GTM-D-175C(1)

TECHNICAL MANUAL

G175C(1) VHF RECEIVER

(PART NO. G175C1-00000-1)

FOR OFFICIAL USE ONLY

(AFR 11-30)

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INTRODUCTION

This equipment manual provides sufficient information for a maintenance specialist or system mechanic to install, operate, and maintain a specific unit.

Operation or maintenance of the unit as a part of a system requires reference to the applicable system manual.

Various NOTES, CAUTIONS, and WARNINGS are used throughout this manual to emphasize important and critical instructions and shall be used for the following conditions:

NOTE

An operating procedure, condition, etc., which it is essential to highlight

CAUTION

Operating procedures, practices, etc., which, if not strictly observed, will result in damage to or destruction of equipment

WARNING

Operating procedures, practices, etc., which will result in personal injury or loss of life if not correctly followed

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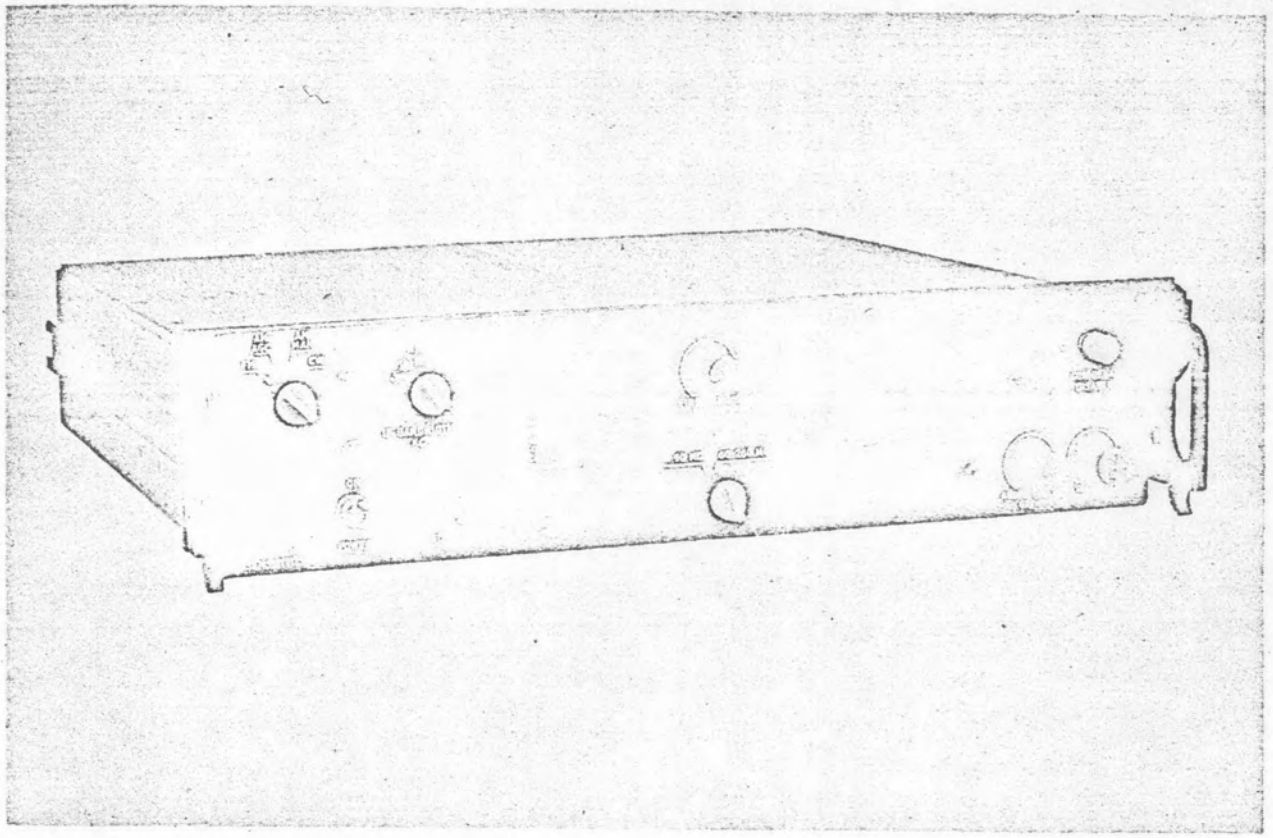

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SECTION I

GENERAL DESCRIPTION

1-1. GENERAL

The G175C(1)VHF Receiver receives AM, FM, and CW signals within the 30- to 260-megacycle frequency range. It provides a video signal suitable for driving a spectrum display unit, a tuner local oscillator signal, and a gain control voltage as outputs in addition to the audio output.

1-2. EQUIPMENT SUPPLIED

QTY	ITEM	PART NO.
1	VHF Receiver	G175C1-00000-1
1	VHF Receiver	G175C1-00000-2

1-3. EQUIPMENT REQUIRED BUT NOT SUPPLIED

QTY	DESCRIPTION	PART NO.
1	Connector	DS07-19S
1	Connector	DS07-12S
1	Connector	DS07-7S
3	Connector	UG21B/U
2	Connector	UG88/U

1-4. ELECTRICAL SPECIFICATIONS

Primary Power Requirements:	107.5 to 123 vac, 50 to 420 cps at approximately 0.43 ampere
	28-vdc for panel lamps (variable 0 to 28 volts)
	28(+1, -7)vdc for receiver circuits
Tuning Range:	30 to 260 mc
Fine Tuning:	Provides a minimum of ±25 kc tuning change from tuning dial setting.

Signal Inputs:	One low band RF input for the 30- to 90-mc band One high band RF input for the 60- to 260-mc band
Antenna Input Impedance:	Both suitable for operation with 50-ohm unbalanced transmission line
Signal outputs:	One video output One audio output One local oscillator output One output for a spectrum display unit
Carrier-Operated Relay (COR):	One COR providing three form C contact sets, rated at 28 vdc for 5 amperes resistive current. Actuation sensitivity adjustable between 7.0 μv and 1.0 mv RF input. Drop-out time is selectable for 3, 5, 7, and 10 seconds.
Types of Reception:	AM, FM, and CW
Intermediate Frequency strips:	Three separate IF amplifier strips; 3 mc, 40/75 kc, and 10 kc. Each strip is complete with AM and FM demodulators.
Beat Frequency Oscillator (BFO):	A BFO is used with the 40/75-kc IF strip for CW reception
Intermediate Frequencies:	Single conversion to 21.4 mc with 3-mc bandwidth Double conversion, 21.4 mc first IF and 2.5 mc second IF, with either 40- or 75-kc bandwidth. Double conversion, 21.4 mc first IF and 455 kc second IF, with 10-kc bandwidth.
IF Rejection:	Low Band; Above 50 mc, 60 db minimum Below 50 mc, 50 db minimum High Band; 80 db minimum

Image Rejection:	Low Band; 60 db minimum High Band; 50 db minimum
Local Oscillator Output:	300 (±100) mv into a 50-ohm unbalanced load
Oscillator Radiation:	Low Band; 15 μv maximum High Band; 15 μv maximum
AM Sensitivity (with 50% modulation by 1 kc):	Using 3-mc IF, a -88.5 dbm input signal produces a minimum 6-db S+N/N. Using 40-kc IF, a -105 dbm input signal produces a minimum 6-db S+N/N. Using 10-kc IF, a -111 dbm input signal produces a minimum 6-db S+N/N.
Discriminators:	Exhibit linear characteristics over the prescribed bandwidth with the zero crossing held to ±150 kc of the center frequency for the 3-mc IF, ±2 kc for the 40-kc IF, and ±0.5 kc for the 10-kc IF strips, respectively.
FM Sensitivity:	Using 3-mc IF, a 13 μv input signal with 100-kc deviation produces a 17-db minimum S+N/N. Using 40-kc IF, a 2 μv input signal with 15-kc deviation produces a 17-db minimum S+N/N. Using 10-kc IF, a 2 μv input signal with 3.5-kc deviation produces a 17-db minimum S+N/N.
Video Output Signal Level:	2 volts peak-to-peak in 91-ohm load
Video Amplifier Response:	Within 3 db between 20 cps to 3 mc, with total harmonic distortion less than 5% at maximum rated output.

Audio Output Power:	0.1 watt, minimum, into a 150-ohm unbalanced load
Audio Amplifier Response:	Within 3 db between 30 cps and 25 kc with total harmonic distortion less than 5% from 50 cps to 10 kc at 0.1 watt output power
Squelch Control Circuit:	35 db minimum muting. RF sensitivity adjustable from front panel between 4.0 μv to 1.0 mv input signal strength

1-5. MECHANICAL SPECIFICATIONS

Weight:	24 pounds
Height:	4.00 inches
Width:	18.18 inches
Depth:	15.00 inches
Heat Dissipation:	46 watts, maximum

SECTION II

PREPARATION FOR USE AND RESHIPMENT

2-1. UNPACKING AND INSPECTION

Perform the following steps when unpacking and inspecting the G175C(1) VHF Receiver.

a. Carefully remove the receiver from the shipping container.

b. When the receiver is uncrated, check contents against the packing list.

c. Examine humidity indicators. If excessive humidity is indicated, check the receiver for moisture damage.

d. Inspect all connectors for damage.

e. Visually inspect all exterior surfaces for dents and scratches.

f. Remove dust covers and visually inspect the interior for signs of damage.

g. Replace dust covers, and report all damage or missing components through normal supply channels.

2-2. INSTALLATION

The receiver is housed in a single cabinet and is designed for rack mounting. Critical dimensions of the receiver are shown in figure 2-1. To install, slide the receiver into suitable slide tracks (bolted to the racks) until the stops are engaged. Press the push-button catch on the top of each locking handle and pull the top part of the handle outward. Engage the hook-shaped lower portion of the handle in the fittings provided by the slide tracks, and return the upper portion to the locked position.

2-3. CONVERSION OF 40-KC BANDWIDTH STRIP TO 75-KC

As shipped, the 40/75-kc bandwidth IF strip of the receiver is set up for 40-kc bandwidth operation. The procedure for converting to the 75-kc bandwidth is presented in paragraph 3-4.

2-4. LOCAL OSCILLATOR OUTPUT LOAD

The local oscillator output, J106, must be terminated in a 50-ohm resistive load during receiver operation.

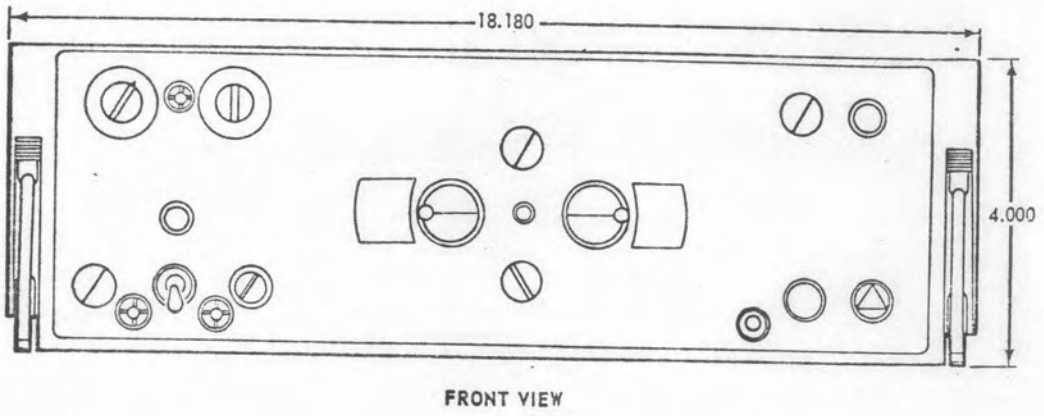
2-5. CARRIER OPERATED RELAY DROPOUT DELAY SELECTION

A carrier operated relay circuit in the receiver provides a visible indication when the receiver is tuned to an incoming signal. The COR DELAY DISABLE indicator lamp remains illuminated during the presence of an incoming signal, and for a preset delay period after the signal stops. The delay period can be set by the COR DELAY switch on the rear apron of the receiver. The skirt of the COR DELAY switch control knob is numbered 3, 5, 7, and 10 corresponding to 3-, 5-, 7-, and 10-second delays.

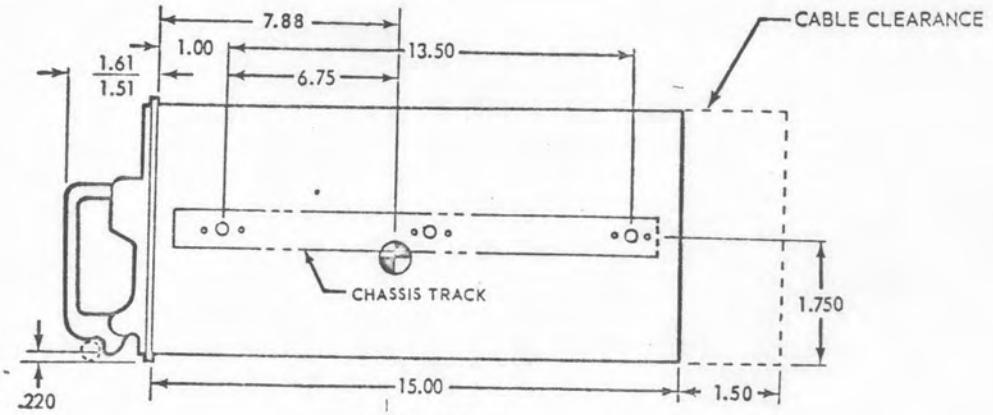
2-6. PREPARATION FOR RESHIPMENT

No special preparation is necessary to make the receiver ready for reshipment. The unit is shipped with internal components in place.

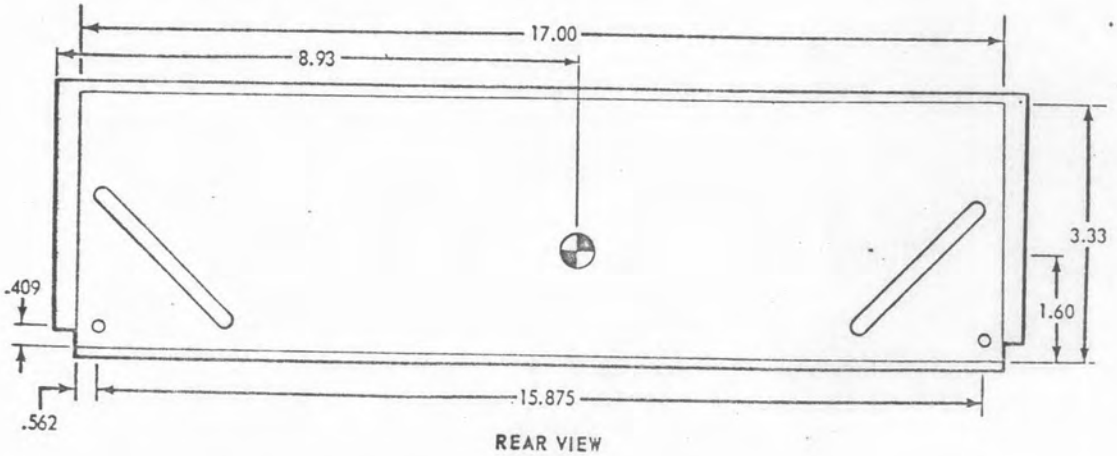
G175C(1) CRITICAL DIMENSIONS



FRONT VIEW



SIDE VIEW



REAR VIEW

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Figure 2-1

SECTION III

OPERATION

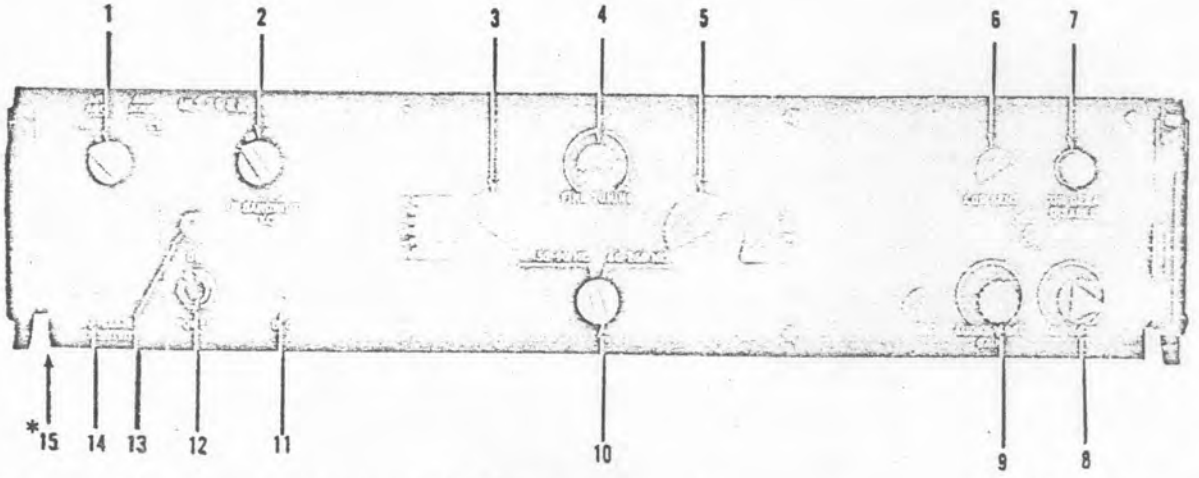
3-1. GENERAL

The G175C(1) VHF Receiver is a single channel AM-FM receiver that covers the 30- to 260-mc frequency range in two bands (30-90 mc and 60-260 mc). Three IF strips provide four bandwidths; 3 mc, 40 kc, 75 kc, and 10 kc. A control on the front panel is used to select the 3-mc, 40-kc, or 10-kc bandwidth during normal operation. Use of the 75-kc bandwidth requires a simple modification of the 40/75-kc IF strip which can be performed by the operator (see paragraph 3-4). An adjustable audio squelch is incorporated in the receiver to disable the audio in the absense of a received carrier. A beat frequency oscillator (BFO) is included for receiving CW signals.

3-2. CONTROLS AND INDICATORS

The COR DELAY selector switch is located on the rear apron of the receiver. The remaining controls and indicators are located on the front panel (see figure 3-1). The name and function of each is listed in figure 3-1.

G175C(1) VHF RECEIVER CONTROLS AND INDICATORS



*Located on the rear apron of the receiver

Figure 3-1 (Sheet 1 of 3)

G175C(1) VHF RECEIVER CONTROLS AND INDICATORS (Cont)

FIGURE INDEX	CONTROL OR INDICATOR	FUNCTION
1	Function Switch	Selects FM, AM AGC, AM MAN or CW mode of operation
2	IF BANDWIDTH KC switch	Selects 3-mc, 40/75-kc, or 10-kc IF strip when set to 3K, 40 or 75, or 10 positions
3	Low-Band Tuning Control	Used to select frequencies in the 30- to 90-mc band
4	FINE TUNING Control	Makes small changes in local oscillator frequencies for precise tuning
5	High-Band Tuning Control	Used to select frequencies in the 60- to 260-mc band
6	COR SENS Control	Adjusts the sensitivity of the circuit associated with the carrier operated relay (COR)
7	COR DELAY DISABLE Indicator/Control	Illuminates whenever an incoming signal causes the COR to energize. The switch is pressed to disable the COR delay.
8	RF GAIN Control	Used to simultaneously adjust IF and RF gain when the function switch is set to AM MAN or CW. If the function switch is set to FM or AM AGC, the RF GAIN control has no effect.
9	AUDIO-VIDEO GAIN Control	Used to simultaneously set audio and video levels
10	Band Selector Switch	Selects either low or high band

Figure 3-1 (Sheet 2 of 3)

G175C(1) VHF RECEIVER CONTROLS AND INDICATORS (Cont)

FIGURE INDEX	CONTROL OR INDICATOR	FUNCTION
11	BFO Control	Used to adjust the tonal pitch of the audio while receiving CW signals
12	POWER Switch	In the ON position, applies power to the receiver
13	Power Indicator Lamp	Illuminates when power is applied to the receiver
14	SQUELCH SENSITIVITY	Used to adjust the sensitivity of the squelch circuit to a level that renders the audio amplifier inoperative in the absence of an RF carrier
15	COR DELAY Control	Sets delay time for the COR

Figure 3-1 (Sheet 3 of 3)

3-3. OPERATING PROCEDURES

The receiver provides four operating modes: frequency modulation (FM), amplitude modulation with automatic gain (AM AGC), amplitude modulation with manual gain control (AM MAN), and continuous wave (CW). Operating procedures are presented in the following steps.

a. Set POWER switch to ON. Verify that indicator lamp illuminates.

b. Set function switch to FM, AM AGC, AM MAN, or CW according to type of reception desired.

c. Set IF BANDWIDTH switch to bandwidth appropriate for the type of reception.

d. Select 30-90 mc or 60-260 mc band as required.

e. Rotate SQUELCH SENSITIVITY control fully counterclockwise.

f. Use appropriate tuning control to locate part of the band where no signals are present.

g. With no incoming signal or carrier, adjust AUDIO-VIDEO GAIN control so that background noise is clearly audible.

h. With no incoming signal or carrier, adjust SQUELCH SENSITIVITY control until background noise is on threshold of audibility.

i. With no incoming signal or carrier, press and hold COR DELAY DISABLE pushbutton.

j. While holding the pushbutton depressed, adjust COR SENS control to the point at which the indicator lamp in the COR DELAY DISABLE pushbutton extinguishes.

The receiver may now be tuned, using the appropriate tuning control, to search for signals of interest. The choice of automatic or manual gain control can be made during the reception of amplitude-modulated signals. Automatic gain control is recommended for AM reception whenever receiving conditions permit. However, in the presence of strong interfering signals, manual gain control may be necessary. Automatic gain control is always used for FM reception, and the manual RF GAIN control has no effect. CW reception requires use of the manual RF GAIN control. During CW operation the tonal pitch of the audio output signal is controlled by the BFO control.

3-4. CONVERTING THE 40/75-KC BANDWIDTH IF STRIP

The receiver is supplied with the 40/75-kc bandwidth IF strip in the 40-kc configuration. It can be converted to the 75-kc bandwidth in a few minutes using the following procedure.

NOTE

The following procedure assumes any steps necessary to gain access to the top dust cover have been performed.

a. Use POWER switch to remove power from the receiver.

WARNING

This receiver employs voltages that are dangerous and may be fatal if contacted. Exercise extreme caution when working on this equipment with any of the protective covers removed.

b. Loosen fastners holding top dust cover and remove cover.

c. Remove 75-kc bandwidth coupling circuit board from the storage position on the floor of the main chassis behind the low band tuner.

d. Remove 40-kc bandwidth coupling circuit board and replace with the 75-kc board.

e. Fasten the 40-kc board in storage position.

f. Remove IF BANDWIDTH KC knob, used with the 75-kc bandwidth, from storage position near stored 40-kc coupling circuit board.

g. Set IF BANDWIDTH KC switch to 3K.

h. Remove IF BANDWIDTH KC knob, used with 40-kc bandwidth, from front panel.

i. Install the knob, used with 40-kc bandwidth, in storage position.

j. Install the IF BANDWIDTH KC knob, used with the 75-kc bandwidth, on the empty shaft on the front panel.

NOTE

Install the knob indicating the 3K selection. The other bandwidth selections will then be in proper alignment.

k. Replace top dust cover.

l. Re-install receiver.

The procedure for converting from the 75-kc bandwidth to the 40-kc bandwidth is essentially the same as above.

SECTION IV

THEORY OF OPERATION

4-1. GENERAL

The GI75C(1) VHF Receiver tunes the 30- to 260-mc frequency range in two bands. As shown in the block diagram, figure 4-1, separate tuners provide tuning of the 30- to 90-mc low band and the 60- to 260-mc high band. Each tuner contains an RF amplifier, a local oscillator, and a mixer. The local oscillator frequency is always 21.4 mc above the frequency of the RF amplifier. Thus, the output of the mixer is a 21.4-mc IF signal. The band selector switch on the front panel determines which tuner is in use. The mixer output of the tuner in use is applied to an IF output network in the high band tuner. The IF output network delivers the 21.4-mc signal simultaneously to the 3-mc bandwidth IF strip, the 40/75-kc bandwidth IF strip, and the 10-kc bandwidth IF strip.

The input to the 3-mc bandwidth IF strip is connected to transformer T401 for application to the first two 21.4-mc IF amplifier stages. A T-pad is used to supply input signal samples to J401 for use in an external spectrum display unit (SDU). The output of the two IF amplifier stages is applied to a stage that changes function to fit the operating mode. During AM and CW operation, the stage functions as a third 21.4-mc IF amplifier, and its output is applied to the AM detector. Outputs of the AM diode detector are applied through the IF bandwidth switch and function switch to the video, squelch, and audio modules. During FM reception, the stage functions as the first limiter, and its output is applied to the second limiter. The output of the second limiter is applied to the discriminator. The output of the discriminator is applied to an emitter follower. The emitter follower output is connected through the IF bandwidth switch and the function switch to another emitter follower in the video module for application to the audio and video modules.

In the 40/75-kc bandwidth IF strip, the 21.4-mc IF signal from the IF output network is applied to a single-stage 21.4-mc IF amplifier. A mixer stage accepts the amplified 21.4-mc IF signal and an 18.9-mc signal from a local oscillator, and produces the 2.5-mc second IF. One of two replaceable bandwidth coupling networks couples the 2.5-mc second IF signal to a pair of stages that change function to fit the operating mode. During AM and CW operation, one of the two stages is a 2.5-mc IF amplifier, and the other is the AM detector. A beat frequency oscillator (BFO) delivers a 2.5-mc signal to the input of the AM detector for CW operation. The output of the AM detector is connected through the IF bandwidth and function switches for application to the video, audio, and squelch modules. During FM operation, the stages are the first and second limiters. The output of the second limiter is connected to the FM discriminator. The discriminator output is applied to an emitter follower. The emitter follower output is connected through the IF bandwidth and function switches to another emitter follower in the video module for application to the audio and video modules.

In the 10-kc bandwidth IF strip, the 21.4-mc IF signal from the IF output network is applied to a single-stage 21.4-mc IF amplifier. A mixer stage accepts the amplified 21.4-mc IF signal and a 20.945-mc signal from a local oscillator, and produces the 455-kc second IF. The 455-kc second IF signal is connected to a pair of stages that change function to fit the operating mode. During AM and CW operation, one of the two stages is 455-kc IF amplifier, and the other is the AM detector. The AM detector output is connected through the IF bandwidth and function switches to the video, audio, and squelch modules. During FM operation, the stages are the first and second limiters. The output of the second limiter is connected to the FM discriminator. The discriminator output is applied to an emitter follower. The emitter follower output is connected through the IF bandwidth and function switches to another emitter follower in the video module for application to the audio and video modules.

The operation of the gain control system is essentially the same in all three IF strips. Only automatic gain control (AGC) is possible during FM operation. The control voltage is obtained from the first limiter stage of the IF strip in use. During AM AGC operation, the control voltage is obtained from the AM detector stage of the IF strip in use. In the AM MAN and CW modes, the gain control voltage is obtained from a fixed-bias supply, and applied through the RF GAIN potentiometer to the gain control circuit.

The receiver has provisions for supplying indications and/or control functions. Five of the circuits complete a circuit to ground through a switch. A Helipot is mechanically linked to the high-band tuner to provide high band tuning information. A voltage from an external source must be connected across the Helipot. Since the Helipot is linked to the tuning mechanism, the voltage tapped off by its arm will be a function of the tuning dial setting. A carrier operated relay (COR) activates upon reception of signals above a preset level. Three sets of relay contacts are provided. Part of one set controls the COR DELAY indicator lamp on the front panel; the other contacts actuate external equipment. The setting of the COR SENS control on the front panel determines the carrier level necessary to activate the relay. A delay circuit is incorporated to keep the relay energized after loss of the carrier for a period determined by the setting of the COR DELAY control. The delay can be removed momentarily by depressing the COR DELAY DISABLE switch.

4-2. DETAILED THEORY

The following paragraphs present descriptions of the basic circuit sections of the receiver at the schematic diagram level. A thorough understanding of the signal flow discussion presented in paragraph 4-1 is desirable before proceeding further.

4-3. MAIN CHASSIS

The main chassis contains the supporting equipment required by the units that comprise the receiver (figure 7-1). Circuits on the main chassis include the switching circuits used to connect component units into various configurations, the circuits that provide external controls and indications, and the power supply.

4-4. POWER SUPPLY

The power supply on the main chassis operates from a 115-volt, 50- to 420-cycle source. A 1/2-ampere slow-blow fuse, F101, protects the primary winding of the power transformer, T101. There are four secondary windings. One supplies 6.3 vac for the vacuum tube filaments. Another winding powers a full wave rectifier with two outputs; an LC filtered output at 175 vdc, and a Zener diode regulated output at 120 vdc. A third winding powers another full wave rectifier with RC filters that provide the floating +150 vdc and -3 vdc required by the high-band tuner. The fourth winding powers two full wave rectifier circuits with RC filters that provide +24 vdc and -24 vdc respectively.

4-5. LOW-BAND TUNER

The low-band tuner consists of an RF amplifier stage, a local oscillator stage, and a mixer stage (figure 7-2). Each stage is described in detail in the following paragraphs.

4-6. RF Amplifier

The low-band tuner RF amplifier consists of two 6CW4 Nuvistor triodes, V201 and V202, in cascode configuration. The input circuit impedance is near optimum for low noise operation. An IF trap consisting of L203, C207, and C208 increases rejection of the IF. Inductor L202A, in the grid circuit of V201, provides input tuning and L202B, in the plate circuit of V202, provides output tuning. An out-of-phase

signal sample is fed back from the plate to the grid of V201 through broadband transformer T201 for neutralization. A delayed gain control voltage, derived by a Zener diode in the related IF strip, is applied through C231 and a voltage divider to the grid of V201. Delaying the gain control voltage permits the IF signal to reach a suitable level before RF amplification is reduced. Thus, the dynamic range and signal handling ability of the RF amplifier is improved.

4-7. Local Oscillator

The low-band tuner local oscillator is a 6CW4 Nuvistor triode, V204, operated in a Colpitts configuration with the plate at RF ground. Inductor L202D tunes the tank circuit 21.4 mc above the frequency of the input signal. Minor variations of the local oscillator frequency are introduced by the FINE TUNING and BFO controls on the front panel. The resulting small voltage changes, applied to varicap C238, produce small changes in the local oscillator frequency. The oscillator tube is decoupled from the tank circuit by C224 to minimize drift resulting from filament or plate voltage variations. A portion of the oscillator output is tapped off from the junction of C223 and R213 and applied to J203. From J203, the sample is passed through relay controlled coaxial switch K101 and delivered to local oscillator output J106. The main portion of the oscillator signal is coupled to the low-band mixer through C218.

4-8. Mixer

The low-band tuner mixer, V203, is a 7587 Nuvistor tetrode. Inductor L202C tunes the input circuit to the amplified signal from the RF amplifier. The output of the local oscillator is applied through C218 to the grid of V203. The signals are mixed to produce the 21.4-mc IF that is delivered to the IF output network in the high-band tuner.

4-9. HIGH-BAND TUNER

The high-band tuner consists of an RF amplifier stage, a local oscillator stage, a mixer stage, and an IF output network (figure 7-3) that delivers the 21.4-mc IF of either tuner to the IF strips.

4-10. RF Amplifier

The high-band tuner RF amplifier consists of two 7077 ceramic triodes, V301 and V302, connected in a cascode configuration. The input circuit impedance is near optimum for low noise operation. Inductor L302A, in the grid circuit of V301, provides input tuning and L302B, in the plate circuit of V302, provides output tuning. Inductor L303 introduces a feedback signal, taken from a capacitive voltage divider comprised of C306 and C307, into the input circuit for neutralization. A delayed gain control voltage, derived in the related IF strip, is applied through R303, L301 and R302 to the grid of V301. The cathodes of V301 and V302 are connected through R304, R305, and L318 to -3 vdc to reduce effects of tube replacements and minor voltage variations.

4-11. Local Oscillator

The high-band tuner local oscillator is a 6CW4 Nuvistor triode, V304, operated in a Colpitts configuration. Inductor L302D tunes the tank circuit 21.4-mc above the frequency of the input signal. Minor variations of the local oscillator frequency are introduced by the FINE TUNING and BFO controls on the front panel. The resulting small voltage changes applied to varicap C349 produce small changes in the local oscillator frequency. A portion of the local oscillator output is tapped off at the junction of C347 and C348. From there, it is connected through R321 to the local oscillator output J304. The main portion of the local oscillator signal is coupled to the high-band mixer by C322. A small portion of the local oscillator signal is fed back through C312 and C313 to the plate of V302. This feedback tends to cancel oscillator energy to the antenna through the tuned circuits.

4-12. Mixer

The high-band tuner mixer, V303, is a 7587 Nuvistor tetrode. Inductor L302C tunes the input circuit of the mixer to the amplified signal from the RF amplifier. The output of the local oscillator is applied through C322 to the grid of V303. The signals are mixed to produce the 21.4-mc IF that is applied to the IF output network. The IF output network presents approximately 50 ohms output impedance at J303.

4-13. BANDSWITCHING

Only one tuner is in operation at a time. Filament voltage is applied to all of the vacuum tubes whenever the receiver is activated. However, it is necessary to set the bandswitch to the proper position before plate voltage will be applied to the desired tuner. In the 60-260 MC position, section S105B of the bandswitch applies +175 vdc to the plates of V303 and V304, and the screen grid of V304. Also, +150 vdc (floating) and -3 vdc is applied to V301 and V302. Setting the bandswitch to the 30-90 MC position removes the +175 and +150 vdc, and grounds the -3 vdc, effectively disconnecting the high-band tuner. At the same time +175 vdc is applied to the plates of the tubes in the low-band tuner.

4-14. DOUBLE SHIELDED CABLE

Double shielded cable is used at the inputs of the tuners and for the output of the local oscillators. In this manner local oscillator radiation is minimized, and the susceptibility of the tuner to spurious signals is reduced.

4-15. 3-MC BANDWIDTH IF STRIP

The 3-mc bandwidth IF strip is activated when plate voltage is applied by setting the IF BANDWIDTH KC switch to 3K. When another IF strip is selected, the plate voltage is removed from this IF strip, and applied to the one selected (figure 7-1).

4-16 Input

Input signals for the 3-mc bandwidth IF strip are coupled from the 21.4-mc IF output network to J402 by coaxial cable (figure 7-4). A 50-ohm T-pad, composed of R401, R402, and R403, couples a sample of the input to J401. From J401 of the 3-mc bandwidth strip a coaxial cable couples the sample to SDU OUTPUT jack J108 on the main chassis. The major portion of the input is coupled by broadband transformer T401 to the first 21.4-mc amplifier stage.

4-17. 21.4-MC IF Amplifiers

The first two stages of the 3-mc bandwidth IF strip, V401 and V402, are Nuvistor tetrodes connected in a cascade configuration. Both have double-tuned outputs and capacitave pi networks for neutralization.

4-18. AM/FM Third Stage

The third stage, V403, changes function to fit the operating mode. During AM operation, V403 serves as another 21.4-mc amplifier in cascade configuration with V401 and V402. In the FM mode, V401 and V402 operate in the same manner, but V403 serves as first limiter. This change of functions is brought about by varying the screen grid potential. A higher potential is used to operate the tube as an IF amplifier than is required for operation as a limiter.

4-19. Diode Detector

Diode CR402 is the AM detector for the 3-mc bandwidth IF strip. The detected output signal passes through emitter follower Q402 in the IF strip, the IF bandwidth switch, and the function switch to emitter follower Q901 in the video module.

During FM and AM operation with automatic gain control, CR402 also functions as the source of gain control voltage. The control voltage is tapped off by R429.

During all 3-mc bandwidth IF strip operations, the output of CR402 provides the voltages that actuate the squelch and COR circuits. Resistors R427 and R428 tap off the respective signals.

4-20. Second Limiter

A 7587 Nuvistor tetrode, V404, is used as the second limiter. The plate tank circuit of this stage is the input of the discriminator. No signals reach the discriminator during AM operation since the plate voltage is removed from V404.

4-21. Discriminator

During reception of FM signals, demodulation is provided by a Foster-Seeley type discriminator. Diodes CR403 and CR404 are used for phase detection. A high degree of balance, unaffected by coil characteristics or tuning slug position, is achieved by using capacitance center tapping of the discriminator secondary circuit. A high impedance load is provided for the discriminator by the two emitter followers, Q401 in the IF strip and Q901 in the video module. From Q401, the signal passes through contacts of the IF bandwidth switch and the function switch for application to Q901.

During reception of FM and AM AGC signals, the gain-control voltage developed by CR402 is connected through the IF bandwidth switch, the function switch and Zener diode CR401 for application to the RF amplifiers in each tuner. This delayed gain control voltage is necessary to maintain a proper signal level for limiting.

4-22. 40/75-KC BANDWIDTH IF STRIP

The 40/75-kc bandwidth IF strip is shipped in the 40-kc configuration. However, conversion to the 75-kc bandwidth is a simple operation (refer to paragraph 3-4). The strip is placed in operation by setting the IF BANDWIDTH KC switch to 40 or 75, whichever is applicable, thus applying B+ voltage to the tubes. When another bandwidth is selected, the B+ voltage is removed (figure 7-1).

4-23. Input

Input signals for the 40/75-kc bandwidth IF strip are coupled from the 21.4-mc IF output network to J502 by coaxial cable (figure 7-5). The signal at J502 is applied to the primary of broadband transformer T501. The secondary of T501 couples the input signals to the 21.4-mc amplifier.

4-24. 21.4-MC IF Amplifier

The 21.4-mc IF amplifier, V501, of the 40/75-kc bandwidth IF strip is a 7587 Nuvistor tetrode. The stage is neutralized to avoid regeneration. Automatic gain control voltage for FM operation is obtained from the first limiter stage; for AM operation, it is developed in the detector stage. Manual gain control voltage for AM and CW is derived from the RF GAIN potentiometer. This potentiometer, in series with a resistor, is connected between ground and -24 vdc. The voltage tapped from the RF GAIN potentiometer is applied through contacts of the function switch and the IF bandwidth switch. The output of V501 is coupled through C506 to mixer V502.

During reception of FM and AM AGC signals, the gain control voltage tapped off by R527 is connected through the IF bandwidth switch, the function switch and Zener diode CR501 for application to the RF amplifiers in each tuner. This delayed gain control voltage is necessary to maintain a proper level for limiting.

4-25. 18.9-MC Local Oscilaltor

The 18.9-mc local oscillator, V505, uses a 6CW4 Nuvistor triode in a crystal controlled Colpitts configuration. The output is applied through capacitor C507 to the mixer.

4-26. Mixer

The second stage, V502, of the 40/75-kc bandwidth IF strip is a mixer. It mixes 21.4-mc IF signals with the 18.9-mc local oscillator signal to produce the 2.5-mc second IF. The 2.5-mc mixer output is

applied to the succeeding stage through a double tuned coupling that provides the strip with the dual bandwidth capability. One of two coupling networks is used to couple the signal between C515 and C519. The coupling board used to obtain the 75-kc bandwidth uses a single conductor between the two capacitors. The 40-kc coupling board is a pi network composed of C516, C517, and C518.

4-27. 2.5-MC Amplifier/First Limiter

A 7587 Nuvistor tetrode, V503, is used as a 2.5-mc IF amplifier in the AM and CW modes, and as first limiter for FM. This change of functions according to the mode of operation is brought about by varying the screen grid potential. A higher potential is applied for operation as an IF amplifier than is required as a limiter. In the FM mode, switch contacts ground R517 to form a screen grid voltage divider and reduce the screen voltage. A single tuned circuit couples the output of this stage to the succeeding one.

4-28. AM Detector/Second Limiter

A 7587 Nuvistor tetrode, V504, provides grid detection during reception of AM and CW signals, and functions as second limiter during FM reception. In the AM and CW modes the detected output is connected through the IF bandwidth switch and the function switch to the video module. Inductor L507 is a self resonant inductor used to filter the IF signal from the voltages used to actuate the squelch and COR circuits. During FM operation, the signal from the plate tank circuit is coupled to the discriminator. During FM and AM AGC operation, this stage provides the automatic gain control voltage. In the CW mode, a 2.5-mc signal is injected in the grid circuit of detector V504 through C548. This 2.5-mc signal beats with the IF to produce an audible tone. The pitch of the audio tone is varied by rotating the BFO control to shift the frequency of the tuner local oscillator.

4-29. Beat Frequency Oscillator

The BFO is activated by the application of +24 vdc resulting from setting the function switch to CW while the IF bandwidth switch is

set to 40 or 75 (figure 7-6). Diode CR505 is then forward biased applying +24 vdc to the collector of Q502. The BFO self-regulation is provided by connecting the collector of Q502 to the base through R536. The BFO operating frequency is determined by crystal Y502 in the base circuit. The output is derived from the feedback divider consisting of C549 and C550. In this mode, CR504 is back-biased and has little effect on the circuit.

When the receiver is placed in any mode other than CW, the +24 vdc is removed from the BFO and -24 vdc substituted. Applying -24 vdc forward biases CR504 effectively placing a short across Y502. If this were not done, crystal Y502 would be coupled to the IF strip through C548 and C550, and could cause undesired effects to the IF response curve. With -24 vdc applied, CR505 is back biased and Q502 is protected.

4-30. Discriminator

In the 40/75-kc bandwidth IF strip, demodulation of FM signals is provided by a Foster-Seeley type discriminator. Diodes CR502 and CR503 are used for phase detection. A high degree of balance, unaffected by coil characteristics or tuning slug position, is achieved by using capacitive center tapping of the discriminator secondary circuit. A high impedance load is provided for the discriminator secondary circuit by two emitter followers, Q501 in the IF strip and Q901 in the video module. From Q501, the signal passes through contacts of the IF bandwidth switch and the function switch to Q901.

4-31. 10-KC BANDWIDTH IF STRIP

The 10-kc bandwidth IF strip is placed in operation by setting the IF bandwidth switch to 10, thus applying B+ voltage to the tubes. When another bandwidth is selected, the B+ voltage is removed (figure 7-1).

4-32. Input

Input signals for the 10-kc bandwidth IF strip are coupled from the 21.4-mc IF output network to J601 by coaxial cable (figure 7-7).

The signal at J601 is applied to the primary of broadband transformer T601 and to J602. The signal at J602 is connected by coaxial cable to J402 of the 3-mc bandwidth IF amplifier. The secondary of T601 couples the 21.4-mc IF to the 21.4-mc amplifier.

4-33. 21.4-MC IF Amplifier

The 21.4-mc IF amplifier of the 10-kc bandwidth IF strip is a 7587 Nuvistor tetrode. The stage is neutralized to avoid regeneration. Automatic gain control voltage for FM operation is obtained from the first limiter stage; for AM operation it is developed in the detector stage. Manual gain control voltage for AM and CW signals is derived from the RF GAIN potentiometer. This potentiometer, in series with a resistor, is connected between ground and -24 vdc. The voltage tapped from the RF GAIN potentiometer is applied through contacts of the IF bandwidth switch and the function switch. The output of V601 is applied to mixer V602.

4-34. 20.945-MC Local Oscillator

The 20.945-mc local oscillator, V605, uses a 6CW4 Nuvistor triode in a crystal controlled Colpitts configuration. The output is applied through C613 to mixer V602.

4-35. Mixer

The second stage, V602, of the 10-kc bandwidth IF strip is a mixer. It mixes 21.4-mc IF signals with the 20.945-mc local oscillator signal to produce the 455-kc second IF. The 455-kc mixer output is applied to the succeeding stage through a double tuned coupling.

4-36. 455-KC Amplifier/First Limiter

A 7587 Nuvistor tetrode, V603, is used as a 455-kc IF amplifier in the AM and CW modes, and as first limiter for FM. This change of functions according to the mode of operation is brought about by varying the screen grid potential. A higher potential is applied for operation as an IF amplifier than is required as a limiter. In the FM mode, switch contacts ground R616 to form a screen grid voltage divider

and reduce the screen voltage. A double tuned circuit couples the output of this stage to the succeeding one. During FM operation, R610 taps off part of the input signal for use as gain control voltage. The sample supplied by R610 is connected through the IF bandwidth and function switches to Zener diode CR603. From CR603 it is supplied as delayed gain control voltage through the IF bandwidth switch to the tuners.

4-37. AM Detector/Second Limiter

A 7587 Nuvistor tetrode, V604, provides grid detection during reception of AM and CW signals, and functions as second limiter during FM reception. During FM reception, the signal from the plate tank circuit is coupled to the discriminator. In the AM and CW modes, the detected output is connected through contacts of the IF bandwidth and function switches to the video module. During AM operation with automatic gain control, the stage provides the gain control voltage that is applied through the IF bandwidth and function switches to Zener diode CR603. The IF bandwidth switch applies the output of CR603 as delayed gain control voltage to the tuners. In all operating modes, the stage provides the voltage that actuates the squelch and COR circuits.

4-38. Discriminator

In the 10-kc bandwidth IF strip, demodulation of FM signals is provided by a Foster-Seeley type discriminator. Diodes CR601 and CR602 are used for phase detection. A high degree of balance, unaffected by coil characteristics or tuning slug position, is achieved by using capacitive center tapping of the discriminator secondary circuit. A high impedence load is provided for the discriminator secondary circuit by two emitter followers, Q601 in the IF strip and Q901 in the video module. From Q601, the signal passes through the IF bandwidth and function switches to Q901.

4-39. AUDIO MODULE

The first stage of the audio module, Q1001, is a 2N335 transistor in a common emitter configuration (figure 7-8). The input signal passes through the AUDIO-VIDEO GAIN potentiometer, R104, and is applied through C1001 and R1001 to the base of Q1001. The second stage, Q1002, is a 2N335 transistor in an emitter follower configuration that matches the high impedance output of the first stage to the low impedance input of the third stage. The third stage, Q1003, is a 2N1700 transistor serving as power amplifier. The operating voltage to the first stage is +12 vdc regulated by Zener diode CR1001. The regulated +12 vdc is also furnished to the squelch module. The positive voltage of the second and third stage needs no regulation, since those collector currents are relatively independent of collector voltage. The load for the third stage is the audio output transformer T102. The secondary of T102 provides a balanced 150-ohm audio output with 30-cps to 25-kc response at the 3-db points.

4-40. SQUELCH MODULE

The squelch circuit prevents audio outputs when no input signal is present (figure 7-1). In the absence of an input signal, the first and second stages, Q701 and Q702, conduct keeping the third stage, Q703, cut off and allowing the fourth stage, Q704, to conduct (figure 7-9). All of the transistors in the squelch circuit are 2N335. A connection between pin 7 of the squelch module and pin 2 of the audio module places Q704 between ground and the audio amplifier regulated +12-volt supply. Therefore, the conduction of Q704 effectively grounds the supply, blocking the first audio stage.

When an input signal is present, the squelch circuit receives a negative voltage from the IF strip in use similar to the automatic gain control voltage. The first two stages cut off allowing the third stage to start conducting which cuts off the fourth stage. The first audio stage is then free to pass audio signals. The first squelch stage is biased by a positive direct current reaching the

stage through resistor R701. This current bias is controlled by the SQUELCH SENSITIVITY potentiometer which is connected between +24 vdc and ground. Adjusting the sensitivity control determines the level of negative voltage required to cut off the first two squelch stages, and thereby establishes the necessary strength of the input signal. Capacitors C701 and C702 prevent the squelch circuit from reacting to negative going peaks during 100% amplitude modulation signal reception. Diodes CR701 through CR704 provide bias stabilization to maintain the input sensitivity setting.

4-41. VIDEO MODULE

The video module consists of an emitter follower and video amplifier (figure 7-10). The emitter follower, Q901, matches the input impedance of the video amplifier to the output impedance of the IF strip supplying video input signals. It also reduces the effect of AUDIO-VIDEO GAIN control settings on the demodulator in the IF strip. The video amplifier consists of two stages, Q902 and Q903, both connected in common emitter configuration. Direct coupling is used between the two stages with R904 providing degenerative feedback.

Zener diode CR902 is used as a coupling element to permit a greater peak-to-peak swing of the driving voltage from Q902. The collector voltage of Q902 should be approximately one-half of the supply voltage for optimum performance. Also, maximum performance of Q903 requires a collector voltage approximately one-half of the supply voltage. Thus, the base of Q903 needs to be much closer to ground potential than the collector of Q902. Zener diode CR902 sets up the desired condition by reducing the dc voltage level without reducing the signal level.

4-42. CARRIER OPERATED RELAY MODULE

The carrier operated relay (COR) module contains the COR circuit, but not the relay (figure 7-11). The relay, K102, is mounted on the main chassis (figure 7-1). Its coil controls three sets of form C contacts. One set of contacts are connected between 6.3 vac and the COR DELAY

DISABLE indicator lamp. When the relay activates, the lamp will illuminate. The other contact sets can be used to open two normally closed circuits and/or close two normally open circuits. The circuit of the COR module actuates the relay when a signal of sufficient magnitude is present. The IF strip in use produces a negative voltage similar to the automatic gain control voltage. This voltage is applied to pin 3 of the module (figure 7-11). The first two stages, Q801 and 802, cut off, causing the third stage, Q803, to conduct. Since the coil of the relay is connected in the collector circuit of Q803, when Q803 conducts the relay is activated. During normal operations, the relay is held in the activated state for a predetermined time delay. The duration of the delay depends on the charging time of a capacitance-multiplier feedback circuit. When Q803 conducts, the capacitance in the collector-to-base circuit is discharged. When the input is removed, the capacitance charges slowly through the emitter-to-base forward resistance, the CR804 forward resistance, the COR DELAY DISABLE switch, and the relay winding. Therefore, the relay is held actuated while the capacitor charges; the time necessary depends on the size of the capacitance. The COR DELAY switch connects different capacitances into the feedback circuit to set the length of delay for 3,5, 7, or 10 seconds. The COR DELAY DISABLE switch may be depressed to remove the capacitance from the feedback circuit and eliminate the delay for purposes of sensitivity adjustments.

4-43. EXTERNAL INDICATOR/CONTROL CIRCUITS

The electrical characteristics of the external indicator/controls are as follows (figure 7-1).

a. The bandwidth control consists of section M of the IF bandwidth switch, S103, with the switch arm grounded and with the 3-mc, 40/75-kc, and 10-kc contact points connected respectively to pins 6, 5, and 4 of connector J103.

b. The low-band antenna select indicator is a microswitch, S107, mechanically linked to the low-band tuner gear train. The switch arm is connected to bandswitch section S105H, contact 15 so the arm is grounded when the 30- 90-mc band is in operation. The microswitch arm is thrown from one contact to another as tuning passes

60 mc. The contact used below 60 mc is connected to pin 8 of J103. The other contact is connected to pin 9 of J103.

c. The high-band antenna select indicator is a microswitch, S108, mechanically linked to the high-band tuner gear train. The switch arm is connected to contact 16 of bandswitch section S105H so that the arm is grounded when the 60- to 260-mc band is in operation. The microswitch arm is thrown from one contact to the other as tuning passes 175 mc. The contact used below 175 mc is connected to pin 5 of J102. The contact used above 175 mc is connected to pin 4 of J102.

d. The indicator showing selection of either the high or low band is section F of bandswitch S105. When the high band has been selected, it completes a circuit to ground through the switch section arm from terminal 7 of J102. When the low band has been selected, the circuit to ground is through terminal 6 of J102.

e. The mode select indicator is part of the function switch. When AM operation has been selected, it completes a circuit to ground through the switch section arm from terminal 9 of J102. When FM has been selected, it completes a circuit to ground from terminal 10 of J102.

f. The high-band tuner position indicator consists of a helical potentiometer, R118, with its movable arm mechanically linked to the high-band tuner gear train and electrically connected to terminal 16 of J102. One side of the potentiometer is connected to terminal 15 of J102 and the other side is connected to terminal 17 of J102.

SECTION V

MAINTENANCE

5-1. GENERAL

The G175C(1) VHF Receiver presents no special maintenance problems beyond those normally associated with a receiver of its type. Field maintenance is normally limited to the replacement of items such as the fuse, tubes, or plug-in modules. All other forms of maintenance can be accomplished better in a well equipped shop by trained and experienced personnel.

The following paragraphs present the recommended maintenance procedures, and figure 5-1 lists the test equipment required.

5-2. ALIGNMENT

After installation, the receiver seldom requires alignment. Normally alignment is necessary only after a component part has been replaced. However, the following alignment procedures can and should be performed whenever the performance of the receiver can be improved.

When performing alignment procedures, the sweep generator width and output should be no greater than that required to produce a suitable oscilloscope pattern.

A post detection type of marker adder is recommended, and the alignment procedures assume one is to be used. However, if such a marker is not available, the marker generator output can be loosely coupled to the sweep generator output. The marker signal source can be connected to one or two turns of insulated wire wrapped around the sweep generator lead near the point of connection to the circuit under test. Also, the marker signal source could be coupled to the sweep generator through a small capacitor. Remove the coupling from time to time to ensure that the insertion of the marker does not interfere with the response curve.

TEST EQUIPMENT REQUIRED

PREFERRED	SUITABLE ALTERNATE
VHF Signal Generator, HP 608C	AN/USM-44A
VTVM, HP 400D	ME 30A/U
VTVM, HP 410B	ME 26A/U
RF Voltmeter, Boonton 91D	RF Millivoltmeter, HP 411A
Signal Generator, Marconi TF1066B	None
Oscilloscope, Tektronix 533A/W CA Plug-In	Oscilloscope, G196
Electronic Counter, HP 524C or D/W Plug-in Unit, HP 525A Plug-in Unit, HP 525C	Electronic Counter HP 523B/W Plug-in Units
Power Supply, Kepco ABC 30-0.3M	Harrison Labs 865C
VTVM, Fluke 803	VTVM, Fluke 803D
Type A8 Stopwatch, Ducommum 140L	Any Equivalent
Sweep Generator, Telonic SM2000 with SH-1, L-4, and LH-1 plug-in heads	Sweep Generator, Jerrold 900B
Test Oscillator, HP 650A	None
Distortion Analyzer, HP 332A	Distortion Analyzer, HP 330B
*Receiver, G175C(1)	NF205/W TINF205 & T2NF205 T/U
Spectrum Display Unit, G186A(1)	Spectrum Display Unit, G186A
Tube Tester, Hickok 580	Tube Tester, Hickok 539C
50-ohm Termination, Microlab TA-5MN	50-ohm Termination, Amphenol 83925-51
50-ohm, 3-db Pad, Microlab AA-03N	AB-03N
50-ohm, 20-db Pad, Microlab AA-20N	AB-20N
BNC T Connector, UG 274/U	BNC T Connector, Amphenol 31-208
Load, 91 ohms, RC42GF910J	HB 9105, Allen-Bradley
Load, 150 ohms, RC42GF151J	HB 1515, Allen-Bradley
Load, 600 ohms, RC42GF601J	HB 6015, Allen-Bradley
Capacitor, 4.7 μf, 35v	150D-475X9035B2 ,Sprague
Attenuator, HP355B	Telonic TAD50
Detector, XD-3A	Equivalent 50 ohm RF Detector

*Whenever the receiver is to be operated without equipment connected to J106, a 50-ohm termination should be installed on J106.

Figure 5-1

A low-capacity shielded cable, such as RG58U coaxial cable, should be used for connection to the oscilloscope. The cable capacity plus the input capacity of the oscilloscope should be held to a maximum of 100 pf.

WARNING

The receiver employs voltages that are dangerous and could be fatal if contacted. Use extreme caution when working with any of the protective covers removed.

Prior to performing alignment procedures, remove top and bottom covers of the unit to be aligned. Replace the covers before performing the final alignments.

5-3. 3-MC BANDWIDTH IF STRIP ALIGNMENT

The following five paragraphs should be performed in succession and not independently.

5-4. Initial Settings

a. Set up equipment as shown in figure 5-2.
b. Set receiver function swtich to FM
c. Disconnect P402 from J402.

3-MC IF ALIGNMENT TEST SETUP

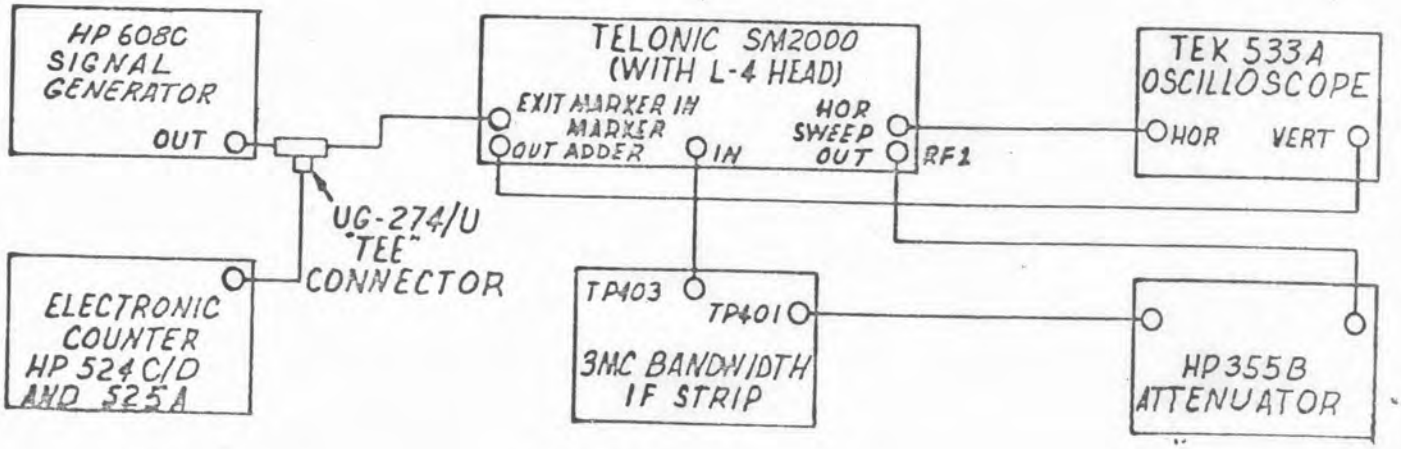


Figure 5-2

d. Ground gain control voltage line at C403.

e. Set IF BANDWIDTH KC switch to 3K.

f. Set band selector switch to 60-260 MC.

g. Adjust sweep generator to produce a 21.4-mc center frequency signal.

h. Set oscilloscope vertical sensitivity at 50 mv per cm.

i. Adjust signal generator to produce a 21.4-mc output signal as indicated on electronic counter.

j. Adjust sweep generator sweep width until a response curve is displayed on the oscilloscope.

k. Adjust marker generator to provide a 21.4-mc marker as displayed on oscilloscope.

5-5. Discriminator Alignment

a. Transfer the connection from TP403 to the FM out feed-through connector, E402, through a 10-megohm probe.

b. Transfer sweep generator output to the ungrounded end of L406.

c. Set oscilloscope vertical sensitivity for 0.5 volts per cm, and adjust sweep width until a response curve is displayed.

d. Adjust phasing of the sweep generator as necessary.

e. Using the calibrated 21.4-mc marker as a reference, tune and adjust physical positions of L407 and L408 to achieve a response curve shape as shown in figure 5-3. The physical positioning will govern the 750-kc width. Tuning will govern the shape and height. The final curve should have equal amplitude above and below the horizontal line, and should be symmetrical.

DISCRIMINATOR ALIGNMENT RESPONSE CURVE

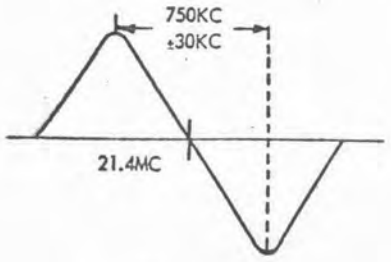


Figure 5-3

5-6. V403 TO V404 Interstage Alignment

a. Return test setup to that shown in figure 5-2, except connect sweep output to TP402 and make adjustments described in paragraph 5-4.

b. Set receiver function switch to AM MAN.

c. Adjust sweep generator sweep width until a response curve is displayed.

d. Using the calibrated 21.4-mc marker as a reference, adjust L405 and L406 for an over-coupled response curve centered about the 21.4-mc marker and 3 mc (±300 kc) wide at the 3-db points similar to that shown in figure 5-4.

V403 TO V404 INTERSTAGE RESPONSE CURVE

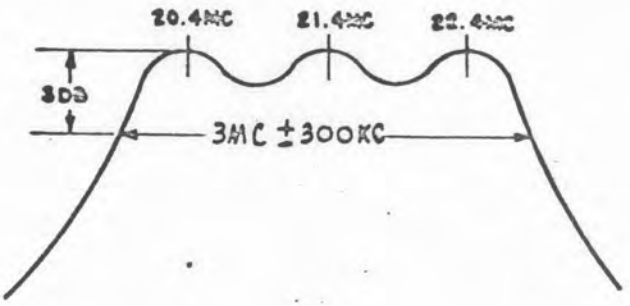


Figure 5-4

5-7. V401 to V403 Interstage Adjustment

a. Transfer connection from TP402 to TP401.

b. Using 21.4-mc marker as a reference, adjust L403 and L404 to obtain an over-coupled response curve approximately 3 mc from peak-to-peak.

c. Transfer connection from TP401 to J402 and from TP403 to TP402.

d. Adjust L401 and L402 to obtain an over-coupled response curve approximately 3 mc from peak-to-peak.

5-8. Final Alignment, V401 through V404

a. Reconnect P402 to J402.

b. Remove V304 from high-band tuner.

c. Transfer connection from TP402 to TP403.

d. Transfer connection from J402 to TP301 in 60-260 mc tuner.

e. Check sweep generator for 21.4-mc center frequency setting.

f. Adjust test equipment until a low level response curve is displayed on the oscilloscope.

g. Adjust L401 through L406 to obtain a response 3 mc ±300 kc wide at the 3-db points, similar to that shown in figure 5-4.

h. Adjust L-311 in 60-260 mc tuner, for maximum response at 21.4 mc.

i. Replace V304.

5-9. 40/75-KC BANDWIDTH IF STRIP ALIGNMENT

The following five paragraphs should be performed in succession and not independently.

NOTE

A dual-trace oscilloscope should be used to prevent marker from covering response. The marker can appear on the lower trace and the response on the upper trace.

5-10. Initial Settings

a. Set up equipment as shown in figure 5-5.

b. Set receiver function switch to FM.

c. Disconnect P502 from J502.

d. Ground gain control voltage line at C534.

e. Set band selector switch to 60-260 MC.

f. Set IF BANDWIDTH KC switch to 40.

NOTE

If the receiver has been converted to provide the 75-kc bandwidth, it will be necessary to convert it back to the 40-kc bandwidth for alignment purposes (see paragraph 3-4).

40/75-KC IF ALIGNMENT TEST SETUP

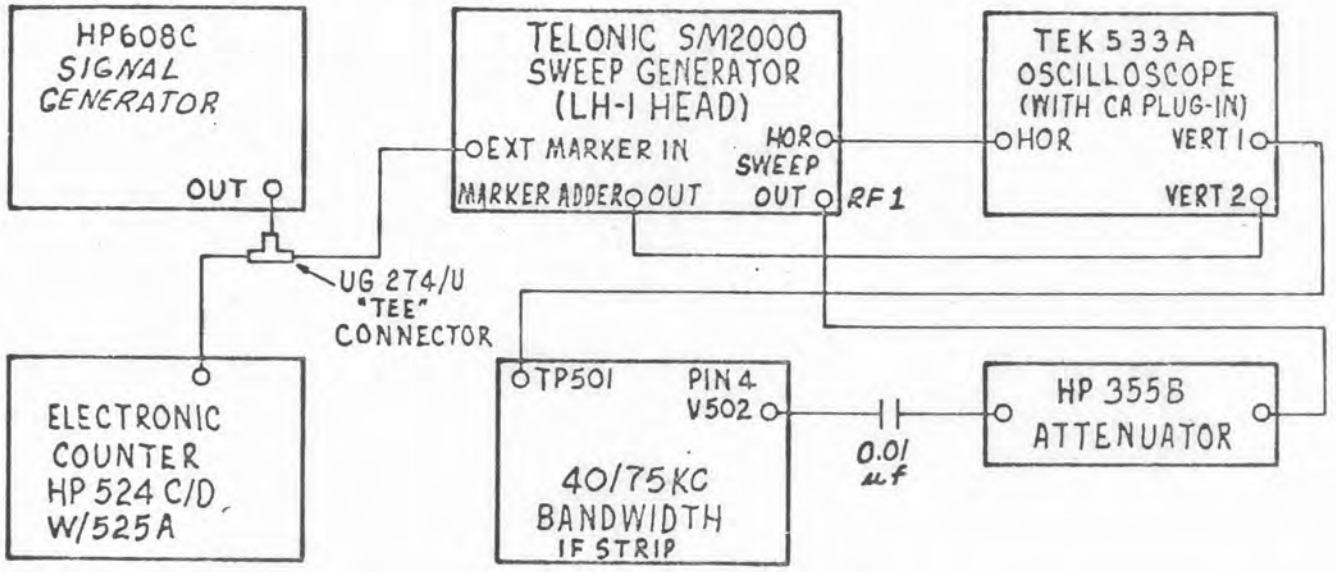


Figure 5-5

g. Adjust sweep generator to produce a 2.5-mc center frequency signal.

h. Set oscilloscope vertical sensitivity for 50 mv per cm.

i. Adjust signal generator to produce a 2.5-mc output signal as indicated on electronic counter.

j. Adjust sweep generator sweep width until a response curve is displayed on the oscilloscope.

k. Adjust marker generator to provide a 2.5-mc marker as displayed on the oscilloscope.

5-11. Discriminator Alignment

a. Transfer connection from TP501 to FM out feed-through connector E502 through a 10-megohm probe.

b. Transfer connection from pin 4 of V502 to pin 4 of V504.

c. Set oscilloscope vertical sensitivity to 0.5 volts per cm.

d. Adjust sweep generator sweep width until a response curve is displayed on the oscilloscope.

e. Adjust phasing of sweep generator as necessary.

f. Using the calibrated 2.5-mc marker as a reference, tune and adjust the physical positions of L505 and L506 to achieve a response

curve as shown in figure 5-6. Physical positioning governs the 150-kc width, tuning governs the shape and amplitude. The final curve should have equal amplitude above and below the reference line, and should be symmetrical.

DISCRIMINATOR ALIGNMENT RESPONSE CURVE

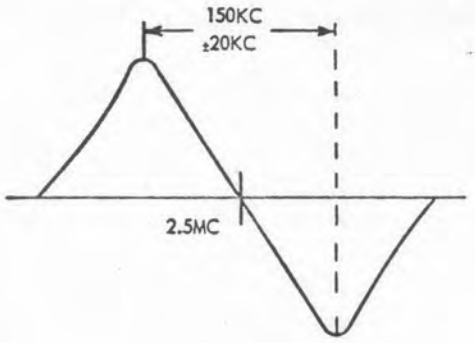


Figure 5-6

5-12. V502 to V504 Interstage Alignment

a. Return test setup to that shown in figure 5-5.

b. Using the calibrated 2.5-mc marker as a reference, adjust L502, L503, and L504 to achieve a symmetrical response curve as shown in figure 5-7.

V502 TO V504 INTERSTAGE RESPONSE CURVE

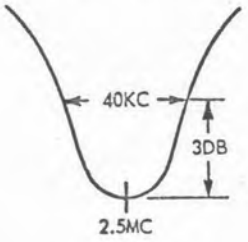


Figure 5-7

5-13. V501 TO V502 Interstage Alignment

a. Remove 0.01 μf capacitor and transfer connection from pin 4 of V502 to J502.

b. Install L-4 head in SM2000 Sweep Generator and adjust output for center frequency of 21.4 mc.

c. Set receiver function switch to AM AGC.

d. Set oscilloscope vertical sensitivity to 50 mv per cm.

e. Adjust sweep generator sweep width until a response curve is displayed on the oscilloscope.

f. Adjust marker generator to provide a 21.4-mc marker as displayed on oscilloscope.

g. Adjust L501 for maximum amplitude response curve similar to that shown in figure 5-7 except centered about the calibrated 21.4-mc marker instead of 2.5 mc.

5-14. Final Alignment, V501 Through V504

a. Connect P502 to J502.

b. Remove V304 from high-band tuner.

c. Transfer connection from J502 to TP301 in 60-260 mc tuner.

d. Set oscilloscope vertical sensitivity to 0.5 volts per cm.

e. Adjust sweep generator sweep width and output until a response curve is shown on the oscilloscope.

f. Adjust L501 through L504 for a maximum response curve similar to that shown in figure 5-7 except centered about the calibrated 21.4-mc marker instead of 2.5 mc.

g. Replace V304 in the high-band tuner.

5-15. 10-KC BANDWIDTH IF STRIP ALIGNMENT

The following six paragraphs should be performed in succession and not independently.

5-16. Initial Settings

a. Set up equipment as shown in figure 5-8.

b. Set receiver function switch to FM.

c. Disconnect P601 from J601.

d. Ground gain control voltage line at C640.

e. Set IF BANDWIDTH KC switch to 10.

f. Set band selector switch to 60-260 MC position

g. Adjust sweep generator to produce a 455-kc center frequency signal.

h. Set oscilloscope vertical sensitivity at 50 mv per cm.

i. Adjust signal generator to produce a 455-kc output signal as indicated on electronic counter.

j. Adjust sweep generator sweep width until a response curve is displayed on the oscilloscope.

k. Adjust marker generator to provide a 455-kc marker as displayed on oscilloscope.

10-KC IF ALIGNMENT TEST SETUP

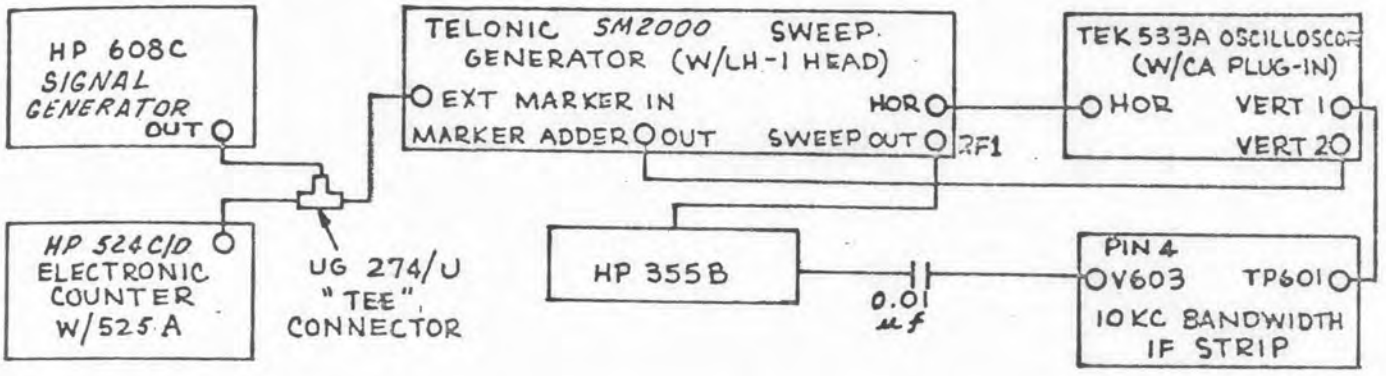


Figure 5-8

5-17. Discriminator Alignment

a. Transfer connection from TP601 to FM out feed-through connector E602 through a 10-megohm probe.

b. Transfer connection from pin 4 of V603 to pin 4 of V604.

c. Set oscilloscope vertical sensitivity on 0.5 volts per cm.

d. Adjust sweep generator sweep width until a response curve is displayed on the oscilloscope.

e. Adjust phasing of sweep generator as necessary.

f. Using the calibrated 455-kc marker as a reference, tune L609 and L610 to achieve a response curve as shown in figure 5-9. The final curve should have equal amplitude above and below the reference line, and should be symmetrical.

DISCRIMINATOR ALIGNMENT RESPONSE CURVE

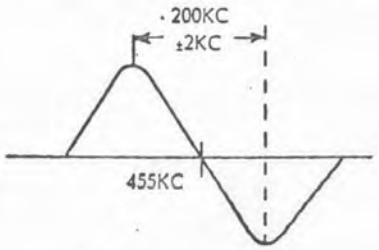


Figure 5-9

5-18. V603 to V604 Interstage Alignment

a. Connect equipment as shown in figure 5-8, and perform intial settings listed in paragraph 5-16.

b. Using the calibrated 455-kc marker as a reference, tune L607 and L608 for a symmetrical response curve as shown in figure 5-10.

V603 TO V604 INTERSTAGE RESPONSE CURVE

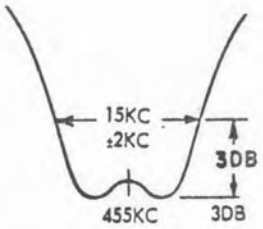


Figure 5-10

5-19. V602 to V603 Interstage Alignment

a. Transfer connection from pin 4 of V603 to pin 4 of V602.

b. Using the calibrated 455-kc marker as a reference, tune L605 and L606 for a symmetrical response curve as shown in figure 5-11.

V602 TO V603 INTERSTAGE RESPONSE CURVE

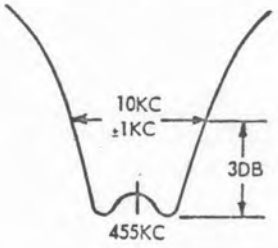


Figure 5-11

5-20. V601 to V602 Interstage Alignment

a. Transfer connection from pin 4 of V602 to J601.

b. Install L-4 head in sweep generator

c. Adjust sweep generator to produce a 21.4-mc center frequency signal.

d. Adjust sweep width until a response curve is displayed on the oscilloscope.

e. Adjust marker generator to provide a 21.4-mc marker as displayed on oscilloscope.

f. Tune L601, L602, and L603 for a maximum amplitude curve similar to that shown in figure 5-11 except centered about the 21.4-mc marker instead of 455 kc.

5-21. Final Alignment, V601 through V604.

a. Set up the equipment as shown in figure 5-8, except transfer connection from pin 4 of V603 (without capacitor) to TP301 in the high-band tuner.

b. Connect P601 to J601.

c. Remove V304 from high-band tuner

d. Set oscilloscope vertical sensitivity at 0.1 volt per cm.

e. Adjust sweep generator to produce a 21.4-mc center frequency signal.

f. Adjust sweep generator sweep width and output until a response curve is displayed on the oscilloscope.

g. Adjust marker generator to provide a 21.4-mc marker as displayed on oscilloscope.

h. Using the 21.4-mc marker for reference, adjust L601, L602, L603, L605, L606, L607, and L608 for a response curve centered about the 21.4-mc marker and 10 kc wide at the 3-db points.

i. Replace V304 in the high-band tuner.

5-22. LOW-BAND TUNER ALIGNMENT

The following paragraphs present a separate alignment procedure for each circuit of the low-band tuner. Any one of the procedures can be accomplished without disturbing other circuits, but the steps within the procedure should be performed in sequence. All low-band tuner alignment procedures are critical. They should not be attempted unless considered absolutely necessary (for example, alignment is in order following the replacement of a component).

5-23. Initial Settings

a. Set up equipment as shown in Figure 5-12.

LOW-BAND TUNER ALIGNMENT TEST SETUP

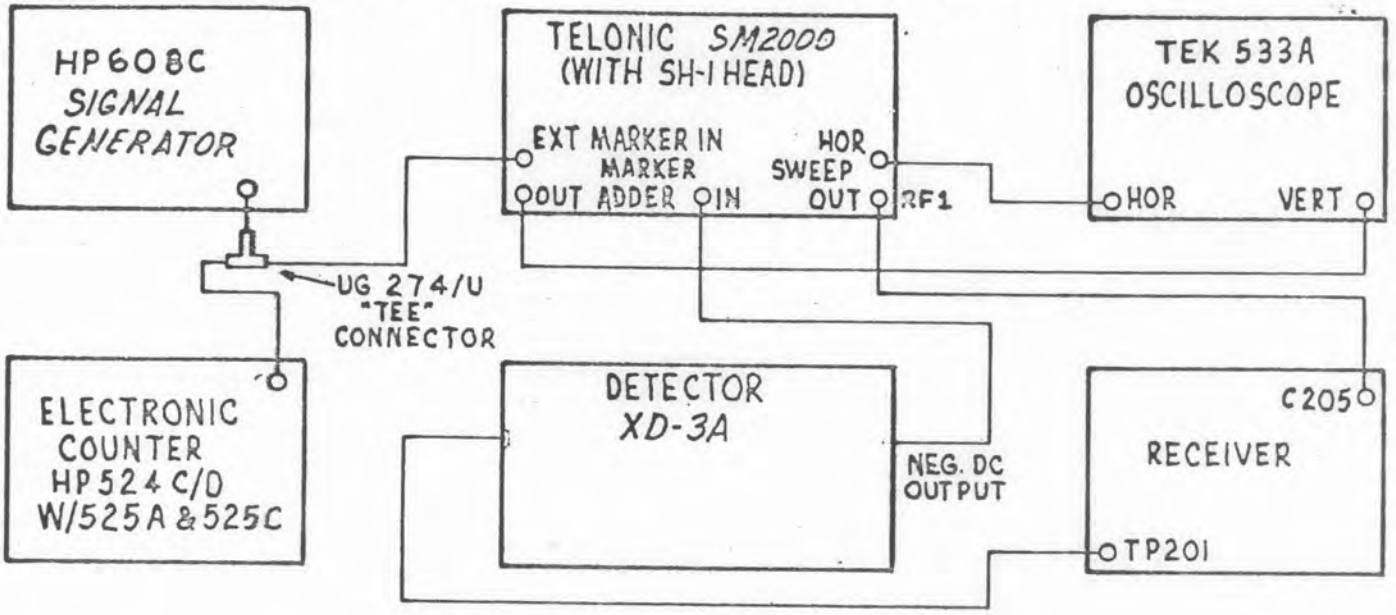


Figure 5-12

b. Set receiver bandswitch to 30-90 MC.

c. Set IF BANDWIDTH KC switch to 10.

d. Connect VTVM (410B) between positive lead of C231 and chassis ground.

e. Set receiver function switch to AM MAN.

f. Adjust RF GAIN control to obtain a -1.5-vdc indication on the VTVM.

5-24. V204 Alignment

a. Perform the initial settings listed in paragraph 5-23.

b. Connect output of the signal generator to J105, BAND A INPUT.

c. Adjust signal generator output to produce a 30-mc marker signal as monitored on the electronic counter.

d. Set the low-band tuning dial to exactly 30 mc.

e. Transfer positive VTVM lead to TP601.

f. Adjust signal generator output level until VTVM indicates slight increase above noise level.

g. Recalibrate signal generator output to exactly 30 mc.

h. Adjust C222 to provide peak indication on VTVM.

i. Repeat steps c through h at 10-mc intervals throughout the 30-90-mc band. If the output cannot be held within 1% tolerance, replace V204 and begin again.

5-25. V202 to V203 Interstage Alignment

a. Remove bottom cover from the low-band tuner chassis.

b. Carefully unsolder C205 from C203. Note their relative physical positions so that they can be soldered together in exactly the same relationship.

c. Perform the initial settings listed in paragraph 5-23.

d. Set the oscilloscope vertical sensitivity to 50 mv per cm, and the vertical input to the AC coupled position.

e. Adjust the horizontal sensitivity so that the horizontal trace is 10 cm long.

f. Set receiver dial to exactly 30 mc.

g. Adjust signal generator output to produce a 30-mc marker signal as monitored on the electronic counter.

h. Using the calibrated marker signal as a reference, adjust C212, C215, and L205 for a symmetrical double-tuned response indication on the oscilloscope. It should be centered about the 30-mc marker.

i. Change the receiver dial setting to exactly 90 mc.

j. Change the sweep generator center frequency to 90 mc.

k. Adjust signal generator output to produce a 90-mc marker signal as monitored on the electronic counter.

l. Using the calibrated marker signal as a reference, check the oscilloscope display for a symmetrical double-tuned response with a center dip of approximately 10%. If response appears acceptable, alignment is complete; if not, C212, C215, and L205 may require additional adjustment.

m. Repeat steps f through l until the response curve has acceptable symmetry and centering at both ends of the band.

n. Carefully solder C205 to C203 in the same relationship noted in step b.

o. Replace bottom cover of the low-band tuner.

5-26. Input Circuit Alignment

a. Perform the initial settings listed in paragraph 5-23.

b. Connect output of the sweep generator to J105, BAND A INPUT.

c. Set the oscilloscope vertical sensitivity to 50 mv, and the vertical input to the AC coupled position.

d. Adjust the horizontal sensitivity so that the horizontal trace is 10 cm long.

e. Set the bandswitch to 30-90 MC.

f. Set the low-band tuning dial to 36 mc.

g. Set the sweep generator center fequency at 36 mc.

h. Adjust the output of the signal generator to produce a 36-mc marker signal as monitored on the electronic counter.

i. Using the calibrated marker signal as a reference, adjust C203 to provide an oscilloscope display of maximum symmetrical response centered about 36 mc.

j. Change the low-band tuning dial to 90 mc.

k. Change the sweep generator center frequency to 90 mc.

l. Adjust the signal generator output to provide a 90-mc marker signal as monitored on the electronic counter.

m. Using the calibrated marker signal as a reference, adjust C203 for a maximum symmetrical response centered at 90 mc.

n. Repeat steps f through m until optimum results are obtained.

5-27. HIGH-BAND TUNER ALIGNMENT

The following paragraphs present a separate alignment procedure for each circuit of the high-band tuner. Any one of the procedures can be accomplished without disturbing other circuits, but the steps within the procedure should be performed in sequence. All high-band tuner alignment procedures are critical. They should not be attempted unless considered absolutely necessary (for example, alignment is in order following the replacement of a component).

5-28. Initial settings

a. Set up equipment as shown in figure 5-13.

HIGH-BAND TUNER ALIGNMENT TEST SETUP

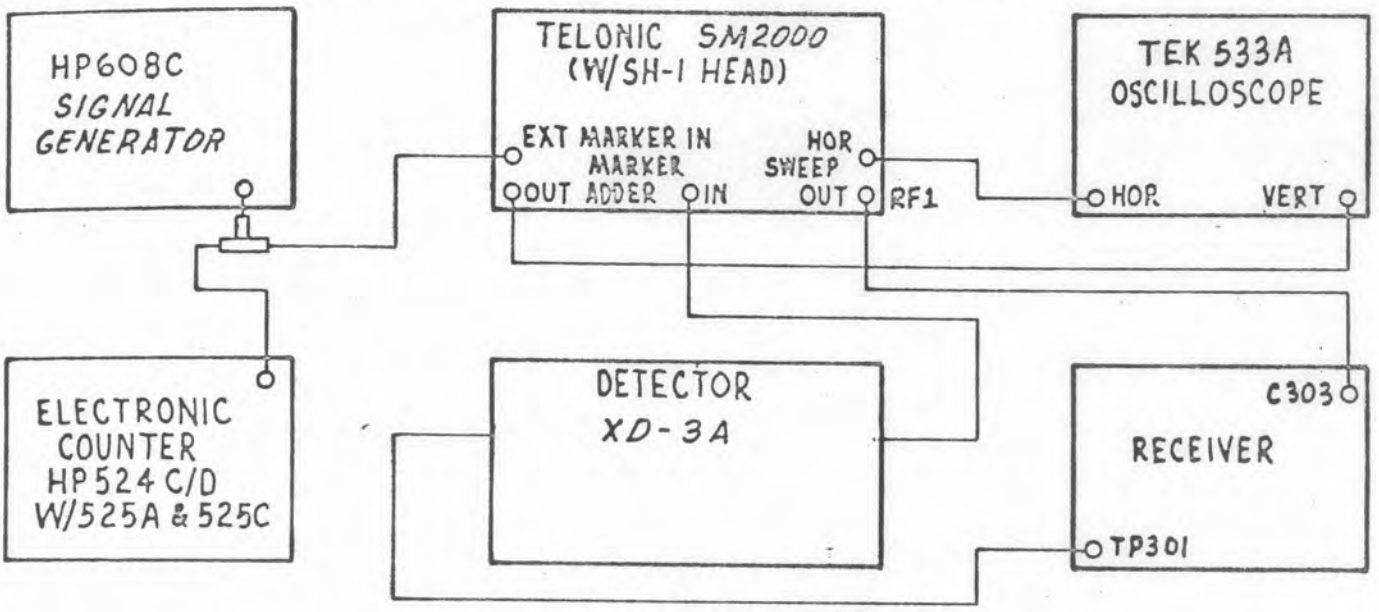


Figure 5-13

b. Set receiver bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 10.

d. Connect VTVM (410B) between positive lead of C328 and chassis ground.

e. Set receiver function switch to AM MAN.

f. Adjust RF GAIN control to obtain a 11.5 vdc indication on VTVM.

5-29. V304 Alignment

a. Perform initial settings listed in paragraph 5-28.

b. Connect output of the sweep generator to J101, BAND B INPUT.

c. Adjust signal generator to produce a 250-mc marker signal as monitored on the electronic counter.

d. Set high-band tuning dial to exactly 250 mc.

e. Connect a VTVM between TP601 and chassis ground.

LIST OF MANUFACTURERS' CODES AND ADDRESS (Cont)

CODE	NAME AND ADDRESS

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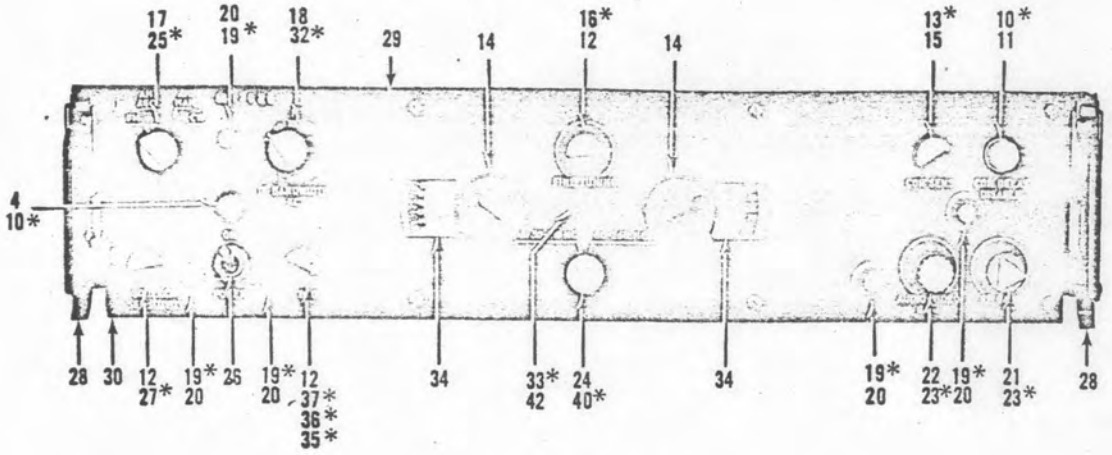
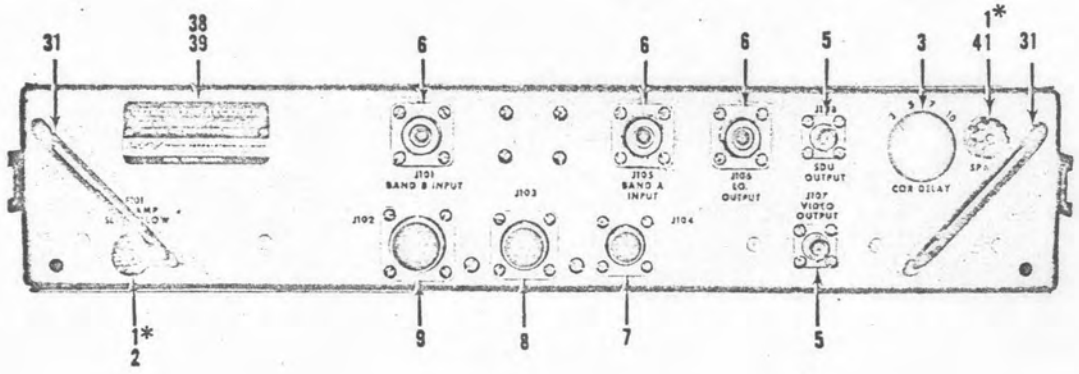
GROUP ASSEMBLY PARTS BREAKDOWN



FRONT VIEW



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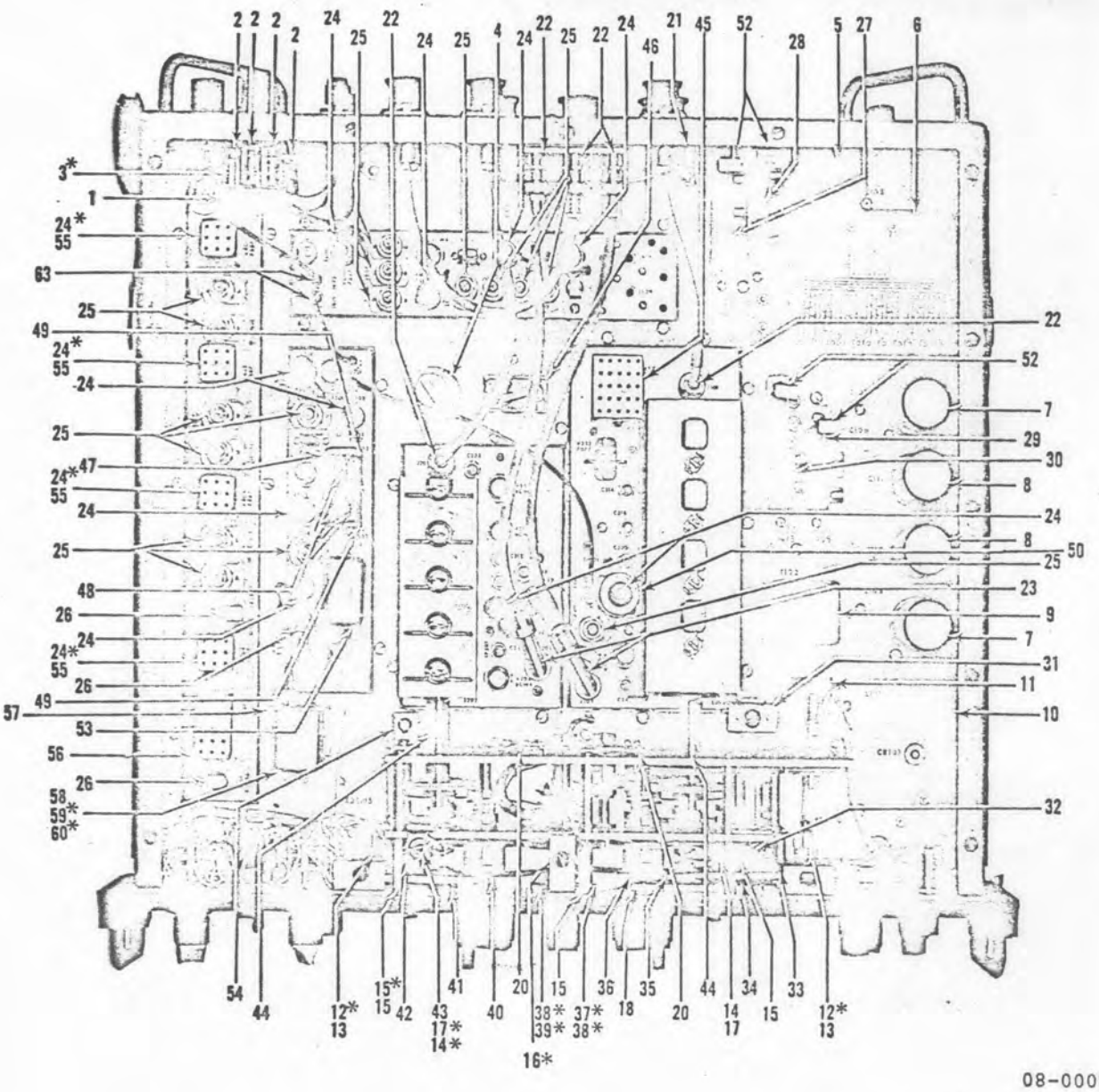
REAR VIEW

DENOTES HIDDEN PARTS

Figure 6-1. VHF Receiver, Front and Rear Views, Model GTM-D-175C(1)

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
1	G175C1-00000-1	VHF RECEIVER, FRONT AND REAR VIEWS, MODEL G175C1	1	
	G175C1-00000-2	VHF RECEIVER, FRONT AND REAR VIEWS, MODEL G175C1	1	
-1	MDL 1/2	• FUSE, 1/2 AMP, SLOW BLOW -71400-	2	
-2	HKP	• HOLDER, FUSE -71400-	1	
-3	70-3-2G	• KNOB, PLAIN, BLACK -49956-	1	
-4	141-1930-1472	• LAMPHOLDER -72619-	1	
-5	UG290U	• CONNECTOR, RF	2	
	440X5-16PHSSP	• SCREW -AP-	8	
	4LOCK	• WASHER -AP-	8	
	50FA440	• NUT -AP- -56878-	8	
-6	UG1052U	• CONNECTOR, RF, TYPE N	3	
	440X5-16PHSSP	• SCREW -AP-	12	
	4LOCK	• WASHER -AP-	12	
	50FA440	• NUT -AP- -56878-	12	
-7	DS007P	• CONNECTOR, 7 PIN -11139-	1	
	440X5-16PHSSP	• SCREW -AP-	4	
	4LOCK	• WASHER -AP-	4	
	50FA440	• NUT -AP- -56878-	4	
-8	DS0012P	• CONNECTOR, 12 PIN -11139-	1	
	440X5-16PHSSP	• SCREW -AP-	4	
	4LOCK	• WASHER -AP-	4	
	50FA440	• NUT -AP- -56878-	4	
-9	DS0019P	• CONNECTOR, 19 PIN -11139-	1	
	440X5-16PHSSP	• SCREW -AP-	4	
	4LOCK	• WASHER -AP-	4	
	50FA440	• NUT -AP- -56878-	4	
-10	345	• LAMP -71744-	2	
-11	192C045-1475	• SWITCH, PUSHBUTTON, ILLUMINATED -72619-	1	
-12	1073-4	• KNOB, MODIFIED -14632-	3	
-13	RV4NAYSD504A	• RESISTOR, VARIABLE COMP, 500 K, 2W	1	
-14	1914-2	• KNOB, PLAIN, BLACK -49956-	2	
-15	1073-3	• KNOB, PLAIN, BLACK -49956-	1	
-16	RV6NAYSD104A	• RESISTOR, VARIABLE COMP, 100 K, 1/2 W	1	
-17	70-3-2G3	• KNOB, DIMMER -49956-	1	
-18	1512-1	• KNOB, ENGRAVED -14632-	1	
-19	327	• LAMP -71744-	5	
-20	TT6187	• LAMP HOLDER -72619-	5	
-21	70-2-1G1	• KNOB, INTENSITY -49956-	1	
-22	70-2-1G4	• KNOB, GAIN -49956-	1	
-23	RV6NAYSD103A	• RESISTOR, VARIABLE COMP, 10 K, 1/2 W	2	
-24	70-2-2G3	• KNOB, DIMMER -49956-	1	
-25	399227A	• SWITCH, 6 POLE, 4 POSITION -76854-	2	
-26	8803K6	• SWITCH, SPST -15605-	1	
-27	RV6NAYSD504A	• RESISTOR, VARIABLE COMP, 500 K, 1/2 W, 10%,	1	
-28	35L22-3	• HANDLE, LATCH TYPE -71286-	2	
	1032X3-8FHSSP	• SCREW -AP-	4	
-29	4050-1	• PANEL, EDGE LIGHT -14632-	1	
	1032X3-8PHSSB	• SCREW -AP-	8	
-30	4049-1	• PANEL, FRONT -14632-	1	
	1032X3-8PHSSP	• SCREW -AP-	4	
-31	1252-1	• HANDLE -71279-	2	
	1032X3-8PHSSP	• SCREW -AP-	4	
-32	221765A3	• SWITCH, 12 POLE, 3 POSITION -76854-	1	
-33	327	• LAMP -71744-	1	
-34	1052-1	• WINDOW, PLEXIGLASS -14632-	2	
-35	CB1845	• RESISTOR, FIXED COMP, 180 K, 1/4 W, 5% -01121-	1	
-36	CB1055	• RESISTOR, FIXED COMP, 1 MEGO, 1/4 W, 5% -01121-	1	
-37	RV6NAYSD504A	• RESISTOR, VARIABLE COMP, 500 K, 1/2 W, 10%, -01121-	1	
-38	G175C1-00001-1	• IDENTIFICATION, PLATE -USED ON-1 ONLY-	1	
	AN535-0-3	• SCREW -AP-	2	
-39	G175C1-00001-2	• IDENTIFICATION, PLATE -USED ON-2 ONLY-	1	
	AN535-0-3	• SCREW -AP-	2	
-40	399237A	• SWITCH, 8 POLES, 2 POSITIONS -76854-	1	
-41	342004	• HOLDER, FUSE -75915-	1	
	G166A1-00002-1	• PLATE -USED ON -1 ONLY-	1	
	440X5-16BHSSP	• SCREW -AP- -USED ON -1 ONLY-	6	
	50FA440	• NUT -AP- -56878- -USED ON -1 ONLY-	6	
-42	103	• LAMPHOLDER -04211-	1	



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INDEX NO. 51 NOT
SHOWN FOR CLARITY
INDEX NOS. 19, 61 THRU 62
STORED IN COVER

*DENOTES HIDDEN PARTS

Figure 6-2. VHF Receiver, Top View, Model G175C(1)

FIGURE AND INDEX NO.	PART NUMBER	1 2 3 4 5 6 7 • DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
2	G175C1-00000-1	VHF RECEIVER, TOP VIEW, MODEL G175C1	REF	
	G175C1-00000-2	VHF RECEIVER, TOP VIEW, MODEL G175C1	REF	
-1	1694-1	• SWITCH, 4 POSITION, PROGRESSIVE SHORTING -14632-	1	
-2	109D107X9030T2	• CAPACITOR, ELECTROLYTIC, TANTALUM, 100 UF, 30 WVDC -56289-	4	
-3	109D256C2050F2	• CAPACITOR, ELECTROLYTIC, TANTALUM, 25 UF, 50 WVDC -56289-	1	
-4	1511-1	• KNOB, ENGRAVED -14632-	1	
-5	MH90305	• RELAY, 3 PDT -77342-	1	
	50FA440	• NUT -AP- -56878-	2	
-6	1476-1	• TRANSFORMER, POWER -14632-	1	
	50FA1032	• NUT -AP- -56878-	4	
	10LOCK	• WASHER -AP-	4	
-7	43F2299BB1	• CAPACITOR, ELECTROLYTIC, TWISTLOCK, 15 UF, 350 WVDC -06001-	2	
-8	43F2300BB1	• CAPACITOR, ELECTROLYTIC, TWISTLOCK, 100 UF, 50 WVDC -06001-	2	
-9	1477-1	• TRANSFORMER, AUDIO -14632-	1	
	50FA440	• NUT -AP- -56878-	2	
-10	1070-1	• CHOKE, 6 HY, 60 MA -14632-	1	
	50FA440	• NUT -AP- -56878-	2	
-11	7223-962-1	• RESISTOR, VARIABLE, 500 OHM, 1% -73138-	1	
-12	327	• LAMP -71744-	2	
-13	8-1930XP24	• LAMPHOLDER -72619-	2	
-14	7-02	• LAMPHOLDER -72619-	2	
-15	20755-2	• SPACER -14632-	4	
-16	CB5135	• RESISTOR, FIXED, COMP, 51K, 5%, 1/4 W -01121-	1	
-17	1820	• LAMP, 28 V -49956-	2	
-18	1007-1	• SLIDE -14632-	1	
	256X1-4RHSSP	• SCREW -AP-	2	
-19	JFD5284	• ADJUSTMENT TOOL -14632-	1	
-20	1SX1TJX25	• SWITCH, MICRO, SPDT, W/ACTUATOR -38315-	2	
	256X5-16RHSSP	• SCREW -AP-	4	
	2LOCK	• WASHER -AP-	4	
-21	318-010382-3	• SWITCH, COAXIAL -74868-	1	
-22	UG88U	• CONNECTOR, RF, BNC -74868-	5	
-23	UG913U	• CONNECTOR, RF, BNC -74868-	2	
-24	90SL	• CAP, PLATE, NUVISTOR -01009-	14	
-25	1491-1	• HOLDER, COIL -14632-	16	
-26	1515-1	• BRACKET, TRANSISTOR -14632-	3	
	440X3-8PHSSP	• SCREW -AP-	3	
-27	2135-1	• BOARD ASSEMBLY, COR MODULE -14632- SEE FIGURE 6-11 FOR DETAIL-	1	
-28	2136-1	• BOARD ASSEMBLY, SQUELCH MODULE -14632- -SEE FIGURE 6-10 FOR DETAIL-	1	
-29	2133-1	• BOARD ASSEMBLY, AUDIO MODULE -14632- -SEE FIGURE 6-13 FOR DETAIL-	1	
-30	2151-1	• BOARD ASSEMBLY, VIDEO MODULE -14632- -SEE FIGURE 6-12 FOR DETAIL-	1	
-31	1344-1	• BRACKET, ASSEMBLY, GROUNDING -14632-	1	
	4LOCK	• WASHER -AP-	2	
	50FA440	• NUT -AP- -56878-	2	
	440X5-16PHSSP	• SCREW -AP-	2	
-32	1316-1	• PLATE, LAMPHOLDER -14632-	1	
	256X3-8PHSSH	• SCREW -AP-	2	
	2LOCK	• WASHER -AP-	2	
	50FA256	• NUT -AP- -56878-	2	
-33	1369-1	• SHIELD, LIGHT, RIGHT -14632-	1	
-34	1107-1	• SLIDE, TOP -14632-	1	
-35	1392-1	• PLATE, DIAL, RIGHT -14632-	1	
-36	1148-1	• MASK -14632-	1	
-37	1411-1	• COVER, LIGHT, RIGHT -14632-	1	
-38	1542-1	• FILTER, LIGHT -14632-	2	
-39	1410-1	• COVER, LIGHT, LEFT -14632-	1	
-40	1393-1	• PLATE, DIAL, LEFT -14632-	1	
-41	1147-1	• MASK -14632-	1	
-42	1299-1	• SHIELD, LIGHT, LEFT -14632-	1	
-43	1174-1	• PLATE, LAMPHOLDER -14632-	1	
	256X3-8PHSSP	• SCREW -AP-	2	
	2LOCK	• WASHER	2	
	50FA256	• NUT -AP- -56878-	2	
-44	1414-1	• COUPLING, BELLOWS TYPE, SERVOMETER, FC 9 -14632-	2	
-45	1424-1	• SHIELD, TUBE -14632-	1	
-46	1155-1	• PC BOARD, COUPLING NETWORK, 75 KC -14632-	1	
	440X1-4RHSSP	• SCREW -AP-	2	
-47	1079-1	• PC BOARD, COUPLING NETWORK, 40 KC -14632-	1	
	440X1-4RHSSP	• SCREW -AP-	3	
-48	1046-1	• SCREW, MODIFIED -14632-	3	
-49	1081-1	• CAN ASSEMBLY, IF -14632-	2	
-50	1689-1	• SHIELD, TUBE -14632-	1	
-51	20619-1	• TOP COVER ASSEMBLY -14632- -NOT SHOWN FOR CLARITY-	1	
-52	1490-12	• CLIP, PC BOARD -14632-	4	
	440X5-16PHSSP	• SCREW -AP-	4	
	4LOCK	• WASHER -AP-	4	
	50FA440	• NUT -AP- -56878-	4	
-53	10335-5	• COVER, CAN -14632-	1	
-54	1623-1	• CHASSIS BRACE -14632-	1	
	1032X3-8PHSSP	• SCREW -AP-	2	
	10LOCK	• WASHER -AP-	2	
-55	1500-1	• COVER, CAN -14632-	4	
-56	1501-1	• COVER, CAN -1463	1	

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
2	2640-1	• BFO MODULE ASSEMBLY -14632-	1	
-57	10936-1	• MOUNTING BRACKET, DUAL -14632-	1	
	440X5-16PHSSP	• SCREW -AP-	2	
	50FA440	• NUT -AP- -56878-	2	
	10580-1	• • CAN ASSEMBLY, BFO, 2.5 MC -14632-	1	
	440X3-8PHSSP	• • SCREW -AP-	2	
	4LOCK	• • WASHER -AP-	2	
-58	1707-1	• • • CAN -14632-	1	
-59	10581-1	• • • BRACKET -14632-	1	
-60	1705-1	• • • PC BOARD ASSEMBLY, 2.5 MC BFO -SEE FIGURE 6-15 FOR COMPONENTS- -14632-	1	
-61	2033-1	• TUNING TOOL -14632-	1	
-62	GC8196	• TUNING TOOL -14632-	1	
-63	27-7	• CONNECTOR -74868-	2	

FIGURE AND INDEX NO.	PART NUMBER	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE

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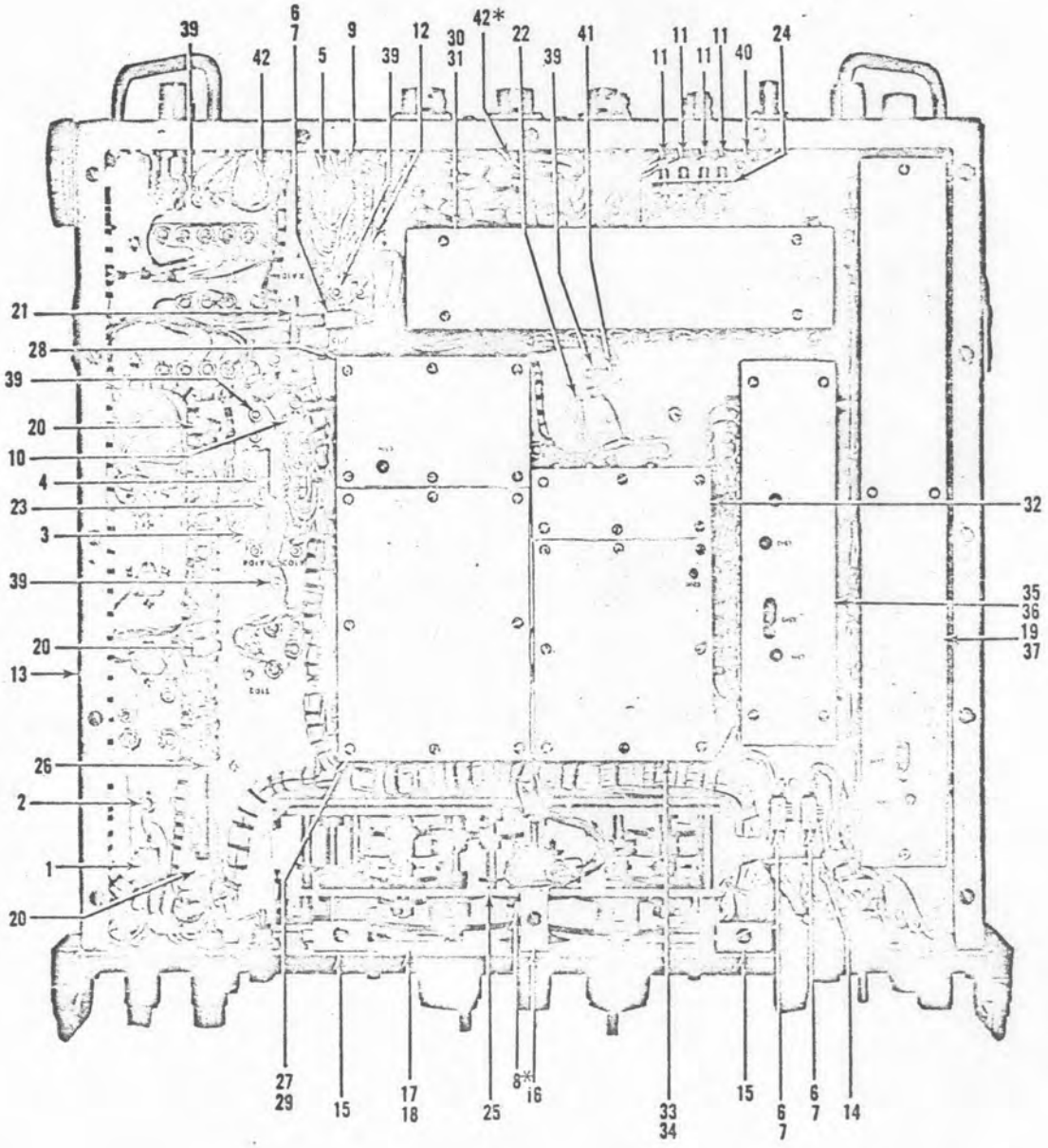

INDEX NO. 38 NOT SHOWN FOR CLARITY

*DENOTES HIDDEN PARTS

Figure 6-3. VHF Receiver, Bottom View

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
3	G175C1-00000-1	VHF RECEIVER, BOTTOM VIEW, MODEL G175C1	REF	
	G175C1-00000-2	VHF RECEIVER, BOTTOM VIEW, MODEL G175C1	REF	
-1	RH5-2KPORM3PCT	• RESISTOR, FIXED, WIREWOUND, 2 K, 5 W, 3% -91637-	1	
-2	1N3008B	• DIODE, SILICON, ZENER, 120 V	1	
-3	5002-006-103-002	• CONNECTOR -91662-	1	
	440X5-16PHSSP	• SCREW -AP-	2	
	4LOCK	• WASHER -AP-	2	
	50FA440	• NUT -AP- -56878-	2	
-4	CB1015	• RESISTOR, FIXED COMP, 100 OHM, 1/4 W, 5% -01121-	1	
-5	5002-007-103-002	• CONNECTOR -91662-	1	
	440X5-16PHSSP	• SCREW -AP-	2	
	4LOCK	• WASHER -AP-	2	
	50FA440	• NUT -AP- -56878-	2	
-6	SMRE14SK	• CONNECTOR, 14 PIN -81312-	3	
-7	SMRE14PKH	• CONNECTOR, W/HOOD, 14 PIN -81312-	3	
-8	1N979A	• DIODE, ZENER	1	
-9	5002-008-103-002	• CONNECTOR -91662-	1	
	440X5-16PHSSP	• SCREW -AP-	2	
	4LOCK	• WASHER -AP-	2	
	50FA440	• NUT -AP- -56878-	2	
-10	5002-009-103-002	• CONNECTOR -91662-	1	
	440X5-16PHSSP	• SCREW -AP-	2	
	4LOCK	• WASHER -AP-	2	
	50FA440	• NUT -AP- -56878-	2	
-11	1204-050	• FILTER, RF -72982-	4	
-12	SM1000PFGMV	• CAPACITOR, CERAMIC, DISC, 1000 PF, GMV, -91418-	1	
-13	3065-1	• MAIN CHASSIS ASSEMBLY -14632-	1	
-14	1391-1	• BRACKET -14632-	1	
	256X5-16CHSSP	• SCREW -AP-	2	
	2LOCK	• WASHER -AP-	2	
	50FA256	• NUT -AP- -56878-	2	
-15	1518-1	• BRACKET ASSEMBLY, DZUS -14632-	2	
	440X5-16PHSSP	• SCREW -AP-	4	
	4LOCK	• WASHER -AP-	4	
	50FA440	• NUT -AP- -56878-	4	
-16	1520-1	• BRACKET ASSEMBLY, DZUS -14632-	1	
	440X5-16PHSSP	• SCREW -AP-	2	
	4LOCK	• WASHER -AP-	2	
	50FA440	• NUT -AP- -56878-	2	
-17	1007-2	• SLIDE, BOTTOM -14632-	1	
	256X1-4RHSSP	• SCREW -AP-	2	
-18	1221-2	• RACK ASSEMBLY -14632-	1	
	256X3-8PHSSP	• SCREW -AP-	2	
-19	2141-1	• IF COVER MARKED, 3 MC -14632-	1	
	440X5-16PHSSP	• SCREW -AP-	4	
-20	1100-1	• POST -14632-	3	
	440X3-8PHSSP	• SCREW -AP-	3	
-21	1239-1	• BRACKET -14632-	1	
	256X5-16CHSSP	• SCREW -AP-	2	
	2LOCK	• WASHER -AP-	2	
	50FA256	• NUT -AP- -56878-	2	
-22	1131-33	• CHOKE, RF -14632-	1	
-23	DM10-390J	• CAPACITOR, DIPPED, MICA, 39 PF, 5%, 500 WVDC -72136-	1	
-24	1564-1	• BRACKET, FILTER -14632-	1	
	256X5-16PHSSP	• SCREW -AP-	2	
	2LOCK	• WASHER -AP-	2	
	50FA256	• NUT -AP- -56878-	2	
-25	3092-1	• GEAR TRAIN ASSEMBLY -14632- -SEE FIGURE 6-14 FOR DETAIL-	1	
	632X5-16CHSSP	• SCREW -AP-	4	
-26	1527	• BOARD ASSEMBLY, POWER SUPPLY -14632- -SEE FIGURE 6-9 FOR DETAIL-	1	
	440X5-16PHSSP	• SCREW -AP-	6	
	4LOCK	• WASHER -AP-	6	
-27	2017-1	• COVER, BOTTOM, 60-260 TUNER -14632-	1	
	440X5-16PHSSP	• SCREW -AP-	8	
-28	1267-1	• COVER, BOTTOM, 60-260 TUNER -14632-	1	
	440X5-16PHSSP	• SCREW -AP-	6	
-29	4102-1	• TUNER, HIGH BAND, 60-260 MC -14632- -SEE FIGURE 6-4 FOR DETAIL-	1	
	632X5-16PHSSP	• SCREW -AP-	6	
-30	2086-1	• COVER, BOTTOM, AMPLIFIER, IF, 10 KC -14632-	1	
	440X5-16PHSSP	• SCREW -AP-	4	
-31	4105-1	• AMPLIFIER, IF, 10-KC BANDWIDTH -14632- SEE FIGURE 6-6 FOR DETAIL-	1	
	632X5-16PHSSP	• SCREW -AP-	4	
-32	1442-1	• COVER, BOTTOM, TUNER, LOW BAND, 30-90 MC -14632-	1	
	440X5-16PHSSP	• SCREW -AP-	6	
-33	2087-1	• COVER, BOTTOM, TUNER, LOW BAND, 30-90 MC -14632-	1	
	440X5-16PHSSP	• SCREW -AP-	8	
-34	4101-1	• TUNER, LOW BAND, 30-90 MC -14632- -SEE FIGURE 6-5 FOR DETAIL-	1	
	632X5-16PHSSP	• SCREW -AP-	4	
-35	2132-1	• COVER, BOTTOM, AMPLIFIER, IF, 40/75 KC BANDWIDTH -14632-	1	
	440X5-16PHSSP	• SCREW -AP-	4	
-36	4104-1	• AMPLIFIER, IF, 40/75 KC BANDWIDTH -14632- -SEE FIGURE 6-7 FOR DETAIL-	1	
	632X5-16PHSSP	• SCREW -AP-	4	
-37	4135-2	• AMPLIFIER, 3 MC BANDWIDTH -14632- -SEE FIGURE 6-8 FOR DETAIL-	1	
	632X5-16PHSSP	• SCREW -AP-	6	
-38	20618-1	• COVER, DUST, BOTTOM -14632- -NOT SHOWN FOR CLARITY-	1	
	440X5-16PHSSP	• SCREW -AP-	4	

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
3 -39	4 LUG	• LUG, GROUND -79963-	5	
-40	6 LUG	• LUG, GROUND -79963-	1	
-41	SM5000PF20PCT	• CAPACITOR, CERAMIC, DISC, 0.005 UF, 20%, -91418-	1	
-42	1N3253	• DIODE, SILICON	2	

FIGURE AND INDEX NO.	PART NUMBER	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE

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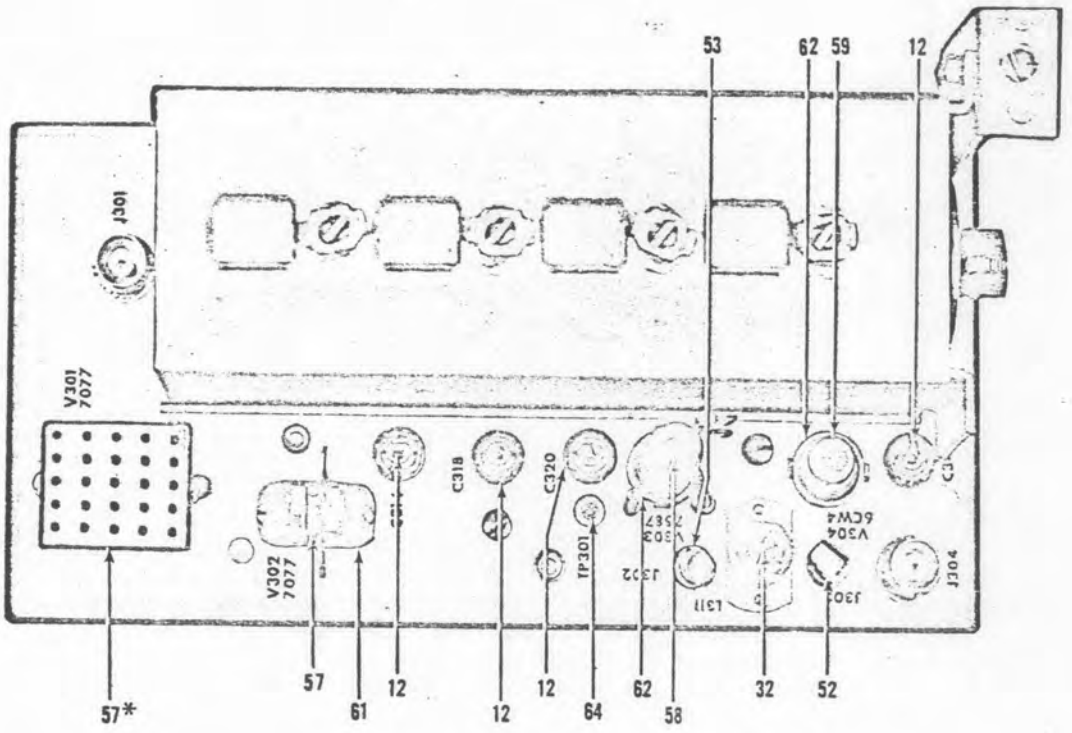
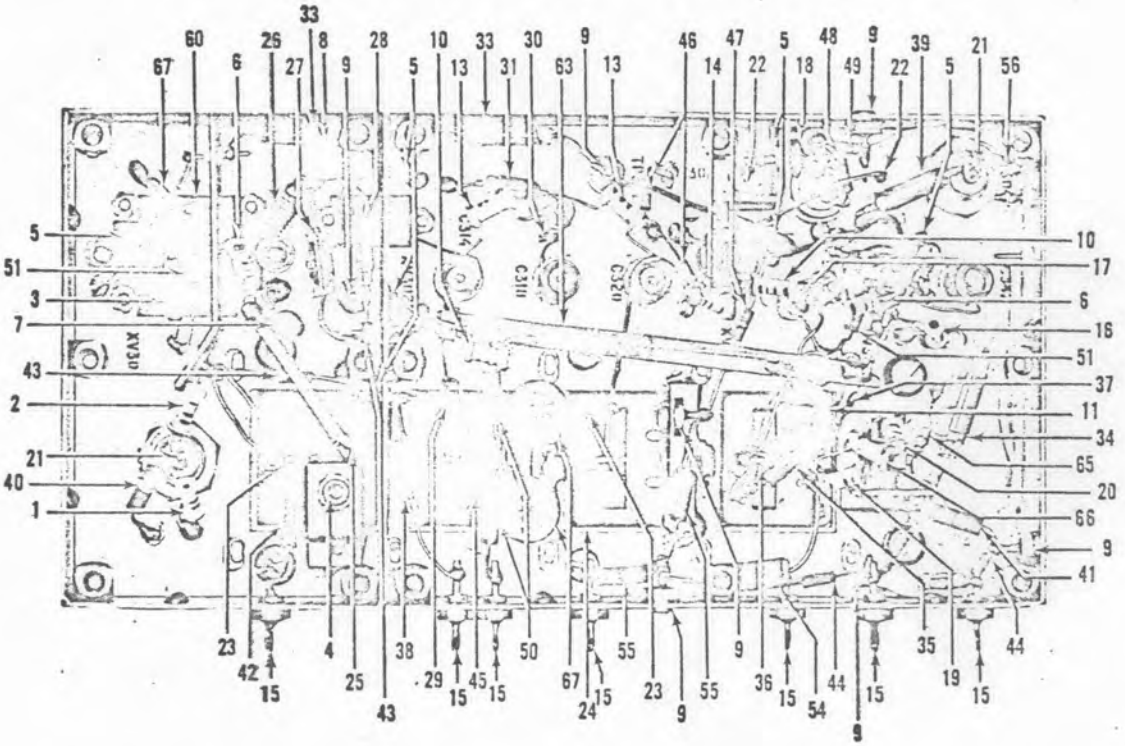


TOP VIEW



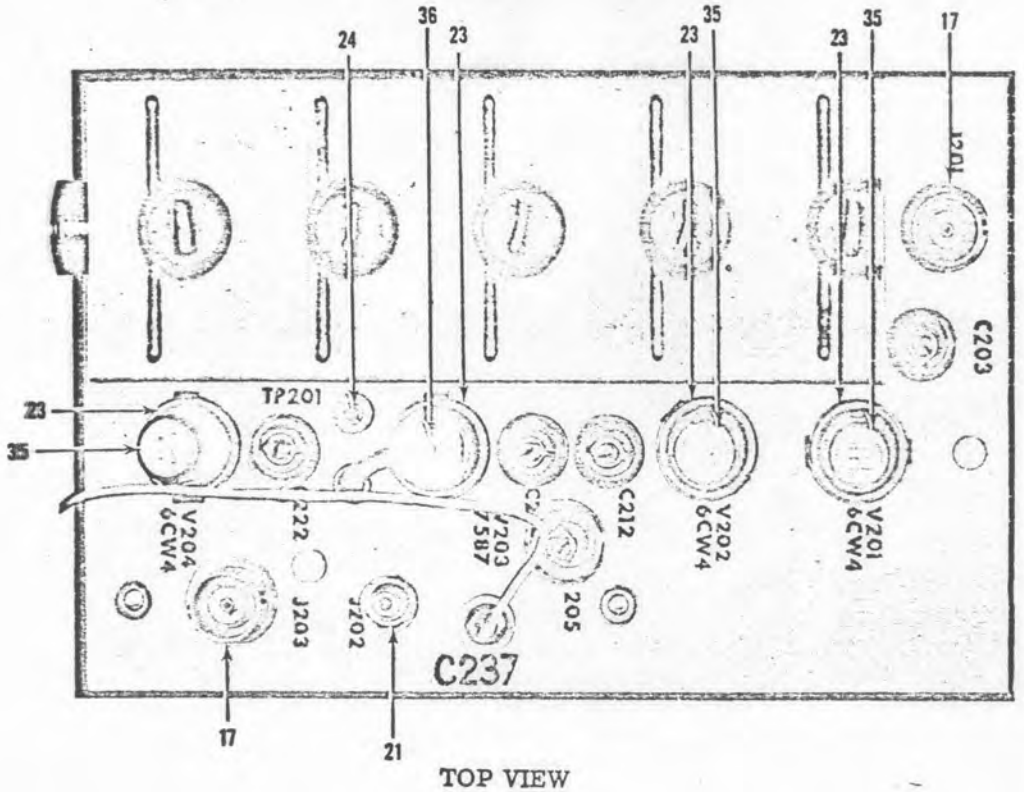
BOTTOM VIEW

08-00089

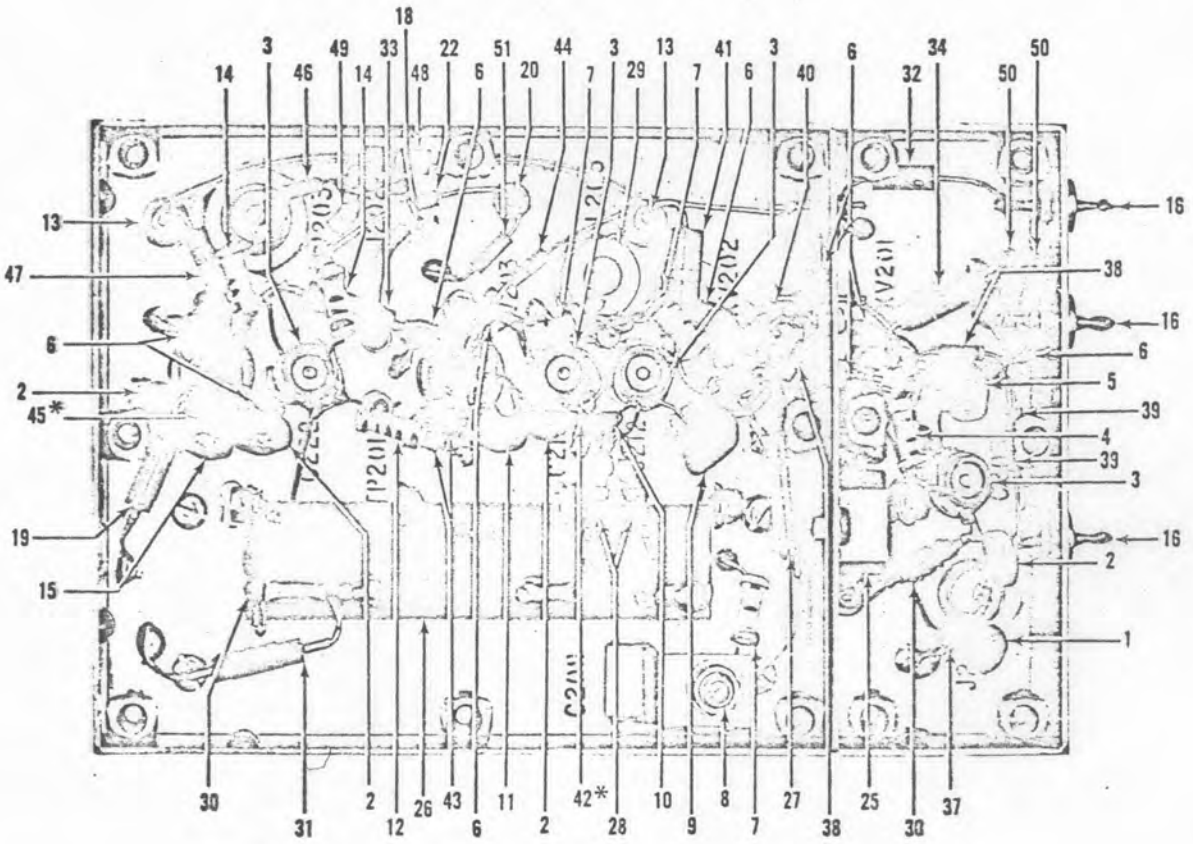
DENOTES HIDDEN PARTS

Figure 6-4. Tuner, High Band, 68-260 MC

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
4	4102-1	TUNER, HIGH BAND, 60-260 MC -SEE FIGURE 6-3 FOR NHA- -14632-	REF	
-1	301-000C0H0609C	• CAPACITOR, CERAMIC, TUBULAR, 6.0 PF, 0.25 PF -72982-	1	
-2	301-000C0H0569C	• CAPACITOR, CERAMIC, TUBULAR, 5.6 PF, 0.25 PF -72982-	1	
-3	DM10-470J	• CAPACITOR, DIPPED MICA, 47 PF, 5% -72136-	1	
-4	MG1305	• CAPACITOR, VARIABLE TRIMMER, 0.8-4.5 PF -82872-	1	
-5	SM1000PFGMV	• CAPACITOR, CERAMIC DISC, 1000 PF, GMV, 500 WVDC -91418-	7	
-6	301-000C0J0339C	• CAPACITOR, CERAMIC, TUBULAR, 3.3 PF, 0.25 PF -72982-	2	
-7	DM10-120J	• CAPACITOR, DIPPED MICA, 12 PF, 5% -72136-	1	
-8	DM10-501J	• CAPACITOR, DIPPED MICA, 500 PF, 5% -72136-	1	
-9	SS5A102W	• CAPACITOR, CERAMIC, STANDOFF, 1000 PF, GMV -01121-	7	
-10	301-000C0K0508F	• CAPACITOR, CERAMIC, TUBULAR, 0.5 PF, 0.1 PF -72982-	2	
-11	QC0-43PF10PCT	• CAPACITOR, CERAMIC, 0.43 PF, 10% -95121-	1	
-12	MG11016	• CAPACITOR, VARIABLE TRIMMER, 0.7-9.0 PF -82872-	4	
-13	301-000C0K0209C	• CAPACITOR, CERAMIC, TUBULAR, 2.0 PF, 0.25 PF -72982-	2	
-14	301-000C0H0509C	• CAPACITOR, CERAMIC, TUBULAR, 5.0 PF, 0.25 PF -72982-	1	
-15	FA5C102W	• CAPACITOR, CERAMIC, FEEDTHRU, 1000 PF, GMV -01121-	7	
-16	301-651U2J508C	• CAPACITOR, CERAMIC, TUBULAR, 0.5 PF, 0.1 PF, TEMP. COMP. -72982-	1	
-17	301-651T2H279C	• CAPACITOR, CERAMIC, TUBULAR, 2.7 PF, 0.25 PF, TEMP. COMP. -72982-	1	
-18	FA5C3311	• CAPACITOR, CERAMIC, FEEDTHRU, 330 PF, 10% -01121-	1	
-19	301-000C0K0159F	• CAPACITOR, CERAMIC, TUBULAR, 1.5 PF, 0.01 PF -72982-	1	
-20	301-000C0H0479C	• CAPACITOR, CERAMIC, TUBULAR, 4.7 PF, 0.25 PF -72982-	1	
-21	UG1094U	• CONNECTOR, RF, TYPE BNC	2	
-22	27-9	• CONNECTOR, RECEPTACLE -74868-	2	
-23	1489-01	• INDUCTOR -14632-	2	
-24	2027-1	• TUNER, INDUCTUNER, FOUR SECTION -14632-	1	
-25	1200-1	• COIL -14632-	1	
-26	1129-01	• COIL -14632-	1	
-27	W10G	• COIL, 1.0 UH -99848-	1	
-28	1131-01	• INDUCTOR -14632-	1	
-29	1489-02	• COIL -14632-	1	
-30	1129-02	• COIL -14632-	1	
-31	1131-02	• COIL -14632-	1	
-32	1472-03	• COIL, VARIABLE -14632-	1	
-33	1131-04	• COIL -14632-	2	
-34	1131-05	• COIL -14632-	1	
-35	1131-26	• COIL -14632-	1	
-36	1107	• COIL -14632-	1	
-37	1489-03	• INDUCTOR -14632-	1	
-38	209-11	• COIL -99848-	1	
-39	W270	• COIL -99848-	1	
-40	EB1045	• RESISTOR, FIXED COMP, 100 K, 1/2 W, 5% -01121-	1	
-41	CB1025	• RESISTOR, FIXED COMP, 1 K, 1/4 W, 5% -01121-	1	
-42	EB4735	• RESISTOR, FIXED COMP, 47 K, 1/2 W, 5% -01121-	1	
-43	CB6215	• RESISTOR, FIXED COMP, 620 OHM, 1/4 W, 5% -01121-	2	
-44	CB1015	• RESISTOR, FIXED COMP, 100 OHM, 1/4 W, 5% -01121-	2	
-45	EB1535	• RESISTOR, FIXED COMP, 15 K, 1/2 W, 5% -01121-	1	
-46	CB4745	• RESISTOR, FIXED COMP, 470 K, 1/4 W, 5% -01121-	2	
-47	CB2245	• RESISTOR, FIXED COMP, 220 K, 1/4 W, 5% -01121-	1	
-48	CB3335	• RESISTOR, FIXED COMP, 33 K, 1/4 W, 5% -01121-	1	
-49	CB2725	• RESISTOR, FIXED COMP, 2.7 K, 1/4 W, 5% -01121-	1	
-50	EB1015	• RESISTOR, FIXED COMP, 100 OHM, 1/2 W, 5% -01121-	2	
-51	CB4735	• RESISTOR, FIXED COMP, 47 K, 1/4 W, 5% -01121-	2	
-52	27-7	• CONNECTOR, PLUG -74868-	1	
-53	27-26	• CONNECTOR, PLUG, SUB-MINIATURE- -74868-	1	
-54	GB1535	• RESISTOR, FIXED COMP, 15 K, 1 W, 5% -01121-	1	
-55	EB1025	• RESISTOR, FIXED COMP, 1 K, 1/2 W, 5% -01121-	2	
-56	CB5105	• RESISTOR, FIXED COMP, 51 OHM, 1/4 W, 5% -01121-	1	
-57	7077	• TUBE, ELECTRON, CERAMIC TRIODE -04314-	2	
-58	7587	• TUBE, ELECTRON, NUVISTOR TETRODE -86684	1	
-59	6CW4	• TUBE, ELECTRON, NUVISTOR TRIODE -86684-	1	
-60	86-070	• SOCKET, TUBE -04435-	1	
	256X5-16PHSSP	• SCREW -AP-	2	
	256X1-4PHSSP	• SCREW -AP-	1	
	2LOCK	• WASHER -AP-	3	
	50FA256	• NUT -AP- -56878-	3	
-61	86-085	• SOCKET, TUBE -04435-	1	
	440X5-16PHSSP	• SCREW -AP-	4	
	50FA440	• NUT -AP- -56878-	4	
-62	133-65-10-001	• SOCKET, TUBE -71785-	2	
-63	1101	• BOARD, PRINTED CIRCUIT, 60-260 TUNER -14632-	1	
-64	TJ6	• TEST POINT -04013-	1	
-65	PC115	• VARICAP -01281-	1	
-66	301-000C0H0109C	• CAPACITOR, CERAMIC, TUBULAR, 1.0 PF, 0.1 PF, -72982-	1	
-67	JL1000PF20PCT	• CAPACITOR, CERAMIC, DISC 1000 PF, 20% -91418-	3	



TOP VIEW



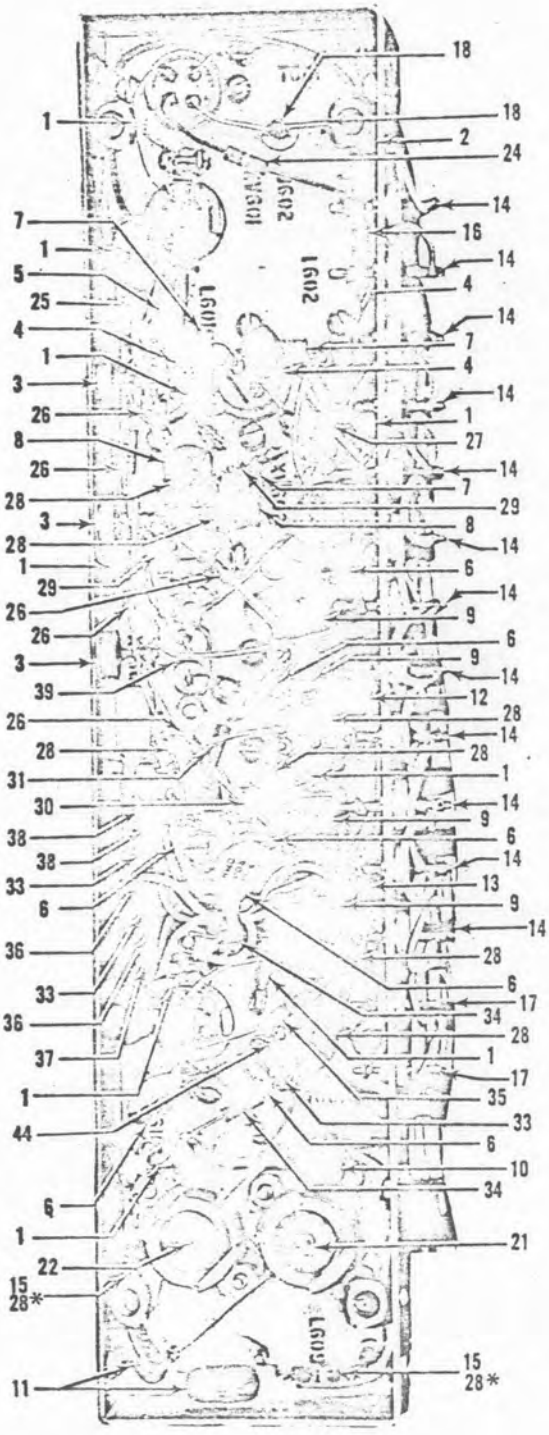
BOTTOM VIEW

*DENOTES HIDDEN PARTS

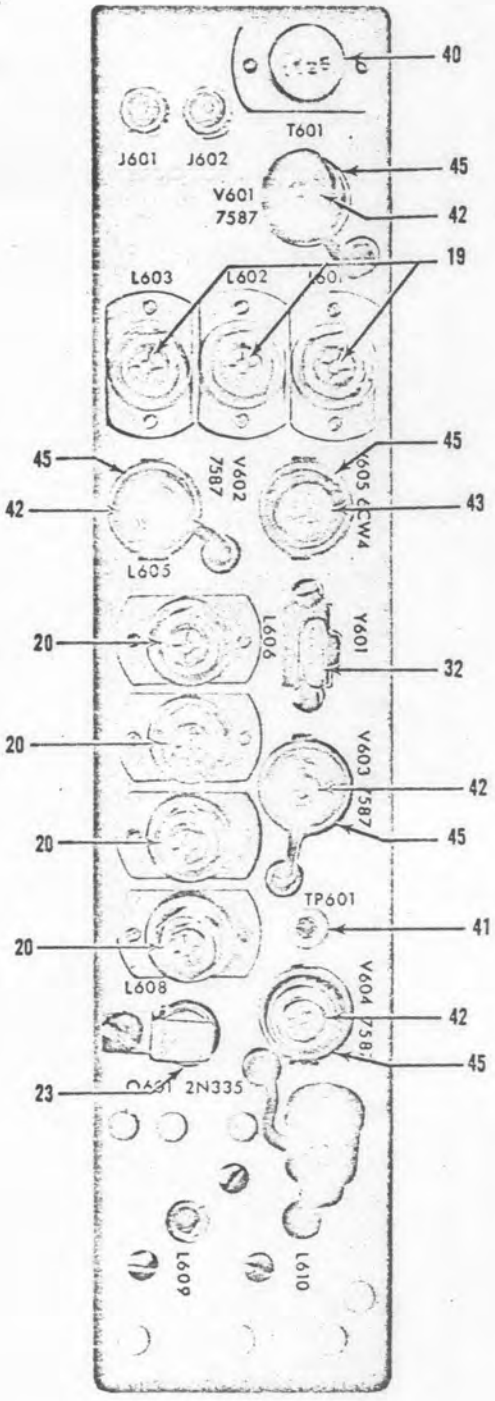
08-00090

Figure 6-5. Tuner, Low Band, 30-90 MC

FIGURE AND INDEX NO.	PART NUMBER	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
5	4101-1	TUNER, LOW BAND, 30-90 MC -SEE FIGURE 6-3 FOR NHA- -14632-	REF	
-1	DM10-330J	• CAPACITOR, DIPPED MICA, 33 PF, 5% -72136-	1	
-2	DM10-150J	• CAPACITOR, DIPPED MICA, 15 PF, 5% -72136-	4	
-3	MG11016	• CAPACITOR, VARIABLE TRIMMER, 0.7-9.0 PF -73899-	4	
-4	301-000C0K0279C	• CAPACITOR, CERAMIC, TUBULAR, 2.7 PF, 0.25 PF -72982-	1	
-5	DM10-301J	• CAPACITOR, DIPPED MICA, 300 PF, 5% -72136-	1	
-6	SM1000PFGMV	• CAPACITOR, CERAMIC DISC, 1000 PF, GMV, -91418-	10	
-7	301-000C0H0479C	• CAPACITOR, CERAMIC, TUBULAR, 4.7 PF, 0.25 PF -91418-	3	
-8	MG1305	• CAPACITOR, VARIABLE TRIMMER, 0.8-4.5 PF -73899-	1	
-9	DM10-271J	• CAPACITOR, DIPPED MICA, 270 PF, 5% -72136-	1	
-10	DM10-220J	• CAPACITOR, DIPPED MICA, 22 PF, 5% -72136-	1	
-11	DM10-470J	• CAPACITOR, DIPPED MICA, 47 PF, 5% -72136-	1	
-12	301-000C0K0689C	• CAPACITOR, CERAMIC, TUBULAR, 0.68 PF, 0.25 PF -72982-	1	
-13	SS5A102W	• CAPACITOR, CERAMIC, STANDOFF, 1000 PF, GMV -01121-	2	
-14	301-000C0K0209C	• CAPACITOR, CERAMIC, TUBULAR, 2.0 PF, 0.25 PF -72982-	2	
-15	DM10-180J	• CAPACITOR, DIPPED MICA, 18 PF, 5% -72136-	1	
-16	FA5C102W	• CAPACITOR, CERAMIC, FEEDTHRU, 1000 PF, GMV -01121-	3	
-17	UG1094U	• CONNECTOR, RECEPTACLE, BNC	2	
-18	27-9	• CONNECTOR, RECEPTACLE -74868-	1	
-19	W47G	• COIL, 4.7 UH -99848-	1	
-20	357X5U102M	• CAPACITOR, FEEDTHRU, 1000 PF -72982	1	
-21	27-26	• CONNECTOR, PLUG -74868-	1	
-22	CB1025	• RESISTOR, FIXED COMPOSITION, 1 K, 5%, 1/4 W -01121-	1	
-23	133-65-10-001	• SOCKET, TUBE -71785-	4	
-24	TJ6	• TEST POINT -04013-	1	
-25	1469	• TRANSFORMER -14632-	1	
-26	2026-1	• TUNER, INDUCTUNER, FOUR SECTION -14632-	1	
-27	1131-23	• COIL, 30 T, NO. 28 -14632-	1	
-28	1131-24	• COIL, 4 T, NO. 24 -14632-	2	
-29	1443	• COIL, VARIABLE -14632-	1	
-30	1131-22	• COIL, 6 T, NO. 24 -14632-	2	
-31	1131-25	• COIL, 26 T, NO. 30 -14632-	1	
-32	EB1025	• RESISTOR, FIXED, COMP, 1 K, 5%, 1/2 W -01121-	1	
-33	W33G	• COIL, 3.3 UH -99848-	1	
-34	1131-16	• INDUCTOR -14632-	1	
-35	6CW4	• TUBE, ELECTRON, NUVISTOR TRIODE -86684-	3	
-36	7587	• TUBE, ELECTRON, NUVISTOR TRIODE -86684-	1	
-37	CB1045	• RESISTOR, FIXED COMPOSITION, 100 K, 5%, 1/4 W -01121-	1	
-38	CB4735	• RESISTOR, FIXED COMPOSITION, 47 K, 5%, 1/4 W -01121-	2	
-39	CB2745	• RESISTOR, FIXED COMPOSITION, 270 K, 5%, 1/4 W -01121-	2	
-40	CB1005	• RESISTOR, FIXED COMPOSITION, 10 OHM, 5%, 1/4 W -01121-	1	
-41	GB6825	• RESISTOR, FIXED COMPOSITION, 6.8 K, 5%, 1 W -01121-	1	
-42	CB5125	• RESISTOR, FIXED COMPOSITION, 5.1 K, 5%, 1/4 W -01121-	1	
-43	CB4745	• RESISTOR, FIXED COMPOSITION, 470 K, 5%, 1/4 W -01121-	2	
-44	CB2245	• RESISTOR, FIXED COMPOSITION, 220 K, 5%, 1/4 W -01121-	1	
-45	CB2235	• RESISTOR, FIXED COMPOSITION, 22 K, 5%, 1/4 W -01121-	1	
-46	CB5105	• RESISTOR, FIXED COMPOSITION, 51 OHM, 5%, 1/4 W -01121-	1	
-47	EB1535	• RESISTOR, FIXED COMPOSITION, 15 K, 5%, 1/2 W -01121-	1	
-48	EB1235	• RESISTOR, FIXED COMPOSITION, 12 K, 5%, 1/2 W -01121-	1	
-49	PC115	• VARICAP -01281-	1	
-50	SM5000PF20PCT	• CAPACITOR, CERAMIC DISC, 0.005 UF, 20% -91418-	2	
-51	CB1555	• RESISTOR, FIXED COMPOSITION, 1.5 MEGO, 5%, 1/4 W -01121-	1	



BOTTOM VIEW



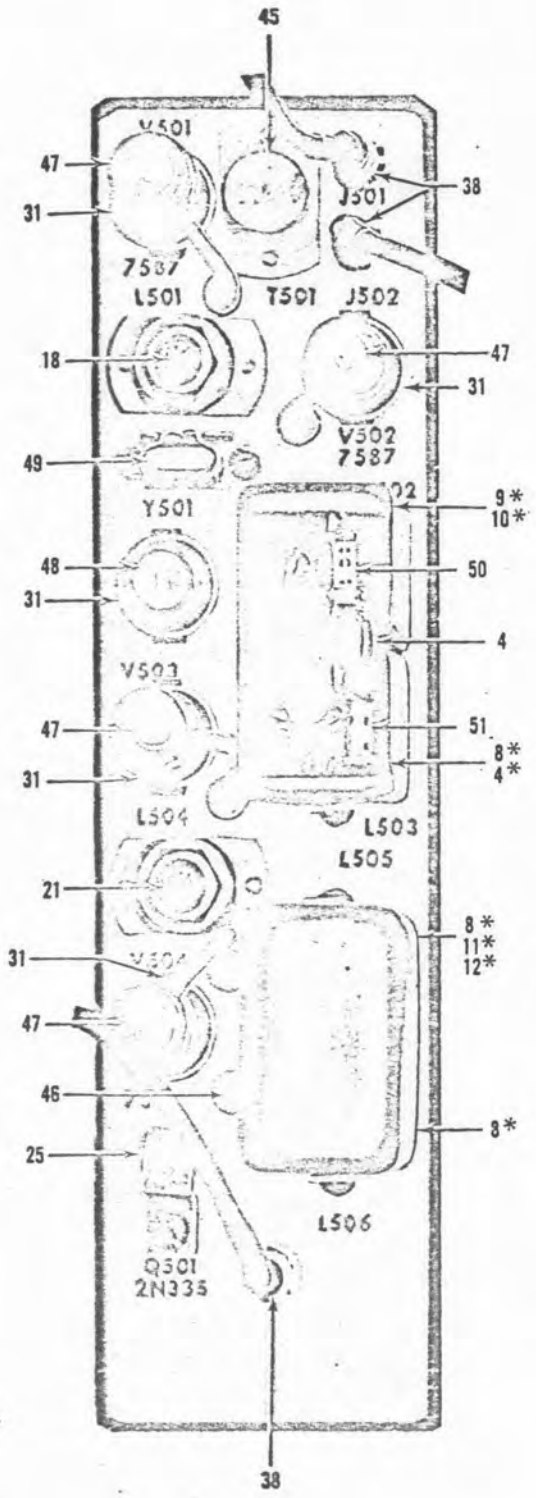
TOP VIEW

08-00091

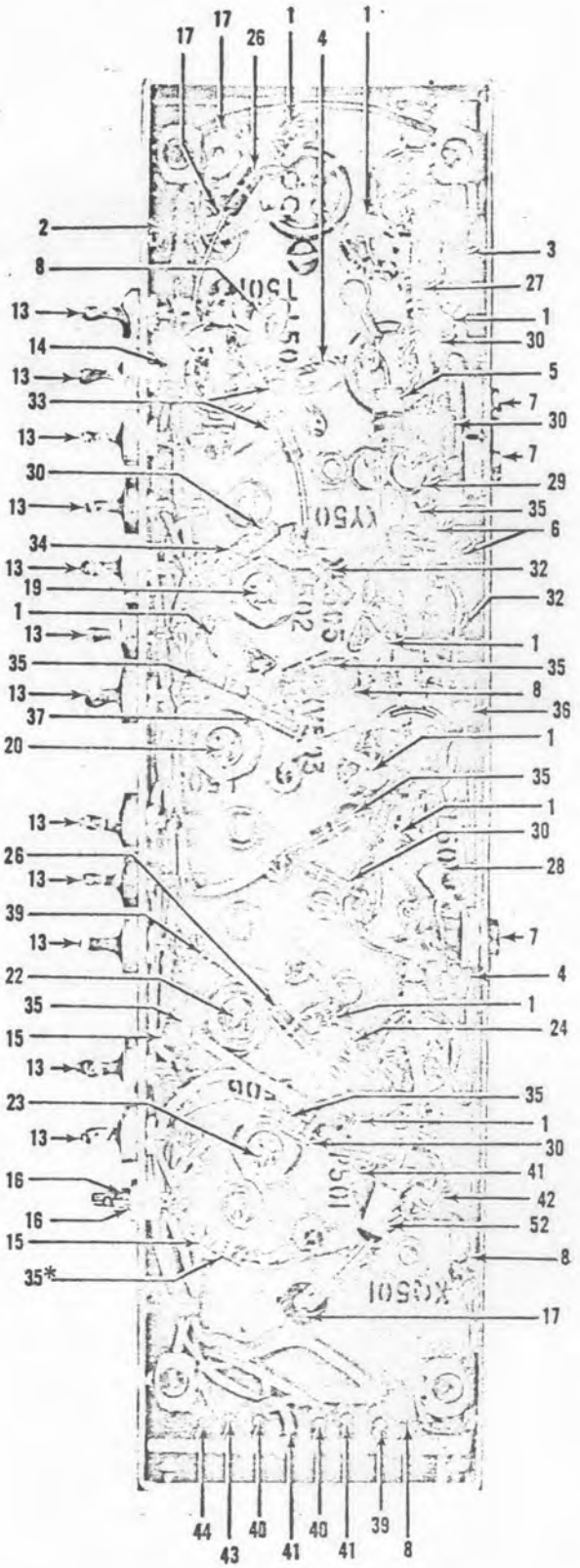
*DENOTES HIDDEN PARTS

Figure 6-6. Amplifier, IF, 10 KC Bandwidth

FIGURE AND INDEX NO.	PART NUMBER	1 2 3 4 5 6 7 • DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
6	4105-1	AMPLIFIER, IF, 10-KC BANDWIDTH -SEE FIGURE 6-3 FOR NHA- -14632-	REF	
-1	SM1000PFGMV	• CAPACITOR, CERAMIC DISC, 1000 PF, GMV -91418-	9	
-2	150D475X9035B2	• CAPACITOR, ELECTROLYTIC, TANTALUM, 4.7 UF, 10%, 35 WVDC -56289-	1	
-3	S55A102W	• CAPACITOR, CERAMIC, STANDOFF, 1000 PF, GMV -01121-	3	
-4	DM10-470J	• CAPACITOR, DIPPED MICA, 47 PF, 5% -72136-	3	
-5	DM10-271J	• CAPACITOR, DIPPED MICA, 270 PF, 5% -72136-	1	
-6	SM5000PF20PCT	• CAPACITOR, CERAMIC DISC, 0.005 UF, 20% -91418-	7	
-7	MC0-68PF10PCT	• CAPACITOR, COMP, TUBULAR, 0.68 PF, 10% -95121-	3	
-8	DM10-220J	• CAPACITOR, DIPPED MICA, 22 PF, 5% -72136-	2	
-9	DM15-821J	• CAPACITOR, DIPPED MICA, 820 PF, 5% -72136-	4	
-10	DM10-301J	• CAPACITOR, DIPPED MICA, 300 PF, 5% -72136-	1	
-11	DM15-621J	• CAPACITOR, DIPPED MICA, 620 PF, 5% -72136-	2	
-12	DM10-150J	• CAPACITOR, DIPPED MICA, 15 PF, 5% -72136-	1	
-13	DM10-240J	• CAPACITOR, DIPPED MICA, 24 PF, 5% -72136-	1	
-14	FA5C102W	• CAPACITOR, CERAMIC, FEEDTHRU, 1000 PF, GMV -01121-	12	
-15	1N198A	• DIODE	2	
-16	1N753A	• DIODE, ZENER	1	
-17	SFU16	• FEEDTHRU, INSULATED -04013-	2	
-18	27-9	• CONNECTOR, RECEPTACLE -74868-	2	
-19	1472-2	• COIL, VARIABLE -14632-	3	
-20	1472-08	• COIL, VARIABLE -14632-	4	
-21	1463	• COIL, VARIABLE -14632-	1	
-22	1464	• COIL, VARIABLE -14632-	1	
-23	2N335	• TRANSISTOR, SILICON	1	
-24	CB2245	• RESISTOR, FIXED COMP, 220 K, 1/4 W, 5% -01121-	1	
-25	CB1145	• RESISTOR, FIXED COMP, 110 K, 1/4 W, 5% -01121-	1	
-26	CB1025	• RESISTOR, FIXED COMP, 1 K, 1/4 W, 5% -01121-	5	
-27	CB1055	• RESISTOR, FIXED COMP, 1 MEGO, 1/4 W, 5% -01121-	1	
-28	CB1045	• RESISTOR, FIXED COMP, 100 K, 1/4 W, 5% -01121-	9	
-29	CB2235	• RESISTOR, FIXED COMP, 22 K, 1/4 W, 5% -01121-	2	
-30	CB1035	• RESISTOR, FIXED COMP, 10 K, 1/4 W, 5% -01121-	1	
-31	CB5605	• RESISTOR, FIXED COMP, 56 OHM, 1/4 W, 5% -01121-	1	
-32	CR78U	• CRYSTAL, 20.945 MC PARALLEL RESONANT W/15 PF -74306-	1	
-33	CB1555	• RESISTOR, FIXED COMP, 1.5 MEGO, 1/4 W, 5% -01121-	3	
-34	CB2021	• RESISTOR, FIXED COMP, 2 K, 1/4 W, 10% -01121-	2	
-35	CB1845	• RESISTOR, FIXED COMP, 180 K, 1/4 W, 5% -01121-	1	
-36	CB7545	• RESISTOR, FIXED COMP, 750 K, 1/4 W, 5% -01121-	2	
-37	CB1545	• RESISTOR, FIXED COMP, 150 K, 1/4 W, 5% -01121-	1	
-38	CB2735	• RESISTOR, FIXED COMP, 27 K, 1/4 W, 5% -01121-	2	
-39	800-1G13	• SOCKET, CRYSTAL -91506-	1	
-40	1126-1	• TRANSFORMER -14632-	1	
-41	TJ6	• TEST POINT -04013-	1	
-42	7587	• TUBE, ELECTRON, NUVISTOR TETRODE -86684-	4	
-43	6CW4	• TUBE, ELECTRON, NUVISTOR TRIODE -86684-	1	
-44	3304	• SOCKET, TRANSISTOR -91662-	1	
-45	133-65-10-001	• SOCKET, TUBE -71785-	5	



TOP VIEW



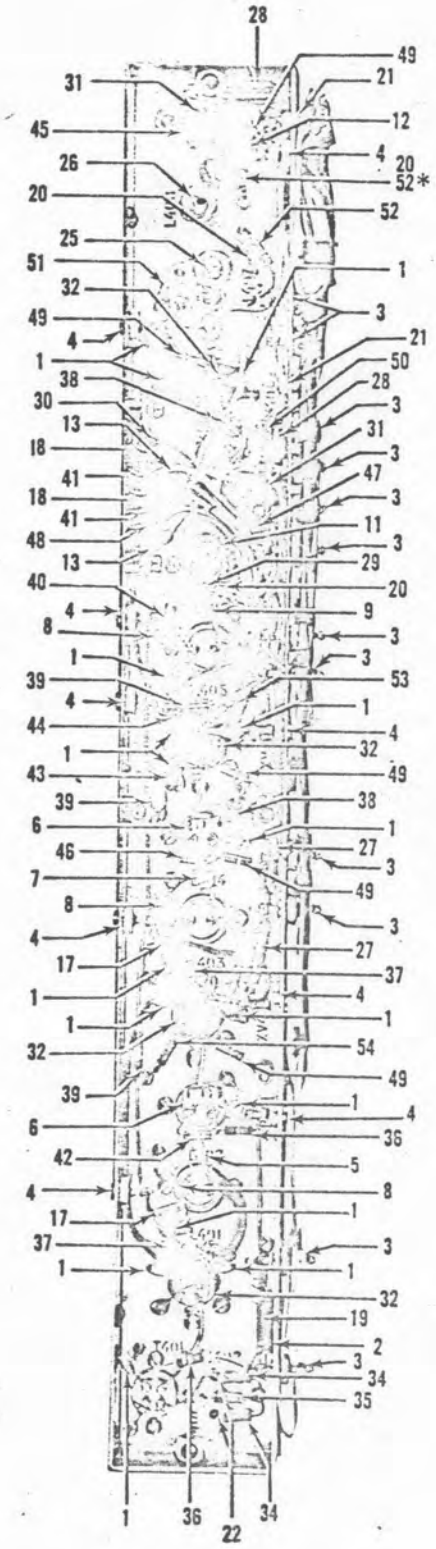
BOTTOM VIEW

DENOTES HIDDEN PARTS

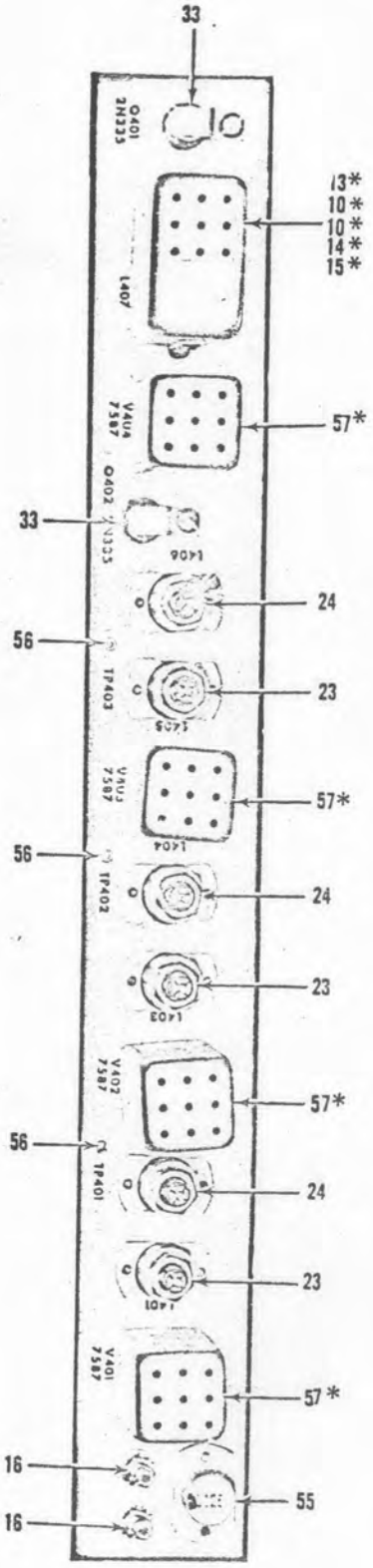
08-00092

Figure 6-7. Amplifier, IF, 40/75-KC Bandwidth

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
7	4104	AMPLIFIER, IF, 40/75-KC BANDWIDTH -SEE FIGURE 6-3 FOR NHA- -14632-	REF	
-1	SM1000PFGMV	• CAPACITOR, CERAMIC DISC, 1000 PF, GMV, -91418-	9	
-2	150D475X9035B2	• CAPACITOR, ELECTROLYTIC, TANTALUM, 4.7 UF, 10% 35 WVDC -56289-	1	
-3	DM10-271J	• CAPACITOR, DIPPED MICA, 270 PF, 5%, 500 WVDC -72136-	1	
-4	DM10-100J	• CAPACITOR, DIPPED MICA, 10 PF, 5%, 500 WVDC -72136-	4	
-5	QC1PF1PCT	• CAPACITOR, CERAMIC, TUBULAR, 1.0 PF, 10%, -95121-	1	
-6	DM10-220J	• CAPACITOR, DIPPED MICA, 22 PF, 5%, 500 WVDC -72136-	2	
-7	SS5A102W	• CAPACITOR, CERAMIC, STANDOFF, 1000 PF, GMV -01121-	3	
-8	DM10-101J	• CAPACITOR, DIPPED MICA, 100 PF, 5% -72136-	7	
-9	DM10-470J	• CAPACITOR, DIPPED MICA, 47 PF, 5% -72136-	1	
-10	301-000C0H0689C	• CAPACITOR, CERAMIC, TUBULAR, 6.8 PF, 500 WVDC, 0.25 PF -72982-	1	
-11	DM10-820J	• CAPACITOR, DIPPED MICA, 82 PF, 5% -72136-	1	
-12	DM10-330J	• CAPACITOR, DIPPED MICA, 33 PF, 5% -72136-	1	
-13	FA5C102W	• CAPACITOR, CERAMIC, FEEDTHRU, 1000 PF, GMV -01121-	12	
-14	1N753A	• DIODE, ZENER	1	
-15	1N198A	• DIODE	2	
-16	SFU16	• FEEDTHRU, INSULATED -04013-	2	
-17	27-9	• CONNECTOR, RECEPTACLE -74868-	3	
-18	1472-4	• COIL, ADJUSTABLE -14632-	1	
-19	1034-1	• COIL, ADJUSTABLE -14632-	1	
-20	1032	• COIL, ADJUSTABLE -14632-	1	
-21	1472-09	• COIL, ADJUSTABLE -14632-	1	
-22	2060-6	• COIL, ADJUSTABLE -71279-	1	
-23	1041	• COIL, ADJUSTABLE -14632-	1	
-24	11000-15	• COIL, FIXED, 1000 UH -99848-	1	
-25	2N335	• TRANSISTOR, SILICON	1	
-26	CB2245	• RESISTOR, FIXED COMP, 220 K, 1/4 W, 5% -01121-	2	
-27	CB1145	• RESISTOR, FIXED COMP, 110 K, 1/4 W, 5% -01121-	1	
-28	301-000C0H0829D	• CAPACITOR, CERAMIC, TUBULAR, 8.2 PF, 0.5 PF, 500 WVDC -72982-	1	
-29	80041G13	• SOCKET, CRYSTAL -91506-	1	
-30	CB1025	• RESISTOR, FIXED COMP, 1 K, 1/4 W, 5% -01121-	5	
-31	133-65-10-001	• SOCKET, TUBE -71785-	5	
-32	CB2235	• RESISTOR, FIXED COMP, 22 K, 1/4 W, 10% -01121-	2	
-33	CB1055	• RESISTOR, FIXED COMP, 1 MEGO, 1/4 W, 5% -01121-	2	
-34	CB1035	• RESISTOR, FIXED COMP, 10 K, 1/4 W, 5% -01121-	1	
-35	CB1045	• RESISTOR, FIXED COMP, 100 K, 1/4 W, 5% -01121-	7	
-36	CB5605	• RESISTOR, FIXED COMP, 56 OHM, 1/4 W, 5% -01121-	1	
-37	CB4725	• RESISTOR, FIXED COMP, 4.7 K, 1/4 W, 5% -01121-	1	
-38	27-7	• CONNECTOR, JACK -74868-	3	
-39	CB1545	• RESISTOR, FIXED COMP, 150 K, 1/4 W, 5% -01121-	2	
-40	CB2255	• RESISTOR, FIXED COMP, 2.2 MEGO, 1/4 W, 5% -01121-	2	
-41	CB1555	• RESISTOR, FIXED COMP, 1.5 MEGO, 1/4 W, 5% -01121-	3	
-42	3304	• SOCKET, TRANSISTOR -91662-	1	
-43	CB3631	• RESISTOR, FIXED COMP, 36 K, 1/4 W, 10% -01121-	1	
-44	CB1835	• RESISTOR, FIXED COMP, 18 K, 1/4 W 5% -01121-	1	
-45	1126-1	• TRANSFORMER -14632-	1	
-46	TJ6	• TEST POINT -04013-	1	
-47	7587	• TUBE, ELECTRON, NUVISTOR	4	
-48	6CW4	• TUBE, ELECTRON, NUVISTOR	1	
-49	CR78U	• CRYSTAL, 18.9 MC PARALLEL RESONANT W/25 PF -74306-	1	
-50	301-000C0J0339C	• CAPACITOR, CERAMIC, TUBULAR, 3.3 PF, 0.25 PF, 500 WVDC -72982-	1	
-51	301-000C0H0479C	• CAPACITOR, CERAMIC, TUBULAR, 4.7 PF, 0.25 PF, 500 WVDC -72982-	1	
-52	301-000C0J0399C	• CAPACITOR, CERAMIC, TUBULAR, 3.9 PF, 0.25 PF, -72982-	1	



BOTTOM VIEW



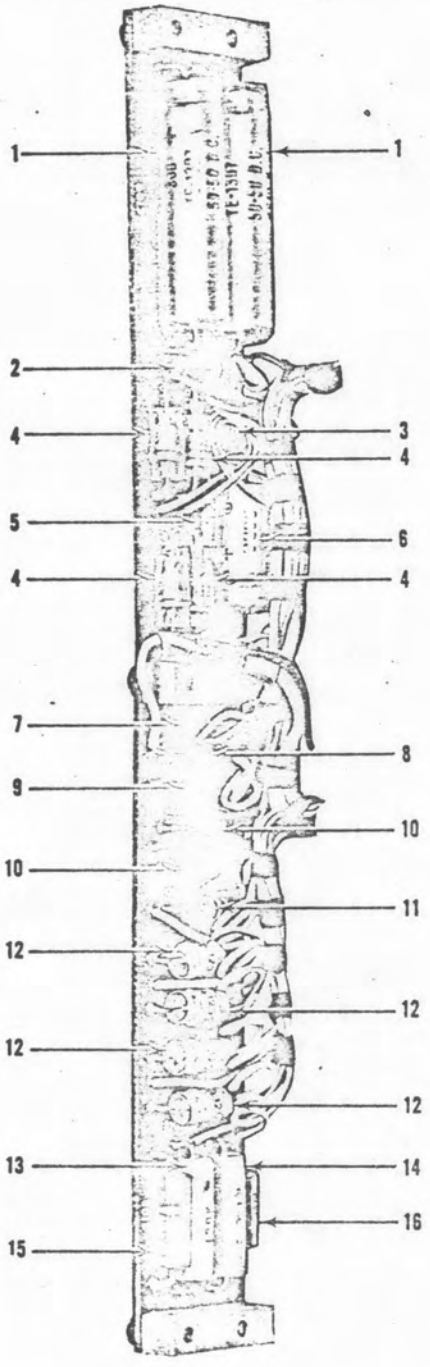
TOP VIEW

*DENOTES HIDDEN PARTS

08-00093

Figure 6-8. Amplifier, IF, 3 MC Bandwidth

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7 •	UNITS PER ASSY	USABLE ON CODE
8	4135-2	AMPLIFIER, IF, 3 MC BANDWIDTH -SEE FIGURE 6-3 FOR NHA- -14632-	REF	
-1	SM1000PFGMV	• CAPACITOR, CERAMIC DISC, 1000 PF, GMV, -91418-	16	
-2	150D475X9035B2	• CAPACITOR, ELECTROLYTIC, TANTALUM, 4.7 UF, 20%, 34 WVDC -56289-	1	
-3	FA5C102W	• CAPACITOR, CERAMIC, FEEDTHRU, 1000 PF, GMV, 500 WVDC -01121-	12	
-4	SS5A102W	• CAPACITOR, CERAMIC, STANDOFF, 1000 PF, GMV -01121-	9	
-5	QC2-2PF10PCT	• CAPACITOR, COMP, TUBULAR, 2.2 PF, 10%, -95121-	1	
-6	301-000C0H0759D	• CAPACITOR, CERAMIC, TUBULAR, 7.5 PF, 5%, 500 WVDC -72982-	2	
-7	QC2PF10PCT	• CAPACITOR, CERAMIC, TUBULAR, 2 PF, 10%, -95121-	1	
-8	8470PF20PCT	• CAPACITOR, CERAMIC DISC, 470 PF, 20% -91418-	3	
-9	QC1-8PF10PCT	• CAPACITOR, CERAMIC, 1.8 PF, 10%, -95121	1	
-10	DM10-101J	• CAPACITOR, DIPPED MICA, 100 PF, 5%, 500 WVDC -72136-	2	
-11	DM10-120J	• CAPACITOR, DIPPED MICA, 12 PF, 5%, 500 WVDC -72136	1	
-12	DM10-330J	• CAPACITOR, DIPPED MICA, 33 PF, 5%, 500 WVDC -72136-	1	
-13	DM10-100J	• CAPACITOR, DIPPED MICA, 10 PF, 5%, 500 WVDC -72136-	3	
-14	301-000P2G0220J	• CAPACITOR, CERAMIC, TUBULAR, 22 PF, 5%, 500 WVDC, TEMP. COMP. -72982-	1	
-15	DM10-220J	• CAPACITOR, DIPPED MICA, 22 PF, 5%, 500 WVDC -72136-	1	
-16	27-7	• CONNECTOR, SUB-MINIATURE -74868-	2	
-17	CB4725	• RESISTOR, FIXED COMP, 4.7 K, 1/4 W, 5% -01121-	2	
-18	CB2255	• RESISTOR, FIXED, COMP, 2.2 MEGO, 5%, 1/4 W -01121-	2	
-19	1N751	• DIODE, ZENER	1	
-20	1N198A	• DIODE	3	
-21	SFU16	• FEEDTHRU, INSULATED -04013-	2	
-22	27-9	• CONNECTOR, SUB-MINIATURE -74868-	2	
-23	1472-4	• COIL, VARIABLE -14632-	3	
-24	1472-3	• COIL, VARIABLE -14632-	3	
-25	2171-12	• COIL, VARIABLE -14632-	1	
-26	2171-20	• COIL, VARIABLE -14632-	1	
-27	1131-16	• COIL, FIXED -14632-	2	
-28	1131-17	• COIL, FIXED -14632-	2	
-29	CB1135	• RESISTOR, FIXED, COMP, 11 K, 5%, 1/4 W -01121-	1	
-30	CB1055	• RESISTOR, FIXED, COMP, 1 MEGO, 5%, 1/4 W -01121-	1	
-31	3304	• SOCKET, TRANSISTOR -91662-	2	
-32	133-65-10-001	• SOCKET, TUBE -71785-	4	
-33	2N335	• TRANSISTOR, SILICON	2	
-34	CB2205	• RESISTOR, FIXED, COMP, 22 OHM, 1/4 W, 5% -01121-	2	
-35	CB4705	• RESISTOR, FIXED, COMP, 47 OHM, 1/4 W, 5% -01121-	1	
-36	CB2245	• RESISTOR, FIXED, COMP, 220 K, 1/4 W, 5% -01121-	2	
-37	EB8235	• RESISTOR, FIXED, COMP, 82 K, 1/2 W, 5% -01121-	2	
-38	CB1035	• RESISTOR, FIXED, COMP, 10 K, 1/4 W, 5% -01121-	2	
-39	CB1015	• RESISTOR, FIXED COMP, 100 OHM, 1/4 W, 5% -01121-	3	
-40	CB1025	• RESISTOR, FIXED COMP, 1 K, 1/4 W, 5% -01121-	1	
-41	CB7545	• RESISTOR, FIXED COMP, 750 K, 1/4 W, 5% -01121-	2	
-42	CB6225	• RESISTOR, FIXED COMP, 6.2 K, 1/4 W, 5% -01121-	1	
-43	CB6805	• RESISTOR, FIXED COMP, 68 OHM, 1/4 W, 5% -01121-	1	
-44	CB5135	• RESISTOR, FIXED COMP, 51 K, 1/4 W, 5% -01121-	1	
-45	CB1555	• RESISTOR, FIXED COMP, 1.5 MEGO, 1/4 W, 5% -01121-	1	
-46	CB7525	• RESISTOR, FIXED COMP, 7.5 K, 1/4 W, 5% -01121-	1	
-47	CB1535	• RESISTOR, FIXED COMP, 15 K, 1/4 W, 5% -01121-	1	
-48	CB1545	• RESISTOR, FIXED COMP, 150 K, 1/4 W, 5% -01121-	1	
-49	CB1045	• RESISTOR, FIXED COMP, 100 K, 1/4 W, 5% -01121-	5	
-50	CB2235	• RESISTOR, FIXED COMP, 22 K, 1/4 W, 5% -01121-	1	
-51	CB6835	• RESISTOR, FIXED COMP, 68 K, 1/4 W, 5% -01121-	1	
-52	CB7535	• RESISTOR, FIXED COMP, 75 K, 1/4 W, 5% -01121-	2	
-53	CB5625	• RESISTOR, FIXED COMP, 5.6 K, 1/4 W, 5% -01121-	1	
-54	CB1805	• RESISTOR, FIXED COMP, 18 OHM, 1/4 W, 5% -01121-	1	
-55	1126-1	• TRANSFORMER -14632-	1	
-56	TJ6	• TEST POINT -04013-	3	
-57	7587	• TUBE, ELECTRON, NUVISTOR TETRODE -86684-	4	



08-00094

Figure 6-9. Board Assembly, Power Supply

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
9	1527	BOARD ASSEMBLY, POWER SUPPLY -14632- -SEE FIGURE 6-3 FOR NHA-	REF	
-1	30D506G050DH4	• CAPACITOR, ELECTROLYTIC, 50 UF, 50 WVDC -56289-	2	
-2	EB8215	• RESISTOR, FIXED COMP, 820 OHM, 1/2 W, 5% -01121-	1	
-3	CB1035	• RESISTOR, FIXED COMP, 10 K, 1/4 W, 5% -01121-	1	
-4	1N3253	• DIODE, SILICON, RECTIFIER	4	
-5	EB8205	• RESISTOR, FIXED COMP, 82 OHM, 1/2 W, 5% -01121-	1	
-6	109D107X9025F2	• CAPACITOR, ELECTROLYTIC, 100 UF, 10%, 25 WVDC -56289-	1	
-7	CB3915	• RESISTOR, FIXED COMP, 390 OHM, 1/4 W, 5% -01121-	1	
-8	CB1055	• RESISTOR, FIXED COMP, 1 MEGO, 1/4 W, 5% -01121-	1	
-9	EB7535	• RESISTOR, FIXED COMP, 75 K, 1/2 W, 5% -01121-	1	
-10	EB2205	• RESISTOR, FIXED COMP, 22 OHM, 1/2 W, 5% -01121-	2	
-11	CB2245	• RESISTOR, FIXED COMP, 220 K, 1/4 W, 5% -01121-	1	
-12	1N3255	• DIODE, SILICON, RECTIFIER	4	
-13	RN70B1303F	• RESISTOR, DEPOSITED CARBON, 130 K, 1/2 W, 1%	1	
-14	RN70B2701F	• RESISTOR, DEPOSITED CARBON, 2.7 K, 1/2 W, 1%	1	
-15	GB1525	• RESISTOR, FIXED COMP, 1.5 K, 1 W, 5% -01121-	1	
-16	150D106X9020B2	• CAPACITOR, ELECTROLYTIC, TANTALUM, 10 UF, 20 WVDC, 10% -56289-	1	

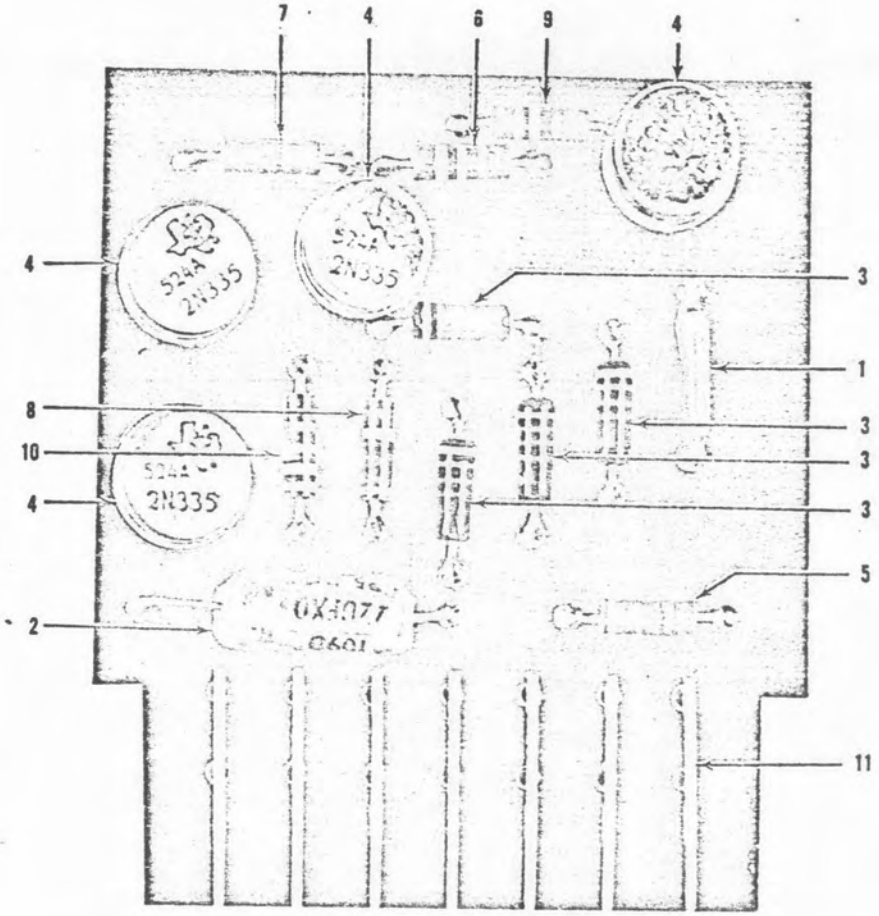


Figure 6-10. Board Assembly, Squelch Module

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
10	2136-1	BOARD ASSEMBLY, SQUELCH MODULE -14632 SEE FIGURE 6-2 FOR NHA-	REF	
-1	3C19	• CAPACITOR, CERAMIC, PLATE, 0.1 UF, 20%, 25 WVDC -56289-	1	
-2	109D226X0025C2	• CAPACITOR, ELECTROLYTIC, TANTALUM, 22 UF, 20%, 25 WVDC -56289-	1	
-3	1N462A	• DIODE	4	
-4	2N335	• TRANSISTOR, SILICON	4	
-5	CB1555	• RESISTOR, FIXED, COMP, 1.5 MEGO, 1/4 W, 5% -01121-	1	
-6	CB2435	• RESISTOR, FIXED, COMP, 24 K, 1/4 W, 5% -01121-	1	
-7	CB2225	• RESISTOR, FIXED, COMP, 2.2 K, 1/4 W, 5% -01121-	1	
-8	CB6225	• RESISTOR, FIXED, COMP, 6.2 K, 1/4 W, 5% -01121-	1	
-9	CB1835	• RESISTOR, FIXED, COMP, 18 K, 1/4 W, 5% -01121-	1	
-10	CB3935	• RESISTOR, FIXED, COMP, 39 K, 1/4 W, 5% -01121-	1	
-11	00-007-013-5002	• STRIP, CONTACT -91662-	1	

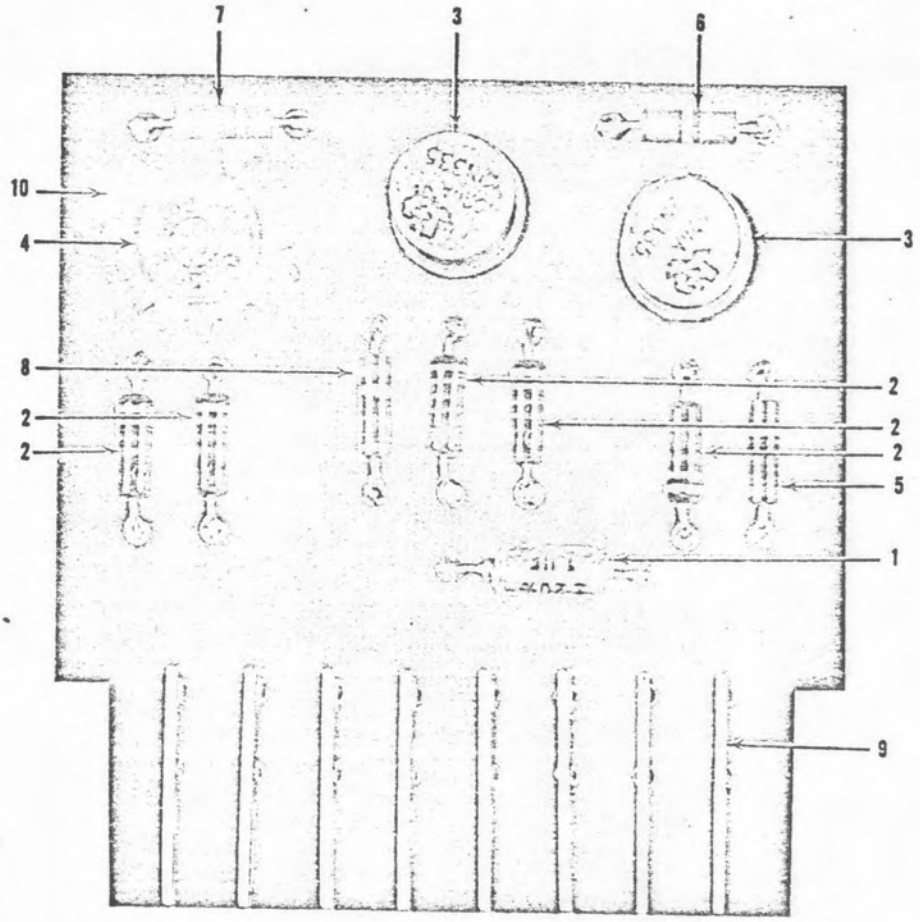


Figure 6-11. Board Assembly, COR Module

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
11	2135-1	BOARD ASSEMBLY, COR MODULE -14632- -SEE FIGURE 6-2 FOR NHA-	REF	
-1	150D105X9035A2	• CAPACITOR, ELECTROLYTIC, TANTALUM, 1 UF, 10%, 35 WVDC -56289-	1	
-2	1N462A	• DIODE	5	
-3	2N335	• TRANSISTOR, SILICON	2	
-4	2N1700	• TRANSISTOR	1	
-5	CB1555	• RESISTOR, FIXED, COMP, 1.5 MEGO, 5%, 1/4 W -01121-	1	
-6	CB1235	• RESISTOR, FIXED, COMP, 12 K, 5%, 1/4 W -01121-	1	
-7	CB1525	• RESISTOR, FIXED, COMP, 1.5 K, 5%, 1/4 W -01121-	1	
-8	CB6225	• RESISTOR, FIXED, COMP, 6.2 K, 5%, 1/4 W, -01121-	1	
-9	00-008-013-5002	• STRIP, CONTACT -91662-	1	
-10	3AL635-2R	• HEAT SINK -07387-	1	

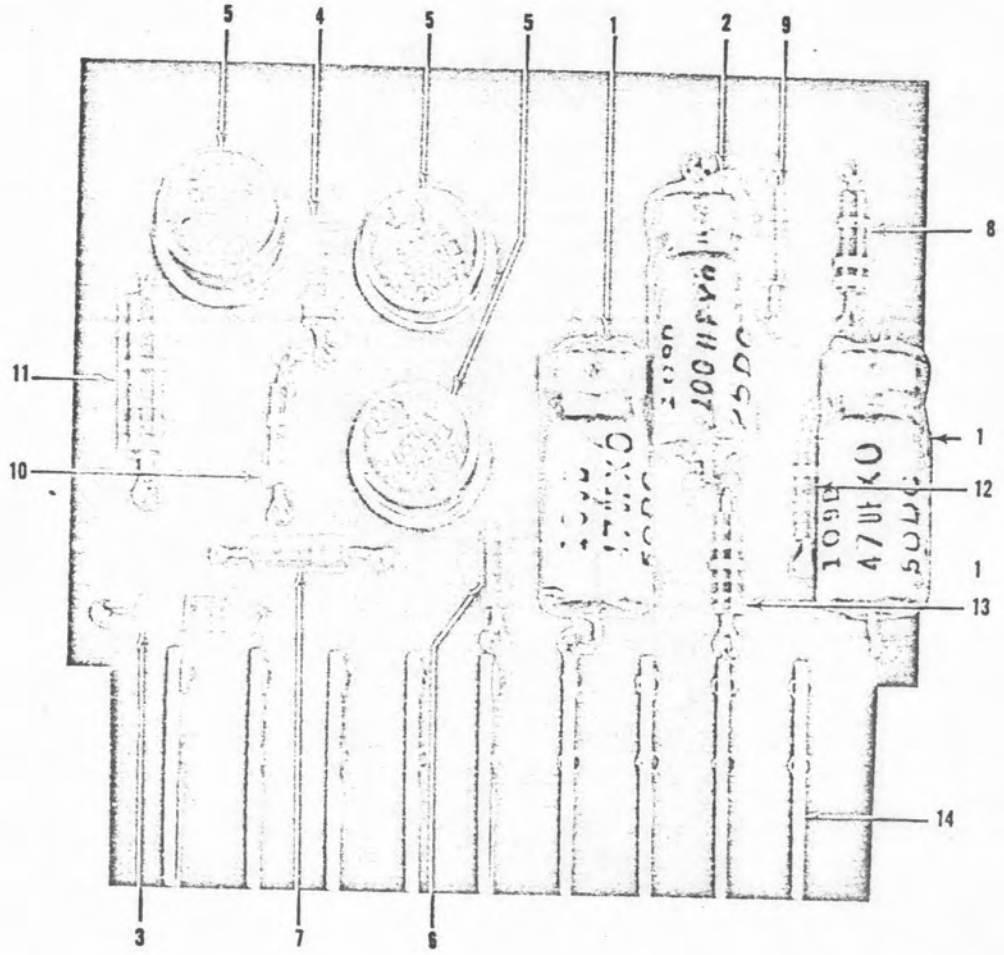


Figure 6-12. Board Assembly, Video Module

FIGURE AND INDEX NO.	PART NUMBER	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
12	2151-1	BOARD ASSEMBLY, VIDEO MODULE -14632- -SEE FIGURE 6-2 FOR NHA-	REF	
-1	109D476X0050F2	• CAPACITOR, ELECTROLYTIC, TANTALUM, 47 UF, 20%, 50 WVDC -56289-	2	
-2	109D107X9025F2	• CAPACITOR, ELECTROLYTIC, TANTALUM, 100 UF, 10%, 25 WVDC -56289-	1	
-3	1N759A	• DIODE, ZENER	1	
-4	1N756A	• DIODE, ZENER	1	
-5	2N697	• TRANSISTOR	3	
-6	CB8225	• RESISTOR, FIXED, COMP, 8.2 K, 1/4 W, 5% -01121-	1	
-7	CB1225	• RESISTOR, FIXED, COMP, 1.2 K, 1/4 W, 5% -01121-	1	
-8	CB3925	• RESISTOR, FIXED, COMP, 3.9 K, 1/4 W, 5% -01121-	1	
-9	CB5125	• RESISTOR, FIXED, COMP, 5.1 K, 1/4 W, 5% -01121-	1	
-10	CB6825	• RESISTOR, FIXED, COMP, 6.8 K, 1/4 W, 5% -01121-	1	
-11	EB1025	• RESISTOR, FIXED, COMP, 1 K, 1/2 W, 5%, -01121-	1	
-12	CB5105	• RESISTOR, FIXED, COMP, 51 OHM, 1/4 W, 5% -01121-	1	
-13	CB1045	• RESISTOR, FIXED, COMP, 100 K, 1/4 W, 5% -01121-	1	
-14	00-009-013-5002	• STRIP, CONTACT -91662-	1	

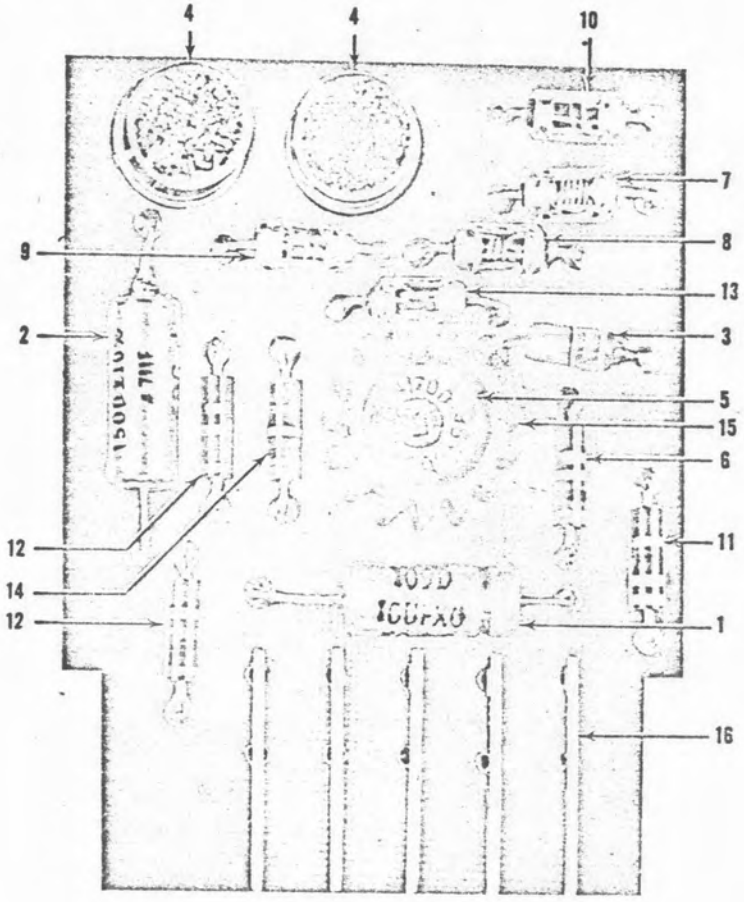
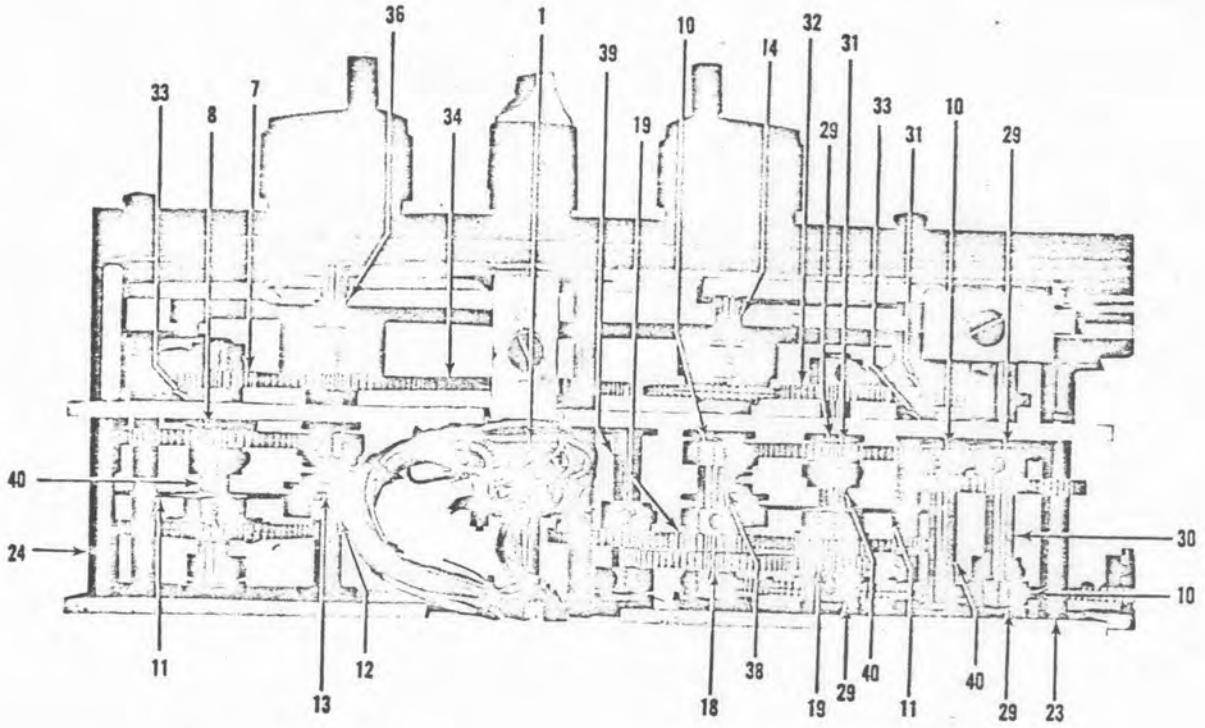
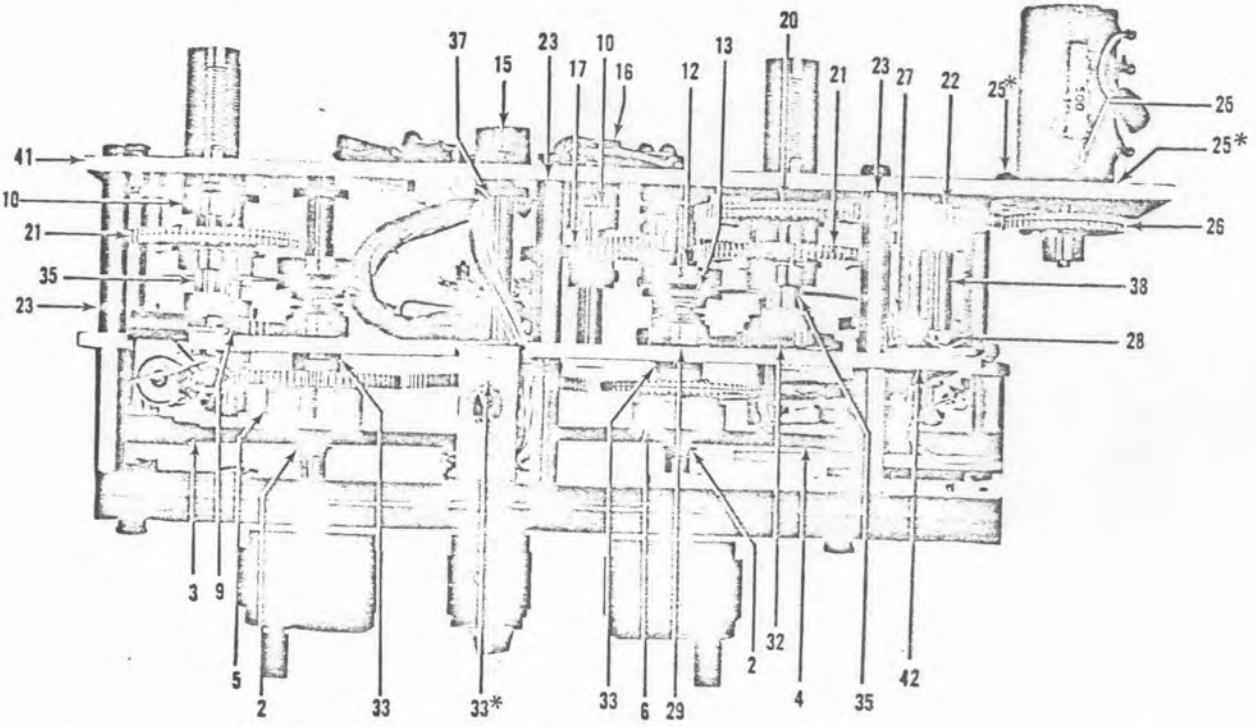


Figure 6-13. Board Assembly, Audio Module

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
13	2133-1	BOARD ASSEMBLY, AUDIO MODULE -14632- -SEE FIGURE 6-2 FOR NHA-	REF	
-1	109D106X9050C2	• CAPACITOR, ELECTROLYTIC, TANTALUM, 10 UF, 10%, 50 WVDC -56289-	1	
-2	150D476X9006B2	• CAPACITOR, ELECTROLYTIC, TANTALUM, 47 UF, 10%, 6 WVDC -56289-	1	
-3	1N759A	• DIODE, ZENER	1	
-4	2N335	• TRANSISTOR, SILICON	2	
-5	2N1700	• TRANSISTOR	1	
-6	CB1035	• RESISTOR, FIXED, COMP, 10 K, 5%, 1/4 W -01121-	1	
-7	CG1-8-68-1K1PCT	• RESISTOR, FIXED, COMP, 68.1 K, 1%, 1/4 W -01295-	1	
-8	CG1-8-10K1PCT	• RESISTOR, FIXED, COMP, 10 K, 1%, 1/4 W -01295-	1	
-9	CG1-8-619-1PCT	• RESISTOR, FIXED, COMP, 619 OHM, 1%, 1/4 W -01295-	1	
-10	CG1-8-6-81K1PCT	• RESISTOR, FIXED, COMP, 6.81 K, 1%, 1/4 W -01295-	1	
-11	CB3925	• RESISTOR, FIXED, COMP, 3.9 K, 5%, 1/4 W -01121-	1	
-12	CB6215	• RESISTOR, FIXED, COMP, 620 OHM, 5%, 1/4 W -01121-	2	
-13	CG1-8-68-1-1PCT	• RESISTOR, FIXED, COMP, 68.1 OHM, 1%, 1/4 W -01295-	1	
-14	CB1045	• RESISTOR, FIXED, COMP, 100 K, 5%, 1/4 W -01121-	1	
-15	3AL635-2R	• HEAT SINK, TRANSISTOR -07387-	1	
-16	00-006-013-5002	• STRIP, CONTACT -91662-	1	



BOTTOM VIEW



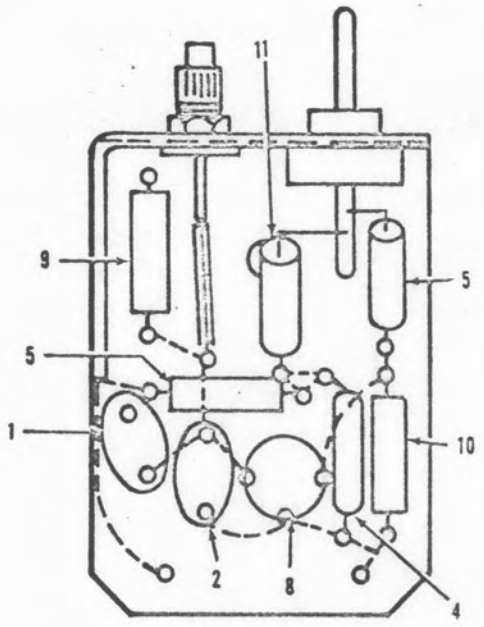
TOP VIEW

*DENOTES HIDDEN PARTS

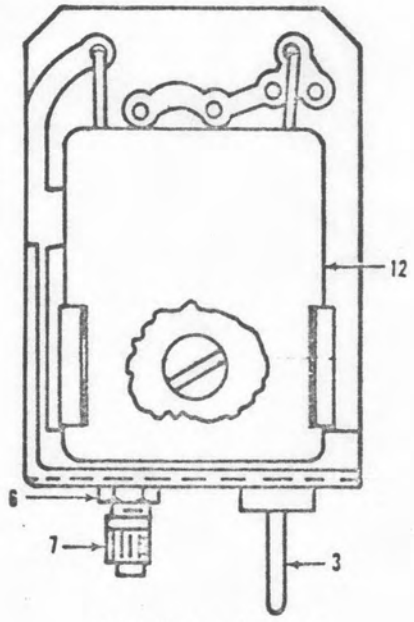
08-00098

Figure 6-14. Gear Train Assembly

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
14	3092-1	GEAR TRAIN ASSEMBLY -SEE FIGURE 6-3 FOR NHA-	REF	
-1	1128-4	• SWITCH, MOD -14632-	1	
-2	3100-25	• RETAINING RING -14632-	2	
-3	1372	• DIAL, 30-90 MC -14632-	1	
	440X1-4RHSSP	• SCREW -AP-	4	
-4	1415	• DIAL, 60-260 MC -14632-	1	
	440X1-4PHSSP	• SCREW -AP-	4	
-5	1152-2	• DIAL GEAR ASSEMBLY -14632-	1	
-6	1508	• DIAL GEAR ASSEMBLY -14632-	1	
-7	1015-2	• SPUR GEAR -14632-	1	
-8	1015-6	• SPUR GEAR -14632-	1	
-9	1015-8	• SPUR GEAR -14632-	1	
-10	1451	• SPACER -14632-	5	
	440X1-8SHSSP	• SCREW -AP-	2	
-11	1156	• FRICTION DISC ASSEMBLY -14632-	2	
-12	1013	• PLATE, CLUTCH -14632-	2	
	440X1-4AHSSP	• SCREW -AP-	2	
-13	1008	• PLATE, CLUTCH -14632-	2	
	440X1-4AHSSP	• SCREW -AP-	2	
-14	1002-15	• SHAFT -14632-	1	
-15	1371	• CAM -14632-	1	
-16	1323	• CAM, HIGH BAND -14632-	1	
-17	1015-11	• SPUR GEAR -14632-	1	
-18	1015-12	• SPUR GEAR -14632-	1	
-19	1015-10	• SPUR GEAR -14632-	2	
-20	1320-1	• GEAR, ANTI-BACKLASH -14632-	1	
-21	2001	• GEAR, ANTI-BACKLASH -14632-	2	
-22	1015-9	• SPUR GEAR -14632-	1	
-23	1144-1	• SPACER	4	
	440X1-4RHSSP	• SCREW -AP-	4	
	4INT	• WASHER -AP-	4	
-24	1233	• SPACER -14632-	1	
-25	C2	• CLAMP -14632-	3	
-26	1320-2	• GEAR, ANTI-BACKLASH -14632-	1	
-27	1015-1	• SPUR GEAR -14632-	1	
-28	1015-4	• SPUR GEAR -14632-	1	
-29	SSS33	• SHIM SPACER -14632-	5	
-30	1009-3	• DRIVE SHAFT ASSEMBLY -14632-	1	
-31	1015-5	• SPUR GEAR -14632-	2	
-32	1015-3	• SPUR GEAR -14632-	2	
-33	1637-1	• SPACER -14632-	5	
-34	1015-7	• SPUR GEAR -14632-	1	
-35	1002-25	• SHAFT -14632-	2	
-36	1002-14	• SHAFT -14632-	1	
-37	1002-36	• SHAFT -14632-	1	
-38	1002-22	• SHAFT -14632-	2	
-39	1002-27	• SHAFT -14632-	1	
-40	1002-29	• SHAFT -14632-	3	
	3091	• GEAR BOX ASSEMBLY	1	
-41	2174	• • PLATE, REAR -14632-	1	
	632X1-4BHSSP	• • SCREW -AP-	6	
-42	2173	• • PLATE, FRONT -14632-	1	
	632X1-4PHSSP	• • SCREW -AP-	6	



TOP VIEW



BOTTOM VIEW

08-00099

Figure 6-15. PC Board Assembly, 2.5 MC BFO

FIGURE AND INDEX NO.	PART NUMBER	1 2 3 4 5 6 7 • DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
15	1705-1	PC BOARD ASSEMBLY, 2.5 MC BFO -SEE FIGURE 6-2 FOR NHA- -14632-	REF	
-1	DM10-430J	• CAPACITOR, DIPPED, MICA, 43 PF, 5%, 50 WVDC -72136-	1	
-2	DM10-680J	• CAPACITOR, DIPPED, MICA, 68 PF, 5%, 50 WVDC -72136-	1	
-3	FA5C102W	• CAPACITOR, CERAMIC, FEEDTHRU, 1000 PF,GMV, 500 WVDC -01121-	1	
-4	SM5000PF20PCT	• CAPACITOR, CERAMIC, DISC, 0.005 UF, 20%, -91418-	1	
-5	1N462A	• DIODE	2	
-6	27-9	• CONNECTOR, RECEPTACLE, SUB-MINIATURE -74868-	1	
-7	27-7	• CONNECTOR, PLUG, SUB-MINIATURE -74868-	1	
-8	2N706	• TRANSISTOR	1	
-9	CB1035	• RESISTOR, FIXED, COMP, 10 K, 5%, 1/4 W -01121-	1	
-10	CB2445	• RESISTOR, FIXED, COMP, 240 K, 5%, 1/4 W -01121-	1	
-11	CB4735	• RESISTOR, FIXED, COMP, 47 K, 5%, 1/4 W -01121-	1	
-12	CR18U	• CRYSTAL, QUARTZ, 2.5 MC -74306-	1	

NUMERICAL INDEX

PART NUMBER	STOCK NUMBER	FIGURE & INDEX NO.	UNITS PER ASSEMBLY
AN535-0-3		1 -	2
		1 -	2
B470PF20PCT		8 -8	3
CB1005		5 -40	1
CB1015		3 -4	1
		4 -44	2
		8 -39	3
CB1025		4 -41	1
		5 -22	1
		6 -26	5
		7 -30	5
		8 -40	1
CB1035		6 -30	1
		7 -34	1
		8 -38	2
		9 -3	1
		13 -6	1
		15 -9	1
CB1045		5 -37	1
		6 -28	9
		7 -35	7
		8 -49	5
		12 -13	1
		13 -14	1
CB1055		1 -36	1
		6 -27	1
		7 -33	2
		8 -30	1
		9 -8	1
CB1135		8 -29	1
CB1145		6 -25	1
		7 -27	1
CB1225		12 -7	1
CB1235		11 -6	1
CB1525		11 -7	1
CB1535		8 -47	1
CB1545		6 -37	1
		7 -39	2
		8 -48	1
CB1555		5 -51	1
		6 -33	3
		7 -41	3
		8 -45	1
		10 -5	1
		11 -5	1
CB1805		8 -54	1
CB1835		7 -44	1
		10 -9	1
CB1845		1 -35	1
		6 -35	1
CB2021		6 -34	2
CB2205		8 -34	2
CB2225		10 -7	1
CB2235		5 -45	1
		6 -29	2
		7 -32	2
		8 -50	1
CB2245		4 -47	1
		5 -44	1
		6 -24	1
		7 -26	2
		8 -36	2
		9 -11	1
CB2255		7 -40	2
		8 -18	2
CB2435		10 -6	1
CB2445		15 -10	1
CB2725		4 -49	1
CB2735		6 -38	2
CB2745		5 -39	2
CB3335		4 -48	1
CB3631		7 -43	1
CB3915		9 -7	1
CB3925		12 -8	1
		13 -11	1
CB3935		10 -10	1
CB4705		8 -35	1
CB4725		7 -37	1
		8 -17	2
CB4735		4 -51	2
		5 -38	2
		15 -11	1
CB4745		4 -46	2
		5 -43	2
B5105		4 -56	1
		5 -46	1
CB5125		12 -12	1
		5 -42	1
CB5135		12 -9	1
		2 -16	1
		8 -44	1
CB5605		6 -31	1
		7 -36	1
CB5625		8 -53	1
CB6215		4 -43	2
		13 -12	2
CB6225		8 -42	1
		10 -8	1
		11 -8	1
CB6805		8 -43	1
CB6825		12 -10	1
CB6835		8 -51	1
CB7525		8 -46	1
CB7535		8 -52	2
CB7545		6 -36	2
		8 -41	2
CB8225		12 -6	1
CG1-8-10K1PCT		13 -8	1
CG1-8-6-81K1PCT		13 -10	1
CG1-8-619-1PCT		13 -9	1
CG1-8-68-1-1PCT		13 -13	1
CG1-8-68-1K1PCT		13 -7	1
CR18U		15 -12	1
CR78U		6 -32	1
		7 -49	1
C2		14 -25	3
DM10-100J		7 -4	4
		8 -13	3
DM10-101J		7 -8	7
		8 -10	2
DM10-120J		4 -7	1
		8 -11	1
DM10-150J		5 -2	4
		6 -12	1
DM10-180J		5 -15	1
DM10-220J		5 -10	1
		6 -8	2
		7 -6	2
		8 -15	1
DM10-240J		6 -13	1
DM10-271J		5 -9	1
		6 -5	1
		7 -3	1
DM10-301J		5 -5	1
		6 -10	1
DM10-330J		5 -1	1
		7 -12	1
		8 -12	1
DM10-390J		3 -23	1
DM10-430J		15 -1	1
DM10-470J		4 -3	1
		5 -11	1
		6 -4	3
		7 -9	1
DM10-501J		4 -8	1
DM10-560J		15 -2	1
DM10-820J		7 -11	1
DM15-621J		6 -11	2
DM15-821J		6 -9	4
DS0012P		1 -8	1
DS0019P		1 -9	1
DS007P		1 -7	1
EB1015		4 -50	2
EB1025		4 -55	2
		5 -32	1
		12 -11	1
EB1045		4 -40	1
EB1235		5 -48	1
EB1535		4 -45	1
		5 -47	1
EB2205		9 -10	2
EB4735		4 -42	1
EB7535		9 -9	1
EB8205		9 -5	1
EB8215		9 -2	1
EB8235		8 -37	2
FA5C102W		4 -15	7
		5 -16	3
		6 -14	12
		7 -13	12
		8 -3	12
		15 -3	1
FA5C3311		4 -18	1
GB1525		9 -15	1
GB1535		5 -41	1
GB6825			

PART NUMBER	STOCK NUMBER	FIGURE & INDEX NO.	UNITS PER ASSEMBLY
GC8196		2 -62	1
G166A1-00002-1		1 -	1
G175C1-00000-1		1 -	1
		2 -	REF
		2 -	REF
G175C1-00000-2		1 -	1
		2 -	REF
		3 -	REF
G175C1-00001-1		1 -38	1
G175C1-00001-2		1 -39	1
HKP		1 -2	1
JFD5284		2 -19	1
JL1000PF20PCT		4 -67	3
MC0-68PF10PCT		6 -7	3
MDL 1/2		1 -1	2
MG11016		4 -12	4
		5 -3	4
MG1305		4 -4	1
		5 -8	1
MH90305		2 -5	1
PC115		4 -65	1
		5 -49	1
QC0-43PF10PCT		4 -11	1
QC1-8PF10PCT		8 -9	1
QC1-0PF10PCT		7 -5	1
QC2-2PF10PCT		8 -5	1
QC2PF10PCT		8 -7	1
RH5-2KPORM3PCT		3 -1	1
RN70B1303F		9 -13	1
RN70B2701F		9 -14	1
RV4NAYSD504A		1 -13	1
RV6NAYSD103A		1 -23	2
RV6NAYSD104A		1 -16	1
RV6NAYSD504A		1 -27	1
		1 -37	1
SFU16		6 -17	2
		7 -16	2
		8 -21	2
SMRE14PKH		3 -7	3
SMRE14SK		3 -6	3
SM1000PFGMV		3 -12	1
		4 -5	7
		5 -6	10
		6 -1	9
		7 -1	9
		8 -1	16
SM5000PF20PCT		15 -4	1
SM5000PF20PCT		3 -41	1
		5 -50	2
		6 -6	7
SSS33		14 -29	5
SS5A102W		4 -9	7
		5 -13	2
		6 -3	3
		7 -7	3
		8 -4	9
TJ6		4 -64	1
		5 -24	1
		6 -41	1
		7 -46	1
		8 -56	3
TT61B7		1 -20	5
UG1052U		1 -6	3
UG1094U		4 -21	2
		5 -17	2
UG290U		1 -5	2
UG88U		2 -22	5
UG913U		2 -23	2
W10G		4 -27	1
W27G		4 -39	1
W33G		5 -33	1
W47G		5 -19	1
00-006-013-5002		13 -16	1
00-007-013-5002		10 -11	1
00-008-013-5002		11 -9	1
00-009-013-5002		12 -14	1
1N198A		6 -15	2
		7 -15	2
		8 -20	3
1N3008B		3 -2	1
1N3253		3 -42	2
		9 -4	4
1N3255		9 -12	4
1N462A		10 -3	4
		11 -2	5
		15 -5	2
1N751		8 -19	1
1N753A		6 -16	1
		7 -14	1
1N756A		12 -4	1
1N759A		12 -3	1
		13 -3	1
1N979A		3 -8	1
1SX1TJX25		2 -20	2
10LOCK		2 -	4
		2 -	2
1002-14		14 -36	1
1002-15		14 -14	1
1002-22		14 -38	2
1002-25		14 -35	2
1002-27		14 -39	1
1002-29		14 -40	3
1002-36		14 -37	1
1007-1		2 -18	1
1007-2		3 -17	1
1008		14 -13	2
1009-3		14 -30	1
1013		14 -12	2
1015-1		14 -27	1
1015-10		14 -19	2
1015-11		14 -17	1
1015-12		14 -18	1
1015-2		14 -7	1
1015-3		14 -32	2
1015-4		14 -28	1
1015-5		14 -31	2
1015-6		14 -8	1
1015-7		14 -34	1
1015-8		14 -9	1
1015-9		14 -22	1
103		1 -42	1
1032		7 -20	1
1032X3-8FHSSP		1 -	4
1032X3-8PHSSB		1 -	8
1032X3-8PHSSP		1 -	4
		1 -	4
		2 -	2
10335-5		2 -53	1
1034-1		7 -19	1
1041		7 -23	1
1046-1		2 -48	3
1052-1		1 -34	2
10580-1		2 -	1
10581-1		2 -59	1
1070-1		2 -10	1
1073-3		1 -15	1
1073-4		1 -12	3
1079-1		2 -47	1
1081-1		2 -49	2
109D106X9050C2		13 -1	1
109D107X9025F2		9 -6	1
		12 -2	1
109D107X9030T2		2 -2	4
109D226X0025C2		10 -2	1
109D256C2050F2		2 -3	1
109D476X0050F2		12 -1	2
10936-1		2 -57	1
1100-1		3 -20	3
11000-15		7 -24	1
1101		4 -63	1
1107		4 -36	1
1107-1		2 -34	1
1126-1		7 -45	1
		6 -40	1
		8 -55	1
1128-4		14 -1	1
1129-01		4 -26	1
1129-02		4 -30	1
1131-01		4 -28	1
1131-02		4 -31	1
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1131-16		5 -34	1
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1131-24		5 -28	2
1131-25		5 -31	1
1131-26		4 -35	1
1131-33		3 -22	1
1144-1		14 -23	4
1147-1		2 -41	1
1148-1		2 -36	1
1152-2		14 -5	1
[illegible]		2 -44	1

PART NUMBER	STOCK NUMBER	FIGURE & INDEX NO.	UNITS PER ASSEMBLY
		14 -11	2
		2 -43	1
		4 -25	1
		3 -11	4
		3 -18	1
		14 -24	1
		3 -21	1
		1 -31	2
		3 -28	1
		2 -42	1
		2 -32	1
		14 -20	1
		14 -26	1
		14 -16	1
		4 -62	2
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		14 -3	1
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		4 -32	1
		6 -20	4
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		6 -19	3
		8 -24	3
		7 -18	1
		8 -23	3
		2 -6	1
		2 -9	1
		4 -23	2
		4 -29	1
		4 -37	1
		2 -52	4
		2 -25	16
1900105X9035A2		11 -1	1
1900106X9002B2		9 -16	1
1900475X9035B2		6 -2	1
		7 -2	1
		8 -2	1
1900476X9006B2		13 -2	1
		2 -55	4
		2 -56	1
		14 -6	1
		2 -4	1
		1 -18	1
		2 -26	3
		3 -15	2
		3 -16	1
		3 -26	1
		9 -	REF
		2 -38	2
		3 -24	1
		2 -54	1
		14 -33	5
		2 -50	1
		2 -1	1
		2 -60	1
		15 -	REF
		2 -58	1
		2 -17	2
		1 -14	2
1920049-1475		1 -11	1
BLOCK		4 -	3
BLOCK		2 -	4
		2 -	2
		2 -	2
		3 -	2
		3 -	2
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1N1720		11 -4	1
2N335		13 -5	1
		6 -23	1
		7 -25	1
		8 -33	2
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		11 -3	2
		13 -4	2
2N697		12 -5	3
2N706		15 -8	1
2001		14 -21	2
2017-1		3 -27	1
2026-1		5 -26	1
2027-1		4 -24	1
2033-1		2 -61	1
2060-6		7 -22	1
20618-1		3 -38	1
20619-1		2 -51	1
20755-2		2 -15	4
2086-1		3 -30	1
2087-1		3 -33	1
209-11		4 -38	1
2132-1		3 -35	1
2133-1		2 -29	1
		13 -	REF
2135-1		2 -27	1
		11 -	REF
2136-1		2 -28	1
		10 -	REF
2141-1		3 -19	1
2151-1		2 -30	1
		12 -	REF
2171-12		8 -25	1
2171-20		8 -26	1
2173		14 -42	1
2174		14 -41	1
221765A3		1 -32	1
256X1-4PHSSP		4 -	1
256X1-4RHSSP		2 -	2
		3 -	2
256X3-8PHSSH		2 -	2
256X3-8PHSSP		2 -	2
		3 -	2
256X5-16CHSSP		3 -	2
		3 -	2
256X5-16PHSSP		3 -	2
		4 -	2
256X5-16RHSSP		2 -	4
2640-1		2 -	1
27-26		4 -53	1
		5 -21	1
27-7		2 -63	2
		4 -52	1
		7 -38	3
		8 -16	2
		15 -7	1
27-9		4 -22	2
		5 -18	1
		6 -18	2
		7 -17	3
		8 -22	2
		15 -6	1
3AL635-2R		11 -10	1
		13 -15	1
3C19		10 -1	1
30D506G050DH4		9 -1	2
301-000C0H0109C		4 -66	1
301-000C0H0479C		4 -20	1
		5 -7	3
		7 -51	1
301-000C0H0509C		4 -14	1
301-000C0H0569C		4 -2	1
301-000C0H0609C		4 -1	1
301-000C0H0689C		7 -10	1
301-000C0H0759D		8 -6	2
301-000C0J0339C		4 -6	2
		7 -50	1
301-000C0J0399C		7 -52	1
301-000C0K0159F		4 -19	1
301-000C0K0209C		5 -14	2
		4 -13	2
301-000C0K0279C		5 -4	1
301-000C0K0508F		4 -10	2
301-000C0K0689C		5 -12	1
301-000C0H0829D		7 -28	1
301-000P2G0220J		8 -14	1
301-651T2H279C		4 -17	1
301-651U2J508C		4 -16	1
3065-1		3 -13	1

PART NUMBER	STOCK NUMBER	FIGURE & INDEX NO.	UNITS PER ASSEMBLY
3091		14 -	1
3092-1		14 -	REF
		3 -25	1
3100-25		14 -2	2
318-010382-3		2 -21	1
327		1 -19	5
		1 -33	1
		2 -12	2
3304		6 -44	1
		7 -42	1
		8 -31	2
342004		1 -41	1
345		1 -10	2
35L22-3		1 -28	2
357X5U102M		5 -20	1
399227A		1 -25	2
399237A		1 -40	1
4LUG		3 -39	5
4INT		14 -	4
4LOCK		1 -	8
		1 -	12
		1 -	4
		1 -	4
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4049-1		1 -30	1
4050-1		1 -29	1
4101-1		3 -34	1
		5 -	REF
4102-1		3 -29	1
		4 -	REF
4104		7 -	REF
4104-1		3 -36	1
4105-1		3 -31	1
		6 -	REF
4135-2		3 -37	1
		8 -	REF
43F229988 1		2 -7	2
43F230088 1		2 -8	2
440X1-4AHSSP		14 -	2
		14 -	2
440X1-4PHSSP		14 -	4
440X1-4RHSSP		2 -	2
		2 -	3
		14 -	4
		14 -	4
440X1-8SHSSP		14 -	2
440X3-8PHSSP		2 -	3
		2 -	2
		3 -	3
440X5-16BHSSP		1 -	6
440X5-16PHSSP		1 -	8
		1 -	12
		1 -	4
		1 -	4
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50FA256		2 -	2
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50FA440		1 -	8
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		1 -	4
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5002-006-103-002		3 -3	1
5002-007-103-002		3 -5	1
5002-008-103-002		3 -9	1
5002-009-103-002		3 -10	1
6LUG		3 -40	1
6CW4		4 -59	1
		5 -35	3
		6 -43	1
		7 -48	1
632X1-4BHSSP		14 -	6
632X1-4PHSSP		14 -	6
632X5-16CHSSP		3 -	4
632X5-16PHSSP		3 -	6
		3 -	4
		3 -	4
		3 -	4
		3 -	6
7-02		2 -14	2
70-2-1G1		1 -21	1
70-2-1G4		1 -22	1
70-2-2G3		1 -24	1
70-3-2G		1 -3	1
70-3-2G3		1 -17	1
7077		4 -57	2
7223-962-1		2 -11	1
7587		4 -58	1
		5 -36	1
		6 -42	4
		7 -47	4
		8 -57	4
8-1930XP24		2 -13	2
800-1G13		6 -39	1
80041G13		7 -29	1
86-070		4 -60	1
86-085		4 -61	1
8803K6		1 -26	1
90SL		2 -24	14

REFERENCE DESIGNATION INDEX

REFERENCE DESIGNATION	FIG. AND INDEX NO.	STOCK NUMBER	MFR PART NUMBER
A101	2 -28		2136-1
A101CR701	10 -3		1N462A
A101CR702	10 -3		1N462A
A101CR703	10 -3		1N462A
A101CR704	10 -3		1N462A
A101C701	10 -1		3C19
A101C702	10 -2		109D226X0025C2
A101Q701	10 -4		2N335
A101Q702	10 -4		2N335
A101Q703	10 -4		2N335
A101Q704	10 -4		2N335
A101R701	10 -5		CB1555
A101R702	10 -6		CB2435
A101R703	10 -7		CB2225
A101R704	10 -8		CB6225
A101R705	10 -9		CB1835
A101R706	10 -10		CB3935
A102	2 -27		2135-1
A102CR801	11 -2		1N462A
A102CR802	11 -2		1N462A
A102CR803	11 -2		1N462A
A102CR804	11 -2		1N462A
A102CR805	11 -2		1N462A
A102C401	11 -1		150D105X9035A2
A102Q801	11 -3		2N335
A102Q802	11 -3		2N335
A102Q803	11 -4		2N1700
A102R801	11 -5		CB1555
A102R802	11 -6		CB1235
A102R803	11 -7		CB1525
A102R804	11 -8		CB6225
A103	2 -30		2151-1
A103CR901	12 -3		1N759A
A103CR902	12 -4		1N756A
A103C901	12 -1		109D476X0050F2
A103C902	12 -1		109D476X0050F2
A103C903	12 -2		109D107X9025F2
A103Q901	12 -5		2N697
A103Q902	12 -5		2N697
A103Q903	12 -5		2N697
A103R901	12 -6		CB8225
A103R902	12 -7		CB1225
A103R903	12 -8		CB3925
A103R904	12 -9		CB5125
A103R905	12 -10		CB6825
A103R906	12 -11		EB1025
A103R907	12 -12		CB5105
A103R908	12 -13		CB1045
A104	2 -29		2133-1
A104CR1001	13 -3		1N759A
A104C1001	13 -1		109D106X9050C2
A104C1002	13 -2		150D476X9006B2
A104Q1001	13 -4		2N335
A104Q1002	13 -4		2N335
A104Q1003	13 -5		2N1700
A104R1001	13 -6		CB1035
A104R1002	13 -7		CG1-8-68-1K1PCT
A104R1003	13 -8		CG1-8-10K1PCT
A104R1004	13 -9		CG1-8-619-1PCT
A104R1005	13 -10		CG1-8-6-81K1PCT
A104R1006	13 -11		CB3925
A104R1007	13 -12		CB6215
A104R1008	13 -12		CB6215
A104R1009	13 -13		CG1-8-68-1-1PCT
A104R1010	13 -14		CB1045
CR101	3 -2		1N3008B
CR102	9 -12		1N3255
CR103	9 -12		1N3255
CR104	9 -12		1N3255
CR105	9 -12		1N3255
CR106	9 -4		1N3253
CR107	9 -4		1N3253
CR108	9 -4		1N3253
CR109	9 -4		1N3253
CR110	3 -42		1N3253
CR111	3 -8		1N979A
CR112	3 -42		1N3253
CR401	8 -19		1N751
CR402	8 -20		1N198A
CR403	8 -20		1N198A
CR404	8 -20		1N198A
CR501	7 -14		1N753A
CR502	7 -15		1N198A
CR503	7 -15		1N198A
CR504			
CR505	15 -5		1N642A
CR601	15 -5		1N642A
CR602	6 -15		1N198A
	6 -15		1N198A

REFERENCE DESIGNATION	FIG. AND INDEX NO.	STOCK NUMBER	MFR PART NUMBER
CR603	6 -16		1N753A
C101	2 -2		109D107X9030T2
C102	2 -2		109D107X9030T2
C103	2 -2		109D107X9030T2
C104	2 -2		109D107X9030T2
C105	2 -3		109D256C2050F2
C106	2 -7		43F2299BB1
C107	9 -16		150D105X9020B2
C108	2 -7		43F2299BB1
C109	9 -1		30D506G050DH4
C110	9 -1		30D506G050DH4
C111	2 -8		43F2300BB1
C112	2 -8		43F2300BB1
C113	9 -6		109D107X9025F2
C114	3 -23		DM10-390J
C115	3 -41		SM5000PF20PCT
C116	3 -12		SM1000PFGMV
C201	5 -1		DM10-330J
C202	5 -2		DM10-150J
C203	5 -3		MG11016
C204	5 -4		301-000C0K0279C
C205	5 -5		DM10-301J
C206	5 -6		SM1000PFGMV
C207	5 -7		301-000C0H0479C
C208	5 -8		MG1305
C209	5 -6		SM1000PFGMV
C210	5 -9		DM10-271J
C211	5 -10		DM10-220J
C212	5 -3		MG11016
C213	5 -7		301-000C0H0479C
C214	5 -7		301-000C0H0479C
C215	5 -3		MG11016
C216	5 -2		DM10-150J
C217	5 -11		DM10-470J
C218	5 -12		301-000C0K0689C
C219	5 -6		SM1000PFGMV
C220	5 -13		SS5A102W
C221	5 -13		SS5A102W
C222	5 -3		MG11016
C223	5 -14		301-000C0K0209C
C224	5 -2		DM10-150J
C225	5 -15		DM10-180J
C226	5 -2		DM10-150J
C227	5 -6		SM1000PFGMV
C228	5 -6		SM1000PFGMV
C229	5 -6		SM1000PFGMV
C230	5 -6		SM1000PFGMV
C231	5 -16		FA5C102W
C232	5 -16		FA5C102W
C233	5 -16		FA5C102W
C234	5 -6		SM1000PFGMV
C235	5 -6		SM1000PFGMV
C236	5 -6		SM1000PFGMV
C237	5 -20		357X5U102M
C238	5 -49		PC115
C239	5 -14		301-000C0K0209C
C240	5 -50		SM5000PF20PCT
C241	5 -50		SM5000PF20PCT
C301	4 -1		301-000C0H0609C
C302	4 -2		301-000C0H0569C
C303	4 -3		DM10-470J
C304	4 -4		MG1305
C305	4 -67		JL1000PF20PCT
C306	4 -6		301-000C0J0339C
C307	4 -7		DM10-120J
C308	4 -5		SM1000PFGMV
C309	4 -5		SM1000PFGMV
C310	4 -8		DM10-501J
C311	4 -9		SS5A102W
C312	4 -10		301-000C0K0508F
C313	4 -11		QC0-43PF10PCT
C314	4 -12		MG11016
C315	4 -67		JL1000PF20PCT
C316	4 -67		JL1000PF20PCT
C317	4 -13		301-000C0K0209C
C318	4 -12		MG11016
C319	4 -13		301-000C0K0209C
C320	4 -12		MG11016
C321	4 -14		301-000C0H0509C
C322	4 -10		301-000C0K0508F
C323	4 -5		SM1000PFGMV
C324	4 -9		SS5A102W
C325	4 -9		SS5A102W
C326	4 -9		SS5A102W
C327	4 -15		FA5C102W
C328	4 -15		FA5C102W
C329	4 -15		FA5C102W
C330	4 -15		FA5C102W

REFERENCE DESIGNATION	FIG. AND INDEX NO.	FEDERAL STOCK NO.	MFR PART NUMBER
C331	4 -15		FA5C102W
C332	4 -5		SM1000PFGMV
C333	4 -5		SM1000PFGMV
C334	4 -9		SS5A102W
C335	4 -5		SM1000PFGMV
C336	4 -15		FA5C102W
C337	4 -15		FA5C102W
C338	4 -9		SS5A102W
C339	4 -16		301-651U2J508C
C340	4 -17		301-651T2H279C
C341	4 -6		301-000C0J0339C
C342	4 -12		MG11016
C343	4 -66		301-000C0H0109C
C344	4 -9		SS5A102W
C345	4 -5		SM1000PFGMV
C346	4 -18		FA5C3311
C347	4 -19		301-000C0X0159F
C348	4 -20		301-000C0H0479C
C349	4 -65		PC115
C401	8 -1		SM1000PFGMV
C402	8 -2		150D475X9035B2
C403	8 -3		FA5C102W
C404	8 -3		FA5C102W
C405	8 -1		SM1000PFGMV
C406	8 -1		SM1000PFGMV
C407	8 -8		B470PF20PCT
C408	8 -4		SS5A102W
C409	8 -4		SS5A102W
C410	8 -5		QC2-2PF10PCT
C411	8 -6		301-000C0H0759D
C412	8 -1		SM1000PFGMV
C413	8 -1		SM1000PFGMV
C414	8 -1		SM1000PFGMV
C415	8 -8		B470PF20PCT
C416	8 -4		SS5A102W
C417	8 -7		QC2PF10PCT
C418	8 -6		301-000C0H0759D
C419	8 -1		SM1000PFGMV
C420	8 -3		FA5C102W
C421	8 -1		SM1000PFGMV
C422	8 -4		SS5A102W
C423	8 -1		SM1000PFGMV
C424	8 -1		SM1000PFGMV
C425	8 -8		B470PF20PCT
C426	8 -4		SS5A102W
C427	8 -3		FA5C102W
C428	8 -3		FA5C102W
C429	8 -9		QC1-8PF10PCT
C430	8 -11		DM10-120J
C431	8 -13		DM10-100J
C432	8 -13		DM10-100J
C433	8 -3		FA5C102W
C434	8 -3		FA5C102W
C435	8 -3		FA5C102W
C436	8 -3		FA5C102W
C437	8 -3		FA5C102W
C438	8 -3		FA5C102W
C439	8 -4		SS5A102W
C440	8 -1		SM1000PFGMV
C441	8 -1		SM1000PFGMV
C442	8 -4		SS5A102W
C443	8 -14		301-000P2G220J
C444	8 -15		DM10-220J
C445	8 -10		DM10-101J
C446	8 -10		DM10-101J
C447	8 -13		DM10-100J
C448	8 -12		DM10-330J
C449	8 -1		SM1000PFGMV
C450	8 -1		SM1000PFGMV
C451	8 -1		SM1000PFGMV
C452	8 -1		SM1000PFGMV
C453	8 -4		SS5A102W
C454	8 -4		SS5A102W
C455	8 -3		FA5C102W
C501	7 -1		SM1000PFGMV
C502	7 -2		150D475X9035B2
C503	7 -1		SM1000PFGMV
C504	7 -3		DM10-271J
C505	7 -1		SM1000PFGMV
C506	7 -4		DM10-100J
C507	7 -5		QC1-0PF10PCT
C508	7 -6		DM10-220J
C509	7 -6		DM10-220J
C510	7 -1		SM1000PFGMV
C511	7 -7		SS5A102W
C512	7 -8		DM10-101J
C513	7 -9		DM10-470J
C514	7 -1		SM1000PFGMV
C515	7 -10		301-000C0H0689C
C516	7 -50		301-000C0J0339C
C517	7 -4		DM10-100J
C518	7 -51		301-000C0H0479C
C519	7 -4		DM10-100J
C520	7 -8		DM10-101J
C521	7 -8		DM10-101J
C522	7 -1		SM1000PFGMV
C523	7 -1		SM1000PFGMV
C524	7 -7		SS5A102W
C525	7 -28		301-000C0H0829D
C526	7 -4		DM10-100J
C527	7 -1		SM1000PFGMV
C528	7 -1		SM1000PFGMV
C529	7 -11		DM10-820J
C530	7 -12		DM10-330J
C531	7 -8		DM10-101J
C532	7 -8		DM10-101J
C533	7 -8		DM10-101J
C534	7 -13		FA5C102W
C535	7 -13		FA5C102W
C536	7 -13		FA5C102W
C537	7 -13		FA5C102W
C538	7 -13		FA5C102W
C539	7 -13		FA5C102W
C540	7 -13		FA5C102W
C541	7 -13		FA5C102W
C542	7 -13		FA5C102W
C543	7 -13		FA5C102W
C544	7 -13		FA5C102W
C545	7 -13		FA5C102W
C546	7 -7		SS5A102W
C547	7 -8		DM10-101J
C548	7 -52		301-000C0J0399C
C549	15 -1		DM10-430J
C550	15 -2		DM10-680J
C551	15 -3		FA5C102W
C552	15 -4		SM5000PF20PCT
C601	6 -1		SM1000PFGMV
C602	6 -2		1500475X9035B2
C603	6 -3		SS5A102W
C604	6 -1		SM1000PFGMV
C605	6 -4		DM10-470J
C606	6 -5		DM10-271J
C607	6 -1		SM1000PFGMV
C608	6 -4		DM10-470J
C609	6 -4		DM10-470J
C610	6 -1		SM1000PFGMV
C611	6 -3		SS5A102W
C612	6 -6		SM5000PF20PCT
C613	6 -7		MC0-68PF10PCT
C614	6 -8		DM10-220J
C615	6 -8		DM10-220J
C616	6 -1		SM1000PFGMV
C617	6 -9		DM15-821J
C618	6 -5		SM5000PF20PCT
C619	6 -1		SM1000PFGMV
C620	6 -9		DM15-821J
C621	6 -5		SM5000PF20PCT
C622	6 -6		SM5000PF20PCT
C623	6 -6		SM5000PF20PCT
C624	6 -9		DM15-821J
C625	6 -9		DM15-821J
C626	6 -1		SM1000PFGMV
C627	6 -6		SM5000PF20PCT
C628	6 -6		SM5000PF20PCT
C629	6 -10		DM10-301J
C630	6 -11		DM15-621J
C631	6 -11		DM15-621J
C632	6 -1		SM1000PFGMV
C633	6 -1		SM1000PFGMV
C634	6 -3		SS5A102W
C635	6 -7		MC0-68PF10PCT
C636	6 -7		MC0-68PF10PCT
C637	6 -12		DM10-150J
C638	6 -13		DM10-240J
C639	NOT USED		
C640	6 -14		FA5C102W
C641	6 -14		FA5C102W
C642	6 -14		FA5C102W
C643	6 -14		FA5C102W
C644	6 -14		FA5C102W
C645	6 -14		FA5C102W
C646	6 -14		FA5C102W
C647	6 -14		FA5C102W
C648	6 -14		FA5C102W
C649	6 -14		FA5C102W
C650	6 -14		FA5C102W

REFERENCE DESIGNATION	FIG. AND INDEX NO.	FEDERAL STOCK NO.	MFR PART NUMBER
DS101	1 -10		345
DS102	1 -10		345
DS103	1 -19		327
DS104	2 -17		1820
DS105	1 -19		327
DS106	2 -17		1820
DS107	1 -19		327
DS108	1 -19		327
DS109	1 -19		327
DS110	1 -33		327
DS111	2 -12		327
DS112	2 -12		327
E401	8 -21		SFU16
E402	8 -21		SFU16
E501	7 -16		SFU16
E502	7 -16		SFU16
E601	6 -17		SFU16
E602	6 -17		SFU16
FL101	3 -11		1204-050
FL102	3 -11		1204-050
FL103	3 -11		1204-050
FL104	3 -11		1204-050
F101	1 -1		MDL 1-2
F102	1 -1		MDL 1-2
J101	1 -6		UG1052U
J102	1 -9		DS0019P
J103	1 -7		DS007P
J104	1 -8		DS0012P
J105	1 -6		UG1052U
J106	1 -6		UG1052U
J107	1 -5		UG290U
J108	1 -5		UG290U
J109	3 -6		SMRE14SK
J201	5 -17		UG1094U
J202	5 -18		27-9
J203	5 -17		UG1094U
J301	4 -21		UG1094U
J302	4 -22		27-9
J303	4 -22		27-9
J304	4 -21		UG1094U
J401	8 -22		27-9
J402	8 -22		27-9
J501	7 -17		27-9
J502	7 -17		27-9
J503	7 -17		27-9
J504	15 -6		27-9
J601	6 -18		27-9
J602	6 -18		27-9
K101	2 -21		318-010382-3
K102	2 -5		MH90305
L101	2 -10		1070-1
L102	3 -22		1131-33
L201	5 -30		1131-22
L202	5 -26		2026-1
L203	5 -27		1131-23
L204	5 -28		1131-24
L205	5 -29		1443
L206	5 -28		1131-24
L207	5 -19		W47G
L208	5 -30		1131-22
L209	5 -31		1131-25
L210	5 -34		1131-16
L211	5 -33		W33G
L301	4 -23		1489-01
L302	4 -24		2027-1
L303	4 -25		1200-1
L304	4 -26		1129-01
L305	4 -27		W10G
L306	4 -28		1131-01
L307	4 -29		1489-02
L308	4 -30		1129-02
L309	4 -31		1131-02
L310	4 -23		1489-01
L311	4 -32		1472-03
L312	4 -33		1131-04
L313	4 -33		1131-04
L314	4 -34		1131-05
L315	4 -35		1131-26
L316	4 -36		1107
L317	4 -37		1489-03
L318	4 -38		209-11
L319	4 -39		W270
L401	8 -23		1472-4
L402	8 -24		1472-3
L403	8 -23		1472-4
L404	8 -24		1472-3
L405	8 -23		1472-4

REFERENCE DESIGNATION	FIG. AND INDEX NO.	FEDERAL STOCK NO.	MFR PART NUMBER
L406	8 -24		1472-3
L407	8 -25		2171-12
L408	8 -26		2171-20
L409	8 -27		1131-16
L410	8 -27		1131-16
L411	8 -28		1131-17
L412	8 -28		1131-17
L501	7 -18		1472-4
L502	7 -19		1034-1
L503	7 -20		1032
L504	7 -21		1472-09
L505	7 -22		2060-6
L506	7 -23		1041
L507	7 -24		11000-15
L601	6 -19		1472-2
L602	6 -19		1472-2
L603	6 -19		1472-2
L604	NOT USED		
L605	6 -20		1472-08
L606	6 -20		1472-08
L607	6 -20		1472-08
L608	6 -20		1472-08
L609	6 -21		1463
L610	6 -22		1464
P109	3 -7		SMRE14PKH
P116	2 -22		UG88U
P117	2 -22		UG88U
P118	2 -22		UG88U
P201	2 -22		UG88U
P202	5 -21		27-26
P203	2 -23		UG913U
P301	2 -22		UG88U
P302	4 -52		27-7
P303	4 -53		27-26
P304	2 -23		UG913U
P304	4 -66		UG913U
P401	8 -16		27-7
P402	8 -16		27-7
P501	7 -38		27-7
P502	7 -38		27-7
P503	7 -38		27-7
P504	15 -7		27-7
P601	2 -63		27-7
P602	2 -63		27-7
Q1003	13 -5		2N1700
Q401	8 -33		2N335
Q402	8 -33		2N335
Q501	7 -25		2N335
Q502	15 -8		2N706
Q601	6 -23		2N335
R101	1 -27		RV6NAYSD504A
R102	1 -16		RV6NAYSD104A
R103	1 -13		RV4NAYSD504A
R104	1 -23		RV6NAYSD103A
R105	1 -23		RV6NAYSD103A
R106	9 -10		EB2205
R107	9 -10		EB2205
R108	9 -15		GB1525
R109	9 -13		RN70B1303F
R110	9 -14		RN70B2701F
R111	3 -1		RH5-2KPORM3PCT
R112	9 -2		EB8215
R113	9 -5		EB8205
R114	9 -9		EB7535
R115	9 -7		CB3915
R116	9 -8		CB1055
R117	9 -3		CB1035
R118	2 -11		7223-962-1
R119	3 -4		CB1015
R120	9 -11		CB2245
R121	1 -35		CB1845
R122	1 -36		CB1055
R123	2 -16		CB5135
R124	NOT USED		
R125	1 -37		RV6NAYSD504A
R201	5 -37		CB1045
R202	5 -38		CB4735
R203	5 -39		CB2745
R204	5 -39		CB2745
R205	5 -38		CB4735
R206	5 -40		CB1005
R207	5 -41		GB6825
R208	5 -42		CB5125
R209	5 -43		CB4745
R210	5 -43		CB4745
R211	5 -44		CB2245
R212	5 -45		CB2235
R213	5 -46		CB5105

REFERENCE DESIGNATION	FIG. AND INDEX NO.	FEDERAL STOCK NO.	MFR PART NUMBER
R214	5 -47		EB1535
R215	5 -48		EB1235
R216	5 -32		EB1025
R217	5 -22		CB1025
R218	5 -51		CB1555
R301	4 -40		EB1045
R302	4 -51		CB4735
R303	4 -42		EB4735
R304	4 -43		CB6215
R305	4 -43		CB6215
R306	4 -50		EB1015
R307	4 -45		EB1535
R308	4 -50		EB1015
R309	4 -46		CB4745
R310	4 -46		CB4745
R311	4 -47		CB2245
R312	4 -48		CB3335
R313	4 -49		CB2725
R314	4 -44		CB1015
R315	4 -51		CB4735
R316	4 -41		CB1025
R317	4 -44		CB1015
R318	4 -54		GB1535
R319	4 -55		EB1025
R320	4 -55		EB1025
R321	4 -56		CB5105
R401	8 -34		CB2205
R402	8 -35		CB4705
R403	8 -34		CB2205
R404	8 -36		CB2245
R405	8 -37		EB8235
R406	8 -17		CB4725
R407	8 -42		CB6225
R408	8 -36		CB2245
R409	8 -39		CB1015
R410	8 -49		CB1045
R411	8 -54		CB1805
R412	8 -37		EB8235
R413	8 -17		CB4725
R414	8 -46		CB7525
R415	8 -38		CB1035
R416	8 -49		CB1045
R417	8 -49		CB1045
R418	8 -39		CB1015
R419	8 -43		CB6805
R420	8 -44		CB5135
R421	8 -53		CB5625
R422	8 -40		CB1025
R423	8 -39		CB1015
R424	8 -38		CB1035
R425	8 -18		CB2255
R426	8 -18		CB2255
R427	8 -41		CB7545
R428	8 -41		CB7545
R429	8 -48		CB1545
R430	8 -47		CB1535
R431	8 -50		CB2235
R432	8 -49		CB1045
R433	8 -51		CB6835
R434	8 -52		CB7535
R435	8 -52		CB7535
R436	8 -45		CB1555
R437	8 -49		CB1045
R438	8 -29		CB1135
R439	8 -30		CB1055
R501	7 -26		CB2245
R502	7 -27		CB1145
R503	7 -30		CB1025
R504	7 -33		CB1055
R505	7 -30		CB1025
R506	7 -35		CB1045
R507	7 -32		CB2235
R508	7 -32		CB2235
R509	7 -33		CB1055
R510	7 -34		CB1035
R511	7 -30		CB1025
R512	7 -35		CB1045
R513	7 -35		CB1045
R514	7 -36		CB5605
R515	7 -35		CB1045
R516	7 -30		CB1025
R517	7 -37		CB4725
R518	7 -26		CB2245
R519	7 -39		CB1545
R520	7 -35		CB1045
R521	7 -35		CB1045
R522	7 -35		CB1045
R523	7 -40		CB2255
R524	7 -40		CB2255
R525	7 -41		CB1555
R526	7 -41		CB1555
R527	7 -39		CB1545
R528	NOT USED		
R529	7 -43		CB3631
R530	7 -44		CB1835
R531	7 -41		CB1555
R532	7 -30		CB1025
R533	15 -9		CB1035
R534	15 -10		CB2445
R535	15 -11		CB4735
R601	6 -24		CB2245
R602	6 -25		CB1145
R603	6 -26		CB1025
R604	6 -26		CB1025
R605	6 -27		CB1055
R606	6 -28		CB1045
R607	6 -29		CB2235
R608	6 -28		CB1045
R609	6 -26		CB1025
R610	6 -28		CB1045
R611	6 -28		CB1045
R612	6 -31		CB5605
R613	6 -28		CB1045
R614	6 -26		CB1025
R615	6 -26		CB1025
R616	6 -30		CB1035
R617	6 -33		CB1555
R618	6 -33		CB1555
R619	6 -34		CB2021
R620	6 -35		CB1845
R621	6 -28		CB1045
R622	6 -28		CB1045
R623	6 -28		CB1045
R624	6 -34		CB2021
R625	6 -28		CB1045
R626	6 -36		CB7545
R627	6 -36		CB7545
R628	6 -37		CB1545
R629	NOT USED		
R630	6 -38		CB2735
R631	6 -38		CB2735
R632	6 -29		CB2235
R633	6 -33		CB1555
S101	1 -25		399227A
S102	1 -26		8803K6
S103	1 -32		221765A3
S104	NOT USED		
S105	1 -40		399237A
S106	1 -11		192C045-1475
S107	2 -20		1SX1TJX25
S108	2 -20		1SX1TJX25
S109	2 -1		1694-1
TP201	5 -24		TJ6
TP301	4 -64		TJ6
TP401	8 -56		TJ6
TP402	8 -56		TJ6
TP403	8 -56		TJ6
TP501	7 -46		TJ6
TP601	6 -41		TJ6
T101	2 -6		1476-1
T102	2 -9		1477-1
T201	5 -25		1469
T401	8 -55		1126-1
T501	7 -45		1126-1
T601	6 -40		1126-1
V201	5 -35		6CW4
V202	5 -35		6CW4
V203	5 -36		7587
V204	5 -35		6CW4
V301	4 -57		7077
V302	4 -57		7077
V303	4 -58		7587
V304	4 -59		6CW4
V401	8 -57		7587
V402	8 -57		7587
V403	8 -57		7587
V404	8 -57		7587
V501	7 -47		7587
V502	7 -47		7587
V503	7 -47		7587
V504	7 -47		7587
V505	7 -48		6CW4
V601	6 -42		7587
V602	6 -42		7587
V603	6 -42		7587
V604	6 -42		7587
V605	6 -43		6CW4
XA101	3 -9		5002-007-103-002
XA102	3 -9		5002-008-103-002
XA103	3 -10		5002-009-103-002
XA104	3 -3		5002-006-103-002

REFERENCE DESIGNATION	FIG. AND INDEX NO.	FEDERAL STOCK NO.	MFR PART NUMBER	REFERENCE DESIGNATION	FIG. AND INDEX NO.	FEDERAL STOCK NO.	MFR PART NUMBER
Y501	7 -49		CR78U				
Y502	15 -12		CR18U				
Y601	6 -32		CR78U				

SECTION VII

WIRING DIAGRAMS & SCHEMATICS

INDEX

f. Adjust signal generator output until VTVM indicates a level slightly above noise level.

g. Recalibrate signal generator output to exactly 250 mc.

h. Adjust C342 for peak indication on VTVM.

i. Repeat steps c through h at 10-mc intervals throughout the 60-260-mc band. If the output cannot be held within 1% tolerance, replace V304 and begin again.

5-30. V303 Alignment

a. Perform initial settings listed in paragraph 5-28.

b. Connect output of the sweep generator to J101, BAND B INPUT.

c. Adjust signal generator to produce a 250-mc marker signal as monitored on the electronic counter.

d. Set high-band tuning dial to exactly 250 mc.

e. Connect VTVM between TP601 and chassis ground.

f. Adjust signal generator output to provide VTVM indication slightly above the noise level.

g. Recalibrate signal generator output to exactly 250 mc.

h. Adjust L311 for peak indication on VTVM.

5-31. V302 to V303 Interstage Alignment

a. Remove bottom cover from the high-band tuner chassis.

b. Unsolder C310 from the junction of L304 and L305. Note the relative physical positions so that it can be resoldered in exactly the same relationship later.

c. Perform initial settings listed in paragraph 5-28.

d. Set the oscilloscope vertical sensitivity to 50 mv per cm.

e. Set the oscilloscope vertical input for AC coupled signals.

f. Set the oscilloscope to provide a 10-cm horizontal trace.

g. Set the high-band tuning dial to 250 mc.

h. Set sweep generator center frequency to 250 mc.

i. Set signal generator to provide a 250-mc marker signal as monitored on the electronic counter.

j. Using the marker signal as a reference, adjust C314, C318, and C320 to obtain a symmetrical, flat-surface display on the oscilloscope. The display should be centered at 250 mc as shown in figure 5-14.

V302 TO V303 INTERSTAGE RESPONSE CURVE

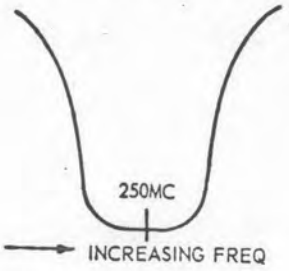


Figure 5-14

k. Set high-band tuning dial to 100 mc.

l. Set sweep generator center frequency to 100 mc.

m. Set signal generator to provide a 100-mc marker signal as monitored on the electronic counter.

n. Using the marker signal as reference, adjust C314 and C320 to obtain a symmetrical, double-tuned display on the oscilloscope. The 100-mc marker should appear at the low frequency peak as shown in figure 5-15.

V302 to V303 RESPONSE CURVE WITH DIAL SET AT 100 MC

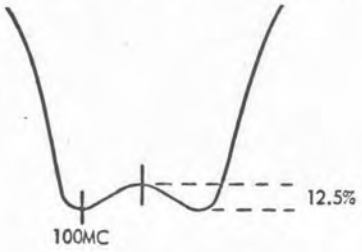


Figure 5-15

o. Adjust C318 to obtain the 12.5% center dip shown in figure 5-15.

p. Replace bottom cover without connecting C310.

q. Repeat steps n and o as needed to obtain the display shown in figure 5-15.

r. Remove the bottom cover and resolder C310 in the position noted in step b.

s. Replace bottom cover.

5-32. Input Alignment

a. Perform initial settings listed in paragraph 5-28.

b. Connect output of sweep generator to J101, BAND B INPUT.

c. Set the oscilloscope vertical sensitivity to 50 mv per cm.

d. Set the oscilloscope vertical input for AC coupled signals.

e. Set the oscilloscope to provide a 10-centimeter horizontal trace.

f. Set high-band tuning dial to 250 mc.

g. Set sweep generator center frequency to 250 mc.

h. Adjust C304 for maximum gain and symmetrical response.

i. Set high-band tuning dial to 100 mc.

j. Set sweep generator center frequency to 100 mc.

k. If the response is symmetrical, alignment is completed. If not, repeat steps f through k until the desired response is achieved.

5-33. PREVENTIVE MAINTENANCE

Preventive maintenance consists of periodic inspections performed at daily and 100 operational-hour intervals. The shop inspection is performed when receiver malfunction is suspected.

5-34. DAILY INSPECTION

At the start of each day of use, inspect the receiver for visible signs of damage, and remove any signs of dust or dirt build-up. All cables should be checked for cleanliness, signs of damage, and proper connection. Check all mountings for looseness. Ensure that adequate ventilation is provided.

5-35. 100-HOUR INSPECTION

Perform daily inspection. Disconnect all power supply cables. Remove dust covers and blow accumulated dust from interior using dry, low pressure compressed air.

5-36. SHOP INSPECTION

At any time degraded receiver performance is suspected, remove unit from aircraft and send to repair shop. Shop personnel should perform applicable portions of the daily and 100-hour inspections and the

functional tests outlined in paragraph 5-37. If the receiver meets test specifications, return it to service. If performance is degraded replace only those tubes and/or components necessary to restore performance. Align receiver and again perform functional tests.

5-37. FUNCTIONAL TESTS

The following paragraphs present tests to establish the operating condition of the receiver.

5-38. OSCILLATOR RADIATION, LOW BAND

a. Connect equipment as shown in figure 5-16.

OSCILLATOR RADIATION TEST SETUP

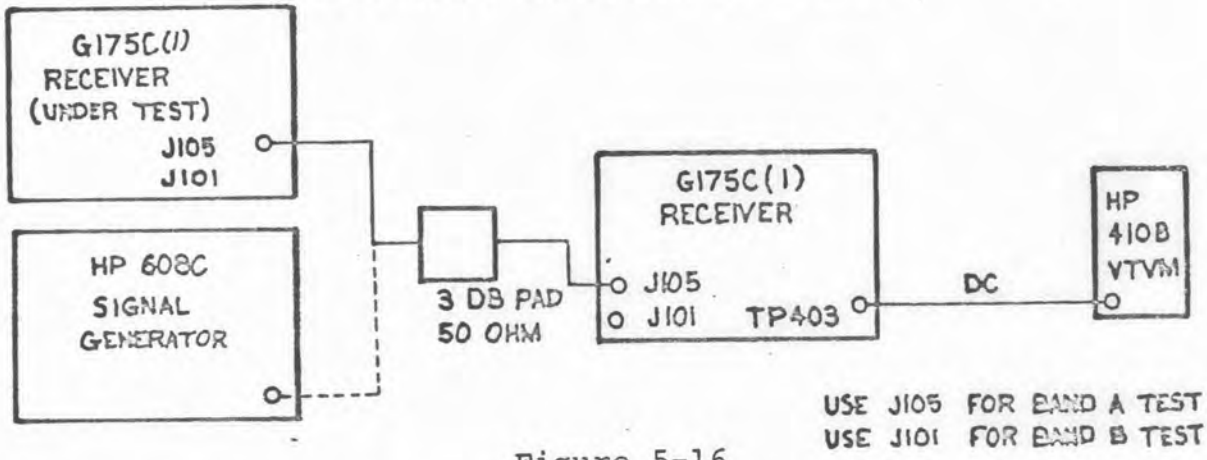


Figure 5-16

b. Set power switches to ON, and allow two minutes for warm-up.

c. Set bandswitches to 30-90 MC.

d. Set function switches to AM MAN.

e. Rotate RF GAIN controls fully clockwise.

f. Set IF BANDWIDTH KC switches to 3K.

g. Set low-band tuning dial of the receiver under test to 30 mc.

h. Set low-band tuning dial of the indicating receiver to 51.4 mc.

NOTE

The frequencies selected are not critical as long as the indicating receiver is tuned 21.4 mc above the setting of the receiver under test. For example, if the receiver under test is tuned to 33.6 mc, the indicating receiver must be tuned to 55.0 mc.

i. Note and record VTVM dc voltage indication.

j. Transfer connection to J105 of the receiver under test to the signal generator output.

k. Adjust the signal generator to provide an input to the indicating receiver at the frequency and magnitude necessary to produce the indication noted in step i.

l. Record the output of the signal generator as the radiation figure at 30 mc.

m. Set low-band tuning dial of the receiver under test to 60 mc.

n. Set low-band tuning dial of the indicating receiver to 81.4 mc.

o. Repeat steps i, j, and k.

p. Record the output of the signal generator as the radiation figure at 60 mc.

q. Set the low-band tuning dial of the receiver under test to 90 mc.

r. Transfer connection at J105 of indicating receiver to J101.

s. Set the band selector switch of the indicating receiver to 60-260 MC and set the high-band tuning dial to 111.4 mc.

t. Repeat steps i, j, and k.

u. Record the output of the signal generator as the radiation figure at 90 mc.

NOTE

The radiation figures recorded in steps l, p, and t, should not exceed 15 v.

5-39. OSCILLATOR RADIATION, HIGH BAND

a. Connect equipment as shown in figure 5-16.

b. Set power switches to ON, and allow two minutes for warm-up.

c. Set bandswitches to 60-260 MC.

d. Set function switches to AM MAN.

e. Rotate RF GAIN control fully clockwise.

f. Set IF BANDWIDTH KC switch to 3K.

g. Set high-band tuning dial of the receiver under test to 65 mc.

h. Set high-band tuning dial of indicating receiver to 86.4 mc.

NOTE

The frequencies selected are not critical as long as the indicating receiver is tuned 21.4 mc above the setting of the receiver under test. For example, if the receiver under test is tuned to 63.6 mc, the indicating receiver must be tuned to 85.0 mc.

i. Note and record dc VTVM voltage indication.

j. Transfer connection to J101 of the receiver under test to the signal generator output.

k. Adjust the signal generator to provide an input to the indicating receiver at the frequency and magnitude necessary to produce the indication noted in step i.

l. Record the output of the signal generator as the radiation figure at 65 mc.

m. Set high-band tuning dial of the receiver under test to 140 mc.

n. Set high-band tuning dial of the indicating receiver to 161.4 mc.

o. Repeat steps i, j, and k.

p. Record the output of the signal generator as the radiation figure at 140 mc.

q. Set the high-band tuning dial of the receiver under test to 235 mc.

r. Set the high-band tuning dial of the indicating receiver to 256.4 mc.

s. Repeat steps i, j, and k.

t. Record the output of the signal generator as the radiation figure at 235 mc.

NOTE

The radiation figures recorded in steps l, p, and t, should not exceed 15 μv.

5-40. INTERMEDIATE FREQUENCY REJECTION, LOW BAND

a. Connect equipment as shown in figure 5-17.

IF REJECTION TEST SETUP

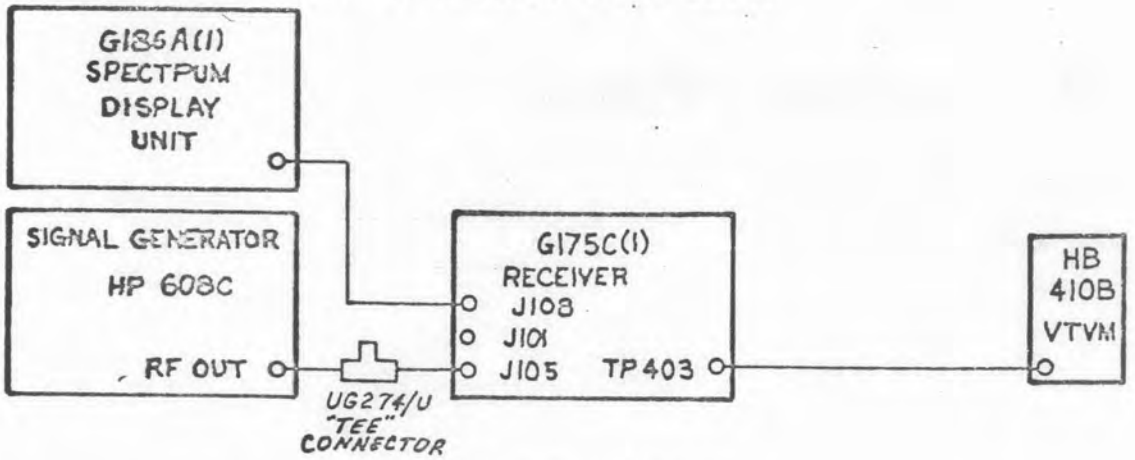


Figure 5-17

b. Set bandswitch to 30-90 MC.

c. Set function switch to AM MAN.

d. Set IF BANDWIDTH KC switch to 3K.

e. Rotate RF GAIN control fully clockwise.

f. Set the SDU MARKER switch to ON.

g. Adjust signal generator to provide a -90-dbm CW signal at 40 mc.

h. Tune low-band tuner to the test signal as indicated by zero beat between IF signal and SDU marker on SDU scope.

i. Adjust RF GAIN control to obtain a VTVM indication between 5 and 9 vdc.

j. Record the dc voltage indication.

k. Transfer connection at J108 to the T-connecter on the signal generator output.

l. Set the signal generator to 21.4 mc as indicated by zero beat between IF signal and SDU marker on SDU scope.

m. Disconnect SDU from the T-connector.

n. Increase the level of the signal generator output until the VTVM indication equals the dc voltage recorded in step j.

o. Record the difference between the final setting of the signal generator attenuator dial and the -90-dbm setting in step g. The difference should be 50 db or greater.

p. Connect the SDU to J108.

q. Adjust signal generator to provide a -90-dbm CW signal at 70 mc.

r. Repeat steps g through m.

s. Record the difference between the final setting of the signal generator attenuator dial and the -90-dbm setting in step o. The difference should be 60 db or greater.

5-41. INTERMEDIATE FREQUENCY REJECTION, HIGH BAND

a. Connect equipment as shown in figure 5-17 except connect RF out from signal generator to J101.

b. Set bandswitch to 60-260 MC.

c. Set function switch to AM MAN.

d. Set IF BANDWIDTH KC switch to 3K.

e. Rotate RF GAIN control fully clockwise.

f. Set the SDU MARKER switch to ON.

g. Adjust signal generator to provide a -90-dbm CW signal at 175 mc.

h. Tune high-band tuner to the test signal as indicated by zero beat between IF and SDU marker on SDU scope.

i. Adjust RF GAIN control to obtain a VTVM indication between 5 and 9 vdc.

j. Record the dc voltage indication.

k. Transfer connection at J108 to the T-connector on the signal generator output.

l. Set the signal generator to 21.4 mc as indicated by zero beat between IF signal and SDU marker on SDU scope.

m. Disconnect SDU from T-connector.

n. Increase the level of the signal generator output until the VTVM indication equals the dc voltage recorded in step j.

o. Record the difference between the final setting of the signal generator attenuator dial and the -90-dbm setting in step g. The difference should be 80 db or greater.

5-42. IMAGE REJECTION, LOW BAND

a. Connect equipment as shown in figure 5-17.

b. Set bandswitch to 30-90 MC.

c. Set function switch to AM MAN.

d. Set IF BANDWIDTH KC switch to 3K.

e. Rotate RF GAIN control fully clockwise.

f. Set the SDU MARKER switch to ON.

g. Adjust signal generator to provide a -90-dbm CW signal at 40 mc.

h. Tune low-band tuner to the test signal as indicated by zero beat between IF signal and SDU marker on SDU scope.

i. Adjust RF GAIN control to obtain a VTVM indication between 5 and 9 vdc.

j. Record the dc voltage indication.

k. Set signal generator to 82.8 mc as indicated by response indication on VTVM.

l. Increase signal generator output level until VTVM indication equals that noted in step j. The difference between the two levels should be 60 db or greater.

5-43. IMAGE REJECTION, HIGH BAND

a. Connect equipment as shown in figure 5-17, except connect RF out from signal generator to J101.

b. Set bandswitch to 60-260 MC.

c. Set the SDU MARKER switch to ON.

d. Set IF BANDWIDTH KC switch to 3K.

e. Set function switch to AM MAN.

f. Rotate RF GAIN control fully clockwise.

g. Adjust signal generator to provide a -90-dbm CW signal at 90 mc.

h. Tune high-band tuner to the test signal as indicated by zero beat between IF and SDU marker on SDU scope.

i. Adjust RF GAIN control to obtain a VTVM indication between 5 and 9 vdc.

j. Record the dc voltage indication.

k. Set signal generator to 132.8 mc as indicated by response indication on VTVM.

l. Increase signal generator output level until VTVM indication equals that noted in step j. The difference between the two levels should be 50 db or greater.

5-44. HIGH-BAND AM SENSITIVITY TESTS

Each IF strip requires a seperate AM sensitivity test.

5-45. 3-MC Bandwidth IF Strip

a. Connect equipment as shown in figure 5-18.

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 3K.

d. Set function switch to AM MAN.

e. Adjust signal generator to provide a 4-μv signal at 250 mc with 50% modulation at 1 kc.

f. Tune the receiver to the test signal.

g. Rotate AUDIO-VIDEO GAIN control fully clockwise.

h. Readjust the signal generator for minimum output (-127 db).

i. Adjust RF GAIN control to obtain a readable reference voltage output as viewed on VTVM.

j. Increase signal generator output to obtain twice the reference voltage indication on the VTVM.

k. Record dbm indication of signal generator attenuator. It should not be more positive than -88.5 dbm.

l. Adjust signal generator to provide a 4-μv signal at 60 mc with 50% modulation at 1 kc.

m. Repeat steps f through k.

AM SENSITIVITY TEST SETUP

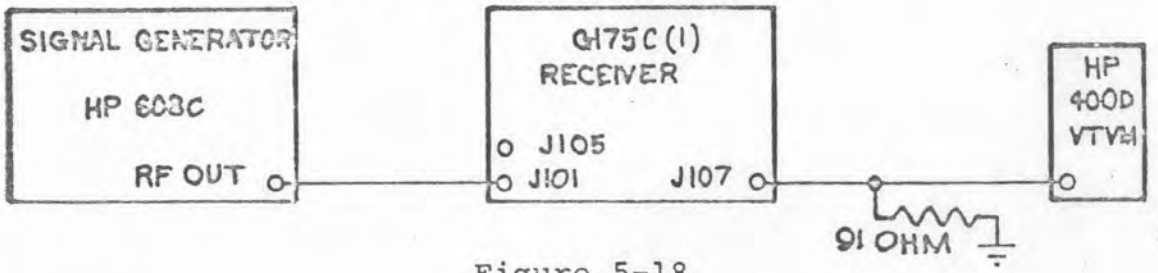


Figure 5-18

5-46. 40/75 KC Bandwidth IF Strip

a. Connect equipment as shown in figure 5-18.

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 40.

d. Set function switch to AM MAN.

e. Adjust signal generator to provide a 4-μv signal at 250 mc with 50% modulation at 1 kc.

f. Tune the receiver to the test signal.

g. Rotate AUDIO VIDEO GAIN control fully clockwise.

h. Adjust RF GAIN control to obtain a readable reference voltage output as viewed on VTVM.

i. Increase signal generator output to obtain twice the reference voltage indicated on VTVM.

j. Record dbm indication of signal generator attenuator. It should not be more positive than -105 dbm.

k. Adjust signal generator to provide a 4-μv signal at 60 mc with 50% modulation at 1 kc.

l. Repeat steps f through j.

m. Adjust signal generator to provide a 4-μv signal at 200 mc with 50% modulation at 1 kc.

n. Repeat steps f through j.

5-47. 10-KC Bandwidth IF Strip

a. Connect equipment as shown in figure 5-18.

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 10.

d. Set function switch to AM MAN.

e. Adjust signal generator to provide a 1-μv signal at 250 mc with 50% modulation at 1 kc.

f. Tune the receiver to the test signal.

g. Readjust the signal generator for minimum output (-127 db).

h. Adjust RF GAIN control to obtain a readable reference output voltage as viewed on VTVM.

i. Increase signal generator output to obtain twice the indication on VTVM.

j. Record dbm indication at signal generator attenuator. It should not be more positive than -111 dbm.

5-48. LOW BAND AM SENSITIVITY TEST

a. Connect equipment as shown in figure 5-18 except transfer connections at J101 to J105.

b. Set bandswitch to 30-90 MC.

c. Set IF BANDWIDTH KC switch to 3K.

d. Set function switch to AM MAN.

e. Adjust signal generator to provide a 4-μv signal at 90 mc with 50% modulation at 1 kc.

f. Tune the receiver to the test signal.

g. Rotate AUDIO VIDEO GAIN control fully clockwise.

h. Readjust the signal generator for minimum output (-127 db).

i. Adjust RF GAIN control to obtain a readable reference voltage output as viewed on VTVM.

j. Increase signal generator output to obtain twice the reference voltage on the VTVM.

k. Record dbm indication of signal generator attenuator. It should not be more positive than -89 dbm.

l. Repeat steps e through k except set signal generator for 60 mc.

m. Repeat steps e through k except set signal generator for 30 mc.

5-49. FM SENSITIVITY TESTS

Each IF strip requires a seperate FM sensitivity test. Use the high-band tuner to perform all three tests.

FM SENSITIVITY TEST SETUP

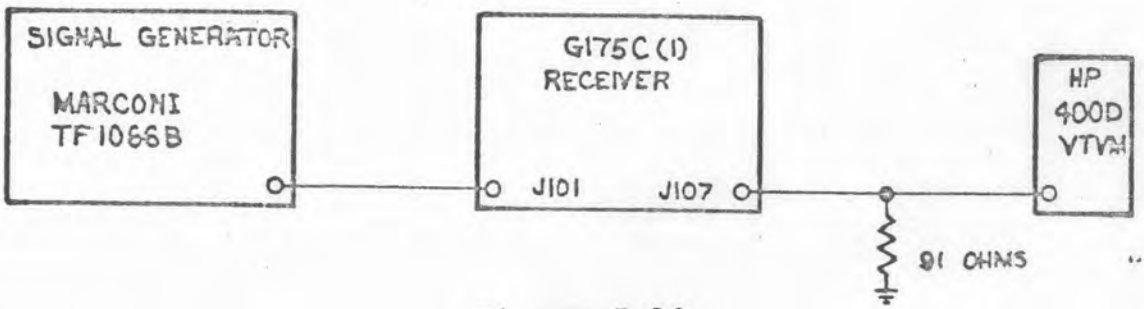


Figure 5-19

5-50. 3-MC Bandwidth IF Strip

a. Connect equipment as shown in figure 5-19.

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 3K.

d. Set function switch to FM.

e. Adjust signal generator to provide a 13-μv signal at 250 mc with 100-kc deviation at 1-kc modulation rate.

f. Tune the receiver to the test signal.

g. Adjust AUDIO VIDEO GAIN control to obtain -10-dbm indication on VTVM.

h. Set signal generator for CW signals.

i. Note that VTVM level changes to -17 dbm or more negative.

5-51. 40/75-KC Bandwidth IF Strip

a. Connect equipment as shown in figure 5-19.

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 40.

d. Set function switch to FM.

e. Adjust signal generator to provide a 2-μv signal at 250 mc with 15-kc deviation at 1-kc modulation rate.

f. Tune receiver to the test signal.

g. Adjust AUDIO VIDEO GAIN control to obtain -10-dbm indication on VTVM.

h. Set signal generator for CW signal.

i. Note that VTVM level changes to -17 dbm or more negative.

5-52. 10-KC Bandwidth IF Strip

a. Connect equipment as shown in figure 5-19.

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 10.

d. Set function switch to FM.

e. Adjust signal generator to provide a 2-μv signal at 250 mc with 3.5-kc deviation at 1-kc modulation rate.

f. Tune receiver to the test signal

g. Adjust AUDIO VIDEO GAIN control to obtain -10-dbm indication on VTVM.

h. Set signal generator for CW signal.

i. Note that VTVM level changes to -17 db or more negative.

5-53. 3-MC BANDWIDTH IF AMPLIFIER RESPONSE

a. Connect equipment as shown in figure 5-20.

b. Remove V304 from high-band tuner.

c. Set bandswitch to 60-260 MC.

d. Set IF BANDWIDTH KC switch to 3K.

e. Set function switch to FM.

f. Select the 30-volt VTVM scale.

g. Short the meter leads together and use the zero set to set the indicator to midscale (15 volts).

IF AMPLIFIER RESPONSE TEST SETUP

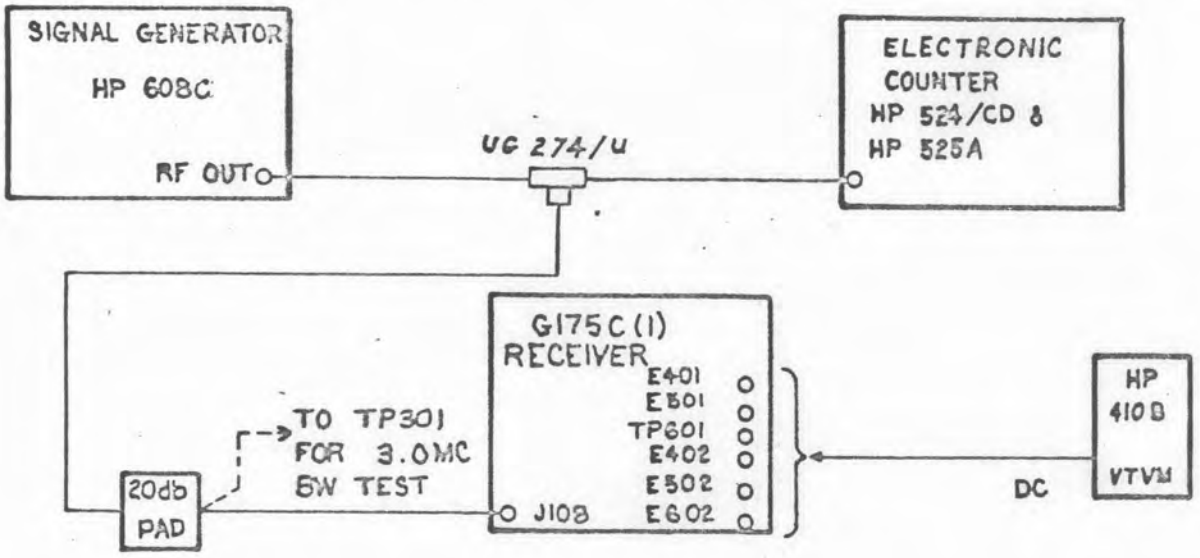


Figure 5-20

h. Connect the VTVM to E402.

i. With the signal generator connected to TP301 of the receiver adjust for a 50-mv CW signal at 21.4 mc.

j. Adjust frequency of signal generator to obtain a mid scale (15-volt) indication on VTVM. The electronic counter should indicate 21.4 (±0.015) mc.

k. Set function switch to AM MAN.

l. Select 3-vdc VTVM scale.

m. Short test leads together and reset meter to zero.

n. Connect VTVM to E401.

o. Rotate RF GAIN control fully clockwise.

p. Adjust frequency of signal generator to 21.4 mc as monitored by the electronic counter.

q. Adjust RF GAIN control to obtain a 3-volt VTVM indication.

r. Decrease the signal generator output frequency until VTVM indication is 2.12 vdc. The frequency shall be 19.900 (±0.150) mc.

s. Increase the signal generator output frequency past 21.4 mc until the VTVM indication is 2.12 vdc. The frequency shall be 22.900 (±0.150) mc.

t. Replace V304

5-54. 40/75-KC BANDWIDTH IF AMPLIFIER RESPONSE

a. Connect equipment as shown in figure 5-20.

b. Remove V304 from high-band tuner.

c. Set bandswitch to 60-260 MC.

d. Set IF BANDWIDTH KC switch to 40.

e. Set function switch to FM.

f. Select the 30-volt VTVM scale.

g. Short the test leads together and use the zero set to set the indicator to midscale (15-volt).

h. Connect the VTVM to E502.

i. Adjust signal generator to provide a 10-mv cw signal at 21.4 mc.

j. Adjust frequency of signal generator to obtain a midscale (15-volt) indication on VTVM. The electronic counter shall indicate 21.4 (±0.002) mc.

k. Set function switch to AM MAN.

l. Select 3-vdc VTVM scale.

m. Short test leads together and reset meter to zero.

n. Connect VTVM to E501.

o. Rotate RF GAIN control fully clockwise.

p. Adjust frequency of signal generator to 21.4 mc as monitored by the electronic counter.

q. Adjust RF GAIN control to obtain a 3-volt VTVM indication.

r. Decrease the signal generator output frequency until VTVM indication is 2.12 vdc. The frequency shall be 19.900 (±0.150) mc.

s. Increase the signal generator output frequency until VTVM indication is 2.12 vdc. The frequency shall be 21.42 (±0.002) mc.

t. Replace V304.

5-55. 10-KC BANDWIDTH IF AMPLIFIER RESPONSE

a. Connect equipment as shown in figure 5-20.

b. Remove V304 from high-band tuner.

c. Set bandswitch to 60-260 MC.

d. Set IF BANDWIDTH KC switch to 10.

e. Set function switch to FM.

f. Select the 30-volt VTVM scale.

g. Short the test leads together and use the zero set to set the indicator to midscale (15 volts).

h. Connect the VTVM to E602.

i. Adjust signal generator to provide a 10-mv CW signal at 21.4 mc.

j. Adjust frequency of signal generator to obtain a midscale (15-volt) indication on VTVM. The electronic counter should indicate 21.4 (±0.001) mc.

k. Set function switch to AM MAN.

l. Select 3-vdc VTVM scale.

m. Short test leads together and reset meter to zero.

n. Connect VTVM to TP601.

o. Rotate RF GAIN control fully clockwise.

p. Adjust frequency of signal generator to 21.4 mc as monitored by the electronic counter.

q. Adjust RF GAIN control to obtain a 3-volt VTVM indication.

r. Decrease the signal generator output frequency until VTVM indication is 2.12 vdc. The frequency shall be 21.395 (±0.001) mc.

s. Increase the signal generator output frequency until VTVM indication is 2.12 vdc. The frequency shall be 21.405 (±0.001) mc.

t. Replace V304.

5-56. AM VIDEO OUTPUT LEVEL

Each IF strip requires a separate am video output level test. Use the high-band tuner to perform all three tests.

5-57. 3-MC Bandwidth AM Video

a. Connect equipment as shown in figure 5-21.

AM VIDEO OUTPUT TEST SETUP

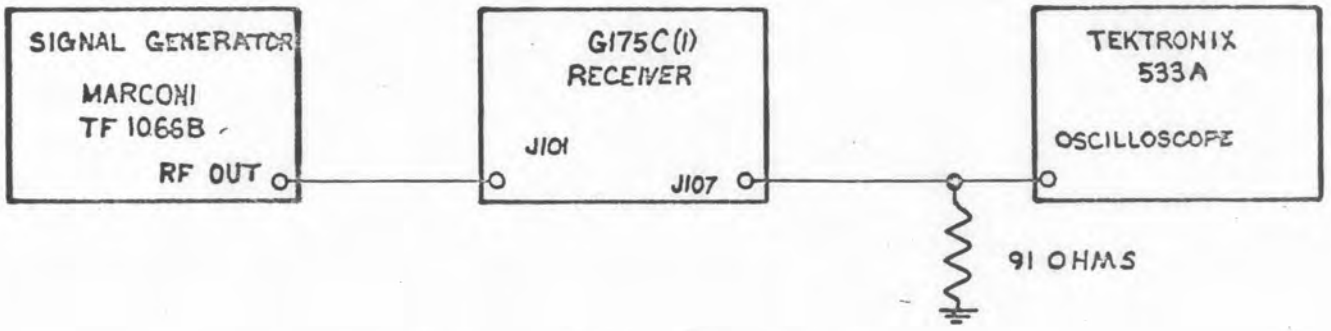


Figure 5-21

b. Set bandswitch to 60-260 MC position

c. Set IF BANDWIDTH KC switch to 3K.

d. Set function switch to AM AGC.

e. Adjust signal generator to provide a 10-mv CW signal at 250 mc with 50% modulation at 1 kc.

f. Tune the receiver to the test signal.

g. Adjust the AUDIO VIDEO GAIN control to obtain the maximum unclipped sine wave display on the oscilloscope. It should be 2.0 volts peak-to-peak or greater.

5-58. 40-KC Bandwidth AM Video

a. Connect equipment as shown in figure 5-21.

b. Set bandswitch to 60-260 MC.

c. Set function switch to AM AGC.

d. Adjust signal generator to provide a 10-mv CW signal at 250 mc with 50% modulation at 1 kc.

e. Adjust the AUDIO VIDEO GAIN control to obtain the maximum unclipped sine wave display on the oscilloscope. It should be 2.0 volts peak-to-peak or greater.

5-59. 10-KC Bandwidth AM Video

a. Connect equipment as shown in figure 5-21.

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 10.

d. Set function switch to AM AGC.

e. Adjust signal generator to provide a 10-mv CW signal at 250 mc with 50% modulation at 1 kc.

f. Tune the receiver to the test signal.

g. Adjust the AUDIO VIDEO GAIN control to obtain the maximum unclipped sine wave display on the oscilloscope. It should be 2.0 volts peak-to-peak or greater.

5-60. FM VIDEO OUTPUT LEVEL

Each IF strip requires a separate fm video output level test. Use the high-band tuner to perform all three tests.

5-61. 3-MC Bandwidth FM Video

a. Connect equipment as shown in figure 5-21.

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 3K.

d. Set function switch to FM.

e. Adjust signal generator to provide a 10-mv 250-mc signal with 100-kc deviation at a 1-kc rate.

f. Tune the receiver to the test signal.

g. Adjust the AUDIO VIDEO GAIN control to obtain the maximum unclipped sine wave display on the oscilloscope. It should be 2.0 volts peak-to-peak or greater.

5-62. 40-KC Bandwidth FM Video

a. Connect equipment as shown in figure 5-21.

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 40.

d. Set function switch to FM.

e. Adjust signal generator to provide a 10-mv, 250-mc signal with 100-kc deviation at a 1-kc rate.

f. Tune the receiver to the test signal.

g. Adjust the AUDIO VIDEO GAIN control to obtain the maximum unclipped sine wave display on the oscilloscope. It should be 2.0 volts peak-to-peak or greater.

5-63. 10-KC Bandwidth FM Video

a. Connect equipment as shown in figure 5-21

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 10.

d. Set function switch to FM.

e. Adjust signal generator to provide a 10-mv, 250-mc signal with 100-kc deviation at a 1-kc rate.

f. Tune the receiver to the test signal.

g. Adjust the AUDIO VIDEO GAIN control to obtain the maximum unclipped sine wave display on the oscilloscope. It should be 2.0 volts peak-to-peak or greater.

5-64. AUDIO OUTPUT

a. Connect equipment as shown in figure 5-22.

AUDIO OUTPUT TEST SETUP

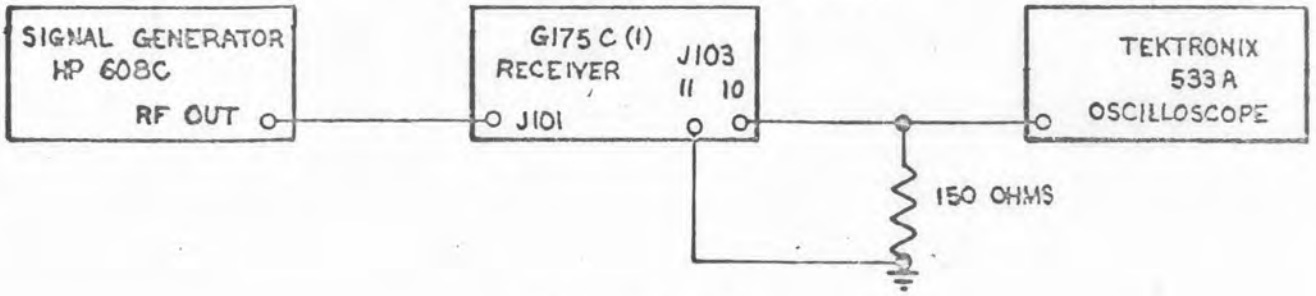


Figure 5-22

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 3K.

d. Set function switch to AM AGC.

e. Adjust signal generator to provide a 100-μv CW signal at 250 mc with 50% modulation at a 1-kc rate.

f. Tune the receiver to the test signal.

g. Adjust the AUDIO VIDEO GAIN control to obtain the maximum unclipped sine wave display on the oscilloscope. It should be 11 volts peak-to-peak or greater.

5-65. LOCAL OSCILLATOR OUTPUTS

Each tuner requires a separate local oscillator output test. Both tests are presented in the following paragraphs.

5-66. Low-band Local Oscillator

a. Connect equipment as shown in figure 5-23.

LOCAL OSCILLATOR OUTPUT TEST SETUP

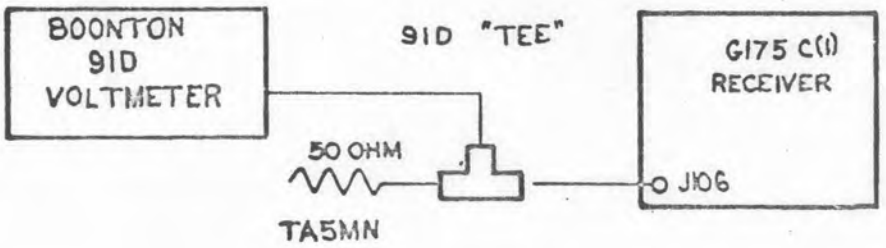


Figure 5-23

b. Set bandswitch to 30-90 MC.

c. Tune across the low band from 30 to 90 mc. The local oscillator output indication on the VTVM shall be 300 (±100) mv.

5-67. High-Band Local Oscillator

a. Connect equipment as shown in figure 5-23.

b. Set bandswitch to 60-260 MC.

c. Tune across the high band from 60 to 260 mc. The local oscillator output indication on the VTVM shall be 300 (±100) mv.

5-68. AM OUTPUT STABILITY

a. Connect equipment as shown in figure 5-18.

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 40.

d. Set function switch to AM AGC.

e. Adjust signal generator to provide a 10-μv signal at 250 mc with 50% modulation at 1 kc.

f. Tune the receiver to the test signal.

g. Record VTVM indication.

h. Increase signal generator output to 1.0 mv. Avoid saturation of the video stage.

i. The VTVM indication should not increase by more than 7 db.

5-69. FM OUTPUT STABILITY

a. Connect equipment as shown in figure 5-19.

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 40.

d. Set function switch to FM.

e. Adjust signal generator to provide a 2-μv signal at 60 mc with 15-kc deviation at a 1-kc rate.

f. Tune the receiver to the test signal.

g. Record the VTVM indication

h. Increase signal generator output to 10 mv.

i. Note VTVM indication. It should not have increased more than 2 db.

5-70. CARRIER OPERATED RELAY

The carrier operated relay (COR) circuit requires three seperate tests. They are presented in the following paragraphs.

5-71. COR Sensitivity.

a. Connect equipment as shown in figure 5-24.

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 3K.

d. Set function switch to AM AGC.

e. Adjust signal generator to provide a 250-mc CW signal.

f. Tune the receiver to the test signal.

g. Turn off the test signal

h. Carefully adjust the COR SENS control for maximum sensitivity that will not cause the COR indicator lamp to illuminate without an input signal.

i. Turn on the test signal.

j. Increase signal generator output level to 7 μv. The COR indicator lamp should illuminate.

k. Increase signal generator output level to 1.0 mv.

l. Decrease COR sensitivity until COR indicator lamp is extinguished.

m. Set IF BANDWIDTH KC switch to 40.

n. Repeat steps e through 1.

o. Set IF BANDWIDTH KC switch to 10.

p. Repeat steps e through 1.

COR TEST SETUP

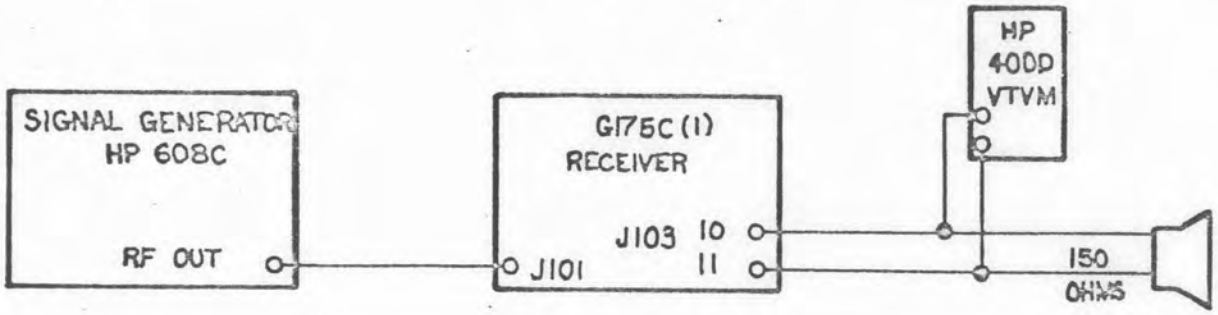


Figure 5-24

5-72. COR Drop-out Delay

a. Set bandswitch to 60-260 MC.

b. Set function switch to AM AGC.

c. Set IF BANDWIDTH KC switch to 3K.

d. Adjust signal generator to provide a 10-μv CW signal at 250 mc.

e. Tune the receiver to the test signal.

f. Adjust the COR to energize with the 10-μv signal.

g. Increase the signal generator output to 100 μv.

h. Set the COR DELAY switch to provide a 3-second delay.

i. Remove the test signal and time the drop-out delay with a stopwatch. The delay period is not critical. It is considered acceptable if the delay is 3 (±0.6) seconds.

j. Set the COR DELAY switch to provide a 5-second delay and apply the test signal.

k. Remove the test signal and time the drop-out delay. It is acceptable if the delay is 5 (±1.0) seconds.

l. Set the COR DELAY switch to provide a 7-second delay and apply the test signal.

m. Remove the test signal and time the drop-out delay. It is acceptable if the delay is 7 (±1.4) seconds.

n. Set the COR DELAY switch to provide a 10-second delay and apply the test signal.

o. Remove the test signal and time the drop-out delay. It is acceptable if the delay is 10 (±2.0) seconds.

5-73. COR Drop-Out Delay Override

a. Set bandswitch to 60-260 MC.

b. Set function switch to AM AGC.

c. Set IF BANDWIDTH KC switch to 3K.

d. Adjust signal generator to provide a 100-μv CW signal at 250 mc modulated 50% at 1 kc.

e. Tune the receiver to the test signal.

f. Remove the test signal and, while the COR is in delay mode, press the COR DELAY DISABLE pushbutton. The COR delay indicator lamp shall extinguish immediately.

5-74. SQUELCH SENSITIVITY

a. Set bandswitch to 60-260 MC.

b. Set function switch to AM AGC.

c. Set IF BANDWIDTH KC switch to 3K.

d. Rotate AUDIO VIDEO GAIN control fully clockwise.

e. Adjust signal generator to provide a 4-μv signal at 250 mc modulated 50% at I kc.

f. Tune the receiver to the test signal.

g. Reduce and remove the test signal.

h. Carefully adjust the SQUELCH SENSITIVITY control to slightly below the point which will mute the receiver.

i. Apply the test signal and increase to 4.0 μv. A 1-kc tone should be heard from the speaker.

j. Adjust signal generator to 1.0 mv output level.

k. Record VTVM indication.

l. Decrease squelch sensitivity until audio output is muted. The muted output should be at least 35 db below normal output as recorded.

m. Repeat steps c through 1 for 40-kc and 10-kc bandwidths.

5-75. HIGH-BAND HELIPOT

a. Connect equipment as shown in figure 5-25.

HELIPOT TEST SETUP

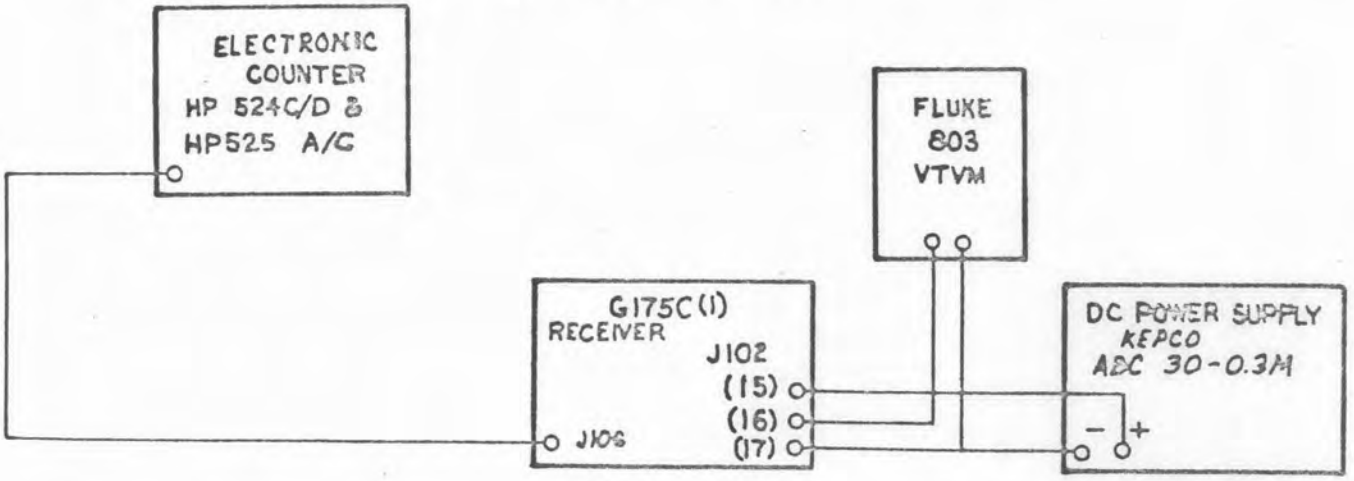


Figure 5-25

b. Tune the receiver to 60 mc. This will produce a local oscillator output frequency of 81.4 (±0.100) mc, as monitored by the electronic counter.

c. Rotate FINE TUNING and BFO controls fully clockwise.

d. Apply 28 (±0.01) vdc between pins 15 and 17 (ground) of J102.

e. Check voltage between pins 16 and 17 of J102. It should be 25.705 (±0.010) vdc.

f. If the voltage between pins 16 and 17 is out of tolerance, loosen set screws on the helipot driving gear and rotate the shaft as necessary. Tighten the set screws when finished.

g. Tune the receiver to 250 mc. This will produce a local oscillator frequency of 271.4 (±0.200) mc, as monitored by the electronic counter.

h. Check voltage between pins 16 and 17. It should be 2.71 (±0.5) vdc. If voltage is out of tolerance repeat step f.

5-76. SWITCH FUNCTIONS

The receiver has several built-in switches that provide for external control functions by completing a circuit to ground. A multimeter, set to the ohms scale, is used to make the following continuity checks.

CAUTION

Remove power from the receiver before starting the checks.

a. Pin 4 of J102 is grounded when high band is tuned between 175 and 260 mc with the bandswitch set to 60-260 MC. Switching to an open circuit occurs while tuning between 180 and 170 mc.

b. Pin 5 of J102 is grounded when high band is tuned between 60 and 175 mc with the bandswitch set to 60-260 MC. Switching to an open circuit occurs while tuning between 170 and 180 mc.

c. Pin 6 of J102 is grounded when bandswitch is set to 30-90 MC.

d. Pin 7 of J102 is grounded when bandswitch is set to 60-260 MC.

e. Pin 9 of J102 is grounded when function switch is set to AM AGC.

f. Pin 10 of J102 is grounded when function switch is set to FM.

g. Pin 11 of J102 is grounded when function switch is set to CW.

h. Pin 18 of J102 is grounded when function switch is set to AM MAN.

i. Pin 4 of J103 is grounded when 10-kc bandwidth is selected.

j. Pin 5 of J103 is grounded when 40-kc bandwidth is selected.

k. Pin 6 of J103 is grounded when 3-mc bandwidth is selected.

l. Pin 8 of J103 is grounded when low band is tuned between 30 and 60 mc with the bandswitch set to 30-90 MC. Switching to an open circuit occurs while tuning around 60 (±5) mc.

m. Pin 9 of J103 is grounded when low band is tuned between 60 and 90 mc. Switching to an open circuit occurs while tuning around 60 (±5) mc.

5-77. BEAT FREQUENCY OSCILLATOR

a. Connect equipment as shown in figure 5-21.

b. Set bandswitch to 60-260 MC.

c. Set IF BANDWIDTH KC switch to 40.

d. Set function switch to CW.

e. Adjust signal generator to provide a 2-μv CW signal at 250 mc.

f. Tune the receiver to the test signal.

g. Adjust FINE TUNING control to obtain zero beat as observed on oscilloscope.

h. Verify that the output beat is variable at least ±15 kc, as monitored on the oscilloscope, by rotating the BFO control fully clockwise and counterclockwise from midrange.

i. Set bandswitch to 30-90 MC.

j. Adjust signal generator to provide a 2-μv CW signal at 60 mc.

k. Repeat steps f, g, and h.

5-78. AUDIO RESPONSE AND DISTORTION

a. Connect the equipment as shown in figure 5-26.

AUDIO RESPONSE AND DISTORTION TEST SETUP

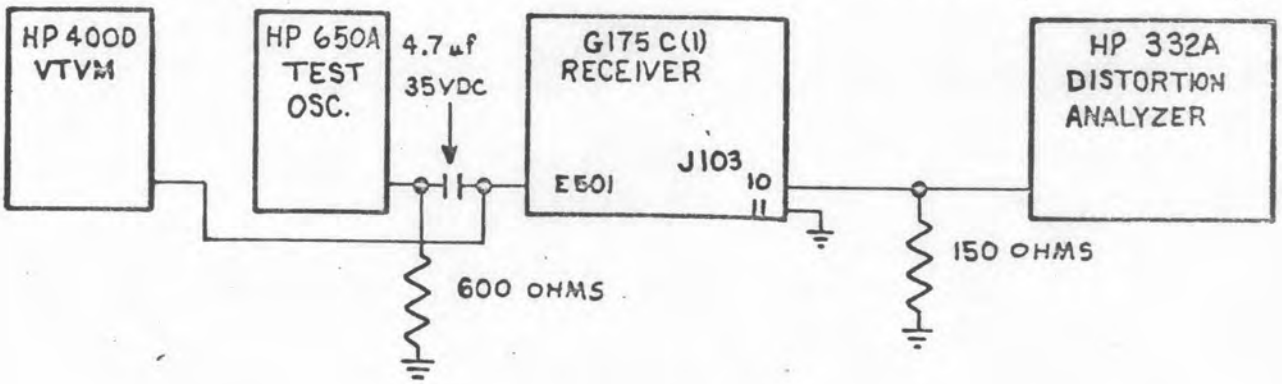


Figure 5-26

b. Set IF BANDWIDTH KC switch to 40.

c. Set function switch to AM MAN.

d. Rotate RF GAIN control fully counterclockwise.

e. Rotate AUDIO VIDEO GAIN control fully clockwise.

f. Adjust the signal generator to produce a 50-cps signal of sufficient magnitude to provide an output signal of 3.9 volts rms at J103.

g. Record the input level.

h. Read the signal output distortion with the distortion analyzer. Distortion should not exceed 5%.

i. Repeat steps f through h, using the input frequencies listed below. Reset input level as necessary to maintain 3.9 volts out. The input level should not vary more than 3 db for the frequency range. Distortion should not exceed 5% from 50 cps to 10 kc, and 10% between 10 and 25 kc.

100 cps	1 kc	10 kc
200 cps	2 kc	20 kc
500 cps	5 kc	25 kc

5-79. VIDEO RESPONSE AND DISTORTION

a. Connect equipment as shown in figure 5-27.

VIDEO RESPONSE AND DISTORTION TEST SETUP

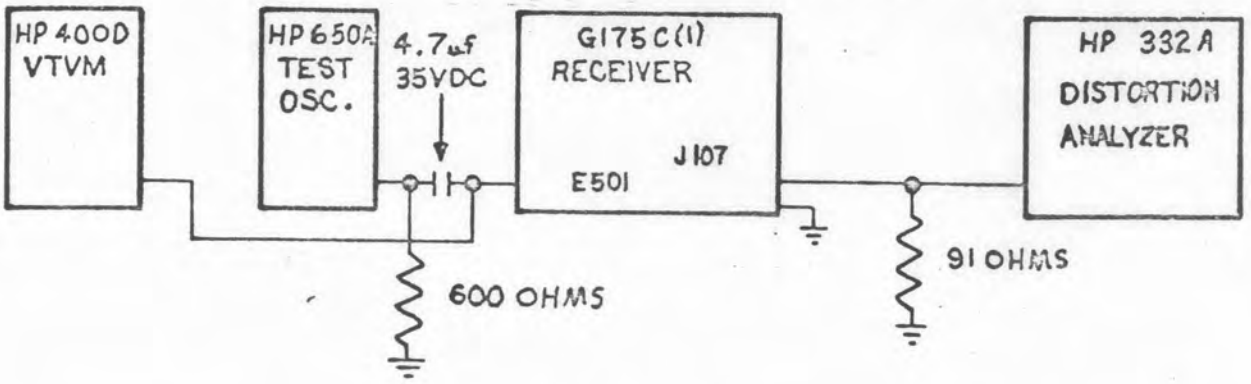


Figure 5-27

b. Set IF BANDWIDTH KC switch to 40.

c. Set function switch to AM MAN.

d. Rotate RF GAIN control fully counterclockwise.

e. Rotate AUDIO VIDEO GAIN control fully clockwise.

f. Adjust the signal generator to produce a 20-cps signal of sufficient magnitude to produce an output signal of 0.71 volts rms at J107.

g. Record the input level.

h. Read the output signal distortion with the distortion analyzer. Distortion should not exceed 5%.

i. Repeat steps f through h, using the input frequencies listed below. Reset input level as necessary to maintain 3.9 volts out. The input level should not vary more than 3 db for the frequency range.

100 cps	1 kc	10 kc	100 kc	1 mc
200 cps	2 kc	20 kc	200 kc	2 mc
500 cps	5 kc	50 kc	500 kc	3 mc

NOTE

Since the upper frequency limit of the distortion analyzer is slightly above 600 kc, the distortion figure is meaningless above the 500-kc step. However, the input level should not vary more than 3 db over the full frequency range.

5-80. UNSCHEDULED MAINTENANCE

Most troubles experienced with the receiver will be caused by failures of the fuse, vacuum tubes, or diodes. When any of these are suspected, they should be replaced with parts known to be good before attempting any other troubleshooting. A troubleshooting chart, figure 5-28 is supplemented by a list of tube socket voltages, figure 5-29, and a list of tube socket resistances to ground, figure 5-30. Another list, figure 5-31, contains both the voltages and the resistances to ground for the plug-in module boards.

5-81. SUBASSEMBLY REPLACEMENT

The plug-in modules are removed by pulling them out of their receptacles. The numbers on the pins of the modules correspond to those circled on the schematic diagrams of the modules. To remove any one of the three IF subassemblies, it is necessary to remove four screws holding the subassembly to the main chassis. A Winchester cable plug and appropriate BNC connectors are then disconnected. The subassembly can then be lifted out of the receiver.

5-82. MAINTENANCE OF GEAR TRAIN AND TUNING DIALS

A friction drive assembly in the gear train tuning mechanism relies on stops in the inductuners to determine the limits of tuning. The only maintenance normally required is the occasional application of a few drops of light oil to shaft bearings. Use care to prevent

oil from getting on the friction drive plates. The tuning dials are rigidly attached to their shafts and are geared to the tuners in a manner that makes it unlikely that they will ever get out of position; however, if realignment of either dial becomes necessary, use the following steps.

a. Loosen the coupling between the gear train shaft and the inductuner shaft.

b. Rotate the inductuner shaft, independent of the gear train, fully clockwise.

c. For the low band, turn the dial until the hairline is at the second mark above 90 mc. For the high band, turn the dial until the hairline is at the first mark above 260 mc.

d. Tighten the coupling between the gear train and inductuner shaft.

e. Check operation by rotating the tuning crank counterclockwise until the inductuner stops. The dial should be set at the mark just below 30 mc on the low band, or just below 60 mc on the high band.

TROUBLESHOOTING CHART, G175C(1) RECEIVER

SYMPTOM	PROBABLE CAUSE	REMEDY
No Power	Blown Fuse	Locate cause of blown fuse, correct, and replace fuse.
No spectrum display output signal	Defective tuner	Refer to figures 5-29 and 5-30 for voltages and resistances to ground for tubes of tuner in question. Localize trouble to stage within tuner, locate faulty component and replace.
Spectrum display output signal present but no video or audio output available on one of the receiver bandwidths	Faulty intermediate frequency strip	Refer to figures 5-29 and 5-30 for voltages and resistances to ground for tubes of intermediate frequency strip in question. Localize trouble to stage within strip, locate faulty component and replace.
Spectrum display unit output signal and video signal present, on all bandwidths, but no audio output	Faulty audio module	Replace module.
Spectrum display unit and audio signal present on all bandwidths, but no video output	Faulty video module	Replace module.
Spectrum display unit output signal, audio signal, and video signal present, and carrier-operated relay operative on all bandwidths but squelch inoperative	Faulty squelch module	Replace module.
Spectrum display unit output signal, audio signal, video signal present, and squelch operative, but carrier-operated relay inoperative	a. Faulty carrier-operated relay module b. Faulty carrier-operated relay	a. Replace module. b. Replace relay.

Figure 5-28

TUBE SOCKET PIN VOLTAGES, G175C(1) RECEIVER

SYMBOL	TYPE	TUBE SOCKET PIN NUMBERS					PLATE CAP	GRID	CATHODE	HEATER	HEATER
		2	4	8	10	12					
V201	6CW4	75	-0.35	0	6.3 AC	0					
V202	6CW4	125	74.5	75	6.3 AC	0					
V203	7587	13	-0.65*	0	0	6.3 AC	160				
V204	6CW4	76	-3.8*	0	6.3 AC	0					
V301	7077						100	0	1.15	6.3 AC	0
V302	7077						100	0	1.45	6.3 AC	0
V303	7587	21	-0.9*	0	0	6.3 AC	170				
V304	6CW4	80	-3.5*	0	6.3 AC	0					
V401	7587	24	-0.3*	0	0	6.3 AC	102				
V402	7587	33	-0.9*	0.10	0	6.3 AC	107				
V403	7587	11	-0.28*	0.05	0	6.3 AC	116				
V404	7587	16	-0.38*	0	0	6.3 AC	12				
V501	7587	18	-0.55*	0	0	6.3 AC	105				
V502	7587	10	-3.4*	0	0	6.3 AC	107				
V503	7587	4.7	-0.34*	0.02	0	6.3 AC	118				
V504	7587	11	-1.06*	0	0	6.3 AC	8.2				
V505	6CW4	82	24*	34	0	6.3 AC					
V601	7587	21	-0.64*	0	6.3 AC	0	102				
V602	7587	30	-2.2*	0	6.3 AC	0	105				
V603	7587	8.5	-0.38*	0.05	6.3 AC	0	114				
V604	7587	16	-0.40	0	6.3 AC	0	14				
V605	6CW4	90	62*	66*	6.3 AC	0					

NOTES: All voltages are positive DC measured with respect to ground unless otherwise indicated. Readings taken using G410B VTVM under the following conditions: shorts to ground connected to antenna inputs, all gain control voltage points, and signal inputs of IF strips; local oscillator output terminated with 50 ohms; function switch in FM mode; all rotary controls turned fully clockwise; primary power source 115 VAC, 60-420 cps; bandswitch at 30-90 MC position when measuring at V201 through V204, at 60-260 MC position when measuring at V301 through V303; IF BANDWIDTH KC switch at 3 K position when measuring at V401 through V404, at 40 position when measuring at V501 through V505, and at 10 position when measuring at V601 through V605.

* Reading varies with dial setting.

Figure 5-29

TUBE SOCKET PIN RESISTANCES TO GROUND, G175C(1) RECEIVER

SYMBOL	TYPE	TUBE SOCKET PIN NUMBERS					PLATE CAP	GRID	CATHODE	HEATER	HEATER
		2	4	8	10	12					
V201	6CW4		180K	0	0.1	0					
V202	6CW4	70K			0.1	0					
V203	7587	300K	1 MEGO	0	0	0.1	70K				
V204	6CW4	100K	22K	0	0.1	0					
V301	7077						130K	90K	3100	0.2	0
V302	7077						120K	0	3100	0.2	0
V303	7587	280K	0.9 MEGO	0	0.1	0					
V304	6CW4	80K	47K	0	0	0.1					
V401	7587	130K	0	18	0	0.1	42K				
V402	7587	130K	330K	27	0	0.1	42K				
V403	7587	6.2K	50K	30	0	0.1	40K				
V404	7587	140K	40K	0	0	0.1	100K				
V501	7587	156K	220K	0	0	0.1	60K				
V502	7587	1.1 MEGO	1 MEGO	0	0	0.1	75K				
V503	7587	4.6K	50K	56	0	0.1	60K				
V504	7587	270K	40K	0	0	0.1	220K				
V505	6CW4	80K	122K	22K	0	0.1					
V601	7587	154K	220K	0	0.1	0	60K				
V602	7587	160K	1 MEGO	0	0.1	0	64K				
V603	7587	10K	50K	56	0.1	0	60K				
V604	7587	240K	42K	0	0.1	0	160K				
V605	6CW4	85K	200K	100K	0.1	0					

NOTES: All resistances measured in ohms using G410B VTVM under the following conditions: shorts to ground connected to antenna inputs, all gain control voltage points, and signal inputs of IF strips; local oscillator output terminated with 50 ohms; function switch in FM mode; all rotary controls turned fully clockwise; bandswitch at 30-90 MC position when measuring at V201 through V204, at 60-260 MC position when measuring at V301 through V303; IF BANDWIDTH KC switch at 3 K position when measuring at V401 through V404, at 40 position when measuring at V501 through V505, and at 10 position when measuring at V601 through V605.

Figure 5-30

MODULE PIN VOLTAGES AND RESISTANCES TO GROUND, G-175C(1) RECEIVER

PIN NUMBER	1	2	3	4	5	6
VOLTAGES	24	0.8	0	24	13	24
RESISTANCES	20K	22K	0	20K*	30K	20K

AUDIO MODULE PIN NUMBERS

PIN NUMBER	1	2	3	4	5	6	7
VOLTAGES	24	24	-0.5	0	24	0	0.8
RESISTANCES	20K	20K	70K	0	10K	0	30K

SQUELCH MODULE PIN NUMBERS

PIN NUMBER	1	2	3	4	5	6	7	8	9
VOLTAGES	-13	0	0	-13	-24	6	24	12	0
RESISTANCES	4K	0	3K	15K	35K	17K	4.9K	6.4K	0

VIDEO MODULE PIN NUMBERS

PIN NUMBER	1	2	3	4	5	6	7	8
VOLTAGES	24	0	-0.12	0	24	24	0	-0.1
RESISTANCES	20K	0	75K	0	10K	20K	0	62K

CARRIER-OPERATED RELAY PIN NUMBERS

NOTES: All voltages are positive direct current measured with respect to ground unless otherwise indicated, using a primary power source of 115 volts alternating current 60-420 cycles per second. Both voltage and resistance readings taken using G410B (set at RX1K for resistances) VTVM and probe under the following conditions: shorts to ground connected to antenna inputs, gain control voltage line, and signal inputs of intermediate frequency strips; local oscillator output terminated with 50 ohms, function switch at AGC MAN position; all rotary controls turned fully clockwise.

Figure 5-31

SECTION VI

ILLUSTRATED PARTS BREAKDOWN

INTRODUCTION

PURPOSE AND FORMAT

This Illustrated Parts Breakdown lists and describes electrical and mechanical parts to assist in requisitioning, storing, and identifying spare parts. Four major parts comprise this section: (1) Introduction, (2) Group Assembly Parts Breakdown, (3) Numerical Index, and (4) Reference Designation Index.

SUMMARY OF CONTENTS

INTRODUCTION

Included in the Introduction are: (1) Purpose and Format, (2) Summary of Contents, (3) How to Use, (4) Abbreviations, and (5) List of Manufacturers' Codes and Addresses.

GROUP ASSEMBLY PARTS BREAKDOWN

The Group Assembly Parts Breakdown contains illustrations and parts lists of installations, assemblies, and detailed parts. The illustrations and text are arranged according to function and/or next assembly. When it is necessary to show a subassembly in detail, and it is not possible to do so in the same illustration as its major assembly, it is referenced to another illustration in which the subassembly is exploded in as much detail as necessary and its component parts listed in the accompanying text.

The nomenclature of each part, the units per assembly, and the usable on code, if any, are listed to the right of the part number in the text. Next assembly sequence is determined by indenture position; that is, a part listed one column to the right of the position of the part above it is a component of that assembly or installation. The first indenture line in the text is used for the text title and is not used to show part relationship. Attaching parts are shown directly below in the same indenture column as the parts they attach.

When a manufacturer's part is listed, the manufacturer's code is given in the nomenclature along with any other information thought necessary or helpful. Alternate manufacturers are given when available. The manufacturer's name and address may be found from the code

symbol by consulting the "List of Manufacturers' Codes and Addresses" in the Introduction. The codes are in accordance with Federal Supply Code for Manufacturers, cataloging handbook H4-1.

The manufacturer's code for LTV Electrosystems, Inc. is 05395 and will not appear in the text unless the part numbers are dissimilar to the examples noted below.

(1) GM906-02041-2
(2) GS102-00031-1
(3) G000035-1
(4) G159-01000-1
(5) TAS8601
(6) TS2114-6A8
(7) 8082-19002-3

The column entitled "Usable on Code" is not utilized in this publication.

The number of parts given under the column entitled "Units per Assembly" constitute that number required to make up a single assembly.

Left- and right-hand parts are listed separately. Component parts of left- and right-hand assemblies are identified by determining next assembly order. When a left- or right-hand assembly has both left- and right-hand parts as components, the nomenclature will show the assembly to which each belongs.

NUMERICAL INDEX

Each part number appearing in the Group Assembly Parts Breakdown is listed in the Numerical Index. This index is compiled in accordance with the numerical part number filing system described below. Read part numbers from left to right, one digit at a time, to determine part number numerical arrangement. The order of precedence in part number numerical arrangement is as follows:

(1) Space (blank column)
(2) Dash (-)
(3) Letters A thru Z
(4) Numerals 0 thru 9

All part numbers are listed with the figure and index number of each appearance.

The column entitled "Stock Number" is not utilized in this publication.

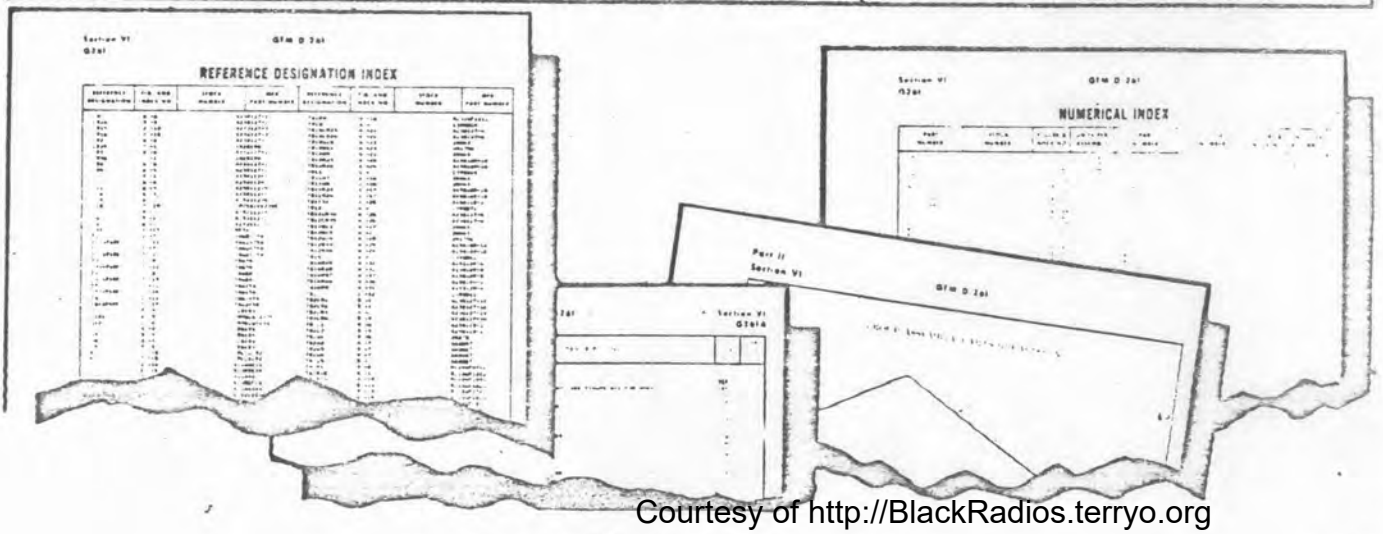
REFERENCE DESIGNATION INDEX

The Reference Designation Index includes all components of electronic equipment having reference designators.

The Reference Designation Index is divided into four columns consisting of the following: (1) REFERENCE DESIGNATION - Reference designators listed in alphanumerical order; (2) FIG. AND INDEX NO. - Used to locate the corresponding part in the Group Assembly Parts Breakdown; (3) STOCK NUMBER - This column is not used in this publication; and (4) MFR PART NUMBER - The part number assigned by the manufacturer of the part.

HOW TO USE

KNOWN ⇩	MFR PART NO.	REFERENCE DESIGNATION NO. (COMPONENT NUMBERS ON SCHEMATICS)
WANT TO KNOW ⇩	SEQUENCE OF ASSEMBLY	MFR PART NO., DESCRIPTION, AND WHERE PART IS PHYSICALLY INSTALLED
SOLUTION ⇩	IN NUMERICAL INDEX FIND MFR PART NUMBER. SEQUENCE OF ASSEMBLY MAY BE FOUND ON INDICATED FIGURE AND INDEX NO. IN GROUP ASSEMBLY PARTS BREAKDOWN.	IN REFERENCE DESIGNATION INDEX FIND REFERENCE DESIGNATION NUMBER. FIND MFR PART NO., DESCRIPTION, AND WHERE PART IS PHYSICALLY INSTALLED ON INDICATED FIGURE AND INDEX NO. IN GROUP ASSEMBLY PARTS BREAKDOWN.



ABBREVIATIONS

AR..... As Required
ASSY.... Assembly
COMP... Composition
F..... Farad
FIG..... Figure
GMV.... Guaranteed Minimum Value
H..... Henry
INSTL... Installation
K..... Kilohm or Kilo (10^3)
MEGO... Megohms
N..... Nano (10^{-9})
NHA.... Next Higher Assembly
NP..... Nonprocurable
P..... Pico (10^{-12})
REF.... Reference
U..... Micro (10^{-6})
V..... Volts
W ..... Watts
WW..... Wire Wound

LIST OF MANUFACTURERS' CODES AND ADDRESSES

CODE	NAME AND ADDRESS
01009	Alden Products Co. 119 North Main Street Brockton, Massachusetts
01121	Allen-Bradley Co. 1201 South 2nd Street Milwaukee, Wisconsin
01281	TRW Semiconductors, Inc. 14520 Aviation Blvd. Lawndale, California
01295	Texas Instruments, Inc. Semiconductor - Components Division 13500 North Central Expressway Dallas, Texas
04013	Taurus Corp. 1 Academy Hill Lambertville, New Jersey
04211	Coastal Dynamics Corp. 219 Rose Ave. Venice, California, 90291
04314	General Electric Co. Appliance Control Dept. Bridgeport, Connecticut

LIST OF MANUFACTURERS' CODES AND ADDRESS (Cont)

CODE	NAME AND ADDRESS
04435	Jettron Products, Inc. P.O. Box 274, 56 Route 10 Hanover, New Jersey, 07936
06001	General Electric Co. Capacitor Dept. Irmo, South Carolina
07387	Birtcher Corp., The 745 Monterey Pass Road Monterey Park, California, 91755
11139	Deutsch Co. Electronic Components Division Banning, California
14632	Communication Electronics, Inc. 6006 Executive Boulevard Rockville, Maryland, 20852
15605	Cutler-Hammer, Inc. Milwaukee, Wisconsin
38315	Honeywell, Inc., Precision Meter Division Manchester, New Hampshire
49956	Raytheon Co. Microwave and Power Tube Division Administration Bldg. Waltham, Massachusetts, 02154
56289	Sprague Electric Co. North Adams, Massachusetts
56878	Standard Pressed Steel Co. P.O. Box 796 Jenkintown, Pennsylvania
71279	Cambridge Thermionic Corp. 430 Concord Avenue Cambridge, Massachusetts

LIST OF MANUFACTURERS' CODES AND ADDRESS (Cont)

CODE	NAME AND ADDRESS
71286	Camloc Fastener Corp. 22 Spring Valley Road Paramus, New Jersey
71400	Bussmann Mfg. Division of McGraw-Edison Co. 2538 West University Street St. Louis, Missouri
71744	Chicago Miniature Lamp Works 4433 Ravenswood Ave. Chicago, Illinois
71785	Cinch Mfg. Co. and Howard B. Jones Division 1026 South Homan Avenue Chicago, Illinois
72136	Electro Motive Mfg. Co., Inc., The South Park and John Streets Willimantic, Connecticut, 06226
72619	Dialight Corp. Brooklyn, New York
72982	Erie Technological Products, Inc. 644 West 12th Street Erie, Pennsylvania, 16512
73138	Helipot, Division of Beckman Instruments Inc. 2500 Harbor Blvd. Fullerton, California, 92634
73899	JFD Electronics Corp. 15th at 62nd Street Brooklyn, New York
74306	Piezo Crystal Co. Carlisle, Pennsylvania
74868	FXR, Division of Amphenol-Borg Electronics Corp. Danbury, Connecticut, 06810

LIST OF MANUFACTURERS' CODES AND ADDRESS (Cont)

CODE	NAME AND ADDRESS
75915	Littlefuse, Inc. 800 E. Northwest Hwy. Des Plaines, Illinois, 60016
76854	Oak Mfg. Co. South Main Crystal Lake, Illinois
77342	American Machine and Foundry Co. Potter and Brumfield Division RD. 64 E Princeton, Indiana, 47570
79963	Zierick Mfg. Corp. 83 Rockdale Avenue New Rochelle, New York
81312	Winchester Electronics Division Litton Industries Inc. Main Street and Hillside Avenue Oakville, Connecticut
82872	Roanwell Corp. 180 Varick Street New York, New York
86684	Radio Corp. of America Electronic Components and Devices Harrison, New Jersey
91418	Radio Materials Co. 4242 West Bryn Mawr Chicago, Illinois
91506	Augat, Inc. 33 Perry Avenue Attleboro, Massachusetts, 02703
91637	Dale Electronics, Inc. Columbus, Nebraska
91662	Elco Corp. Willow Grove, Pennsylvania

LIST OF MANUFACTURERS' CODES AND ADDRESS (Cont)

CODE	NAME AND ADDRESS
95121	Quality Components, Inc. P.O. Box 113 St. Marys, Pennsylvania, 15857
99848	Wilco Corp. P.O. Box 22186 Indianapolis, Indiana