COLLINS

# instruction book

*Collins Radio Company*

# 75S-3B and 75S-3C Receivers

## Collins Amateur Equipment Guarantee

The Collins Amateur Equipment described herein is sold under the following guarantee:

Collins agrees to repair or replace, without charge, any equipment, parts, or accessories which are defective as to workmanship or materials and which are returned to Collins at its factory or its designated Service Agency, transportation prepaid, provided:

(a) Buyer presents properly executed Warranty Verification Certificate.

(b) Notice of the claimed defect is given Collins or an authorized Service Agency, or an authorized Distributor, in writing, within 180 days from the date of purchase and goods are returned in accordance with Collins instructions.

(c) Equipment, accessories, tubes, and batteries not manufactured by Collins or from Collins designs are subject to only such adjustments as Collins may obtain from the supplier thereof.

(d) Any failure due to use of equipment for purposes other than those contemplated in normal amateur operations or in violation of Collins applicable Instruction Book shall not be deemed a defect within the meaning of these provisions.

This Warranty is void with respect to equipment which is altered, modified or repaired by other than Collins or Collins Authorized Service Agencies.

Collins reserves the right to make any change in design or to make additions to, or improvements in, Collins products without imposing any obligations upon Collins to install them in previously manufactured Collins products.

No other warranties, expressed or implied, shall be applicable to said equipment, and the foregoing shall constitute the Buyer's sole right and remedy under the agreements contained in these paragraphs. In no event shall Collins have any liability for consequential damages, or for loss, damage or expense directly or indirectly arising from the use of the products, or any inability to use them either separately or in combination with other equipment or materials or from any other cause.

NOTICE: With each equipment or set of equipments purchased, the distributor should furnish a Warranty Verification Certificate. It is necessary that this certificate accompany the equipment when it is returned for warranty repairs. Be sure that you receive it from your distributor.

## Warranty Repairs

On the opposite page are listed the Service Agencies authorized to perform warranty repair on Collins Amateur Equipments.

If you should wish to return material or equipment direct to Collins under the guarantee, you should notify Collins, giving full particulars including the details listed below, insofar as applicable. If the item is thought to be defective, such notice must give full information as to nature of defect and identification (including part number if possible) of part considered defective. Upon receipt of such notice, Collins will promptly advise you respecting the return. Failure to secure our advice prior to the forwarding of the goods or failure to provide full particulars may cause unnecessary delay in handling of your returned merchandise.

ADDRESS:

Collins Radio Company
Amateur Product Office
Cedar Rapids, Iowa

INFORMATION NEEDED:

(A) Type number, name and serial number of equipment
(B) Date of delivery of equipment
(C) Date placed in service
(D) Number of hours of service
(E) Nature of trouble
(F) Cause of trouble if known
(G) Name of distributor from whom the equipment was purchased.

Equipment returned to the Service Agency or Collins for warranty repair must be accompanied with the Warranty Verification Certificate.

## Out-of-warranty Repair, Modifications, Addition of Accessories, Alignment, etc.

For information on service of this type write to the address shown below. If you wish to return your equipment for repairs, etc., without prior correspondence, be sure to include the following information attached to the equipment inside the packing carton:

(1) Complete instructions detailing work to be performed.
(2) Your return address.
(3) Method of shipment by which the equipment should be returned.
(4) Special instructions.

DIRECT YOUR CORRESPONDENCE TO:

Collins Radio Company
Product Support Division
Cedar Rapids, Iowa

HOW TO ORDER REPLACEMENT PARTS:

When ordering replacement parts, please furnish the following information insofar as applicable:

INFORMATION NEEDED:

(A) Quantity required
(B) Collins part number (9 or 10 digit number) and description
(C) Item or symbol number obtained from parts list or schematic
(D) Collins type number, name and serial number of principal equipment
(E) Unit subassembly number (where applicable)

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# section 1

# installation

## 1.1 Unpacking.

Lift the receiver out of the carton and packing material. Examine for visible damage. If the receiver has been damaged in shipment, save the box and packing material, and notify the transportation company. Complete and mail the equipment registration card. Check tubes and crystals for proper seating in sockets. Check tuning controls and switches for freedom of action. Check the equipment included with the receiver against table 1-1.

## 1.2 Cabling.

1.2.1 EXTERNAL CONNECTIONS. Figure 1-1 shows the location of jacks for external connections to the 75S-3B and 75S-3C Receivers. The power cable plugs into socket J13. The ANT jack is a nominal 50-ohm antenna input. The 4 Ω AUDIO jack is for connection of a speaker.

**CAUTION**

The 75S-3B/C Receiver power transformer can be operated on either 115 or 230 volts ac. Before connecting the receiver to the ac line, see that the transformer connections are correct for the line voltage available. Refer to the receiver schematic, figure 7-1. DO NOT connect the ac power cord to the ac line until power plug P6 has been plugged into J13. To avoid damage to the receiver, make sure the key on P6 is properly aligned with the keyway on J13.

To connect the receiver for mute operation, a means of supplying a ground while receiving must be applied to the MUTE jack. Opening this circuit mutes the receiver. A set of normally closed contacts on a relay which is keyed with the transmitter may be

TABLE 1-1. EQUIPMENT FURNISHED WITH 75S-3B/C

| QUANTITY | DESCRIPTION | FUNCTION | PART NUMBER |
|---|---|---|---|
| 2 | Phono connectors | External connections | 361-0062-00 |
| 1 | Fuse, 1-ampere slow blow | Spare | 264-4280-00 |
| 1 | Power cord | Ac power | 544-3121-00 |
| 1 | Power plug adapter | Ac power | 368-0138-00 |
| 1 | Instruction book | 75S-3B/C instructions | 523-0756533 |
| 1 | Logbook | Station logging | 523-0755820 |
| 1 | Cable marker card | Cable identification | 280-2946-00 |
| 1 | No. 4 Bristol wrench | Accessory tool | 024-2900-00 |
| 1 | No. 6 Bristol wrench | Accessory tool | 024-9730-00 |
| 1 | No. 8 Bristol wrench | Accessory tool | 024-0019-00 |
| 1 | No. 10 Bristol wrench | Accessory tool | 024-9710-00 |

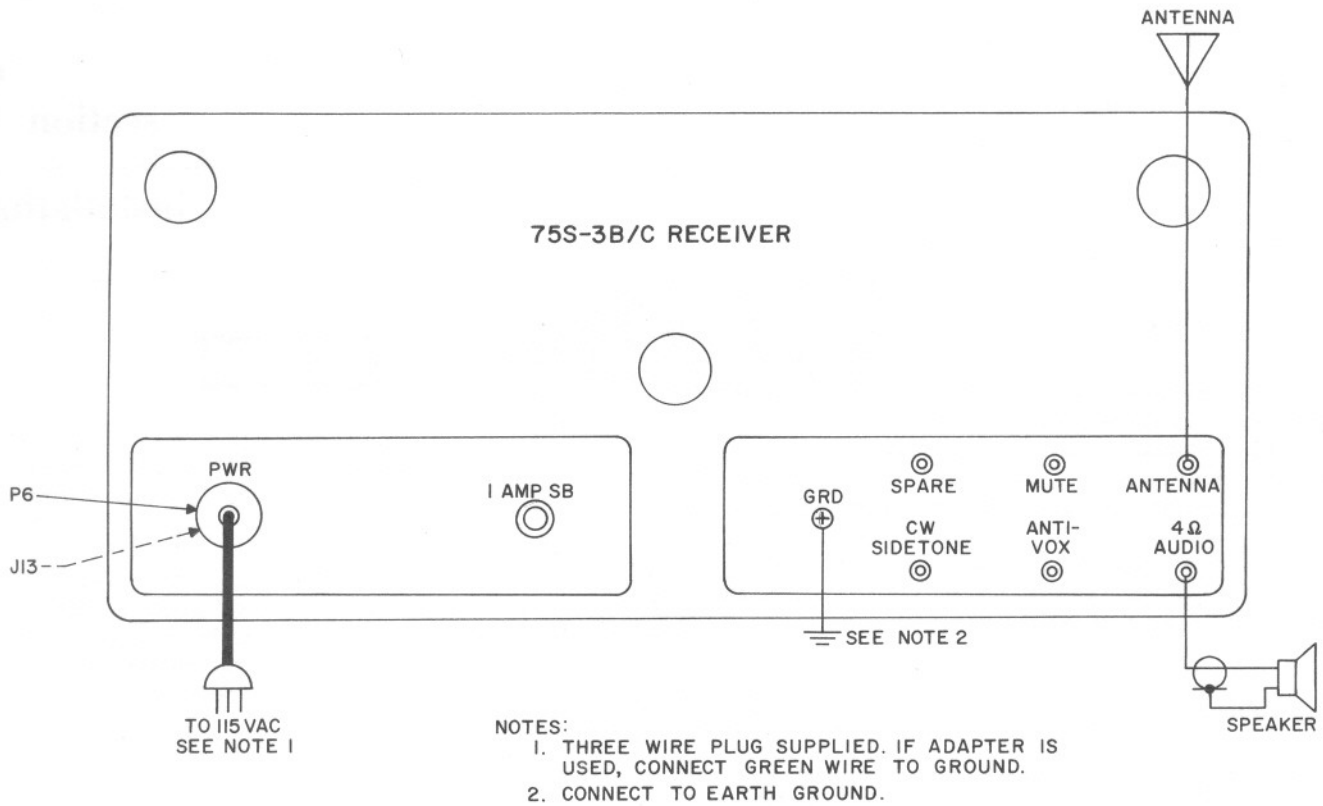


Figure 1-1. External Connections

used for this purpose. To use this circuit, the receiver must be operated in the STBY position.

The CW SIDETONE jack is a high-impedance, low-level audio input (0.2 volt rms, typical) to the receiver. Audio from a sidetone oscillator may be applied to this jack to provide a CW monitoring circuit through the receiver audio system.

The ANTI-VOX jack is a 500-ohm audio output from the receiver. At normal speaker volume levels, 5 to 10 volts rms is provided at this output. This voltage is normally applied to antivox circuits in an associated transmitter.

The PHONES jack on the front panel is connected through a resistive network to a 500-ohm tap on the output transformer. Therefore, best results will be obtained if headphones used are 500 ohms or higher impedance. The speaker is silenced when headphones are plugged in.

1.2.2 CABLING WITH 32S-3 TRANSMITTER. Figure 1-2 shows a complete station interconnection for a 75S-3B/C Receiver, 32S-3 Transmitter, and 312B-4 Station Control. The RG-58C/U cables indicated are slightly larger in diameter and two inches shorter than the audio and control cables. If the 312B-4 is not used, connect a 4-ohm speaker, such as the 312B-3, to 4 Ω AUDIO jack on receiver. Connect ANTI-VOX jack on receiver directly to ANTI-VOX jack on transmitter. Omit PHONE PATCH and PTT connections.

To connect the 75S-3B/C and the 32S-3 for transceiver operation, use the patch cables furnished with the transmitter, and connect as follows:

a. Connect the 32S-3 and 75S-3B/C as shown in figure 1-2.
b. On the top plate of the 32S-3 slug rack, remove P1 from XMTR XTAL OSC jack J7, and plug it into 32S-3 RCVR XTAL OSC jack J6. Remove the 100-ohm dummy load plug from the 75S-3B/C XTAL OSC OUTPUT jack, and plug it into the XMTR XTAL OSC jack J7 in the 32S-3.

1.2.3 CABLING WITH KWM-2/2A TRANSCEIVER. The 75S-3B/C may be used with a KWM-2/2A to provide separate transmit and receive frequencies. Connect the patch cables as follows:

a. Using an RG-58C/U patch cable, connect REC ANT jack on KWM-2/2A to ANT jack on 75S-3B/C.

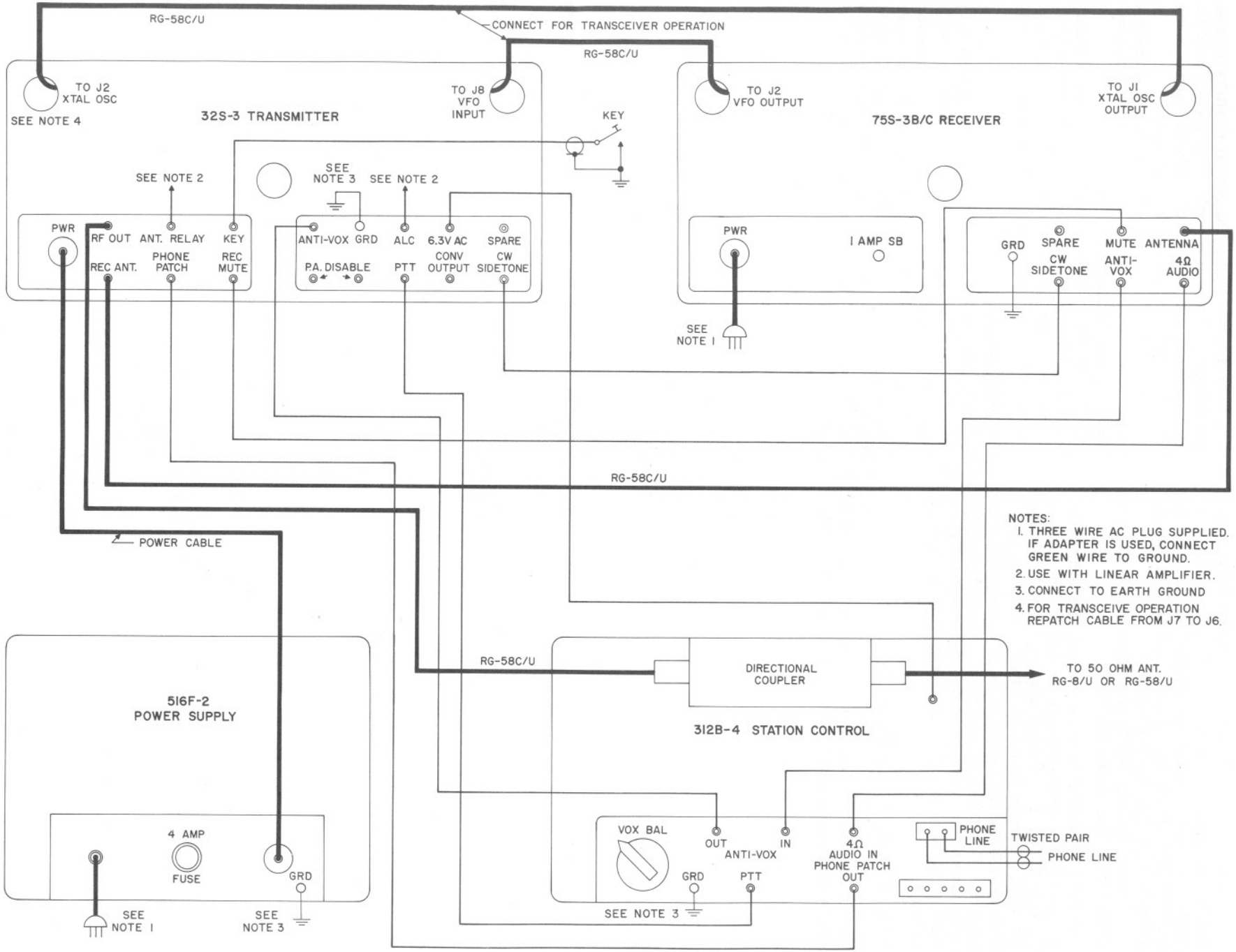


Figure 1-2. Station Interconnections

b. Connect the 500 Ω jack on the KWM-2/2A to the ANTI-VOX jack on the 75S-3B/C. If a 312B-4 or 312B-5 is used, connect the KWM-2/2A 500 Ω jack to ANTI-VOX IN and the 75S-3B/C ANTI-VOX jack to ANTI-VOX OUT on the 312B-4/5.

c. Connect the REC MUTE jack J20 on the KWM-2/2A to the MUTE jack on the 75S-3B/C.

The station speaker may be plugged into either the 4 Ω jack on the KWM-2/2A or the 4 Ω AUDIO jack on the 75S-3B/C. For normal mute operation, set the 75S-3B/C function switch to STBY. Receiver output from the KWM-2/2A is turned off by setting AF GAIN to zero. For transmit and receive operation on the same frequency, reduce the 75S-3B/C AF GAIN to zero, and operate the KWM-2/2A in a normal manner.

1.2.4 CABLING WITH OTHER TRANSMITTERS.

a. To provide receiver muting when using 75S-3B/C with a KWS-1, connect a cable from pins 5, 6 on J102 (receiver disable) in the transmitter to MUTE jack on the receiver. Connect a cable from receiver ANTI-VOX jack to pin 7 on J102 (500-ohm audio) in the KWS-1. Connect cable shield to ground.

b. To use the 75S-3B/C with the 32V-3, connect a cable from the receiver MUTE jack to receiver disabling pins 24 and 25 on the transmitter.

c. To use the 75S-3B/C with other makes of transmitters, connect muting, CW sidetone, and antivox provisions in the receiver as applicable. The requirements for use are outlined in paragraph 1.2.1.

**1.3 Initial Checks.**

Lift the top cover, and make sure the dummy load (see figure 4-1) is plugged into the XTAL OSC OUTPUT jack unless the receiver is connected for transceiver operation. Recheck the interconnections to make sure the patch cables are plugged into the appropriate jacks. Be sure that RG-58C/U cables, rather than the audio and control cables, have been used for all rf applications.

# section 2

# operation

## 2.1 Calibration.

a. After making external connections, set controls as shown in figure 2-1, except set function switch (1) to CAL.

b. Set BAND switch (11) to desired frequency range. If receiver is 75S-3C, set crystal board selector (located directly above BAND switch) so desired set of bands appears in window.

c. Set dial to 0, 100, or 200 with tuning knob (3) and BFO knob (13) fully counterclockwise until a click is heard.

d. Adjust PRESELECTOR (2) for maximum signal or noise output.

e. Tune back and forth near 0, 100, or 200 until calibrate signal is at zero beat.

f. Adjust zero set knob (4) until dial is calibrated.

NOTE

Response from the 100-kc calibrator will be heard at approximately 55 and 155 on the dial due to the signal entering the bandpass intermediate frequency. These are to be ignored.

## 2.2 Single-Sideband Tuning.

For SSB operation, set controls as follows (refer to figure 2-1 for location of controls):

a. OFF-STBY-OPR-CAL (function) switch (1) to OPR.

b. AGC control (5) to SLOW.

c. BFO knob (13) fully counterclockwise until a click is heard.

d. MODE switch (12) to desired sideband.

e. BAND switch (11) to desired frequency band.

f. RF GAIN control (8) fully clockwise and AF GAIN (9) to the 12 o'clock position.

g. PRESELECTOR (2) for maximum signal or noise output.

h. Tune in signal and adjust AF GAIN (9) for desired audio output level.

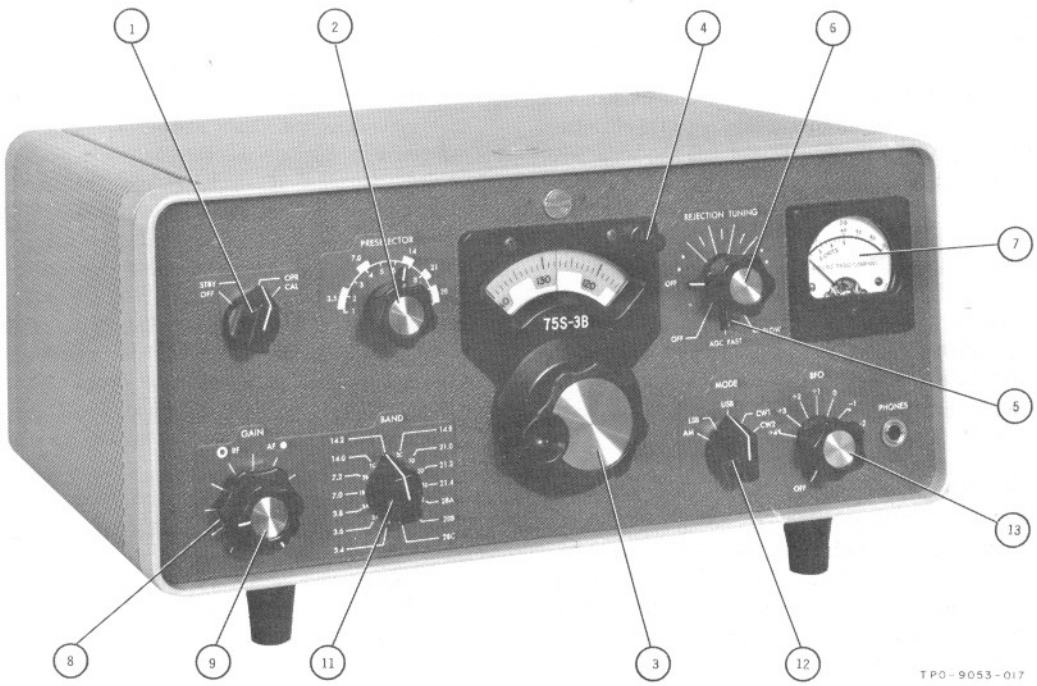


Figure 2-1. Operating Controls

When listening to strong signals, a reduction in background noise under no signal conditions may be obtained by rotating RF GAIN control (8) counterclockwise, away from the maximum position. As this is done, S-meter (7) static reading will shift up scale. At proper gain control setting, meter will kick about one or two S-units on peaks. For example, if the weakest of the desired signals is peaking at S-9, set gain control so that static meter reading is S-7 to S-8. This retains accurate meter readings. To read frequency, add the dial setting to the BAND switch setting. For example, if the BAND switch is set to 3.8 and the dial is set to 5, the frequency is 3.805 mc. If the BAND switch is set to 3.8 and the dial to 170, the frequency is 3.970 mc. Approximately ten turns of the main tuning knob are required to cover each 200-kc range.

### 2.3 CW Tuning.

a. Set the controls as shown in paragraph 2.2, except set the MODE switch to USB and the AGC control to SLOW (for normal CW work) or OFF (for break-in operation).

b. Center the desired signal in the receiver passband, and then switch to the CW1 or CW2 mode (depending on the optional filter desired) to reduce interference.

c. Rotate the BFO knob clockwise to energize the tunable bfo, and set the bfo to give the most pleasing beat note. The beat note will be the same in both the USB and CW modes.

d. If the AGC is turned off, decrease the RF GAIN control setting to prevent receiver overloading, and adjust the AF GAIN control to provide the desired audio level. In general, it is best to set the RF GAIN control at a point just below that which causes signals to overload the receiver. This provides optimum sensitivity.

e. Signal hunting is best done in the USB mode, and the sharp CW modes are used for reducing interference once the desired signal is found. The USB mode is also useful for net operation.

### 2.4 AM Tuning.

a. Set controls as outlined in paragraph 2.2.

b. Set MODE switch to AM.

c. Set AGC switch to FAST.

d. Tune in signal, and adjust AF GAIN for desired audio output level.

If desired, SSB methods may be used for AM reception. Set MODE switch to either USB or LSB position; use tuning procedure for a single-sideband signal. Once the desired signal is tuned in, switching to the opposite sideband may yield a more readable signal. This method of reception is useful under conditions of severe interference or extreme fading.

### 2.5 RTTY Tuning.

This type of operation requires an external RTTY converter and printer. Tune receiver as follows:

a. Set controls for SSB reception as outlined in paragraph 2.2 with MODE switch in USB position.

b. Turn on tunable bfo by rotating BFO knob (13) clockwise.

c. Set the pointer on the BFO tuning knob at the dot near -1 on the calibrated scale.

d. Tune the receiver for maximum S-meter reading on the desired RTTY signal.

e. Fine adjustment of the BFO tuning knob then will produce 2125-cps and 2975-cps mark and space signals at the receiver audio output. To reverse the mark and space signals, reset the BFO tuning knob to the dot near +4 on the calibrated scale.

### 2.6 Rejection Tuning.

An interfering heterodyne or CW signal may be reduced in level or eliminated by operation of the REJECTION TUNING knob (6). The off position for this control is at the end of extreme counterclockwise rotation. The on-off switch is provided with a positive stop rather than a detent. Do not force the knob. Clockwise rotation of the knob from the off position moves the rejection notch across the receiver passband. It is recommended that the operator familiarize himself with the operation of this control by tuning the notch across the signal from the crystal calibrator.

When the receiver is initially placed in operation, it may be necessary to touch up the adjustment of R77. Refer to paragraph 4.5.8.

### 2.7 Use of S-Meter.

The S-meter is intended primarily to indicate relative rather than absolute signal strength. A nominal meter reading of S-9 is obtained with an input signal of 100 microvolts on the antenna. The threshold of agc operation is set at the factory to a nominal value of 2 microvolts. Due to normal tolerances in receiver operation, agc threshold varies slightly from band to band causing correspondingly slight changes in the number of db represented by each S-unit. The db scale is calibrated with 1 microvolt as a reference; therefore, an S-9 signal of 100 microvolts represents a 40-db increase over the reference signal level. Since agc is not applied to very weak signals, S-zero is arbitrarily established at 10 db above 1 microvolt. A figure of 4 db can be taken as an average for one S-unit.

### 2.8 Transceiver Operation with 32S-( ) Transmitter.

a. Make sure patch cables are connected as outlined in paragraph 1.2.2.

b. Set FREQ CONTROL on 32S-( ) to REC VFO position.

c. Set OFF-STBY-OPR-CAL switch on 75S-3B/C to STBY position.

d. Set both BAND selectors to the same desired band and both MODE switches to the same position (either USB, LSB, or CW).

e. Tune both receiver and transmitter as in normal operation. Both transmit and receive functions operate from the receiver vfo and the receiver hf crystal oscillator; the transmitter vfo and the transmitter hf crystal oscillator are not used in transceiver operation. Switching the transmitter FREQ CONTROL back to TRANS VFO position will allow separate operation of the two units within the same 200-kc band.

NOTE

When operating cw in the transceiver mode, the transmitted signal will be approximately 1.3 kc away from the received signal. It is recommended that independent control of the transmitter and the receiver be used when working cw.

**CAUTION**

When operating a 75S-3B/C with a 32S-( ) in transceiver service on an amateur band, DO NOT operate the transmitter while the receiver is tuned outside the band limits; the transmitted signal will be outside the amateur band. This is also true for the phone segments of the amateur bands.

There are 14 positions to the BAND switch divided into three A, two B, and three C, D, and E positions. These correspond to 14 crystals in the 75S-3B and to 28 crystals in the 75S-3C. Through the use of an extra switch, 2 crystals are available at each position of the 75S-3C BAND switch.

In transceiver operation, the vfo and the crystal oscillator in the 75S-3B/C determine both the receiver and the transmitter frequency; the 32S-( ) vfo and crystal oscillator are disabled. However, in order for the tuned circuits of the transmitter to resonate at the desired frequency, the transmitter BAND switch must be set to the same letter as the receiver BAND switch. For example, if the 75S-3B/C is set to band 2D, the 32S-3 can be set to 1D, 2D, or 3D.

If operation on different 200-kc bands is desired (that is, receive on one 200-kc band and transmit on another), remove the transceiver patch cables and operate the units as in normal independent operation.

If transmitted frequency is changed by any great amount, be sure to redip the PA plate current and check the loading. This will be most important on the 80- and 40-meter bands. Refer to table 2-1.

NOTE

Do not attempt operation in transceiver service with any other receiver not having the same frequency mixing scheme.

NOTE

When working foreign stations in the 14-mc band with a 75S-3B and a 32S-3 connected for transceive operation, a crystal (8627.500 kc, Collins part number 290-9179-00) permitting operation between 14.1 and 14.3 mc can be used in place of the 14.0- to 14.2-mc or 14.2- to 14.4-mc crystal supplied with the 75S-3B. However, the 32S-3 FREQ CONTROL switch must be set to TRANS VFO. This enables the 32S-3 to be operated between 14.2 and 14.3 mc (between 100 and 200 on the 32S-3 vfo dial).

f. To restore both units to normal operation, remove the two patch cables connecting oscillator signals, replace P1 in J7 on the transmitter slug rack (under top cover), and replace the 100-ohm load plug in the receiver XTAL OSC OUTPUT jack (see figure 4-1).

### 2.9 Operation Outside Amateur Bands.

Additional 10-meter band coverage or coverage outside the amateur bands may be obtained by plugging an appropriate crystal into the crystal mounting board. Two extra sockets are provided in the mounting board for this purpose. The total 3.4- to 30.0-megacycle coverage available is divided into five segments designated A, B, C, D, and E. The frequency range of

TABLE 2-1. APPROXIMATE LIMITS OF FREQUENCY CHANGE BEFORE 32S-( ) RETUNING IS REQUIRED

| | BANDS (mc) | | | | |
|---|---|---|---|---|---|
| | 3.4-4 | 7-7.4 | 14-14.4 | 21-21.6 | 28-30 |
| Approximate limits of frequency change before retuning is required. | 15 kc | 30 kc | 50 kc | 75 kc | 100 kc |

each of these segments is listed in the total coverage column of table 2-2. The letter portions of the crystal socket locations shown in figure 2-2 indicate which sockets may be used for crystals to cover a 200-kc band within a specific total coverage segment. For example, crystals for extended 10-meter coverage must be plugged into sockets marked E.

NOTE

The second harmonics of the VFO and the variable intermediate frequency both fall in the 5.0- to 6.5-mc range. During reception in this range, these harmonics will cause spurious responses. If the 75S-3B or the 75S-3C is to be used in transceiver operation with a 32S-1 or 32S-3, this frequency range should be avoided. Some of this harmonic energy will pass through the transmitter tuned circuits and become spurious emissions.

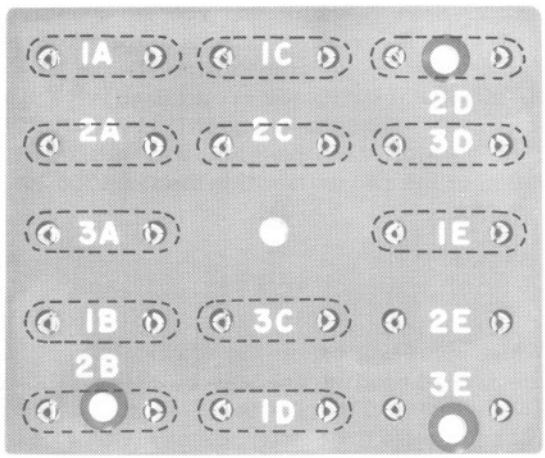


Figure 2-2. Crystal Socket Locations

The proper crystal for coverage of a specific 200-kc band may be selected as follows:

a. If the lower edge of the desired band is 11.8 mc or less, the required crystal frequency is equal to the lower edge of the desired band plus 3.155 mc. For example, if the desired band is 4.0 to 4.2 mc, the required crystal frequency is 7.155 mc.

b. If the lower edge of the desired band is 12.0 mc or higher, the required crystal frequency is equal to half the sum of the desired lower band edge and 3.155 mc. For example, if the desired band is 14.4 to 14.6 mc, the required crystal frequency is 8.7775 mc. Extra crystals available are listed in section 6, parts list.

Approximate settings for the PRESELECTOR are shown in figure 2-3. For example, if coverage from 10.0 to 10.2 mc is desired, plug the appropriate crystal into a socket marked C, turn the BAND switch to that position, and set the PRESELECTOR to approximately 3.2 on the logging scale. Peak the PRESELECTOR tuning as in normal operation. The ANT, RF, and OSC trimmer capacitors (those marked C in

TABLE 2-2. CRYSTAL FREQUENCIES AND OPERATING BANDS

| BAND SWITCH POSITION | FREQUENCY BAND | CRYSTAL SUPPLIED | CRYSTAL SOCKET CONNECTED | TOTAL COVERAGE |
|---|---|---|---|---|
| 1A - 3.4 | 3.4 - 3.6 mc | 6.555 mc | 1A | |
| 2A - 3.6 | 3.6 - 3.8 mc | 6.755 mc | 2A | A 3.4 - 5.0 mc |
| 3A - 3.8 | 3.8 - 4.0 mc | 6.955 mc | 3A | |
| 1B - 7.0 | 7.0 - 7.2 mc | 10.155 mc | 1B | B 6.5 - 9.5 mc |
| 2B - 7.2 | 7.2 - 7.4 mc | 10.355 mc | 2B | |
| 1C - 14.0 | 14.0 - 14.2 mc | 8.5775 mc | 1C | |
| 2C - 14.2 | 14.2 - 14.4 mc | 8.6775 mc | 2C | C 9.5 - 15.0 mc |
| 3C - 14.8 | 14.8 - 15.0 mc | 8.9775 mc | 3C | |
| 1D - 21.0 | 21.0 - 21.2 mc | 12.0775 mc | 1D | |
| 2D - 21.2 | 21.2 - 21.4 mc | 12.1775 mc | 2D | D 15.0 - 22.0 mc |
| 3D - 21.4 | 21.4 - 21.6 mc | 12.2775 mc | 3D | |
| 1E - 28A | 28.5 - 28.7 mc | 15.8275 mc | 1E | |
| 2E - 28B | As selected | Not supplied | 2E | E 22.0 - 30.0 mc |
| 3E - 28C | As selected | Not supplied | 3E | |

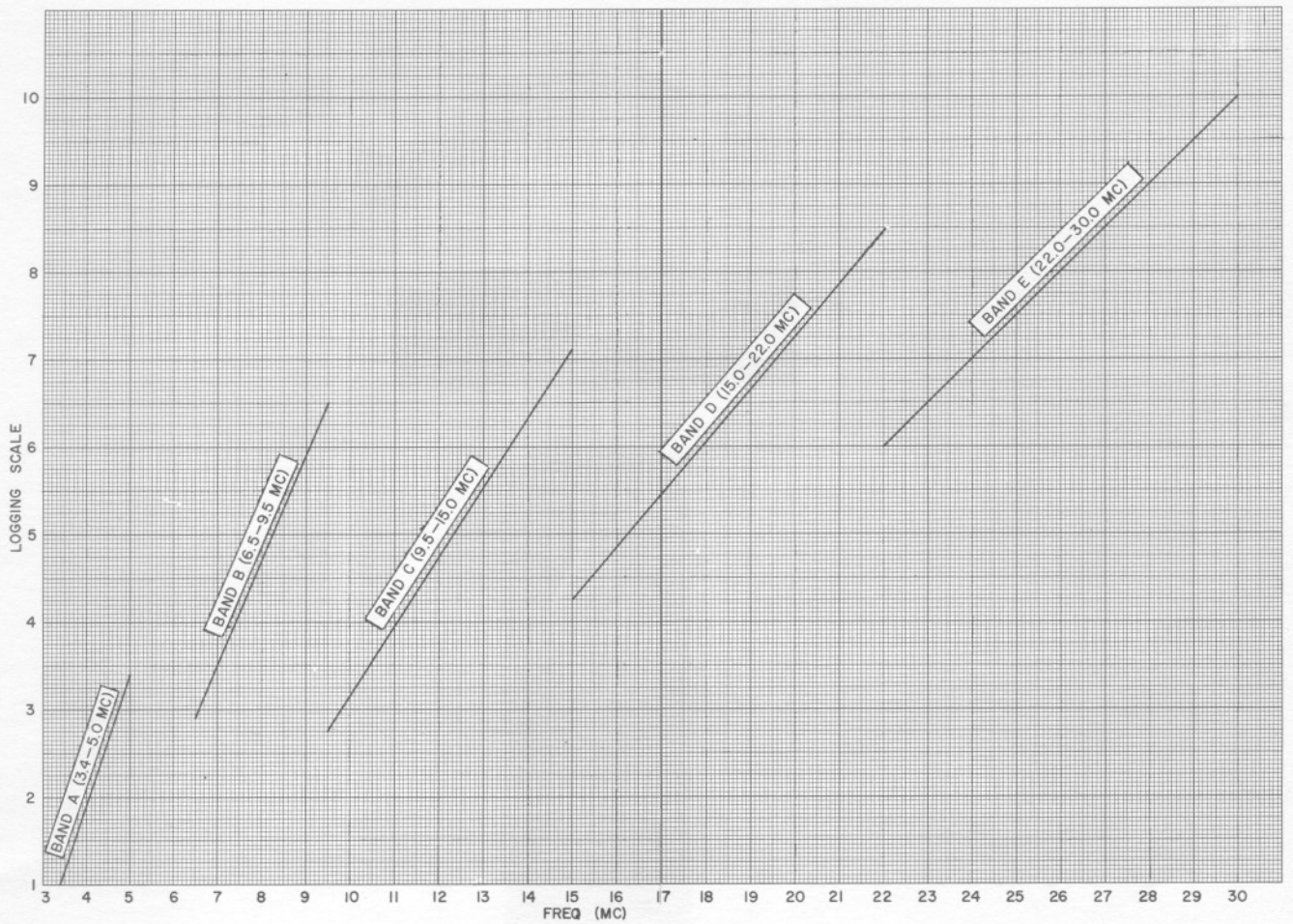


Figure 2-3. Preselector Calibration Curves

the example above) may also be peaked if optimum performance is desired at frequencies outside the amateur bands. On some bands it is possible to peak the PRESELECTOR tuning at an image frequency or at a different order of output frequency from the crystal oscillator; however, there is only one correct setting for coverage within a given 200-kc band.

The above information also applies to the 75S-3C, except that two crystal mounting boards are provided in this receiver. The amateur-band board is located under the chassis. To obtain access, refer to paragraph 4.1. When the crystal board selector (located directly above the BAND switch) is switched to the alternate coverage position, the above-chassis board is switched into the circuit. This provides 14 additional 200-kc bands within the 3.4- to 30-mc range of the receiver. The crystal socket locations are the same for both boards. Space is provided in the window adjacent to the BAND switch to record band information. A pencil may be used to allow erasure if changes are to be made.

# section 3

# principles of operation

### 3.1 Block Diagram.

Figure 3-1 is a block diagram for 75S-3B and 75S-3C Receivers. Double conversion is used with injection voltage for the first conversion provided by a crystal-controlled oscillator. A bandpass if. 200 kilocycles wide is used to couple the first and second mixers. Injection voltage for the second mixer is furnished by a vfo with a tuning range of 200 kc. The 455-kc output frequency of the second mixer is coupled through the if. system to separate AM and SSB detectors. Injection voltage for the product detector is provided by either a crystal-controlled bfo or a tunable bfo. The 75S-3C is electrically identical to the 75S-3B, except that it is equipped with an extra hf crystal mounting board on the chassis, a crystal board selector switch on the front panel, and associated components. Figure 7-1 is a schematic diagram for both receivers with circuit differences noted.

### 3.2 RF and Mixer Circuits.

The rf amplifier grid, high-frequency mixer grid, and crystal oscillator plate circuits are resonated by slug-tuned coils. The slugs are mechanically ganged and linked to the PRESELECTOR tuning knob. The required tuning ranges of these circuits are obtained by switching appropriate values of fixed capacitance in parallel with the coils. The total 3.4- to 30-mc tuning range of the receiver is divided into five segments for band switching purposes, as noted in table 2-1. The tuned-circuit LC ratio is thereby varied within appropriate limits for each of the five segments.

Signals within the particular 200-kc band selected are amplified by V2, the rf amplifier, and coupled to the control grid of V3A, the first mixer. Injection voltage is coupled to the cathode of V3A. Products of mixing are selected in the plate circuit of V3A tuned from 3.155 to 2.955 mc which is the bandpass intermediate frequency. Signals are coupled to the control grid of second mixer V4A with vfo injection voltage applied to the cathode of this tube.

### 3.3 Oscillator Circuits.

3.3.1 CRYSTAL OSCILLATORS. High-frequency crystal oscillator V3B provides injection voltage for the first mixer. The crystal oscillator output frequency is always 3.155 mc higher than the lower edge of the selected band. On bands below 12.0 mc, the oscillator plate circuit is tuned to the crystal frequency. At 12.0 mc and higher, the plate circuit is tuned to the second harmonic. The secondary winding of T2 couples injection voltage to the first mixer cathode circuit and furnisnes a dc return to ground for mixer tube V3A. Dummy load R41 simulates the load presented by a transmitter when connected for transceiver operation.

Crystal-controlled bfo V8B and associated circuitry furnishes injection voltage for the product detector. Crystals Y15 and Y16 provide the proper bfo frequency relationships to the mechanical filter passband to yield optimum audio response from the product detector. Crystal Y15 (453.650 kc) is used for lower sideband reception, and Y16 (456.35 kc) is used for upper sideband. This is due to sideband inversion in the first mixer. Capacitor C95 and coil L12 form a broadly resonant circuit at 455 kc. Oscillator voltage is developed across R49 and coupled by C100 to the cathode of V8A, the product detector tube.

The crystal calibrator circuit provides marker signals at multiples of 100 kc. Variable capacitor C61 provides for adjustment to zero beat with WWV. The output of this oscillator is coupled to the receiver antenna circuits.

3.3.2 VARIABLE OSCILLATORS. The vfo uses fixed capacitance and variable inductance to produce the required tuning range of 2.50135 to 2.70135 mc for LSB reception and 2.49865 to 2.69865 mc for USB, AM, and CW reception. Capacitor C303, in the frequency-determining network, is paralleled by variable capacitor C308 in series with diode CR301. This diode switches C308 in or out of the circuit depending on the polarity of the bias voltage impressed across its junction. With the MODE switch in the LSB position, diode CR301 is reverse biased and switches capacitor C308 out of the frequency-determining network. This condition will result in the tunable 2.50135 to 2.70135 mc signal desired. With the MODE switch in the USB, AM, or CW position, diode CR301 is forward biased and switches C308 into the frequency-determining network lowering the output frequency to the tunable 2.49865- to 2.69865-mc signal desired. Note that when C308 is properly adjusted, it shifts the vfo frequency by an amount equal to the frequency separation of crystals Y15 and Y16. This allows either sideband to be selected without retuning or recalibrating the dial. The vfo output voltage is coupled to the cathode of second mixer tube V4A and to the control grid of cathode follower

V4B. The cathode follower prevents loading of the vfo circuits by cable capacity when operated in transceiver service.

Tube V11 and associated circuitry comprise a 452.35- to 458.35-kc tunable bfo. The bfo tuning control is potentiometer R81. This control varies a positive dc voltage applied to the junction of voltage-variable capacitor CR4. The junction capacity of this device is proportional to applied voltage. Adjustment of R81 therefore varies the output frequency of the bfo. Voltage for the tuning circuit is stabilized by a regulator consisting of zener diode CR5 and resistor R82. Switch S13 completes the cathode circuit of either V8B or V11 thus turning on the desired bfo and turning off the other. The output circuits of both oscillators are coupled to the product detector.

### 3.4 IF. and Detector Circuits.

Output from the second mixer is connected to T4 and then to one of three mechanical filters FL1, FL2, or FL3 (FL2 and FL3 are not supplied) or to the tuned circuit of transformer T5. Mechanical filter FL1 (centered on 455 kc with a nominal bandpass of 2.1 kc) is selected for SSB reception, while FL2 and FL3 are optional filters to be used for CW operation. For AM operation, 455-kc transformer T5 is used to provide an increased bandwidth of approximately 5 kc. Output from these circuits is amplified by the if. preamplifier, V5A. Transformer T9 matches the preamplifier to the Q-multiplier, V5B. Control R57, the IF GAIN ADJUST, sets the receiver gain for the proper agc threshold sensitivity. The S-meter circuit is connected from the screen circuits of V6 and V7, the two if. amplifiers, to the cathode of V7. Under no-signal conditions, the voltage developed across R13 is equal to that developed across R21, and the meter reads zero. Application of agc causes the cathode current of V7 and the combined screen current of V6 and V7 to decrease. The voltage across R13 increases, the voltage across R21 decreases, and the meter reads up-scale by an amount which is proportional to signal strength. Output voltage from the second if. amplifier is coupled to the product detector, V8A. It is also coupled to separate AM and agc diode detectors. Bfo injection voltage is applied to the cathode of the product detector.

### 3.5 Q-Multiplier and Notch Filter.

The notch filter is composed of coil L8 and associated capacitors and resistors. The rejection notch occurs at the resonant frequency of this circuit and is centered at 455 kc. Capacitor C132 is mechanically coupled to the REJECTION TUNING control which allows the notch frequency to be moved across the receiver if. passband. Potentiometer R77 is adjusted to provide optimum Q and depth of notch. Switch S10 shorts the filter circuit in the OFF position. The Q-multiplier is a feedback circuit which includes L8. This circuit multiplies the Q of L8 approximately ten times, thereby obtaining a much deeper and narrower rejection notch than would be provided by the filter alone.

### 3.6 AGC and Control Circuits.

Signal voltage is coupled from the secondary of transformer T6 to one of the diode plates in V9 and rectified. This rectified signal voltage then passes through filter network R50 and C49 to the agc network consisting of resistors R24 and R88, and capacitors C50, C137, and C153. The agc network develops the desired agc signal and then applies it to the rf and if. amplifier stages. The parallel combination of R88 and C153 present the fast charge-discharge rate desired for elimination of small time duration interference; the parallel combination of R24 and C50 present a longer RC time constant allowing for a smoothly developed agc signal. Generation of agc voltage is delayed until the signal voltage at the diode plate exceeds the cathode bias on V9. Potentiometer R57 in the secondary of T9 is normally adjusted so that agc action is initiated with a receiver input signal of approximately 2 microvolts. This point is referred to as agc threshold.

Manual control of rf gain is also accomplished through the agc line. A voltage divider circuit consisting of resistors R33, R55, and RF GAIN control R56 is connected across the negative 65-volt bias line. At the maximum gain setting, this circuit places a one-volt static bias on the agc line to furnish proper operating bias for rf amplifier V2. At lower control settings, increased bias is provided which reduces the gain. The dc grid return for the first mixer stage and MUTE jack J11 are connected to the junction of resistors R33 and R58. When the receiver function switch is placed in the STBY position, a ground at J11 causes the receiver to operate in a normal manner. Removal of this ground causes cutoff bias to be applied to the mixer grid and increases bias on the agc line, thus muting the receiver.

### 3.7 Audio Circuits.

Audio voltage from the appropriate detector is selected by S8A on the MODE switch and is coupled to the AF GAIN control. The CW SIDETONE jack, J10, is also connected to this point. A sidetone audio voltage of approximately 0.2 volt will produce a comfortable listening level at average gain settings. Audio is amplified in a 2-stage amplifier consisting of tubes V8 and V10. Capacitor C106 limits the audio response to 3 kc for AM and SSB reception, and capacitor C164 reduces it to 1.5 kc for CW reception. Three audio outputs are provided. Jack J8 is a 4-ohm outlet for a speaker. The headphone jack is connected to a resistive divider across the 500-ohm tap on the output transformer. The divider provides a load for V10 when the impedance of headphones used is relatively high. The ANTI-VOX jack, J12, is also connected to the 500-ohm tap. At normal audio gain settings, 5 to 15 volts of audio are available at J12 for use with the antivox circuits in an associated transmitter.

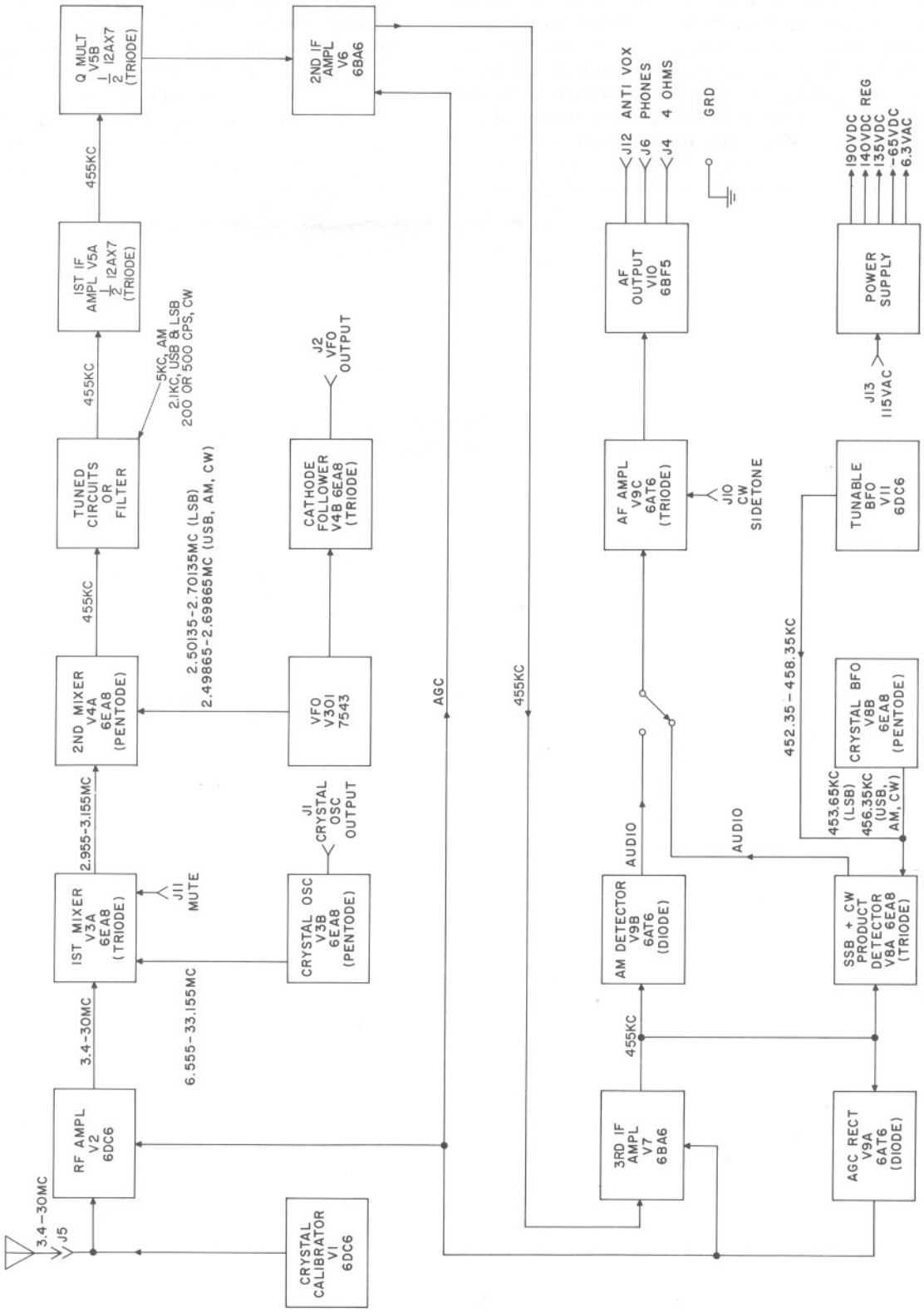


Figure 3-1. Block Diagram

### 3.8 Power Supply Circuits.

The internal power supply furnishes filament, plate, and bias voltages for the receiver. Three high voltage values are developed consisting of a 190-volt dc unregulated voltage at the positive side of C59B, a 140-volt dc regulated voltage at the cathode of zener diode CR6, and a 135-volt dc unregulated voltage at the positive side of C59A. The high voltage winding of transformer T8; diode CR1, CR2, and CR6; resistor R86; and the filter network consisting of capacitors C59A, C59B, and C59C, resistor R51, and choke L6 make up the full-wave rectifier system which generates the three high voltage values mentioned above. Bias voltage is obtained by rectifying ac voltage from a voltage divider connected between one leg of the high voltage secondary and ground. The tube heaters and pilot lamps are connected to allow operation from a 6-, 12-, or 24-volt source. Heater, plate, and bias voltages may be furnished by an external source such as a mobile power supply. Figure 7-1 illustrates the proper connections to the power plug for this type of operation.

# section 4

# service instructions

## 4.1 General.

This section covers maintenance and service of 75S-3B and 75S-3C Receivers. It includes information on trouble analysis, signal tracing procedures, voltage and resistance measurements, and alignment procedures. The usefulness of signal level and alignment data given depends upon the accuracy of the test equipment used. Minor adjustments in alignment may be made using the crystal calibrator as a signal source. Except for an occasional touch-up to compensate for possible component aging, alignment normally will be necessary only if frequency-determining components have been replaced. If servicing requires that the cabinet be removed, proceed as follows:

a. Disconnect all power and external connections.
b. Lift the lid, and remove the two screws located at the front edge of the cabinet (not the painted outer ones).
c. Remove the four feet and the screw located midway between the rear feet.
d. From the rear, push the receiver chassis forward until the front panel protrudes from the cabinet about an inch.
e. Grasp the front panel at the edges and slide the receiver out of the cabinet.

NOTE

DO NOT lubricate the 70K-2 vfo shaft bearings or the dial-drive system bearings. The vfo shaft bearings are lubricated at the factory with a special grease. Dial bearings are the Oilite type which are self-lubricating.

Tube heaters and pilot lamps are connected in series-parallel arrangements for 6-, 12-, or 24-volt operation. When making tube or lamp replacements, be sure that the replacement tube or lamp is the same as the original unit.

## 4.2 Trouble Analysis.

Most cases of trouble can be traced to defective tubes. Many tube checkers cannot duplicate the conditions under which the tubes work in the receiver. Substitution of new tubes will sometimes clear an obscure case of tube trouble. Intermittent trouble conditions in tubes can usually be discovered by lightly tapping the envelope. Occasionally, tube pins or socket terminals will become dirty or corroded causing an intermittent condition. When this situation is suspected, remove the tube and apply a few drops of contact cleaner to the tube pins. Replace the tube, and work it up and down in the socket a few times. A blue glow in a tube is normally caused by stray electrons striking the glass envelope and is not an indication of any tube or circuit fault. Shorted tubes or capacitors will often cause associated resistors to overheat and crack, blister, or discolor. Making the measurements listed in table 4-1 will help to isolate this type of trouble to a particular stage or component.

A logical process of elimination in conjunction with a study of the main schematic diagram, block diagram, and section 3 will aid in isolating trouble. For example, if the receiver functions properly in the AM position but fails to operate in the SSB or CW positions, trouble in the product detector should be suspected because this circuit is not used for AM reception. As a further check, both beat-frequency oscillators should be alternately switched into the circuit to see if one has failed. A third possibility would be that both beat oscillators have failed.

If the receiver is to be returned to the factory or an authorized service agency, a detailed report of operational difficulties and any efforts made to correct them will assist the servicing agency in making repairs with a minimum of time and expense. This is particularly important when intermittent trouble is involved.

## 4.3 Voltage and Resistance Measurements.

Table 4-1 lists typical voltage and resistance readings at each tube socket terminal except those of the vfo tube, V301. Do not open the vfo can. If repair or replacement is necessary, rebuilt 70K-2 oscillators are available at a nominal fee on an exchange basis from Collins Radio Company, Factory Repair Service, Cedar Rapids, Iowa. Make all measurements under the following conditions:

a. Unless otherwise noted in the table, set RF GAIN at maximum, AF GAIN at minimum, MODE switch in USB position, function switch in OPR position, tunable bfo off, REJECTION TUNING OFF, and AGC in the FAST position.
b. Voltage measurements are made with power connected.

TABLE 4-1. VOLTAGE AND RESISTANCE MEASUREMENTS TAKEN WITH 11-MEGOHM INPUT VTVM

| | | TUBE SOCKET TERMINAL | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| TUBE | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| V1 | DC V | -42 | 0.78 | | | 93 | 49 | 0 | | |
| | AC V | | | 0 | 6.3 | | | | | |
| | OHMS | 1 meg | 1K | 0 | 0 | *220K | *220K | 0 | | |
| (See note 1) | | | | | | | | | | |
| V2 | DC V | -1.2 | 0 | | | 138 | 59 | 0 | | |
| | AC V | | | 0 | 6.3 | | | | | |
| | OHMS | 5.5 meg | 0 | 0 | 0 | *20K | *60K | 0 | | |
| V3 | DC V | 136 | -14.6 | 140 | | | 140 | 0 | 3.8 | 0 |
| | AC V | | | | 0 | 6.3 | | | | |
| | OHMS | *20K | 100K | *20K | 0 | 0 | *20K | 0 | 1K | 220K |
| V4 | DC V | 108 | 0 | 108 | | | 108 | 4.5 | 5.6 | 3.8 |
| | AC V | | | | 6.3 | 0 | | | | |
| | OHMS | *20K | 220K | *20K | 0 | 0 | *20K | 1K | 680 | 100K |
| V5 | DC V | 138 | 0 | 1.0 | | | 138 | 0 | 1.0 | |
| | AC V | | | | 0 | 0 | | | | 6.3 |
| | OHMS | *20K | 100K | 820 | 0 | 0 | *20K | 330K | 1800 | 0 |
| V6 | DC V | -0.88 | 0 | | | 140 | 74 | 0 | | |
| | AC V | | | 0 | 6.3 | | | | | |
| | OHMS | 2.6 meg | 0 | 0 | 0 | *20K | *26K | 0 | | |
| V7 | DC V | -0.89 | 0 | | | 135 | 72 | 0.25 | | |
| | AC V | | | 0 | 6.3 | | | | | |
| | OHMS | 2.6 meg | 0 | 0 | 0 | *20K | *26K | 39 | | |
| V8 | DC V | 75 | -3.9 (USB)<br>-6.4 (AM) | 52 | | | 138 (AM, USB and LSB) | 0 | 0 | -2.5 |
| | AC V | | -4.8 (LSB) | | 6.3 | 0 | | | | |
| | OHMS | *90K | 20K (AM) | *290K | 0 | 0 | *35K | 0 | 4 | 5.6K |
| V9 | DC V | 1.0 | 2.7 | | | -0.8 | -0.5 CW/SSB<br>2.5 AM | 112 | | |
| | AC V | | | 6.3 | 0 | | | | | |
| | OHMS | 600K | 12K | 0 | 0 | 2.5 meg | ∞ CW/SSB<br>220K AM | *120K | | |
| V10 | DC V | -12.0 | 0 | | | 185 | 140 | -12.0 | | |
| | AC V | | | 0 | 6.3 | | | | | |
| | OHMS | 250K | 27 | 0 | 0 | *20K | *20K | 250K | | |
| V11 | DC V | -2.2 | 0 | | | 112 | 27 | 0 | | |
| | AC V | | | 0 | 6.3 | | | | | |
| | OHMS | 47K | 0 | 0 | 0 | *35K | *300K | 0 | | |
| (See note 2.) | | | | | | | | | | |

*Resistance may vary depending upon diode and electrical condition. Reverse vom leads for highest reading.

Note 1. Place function switch in CAL position.
Note 2. Turn tunable bfo to on position.

c. Resistance measurements are made with all external cables, including power cable, disconnected. Resistances of less than 1 ohm are listed as 0.

d. Make all measurements from indicated socket terminal to chassis ground.

It is recommended that a vtvm be used for these measurements. A vom may be used if it has an input resistance of not less than 20,000 ohms per volt. Voltage measurements made with a vom will yield lower readings in high impedance circuits such as the agc line. Do not use a vom for rf measurements.

### 4.4 Signal Tracing.

Appropriate test points and normal signal levels are listed in table 4-2. The values listed are nominal. Signal levels in a given receiver may differ from those listed by a factor of plus or minus 20 percent without noticeable variation in performance. A signal generator with an accurately calibrated output must be used to provide the rf signal source voltages indicated. A Hewlett-Packard model 606A or equivalent generator is recommended for this purpose. Be sure to consult the signal generator instruction book for information regarding output termination requirements. Measurements of oscillator injection voltages require the use of an rf vtvm such as the Hewlett-Packard model 410B. Make rf and audio measurements under the following conditions:

a. For audio measurements, use an audio oscillator as the signal source and an ac vtvm or calibrated oscilloscope to monitor receiver audio output. If desired, an audio wattmeter may be used. Set AF GAIN at maximum, and terminate the 4 Ω AUDIO output with a 4-ohm resistive load.

b. Oscillator injection voltages are measured with an rf vtvm. Measure from cathode to chassis ground at the associated mixer or product detector tube.

c. To check rf signal levels, connect a dc vtvm to the receiver agc line. Set RF GAIN at maximum. Static dc voltage on the agc line should be approximately -1.0 volt. Connect the rf signal generator to the point indicated in the table, and rock the generator dial to produce maximum agc voltage. Starting from minimum output, increase signal generator output to the point where a further increase in signal produces a slight increase in agc voltage. This is agc threshold. Note generator output voltage, and compare with the value listed in the table.

### 4.5 Alignment Procedure.

Complete alignment of the receiver may be accomplished using the crystal calibrator as a signal

TABLE 4-2. SIGNAL LEVELS

| SIGNAL INJECTION POINT | GENERATOR OUTPUT FREQUENCY | GENERATOR OUTPUT VOLTAGE | NORMAL INDICATION |
|---|---|---|---|
| V10 - pin 1 | 1000 cps | 3.4 volts | 1-watt audio output |
| V9 - pin 1 | 1000 cps | 0.15 volt | 1-watt audio output |
| V8 - pin 9 | 455 kc | 34 millivolts | 1-watt audio output |
| V8 - pin 8 | BFO INJECTION | | 1.6-2.2 volts rf (each bfo) |
| V7 - pin 1 | 455 kc | 30 millivolts | Agc threshold |
| V6 - pin 1 | 455 kc | 300 microvolts | Agc threshold |
| V5 - pin 2 | 455 kc | 300 microvolts | Agc threshold |
| V4 - pin 6 | 455 kc | 4500 microvolts | Agc threshold |
| V4 - pin 7 | VFO INJECTION | | 2.0-3.0 rf volts |
| V4 - pin 2 | 3.055 mc | 80 microvolts | Agc threshold |
| V3 - pin 8 | H-F OSC INJECTION | | 0.8-2.5 rf volts |
| V3 - pin 9 | 14.3 mc | 29 microvolts | Agc threshold |
| V2 - pin 1 | 14.3 mc | 14 microvolts | Agc threshold |
| J5 (ANT) | 14.3 mc | 1.4 microvolts | Agc threshold |

source and the S-meter as a peak indicator. To provide a variable output attenuator for the calibrator, connect a 0.001-uf capacitor to one end of a 5000-ohm carbon potentiometer. Temporarily connect the free end of the capacitor to tube socket terminal 5 of V1, the crystal calibrator. Connect the rotating contact of the potentiometer to ground. Figure 4-1 shows the location of adjustments except for the filter input and output trimmer capacitors. These trimmers are located under the chassis adjacent to the mechanical and crystal filters. The rotary ceramic trimmers used in the receiver are at maximum capacity when the large notch is positioned midway between the two mounting screws. Rotation in either direction from this position reduces capacity with minimum being at 180 degrees from maximum.

4.5.1 455-KILOCYCLE IF. ALIGNMENT.

a. Set MODE switch to USB, and center the calibrate signal at 3.7 mc in the if. passband.

b. Adjust calibrator output attenuator to provide S-meter reading of approximately S-3.

c. Adjust the slugs of T4, T9, T10, and T6 for peak meter reading. Reduce calibrator output as necessary to maintain a low meter reading. Repeat T4, T9, T10, and T6 adjustments.

d. Adjust C122 and C123 FL1 input and output trimmers, for peak meter reading.

e. Switch to CW; adjust C126 and C127, CW filter input and output trimmers, for peak meter reading. Rock receiver tuning dial to make sure signal is centered in filter passband.

f. Switch to AM; adjust top and bottom slugs of T4 and T5 for peak meter reading. Both slugs can be reached through top of transformer can and adjusted with Walsco type 2543 or similar alignment tool. Adjust T9 with small fiber or plastic screwdriver-type tool.

g. If a signal generator is used for this alignment, remove vfo tube V301, connect generator to pin 2 of V4, and adjust frequency to center of filter passband. Align as outlined above, disconnect generator, and replace V301.

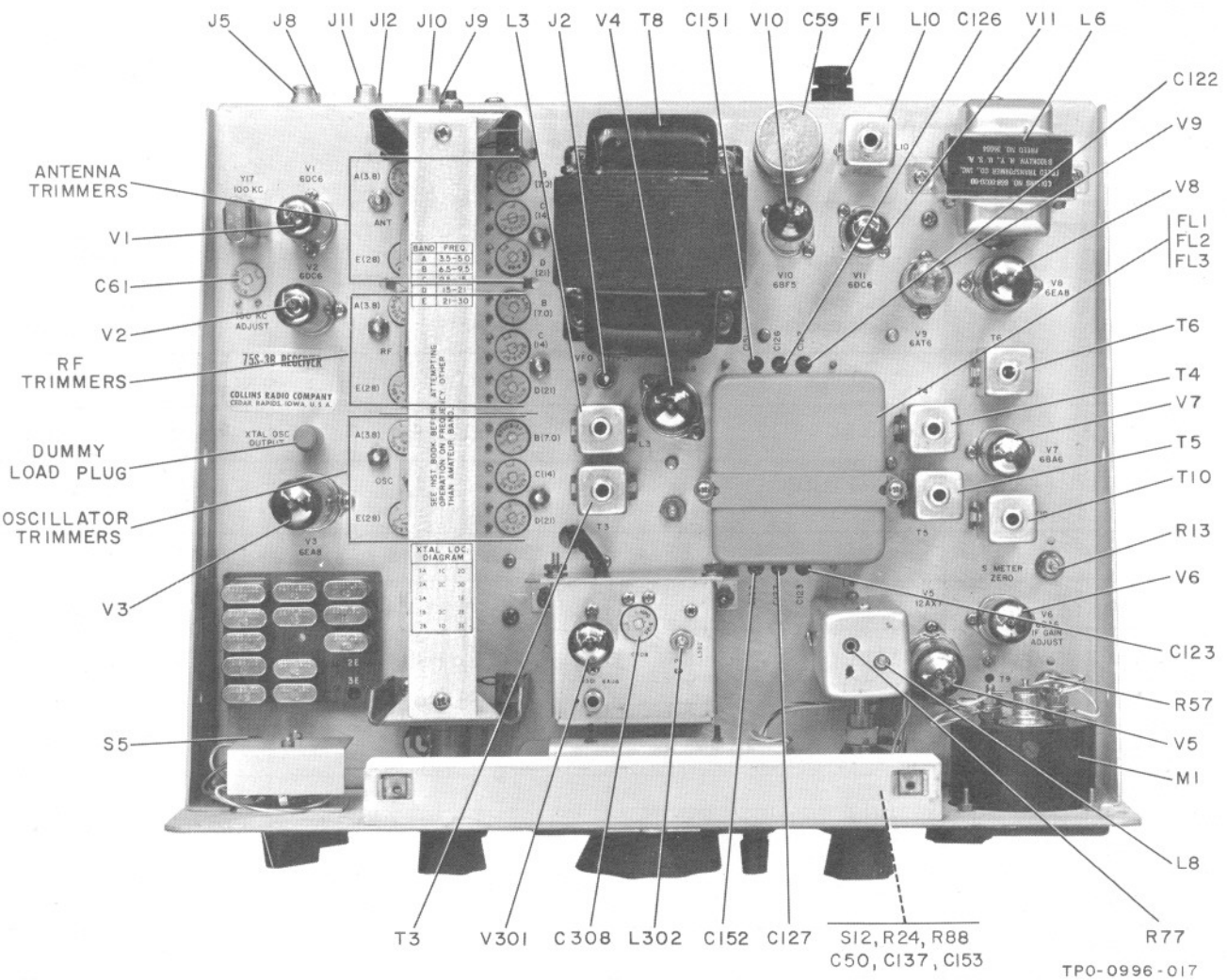


Figure 4-1. Location of Adjustments

4.5.2 BANDPASS IF. ALIGNMENT.

a. Set MODE switch to USB, and center the calibrate signal at 3.7 mc in the if. passband.

b. Make two swamping networks by connecting a 0.01-uf capacitor in series with a 1000-ohm resistor and connecting alligator clips to the two remaining leads.

c. Connect one swamping network from T3 primary (terminal 1) to ground and the other from L3 (terminal 1) to ground.

d. Adjust attenuator to provide meter reading of approximately S-3.

e. Peak the secondary of T3 (top of can) using a Walsco type 2543 or equivalent tuning tool.

f. Remove both swamping networks and swamp T3 secondary (terminal 3 to ground). Peak T3 primary (bottom of can), and peak L3.

g. Remove swamping network from T3 secondary. This completes bandpass if. alignment.

h. If a signal generator is used for this alignment, disable the hf crystal oscillator by removing the crystal for the 3.6-mc band. Connect the signal generator to the XTAL OSC OUTPUT jack, and set to 3.055 mc. Tune receiver to the generator signal at approximately 100 on the dial. Align as above, disconnect generator, and replace crystal.

4.5.3 RF CIRCUIT ALIGNMENT.

a. Tune to the calibrate signal at 3.7 mc with the MODE switch in either USB or LSB position.2 Connect a 47-ohm resistor or a dummy load such as the DL-1 to the 75S-3B/C ANT jack. During the following procedures, adjust the calibrator output attenuator as necessary to maintain a meter reading of approximately S-3.

b. Set both A (3.8) RF and ANT trimmer capacitors so the large notches point to approximately 2 o'clock when viewed as shown in figure 4-1. Set the A (3.8) OSC trimmer so the large notch points to the rear of the chassis.

c. Set the PRESELECTOR to 2.1 on the logging scale.

d. Adjust the OSC, RF, and ANT slugs located on the movable platform for maximum S-meter indication. Adjust the OSC slug first. After making these adjustments, make sure the PRESELECTOR tuning peaks at 2.1 on the logging scale.

e. Set BAND switch to 28A, PRESELECTOR to 8.9 on the logging scale, and tune to the calibrate signal at 28.6 mc. Maintain S-3 signal level.

f. Adjust E (28) OSC, RF, and ANT trimmer capacitors for peak S-meter reading. Adjust OSC trimmer first.

g. Set BAND switch to 21.0 and PRESELECTOR to 7.9 on the logging scale. Tune to calibrate signal at 21.1 mc. Maintain S-3 signal level.

h. Adjust D (21) OSC, RF, and ANT trimmers for peak S-meter reading. Adjust OSC trimmers first.

i. Set BAND switch to 14.8 and PRESELECTOR to 7.0 on the logging scale. Tune to calibrate signal at 14.9 mc. Maintain S-3 signal level.

j. Adjust C (14) OSC trimmer for peak S-meter reading.

k. Set BAND switch to 14.2 and PRESELECTOR to 6.6 on the logging scale.

l. Adjust C (14) RF and ANT trimmers for peak meter reading. Maintain S-3 signal level.

m. Set BAND switch to 7.0 and PRESELECTOR to 3.9 on the logging scale. Tune to calibrate signal at 7.1 mc. Maintain S-3 signal level.

n. Adjust B (7) OSC, RF, and ANT trimmers for peak S-meter reading. Adjust OSC trimmer first.

o. Disconnect the crystal calibrator output attenuator. This completes rf alignment.

p. If signal generator and rf vtvm are used for this alignment, connect the generator output to the receiver ANT jack. Set generator output to frequencies listed, and align RF and ANT trimmers as outlined in preceding steps. Connect rf vtvm to XTAL OSC OUTPUT jack on bottom side of chassis leaving load plug P1 in place. Align OSC trimmers as indicated, except adjust for peak reading on the vtvm. In step k, adjust PRESELECTOR near 6.6 on logging scale at the point where vtvm reading peaks.

4.5.4. VFO SIDEBAND FREQUENCY SHIFT ADJUSTMENT.

Set MODE switch to LSB, and tune to zero beat with calibrate signal at 3.7 mc. Without further movement of the dial, switch to USB, and adjust C308 (on vfo) for zero beat.

4.5.5 CRYSTAL CALIBRATOR ADJUSTMENT.

A. Set receiver for AM reception, and tune to WWV at 15.0 mc at a time when the station is not transmitting a tone.

b. Turn function switch to CAL position. Set 100 KC ADJUST trimmer C61 for zero beat of the calibrate signal against WWV.

4.5.6 VFO DIAL CALIBRATION.

Calibrate the dial at 100. If zero beat with the calibrate signal does not occur at 0 and 200 ±1 kc on the dial, there is end-point spread. If there is no end-point spread, but the hairline is not vertical when the dial is calibrated, a mechanical adjustment only is required. Refer to step h in the following procedure. To correct for end-point spread, make the following adjustments:

a. Set BAND switch to any band and function switch to CAL, and tune calibrate signal to zero beat at 200 end of the dial.

b. Set hairline to 200 with zero set knob.

c. Tune calibrate signal to zero beat at 0 end of the dial. Note the difference in kilocycles between the hairline and dial 0 (example: -1.5 kc).

d. Without moving the hairline, move the dial to the opposite side of 0 by an amount equal to the frequency difference noted above (example: +1.5 kc).

e. Adjust L302 for zero beat. It is located on top of the vfo can.

f. Set the hairline at 0 with zero set knob.

g. Tune the calibrate signal to zero beat at the 200-end of the dial. If zero beat does not occur at exactly 200, repeat steps b through e.

h. After the vfo has been calibrated at both end points, set the BAND switch to 3.4 and calibrate the vfo dial at 100. Locate the calibrate signal at 100 for each position of the BAND switch. The maximum difference in the vfo dial settings for all bands should not exceed 3 kc.

i. After adjustment of end points, if the hairline is not vertical in the dial window, set the BAND switch to a band where the 100-calibration point is in the middle of the spread shown in step h above. Set the hairline vertical in the dial window, loosen the setscrews on the dial hub, and move the dial on the oscillator shaft so that it reads 100 at zero beat.

j. After adjustment of end points, if the hairline is not vertical in the dial window, loosen the set-screws on the dial hub, and move the dial relative to the oscillator shaft so that, at zero beat, the dials read 0 to 200 with the hairline vertical

k. After these adjustments of the vfo calibration, make the vfo sideband frequency shift adjustment as outlined in paragraph 4.5.4.

4.5.7 TUNABLE BFO ALIGNMENT.

a. Make sure the BFO tuning knob is correctly positioned on the shaft. At the control end stops, the knob pointer should be at approximately 7 o'clock (ccw end) and 5 o'clock (cw end).

b. Rotate BFO knob to extreme counterclockwise.

c. Turn on calibrator and tune receiver to zero beat in USB position.

d. Turn on tunable bfo, and set BFO knob to 0.

e. Adjust L10 for zero beat.

4.5.8 NOTCH FILTER ALIGNMENT.

a. Check REJECTION TUNING knob position. Pointer should be at OFF when the knob is at the counterclockwise stop. Leave at OFF position.

b. Tune to the calibrate signal on a band which provides a calibrate signal level of approximately S-9 plus 20 db in either USB or LSB position. Center signal in filter passband (approximately 1350-cps tone).

c. Set REJECTION TUNING knob to midscale (pointer vertical.)

d. Alternately adjust L8 and R77 for maximum depth of notch as indicated by minimum S-meter reading. If the Q-multiplier exhibits a tendency to ring or oscillate, back off slightly on R77.

4.5.9 IF. GAIN ADJUSTMENT.

To set if. gain control R57, a 50-$\Omega$ calibrated signal generator is required. Connect the signal generator to the receiver ANT jack, and adjust to 2.0 microvolt output at 14.3 mc. Tune the receiver to the generator signal, and adjust R57 to the point which produces a just-perceptible increase above the no-signal reading on the S-meter. Do not make this adjustment until receiver alignment has been completed.

4.5.10 S-METER ZERO ADJUSTMENT.

a. Set receiver to the middle of any operating band, and peak PRESELECTOR for maximum output.

b. Set RF GAIN to maximum, and short ANT jack to ground.

c. Set S-METER ADJUST (R13) so S-meter reads zero.

4.5.11 ANTENNA TRIMMERS ADJUSTMENT.

After the receiver alignment is completed, a final adjustment of the ANT trimmer capacitors may be made to compensate for any detuning effects caused by the antennas. Adjust on weak incoming signals near the frequencies indicated in paragraph 4.5.3.

**4.6 Installation of Optional Filters.**

Space is provided in the 75S-3B/C to install accessory filters. These filters are available in 6.0-, 4.0-, 3.1-, 1.5, 0.8-, 0.5-, and 0.2-kc bandwidth (see table 5-2). The 6.0-, 4.0-, and 3.1-kc bandwidth filters are intended for use in AM reception; the 1.5-kc bandwidth filter is intended for reception of RTTY signals; and the 800-, 500-, and 200-cps filters are used in CW reception. The 200-cps bandwidth filter is best for reception of weak CW signals since its narrower passband rejects background noise and interfering signals better than do the other two CW filters.

With the cabinet lid open, the shield can covering the spaces for filters FL1, FL2, and FL3 can easily be seen. Filter FL1 (supplied in the receiver) is used in the LSB and USB modes of operation; filters FL2 and FL3 (not supplied) are used for the CW1 and CW2 modes of operation, respectively. To install or replace filter FL1, FL2, or FL3, unscrew the two screws securing the filter shield can, remove and/or install the desired filter in its proper position; then reinstall the field shield can.

NOTE

The 200-cycle crystal lattice filter (CPN 526-7677-00) listed in table 5-2 is not electrically symmetrical. Unless this filter is installed with terminals 2 and 4 facing the right-hand side of the receiver (as viewed from the front), the receiver will be inoperative when this filter is switched in with the MODE switch.

After replacement or reinstallation of any filters, turn on the receiver (positioning the OFF-STBY-OPR-CAL switch to the CAL position) and tune to

the calibrate signal at 28.6 mc. Adjust the two filter trimmer capacitors for the respective filter replaced or installed (see figure 4-2) for maximum S-meter indication.

The spare filter position adjacent to FL1 permits use of an AM mechanical filter to replace network provided by transformer T5. Receivers supplied in -011 status have been modified in accordance with paragraphs a and b. Install the mechanical filter in the SPARE socket and proceed with operation. Use of the AM mechanical filter with other status receivers requires the following modifications:

NOTE

The 135- and 130-uuf mica capacitors mentioned below are nominal values only. For optimum performance, these values should be selected for maximum S-meter indication (minimum filter loss). See figure 4-2 for location of transformers T4 and T5.

a. Unsolder C92 at switch S7, pin 5. Connect a length of insulated wire to this switch pin. Connect the other end of the insulated wire with one lead of 135-uuf capacitor (see note) to pin 1 on the SPARE filter socket (one of the pins closest to transformer T4). Connect the other capacitor lead to a ground pin adjacent to the filter. Solder all connections.

b. Unsolder the wire at transformer T5, pin 1, and connect it to pin 4 on the SPARE filter socket (one of the pins closest to transformer T5). To the same filter pin connect one lead of a 130-uuf capacitor (see note). Connect the other capacitor lead to a ground pin adjacent to the filter socket. Solder all connections.

c. Install the desired AM mechanical filter into the spare socket.

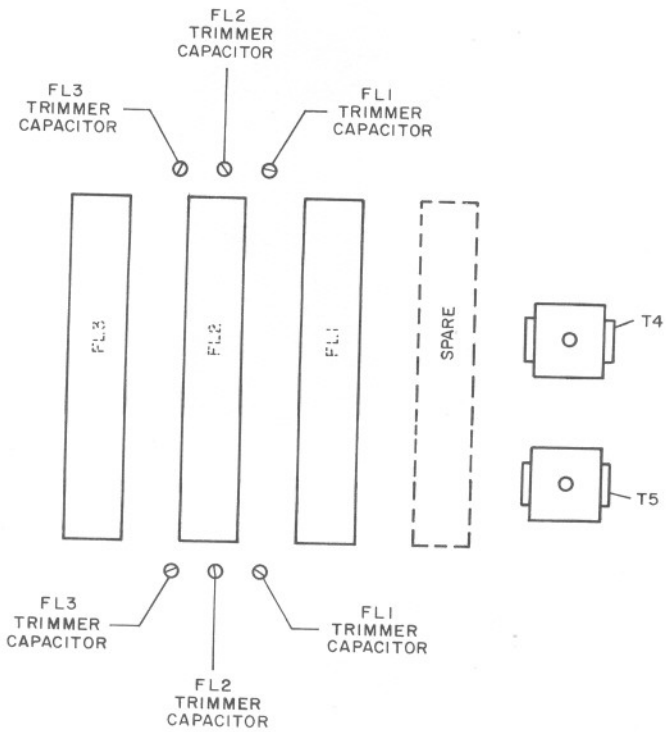


Figure 4-2. Optional Filter Installation Diagram

# section 5

# specifications

## 5.1 Frequency Coverage.

Both the 75S-3B and the 75S-3C Receivers are capable of receiving on any frequency within the range of 3.4 to 5.0 and 6.5 to 30.0 mc. Receiver coverage is in increments of 200 kc for each band-switch setting. The 75S-3B is equipped with 14 crystal sockets selectable from the front panel. The 75S-3C is equipped with 28 crystal sockets selectable from the front panel. With the 12 crystals furnished, both receivers provide complete coverage of 80 meters, 40 meters, 20 meters, 15 meters, WWV at 15 mc, and the 28.5- to 28.7-mc portion of the 10-meter band. Remaining crystal sockets may be used for additional 10-meter coverage. Other crystals may be substituted for those furnished to provide coverage at other frequencies throughout the range.

## 5.2 Equipment Characteristics.

| | |
|---|---|
| Power requirements | 115/230 volts, 50 to 60 cps. Power consumption is approximately 85 watts. Power may be provided by an external supply which delivers 185 volts dc at 125 ma and -62 volts dc at 5 ma. Heater power may be ac or dc as follows: 6 to 7 volts at 5.5 amperes, 12 to 14 volts at 2.75 amperes, or 24 to 28 volts at 1.4 amperes. |
| Frequency range | 3.4 to 5.0 and 6.5 to 30.0 megacycles. With crystals furnished, bands are as follows: 3.4 to 3.6 mc, 3.6 to 3.8 mc, 3.8 to 4.0 mc, 7.0 to 7.2 mc, 7.2 to 7.4 mc, 14.0 to 14.2 mc, 14.2 to 14.4 mc, 14.8 to 15.0 mc, 21.0 to 21.2 mc, 21.2 to 21.4 mc, 21.4 to 21.6 mc, and 28.5 to 28.7 mc. |
| Mode | Selectable SSB, CW, or AM. |
| Sensitivity | Not less than 0.5 microvolt for 10-db signal-plus-noise to noise ratio in SSB mode. |
| Selectivity | SSB: 2.1 kc at 6 db down, 4.2 kc at 60 db down.<br>AM: 5 kc at 6 db down, 25 kc at 60 db down. |
| Spurious response | Image rejection better than 50 db. Internal spurious signals below 1-microvolt equivalent antenna input. |
| Frequency stability | Within 100 cps after warmup. |
| Dial accuracy | Better than 1 kc on any band after midband calibration. |
| S-meter calibration | Approximately S-9 with 100-uv antenna input signal. |
| Audio output requirements | Speaker: 3 to 4 ohms.<br>Headphones: 500 ohms or higher. |
| Audio output level | 1 watt at agc threshold (applicable to SSB only). 3.0 watts maximum. |
| Size | 7-3/4 in. high, 14-3/4 in. wide, 12-1/2 in. deep. |
| Weight | 20 pounds. |

**5.3 Tube, Fuse, Lamp, and Semiconductor Complement.**

TABLE 5-1. TUBES, FUSES, LAMPS, AND SEMICONDUCTORS

| SYMBOL | FUNCTION | TYPE | SYMBOL | FUNCTION | TYPE |
|---|---|---|---|---|---|
| V1 | Crystal calibrator | 6DC6 | V10 | Audio output | 6BF5 |
| V2 | Rf amplifier | 6DC6 | V11 | Tunable bfo | 6DC6 |
| V3A | First mixer | 1/2 6EA8 | V301 | Vfo | 7543 |
| V3B | Crystal oscillator | 1/2 6EA8 | CR1, CR2 | Power rectifiers | 1N1492 or 1N1096 |
| V4A | Second mixer | 1/2 6AE8 | CR3 | Bias rectifier | 1N1492 or 1N1096 |
| V4B | Cathode follower | 1/2 6EA8 | CR4 | Bfo tuning | HC7004 |
| V5A | First if. amplifier | 1/2 12AX7 | CR5 | Voltage regulator | 1N732A |
| V5B | Q-multiplier | 1/2 12AX7 | CR6 | Voltage regulator | 1N3010A |
| V6 | Second if. amplifier | 6BA6 | CR301 | Switch | 1N34A |
| V7 | Third if. amplifier | 6BA6 | DS1 | Dial lamps | 47 |
| V8A | Product detector | 1/2 6EA8 | DS2 | Meter lamp | 47 |
| V8B | Crystal bfo | 1/2 6EA8 | F1 | Power supply fuse | 1 amp SB |
| V9 | AM detector, agc rectifier, audio amplifier | 6AT6 | | | |

**5.4 Available Accessories.**

TABLE 5-2. AVAILABLE ACCESSORIES (Sheet 1 of 2)

| ITEM | FUNCTION | COLLINS PART NUMBER |
|---|---|---|
| 312B-3 Speaker | Station speaker | 522-1160-00 |
| 312B-4 Station control | Speaker, phone patch directional wattmeter, and station control switches | 522-1167-00 |
| 351E-1 Mounting plate | Table mount for 75S-3B/C | 522-1479-00 |
| 351E-2 Mounting plate | Table mount for 312B-4 | 522-1480-00 |
| 351E-3 Mounting plate | Table mount for 312B-3 | 522-1481-00 |
| 351R-1 Rack mount | Rack mount for 75S-3B/C | 522-1481-00 |

TABLE 5-2. AVAILABLE ACCESSORIES (Sheet 2 of 2)

| ITEM | | FUNCTION | COLLINS PART NUMBER |
|---|---|---|---|
| 351R-2 Rack mount | | Rack mount for 312B-4 | 522-2666-00 |
| Extra crystals | | Additional band coverage | (See parts list.) |
| F455FA-31 | AM | 3.1-kc bandpass filter | 526-9496-00 |
| F455FA-40 | AM | 4.0-kc bandpass filter | 526-9497-00 |
| F455FA-60 | AM | 6.0-kc bandpass filter | 526-9498-00 |
| F455FA-15 | RTTY | 1500-cps bandpass filter | 526-9495-00 |
| F455FA-08 | CW | 800-cps bandpass filter | 526-9446-00 |
| F455FA-05 | CW | 500-cps bandpass filter | 526-9494-00 |
| X455Q200 | CW | 200-cps crystal lattice filter | 526-7677-00 |
| Knob | | Weighted spinner tuning knob | 547-1824-003 |

| ITEM | DESCRIPTION | COLLINS PART NUMBER |
|---|---|---|
| | 75S-3B RECEIVER | 522-3316-00 |
| | 75S-3C RECEIVER | 522-3317-00 |
| C1 | CAPACITOR, FIXED, MICA: 510 uuf ±5%, 500 v dc; Electro Motive part no. DM15F510J03 | 912-2867-00 |
| C2 | CAPACITOR, FIXED, MICA: same as C1 | 912-2867-00 |
| C3 | CAPACITOR, VARIABLE CERAMIC: 8.0 uuf min to 50.0 uuf max 350 vdc; Erie Resistor Corp. part no. 557018 U2P0 34R | 917-1075-00 |
| C4 | CAPACITOR, FIXED, MICA: 240 uuf ±5%, 500 v dc; Electro Motive part no. DM15F241J-500WV | 912-2843-00 |
| C5 | CAPACITOR, VARIABLE CERAMIC: same as C3 | 917-1075-00 |
| C6 | CAPACITOR, FIXED, MICA: 100 uuf ±5%, 500 v dc; Electro Motive part no. DM15F101J-500WV | 912-2816-00 |
| C7 | CAPACITOR, VARIABLE, CERAMIC: same as C3 | 917-1075-00 |
| C8 | CAPACITOR FIXED, CERAMIC: 0.1 uf -20% +80%, 500 v dc; Sprague Electric Co. of Wisconsin part no. 41C92 | 913-3152-00 |
| C9 | CAPACITOR, VARIABLE, CERAMIC: 5.0 uuf min to 25.0 uuf max, 350 v dc; Erie Resistor Corp. part no. 557018 COPO 39R | 917-1073-00 |
| C10 | CAPACITOR, VARIABLE, CERAMIC: same as C9 | 917-1073-00 |
| C11 | CAPACITOR, FIXED, CERAMIC: 1000 uuf -20% +100%, 500 v dc; Erie Resistor Corp. part no. 851000 X5U0 102Z | 913-3009-00 |
| C12 | CAPACITOR, FIXED, CERAMIC: 1.0 uuf ±1/4 uuf; 500 v dc; Erie Resistor | 916-0070-00 |
| C13 | CAPACITOR, FIXED, CERAMIC: 10,000 uuf ±20%, 500 v dc; Sprague Electric of Wisconsin | 913-3013-00 |
| C14 | CAPACITOR, FIXED, CERAMIC: same as C11 | 913-3009-00 |
| C15 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C16 | CAPACITOR, VARIABLE, CERAMIC: same as C3 | 917-1075-00 |
| C17 | CAPACITOR, FIXED, MICA: 510 uuf ±2%, 300 v dc; Electro Motive Mfg. Co. part no. DM15F510G03 | 912-2866-00 |
| C18 | CAPACITOR, VARIABLE, CERAMIC: same as C3 | 917-1075-00 |
| C19 | CAPACITOR, FIXED, MICA: 220 uuf ±5%, 500 v dc; Electro Motive part no. DM15F221J-500WV | 912-2840-00 |
| C20 | CAPACITOR, VARIABLE, CERAMIC: same as C3 | 917-1075-00 |
| C21 | CAPACITOR, FIXED, MICA: 68 uuf ±10%, 500 v dc; Electro Motive part no. DM15E680K-500WV | 912-2805-00 |
| C22 | CAPACITOR, VARIABLE, CERAMIC: same as C3 | 917-1075-00 |
| C23 | CAPACITOR, VARIABLE, CERAMIC: same as C9 | 917-1073-00 |
| C24 | CAPACITOR: P/O T3 | |
| C25 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C26 | CAPACITOR: P/O T3 | |
| C27 | CAPACITOR, FIXED, MICA: 10 uuf ±10%, 500 vdc; MIL type CM05C100K03 | 912-2754-00 |
| C28 | CAPACITOR: P/O L3 | |
| C29 | CAPACITOR, FIXED, ELECTROLYTIC: 8 uf -10%, +100%, 25 v dc; Sprague Electric Co. part no. D31582 | 183-1167-00 |
| C30 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C31 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C32 | CAPACITOR, FIXED, CERAMIC: 6 uuf ±1/2 uuf, 500 vdc; Centralab Div. of Globe Unit Inc. | 916-0122-00 |
| C33 | CAPACITOR, FIXED, MICA: 220 uuf ±10%, 500 v dc; Electro Motive part no. DM15F221K-500WV | 912-2841-00 |
| C34 | CAPACITOR, FIXED, CERAMIC: same as C11 | 913-3009-00 |
| C35 | CAPACITOR: P/O T4 | |
| C36 | CAPACITOR: P/O T4 | |
| C37 | CAPACITOR, FIXED, CERAMIC: same as C11 | 913-3009-00 |
| C38 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C39 | CAPACITOR: P/O L9 | |
| C40 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C41 | DELETED | |
| C42 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C43 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C44 | CAPACITOR: P/O T6 | |
| C45 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C46 | CAPACITOR, FIXED, MICA: same as C27 | 912-2754-00 |
| C47 | NOT USED | |
| C48 | CAPACITOR, FIXED, CERAMIC: same as C11 | 913-3009-00 |
| C49 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C50 | CAPACITOR, FIXED, CERAMIC: same as C8 | 913-3152-00 |
| C51 | CAPACITOR, FIXED, CERAMIC: same as C11 | 913-3009-00 |
| C52 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C53 | CAPACITOR, FIXED, MICA: 470 uuf ±10%, 300 v dc; Electro Motive Mfg. Co. DM15F471K03 | 912-2865-00 |
| C54 | CAPACITOR, FIXED, CERAMIC: 0.025 uf -20% +80%, 500 vdc; Sprague Electric Co. part no. 55C30 | 913-3154-00 |
| C55 | CAPACITOR, FIXED, CERAMIC: same as C54 | 913-3154-00 |
| C56 | CAPACITOR, FIXED, ELECTROLYTIC: 100 uf -10% +100% 6 v dc; Sprague Electric part no. D28121 | 183-1782-00 |
| C57 | CAPACITOR, FIXED, CERAMIC: same as C54 | 913-3154-00 |
| C58 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C59 | CAPACITOR, FIXED, DRY, ELECTROLYTIC: triple section capacitor; 40 uf -10% +100%, 250 v dc; Sprague Electric Co. type DFP | 183-1764-00 |
| C60 | CAPACITOR, FIXED, ELECTROLYTIC: 40 uf -10% +100%, 150 v dc; Hi-Q Division of Aerovox Corp. P/N E26B20 | 183-1044-00 |
| C61 | CAPACITOR, VARIABLE, CERAMIC: same as C3 | 917-1075-00 |
| C62 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C63 | CAPACITOR, FIXED, MICA: 100 uuf ±10%, 500 v dc; MIL type CM05D101K03 | 912-2817-00 |
| C64 | CAPACITOR, FIXED, MICA: same as C63 | 912-2817-00 |
| C65 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C66 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C67 | CAPACITOR, FIXED, MICA: 20 uuf ±10%; 500 v dc; Electro Motive Mfg. Co.; part no. DM15C200K01 | 912-2766-00 |
| C68 | CAPACITOR, FIXED, CERAMIC: 0.05 uf -20% +50%, 500 vdc; Sprague Electric Co. part no. 33C58 | 913-3153-00 |
| C69 | CAPACITOR, VARIABLE, CERAMIC: same as C3 | 917-1075-00 |
| C70 | CAPACITOR, FIXED, MICA: 200 uuf ±5%, 500 v dc; Electro Motive part no. DM15F201J-500WV | 912-2837-00 |
| C71 | CAPACITOR, VARIABLE, CERAMIC: same as C3 | 917-1075-00 |
| C72 | CAPACITOR, FIXED, MICA: 130 uuf ±5%, 500 v dc; Electro Motive part no. DM15F131J-500WV | 912-2825-00 |
| C73 | CAPACITOR, VARIABLE, CERAMIC: same as C3 | 917-1075-00 |
| C74 | CAPACITOR, FIXED, MICA: same as C21 | 912-2805-00 |

| ITEM | DESCRIPTION | COLLINS PART NUMBER |
|---|---|---|
| C75 | CAPACITOR, VARIABLE, CERAMIC: same as C3 | 917-1075-00 |
| C76 | CAPACITOR, VARIABLE, CERAMIC: same as C3 | 917-1075-00 |
| C77 | CAPACITOR, FIXED, CERAMIC: same as C11 | 913-3009-00 |
| **C78 | CAPACITOR, FIXED, MICA: 15 uuf ±10%, 500 v dc; Electro Motive part no. DM15C150K01 | 912-2760-00 |
| *C78 | CAPACITOR, FIXED, MICA: same as C27 | 912-2754-00 |
| C79 | CAPACITOR, FIXED, MICA: 47 uuf ±10%, 500 v dc; Electro Motive part no. DM15E470K-500WV | 912-2793-00 |
| C80 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C81 | CAPACITOR: P/O T6 | |
| C82 | CAPACITOR, FIXED, MICA: same as C67 | 912-2766-00 |
| C83 | CAPACITOR, FIXED, MICA: 180 uuf ±10%, 500 vdc; MIL type CM05D181K03; | 912-2835-00 |
| C84 | CAPACITOR, FIXED, MICA: same as C53 | 912-2865-00 |
| C85 | NOT USED | |
| C86 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C87 | CAPACITOR, FIXED, CERAMIC: same as C54 | 913-3154-00 |
| C88 | NOT USED | |
| C89 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C90 | CAPACITOR, FIXED, CERAMIC: same as C11 | 913-3009-00 |
| C91 | CAPACITOR: P/O L3 | |
| C92 | CAPACITOR, FIXED, CERAMIC: same as C32 | 916-0122-00 |
| C93 | CAPACITOR, FIXED, MICA: same as C78 | 912-2760-00 |
| C94 | CAPACITOR, FIXED, MICA: same as C63 | 912-2817-00 |
| C95 | CAPACITOR, FIXED, MICA: same as C4 | 912-2843-00 |
| C96 | NOT USED | |
| C97 | CAPACITOR, FIXED, CERAMIC: same as C8 | 913-3152-00 |
| C98 | NOT USED | |
| C99 | NOT USED | |
| C100 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C101 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C102 | CAPACITOR, FIXED, CERAMIC: same as C68 | 913-3153-00 |
| C103 | CAPACITOR: P/O T5 | |
| C104 | CAPACITOR, FIXED CERAMIC: same as C13 | 913-3013-00 |
| C105 | CAPACITOR, FIXED, CERAMIC: same as C11 | 913-3009-00 |
| C106 | CAPACITOR, FIXED, CERAMIC: same as C11 | 913-3009-00 |
| C107 | CAPACITOR, FIXED, ELECTROLYTIC: 10 uf -10% +100% 150 v dc; Hi-Q Division of Aerovox Corp. part no. E26A817 | 183-1040-00 |
| C108 | CAPACITOR: P/O T5 | |
| C109 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C110 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C111 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C112 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C113 thru C119 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C120 | CAPACITOR, FIXED, MICA: same as C78 | 912-2760-00 |
| C121 | CAPACITOR, FIXED, MICA: same as C63 | 912-2817-00 |
| C122 | CAPACITOR ASSEMBLY: 3 variable capacitors each w/7 pf min, 60 pf max capacity; w/bracket; Electro Motive Mfg. Co. part no. T50410+ T16328; c/o C122, C126, C151 | 918-0059-00 |
| C123 | CAPACITOR: same as C122; c/o C123, C127, C152 | 918-0059-00 |
| C124 | CAPACITOR, FIXED, MICA: 82 uuf ±10% 500 v dc; Electro Motive part no. DM15E820K-500WV | 912-2811-00 |
| C125 | CAPACITOR, FIXED, MICA: same as C63 | 912-2817-00 |
| C126 | CAPACITOR: P/O C122 | 918-0059-00 |
| C127 | CAPACITOR ASSEMBLY: P/O C123 | 918-0059-00 |
| C128 | CAPACITOR, FIXED, MICA: same as C124 | 912-2811-00 |
| C129 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C130 | CAPACITOR, FIXED, CERAMIC: same as C11 | 913-3009-00 |
| C131 | NOT USED | |
| C132 | CAPACITOR: P/O L8 | |
| C133 | CAPACITOR: P/O L8 | |
| C134 | CAPACITOR: P/O L8 | |
| C135 | CAPACITOR, FIXED, CERAMIC: same as C11 | 913-3009-00 |
| C136 | NOT USED | |
| C137 | CAPACITOR, FIXED, CERAMIC: 0.47 uf -20% +80%, 25 v dc; Sprague Electric Co. part no. 5C11A | 913-3804-00 |
| C138 | CAPACITOR, FIXED, CERAMIC: 0.02 uf -20% +80%, 100 v dc Erie Resistor Corp. part no. 855-502 X5V0 203Z | 913-3678-00 |
| C139 | NOT USED | |
| C140 | CAPACITOR, FIXED, CERAMIC: same as C68 | 913-3153-00 |
| C141 | CAPACITOR, FIXED, MICA: same as C83 | 912-2835-00 |
| C142 | CAPACITOR, FIXED, MICA: same as C83 | 912-2835-00 |
| C143 | CAPACITOR: P/O L10 | |
| C144 | CAPACITOR: P/O L10 | |
| C145 | CAPACITOR: P/O L10 | |

*Used in 75S-3C only
**Used in 75S-3B only

| ITEM | DESCRIPTION | COLLINS PART NUMBER |
|---|---|---|
| C146 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C147 | NOT USED | |
| C148 | CAPACITOR, FIXED, MICA: 30 uuf ±10%, 500 v dc; Electro Motive Mfg. Co. part no. DM15E300K-500WV | 912-2778-00 |
| C149 | CAPACITOR, FIXED, MICA: same as C63 | 912-2817-00 |
| C150 | CAPACITOR, FIXED, MICA: same as C124 | 912-2811-00 |
| C151 | CAPACITOR: P/O C122 | 918-0059-00 |
| C152 | CAPACITOR: P/O C123 | 918-0059-00 |
| C153 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C154 | CAPACITOR, FIXED, CERAMIC: same as C11 | 913-3009-00 |
| C155 | NOT USED | |
| C156 | CAPACITOR, FIXED, MICA: same as C27 | 912-2754-00 |
| C157 | CAPACITOR, FIXED, MICA: same as C67 | 912-2766-00 |
| C158 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C159 | CAPACITOR, FIXED, MICA: 680 uuf ±5%, 500 v dc; MIL type CM06F681J03 | 912-2989-00 |
| C160 | CAPACITOR, FIXED, MICA: 2400 uuf ±5%, 500 vdc; MIL type CM06F242J03 | 912-3028-00 |
| C161 | CAPACITOR, FIXED, CERAMIC: 7 uuf ±1/2%, 500 vdc; MIL type CC20CH070D | 916-0126-00 |
| C162 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C163 | CAPACITOR, FIXED, CERAMIC: same as C13 | 913-3013-00 |
| C164 | CAPACITOR, FIXED, CERAMIC: 1500 uuf ±20%, 500 v dc; Sprague Electric Co. of Wisconsin part no. 19C264A1 | 913-3010-00 |
| C165 | CAPACITOR, FIXED, CERAMIC: Same as C68 | 913-3153-00 |
| C166 | CAPACITOR, P/O T10 | |
| C167 | CAPACITOR, P/O T10 | |
| CR1 | SEMICONDUCTOR DEVICE, DIODE: silicon; hermetically sealed; JEDEC type 1N1492 | 353-1661-00 |
| CR2 | SEMICONDUCTOR DEVICE, DIODE: same as CR1 | 353-1661-00 |
| CR3 | SEMICONDUCTOR DEVICE, DIODE: same as CR1 | 353-1661-00 |
| CR4 | DIODE: part of L10 | |
| CR5 | SEMICONDUCTOR DEVICE, DIODE: silicon; hermetically sealed; JEDEC type 1N732 | 353-2762-00 |
| CR6 | SEMICONDUCTOR DEVICE, DIODE: silicon; hermetically sealed; JEDEC type 1N3010A | 353-1470-00 |
| CR7 | SEMICONDUCTOR DEVICE, DIODE: hermetically sealed, JEDEC type 1N548. | 353-0205-00 |
| DS1 | LAMP, INCANDESCENT: miniature; T-3-1/4 clear bulb; 1.187 in. max lg o/a; General Electric Co. part no. 47 | 262-3240-00 |
| F1 | FUSE, CARTRIDGE: 250 v, 1 amp; carry 110%, open at 135% within 1 hour; glass body; silver plated brass ferrule terminals; MIL type F02B250V1AS | 264-4280-00 |
| FL1 | FILTER, BAND PASS: 455 KC center freq, 452.9 to 457.1 kc bandwidth at 6 db; 17,000 ohms input, 6.750 ohms output impedance; 0.528 in. by 0.600 in. by 2-1/2 in; Collins Radio Company, Burbank, California part no. F455FA-21 | 526-9427-00 |
| H1 | GROMMET, RUBBER: synthetic rubber, neoprene; 9/16 in. dia by 1/4 in. w; Lavelle Rubber Co. part no. 905 | 201-1060-00 |
| H2 | GROMMET, RUBBER: black synthetic rubber; 7/16 in. di, 3/4 in. od, 1/4 in. w; Western Rubber Co. part no. G1161NEOPRENE45-55 | 201-1090-00 |
| H3 | SPACER, SLEEVE: steel, cadmium or zinc plated; 0.112 in. id, 0.155 in. od, 0.125 in. lg; Oak Mfg. Co. part no. 8980-2-1/8 | 269-1401-00 |
| H4 | SPACER, SLEEVE: cadmium or zinc plated; 0.122 in. id, 0.155 in. od, 0.1875 in. lg; Oak Mfg. Co. part no. 8980-2-3/16 | 269-1402-00 |
| H5 | SPACER, SLEEVE: steel, cadmium or zinc plated; 0.122 in. id, 0.155 in. od; 0.250 in. lg; Oak Mfg. Co. part no. 8980-2-1/4 | 269-1403-00 |
| H6 | GROMMET, RUBBER: synthetic; 0.343 in. od, 0.250 in. od of groove, 0.062 in. thk flange, 0.125 in. dia hole, 0.187 in. h o/a 0.062 in. w groove; Lavelle Rubber Co. part no. 901 | 201-1040-00 |
| H7 | POST: CRES; 0.168 in. id, 0.249 in. od, 0.700 in. lg | 543-8065-002 |
| H8 | WASHER: brass, chemical polish; 0.125 in. id, 0.500 in. od; 0.025 in. thk | 545-6025-002 |
| *H9 | POST, ELECTRICAL-MECHANICAL EQUIPMENT: aluminum, chemical film; 4-40 UNC-2B thd., 0.750 in. lg. | 540-9049-003 |
| H10 | STOP, THREADED: CRES; 0.094 in. dia. by 0.437 in. lg. o/a dim, no. 2-56 thd | 546-2130-002 |
| H11 | BUMPER, RUBBER: black synthetic; 75 durometer hardness rating, 11/64 in. id, 23/32 in. od, 15/32 in. h/oa; Lavelle Rubber Co. part no. 747-R | 200-5010-00 |
| H12 | WASHER: stainless steel; 0.144 in. id, 0.500 in. od; 0.031 in. thk. | 503-2604-001 |


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| ITEM | DESCRIPTION | COLLINS PART NUMBER |
|---|---|---|
| H13 | SCREW, MACHINE: stainless steel; passivate finish; 6-32 thd, 0.438 in. lg; Phillip's recessed | 543-8116-00 |
| H14 | SPACER, SLEEVE: aluminum; 0.187 in. od, 0.035 in. thk wall; 1 in. 1; #4 screw size | 541-5999-002 |
| *H15 | SPACER, SLEEVE: steel, cadmium or zinc plated 0.112 in. id, 0.155 in. od, 0.500 in. lg; Oak Mfg Co. part no. 8980-2-1/2 | 269-1407-00 |
| H16 | POST, ELECTRICAL-MECHANICAL EQUIPMENT: aluminum; 0.187 in. w across flats by 1.750 in. lg; tapped 4-40 UNC -2B thd. | 540-9063-003 |
| *H17 | NUT, SPECIAL: brass, bright alloy plate; 0.421 in. by 0.4687 in. by 0.625 in. | 544-7266-002 |
| J1 | JACK, TELEPHONE: steel, miniature, panel mtd; Switchcraft, Inc. part no. 3501FP | 360-0148-00 |
| J2 | JACK, TELEPHONE: same as J1 | 360-0148-00 |
| J3 | NOT USED | |
| J4 | NOT USED | |
| J5 | JACK, TELEPHONE: same as J1 | 360-0148-00 |
| J6 | JACK, TELEPHONE: spring leaf contacts; 50 milliohms max contact resistance; 1 amp at 28 vdc contact resistance rating | 360-0433-010 |
| J7 | NOT USED | |
| J8 | JACK, TELEPHONE: same as J1 | 360-0148-00 |
| J9 | JACK, TELEPHONE: same as J1 | 360-0148-00 |
| J10 | JACK, TELEPHONE: same as J1 | 360-0148-00 |
| J11 | JACK, TELEPHONE: same as J1 | 360-0148-00 |
| J12 | JACK, TELEPHONE: same as J1 | 360-0148-00 |
| L1 | NOT USED | |
| L2 | COIL, RADIO FREQUENCY: single layer wound; 15 turns no. 28AWG, formvar insulation | 543-8025-002 |
| L3 | TRANSFORMER AND COIL ASSEMBLY: 3.055 mc freq; 25/32 in. by 25/32 in. by 2.875 in. o/a; Communications Coil Co. part no. X-185-1; L3 and T3 purchased as matched units. | 278-1721-00 |
| L4 | DELETED | |
| L5 | COIL, RADIO FREQUENCY: 10 uh inductance 0.60 ohms max dc resistance, 600 ma max current rating, 3/16 in. dia, 7/16 in. lg; Delevan Electronics Corp. part no. 1840-30 | 240-0149-00 |
| L6 | REACTOR: 1 coil, 3.0 by inductance, 0.120 A current, 100 ohms resistance; Stancor Electronics, Inc. part no. 11272 | 668-0020-00 |
| L7 | COIL, RADIO FREQUENCY: 1,000 uh inductance, 16 ohms dc resistance, 135 ma dc current; James Millen Mfg. Co., Inc part no. J301-1000 | 240-2540-00 |
| L8 | TRANSFORMER, INTERMEDIATE FREQUENCY: 455 kc; 1-1/4 in. by 1-19/64 in. by 4-3/8 in.; Wells Electronics Co. part no. 453-1 | 278-0653-00 |
| L9 | DELETED | |
| L10 | TRANSFORMER, RADIO FREQUENCY: 200 turns litz wire, 1/4 pi wound; 25/32 in. by 25/32 in. by 3 in. o/a; Communications Coil part no. X-453-1 | 278-0655-00 |
| L11 | NOT USED | |
| L12 | COIL, RADIO FREQUENCY: 470 uh inductance, 6 ohms dc resistance, 0.18 amp current rating, Delevan Electronics Corp. part no. 1537-740 | 240-2149-00 |
| L13 | NOT USED | |
| L14 | COIL, RADIO FREQUENCY: 2000 uh nom inductance, 27.5 ohms dc resistance, 0.1 amp current rating, James Millen Mfg. Co., Inc. part no. J301-2000 | 240-2547-00 |
| L15 | COIL, RADIO FREQUENCY: same as L14 | |
| L16 | COIL, RADIO FREQUENCY: 100 uh ±5%, 3.5 ohms max dc resistance, 200 ma dc current: Delevan Electronics Corp. part no. 1537-732 | 240-2141-00 |
| L17 | COIL, RADIO FREQUENCY: 10 mh ±5%, at 250 KC; 0.125 in. dia by 0.437 in. lg; National Coil Co. part no. C0047327 | 240-0199-00 |
| M1 | VOLTMETER: panel type, dc type, meter range 0-1 ma, 0.250 v scale markings, 50 scale divisions; Electric Design of Mfg Co. part no. 458-0044-00 | 458-0044-00 |
| MP1 | COUPLING SHAFT: brass, nickel-plated; 0.500 in. o/a dia, 0.750 in. o/a lg; James Millen Mfg. Co., Inc. part no. 39003 | 015-0257-00 |

*Used in 75S-3C only

| ITEM | DESCRIPTION | COLLINS PART NUMBER |
|---|---|---|
| MP2 | COUPLING, SHAFT: same as MP1 | 015-0257-00 |
| MP3 | COUPLING, ELECTRICAL CONDUIT: brass nickel-plated hubs, nylon insulator, 1/2 in. dia. by 21/32 in. lg; Rembrandt, Inc. part no. A-201-5 | 015-0514-00 |
| MP4 | BALL BEARING: stainless steel, 0.0001 in. sphericity, 0.125 in. dia; New Departure Div. of GMC part no. 551/8 IN. AIBWBALL | 309-0019-00 |
| MP5 | BEARING, SLEEVE: porous bronze; 0.1565 in. id., 0.2525 in. od, 0.250 in. 1.; Amplex Division of Chrysler Corp. part no. A238-5MILL6085A | 309-0424-00 |
| MP6 | BEARING, SLEEVE: Same as MP5 | 309-0424-00 |
| MP7 | BEARING, SLEEVE: Same as MP5 | 309-0424-00 |
| MP8 | BALL, BEARING: Steel; 0.250 in. dia; New Departure Div. of General Motors Corp. part no. 1/4 In. A1BWBALL | 309-5300-00 |
| MP9 | BALL, BEARING: Same as MP8 | 309-5300-00 |
| MP10 | BALL, BEARING: Same as MP8 | 309-5300-00 |
| MP11 | BALL, BEARING: Same as MP8 | 309-5300-00 |
| MP12 | CAN, SHIELD: rectangular; aluminum; 1.843 in by 2.3375 in. by 2.806 in. | 543-8027-002 |
| MP13 | CAN, SHIELD: Same as MP12 | 543-8027-002 |
| MP14 | CAN, SHIELD: Same as MP12 | 543-8027-002 |
| MP15 | TABLE ASSEMBLY, SLUG: 2.843 in. by 5.250 in. by 8.917 in. o/a dim. | 543-8030-00 |
| MP16 | BUSHING-BEARING ASSEMBLY: steel bushing bronze bearing; 0.500 in. dia by 0.468 in. lg o/a dim.; 0.312 in. dia by 0.187 in. lg bearings | 543-8035-00 |
| MP17 | SHAFT ASSEMBLY: aluminum; 0.812 in. dia by 0.812 in. lg o/a dim. | 543-8042-00 |
| MP18 | BRACKET, LIGHT: aluminum; chromate dip; 7/8 in. by 1-1/6 in. by 3-1/2 in. | 543-8060-00 |
| MP19 | BRACKET, MTG. SWITCH: aluminum, chromate dip; 9/16 in. by 1-5/8 in. by 1-23/32 in. | 543-8061-00 |
| MP20 | BAR, SUPPORTER: aluminum, chromate dip finish; 0.093 in. by 1.000 in. by 8.843 in. o/a dim. | 543-8062-00 |
| MP21 | SHAFT, SUN: CRES; 0.250 in. by 0.730 in. by 2.500 in. | 543-8063-002 |
| MP22 | BRACKET, REAR: CRES; cadmium plated; 5/8 in. by 2-1/4 in. by 3-1/4 in. | 543-8071-003 |
| MP23 | BRACKET, FRONT: steel, cadmium plated 5/8 in. by 2-1/4 in. by 3-1/4 in. | 543-8072-003 |
| MP24 | SHAFT, PLANETARY: aluminum; chromate dip; 0.375 in. by 0.674 in. by 10.450 in. | 543-8073-003 |
| MP25 | PULLEY: aluminum, chromate dip; 0.562 in. by 0.685 in. | 543-8087-002 |
| MP26 | INDICATOR: black nylon; 0.406 in. by 0.861 in. by 1.163 in. | 543-8088-002 |
| MP27 | WINDOW, DIAL: transparent plastic; 0.031 in. by 2.187 in. by 4.374 in.; marked w/index line | 543-8093-003 |
| MP28 | SPRING SLUG RACK: steel; 0.031 in. dia material, 0.281 in. id, 0.343 in. od, 0.452 in. lg o/a dim. | 543-8103-002 |
| MP29 | CLIP, ELECTRICAL: beryllium copper, 0.468 in. by 0.665 in. by 1.093 in. o/a dim. | 544-2844-002 |
| MP30 | PULLEY: Same as MP25 | |
| MP31 | SUPPORT, WINDOW: aluminum, anodized finish; 0.032 in. thk., 0.375 in, by 1.5623 in. | 544-3128-002 |
| MP32 | SHAFT, BANDSWITCH: bias wound milamine; 0. 186 in. by 0.248 in. by 6.500 in. | 544-3138-002 |
| MP33 | SPRING, SHORT: music wire; cadmium plated; 0.040 in. thk., 4.468 in. 1. | 544-3140-002 |
| MP34 | HUB, IDLER: CRES; passivate finish; 0.150 in. by 0.2494 in. by 0.400 in. | 545-6000-002 |
| MP35 | GEAR SPUR: nylon; 0.833 in. dia. by 0.358 in. lg. 38 teeth, 20 deg. pressure angle | 545-6002-002 |
| MP36 | COVER, FILTER: steel, cadmium plated, gray enamel finish; 1.812 in. by 2.890 in. by 3.390 in. by 0.041 in. thk. | 553-4353-001 |
| MP37 | DIAL ASSEMBLY, KEYED: marked 0 to 100 and 120 to 200, c/o 3 screws Collins part no. 320-0008-00, 3 washers Collins part no. 543-5577-003, 3 washers Collins part no. 310-0274-00, 1 dial Collins part no. 543-8033-002, 1 dial Collins part no. 543-8034-002, 1 drum Collins part no. 543-8076-002, 1 washer Collins part no. 543-8084-002, 1 ring Collins part no. 546-7823-004, 1 washer Collins part no. 543-8104-002 | 546-7829-004 |

| ITEM | DESCRIPTION | COLLINS PART NUMBER |
|---|---|---|
| MP38 | SHIELD, RADIO FREQUENCY: aluminum, chromate dip; 0.400 in. thk, 0.4687 in. by 6.125 in. | 554-2570-004 |
| MP39 | SHAFT, STRAIGHT: plastic; 0.186 in. by 0.250 in. by 7.250 in. | 554-2559-002 |
| **MP40 | ESCUTCHEON: phenolic; 0.515 in. by 3.625 in. by 4.477 in.; inscribed 75S-3B | 553-5713-004 |
| MP41 | SHAFT ASSEMBLY, TUNING: 0.500 in. dia by 1.404 in. o/a dim. | 548-9326-00 |
| MP42 | FOOT CABINET: aluminum; 0.984 in. dia by 0.719 in. lg | 543-8101-002 |
| MP43 | FOOT, CABINET: Same as MP42 | |
| MP44 | STOP, LID: CRES; medium gray enamel; 0.062 in. thk, by 0.625 in. by 0.625 in. | 544-7239-002 |
| MP45 | STOP, LID: Same as MP44 | 544-7239-002 |
| MP46 | DIAL ASSEMBLY, KEYED: Same as MP37 | 546-7829-004 |
| *MP47 | COVER ASSEMBLY CRYSTAL: felt pad, aluminum cover; 0.125 in. by 1.812 in. by 2.500 in. o/a dim.; chromate dipped cover | 544-7261-00 |
| *MP48 | CARD ASSEMBLY, FREQUENCY SELECTOR: white opaque graphic Lamicoid, 0.086 in. by 2.562 in. by 2.656 in. o/a dim + two 0.375 in. dia. by 0.046 in. thk felt pads | 544-7262-00 |
| *MP49 | CRANK, BELL: casting alloy; 0.350 in. by 0.524 in. by 0.992 in o/a dim. | 544-7267-00 |
| *MP50 | ESCUTCHEON: black general purpose phenolic w/ black semigloss enamel finish; 0.405 in. by 3.625 in. by 4.477 in. | 553-5714-004 |
| O1 | KNOB: push-on type, spring steel; 0.250 in. od, flatted 0.156 in. | 543-8039-002 |
| O2 | KNOB: Same as O1 | 543-8039-002 |
| O3 | KNOB: Same as O1 | 543-8039-002 |
| O4 | KNOB: phenolic; 1.009 in. w across flats by 0.750 in. thk | 543-8043-00 |
| O5 | KNOB: aluminum, black anodize enamel; 0.421 in. by 0.500 in. | 543-8078-002 |
| O6 | KNOB, SPINNER: plastic, 0.859 in. by 2.078 in. by 2.515 | 553-5787-003 |
| O7 | KNOB: set screw type; black phenolic body, metal insert; 1.500 in. dia by 0.375 in. thk | 548-9335-004 |
| O8 | KNOB: setscrew type; rd shape, positive gripping surface, phenolic body; 1.009 in. dia by 0.749 in. thk | 548-9325-00 |
| O9 | KNOB: setscrew type; phenolic body, positive gripping surface; 1.125 in. dia by 0.500 in. thk; w/skirt | 548-9322-00 |
| O10 | KNOB: setscrew type; phenolic body, positive gripping surface; 1.125 in. dia by 0.750 in. thk; w/pointer and skirt | 548-9321-00 |
| O11 | LEVER, SWITCH: black nylon; 13/64 in. by 7/8 in. by 1 in. | 548-9342-003 |
| *O12 | KNOB, POINTER: black phenolic, rd w/fin lever; 0.750 in. by 0.937 in. by 1.093 in. | 544-0779-004 |
| P1 | DUMMY LOAD, ELECTRICAL: 100 ohms; 1/2 in. dia by 0.967 in. lg | 544-3143-00 |
| R1 | RESISTOR, FIXED, COMPOSITION: 2.2 megohms ±10%, 1/2 w; Allen Bradley type EB | 745-1492-00 |
| R2 | RESISTOR, FIXED, COMPOSITION: 47,000 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1422-00 |
| R3 | RESISTOR, FIXED, COMPOSITION: 1000 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1352-00 |
| R4 | RESISTOR, FIXED, COMPOSITION: 0.22 megohm ±10%, 1/2 w; Allen Bradley type EB | 745-1450-00 |
| R5 | RESISTOR, FIXED, COMPOSITION: Same as R3 | 745-1352-00 |
| R6 | RESISTOR, FIXED, COMPOSITION: Same as R3 | 745-1352-00 |
| R7 | RESISTOR, FIXED, COMPOSITION: Same as R4 | 745-1450-00 |
| R8 | RESISTOR, FIXED, COMPOSITION: 68 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1303-00 |
| R9 | RESISTOR, FIXED, COMPOSITION: Same as R3 | 745-1352-00 |
| R10 | RESISTOR, FIXED, COMPOSITION: Same as R3 | 745-1352-00 |
| R11 | RESISTOR, FIXED, COMPOSITION: 0.10 megohm ±10%, 1/2 w; Allen Bradley type EB | 745-1436-00 |
| R12 | DELETED | |
| R13 | RESISTOR, VARIABLE, COMPOSITION: 500 ohms ±20%, 0.2 w; Chicago Telephone type 70 | 376-4605-00 |
| R14 | RESISTOR, FIXED, COMPOSITION: Same as R3 | 745-1352-00 |
| R15 | RESISTOR, FIXED, COMPOSITION: 15,000 ohms ±10%, 1 w; Allen Bradley type GB | 745-3401-00 |
| R16 | RESISTOR, FIXED, COMPOSITION: 56,000 ohms ±10%, 1/2, Allen Bradley type EB | 745-1426-00 |
| R17 | RESISTOR, FIXED, COMPOSITION: 27 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1286-00 |
| R18 | RESISTOR, FIXED, COMPOSITION: Same as R3 | 745-1352-00 |
| R19 | RESISTOR, FIXED, COMPOSITION: Same as R11 | 745-1436-00 |
| R20 | NOT USED | |
| R21 | RESISTOR, FIXED, COMPOSITION: 39 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1293-00 |
| R22 | RESISTOR, FIXED, COMPOSITION: Same as R3 | 745-1352-00 |
| R23 | RESISTOR, FIXED, COMPOSITION: 0.18 megohm ±10%, 1/2 w; Allen Bradley type EB | 745-1447-00 |
| R24 | RESISTOR, FIXED, COMPOSITION: 1.5 megohms ±10%, 1/2 w; MIL type RC20GF155K | 745-1485-00 |
| R25 | RESISTOR, FIXED, COMPOSITION: 5600 ohms ±10%, 1/2 w; Allen Bradley type KB | 745-1384-00 |
| R26 | NOT USED | |
| R27 | RESISTOR, FIXED, COMPOSITION: 100 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1310-00 |
| R28 | RESISTOR, FIXED, COMPOSITION: 68,000 ohms ±10%, 1/2 w; MIL type RC20GF683K | 745-1429-00 |
| R29 | RESISTOR, FIXED, COMPOSITION: 6,800 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1387-00 |
| R30 | RESISTOR, FIXED, COMPOSITION: Same as R2 | 745-1422-00 |
| R31 | RESISTOR, VARIABLE, COMPOSITION: dual section; 10,000 ohms ±30%, 1/4 w; section 1; 500,000 ohms ±3% 1/4 w; section 2; Chicago Telephone type 45 | 376-2151-00 |
| R32 | RESISTOR, FIXED, COMPOSITION: 8200 ohms ±10%, 1/2 w; MIL type RC20GF822K | 745-1391-00 |
| R33 | RESISTOR, FIXED, COMPOSITION: 270 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1328-00 |
| R34 | RESISTOR, FIXED, COMPOSITION: Same as R11 | 745-1436-00 |
| R35 | RESISTOR, FIXED, COMPOSITION: Same as R4 | 745-1450-00 |
| R36 | RESISTOR, FIXED, COMPOSITION: 1.0 megohm ±10%, 1/2 w; Allen Bradley type EB | 745-1478-00 |
| R37 | RESISTOR, FIXED, COMPOSITION: Same as R23 | 745-1447-00 |
| R38 | RESISTOR, FIXED, COMPOSITION: Same as R3 | 745-1352-00 |
| R39 | RESISTOR, FIXED, COMPOSITION: Same as R11 | 745-1436-00 |
| R40 | RESISTOR, FIXED, COMPOSITION: Same as R28 | 745-1429-00 |
| R41 | RESISTOR: P/O P1 | |
| R42 | RESISTOR, FIXED, COMPOSITION: 680 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1345-00 |
| R43 | RESISTOR, FIXED, COMPOSITION: Same as R11 | 745-1436-00 |
| R44 | RESISTOR, FIXED, COMPOSITION: Same as R11 | 745-1436-00 |
| R45 | RESISTOR, FIXED, COMPOSITION: Same as R3 | 745-1352-00 |
| R46 | RESISTOR, FIXED, COMPOSITION: Same as R36 | 745-1478-00 |
| R47 | RESISTOR, FIXED, COMPOSITION: Same as R24 | 745-1485-00 |
| R48 | RESISTOR, FIXED, COMPOSITION: Same as R4 | 745-1450-00 |
| R49 | RESISTOR, FIXED, COMPOSITION: Same as R3 | 745-1352-00 |
| R50 | RESISTOR, FIXED, COMPOSITION: 4700 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1380-00 |
| R51 | RESISTOR, FIXED, WIREWOUND: 1000.0 ohms ±10%, 5 w; International Resistance Co. part no. PW5-1001-00 | 710-9113-00 |
| R52 | RESISTOR, FIXED, COMPOSITION: 5600 ohms ±10%, 2 w; Allen Bradley type HB | 745-5684-00 |
| R53 | RESISTOR, FIXED, COMPOSITION: Same as R16 | 745-1426-00 |
| R54 | RESISTOR, FIXED, COMPOSITION: 22,000 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1408-00 |
| R55 | RESISTOR, FIXED, COMPOSITION: 12,000 ohms ±10%, 1/2; MIL type RC20GF123K | 745-1398-00 |
| R56 | RESISTOR, VARIABLE, COMPOSITION: Same as R31 | 376-2151-00 |
| R57 | RESISTOR, VARIABLE, COMPOSITION: 1,000 ohms ±20%, 0.2 w; Chicago Telephone type 70 | 376-4606-00 |
| R58 | RESISTOR, FIXED, COMPOSITION: Same as R55 | 745-1398-00 |
| R59 | RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 3 w; MIL type RW69V821 | 747-5358-00 |

* Used in 75S-3C only
** Used in 75S-3B only

| ITEM | DESCRIPTION | COLLINS PART NUMBER |
|---|---|---|
| R60 | RESISTOR, FIXED, COMPOSITION: Same as R11 | 745-1436-00 |
| R61 | RESISTOR, FIXED, COMPOSITION: 15,000 ohms ±10%, 1/2 w; MIL type RC20GF153K | 745-1401-00 |
| R62 | RESISTOR, FIXED, COMPOSITION: 6800 ohms ±10%, 2 w; Allen Bradley type HB | 745-5687-00 |
| R63 | RESISTOR, FIXED, COMPOSITION: Same as R36 | 745-1478-00 |
| R64 | RESISTOR, FIXED, COMPOSITION: Same as R11 | 745-1436-00 |
| R65 | RESISTOR, FIXED, COMPOSITION: Same as R36 | 745-1478-00 |
| R66 | RESISTOR, FIXED, COMPOSITION: 120 ohms ±10%, 1/2 w; MIL type RC20GF121K | 745-1314-00 |
| R67 | RESISTOR, FIXED, COMPOSITION: 1,200 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1356-00 |
| R68 | RESISTOR, FIXED, COMPOSITION: Same as R50 | 745-1380-00 |
| R69 | DELETED | |
| R70 | RESISTOR, FIXED, COMPOSITION: Same as R11 | 745-1436-00 |
| R71 | RESISTOR, FIXED, COMPOSITION: 820 ohms ±10%, 1/2 w; MIL type RC20GF821K | 745-1349-00 |
| R72 | DELETED | |
| R73 | RESISTOR, FIXED, COMPOSITION: Same as R3 | 745-1352-00 |
| R74 | RESISTOR, FIXED, COMPOSITION: 0.33 megohm ±10%, 1/2 w; Allen Bradley type EB | 745-1457-00 |
| R75 | RESISTOR, FIXED, COMPOSITION: 47 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1296-00 |
| R76 | RESISTOR: P/O L8 | |
| R77 | RESISTOR: P/O L8 | |
| R78 | RESISTOR, FIXED, COMPOSITION: 0.27 megohms ±10%, 1/2 w; Allen Bradley type EB | 745-1454-00 |
| R79 | RESISTOR, FIXED, COMPOSITION: Same as R2 | 745-1422-00 |
| R80 | RESISTOR: P/O L10 | |
| R81 | RESISTOR, VARIABLE, COMPOSITION: 100,000 ohms ±30%, 1/4 w; Chicago Telephone includes S13 | 376-2530-00 |
| R82 | RESISTOR, FIXED, COMPOSITION: 27,000 ohms ±10%, 1/2 w; Allen Bradley type EB | 745-1412-00 |
| R83 | RESISTOR, FIXED, FILM: 17,800 ±1%, 1/4 w; IRC Type MDB | 705-7156-00 |
| R84 | RESISTOR, FIXED, FILM: 6,810 ohms ±1%, 1/4 w; IRC Type MDB | 705-7136-00 |
| R85 | RESISTOR, FIXED, FILM: 51,100 ohms ±1%, 1/4 w; IRC type MDB | 705-7178-00 |
| R86 | RESISTOR, FIXED, WIREWOUND: Same as R51 | 710-9113-00 |
| R87 | RESISTOR, FIXED, COMPOSITION: Same as R75 | 745-1296-00 |
| R88 | RESISTOR, FIXED, COMPOSITION: 0.68 megohms ±10%, 1/2 w; MIL type RC20GF684K | 745-1471-00 |
| R89 | DELETED | |
| R90 | RESISTOR, FIXED, COMPOSITION: Same as R82 | 745-1412-00 |
| R91 | RESISTOR, FIXED, COMPOSITION: 1800 ohms ±5%, 2 w; MIL type RC42GF1823 | 745-5662-00 |
| R92 | RESISTOR, FIXED, COMPOSITION: 1000 ohms ±10%, 1 w; MIL type RC32GF102K | 745-3352-00 |
| R93 | RESISTOR, FIXED, COMPOSITION: Same as R1 | 745-1492-00 |
| S1 | SWITCH, WAFER, ROTARY: 1 circuit, 14 position, 1 section; 1 moving, 16 fixed contacts; Oak Mfg. Co. part no. 91873-OK1 | 259-0981-00 |
| *S1B | SWITCH, SECTION, ROTARY: 1 circuit, (1 Pole), 14 position, 1 section; 1 moving, 16 fixed contacts; Oak Mfg. Co. type CK | 269-1977-00 |
| S2 | SWITCH WAFER, ROTARY: 1 circuit, 1 pole, 14 position; phenolic; 1 moving, 14 fixed contacts; Oak Mfg. Co. type CK | 269-2027-00 |
| S3 | SWITCH WAFER, ROTARY: Same as S2 | 269-2027-00 |
| S4 | SWITCH WAFER, ROTARY: Same as S2 | 269-2027-00 |
| S5 | SWITCH, ROTARY: non pile up type; 3 circuit, 4 position, 1 section; 3 moving, 12 fixed contacts; Oak Mfg. Co. type F | 259-0949-00 |
| S6 | SWITCH SECTION, ROTARY: 2 circuit, 12 position; phenolic; 2 moving, 11 fixed contacts; Oak Mfg. Co. part no. 232506-F | 269-2467-00 |
| S7 | SWITCH SECTION ROTARY: 2 circuit, 12 position; 2 moving; 11 fixed contacts; Oak Mfg. Co. part no. 232505-F | 269-2466-00 |
| S8 | SWITCH SECTION, ROTARY: 2 circuit, 12 position; 2 moving, 12 fixed contacts; Oak Mfg. Co. part no. 232097-F | 269-2465-00 |
| S9 | SWITCH SECTION, ROTARY: 2 circuit, 12 position; phenolic; 9 fixed, 2 moving contacts; Oak Mfg. Co. part no. 232507-F | 269-2468-00 |
| S10 | SWITCH: P/O L8 | |
| S11 | SWITCH, ROTARY: 2 circuit; 2 poles; 5 positions; 1 section; 30 deg detent; 2 moving contacts; 4 fixed contacts; 1 dummy contact; 1 amp at 28 vdc, resistive; 0.5 amp at 110 vac, resistive; Oak Mfg. Co. part no. 255920F1 | 259-2533-010 |
| S12 | SWITCH, ROTARY: 1 circuit (1 pole) 3 position 1 moving, 4 fixed contacts; Grigsby Co. Inc. type MLR | 259-1491-00 |
| S13 | SWITCH: P/O R81 | |
| *S14 | SWITCH, ROTARY: 1 circuit (1 pole), 2 position, 1 moving contact, 3 fixed contacts; Oak Mfg. Co. part no. 191774-23 | 259-0980-00 |
| T1 | TRANSFORMER, RADIO FREQUENCY: one winding w/30 turns no. 28AWG, one w/3 turns no. 26AWG | 543-8120-002 |
| T2 | COIL, RADIO FREQUENCY: 1 winding w/12 turns no. 28 AWG, 1 winding w/3 turns no. 26 AWG | 543-8122-002 |
| T3 | TRANSFORMER AND COIL ASSEMBLY. 3.055 mc freq., 0.781 in. by 0.781 in. by 2.875 in. o/a; Communications Coil Co. part no. X-185-1; L3 and T3 purchased as matched unit | 278-1721-00 |
| T4 | TRANSFORMER, INTERMEDIATE, FREQUENCY: 440 kc to 270 kc frequency range; Communications Coil part no. X-083-1 | 278-0281-00 |
| T5 | TRANSFORMER, INTERMEDIATE, FREQUENCY: Same as T4 | 278-0281-00 |
| T6 | TRANSFORMER, INTERMEDIATE, FREQUENCY: Same as T4 | 278-0281-00 |
| T7 | TRANSFORMER, AUDIO: primary 2500 ohms, 1250 rms; secondary 500 ohms, 1000 rms; 300 - 3000 cps frequency response; continuous duty cycle; Stancor Electronics, Inc. part no. 27232 | 667-0302-00 |
| T8 | TRANSFORMER, POWER, STEP-UP AND STEP-DOWN: primary 115 or 230 vrms; secondary 290 vrms; CT; 6.3 vrms; 50-60 cps; continuous duty cycle | 662-0250-010 |
| T9 | TRANSFORMER, INTERMEDIATE FREQUENCY: 455KC frequency; 0.468 in. dia by 0.796 in. by 0.493 in.; Aladdin Electronics Div. of Aladdin Industries, Inc. part no. 16-144-02 | 278-2080-010 |
| T10 | TRANSFORMER, INTERMEDIATE FREQUENCY: Same as T4 | 278-0281-00 |
| TB1 | TERMINAL BOARD: phenolic 12 solder lug terminals; 1-1/2 in. o/a; Vector Mfg. Co. part no. 6H-12 | 306-0909-00 |
| TB2 | TERMINAL BOARD: Same as TB1 | 306-0909-00 |
| TB3 | TERMINAL BOARD: plastic, 1.875 in. lg, 0.375 in. w, 0.062 in. thk.; Cinch Mfg. Co. part no. 1542A | 306-0550-00 |
| TB4 | TERMINAL BOARD: bakelite, 4 terminals, 1 grounded 3 insulated; 21/32 in. w by 1-1/2 in. lg; Cinch Mfg. Corp. part no. 1534-A | 306-2240-00 |
| TB5 | TERMINAL BOARD: bakelite, 2 terminals, 21/32 In. w, 7/16 in. by 3/4 in. lg; Cinch Mfg. Co. part no. 1513-A | 306-2220-00 |
| TB6 | TERMINAL BOARD: Same as TB5 | 306-2220-00 |
| TB7 | TERMINAL BOARD: Same as TB5 | 306-2220-00 |
| TB8 | TERMINAL BOARD: phenolic; w/3 solder lug terminals; 1/16 in. by 3/8 in. by 1-1/8 in.; Cinch Mfg. Co. and Howard B. Jones Div. part no. 332-1403-165 | 306-0001-00 |
| TB9 | TERMINAL BOARD: phenolic, 3 solder-lug terminals; 11/16 in. w by 1-1/8 in. lg; Cinch Mfg. Corp. part no. 1529-A | 306-0587-00 |
| TB10 | TERMINAL BOARD: plastic, 3 solder lug type, 1.125 in. lg; 0.375 in. w, 0.062 in. h; Cinch Mfg. Co. part no. 1520-A | 306-9033-00 |
| TB11 | TERMINAL BOARD: Same as TB1 | 306-0909-00 |
| TB12 | NOT USED | |
| TB13 | TERMINAL BOARD: Same as TB5 | 306-2220-00 |
| TB14 | TERMINAL BOARD: plastic; 0.062 in. by 0.375 in. by 1.500 in.; Cinch Mfg. Co. part no. 1532A | 306-9032-00 |
| TB15 | TERMINAL BOARD: Same as TB10 | 306-9033-00 |
| TB16 | NOT USED | |
| TB17 thru TB19 | TERMINAL STUD: single ended, insulated standoff; metal base; 0.250 in. w across flats by 5/8 in. lg; 6000 breakdown vac; Armel Electronics Inc. part no. RTMT12M | 306-0976-00 |

* Used in 75S-3C only

| ITEM | DESCRIPTION | COLLINS PART NUMBER |
|---|---|---|
| TB20 | NOT USED | |
| TB21 | TERMINAL BOARD: Same as TB5 | 306-2220-00 |
| TB22 | TERMINAL BOARD: Same as TB5 | 306-2220-00 |
| TB23 | TERMINAL BOARD: Same as TB5 | 306-2220-00 |
| V1 | ELECTRON TUBE: glass envelope; pentode; Radio Corporation of America part no. 6DC6 | 255-0226-00 |
| V2 | ELECTRON TUBE: Same as V1 | 255-0226-00 |
| V3 | ELECTRON TUBE: miniature pentode; Radio Corporation of America part no. 6EA8 | 255-0379-00 |
| V4 | ELECTRON TUBE: Same as V3 | 255-0379-00 |
| V5 | ELECTRON TUBE: twin triode; Radio Corporation of America part no. 12AX7 | 255-0201-00 |
| V6 | ELECTRON TUBE: glass envelope; pentode; Radio Corp. of America part no. 6BA6 | 255-0185-00 |
| V7 | ELECTRON TUBE: Same as V6 | 255-0185-00 |
| V8 | ELECTRON TUBE: Same as V3 | 255-0379-00 |
| V9 | ELECTRON TUBE: duplex-diode-triode; Radio Corp. of America part no. 6AT6 | 255-0190-00 |
| V10 | ELECTRON TUBE: pentode; General Electric Co. part no. 6BF5 | 255-0330-00 |
| V11 | ELECTRON TUBE: Same as V1 | 255-0226-00 |
| XDS1 | LAMPHOLDER: for use with miniature bayonet bulb; 1-3/8 in. lg o/a; Micarta Fabricators, Inc. part no. DB718 | 262-1210-00 |
| XF1 | FUSEHOLDER: extractor post type; 125 v, 5 amps; accommodates 3 AG cartridge fuse; Bussmann Fuse part no. HKP 1/16 | 265-1002-00 |
| XFL1 | SOCKET, TRANSISTOR: 3 leads; 1 amp current rating 0.3 ohms resistance; Grayhill Company part no. 22-16-3 | 220-1545-00 |
| XFL2 | SOCKET, TRANSISTOR: Same as XFL1 | 220-1545-00 |
| XFL3 | SOCKET, TRANSISTOR: Same as XFL1 | 220-1545-00 |
| XFL4 | SOCKET, TRANSISTOR: Same as XFL1 | 220-1545-00 |
| XV1 | SOCKET, ELECTRON TUBE: 7 pin miniature; molded construction; low loss composition; 0.343 in. h, 0.812 in. w, 1.125 in. lg o/a dim. excl terminals; Elco Mfg. Co., Inc. part no. 241BC | 220-1044-00 |
| XV2 | SOCKET, ELECTRON TUBE: Same as XV1 | 220-1044-00 |
| XV3 | SOCKET, ELECTRON TUBE: 9 pin miniature, top mtg; molded construction; low loss composition; Elco Mfg. Co., Inc. part no. 274BC | 220-1054-00 |
| XV4 | SOCKET, ELECTRON TUBE: Same as XV3 | 220-1054-00 |
| XV5 | SOCKET, ELECTRON TUBE: Same as XV3 | 220-1054-00 |
| XV6 | SOCKET, ELECTRON TUBE: Same as XV1 | 220-1044-00 |
| XV7 | SOCKET, ELECTRON TUBE: Same as XV1 | 220-1044-00 |
| XV8 | SOCKET, ELECTRON TUBE: Same as XV3 | 220-1054-00 |
| XV9 | SOCKET, ELECTRON TUBE: Same as XV1 | 220-1044-00 |
| XV10 | SOCKET, ELECTRON TUBE: Same as XV1 | 220-1044-00 |
| XV11 | SOCKET, ELECTRON TUBE: Same as XV1 | 220-1044-00 |
| XY1 thru XY11 | NOT USED | |
| XY12 | SOCKET, CRYSTAL: 14 contact positions, silver plated copper contacts; phenolic body; 0.434 in. by 2.062 in. by 2.450 in. excl terminals | 544-2825-002 |
| XY13 | NOT USED | |
| *XY14 | SOCKET, CRYSTAL: Same as XY12 | 544-2825-00 |
| XY15 | NOT USED | |
| XY16 | NOT USED | |
| XY17 | SOCKET, CRYSTAL: 2 regularly spaced contacts positions, 0.486 in. c to c each contact 0.243 in. from center; cadmium plated phosphor bronze or beryllium copper; H. H. Eby, Inc. type 8878 | 292-0082-00 |
| Y1 | CRYSTAL UNIT, QUARTZ: 6555.0 KC frequency; Midland Mfg. Co., Inc. part no. MO 9009 | 290-9009-00 |
| Y2 | CRYSTAL UNIT, QUARTZ: 6755.0 KC frequency; Midland Mfg. Co., Inc. part no. MO 9010 | 290-9010-00 |
| Y3 | CRYSTAL UNIT QUARTZ: 6955.000 KC frequency; Midland Mfg. Co., Inc. part no. MO9011 | 290-9011-00 |
| Y4 | CRYSTAL UNIT QUARTZ: 10155.0 KC frequency; Midland Mfg. Co. Inc. part no. MO9027 | 290-9027-00 |
| Y5 | CRYSTAL UNIT QUARTZ: 10355.0 KC frequency; Midland Mfg. Co. Inc. part no. MO 9028 | 290-9028-00 |
| Y6 | CRYSTAL UNIT QUARTZ: 8577.500 KC frequency; Midland Mfg. Co., Inc. part no. MO 9062 | 290-9062-00 |
| Y7 | CRYSTAL UNIT QUARTZ: 8677.50 KC frequency; Midland Mfg. Co., Inc. part no. MO 9063 | 290-9063-00 |
| Y8 | CRYSTAL UNIT QUARTZ: 8977.50 KC frequency; Midland Mfg. Co., Inc. part no. MO 9066 | 290-9066-00 |
| Y9 | CRYSTAL UNIT QUARTZ: 12077.50 KC frequency; Midland Mfg. Co., Inc. part no. MO 9097 | 290-9097-00 |
| Y10 | CRYSTAL UNIT QUARTZ: 12177.50 KC frequency; Midland Mfg. Co. Inc. part no. MO 9098 | 290-9098-00 |
| Y11 | CRYSTAL UNIT QUARTZ: 12277.50 KC frequency; Midland Mfg. Co., Inc. part no. MO 9099 | 290-9099-00 |
| Y12 | CRYSTAL UNIT QUARTZ: 15827.50 KC frequency; Midland Mfg. Co., Inc. part no. MO 9201 | 290-9201-00 |
| Y13 | NOT SUPPLIED | |
| Y14 | NOT SUPPLIED | |
| Y15 | CRYSTAL UNIT QUARTZ: 453.650 KC frequency; Bliley Electric Co.,Inc. part no. 290-8705-00 | 290-8705-00 |
| Y16 | CRYSTAL UNIT QUARTZ: 456.350 KC freq., Bliley Electric Co., Inc. part no. 290-8706-00 | 290-8706-00 |
| Y17 | CRYSTAL UNIT QUARTZ: metal plated; 100,000 KC/see frequency range, ±0.02%; 5,000 ohms resistance; Bliley Electric Co. | 290-8454-00 |
| | 75S-3B/C ACCESSORY GROUP | |
| | PLUG, TIP: small banana contact element; plastic insulation; non precious metal contact; 1.250 in. lg o/a; Switchcraft, Inc. part no. 3501MC | 361-0062-00 |
| | CONNECTOR, ADAPTER, ELECTRICAL: 3 contact, 125 v, 15 amps; 1-3/16 + 11/16 by 1-1/16 in.; Bell Electric Co. part no. 350 | 368-0138-00 |
| | FUSE, CARTRIDGE: 250 v, 1 amp; carry 110%, open at 135% within 1 hour; glass body; silver plated brass ferrule terminals; MIL type F02B250V1AS | 264-4280-00 |
| | KEY, SOCKET HEAD SCREW: steel; multiple spline socket screw wrench for #8 setscrew; 6 flutes; 0.026 in. by 0.094 in. by 1.781 in. to 1.968 in.; Bristol Co. part no. S-094 | 024-0019-00 |
| | CABLE ASSEMBLY, POWER ELECTRICAL: one no. 16 AWG, one no. 18AWG conductor terminated w/11 pin connector | 544-3121-00 |
| | CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 3 conductor; 3 stranded no. 18 AWG rubber insulation; rubber jacket; 6 ft. 0.843 in. lg o/a, 6 ft lg excl terminations, 0.325 in. dia o/a cross section of cable; Beldon Mfg. Co. part no. KH3491 | 426-1464-00 |
| | *CONNECTOR, RECEPTACLE, ELECTRICAL:* 11 female contacts, 5 amps; Amphenol-Borg part no. 78-S11M-1005 | *372-1952-00* |
| | SHIELD, ELECTRICAL: steel, black Japan finish; 1-7/16 in. lg by 1-3/16 in. dia. o/a; snap-on type; metal clamp to accommodate 5/8 in. dia. cable; Amphenol - Borg part no. 3-24 | 372-1762-00 |
| | LOG BOOK: | 523-0755-820 |
| | MARKER, CARD: 39 printed, 9 blank self sticking wire markers, 3/8 in. by 2-1/2 in.; 5 in. by 9 in. card; Westline Products Division of Western Lithograph Co. part no. 280-2946-00 | 280-2946-00 |
| | KEY, SOCKET HEAD SCREW: steel, 4 flutes; multiple spline socket screw for #10 set screw 0.029 in. by .110 in. by 2.093 in.; Bristol Co. part no. S-110 | 024-9710-00 |
| | KEY, SOCKET HEAD SCREW: steel, 4 flutes; multiple spline socket screw wrench for #6 set screw; 0.028 in. by 0.076 in. by 1.843 in.; Bristol Co. part no. S-076-4 | 024-9730-00 |
| | KEY SOCKET HEAD SCREW: steel, 6 flutes, multiple spline socket screw wrench for #4 set screw; 5/8 in. by 1-3/4 in.; Bristol Co. part no. S-060 | 024-2900-00 |

*Chosen per operation requirements

| ITEM | DESCRIPTION | COLLINS PART NUMBER |
|---|---|---|
| | 70K-2 OSCILLATOR | 522-1093-00 |
| *C301 | CAPACITOR, FIXED, CERAMIC, DIELECTRIC: 20 uuf ±1 uuf, 500 vdc; -400 ±15% temperature coefficient; Centralab Div. of Globe-Union, Inc. part no. DA933-002 | 913-0053-00 |
| *C301 | CAPACITOR, FIXED, CERAMIC DIELECTRIC: 20 uuf ±1 uuf, 500 vdc; -600 ±15% temperature coefficient; Centralab Div. of Globe-Union, Inc. part no. DA933-006 | 913-0054-00 |
| *C301 | CAPACITOR, FIXED, CERAMIC DIELECTRIC: 20 uuf ±1 uuf, 500 vdc; -800 ±15% temperature coefficient; Centralab Div. of Globe-Union, Inc. part no. DA933-007 | 913-0055-00 |
| *C301 | CAPACITOR, FIXED, CERAMIC DIELECTRIC: 20 uuf ±1 uuf, 500 vdc; -1000 ±15% temperature coefficient; Centralab Div. of Globe-Union, Inc. part no. DA933-008 | 913-0056-00 |
| *C301 | CAPACITOR, FIXED, CERAMIC DIELECTRIC: 20 uuf ±1 uuf, 500 vdc; -1200 ±15% temperature coefficient; Centralab Div. of Globe-Union, Inc. part no. DA934-017 | 913-0057-00 |
| *C301 | CAPACITOR, FIXED, CERAMIC DIELECTRIC: 20 uuf ±1 uuf, 500 vdc; -1400 ±15% temperature coefficient; Centralab Div. of Globe-Union, Inc. part no. DA934-018 | 913-0058-00 |
| *C301 | CAPACITOR, FIXED, CERAMIC DIELECTRIC: 20 uuf ±2 uuf, 500 vdc; -1600 ±15% temperature coefficient; Centralab Div. of Globe-Union, Inc. part no. DA934-023 | 913-0232-00 |
| *C301 | CAPACITOR, FIXED, CERAMIC DIELECTRIC: 20 uuf ±2 uuf, 500 vdc; -1800 ±15% temperature coefficient; Centralab Div. of Globe-Union, Inc. part no. DA934-024 | 913-0233-00 |
| *C301 | CAPACITOR, FIXED, CERAMIC, DIELECTRIC: 20 uuf ±2 uuf, 500 vdc; -2000 ±15% temperature coefficient; Centralab Div. of Globe-Union, Inc. part no. DA934-025 | 913-0234-00 |
| *C301 | CAPACITOR, FIXED, CERAMIC DIELECTRIC: 20 uuf ±2 uuf, 500 vdc; -2200 ±15% temperature coefficient; Centralab Div. of Globe-Union, Inc. part no. DA934-026 | 913-0235-00 |
| C302 | CAPACITOR, FIXED, MICA: 1,000 uuf ±1% 500 v dc; Electro Motive part no. DM20F102F-500WV | 912-1749-00 |
| C303 | CAPACITOR, FIXED, MICA: 3000 uuf, ±1% 500 vdcw; Electro Motive Mfg. Co. part no. DM20F302F-500WV | 912-1748-00 |
| C304 | CAPACITOR, FIXED, MICA: 200 uuf ±1% 300 v dc; Electro Motive part no. DM15E201F-300WV | 912-3468-00 |
| *C305 | CAPACITOR, FIXED, CERAMIC: 100 uuf ±2% 500 v dc; Centralab part no. DA932-005 | 913-0074-00 |
| *C305 | CAPACITOR, FIXED, CERAMIC DIELECTRIC: 100 uuf ±2 uuf, 500 vdc; -2000 ±15% temperature coefficient; Centralab Div. of Globe-Union, Inc. part no. DA933-016 | 913-0244-00 |
| C306 | CAPACITOR, FIXED, CERAMIC: 0.02 uf -40% +60%, 250 v dc; Sprague Electric Co. part no. 20C109 | 913-2097-00 |
| C307 | CAPACITOR, FIXED, CERAMIC: Same as C306 | 913-2097-00 |
| C308 | CAPACITOR, VARIABLE, CERAMIC: 5.0 uuf min. to 37.5 uuf max., 350 v dc; Erie Resistor Corp. part no. 557018 COPO 39R | 917-1073-00 |
| C309 | CAPACITOR, FIXED, CERAMIC: Same as C306 | 913-2097-00 |
| C310 | CAPACITOR, FIXED, CERAMIC: Same as C306 | 913-2097-00 |
| C311 | CAPACITOR, FIXED, CERAMIC DIELECTRIC: 10 uuf ±1 uuf, 500 vdc; 0 ±30 PPM temperature coefficient; Centralab Div. of Globe-Union, Inc. part no. DA933-001 | 913-0043-00 |
| CR301 | SEMICONDUCTOR DEVICE, DIODE: germanium; Sylvania part no. 1N34A | 353-0103-00 |
| H301 | WASHER, FLAT: brass, cadmium plated; 0.218 in. id, 0.375 in. od, 0.031 in. thk | 503-4964-001 |
| H302 | LEADSCREW: brass, chrome plated; rh spiral groove, 8 turns per in., 1 in. lg; 0.187 in. dia by 2.962 in. lg o/a | 543-7332-003 |
| H303 | WASHER, STOP: steel, cadmium plated; 0.191 in. id, 0.500 in. od, 0.164 in. thk; 1/8 in. w by 0.094 in. lg stop | 542-5438-002 |
| H304 | WASHER, KEY: steel, cadmium plated; 0.191 in. id, 0.500 in. od, 0.253 in. h; 0.075 in. w by 0.093 in. lg prebent key | 543-7328-002 |
| H305 | NUT, PLAIN, HEXAGON: brass, nickel plated; 4-40 NC-2 thd, 3/16 in. by 1/16 in. Pheoll Mfg. Co. | 313-0156-00 |
| H306 | WASHER, FLAT: stainless steel; passivate finish; 0.120 in. id, 0.203 in. od, 0.025 in. thk | 540-3022-003 |
| L301 | TRIMMER ASSEMBLY: 9 turns #28 AWG wire, 1 toroid coil and hardware | 543-7323-00 |
| L302 | TRIMMER ASSEMBLY: same as L301 | 543-7323-00 |
| L303 | COIL, RADIO FREQUENCY: 10 turns no. 30 AWG; single layer wound | 543-7333-003 |
| L304 | COIL, RADIO FREQUENCY: angle layer wound, magnet wire 3.30 uh; Communications Coil Co. | 240-0695-00 |
| MP301 | BALL, GLASS: pyrex; 0.125 in. dia; Hartford Steel Ball Co. Inc. | 309-0778-00 |
| MP302 | COVER, OSCILLATOR: aluminum; 1.978 in. by 2.180 in. by 2.500 in. excl hardware | 543-7321-00 |
| MP303 | COVER REAR, OSCILLATOR: aluminum, chromate dipped; 5/8 in. by 2-3/16 in. by 3-1/4 in. | 543-7329-002 |
| MP304 | CONTACT, ELECTRICAL: copper, gold plated; 0.250 in. by 0.673 in. by 1.030 in. | 542-5439-002 |
| MP305 | COLLAR, STOP: cres, gold pated; 0.375 in. dia by 0.171 in. w | 542-5437-002 |
| MP306 | PLATE, REAR: CRES, passivate finish; 0.078 in. thk; 1 in. dia | 542-5431-002 |
| R301 | RESISTOR, FIXED, COMPOSITION: 0.10 megohms ±10%, 1/2 w; Allen Bradley Co. type EB | 745-1436-00 |
| R302 | RESISTOR, FIXED, COMPOSITION: 82,000 ohms ±5%, 1/2 w; Allen Bradley Co. type EB | 745-1432-00 |
| R303 | RESISTOR, FIXED, COMPOSITION: same as R301 | 745-1436-00 |
| T301 | TRANSFORMER, RADIO FREQUENCY: pri 380 uh nom; 790 kc; sec 2.7 uh nom; 2.6 mc; Delevan Electronics | 240-0665-00 |
| V301 | ELECTRON TUBE: sharp cutoff pentode; RCA 7543 | 257-0301-00 |
| XV301 | SOCKET, TUBE: turret type, 7 pin miniature; 1-3/32 in. by 1-5/8 in. lg; Eby, Hugh H., Inc. part no. 9737-95 | 220-1189-00 |

*Chosen per operation requirements

GENERAL COVERAGE CRYSTALS AVAILABLE

| CRYSTAL FREQUENCY FOR (kc) | OPERATING FREQUENCY (mc) | PART NUMBER | CRYSTAL FREQUENCY FOR (kc) | OPERATING FREQUENCY (mc) | PART NUMBER | CRYSTAL FREQUENCY (mc) | OPERATING FREQUENCY (mc) | PART NUMBER |
|---|---|---|---|---|---|---|---|---|
| *6555.000 | 3.4-3.6 | 290-9009-00 | *8577.500 | 14.0-14.2 | 290-9062-00 | 12977.500 | 22.8-23.0 | 290-9106-00 |
| *6755.000 | 3.6-3.8 | 290-9010-00 | 8627.500 | 14.1-14.3 | 290-9179-00 | 13077.500 | 23.0-23.2 | 290-9107-00 |
| *6955.000 | 3.8-4.0 | 290-9011-00 | *8677.500 | 14.2-14.4 | 290-9063-00 | 13177.500 | 23.2-23.4 | 290-9108-00 |
| 7155.300 | 4.0-4.2 | 290-9012-00 | 8777.500 | 14.4-14.6 | 290-9064-00 | 13277.500 | 23.4-23.6 | 290-9109-00 |
| 7355.000 | 4.2-4.4 | 290-9013-00 | 8877.500 | 14.6-14.8 | 290-9065-00 | 13377.500 | 23.6-23.8 | 290-9110-00 |
| 7555.000 | 4.4-4.6 | 290-9014-00 | *8977.500 | 14.8-15.0 | 290-9066-00 | 13477.500 | 23.8-24.0 | 290-9111-00 |
| 7755.000 | 4.6-4.8 | 290-9015-00 | 9077.500 | 15.0-15.2 | 290-9067-00 | 13577.500 | 24.0-24.2 | 290-9112-00 |
| 7955.000 | 4.8-5.0 | 290-9016-00 | 9177.500 | 15.2-15.4 | 290-9068-00 | 13677.500 | 24.2-24.4 | 290-9113-00 |
| 9755.000 | 6.6-6.8 | 290-9025-00 | 9277.500 | 15.4-15.6 | 290-9069-00 | 13777.500 | 24.4-24.6 | 290-9114-00 |
| 9955.000 | 6.8-7.0 | 290-9026-00 | 9377.500 | 15.6-15.8 | 290-9070-00 | 13877.500 | 24.6-24.8 | 290-9115-00 |
| *10155.000 | 7.0-7.2 | 290-9027-00 | 9477.500 | 15.8-16.0 | 290-9071-00 | 13977.500 | 24.8-25.0 | 290-9116-00 |
| *10355.000 | 7.2-7.4 | 290-9028-00 | 9577.500 | 16.0-16.2 | 290-9072-00 | 14077.500 | 25.0-25.2 | 290-9117-00 |
| 10555.000 | 7.4-7.6 | 290-9029-00 | 9677.500 | 16.2-16.4 | 290-9073-00 | 14177.500 | 25.2-25.4 | 290-9118-00 |
| 10755.000 | 7.6-7.8 | 290-9030-00 | 9777.500 | 16.4-16.6 | 290-9074-00 | 14277.500 | 25.4-25.6 | 290-9119-00 |
| 10955.000 | 7.8-8.0 | 290-9031-00 | 9877.500 | 16.6-16.8 | 290-9075-00 | 14377.500 | 25.6-25.8 | 290-9120-00 |
| 11155.000 | 8.0-8.2 | 290-9032-00 | 9977.500 | 16.8-17.0 | 290-9076-00 | 14477.500 | 25.8-26.0 | 290-9121-00 |
| 11355.000 | 8.2-8.4 | 290-9033-00 | 10077.500 | 17.0-17.2 | 290-9077-00 | 14577.500 | 26.0-26.2 | 290-9122-00 |
| 11555.000 | 8.4-8.6 | 290-9034-00 | 10177.500 | 17.2-17.4 | 290-9078-00 | 14677.500 | 26.2-26.4 | 290-9123-00 |
| 11755.000 | 8.6-8.8 | 290-9035-00 | 10277.500 | 17.4-17.6 | 290-9079-00 | 14777.500 | 26.4-26.6 | 290-9124-00 |
| 11955.000 | 8.8-9.0 | 290-9036-00 | 10377.500 | 17.6-17.8 | 290-9080-00 | 14877.500 | 26.6-26.8 | 290-9125-00 |
| 12155.000 | 9.0-9.2 | 290-9037-00 | 10477.500 | 17.8-18.0 | 290-9081-00 | 14977.500 | 26.8-27.0 | 290-9126-00 |
| 12355.000 | 9.2-9.4 | 290-9038-00 | 10577.500 | 18.0-18.2 | 290-9082-00 | 15077.500 | 27.0-27.2 | 290-9127-00 |
| 12555.000 | 9.4-9.6 | 290-9039-00 | 10677.500 | 18.2-18.4 | 290-9083-00 | 15177.500 | 27.2-27.4 | 290-9128-00 |
| 12755.000 | 9.6-9.8 | 290-9040-00 | 10777.500 | 18.4-18.6 | 290-9084-00 | 15277.500 | 27.4-27.6 | 290-9129-00 |
| 12955.000 | 9.8-10.0 | 290-9041-00 | 10877.500 | 18.6-18.8 | 290-9085-00 | 15377.500 | 27.6-27.8 | 290-9130-00 |
| 13155.000 | 10.0-10.2 | 290-9042-00 | 10977.500 | 18.8-19.0 | 290-9086-00 | 15477.500 | 27.8-28.0 | 290-9131-00 |
| 13355.000 | 10.2-10.4 | 290-9043-00 | 11077.500 | 19.0-19.2 | 290-9087-00 | 15527.500 | 27.9-28.1 | 290-9142-00 |
| 13555.000 | 10.4-10.6 | 290-9044-00 | 11177.500 | 19.2-19.4 | 290-9088-00 | 15577.500 | 28.0-28.2 | 290-9132-00 |
| 13755.000 | 10.6-10.8 | 290-9045-00 | 11277.500 | 19.4-19.6 | 290-9089-00 | 15627.500 | 28.1-28.3 | 290-9143-00 |
| 13955.000 | 10.8-11.0 | 290-9046-00 | 11377.500 | 19.6-19.8 | 290-9090-00 | 15677.500 | 28.2-28.4 | 290-9133-00 |
| 14155.000 | 11.0-11.2 | 290-9047-00 | 11477.500 | 19.8-20.0 | 290-9091-00 | 15727.500 | 28.3-28.5 | 290-9144-00 |
| 14355.000 | 11.2-11.4 | 290-9048-00 | 11577.500 | 20.0-20.2 | 290-9092-00 | 15777.500 | 28.4-28.6 | 290-9134-00 |
| 14555.000 | 11.4-11.6 | 290-9049-00 | 11677.500 | 20.2-20.4 | 290-9093-00 | *15827.500 | 28.5-28.7 | 290-9201-00 |
| 14755.000 | 11.6-11.8 | 290-9050-00 | 11777.500 | 20.4-20.6 | 290-9094-00 | 15877.500 | 28.6-28.8 | 290-9135-00 |
| 14955.000 | 11.8-12.0 | 290-9051-00 | 11877.500 | 20.6-20.8 | 290-9095-00 | 15927.500 | 28.7-28.9 | 290-9145-00 |
| 7577.500 | 12.0-12.2 | 290-9052-00 | 11977.500 | 20.8-21.0 | 290-9096-00 | 15977.500 | 28.8-29.0 | 290-9136-00 |
| 7677.500 | 12.2-12.4 | 290-9053-00 | *12077.500 | 21.0-21.2 | 290-9097-00 | 16027.500 | 28.9-29.1 | 290-9146-00 |
| 7777.500 | 12.4-12.6 | 290-9054-00 | *12177.500 | 21.2-21.4 | 290-9098-00 | 16077.500 | 29.0-29.2 | 290-9137-00 |
| 7877.500 | 12.6-12.8 | 290-9055-00 | *12277.500 | 21.4-21.6 | 290-9099-00 | 16127.500 | 29.1-29.3 | 290-9147-00 |
| 7977.500 | 12.8-13.0 | 290-9056-00 | 12377.500 | 21.6-21.8 | 290-9100-00 | 16177.500 | 29.2-29.4 | 290-9138-00 |
| 8077.500 | 13.0-13.2 | 290-9057-00 | 12477.500 | 21.8-22.0 | 290-9101-00 | 16227.500 | 29.3-29.5 | 290-9148-00 |
| 8177.500 | 13.2-13.4 | 290-9058-00 | 12577.500 | 22.0-22.2 | 290-9102-00 | 16277.500 | 29.4-29.6 | 290-9139-00 |
| 8277.500 | 13.4-13.6 | 290-9059-00 | 12677.500 | 22.2-22.4 | 290-9103-00 | 16327.500 | 29.5-29.7 | 290-9149-00 |
| 8377.500 | 13.6-13.8 | 290-9060-00 | 12777.500 | 22.4-22.6 | 290-9104-00 | 16377.500 | 29.6-29.8 | 290-9140-00 |
| 8477.500 | 13.8-14.0 | 290-9061-00 | 12877.500 | 22.6-22.8 | 290-9105-00 | 16477.500 | 29.8-30.0 | 290-9141-00 |

*Crystals furnished with receivers.

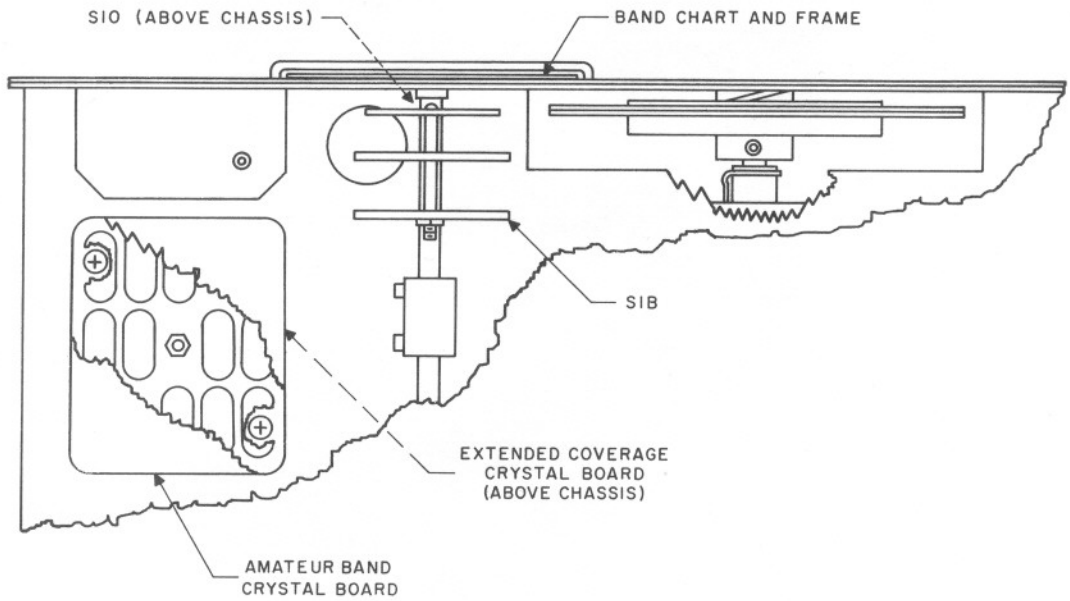


Figure 6-1. 75S-3C, Location of Added Components

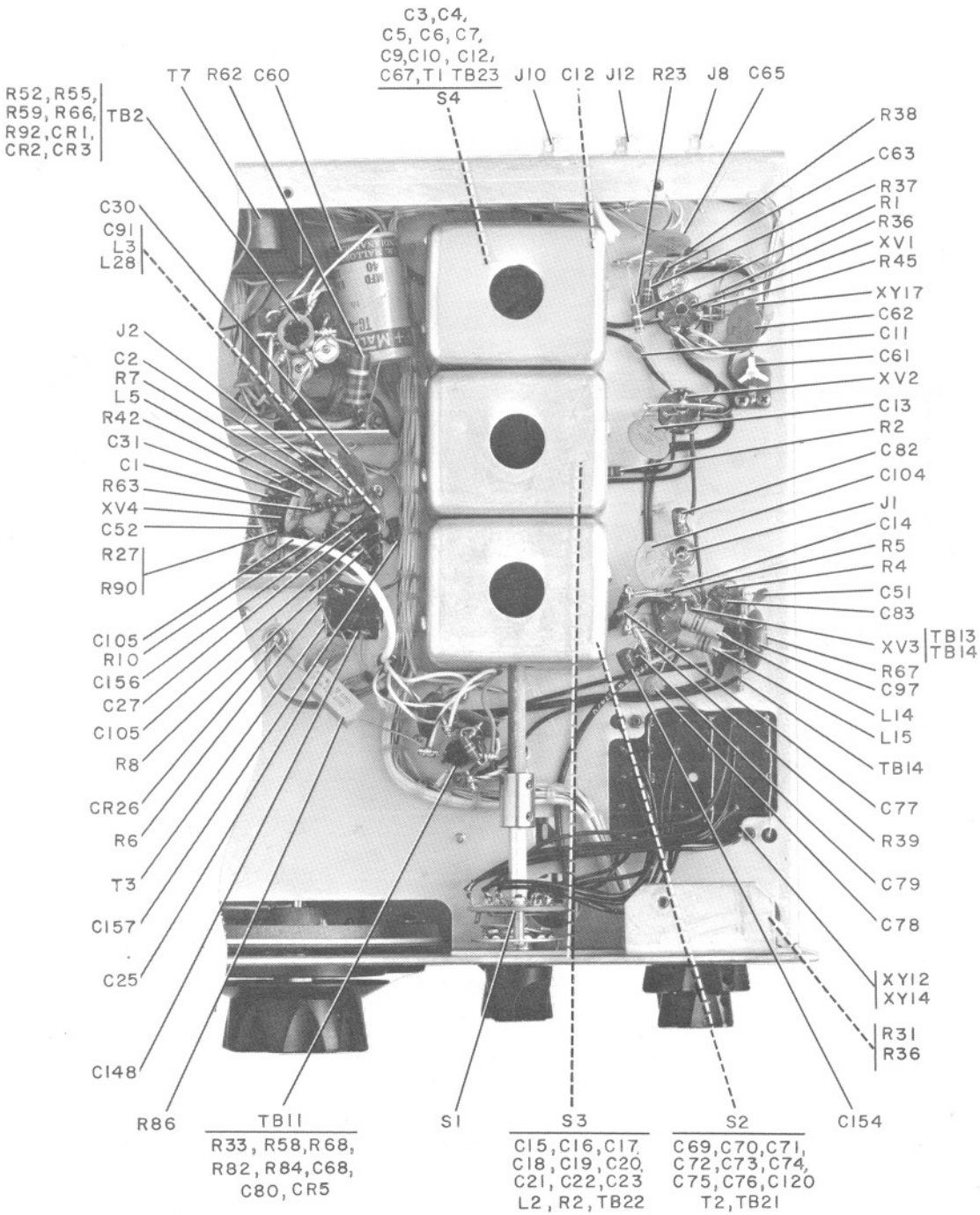


Figure 6-2. Bottom View, Left Side, Parts Location

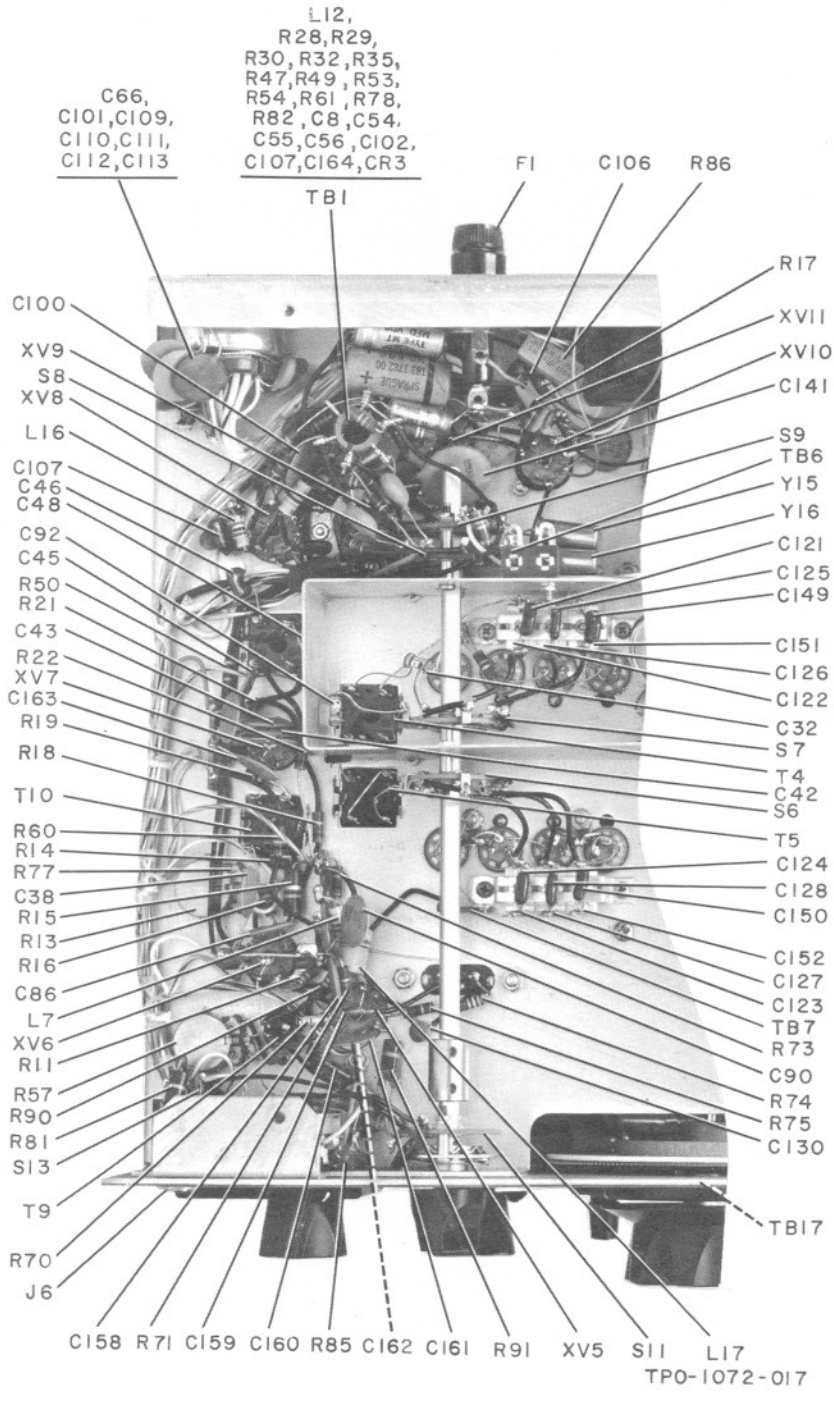


Figure 6-3. Bottom View, Right Side, Parts Location

NOTE:

ALL SWITCH WAFERS ARE MOUNTED WITH THEIR TOP FRONT IDENTIFICATION MARKS NEAREST THE CHASSIS AND TOWARD THE FRONT. TERMINAL NUMBER 1 IS THE FIRST TERMINAL CLOCKWISE FROM THE IDENTIFICATION MARK.

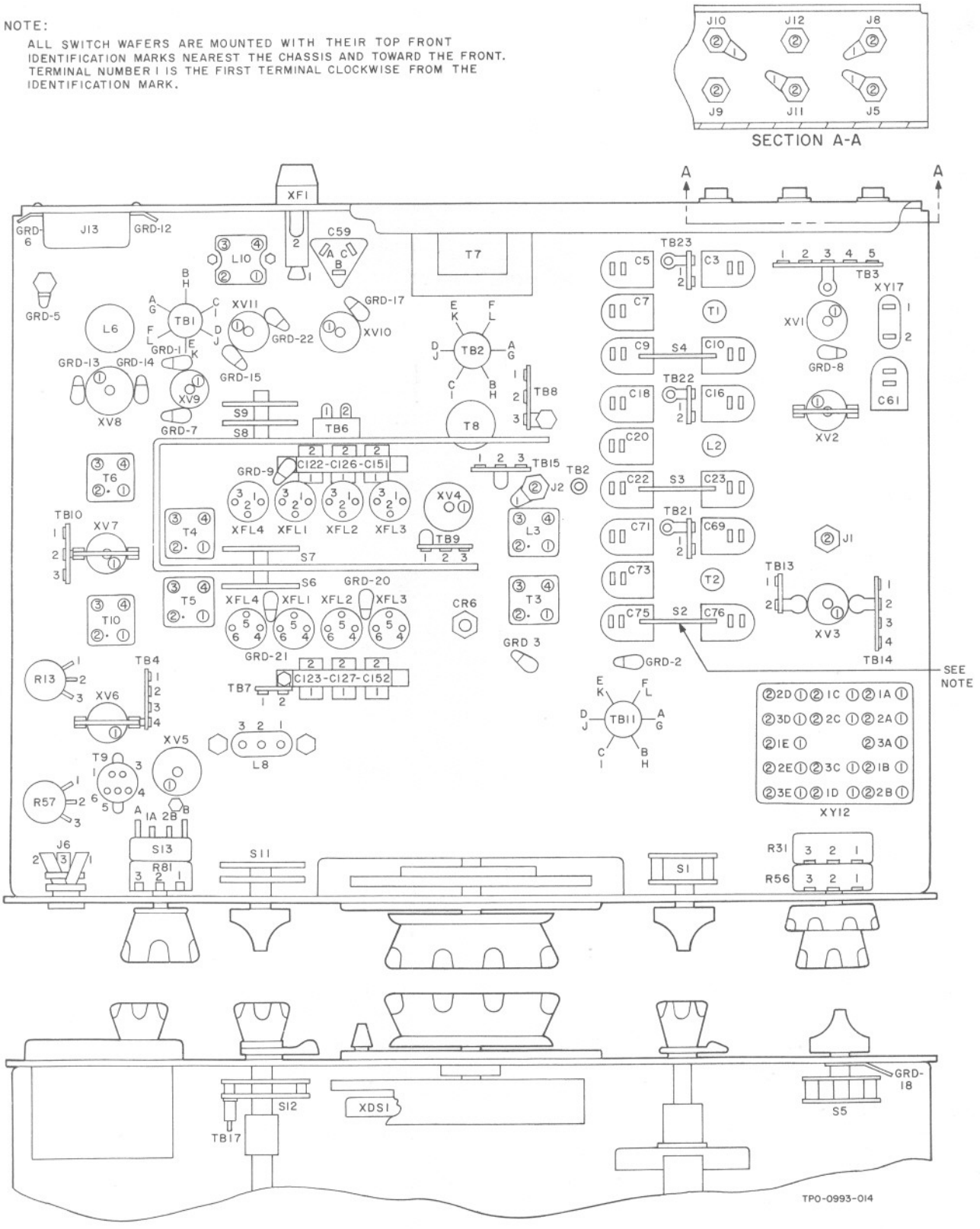


Figure 7-2. Chassis Component Location Display (Bottom View)

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# Collins Authorized Service Agencies

ALABAMA

Beddow Engineering Services
1501 Seventh Street SE
Decatur 35601

CALIFORNIA

Ham Radio Outlet
999 Howard Avenue
Burlingame 94101

Amrad Supply, Inc.
3425 Balboa Street
San Francisco 94121

Communication Receiver Service
5016 Maplewood
Los Angeles 90004

Henry Radio, Inc.
931 N. Euclid
Anaheim 92801

Henry Radio Co., Inc.
(P.O. Box 64398)
11240 W. Olympic Blvd.
Los Angeles 90064

Amrad Supply, Inc.
1025 Harrison Street
Oakland

COLORADO

Burstein-Applebee Co. of Colorado
800 Lincoln Street
Denver 80202

FLORIDA

Ogilvie Electronics, Inc.
3101 Spring Park Road
Jacksonville 32207

Aero Maintenance Radio, Inc.
82 Fairway Drive
Miami Springs 33166

Grice Electronics, Inc.
330 East Wright Street
(P.O. Box 1911)
Pensacola 32501

Kinkade Radio Supply, Inc.
1719 Grand Central Avenue
Tampa 33606

GEORGIA

Commercial Communications
2752 Church Street
East Point 30044

HAWAII

Honolulu Electronics
819 Keeaumoku Street
Honolulu 96814

LOUISIANA

Radio Parts, Inc.
1112 Magazine Street
New Orleans 70113

MARYLAND

Electronic International Service Corp.
11305 Elkin Street
(P.O. Box 1813)
Wheaton 20902

MASSACHUSETTS

Two-Way Radio Engineers, Inc.
1100 Tremont Street
Roxbury 01969

MINNESOTA

Electronic Center, Inc.
107 3rd Avenue North
Minneapolis 55404

MISSISSIPPI

Coker Radio & TV Service
724 Lawrence Road
Jackson 39206

NEW JERSEY

Communication Service Co.
508 County Avenue
Maple Shade 08052

NEW MEXICO

Simms Communications Inc.
217 Camino Encantado
Santa Fe 87501

NEW YORK

Electronic Servicenter of New York
65-37 Queens Blvd.
Woodside 13789

NORTH CAROLINA

Freck Radio & Supply Co., Inc.
38 Biltmore Avenue
Asheville 28801

OHIO

Universal Service
144 N. Third Street
Columbus 43215

OKLAHOMA

Radio, Inc.
1000 South Main
Tulsa 74119

OREGON

Portland Radio Supply Co.
1234 S. W. Stark Street
Portland 97205

TEXAS

Electronic Center, Inc.
2929 N. Haskell
Dallas 75204

Electronic Equipment &
Engineering Company
2606 Westheimer
Houston 77006

Electronic Equipment &
Engineering Company
805 South Staples St.
Corpus Christi 78404

Howard Radio Company
1475 Pine Street
Abilene 79601

Douglas Electronics
1118 South Staples St.
Corpus Christi 78404

UTAH

Dwyer's TV & Communica
5455 Knollcrest Street
Murray 84647

WASHINGTON

HCJ Electronics
6904 East Sprague
Spokane 99206

WISCONSIN

Amateur Electronic Supply
4828 W. Fond du Lac Ave
Milwaukee 53208