanced Modulator and Low-Frequency IF Circuits

Audio output from the cathode of V3A and the bfo voltage are fed to a diode quad balanced modulator (CR1, CR2, CR3, and CR4). Both upper and lower sideband outputs from the balanced modulator are coupled through if transformer T1 to the grid of the if amplifier, V4A. Output from the if amplifier is fed to mechanical filter FL1. The passband of FL1 is centered at 455 kHz. This passes either upper or lower sideband, depending upon the sideband selected when the EMISSION switch connects bfo crystal Y16 or Y17. The single-sideband output of FL1 is connected to the grids of the first transmitter mixer in push-pull.

3.2.3 Balanced Mixers

The 455-kHz single-sideband signal is fed to the first balanced mixer grids in push-pull. The plates of the mixer are connected in push-pull, and vfo signal is fed to the two grids in parallel. The mixer cancels the vfo signal energy and translates the 455-kHz single-sideband signal from the balanced modulator to a 2.955- to 3.155-MHz single-sideband signal. The T2-L4 combination between the first and second mixer provides broadband response to the 200-kHz variable if output (2.955 to 3.155 MHz) from the first transmit mixer, V5. The bandpass if signal is fed to one of the grids of the second balanced mixer, and the high-frequency injection signal energy from crystal oscillator V13A is fed to the cathode and the other grid. This arrangement cancels the high-frequency injection signal energy within the mixer and translates the bandpass if signal to desired operating band.

3.2.4 RF and ALC Circuits

The slug-tuned circuits coupling V6 to V7, V7 to V8, and V8 to the power amplifier are ganged to the EXCITER TUNING control. The signal is amplified by rf amplifier V7 and driver V8 to drive the power amplifier, V9 and V10. Output from the parallel power amplifiers is tuned by a pi-network and fed to the antenna through contacts of transmit-receive relay K3. Negative rf feedback from the pa plate circuit to the driver cathode circuit reduces distortion in the output signal. Both the driver and pa stages

are neutralized to ensure stability. When rf driving voltage to the pa becomes great enough that positive peaks drive the pa grids positive, the grids begin to draw current and the signal is detected. This produces an audio envelope. The audio is rectified by ALC rectifier V17A, which is connected to produce a negative dc voltage. The voltage is filtered by C159, C160, R118, and R119 (which also determine the ALC time constants) and is used to control the gain of V4A and V7. This system allows a high average level of modulation without driving the pa tubes well into the grid current region, which would result in increased distortion.

3.3 RECEIVER CIRCUITS

3.3.1 RF Circuits

Signal input from the antenna is connected through relay contacts to the tuned input circuit, T3. The signal is applied from T3 to the grid of the receiver-transmitter rf amplifier, V7. Amplified signal from V7 is applied from the tuned circuit, consisting of L10 and bandswitch selected capacitors, to the grid of the receiver first mixer V13B.

3.3.2 Receiver Mixers

The input rf signal is fed to the grid of V13B, and the high-frequency oscillator injection signal is fed to the cathode of V13B. The difference product of the first mixer is applied from the plate of the tube to variable if transformer T2. Output of T2 in the range of 2.955 to 3.155 MHz is applied to the grid of second receiver mixer V17B, across parallel-tuned trap circuit Z5. This trap circuit minimizes a spurious response that would otherwise result from harmonics of the high-frequency crystal oscillator. When signal input is applied to the grid of V17B and vfo injection signal is applied to the cathode of V17B, the 455-kHz difference product is fed from V17B plate to mechanical filter FL1.

3.3.3 IF Circuits

The output from FL1 is applied to the grid of first if amplifier V1B. The if signal is amplified by V1B and V3B and applied through T5 to AVC rectifier V15A and to the grid of product detector V15B. Beat-frequency oscillator signal is applied to the cathode of V15B, and the product of mixing is the detected audio signal. Output of the AVC rectifier circuit is applied to the two receiver if amplifiers and through contacts of relay K4 to the receiver-transmitter rf amplifier. This AVC voltage controls the gain of the receiver and prevents overloading.

3.3.4 AF Circuits

Output from the product detector is applied through A.F. GAIN control R92 to the grid of first af amplifier V16A. Amplified audio output of V16A is coupled to the grid of af output amplifier V16B, which produces the power to operate a speaker, headphones, or phone patch.

3.4 OSCILLATORS

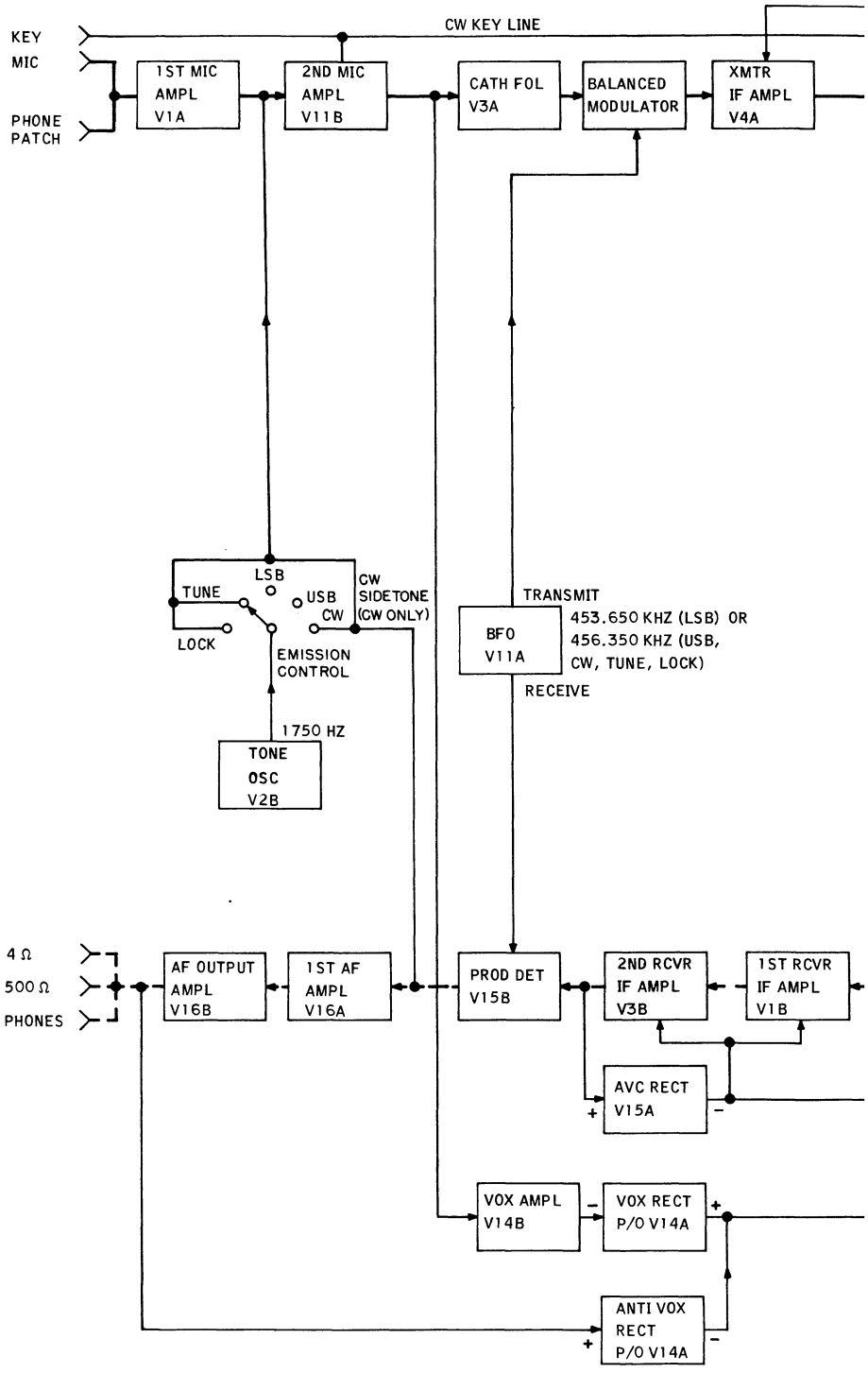
The transceiver contains the tone oscillator, the beat-frequency oscillator, the variable-frequency oscillator, the high-frequency crystal oscillator, and the crystal calibrator.

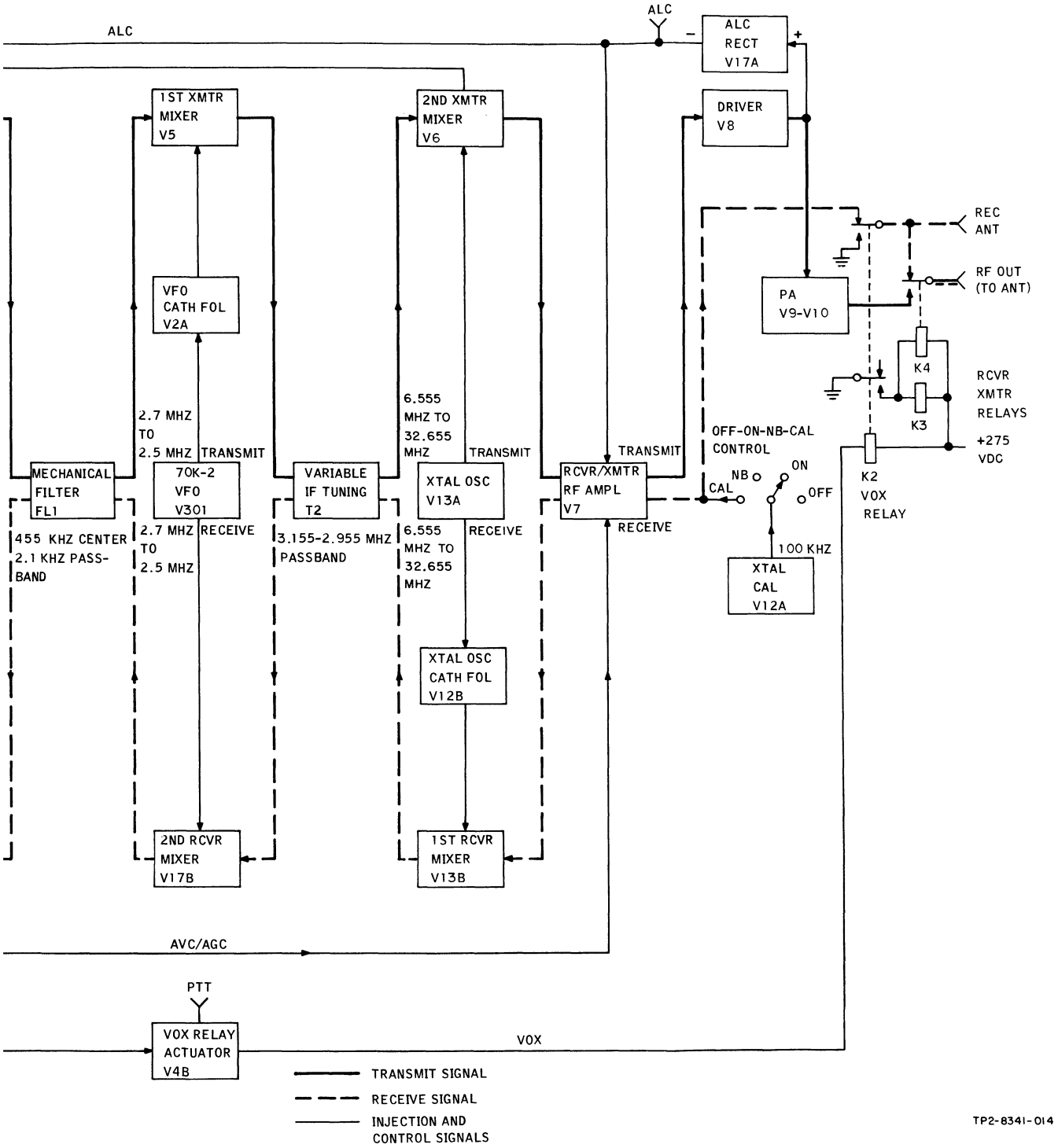
3.4.1 Tone Oscillator

The tone oscillator operates when the EMISSION switch is in LOCK, TUNE, or CW position. It is a phase-shift oscillator operating at approximately 1750 Hz. Its output is fed to the transmitter audio circuits for CW operation. Some of the output from the tone oscillator is applied to the receiver audio circuits for sidetone monitoring in CW operation. Due to the 1750-Hz tone applied to the balanced modulator during CW operation, the actual transmitted CW signal will be 1750 Hz above the KWM-2/2A dial reading.

3.4.2 Beat-Frequency Oscillator

The bfo is crystal controlled at either 453.650 or 456.350 kHz, depending upon whether Y16 or Y17 is selected by EMISSION switch section S9H. The unused crystal is shorted out by this switch section. These crystal frequencies are matched to the passband of mechanical filter FL1 so that the carrier frequency is placed approximately 20 dB down on the skirts of the filter response. This 20-dB carrier attenuation is in addition to the 30-dB suppression provided by the balanced modulator.


KEY
MIC
PHONE PATCH
CW KEY LINE
1ST MIC AMPL V1A
2ND MIC AMPL V11B
CATH FOL V3A
BALANCED MODULATOR
XMTR IF AMPL V4A
LSB
TUNE
USB
CW
CW SIDETONE (CW ONLY)
LOCK
EMISSION CONTROL
1750 HZ
TONE OSC V2B
TRANSMIT
BFO V11A
453.650 KHZ (LSB) OR
456.350 KHZ (USB, CW, TUNE, LOCK)
RECEIVE
4 Ω
500 Ω
PHONES
AF OUTPUT AMPL V16B
1ST AF AMPL V16A
PROD DET V15B
2ND RCVR IF AMPL V3B
1ST RCVR IF AMPL V1B
AVC RECT V15A
VOX AMPL V14B
VOX RECT P/O V14A
ANTI VOX RECT P/O V14A



KWM-2 and KWM-2A Transceivers, Block Diagram
Figure 3-1

3.4.3 Variable-Frequency Oscillator

The vfo uses fixed capacitance and variable inductance to tune the range of 2.5 to 2.7 MHz. The series combination of capacitor C308 and diode CR301 is connected in parallel with capacitor C303. The diode switches C308 into or out of the circuit, depending upon the polarity of a bias voltage impressed across the diode junction. When USB emission is selected, the bias is positive and C308 is switched into the circuit. The capacitor then is adjusted to shift the vfo frequency by an amount equal to the frequency separation of bfo crystals Y16 and Y17. This allows the selection of either sideband without upsetting tuning or dial calibration.

3.4.4 High-Frequency Crystal Oscillator

The high-frequency crystal oscillator V13A, is crystal controlled by 1 of 14 crystals selected by BAND switch S2. Output from the high-frequency crystal oscillator is fed to the transmitter second mixer and to the crystal oscillator cathode follower. The cathode follower provides isolation and impedance match between the crystal oscillator and the receiver first mixer cathode. The output frequency of this oscillator is always 3.155 MHz higher than the lower edge of the desired band. This high-frequency injection signal is the crystal fundamental frequency for all desired signals below 12 MHz. For operating frequencies higher than 12 MHz, the crystal frequency is doubled in the plate circuit of the oscillator. Instructions for calculating crystal frequencies for the desired bands are given in section 2.

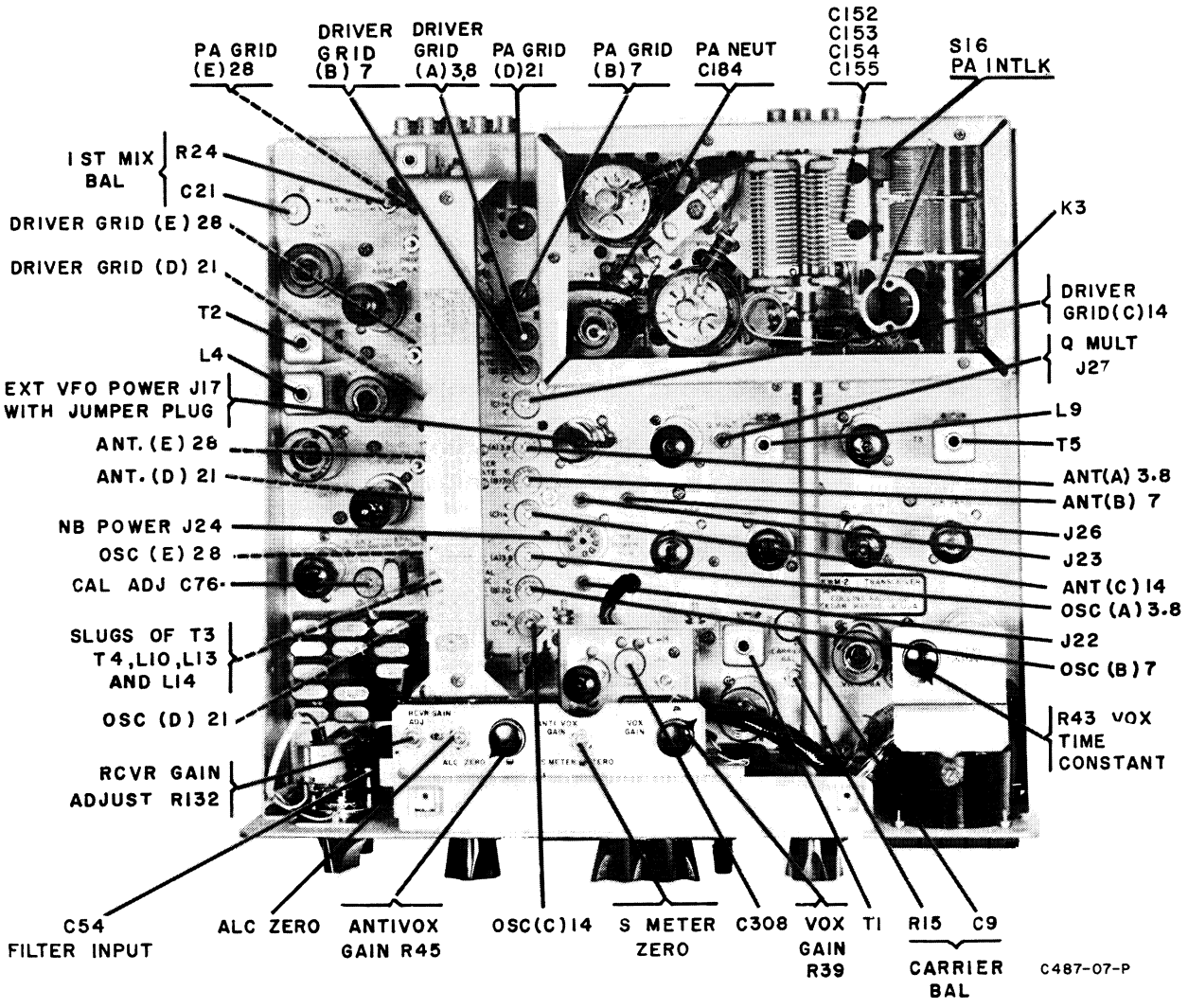
3.4.5 Crystal Calibrator

The 100-kHz crystal calibrator V12A, is the pentode section of a type 6U8A tube. Its output is coupled to antenna coil T3. The calibrator may be trimmed to zero beat with WWV by adjustment of capacitor C76.

3.5 VOX AND ANTIVOX CIRCUITS

Audio output voltage from the second microphone amplifier V1B is coupled to VOX GAIN control R39. A portion of this voltage is amplified by VOX amplifier V14B and fed to the VOX rectifier, which is one of the diodes of V14. The positive dc output of the VOX rectifier is applied to the grid of VOX relay amplifier V4B, causing it to conduct current and actuate VOX relay K2. Contacts of K2 switch the receiver antenna lead, the other relay coils, and bias voltage. Relays K3 and K4 switch the metering circuits from receive to transmit, the low plate voltages from receive to transmit tubes, and the AVC and ALC leads.

The antiVOX circuit provides a threshold voltage to prevent loudspeaker output (picked up by the microphone circuits) from tripping the KWM-2/2A into transmit function. Some of the receiver output audio voltage is connected through C235 to ANTI-VOX GAIN control R45. Signal from the slider of this potentiometer is rectified by the antiVOX rectifier, which is the other diode of V14. Negative dc output voltage from the antiVOX rectifier, connected to the grid of V4B, provides the necessary antiVOX threshold. ANTI-VOX GAIN control R45 adjusts the value of the antiVOX voltage threshold so that loudspeaker output will not produce enough positive dc output from the VOX rectifier to exceed the negative dc output from the antiVOX rectifier and cause V4B to actuate K2. However, speech energy into the microphone will cause the positive VOX voltage to overcome the negative antiVOX voltage and produce the desired action of K2.



Location of Adjustments
Figure 4-1

section 4
service instructions

4.1 GENERAL

Included in this section are signal tracing procedures, alignment and neutralization procedures, and voltage and resistance measurements. If any soldered parts are removed or replaced at terminals to which semiconductor diodes are connected, be sure to attach an alligator clip to the diode lead. This acts as a heat sink to protect the diode.

To remove the transceiver chassis from the cabinet, lift the lid and remove the two Phillips-head screws located between the lid fasteners. Remove the four feet and the screw located midway between the rear feet. From the rear, push the chassis forward until the front panel protrudes from the cabinet about an inch. Grasp the front panel at the edges, and carefully slide the chassis out of the cabinet.

4.2 TRANSMITTER SIGNAL TRACING

Table 4-1 lists appropriate signal generator connection points and normal signal levels. Figure 4-1 shows location of adjustments. Before making measurements, set EMISSION switch to USB, disable the power amplifier by disconnecting the jumper between J5 and J6, and disconnect the +800-volt dc plate voltage

Table 4-1. Transmitter Signal Levels.

SIGNAL GENERATOR CONNECTION POINT	BAND-SWITCH POSITION	SIGNAL GENERATOR FREQUENCY	SIGNAL GENERATOR OUTPUT VOLTAGE
V8-2 (grid)	3.8	3.9 MHz	0.5 volt
	7.2	7.3 MHz	0.41 volt
	14.2	14.3 MHz	0.5 volt
	21.4	21.5 MHz	0.2 volt
	28A	28.6 MHz	0.75 volt
V7-1 (grid)	3.8	3.9 MHz	40,000 microvolts
	7.2	7.3 MHz	22,000 microvolts
	14.2	14.3 MHz	43,000 microvolts
	21.4	21.5 MHz	30,000 microvolts
	28A	28.6 MHz	32,000 microvolts
	28B, 28C	According to crystal used	
V6-2 (grid)	14.2	3.055 MHz	32,000 microvolts
V5-2 (grid)	14.2	3.055 MHz	62,000 microvolts
V4A-6 (grid)	14.2	455 kHz	12,000 microvolts
For the following, disconnect signal generator, remove J16 short, set EMISSION switch to TUNE, and adjust MIC GAIN for grid current threshold. Measure with ac vtvm or calibrated oscilloscope.			
V3A-7 (cathode)	Any	*1750 Hz	0.014 volt
V3A-9 (grid)	Any	*1750 Hz	0.06 volt
V11B-9 (grid)	Any	*1750 Hz	2.8 volts
For the following, turn EMISSION switch to USB, and connect audio oscillator to J11 through a 40-dB pad. Set MIC GAIN fully clockwise, and adjust audio oscillator output for pa grid current threshold. Measure input at oscillator output with ac vtvm.			
V1A-9 (grid) or J11 PHONE PATCH	Any	1500 Hz	35 millivolts through a 40-dB pad

Table 4-1. Transmitter Signal Levels (Cont).

SIGNAL GENERATOR CONNECTION POINT	BAND-SWITCH POSITION	SIGNAL GENERATOR FREQUENCY	SIGNAL GENERATOR OUTPUT VOLTAGE
For the following, short J16 to ground, peak EXCITER TUNING for each band, and measure at test point with vtvm.			
V6-3	3.6		1.0 to 1.8 volts
	7.0		1.0 to 1.4 volts
	14.0		1.0 to 1.4 volts
	21.2		1.0 to 1.4 volts
	28.5		1.0 to 1.4 volts
V5-2 or 7	Vfo set at 100		1.0 to 1.4 volts
Wiper of R15	Any		1.0 to 1.4 volts
*Frequency of internal tone oscillator.			

lead from the power supply. Set meter switch to GRID. Peak EXCITER TUNING, and turn VOX GAIN control full counterclockwise. Short PTT jack J16 to ground to key the KWM-2/2A to transmit. Connect signal generator output to points indicated in table 4-1, and adjust signal generator output attenuator until pa grid current just begins to show on the meter. Attenuator reading is signal voltage necessary at that point. Voltages given in the table are nominal and may vary ±20 percent. Each time, be careful to set signal generator to frequency shown in the table. Oscillator output voltage may be measured with a vacuum-tube voltmeter.

4.3 RECEIVER SIGNAL TRACING

Table 4-2 lists significant test points and normal signal levels. Figure 4-1 shows location of test points and adjustments. All rf and if measurements were made be connecting a vacuum-tube voltmeter to the AVC bus and increasing signal generator output until the AVC threshold is reached. The AVC threshold voltage is the point at which the dc vtvm indication just changes with increased signal level. The receiver was tuned to 14.1 MHz for these measurements, and a test signal injected at indicated test points. Signal voltage values are taken from signal generator output attenua-

Table 4-2. Receiver Signal Levels.

TEST POINT	FREQUENCY	VOLTAGE	TEST POINT	FREQUENCY	VOLTAGE
V15B-8	455 kHz	1.1 volts	V13B-8	High-frequency oscillator injection signal (17.155 MHz)	*1.8 to 3.0 volts
V15B-9	455 kHz	*1.4 volts			
V3B-6	455 kHz	8000 microvolts	V13B-9	14.1 MHz	55 microvolts
V1B-6	455 kHz	220 microvolts	V7-1	14.1 MHz	6.5 microvolts
V17B-9	2.5-2.7 MHz	*0.6 volt	J2 (RCVR ANT) or J1 (RF OUT)	14.1 MHz	2.3 microvolts
V17B-8	3.055 MHz	180 microvolts			
*Oscillator injection voltage, measured with rf vacuum-tube voltmeter.					

tor. All values are nominal and may vary ±20 percent without degrading performance.

4.4 VOLTAGE AND RESISTANCE MEASUREMENTS

Table 4-3 lists voltage and resistance of all tube sockets of the KWM-2/2A except that of the vfo tube, V301. DO NOT OPEN the oscillator can. Refer to figure 7-2 for location of tube sockets. Measurements were made under the following conditions:

a. All measurements made with a vtvm and with all tubes in sockets. Unless otherwise noted in table, all measurements made with R. F. GAIN at maximum, A. F. GAIN at minimum, EMISSION switch in USB position, BAND switch in 14.2 position, vfo dial at 100, OFF-ON-NB-CAL switch in ON position. All voltages on transmitter tubes are taken with PTT jack J16 shorted to ground and MIC GAIN control full counterclockwise, but not far enough to close S10.
b. Resistances of less than 0.9 ohm listed as zero.
c. Resistance measurements made with power supply plug removed from J13.
d. All measurements made from tube socket pins to ground.
e. When two voltages are given for same tube pin, the first is for receive condition and the second for transmit condition.

Warning

800 volts dc is present on rear power connector J13 (pin 2) and inside pa compartment.

Table 4-3. KWM-2A Transceiver, Voltage and Resistance Measurements.

TUBE		PIN NUMBER									PLATE CAP
		1	2	3	4	5	6	7	8	9	
V1	DC V	275/1.5	165/1.4	2.6	-	0	-1.6/-20	0.40	37/35	-0.31/-0.35	
	AC V	(1)	(2)	(3)	6.3	0					
	RES	10 kΩ	36 kΩ	10Ω to 1 kΩ	0	0	3.5 MΩ	180Ω	80 kΩ	1 MΩ	
V2	DC V	270/245	0	**130	-	0	**140	**4.2	130/115	130/115	
	AC V		**6.5 (4)		6.3	0					
	RES	10 kΩ	600 kΩ	120 kΩ	0	0	60 kΩ	∞	7 kΩ	58 kΩ	
V3	DC V	220/1.5	145/1.4	0.5/0	-	0	-1.5/-17	5.7/7.5	0/180	0	
	AC V		(5)		6.3	0		(6)	(7)	(8)	
	RES	15 kΩ	36 kΩ	50Ω	0	0	3.2 MΩ	1 kΩ	20/29 kΩ	0 to 250 kΩ	
V4	DC V	0/250	0/135	0.1/1.7	-	0	-1.0/-1.0	18/0	275/72	0/-0.8	
	AC V		(9)	(10)	6.3	0	(11)	(12)	(13)		
	RES	11 kΩ	18 kΩ	92 to 101Ω	0	0	1.5 MΩ/750 kΩ	2 kΩ	36 kΩ	∞	
V5	DC V	275/215	-44/-0.05	0/2.1	0	0	275/215	-44/0.05	0/2.1	-	
	AC V	(14)	(15)	(16)	0	0	(14)	(15)	(16)	6.3	
	RES	12 kΩ	300 kΩ	250Ω	0	0	12 kΩ	300 kΩ	250Ω	0	
V6	DC V	0.3/220	-6.0/0	0/2.0	0	0	0.3/220	-2.9/0.5	0/2.0	0	
	AC V	(17)			6.3	6.3	(17)			0	
	RES	25/12 kΩ	90 kΩ	220Ω	0	0	25/12 kΩ	100 kΩ	220Ω	0	
V7	DC V	-1.5/-1.1	0	0	0	270/240	150/125	0			
	AC V			6.3	0						
	RES	2.5 MΩ	0	0	0	12 kΩ	30 kΩ	0			
V8	DC V	0/4	-65/0	0.3/180	0	0	290/260	0	0.3/180	-65/0	
	AC V			(18)	0	6.3					
	RES	150Ω	28 kΩ	23 kΩ	0	0	10 kΩ	0	23 kΩ	28 kΩ	

Table 4-3. KWM-2A Transceiver, Voltage and Resistance Measurements (Cont).

TUBE		PIN NUMBER									PLATE CAP
		1	2	3	4	5	6	7	8	9	
V9	DC V	0/0.1	0	0/240	0	-65	0/0.1	0	0		
	AC V			(19)				6.3			∞
	RES	2Ω	0	13/15 kΩ	2Ω	40 kΩ	2Ω	0	0		
V10	DC V	0/0.1	0	0/240	0	-65	0/0.1	0	0		
	AC V			(19)				6.3			∞
	RES	2Ω	0	13 k/15 kΩ	2Ω	40 kΩ	2Ω	0	0		
V11	DC V	85/75	-9/-8	81/75	0	0	180/165	0	2.2/2.0	0	
	AC V				6.3	0					
	RES	55 kΩ	1 MΩ	230 kΩ	0	0	18 kΩ	0	1 kΩ	450 kΩ	
V12	DC V	275/1.5	0/-0.1	280/1.5	0	0	280/1.5	15/0.1	100/0.4	120/-1.5	
	AC V				6.3	0		*0.6 (20)			
	RES	10 kΩ	1 MΩ	130 kΩ	0	0	250 kΩ	1 MΩ	6.8 kΩ	60 kΩ	
V13	DC V	155/1.5	2.8/2.5	195/180	0	0	290/260	0	1.8/0	0/-70	
	AC V			(21)	6.3	0					
	RES	20 kΩ	1 MΩ	42 kΩ	0	0	9 kΩ	0	150Ω	100 kΩ	
V14	DC V	-1.0	0	0.8/1.0	0	0	-0.1	90/82	0	0.7/0.6	
	AC V	(22)	(23)	(24)	6.3	0	(25)	(26)	(27)	(28)	
	RES	∞	0 to 500 kΩ	∞	0	0	270 kΩ	110 kΩ	220 to 485 kΩ	330Ω	
V15	DC V	-1.5/-20	2.8/2.5	2.8/2.5	0	0	-1.5/-20	130/180	0/-64	1.5/0	
	AC V				6.3	0					
	RES	2.2 MΩ	5.6 kΩ	5.6 kΩ	0	0	2.2 MΩ	45 kΩ	1 MΩ	850Ω	
V16	DC V	0/0	-0.8/-0.8	82/80	0	0	2.2/2.0	0	130/120	182/170	
	AC V	(29)	(30)		6.3	0					
	RES	0	2.3 MΩ	230 kΩ	0	0	68Ω	470 kΩ	25 kΩ	12 kΩ	
V17	DC V	0.5/0.3	1.7/1.5	0.5/0.3	0	0	-1.3	280/90	0/-64	3.8/0.2	
	AC V				0	6.3	(31)	(32)		(33)	
	RES	∞	1.5 kΩ	∞	0	0	2.3 MΩ/400 kΩ	8.5/300 kΩ	100 kΩ	1 kΩ	

*OFF-ON-NB-CAL switch in the CAL position.

**EMISSION switch in the TUNE position.

(1) Voltage at V1-1 may vary more than 20%. Voltage depends on RCVR GAIN ADJ (R132) setting.

(2) Voltage and resistance at V1-2 may vary more than 20%. Voltage depends on RCVR GAIN ADJ (R132) and S METER ZERO (R121) settings. Resistance depends on S METER ZERO (R121) setting.

(3) Voltage at V2-3 may vary more than 20%. Voltage and resistance depend on RCVR GAIN ADJ (R132) setting.

(4) Resistance at V2-2 is 640 kΩ (±20%) if R51 and R52 are 390 kΩ each. Refer to (1) in illustrations section.

(5) Voltage and resistance at V3-2 may vary more than 20%. Voltage and resistance depend on S METER ZERO (R121) setting.

(6) Voltage at V3-7 may vary more than 20%. Voltage depends on MIC GAIN (R8) setting.

(7) Voltage and resistance at V3-8 may vary more than 20%. Voltage depends on MIC GAIN (R8) setting. Resistance depends on polarity of ohmmeter and value of R18 used. Smaller resistance is with positive lead of ohmmeter connected to ground. Resistance is 22.5 kΩ, or 31.5 kΩ if R18 is 47 kΩ. Refer to (12) in illustrations section.

(8) Voltage at V3-9 may vary more than 20%. Voltage and resistance depend on MIC GAIN (R8) setting.

(9) Voltage at V4-2 is 0/95 Vdc (±20%) and resistance is 23 kΩ (±20%) if R18 is 47 kΩ. Refer to (12) in illustrations section.

Table 4-3. KWM-2A Transceiver, Voltage and Resistance Measurements (Cont).

(10) Voltage and resistance of V4-3 may vary more than 20%. Voltage and resistance depend on ALC ZERO (R30) setting and R38 value. Resistance is 81 to 96Ω (±20%) if R38 is 68Ω. Resistance is 73 to 92Ω (±20%) if R38 is not installed. Refer to 12 in illustrations section.

(11) Resistance at V4-6 depends on polarity of ohmmeter. Larger resistance is with positve lead of ohmmeter connected to ground.

(12) Resistance at V4-7 is 3 kΩ (±20%) if R46 is 3300Ω. Refer to 9 in illustrations section.

(13) Voltage at V4-8 is 275/170 Vdc (±20%) and resistance is 21 kΩ (±20%) if R202 is not in V4B plate circuit. Refer to 9 in illustrations section.

(14) Voltage at V5-1 and V5-6 is 275/250 Vdc (±20%) and resistance is 9 kΩ (±20%) if L3 is in plate circuit instead of R197. Refer to 16 in illustrations section.

(15) Voltage at V5-2 and V5-7 is -64/-0.05 Vdc (±20%) and resistance is 480 kΩ (±20%) if R212 has not been added. Refer to 14 in illustrations section.

(16) Voltage and resistance at V5-3 and V5-8 may vary more than 20%. Voltage and resistance depend on 1st MIX BAL (R24) setting.

(17) Resistance at V6-1 and V6-6 depends on polarity of ohmmeter and values of R143 and R18 used. Larger resistance is with positive lead of ohmmeter connected to ground. Resistance is 28 kΩ or 12 kΩ (±20%) if R18 is 47 kΩ. Resistance is 24 kΩ or 11 kΩ (±20%) if R143 is 1500Ω. Resistance is 27 or 11.5 kΩ (±20%) if R18 is 47 kΩ and R143 is 1500Ω. Refer to 22 and 12 in illustrations section.

(18) Voltage at V8-3 is -0.4/145 Vdc (±20%) and resistance is 30 kΩ (±20%) if R105 is 22 kΩ. Refer to 31 in illustrations section.

(19) Resistance at V9-3 and V10-3 depends on polarity of ohmmeter. Smaller resistance is with positive lead of ohmmeter connected to ground.

(20) Resistance and voltage at V12-7 depend on position of OFF-ON-NB-CAL switch and the polarity of the ohmmeter. Dc voltage and resistance are normally checked with the OFF-ON-NB-CAL switch in the ON position. The smaller resistance is with the positive lead of ohmmeter connected to ground. (Because of very high resistance of R11, reversal of ohmmeter leads may not make a noticeable change in readings.) Ac voltage is measured with the OFF-ON-NB-CAL switch in the CAL position. Resistance to ground in the CAL position is 1000Ω (±20%).

(21) Voltage at V13-3 is 195/180 Vdc (±20%) and resistance is 51 kΩ (±20%) if R125 is 47 kΩ. Refer to 27B in illustrations section.

(22) Voltage at V14-1 may vary more than 20%. Voltage depends on VOX TIME CONSTANT (R43) setting, ANTI VOX GAIN (R45) setting, and whether or not R199 has been added. Refer to 8 in illustrations section.

(23) Voltage and resistance at V14-2 may vary more than 20%. Voltage and resistance depend on ANTI VOX GAIN (R45) setting.

(24) Voltage at V14-3 may vary more than 20%. Voltage depends on VOX TIME CONSTANT (R43) setting and whether or not R199 has been added. Refer to 8 in illustrations section.

(25) Voltage at V14-6 may vary more than 20%. Voltage depends on VOX TIME CONSTANT (R43) setting and whether or not R199 has been added. Refer to 8 in illustrations section.

(26) Voltage at V14-7 may vary more than 20%. Voltage depends on VOX GAIN (R39) setting and whether or not R201 has been added. Refer to 7 in illustrations section.

(27) Voltage and resistance at V14-8 may vary more than 20%. Voltage and resistance depend on VOX GAIN (R39) setting and whether or not R201 has been added. If R201 has not been added, resistance is 0 to 250 kΩ (±20%); with no VOX input, voltage at V14-8 is 0 Vdc. Refer to 7 in illustrations section.

(28) Voltage at V14-9 may vary more than 20%. Voltage depends on VOX GAIN (R39) setting and whether or not R201 has been added. Refer to 7 in illustrations section.

(29) Voltage at V16-1 is 3.0/2.8 Vdc (±20%) and resistance is 5600Ω (±20%) if V16-1 is connected to V15-2. Refer to 26 in illustrations section.

Table 4-3. KWM-2A Transceiver, Voltage and Resistance Measurements (Cont).

(30)	Voltage at V16-2 is 1.8/1.5 Vdc (±20%) if V16-1 is connected to V15-2. Refer to 26 in illustrations section.
(31)	Voltage at V17-6 is -1.5/-1.6 Vdc (±20%) and resistance is 2.3 MΩ/2200Ω (±20%) if R190 is 2200Ω and R211 is not installed. Resistance depends on polarity of ohmmeter. Larger resistance is with positive lead of ohmmeter connected to ground. Refer to 37 in illustrations section.
(32)	Voltage at V17-7 is 300/-4 Vdc (±20%) and resistance is 8500Ω/100 kΩ (±20%) if R193 is 220 kΩ, R194 is 470 kΩ, and CR9 is installed. Resistance depends on polarity of ohmmeter. Smaller resistance is with positive lead of ohmmeter connected to ground. Voltage at V17-7 is 300/-4 Vdc (±20%) and resistance is 8500Ω (±20%) if CR9 is not installed. Refer to 19 in illustrations section.
(33)	Voltage at V17-9 is 3.8/0.2 Vdc (±20%) if R193 is 220 kΩ and R194 is 470 kΩ. Refer to 19 in illustrations section.

4.5 FIELD ALIGNMENT PROCEDURES

4.5.1 Field Alignment

Field alignment consists of a few simple adjustments and is intended as a means of restoring peak performance of a working KWM-2/2A. No alignment procedure should ever be performed just for the sake of alignment. Adjustments should be made only when there is reason to suspect that performance is not up to standard. All field alignment adjustment points can be reached by raising the cabinet lid, and the KWM-2/2A does not have to be removed from its cabinet. Refer to figure 4-1 for adjustment locations.

4.5.2 Test Equipment Required

Test equipment required for field alignment of the KWM-2/2A are a 50-ohm, 100-watt dummy load and a receiver with a 100-kHz crystal calibrator and an S-meter.

4.5.3 RF Circuits Peaking

a. Connect dummy load to KWM-2/2A output jack J1. Set KWM-2/2A controls as follows: OFF-ON-NB-CAL to ON, BAND to 28A, EMISSION to LSB, MIC GAIN to OFF, INCREASE LOADING to 50Ω, and tuning dial to 100.
b. After 5-minute warmup period, set EMISSION switch to TUNE and meter switch to GRID. Adjust MIC GAIN and EXCITER TUNING to produce midscale indication on meter. Set meter switch to PLATE, and dip plate current with P. A. TUNING. Reset meter switch to GRID. Peak the four (E)28 trimmer capacitors for maximum grid current. Refer to figure 4-1 for trimmer locations.
c. Set BAND switch to 21.2 and tuning dial to 100. Adjust MIC GAIN and EXCITER TUNING for midscale grid current. Set meter switch to PLATE, and dip plate current. Reset meter switch to GRID. Peak the four (D)21 trimmer capacitors for maximum grid current.
d. Set BAND switch to 14.0 and tuning dial to 150. Adjust MIC GAIN and EXCITER TUNING for midscale grid current. Set meter switch to PLATE and dip plate current. Reset meter switch to GRID. Peak the four (C)14 trimmer capacitors for maximum grid current.
e. Set BAND switch to 7.0 and tuning dial to 150. Adjust MIC GAIN and EXCITER TUNING for midscale grid current. Set meter switch to PLATE, and dip plate current. Reset meter switch to GRID. Peak the four (B)7.0 trimmer capacitors for maximum grid current.
f. Set BAND switch to 3.6 and tuning dial to 100. Adjust MIC GAIN and EXCITER TUNING for midscale grid current. Set meter switch to PLATE, and dip plate current. Reset meter switch to GRID. Peak the four (A)3.5 trimmer capacitors for maximum grid current.
g. Set EMISSION switch to LSB.

4.5.4 VFO Sideband Frequency Shift Adjustment

Caution

Do not make this adjustment unless switching from one sideband to the other makes readjustment of tuning dial necessary to keep output signal from shifting.

Set the EMISSION switch to LSB and the OFF-ON-NB-CAL switch to CAL, and turn the main tuning dial to zero beat with the calibrate signal at 3.7 MHz. Without further movement of the main tuning dial, switch the EMISSION switch to USB and adjust the vfo capacitor (C308) to obtain zero beat.

4.5.5. Carrier Balance (Null) Adjustment

a. Set BAND switch to 3.6 and tuning dial to 100.
b. Set EMISSION switch to LSB, and turn MIC GAIN full counterclockwise until it clicks. Key KWM-2/2A by turning VOX GAIN counterclockwise until it clicks or by grounding push-to-talk (ptt) line at jack J16.
c. Loosely couple receiver antenna lead to dummy load, and peak EXCITER TUNING and P. A. TUNING to obtain a midscale reading on receiver S-meter.
d. Adjust CARRIER BAL potentiometer R15 and trimmer capacitor C9 for minimum indication on receiver S-meter. These adjustments interact, so adjust first one and then the other until neither produces any further decrease in S-meter indication.
e. Switch EMISSION switch back and forth between USB and LSB to see that the carrier suppression is about the same for either sideband. If it is not, repeat step d until carrier suppression is about equal for both sidebands.
f. Remove receiver antenna lead from near dummy load, and remove short from PTT line.

4.5.6 ALC Zero Adjustment

a. Set EMISSION switch to TUNE position. Tune and load transmitter to 14.1 MHz. Set EMISSION switch to USB.
b. Set MIC GAIN control to minimum, and set meter switch to ALC position. Short ptt jack J16 to ground.
c. Adjust ALC ZERO potentiometer (inside cabinet) until meter indicates zero. Remove ptt short.

4.5.7 First Mixer Balance Adjustment

a. Set BAND switch to 21.0 and tuning dial to 0. Tune and load KWM-2/2A into dummy load, then set EMISSION switch to LSB and MIC GAIN to counterclockwise limit until switch clicks.
b. Loosely couple receiver antenna lead to dummy load. Tune receiver across 21.455 MHz until signal is heard.
c. Adjust mixer balance potentiometer R24 and trimmer capacitor C21 for minimum signal. These adjustments interact, so adjust first one and then the other until neither produces any further decrease in output.

4.5.8 S-Meter Zero Adjustment

a. Set BAND switch to 14.2 and tuning dial to 100. Connect output of 100-kHz crystal calibrator in test receiver to 50-ohm dummy load. Peak KWM-2/2A EXCITER TUNING for maximum KWM-2/2A S-meter indication. Set R. F. GAIN to clockwise limit, and turn off 100-kHz crystal calibrator.
b. Short RCVR ANT. jack J2 to ground. Adjust S METER ZERO potentiometer R121 for zero indication on S-meter.

4.5.9 Crystal Calibrator Adjustment

a. Tune KWM-2/2A to zero beat with carrier of station WWV at 15.0 MHz at a time when station WWV is not transmitting a tone.
b. Set OFF-ON-NB-CAL switch to CAL. Adjust CAL ADJUST trimmer C76 (inside cabinet on chassis) for zero beat of calibration signal.

4.5.10 VFO End-Point Adjustment

With the BAND switch set to 3.6, the KWM-2/2A should be in zero beat with the calibrator signal at 3600 kHz (0 on the KWM-2/2A dial)

and 3800 kHz (200 on the KWM-2/2A dial). The hairline indicator should be vertical and in the dial window. If there is no end-point spread, but the hairline is slanted to left or right, loosen the setscrews on the dial hub, and slip the dial mechanism on the oscillator shaft until zero beat occurs with the hairline vertical.

If there is end-point spread, correct it as follows before correcting a slanting hairline.

a. Zero beat the KWM-2/2A with the 100-kHz calibrator signal at 3800 kHz and set KWM-2/2A hairline right on 200.
b. Zero beat the KWM-2/2A with the 100-kHz calibrator signal at 3600 kHz. Note difference in kHz between hairline and 0 on KWM-2/2A dial (for example, -1.5 kHz).
c. Without moving hairline, move dial to opposite side of 0 by an amount equal to frequency difference noted above (for example, +1.5 kHz).
d. Adjust L302 for zero beat. It is located on top of vfo can.
e. Set KWM-2/2A hairline over 0.
f. Check zero beat at 200 oh dial (3800 kHz). If zero beat does not occur at exactly 200, repeat steps a through e.
g. If, after adjustment of end points, hairline is not vertical in dial window, loosen setscrews on dial hub, and move dial with respect to the oscillator shaft so that zero beat occurs with end points (0 and 200) set at center.
h. After these adjustments of vfo calibration, recheck vfo sideband frequency shift adjustment according to paragraph 4.5.4.

4.5.11 VFO Dial Centering

a. Tune the KWM-2/2A to 14.3 MHz LSB, and set function switch to CAL.
b. Tune the KWM-2/2A to zero beat.
c. With the hairline vertical, 100 should be exactly under the hairline. If not, loosen the two setscrews on the dial hub (accessible from the bottom of the chassis with the cabinet removed), and set 100 exactly under the hairline.
d. Retighten the setscrews.

4.5.12 VFO Overtravel

a. With the hairline vertical, turn the main tuning dial to the end stop past 0.
b. Note the overtravel between the hairline and 0.
c. Turn the main tuning dial to the end stop past 200, and note the overtravel.
d. If the overtravel is not equal, loosen the two setscrews in the vfo end-stop collar (accessible from the bottom of the chassis with the cabinet removed).
e. Set the main tuning dial for half the total difference, and tighten the setscrews.
f. This completes the field alignment of the KWM-2/2A.

4.6 LABORATORY ALIGNMENT PROCEDURES

4.6.1 Laboratory Alignment

Laboratory alignment of the KWM-2/2A is performed only when extensive component replacement has taken place or when the KWM-2/2A is being placed in service after a long period of storage. These adjustments should be performed by a skilled technician. Laboratory alignment requires the KWM-2/2A to be removed from its cabinet. Refer to paragraph 4.1 for removal instructions.

4.6.2 Test Equipment Required

Test equipment required for laboratory alignment of the KWM-2/2A are a 50-ohm, 100-watt dummy load; a receiver with a 100-kHz crystal calibrator and an S-meter; an rf signal generator with a calibrated output attenuator; and a vtvm with an rf probe.

4.6.3 Transmitting 455-kHz IF Alignment

a. Disable the screen circuit of the pa tubes by unsoldering one end of the jumper between PA DISABLE jacks J5 and J6. Remove V301 from its socket.
b. Connect an rf vtvm from pin 2 of V5 to ground.
c. Set OFF-ON-NB-CAL switch to ON. Set EMISSION switch to TUNE. Turn MIC GAIN off.
d. Any voltage reading on the vtvm is due to carrier. Roughly adjust carrier balance

potentiometer R15 and capacitor C9 for minimum vtvm indication.

e. Set MIC GAIN to full on.
f. Adjust the slug of T1 for peak vtvm reading. Adjust filter input trimmer C54 for peak vtvm reading.
g. Disconnect vtvm, replace V301, and reconnect the jumper between the PA DISABLE jacks.
h. After performing the above procedure, adjust the carrier balance according to paragraph 4.5.5.

4.6.4 Bandpass IF Alignment

a. Set OFF-ON-NB-CAL switch to ON. Set EMISSION switch to TUNE. Tune and load KWM-2/2A into a dummy load at 14.3 MHz. Switch meter to GRID position.
b. Make a swamping tool by connecting a 1000-ohm resistor and a 0.01- μF capacitor in series and connecting clips to their free pigtails. Connect the swamping tool across terminal 3 (secondary winding) of T2 to ground. This terminal is connected to the T2 end of coupling capacitor C25.
c. Keep grid current to approximately mid-scale or lower by adjusting MIC GAIN control, and peak the primary of T2. The primary slug for T2 is at the bottom of the can. Use grid current as peak indication.
d. Remove the swamping tool from the secondary of T2, and connect it across terminals 1 and 2 (primary winding) of T2 (between pins 1 and 6 of first mixer V5). Peak the secondary of T2 (slug at top of shield can). Remove the swamping tool.
e. Retune and reload at 14.255 MHz. Without swamping any of the tuned circuits, peak L4 for grid current indication.

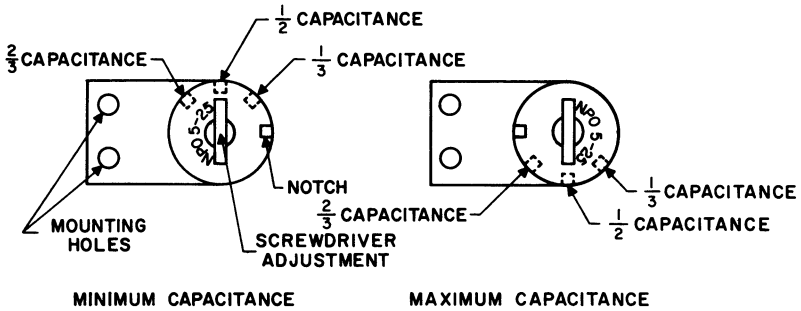
4.6.5 RF Circuits Alignment

a. Adjust all ceramic trimmer capacitors, including the three below the chassis, to one-half maximum capacitance, except as follows: DO NOT change the setting of CARRIER BAL capacitor, and set 3.8-MHz trimmers C70, C37, C109, and C130 to two-thirds maximum capacitance. Maximum capacitance of these trimmers occurs when the large square notch is set midway between the two mounting screws. One-half capacitance occurs with the notch pointed directly at the front or rear of the unit. Two-thirds capacitance occurs with the notch turned off the half-point toward the mounting screws. Refer to figure 4-2.
b. Connect the KWM-2/2A output to a 50-ohm dummy load. Set the dial to 100, BAND switch to 3.6, and EXCITER TUNING control to 2.1 on the logging (lower) scale. Set meter switch to GRID and EMISSION switch to LOCK.

Caution

Keep MIC GAIN setting low to protect pa. Check frequently to be sure the pa is resonated.

c. Adjust MIC GAIN control for approximately 1/4-scale grid current. Tune and load the pa into the dummy load.



Ceramic Trimmer Capacitor
Figure 4-2

d. Adjust all slugs except the rear one for maximum grid current. Reduce MIC GAIN setting as necessary to keep the grid current indication below 1/4 scale. Make no adjustment to rear slug L14 at this time. Return MIC GAIN control to minimum setting.

Note

If slugs must be turned more than two turns in either direction, the unit has a defect other than alignment. Troubleshoot the unit.

e. Set dial to 150, BAND switch to 7.0, and EXCITER TUNING to 3.6 on the logging (lower) scale.
f. Adjust MIC GAIN for 1/4-scale grid current. Tune and load the pa into the dummy load. Adjust the 7-MHz trimmers for peak grid current, keeping grid current below 1/4 scale with MIC GAIN control. Return MIC GAIN to minimum position.
g. Set BAND switch to 14.0, dial to 150, and EXCITER TUNING to 6.1 on logging (lower) scale. Adjust MIC GAIN for 1/4-scale grid current. Tune and load pa into dummy load.
h. Tune rear slug L14 for maximum grid current, keeping the current at 1/4 scale or less with the MIC GAIN control.
i. Adjust all 14-MHz trimmers for peak grid current, keeping current below 1/4 scale with MIC GAIN control. Return MIC GAIN control to minimum setting.
j. Set BAND switch to 21.2, dial to 100, and EXCITER TUNING to 7.6 on logging (lower) scale. Set grid current to 1/4 scale, and tune and load the pa into the dummy load.
k. Adjust all 21-MHz trimmers for peak grid current, keeping grid current at 1/4 scale or less with the MIC GAIN control. Return the MIC GAIN control to minimum setting.
l. Set BAND switch to 28A, dial to 100, and EXCITER TUNING to 9.0 on the logging (lower) scale. Set grid current to 1/4 scale with MIC GAIN control, and tune and load the pa into dummy load.
m. Adjust all 28-MHz trimmers for maximum grid current, keeping grid current at 1/4 scale with the MIC GAIN control. Return MIC GAIN to minimum position.

4.6.6 Crystal Oscillator Alignment

a. This procedure is a refinement that peaks the oscillator plate circuits in the center of the 200-kHz tuning range. Turn the tuning dial to 100.
b. Set BAND switch to 28A. Set EMISSION switch to TUNE. Increase MIC GAIN setting, if necessary, to obtain grid current indication. Adjust EXCITER TUNING control for a peak on the pa grid current meter.
c. Repeak the (E)28 trimmer in the crystal oscillator plate circuit.
d. Set the BAND switch to 21.2, and adjust EXCITER TUNING control for peak in grid current.
e. Repeak the (D)21 trimmer in the oscillator plate circuit.
f. Repeat this procedure with BAND switch settings of 14.0, 7.0, and 3.6, adjusting crystal oscillator plate circuit trimmers (C)14, (B)7.0, and (A)3.8 respectively.

4.6.7 VFO Sideband Frequency Shift Adjustment

Refer to paragraph 4.5.4 for vfo sideband frequency shift adjustment procedure.

4.6.8 Carrier Balance (Null) Adjustment

Refer to paragraph 4.5.5 for carrier balance (null) adjustment procedure.

4.6.9 ALC Zero Adjustment

Refer to paragraph 4.5.6 for ALC zero adjustment procedure.

4.6.10 First Mixer Balance Adjustment

Refer to paragraph 4.5.7 for first mixer balance adjustment procedure.

4.6.11 VFO Dial Calibration

Refer to paragraphs 4.5.9 through 4.5.12 for vfo dial calibration and adjustment procedures.

4.6.12 PA Neutralizing

a. Disconnect the high voltage (800 volts) from the transmitter by removing the lead at the power supply.

b. Disable the screen circuit of the pa tubes by unsoldering one end of the jumper between PA DISABLE jacks J5 and J6.
c. Connect a 50-ohm, noninductive, 100-watt dummy load to RF OUT jack J1.
d. Connect a vtvm rf probe across the 50-ohm dummy load.
e. Set the OFF-ON-NB-CAL switch to ON; set the BAND switch to 28A; and set the EMISSION switch to LOCK and the tuning dial to 100. Set the meter switch to GRID.
f. Advance the MIC GAIN control as necessary and adjust the EXCITER TUNING control for maximum grid current.
g. Adjust the P. A. TUNING control for a maximum rf voltage indication on the vtvm. Adjust the MIC GAIN control to keep this indication below 0.5 volt.
h. From the bottom of the chassis, adjust pa neutralizing capacitor C184 (figure 6-3) for a minimum rf indication on the vtvm. This voltage is the pa plate circuit feedthrough and is minimized by neutralization.
i. Remove the vtvm rf probe from the dummy load, reconnect the jumper between the PA DISABLE jacks, and reconnect the high-voltage lead to the power supply.

4.6.13 Driver Neutralizing

a. Set the OFF-ON-NB-CAL switch to OFF. Remove heater voltage from driver tube V8 by unsoldering L29 from C241 (figure 6-3), or, if an old 6CL6 tube with no short circuits is available, clip off its filament pins and substitute it for V8.
b. Connect rf probe to dummy load. Set OFF-ON-NB-CAL switch to ON, BAND switch to 28A, and tuning dial to 100. Set EMISSION switch to LOCK and meter switch to PLATE.
c. Increase MIC GAIN setting, and adjust EXCITER TUNING AND P. A. TUNING controls for maximum voltage across dummy load. This level should be less than 0.3 volt.
d. Adjust driver neutralizing capacitor C117 for a voltage dip. This capacitor is located on the shield partition closest to the shield can. Refer to figure 6-3.
e. Set the OFF-ON-NB-CAL switch to OFF, and replace V8 in its socket.

4.6.14 Feedback Neutralizing

a. Set BAND switch to 28A position and tuning dial to 100, EMISSION switch to TUNE, and meter switch to PLATE position.
b. Adjust EXCITER TUNING control for a peak in pa plate current.
c. Dip the pa plate current with the P. A. TUNING control.
d. Switch to LOCK, and repeat steps b and c.
e. Adjust feedback neutralizing capacitor C120 (on driver-pa shield below chassis and farthest from shield cans, figure 6-3) until pa plate current dip and grid current dip coincide. Readjust the MIC GAIN as necessary to hold pa grid current at about half-scale during this adjustment.
f. Set BAND switch to 21.2, peak EXCITER TUNING control, and dip pa plate current with P. A. TUNING control.
g. Check that pa plate current dip and grid current dip occur at same setting of P. A. TUNING control.
h. Repeat this check on bands 14.2, 7.0, and 3.6.

4.6.15 PA Loading Trimmer Adjustment

These trimmer capacitors are adjusted to provide the required total output capacity for matching 50-ohm antenna loads on the amateur bands with the INCR LOAD control set at the 50Ω mark. Normally, they will not need readjustment since, when the pa is properly loaded, the tuning is relatively broad. If it is determined that adjustment is necessary, proceed as follows:

a. Refer to figure 7-2 for location of the loading trimmers.
b. Connect a 50-ohm nonreactive dummy load to the transceiver RF OUT jack.
c. Set INCR LOAD control to 50Ω mark.
d. Tune to 21.3 MHz, and set EMISSION switch to lock.
e Set MIC GAIN to the point that begins to produce pa grid current. This is grid current threshold.
f. Adjust C155 until pa draws 230-mA plate current at the dip.
g. Tune to 28.6 MHz, and check plate current. If not 230 mA, readjust C155 for best compromise between 21.3 and 28.6 MHz.

h. Tune to 14.150 MHz, and set MIC GAIN as in step e.
i. Adjust C152 as in step f.
j. Tune 7.150 MHz, and set MIC GAIN as in step e.
k. Adjust C153 as in step f.
l. Tune to 3.700 MHz, and set MIC GAIN as in step e.
m. Adjust C154 as in step f.
n. Set OFF-ON-NB-CAL switch to OFF.

4.6.16 Receiving 455-kHz IF Alignment

a. Remove vfo tube V301 from socket, and set OFF-ON-NB-CAL switch to ON.
b. Set EMISSION switch to USB.
c. Connect signal generator to pin 8 of V17B, and set to 455 kHz. Increase signal generator output until S-meter shows slight indication (S3). Rock the signal generator frequency to center the signal at the approximate center of the filter passband.

Note

If a vtvm is available, it may be connected to AVC bus and used as alignment peak indicator.

d. Adjust the slugs of L9 and T5 for peak indication on the S-meter. Reduce signal generator output as necessary to keep S-meter indication low. Repeak L9 and T5 as in any standard alignment procedure.
e. Replace vfo tube.

4.6.17 Receiver RF Gain and S-Meter Zero Adjustment

a. Set receiver to 14.3 MHz, and peak EXCITER TUNING control for maximum output. Set R. F. GAIN control (front panel) to maximum clockwise position. Tune calibrated signal generator to same frequency as receiver.
b. Short RCVR ANT. jack J2 to ground; adjust S METER ZERO potentiometer R121 so S-meter reads zero.
c. Remove short from J2. Using a 50-ohm calibrated signal generator, apply 25 μV to the circuit shown in figure 4-3. Adjust RCVR GAIN ADJUST R132 until S-meter just moves off zero (1/2 S-unit or less).
d. Repeat step b.
e. This completes the laboratory alignment of the KWM-2/2A. Replace it in its cabinet.

4.7 TEST SELECT COMPONENTS

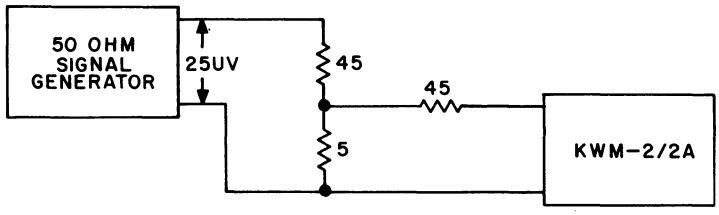
4.7.1 Capacitor C10

a. Connect equipment as required to perform carrier balance (null) adjustment, paragraph 4.5.5.
b. Perform carrier balance adjustment.

Note

In some units C10 may have to be added in parallel with C9 to produce the desired results.

c. If carrier balance adjustment does not produce an rf output of less than 0.2 Vrms, select and replace C10 with a value capacitor that provides less than 0.2 Vrms output.
d. Repeat carrier balance adjustment, paragraph 4.5.5.



Receiver Gain Adjustment Setup
Figure 4-3

4.7.2 Resistor R140

a. Connect equipment as required to perform ALC zero adjustment, paragraph 4.5.6.
b. Perform ALC zero adjustment.
c. Connect a precision multimeter to the PHONE PATCH terminals and measure the 2-tone generator input.
d. Set the MIC GAIN control fully clockwise, and increase the 2-tone input level until ALC threshold is indicated on the KWM-2/2A meter (set at ALC position).
e. If the multimeter indicates more than 5-mV input to the PHONE PATCH terminals, recheck the KWM-2/2A alignment.

Note

If alignment appears normal and more than 5 mVac is indicated, select and replace R140 with a value to give an ALC threshold between 2- and 5-mV 2-tone input.

f. If the multimeter indicates less than 2 mV, select and replace R140 with a value to give an ALC threshold between 2- and 5-mV 2-tone input.

4.7.3 Resistor R162

a. Turn on the KWM-2/2A and set to receive LSB.
b. Select a value of R162 to provide 1.25 Vac at V2A-9.

4.7.4 Resistor R158

a. Connect equipment as required to perform receiver 455-kHz if alignment procedures, paragraph 4.6.16.
b. Set the rf signal generator to 100 μV. Select and replace R158 with a value resistor that provides a KWM-2/2A meter reading of S8 to S9 +10.

4.7.5 Resistor R161

a. Connect equipment as required to perform rf circuit peaking procedures, paragraph 4.5.3.
b. Set EMISSION switch to TUNE (any frequency) and PA LOAD control to 50Ω, and tune the KWM-2/2A.
c. Set EMISSION switch to LSB and MIC GAIN control to OFF. Set meter switch to GRID.
d. Set EMISSION switch to LOCK, and adjust the MIC GAIN control for grid current threshold, then set meter switch to PLATE.
e. Connect an ammeter in series with J13-2 and +800-Vdc power source. Check that ammeter reads 220 mA. The KWM-2/2A meter should read 230 mA. (KWM-2/2A meter reads cathode current; approximately 10 mA of cathode current is screen current.)
f. If KWM-2/2A meter does not read 230 mA, select and replace R161 with a value resistor that provides 230-mA current.

4.8 DIAL CORD REPLACEMENT (Refer to figure 4-4.)

Note

Be careful not to damage the band-switch cord or loading capacitor cord. Frayed dial cords should be replaced. Frayed cords can provide rf loops that might affect transceiver operation.

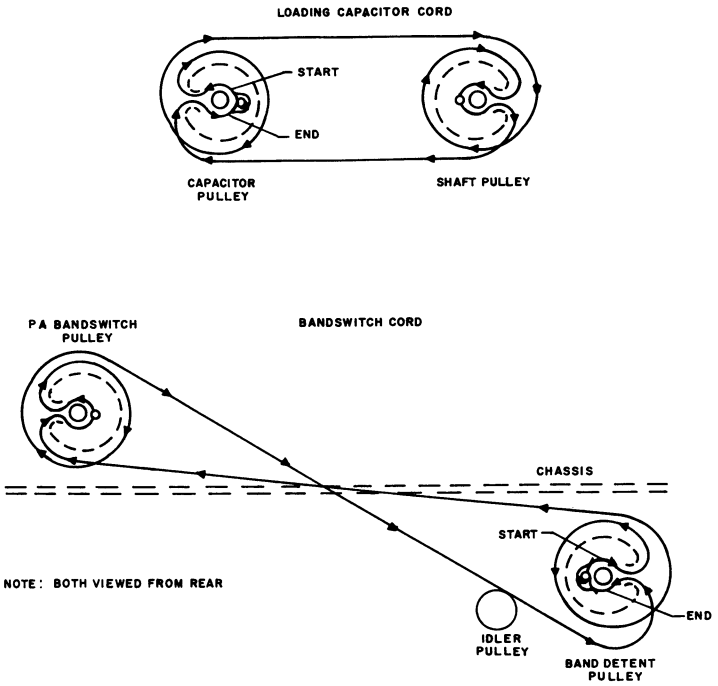
4.8.1 Band-Switch Cord

a. Remove the power cable from the KWM-2/2A.
b. Using a knife blade or small screwdriver, pry open the tabs, and remove the broken or defective cord from the two band-switch pulleys. The band-switch pulleys are located near the front panel, one above and the other below the chassis. Loosen the idler pulley so it will not be in the way during restringing.
c. Place the BAND switch in position 1A, and rotate the pa band-switch pulley to the approximate position shown in figure 4-4.

Note

The band detent pulley may not be in the exact same position shown in figure 4-4. Do not reposition this pulley, but assume it to be in the correct position during restringing.

d. Replace the old cord with three feet (9.144 dm) of new cord, Collins part number 432-1009-00. When ordering dial cord, be sure



Dial Cord Stringing Diagram
Figure 4-4

to state the desired length in feet. String the cord according to the band-switch cord illustration in figure 4-4. Make sure cords do not overlap on the pulleys. Pull cord tight, and tie to the tab. Mash the tab down to clamp the cord securely. Tighten the idler gear to bring the cord to tension.

e. Turn the band switch to position 3E, and check to see that the movable contact (rotor blade) of both S7 and S8 (refer to figure 6-1 for location of S7 and S8) are at positions 1 and 2. This may be determined by counting clockwise on the wafer from the X-mark. The X-mark, identified by a blue mark, is located immediately clockwise from the left-hand securing screw on wafer S7. The holes with no terminal lugs should be counted as positions. If the movable contacts are incorrectly positioned, loosen the pa band-switch pulley, and turn the switch to its proper position. Tighten the pa band-switch pulley.

f. Apply a little airplane cement on the dial cord knots to keep them tight. After the cement is dry, trim the loose end back NO CLOSER than one-quarter inch from the knot.

4.8.2 Loading Capacitor Cord

a. Remove the power cable from the KWM-2/2A.
b. Remove the pa cage by unscrewing the five self-trapping Phillips-head screws (located on the bottom side of the chassis) that secure the cage to the chassis.
c. Using a knife or small screwdriver, pry open the tabs, and remove the broken or defective cord from the two loading capacitor pulleys.
d. Manually position the loading capacitor to its fully meshed position and the INCR LOAD control to position 10 on the P.A. TUNING logging scale.
e. String the cord according to the loading capacitor cord illustration in figure 4-4. Make sure cords do not overlap on the pulleys. Pull cord tight, and tie to the tab. Mash the tab down to clamp the cord securely. Tighten the idler gear to bring the cord to tension. Check to make sure that the loading capacitor and INCR LOAD control are still in the positions set up in

step d above. If not, loosen the shaft pulley, mesh capacitor plates manually, and retighten the pulley.

f. Apply a little airplane cement on the knots in the dial cords to help hold them tight. After the cement is dry, trim the loose ends back NO CLOSER than one-quarter inch from the knot.

4.9 RELAY MAINTENANCE

Gradual accumulations of dust, lint, or oxidation may cause the contacts of relays to become high-resistance connections and degrade switching functions. Relays K2 and K4 are plug-in types and can be removed for cleaning. Relay K3 is wired in place and cannot be removed except by disconnecting all leads to it.

If cleaning of the relay contacts is necessary, use a relay contact burnishing tool. If such a tool is not available, use a piece of rough paper soaked in carbon tetrachloride. Be careful not to bend any of the contact springs. DO NOT use files, emery paper, or abrasives, as the silvered surfaces of the contacts are very thin. Observe the contacts in a dental mirror, and press the armature down with thumb or finger. Check that all normally closed contacts have opened before any of the normally open contacts close. If this is not the case, the relay may have to be replaced.

4.10 DIAL LAMP REPLACEMENT

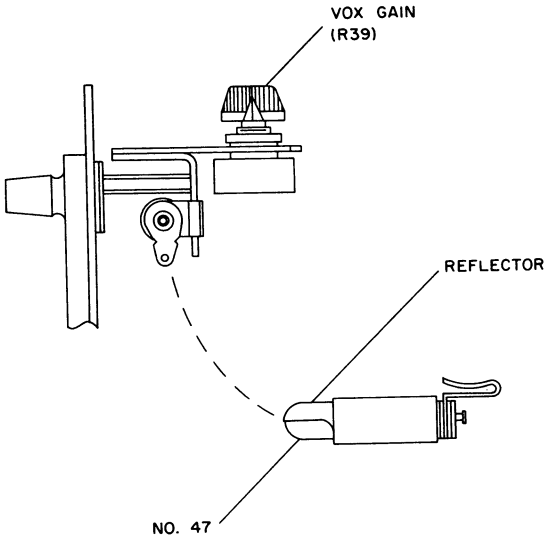
To replace the dial lamp, refer to figure 4-5 for the lamp location. When replacing the lamp, orient the reflector to direct the light forward to illuminate the tuning dial properly.

4.11 METER LAMP REPLACEMENT

To replace the meter lamp, refer to figure 4-6.

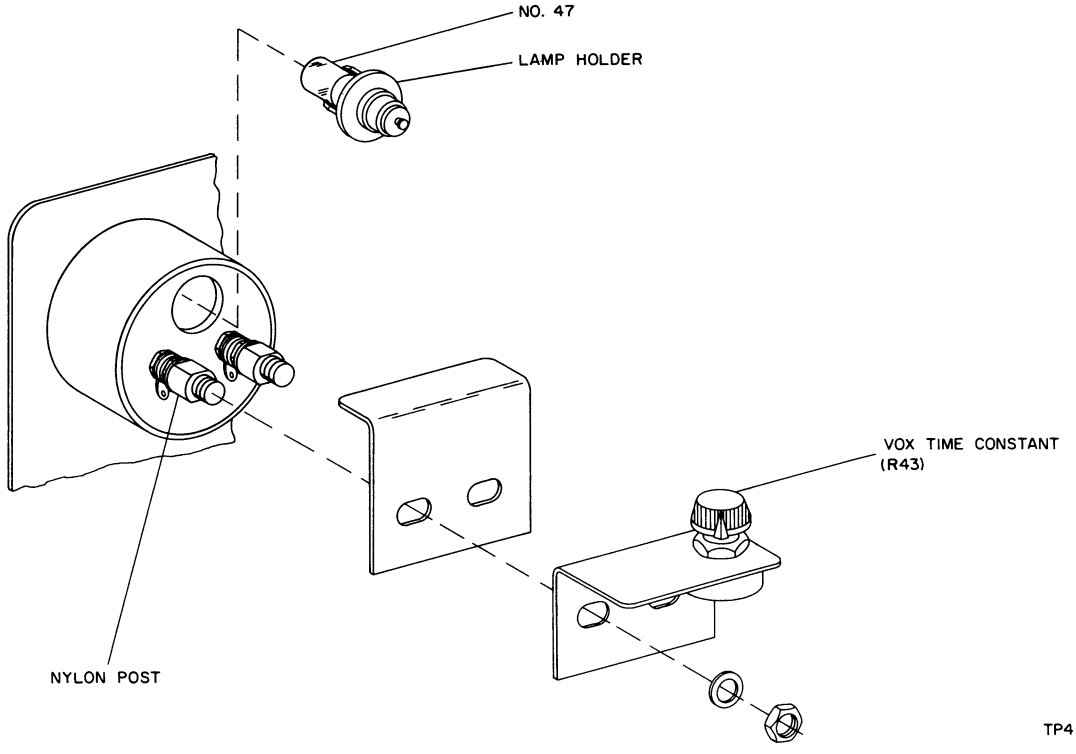
Caution

When removing the mounting hardware from the nylon posts, extreme care is necessary to prevent breaking the post. To remove the lampholder from the meter use a small, flatblade screwdriver between the holder and the meter case.



TP4-3064-013

Dial Lamp Replacement
Figure 4-5



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Meter Lamp Replacement
Figure 4-6

section 5
specifications

5.1 KWM-2 AND KWM-2A TRANSCEIVERS

The KWM-2 and KWM-2A transceivers are capable of covering any frequency within the ranges of 3.4 to 5.0 MHz and 6.5 to 30.0 MHz. With crystals furnished, they cover the entire amateur bands of 80, 40, 20, and 15 meters, the 28.5- to 28.7-MHz portion of the 10-meter band, and WWV at 15.0 MHz. The KWM-2 is equipped with 14 crystal sockets that are selectable from the front panel and provide 14 operating bands, each 200 kHz wide. The KWM-2A differs only in regard to the number of crystal sockets furnished, the method of switching crystals, and slight electrical and mechanical differences related to crystal switching. It is equipped with an extra crystal-mounting board that doubles the number of selectable crystal sockets. Crystals for added coverage may be plugged into spare sockets in either transceiver, or crystals for other bands may be substituted for those furnished.

5.2 REQUIREMENTS FOR OPERATION

Either transceiver requires a power supply such as the 516F-2 or PM-2 for fixed-station operation. It consumes approximately 190 watts of power from the line in receive function and approximately 430 watts on peaks in transmit function. The transceiver may be operated mobile by using a power supply such as the MP-1 for 12-volt dc operation or a 516E-2 for 24- to 28-volt operation. In mobile operation the transceiver requires 800 volts dc at approximately 175 mA; 275 volts dc at approximately 210 mA; a bias supply adjustable between -60 and -80 volts; and 6-, 12-, or 24-volt dc filament supply at 11.0, 5.5, or 2.75 amperes respectively. Any high-impedance crystal or dynamic microphone may be used. A 4-ohm speaker is required. The antenna and feed system must present a 50-ohm load with swr not exceeding 2.0 to 1.

5.3 SPECIFICATIONS

Frequency range	3.4 to 5.0 and 6.5 to 30.0 MHz. With crystals furnished, bands are as follows: 80 meters: 3.4 to 3.6 MHz, 3.6 to 3.8 MHz, and 3.8 to 4.0 MHz. 40 meters: 7.0 to 7.2 MHz and 7.2 to 7.4 MHz. 20 meters: 14.0 to 14.2 MHz, 14.2 to 14.4 MHz, and 14.8 to 15.0 MHz (WWV). 15 meters: 21.0 to 21.2 MHz, 21.2 to 21.4 MHz, and 21.4 to 21.6 MHz. 10 meters: 28.5 to 28.7 MHz.
Mode	Single sideband (either sideband selectable) or CW.
Type of service	SSB-continuous; CW-50% duty cycle. RTTY-continuous with a small blower directed at the power amplifier cage.
Power consumption from ac line	190 watts in receive function. 430 watts peak in lock-key. 290 watts in voice transmit.

Plate power input.....175 watts pep on SSB, 160 watts on CW.

Power output.....100 watts pep (nominal) into 50 ohms, on 80-, 40-, and 20-meter bands.

90 watts pep (nominal) into 50 ohms, on 15-meter band.

80 watts pep (nominal) into 50 ohms, on 10-meter band.

Audio input.....High-impedance microphone or phone patch.

Rf output impedance.....50 ohms with not more than 2.0-to-1 swr.

Rf input impedance.....50 ohms.

Rf feedback.....Approximately 10 dB of rf feedback around pa and driver.

Matching speaker impedance.....4 ohms.

Matching phone-patch impedance.....500 to 1000 ohms, receive output to phone patch; high-impedance phone-patch input to transmitter.

Calibrator.....100-Hz crystal oscillator.

Frequency stability.....Within 100 Hz during any 1-hour period following 20-minute warm-up. Not more than 100 cycles with ±10% line voltage variation.

Calibration accuracy.....1 kHz after midband calibration.

Backlash.....Not more than 50 cycles.

Keying.....Break-in CW with side-tone provided.

Audio-frequency response.....300 to 2400 Hz ±6 dB.

Audio compression characteristics.....ALC operates on if band and rf amplifier stages and is capable of 10-dB compression.

Carrier suppression.....Carrier 50 dB down from output signal.

Unwanted sideband.....50 dB down from output signal.

Oscillator feedthrough and/or mixer products (undesired).....50 dB down from output signal (40 dB down at 3500 kHz).

Second harmonic radiation.....40 dB down from output signal.

Third order distortion.....30 dB down from output signal.

Noise level.....40 dB below single tone carrier.

Receiver sensitivity.....0.5 microvolt for 10-dB signal-plus-noise to noise ratio in amateur bands.

Receiver selectivity.....2.1-kHz bandwidth at 6 dB down, 5.3-kHz bandwidth at 60 dB down.

Receiver spurious responses.....Image rejection better than 40 dB. Internal spurious signals below one microvolt equivalent antenna input.

Automatic gain control.....Audio output level does not change more than 20 dB as the input signal is changed from 10 microvolts to 1 volt. Fast attack and slow release AVC action on voice and CW.

Receiver output level.....1.0 watt at AGC threshold.

Size.....7-3/4 in h, 14-3/4 in w, 14 in d (19.69 cm h, 37.47 cm w, 35.56 cm d).

Weight.....18 lb, 3 oz (8.25 kg).

5.4 TUBE AND SEMICONDUCTOR COMPLEMENT

Table 5-1. Tubes and Semiconductors.

SYMBOL	FUNCTION	TYPE	SYMBOL	FUNCTION	TYPE
V1A	First microphone amplifier	6AZ8	V8	Transmitter driver	6CL6
V1B	First receiver if amplifier	6AZ8	V9	Transmitter power amplifier	6146A
V2A	Vfo cathode follower	6U8A	V10	Transmitter power amplifier	6146A
V2B	Tone oscillator	6U8A	V11A	Beat-frequency oscillator	6U8A
V3A	Microphone amplifier cathode follower	6AZ8	V11B	Second microphone amplifier	6U8A
V3B	Second receiver if amplifier	6AZ8	V12A	Crystal calibrator	6U8A
V4A	Transmitter if amplifier	6AZ8	V12B	Crystal oscillator cathode follower	6U8A
V4B	VOX relay actuator	6AZ8	V13A	High-frequency crystal oscillator	6U8A
V5	First transmitter mixer	12AT7	V13B	First receiver mixer	6U8A
V6	Second transmitter mixer	12AT7	V14A	VOX rectifier (one diode), antiVOX rectifier (other diode)	6BN8
V7	Receiver-transmitter rf amplifier	6DC6	V14B	VOX amplifier	6BN8

Table 5-1. Tubes and Semiconductors (Cont).

SYMBOL	FUNCTION	TYPE	SYMBOL	FUNCTION	TYPE
V15A	AVC rectifier (both diodes)	6BN8	CR1-CR4	Balanced modulator matched quad	FA4000
V15B	Product detector	6BN8	CR5	Receiver rf trimming	HC7001
V16A	First af amplifier	6EB8	CR6	Calibrator harmonic generator	1N34A
V16B	Receiver af output amplifier	6EB8	CR7	Screen voltage gate	1N1490
V17A	ALC rectifier (both diodes)	6BN8	CR8	ALC static bias control	1N458
			CR9	Receiver mixer isolator	1N458
V17B	Second receiver mixer	6BN8	CR10	Cathode follower isolator	1N1490
			CR11	Rf amplifier AGC time-constant switch	1N458
V301	Variable-frequency oscillator	7543	CR301	Diode switch for C308	1N34A

5.5 AVAILABLE ACCESSORIES

Table 5-2. Available Accessories.

ITEM	FUNCTION	COLLINS PART NUMBER
136B-2 Noise Blanker	Blanks noise pulses when the noise components present on the antenna have energy distribution in the 40-MHz portion of the spectrum and when the noise pulses have a repetition rate not in excess of 100,000 pulses per second.	522-1661-00
312B-3 Speaker	Station speaker.	522-1166-00
312B-4 Station Control	Speaker, phone patch, directional wattmeter, and station control switches.	522-1167-00
312B-5 Station Control	Combination of features and functions of 312B-4 with a vfo to permit separate transmit and receive frequencies.	522-1168-00
312C-1 Speaker	Single rack-mounted speaker.	522-3526-00
312C-2 Speaker	Two rack-mounted speakers.	522-3527-00
312C-3 Speaker	Three rack-mounted speakers.	522-3528-00
351D-2 Mobile Mount	Mount for KWM-2 or KWM-2A mobile operation.	522-1726-00
351E-4 Mounting Plate	Mount KWM-2 or KWM-2A on table or bench.	522-1482-00
351R-1 Rack	Mounts one KWM-2 or KWM-2A. Front panel edges are slotted to fit standard relay rack centers. Gray finish. 8-3/4 inches high by 13-3/16 inches deep.	522-2665-00
351R-2 Rack Mount	Mounts one 312B-4, 312B-5, or 516F-2. Front panel edges are slotted to fit standard relay rack centers. Gray finish. 8-3/4 inches high by 13-3/16 inches deep.	522-2666-00

Table 5-2. Available Accessories (Cont).

ITEM	FUNCTION	COLLINS PART NUMBER
Shockmounting kit	Provides isolators for shockmounting one KWM-2 or KWM-2A.	757-2787-001
516F-2 AC Power Supply	Ac power supply for fixed station operation (115 volts ac).	522-1170-00
MP-1 DC Power Supply	Mobile power supply for 12- to 14-volt dc source.	522-2750-00
PM-2 AC Power Supply	Portable power supply (115 or 230 volts ac).	522-2639-004
516E-2 DC Power Supply	Mobile power supply for 24- to 28-volt source.	522-0984-005
302C-3 Directional Wattmeter	Measure forward and reflected power.	522-1696-00
440E-1 Cable	Mobile power connections when 351D-2 is not used. **Note** SM-1 and SM-2 Microphones may be used but are no longer available from the manufacturer.	522-2051-00
SM-3 Microphone	Slender, gray and chrome, desk top unit that blends with KWM-2/2A. Frequency response of 250 to 3500 Hz, output level of -50 dB. Equipped with 5-foot length of Koiled Kord and a push-to-talk switch mounted on the friction swivel. Friction swivel permits 80° swing of microphone.	099-3288-00
MM-1 Microphone	Pressure-operated dynamic microphone for mobile use. Equipped with mounting kit and 5-foot length of Koiled Kord. Frequency response from 200 to 10,000 Hz with output level of -48 dB.	097-5945-00
MM-2 Microphone	High-impedance resistance microphone and single earphone for fixed or mobile operation. Frequency response from 100 to 7000 Hz, output level -50 dB.	097-6027-00
DL-1 Dummy Load	100-watt resistor load with switching capabilities allowing for remote (from the operating position) or front panel operation.	522-2771-000
CC-2 Carrying Case	Carrying case to carry the KWM-2/2A plus PM-2, the KWM-2/2A alone, the 30L-1, 51S-1, or 62S-1.	597-0393-000
CC-3 Carrying Case	Carrying case for accessory components. Accommodates a 312B-5 (or 312B-4) Station Control Console, a 516E-2 (or MP-1) Power Supply, and a TD-1 Dipole Antenna, as well as a 90-day supply of spare tubes and fuses.	597-0403-000
637T-2 Antenna	Dipole antenna designed for use when portability and operation on different frequencies are primary considerations.	772-5477-002
399B-5 Crystal Oscillator Adapter	Crystal controlled oscillator that is used for frequency control in place of the vfo in the transmit function.	522-1781-000

Table 5-2. Available Accessories (Cont).

ITEM	FUNCTION	COLLINS PART NUMBER
180S-1 Antenna Tuner	Basically a 1-kW pi network for matching various antenna impedances to a 50-ohm coaxial transmission line in the range of 3 to 30 MHz.	522-0651-000
CP-1 Crystal Packet	Provides crystals to insert in the KWM-2/2A crystal oscillator circuit for operation throughout the entire range of the system.	597-0404-000
Modification Kit 744H-1	Modification Kit 744H-1, when installed, converts the KWM-2 amateur band transceiver to a general coverage KWM-2A Transceiver by providing crystal positions for 14 additional 200-kHz frequency bands. Installation instructions are contained in Service Bulletin No 9, Revision 2, dated 15 October 1975.	622-0803-001

section 6
parts list

6.1 INTRODUCTION

6.1.1 General

The purpose of this parts list, prepared by Collins Telecommunications Products Division of Rockwell International, is for identification, requisition, and issuance of parts.

Parts listed meet critical equipment design specification requirements. Use only part numbers specified in this parts list for replacement of parts.

6.1.2 Group Assembly Parts List

FIG - ITEM Column — Digits preceding the dash refer to figure numbers. Digits following the dash are item numbers assigned in sequence to correspond with item numbers on the illustrations.

PART NO Column — Listed are MIL standard, vendor, or Collins part numbers. Collins part numbering system consists of 10 digits as follows: a 3-digit family number, a 4-digit serial number, and a 3-digit dash number.

INDENT Column — Items are coded 1, 2, 3, etc, to indicate the relationship to the next higher assembly.

DESCRIPTION Column — Lists the noun name, modifier, descriptive information, federal manufacturer's code, reference designation, attaching part (AP), reference to other figures, and effectivities.

Attaching parts are identified by (AP) following the part or parts they attach.

Change identifiers are denoted in the nomenclature column of the Group Assembly Parts List as a number between two slashes. (Example: /8/). These changes identifiers refer to changes described on the apron of the schematics in this manual.

USABLE ON CODE Column — Part variations within a group of equipment are indicated by a letter code (A, B, C, etc). Absence of a code indicates part applies to all models.

UNITS PER ASSY Column — Quantities specified are per item number. Letters AR denote the selection of parts as required. Letters REF refer to an assembly completely assembled on a preceding figure and illustration.

6.1.3 Numerical Index

PART NUMBER Column — Part numbers are listed in alphanumeric sequence.

FIG - ITEM Column — Digits preceding the dash refer to figure numbers. Digits following the dash are item numbers.

TTL REQ Column — Listed is the total quantity of parts or assemblies covered in the Group Assembly Parts List.

6.1.4 Reference Designation Index

REFERENCE DESIGNATION Column — Reference designations are listed in alphanumeric sequence.

FIG - ITEM Column — Digits preceding the dash refer to figure numbers. Digits following the dash are item numbers.

PART NUMBER Column — Part numbers listed are for items that have reference designations assigned.

6.1.5 How To Use This Parts List

To locate a part number if the assembly in which the part is used is known, turn to the List of Illustrations and find the page number for the assembly in which the part is used. Locate the part and its index number on the illustration and find the index number on the Group Assembly Parts List page to determine its description and part number.

To locate the illustration for a part if the part number is known, refer to the Numerical Index and find the part number. Turn to the Group Assembly Parts List and find the first figure and index number indicated in the Numerical Index for that part. If this figure shows the part in a section or system of the equipment other than the one desired, refer to the other figure numbers listed in the Numerical Index.

To locate the illustration for a part if the reference designation is known, refer to the Reference Designation Index and find the symbol; turn to the Group Assembly Parts List and find the figure and index number indicated in the index.

6.1.6 Manufacturer's Code, Name, and Address.

CODE	MANUFACTURER'S NAME AND ADDRESS
A1334	Joyner Corp. Ocoess, MN
00853	Sangamo Electric Co. South Carolina Div. P.O. Box 128 Pickens, SC 29671
01121	Allen-Bradley Co. 1201 S. 2nd St. Milwaukee, WI 53204
01881	Anaconda American Brass Co. 414 Meadow Waterbury, CT 06720
01939	Sprague Electric Co. North Adams, MA 01247
02288	Allied Control Co., Inc. 100 Relay Rd. Plantsville, CT 06479
02660	Bunker-Ramo Corp., The Amphenol Connector Div. 2801 S. 25th Ave. Broadview, IL 60153
03508	General Electric Co. Semiconductor Products Dept. W. Genesee St. Auburn, NY 13021
03562	Bartlett-Emery Instrument Co. 14th St. and Ave. M Fort Madison, IA 52627
03877	Transitron Electronic Corp. 168 Albion St. Wakefield, MA 01880
04009	Arrow-Hart, Inc. 103 Hawthorne St. Hartford, CT 06106
04221	Midtex Inc./AEMCO Div 1650 Tower Blvd. North Mankato, MN 56001
04713	Motorola, Inc. Semiconductor Products Group 5005 E. McDowell Rd. Phoenix, AZ 85008
05284	Gasket Engineering Co., Inc. 3123 Wyandotte Kansas City, MO 64111
06915	Richco Plastic Co. 5825 N. Tripp Ave. Chicago, IL 60646
07263	Fairchild Camera and Instrument Corp. Semiconductor Div. 464 Ellis St. Mountain View, CA 94042
07716	TRW Electronic Components IRC Fixed Resistors Burlington Div. 2850 Mt. Pleasant Burlington, IA 52601
08591	Hunt Screw and Mfg. Co. 4117 N. Kilpatrick Chicago, IL 60641
08664	Bristol Div. of American Chain and Cable Co., Inc. 40 Bristol St. Waterbury, CT 06720
09250	Electro Assemblies, Inc. 4338 W. Montrose Ave. Chicago, IL 60641
09922	Burndy Corp. Richards Ave. Norwalk, CT 06852
12014	Chicago Rivet and Machine Co. 950 S. 25th Ave. Bellwood, IL 60104

CODE	MANUFACTURER'S NAME AND ADDRESS
14140	Edison Electronics Div. McGraw Edison Co. Grenier Field-Municipal Airport Manchester, NH 03130
16352	Computer Diode Corp. Pollitt Dr. S. Fair Lawn, NJ 07410
18986	Jetron, Inc. 4310 N. Kedzie Ave. Chicago, IL 60618
21052	High Energy Corp. Lower Valley Rd. Parkesburg, PA 19305
21242	American Electronic Components Corp. 7516 Camargo Rd. Cincinnati, OH 45243
24226	Gowanda Electronics Corp. 179 Broadway Rd. Gowanda, NJ 14070
27545	Hartford-Universal Co. 1022 Elm St. Rocky Hill, CT 06067
32897	Erie Technological Products, Inc. Erie Frequency Control Div. 453 Lincoln St. Carlisle, PA 17013
37942	Mallory, P.R. and Co., Inc. 3029 E. Washington St. Indianopolis, IN 46206
42498	National Radio Co., Inc. 78 Stone Place Melrose, MA 02176
43334	New Departure-Hyatt Bearings Div. General Motors Corp. Hayes Ave. Sandusky, OH 44870
43991	Norma Fag Bearings, Corp. Hamilton Ave. Stamford, CT 06904
45722	U.S.M. Corp. Parker-Kalon Fastener Div. 1 Peekay Dr. Clifton, NJ 07014
49671	RCA Corp. 30 Rockefeller Plaza New York, NY 10020
56289	Sprague Electric Co. North Adams, MA 01247
59730	Thomas and Belts Co., The 36 Butler St. Elizabeth, NJ 07207
70309	Allied Control Co., Inc. 2 East End Ave. New York, NY 10021
70318	Allmetal Screw Products Co., Inc. 821 Stewart Ave. Garden City, NY 11530
70417	Chrysler Corp. Amplex Div. 6501 Harper Ave. Detroit, MI 48211
70601	Anti-Corrosive Metal Products Co., Inc. P.O. Box 1894 Albany, NY 12201
71034	Bliley Electric Co. 2545 W. Grandview Blvd. Erie, PA 16512
71313	Cardwell Condenser Corp. 80 E. Montauk Hwy. Lindehurst, NY 11757
71450	CTS Corp. 1142 W. Beardsley Ave. Elkhart, IN 46514
71482	Clare, C.P., and Co. 3101 Pratt Blvd. Chicago, IL 60645

CODE	MANUFACTURER'S NAME AND ADDRESS
71590	Centralab Electronics Div. of Globe-Union, Inc. 5757 N. Green Bay Ave. Milwaukee, WI 53201
71785	TRW Cinch Connectors 1501 Morse Ave. Elk Grove Village, IL 60007
72136	Electro Motive Corp. Subsidiary of International Electronics Corp. P.O. Box 7600 Lauter Ave. Florence, SC 29501
72512	Davies, Harry, Molding Co. 4920 W. Bloomingdale Ave. Chicago, IL 60639
72765	Drake Mfg. Co. 4626 N. Olcott Ave. Harwood Heights, IL 60656
72962	ESNA Div. of Amerace Corp. 2330 Vauxhall Rd. Union, NJ 07083
72982	Erie Technological Products, Inc. 644 N. 12th St. Erie, PA 16512
73386	Freed Transformer Co., Inc. 1736 Weirfield St. Brooklyn, NY 11227
75543	Lavelle Industries, Inc. 424 N. Wood Chicago, IL 60622
75618	Southco, Inc. Lester, PA 19113
76487	Millen, James, Mfg. Co., Inc. 150 Exchange St. Malden, MA 02148
76665	National Lock Washer Div. Charter Wire Co. Somerville, NJ 08876
76854	Oak Industries, Inc. Switch Div. S. Main St. Crystal Lake, IL 60014
77147	Patton-MacGuyer Co. Div. of Avid Corp. 17 Virginia Ave. Providence, RI 02905
77250	Pheoll Mfg. Co. Div. of Allied Products Corp. 5700 W. Roosevelt Rd. Chicago, IL 60650
77342	AMF, Inc. Potter and Brumfield Div. 1200 E. Broadway Princeton, IN 47570
78189	Illinois Tool Works, Inc. Shakeproof Div. St. Charles Rd. Elgin, IL 60120
78488	Stackpole Carbon Co. St. Marys, PA 15857
78553	Tinnerman Products, Inc. 8700 Brookpark Rd. Cleveland, OH 44129
79136	Waldes Kohinoor, Inc. 47-16 Austel Place Long Island City, NY 11101
79807	Wrought Washer Mfg. Co. 2100 S. Bay St. Milwaukee, WI 53207
80486	All Star Products, Inc. P.O. Box 487 Defiance, OH 43512
81348	Federal Specifications
81349	Military Specifications
81350	Joint Army-Navy Specifications

CODE	MANUFACTURER'S NAME AND ADDRESS
81815	Communication Coil Co. 2839 N. Narragansett Ave. Chicago, IL 60634
82104	Standard Grigsby Co. 920 Rathbone Ave. Aurora, IL 60507
82142	Airco Speer Electronics Div. of Air Reduction Co., Inc. Grand Plaza 945 Grand Ave. Nogales, AZ 85621
82219	Sylvania Electric Products, Inc. Electronic Tube Div. Receiving Tube Operations Emporium, PA 15834
82389	Switchcraft, Inc. 5555 N. Elston Ave. Chicago, IL 60630
82893	Vector Electronics Co. Glendale, CA 91200
86684	RCA Corp. Electronic Components 415 S. 5th St. Harrison, NJ 07029
87487	Anillo Industries, Inc. 2090 N. Glassell Orange, CA 92667
91663	Armel Electronics, Inc. 1601 75th St. North Bergen, NJ 07047
92825	Whitso, Inc. 9330 Byron St. Schiller Park, IL 60176
93332	Sylvania Electric Products, Inc. Semiconductor Products Div. 100 Sylvan Rd. Woburn, MA 01801
93958	Republic Electronic Corp. 176 E. 7th St. Paterson, NJ 07524
93983	Entron, Inc. Bay State Electronics Div. 70-31 84th St. Glendale, NY 11227
94084	Handy and Harmon 1900 Estes Elk Grove Village, IL 60007
94148	TRW, Inc. Semiconductor Div. 14520 Aviation Blvd. Lawndale, CA 90260
94154	Wagner Electric Corp. Tung Sol Div. Livingston, NJ 07039
94222	Southco, Inc. Lester, PA 19113
94452	Berkley and Co. Hwy. 9 and 71 Spirit Lake, IA 51360
96256	Thordarson-Meissner, Inc. Electronic Center Mt. Carmel, IL 62863
96906	Military Standards

6.1.7 Usable on Codes

The following usage codes have been assigned in this manual:

USABLE ON CODES	UNIT PART NUMBER	FIG-ITEM
A	522-1611-000	6-1-
B	522-1792-000	6-1-

6.1.8 Configuration Identifiers

The following CI's/REV LTRS were used in compiling data for this manual:

CI/REV LTR	UNIT PART NUMBER	FIG-ITEM
72353	522-1611-001	6-1-
P	522-1792-000	6-1-

CI/REV LTRS	UNIT PART NUMBER	FIG-ITEM
DB	544-9697-000	6-2-
DU	545-9114-000	6-2-
AR	522-1093-000	6-3-

6.1.9 General Coverage Crystals Available (Optional)

CRYSTAL FREQUENCY FOR (kHz)	OPERATING FREQUENCY (MHz)	PART NUMBER
* 6555.000	3.4 - 3.6	290-9009-00
* 6755.000	3.6 - 3.8	290-9010-00
* 6955.000	3.8 - 4.0	290-9011-00
7155.000	4.0 - 4.2	290-9012-00
7355.000	4.2 - 4.4	290-9013-00
7555.000	4.4 - 4.6	290-9014-00
7755.000	4.6 - 4.8	290-9015-00
7955.000	4.8 - 5.0	290-9016-00
9755.000	6.6 - 6.8	290-9025-00
9955.000	6.8 - 7.0	290-9026-00
*10155.000	7.0 - 7.2	290-9027-00
*10355.000	7.2 - 7.4	290-9028-00
10555.000	7.4 - 7.6	290-9029-00
10755.000	7.6 - 7.8	290-9030-00
10955.000	7.8 - 8.0	290-9031-00
11155.000	8.0 - 8.2	290-9032-00
11355.000	8.2 - 8.4	290-9033-00
11555.000	8.4 - 8.6	290-9034-00
11755.000	8.6 - 8.8	290-9035-00
11955.000	8.8 - 9.0	290-9036-00
12155.000	9.0 - 9.2	290-9037-00
12355.000	9.2 - 9.4	290-9038-00
12555.000	9.4 - 9.6	290-9039-00
12755.000	9.6 - 9.8	290-9040-00
12955.000	9.8 - 10.0	290-9041-00

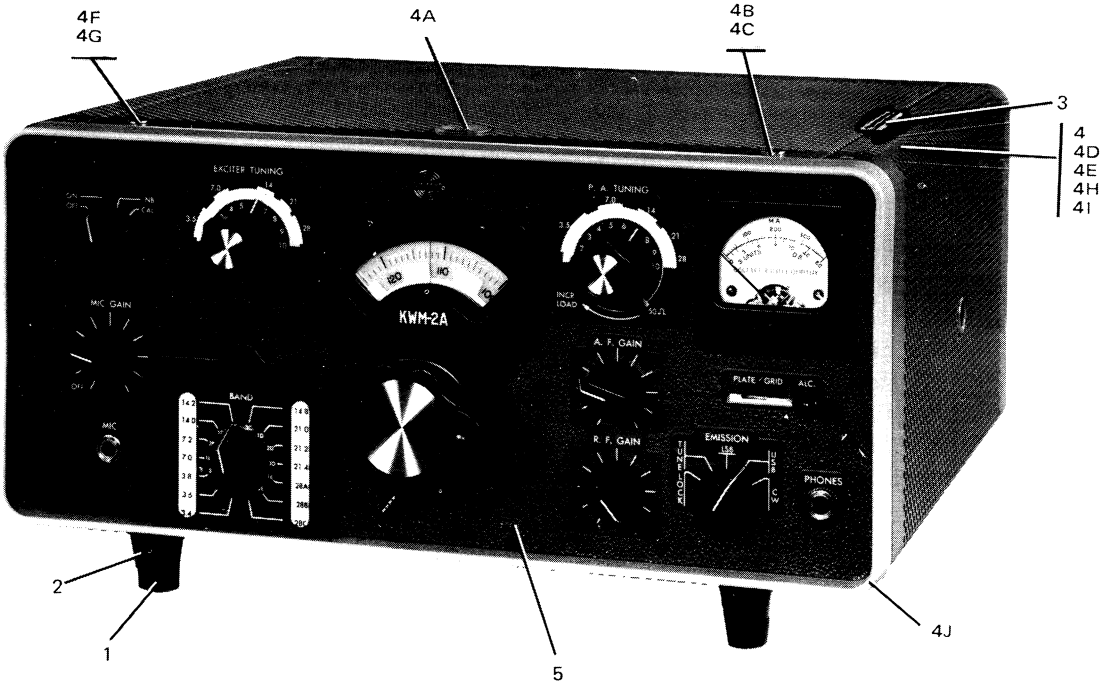
CRYSTAL FREQUENCY FOR (kHz)	OPERATING FREQUENCY (MHz)	PART NUMBER
13155.000	10.0 - 10.2	290-9042-00
13355.000	10.2 - 10.4	290-9043-00
13555.000	10.4 - 10.6	290-9044-00
13755.000	10.6 - 10.8	290-9045-00
13955.000	10.8 - 11.0	290-9046-00
14155.000	11.0 - 11.2	290-9047-00
14355.000	11.2 - 11.4	290-9048-00
14555.000	11.4 - 11.6	290-9049-00
14755.000	11.6 - 11.8	290-9050-00
14955.000	11.8 - 12.0	290-9051-00
7577.500	12.0 - 12.2	290-9052-00
7677.500	12.2 - 12.4	290-9053-00
7777.500	12.4 - 12.6	290-9054-00
7877.500	12.6 - 12.8	290-9055-00
7977.500	12.8 - 13.0	290-9056-00
8077.500	13.0 - 13.2	290-9057-00
8177.500	13.2 - 13.4	290-9058-00
8277.500	13.4 - 13.6	290-9059-00
8377.500	13.6 - 13.8	290-9060-00
8477.500	13.8 - 14.0	290-9061-00
* 8577.500	14.0 - 14.2	290-9062-00
8627.500	14.1 - 14.3	290-9179-00
* 8677.500	14.2 - 14.4	290-9063-00
8777.500	14.4 - 14.6	290-9064-00
8877.500	14.6 - 14.8	290-9065-00
* 8977.500	14.8 - 15.0	290-9066-00
9077.500	15.0 - 15.2	290-9067-00
9177.500	15.2 - 15.4	290-9068-00
9277.500	15.4 - 15.6	290-9069-00
9377.500	15.6 - 15.8	290-9070-00
9477.500	15.8 - 16.0	290-9071-00
9577.500	16.0 - 16.2	290-9072-00
9677.500	16.2 - 16.4	290-9073-00
9777.500	16.4 - 16.6	290-9074-00
9877.500	16.6 - 16.8	290-9075-00
9977.500	16.8 - 17.0	290-9076-00
10077.500	17.0 - 17.2	290-9077-00
10177.500	17.2 - 17.4	290-9078-00
10277.500	17.4 - 17.6	290-9079-00
10377.500	17.6 - 17.8	290-9080-00
10477.500	17.8 - 18.0	290-9081-00
10577.500	18.0 - 18.2	290-9082-00
10677.500	18.2 - 18.4	290-9083-00
10777.500	18.4 - 18.6	290-9084-00
10877.500	18.6 - 18.8	290-9085-00
10977.500	18.8 - 19.0	290-9086-00
11077.500	19.0 - 19.2	290-9087-00
11177.500	19.2 - 19.4	290-9088-00

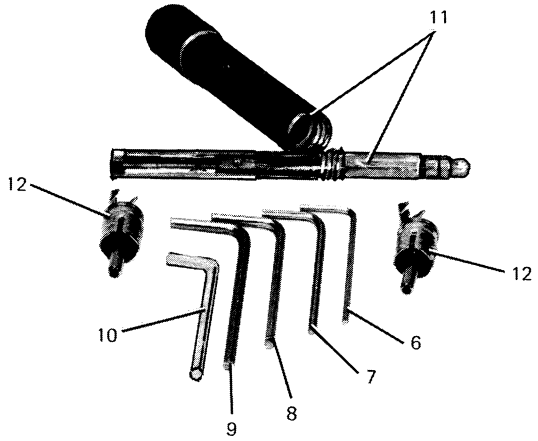
CRYSTAL FREQUENCY FOR (kHz)	OPERATING FREQUENCY (MHz)	PART NUMBER
11277.500	19.4 - 19.6	290-9089-00
11377.500	19.6 - 19.8	290-9090-00
11477.500	19.8 - 20.0	290-9091-00
11577.500	20.0 - 20.2	290-9092-00
11677.500	20.2 - 20.4	290-9093-00
11777.500	20.4 - 20.6	290-9094-00
11877.500	20.6 - 20.8	290-9095-00
11977.500	20.8 - 21.0	290-9096-00
*12077.500	21.0 - 21.2	290-9097-00
*12177.500	21.2 - 21.4	290-9098-00
*12277.500	21.4 - 21.6	290-9099-00
12377.500	21.6 - 21.8	290-9100-00
12477.500	21.8 - 22.0	290-9101-00
12577.500	22.0 - 22.2	290-9102-00
12677.500	22.2 - 22.4	290-9103-00
12777.500	22.4 - 22.6	290-9104-00
12877.500	22.6 - 22.8	290-9105-00
12977.500	22.8 - 23.0	290-9106-00
13077.500	23.0 - 23.2	290-9107-00
13177.500	23.2 - 23.4	290-9108-00
13277.500	23.4 - 23.6	290-9109-00
13377.500	23.6 - 23.8	290-9110-00
13477.500	23.8 - 24.0	290-9111-00
13577.500	24.0 - 24.2	290-9112-00
13677.500	24.2 - 24.4	290-9113-00
13777.500	24.4 - 24.6	290-9114-00
13877.500	24.6 - 24.8	290-9115-00
13977.500	24.8 - 25.0	290-9116-00
14077.500	25.0 - 25.2	290-9117-00
14177.500	25.2 - 25.4	290-9118-00
14277.500	25.4 - 25.6	290-9119-00
14377.500	25.6 - 25.8	290-9120-00
14477.500	25.8 - 26.0	290-9121-00
14577.500	26.0 - 26.2	290-9122-00
14677.500	26.2 - 26.4	290-9123-00
14777.500	26.4 - 26.6	290-9124-00
14877.500	26.6 - 26.8	290-9125-00
14977.500	26.8 - 27.0	290-9126-00
15077.500	27.0 - 27.2	290-9127-00
15177.500	27.2 - 27.4	290-9128-00
15277.500	27.4 - 27.6	290-9129-00
15377.500	27.6 - 27.8	290-9130-00
15477.500	27.8 - 28.0	290-9131-00
15527.500	27.9 - 28.1	290-9142-00
15577.500	28.0 - 28.2	290-9132-00
15627.500	28.1 - 28.3	290-9143-00
15677.500	28.2 - 28.4	290-9133-00
15727.500	28.3 - 28.5	290-9144-00
15777.500	28.4 - 28.6	290-9134-00

CRYSTAL FREQUENCY FOR (kHz)	OPERATING FREQUENCY (MHz)	PART NUMBER
*15827.500	28.5 - 28.7	290-9201-00
15877.500	28.6 - 28.8	290-9135-00
15927.500	28.7 - 28.9	290-9145-00
15977.500	28.8 - 29.0	290-9136-00
16027.500	28.9 - 29.1	290-9146-00
16077.500	29.0 - 29.2	290-9137-00
16127.500	29.1 - 29.3	290-9147-00
16177.500	29.2 - 29.4	290-9138-00
16227.500	29.3 - 29.5	290-9148-00
16277.500	29.4 - 29.6	290-9139-00
16327.500	29.5 - 29.7	290-9149-00
16377.500	29.6 - 29.8	290-9140-00
16477.500	29.8 - 30.0	290-9141-00

*Indicates crystals supplied with equipment.

6.2 GROUP ASSEMBLY PARTS LIST





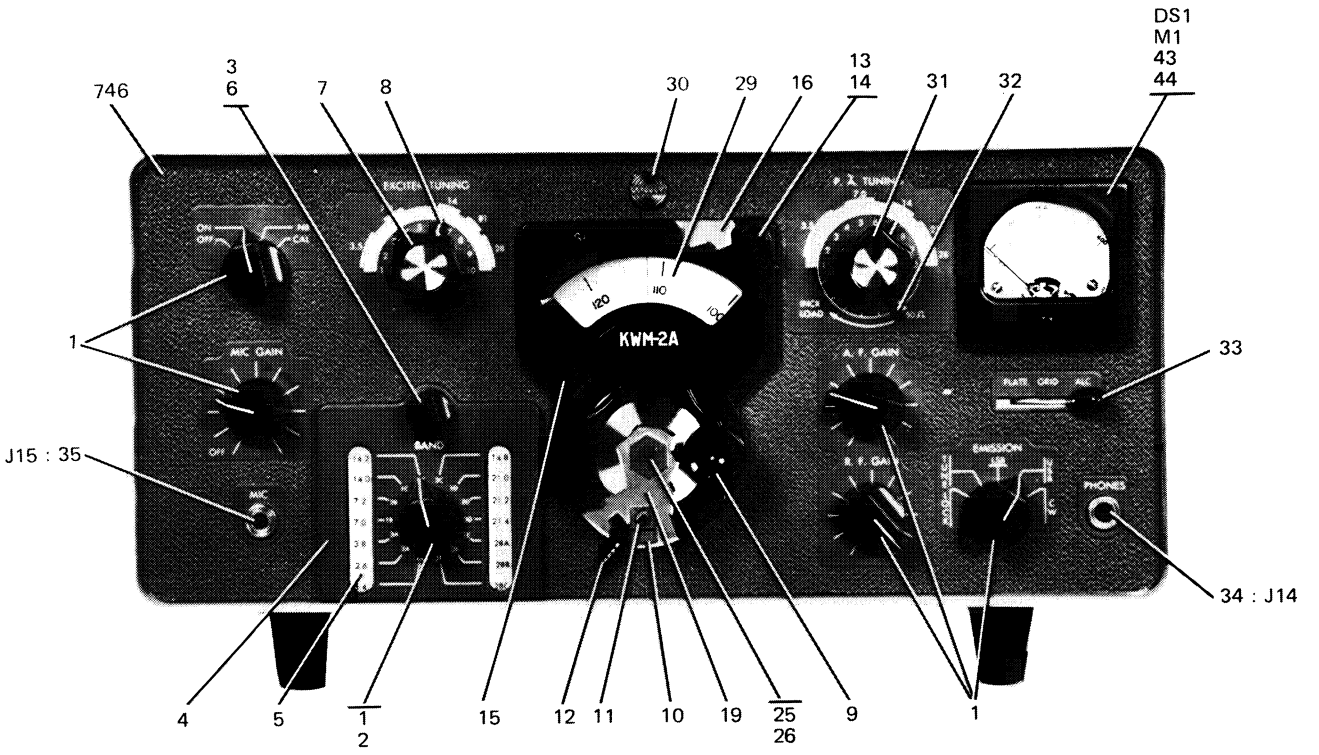
TP4-3187-017

KWM-2 and KWM-2A Transceivers
Figure 6-1

GROUP ASSEMBLY PARTS LIST

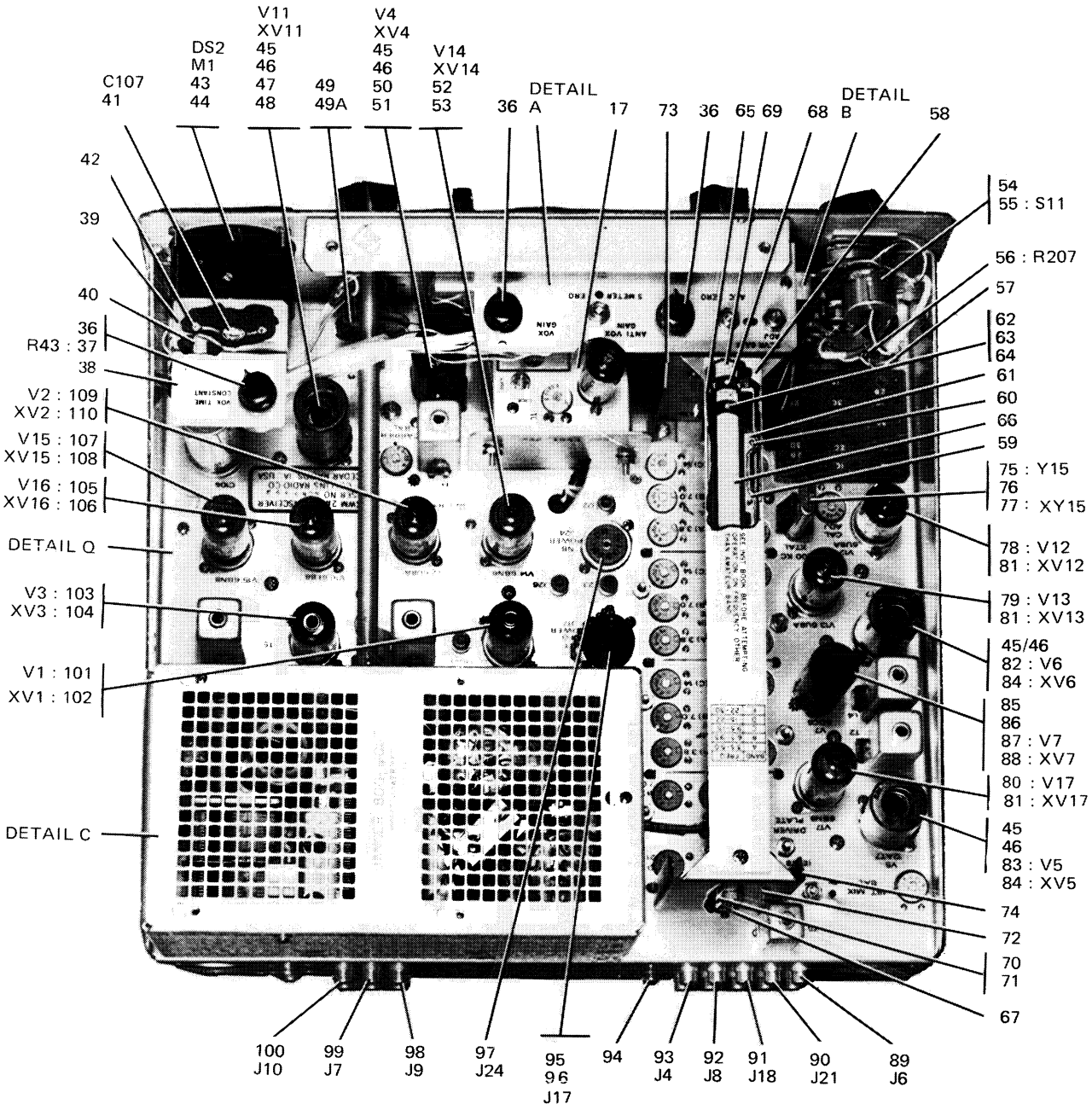
FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-1	522-1611-000	1	TRANSCEIVER, KWM-2	A	1
	522-1792-000	1	TRANSCEIVER, KWM-2A	B	1
1	747RBLACK	2	BUMPER,RBR (V75543) 200-5010-000		4
2	543-8101-002	2	FOOT,CAB		2
	MS51957-31	2	SCREW,MACH, SST, 6-32 X 5/8 (V96906) 343-0173-000 (AP FOR 1-2)		2
	MS51957-36	2	SCREW,MACH, SST, 6-32 X 1-1/2 (V96906) 343-0180-000 (AP FOR 1-2)		2
	310-0055-000	2	WASHER,FLAT, BRS, 0.147 ID X 0.312 OD (V79807) 310-0055-000 (AP FOR 1-2)		4
3	544-7239-002	2	STOP,LID		2
	328-0512-010	2	SETSCREW, SST, 6-40 X 0.125 (V08664) 328-0512-010 (AP)		2
4	544-9745-005	2	CABINET, TRANSCEIVER		1
	P342-0168-000	2	SCREW,MACH, NP BRS, 6-32 X 3/8 (V77250) 342-0168-000 (AP)		2
4A	628-0774-001	3	GROMMET		1
4B	82-31-293-15	3	EYELET,TURNLOCK CD PL STL, 0.353 DIA X 0.063 (V75618) 012-1394-000		2
4C	82-11-180-16	3	STUD,TURNLOCK, FSTNR, CD PL STL, 0.240 DIA X 0.475 (V94222) 012-1506-000		2
4D	544-9744-005	3	CABINET		1
4E	618-3304-001	4	FRAME,RIVETED		1
4F	2-295	5	LOCKSPRING (V75618) 012-1396-000		2
4G	R4008X7-32CHROMATEDIP	5	RIVET,TUBULAR, AL, 0.089 DIA X 7/32 (V12014) 305-0172-000		4
4H	609-0573-001	5	FRAME,STYLE		1
4I	544-9742-005	4	CABINET		1
4J	609-0573-001	2	FRAME,STYLE- MOLDED		1
5	544-9697-000	2	TRANSCEIVER SUBASSEMBLY (SEE FIG 6-2)	A	1
5	545-9114-000	2	TRANSCEIVER SUBASSEMBLY (SEE FIG 6-2)	B	1
6	TYIICL1-062	2	KEY,SCH SCR (V81348) 024-2900-000		1
7	S076-4	2	KEY,SCH SCR (V08664) 024-9730-000		1
8	S096CADPL	2	KEY,SKT SCR (V08664) 024-0019-000		1
9	111CDPL	2	KEY,SKT SCR (V08664) 024-9710-000		1
10	S072CHEMBLK	2	KEY,SKT SCR (V08664) 024-0167-000		1
11	PJ068	2	PLUG,TEL (V81349) 361-0001-000		1
12	3501MC	2	PLUG,TEL (V82389) 361-0062-000		2

GROUP ASSEMBLY PARTS LIST



Transceiver Subassembly
Figure 6-2 (Sheet 1 of 15)

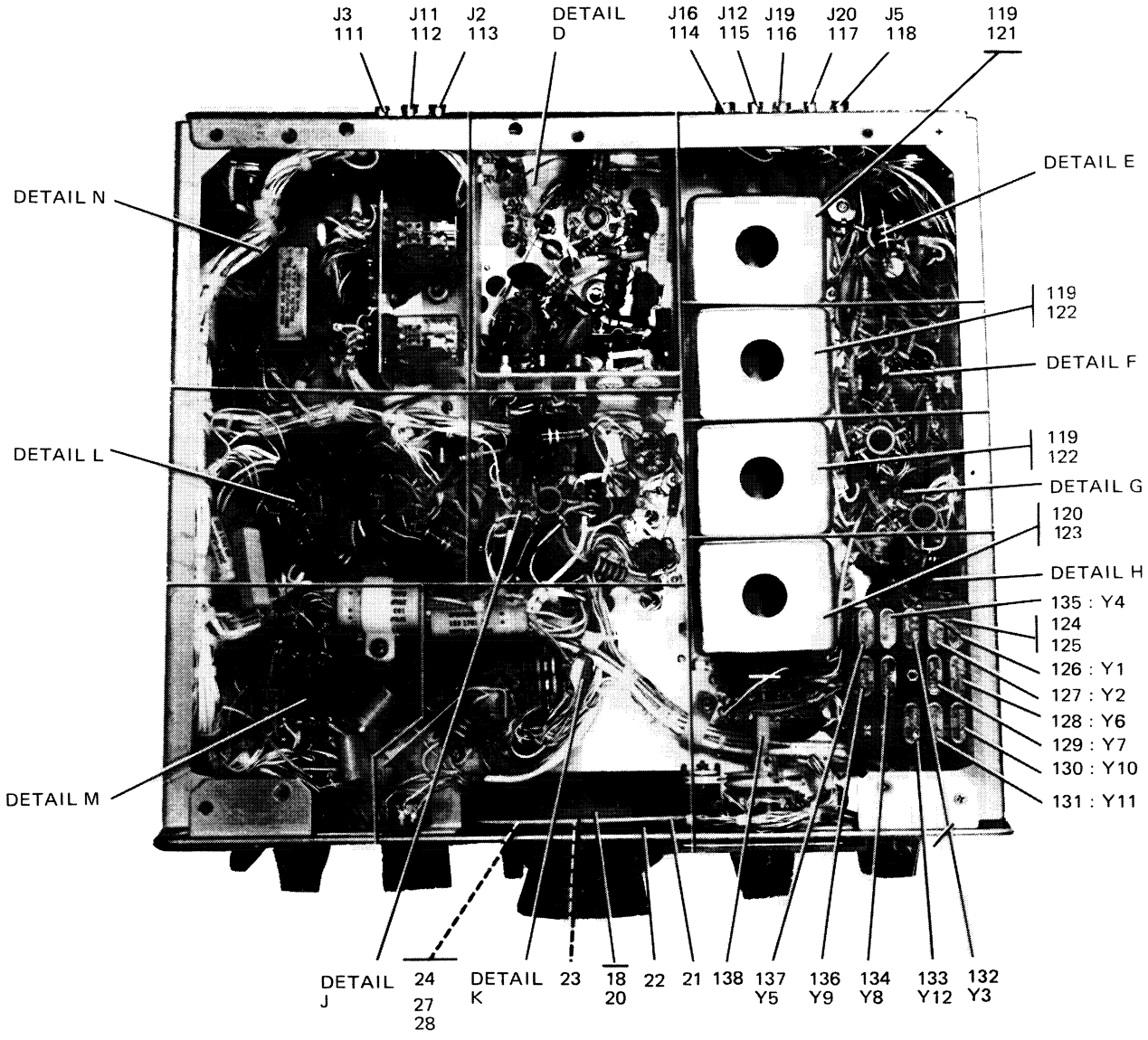
GROUP ASSEMBLY PARTS LIST



TP4-3139-157

Transceiver Subassembly
Figure 6-2 (Sheet 2)

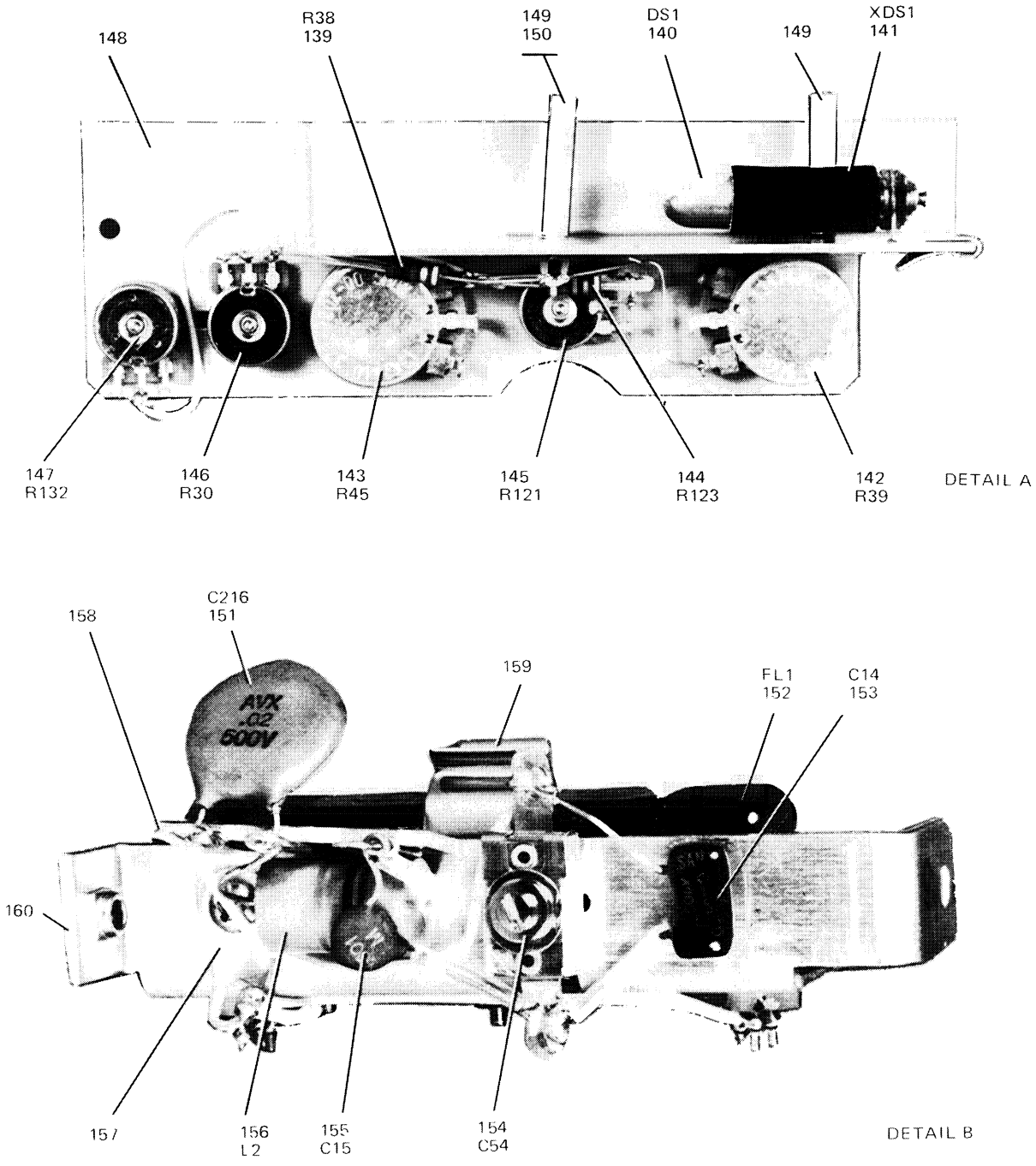
GROUP ASSEMBLY PARTS LIST



TP4-3139-157

Transceiver Subassembly
Figure 6-2 (Sheet 3)

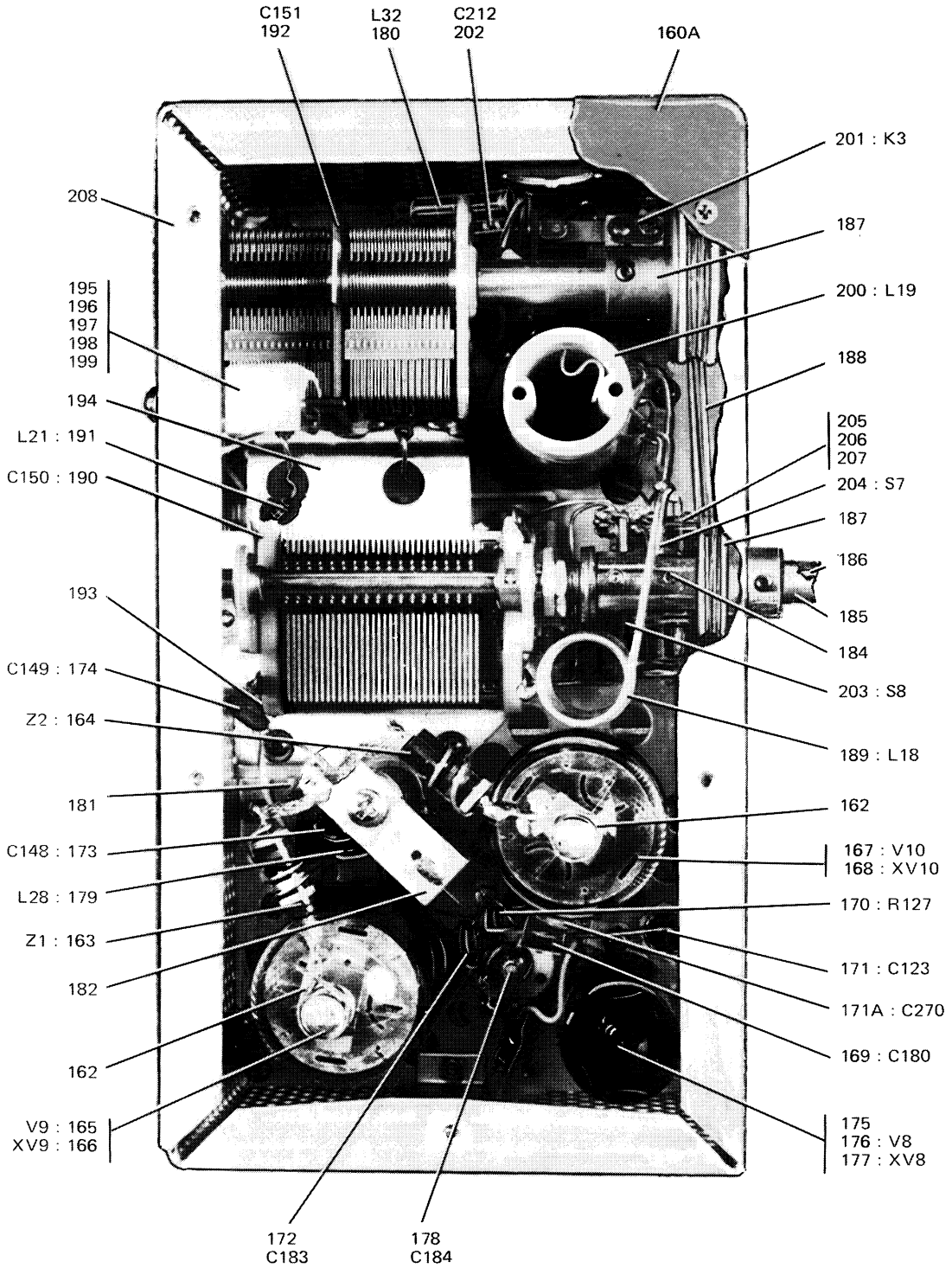
GROUP ASSEMBLY PARTS LIST



TP4-3139-157

Transceiver Subassembly
Figure 6-2 (Sheet 4)

GROUP ASSEMBLY PARTS LIST

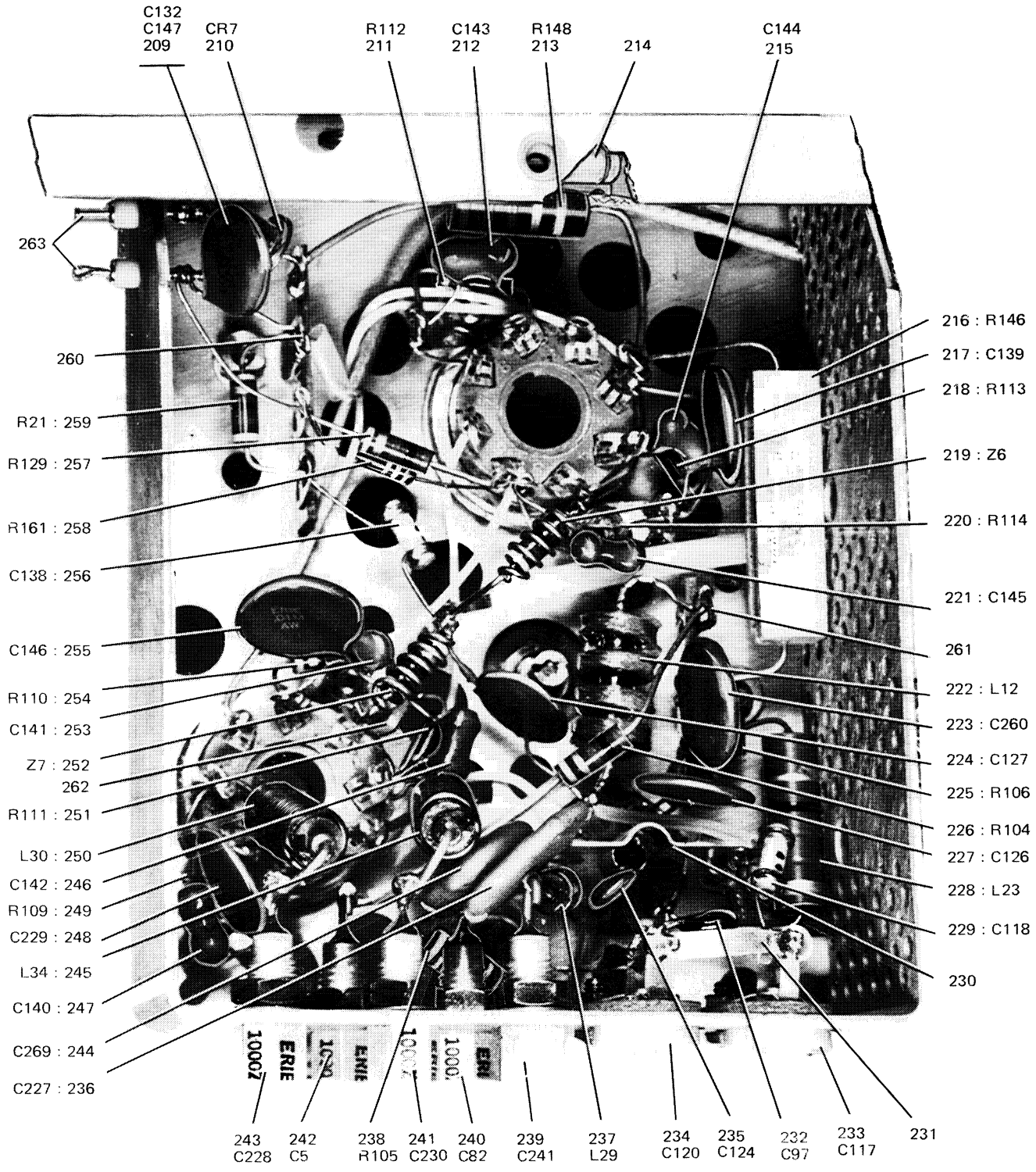


DETAIL C

TP4-3139-157

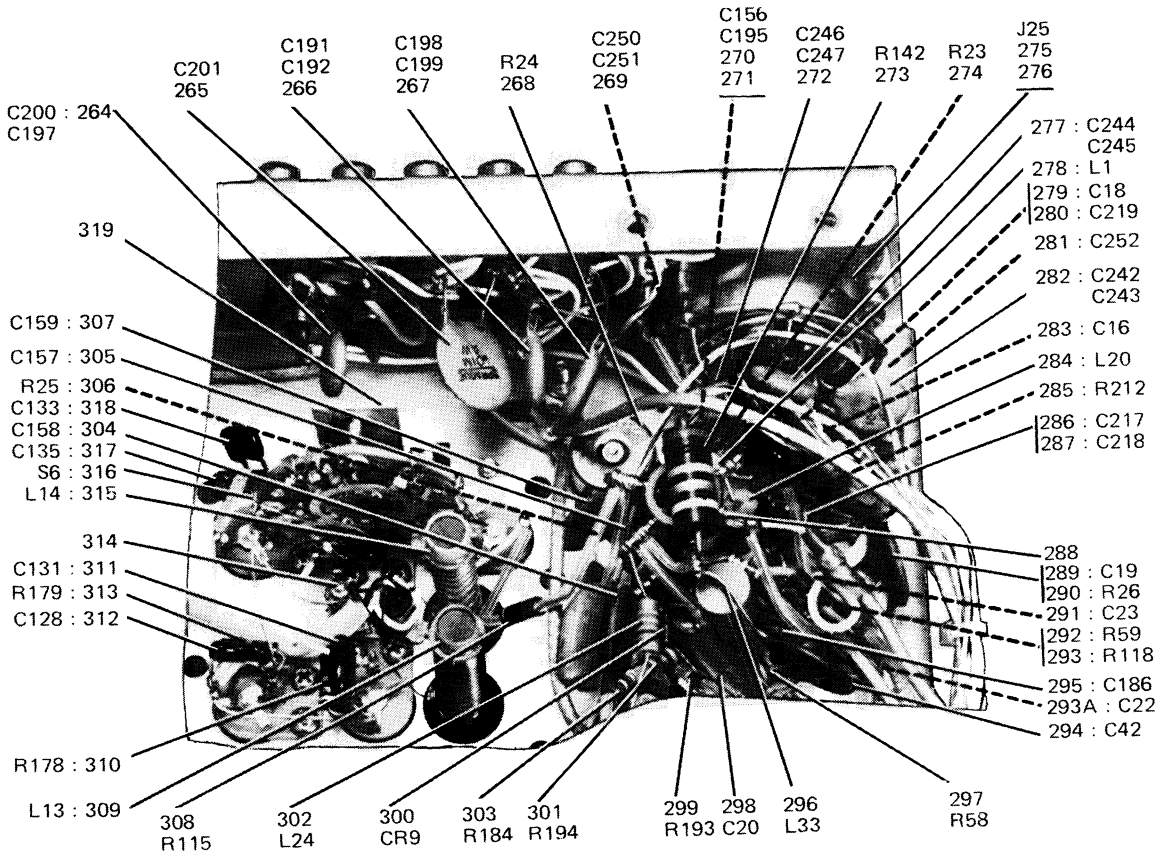
Transceiver Subassembly
Figure 6-2 (Sheet 5)

GROUP ASSEMBLY PARTS LIST



Transceiver Subassembly
Figure 6-2 (Sheet 6)

GROUP ASSEMBLY PARTS LIST



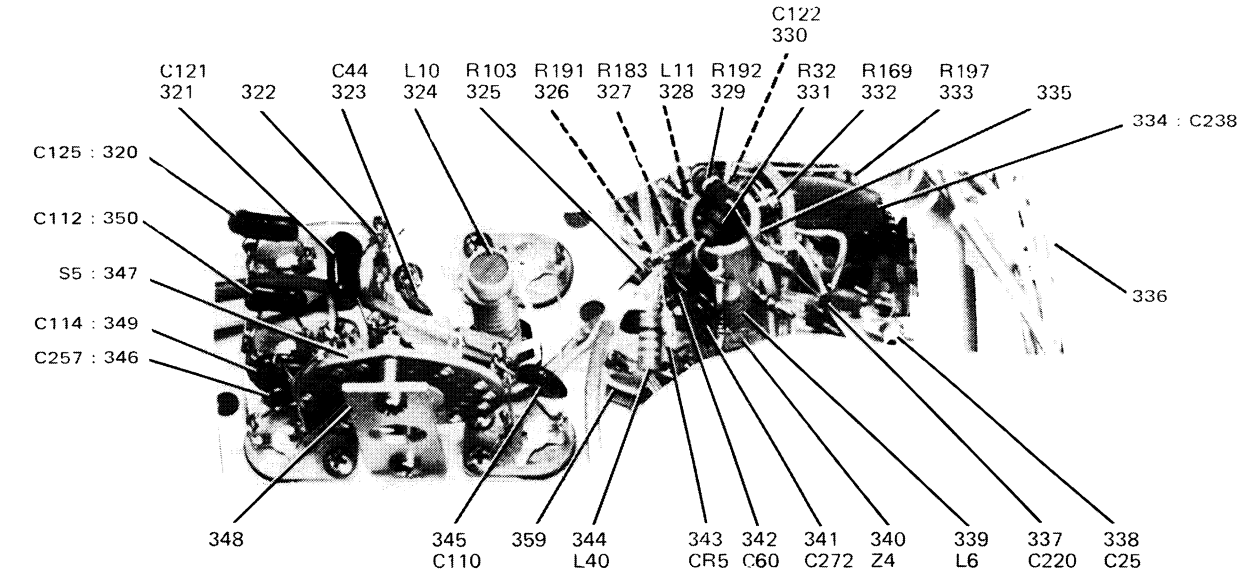
DETAIL E

TP4-3139-157

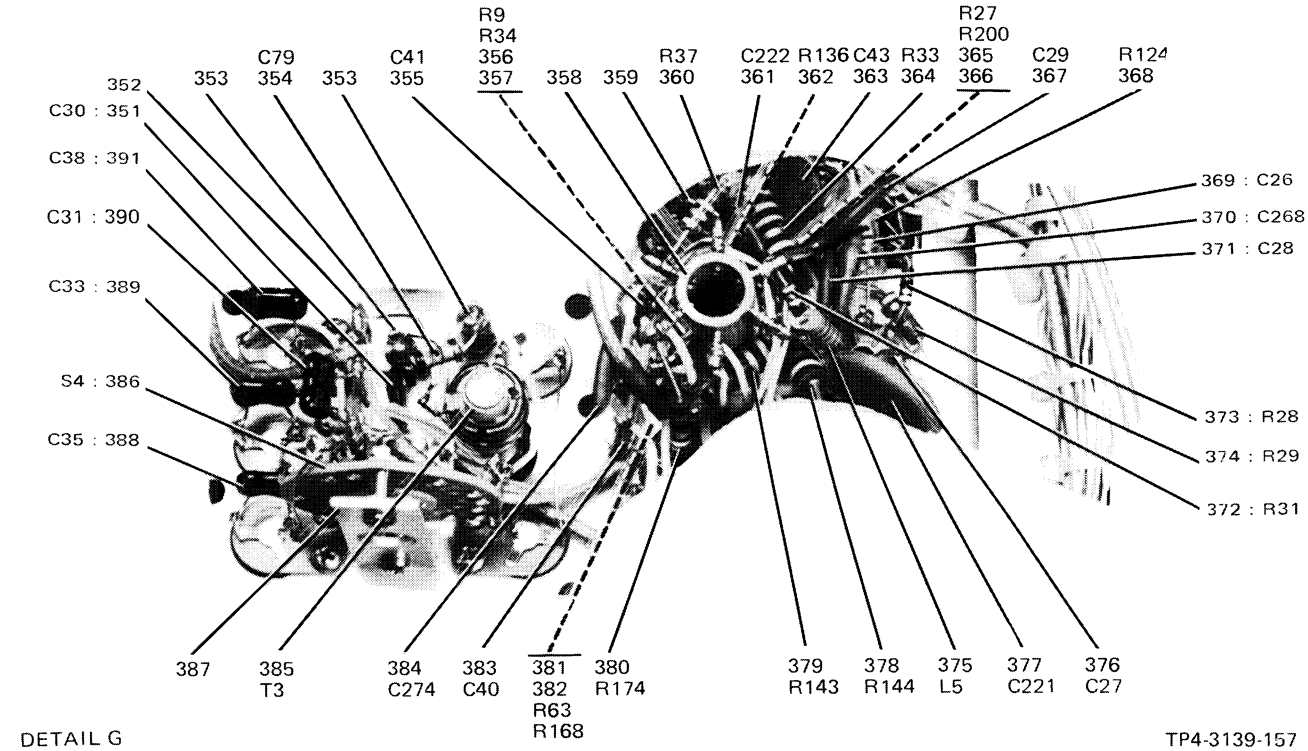
Transceiver Subassembly
Figure 6-2 (Sheet 7)

Revised 1 January 1978

GROUP ASSEMBLY PARTS LIST



DETAIL F

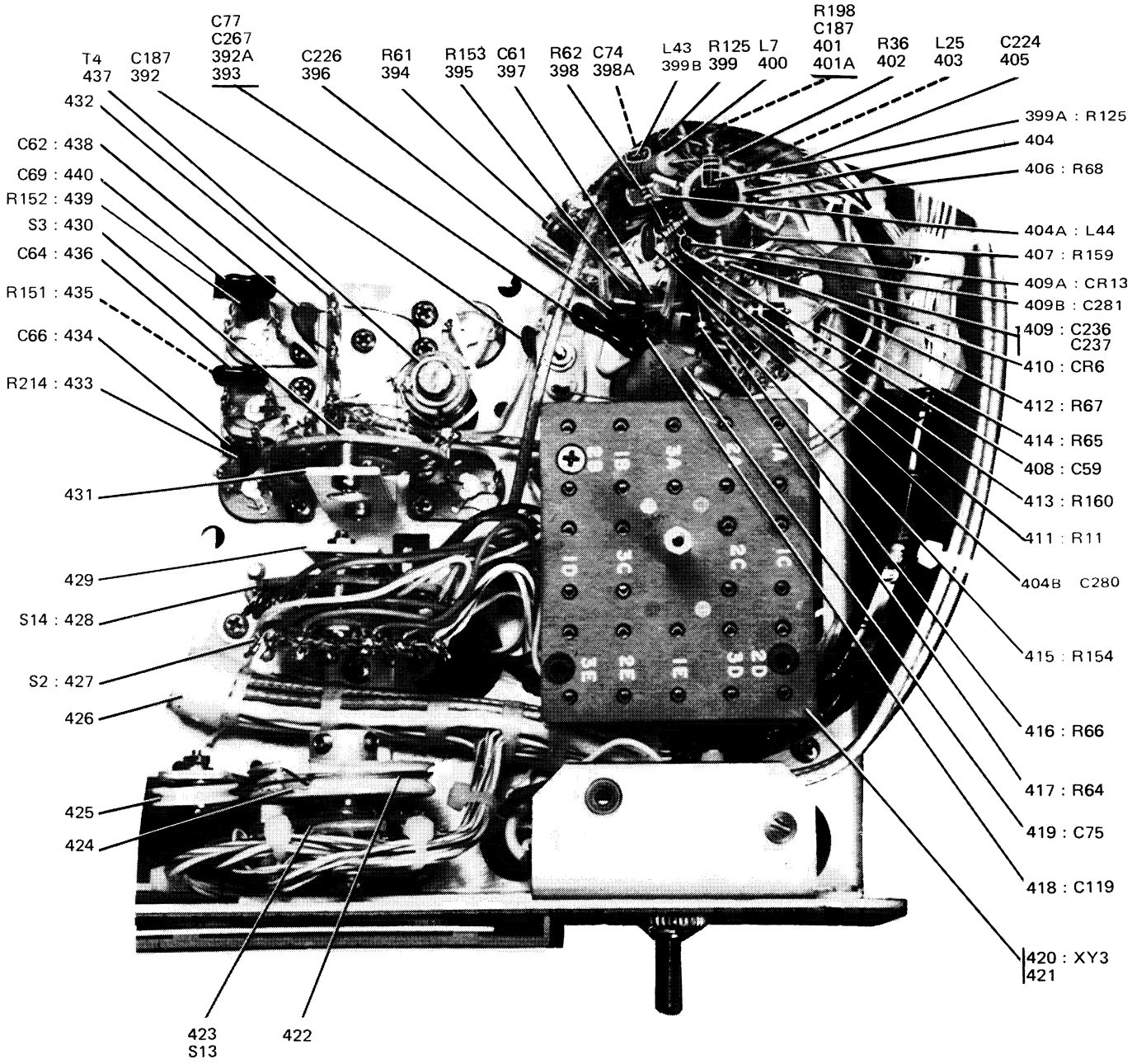


DETAIL G

TP4-3139-157

Transceiver Subassembly
Figure 6-2 (Sheet 8)

GROUP ASSEMBLY PARTS LIST

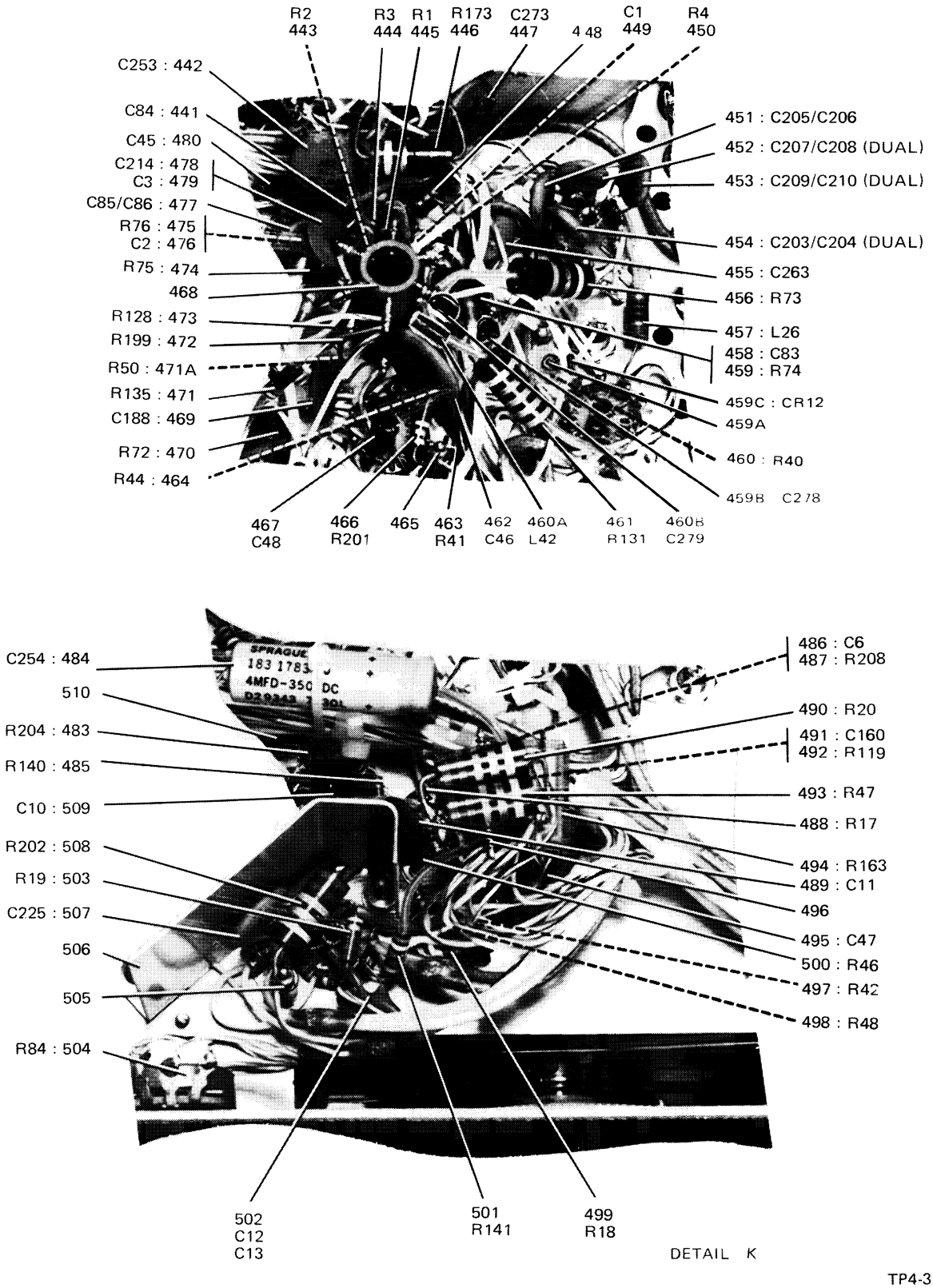


DETAIL H

TP4-3139-157

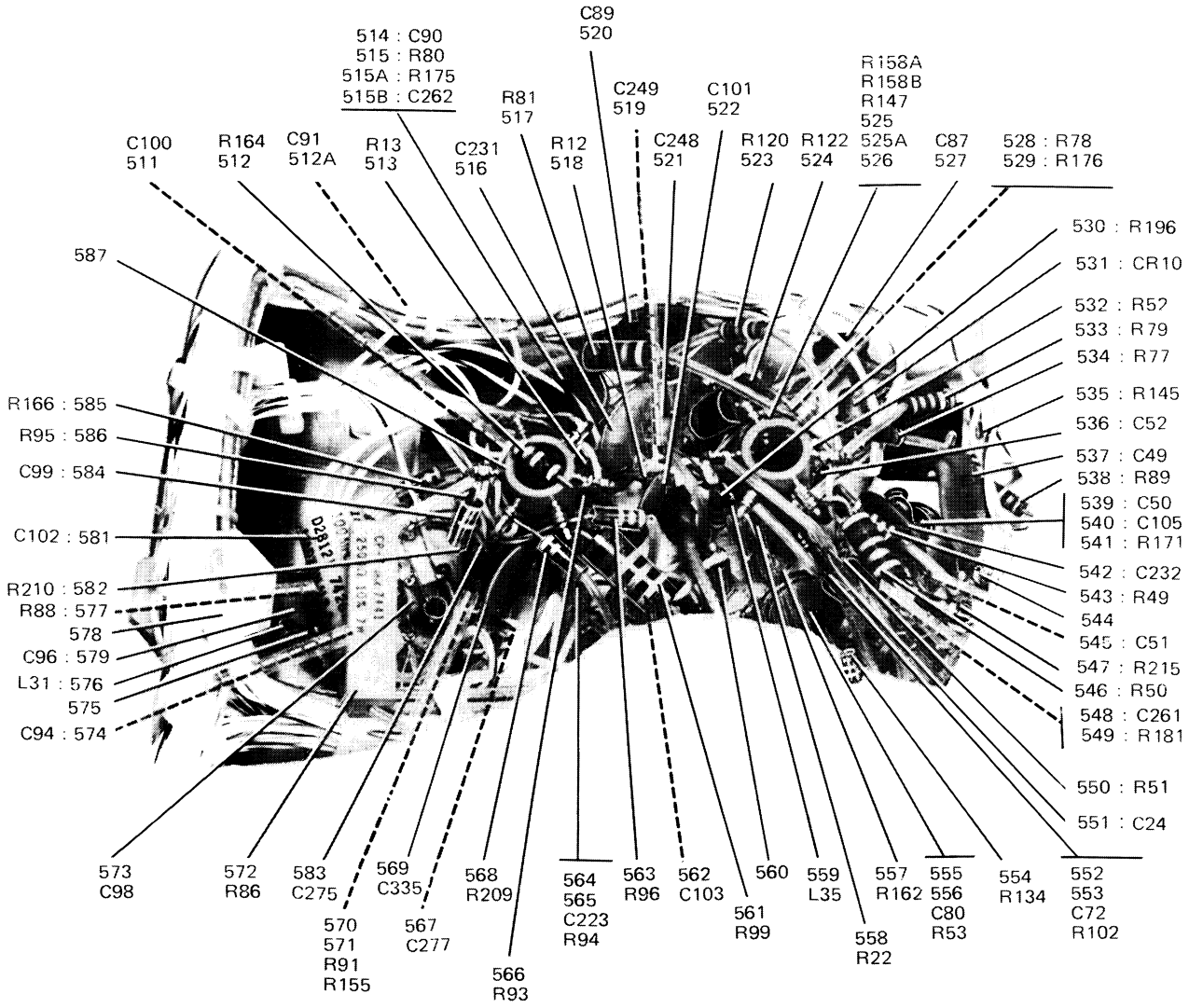
Transceiver Subassembly
Figure 6-2 (Sheet 9)

GROUP ASSEMBLY PARTS LIST



Transceiver Subassembly
Figure 6-2 (Sheet 10)

GROUP ASSEMBLY PARTS LIST

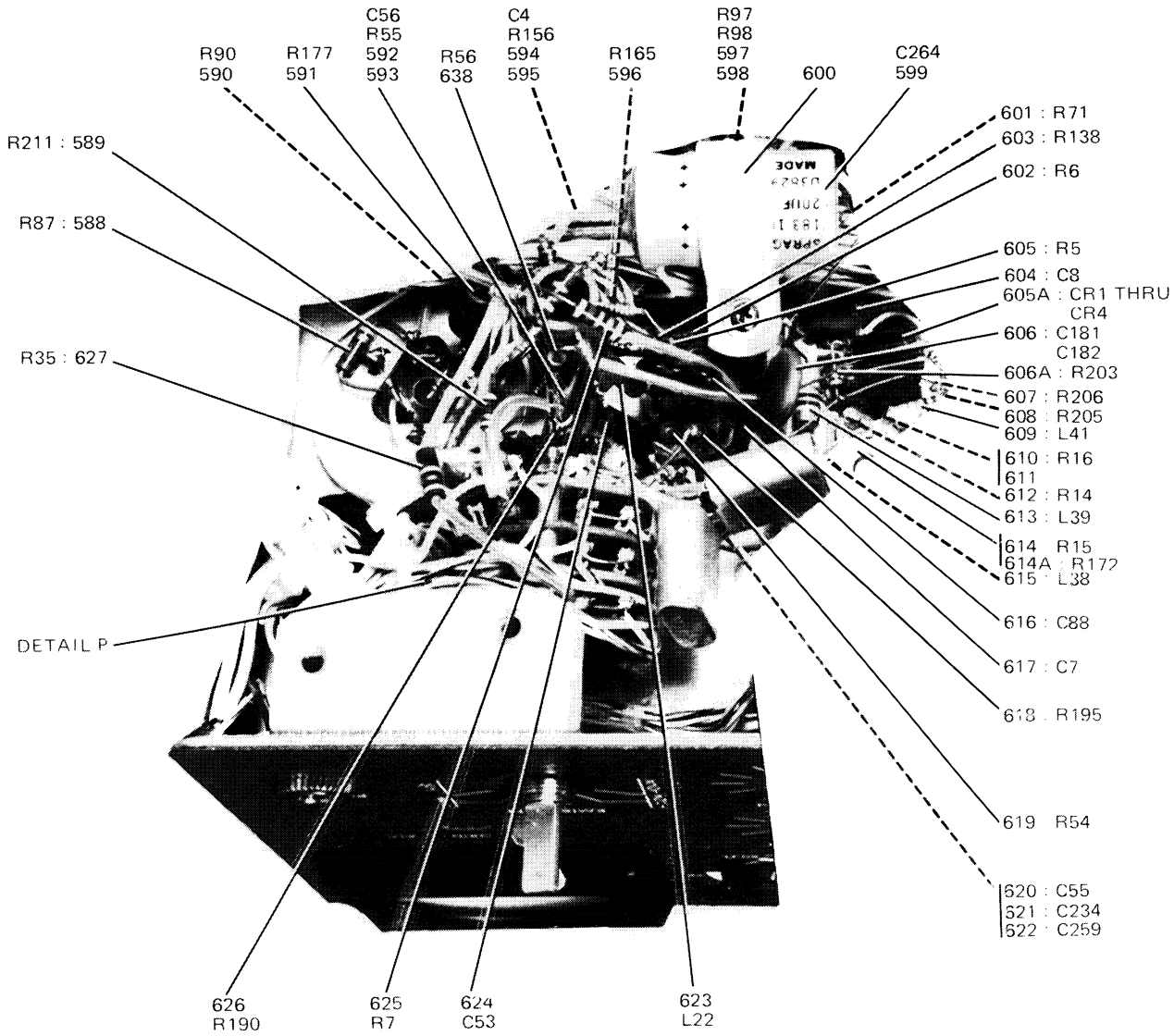


DETAIL L

TP4-3139-157

Transceiver Subassembly
Figure 6-2 (Sheet 11)

GROUP ASSEMBLY PARTS LIST

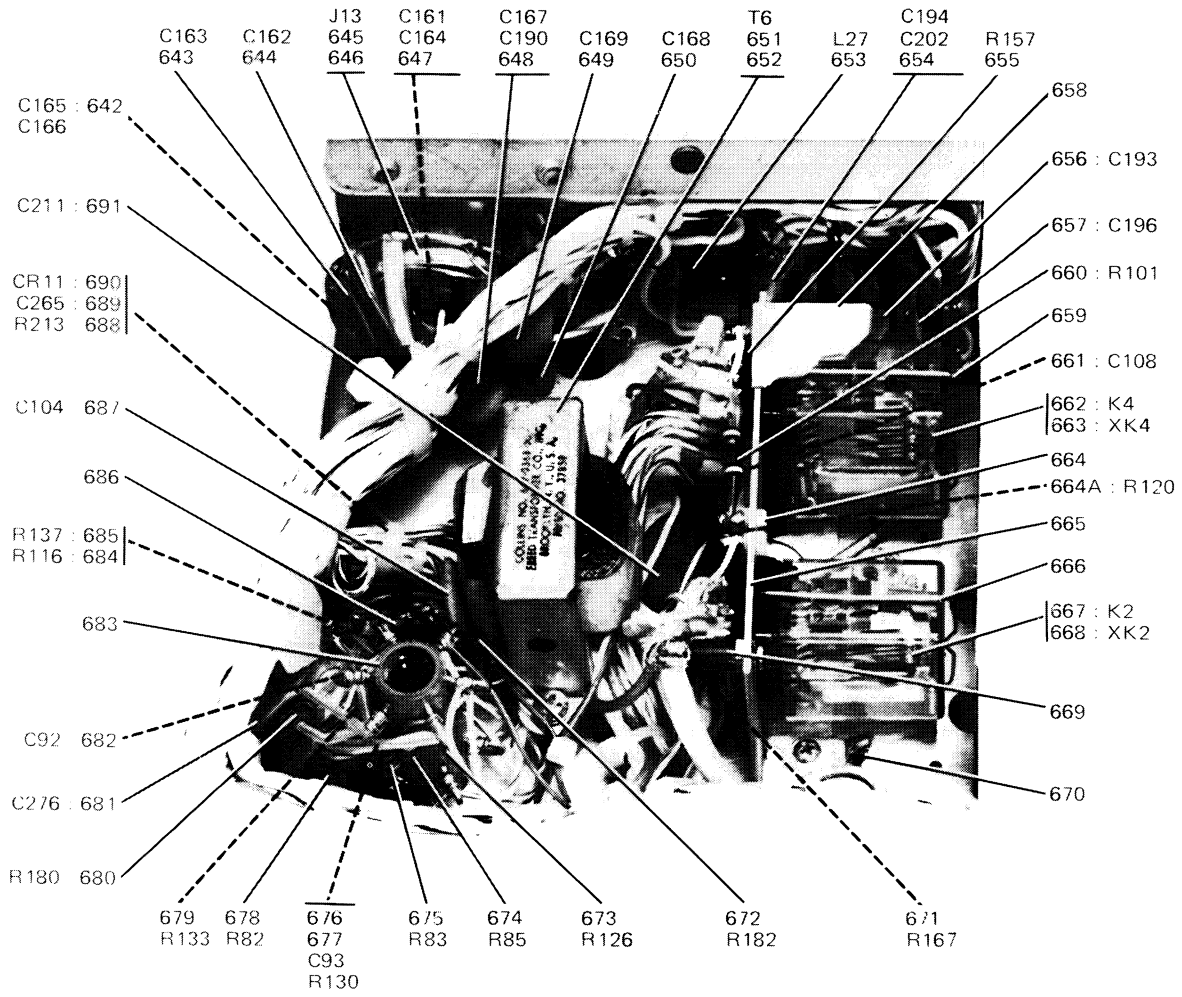


DETAIL M

TP4-3139-157

Transceiver Subassembly
Figure 6-2 (Sheet 12)

GROUP ASSEMBLY PARTS LIST

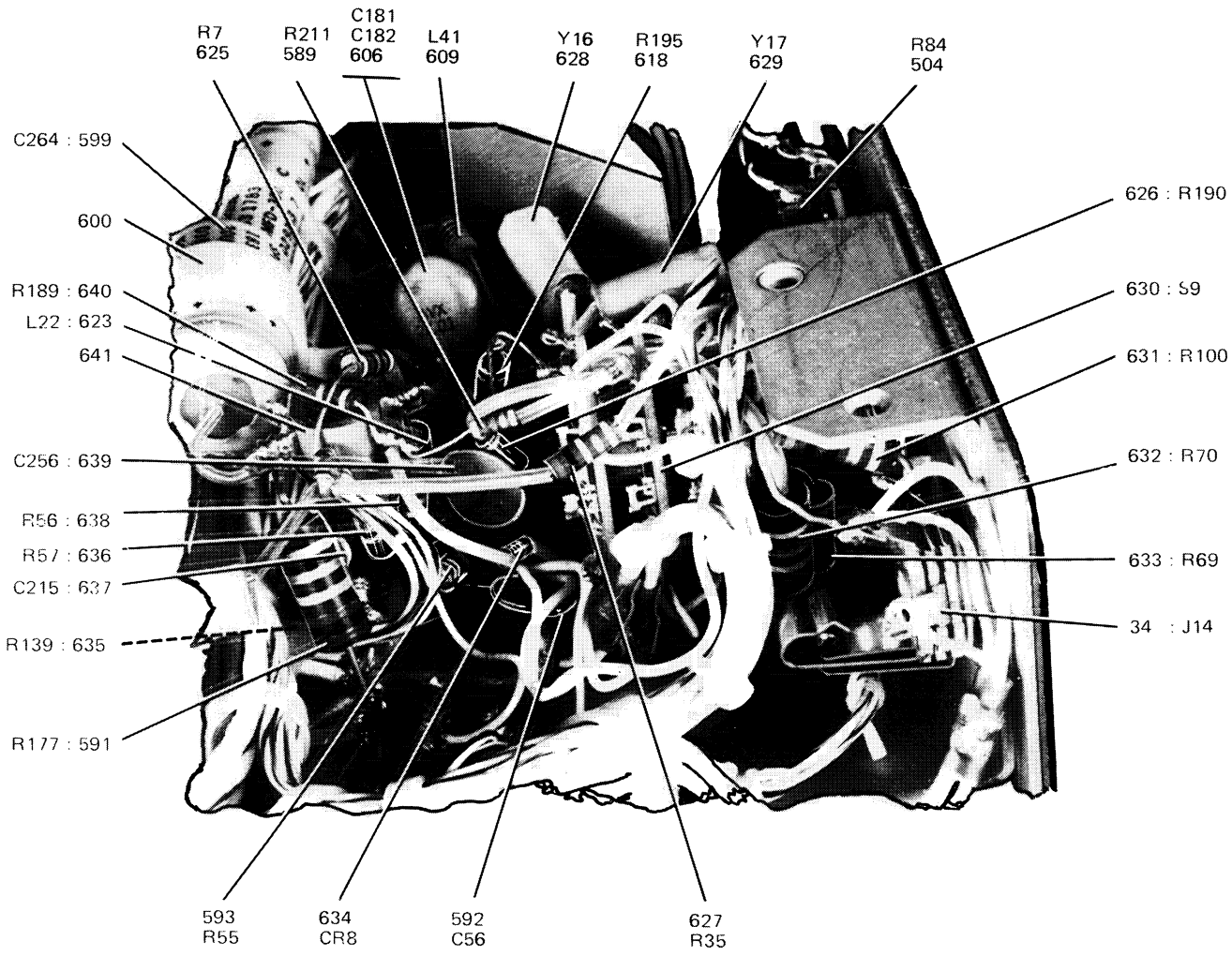


DETAIL N

TP4-3139-157

Transceiver Subassembly
Figure 6-2 (Sheet 13)

GROUP ASSEMBLY PARTS LIST

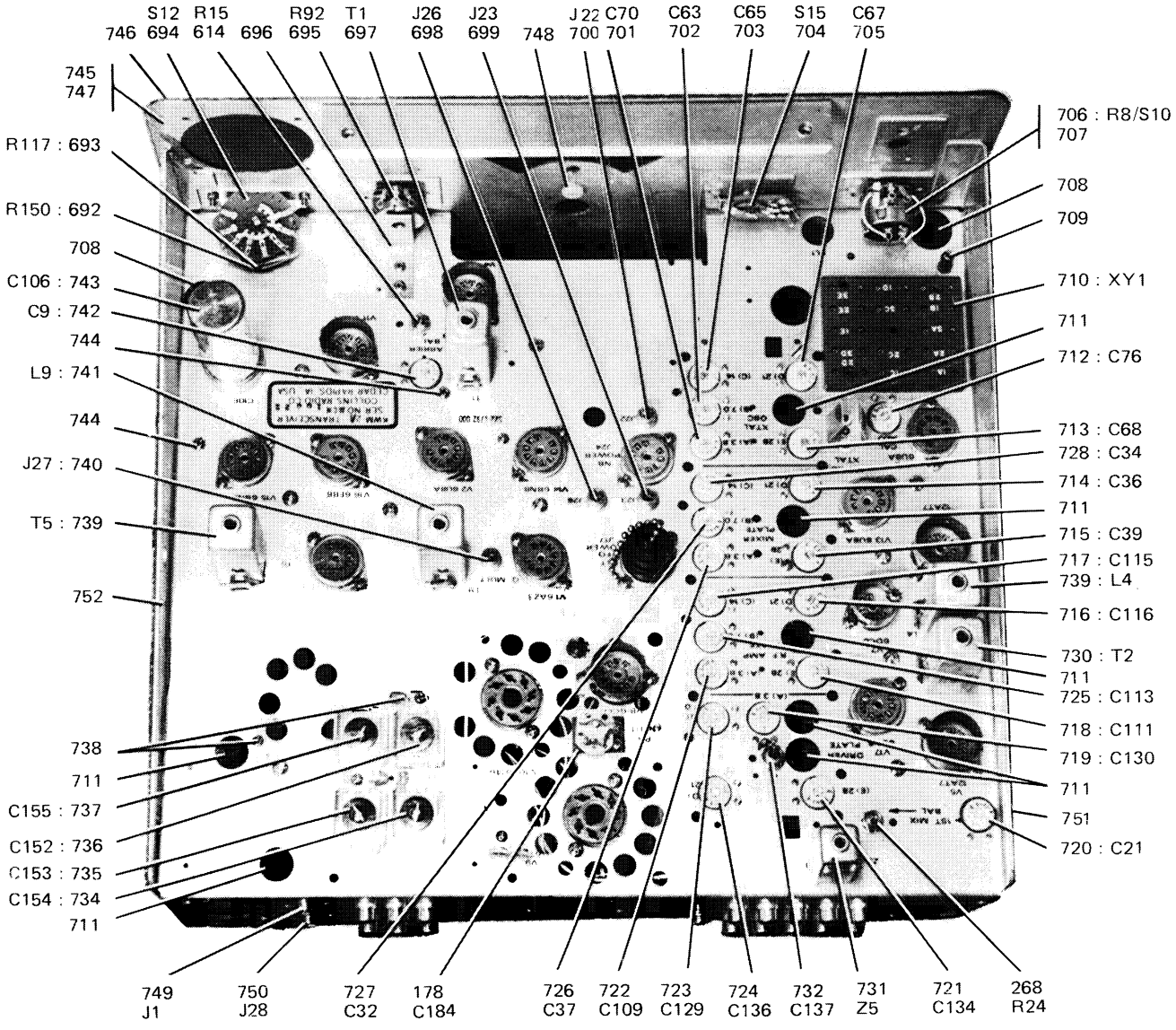


DETAIL P

TP4-3139-157

Transceiver Subassembly
Figure 6-2 (Sheet 14)

GROUP ASSEMBLY PARTS LIST



DETAIL O

TP4-3139-157

Transceiver Subassembly
Figure 6-2 (Sheet 15)

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	545-9114-000	1	TRANSCEIVER SUBASSEMBLY (SEE FIG 6-1-5 FOR NHA)	A	REF
	544-9697-000	1	TRANSCEIVER SUBASSEMBLY (SEE FIG 6-1-5 FOR NHA)	B	REF
1	543-8039-000	2	KNOB	A	6
1	543-8039-000	2	KNOB	B	5
2	544-0779-004	2	KNOB	B	1
	328-0473-000	2	SETSCREW, CD PL STL, 8-32 X 3/16 (V08664) 328-0473-000 (AP)	B	1
3	544-7268-002	2	KNOB	B	1
	328-0506-020	2	SETSCREW, CD PL STL, 6-40 X 3/16 (V08664) 328-0506-020 (AP)	B	1
4	544-7277-004	2	PLATE, ESCUTCHEON	B	1
	8947-151	2	NUT,PLAIN,HEX, NP BRS, 15/32-32 (V04009) 334-4030-000 (AP)	B	1
	1722-01	2	WASHER,LOCK, SST, 0.480 ID X 0.607 OD (V78189) 373-0083-000 (AP)	B	1
5	544-7262-000	2	CARD,FREQ SELECTOR	B	1
6	544-7267-002	2	CRANK,BELL (EFF THRU MCN 2004)	B	1
6	790-0408-000	2	ARM,PIVOT (EFF MCN 2005)	B	1
	328-0512-010	2	SETSCREW, SST, 6-40 X 0.125 (V08664) 328-0512-010 (AP)	B	2
7	543-8043-000	2	KNOB		1
8	543-8088-002	2	KNOB		1
9	553-5787-003	2	KNOB		1
	335-0041-000	2	SETSCREW, SST, 8-32 X 3/16 (V08664) 335-0041-000 (AP)		2
10	757-8610-000	2	SHAFT,LOCK	B	1
11	757-8613-001	2	BUSHING	B	1
12	757-8614-000	2	ARM,LOCK	B	1
	MS51959-16	2	SCREW,MACH, SST, 4-40 X 7/16 (V96906) 342-0047-000 (AP FOR 10-12)		1
13	543-8078-002	2	KNOB		1
	328-0005-000	2	SETSCREW, SST, 4-48 X 1/8 (V08664) 328-0005-000 (AP)		1
14	543-8042-000	2	SHAFT,ASSY (FIDUCIAL)		1
	331-7000-00	2	SHIM, BRS, 0.127 ID X 0.375 OD (V79807) 331-7000-000 (AP)		3
15	553-5701-004	2	PLATE, ESCUTCHEON	A	1
15	553-5702-004	2	PLATE, ESCUTCHEON	B	1
	8947-151	2	NUT,PLAIN,HEX, NP BRS, 15/32-32 (V04009) 334-4030-000 (AP)		1
	MS16624-1025	2	RING,RTNG (V96906) 340-0025-000 (AP)		1
	WW19491	2	SHIM (V87487) 331-9001-000 (AP)		1
	331-5020-00	2	SHIM, BRS, 0.250 ID X 0.500 OD (V79807) 331-5020-000 (AP)		1
	P319-0043-000	2	SCREW,MACH, NP BRS, 4-40 X 7/16 (V77250) 319-0043-000 (AP)		2
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP)		1
	P342-0155-000	2	SCREW,MACH, NP BRS, 4-40 X 7/16 (V77250) 342-0155-000 (AP)		1
16	544-3128-002	2	BRACKET,SUPPORT		1
	P343-0298-000	2	SCREW,MACH, NP BRS, 2-56 X 3/16 (V77250) 343-0298-000 (AP)		2
17	522-1093-000	2	OSCILLATOR,RF, TYPE 70K-2 (SEE FIG 6-3)		1
	330-0735-000	2	SCREW,TPG,THD, CD PL STL, 6-20 X 1/4 (V45722) 330-0735-000 (AP)		2
	310-0055-000	2	WASHER,FLAT, BRS, 0.147 ID X 0.312 OD (V79807) 310-0055-000 (AP)		2
18	546-7829-004	2	DIAL ASSY		1
	328-0512-010	2	SETSCREW, SST, 6-40 X 0.125 (V08664) 328-0512-010 (AP)		2
19	543-8104-002	3	WASHER,FELT		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM		PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	20	543-8076-002	3	DRUM,DIAL		1
		P320-0008-00	3	SCREW,MACH, NP BRS, 0-80 X 1/4 (V77250) 320-0008-000 (AP)		3
		310-0274-000	3	WASHER,LOCK, NP BRS, 0.073 ID X 0.117 OD (V76665) 310-0274-000 (AP)		3
		543-5577-003	3	WASHER,FLAT (AP)		3
	21	543-8034-002	3	DIAL,NUMBERED		1
	22	543-8033-002	3	DIAL,GRADUATED		1
	23	543-8084-002	3	WASHER,SPACING		1
	24	546-7823-004	3	RING,DRIVE		1
	25	548-9326-000	2	SHAFT ASSY, TUNING		1
	26	543-8035-000	2	BUSHING		1
	27	545-6002-000	2	GEAR,SPUR		1
	28	545-6000-002	2	BEARING,SLV		1
		P343-0282-000	2	SCREW,MACH, SST, 4-40 X 9/16 (V77250) 343-0282-000 (AP FOR 27-28)		1
		MS35338-97	2	WASHER,SPRING, CD PL BRZ, 0.115 ID X 0.209 OD (V96906) 310-0095-000 (AP FOR 27-28)		1
		310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP FOR 27-28)		1
	29	543-8093-003	2	DISC-FIDUCIAL		1
	30	280-3423-00	2	INSIGNIA (VA1334) 280-3423-000 (EFF TO REV LTR DJ)		1
		C13388SS010	2	PUSH ON NUT (V78553) 334-1331-000 (AP) (EFF TO REV LTR DJ)		1
	31	543-8044-000	2	KNOB		1
	32	544-3148-003	2	LEVER,TRIMMING		1
	33	281-0330-000	2	KNOB (V18986) 281-0330-000		1
	34	13A	2	JACK,TEL (V82389) 360-0169-000 J14		1
		NO20BRASS	2	NUT,PLAIN, NP BRS, 3/8-32 (V08591) 334-1657-000 (AP)		1
		1720-02	2	WASHER,LOCK, SST, 0.391 ID X 0.507 OD (V78189) 373-0085-000 (AP)		1
	35	M641-5-1	2	JACK,TEL (V81349) 358-1050-000 J15		1
		NO20BRASS	2	NUT,PLAIN, NP BRS, 3/8-32 (V08591) 334-1657-000 (AP)		1
		1720-02	2	WASHER,LOCK, SST, 0.391 ID X 0.507 OD (V78189) 373-0085-000 (AP)		1
	36	1400W	2	KNOB (V72512) 281-0069-000		3
	37	376-7206-000	2	RESISTOR,VAR, 10MEGO, 30%, 1/4W (V71450) 376-7206-000 R43		1
	38	546-7971-002	2	BRACKET		1
	39	544-9716-002	2	COVER,METER		1
	40	544-9717-002	2	POST		2
		P313-0003-000	2	NUT,PLAIN,HEX, NP BRS, 1/4-28 (V77250) 313-0003-000 (AP FOR 38-40)		2
		505-9208-001	2	WASHER (AP FOR 38-40)		2
		310-0058-000	2	WASHER,FLAT, BRS, 0.172 ID X 0.437 OD (V79807) 310-0058-000 (AP FOR 38-40)		2
	41	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C107		1
	42	2104-08-02-2520N	2	TERMINAL,LUG (V78189) 304-0319-000		2
	43	458-0491-00	2	METER,AUDIO LVL (V03562) 458-0491-000 M1		1
	44	MS15571-2	2	LAMP,INCAND (V96906) 262-3240-000 DS2		1
	45	541-6554-003	2	SHIELD,ELECTRON TUBE (EFF TO REV LTR DM)		4
	45	M24251-6-6	2	SHIELD, TUBE (V81349) 141-0594-000 (EFF REV LTR DM)		4
	46	541-6533-003	2	RETAINER, ELECTRON TUBE		4

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 47	6U8A	2	ELECTRON TUBE (V82219) 255-0328-000 V11		1
48	TS103P01	2	SOCKET,ELECTRON (V81349) 220-1103-000 XV11		1
	P313-0051-000	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0051-000 (AP)		2
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		2
	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000 (AP)		3
	P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		1
	MS51957-15	2	SCREW,MACH, STL, 4-40 X 3/8 (V96906) 343-0135-000 (AP)		1
49	544-9695-000	2	PULLY		1
	328-0512-010	2	SETSCREW, SST, 6-40 X 0.125 (V08664) 328-0512-010 (AP)		1
49A	544-9709-000	2	SHAFT,SWITCH		1
	5100-25C	2	RING,RTNG (V79136) 340-0038-000 (AP)		1
	310-0061-000	2	WASHER,FLAT, BRS, 0.265 ID X 0.625 OD (V79807) 310-0061-000 (AP)		1
50	6AZ8	2	ELECTRON TUBE (V49671) 255-0333-000 V4		1
51	TS103P01	2	SOCKET,ELECTRON (V81349) 220-1103-000 XV4		1
	P313-0051-000	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0051-000 (AP)		1
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		2
	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000 (AP)		2
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		1
	P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		1
52	6BN8	2	ELECTRON TUBE (V82219) 255-0335-000 V14		1
53	59-412-1000	2	SOCKET,ELECTRON (V02660) 220-1054-000 XV14		1
	P313-0051-000	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0051-000 (AP)		1
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		2
	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000 (AP)		2
	P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		1
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		1
54	196302F1AC	2	SWITCH,RTRY (V76854) 259-1075-000 S11		1
	P334-4060-000	2	NUT,PLAIN,HEX, NP BRS 3/8-32 (V77250) 334-4060-000 (AP)		1
	1720-02	2	WASHER,LOCK, SST, 0.391 ID X 0.507 OD (V78189) 373-0085-000 (AP)		1
55	10070-4	3	SWITCH,SNAP (V76854) 259-8011-010 (P/O S11)		1
56	RCR07G471KS	2	RESISTOR,FXD, CMPSN, 470 OHMS, 10%, 1/4W (V81349) 745-0737-000 R207 /12/		1
56	RCR20G681KS	2	RESISTOR,FXD, CMPSN, 680 OHMS, 10%, 1/2W (V81349) 745-1345-000 R207 /12/		1
57	RTMT16M	2	TERMINAL,STUD (V91663) 306-0977-000		1
58	543-8062-002	2	BAR,SUPPORT		1
	330-0735-000	2	SCREW,TPG,THD, CD PL STL, 6-20 X 1/4 (V45722) 330-0735-000 (AP)		2
59	544-3139-002	2	SPRING		1
60	57-634-5	2	CORE,FERRITE (V78488) 288-2509-000		5
61	757-6574-001	2	RACK ASSY		1
62	543-8030-000	3	TABLE,SLUG		1
	P343-0299-000	3	SCREW,MACH, NP BRS, 2-56 X 1/4 (V77250) 343-0299-000 (AP)		2
	302-0023-00	2	WASHER,NM, CORPRENE, 0.093 ID X 0.250 OD (V05284) 302-0023-000 (AP)		2
	543-8103-002	2	SPRING (AP)		

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 - 63	543-8029-000	4	STRAP,SLUG RACK		2
	R4012X5-32PLAIN	4	RIVET,TUBULAR, AL, 0.123 DIA X 5/32 (V12014) 305-2021-000 (AP)		2
64	543-8070-003	4	TABLE,SLUG		1
65	546-2130-002	3	STOP,THREADED		1
66	544-9722-003	3	SHAFT,TUBE		1
67	1-8SSBALL	3	BEARING,BALL (V27545) 309-0019-000		1
	97NM02	3	NUT,SLFLKG,HEX, NP BRS, 10-32 (V72962) 333-0390-000 (AP FOR 66-67)		1
	328-0028-000	3	SETSCREW, SST, 10-32 X 1/2 (V08664) 328-0028-000 (AP FOR 66-67)		1
68	309-5300-000	3	BALL BEARING (V43991) 309-5300-000		4
69	544-9705-002	3	SHAFT,SUN		1
70	543-8087-002	3	PULLEY,IDLER		2
71	543-8065-002	3	SPACER,SLV		2
	MS51957-49	3	SCREW,MACH, SST, 8-32 X 1 (V96906) 343-0193-000 (AP FOR 70-71)		2
	MS35649-284	3	NUT,PLAIN,HEX, SST, 8-32 (V96906) 313-0017-000 (AP FOR 70-71)		2
72	A238-5MILL6085A	3	BEARING,SLV (V70417) 309-0424-000		3
	P313-0156-00	3	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP)		1
	MS35338-97	3	WASHER,SPRING, CD PL BRZ, 0.115 ID X 0.209 OD (V96906) 310-0095-000 (AP)		1
	P343-0289-000	3	SCREW,MACH, NP BRS, 4-40 X 1/2 (V77250) 343-0289-000 (AP)		2
	P343-0291-000	3	SCREW,MACH, NP BRS, 4-40 X 3/4 (V77250) 343-0291-000 (AP)		1
73	544-9720-003	3	BRACKET,MTG, FRONT		1
74	544-9721-003	3	BRACKET,MTG, REAR		1
	330-0735-000	3	SCREW,TPG,THD, CD PL STL, 6-20 X 1/4 (V45722) 330-0735-000 (AP FOR 73-74)		4
	310-0077-000	3	WASHER,LOCK, BRZ, 0.141 ID X 0.253 OD (V79807) 310-0077-000 (AP FOR 73-74)		1
75	BL289-1424-000	2	XTAL UNIT,QTZ, 100.0000KHZ (V71034) 289-1424-000 Y15		1
76	544-2844-002	2	CLIP,ELECTRICAL		1
77	TS0205C01	2	SOCKET,XTAL (V81349) 292-0082-000 XY15		1
	P313-0050-000	2	NUT,PLAIN,HEX, NP BRS, 2-56 (V77250) 313-0050-000 (AP FOR 76-77)		1
	302-0023-00	2	WASHER,NM, CORPRENE, 0.093 ID X 0.250 OD (V05284) 302-0023-000 (AP FOR 76-77)		2
	310-0053-000	2	WASHER,FLAT, BRS, 0.093 ID X 0.250 OD (V79807) 310-0053-000 (AP FOR 76-77)		1
	P342-0147-000	2	SCREW,MACH, NI PL BRS, 2-56 X 1/2 (V77250) 342-0147-000 (AP FOR 76-77)		1
78	6U8A	2	ELECTRON TUBE (V82219) 255-0328-000 V12		1
79	6U8A	2	ELECTRON TUBE (V82219) 255-0328-000 V13 (EFF TO REV LTR DL)		1
79	6EA8	2	ELECTRON TUBE (V49671) 255-0379-000 V13 (EFF REV LTR DL)		1
80	6BN8	2	ELECTRON TUBE (V82219) 255-0335-000 V17		1
81	59-412-1000	2	SOCKET,ELECTRON (V02660) 220-1054-000 XV12 ,XV13 ,XV17		3
	P313-0051-000	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0051-000 (AP)		6
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		6
	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000 (AP)		5
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		6
82	12AT7	2	ELECTRON TUBE (V86684) 255-0205-000 V6		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM		PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	83	12AT7	2	ELECTRON TUBE (V86684) 255-0205-000 V5		1
	84	TS103P01	2	SOCKET,ELECTRON (V81349) 220-1103-000 XV5 ,XV6		2
		P313-0051-000	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0051-000 (AP)		4
		MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		4
		2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000 (AP)		4
		P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		4
	85	541-6551-003	2	SHIELD,ELECTRON TUBE (EFF TO REV LTR DM)		1
	85	M24251-6-2	2	SHIELD,TUBE (V81349) 141-0591-000 (EFF REV LTR DM)		1
	86	541-6532-003	2	RETAINER, ELECTRON TUBE		1
	87	6DC6	2	ELECTRON TUBE (V86684) 255-0226-000 V7		1
	88	TS102P01	2	SOCKET,ELECTRON (V81349) 220-1111-000 XV7		1
		P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		2
	89	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J6		1
	90	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J21		1
	91	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J18		1
	92	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J8		1
	93	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J4		1
		1214-05	2	WASHER,LOCK, CD PL STL, 0.267 ID X 0.408 OD (V78189) 373-0087-000 (AP FOR 89-93)		5
	94	P343-0311-000	2	SCREW,MACH, NP BRS, 8-32 X 1/2 (V77250) 343-0311-000		1
		MS35338-99	2	WASHER,SPRING, CD PL BRZ, 0.168 ID X 0.293 OD (V96906) 310-0098-000 (AP)		1
		310-0058-000	2	WASHER,FLAT, BRS, 0.172 ID X 0.437 OD (V79807) 310-0058-000 (AP)		1
	95	20-3048	2	CONNECTOR,PLUG, ELEC (V02660) 372-1819-000 (REPLACE WITH 609-1215-001)/10A/		1
	95	609-1215-001	2	JUMPER, PLUG /10A/		1
	96	59-412-1000	2	SOCKET,ELECTRON (V02660) 220-1054-000 J17		1
		MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		2
		2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000 (AP)		1
		P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		2
	97	59-412-1000	2	SOCKET,ELECTRON (V02660) 220-1054-000 J24		1
		P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP FOR 96-97)		4
		MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP FOR 96-97)		4
		2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000 (AP FOR 96-97)		1
		P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP FOR 96-97)		4
	98	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J9		1
	99	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J7		1
	100	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J10		1
		1214-05	2	WASHER,LOCK, CD PL STL, 0.267 ID X 0.408 OD (V78189) 373-0087-000 (AP FOR 98-100)		3
	101	6AZ8	2	ELECTRON TUBE (V49671) 255-0333-000 V1		1
	102	59-412-1000	2	SOCKET,ELECTRON (V02660) 220-1054-000 XV1		1
		P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		2
	103	6AZ8	2	ELECTRON TUBE (V49671) 255-0333-000 V3		1
	104	59-412-1000	2	SOCKET,ELECTRON (V02660) 220-1054-000 XV3		1
		542-5476-002	2	SHIELD,ELECTRON TUBE (AP)		1
		MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		2
		P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		2

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 105	6EB8	2	ELECTRON TUBE (V82219) 255-0336-000 V16		1
106	59-412-1000	2	SOCKET,ELECTRON (V02660) 220-1054-000 XV16		1
	P313-0051-000	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0051-000 (AP)		1
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		2
	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000 (AP)		3
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		1
	P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		1
107	6BN8	2	ELECTRON TUBE (V82219) 255-0335-000 V15		1
108	59-412-1000	2	SOCKET,ELECTRON (V02660) 220-1054-000 XV15		1
	P313-0051-000	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0051-000 (AP)		2
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		2
	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000 (AP)		2
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		1
	P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		1
109	6U8A	2	ELECTRON TUBE (V82219) 255-0328-000 V2		1
110	59-412-1000	2	SOCKET,ELECTRON (V02660) 220-1054-000 XV2		1
	P313-0051-000	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0051-000 (AP)		1
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		2
	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000 (AP)		3
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		1
	P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		1
111	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J3		1
112	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J11		1
113	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J2		1
114	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J16		1
115	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J12		1
116	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J19		1
117	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J20		1
118	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J5		1
	1214-05	2	WASHER,LOCK, CD PL STL, 0.267 ID X 0.408 OD (V78189) 373-0087-000 (AP FOR 111-118)		8
119	544-9729-003	2	SHIELD,COIL		3
	P313-0053-000	2	NUT,PLAIN,HEX, NP BRS, 6-32 (V77250) 313-0053-000 (AP)		6
	MS35338-98	2	WASHER,SPRING, CD PL BRZ, 0.141 ID X 0.250 OD (V96906) 310-0096-000 (AP)		6
120	544-2832-003	2	SHIELD,COIL		1
	P342-0153-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 342-0153-000 (AP)		1
	P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		1
	MS35338-97	2	WASHER,SPRING, CD PL BRZ, 0.115 ID X 0.209 OD (V96906) 310-0095-000 (AP)		1
121	545-7786-003	2	STRIP,GROUNDING		1
122	545-7785-003	2	STRIP,GROUNDING		3
123	545-7784-003	2	STRIP,GROUNDING		1
124	544-7261-000	2	COVER,ASSY	B	1
	MS51959-14	2	SCREW,MACH, SST, 4-40 X 5/16 (V96906) 342-0045-000 (AP)		1
125	544-7265-002	3	PAD,XTAL	B	1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 126	290-9009-000	2	XTAL UNIT,QTZ, 6555.000KHZ (V32897) 290-9009-000 Y1		1
127	290-9010-000	2	XTAL UNIT,QTZ, 6755.000KHZ (V32897) 290-9010-000 Y2		1
128	290-9062-000	2	XTAL UNIT,QTZ, 8577.500KHZ (V32897) 290-9062-000 Y6		1
129	290-9063-000	2	XTAL UNIT,QTZ, 8677.500KHZ (V32897) 290-9063-000 Y7		1
130	290-9098-000	2	XTAL UNIT,QTZ, 12177.50KHZ (V32897) 290-9098-000 Y10		1
131	290-9099-000	2	XTAL UNIT,QTZ, 12277.50KHZ (V32897) 290-9099-000 Y11		1
132	290-9011-000	2	XTAL UNIT,QTZ, 6955.000KHZ (V32897) 290-9011-000 Y3		1
133	S290-9201-000	2	XTAL UNIT,QTZ, 15827.50KHZ (V94148) 290-9201-000 Y12		1
134	290-9066-000	2	XTAL UNIT,QTZ, 8977.500KHZ (V32897) 290-9066-000 Y8		1
135	290-9027-000	2	XTAL UNIT,QTZ, 10155.00KHZ (V32897) 290-9027-000 Y4		1
136	290-9097-000	2	XTAL UNIT,QTZ, 12077.50KHZ (V32897) 290-9097-000 Y9		1
137	290-9028-000	2	XTAL UNIT,QTZ, 10355.00KHZ (V32897) 290-9028-000 Y5		1
138	544-9711-002	2	SHAFT,BAND- SWITCH		1
	6-40X1-8 4SPLINE 416SST	2	SETSCREW, PSVT CRES, 6-40 X 0.125 (V08664) 328-0019-000 (AP)		2
139	RCR20G680KS	2	RESISTOR,FXD, CMPSN, 68 OHMS, 10%, 1/2W (V81349) 745-1303-000 R38 /12/		1
139	RCR20G221KS	2	RESISTOR,FXD, CMPSN, 220 OHMS, 10%, 1/2W (V81349) 745-1324-000 R38 /12/		1
139	RCR20G151KS	2	RESISTOR,FXD, CMPSN, 150 OHMS, 10%, 1/2W (V81349) 745-1317-000 R38 /12/		1
140	MS15571-2	2	LAMP,INCAND (V96906) 262-3240-000 DS1		1
141	4159-043	2	LAMPHOLDER (V72765) 262-1210-000 XDS1		1
142	376-7202-000	2	RESISTOR,VAR, 500K, 30%, 1/4W (V71450) 376-7202-000 R39		1
143	376-7202-000	2	RESISTOR,VAR, 500K, 30%, 1/4W (V71450) 376-7202-000 R45		1
	P334-4060-000	2	NUT,PLAIN,HEX, NP BRS 3/8-32 (V77250) 334-4060-000 (AP FOR 142-143)		2
	1720-02	2	WASHER,LOCK, SST, 0.391 ID X 0.507 OD (V78189) 373-0085-000 (AP FOR 142-143)		2
144	RCR20G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 1/2W (V81349) 745-1422-000 R123		1
145	WR5454	2	RESISTOR,VAR, 100K, 20%, 0.2W (V71450) 376-4622-000 R121		1
146	WR5453	2	RESISTOR,VAR, 250 OHMS, 20%, 0.2W (V71450) 376-4621-000 R30		1
147	WR5455	2	RESISTOR,VAR, 1K, 20%, 0.2W (V71450) 376-4623-000 R132 /20A/		1
147	WR5451	2	RESISTOR,VAR, 2.5K, 30%, 0.2W (V71450) 376-4619-000 R132 /20A/		1
	P334-0253-00	2	NUT,PLAIN,HEX, NP BRS, 1/4-32 (V77250) 334-0253-000 (AP FOR 145-147)		3
	1214-05	2	WASHER,LOCK, CD PL STL, 0.267 ID X 0.408 OD (V78189) 373-0087-000 (AP FOR 145-147)		3
148	544-9723-003	2	BRACKET,LIGHT		1
149	540-9053-003	2	POST		2
150	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000		1
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP FOR 149-150)		2
	MS35333-70	2	WASHER,LOCK, SST, 0.123 ID X 0.270 OD (V96906) 373-8510-000 (AP FOR 149-150)		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 151	33C2	2	CAPACITOR,FXD, CER DIEL, 0.02UF, 20%, 500V (V56289) 913-2142-000 C216 /12/		1
152	526-9337-000	2	FILTER, MECHANICAL FL1 /13/		1
152	526-9427-000	2	FILTER, MECHANICAL FL1 /13/		1
153	CM05ED470J03	2	CAPACITOR,FXD, MICA DIEL, 47PF, 5%, 500V (V81349) 912-2792-000 C14		1
154	T50411	2	CAPACITOR,VAR, MICA DIEL, 7 TO 60 PF, 350V (V72136) 918-0052-000 C54		1
155	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C15		1
156	18-257	2	COIL,RF, 10MH (V09250) 240-0199-000 L2 /12/ (EFF TO REV LTR DN)		1
156	MS75089-35	2	COIL,RF, 10000UH (V96906) 240-2715-610 L2 (EFF REV LTR DN		1
157	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000		1
158	332-1403-165	2	TERMINAL BOARD (V71785) 306-0001-000		1
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP FOR 157-158)		1
	MS35338-97	2	WASHER,SPRING, CD PL BRZ, 0.115 ID X 0.209 OD (V96906) 310-0095-000 (AP FOR 157-158)		1
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP FOR 157-158)		1
159	HP7N	2	CLAMP,LOOP (V09922) 150-1544-000		1
159	608-9615-001	2	CLIP /13/		1
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP)		1
	310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP)		1
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		1
	P313-0050-000	2	NUT,PLAIN,HEX, NP BRS, 2-56 (V77250) 313-0050-000 (AP)		1
	310-0053-000	2	WASHER,FLAT, BRS, 0.093 ID X 0.250 OD (V79807) 310-0053-000 (AP)		1
	P343-0299-000	2	SCREW,MACH, NP BRS, 2-56 X 1/4 (V77250) 343-0299-000 (AP)		1
160	544-9714-002	2	BRACKET ASSY, MTG /13/		1
160	606-9731-001	2	BRACKET ASSY, MTG /13/		1
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		2
160A	544-3146-003	2	COVER,CHASSIS ASSY		1
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		5
161	544-3125-002	2	SUPPRESSOR, PARASITIC		2
162	D236-13	3	LEAD,ELEC (V42498) 301-6000-000		2
163	543-8022-002	3	SUPPRESSOR, PARASITIC Z1		1
164	543-8022-002	3	SUPPRESSOR, PARASITIC Z2		1
165	6146B	2	ELECTRON TUBE (V94154) 256-0149-000 V9		1
166	168-013-1000	2	SOCKET,ELECTRON (V02660) 220-1155-000 XV9		1
	P313-0140-000	2	NUT,PLAIN,HEX, NP BRS, 6-32 (V77250) 313-0140-000 (AP)		2
	MS35338-98	2	WASHER,SPRING, CD PL BRZ, 0.141 ID X 0.250 OD (V96906) 310-0096-000 (AP)		2
	2104-06-02-2520N	2	TERMINAL,LUG (V78189) 304-0318-000 (AP)		2
	P343-0329-000	2	SCREW,MACH, NP BRS, 6-32 X 5/16 (V77250) 343-0329-000 (AP)		2
167	6146B	2	ELECTRON TUBE (V94154) 256-0149-000 V10		1
168	168-013-1000	2	SOCKET,ELECTRON (V02660) 220-1155-000 XV10		1
	P313-0140-000	2	NUT,PLAIN,HEX, NP BRS, 6-32 (V77250) 313-0140-000 (AP)		2
	310-0097-000	2	WASHER,LOCK, CD PL BRZ, 0.141 ID X 0.239 OD (V79807) 310-0097-000 (AP)		2

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	2104-06-02-2520N	2	TERMINAL,LUG (V78189) 304-0318-000 (AP)		1
	P343-0329-000	2	SCREW,MACH, NP BRS, 6-32 X 5/16 (V77250) 343-0329-000 (AP)		1
169	DA855-010	2	CAPACITOR,FXD, CER DIEL, 10PF, 10%, 5000V (V71590) 913-0972-000 C180 /33/		1
169	2DHT54T150JAA	2	CAPACITOR,FXD, CER DIEL, 15PF, 5%, 5000V (V21052) 913-1401-000 C180 /33/		1
170	RCR32G474KS	2	RESISTOR,FXD, CMPSN, 0.47MEGO, 10%, 1W (V81349) 745-3464-000 R127		1
171	SK10066S	2	CAPACITOR,FXD, MICA DIEL, 1000PF, 10%, 500V (V72982) 912-5232-000 C123		1
171A	DM15C120K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 12PF, 10%, 500V (V72136) 912-2757-000 C270 /33/		1
172	DA172-057CB	2	CAPACITOR,FXD, CER DIEL, 0.001UF, M20%P100%, 2000V (V71590) 913-3537-000 C183 CR		1
172	858W5T2KV1KPFPOR M20PCT	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 2000V (V72982) 913-4803-000 C183		1
173	858W5T2KV1KPFPOR M20PCT	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 2000V (V72982) 913-4803-000 C148		1
174	858W5T2KV1KPFPOR M20PCT	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 2000V (V72982) 913-4803-000 C149		1
175	M24251-6-6	2	SHIELD,TUBE (V81349) 141-0595-000		1
176	6CL6	2	ELECTRON TUBE (V86684) 254-0931-000 V8		1
177	TS103P01	2	SOCKET,ELECTRON (V81349) 220-1103-000 XV8		1
	542-5476-002	2	SHIELD (AP)		1
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		2
	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000 (AP)		1
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		2
178	2557-018-8-50E	2	CAPACITOR,VAR, CER DIEL, 8 TO 75PF, 350V (V72982) 922-1075-000 C184 (EFF THRU MCN 6468)		1
178	160-104-3	2	CAPACITOR,VAR, AIR DIEL, 2.2 TO 8.1PF, 1250V (V71313) 922-0031-000 C184 (EFF MCN 6469)		1
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP)		2
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		2
179	240-0194-000	2	COIL,RF, 120UH (V82142) 240-0194-000 L28 (EFF TO REV LTR DJ)		1
179	MS75103-10	2	COIL,RF, 120UH (V96906) 240-1627-000 L28 (EFF REV LTR DJ)		1
180	240-0194-000	2	COIL,RF, 120UH (V82142) 240-0194-000 L32 (EFF TO REV LTR DJ)		1
180	MS75103-10	2	COIL,RF, 120UH (V96906) 240-1627-000 L32 (EFF REV LTR DJ)		1
181	332-14-02-001	2	TERMINAL BOARD (V71785) 306-0002-000		1
	P313-0051-000	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0051-000 (AP)		1
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		1
	P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		1
182	544-3124-002	2	STRAP,PLATE		1
183	543-8024-000	2	COIL,RF L17		1
	P343-0307-000	2	SCREW,MACH, NP BRS, 8-32 X 1/4 (V77250) 343-0307-000 (AP FOR 182-183)		2
	302-0030-000	2	WASHER,NM, CK NPRN, 0.172 ID X 0.500 OD (V05284) 302-0030-000 (AP FOR 182-183)		2
184	39003	2	COUPLING,SHAFT (V76487) 015-0257-000		1
	6-32X1-8 6SPLINE 416SST	2	SETSCREW, SST, 6-32 X 1/8 (V08664) 328-0507-010 (AP)		2

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 185	544-9706-002	2	HOUSING,SHAFT		1
186	544-9707-002	2	SHAFT,TUNING		1
187	543-7739-000	2	PULLEY		2
	328-0512-010	2	SETSCREW, SST, 6-40 X 0.125 (V08664) 328-0512-010 (AP)		4
188	432-1009-00	2	CABLE,SP,ELEC (V94452) 432-1009-000		AR
189	544-9701-000	2	COIL,RF L18		1
190	9404-11-20026	2	CAPACITOR,VAR, AIR DIEL, 13.5 TO 244PF, 1000V (V71313) 920-0136-000 C150		1
	P325-0062-000	2	SCREW,MACH, SST, 6-32 X 1/4 (V77250) 325-0062-000 (AP)		2
	MS35338-98	2	WASHER,SPRING, CD PL BRZ, 0.141 ID X 0.250 OD (V96906) 310-0096-000 (AP)		2
	2104-06-02-2520N	2	TERMINAL,LUG (V78189) 304-0318-000 (AP)		1
	P334-4060-000	2	NUT,PLAIN,HEX, NP BRS 3/8-32 (V77250) 334-4060-000 (AP) (IF NOT SUPPLIED WITH C150)		2
	AN960C616	2	WASHER,FLAT, SST, 0.390 ID X 0.625 OD (V81350) 310-0540-000 (AP) (IF NOT SUPPLIED WITH C150)		2
191	02242	2	COIL,RF, 2.5MH (V96256) 240-2100-000 L21		1
191	34103	2	COIL,RF, 2.5MH (V76487) 240-0059-000 L21		1
192	920-0138-000	2	CAPACITOR,VAR, AIR DIEL, 13.5 TO 452.3PF EA SECT, (V80486) 920-0138-000 C151		1
	P325-0062-000	2	SCREW,MACH, SST, 6-32 X 1/4 (V77250) 325-0062-000 (AP)		3
	310-0077-000	2	WASHER,LOCK, BRZ, 0.141 ID X 0.253 OD (V79807) 310-0077-000 (AP) OR		3
	310-0055-000	2	WASHER,FLAT, BRS, 0.147 ID X 0.312 OD (V79807) 310-0055-000 (AP)		3
193	905	2	GROMMET,RBR (V75543) 201-1060-000		1
194	544-9719-003	2	BRACKET,MTG		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP)		4
	310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP)		4
	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000 (AP)		1
195	4040-2HT	2	TERMINAL,LUG (V77147) 304-0014-000 /13/		1
196	5048	2	EYELET,MTLC, BRS, 0.110 DIA X 0.453 (V01881) 307-1091-000		1
197	RTMT12M	2	TERMINAL,STUD (V91663) 306-0976-000		1
198	544-0467-002	2	SPRING		1
199	541-5985-002	2	SPACER		1
	310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP FOR 197-199)		2
	MS35338-97	2	WASHER,SPRING, CD PL BRZ, 0.115 ID X 0.209 OD (V96906) 310-0095-000 (AP FOR 197-199)		1
200	506-7848-002	2	COIL,RF L19		1
	P343-0328-000	2	SCREW,MACH, NP BRS, 6-32 X 1/4 (V77250) 343-0328-000 (AP)		2
201	KR2565-1	2	RELAY,AMT (V77342) 970-1914-000 K3		1
	P313-0053-000	2	NUT,PLAIN,HEX, NP BRS, 6-32 (V77250) 313-0053-000 (AP)		1
202	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C212		1
203	88130CK	2	SWITCH SECT,RTR (V76854) 269-1982-000 S8		1
204	88128CK	2	SWITCH SECT,RTR (V76854) 269-1981-000 S7		1
205	8980-2 1-4	2	SPACER,SLV (V76854) 269-1403-000		4
206	8980-2 1-4	2	SPACER,SLV (V76854) 269-1403-000		4
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP FOR 203-206)		2
	8942	2	WASHER,NM, PHEN, 0.116 ID X 0.187 OD (V76854) 302-0262-000 (AP FOR 203-206)		2
	310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP FOR 203-206)		2

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	P343-0292-000	2	SCREW,MACH, NP BRS, 4-40 X 7/8 (V77250) 343-0292-000 (AP FOR 203-206)		2
207	544-3130-002	2	BRACKET,MTG		1
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP)		2
	MS35338-97	2	WASHER,SPRING, CD PL BRZ, 0.115 ID X 0.209 OD (V96906) 310-0095-000 (AP)		2
	310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP)		2
	P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		2
208	544-9694-000	2	SHIELD,PA		1
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		5
209	913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C132 ,C147 (DUAL CAPACITOR)		1
210	1N1490	2	SEMICOND DEVICE (V93983) 353-1659-000 CR7		1
211	RCR20G120KS	2	RESISTOR,FXD, CMPSN, 12 OHMS, 10%, 1/2W (V81349) 745-1272-000 R112		1
212	331013X5U0501K	2	CAPACITOR,FXD, CER DIEL, 500PF, 10%, 500V (V72982) 913-0998-000 C143		1
213	RCR42G821KS	2	RESISTOR,FXD, CMPSN, 820 OHMS, 10%, 2W (V81349) 745-5649-000 R148 (EFF TO REV LTR DN)		1
213	RW67V821	2	RESISTOR,FXD,WW 820 OHMS, 5%, 6.5W (V81349) 747-5458-000 R148 (EFF REV LTR DN)		1
214	546-4009-002	2	CHANNEL,CABLE		1
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP)		2
	MS35338-97	2	WASHER,SPRING, CD PL BRZ, 0.115 ID X 0.209 OD (V96906) 310-0095-000 (AP)		2
	310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP)		2
	P342-0153-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 342-0153-000 (AP)		2
215	331013X5U0501K	2	CAPACITOR,FXD, CER DIEL, 500PF, 10%, 500V (V72982) 913-0998-000 C144		1
216	PW7-15000-10PCT	2	RESISTOR,FXD,WW 15K, 10%, 7W (V07716) 710-9001-000 R146		1
217	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C139		1
218	RCR20G120KS	2	RESISTOR,FXD, CMPSN, 12 OHMS, 10%, 1/2W (V81349) 745-1272-000 R113		1
219	548-8217-000	2	SUPPRESSOR, PARASITIC Z6		1
220	RCR20G120KS	2	RESISTOR,FXD, CMPSN, 12 OHMS, 10%, 1/2W (V81349) 745-1272-000 R114		1
221	331013X5U0501K	2	CAPACITOR,FXD, CER DIEL, 500PF, 10%, 500V (V72982) 913-0998-000 C145		1
222	9348	2	COIL,RF, 2MH (V24226) 240-0134-000 L12		1
223	33C2	2	CAPACITOR,FXD, CER DIEL, 0.02UF, 20%, 500V (V56289) 913-2142-000 C260		1
224	44C7A	2	CAPACITOR,FXD, CER DIEL, 4700PF, 20%, 500V (V56289) 913-3012-000 C127		1
225	RCR20G151KS	2	RESISTOR,FXD, CMPSN, 150 OHMS, 10%, 1/2W (V81349) 745-1317-000 R106		1
226	RCR20G101KS	2	RESISTOR,FXD, CMPSN, 100 OHMS, 10%, 1/2W (V81349) 745-1310-000 R104		1
227	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C126		1
228	240-0186-000	2	COIL,RF, 22UH (V82142) 240-0186-000 L23 (EFF TO REV LTR DJ)		1
228	MS75103-1	2	COIL,RF, 22UH (V96906) 240-1619-000 L23 (EFF REV LTR DJ)		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 229	CC20CK010C	2	CAPACITOR,FXD, CER DIEL, 1PF, 1/4PF, 500V (V81349) 916-0070-000 C118		1
230	542-5476-002	2	SHIELD,SOCKET		1
231	820-0171-00	2	SILVER RIBBON (V94084) 820-0171-000		AR
232	DM15E270K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 27PF, 10%, 500V (V72136) 912-2775-000 C97 /32/		1
232	CM05ED390J03	2	CAPACITOR,FXD, MICA DIEL, 39PF, 5%, 500V (V81349) 912-2786-000 C97 /32/		1
233	557-018-1-5-7A	2	CAPACITOR,VAR, CER DIEL, 1.5 TO 10.5PF, 350V (V72982) 917-1071-000 C117		1
234	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C120		1
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP FOR 233-234)		4
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP FOR 233-234)		4
235	CK61AW222M	2	CAPACITOR,FXD, CER DIEL, 2200PF, 20%, 500V (V81349) 913-1192-000 C124		1
236	41C92	2	CAPACITOR,FXD, CER DIEL, 0.1UF, M20%P80%, 500V (V01939) 913-3152-000 C227		1
237	544-9700-000	2	COIL,RF L29		1
238	RCR42G223KS	2	RESISTOR,FXD, CMPSN, 22K, 10%, 2W (V81349) 745-5708-000 R105 /31/		1
238	RCR32G123KS	2	RESISTOR,FXD, CMPSN, 12K, 10%, 1W (V81349) 745-3398-000 R105 /31/		1
239	327-029X5T0102Z	2	CAPACITOR,FXD, CER DIEL, 1000PF, M20%P80%, 500V (V72982) 913-1292-000 C241		1
240	327-029X5T0102Z	2	CAPACITOR,FXD, CER DIEL, 1000PF, M20%P80%, 500V (V72982) 913-1292-000 C82		1
241	327-029X5T0102Z	2	CAPACITOR,FXD, CER DIEL, 1000PF, M20%P80%, 500V (V72982) 913-1292-000 C230		1
242	327-029X5T0102Z	2	CAPACITOR,FXD, CER DIEL, 1000PF, M20%P80%, 500V (V72982) 913-1292-000 C5		1
243	327-029X5T0102Z	2	CAPACITOR,FXD, CER DIEL, 1000PF, M20%P80%, 500V (V72982) 913-1292-000 C228		1
	P313-0149-000	2	NUT,PLAIN,HEX, NP BRS, 1/4-28 (V77250) 313-0149-000 (AP FOR 239-243)		5
	1214-05	2	WASHER,LOCK, CD PL STL, 0.267 ID X 0.408 OD (V78189) 373-0087-000 (AP FOR 239-243)		5
244	33C2	2	CAPACITOR,FXD, CER DIEL, 0.02UF, 20%, 500V (V56289) 913-2142-000 C269		1
245	544-9699-000	2	COIL,RF L34		1
246	331013X5U0501K	2	CAPACITOR,FXD, CER DIEL, 500PF, 10%, 500V (V72982) 913-0998-000 C142		1
247	331013X5U0501K	2	CAPACITOR,FXD, CER DIEL, 500PF, 10%, 500V (V72982) 913-0998-000 C140		1
248	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C229		1
249	RCR20G120KS	2	RESISTOR,FXD, CMPSN, 12 OHMS, 10%, 1/2W (V81349) 745-1272-000 R109		1
250	544-9699-000	2	COIL,RF L30		1
251	RCR20G120KS	2	RESISTOR,FXD, CMPSN, 12 OHMS, 10%, 1/2W (V81349) 745-1272-000 R111		1
252	548-8217-000	2	SUPPRESSOR, PARASITIC Z7		1
253	331013X5U0501K	2	CAPACITOR,FXD, CER DIEL, 500PF, 10%, 500V (V72982) 913-0998-000 C141		1
254	RCR20G120KS	2	RESISTOR,FXD, CMPSN, 12 OHMS, 10%, 1/2W (V81349) 745-1272-000 R110		1
255	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C146		1
256	CC20CK010C	2	CAPACITOR,FXD, CER DIEL, 1PF, 1/4PF, 500V (V81349) 916-0070-000 C138		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 257	RCR20G102KS	2	RESISTOR,FXD, CMPSN, 1K, 10%, 1/2W (V81349) 745-1352-000 R129		1
258	RCR20G222KS	2	RESISTOR,FXD, CMPSN, 2.2K, 10%, 1/2W (V81349) 745-1366-000 R161 /34/		AR
258	RCR20G272KS	2	RESISTOR,FXD, CMPSN, 2.7K, 10%, 1/2W (V81349) 745-1370-000 R161 /34/		AR
258	RCR20G332KS	2	RESISTOR,FXD, CMPSN, 3.3K, 10%, 1/2W (V81349) 745-1373-000 R161 /34/		AR
258	RCR20G392KS	2	RESISTOR,FXD, CMPSN, 3.9K, 10%, 1/2W (V81349) 745-1377-000 R161 /34/		AR
258	RCR20G472KS	2	RESISTOR,FXD, CMPSN, 4.7K, 10%, 1/2W (V81349) 745-1380-000 R161 /34/		AR
258	RCR20G562KS	2	RESISTOR,FXD, CMPSN, 5.6K, 10%, 1/2W (V81349) 745-1384-000 R161 /34/		AR
258	RCR20G682KS	2	RESISTOR,FXD, CMPSN, 6.8K, 10%, 1/2W (V81349) 745-1387-000 R161 /34/		AR
258	RCR20G822KS	2	RESISTOR,FXD, CMPSN, 8.2K, 10%, 1/2W (V81349) 745-1391-000 R161 /34/		AR
258	RCR20G103KS	2	RESISTOR,FXD, CMPSN, 10K, 10%, 1/2W (V81349) 745-1394-000 R161 /34/		AR
258	RCR20G123KS	2	RESISTOR,FXD, CMPSN, 12K, 10%, 1/2W (V81349) 745-1398-000 R161 /34/		AR
259	RCR20G470KS	2	RESISTOR,FXD, CMPSN, 47 OHMS, 10%, 1/2W (V81349) 745-1296-000 R21		AR
260	332-14-04-022	2	TERMINAL BOARD (V71785) 306-9032-000 TS1		1
261	52A	2	TERMINAL BOARD (V71785) 306-9033-000 TS2		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP)		1
262	332-14-02-C01	2	TERMINAL BOARD (V71785) 306-0002-000 TS9		1
263	G2522	2	TERMINAL,FEEDTH (V21242) 306-0323-000 (EFF TO REV LTR N)		2
263	DP234-258A	2	TERMINAL,STUD (V21242) 306-0788-030 (EFF REV LTR N)		2
264	913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C197 ,C200 (DUAL CAPACITOR)		1
265	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C201		1
266	913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C191 ,C192 (DUAL CAPACITOR)		1
267	913-3829-CC0	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C198 ,C199(DUAL CAPACITOR)		1
268	WR5453	2	RESISTOR,VAR, 250 OHMS, 20%, 0.2W (V71450) 376-4621-000 R24		1
	P334-0253-C0	2	NUT,PLAIN,HEX, NP BRS, 1/4-32 (V77250) 334-0253-000 (AP)		1
	1214-05	2	WASHER,LOCK, CD PL STL, 0.267 ID X 0.408 OD (V78189) 373-0087-000 (AP)		1
269	913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C250 ,C251(DUAL CAPACITOR)		1
270	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C156		1
271	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C195		1
272	913-3829-CC0	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C246 ,C247(DUAL CAPACITOR)		1
273	RCR42G103KS	2	RESISTOR,FXD, CMPSN, 10K, 10%, 2W (V81349) 745-5694-000 R142		1
274	RCR20G121KS	2	RESISTOR,FXD, CMPSN, 120 OHMS, 10%, 1/2W (V81349) 745-1314-000 R23		1
275	545-7605-002	2	SHELL, ELECTRICAL CONNECTOR		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 276	86CP9-1003	2	CONNECTOR,PLUG, ELEC (V02660) 372-1951-000 J25		1
	MS35649-244	2	NUT,PLAIN,HEX, SST, 4-40 (V96906) 313-0043-000 (AP FOR 275-276)		2
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP FOR 275-276)		2
	546-8005-002	2	SPACER (AP FOR 275-276)		2
	P330-2292-000	2	SCREW,MACH, SST, 4-40 X 3/8 (V77250) 330-2292-000 (AP FOR 275-276)		2
277	913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C244 ,C245 (DUAL CAPACITOR)		1
278	MS90540-07	2	COIL,RF, 2000UH (V96906) 240-2547-000 L1		1
279	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C18		1
280	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C219 /15/		1
280	DM15F101K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 100PF, 10%, 500V (V72136) 912-2817-000 C219 /15/		1
281	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C252		1
282	913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C242 ,C243 (DUAL CAPACITOR)		1
283	DM15E330K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 33PF, 10%, 500V (V72136) 912-2781-000 C16		1
284	4422-10-38	2	COIL,RF, 33UH (V82142) 240-0170-000 L20		1
285	RCR07G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000 R212 /14/		1
286	CM05FD221J03	2	CAPACITOR,FXD, MICA DIEL, 220PF, 5%, 500V (V81349) 912-2840-000 C217		1
287	CM05FD221J03	2	CAPACITOR,FXD, MICA DIEL, 220PF, 5%, 500V (V81349) 912-2840-000 C218		1
288	6H12	2	TERMINAL BOARD (V82893) 306-0909-000		1
	P343-0328-C00	2	SCREW,MACH, NP BRS, 6-32 X 1/4 (V77250) 343-0328-000 (AP)		1
	MS35338-98	2	WASHER,SPRING, CD PL BRZ, 0.141 ID X 0.250 OD (V96906) 310-0096-000 (AP)		1
289	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C19		1
290	RCR07G474KS	2	RESISTOR,FXD, CMPSN, 0.47MEGO, 10%, 1/4W (V81349) 745-0845-000 R26		1
291	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C23		1
292	RCR07G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000 R59		1
293	RCR07G684KS	2	RESISTOR,FXD, CMPSN, 0.68MEGO, 10%, 1/4W (V81349) 745-0851-000 R118		1
293A	CM05ED220J03	2	CAPACITOR,FXD, MICA DIEL, 22PF, 5%, 500V (V81349) 912-2768-000 C22		1
294	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C42		1
295	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C186		1
296	18-257	2	COIL,RF, 10MH (V09250) 240-0199-000 L33 /12/		1
297	RCR20G102KS	2	RESISTOR,FXD, CMPSN, 1K, 10%, 1/2W (V81349) 745-1352-000 R58		1
298	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C20		1
299	RCR20G224KS	2	RESISTOR,FXD, CMPSN, 0.22MEGO, 10%, 1/2W (V81349) 745-1450-000 R193 /19/		1
299	RCR07G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000 R193 /19/		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM		PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	300	1N458	2	SEMICOND DEVICE (V14140) 353-0205-000 CR9 /19/		1
	301	RCR32G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1W (V81349) 745-3436-000 R194 /19/		1
	301	RCR20G474KS	2	RESISTOR,FXD, CMPSN, 0.47MEGO, 10%, 1/2W (V81349) 745-1464-000 R194 /19/		1
	302	MS90538-20	2	COIL,RF, 220UH (V96906) 240-2524-000 L24		1
	303	RCR07G684KS	2	RESISTOR,FXD, CMPSN, 0.68MEGO, 10%, 1/4W (V81349) 745-0851-000 R184		1
	304	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C158		1
	305	8131M203-651-104 Z	2	CAPACITOR,FXD, CER DIEL, 0.1UF, M20%P80%, 200V (V72982) 913-3681-000 C157		1
	306	RCR20G121KS	2	RESISTOR,FXD, CMPSN, 120 OHMS, 10%, 1/2W (V81349) 745-1314-000 R25		1
	307	2DDD63G104XAA	2	CAPACITOR,FXD, CER DIEL, 1UF, M30%P80%, 75V (V71590) 913-3794-000 C159		1
	308	RCR20G222KS	2	RESISTOR,FXD, CMPSN, 2.2K, 10%, 1/2W (V81349) 745-1366-000 R115		1
	309	543-8123-000	2	COIL,RF L13		1
	310	RCR20G183KS	2	RESISTOR,FXD, CMPSN, 18K, 10%, 1/2W (V81349) 745-1405-000 R178		1
	311	CM05FD221J03	2	CAPACITOR,FXD, MICA DIEL, 220PF, 5%, 500V (V81349) 912-2840-000 C131		1
	312	DM15E510K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 51PF, 10%, 500V (V72136) 912-2796-000 C128		1
	313	RCR20G123KS	2	RESISTOR,FXD, CMPSN, 12K, 10%, 1/2W (V81349) 745-1398-000 R179		1
	314	2A1DB15	2	TERMINAL STDF (V92825) 306-0234-000		1
		P343-0284-CCO	2	SCREW,MACH, NP BRS, 4-40 X 3/16 (V77250) 343-0284-000 (AP)		1
	315	543-8028-002	2	COIL,RF L14		1
	316	88216CK	2	SWITCH SECT,RTR (V76854) 269-1983-000 S6		1
		P313-0154-CO	2	NUT,PLAIN,HEX, NP BRS, 3/8-24 (V77250) 313-0154-000 (AP)		2
		8942	2	WASHER,NM, PHEN, 0.116 ID X 0.187 OD (V76854) 302-0262-000 (AP)		2
		8980-2 3-16	2	SPACER,SLV (V76854) 269-1402-000 (AP)		2
		310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP)		2
		P343-0289-C00	2	SCREW,MACH, NP BRS, 4-40 X 1/2 (V77250) 343-0289-000 (AP)		2
	317	DM15E330K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 33PF, 10%, 500V (V72136) 912-2781-000 C135 /31/		1
	317	CM05ED2C0J03	2	CAPACITOR,FXD, MICA DIEL, 20PF, 5%, 500V (V81349) 912-2765-000 C135 /31/		1
	318	CM05FD131J03	2	CAPACITOR,FXD, MICA DIEL, 130PF, 5%, 500V (V81349) 912-2825-000 C133 /31/		1
	318	CM04FD111G03	2	CAPACITOR,FXD, MICA DIEL, 110PF, 2%, 500V (V81349) 912-3883-000 C133 /31/		1
	319	544-3126-002	2	BRACKET,SWITCH		1
		330-0731-0C0	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000		2
	320	CM05FD331G03	2	CAPACITORTFXD, MICA DIEL, 330PF, 2%, 500V (V81349) 912-2851-000 C125		1
	321	CM05FD221J03	2	CAPACITOR,FXD, MICA DIEL, 220PF, 5%, 500V (V81349) 912-2840-000 C121 /32/		1
	321	CM05FD271J03	2	CAPACITOR,FXD, MICA DIEL, 270PF, 5%, 500V (V81349) 912-2846-000 C121 /32/		1
	322	332-1403-165	2	TERMINAL BOARD (V71785) 306-0001-000		1
		330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP)		2
	323	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C44		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 324	546-7833-002	2	COIL,RF L10		1
325	RCR07G103KS	2	RESISTOR,FXD, CMPSN, 10K, 10%, 1/4W (V81349) 745-0785-000 R103		1
326	RCR20G152KS	2	RESISTOR,FXD, CMPSN, 1.5K, 10%, 1/2W (V81349) 745-1359-000 R191		1
327	RCR07G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000 R183		1
328	MS90538-20	2	COIL,RF, 220UH (V96906) 240-2524-000 L11		1
329	RCR20G274KS	2	RESISTOR,FXD, CMPSN, 0.27MEGO, 10%, 1/2W (V81349) 745-1454-000 R192		1
330	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C122		1
331	RCR20G101KS	2	RESISTOR,FXD, CMPSN, 100 OHMS, 10%, 1/2W (V81349) 745-1310-000 R32		1
332	RCR20G102KS	2	RESISTOR,FXD, CMPSN, 1K, 10%, 1/2W (V81349) 745-1352-000 R169		1
333	MS90540-07	2	COIL,RF, 2000UH (V96906) 240-2547-000 L3 /16/		1
333	RCR20G222KS	2	RESISTOR,FXD, CMPSN, 2.2K, 10%, 1/2W (V81349) 745-1366-000 R197 /16/		1
334	41C92	2	CAPACITOR,FXD, CER DIEL, 0.1UF, M20%P80%, 500V (V01939) 913-3152-000 C238 /16A/		1
335	6H12	2	TERMINAL BOARD (V82893) 306-0909-000		1
	P343-0328-C00	2	SCREW,MACH, NP BRS, 6-32 X 1/4 (V77250) 343-0328-000 (AP)		1
	310-0077-000	2	WASHER,LOCK, BRZ, 0.141 ID X 0.253 OD (V79807) 310-0077-000 (AP)		1
336	541-5181-002	2	BUTTON,CABLE		2
	MS51957-64	2	SCREW,MACH, SST, 10-24 X 5/8 (V96906) 343-0210-000 (AP)		2
337	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C220		1
338	CC20CH6R0D	2	CAPACITOR,FXD, CER DIEL, 6PF, 1/2PF, 500V (V81349) 916-0122-000 C25		1
339	MS90538-20	2	COIL,RF, 220UH (V96906) 240-2524-000 L6		1
340	544-9698-000	2	SUPPRESSOR, PARASITIC Z4		1
341	CM05CD100D03	2	CAPACITOR,FXD, MICA DIEL, 10PF, 0.5PF, 500V (V81349) 912-2753-000 C272 /30/		1
341	CCR75CH7R5JM	2	CAPACITOR,FXD, CER DIEL, 7.5PF, 5%, 500V (V81349) 913-2997-000 C272 /30/		1
341	CM05CD100D03	2	CAPACITOR,FXD, MICA DIEL, 10PF, 0.5PF, 500V (V81349) 912-2753-000 C272 /30/		1
342	DM15E200K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 20PF, 10%, 500V (V72136) 912-2766-000 C60 /18/		1
342	DM15C100K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 10PF, 10%, 500V (V72136) 912-2754-000 C60 /18/		1
343	VVC445	2	CAPACITOR,VAR, V SENS, 35PF, 20%, 130V (V16352) 922-6002-000 CR5		1
344	MS90538-20	2	COIL,RF, 220UH (V96906) 240-2524-000 L40 /23/		1
345	CM05FD361J03	2	CAPACITOR,FXD, MICA DIEL, 360PF, 5%, 500V (V81349) 912-2855-000 C110		1
346	DM15C120K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 12PF, 10%, 500V (V72136) 912-2757-000 C257		1
347	196305CK	2	SWITCH,RTRY (V76854) 269-2048-000 S5		1
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP)		2
	8942	2	WASHER,NM, PHEN, 0.116 ID X 0.187 OD (V76854) 302-0262-000 (AP)		2
	8980-2 3-16	2	SPACER,SLV (V76854) 269-1402-000 (AP)		2
	310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP)		2
	P343-0289-000	2	SCREW,MACH, NP BRS, 4-40 X 1/2 (V77250) 343-0289-000 (AP)		2

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 348	543-8061-002	2	BRACKET,SWITCH		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP)		2
349	DM15E560K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 56PF, 10%, 500V (V72136) 912-2799-000 C114		1
350	CM05FD241G03	2	CAPACITOR,FXD, MICA DIEL, 240PF, 2%, 500V (V81349) 912-2842-000 C112		1
351	DM15C100K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 10PF, 10%, 500V (V72136) 912-2754-000 C30		1
352	332-1403-165	2	TERMINAL BOARD (V71785) 306-0001-000		1
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP)		1
	MS35338-97	2	WASHER,SPRING, CD PL BRZ, 0.115 ID X 0.209 OD (V96906) 310-0095-000 (AP)		1
	P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		1
353	2A1DB15	2	TERMINAL STDF (V92825) 306-0234-000		2
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		2
354	CC20CJ030D	2	CAPACITOR,FXD, CER DIEL, 3PF, 1/2PF, 500V (V81349) 916-0145-000 C79		1
355	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C41		1
356	RCR07G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000 R34		1
357	RCR07G560KS	2	RESISTOR,FXD, CMPSN, 56 OHMS, 10%, 1/4W (V81349) 745-0704-000 R9		1
358	6H12	2	TERMINAL BOARD (V82893) 306-0909-000		1
	P343-0328-000	2	SCREW,MACH, NP BRS, 6-32 X 1/4 (V77250) 343-0328-000 (AP)		1
	MS35338-98	2	WASHER,SPRING, CD PL BRZ, 0.141 ID X 0.250 OD (V96906) 310-0096-000 (AP)		1
359	502-1427-002	2	SHIELD,ELECTRON TUBE		1
360	RCR20G683KS	2	RESISTOR,FXD, CMPSN, 68K, 10%, 1/2W (V81349) 745-1429-000 R37		1
361	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C222		1
362	RCR07G474KS	2	RESISTOR,FXD, CMPSN, 0.47MEGO, 10%, 1/4W (V81349) 745-0845-000 R136		1
363	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C43		1
364	RCR32G333KS	2	RESISTOR,FXD, CMPSN, 33K, 10%, 1W (V81349) 745-3415-000 R33		1
365	RCR07G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000 R27		1
366	RCR07G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000 R200 /21/		1
367	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C29		1
368	RCR07G392KS	2	RESISTOR,FXD, CMPSN, 3.9K, 10%, 1/4W (V81349) 745-0770-000 R124 (REPLACE WITH 6.8K)		1
368	RCR07G682KS	2	RESISTOR,FXD, CMPSN, 6.8K, 10%, 1/4W (V81349) 745-0779-000 R124		1
369	CC20CH6R0D	2	CAPACITOR,FXD, CER DIEL, 6PF, 1/2PF, 500V (V81349) 916-0122-000 C26		1
370	2DDD63G104XAA	2	CAPACITOR,FXD, CER DIEL, 1UF, M30%P80%, 75V (V71590) 913-3794-000 C268		1
371	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C28		1
372	RCR07G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000 R31		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 373	RCR07G560KS	2	RESISTOR,FXD, CMPSN, 56 OHMS, 10%, 1/4W (V81349) 745-0704-000 R28		1
374	RCR20G221KS	2	RESISTOR,FXD, CMPSN, 220 OHMS, 10%, 1/2W (V81349) 745-1324-000 R29		1
375	MS90538-20	2	COIL,RF, 220UH (V96906) 240-2524-000 L5		1
376	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C27		1
377	41C92	2	CAPACITOR,FXD, CER DIEL, 0.1UF, M20%P80%, 500V (V01939) 913-3152-000 C221 /16A/		1
378	RCR32G332KS	2	RESISTOR,FXD, CMPSN, 3.3K, 10%, 1W (V81349) 745-3373-000 R144		1
379	RCR32G152KS	2	RESISTOR,FXD, CMPSN, 1.5K, 10%, 1W (V81349) 745-3360-000 R143 /22/		1
379	RCR32G222KS	2	RESISTOR,FXD, CMPSN, 2.2K, 10%, 1W (V81349) 745-3366-000 R143 /22/		1
380	RCR20G560KS	2	RESISTOR,FXD, CMPSN, 56 OHMS, 10%, 1/2W (V81349) 745-1300-000 R174		1
381	RCR07G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000 R63		1
382	RCR07G560KS	2	RESISTOR,FXD, CMPSN, 56 OHMS, 10%, 1/4W (V81349) 745-0704-000 R168		1
383	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C40		1
384	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C274 /23/		1
385	544-9715-002	2	TRANSFORMER,RF T3		1
386	196305CK	2	SWITCH,RTRY (V76854) 269-2048-000 S4		1
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP)		2
	8942	2	WASHER,NM, PHEN, 0.116 ID X 0.187 OD (V76854) 302-0262-000 (AP)		2
	8980-2 3-16	2	SPACER,SLV (V76854) 269-1402-000 (AP)		2
	310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP)		1
	P343-0289-000	2	SCREW,MACH, NP BRS, 4-40 X 1/2 (V77250) 343-0289-000 (AP)		2
387	543-8061-002	2	BRACKET,SWITCH		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP)		2
388	CM05ED220J03	2	CAPACITOR,FXD, MICA DIEL, 22PF, 5%, 500V (V81349) 912-2768-000 C35		1
389	CM05FD131J03	2	CAPACITOR,FXD, MICA DIEL, 130PF, 5%, 500V (V81349) 912-2825-000 C33		1
390	DM15C100K500WV4CR	2	CAPACITOR,FXD, MICA DIEL, 10PF, 10%, 500V (V72136) 912-2754-000 C31		1
391	CM05FD361G03	2	CAPACITOR,FXD, MICA DIEL, 360PF, 2%, 500V (V81349) 912-2854-000 C38		1
392	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C187		1
392A	CM06FD511J03	2	CAPACITOR,FXD, MICA DIEL, 510PF, 5%, 500V (V81349) 912-2980-000 C77		1
393	DM15C100K500WV4CR	2	CAPACITOR,FXD, MICA DIEL, 10PF, 10%, 500V (V72136) 912-2754-000 C267 /28/		1
393	DM15C050D500WV4CR	2	CAPACITOR,FXD, MICA DIEL, 5PF, 0.5PF, 500V (V72136) 912-2751-000 C267 /28/		1
394	RCR20G151KS	2	RESISTOR,FXD, CMPSN, 150 OHMS, 10%, 1/2W (V81349) 745-1317-000 R61		1
395	RCR42G682KS	2	RESISTOR,FXD, CMPSN, 6.8K, 10%, 2W (V81349) 745-5687-000 R153		1
396	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C226		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 397	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C61		1
398	RCR07G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000 R62		1
398A	CM05ED470J03	2	CAPACITOR,FXD, MICA DIEL, 47PF, 5%, 500V (V81349) 912-2792-000 C74 /27B/ (SB-3)		1
398A	CM05ED430J03	2	CAPACITOR,FXD, MICA DIEL, 43PF, 5%, 500V (V81349) 912-2789-000 C74 /27B/(SB-3)		1
399	RCR20G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 1/2W (V81349) 745-1422-000 R125 /27B/(SB-3)		1
399	RCR20G333KS	2	RESISTOR,FXD, CMPSN, 33K, 10%, 1/2W (V81349) 745-1415-000 R125 /27B/(SB-3)		1
399A	RCR42G123KS	2	RESISTOR,FXD, CMPSN, 12K, 10%, 2W (V81349) 745-5698-000 R125 /27D/		1
399B	MS75089-23	2	COIL,RF, 1000UH (V96906) 240-2715-490 L43 /27D/		1
400	MS90540-07	2	COIL,RF, 2000UH (V96906) 240-2547-000 L7 (BFF TO REV LTR DP)		1
400	MS75089-27	2	COIL,RF, 2200UH (V96906) 240-2715-530 L7 (EFF REV LTR DP)		1
401	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C187		1
401A	RCR07G273KS	2	RESISTOR,FXD, CMPSN, 27K, 10%, 1/4W (V81349) 745-0800-000 R198 /13/		1
401B	DM15C120K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 12PF, 10%, 500V (V72136) 912-2757-000 C266 /27C/(SB-3)	A	1
402	RCR20G221KS	2	RESISTOR,FXD, CMPSN, 220 OHMS, 10%, 1/2W (V81349) 745-1324-000 R36		1
403	MS90538-20	2	COIL,RF, 220UH (V96906) 240-2524-000 L25		1
404	6H12	2	TERMINAL BOARD (V82893) 306-0909-000		1
	P343-0328-000	2	SCREW,MACH, NP BRS, 6-32 X 1/4 (V77250) 343-0328-000 (AP)		1
	MS35338-98	2	WASHER,SPRING, CD PL BRZ, 0.141 ID X 0.250 OD (V96906) 310-0095-000 (AP)		1
404A	MS75089-27	2	COIL,RF, 2200UH (V96906) 240-2715-530 L44 /27D/		1
404B	41C92	2	CAPACITOR,FXD, CER DIEL, 0.1UF, M20%P80%, 500V (V01939) 913-3152-000 C280 /27D/		1
405	33C2	2	CAPACITOR,FXD, CER DIEL, 0.02UF, 20%, 500V (V56289) 913-2142-000 C224		1
406	RCR20G153KS	2	RESISTOR,FXD, CMPSN, 15K, 10%, 1/2W (V81349) 745-1401-000 R68		1
407	RCR20G102KS	2	RESISTOR,FXD, CMPSN, 1K, 10%, 1/2W (V81349) 745-1352-000 R159		1
408	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C59		1
409	913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C236 ,C237(DUAL CAPACITOR)		1
409A	1N5383B	2	SEMICOND DEVICE (V04713) 353-6550-510 CR13 /27D/		1
409B	41C92	2	CAPACITOR,FXD, CER DIEL, 0.1UF, M20%P80%, 500V (V01939) 913-3152-000 C281 /27D/		1
410	1N34A	2	SEMICOND DEVICE (V03877) 353-2780-000 CR6		1
411	RCR07G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000 R11		1
412	RCR20G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/2W (V81349) 745-1436-000 R67		1
413	RCR20G124KS	2	RESISTOR,FXD, CMPSN, 0.12MEGO, 10%, 1/2W (V81349) 745-1440-000 R160		1
414	RCR20G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/2W (V81349) 745-1478-000 R65		1
415	RCR20G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/2W (V81349) 745-1436-000 R154		1
416	RCR20G224KS	2	RESISTOR,FXD, CMPSN, 0.22MEGO, 10%, 1/2W (V81349) 745-1450-000 R66		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 417	RCR20G102KS	2	RESISTOR,FXD, CMPSN, 1K, 10%, 1/2W (V81349) 745-1352-000 R64		1
418	CC20CK020D	2	CAPACITOR,FXD, CER DIEL, 2PF, 1/2PF, 500V (V81349) 916-0076-000 C119 /29/		1
418	DM15C100K500WV4CR	2	CAPACITOR,FXD, MICA DIEL, 10PF, 10%, 500V (V72136) 912-2754-000 C119 /29/		1
419	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C75		1
420	544-2825-002	2	SOCKET,CRYSTAL XY3		1
421	540-9049-003	2	POST	B	1
	P343-0290-000	2	SCREW,MACH, NP BRS, 4-40 X 5/8 (V77250) 343-0290-000 (AP FOR 420-421)		1
	343-0048-000	2	SCREW,MACH, SST, 10-24 X 3/8 (V70601) 343-0048-000 (AP FOR 420-421)		1
422	432-1009-00	2	CABLE,SP,ELEC (V94452) 432-1009-000		AR
423	22692-414LW1	2	SWITCH,RTRY (V82104) 259-1081-000 S13		1
	544-7266-002	2	NUT,SPECIAL (AP)		1
424	544-3132-002	2	PULLY		1
	328-0512-010	2	SETSCREW, SST, 6-40 X 0.125 (V08664) 328-0512-010 (AP)		1
425	NPV3	2	PULLEY,IDLER (V06915) 281-0020-000		1
	P313-0050-000	2	NUT,PLAIN,HEX, NP BRS, 2-56 (V77250) 313-0050-000 (AP)		1
	MS35338-96	2	WASHER,SPRING, CD PL BRZ, 0.088 ID X 0.172 OD (V96906) 310-0093-000 (AP)		1
	503-1236-001	2	SPACER (AP)		1
	310-0053-000	2	WASHER,FLAT, BRS, 0.093 ID X 0.250 OD (V79807) 310-0053-000 (AP)		3
	P343-0302-000	2	SCREW,MACH, NP BRS, 2-56 X 7/16 (V77250) 343-0302-000 (AP)		1
426	HP7N	2	CLAMP,LOOP (V09922) 150-1544-000		1
	330-0733-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 3/8 (V45722) 330-0733-000 (AP)		1
	310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP)		1
427	192796CK	2	SWITCH,RTRY (V76854) 269-2023-000 S2		1
428	192796CK	2	SWITCH,RTRY (V76854) 269-2023-000 S14		1
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP FOR 427-428)		2
	310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP FOR 427-428)		2
	8980-2 1-8	2	SPACER,SLV (V76854) 269-1401-000 (AP FOR 427-428)		2
	8980-2 1-4	2	SPACER,SLV (V76854) 269-1403-000 (AP FOR 427-428		2
	8942	2	WASHER,NM, PHEN, 0.116 ID X 0.187 OD (V76854) 302-0262-000 (AP FOR 427-428)		2
	P343-0291-000	2	SCREW,MACH, NP BRS, 4-40 X 3/4 (V77250) 343-0291-000 (AP FOR 427-428)		2
429	543-8061-002	2	BRACKET,SWITCH		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP)		2
430	196305CK	2	SWITCH,RTRY (V76854) 269-2048-000 S3		1
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP)		2
	8942	2	WASHER,NM, PHEN, 0.116 ID X 0.187 OD (V76854) 302-0262-000 (AP)		2
	8980-2 3-16	2	SPACER,SLV (V76854) 269-1402-000 (AP)		2
	310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP)		2
	P343-0289-000	2	SCREW,MACH, NP BRS, 4-40 X 1/2 (V77250) 343-0289-000 (AP)		2
431	543-8061-002	2	BRACKET,SWITCH		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 432	332-1403-165	2	TERMINAL BOARD (V71785) 306-0001-000		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP FOR 431,432)		2
433	RCR07G472KS	2	RESISTOR,FXD, CMPSN, 4.7K, 10%, 1/4W (V81349) 745-0773-000 R214 /27B/		1
434	CM05ED470J03	2	CAPACITOR,FXD, MICA DIEL, 47PF, 5%, 500V (V81349) 912-2792-000 C66		1
435	RCR07G272KS	2	RESISTOR,FXD, CMPSN, 2.7K, 10%, 1/4W (V81349) 745-0764-000 R151 /27B/		1
436	DM15F121K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 120PF, 10%, 500V (V72136) 912-2823-000 C64		1
437	546-7945-003	2	TRANSFORMER,RF T4		1
438	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C62		1
439	RCR07G562KS	2	RESISTOR,FXD, CMPSN, 5.6K, 10%, 1/4W (V81349) 745-0776-000 R152		1
440	CM05FD221J03	2	CAPACITOR,FXD, MICA DIEL, 220PF, 5%, 500V (V81349) 912-2840-000 C69 /23/		1
440	CM05FD241J03	2	CAPACITOR,FXD, MICA DIEL, 240PF, 5%, 500V (V81349) 912-2843-000 C69 /23/		1
441	2DDD63G104XAA	2	CAPACITOR,FXD, CER DIEL, 1UF, M30%P80%, 75V (V71590) 913-3794-000 C84		1
442	2DDD63G104XAA	2	CAPACITOR,FXD, CER DIEL, 1UF, M30%P80%, 75V (V71590) 913-3794-000 C253		1
443	RCR07G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000 R2		1
444	RCR20G181KS	2	RESISTOR,FXD, CMPSN, 180 OHMS, 10%, 1/2W (V81349) 745-1321-000 R3		1
445	RCR07G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 1/4W (V81349) 745-0809-000 R1		1
446	RCR42G220KS	2	RESISTOR,FXD, CMPSN, 22 OHMS, 10%, 2W (V81349) 745-5582-000 R173		1
447	2DDD63G104XAA	2	CAPACITOR,FXD, CER DIEL, 1UF, M30%P80%, 75V (V71590) 913-3794-000 C273		1
448	542-5476-002	2	SHIELD,ELECTRON TUBE		1
449	33C2	2	CAPACITOR,FXD, CER DIEL, 0.02UF, 20%, 500V (V56289) 913-2142-000 C1		1
450	RCR20G683KS	2	RESISTOR,FXD, CMPSN, 68K, 10%, 1/2W (V81349) 745-1429-000 R4		1
451	913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C205 ,C206 (DUAL CAPACITOR)		1
452	913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C207 ,C208 (DUAL CAPACITOR)		1
453	913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C209 ,C210(DUAL CAPACITOR)		1
454	913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C203 ,C204(DUAL CAPACITOR)		1
455	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C263 /20/		1
456	RCR42G153KS	2	RESISTOR,FXD, CMPSN, 15K, 10%, 2W (V81349) 745-5701-000 R73		1
457	MS75008-40	2	COIL,RF, 10UH (V96906) 240-0149-000 L26 (EFF TO REV LTR DK)		1
457	MS75101-7	2	COIL,RF, 10UH (V96906) 240-1600-000 L26 (EFF REV LTR DK)		1
458	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C83		1
459	RCR07G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000 R74		1
459A	RTMT16M	2	TERMINAL,STUD (V91663) 306-0977-000		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	459B 41C92	2	CAPACITOR,FXD, CER DIEL, 0.1UF, M20%P80%, 500V (V01939) 913-3152-000 C278 /11B/		1
	459C 1N5383B	2	SEMICOND DEVICE (V04713) 353-6550-510 CR12 /11B/		1
	460 RCR32G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1W (V81349) 745-3436-000 R40		1
	460A MS90540-07	2	COIL,RF, 2000UH (V96906) 240-2547-000 L42 /11B/		1
	460B 33C2	2	CAPACITOR,FXD, CER DIEL, 0.02UF, 20%, 500V (V56289) 913-2142-000 C279 /11B/		1
	461 RCR42G333KS	2	RESISTOR,FXD, CMPSN, 33K, 10%, 2W (V81349) 745-5715-000 R131 /11B/		1
	462 41C92	2	CAPACITOR,FXD, CER DIEL, 0.1UF, M20%P80%, 500V (V01939) 913-3152-000 C46		1
	463 RCR20G331KS	2	RESISTOR,FXD, CMPSN, 330 OHMS, 10%, 1/2W (V81349) 745-1331-000 R41		1
	464 RCR20G274KS	2	RESISTOR,FXD, CMPSN, 0.27MEGO, 10%, 1/2W (V81349) 745-1454-000 R44		1
	465 RTMT16M	2	TERMINAL,STUD (V91663) 306-0977-000		1
	466 RCR20G224KS	2	RESISTOR,FXD, CMPSN, 0.22MEGO, 10%, 1/2W (V81349) 745-1450-000 R201 /7/		1
	467 33C2	2	CAPACITOR,FXD, CER DIEL, 0.02UF, 20%, 500V (V56289) 913-2142-000 C48		1
	468 6H12	2	TERMINAL BOARD (V82893) 306-0909-000		1
	P343-0328-000	2	SCREW,MACH, NP BRS, 6-32 X 1/4 (V77250) 343-0328-000 (AP)		1
	MS35338-98	2	WASHER,SPRING, CD PL BRZ, 0.141 ID X 0.250 OD (V96906) 310-0096-000 (AP)		1
	469 36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C188 /4/4A/5/		1
	470 HM6821	2	RESISTOR,FXD, CMPSN, 6.8K, 10%, 4W (V01121) 745-9732-000 R72		1
	P313-0051-000	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0051-000 (AP)		1
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		1
	P342-0286-000	2	SCREW,MACH, CD PL STL, 4-40 X 5/8 (V77250) 342-0286-000 (AP)		1
	471 RCR20G102KS	2	RESISTOR,FXD, CMPSN, 1K, 10%, 1/2W (V81349) 745-1352-000 R135		1
	472 RCR07G225KS	2	RESISTOR,FXD, CMPSN, 2.2MEGO, 10%, 1/4W (V81349) 745-0869-000 R199 /8/		1
	473 RCR07G335KS	2	RESISTOR,FXD, CMPSN, 3.3MEGO, 10%, 1/4W (V81349) 745-0875-000 R128		1
	474 RCR20G100KS	2	RESISTOR,FXD, CMPSN, 10 OHMS, 10%, 1/2W (V81349) 745-1268-000 R75		1
	475 RCR20G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 1/2W (V81349) 745-1422-000 R76		1
	476 DM15F221K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 220PF, 10%, 500V (V72136) 912-2841-000 C2		1
	477 913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C85 ,C86(DUAL CAPACITOR)		1
	478 19C372	2	CAPACITOR,FXD, CER DIEL, 470PF, 20%, 500V (V56289) 913-3007-000 C214		1
	479 44C7A	2	CAPACITOR,FXD, CER DIEL, 4700PF, 20%, 500V (V56289) 913-3012-000 C3		1
	480 40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C45		1
	481		(NOT USED)		
	482		(NOT USED)		
	483 RCR07G221KS	2	RESISTOR,FXD, CMPSN, 220 OHMS, 10%, 1/4W (V81349) 745-0725-000 R204 /5/		1
	484 D29343	2	CAPACITOR,FXD, ELCTLT, 4UF, M10%P100%, 350V (V56289) 183-1783-000 C254		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM		PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	485	RCR07G181KS	2	RESISTOR,FXD, CMPSN, 180 OHMS, 10%, 1/4W (V81349) 745-0722-000 R140		1
	485	RCR07G221KS	2	RESISTOR,FXD, CMPSN, 220 OHMS, 10%, 1/4W (V81349) 745-0725-000 R140		AR
	485	RCR07G271KS	2	RESISTOR,FXD, CMPSN, 270 OHMS, 10%, 1/4W (V81349) 745-0728-000 R140		AR
	485	RCR07G331KS	2	RESISTOR,FXD, CMPSN, 330 OHMS, 10%, 1/4W (V81349) 745-0731-000 R140		AR
	485	RCR07G391KS	2	RESISTOR,FXD, CMPSN, 390 OHMS, 10%, 1/4W (V81349) 745-0734-000 R140 /6/		AR
	485	RCR07G471KS	2	RESISTOR,FXD, CMPSN, 470 OHMS, 10%, 1/4W (V81349) 745-0737-000 R140 /6/		AR
	485	RCR07G561KS	2	RESISTOR,FXD, CMPSN, 560 OHMS, 10%, 1/4W (V81349) 745-0740-000 R140 /6/		AR
	485	RCR07G681KS	2	RESISTOR,FXD, CMPSN, 680 OHMS, 10%, 1/4W (V81349) 745-0743-000 R140 /6/		AR
	485	RCR07G821KS	2	RESISTOR,FXD, CMPSN, 820 OHMS, 10%, 1/4W (V81349) 745-0746-000 R140 /6/		AR
	485	RCR07G102KS	2	RESISTOR,FXD, CMPSN, 1K, 10%, 1/4W (V81349) 745-0749-000 R140 /6/		AR
	485	RCR07G122KS	2	RESISTOR,FXD, CMPSN, 1.2K, 10%, 1/4W (V81349) 745-0752-000 R140 /6/		AR
	485	RCR07G123KS	2	RESISTOR,FXD, CMPSN, 12K, 10%, 1/4W (V81349) 745-0788-000 R140 /6/		AR
	485	RCR07G153KS	2	RESISTOR,FXD, CMPSN, 15K, 10%, 1/4W (V81349) 745-0791-000 R140 /6/		AR
	485	RCR07G183KS	2	RESISTOR,FXD, CMPSN, 18K, 10%, 1/4W (V81349) 745-0794-000 R140 /6/		AR
	485	RCR07G223KS	2	RESISTOR,FXD, CMPSN, 22K, 10%, 1/4W (V81349) 745-0797-000 R140 /6/		AR
	485	RCR07G273KS	2	RESISTOR,FXD, CMPSN, 27K, 10%, 1/4W (V81349) 745-0800-000 R140 /6/		AR
	486	5C13A	2	CAPACITOR,FXD, CER DIEL, 1UF, M20%P80%, 25V (V56289) 913-3810-000 C6 /3/		1
	487	RCR20G101KS	2	RESISTOR,FXD, CMPSN, 100 OHMS, 10%, 1/2W (V81349) 745-1310-000 R208 /3/		1
	487	RCR07G471KS	2	RESISTOR,FXD, CMPSN, 470 OHMS, 10%, 1/4W (V81349) 745-0737-000 R208 /3/		1
	488	RCR07G103KS	2	RESISTOR,FXD, CMPSN, 10K, 10%, 1/4W (V81349) 745-0785-000 R17		1
	489	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C11		1
	490	RCR42G683KS	2	RESISTOR,FXD, CMPSN, 68K, 10%, 2W (V81349) 745-5729-000 R20		1
	491	5C11A	2	CAPACITOR,FXD, CER DIEL, 0.47UF, M20%P80%, 25V (V56289) 913-3804-000 C160		1
	492	RCR07G155KS	2	RESISTOR,FXD, CMPSN, 1.5MEGO, 10%, 1/4W (V81349) 745-0863-000 R119		1
	493	RCR42G683KS	2	RESISTOR,FXD, CMPSN, 68K, 10%, 2W (V81349) 745-5729-000 R47		1
	494	PW5-6001-10	2	RESISTOR,FXD,WW 6K, 10%, 5W (V07716) 710-9118-000 R163		1
	495	160P47394	2	CAPACITOR,FXD, PPR DIEL, 0.047UF, 400V, 10% (V56289) 931-0295-000 C47 /11/		1
	495	LP9A1E683K	2	CAPACITOR,FXD, PLSTC DIEL, 0.068UF,10%,400V (V56289) 933-1088-070 C47 /11/		1
	496	6H12	2	TERMINAL BOARD (V82893) 306-0909-000		1
		P343-0328-000	2	SCREW,MACH, NP BRS, 6-32 X 1/4 (V77250) 343-0328-000 (AP)		1
		310-0077-000	2	WASHER,LOCK, BRZ, 0.141 ID X 0.253 OD (V79807) 310-0077-000 (AP)		1
	497	RCR07G825KS	2	RESISTOR,FXD, CMPSN, 8.2MEGO, 10%, 1/4W (V81349) 745-0890-000 R42		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM		PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	498	RCR07G825KS	2	RESISTOR,FXD, CMPSN, 8.2MEGO, 10%, 1/4W (V81349) 745-0890-000 R48		1
	499	RCR32G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 1W (V81349) 745-3422-000 R18 /12/		1
	499	RCR42G183KS	2	RESISTOR,FXD, CMPSN, 18K, 10%, 2W (V81349) 745-5705-000 R18 /12/		1
	500	RCR20G332KS	2	RESISTOR,FXD, CMPSN, 3.3K, 10%, 1/2W (V81349) 745-1373-000 R46 /9/		1
	500	RCR20G222KS	2	RESISTOR,FXD, CMPSN, 2.2K, 10%, 1/2W (V81349) 745-1366-000 R46 /9/		1
	501	RCR20G393KS	2	RESISTOR,FXD, CMPSN, 39K, 10%, 1/2W (V81349) 745-1419-000 R141		1
	502	913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C12 ,C13(DUAL CAPACITOR)		1
	503	RCR20G121KS	2	RESISTOR,FXD, CMPSN, 120 OHMS, 10%, 1/2W (V81349) 745-1314-000 R19		1
	504	BA811-2798	2	RESISTOR,VAR, 10K, 30%, 1/4W (V71590) 376-7402-000 R84		1
		P334-4060-000	2	NUT,PLAIN,HEX, NP BRS 3/8-32 (V77250) 334-4060-000 (AP)		1
		1720-02	2	WASHER,LOCK, SST, 0.391 ID X 0.507 OD (V78189) 373-0085-000 (AP)		1
	505	RTMT16M	2	TERMINAL,STUD (V91663) 306-0977-000		1
	506	779-2661-001	2	SHIELD		1
		330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP)		1
	507	2DDD63G104XAA	2	CAPACITOR,FXD, CER DIEL, 1UF, M30%P80%, 75V (V71590) 913-3794-000 C225		1
	508	RCR20G331KS	2	RESISTOR,FXD, CMPSN, 330 OHMS, 10%, 1/2W (V81349) 745-1331-000 R202 /9/36/		1
	508	RCR42G123KS	2	RESISTOR,FXD, CMPSN, 12K, 10%, 2W (V81349) 745-5698-000 R202 /9/36/		1
	509	DM15C100K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 10PF, 10%, 500V (V72136) 912-2754-000 C10 /6/		AR
	509	DM15C120K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 12PF, 10%, 500V (V72136) 912-2757-000 C10 /6/		AR
	509	DM15C150K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 15PF, 10%, 500V (V72136) 912-2760-000 C10 /6/		AR
	509	CM05ED200J03	2	CAPACITOR,FXD, MICA DIEL, 20PF, 5%, 500V (V81349) 912-2765-000 C10 /6/		AR
	509	CM05ED240J03	2	CAPACITOR,FXD, MICA DIEL, 24PF, 5%, 500V (V81349) 912-2771-000 C10 /6/		AR
	509	CM05ED270J03	2	CAPACITOR,FXD, MICA DIEL, 27PF, 5%, 500V (V81349) 912-2774-000 C10 /6/		AR
	509	DM15E330K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 33PF, 10%, 500V (V72136) 912-2781-000 C10 /6/		AR
	509	CM05ED330J03	2	CAPACITOR,FXD, MICA DIEL, 33PF, 5%, 500V (V81349) 912-2780-000 C10 /6/		AR
	509	CM05ED390J03	2	CAPACITOR,FXD, MICA DIEL, 39PF, 5%, 500V (V81349) 912-2786-000 C10 /6/		AR
	509	CM05ED430J03	2	CAPACITOR,FXD, MICA DIEL, 43PF, 5%, 500V (V81349) 912-2789-000 C10 /6/		AR
	509	DM15E470K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 47PF, 10%, 500V (V72136) 912-2793-000 C10 /6/		AR
	509	DM15E510K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 51PF, 10%, 500V (V72136) 912-2796-000 C10 /6/		AR
	509	DM15E560K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 56PF, 10%, 500V (V72136) 912-2799-000 C10 /6/		AR
	509	CM05ED620J03	2	CAPACITOR,FXD, MICA DIEL, 62PF, 5%, 500V (V81349) 912-2801-000 C10 /6/		AR
	509	CM05ED680J03	2	CAPACITOR,FXD, MICA DIEL, 68PF, 5%, 500V (V81349) 912-2804-000 C10 /6/		AR

GROUP ASSEMBLY PARTS LIST

FIG - ITEM		PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	509	CM05ED750J03	2	CAPACITOR,FXD, MICA DIEL, 75PF, 5%, 500V (V81349) 912-2807-000 C10 /6/		AR
	509	CM05ED470J03	2	CAPACITOR,FXD, MICA DIEL, 47PF, 5%, 500V (V81349) 912-2792-000 C10 /6/	A	AR
	509	CM05ED820J03	2	CAPACITOR,FXD, MICA DIEL, 82PF, 5%, 500V (V81349) 912-2810-000 C10 /6/	B	AR
	509	CM05FD910J03	2	CAPACITOR,FXD, MICA DIEL, 91PF, 5%, 500V (V81349) 912-2813-000 C10 /6/		AR
	509	CM05FD111J03	2	CAPACITOR,FXD, MICA DIEL, 110PF, 5%, 500V (V81349) 912-2819-000 C10 /6/		AR
	509	CM05FD131J03	2	CAPACITOR,FXD, MICA DIEL, 130PF, 5%, 500V (V81349) 912-2825-000 C10 /6/	A	AR
	509	CM05FD121J03	2	CAPACITOR,FXD, MICA DIEL, 120PF, 5%, 500V (V81349) 912-2822-000 C10 /6/	B	AR
	509	CM05FD151J03	2	CAPACITOR,FXD, MICA DIEL, 150PF, 5%, 500V (V81349) 912-2828-000 C10 /6/		AR
	510	RTMT16M	2	TERMINAL,STUD (V91663) 306-0977-000		1
		P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		1
		MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		1
	511	44C7A	2	CAPACITOR,FXD, CER DIEL, 4700PF, 20%, 500V (V56289) 913-3012-000 C100		1
	512	RCR20G474KS	2	RESISTOR,FXD, CMPSN, 0.47MEGO, 10%, 1/2W (V81349) 745-1464-000 R164		1
	512A	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C91		1
	513	RCR07G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000 R13		1
	514	41C92	2	CAPACITOR,FXD, CER DIEL, 0.1UF, M20%P80%, 500V (V01939) 913-3152-000 C90		1
	515	RCR20G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 1/2W (V81349) 745-1422-000 R80		1
	515A	RCR20G470KS	2	RESISTOR,FXD, CMPSN, 47 OHMS, 10%, 1/2W (V81349) 745-1296-000 R175		1
	515B	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C262 /20/		1
	516	8131M203-651-104 Z	2	CAPACITOR,FXD, CER DIEL, 0.1UF, M20%P80%, 200V (V72982) 913-3681-000 C231		1
	517	RCR32G562KS	2	RESISTOR,FXD, CMPSN, 5.6K, 10%, 1W (V81349) 745-3384-000 R81		1
	518	RCR20G102KS	2	RESISTOR,FXD, CMPSN, 1K, 10%, 1/2W (V81349) 745-1352-000 R12		1
	519	331013X5U0501K	2	CAPACITOR,FXD, CER DIEL, 500PF, 10%, 500V (V72982) 913-0998-000 C249		1
	520	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C89 /20/		1
	521	331013X5U0501K	2	CAPACITOR,FXD, CER DIEL, 500PF, 10%, 500V (V72982) 913-0998-000 C248		1
	522	2DDD63G104XAA	2	CAPACITOR,FXD, CER DIEL, 1UF, M30%P80%, 75V (V71590) 913-3794-000 C101		1
	523	RCR20G393KS	2	RESISTOR,FXD, CMPSN, 39K, 10%, 1/2W (V81349) 745-1419-000 R120		1
	524	RCR42G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 2W (V81349) 745-5722-000 R122		1
	525	RCR20G221KS	2	RESISTOR,FXD, CMPSN, 220 OHMS, 10%, 1/2W (V81349) 745-1324-000 R158A /20/		1
	525A	RCR07G390KS	2	RESISTOR,FXD, CMPSN, 39 OHMS, 10%, 1/4W (V81349) 745-0698-000 R158B /20/		AR
	525A	RCR07G470KS	2	RESISTOR,FXD, CMPSN, 47 OHMS, 10%, 1/4W (V81349) 745-0701-000 R158B /20/		AR
	525A	RCR07G560KS	2	RESISTOR,FXD, CMPSN, 56 OHMS, 10%, 1/4W (V81349) 745-0704-000 R158B /20/		AR

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	525A RCR07G680KS	2	RESISTOR,FXD, CMPSN, 68 OHMS, 10%, 1/4W (V81349) 745-0707-000 R158B /20/		AR
	525A RCR07G820KS	2	RESISTOR,FXD, CMPSN, 82 OHMS, 10%, 1/4W (V81349) 745-0710-000 R158B /20/		AR
	525A RCR07G101KS	2	RESISTOR,FXD, CMPSN, 100 OHMS, 10%, 1/4W (V81349) 745-0713-000 R158B /20/		AR
	525A RCR07G121KS	2	RESISTOR,FXD, CMPSN, 120 OHMS, 10%, 1/4W (V81349) 745-0716-000 R158B /20/		AR
	525A RCR07G151KS	2	RESISTOR,FXD, CMPSN, 150 OHMS, 10%, 1/4W (V81349) 745-0719-000 R158B /20/		AR
	525A RCR07G181KS	2	RESISTOR,FXD, CMPSN, 180 OHMS, 10%, 1/4W (V81349) 745-0722-000 R158B /20/		AR
	525A RCR07G221KS	2	RESISTOR,FXD, CMPSN, 220 OHMS, 10%, 1/4W (V81349) 745-0725-000 R158B /20/		AR
	526 RCR20G683KS	2	RESISTOR,FXD, CMPSN, 68K, 10%, 1/2W (V81349) 745-1429-000 R147		1
	527 DM15F101K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 100PF, 10%, 500V (V72136) 912-2817-000 C87		1
	528 RCR07G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000 R78		1
	529 RCR32G472KS	2	RESISTOR,FXD, CMPSN, 4.7K, 10%, 1W (V81349) 745-3380-000 R176		1
	530 RCR20G101KS	2	RESISTOR,FXD, CMPSN, 100 OHMS, 10%, 1/2W (V81349) 745-1310-000 R196 /17/		1
	531 1N1490	2	SEMICOND DEVICE (V93983) 353-1659-000 CR10 /3/		1
	532 RCR07G394KS	2	RESISTOR,FXD, CMPSN, 0.39MEGO, 10%, 1/4W (V81349) 745-0842-000 R52 /1/		1
	532 RCR07G334KS	2	RESISTOR,FXD, CMPSN, 0.33MEGO, 10%, 1/4W (V81349) 745-0839-000 R52 /1/		1
	533 RCR20G393KS	2	RESISTOR,FXD, CMPSN, 39K, 10%, 1/2W (V81349) 745-1419-000 R79		1
	534 RCR20G102KS	2	RESISTOR,FXD, CMPSN, 1K, 10%, 1/2W (V81349) 745-1352-000 R77		1
	535 RCR07G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 1/4W (V81349) 745-0809-000 R145 /20/		1
	535 RCR07G154KS	2	RESISTOR,FXD, CMPSN, 0.15MEGO, 10%, 1/4W (V81349) 745-0827-000 R145 /20/		1
	535 RCR07G683KS	2	RESISTOR,FXD, CMPSN, 68K, 10%, 1/4W (V81349) 745-0815-000 R145 /20/		1
	535 RCR07G823KS	2	RESISTOR,FXD, CMPSN, 82K, 10%, 1/4W (V81349) 745-0818-000 R145 /20/		1
	536 DM15F471J300WV4C R	2	CAPACITOR,FXD, MICA DIEL, 470PF, 5%, 500V (V72136) 912-2864-000 C52		1
	537 41C92	2	CAPACITOR,FXD, CER DIEL, 0.1UF, M20%P80%, 500V (V01939) 913-3152-000 C49		1
	538 RCR20G184KS	2	RESISTOR,FXD, CMPSN, 0.18MEGO, 10%, 1/2W (V81349) 745-1447-000 R89		1
	539 DM15F471J300WV4C R	2	CAPACITOR,FXD, MICA DIEL, 470PF, 5%, 500V (V72136) 912-2864-000 C50		1
	540 DM15F471J300WV4C R	2	CAPACITOR,FXD, MICA DIEL, 470PF, 5%, 500V (V72136) 912-2864-000 C105		1
	541 RCR07G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000 R171		1
	542 36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C232		1
	543 RCR20G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/2W (V81349) 745-1436-000 R49		1
	544 RTMT16M	2	TERMINAL,STUD (V91663) 306-0977-000		1
	545 DM15F471J300WV4C R	2	CAPACITOR,FXD, MICA DIEL, 470PF, 5%, 500V (V72136) 912-2864-000 C51		1
	546 RCR20G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 1/2W (V81349) 745-1422-000 R50 /2/		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 546	RCR32G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 1W (V81349) 745-3422-000 R50 /2/		1
547	RCR20G470KS	2	RESISTOR,FXD, CMPSN, 47 OHMS, 10%, 1/2W (V81349) 745-1296-000 R215 /39/		1
548	DM15F101K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 100PF, 10%, 500V (V72136) 912-2817-000 C261		1
549	RCR07G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000 R181		1
550	RCR07G394KS	2	RESISTOR,FXD, CMPSN, 0.39MEGO, 10%, 1/4W (V81349) 745-0842-000 R51 /1/		1
550	RCR07G334KS	2	RESISTOR,FXD, CMPSN, 0.33MEGO, 10%, 1/4W (V81349) 745-0839-000 R51 /1/		1
551	44C7A	2	CAPACITOR,FXD, CER DIEL, 4700PF, 20%, 500V (V56289) 913-3012-000 C24		1
552	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C72		1
553	RCR20G102KS	2	RESISTOR,FXD, CMPSN, 1K, 10%, 1/2W (V81349) 745-1352-000 R102		1
554	RCR20G124KS	2	RESISTOR,FXD, CMPSN, 0.12MEGO, 10%, 1/2W (V81349) 745-1440-000 R134		1
555	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C80		1
556	RCR07G273KS	2	RESISTOR,FXD, CMPSN, 27K, 10%, 1/4W (V81349) 745-0800-000 R53 /1/		
556	RCR20G183KS	2	RESISTOR,FXD, CMPSN, 18K, 10%, 1/2W (V81349) 745-1405-000 R53 /1/		1
557	RCR20G470KS	2	RESISTOR,FXD, CMPSN, 47 OHMS, 10%, 1/2W (V81349) 745-1296-000 R162 /17/		1
557	RCR20G220KS	2	RESISTOR,FXD, CMPSN, 22 OHMS, 10%, 1/2W (V81349) 745-1282-000 R162 /17/		AR
557	RCR20G270KS	2	RESISTOR,FXD, CMPSN, 27 OHMS, 10%, 1/2W (V81349) 745-1286-000 R162 /17/		AR
557	RCR20G330KS	2	RESISTOR,FXD, CMPSN, 33 OHMS, 10%, 1/2W (V81349) 745-1289-000 R162 /17/		AR
557	RCR20G390KS	2	RESISTOR,FXD, CMPSN, 39 OHMS, 10%, 1/2W (V81349) 745-1293-000 R162 /17/		AR
557	RCR20G470KS	2	RESISTOR,FXD, CMPSN, 47 OHMS, 10%, 1/2W (V81349) 745-1296-000 R162 /17/		AR
557	RCR20G560KS	2	RESISTOR,FXD, CMPSN, 56 OHMS, 10%, 1/2W (V81349) 745-1300-000 R162 /17/		AR
557	RCR20G680KS	2	RESISTOR,FXD, CMPSN, 68 OHMS, 10%, 1/2W (V81349) 745-1303-000 R162 /17/		AR
557	RCR20G820KS	2	RESISTOR,FXD, CMPSN, 82 OHMS, 10%, 1/2W (V81349) 745-1307-000 R162 /17/		AR
557	RCR20G101KS	2	RESISTOR,FXD, CMPSN, 100 OHMS, 10%, 1/2W (V81349) 745-1310-000 R162 /17/		AR
558	RCR20G560KS	2	RESISTOR,FXD, CMPSN, 56 OHMS, 10%, 1/2W (V81349) 745-1300-000 R22 /17/		1
558	RCR20G101KS	2	RESISTOR,FXD, CMPSN, 100 OHMS, 10%, 1/2W (V81349) 745-1310-000 R22 /17/		1
559	MS75008-40	2	COIL,RF, 10UH (V96906) 240-0149-000 L35 (EFF TO REV LTR DK)		1
559	MS75101-7	2	COIL,RF, 10UH (V96906) 240-1600-000 L35 (EFF REV LTR DK)		1
560	RTMT16M	2	TERMINAL,STUD (V91663) 306-0977-000		1
561	RCR42G123KS	2	RESISTOR,FXD, CMPSN, 12K, 10%, 2W (V81349) 745-5698-000 R99		1
562	44C7A	2	CAPACITOR,FXD, CER DIEL, 4700PF, 20%, 500V (V56289) 913-3012-000 C103		1
563	RCR20G224KS	2	RESISTOR,FXD, CMPSN, 0.22MEGO, 10%, 1/2W (V81349) 745-1450-000 R96		1
564	19C372	2	CAPACITOR,FXD, CER DIEL, 470PF, 20%, 500V (V56289) 913-3007-000 C223		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM		PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	565	RCR07G225KS	2	RESISTOR,FXD, CMPSN, 2.2MEGO, 10%, 1/4W (V81349) 745-0869-000 R94		1
	566	RCR07G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000 R93		1
	567	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C277 /36B/		1
	568	RCR20G101KS	2	RESISTOR,FXD, CMPSN, 100 OHMS, 10%, 1/2W (V81349) 745-1310-000 R209		1
	569	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C235 /20/		1
	570	RCR07G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 1/4W (V81349) 745-0809-000 R91		1
	571	RCR20G155KS	2	RESISTOR,FXD, CMPSN, 1.5MEGO, 10%, 1/2W (V81349) 745-1485-000 R155		1
	572	PW7-2500-10PCT	2	RESISTOR,FXD,WW 2.5K, 10%, 7W (V07716) 710-9000-000 R86		1
	573	19C372	2	CAPACITOR,FXD, CER DIEL, 470PF, 20%, 500V (V56289) 913-3007-000 C98		1
	574	DM15C100K500WV4CR	2	CAPACITOR,FXD, MICA DIEL, 10PF, 10%, 500V (V72136) 912-2754-000 C94		1
	575	RTMT16M	2	TERMINAL,STUD (V91663) 306-0977-000		1
		P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		1
		310-0077-000	2	WASHER,LOCK, BRZ, 0.141 ID X 0.253 OD (V79807) 310-0077-000 (AP)		1
	576	MS90540-07	2	COIL,RF, 2000UH (V96906) 240-2547-000 L31		1
	577	RCR20G821KS	2	RESISTOR,FXD, CMPSN, 820 OHMS, 10%, 1/2W (V81349) 745-1349-000 R88		1
	578	541-5183-002	2	BUTTON,CABLE		2
		P343-0288-000	2	SCREW,MACH, NP BRS, 4-40 X 7/16 (V77250) 343-0288-000 (AP)		2
	579	44C7A	2	CAPACITOR,FXD, CER DIEL, 4700PF, 20%, 500V (V56289) 913-3012-000 C96		1
	580			(NOT USED)		
	581	D28121	2	CAPACITOR,FXD, ELCTLT, 100UF, M10%P100%, 6V (V56289) 183-1782-000 C102		1
	582	RCR20G624JS	2	RESISTOR,FXD, CMPSN, 0.62MEGO, 5%, 1/2W (V81349) 745-1469-000 R210 /26/		1
	583	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C275 /26/		1
	584	19C372	2	CAPACITOR,FXD, CER DIEL, 470PF, 20%, 500V (V56289) 913-3007-000 C99		1
	585	RCR20G681KS	2	RESISTOR,FXD, CMPSN, 680 OHMS, 10%, 1/2W (V81349) 745-1345-000 R166		1
	586	RCR20G562KS	2	RESISTOR,FXD, CMPSN, 5.6K, 10%, 1/2W (V81349) 745-1384-000 R95		1
	587	6H12	2	TERMINAL BOARD (V82893) 306-0909-000		1
		P343-0328-000	2	SCREW,MACH, NP BRS, 6-32 X 1/4 (V77250) 343-0328-000 (AP)		1
		MS35338-98	2	WASHER,SPRING, CD PL BRZ, 0.141 ID X 0.250 OD (V96906) 310-0096-000 (AP)		1
	588	RCR20G682KS	2	RESISTOR,FXD, CMPSN, 6.8K, 10%, 1/2W (V81349) 745-1387-000 R87		1
	589	RCR07G471KS	2	RESISTOR,FXD, CMPSN, 470 OHMS, 10%, 1/4W (V81349) 745-0737-000 R211 /37/		1
	590	RCR20G273KS	2	RESISTOR,FXD, CMPSN, 27K, 10%, 1/2W (V81349) 745-1412-000 R90		1
	591	RCR42G273KS	2	RESISTOR,FXD, CMPSN, 27K, 10%, 2W (V81349) 745-5712-000 R177		1
	592	33C2	2	CAPACITOR,FXD, CER DIEL, 0.02UF, 20%, 500V (V56289) 913-2142-000 C56		1
	593	RCR20G224KS	2	RESISTOR,FXD, CMPSN, 0.22MEGO, 10%, 1/2W (V81349) 745-1450-000 R55		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 594	44C7A	2	CAPACITOR,FXD, CER DIEL, 4700PF, 20%, 500V (V56289) 913-3012-000 C4		1
595	RCR20G155KS	2	RESISTOR,FXD, CMPSN, 1.5MEGO, 10%, 1/2W (V81349) 745-1485-000 R156		1
596	RCR20G474KS	2	RESISTOR,FXD, CMPSN, 0.47MEGO, 10%, 1/2W (V81349) 745-1464-000 R165		1
597	RCR20G680KS	2	RESISTOR,FXD, CMPSN, 68 OHMS, 10%, 1/2W (V81349) 745-1303-000 R97		1
598	RCR07G474KS	2	RESISTOR,FXD, CMPSN, 0.47MEGO, 10%, 1/4W (V81349) 745-0845-000 R98		1
599	D29343	2	CAPACITOR,FXD, ELCTLT, 4UF, M10%P100%, 350V (V56289) 183-1783-000 C264 /3/		1
599	TC65	2	CAPACITOR,FXD, ELCTLT, 20UF, M10%P50%, 350V (V37942) 183-1049-000 C264 /3/		1
600	HP14N	2	CLAMP,LOOP (V09922) 150-1547-000		1
	MS51957-17	2	SCREW,MACH, STL, 4-40 X 1/2 (V96906) 343-0137-000 (AP)		1
	310-0045-000	2	WASHER,FLAT, SST, 0.125 ID X 0.312 OD (V79807) 310-0045-000 (AP)		1
	540-9045-000	2	POST (AP)		1
601	RCR20G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/2W (V81349) 745-1436-000 R71		1
602	RCR20G102KS	2	RESISTOR,FXD, CMPSN, 1K, 10%, 1/2W (V81349) 745-1352-000 R6		1
603	RCR07G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 1/4W (V81349) 745-0809-000 R138		1
604	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C8		1
605	RCR07G474KS	2	RESISTOR,FXD, CMPSN, 0.47MEGO, 10%, 1/4W (V81349) 745-0845-000 R5		1
605A	1N34A	2	SEMICOND DEVICE (V93332) 353-0103-000 CR1 ,CR2 ,CR3,CR4 /4/		4
605A	FA-4200	2	SEMICOND DEVICE (V07263) 353-3271-000 CR1 ,CR2 ,CR3,CR4 /4A/		4
606	913-3829-000	2	CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C181 ,C182(DUAL CAPACITOR)		1
606A	RCR07G181KS	2	RESISTOR,FXD, CMPSN, 180 OHMS, 10%, 1/4W (V81349) 745-0722-000 R203		1
607	RCR07G181KS	2	RESISTOR,FXD, CMPSN, 180 OHMS, 10%, 1/4W (V81349) 745-0722-000 R206 /5/		1
608	RCR07G221KS	2	RESISTOR,FXD, CMPSN, 220 OHMS, 10%, 1/4W (V81349) 745-0725-000 R205 /5/		1
610	RCR07G271KS	2	RESISTOR,FXD, CMPSN, 270 OHMS, 10%, 1/4W (V81349) 745-0728-000 R16 /4/		1
610	RCR07G181KS	2	RESISTOR,FXD, CMPSN, 180 OHMS, 10%, 1/4W (V81349) 745-0722-000 R16 /4A/		1
610	RCR07G470KS	2	RESISTOR,FXD, CMPSN, 47 OHMS, 10%, 1/4W (V81349) 745-0701-000 R16 /5/		1
611	RTMT16M	2	TERMINAL,STUD (V91663) 306-0977-000		1
	P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		1
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		1
612	RCR07G271KS	2	RESISTOR,FXD, CMPSN, 270 OHMS, 10%, 1/4W (V81349) 745-0728-000 R14 /4/		1
612	RCR07G181KS	2	RESISTOR,FXD, CMPSN, 180 OHMS, 10%, 1/4W (V81349) 745-0722-000 R14 /4A/		1
612	RCR07G470KS	2	RESISTOR,FXD, CMPSN, 47 OHMS, 10%, 1/4W (V81349) 745-0701-000 R14 /5/		1
613	MS90539-15	2	COIL,RF, 1000UH (V96906) 240-2540-000 L39 /4A/		1
614	WR5434	2	RESISTOR,VAR, 250 OHMS, 30%, 0.2W (V71450) 376-4602-000 R15 /4/		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 614	WR5455	2	RESISTOR,VAR, 1K, 20%, 0.2W (V71450) 376-4623-000 R15 /4A/		1
614	WR5453	2	RESISTOR,VAR, 250 OHMS, 20%, 0.2W (V71450) 376-4621-000 R15 /5/		1
	P334-0253-00	2	NUT,PLAIN,HEX, NP BRS, 1/4-32 (V77250) 334-0253-000 (AP)		1
	1214-05	2	WASHER,LOCK, CD PL STL, 0.267 ID X 0.408 OD (V78189) 373-0087-000 (AP)		1
614A	RCR07G820KS	2	RESISTOR,FXD, CMPSN, 82 OHMS, 10%, 1/4W (V81349) 745-0710-000 R172 /4/		1
615	MS90539-15	2	COIL,RF, 1000UH (V96906) 240-2540-000 L38 /4A/		1
616	CM06FD511J03	2	CAPACITOR,FXD, MICA DIEL, 510PF, 5%, 500V (V81349) 912-2980-000 C88		1
617	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C7		1
618	RCR20G470KS	2	RESISTOR,FXD, CMPSN, 47 OHMS, 10%, 1/2W (V81349) 745-1296-000 R195 /10/		1
619	RCR20G105KS	2	RESISTOR,FXD, CMPSN, 1MEGO, 10%, 1/2W (V81349) 745-1478-000 R54		1
620	CM05FD101J03	2	CAPACITOR,FXD, MICA DIEL, 100PF, 5%, 500V (V81349) 912-2816-000 C55 /10/		1
620	CM05FD181J03	2	CAPACITOR,FXD, MICA DIEL, 180PF, 5%, 500V (V81349) 912-2834-000 C55 /10/		1
621	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C234		1
622	D31582	2	CAPACITOR,FXD, ELCTLT, 8UF, M10%P75%, 25V (V56289) 183-1167-000 C259		1
623	MS90538-20	2	COIL,RF, 220UH (V96906) 240-2524-000 L22 /9A/		1
623	MS75089-15	2	COIL,RF, 220UH (V96906) 240-2715-410 L22 /9A/		1
624	DM15C150K500WV4C R	2	CAPACITOR,FXD, MICA DIEL, 15PF, 10%, 500V (V72136) 912-2760-000 C53		1
625	RCR20G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 1/2W (V81349) 745-1422-000 R7		1
626	RCR20G222KS	2	RESISTOR,FXD, CMPSN, 2.2K, 10%, 1/2W (V81349) 745-1366-000 R190 /37/		1
626	RCR20G152KS	2	RESISTOR,FXD, CMPSN, 1.5K, 10%, 1/2W (V81349) 745-1359-000 R190 /37/		1
627	RCR20G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/2W (V81349) 745-1436-000 R35		1
628	BL290-8705-000	2	XTAL UNIT,QTZ, 453.6500KHZ (V71034) 290-8705-000 Y16		1
629	BL290-8706-000	2	XTAL UNIT,QTZ, 456.3500KHZ (V71034) 290-8706-000 Y17		1
630	197029K4	2	SWITCH,RTRY (V76854) 259-1076-000 S9		1
	P334-4060-000	2	NUT,PLAIN,HEX, NP BRS 3/8-32 (V77250) 334-4060-000 (AP)		1
	1720-02	2	WASHER,LOCK, SST, 0.391 ID X 0.507 OD (V78189) 373-0085-000 (AP)		1
631	RCR32G100KS	2	RESISTOR,FXD, CMPSN, 10 OHMS, 10%, 1W (V81349) 745-3268-000 R100		1
632	RCR42G223KS	2	RESISTOR,FXD, CMPSN, 22K, 10%, 2W (V81349) 745-5708-000 R70		1
633	RCR32G153KS	2	RESISTOR,FXD, CMPSN, 15K, 10%, 1W (V81349) 745-3401-000 R69		1
634	1N458	2	SEMICOND DEVICE (V14140) 353-0205-000 CR8		1
635	RCR07G473KS	2	RESISTOR,FXD, CMPSN, 47K, 10%, 1/4W (V81349) 745-0809-000 R139		1
636	RCR20G102KS	2	RESISTOR,FXD, CMPSN, 1K, 10%, 1/2W (V81349) 745-1352-000 R57		1
637	19C372	2	CAPACITOR,FXD, CER DIEL, 470PF, 20%, 500V (V56289) 913-3007-000 C215		1
638	RCR20G562KS	2	RESISTOR,FXD, CMPSN, 5.6K, 10%, 1/2W (V81349) 745-1384-000 R56		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	639	44C7A	2 CAPACITOR,FXD, CER DIEL, 4700PF, 20%, 500V (V56289) 913-3012-000 C256		1
	640	RCR20G823KS	2 RESISTOR,FXD, CMPSN, 82K, 10%, 1/2W (V81349) 745-1433-000 R189		1
	641	6H12	2 TERMINAL BOARD (V82893) 306-0909-000		1
		P343-0328-000	2 SCREW,MACH, NP BRS, 6-32 X 1/4 (V77250) 343-0328-000 (AP)		1
		MS35338-98	2 WASHER,SPRING, CD PL BRZ, 0.141 ID X 0.250 OD (V96906) 310-0096-000 (AP)		1
	642	913-3829-000	2 CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C165 ,C166(DUAL CAPACITOR)		1
	643	2DDH63N103M	2 CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 1000V (V71590) 913-3922-000 C163		1
	644	2DDH63N103M	2 CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 1000V (V71590) 913-3922-000 C162		1
	645	86CP11-1008	2 CONNECTOR,PLUG, ELEC (V02660) 372-1950-000 J13		1
	646	546-3328-002	2 SHELL,ELECTRIAL CONNECTOR		1
		MS35649-244	2 NUT,PLAIN,HEX, SST, 4-40 (V96906) 313-0043-000 (AP FOR 645-646)		2
		546-8005-002	2 SPACER (AP FOR 645-646)		2
		MS35335-85	2 WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP FOR 645-646)		2
		P330-2292-000	2 SCREW,MACH, SST, 4-40 X 3/8 (V77250) 330-2292-000 (AP FOR 645-646)		2
	647	913-3829-000	2 CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C161 ,C164(DUAL CAPACITOR)		1
	648	913-3829-000	2 CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C167 ,C190(DUAL CAPACITOR)		1
	649	36C175A	2 CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C169		1
	650	DA172-057CB	2 CAPACITOR,FXD, CER DIEL, 0.001UF, M20%P100%, 2000V (V71590) 913-3537-000 C168		1
	650	858W5T2KV1KPFPOR M20PCT	2 CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 2000V (V72982) 913-4803-000 C168		1
	651	37859	2 TRANSFORMER,AF (V73386) 667-0368-000 T6		1
	652	540-9448-003	2 POST		2
		P343-0328-000	2 SCREW,MACH, NP BRS, 6-32 X 1/4 (V77250) 343-0328-000 (AP FOR 651-652)		4
		MS35338-98	2 WASHER,SPRING, CD PL BRZ, 0.141 ID X 0.250 OD (V96906) 310-0096-000 (AP FOR 651-652)		4
	653	LT4K039	2 COIL,RF, 2.70UH (V81349) 240-0069-000 L27 (EFF TO REV LTR DR)		1
	653	MS75008-33	2 COIL,RF, 2.7UH (V96906) 240-1593-000 L27 (EFF REV LTR DR)		1
	654	913-3829-000	2 CAPACITOR,FXD, CER DIEL, 0.01UF, GMV, 500V (V71590) 913-3829-000 C194 ,C202(DUAL CAPACITOR)		1
	655	RCR32G680KS	2 RESISTOR,FXD, CMPSN, 68 OHMS, 10%, 1W (V81349) 745-3303-000 R157		1
	656	36C175A	2 CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C193		1
	657	36C175A	2 CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C196		1
	658	546-0255-000	2 COVER,RELAY /36/		1
		P343-0285-000	2 SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		3
	659	30040-3	2 RETAINER,RLY SO (V02288) 220-1512-000		1
	660	RCR20G470KS	2 RESISTOR,FXD, CMPSN, 47 OHMS, 10%, 1/2W (V81349) 745-1296-000 R101		1
	661	36C175A	2 CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C108		1
	662	110-3680	2 RELAY,AMT (V04221) 970-1941-000 K4 /36/		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 662	T163X97	2	RELAY,AMT (V70309) 970-2439-020 K4 /36/		1
	P343-0384-000	2	SCREW,MACH, NP BRS, 3-48 X 1/4 (V77250) 343-0384-000 (AP)		2
	310-0076-000	2	WASHER,LOCK, BRZ, 0.115 ID X 0.212 OD (V79807) 310-0076-000 (AP)		2
663	30055-20	2	SOCKET,RLY (V02288) 220-1511-000 XK4 /36/		1
664	G2619	2	TERMINAL,STUD (V21242) 306-0324-000 /36/		5
664A	RCR07G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000 R170		1
665	757-8471-001	2	BRACKET,RELAY /36/		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP)		2
666	0228-001-002	2	SOCKET,RLY (V02288) 220-1472-000		1
667	B106703	2	RELAY,AMT (V71482) 970-1940-000 K2 /36/		1
667	T163X96	2	RELAY,AMT (V70309) 970-2439-010 K2 /36/		1
	P343-0284-000	2	SCREW,MACH, NP BRS, 4-40 X 3/16 (V77250) 343-0284-000 (AP)		2
	310-0077-000	2	WASHER,LOCK, BRZ, 0.141 ID X 0.253 OD (V79807) 310-0077-000 (AP)		2
668	0211-012-002-00	2	SOCKET,RLY (V02288) 220-1471-000 XK2 /36/		1
669	RTMT16M	2	TERMINAL,STUD (V91663) 306-0977-000		1
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		1
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		1
670	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000		1
671	RCR20G101KS	2	RESISTOR,FXD, CMPSN, 100 OHMS, 10%, 1/2W (V81349) 745-1310-000 R167		1
672	RCR20G470KS	2	RESISTOR,FXD, CMPSN, 47 OHMS, 10%, 1/2W (V81349) 745-1296-000 R182 /35A/		1
672	RCR20G680KS	2	RESISTOR,FXD, CMPSN, 68 OHMS, 10%, 1/2W (V81349) 745-1303-000 R182 /35A/		1
673	RCR20G681KS	2	RESISTOR,FXD, CMPSN, 680 OHMS, 10%, 1/2W (V81349) 745-1345-000 R126		1
674	RCR20G123KS	2	RESISTOR,FXD, CMPSN, 12K, 10%, 1/2W (V81349) 745-1398-000 R85		1
675	RCR07G335KS	2	RESISTOR,FXD, CMPSN, 3.3MEGO, 10%, 1/4W (V81349) 745-0875-000 R83 /25/		1
675	RCR20G155KS	2	RESISTOR,FXD, CMPSN, 1.5MEGO, 10%, 1/2W (V81349) 745-1485-000 R83 /25/		1
676	845-014X5V0503Z	2	CAPACITOR,FXD, CER DIEL, 0.05UF, M20%P80%, 100V (V72982) 913-3679-000 C93 /25/		1
676	5C11A	2	CAPACITOR,FXD, CER DIEL, 0.47UF, M20%P80%, 25V (V56289) 913-3804-000 C93 /25/		1
677	RCR20G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/2W (V81349) 745-1436-000 R130		1
678	RCR07G472KS	2	RESISTOR,FXD, CMPSN, 4.7K, 10%, 1/4W (V81349) 745-0773-000 R82 /24/		1
678	RCR20G472KS	2	RESISTOR,FXD, CMPSN, 4.7K, 10%, 1/2W (V81349) 745-1380-000 R82 /24/		1
679	RCR20G183KS	2	RESISTOR,FXD, CMPSN, 18K, 10%, 1/2W (V81349) 745-1405-000 R133		1
680	RCR20G154KS	2	RESISTOR,FXD, CMPSN, 0.15MEGO, 10%, 1/2W (V81349) 745-1443-000 R180 /25/		1
680	RCR20G684KS	2	RESISTOR,FXD, CMPSN, 0.68MEGO, 10%, 1/2W (V81349) 745-1471-000 R180 /25/		1
681	33C58	2	CAPACITOR,FXD, CER DIEL, 0.05UF, M20%P80%, 500V (V01939) 913-3153-000 C276 /27/		1
682	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C92		1
683	6H12	2	TERMINAL BOARD (V82893) 306-0909-000		1
	P343-0328-000	2	SCREW,MACH, NP BRS, 6-32 X 1/4 (V77250) 343-0328-000 (AP)		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2	MS35338-98	2	WASHER,SPRING, CD PL BRZ, 0.141 ID X 0.250 OD (V96906) 310-0096-000 (AP)		1
684	RCR20G183KS	2	RESISTOR,FXD, CMPSN, 18K, 10%, 1/2W (V81349) 745-1405-000 R116		1
685	RCR20G823KS	2	RESISTOR,FXD, CMPSN, 82K, 10%, 1/2W (V81349) 745-1433-000 R137		1
686	332-14-03-017	2	TERMINAL BOARD (V71785) 306-0587-000		1
	P313-0140-000	2	NUT,PLAIN,HEX, NP BRS, 6-32 (V77250) 313-0140-000 (AP)		1
	MS35338-98	2	WASHER,SPRING, CD PL BRZ, 0.141 ID X 0.250 OD (V96906) 310-0096-000 (AP)		1
687	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C104		1
688	RCR07G225KS	2	RESISTOR,FXD, CMPSN, 2.2MEGO, 10%, 1/4W (V81349) 745-0869-000 R213 /27/		1
689	40C73A1	2	CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000 C265 /25/		1
689	36C175A	2	CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C265 /25/		1
690	1N458	2	SEMICOND DEVICE (V14140) 353-0205-000 CR11 /27/		1
691	41C92	2	CAPACITOR,FXD, CER DIEL, 0.1UF, M20%P80%, 500V (V01939) 913-3152-000 C211		1
692	RCR07G181KS	2	RESISTOR,FXD, CMPSN, 180 OHMS, 10%, 1/4W (V81349) 745-0722-000 R150		1
693	RCR20G102KS	2	RESISTOR,FXD, CMPSN, 1K, 10%, 1/2W (V81349) 745-1352-000 R117		1
694	22698-6MLW	2	SWITCH,LVR (V82104) 259-1014-000 S12		1
	P313-0132-000	2	NUT,PLAIN,HEX, SST, 4-40 (V77250) 313-0132-000 (AP)		2
	310-0278-000	2	WASHER,LOCK, SST, 0.115 ID X 0.202 OD (V70318) 310-0278-000 (AP)		2
	P343-0329-000	2	SCREW,MACH, NP BRS, 6-32 X 5/16 (V77250) 343-0329-000 (AP)		2
695	BA811-2896	2	RESISTOR,VAR, 500K, 30%, 1/4W (V71590) 376-7405-000 R92		1
	P334-4060-000	2	NUT,PLAIN,HEX, NP BRS 3/8-32 (V77250) 334-4060-000 (AP)		1
	1720-02	2	WASHER,LOCK, SST, 0.391 ID X 0.507 OD (V78189) 373-0085-000 (AP)		1
696	544-9710-002	2	BRACKET		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP)		2
697	X003	2	TRANSFORMER,IF (V81815) 278-0276-000 T1 /4/		1
697	X682-1	2	TRANSFORMER,IF (V81815) 278-0696-000 T1 /4A/		1
698	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J26		1
699	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J23		1
700	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J22		1
	1214-05	2	WASHER,LOCK, CD PL STL, 0.267 ID X 0.408 OD (V78189) 373-0087-000 (AP FOR 698-700)		3
701	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C70		1
702	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C63		1
703	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C65		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP FOR 701-703)		1
704	191774-23	2	SWITCH,RTRY (V76854) 259-0980-000 S15		1
	P334-4060-000	2	NUT,PLAIN,HEX, NP BRS 3/8-32 (V77250) 334-4060-000 (AP)		1
	1720-02	2	WASHER,LOCK, SST, 0.391 ID X 0.507 OD (V78189) 373-0085-000 (AP)		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 705	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C67		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP)		1
706	BA812-1211	2	RESISTOR,VAR, 500K, 30%, 1/4W (V71590) 376-7404-000 R8 (INCLUDES S10)		1
	P334-4060-000	2	NUT,PLAIN,HEX, NP BRS 3/8-32 (V77250) 334-4060-000 (AP)		1
	1720-02	2	WASHER,LOCK, SST, 0.391 ID X 0.507 OD (V78189) 373-0085-000 (AP)		1
707	GSC232	2	FERRULE,RF GND (V59730) 304-0179-000		1
708	913NEOPRENE45-55	2	GROMMET,RBR (V75543) 201-1090-000		2
709	RTMT12M	2	TERMINAL,STUD (V91663) 306-0976-000		1
	P343-0284-000	2	SCREW,MACH, NP BRS, 4-40 X 3/16 (V77250) 343-0284-000 (AP)		1
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		1
710	544-2825-002	2	SOCKET,CRYSTAL XY1		1
	MS51959-18	2	SCREW,MACH, SST, 4-40 X 5/8 (V96906) 342-0049-000 (AP)		2
	540-9045-003	2	POST (AP)		2
711	905	2	GROMMET,RBR (V75543) 201-1060-000		7
712	557-018-3-12A	2	CAPACITOR,VAR, CER DIEL, 3 TO 18PF, 350V (V72982) 917-1072-000 C76 /28/		1
712	557-018-5-25A	2	CAPACITOR,VAR, CER DIEL, 5 TO 37.5PF, 350V (V72982) 917-1073-000 C76 /28/		1
712	557006C0P039R	2	CAPACITOR,VAR, 5PF TO 25PF, 350V (V72982) 917-1194-000 C76 /28/		1
713	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C68		1
714	557006C0P039R	2	CAPACITOR,VAR, 5PF TO 25PF, 350V (V72982) 917-1194-000 C36		1
715	557-018-1-5-7A	2	CAPACITOR,VAR, CER DIEL, 1.5 TO 10.5PF, 350V (V72982) 917-1071-000 C39		1
716	557006C0P039R	2	CAPACITOR,VAR, 5PF TO 25PF, 350V (V72982) 917-1194-000 C116		1
717	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C115		1
718	557-018-3-12A	2	CAPACITOR,VAR, CER DIEL, 3 TO 18PF, 350V (V72982) 917-1072-000 C111		1
719	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C130		1
720	557-018-5-25A	2	CAPACITOR,VAR, CER DIEL, 5 TO 37.5PF, 350V (V72982) 917-1073-000 C21		1
720	557006C0P039R	2	CAPACITOR,VAR, 5PF TO 25PF, 350V (V72982) 917-1194-000 C21		1
721	557-018-5-25A	2	CAPACITOR,VAR, CER DIEL, 5 TO 37.5PF, 350V (V72982) 917-1073-000 C134 /31/		1
721	557-018-1-5-7A	2	CAPACITOR,VAR, CER DIEL, 1.5 TO 10.5PF, 350V (V72982) 917-1071-000 C134 /31/		1
722	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C109		1
723	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C129		1
724	557006C0P039R	2	CAPACITOR,VAR, 5PF TO 25PF, 350V (V72982) 917-1194-000 C136		1
725	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C113		1
726	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C37		1
727	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C32		1

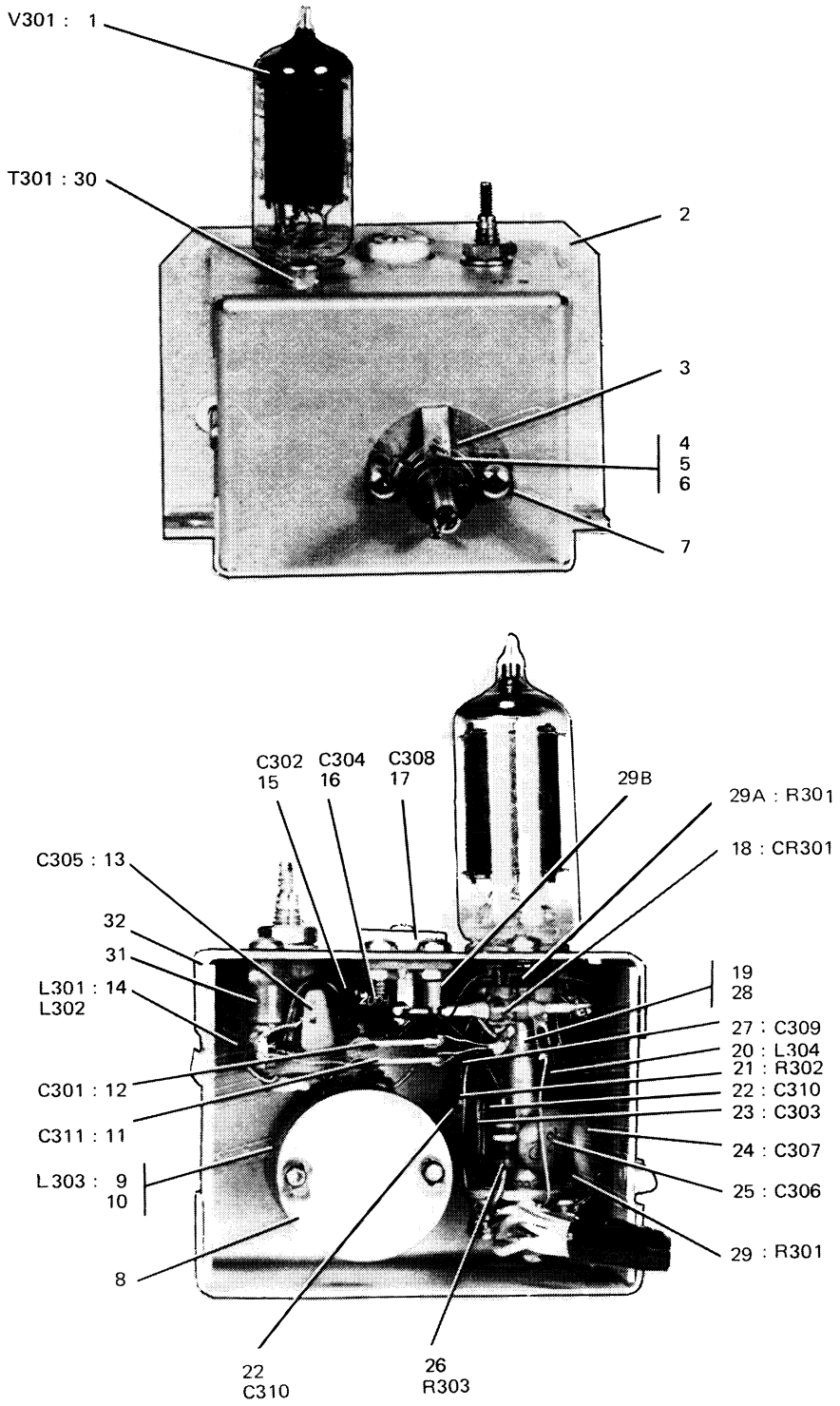
GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-2 728	557006U2P034R	2	CAPACITOR,VAR, 8 TO 50PF, 350V (V72982) 917-1196-000 C34		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP FOR 712-728)		34
729	X094-1	2	TUNING UNIT,RF (V81815) 278-0293-000 L4 (L4 AND T2 ARE A MATCHED PAIR)		1
730	X094-1	2	TUNING UNIT,RF (V81815) 278-0293-000 T2 (T2 AND L4 ARE A MATCHED PAIR)		1
731	X239	2	COIL,RF (V81815) 278-0538-000 Z5		1
	P313-0051-000	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0051-000 (AP)		2
	MS35338-97	2	WASHER,SPRING, CD PL BRZ, 0.115 ID X 0.209 OD (V96906) 310-0095-000		2
	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000 (AP)		1
732	327029H3M0102K	2	CAPACITOR,FXD, CER DIEL, 1000PF, 10%, 500V (V72982) 913-4061-000 C137		1
	P313-0149-000	2	NUT,PLAIN,HEX, NP BRS, 1/4-28 (V77250) 313-0149-000 (AP)		1
	1214-05	2	WASHER,LOCK, CD PL STL, 0.267 ID X 0.408 OD (V78189) 373-0087-000 (AP)		1
	4012HT	2	TERMINAL,LUG (V77147) 304-2800-000 (AP)		1
733	545-6181-002	2	BRACKET, CAPACITOR		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP)		2
734	PD52414	2	CAPACITOR,VAR, MICA DIEL, 100 TO 500PF, 1000V (V72136) 918-0006-000 C154		1
735	PD52414	2	CAPACITOR,VAR, MICA DIEL, 100 TO 500PF, 1000V (V72136) 918-0006-000 C153		1
736	PD52414	2	CAPACITOR,VAR, MICA DIEL, 100 TO 500PF, 1000V (V72136) 918-0006-000 C152		1
737	PD52313	2	CAPACITOR,VAR, 65PF TO 320PF, 1000V (V72136) 918-0010-000 C155 /38/		1
	1712-00	2	WASHER,LOCK, SST, 0.231 ID X 0.406 OD (V78189) 373-0044-000 (AP FOR 734-737)		4
738	2104-04-01-2520N	2	TERMINAL,LUG (V78189) 304-0317-000		4
	P313-0051-000	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0051-000 (AP)		1
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		1
	P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP)		2
739	X083	2	TRANSFORMER,IF (V81815) 278-0281-000 T5		1
740	3501FP	2	PHONO-JACK (V82389) 360-0148-000 J27		1
	1214-05	2	WASHER,LOCK, CD PL STL, 0.267 ID X 0.408 OD (V78189) 373-0087-000 (AP)		1
741	X004	2	COIL ASSEMBLY (V81815) 278-0277-000 L9		1
742	557-018-5-25A	2	CAPACITOR,VAR, CER DIEL, 5 TO 37.5PF, 350V (V72982) 917-1073-000 C9		1
742	557006C0P039R	2	CAPACITOR,VAR, 5PF TO 25PF, 350V (V72982) 917-1194-000 C9		1
	330-0731-000	2	SCREW,TPG,THD, CD PL STL, 4-24 X 1/4 (V45722) 330-0731-000 (AP)		2
743	D29413	2	CAPACITOR,FXD, ELCTLT, 3SECT (V56289) 183-1702-000 C106		1
744	RTMT12M	2	TERMINAL,STUD (V91663) 306-0976-000		2
745	544-9696-000	2	CHASSIS-PANEL	A	1
745	545-9113-000	2	CHASSIS-PANEL	B	1
	P343-0284-000	2	SCREW,MACH, NP BRS, 4-40 X 3/16 (V77250) 343-0284-000 (AP)		2

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
	MS35335-85	2	WASHER,LOCK, CD PL BRZ, 0.123 ID X 0.255 OD (V96906) 373-7010-000 (AP)		2
746	544-9725-003	3	PANEL-OVERLAY	A	1
746	545-9115-004	3	PANEL,OVERLAY	B	1
747	544-9727-003	3	CHASSIS,PRESSED		1
748	543-8080-002	4	BEARING, OSCILLATOR		1
749	201-11-01-018	2	JACK,PHONO (V71785) 360-0088-000 J1		1
750	201-11-01-018	2	JACK,PHONO (V71785) 360-0088-000 J28		1
751	544-9692-000	2	RAIL,LEFT		1
752	544-9693-000	2	RAIL,RIGHT		1
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP FOR 751-752)		2
	MS35338-97	2	WASHER,SPRING, CD PL BRZ, 0.115 ID X 0.209 OD (V96906) 310-0095-000 (AP FOR 751-752)		2
	310-0054-000	2	WASHER,FLAT, BRS, 0.125 ID X 0.312 OD (V79807) 310-0054-000 (AP FOR 751-752)		2
	MS51959-14	2	SCREW,MACH, SST, 4-40 X 5/16 (V96906) 342-0045-000 (AP FOR 751-752)		2
	MS51959-13	2	SCREW,MACH, SST, 4-40 X 1/4 (V96906) 342-0044-000 (AP FOR 751-752)		2
	P343-0288-000	2	SCREW,MACH, NP BRS, 4-40 X 7/16 (V77250) 343-0288-000 (AP FOR 751-752)		2
	MS51957-64	2	SCREW,MACH, SST, 10-24 X 5/8 (V96906) 343-0210-000 (AP FOR 751-752)		2

GROUP ASSEMBLY PARTS LIST



TP4-3186-017

70K-2 RF Oscillator
Figure 6-3

GROUP ASSEMBLY PARTS LIST

FIG - ITEM		PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-3		522-1093-000	1	OSCILLATOR,RF, TYPE 70K-2 (SEE FIG 6-2-17 FOR NHA)		REF
	1	7543	2	ELECTRON TUBE (V86684) 257-0301-000		1
	2	543-7329-002	2	COVER,REAR		1
		P313-0053-C00	2	NUT,PLAIN,HEX, NP BRS, 6-32 (V77250) 313-0053-000 (AP)		2
		310-0077-000	2	WASHER,LOCK, BRZ, 0.141 ID X 0.253 OD (V79807) 310-0077-000 (AP)		2
		310-0056-000	2	WASHER,FLAT, BRS, 0.147 ID X 0.375 OD (V79807) 310-0056-000 (AP)		2
	3	542-5437-002	2	COLLAR,STOP		1
		X5133-18MD	2	RING,RTNG (V79136) 340-0464-000 (AP)		1
		503-4964-001	2	WASHER,FLAT (AP)		1
		502-1146-002	2	SHIM (AP)		AR
		542-5438-002	2	WASHER,STOP (AP)		1
		543-7328-002	2	WASHER,COUNTER (AP)		1
		328-0512-020	2	SETSCREW, SST, 6-40 X 3/32 (V08664) 328-0512-020 (AP)		1
		335-0036-000	2	SETSCREW, CD PL STL, 6-40 X 3/16 (V08664) 335-0036-000 (AP)		1
*	4	543-7332-003	2	LEADSCREW		1
	5	9SR3XR1AW	2	BEARING,BALL,AN (V43334) 309-0834-000		1
	6	309-0778-00	2	BALL,GLASS (V27545) 309-0778-000		1
	7	542-5439-002	2	SPRING,GROUND		1
	8	542-5431-002	2	PLATE,REAR		1
*	9	543-7333-003	2	COIL L303		1
	10	543-7324-000	2	CORE		1
		X5133-18MD	2	RING,RTNG (V79136) 340-0464-000 (AP FOR 7-10)		
		310-0278-000	2	WASHER,LOCK, SST, 0.115 ID X 0.202 OD (V70318) 310-0278-000 (AP FOR 7-10)		2
	11	55665-0043	2	CAPACITOR,FXD, CER DIEL, 10PF, 1PF, 500V (V93958) 913-0043-000 C311 /13A/		1
	12	55665-0053	2	CAPACITOR,FXD, CER DIEL, 20PF, 1PF, 500V (V93958) 913-0053-000 C301		AR
	12	55662-2884	2	CAPACITOR,FXD, CER DIEL, 20PF, 1%, 500V (V93958) 913-2884-000 C301		AR
	12	55665-0054	2	CAPACITOR,FXD, CER DIEL, 20PF, 1PF, 500V (V93958) 913-0054-000 C301		AR
	12	55665-0055	2	CAPACITOR,FXD, CER DIEL, 20PF, 1PF, 500V (V93958) 913-0055-000 C301		AR
	12	55665-0056	2	CAPACITOR,FXD, CER DIEL, 20PF, 1PF, 500V (V93958) 913-0056-000 C301		AR
	12	55665-0057	2	CAPACITOR,FXD, CER DIEL, 20PF, 1PF, 500V (V93958) 913-0057-000 C301		AR
	12	55665-0058	2	CAPACITOR,FXD, CER DIEL, 20PF, 1PF, 500V (V93958) 913-0058-000 C301		AR
	12	2DPT34L200KAC	2	CAPACITOR,FXD, CER DIEL, 20PF, 2PF, 500V (V21052) 913-0232-000 C301		AR
	12	DA934-022	2	CAPACITOR,FXD, CER DIEL, 10PF, 1PF, 500V (V71590) 913-0230-000 C301		AR
	12	2DPT34L200KAA	2	CAPACITOR,FXD, CER DIEL, 20PF, 2PF, 500V (V21052) 913-0234-000 C301		AR
	12	DA934-026	2	CAPACITOR,FXD, CER DIEL, 20PF, 2PF, 500V (V71590) 913-0235-000 C301		AR
	13	55665-0068	2	CAPACITOR,FXD, CER DIEL, 100PF, 2PF, 500V (V93958) 913-0068-000 C305		AR
	13	55665-0069	2	CAPACITOR,FXD, CER, DIEL, 100PF, 2PF, 500V (V93958) 913-0069-000 C305		AR
	13	55665-0070	2	CAPACITOR,FXD, CER, DIEL, 100PF, 2PF, 500V (V93958) 913-0070-000 C305		AR
	13	55665-0074	2	CAPACITOR,FXD, CER, DIEL, 100PF, 2PF, 500V (V93958) 913-0074-000 C305		AR
	14	543-7323-000	2	COIL,TRIMMER (INCL L301,L302)		1

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-3 15	4C1022BH3	2	CAPACITOR,FXD, CER DIEL, 1000PF, 2%, 200V (V56289) 913-5381-000 C302		1
15	D205F102F	2	CAPACITOR,FXD, MICA DIEL, 1000PF, 1%, 500V (V00853) 912-1749-000 C302 /20B/		1
16	DM15E201F0300WV4 CR	2	CAPACITOR,FXD, MICA DIEL, 200PF, 1%, 300V (V72136) 912-3468-000 C304		1
16	DM5E510J050WV	2	CAPACITOR,FXD, MICA DIEL, 51PF, 5%, 50V (V72136) 912-4141-300 C304 /20B/		1
17	557-018-5-25A	2	CAPACITOR,VAR, CER DIEL, 5 TO 37.5PF, 350V (V72982) 917-1073-000 C308		1
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		2
	P313-0156-00	2	NUT,PLAIN,HEX, NP BRS, 4-40 (V77250) 313-0156-000 (AP)		2
18	1N34A	2	SEMICOND DEVICE (V03877) 353-2780-000 CR301 /13B/		1
*	IF REPLACEMENT IS NECESSARY, MANUFACTURER SUGGESTS RETURN OF 70K-2 MODULE TO MANUFACTURER FOR SERVICING				
18	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010 CR301 /13B/		1
19	543-7322-000	2	SOCKET		1
20	10200-129	3	COIL,RF, 3.30UH (V82142) 240-0695-000 L304		1
21	RCR20G823JS	3	RESISTOR,FXD, CMPSN, 82K, 5%, 1/2W (V81349) 745-1432-000 R302		1
22	20C109	3	CAPACITOR,FXD, CER DIEL, 0.02UF, M40%P60%,250V (V56289) 913-2097-000 C310		1
23	4C3025BH3	3	CAPACITOR,FXD, CER DIEL, 3000PF, 5%, 200V (V56289) 913-5402-000 C303		1
23	D205F302F	3	CAPACITOR,FXD, MICA DIEL, 3000PF, 1%, 500V (V00853) 912-1748-000 C303 /20B/		1
24	20C109	3	CAPACITOR,FXD, CER DIEL, 0.02UF, M40%P60%,250V (V56289) 913-2097-000 C307		1
25	20C109	3	CAPACITOR,FXD, CER DIEL, 0.02UF, M40%P60%,250V (V56289) 913-2097-000 C306		1
26	RCR20G104KS	3	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/2W (V81349) 745-1436-000 R303		1
27	20C109	3	CAPACITOR,FXD, CER DIEL, 0.02UF, M40%P60%,250V (V56289) 913-2097-000 C309		1
28	114-22-12-018	3	SOCKET,TUBE (V71785) 220-1189-000		1
29	RCR20G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/2W (V81349) 745-1436-000 R301		1
29A	RCR20G183KS	2	RESISTOR,FXD, CMPSN, 18K, 10%, 1/2W (V81349) 745-1405-000 R301 /20B/		AR
29A	RCR20G223KS	2	RESISTOR,FXD, CMPSN, 22K, 10%, 1/2W (V81349) 745-1408-000 R301 /20B/		AR
29A	RCR20G273KS	2	RESISTOR,FXD, CMPSN, 27K, 10%, 1/2W (V81349) 745-1412-000 R301 /20B/		AR
29A	RCR20G393KS	2	RESISTOR,FXD, CMPSN, 39K, 10%, 1/2W (V81349) 745-1419-000 R301 /20B/		AR
29A	RCR20G563KS	2	RESISTOR,FXD, CMPSN, 56K, 10%, 1/2W (V81349) 745-1426-000 R301 /20B/		AR
29A	RCR20G823KS	2	RESISTOR,FXD, CMPSN, 82K, 10%, 1/2W (V81349) 745-1433-000 R301 /20B/		AR
29A	RCR20G124KS	2	RESISTOR,FXD, CMPSN, 0.12MEGO, 10%, 1/2W (V81349) 745-1440-000 R301 /20B/		AR
29A	RCR20G154KS	2	RESISTOR,FXD, CMPSN, 0.15MEGO, 10%, 1/2W (V81349) 745-1443-000 R301 /20B/		AR
29A	RCR20G154KS	2	RESISTOR,FXD, CMPSN, 0.15MEGO, 10%, 1/2W (V81349) 745-1443-000 R301 /20B/		AR
29A	RCR20G184KS	2	RESISTOR,FXD, CMPSN, 0.18MEGO, 10%, 1/2W (V81349) 745-1447-000 R301 /20B/		AR

GROUP ASSEMBLY PARTS LIST

FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-3	29A RCR20G224KS	2	RESISTOR,FXD, CMPSN, 0.22MEGO, 10%, 1/2W (V81349) 745-1453-000 R301 /20B/		AR
	29A RCR20G274KS	2	RESISTOR,FXD, CMPSN, 0.27MEGO, 10%, 1/2W (V81349) 745-1454-000 R301 /20B/		AR
	29A RCR20G104KS	2	RESISTOR,FXD, CMPSN, 0.10MEGO, 10%, 1/2W (V81349) 745-1436-000 R301 /20B/		AR
	29B 2A1DB15	2	TERMINAL STDF (V92825) 306-0234-000 (EFF REV LTR AK)		1
	MS51957-12	2	SCREW,MACH, STL, 4-40 X 3/16 (V96906) 343-0132-000 (AP) (EFF REV LTR AK)		1
	30 X006-1	2	TRANSFORMER,RF (V81815) 240-0665-000 T301		1
	P343-0286-000	2	SCREW,MACH, NP BRS, 4-40 X 5/16 (V77250) 343-0286-000 (AP)		2
	310-0278-000	2	WASHER,LOCK, SST, 0.115 ID X 0.202 OD (V70318) 310-0278-000 (AP)		2
	31 2A1DB15	2	TERMINAL STDF (V92825) 306-0234-000		1
	P343-0285-000	2	SCREW,MACH, NP BRS, 4-40 X 1/4 (V77250) 343-0285-000 (AP)		1
	32 543-7321-000	2	COVER		1

6.3 NUMERICAL INDEX

PART NUMBER	FIG - ITEM	TTL REQ
AN960C616	6-2-190	2
A238-5MILL6085A	6-2-72	3
BA811-2798	6-2-504	1
BA811-2896	6-2-695	1
BA812-1211	6-2-706	1
BL289-1424-000	6-2-75	1
BL290-8705-000	6-2-628	1
BL290-8706-000	6-2-629	1
B106703	6-2-667	1
CCR75CH7R5JM	6-2-341	1
CC20CH6R0D	6-2-338	1
	6-2-369	1
CC20CJ030D	6-2-354	1
CC20CK010C	6-2-229	1
	6-2-256	1
CC20CK020D	6-2-418	1
CK61AW222M	6-2-235	1
CM04FD111G03	6-2-318	1
CM05CD100D03	6-2-341	1
	6-2-341	1
CM05ED200J03	6-2-317	1
	6-2-509	AR
CM05ED220J03	6-2-293A	1
	6-2-388	1
CM05ED240J03	6-2-509	AR
CM05ED270J03	6-2-509	AR
CM05ED330J03	6-2-509	AR
CM05ED390J03	6-2-232	1
	6-2-509	AR
CM05ED430J03	6-2-398A	1
	6-2-509	AR
CM05ED470J03	6-2-153	1
	6-2-398A	1
	6-2-434	1
	6-2-509	AR
CM05ED620J03	6-2-509	AR
CM05ED680J03	6-2-509	AR
CM05ED750J03	6-2-509	AR
CM05ED820J03	6-2-509	AR
CM05FD101J03	6-2-620	1
CM05FD111J03	6-2-509	AR
CM05FD121J03	6-2-509	AR
CM05FD131J03	6-2-318	1
	6-2-389	1
	6-2-509	AR
CM05FD151J03	6-2-509	AR
CM05FD181J03	6-2-620	1
CM05FD221J03	6-2-286	1
	6-2-287	1
	6-2-311	1
	6-2-321	1
	6-2-440	1
CM05FD241G03	6-2-350	1
CM05FD241J03	6-2-440	1
CM05FD271J03	6-2-321	1
CM05FD331G03	6-2-320	1
CM05FD361G03	6-2-391	1
CM05FD361J03	6-2-345	1
CM05FD910J03	6-2-509	AR
CM06FD511J03	6-2-392A	1
	6-2-616	1
C13388SS010	6-2-30	1
DA172-057CB	6-2-172	1
	6-2-650	1
DA855-010	6-2-169	1
DA934-022	6-3-12	AR
DA934-026	6-3-12	AR
DM15C050D500WV4CR	6-2-393	1
DM15C100K500WV4CR	6-2-342	1
	6-2-351	1
	6-2-390	1
	6-2-393	1
	6-2-418	1
	6-2-509	AR
	6-2-574	1
DM15C120K500WV4CR	6-2-171A	1
	6-2-346	1
	6-2-401B	1
	6-2-509	AR
DM15C150K500WV4CR	6-2-509	AR
	6-2-624	1
DM15E200K500WV4CR	6-2-342	1
DM15E201F0300WV4CR	6-3-16	1
DM15E270K500WV4CR	6-2-232	1
DM15E330K500WV4CR	6-2-283	1
	6-2-317	1
	6-2-509	AR
DM15E470K500WV4CR	6-2-509	AR
DM15E510K500WV4CR	6-2-312	1
	6-2-509	AR
DM15E560K500WV4CR	6-2-349	1
	6-2-509	AR
DM15F101K500WV4CR	6-2-280	1
	6-2-527	1
	6-2-548	1
DM15F121K500WV4CR	6-2-436	1
DM15F221K500WV4CR	6-2-476	1
DM15F471J300WV4CR	6-2-536	1
	6-2-539	1
	6-2-540	1
	6-2-545	1
DM5E510J050WV	6-3-16	1
DP234-258A	6-2-263	2
D205F102F	6-3-15	1
D205F302F	6-3-23	1
D236-13	6-2-162	2
D28121	6-2-581	1
D29343	6-2-484	1
	6-2-599	1
D29413	6-2-743	1
D31582	6-2-622	1

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	6-2-605A	
	6-2-605A	
	6-2-605A	
GSC232	6-2-707	1
G2522	6-2-263	2
G2619	6-2-664	5
HM6821	6-2-470	1
HP14N	6-2-600	1
HP7N	6-2-159	1
	6-2-426	1
KR2565-1	6-2-201	1
LP9A1E683K	6-2-495	1
LT4K039	6-2-653	1
MS15571-2	6-2-44	1
	6-2-140	1
MS16624-1025	6-2-15	1
MS35333-70	6-2-150	1
MS35335-85	6-2-48	2
	6-2-51	2
	6-2-53	2
	6-2-81	6
	6-2-84	4
	6-2-96	2
	6-2-97	4
	6-2-104	2
	6-2-106	2
	6-2-108	2
	6-2-110	2
	6-2-177	2
	6-2-181	1
	6-2-276	2
	6-2-470	1
	6-2-510	1
	6-2-611	1
	6-2-646	2
	6-2-669	1
	6-2-709	1
	6-2-738	1
	6-2-745	2
MS35338-96	6-2-425	1
MS35338-97	6-2-28	1
	6-2-72	1
	6-2-120	1
	6-2-158	1
	6-2-199	1
	6-2-207	2
	6-2-214	2
	6-2-352	1
	6-2-731	2
	6-2-752	2
MS35338-98	6-2-119	6
	6-2-166	2
	6-2-190	2
	6-2-288	1
	6-2-358	1
	6-2-404	1
	6-2-468	1
	6-2-587	1
	6-2-641	1
	6-2-652	4
	6-2-683	1
	6-2-686	1

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MS35338-99	6-2-94	1
MS35649-244	6-2-276	2
	6-2-646	2
MS35649-284	6-2-71	2
MS51957-12	6-3-298	1
MS51957-15	6-2-48	1
MS51957-17	6-2-600	1
MS51957-31	6-1-2	2
MS51957-36	6-1-2	2
MS51957-49	6-2-71	2
MS51957-64	6-2-336	2
	6-2-752	2
MS51959-13	6-2-752	2
MS51959-14	6-2-124	1
	6-2-752	2
MS51959-16	6-2-12	1
MS51959-18	6-2-710	2
MS75008-33	6-2-653	1
MS75008-40	6-2-457	1
	6-2-559	1
MS75089-15	6-2-623	1
MS75089-23	6-2-399B	1
MS75089-27	6-2-400	1
	6-2-404A	1
MS75089-35	6-2-156	1
MS75101-7	6-2-457	1
	6-2-559	1
MS75103-1	6-2-228	1
MS75103-10	6-2-179	1
	6-2-180	1
MS90538-20	6-2-302	1
	6-2-328	1
	6-2-339	1
	6-2-344	1
	6-2-375	1
	6-2-403	1
	6-2-623	1
MS90539-15	6-2-613	1
	6-2-615	1
MS90540-07	6-2-278	1
	6-2-333	1
	6-2-400	1
	6-2-460A	1
	6-2-576	1
M24251-6-2	6-2-85	1
M24251-6-6	6-2-175	1
M641-5-1	6-2-35	1
NPV3	6-2-425	1
NO20BRASS	6-2-34	1
	6-2-35	1
PD52313	6-2-737	1
PD52414	6-2-734	1
	6-2-735	1
	6-2-736	1
PJ068	6-1-11	1
PW5-6001-10	6-2-494	1
PW7-15000-10PCT	6-2-216	1
PW7-2500-10PCT	6-2-572	1
P313-0003-000	6-2-40	2
P313-0050-000	6-2-77	1
	6-2-159	1
	6-2-425	1
P313-0051-000	6-2-48	2

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P313-0051-000	6-2-51	1
	6-2-53	1
	6-2-81	6
	6-2-84	4
	6-2-106	1
	6-2-108	2
	6-2-110	1
	6-2-181	1
	6-2-470	1
	6-2-731	2
	6-2-738	1
P313-0053-000	6-2-119	6
	6-2-201	1
	6-3-2	2
P313-0132-000	6-2-694	2
P313-0140-000	6-2-166	2
	6-2-168	2
	6-2-686	1
P313-0149-000	6-2-243	5
	6-2-732	1
P313-0154-00	6-2-316	2
P313-0156-00	6-2-15	1
	6-2-72	1
	6-2-97	4
	6-2-158	1
	6-2-159	1
	6-2-178	2
	6-2-206	2
	6-2-207	2
	6-2-214	2
	6-2-234	4
	6-2-347	2
	6-2-352	1
	6-2-386	2
	6-2-428	2
	6-2-430	2
	6-2-752	2
	6-3-17	2
P319-0043-000	6-2-15	2
P320-0008-00	6-2-20	3
P325-0062-000	6-2-190	2
	6-2-192	3
P330-2292-000	6-2-276	2
	6-2-646	2
P334-0253-00	6-2-147	3
	6-2-268	1
	6-2-614	1
P334-4060-000	6-2-54	1
	6-2-143	2
	6-2-190	2
	6-2-504	1
	6-2-630	1
	6-2-695	1
	6-2-704	1
	6-2-706	1
P342-0147-000	6-2-77	1
P342-0153-000	6-2-120	1
	6-2-214	2
P342-0155-000	6-2-15	1
P342-0168-000	6-1-4	2
P342-0286-000	6-2-470	1
P343-0282-000	6-2-28	1
P343-0284-000	6-2-314	1
	6-2-667	2
	6-2-709	1
	6-2-745	2
P343-0285-000	6-2-51	1
	6-2-53	1
	6-2-81	6
	6-2-84	4
	6-2-88	2
	6-2-96	2
	6-2-97	4
	6-2-102	2
	6-2-104	2
	6-2-106	1
	6-2-108	1
	6-2-110	1
	6-2-150	2
	6-2-158	1
	6-2-159	1
	6-2-160	2
	6-2-160A	5
	6-2-177	2
	6-2-178	2
	6-2-208	5
	6-2-234	4
	6-2-353	2
	6-2-575	1
	6-2-658	3
	6-2-669	1
	6-3-17	2
	6-3-31	1
P343-0286-000	6-2-48	1
	6-2-51	1
	6-2-53	1
	6-2-106	1
	6-2-108	1
	6-2-110	1
	6-2-120	1
	6-2-181	1
	6-2-207	2
	6-2-352	1
	6-2-510	1
	6-2-611	1
	6-2-738	1
	6-3-30	2
P343-0288-000	6-2-578	2
	6-2-752	2
P343-0289-000	6-2-72	2
	6-2-316	2
	6-2-347	2
	6-2-386	2
	6-2-430	2
P343-0290-000	6-2-421	1
P343-0291-000	6-2-72	1
	6-2-428	2
P343-0292-000	6-2-206	2
P343-0298-000	6-2-16	2
P343-0299-000	6-2-62	2
	6-2-159	1
P343-0302-000	6-2-425	1
P343-0307-000	6-2-183	2
P343-0311-000	6-2-94	1
P343-0328-000	6-2-200	2
	6-2-288	1

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	6-2-358	1
	6-2-404	1
	6-2-468	1
	6-2-496	1
	6-2-587	1
	6-2-641	1
	6-2-652	4
	6-2-683	1
P343-0329-000	6-2-166	2
	6-2-168	1
	6-2-694	2
P343-0384-000	6-2-662	2
RCR07G101KS	6-2-525A	AR
RCR07G102KS	6-2-485	AR
RCR07G103KS	6-2-325	1
	6-2-488	1
RCR07G104KS	6-2-292	1
	6-2-356	1
	6-2-365	1
	6-2-372	1
	6-2-398	1
	6-2-664A	1
RCR07G105KS	6-2-285	1
	6-2-299	1
	6-2-327	1
	6-2-366	1
	6-2-381	1
	6-2-411	1
	6-2-443	1
	6-2-459	1
	6-2-513	1
	6-2-528	1
	6-2-541	1
	6-2-549	1
	6-2-566	1
RCR07G121KS	6-2-525A	AR
RCR07G122KS	6-2-485	AR
RCR07G123KS	6-2-485	AR
RCR07G151KS	6-2-525A	AR
RCR07G153KS	6-2-485	AR
RCR07G154KS	6-2-535	1
RCR07G155KS	6-2-492	1
RCR07G181KS	6-2-485	1
	6-2-525A	AR
	6-2-606A	1
	6-2-607	1
	6-2-610	1
	6-2-612	1
	6-2-692	1
RCR07G183KS	6-2-485	AR
RCR07G221KS	6-2-483	1
	6-2-485	AR
	6-2-525A	AR
	6-2-608	1
RCR07G223KS	6-2-485	AR
RCR07G225KS	6-2-472	1
	6-2-565	1
	6-2-688	1
RCR07G271KS	6-2-485	AR
	6-2-610	1
	6-2-612	1
RCR07G272KS	6-2-435	1
RCR07G273KS	6-2-401A	1
	6-2-485	AR
	6-2-556	
RCR07G331KS	6-2-485	AR
RCR07G334KS	6-2-532	1
	6-2-550	1
RCR07G335KS	6-2-473	1
	6-2-675	1
RCR07G390KS	6-2-525A	AR
RCR07G391KS	6-2-485	AR
RCR07G392KS	6-2-368	1
RCR07G394KS	6-2-532	1
	6-2-550	1
RCR07G470KS	6-2-525A	AR
	6-2-610	1
	6-2-612	1
RCR07G471KS	6-2-56	1
	6-2-485	AR
	6-2-487	1
	6-2-589	1
RCR07G472KS	6-2-433	1
	6-2-678	1
RCR07G473KS	6-2-445	1
	6-2-535	1
	6-2-570	1
	6-2-603	1
	6-2-635	1
RCR07G474KS	6-2-290	1
	6-2-362	1
	6-2-598	1
	6-2-605	1
RCR07G560KS	6-2-357	1
	6-2-373	1
	6-2-382	1
	6-2-525A	AR
RCR07G561KS	6-2-485	AR
RCR07G562KS	6-2-439	1
RCR07G680KS	6-2-525A	AR
RCR07G681KS	6-2-485	AR
RCR07G682KS	6-2-368	1
RCR07G683KS	6-2-535	1
RCR07G684KS	6-2-293	1
	6-2-303	1
RCR07G820KS	6-2-525A	AR
	6-2-614A	1
RCR07G821KS	6-2-485	AR
RCR07G823KS	6-2-535	1
RCR07G825KS	6-2-497	1
	6-2-498	1
RCR20G100KS	6-2-474	1
RCR20G101KS	6-2-226	1
	6-2-331	1
	6-2-487	1
	6-2-530	1
	6-2-557	AR
	6-2-558	1
	6-2-568	1
	6-2-671	1
RCR20G102KS	6-2-257	1
	6-2-297	1
	6-2-332	1
	6-2-407	1
	6-2-417	1

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	6-2-518	1
	6-2-534	1
	6-2-553	1
	6-2-602	1
	6-2-636	1
	6-2-693	1
RCR20G103KS	6-2-258	1
RCR20G104KS	6-2-412	1
	6-2-415	1
	6-2-543	1
	6-2-601	1
	6-2-627	1
	6-2-677	1
	6-3-26	1
	6-3-29	1
	6-3-29A	AR
RCR20G105KS	6-2-414	1
	6-2-619	1
RCR20G120KS	6-2-211	1
	6-2-218	1
	6-2-220	1
	6-2-249	1
	6-2-251	1
	6-2-254	1
RCR20G121KS	6-2-274	1
	6-2-306	1
	6-2-503	1
RCR20G123KS	6-2-258	1
	6-2-313	1
	6-2-674	1
RCR20G124KS	6-2-413	1
	6-2-554	1
	6-3-29A	AR
RCR20G151KS	6-2-139	1
	6-2-225	1
	6-2-394	1
RCR20G152KS	6-2-326	1
	6-2-626	1
RCR20G153KS	6-2-406	1
RCR20G154KS	6-2-680	1
	6-3-29A	AR
	6-3-29A	AR
RCR20G155KS	6-2-571	1
	6-2-595	1
	6-2-675	1
RCR20G181KS	6-2-444	1
RCR20G183KS	6-2-310	1
	6-2-556	1
	6-2-679	1
	6-2-684	1
	6-3-29A	AR
RCR20G184KS	6-2-538	1
	6-3-29A	AR
RCR20G220KS	6-2-557	AR
RCR20G221KS	6-2-139	1
	6-2-374	1
	6-2-402	1
	6-2-525	1
RCR20G222KS	6-2-258	1
	6-2-308	1
	6-2-333	1
	6-2-500	1
	6-2-626	1
RCR20G223KS	6-3-29A	AR
RCR20G224KS	6-2-299	1
	6-2-416	1
	6-2-466	1
	6-2-563	1
	6-2-593	1
	6-3-29A	AR
RCR20G270KS	6-2-557	AR
RCR20G272KS	6-2-258	1
RCR20G273KS	6-2-590	1
	6-3-29A	AR
RCR20G274KS	6-2-329	1
	6-2-464	1
	6-3-29A	AR
RCR20G330KS	6-2-557	AR
RCR20G331KS	6-2-463	1
	6-2-508	1
RCR20G332KS	6-2-258	1
	6-2-500	1
RCR20G333KS	6-2-399	1
RCR20G390KS	6-2-557	AR
RCR20G392KS	6-2-258	1
RCR20G393KS	6-2-501	1
	6-2-523	1
	6-2-533	1
	6-3-29A	AR
RCR20G470KS	6-2-259	1
	6-2-515A	1
	6-2-547	1
	6-2-557	1
	6-2-557	AR
	6-2-618	1
	6-2-660	1
	6-2-672	1
RCR20G472KS	6-2-258	1
	6-2-678	1
RCR20G473KS	6-2-144	1
	6-2-399	1
	6-2-475	1
	6-2-515	1
	6-2-546	1
	6-2-625	1
RCR20G474KS	6-2-301	1
	6-2-512	1
	6-2-596	1
RCR20G560KS	6-2-380	1
	6-2-557	AR
	6-2-558	1
RCR20G562KS	6-2-258	1
	6-2-586	1
	6-2-638	1
RCR20G563KS	6-3-29A	AR
RCR20G624JS	6-2-582	1
RCR20G680KS	6-2-139	1
	6-2-557	AR
	6-2-597	1
	6-2-672	1
RCR20G681KS	6-2-56	1
	6-2-585	1
	6-2-673	1
RCR20G682KS	6-2-258	1
	6-2-588	1

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	6-2-526	1
RCR20G684KS	6-2-680	1
RCR20G820KS	6-2-557	AR
RCR20G821KS	6-2-577	1
RCR20G822KS	6-2-258	1
RCR20G823JS	6-3-21	1
RCR20G823KS	6-2-640	1
	6-2-685	1
	6-3-29A	AR
RCR32G100KS	6-2-631	1
RCR32G104KS	6-2-301	1
	6-2-460	1
RCR32G123KS	6-2-238	1
RCR32G152KS	6-2-379	1
RCR32G153KS	6-2-633	1
RCR32G222KS	6-2-379	1
RCR32G332KS	6-2-378	1
RCR32G333KS	6-2-364	1
RCR32G472KS	6-2-529	1
RCR32G473KS	6-2-499	1
	6-2-546	1
RCR32G474KS	6-2-170	1
RCR32G562KS	6-2-517	1
RCR32G680KS	6-2-655	1
RCR42G103KS	6-2-273	1
RCR42G123KS	6-2-399A	1
	6-2-508	1
	6-2-561	1
RCR42G153KS	6-2-456	1
RCR42G183KS	6-2-499	1
RCR42G220KS	6-2-446	1
RCR42G223KS	6-2-238	1
	6-2-632	1
RCR42G273KS	6-2-591	1
RCR42G333KS	6-2-461	1
RCR42G473KS	6-2-524	1
RCR42G682KS	6-2-395	1
RCR42G683KS	6-2-490	1
	6-2-493	1
RCR42G821KS	6-2-213	1
RTMT12M	6-2-197	1
	6-2-709	1
	6-2-744	2
RTMT16M	6-2-57	1
	6-2-459A	1
	6-2-465	1
	6-2-505	1
	6-2-510	1
	6-2-544	1
	6-2-560	1
	6-2-575	1
	6-2-611	1
	6-2-669	1
RW67V821	6-2-213	1
R4008X7-32CHROMA TBDIP	6-1-4G	4
R4012X5-32PLAIN	6-2-63	2
SK10066S	6-2-171	1
SSR3XR1AW	6-3-5	1
S072CHEMBLK	6-1-10	1
S076-4	6-1-7	1
S096CADPL	6-1-8	1

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S290-9201-000	6-2-133	1
TC65	6-2-599	1
TS0205C01	6-2-77	1
TS102P01	6-2-88	1
TS103P01	6-2-48	1
	6-2-51	1
	6-2-84	2
	6-2-84	
	6-2-177	1
TYICL1-062	6-1-6	1
T163X96	6-2-667	1
T163X97	6-2-662	1
T5D411	6-2-154	1
VVC445	6-2-343	1
WR5434	6-2-614	1
WR5451	6-2-147	1
WR5453	6-2-146	1
	6-2-268	1
	6-2-614	1
WR5454	6-2-145	1
WR5455	6-2-147	1
	6-2-614	1
WW19491	6-2-15	1
X003	6-2-697	1
X004	6-2-741	1
X006-1	6-3-30	1
X083	6-2-739	1
X094-1	6-2-729	1
	6-2-730	1
X239	6-2-731	1
X5133-18MD	6-3-3	1
	6-3-10	
X682-1	6-2-697	1
0211-012-002-00	6-2-668	1
02242	6-2-191	1
0228-001-002	6-2-666	1
1-8SSBALL	6-2-67	1
1N1490	6-2-210	1
	6-2-531	1
1N34A	6-2-410	1
	6-2-605A	4
	6-2-605A	
	6-2-605A	
	6-2-605A	
	6-3-18	1
1N4454	6-3-18	1
1N458	6-2-300	1
	6-2-634	1
	6-2-690	1
1N5383B	6-2-409A	1
	6-2-459C	1
10070-4	6-2-55	1
10200-129	6-3-20	1
110-3680	6-2-662	1
111CDPL	6-1-9	1
114-0594-000	6-2-45	4
114-22-12-018	6-3-28	1
12AT7	6-2-82	1
	6-2-83	1
1214-05	6-2-93	5
	6-2-100	3
	6-2-118	8
	6-2-147	3

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1214-05	6-2-243	5
	6-2-268	1
	6-2-614	1
	6-2-700	3
	6-2-732	1
	6-2-740	1
13A	6-2-34	1
1400W	6-2-36	3
160-104-3	6-2-178	1
160P47394	6-2-495	1
168-013-1000	6-2-166	1
	6-2-168	1
1712-00	6-2-737	4
1720-02	6-2-34	1
	6-2-35	1
	6-2-54	1
	6-2-143	2
	6-2-504	1
	6-2-630	1
	6-2-695	1
	6-2-704	1
	6-2-706	1
1722-01	6-2-4	1
18-257	6-2-156	1
	6-2-296	1
19C372	6-2-478	1
	6-2-564	1
	6-2-573	1
	6-2-584	1
	6-2-637	1
191774-23	6-2-704	1
192796CK	6-2-427	1
	6-2-428	1
196302F1AC	6-2-54	1
196305CK	6-2-347	1
	6-2-386	1
	6-2-430	1
197029K4	6-2-630	1
2-295	6-1-4F	2
2A1DB15	6-2-314	1
	6-2-353	2
	6-3-29B	1
	6-3-31	1
2DDD63G104XAA	6-2-307	1
	6-2-370	1
	6-2-441	1
	6-2-442	1
	6-2-447	1
	6-2-507	1
	6-2-522	1
2DDH63N103M	6-2-643	1
	6-2-644	1
2DHT54T150JAA	6-2-169	1
2DPT34L200KAA	6-3-12	AR
2DPT34L200KAC	6-3-12	AR
20-3048	6-2-95	1
20C109	6-3-22	1
	6-3-24	1
	6-3-25	1
	6-3-27	1
201-11-01-018	6-2-749	1
	6-2-750	1
2104-04-01-2520N	6-2-48	3
	6-2-51	2
	6-2-53	2
	6-2-81	5
	6-2-84	4
	6-2-96	1
	6-2-97	1
	6-2-106	3
	6-2-108	2
	6-2-110	3
	6-2-150	1
	6-2-157	1
	6-2-177	1
	6-2-194	1
	6-2-670	1
	6-2-731	1
	6-2-738	4
2104-06-02-2520N	6-2-166	2
	6-2-168	1
	6-2-190	1
2104-08-02-2520N	6-2-42	2
22692-414LW1	6-2-423	1
22698-6MLW	6-2-694	1
240-0186-000	6-2-228	1
240-0194-000	6-2-179	1
	6-2-180	1
280-3423-00	6-2-30	1
281-0330-000	6-2-33	1
290-9009-000	6-2-126	1
290-9010-000	6-2-127	1
290-9011-000	6-2-132	1
290-9027-000	6-2-135	1
290-9028-000	6-2-137	1
290-9062-000	6-2-128	1
290-9063-000	6-2-129	1
290-9066-000	6-2-134	1
290-9097-000	6-2-136	1
290-9098-000	6-2-130	1
290-9099-000	6-2-131	1
30040-3	6-2-659	1
30055-20	6-2-663	1
302-0023-00	6-2-62	2
	6-2-77	2
302-0030-000	6-2-183	2
309-0778-00	6-3-6	1
309-5300-000	6-2-68	4
310-0045-000	6-2-600	1
310-0053-000	6-2-77	1
	6-2-159	1
	6-2-425	3
310-0054-000	6-2-28	1
	6-2-159	1
	6-2-194	4
	6-2-199	2
	6-2-206	2
	6-2-207	2
	6-2-214	2
	6-2-316	2
	6-2-347	2
	6-2-386	1
	6-2-426	1
	6-2-428	2
	6-2-430	2
	6-2-752	2

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310-0055-000	6-1-2	4
	6-2-17	2
	6-2-192	3
310-0056-000	6-3-2	2
310-0058-000	6-2-40	2
	6-2-94	1
310-0061-000	6-2-49A	1
310-0076-000	6-2-662	2
310-0077-000	6-2-74	1
	6-2-192	3
	6-2-335	1
	6-2-496	1
	6-2-575	1
	6-2-667	2
	6-3-2	2
310-0097-000	6-2-168	2
310-0274-000	6-2-20	3
310-0278-000	6-2-694	2
	6-3-10	2
	6-3-30	2
327-029X5T0102Z	6-2-239	1
	6-2-240	1
	6-2-241	1
	6-2-242	1
	6-2-243	1
327029H3M0102K	6-2-732	1
328-0005-000	6-2-13	1
328-0028-000	6-2-67	1
328-0473-000	6-2-2	1
328-0506-020	6-2-3	1
328-0512-010	6-1-3	2
	6-2-6	2
	6-2-18	2
	6-2-49	1
	6-2-187	4
	6-2-424	1
328-0512-020	6-3-3	1
33C2	6-2-151	1
	6-2-223	1
	6-2-244	1
	6-2-405	1
	6-2-449	1
	6-2-460B	1
	6-2-467	1
	6-2-592	1
33C58	6-2-681	1
330-0731-000	6-2-194	4
	6-2-261	1
	6-2-319	2
	6-2-322	2
	6-2-348	2
	6-2-387	2
	6-2-429	2
	6-2-432	2
	6-2-506	1
	6-2-665	2
	6-2-696	2
	6-2-703	1
	6-2-705	1
	6-2-728	34
	6-2-733	2
	6-2-738	2
	6-2-742	2

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330-0733-000	6-2-426	1
330-0735-000	6-2-17	2
	6-2-58	2
	6-2-74	4
331-5020-00	6-2-15	1
331-7000-00	6-2-14	3
331013X5U0501K	6-2-212	1
	6-2-215	1
	6-2-221	1
	6-2-246	1
	6-2-247	1
	6-2-253	1
	6-2-519	1
	6-2-521	1
332-14-02-001	6-2-181	1
	6-2-262	1
332-14-03-017	6-2-686	1
332-14-04-022	6-2-260	1
332-1403-165	6-2-158	1
	6-2-322	1
	6-2-352	1
	6-2-432	1
335-0036-000	6-3-3	1
335-0041-000	6-2-9	2
34103	6-2-191	1
343-0048-000	6-2-421	1
3501FP	6-2-89	1
	6-2-90	1
	6-2-91	1
	6-2-92	1
	6-2-93	1
	6-2-98	1
	6-2-99	1
	6-2-100	1
	6-2-111	1
	6-2-112	1
	6-2-113	1
	6-2-114	1
	6-2-115	1
	6-2-116	1
	6-2-117	1
	6-2-118	1
	6-2-698	1
	6-2-699	1
	6-2-700	1
	6-2-740	1
3501MC	6-1-12	2
36C175A	6-2-41	1
	6-2-202	1
	6-2-217	1
	6-2-227	1
	6-2-248	1
	6-2-255	1
	6-2-265	1
	6-2-270	1
	6-2-271	1
	6-2-279	1
	6-2-281	1
	6-2-289	1
	6-2-294	1
	6-2-298	1
	6-2-304	1
	6-2-330	1

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36C175A	6-2-361	1
	6-2-363	1
	6-2-367	1
	6-2-371	1
	6-2-384	1
	6-2-419	1
	6-2-455	1
	6-2-469	1
	6-2-489	1
	6-2-515B	1
	6-2-520	1
	6-2-542	1
	6-2-555	1
	6-2-567	1
	6-2-569	1
	6-2-583	1
	6-2-604	1
	6-2-617	1
	6-2-649	1
	6-2-656	1
	6-2-657	1
	6-2-661	1
	6-2-682	1
	6-2-687	1
	6-2-689	1
376-7202-000	6-2-142	1
	6-2-143	1
376-7206-000	6-2-37	1
37859	6-2-651	1
39003	6-2-184	1
4C1022BH3	6-3-15	1
4C3025BH3	6-3-23	1
40C73A1	6-2-155	1
	6-2-280	1
	6-2-291	1
	6-2-295	1
	6-2-323	1
	6-2-337	1
	6-2-355	1
	6-2-376	1
	6-2-383	1
	6-2-392	1
	6-2-396	1
	6-2-397	1
	6-2-401	1
	6-2-408	1
	6-2-438	1
	6-2-458	1
	6-2-480	1
	6-2-512A	1
	6-2-552	1
	6-2-621	1
	6-2-689	1
4012HT	6-2-732	1
4040-2HT	6-2-195	1
41C92	6-2-236	1
	6-2-334	1
	6-2-377	1
	6-2-404B	1
	6-2-409B	1
	6-2-459B	1
	6-2-462	1
	6-2-514	1
	6-2-537	1
	6-2-691	1
4159-043	6-2-141	1
432-1009-00	6-2-188	AR
	6-2-422	AR
44C7A	6-2-224	1
	6-2-479	1
	6-2-511	1
	6-2-551	1
	6-2-562	1
	6-2-579	1
	6-2-594	1
	6-2-639	1
4422-10-38	6-2-284	1
458-0491-00	6-2-43	1
5C11A	6-2-491	1
	6-2-676	1
5C13A	6-2-486	1
502-1146-002	6-3-3	AR
502-1427-002	6-2-359	1
503-1236-001	6-2-425	1
503-4964-001	6-3-3	1
5048	6-2-196	1
505-9208-001	6-2-40	2
506-7848-002	6-2-200	1
5100-25C	6-2-49A	1
52A	6-2-261	1
522-1093-000	6-2-17	1
	6-3-	REF
522-1611-000	6-1-	1
522-1792-000	6-1-	1
526-9337-000	6-2-152	1
526-9427-000	6-2-152	1
540-9045-000	6-2-600	1
540-9045-003	6-2-710	2
540-9049-003	6-2-421	1
540-9053-003	6-2-149	2
540-9448-003	6-2-652	2
541-5181-002	6-2-336	2
541-5183-002	6-2-578	2
541-5985-002	6-2-199	1
541-6532-003	6-2-86	1
541-6533-003	6-2-46	4
541-6551-003	6-2-85	1
541-6554-003	6-2-45	4
542-5431-002	6-3-8	1
542-5437-002	6-3-3	1
542-5438-002	6-3-3	1
542-5439-002	6-3-7	1
542-5476-002	6-2-104	1
	6-2-177	1
	6-2-230	1
	6-2-448	1
543-5577-003	6-2-20	3
543-7321-000	6-3-32	1
543-7322-000	6-3-19	1
543-7323-000	6-3-14	1
543-7324-000	6-3-10	1
543-7328-002	6-3-3	1
543-7329-002	6-3-2	1
543-7332-003	6-3-4	1
543-7333-003	6-3-9	1
543-7739-000	6-2-187	2

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	6-2-164	1
543-8024-000	6-2-183	1
543-8028-002	6-2-315	1
543-8029-000	6-2-63	2
543-8030-000	6-2-62	1
543-8033-002	6-2-22	1
543-8034-002	6-2-21	1
543-8035-000	6-2-26	1
543-8039-000	6-2-1	6
	6-2-1	5
543-8042-000	6-2-14	1
543-8043-000	6-2-7	1
543-8044-000	6-2-31	1
543-8061-002	6-2-348	1
	6-2-387	1
	6-2-429	1
	6-2-431	1
543-8062-002	6-2-58	1
543-8065-002	6-2-71	2
543-8070-003	6-2-64	1
543-8076-002	6-2-20	1
543-8078-002	6-2-13	1
543-8080-002	6-2-748	1
543-8084-002	6-2-23	1
543-8087-002	6-2-70	2
543-8088-002	6-2-8	1
543-8093-003	6-2-29	1
543-8101-002	6-1-2	2
543-8103-002	6-2-62	
543-8104-002	6-2-19	1
543-8123-000	6-2-309	1
544-0467-002	6-2-198	1
544-0779-004	6-2-2	1
544-2825-002	6-2-420	1
	6-2-710	1
544-2832-003	6-2-120	1
544-2844-002	6-2-76	1
544-3124-002	6-2-182	1
544-3125-002	6-2-161	2
544-3126-002	6-2-319	1
544-3128-002	6-2-16	1
544-3130-002	6-2-207	1
544-3132-002	6-2-424	1
544-3139-002	6-2-59	1
544-3146-003	6-2-160A	
544-3148-003	6-2-32	1
544-7239-002	6-1-3	2
544-7261-000	6-2-124	1
544-7262-000	6-2-5	1
544-7265-002	6-2-125	1
544-7266-002	6-2-423	1
544-7267-002	6-2-6	1
544-7268-002	6-2-3	1
544-7277-004	6-2-4	1
544-9692-000	6-2-751	1
544-9693-000	6-2-752	1
544-9694-000	6-2-208	1
544-9695-000	6-2-49	1
544-9696-000	6-2-745	1
544-9697-000	6-1-5	1
	6-2-	REF
544-9698-000	6-2-340	1
544-9699-000	6-2-245	1
	6-2-250	1
544-9700-000	6-2-237	1
544-9701-000	6-2-189	1
544-9705-002	6-2-69	1
544-9706-002	6-2-185	1
544-9707-002	6-2-186	1
544-9709-000	6-2-49A	1
544-9710-002	6-2-696	1
544-9711-002	6-2-138	1
544-9714-002	6-2-160	1
544-9715-002	6-2-385	1
544-9716-002	6-2-39	1
544-9717-002	6-2-40	2
544-9719-003	6-2-194	1
544-9720-003	6-2-73	1
544-9721-003	6-2-74	1
544-9722-003	6-2-66	1
544-9723-003	6-2-148	1
544-9725-003	6-2-746	1
544-9727-003	6-2-747	1
544-9729-003	6-2-119	3
544-9742-005	6-1-4I	1
544-9744-005	6-1-4D	1
544-9745-005	6-1-4	1
545-6000-002	6-2-28	1
545-6002-000	6-2-27	1
545-6181-002	6-2-733	1
545-7605-002	6-2-275	1
545-7784-003	6-2-123	1
545-7785-003	6-2-122	3
545-7786-003	6-2-121	1
545-9113-000	6-2-745	1
545-9114-000	6-1-5	1
	6-2-	REF
545-9115-004	6-2-746	1
545-0255-000	6-2-658	1
545-2130-002	6-2-65	1
545-3328-002	6-2-646	1
546-4009-002	6-2-214	1
545-7823-004	6-2-24	1
546-7829-004	6-2-18	1
545-7833-002	6-2-324	1
545-7945-003	6-2-437	1
546-7971-002	6-2-38	1
546-8005-002	6-2-276	2
	6-2-646	2
548-8217-000	6-2-219	1
	6-2-252	1
548-9326-000	6-2-25	1
553-5701-004	6-2-15	1
553-5702-004	6-2-15	1
553-5787-003	6-2-9	1
55662-2884	6-3-12	AR
55665-0043	6-3-11	1
55665-0053	6-3-12	AR
55665-0054	6-3-12	AR
55665-0055	6-3-12	AR
55665-0056	6-3-12	AR
55665-0057	6-3-12	AR
55665-0058	6-3-12	AR
55665-0068	6-3-13	AR
55665-0069	6-3-13	AR

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55665-0070	6-3-13	AR
55665-0074	6-3-13	AR
557-018-1-5-7A	6-2-233	1
	6-2-715	1
	6-2-721	1
557-018-3-12A	6-2-712	1
	6-2-718	1
557-018-5-25A	6-2-712	1
	6-2-720	1
	6-2-721	1
	6-2-742	1
	6-3-17	1
557006C0P039R	6-2-712	1
	6-2-714	1
	6-2-716	1
	6-2-720	1
	6-2-724	1
	6-2-742	1
557006U2P034R	6-2-234	1
	6-2-701	1
	6-2-702	1
	6-2-703	1
	6-2-705	1
	6-2-713	1
	6-2-717	1
	6-2-719	1
	6-2-722	1
	6-2-723	1
	6-2-725	1
	6-2-726	1
	6-2-727	1
	6-2-728	1
57-634-5	6-2-60	5
59-412-1000	6-2-53	1
	6-2-81	3
	6-2-81	
	6-2-81	
	6-2-96	1
	6-2-97	1
	6-2-102	1
	6-2-104	1
	6-2-106	1
	6-2-108	1
	6-2-110	1
6-32X1-8 6SPLINE 416SST	6-2-184	2
6-40X1-8 4SPLINE 416SST	6-2-138	2
6AZ8	6-2-50	1
	6-2-101	1
	6-2-103	1
6BN8	6-2-52	1
	6-2-80	1
	6-2-107	1
6CL6	6-2-176	1
6DC6	6-2-87	1
6EA8	6-2-79	1
6EB8	6-2-105	1
6H12	6-2-288	1
	6-2-335	1
	6-2-358	1
	6-2-404	1
	6-2-468	1

PART NUMBER	FIG - ITEM	TTL REQ
	6-2-496	1
	6-2-587	1
	6-2-641	1
	6-2-683	1
6U8A	6-2-47	1
	6-2-78	1
	6-2-79	1
	6-2-109	1
606-9731-001	6-2-160	1
608-9615-001	6-2-159	1
609-0573-001	6-1-4H	1
	6-1-4J	1
609-1215-001	6-2-95	1
6146B	6-2-165	1
	6-2-167	1
618-3304-001	6-1-4E	1
628-0774-001	6-1-4A	1
747RBLACK	6-1-1	4
7543	6-3-1	1
757-6574-001	6-2-61	1
757-8471-001	6-2-665	1
757-8610-000	6-2-10	1
757-8613-001	6-2-11	1
757-8614-000	6-2-12	1
779-2661-001	6-2-506	1
790-0408-000	6-2-6	1
8131M203-651-104Z	6-2-305	1
	6-2-516	1
82-11-180-16	6-1-4C	2
82-31-293-15	6-1-4B	2
820-0171-00	6-2-231	AR
845-014X5V0503Z	6-2-676	1
858W5T2KV1KPFPOR M20PCT	6-2-172	1
	6-2-173	1
	6-2-174	1
	6-2-650	1
86CP11-1008	6-2-645	1
86CP9-1003	6-2-276	1
88128CK	6-2-204	1
88130CK	6-2-203	1
88216CK	6-2-316	1
8942	6-2-206	2
	6-2-316	2
	6-2-347	2
	6-2-386	2
	6-2-428	2
	6-2-430	2
8947-151	6-2-4	1
	6-2-15	1
8980-2 1-4	6-2-205	4
	6-2-206	4
	6-2-428	2
8980-2 1-8	6-2-428	2
8980-2 3-16	6-2-316	2
	6-2-347	2
	6-2-386	2
	6-2-430	2
905	6-2-193	1
	6-2-711	7
913-3829-000	6-2-209	1

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PART NUMBER	FIG - ITEM	TTL REQ
913-3829-000	6-2-209	
	6-2-264	1
	6-2-264	
	6-2-266	1
	6-2-266	
	6-2-267	1
	6-2-267	
	6-2-269	1
	6-2-269	
	6-2-272	1
	6-2-272	
	6-2-277	1
	6-2-277	
	6-2-282	1
	6-2-282	
	6-2-409	1
	6-2-409	
	6-2-451	1
	6-2-451	
	6-2-452	1
	6-2-452	
	6-2-453	1
	6-2-453	
	6-2-454	1
	6-2-454	
	6-2-477	1
	6-2-477	
	6-2-502	1
	6-2-502	
	6-2-606	1
	6-2-606	
	6-2-642	1
	6-2-642	1
	6-2-647	1
	6-2-647	
	6-2-648	1
	6-2-648	
	6-2-654	1
	6-2-654	
913NEOPRENE45-55	6-2-708	2
920-0138-000	6-2-192	1
9348	6-2-222	1
9404-11-20026	6-2-190	1
97NM02	6-2-67	1

PART NUMBER	FIG - ITEM	TTL REQ

6.4 REFERENCE DESIGNATION INDEX

REFERENCE DESIGNATION	FIG - ITEM	PART NUMBER
CR1	6-2-605A	1N34A
CR1	6-2-605A	FA-4200
CR10	6-2-531	1N1490
CR11	6-2-690	1N458
CR12	6-2-459C	1N5383B
CR13	6-2-409A	1N5383B
CR2	6-2-605A	1N34A
CR2	6-2-605A	FA-4200
CR3	6-2-605A	1N34A
CR3	6-2-605A	FA-4200
CR301	6-3-18	1N4454
CR301	6-3-18	1N34A
CR4	6-2-605A	1N34A
CR4	6-2-605A	FA-4200
CR5	6-2-343	VVC445
CR6	6-2-410	1N34A
CR7	6-2-210	1N1490
CR8	6-2-634	1N458
CR9	6-2-300	1N458
C1	6-2-449	33C2
C10	6-2-509	DM15C100K500WV4C R
C10	6-2-509	DM15C120K500WV4C R
C10	6-2-509	DM15C150K500WV4C R
C10	6-2-509	CM05ED200J03
C10	6-2-509	CM05ED240J03
C10	6-2-509	CM05ED270J03
C10	6-2-509	DM15E330K500WV4C R
C10	6-2-509	CM05ED330J03
C10	6-2-509	CM05ED390J03
C10	6-2-509	CM05ED430J03
C10	6-2-509	DM15E470K500WV4C R
C10	6-2-509	DM15E510K500WV4C R
C10	6-2-509	DM15E560K500WV4C R
C10	6-2-509	CM05ED620J03
C10	6-2-509	CM05ED680J03
C10	6-2-509	CM05ED750J03
C10	6-2-509	CM05ED470J03
C10	6-2-509	CM05ED820J03
C10	6-2-509	CM05FD910J03
C10	6-2-509	CM05FD111J03
C10	6-2-509	CM05FD131J03
C10	6-2-509	CM05FD121J03
C10	6-2-509	CM05FD151J03
C100	6-2-511	44C7A
C101	6-2-522	2DDD63G104XAA
C102	6-2-581	D28121
C103	6-2-562	44C7A
C104	6-2-687	36C175A
C105	6-2-540	DM15F471J300WV4C R
C106	6-2-743	D29413
C107	6-2-41	36C175A
C108	6-2-661	36C175A
C109	6-2-722	557006U2P034R
C11	6-2-489	36C175A
C110	6-2-345	CM05FD361J03
C111	6-2-718	557-018-3-12A
C112	6-2-350	CM05FD241G03
C113	6-2-725	557006U2P034R
C114	6-2-349	DM15E560K500WV4C R
C115	6-2-717	557006U2P034R
C116	6-2-716	557006C0P039R
C117	6-2-233	557-018-1-5-7A
C118	6-2-229	CC20CK010C
C119	6-2-418	CC20CK020D
C119	6-2-418	DM15C100K500WV4C R
C12	6-2-502	913-3829-000
C120	6-2-234	557006U2P034R
C121	6-2-321	CM05FD221J03
C121	6-2-321	CM05FD271J03
C122	6-2-330	36C175A
C123	6-2-171	SK10066S
C124	6-2-235	CK61AW222M
C125	6-2-320	CM05FD331G03
C126	6-2-227	36C175A
C127	6-2-224	44C7A
C128	6-2-312	DM15E510K500WV4C R
C129	6-2-723	557006U2P034R
C13	6-2-502	913-3829-000
C130	6-2-719	557006U2P034R
C131	6-2-311	CM05FD221J03
C132	6-2-209	913-3829-000
C133	6-2-318	CM05FD131J03
C133	6-2-318	CM04FD111G03
C134	6-2-721	557-018-5-25A
C134	6-2-721	557-018-1-5-7A
C135	6-2-317	DM15E330K500WV4C R
C135	6-2-317	CM05ED200J03
C136	6-2-724	557006C0P039R
C137	6-2-732	327029H3M0102K
C138	6-2-256	CC20CK010C
C139	6-2-217	36C175A
C14	6-2-153	CM05ED470J03
C140	6-2-247	331013X5U0501K
C141	6-2-253	331013X5U0501K
C142	6-2-246	331013X5U0501K
C143	6-2-212	331013X5U0501K
C144	6-2-215	331013X5U0501K
C145	6-2-221	331013X5U0501K
C146	6-2-255	36C175A
C147	6-2-209	913-3829-000
C148	6-2-173	858W5T2KV1KPFPOR M20PCT
C149	6-2-174	858W5T2KV1KPFPOR M20PCT
C15	6-2-155	40C73A1
C150	6-2-190	9404-11-20026
C151	6-2-192	920-0138-000
C152	6-2-736	PD52414
C153	6-2-735	PD52414
C154	6-2-734	PD52414
C155	6-2-737	PD52313
C156	6-2-270	36C175A
C157	6-2-305	8131M203-651-104 Z

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REFERENCE DESIGNATION	FIG - ITEM	PART NUMBER
C158	6-2-304	36C175A
C159	6-2-307	2DDD63G104XAA
C16	6-2-283	DM15E330K500WV4C R
C160	6-2-491	5C11A
C161	6-2-647	913-3829-000
C162	6-2-644	2DDH63N103M
C163	6-2-643	2DDH63N103M
C164	6-2-647	913-3829-000
C165	6-2-642	913-3829-000
C166	6-2-642	913-3829-000
C167	6-2-648	913-3829-000
C168	6-2-650	858W5T2KV1KPFPOR M20PCT
C168	6-2-650	DA172-057CB
C169	6-2-649	36C175A
C18	6-2-279	36C175A
C180	6-2-169	2DHT54T150JAA
C180	6-2-169	DA855-010
C181	6-2-606	913-3829-000
C182	6-2-606	913-3829-000
C183	6-2-172	858W5T2KV1KPFPOR M20PCT
C183	6-2-172	DA172-057CB
C184	6-2-178	160-104-3
C184	6-2-178	2557-018-8-50E
C186	6-2-295	40C73A1
C187	6-2-392	40C73A1
C187	6-2-401	40C73A1
C188	6-2-469	36C175A
C19	6-2-289	36C175A
C190	6-2-648	913-3829-000
C191	6-2-266	913-3829-000
C192	6-2-266	913-3829-000
C193	6-2-656	36C175A
C194	6-2-654	913-3829-000
C195	6-2-271	36C175A
C196	6-2-657	36C175A
C197	6-2-264	913-3829-000
C198	6-2-267	913-3829-000
C199	6-2-267	913-3829-000
C2	6-2-476	DM15F221K500WV4C R
C20	6-2-298	36C175A
C200	6-2-264	913-3829-000
C201	6-2-265	36C175A
C202	6-2-654	913-3829-000
C203	6-2-454	913-3829-000
C204	6-2-454	913-3829-000
C205	6-2-451	913-3829-000
C206	6-2-451	913-3829-000
C207	6-2-452	913-3829-000
C208	6-2-452	913-3829-000
C209	6-2-453	913-3829-000
C21	6-2-720	557-018-5-25A
C21	6-2-720	557006C0P039R
C210	6-2-453	913-3829-000
C211	6-2-691	41C92
C212	6-2-202	36C175A
C214	6-2-478	19C372
C215	6-2-637	19C372
C216	6-2-151	33C2
C217	6-2-286	CM05FD221J03
C218	6-2-287	CM05FD221J03
C219	6-2-280	40C73A1
C219	6-2-280	DM15F101K500WV4C R
C22	6-2-293A	CM05ED220J03
C220	6-2-337	40C73A1
C221	6-2-377	41C92
C222	6-2-361	36C175A
C223	6-2-564	19C372
C224	6-2-405	33C2
C225	6-2-507	2DDD63G104XAA
C226	6-2-396	40C73A1
C227	6-2-236	41C92
C228	6-2-243	327-029X5T0102Z
C229	6-2-248	36C175A
C23	6-2-291	40C73A1
C230	6-2-241	327-029X5T0102Z
C231	6-2-516	8131M203-651-104 Z
C232	6-2-542	36C175A
C234	6-2-621	40C73A1
C235	6-2-569	36C175A
C236	6-2-409	913-3829-000
C237	6-2-409	913-3829-000
C238	6-2-334	41C92
C24	6-2-551	44C7A
C241	6-2-239	327-029X5T0102Z
C242	6-2-282	913-3829-000
C243	6-2-282	913-3829-000
C244	6-2-277	913-3829-000
C245	6-2-277	913-3829-000
C246	6-2-272	913-3829-000
C247	6-2-272	913-3829-000
C248	6-2-521	331013X5U0501K
C249	6-2-519	331013X5U0501K
C25	6-2-338	CC20CH6R0D
C250	6-2-269	913-3829-000
C251	6-2-269	913-3829-000
C252	6-2-281	36C175A
C253	6-2-442	2DDD63G104XAA
C254	6-2-484	D29343
C256	6-2-639	44C7A
C257	6-2-346	DM15C120K500WV4C R
C259	6-2-622	D31582
C26	6-2-369	CC20CH6R0D
C260	6-2-223	33C2
C261	6-2-548	DM15F101K500WV4C R
C262	6-2-515B	36C175A
C263	6-2-455	36C175A
C264	6-2-599	D29343
C264	6-2-599	TC65
C265	6-2-689	36C175A
C265	6-2-689	40C73A1
C266	6-2-401B	DM15C120K500WV4C R
C267	6-2-393	DM15C100K500WV4C R
C267	6-2-393	DM15C050D500WV4C R
C268	6-2-370	2DDD63G104XAA
C269	6-2-244	33C2

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REFERENCE DESIGNATION	FIG - ITEM	PART NUMBER
C27	6-2-376	40C73A1
C270	6-2-171A	DM15C120K500WV4C R
C272	6-2-341	CM05CD100D03
C272	6-2-341	CCR75CH7R5JM
C272	6-2-341	CM05CD100D03
C273	6-2-447	2DDD63G104XAA
C274	6-2-384	36C175A
C275	6-2-583	36C175A
C276	6-2-681	33C58
C277	6-2-567	36C175A
C278	6-2-459B	41C92
C279	6-2-460B	33C2
C28	6-2-371	36C175A
C280	6-2-404B	41C92
C281	6-2-409B	41C92
C29	6-2-367	36C175A
C3	6-2-479	44C7A
C30	6-2-351	DM15C100K500WV4C R
C301	6-3-12	55665-0054
C301	6-3-12	55665-0055
C301	6-3-12	55665-0056
C301	6-3-12	55665-0057
C301	6-3-12	DA934-022
C301	6-3-12	2DPT34L200KAA
C301	6-3-12	55665-0058
C301	6-3-12	55665-0053
C301	6-3-12	2DPT34L200KAC
C301	6-3-12	DA934-026
C301	6-3-12	55662-2884
C302	6-3-15	4C1022BH3
C302	6-3-15	D205F102F
C303	6-3-23	4C3025BH3
C303	6-3-23	D205F302F
C304	6-3-16	DM15E201F0300WV4 CR
C304	6-3-16	DM5B510J050WV
C305	6-3-13	55665-0074
C305	6-3-13	55665-0070
C305	6-3-13	55665-0068
C305	6-3-13	55665-0069
C306	6-3-25	20C109
C307	6-3-24	20C109
C308	6-3-17	557-018-5-25A
C309	6-3-27	20C109
C31	6-2-390	DM15C100K500WV4C R
C310	6-3-22	20C109
C311	6-3-11	55665-0043
C32	6-2-727	557006U2P034R
C33	6-2-389	CM05FD131J03
C34	6-2-728	557006U2P034R
C35	6-2-388	CM05ED220J03
C36	6-2-714	557006C0P039R
C37	6-2-726	557006U2P034R
C38	6-2-391	CM05FD361G03
C39	6-2-715	557-018-1-5-7A
C4	6-2-594	44C7A
C40	6-2-383	40C73A1
C41	6-2-355	40C73A1
C42	6-2-294	36C175A
C43	6-2-363	36C175A
C44	6-2-323	40C73A1
C45	6-2-480	40C73A1
C46	6-2-462	41C92
C47	6-2-495	160P47394
C47	6-2-495	LP9A1E683K
C48	6-2-467	33C2
C49	6-2-537	41C92
C5	6-2-242	327-029X5T0102Z
C50	6-2-539	DM15F471J300WV4C R
C51	6-2-545	DM15F471J300WV4C R
C52	6-2-536	DM15F471J300WV4C R
C53	6-2-624	DM15C150K500WV4C R
C54	6-2-154	T50411
C55	6-2-620	CM05FD181J03
C55	6-2-620	CM05FD101J03
C56	6-2-592	33C2
C59	6-2-408	40C73A1
C6	6-2-486	5C13A
C60	6-2-342	DM15E200K500WV4C R
C60	6-2-342	DM15C100K500WV4C R
C61	6-2-397	40C73A1
C62	6-2-438	40C73A1
C63	6-2-702	557006U2P034R
C64	6-2-436	DM15F121K500WV4C R
C65	6-2-703	557006U2P034R
C66	6-2-434	CM05ED470J03
C67	6-2-705	557006U2P034R
C68	6-2-713	557006U2P034R
C69	6-2-440	CM05FD221J03
C69	6-2-440	CM05FD241J03
C7	6-2-617	36C175A
C70	6-2-701	557006U2P034R
C72	6-2-552	40C73A1
C74	6-2-398A	CM05ED470J03
C74	6-2-398A	CM05ED430J03
C75	6-2-419	36C175A
C76	6-2-712	557-018-3-12A
C76	6-2-712	557-018-5-25A
C76	6-2-712	557006C0P039R
C77	6-2-392A	CM06FD511J03
C79	6-2-354	CC20CJ030D
C8	6-2-604	36C175A
C80	6-2-555	36C175A
C82	6-2-240	327-029X5T0102Z
C83	6-2-458	40C73A1
C84	6-2-441	2DDD63G104XAA
C85	6-2-477	913-3829-000
C86	6-2-477	913-3829-000
C87	6-2-527	DM15F101K500WV4C R
C88	6-2-616	CM06FD511J03
C89	6-2-520	36C175A
C9	6-2-742	557-018-5-25A
C9	6-2-742	557006C0P039R
C90	6-2-514	41C92
C91	6-2-512A	40C73A1

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REFERENCE DESIGNATION	FIG - ITEM	PART NUMBER
C92	6-2-682	36C175A
C93	6-2-676	5C11A
C93	6-2-676	845-014X5V0503Z
C94	6-2-574	DM15C100K500WV4C R
C96	6-2-579	44C7A
C97	6-2-232	DM15E270K500WV4C R
C97	6-2-232	CM05ED390J03
C98	6-2-573	19C372
C99	6-2-584	19C372
DS1	6-2-140	MS15571-2
DS2	6-2-44	MS15571-2
FL1	6-2-152	526-9427-000
FL1	6-2-152	526-9337-000
J1	6-2-749	201-11-01-018
J10	6-2-100	3501FP
J11	6-2-112	3501FP
J12	6-2-115	3501FP
J13	6-2-645	86CP11-1008
J14	6-2-34	13A
J15	6-2-35	M641-5-1
J16	6-2-114	3501FP
J17	6-2-96	59-412-1000
J18	6-2-91	3501FP
J19	6-2-116	3501FP
J2	6-2-113	3501FP
J20	6-2-117	3501FP
J21	6-2-90	3501FP
J22	6-2-700	3501FP
J23	6-2-699	3501FP
J24	6-2-97	59-412-1000
J25	6-2-276	86CP9-1003
J26	6-2-698	3501FP
J27	6-2-740	3501FP
J28	6-2-750	201-11-01-018
J3	6-2-111	3501FP
J4	6-2-93	3501FP
J5	6-2-118	3501FP
J6	6-2-89	3501FP
J7	6-2-99	3501FP
J8	6-2-92	3501FP
J9	6-2-98	3501FP
K2	6-2-667	T163X96
K2	6-2-667	B106703
K3	6-2-201	KR2565-1
K4	6-2-662	T163X97
K4	6-2-662	110-3680
L1	6-2-278	MS90540-07
L10	6-2-324	546-7833-002
L11	6-2-328	MS90538-20
L12	6-2-222	9348
L13	6-2-309	543-8123-000
L14	6-2-315	543-8028-002
L17	6-2-183	543-8024-000
L18	6-2-189	544-9701-000
L19	6-2-200	506-7848-002
L2	6-2-156	18-257
L2	6-2-156	MS75089-35
L20	6-2-284	4422-10-38
L21	6-2-191	02242
L21	6-2-191	34103
L22	6-2-623	MS90538-20
L22	6-2-623	MS75089-15
L23	6-2-228	240-0186-000
L23	6-2-228	MS75103-1
L24	6-2-302	MS90538-20
L25	6-2-403	MS90538-20
L26	6-2-457	MS75008-40
L26	6-2-457	MS75101-7
L27	6-2-653	MS75008-33
L27	6-2-653	LT4K039
L28	6-2-179	240-0194-000
L28	6-2-179	MS75103-10
L29	6-2-237	544-9700-000
L3	6-2-333	MS90540-07
L30	6-2-250	544-9699-000
L303	6-3-9	543-7333-003
L304	6-3-20	10200-129
L31	6-2-576	MS90540-07
L32	6-2-180	240-0194-000
L32	6-2-180	MS75103-10
L33	6-2-296	18-257
L34	6-2-245	544-9699-000
L35	6-2-559	MS75101-7
L35	6-2-559	MS75008-40
L38	6-2-615	MS90539-15
L39	6-2-613	MS90539-15
L4	6-2-729	X094-1
L40	6-2-344	MS90538-20
L42	6-2-460A	MS90540-07
L43	6-2-399B	MS75089-23
L44	6-2-404A	MS75089-27
L5	6-2-375	MS90538-20
L6	6-2-339	MS90538-20
L7	6-2-400	MS90540-07
L7	6-2-400	MS75089-27
L9	6-2-741	X004
M1	6-2-43	458-0491-00
R1	6-2-445	RCR07G473KS
R100	6-2-631	RCR32G100KS
R101	6-2-660	RCR20G470KS
R102	6-2-553	RCR20G102KS
R103	6-2-325	RCR07G103KS
R104	6-2-226	RCR20G101KS
R105	6-2-238	RCR42G223KS
R105	6-2-238	RCR32G123KS
R106	6-2-225	RCR20G151KS
R109	6-2-249	RCR20G120KS
R11	6-2-411	RCR07G105KS
R110	6-2-254	RCR20G120KS
R111	6-2-251	RCR20G120KS
R112	6-2-211	RCR20G120KS
R113	6-2-218	RCR20G120KS
R114	6-2-220	RCR20G120KS
R115	6-2-308	RCR20G222KS
R116	6-2-684	RCR20G183KS
R117	6-2-693	RCR20G102KS
R118	6-2-293	RCR07G684KS
R119	6-2-492	RCR07G155KS
R12	6-2-518	RCR20G102KS
R120	6-2-523	RCR20G393KS
R121	6-2-145	WR5454
R122	6-2-524	RCR42G473KS
R123	6-2-144	RCR20G473KS
R124	6-2-368	RCR07G392KS

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REFERENCE DESIGNATION	FIG - ITEM	PART NUMBER
R124	6-2-368	RCR07G682KS
R125	6-2-399	RCR20G473KS
R125	6-2-399	RCR20G333KS
R125	6-2-399A	RCR42G123KS
R126	6-2-673	RCR20G681KS
R127	6-2-170	RCR32G474KS
R128	6-2-473	RCR07G335KS
R129	6-2-257	RCR20G102KS
R13	6-2-513	RCR07G105KS
R130	6-2-677	RCR20G104KS
R131	6-2-461	RCR42G333KS
R132	6-2-147	WR5455
R132	6-2-147	WR5451
R133	6-2-679	RCR20G183KS
R134	6-2-554	RCR20G124KS
R135	6-2-471	RCR20G102KS
R136	6-2-362	RCR07G474KS
R137	6-2-685	RCR20G823KS
R138	6-2-603	RCR07G473KS
R139	6-2-635	RCR07G473KS
R14	6-2-612	RCR07G470KS
R14	6-2-612	RCR07G181KS
R14	6-2-612	RCR07G271KS
R140	6-2-485	RCR07G181KS
R140	6-2-485	RCR07G221KS
R140	6-2-485	RCR07G271KS
R140	6-2-485	RCR07G331KS
R140	6-2-485	RCR07G391KS
R140	6-2-485	RCR07G471KS
R140	6-2-485	RCR07G561KS
R140	6-2-485	RCR07G681KS
R140	6-2-485	RCR07G821KS
R140	6-2-485	RCR07G102KS
R140	6-2-485	RCR07G122KS
R140	6-2-485	RCR07G123KS
R140	6-2-485	RCR07G153KS
R140	6-2-485	RCR07G183KS
R140	6-2-485	RCR07G223KS
R140	6-2-485	RCR07G273KS
R141	6-2-501	RCR20G393KS
R142	6-2-273	RCR42G103KS
R143	6-2-379	745-3360-000
R143	6-2-379	RCR32G152KS
R143	6-2-379	RCR32G222KS
R144	6-2-378	RCR32G332KS
R145	6-2-535	RCR07G473KS
R145	6-2-535	RCR07G154KS
R145	6-2-535	RCR07G683KS
R145	6-2-535	RCR07G823KS
R146	6-2-216	PW7-15000-10PCT
R147	6-2-526	RCR20G683KS
R148	6-2-213	RCR42G821KS
R148	6-2-213	RW67V821
R15	6-2-614	WR5453
R15	6-2-614	WR5434
R15	6-2-614	WR5455
R150	6-2-692	RCR07G181KS
R151	6-2-435	RCR07G272KS
R152	6-2-439	RCR07G562KS
R153	6-2-395	RCR42G682KS
R154	6-2-415	RCR20G104KS
R155	6-2-571	RCR20G155KS
R156	6-2-595	RCR20G155KS
R157	6-2-655	RCR32G680KS

REFERENCE DESIGNATION	FIG - ITEM	PART NUMBER
R158A	6-2-525	RCR20G221KS
R158B	6-2-525A	RCR07G680KS
R158B	6-2-525A	RCR07G390KS
R158B	6-2-525A	RCR07G470KS
R158B	6-2-525A	RCR07G820KS
R158B	6-2-525A	RCR07G560KS
R158B	6-2-525A	RCR07G101KS
R158B	6-2-525A	RCR07G121KS
R158B	6-2-525A	RCR07G151KS
R158B	6-2-525A	RCR07G181KS
R158B	6-2-525A	RCR07G221KS
R159	6-2-407	RCR20G102KS
R16	6-2-610	RCR07G470KS
R16	6-2-610	RCR07G181KS
R16	6-2-610	RCR07G271KS
R160	6-2-413	RCR20G124KS
R161	6-2-258	RCR20G222KS
R161	6-2-258	RCR20G272KS
R161	6-2-258	RCR20G332KS
R161	6-2-258	RCR20G392KS
R161	6-2-258	RCR20G472KS
R161	6-2-258	RCR20G562KS
R161	6-2-258	RCR20G682KS
R161	6-2-258	RCR20G822KS
R161	6-2-258	RCR20G103KS
R161	6-2-258	RCR20G123KS
R162	6-2-557	RCR20G390KS
R162	6-2-557	RCR20G270KS
R162	6-2-557	RCR20G820KS
R162	6-2-557	RCR20G101KS
R162	6-2-557	RCR20G560KS
R162	6-2-557	RCR20G680KS
R162	6-2-557	RCR20G470KS
R162	6-2-557	RCR20G470KS
R162	6-2-557	RCR20G220KS
R162	6-2-557	RCR20G330KS
R163	6-2-494	PW5-6001-10
R164	6-2-512	RCR20G474KS
R165	6-2-596	RCR20G474KS
R166	6-2-585	RCR20G681KS
R167	6-2-671	RCR20G101KS
R168	6-2-382	RCR07G560KS
R169	6-2-332	RCR20G102KS
R17	6-2-488	RCR07G103KS
R170	6-2-664A	RCR07G104KS
R171	6-2-541	RCR07G105KS
R172	6-2-614A	RCR07G820KS
R173	6-2-446	RCR42G220KS
R174	6-2-380	RCR20G560KS
R175	6-2-515A	RCR20G470KS
R176	6-2-529	RCR32G472KS
R177	6-2-591	RCR42G273KS
R178	6-2-310	RCR20G183KS
R179	6-2-313	RCR20G123KS
R18	6-2-499	RCR32G473KS
R18	6-2-499	RCR42G183KS
R180	6-2-680	RCR20G684KS
R180	6-2-680	RCR20G154KS
R181	6-2-549	RCR07G105KS
R182	6-2-672	RCR20G680KS
R182	6-2-672	RCR20G470KS
R183	6-2-327	RCR07G105KS
R184	6-2-303	RCR07G684KS

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REFERENCE DESIGNATION	FIG - ITEM	PART NUMBER
R189	6-2-640	RCR20G823KS
R19	6-2-503	RCR20G121KS
R190	6-2-626	RCR20G152KS
R190	6-2-626	RCR20G222KS
R191	6-2-326	RCR20G152KS
R192	6-2-329	RCR20G274KS
R193	6-2-299	RCR20G224KS
R193	6-2-299	RCR07G105KS
R194	6-2-301	RCR32G104KS
R194	6-2-301	RCR20G474KS
R195	6-2-618	RCR20G470KS
R196	6-2-530	RCR20G101KS
R197	6-2-333	RCR20G222KS
R198	6-2-401A	RCR07G273KS
R199	6-2-472	RCR07G225KS
R2	6-2-443	RCR07G105KS
R20	6-2-490	RCR42G683KS
R200	6-2-366	RCR07G105KS
R201	6-2-466	RCR20G224KS
R202	6-2-508	RCR20G331KS
R202	6-2-508	RCR42G123KS
R203	6-2-606A	RCR07G181KS
R204	6-2-483	RCR07G221KS
R205	6-2-608	RCR07G221KS
R206	6-2-607	RCR07G181KS
R207	6-2-56	RCR07G471KS
R207	6-2-56	RCR20G681KS
R208	6-2-487	RCR20G101KS
R208	6-2-487	RCR07G471KS
R209	6-2-568	RCR20G101KS
R21	6-2-259	RCR20G470KS
R210	6-2-582	RCR20G624JS
R211	6-2-589	RCR07G471KS
R212	6-2-285	RCR07G105KS
R213	6-2-688	RCR07G225KS
R214	6-2-433	RCR07G472KS
R215	6-2-547	RCR20G470KS
R22	6-2-558	RCR20G560KS
R22	6-2-558	RCR20G101KS
R23	6-2-274	RCR20G121KS
R24	6-2-268	WR5453
R25	6-2-306	RCR20G121KS
R26	6-2-290	RCR07G474KS
R27	6-2-365	RCR07G104KS
R28	6-2-373	RCR07G560KS
R29	6-2-374	RCR20G221KS
R3	6-2-444	RCR20G181KS
R30	6-2-146	WR5453
R301	6-3-29	RCR20G104KS
R301	6-3-29A	RCR20G183KS
R301	6-3-29A	RCR20G223KS
R301	6-3-29A	RCR20G273KS
R301	6-3-29A	RCR20G393KS
R301	6-3-29A	RCR20G563KS
R301	6-3-29A	RCR20G823KS
R301	6-3-29A	RCR20G124KS
R301	6-3-29A	RCR20G154KS
R301	6-3-29A	RCR20G154KS
R301	6-3-29A	RCR20G184KS
R301	6-3-29A	RCR20G104KS
R301	6-3-29A	RCR20G224KS
R301	6-3-29A	RCR20G274KS
R302	6-3-21	RCR20G823JS
R303	6-3-26	RCR20G104KS
R31	6-2-372	RCR07G104KS
R32	6-2-331	RCR20G101KS
R33	6-2-364	RCR32G333KS
R34	6-2-356	RCR07G104KS
R35	6-2-627	RCR20G104KS
R36	6-2-402	RCR20G221KS
R37	6-2-360	RCR20G683KS
R38	6-2-139	RCR20G151KS
R38	6-2-139	RCR20G680KS
R38	6-2-139	RCR20G221KS
R39	6-2-142	376-7202-000
R4	6-2-450	RCR20G683KS
R40	6-2-460	RCR32G104KS
R41	6-2-463	RCR20G331KS
R42	6-2-497	RCR07G825KS
R43	6-2-37	376-7206-000
R44	6-2-464	RCR20G274KS
R45	6-2-143	376-7202-000
R46	6-2-500	RCR20G332KS
R46	6-2-500	RCR20G222KS
R47	6-2-493	RCR42G683KS
R48	6-2-498	RCR07G825KS
R49	6-2-543	RCR20G104KS
R5	6-2-605	RCR07G474KS
R50	6-2-546	RCR32G473KS
R50	6-2-546	RCR20G473KS
R51	6-2-550	RCR07G394KS
R51	6-2-550	RCR07G334KS
R52	6-2-532	RCR07G394KS
R52	6-2-532	RCR07G334KS
R53	6-2-556	RCR20G183KS
R53	6-2-556	RCR07G273KS
R54	6-2-619	RCR20G105KS
R55	6-2-593	RCR20G224KS
R56	6-2-638	RCR20G562KS
R57	6-2-636	RCR20G102KS
R58	6-2-297	RCR20G102KS
R59	6-2-292	RCR07G104KS
R6	6-2-602	RCR20G102KS
R61	6-2-394	RCR20G151KS
R62	6-2-398	RCR07G104KS
R63	6-2-381	RCR07G105KS
R64	6-2-417	RCR20G102KS
R65	6-2-414	RCR20G105KS
R66	6-2-416	RCR20G224KS
R67	6-2-412	RCR20G104KS
R68	6-2-406	RCR20G153KS
R69	6-2-633	RCR32G153KS
R7	6-2-625	RCR20G473KS
R70	6-2-632	RCR42G223KS
R71	6-2-601	RCR20G104KS
R72	6-2-470	HM6821
R73	6-2-456	RCR42G153KS
R74	6-2-459	RCR07G105KS
R75	6-2-474	RCR20G100KS
R76	6-2-475	RCR20G473KS
R77	6-2-534	RCR20G102KS
R78	6-2-528	RCR07G105KS
R79	6-2-533	RCR20G393KS
R8	6-2-706	BA812-1211
R80	6-2-515	RCR20G473KS
R81	6-2-517	RCR32G562KS

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R82	6-2-678	RCR20G472KS
R82	6-2-678	RCR07G472KS
R83	6-2-675	RCR07G335KS
R83	6-2-675	RCR20G155KS
R84	6-2-504	BA811-2798
R85	6-2-674	RCR20G123KS
R86	6-2-572	PW7-2500-10PCT
R87	6-2-588	RCR20G682KS
R88	6-2-577	RCR20G821KS
R89	6-2-538	RCR20G184KS
R9	6-2-357	RCR07G560KS
R90	6-2-590	RCR20G273KS
R91	6-2-570	RCR07G473KS
R92	6-2-695	BA811-2896
R93	6-2-566	RCR07G105KS
R94	6-2-565	RCR07G225KS
R95	6-2-586	RCR20G562KS
R96	6-2-563	RCR20G224KS
R97	6-2-597	RCR20G680KS
R98	6-2-598	RCR07G474KS
R99	6-2-561	RCR42G123KS
S11	6-2-54	196302F1AC
S12	6-2-694	22698-6MLW
S13	6-2-423	22692-414LW1
S14	6-2-428	192796CK
S15	6-2-704	191774-23
S2	6-2-427	192796CK
S3	6-2-430	196305CK
S4	6-2-386	196305CK
S5	6-2-347	196305CK
S6	6-2-316	88216CK
S7	6-2-204	88128CK
S8	6-2-203	88130CK
S9	6-2-630	197029K4
TS1	6-2-260	332-14-04-022
TS2	6-2-261	52A
TS9	6-2-262	332-14-02-001
T1	6-2-697	X003
T1	6-2-697	X682-1
T2	6-2-730	X094-1
T3	6-2-385	544-9715-002
T301	6-3-30	X006-1
T4	6-2-437	546-7945-003
T5	6-2-739	X083
T6	6-2-651	37859
V1	6-2-101	6AZ8
V10	6-2-167	6146B
V11	6-2-47	6U8A
V12	6-2-78	6U8A
V13	6-2-79	6U8A
V13	6-2-79	6EA8
V14	6-2-52	6BN8
V15	6-2-107	6BN8
V16	6-2-105	6EB8
V17	6-2-80	6BN8
V2	6-2-109	6U8A
V3	6-2-103	6AZ8
V4	6-2-50	6AZ8
V5	6-2-83	12AT7
V6	6-2-82	12AT7
V7	6-2-87	6DC6
V8	6-2-176	6CL6
V9	6-2-165	6146B

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XDS1	6-2-141	4159-043
XK2	6-2-668	0211-012-002-00
XK4	6-2-663	30055-20
XV1	6-2-102	59-412-1000
XV10	6-2-168	168-013-1000
XV11	6-2-48	TS103P01
XV12	6-2-81	59-412-1000
XV13	6-2-81	59-412-1000
XV14	6-2-53	59-412-1000
XV15	6-2-108	59-412-1000
XV16	6-2-106	59-412-1000
XV17	6-2-81	59-412-1000
XV2	6-2-110	59-412-1000
XV3	6-2-104	59-412-1000
XV4	6-2-51	TS103P01
XV5	6-2-84	TS103P01
XV6	6-2-84	TS103P01
XV7	6-2-88	TS102P01
XV8	6-2-177	TS103P01
XV9	6-2-166	168-013-1000
XY1	6-2-710	544-2825-002
XY15	6-2-77	TS0205C01
XY3	6-2-420	544-2825-002
Y1	6-2-126	290-9009-000
Y10	6-2-130	290-9098-000
Y11	6-2-131	290-9099-000
Y12	6-2-133	S290-9201-000
Y15	6-2-75	BL289-1424-000
Y16	6-2-628	BL290-8705-000
Y17	6-2-629	BL290-8706-000
Y2	6-2-127	290-9010-000
Y3	6-2-132	290-9011-000
Y4	6-2-135	290-9027-000
Y5	6-2-137	290-9028-000
Y6	6-2-128	290-9062-000
Y7	6-2-129	290-9063-000
Y8	6-2-134	290-9066-000
Y9	6-2-136	290-9097-000
Z1	6-2-163	543-8022-002
Z2	6-2-164	543-8022-002
Z4	6-2-340	544-9698-000
Z5	6-2-731	X239
Z6	6-2-219	548-8217-000
Z7	6-2-252	548-8217-000

section 7
illustrations

Note

The period covered by this instruction book is April 1963 to the date on the book title page.

Each equipment that had circuit changes made during the period of time covered by this instruction book has the changes identified on the applicable sheet of the schematic diagram and in the parts list. Circuit changes are flagged on the schematic with a change identifier  pointed at the component, group of components, or a circuit enclosed by a broken line. The identifier indicates that the component or circuit has been changed, and the number in the identifier indexes the specific change. If several components are affected by the same equipment change, there may be more than one identifier with the same index number.

The indexed changes are listed on schematic changes and equipment differences sheets inserted in front of the schematic sheet to which they are indexed.

The identifier-description describes the differences and reasons for changes and includes a recommendation as to what action should be followed during repair or maintenance.

The reason for identifying changes in this manner is that the manufacturer has "scrambled" serial numbers on his amateur products during the period covered by this instruction book. Therefore, changes cannot be identified by conventional methods.

Caution

None of the changes have been made because the equipment has failed to meet the equipment specifications and are not recommended changes for all units. Equipment changes have been made to improve performance or reliability of radios that are built using different fabrication processes. These changes will not necessarily improve the operation of your equipment and in some instances, if changes are made, will degrade the performance or possibly damage the radio.

The change identifier number is also used in the parts list section of this instruction book. However, in the parts list the identifier is enclosed in slashes (for example, /6/) instead of the  symbol.

Voltage and resistance measurements for the KWM-2/2A Transceiver are located in the service instructions section of this instruction book.

Below are listed service bulletins that have been written against the KWM-2 and KWM-2A Transceivers. These service bulletins were factory installed in units about the time the bulletins were issued and have been installed in all units since that date.

SERVICE BULLETIN NO	DESCRIPTION	DATE ISSUED
1	Not issued (SB 1 was issued against KWM-1 Transceiver)	
2	Addition of VOX relay time constant control	10-1-60 (1st revision)

SERVICE BULLETIN NO	DESCRIPTION	DATE ISSUED
3 (REISSUE)	Correlation between frequencies on different bands	10-1-71
4	Improvement of ALC action and elimination of ALC overshoot	9-2-60
5	Improvement of transmit-receive exciter tuning coincidence	1-3-61 (1st revision)
6	Elimination of delay in operation when switching from transmit to receive function	1-11-62
7 (REISSUE)	Replacement of relays K2 and K4 with enclosed type	2-1-70
8	A. Elimination of AGC overshoot on noise pulses and provide dual time-constant action	9-1-70
	B. Change source of delay bias to the AGC rectifier	
	C. Addition of delayed-decay AGC to the rf amplifier	
9 (REISSUE)	Addition of Modification Kit 744H-1 to convert KWM-2 to KWM-2A, Collins part number 622-0803-001	10-15-75
10	Elimination of vhf parasitic oscillations in tone oscillator V2B	4-15-74

SCHEMATIC CHANGES AND EQUIPMENT DIFFERENCES

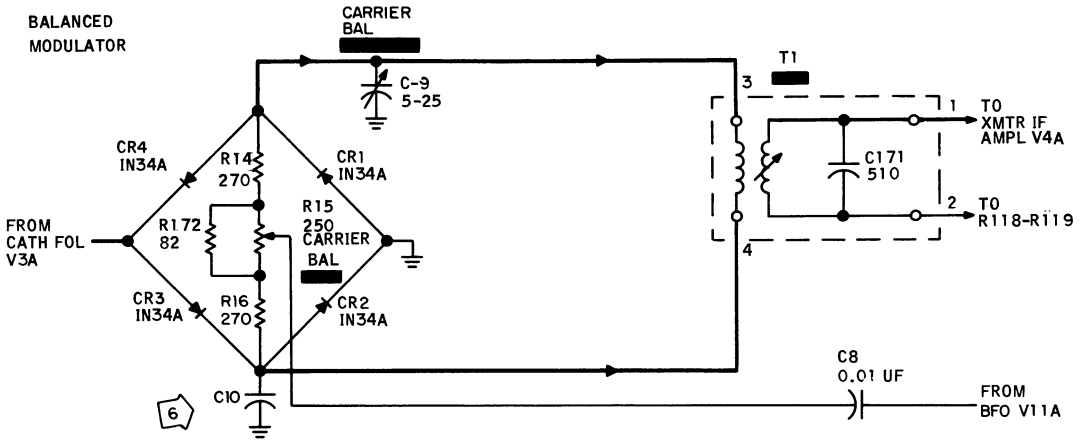
SCHEMATIC CHANGES AND EQUIPMENT DIFFERENCES	REFER TO SCHEMATIC SHEET
1 through 11C	1
12 through 20B	2
21 through 27D	3
28 through 36C	4
36 through 39	5

IDENTIFIER	DESCRIPTION
1	R51 and R52, 330 kΩ, were 390 kΩ and R53, 27 kΩ, was 18 kΩ. R51 and R52 can be either 330 kΩ or 390 kΩ, but must be the same. If R51 and R52 are 330 kΩ, R53 should be 27 kΩ; if R51 and R52 are 390 kΩ, R53 should be 18 kΩ. This change provides a 1750-Hz tone oscillator frequency. If replacing one or more of these resistors, recommend replacing with values shown on schematic and also replace R50 as noted in 2.
2	R50, 47 kΩ 1 watt, was 47 kΩ 1/2 watt. This change gives longer resistor life at existing power dissipation level. Recommend that R50 be inspected when the unit is being repaired for any reason, and if R50 is 1/2 watt, replace it with a 1-watt resistor.
3	L38 and L41, 1 mH, were added; C6, 1 μF, was 0.47 μF; C264, 20 μF, was 4 μF; CR10, 1N1490, was added; and R208, 470 ohms, was added as 100 ohms, then changed to 470 ohms. These changes block rf feedback that may cause audio distortion. If these components are not in the unit, they do not have to be added. If replacing any of these components, recommend replacing with values shown on schematic.
4	Some early units have a balanced modulator circuit as shown below. Recommend that modification to the circuit shown on the schematic not be attempted. If repairing a balanced modulator circuit as shown below, replace components with values shown here and in the parts list.

KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet A)

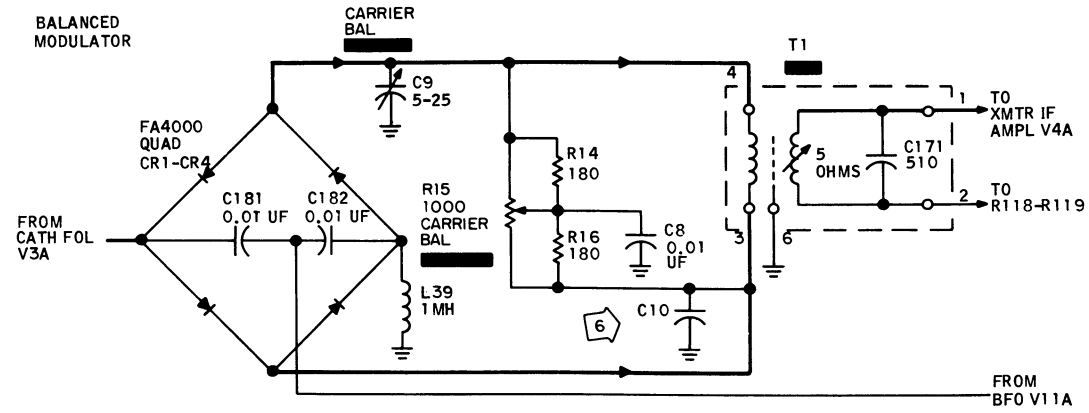
SCHEMATIC CHANGES AND EQUIPMENT DIFFERENCES

IDENTIFIER	DESCRIPTION



4A

Some early units have a balanced modulator circuit as shown below. If replacing any of these components, recommend replacing with values shown here and in parts list. Incorporating the changes in 5 produces the circuit shown on the schematic. However, these changes are not required and the balanced modulator can remain in the configuration shown below. If the changes in 5 are incorporated, all of change 5 must be incorporated.



5

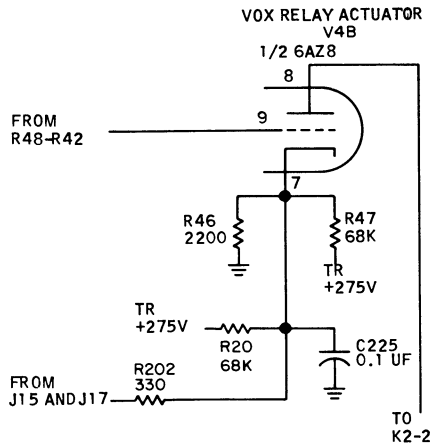
(Cont)

R204 and R205, 220 ohms, added; R203 and R206, 180 ohms, added; R14 and R16, 47 ohms, were 180 ohms; and R15, 250 ohms, was 1 kΩ. The changes to the balanced modulator circuit shown in 4A produces the circuit shown on the schematic. If these changes have not been made in the unit, recommend the existing configuration be maintained. These changes

KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet B)

SCHEMATIC CHANGES AND EQUIPMENT DIFFERENCES

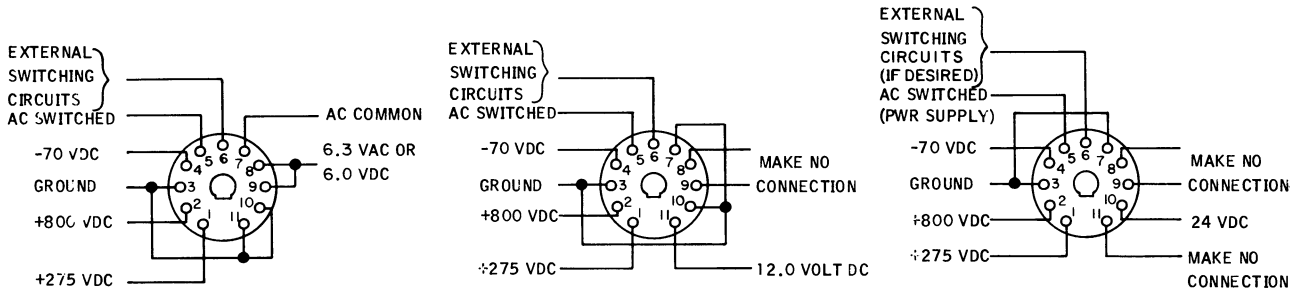
IDENTIFIER	DESCRIPTION
5 (Cont)	do not apply to the circuit shown in 4 above. If replacing any of these components, recommend replacing with values shown on schematic.
6	C10 is a test select component; 10 to 150 pF for balanced modulator circuit shown on schematic and 10 to 75 pF for circuit shown in 4 above. The value is selected in manufacturing test to balance C9 range. It is selected to provide not more than 0.2 Vac rms rf output after carrier balancing (refer to paragraph 4.7 for procedure). In some early units (configuration 4, 4A, and 5), C10 may be connected in parallel to C9. R140 is a test select component, 390 ohms to 27 kΩ. The value is selected in manufacturing test to provide ALC threshold of 2 to 5 mV (refer to paragraph 4.7 for procedure).
7	R201, 220 kΩ, added. This change isolates VOX amplifier V14B from VOX GAIN control R39. If this component is not in the unit, it does not have to be added.
8	R199, 2.2 megohms, added. This change improves the VOX TIME CONST control R43 range. If this component is not in the unit, it does not have to be added.
9	R202 was added to limit relay K2 energizing current. On some units it was 330 ohms and was located in the cathode circuit of V4B (see circuit below). On later units, the value was changed to 12 kΩ and relocated in the plate circuit of V4B as shown on the schematic. If replacing this component, recommend replacing with a 12-kΩ resistor in the plate circuit of V4B. (If R202 was in the cathode circuit of V4B, install a Winchester standoff terminal near pin 5 of XV4 to provide a tie point for R202 and the red-white wire disconnected from pin 8 of XV4.) If R202 is not in the unit, check to see if relay K2 is an open-telephone or enclosed type. If K2 is an open-telephone type, do not add R202; if it is an enclosed type, add R202, 12 kΩ, in the plate circuit of V4B. R46, 2200 ohms, was 3300 ohms on some units. If replacing this component, recommend replacing with 2200 ohms.
9A	L22 was changed to a shielded type to reduce bfo leakage, effective CI 72165. When replacing L22, recommend replacing with the shielded type.



KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet C)

SCHEMATIC CHANGES AND EQUIPMENT DIFFERENCES

IDENTIFIER	DESCRIPTION
10	R195, 47 ohms, added. This change helps prevent spurious oscillation. If this component is not in the circuit, it does not have to be added. C55, 180 pF, was 100 pF. This change decreases oscillator feedback. If replacing this component, recommend replacing with 180 pF.
10A	EXT VFO POWER connector J17 was changed from Amphenol type to a Collins type. When replacing this connector, recommend replacing with the Collins type.
11	C47, 0.068 μF, has changed value and type. It has changed in value (was 0.047 μF) to increase the VOX time constant. It has changed in type (to a polycarbonate dielectric) to reduce electrical leakage that could result in the VOX relay circuit staying activated. If replacing this component, recommend replacing with the 0.068-μF polycarbonate dielectric.
11A	External power connections made to the KWM-2/2A are as follows:
11B	Deleted 33-kΩ resistor R131. Added 0.1-μF capacitor C278, 0.02-μF capacitor C279; 2-mH coil L42; and 1N5383B zener diode CR12. This change improves frequency stability for +12-, +24-, and +28-V dc remote or vehicular operation.
11C	Added USB and LSB reference designators to crystals Y17 and Y16.



6-VOLT POWER PLUG (516F-2 OR 516F-1) — 12 VOLT POWER PLUG (MP-1) — 24 VOLT POWER PLUG (516E-2)

12	L2, 10 mH, added; R207, 680 ohms, was added as 470 ohms, then changed to 680 ohms; and C216, 0.02 μF, has changed location (previously located between junction of R18-R141 and chassis). These changes improve decoupling. If L2 and R207 are not in the unit, they do not have to be added; C216 would then be located between junction of R18-R144 and chassis. If replacing any of these components, recommend replacing with values shown on schematic. R38, 220 ohms, added as 68 ohms, then changed to 220 ohms when R18, 18 kΩ, was changed from 47 to 18 kΩ. R38 was added to improve the range of ALC ZERO control R30. R18 was changed to increase transmitter if amplifier V4A gain. R38 was changed to maintain proper circuit voltage levels. If R38 is not in the unit, it does not have to be added. If R18 is 47 kΩ, R38 should be 68 ohms; if R18 is 18 kΩ, R38 should be 220 ohms. If replacing R18, recommend replacing with 18 kΩ and at the same time replace R38, if necessary, with 220 ohms.
13	R198, 27 kΩ, is in some units. This resistor was added to reduce if leakage, but then removed to improve if gain. If this component is in the unit, it need not be removed. Some early units have mechanical filter FL1 (part number 526-9337-00). Later units have mechanical filter FL1 (part number 526-9427-000). The two types of mechanical filters are electrically the same but physically different. It is recommended that this component be replaced with same part numbered component. To replace the older mechanical filter (part number 526-9337-00) with the newer one (part number 526-9427-000) bracket having part number 544-9714-002 must be replaced with a bracket having a part number 606-9731-001. Bracket part number 606-9731-001 has a clip to hold the mechanical filter.
(Cont)	

KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet D)

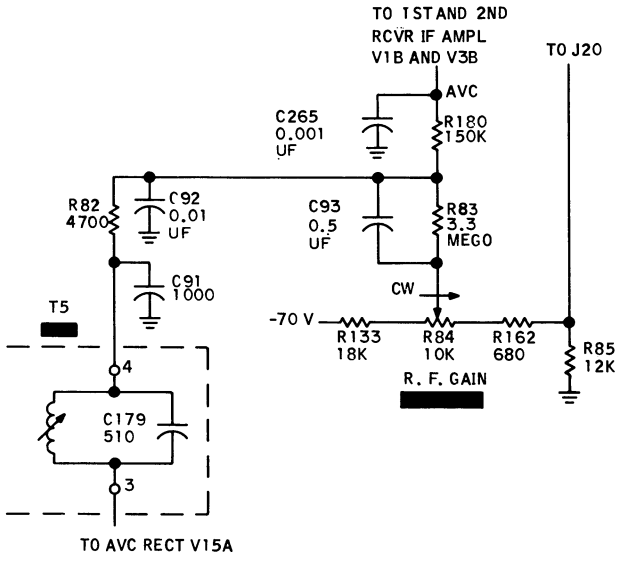
SCHEMATIC CHANGES AND EQUIPMENT DIFFERENCES

IDENTIFIER	DESCRIPTION
13A	C311, 10 pF, was added. This change eases oscillator adjustment at factory. It this component is not in your unit, do not add it.
13B	CR301, 1N4454, was 1N34A. This change uses a newer, improved diode. Either diode can be used in this application. When stock is depleted, recommend using 1N4454 diodes.
14	R212, 1 megohm, added. This change reduces first transmitter mixer bias in receive operation. If this component is not in the unit, it does not have to be added.
15	C219, 100 pF, was 1000 pF. This change improves decoupling between first transmitter mixer and first receiver mixer. If replacing this component, recommend replacing with 100 pF.
16	R197, 2200 ohms, replaced L3, 2 mH. This change improves decoupling. If the circuit contains L3, it does not have to be replaced with R197. If L3 requires replacement, recommend replacing with R197.
16A	C238, 0.1 μF, was 0.01 μF. This change improves decoupling. If replacing this component, recommend replacing with 0.1 μF.
17	R22, 100 ohms, was 56 ohms and R196, 100 ohms, was added. These changes isolate the external vfo from the internal vfo. If R196 is not in the unit, it does not have to be added. In this case, R22 should remain at 56 ohms. If replacing these components, recommend replacing with 100 ohms. R162 is a test select component; 47 ohms to 100 ohms. The value is selected in manufacturing test to provide 1.25 Vac at pin 9 of V2A when EMISSION switch is set to LSB (refer to paragraph 4.7 for procedure) and vfo dial setting to 100.
18	C60, 10 pF, was 20 pF. This change improves decoupling between transmit and receive circuits. If replacing this component, recommend replacing with 10 pF.
19	CR9, 1N458, added; R193, 1 megohm, was added as 220 kΩ, then changed to 1 megohm; and R194, 470 kΩ, was added as 100 kΩ, then changed to 470 kΩ. These changes help isolate second receiver mixer from first transmitter mixer. If these components are not in the unit, they do not have to be added. If replacing any of these components, recommend replacing with values shown on schematic.
20	R145, 82 kΩ, was 150 kΩ, 68 kΩ, or 47 kΩ on some units. If R145 is 82 kΩ, C262 (second receiver if amplifier cathode bypass capacitor) should not be in the unit. This change reduces receiver if gain. If replacing R145, recommend replacing with 82 kΩ. At the same time, check for presence of C262; if C262 is in the unit, remove it. If C262 fails, recommend deleting it from the unit and replacing R145, if necessary with 82 kΩ. If the circuit configuration is changed, recheck the receiver gain. R158 is normally 220 ohms. However, an additional resistor of 56 to 220 ohms may be connected in parallel with the 220-ohm component to give an S-meter reading of S8 to S9 +10 with a receiver input signal of 100 hard microvolts (refer to paragraph 4.7 for procedure).

KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet E)

SCHEMATIC CHANGES AND EQUIPMENT DIFFERENCES

IDENTIFIER	DESCRIPTION
20A	R132, 2500-ohm variable resistor, was 1000-ohm variable resistor. This change allows a greater range of receiver if gain adjustment. If replacing this component, recommend replacing with 2500-ohm variable resistor.
20B	Changed capacitor C304 from 200 pF to 50 pF, and resistor R301 from 100 kΩ to test select to improve 70K-2 vfo tracking and frequency stability.
21	R200, 1 megohm, added. This change back-biases second transmitter mixer to cutoff during receive. If this component is not in the unit, it does not have to be added.
22	R143, 2200 ohms, was 1500 ohms. This change improves decoupling. If replacing this component, recommend replacing with 2200 ohms.
23	C69, 240 pF, was 220 pF. This change provides greater crystal oscillator plate tuning range for 3.8 band. If replacing this component, recommend replacing with 240 pF. C274, 0.01 μF and L40, 220 ohms, added. These changes improve decoupling. If these components are not in the unit, they do not have to be added.
24	R82, 4700 ohms, 1/2 watt, was 4700 ohms, 1/4 watt. This change gives longer resistor life at existing power dissipation level. If replacing this component, recommend replacing with 1/2-watt resistor.
25	Some early units have an AVC time constant circuit as shown below. This circuit has been changed to the configuration shown on the schematic to eliminate AVC overshoot on noise pulses and to provide dual time-constant action. If repairing the circuit shown below, recommend that existing configuration be maintained. Reference part A of service bulletin no 8.

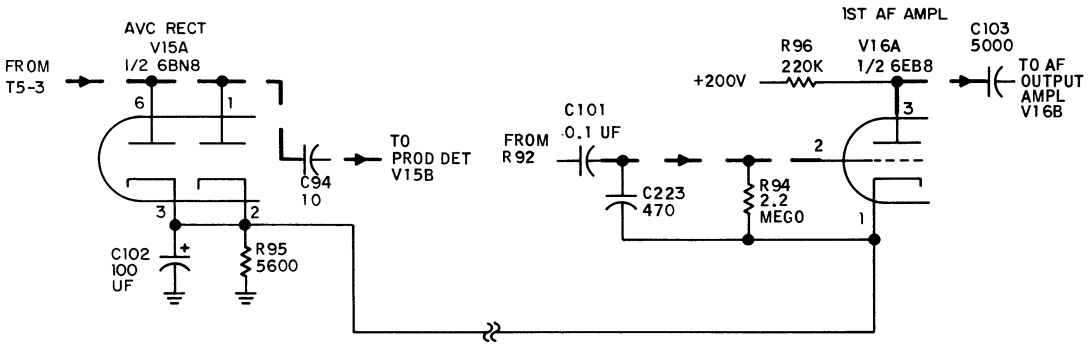


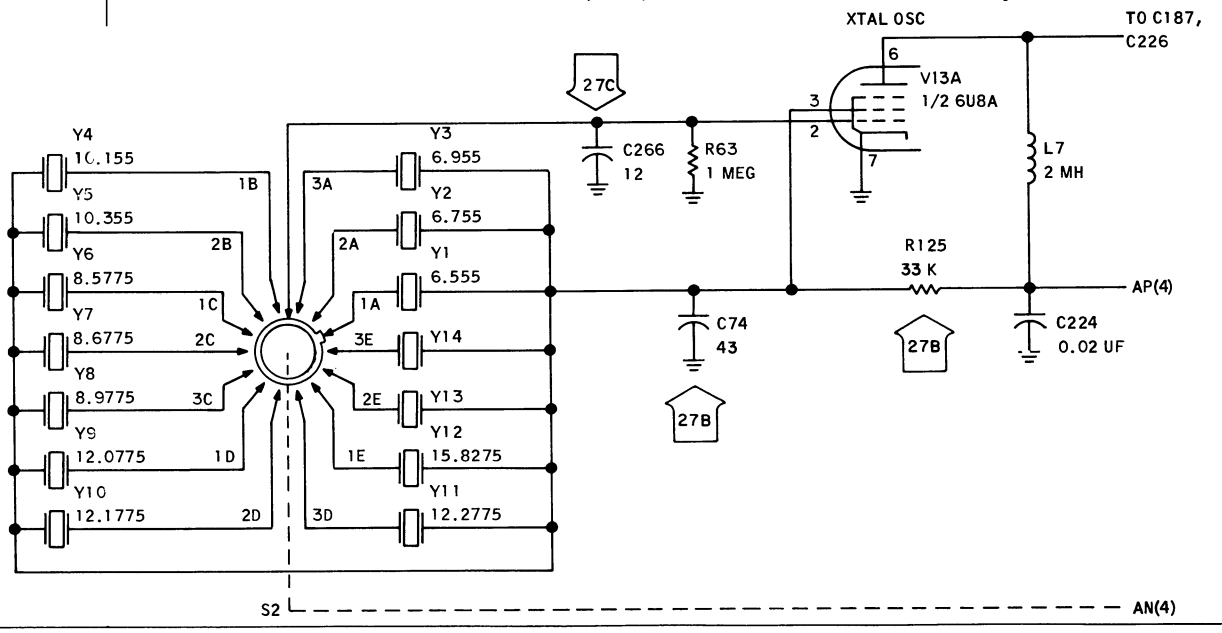
Changes made to the circuit above to produce the circuit shown on the schematic are as follows: C265, 0.01 μF and connected in parallel with R180, was 0.001 μF and connected between the AVC side of R180 and ground; C93, 0.47 μF, was 0.05 μF; R180, 680 kΩ, was 150 kΩ; R83, 1.5 megohms, was 3.3 megohms; and R82-C92 were disconnected from junction of R180-R83 and reconnected to AVC side of R180.

KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet F)

SCHEMATIC CHANGES AND EQUIPMENT DIFFERENCES

IDENTIFIER	DESCRIPTION
26	Many units have an AVC rectifier bias circuit as shown below. This circuit has been changed to the configuration shown on the schematic to prevent low-frequency audio detection by the AVC rectifier, therefore an audio output, when the AF GAIN control is set at minimum. If repairing the circuit shown below, recommend that same configuration be maintained.
27	R213, 2.2 megohms; CR11, 1N458; and C276, 0.05 μF, added. These changes reduce effects of strong adjacent channel SSB signals. If these components are not in the unit, they do not have to be added. Reference part C of service bulletin no 8.
27A	Y13, Y14, and Y18 thru Y31 are not furnished. These crystals are to be selected by the user. Schematic diagram shows the KWM-2A crystal oscillator configuration. The crystal oscillator for the KWM-2 is shown below. S14, S15, and Y18 thru Y31 are used only in the KWM-2A.





KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet G)

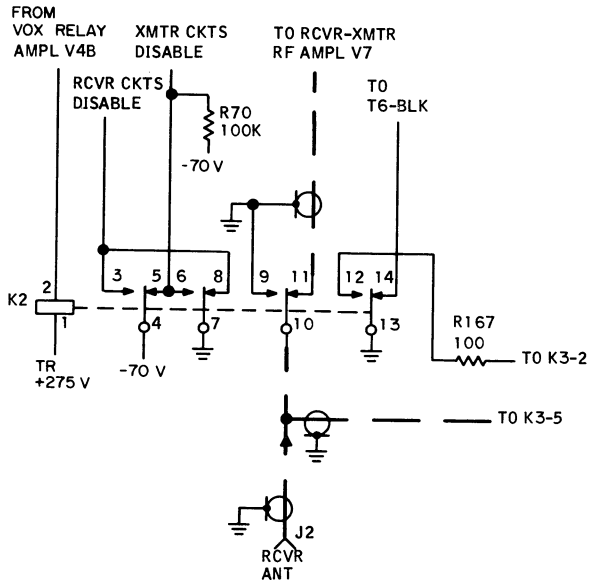
SCHEMATIC CHANGES AND EQUIPMENT DIFFERENCES

IDENTIFIER	DESCRIPTION
None	Schematic correction, V12B, 6U8A was 6U8.
27B	C74, 43 pF, was 47 pF and R125, 33 kilohms, was 47 kilohms. These changes increase the gain and the feedback of the crystal oscillator. If replacing these components, recommend replacing with the same values removed from your unit. Reference service bulletin no 3 (reissue). R214, 4700 ohms, was added and R151, 2700 ohms, was 3900 ohms. These changes help equalize crystal oscillator output on all frequency bands. If replacing these components, recommend replacing with the same value removed from your unit.
27C (see 27A)	C266, 12 pF, was 27 pF. This component found only in KWM-2. This change increases feedback of the crystal oscillator. If replacing this component, recommend replacing with the same value removed from your unit. Reference service bulletin no 3 (reissue).
27D	Changed resistor R125 from 33 kΩ to 12 kΩ. Added capacitors: 0.02-μF C280, 0.1-μF C281; coils: 1-mH L43, 2.2-mH L44; and 1N5383B zener diode CR13. Relocated resistor R125 and capacitor C224 as shown on the schematic diagram. This change improves frequency stability for +12-, +24-, and +28-V dc remote or vehicular operation.
28	C76, 5 to 25 pF, was 3 to 12 pF, 5 to 12 pF, or 2 to 3 pF in some units. This change provides additional tuning range. If replacing this component, recommend replacing with 5 to 25 pF. C267, 5 pF, was 10 pF. This change improves crystal calibration. If replacing this component, recommend replacing with 5 pF.
29	C119, 10 pF, was 2 pF. This change increases crystal calibration output signal. If replacing this component, recommend replacing with 10 pF.
30	C272, 7.5 pF, was 10 pF. This change maintains the same receiver/transmitter rf amplifier plate tuning for receive or transmit operation. If replacing this component, recommend replacing with 7.5 pF.
31	R105, 12 kΩ, was 22 kΩ; C134, 1.5 to 7.0 pF, was 5 to 25 pF; C135, 20 pF, was 33 pF; and C133, 110 pF, was 130 pF. These changes improve the input tuning range of the power amplifier. If replacing any of these components, recommend that same configuration be maintained. If one of these components is replaced with the value shown on the schematic, make sure the value of the remaining three components are those shown on schematic. Replace if necessary.
32	C97, 39 pF, was 27 pF and C121, 270 pF, was 220 pF. These changes improve the neutralization range. If replacing either of these components, recommend that same configuration be maintained. If replacing one of these components with value shown on the schematic, make sure value of the other component is same as shown on the schematic. Replace if necessary.
33	C270, 5 pF, is in a few units. It is selected in manufacturing test for minimum intermodulation distortion. If this component is not in the unit, it does not have to be added. C180, 15 pF, was 10 pF. This change helps minimize intermodulation distortion. If replacing this component, recommend replacing with the same value removed from your unit.
34	R161 is a test select component; 2200 ohms to 12 kΩ. The value is selected in manufacturing to calibrate the pa plate current meter (refer to paragraph 4.7 for procedure).

KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet H)

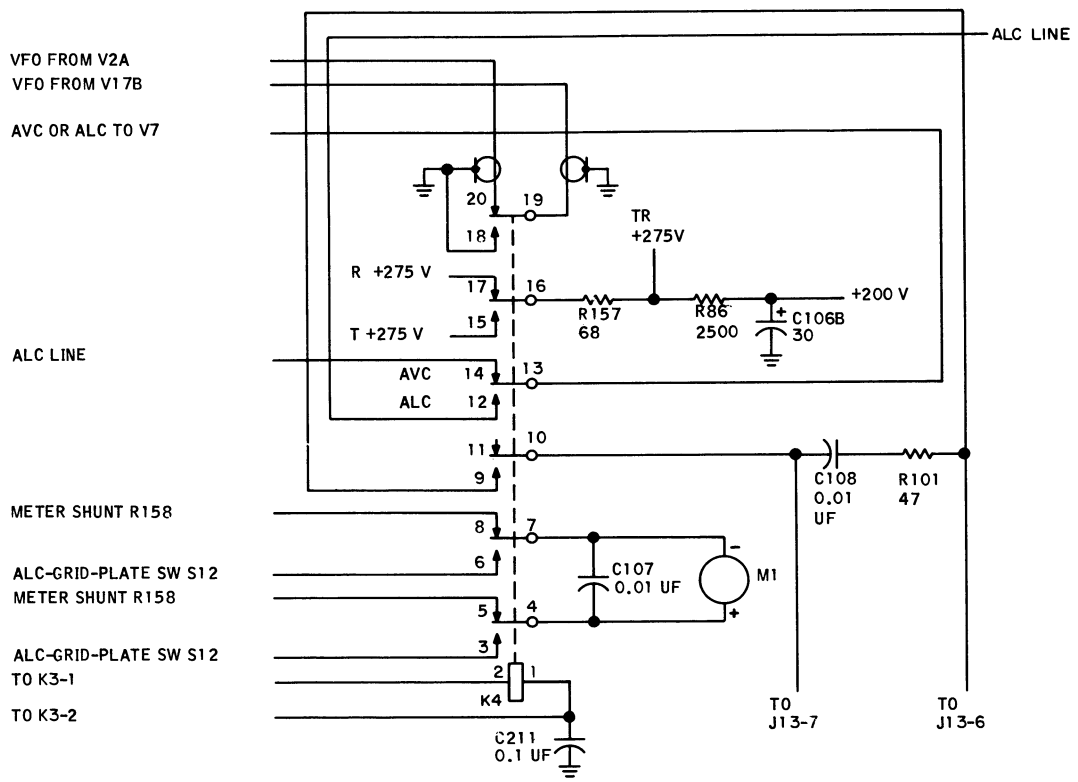
SCHEMATIC CHANGES AND EQUIPMENT DIFFERENCES

IDENTIFIER	DESCRIPTION
35	R209, 100 ohms, added. This change improves isolation between af output and the antiVOX circuits. If this component is not in the unit, it does not have to be added.
35A	R182, 47 ohms, was 68 ohms. This change was made to prevent af output amplifier from oscillating, effective CI 72196. When replacing R182, recommend replacing with 47-ohm resistor.
36	K2 and K4, enclosed type, were open-telephone type relays. The circuits for the enclosed type are shown on the schematic. The open-telephone relay circuits are shown below for K2 and on the following page for K4. This change reduces relay failure in severe environment. The two types of relays are not interchangeable. If repairing relay K2 or K4 circuits, check the relay type; and if old relays are used, install service bulletin no 7 (reissue).
None	Schematic corrections; R170, 100 kΩ, was R70, 100 kΩ; V8-3 was V8-8; and V8-8 was V8-3.
36A	Ungrounded receive antenna shield at K2-9. This change eliminates oscillations on the receive antenna line when the KWM-2/2A is operated around 28 MHz. If your unit is operated around the above frequency and you encounter the oscillations, unground the shield at the K2-9 end of the receive antenna line. If this problem does not pertain to your unit, do not make the change.
36B	C227, 0.01 μF, was added. This change provides a high-frequency bypass and eliminates ultrasonic oscillations that cause increased noise and audio distortion. If this component is not in your unit, it is recommended that you add it.
36 (Cont)	Refer to 36 above for a description of the change in K4 relay from open telephone (shown on next page) to enclosed (shown on the schematic).

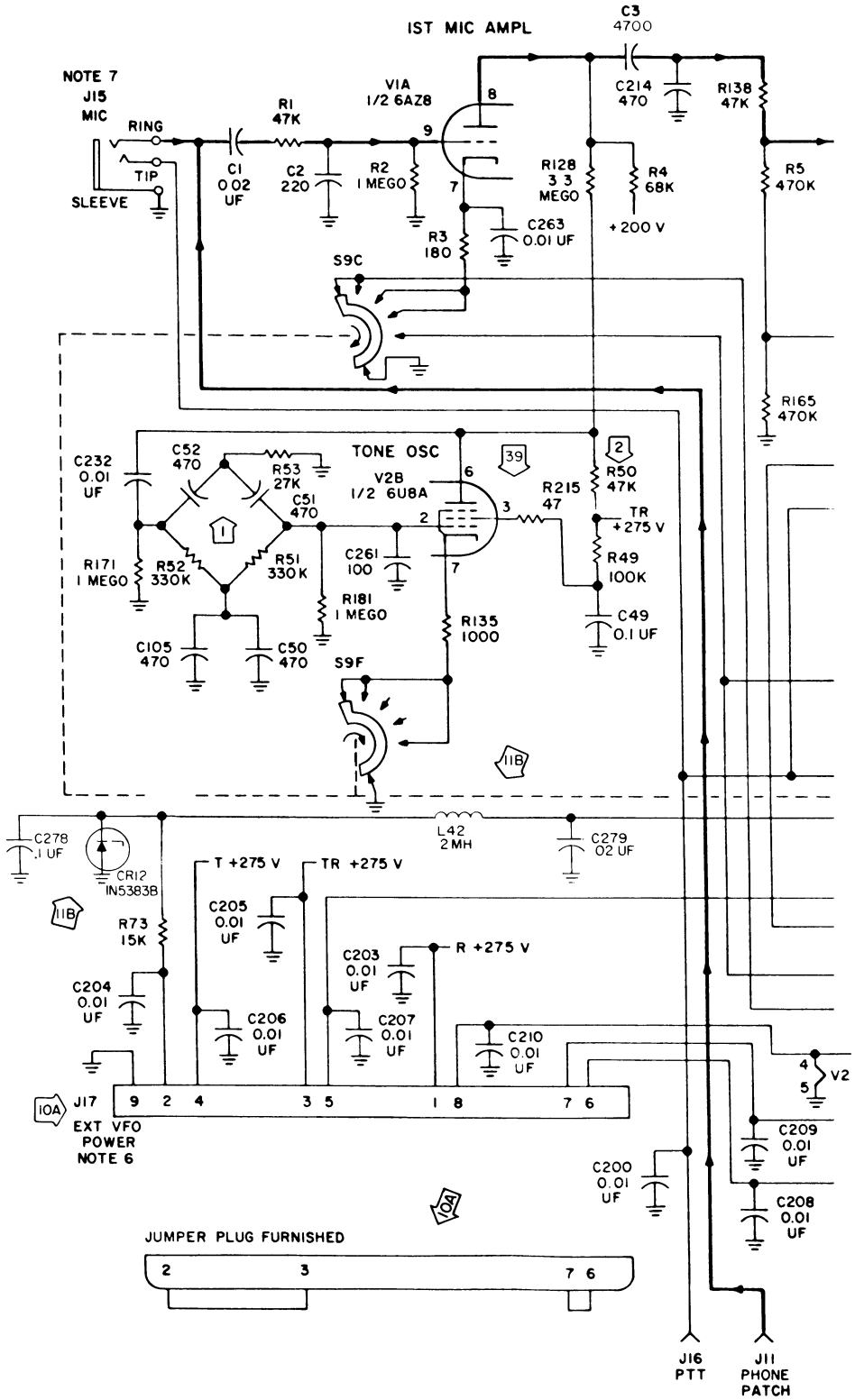


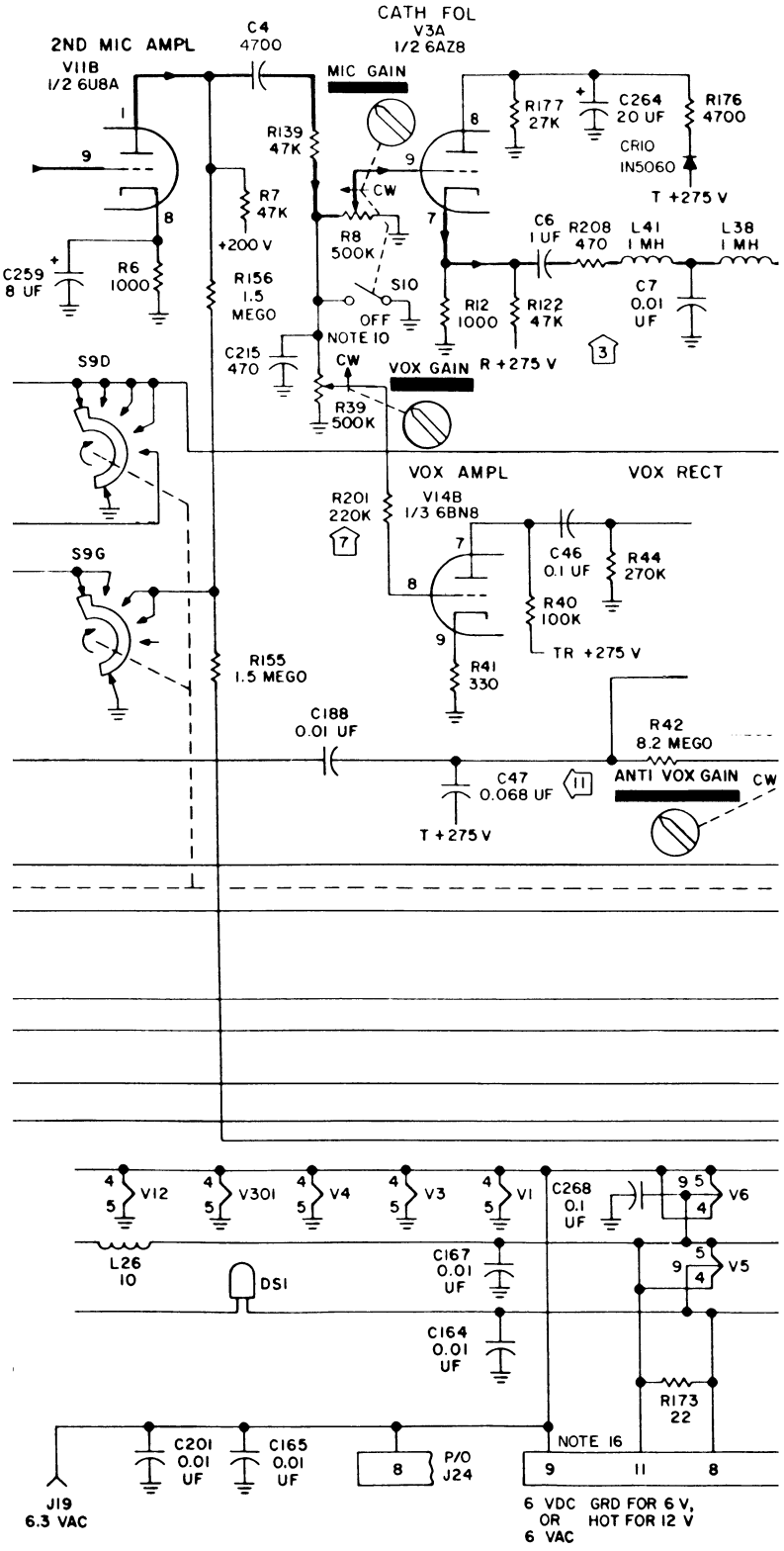
KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-i (Sheet I)

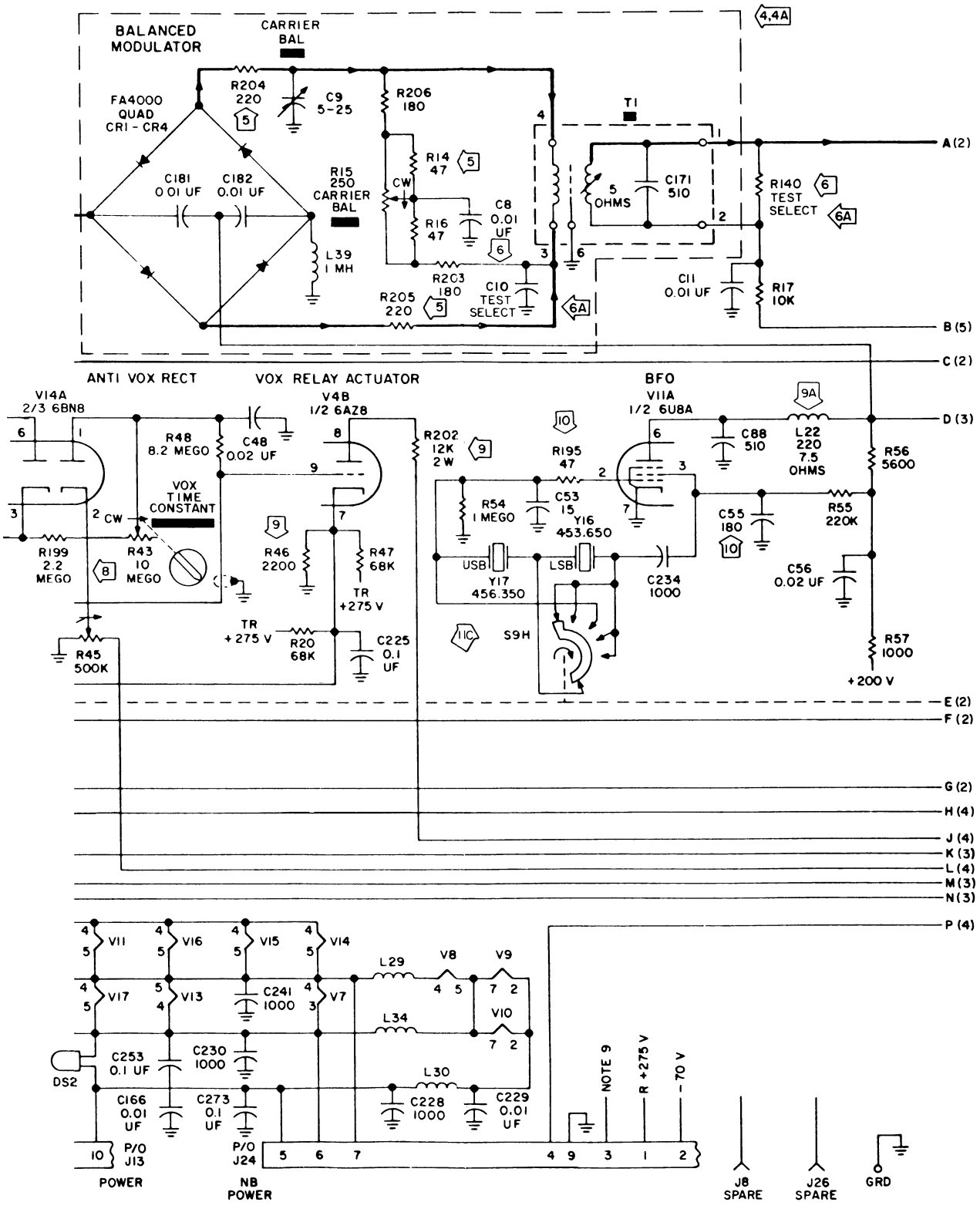
SCHEMATIC CHANGES AND EQUIPMENT DIFFERENCES

IDENTIFIER	DESCRIPTION
36 (Cont)	
36C	Corrected schematic diagram error. Connector J26 was inadvertently called J28.
37	R211, 470 ohms, added and R190, 1500 ohms, was 2200 ohms. These changes shift the ALC line bias to reduce transmit gain variations between LSB, USB, and CW positions versus TUNE and LOCK positions of the EMISSION control. If repairing this circuit, recommend that same configuration be maintained.
None	Restated all notes.
38	C155, 63- to 320 pF variable capacitor, was 15- to 120-pF variable capacitor. This change improves pa output loading on 15- and 10-meter bands. If replacing this component, recommend replacing with 63- to 320-pF variable capacitor.
39	R215, 47 ohms, is added in series with the screen grid of tone oscillator V2B to act as a parasitic suppressor.

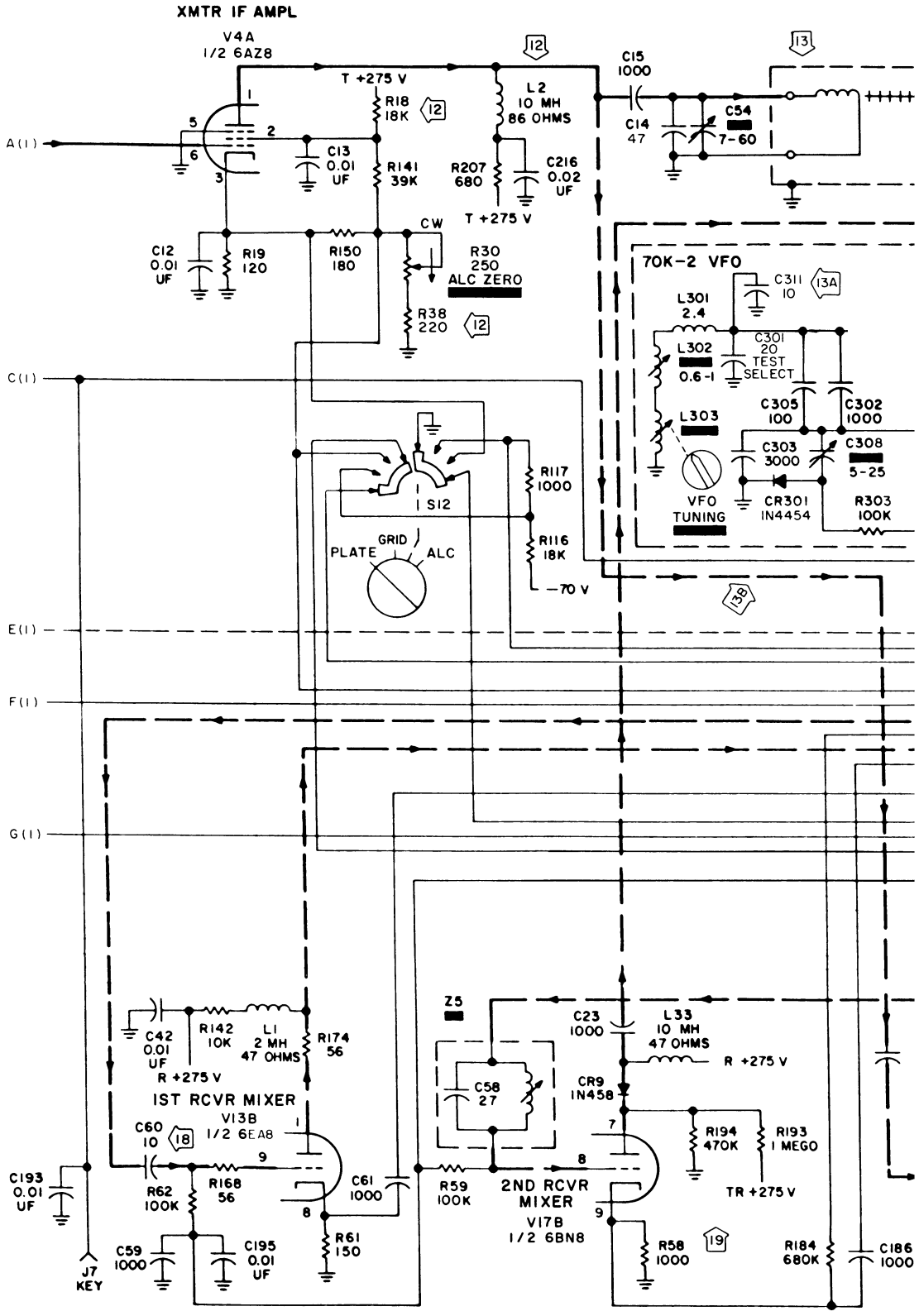
KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet J)

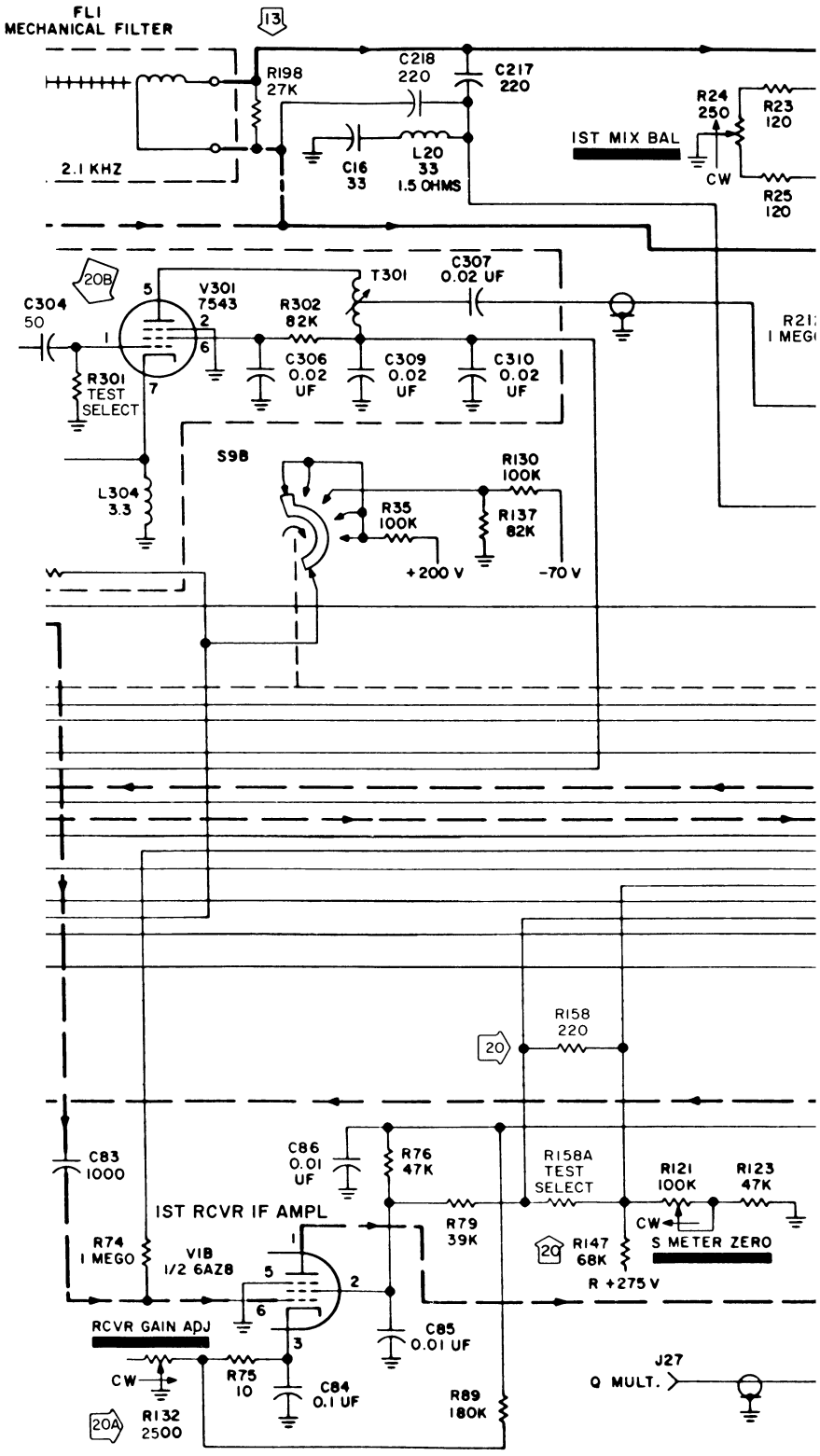

1ST MIC AMPL
C3
4700
NOTE 7
J15
MIC
RING
TIP
SLEEVE
C1
0 02
UF
R1
47K
C2
220
V1A
1/2 6AZ8
R2
1 MEGO
R3
180
C263
0.01 UF
R128
3 3
MEGO
R4
68K
+200 V
C214
470
R138
47K
R5
470K
R165
470K
S9C
TONE OSC
V2B
1/2 6U8A
C232
0.01
UF
C52
470
R53
27K
C51
470
R171
1 MEGO
R52
330K
R51
330K
C261
100
R181
1 MEGO
R135
1000
R215
47
R50
47K
TR
+275 V
R49
100K
C49
0.1 UF
C105
470
C50
470
S9F
L42
2MH
C279
02 UF
C278
.1 UF
CR12
IN5383B
T +275 V
TR +275 V
R +275 V
R73
15K
C204
0.01
UF
C205
0.01
UF
C206
0.01
UF
C203
0.01
UF
C207
0.01
UF
C210
0.01
UF
V2
J17
9 2 4 3 5 1 8 7 6
EXT VFO
POWER
NOTE 6
C200
0.01
UF
C209
0.01
UF
C208
0.01
UF
JUMPER PLUG FURNISHED
2 3 7 6
J16
PTT
J11
PHONE
PATCH

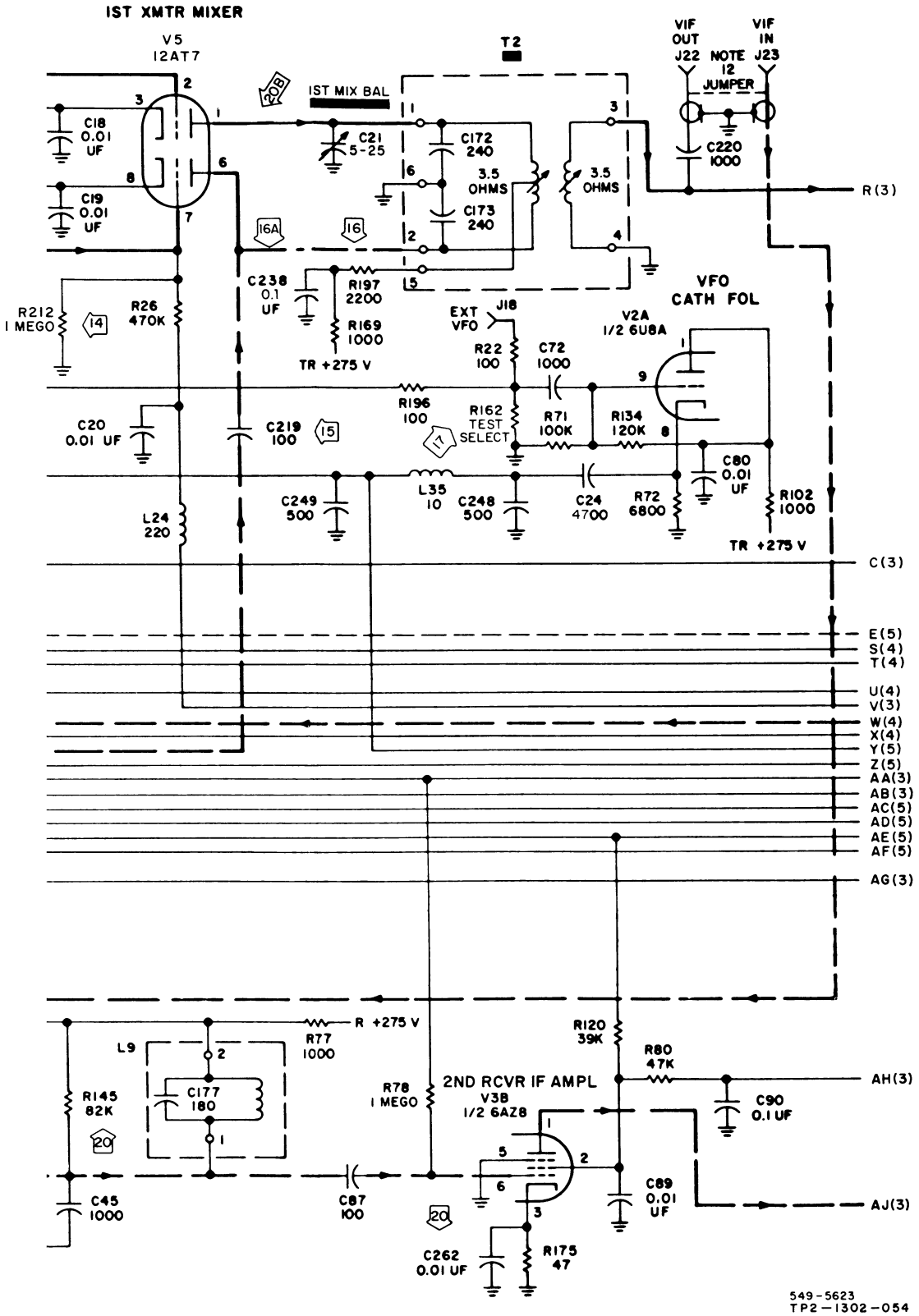

2ND MIC AMPL
V11B
1/2 6U8A
C4
4700
CATH FOL
V3A
1/2 6AZ8
MIC GAIN
R139
47K
R7
47K
+200 V
R156
1.5
MEGO
C259
8 UF
R6
1000
R8
500K
CW
S10
OFF
NOTE 10
C215
470
R177
27K
C264
20 UF
R176
4700
CR10
IN5060
T +275 V
C6
1 UF
R208
470
L41
1 MH
L38
1 MH
C7
0.01
UF
R12
1000
R122
47K
R +275 V
3
S9D
VOX GAIN
R39
500K
VOX AMPL
VOX RECT
R201
220K
7
V14B
1/3 6BN8
C46
0.1 UF
R44
270K
R40
100K
TR +275 V
S9G
R41
330
R155
1.5 MEGO
C188
0.01 UF
R42
8.2 MEGO
C47
0.068 UF
11
ANTI VOX GAIN
CW
T +275 V
V12
V301
V4
V3
V1
C268
0.1
UF
V6
V5
L26
10
D51
C167
0.01
UF
C164
0.01
UF
R173
22
C201
0.01
UF
C165
0.01
UF
P/O
J24
NOTE 16
J19
6.3 VAC
6 VDC GRD FOR 6 V,
OR HOT FOR 12 V
6 VAC



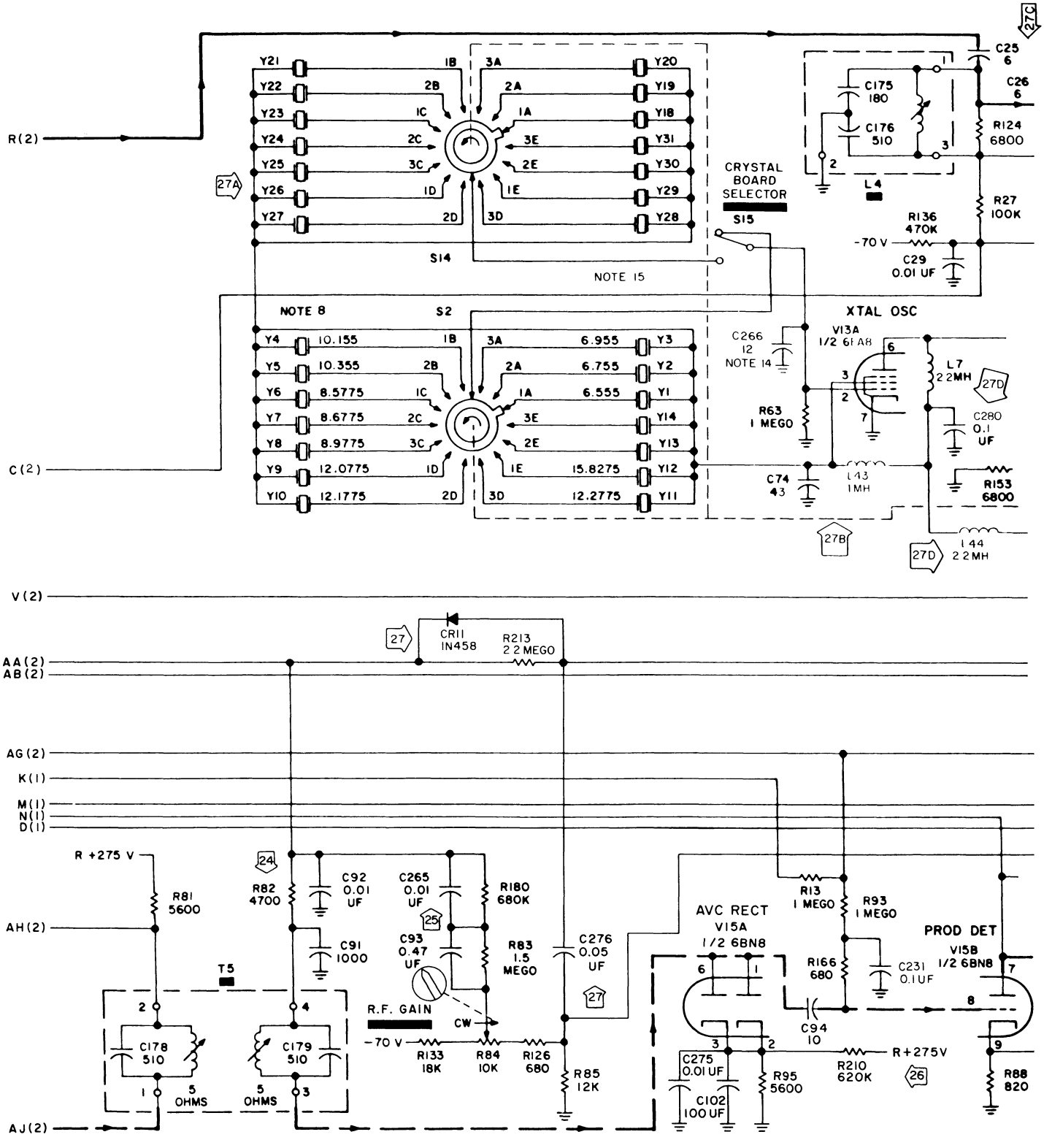
KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet 1 of 5)

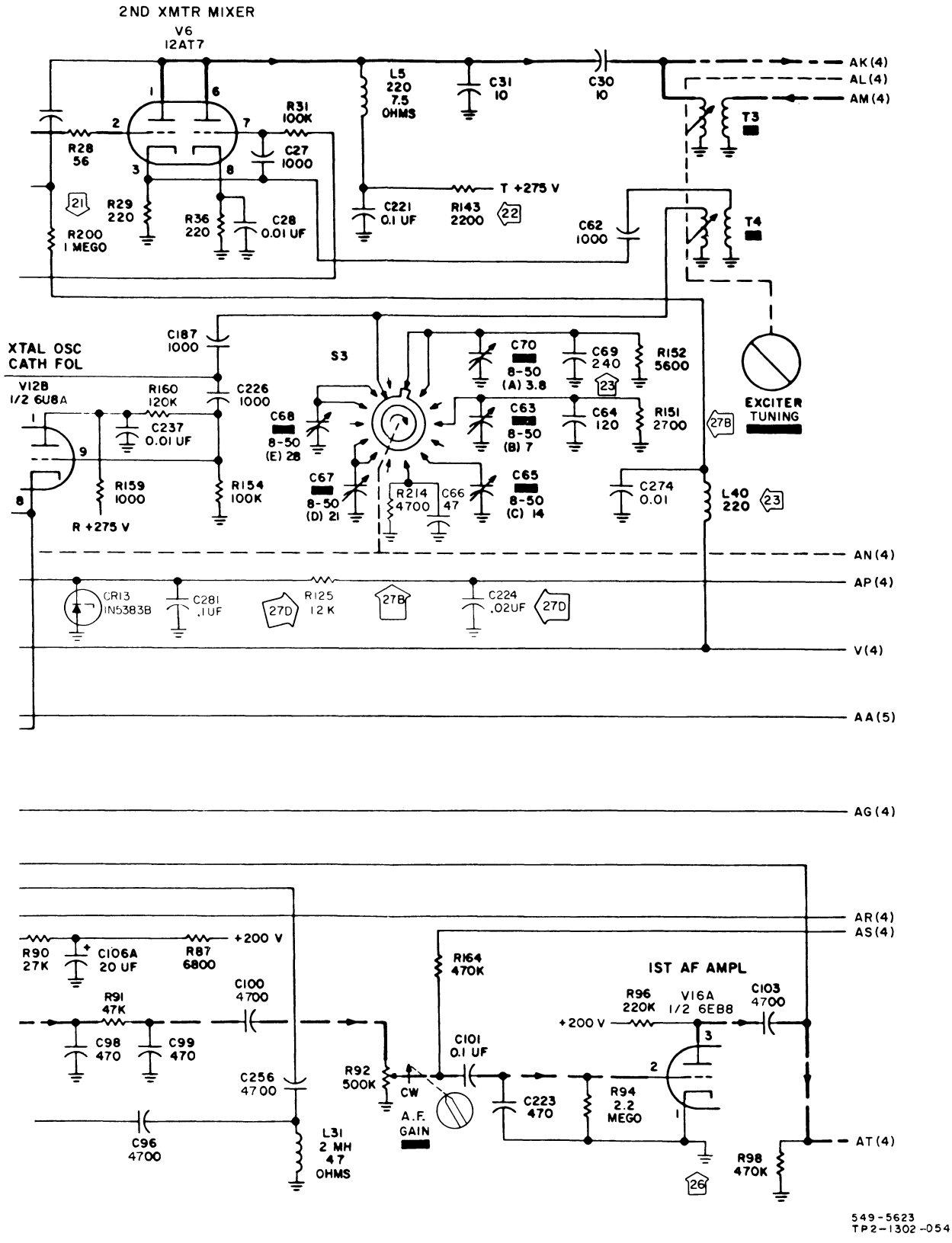

XMTR IF AMPL
V4A
1/2 6AZ8
T +275 V
R18
18K
12
L2
10 MH
86 OHMS
C15
1000
13
C14
47
C54
7-60
A(1)
C13
0.01
UF
R141
39K
R207
680
C216
0.02
UF
T +275 V
CW
C12
0.01
UF
R19
120
R150
180
R30
250
ALC ZERO
R38
220
12
70K-2 VFO
C311
10
13A
L301
2.4
L302
0.6-1
C301
20
TEST
SELECT
C305
100
C302
1000
L303
C303
3000
C308
5-25
VFO
TUNING
CR301
IN4454
R303
100K
C(1)
S12
R117
1000
R116
18K
-70 V
PLATE
GRID
ALC
13B
E(1)
F(1)
G(1)
C42
0.01
UF
R142
10K
L1
2 MH
47 OHMS
R174
56
R +275 V
IST RCVR MIXER
V13B
1/2 6EA8
C60
10
18
Z5
C23
1000
L33
10 MH
47 OHMS
R +275 V
C58
27
CR9
IN458
R194
470K
R193
1 MEGO
TR +275 V
C193
0.01
UF
R62
100K
R168
56
C61
1000
R59
100K
2ND RCVR
MIXER
V17B
1/2 6BN8
R58
1000
19
R184
680K
C186
1000
C59
1000
C195
0.01
UF
R61
150
J7
KEY


FL1
MECHANICAL FILTER
13
R198
27K
C218
220
C217
220
2.1 KHZ
C16
33
L20
33
1.5 OHMS
IST MIX BAL
R24
250
R23
120
CW
R25
120
20B
C304
50
V301
7543
T301
C307
0.02 UF
R302
82K
R301
TEST
SELECT
C306
0.02
UF
C309
0.02
UF
C310
0.02
UF
S9B
R130
100K
L304
3.3
R35
100K
R137
82K
+200 V
-70 V
R158
220
20
C83
1000
C86
0.01
UF
R76
47K
R158A
TEST
SELECT
R121
100K
R123
47K
IST RCVR IF AMPL
R79
39K
CW
R74
1 MEGO
V1B
1/2 6AZ8
20
R147
68K
S METER ZERO
R +275 V
RCVR GAIN ADJ
C85
0.01 UF
J27
Q MULT.
CW
R75
10
C84
0.1 UF
R89
180K
20A
R132
2500

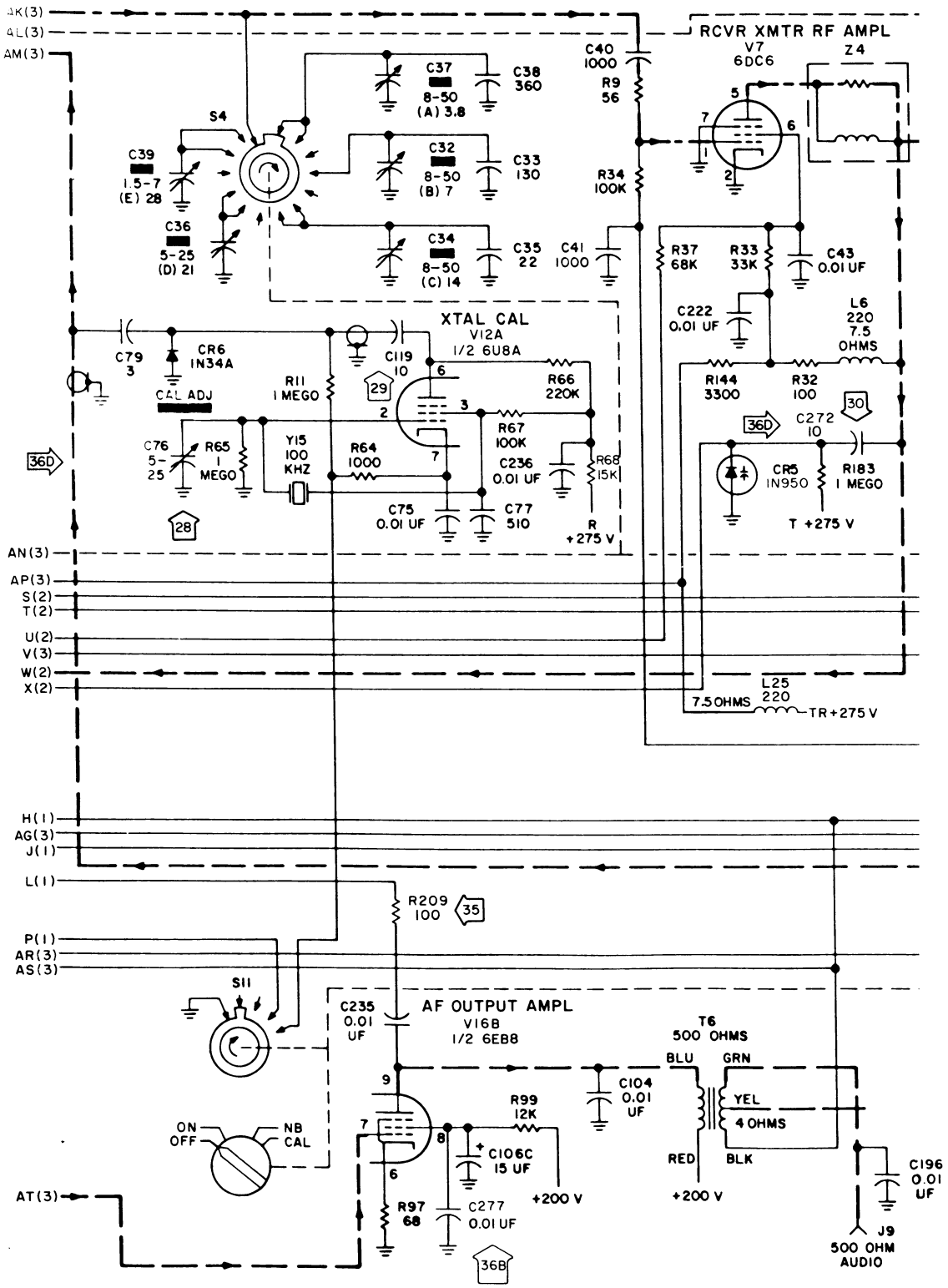


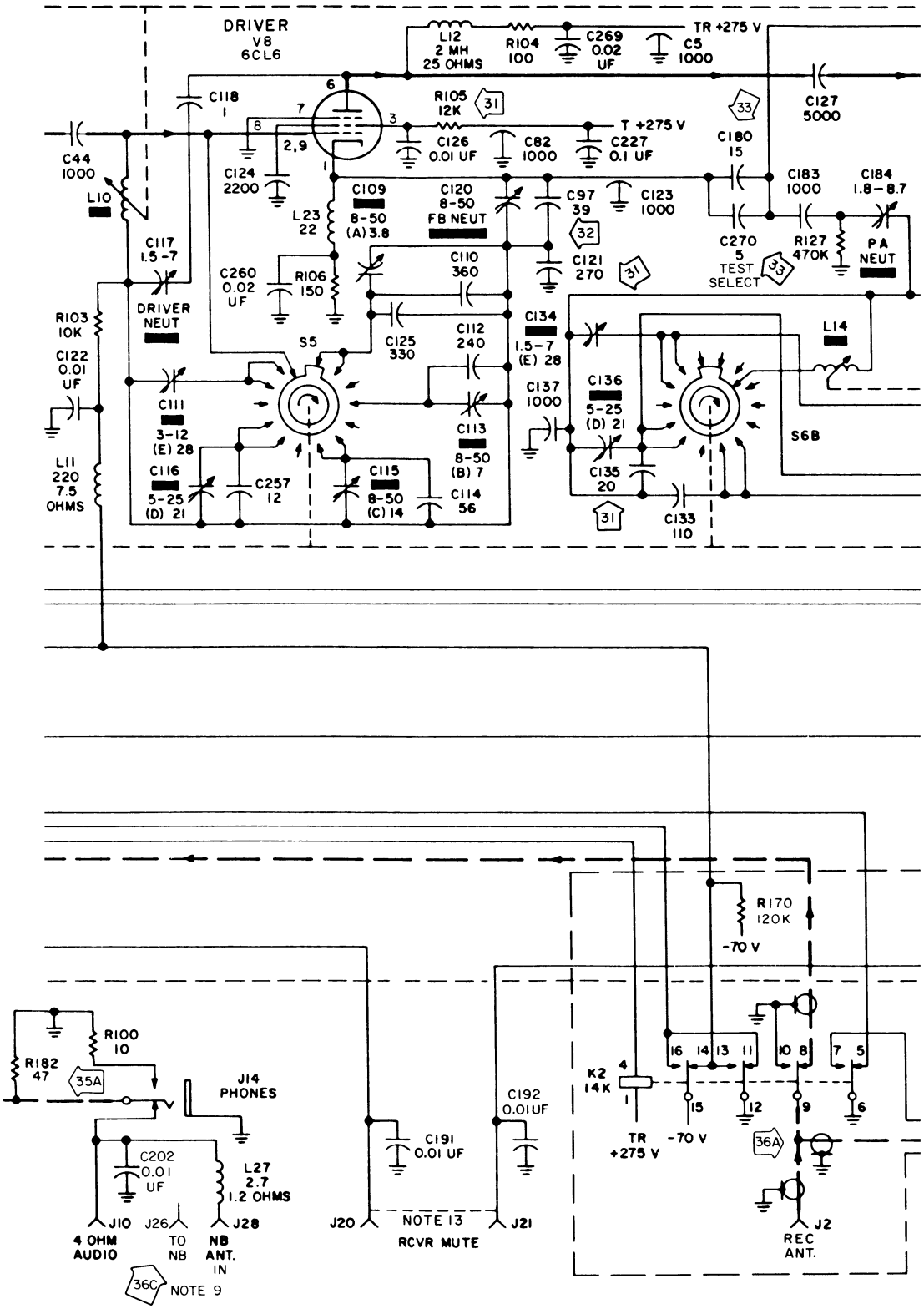
KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet 2)

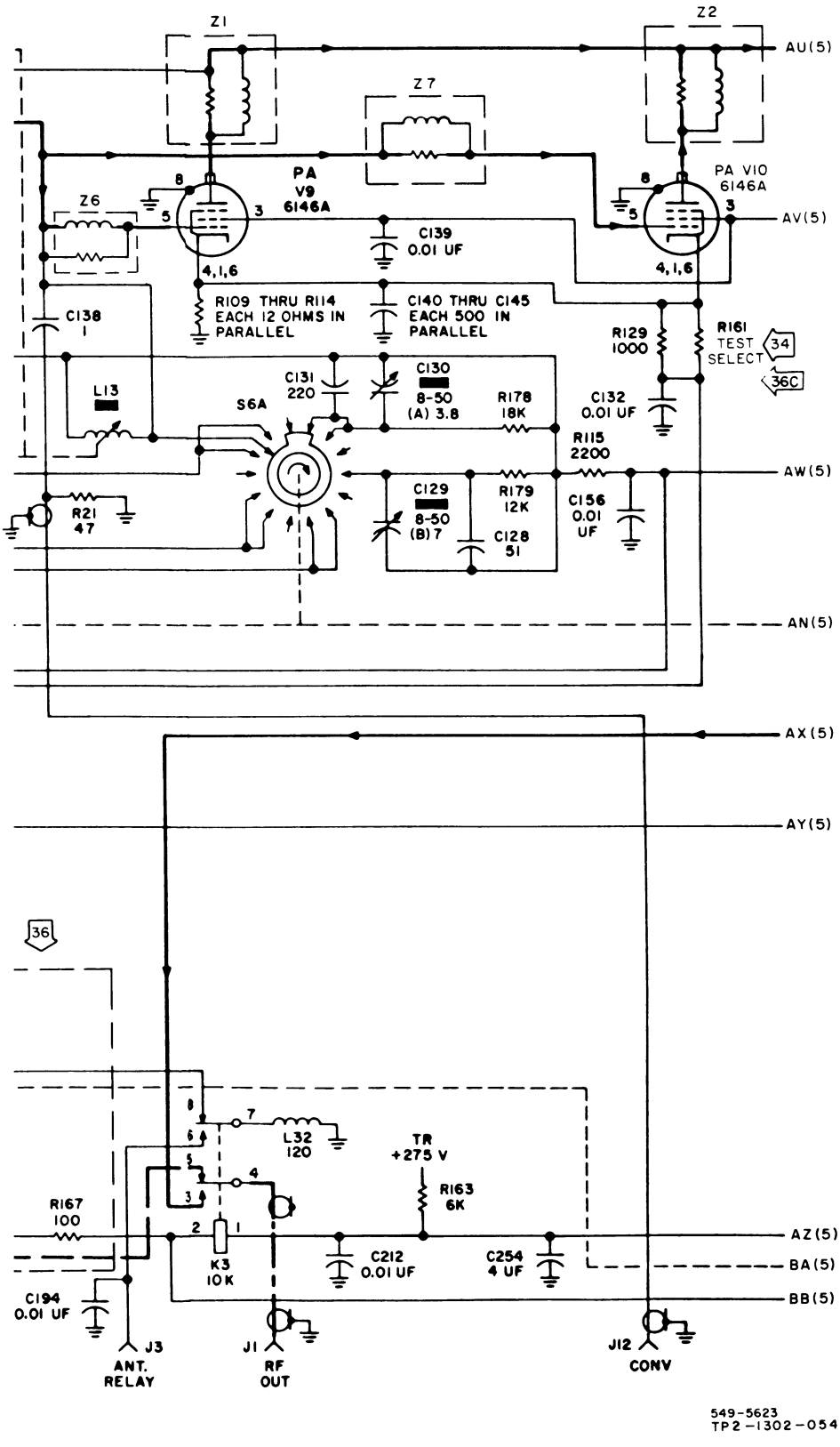

R(2)
C(2)
V(2)
AA(2)
AB(2)
AG(2)
K(1)
M(1)
N(1)
D(1)
AH(2)
AJ(2)
27A
27C
27D
27B
Y21
Y22
Y23
Y24
Y25
Y26
Y27
Y20
Y19
Y18
Y31
Y30
Y29
Y28
1B
2B
1C
2C
3C
1D
2D
3A
2A
1A
3E
2E
1E
3D
S14
S15
CRYSTAL BOARD SELECTOR
NOTE 15
NOTE 8
S2
Y4 10.155
Y5 10.355
Y6 8.5775
Y7 8.6775
Y8 8.9775
Y9 12.0775
Y10 12.1775
6.955 Y3
6.755 Y2
6.555 Y1
Y14
Y13
15.8275 Y12
12.2775 Y11
C25 6
C26 6
C175 180
C176 510
R124 6800
L4
R27 100K
R136 470K
-70 V
C29 0.01 UF
XTAL OSC
C266 12 NOTE 14
V13A 1/2 6FA8
L7 2.2MH
R63 1 MEGO
C280 0.1 UF
C74 43
L43 1MH
R153 6800
L44 2.2MH
CR11 IN458
R213 2.2 MEGO
R +275 V
R81 5600
R82 4700
C92 0.01 UF
C91 1000
C265 0.01 UF
R180 680K
C93 0.47 UF
R83 1.5 MEGO
C276 0.05 UF
T5
C178 510
C179 510
5 OHMS
5 OHMS
R.F. GAIN
CW
-70 V
R133 18K
R84 10K
R126 680
R85 12K
AVC RECT V15A 1/2 6BN8
R13 1 MEGO
R93 1 MEGO
PROD DET V15B 1/2 6BN8
R166 680
C231 0.1 UF
C94 10
C275 0.01 UF
C102 100 UF
R95 5600
R210 620K
R+275V
R88 820



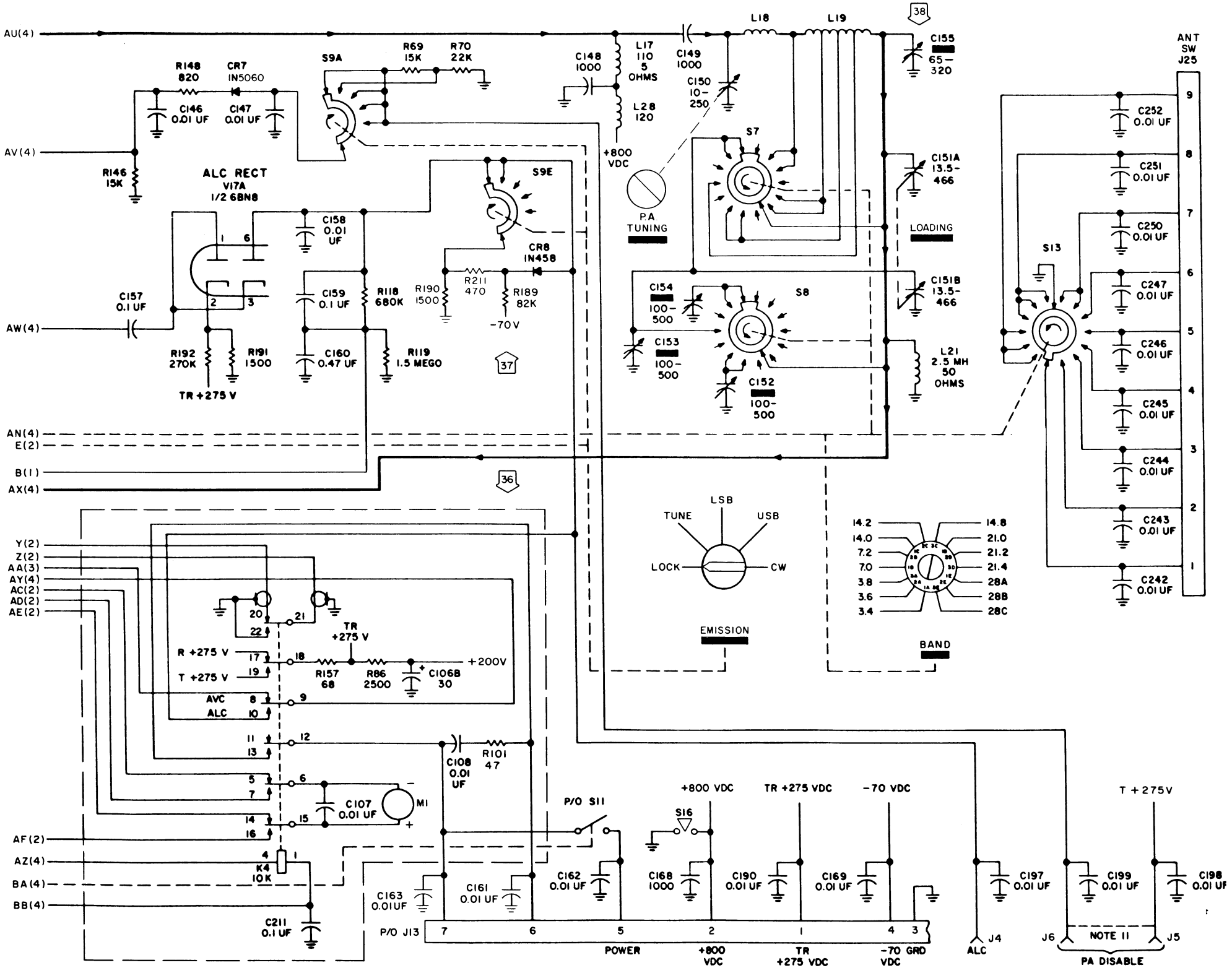
KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet 3)


AK(3)
AL(3)
AM(3)
RCVR XMTR RF AMPL
V7
6DC6
Z4
C40
1000
R9
56
R34
100K
C37
8-50
(A) 3.8
C38
360
S4
C39
1.5-7
(E) 28
C32
8-50
(B) 7
C33
130
C36
5-25
(D) 21
C34
8-50
(C) 14
C35
22
C41
1000
R37
68K
R33
33K
C43
0.01 UF
C222
0.01 UF
L6
220
7.5
OHMS
XTAL CAL
V12A
1/2 6U8A
C79
3
CR6
IN34A
CAL ADJ
R11
1 MEGO
C119
10
29
R66
220K
R67
100K
R144
3300
R32
100
30
36D
C272
10
CR5
IN950
R183
1 MEGO
T +275 V
C76
5-25
R65
1
MEGO
Y15
100
KHZ
R64
1000
C236
0.01 UF
R68
15K
C75
0.01 UF
C77
510
R
+275 V
28
AN(3)
AP(3)
S(2)
T(2)
U(2)
V(3)
W(2)
X(2)
L25
220
7.5OHMS
TR+275 V
H(1)
AG(3)
J(1)
L(1)
R209
100
35
P(1)
AR(3)
AS(3)
S11
ON
OFF
NB
CAL
C235
0.01
UF
AF OUTPUT AMPL
V16B
1/2 6EB8
T6
500 OHMS
BLU
GRN
YEL
4 OHMS
RED
BLK
C104
0.01
UF
R99
12K
C106C
15 UF
+200 V
R97
68
C277
0.01 UF
36B
C196
0.01
UF
J9
500 OHM
AUDIO
AT(3)


DRIVER
V8
6CL6
L12
2 MH
25 OHMS
R104
100
C269
0.02
UF
TR +275 V
C5
1000
C118
1
R105
12K
31
T +275 V
C126
0.01 UF
C82
1000
C227
0.1 UF
33
C127
5000
C180
15
C44
1000
L10
C124
2200
C109
8-50
(A) 3.8
L23
22
C120
8-50
FB NEUT
C97
39
32
C123
1000
C183
1000
C184
1.8-8.7
C270
5
TEST
SELECT
33
R127
470K
PA
NEUT
C117
1.5-7
DRIVER
NEUT
C260
0.02
UF
R106
150
C110
360
C121
270
31
R103
10K
C122
0.01
UF
S5
C125
330
C112
240
C134
1.5-7
(E) 28
L14
C111
3-12
(E) 28
C137
1000
C136
5-25
(D) 21
S6B
C113
8-50
(B) 7
L11
220
7.5
OHMS
C116
5-25
(D) 21
C257
12
C115
8-50
(C) 14
C114
56
C135
20
C133
110
31
R170
120K
-70 V
R100
10
R182
47
35A
J14
PHONES
C202
0.01
UF
L27
2.7
1.2 OHMS
J10
4 OHM
AUDIO
J26
TO
NB
J28
NB
ANT.
IN
36C
NOTE 9
C191
0.01 UF
C192
0.01UF
J20
NOTE 13
RCVR MUTE
J21
K2
14K
16 14 13 11 10 8 7 5
15 12 9 6
TR
+275 V
-70 V
36A
J2
REC
ANT.

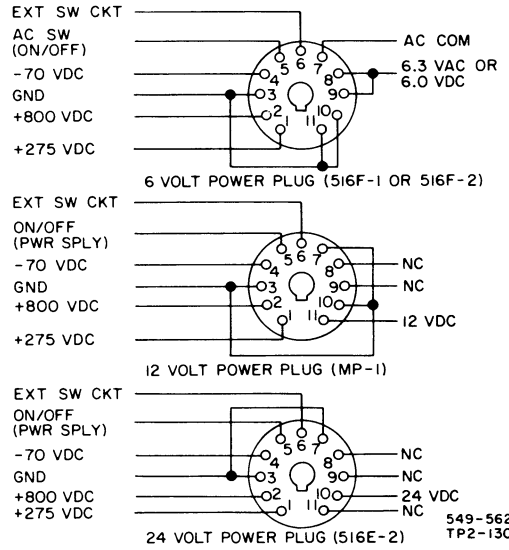


KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet 4)


AU(4)
AV(4)
AW(4)
AN(4)
E(2)
B(1)
AX(4)
Y(2)
Z(2)
AA(3)
AY(4)
AC(2)
AD(2)
AE(2)
AF(2)
AZ(4)
BA(4)
BB(4)
L18
L19
38
C155 65-320
ANT SW J25
C148 1000
L17 110 5 OHMS
C149 1000
C150 10-250
L28 120
+800 VDC
S9A
R69 15K
R70 22K
R148 820
CR7 IN5060
C146 0.01 UF
C147 0.01 UF
R146 15K
S7
P.A TUNING
C151A 13.5-466
LOADING
ALC RECT V17A 1/2 6BN8
S9E
C158 0.01 UF
CR8 IN458
R211 470
R190 1500
R189 82K
-70V
C157 0.1 UF
C159 0.1 UF
R118 680K
C154 100-500
S8
C151B 13.5-466
C153 100-500
C152 100-500
L21 2.5 MH 50 OHMS
S13
C252 0.01 UF
C251 0.01 UF
C250 0.01 UF
C247 0.01 UF
C246 0.01 UF
C245 0.01 UF
C244 0.01 UF
C243 0.01 UF
C242 0.01 UF
R192 270K
R191 1500
C160 0.47 UF
R119 1.5 MEGO
37
TR +275 V
36
LSB
TUNE
USB
LOCK
CW
EMISSION
BAND
14.2
14.0
7.2
7.0
3.8
3.6
3.4
14.8
21.0
21.2
21.4
28A
28B
28C
TR +275 V
R +275 V
T +275 V
AVC
ALC
R157 68
R86 2500
C1068 30
+200V
C108 0.01 UF
R101 47
C107 0.01 UF
MI
P/O S11
S16
+800 VDC
TR +275 VDC
-70 VDC
T +275V
K4 10K
C211 0.1 UF
C163 0.01UF
C161 0.01 UF
C162 0.01 UF
C168 1000
C190 0.01 UF
C169 0.01 UF
C197 0.01 UF
C199 0.01 UF
C198 0.01 UF
P/O J13
POWER
+800 VDC
TR +275 VDC
-70 GRD VDC
J4 ALC
J6
NOTE 11
J5
PA DISABLE

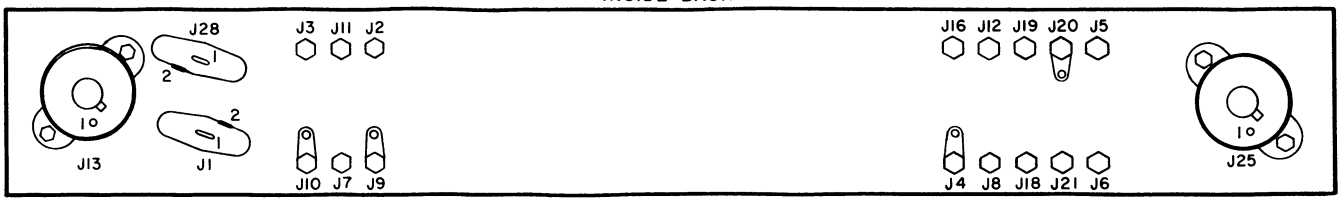
NOTES:

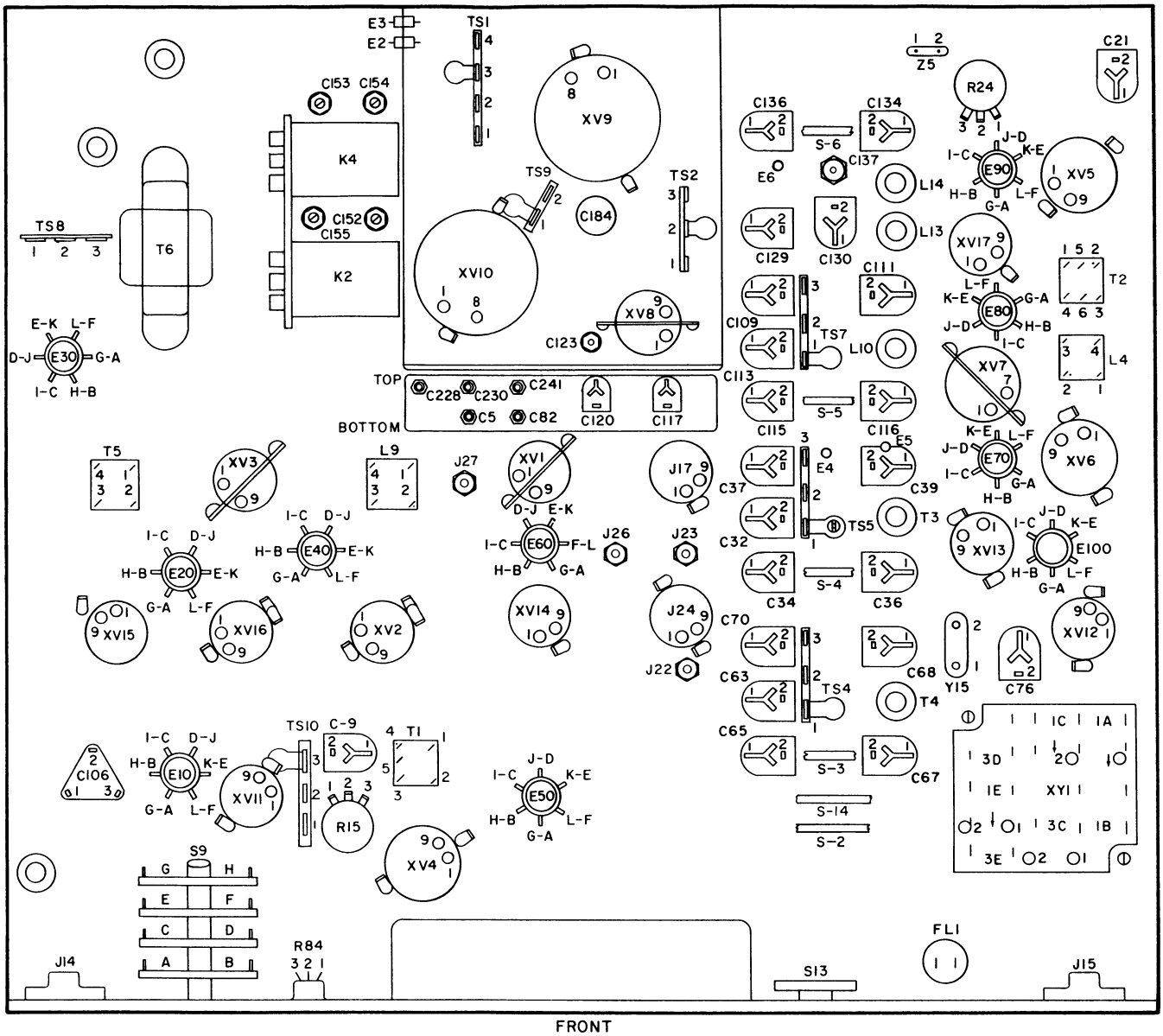
1. READ WIRE DESTINATIONS AS FOLLOWS:
   LINE ___ R (4) SCHEMATIC SHEET NO.
2. UNLESS OTHERWISE INDICATED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN PICOFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
3. T AND R DESIGNATIONS ON SUPPLY VOLTAGE LINES INDICATE THAT VOLTAGE IS PRESENT DURING TRANSMIT AND/OR RECEIVE.
4. INDUCTOR AND TRANSFORMER DC RESISTANCE VALUES LESS THAN 1OHM ARE NOT SHOWN.
5. SIGNAL PATH LEGEND:
   TRANSMIT ———————
   RECEIVE — — — —
   TRANSMIT AND RECEIVE —·—·—
6. WHEN EXTERNAL VFO IS NOT USED, JUMPER J17 PINS 2 AND 3, 6 AND 7.
7. MIKE JACK J15 MATES WITH PLUG PL-68 OR EQUIVALENT.
8. BAND SWITCHES ARE SHOWN AT 3.4 MHZ.
9. A. FOUR OHM AUDIO IS COUPLED TO NB ANT J28 FOR USE WITH 351D-1 MOBILE MOUNT.
   B. REFER TO 136B-2 INSTRUCTION BOOK FOR CONNECTIONS REQUIRED AT J24-3 AND AT J26 WHEN NOISE BLANKER IS USED.
10. S10 CLOSED AT MAXIMUM CCW POSITION OF R8.
11. J5 AND J6 JUMPERED UNLESS VHF CONVERTERS ARE USED.
12. J22 AND J23 JUMPERED UNLESS NOISE BLANKER IS USED.
13. J20 AND J21 JUMPERED UNLESS EXTERNAL SWITCH IS USED TO MUTE RECEIVER.
14. C266 IS INSTALLED IN KWM-2 ONLY.
15. S14, S15 AND HOLDERS FOR CRYSTALS Y18 THRU Y31 ARE INSTALLED IN KWM-2A ONLY.
16. EXTERNAL POWER CONNECTIONS MADE TO THE KWM-2/2A ARE AS FOLLOWS:



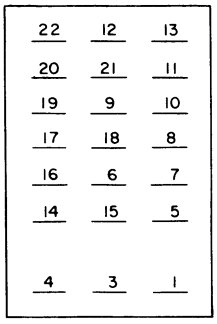
KWM-2 and KWM-2A Transceivers, Schematic Diagram
Figure 7-1 (Sheet 5)

INSIDE BACK



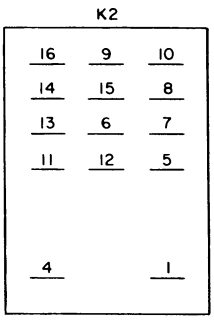


C487-35-4

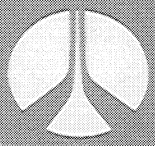


1 WHT-BLK-RED-GRN AND R167
2
3 WHT-RED-ORN AND R157
4 WHT-BRN-RED-GRN
5 WHT-ORN-BLU
6 WHT-BLK-BLU
7 WHT-BLK-RED-ORN
8 WHT-GRN-BLU
9 WHT-BLU
10 WHT-BLK-RED (2)
11 NO CONN
12 WHITE AND C108
13 BLACK AND R101
14 WHT-ORN-GRN
15 WHT-ORN-GRN-BLU
16 WHT-RED-BLU
17 WHT-ORN
18 BUS TO TIE POINT
19 WHT-RED (2)
20 COAX, 75 OHMS
21 COAX, 50 OHMS
22 STRAP TO GRD AND BUS TO COAX SHIELD

1 WHT-RED-ORN (3)
4 WHT-RED
5 WHT-BLK (2)
6 BUS TO GRD
7 R167
8 COAX
9 COAX (2) VIOLET AND ORN DOTS
10 STRAP TO GRD AND BUS TO COAX SHIELDS
11 BUS TO PIN 16, WHT-BRN-ORN
12 WHT TO GRD
13 BUS TO PIN 14 AND TIE POINT
14 BUS FROM PIN 13
15 BUS TO TIE POINT
16 BUS FROM PIN 11



KWM-2 and KWM-2A, Location of Chassis Mounted Components, Bottom View
Figure 7-2



Rockwell
International