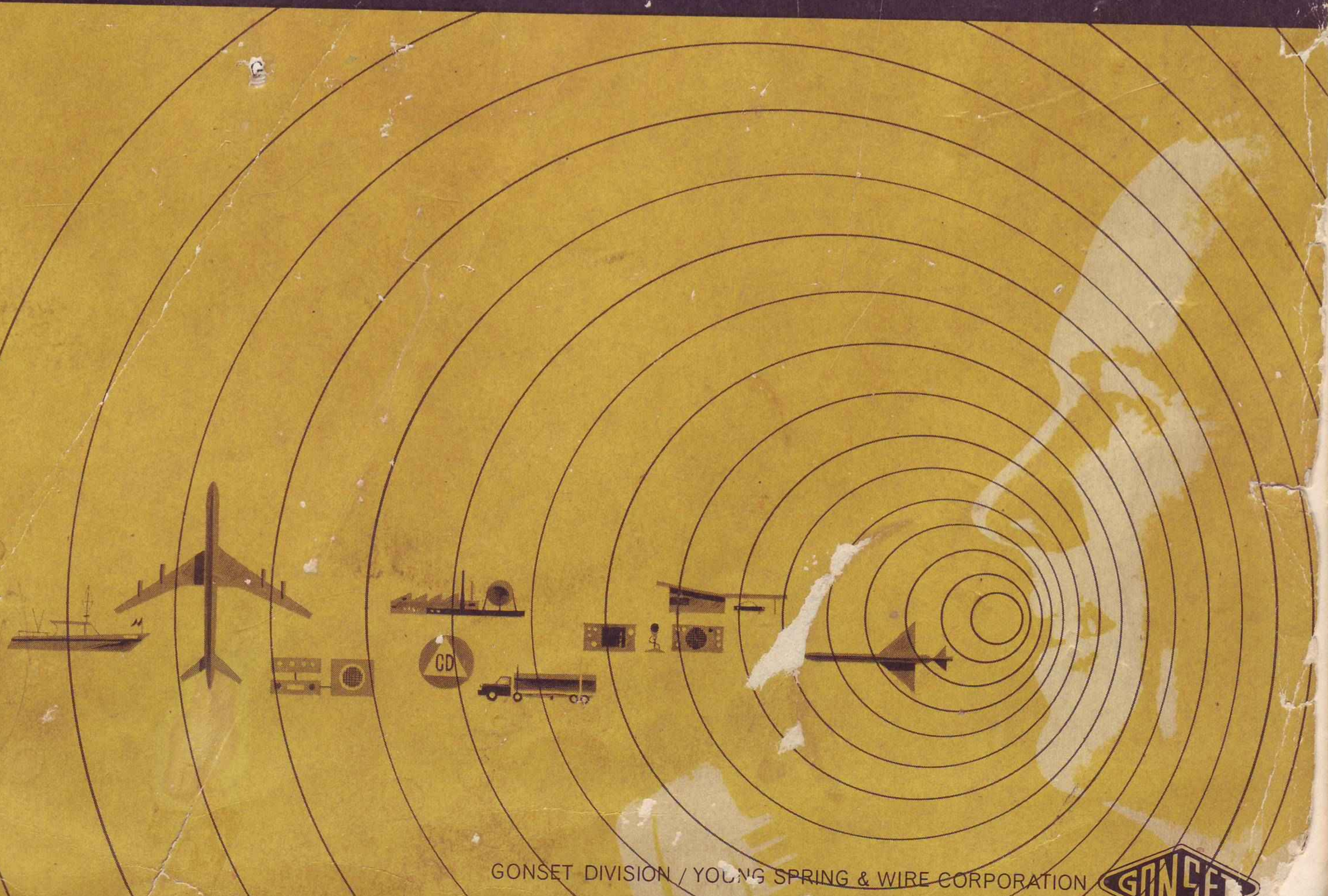
GONSET

INSTRUCTION MANUAL

G-63

AMATEUR BAND RECEIVER



GONSET DIVISION / YOUNG SPRING & WIRE CORPORATION

INSTRUCTION MANUAL

FOR

GONSET G-63

AMATEUR BAND RECEIVER

GONSET DIVISION

Young Spring & Wire Corporation

801 South Main Street

Burbank, California

MADE IN U.S.A.

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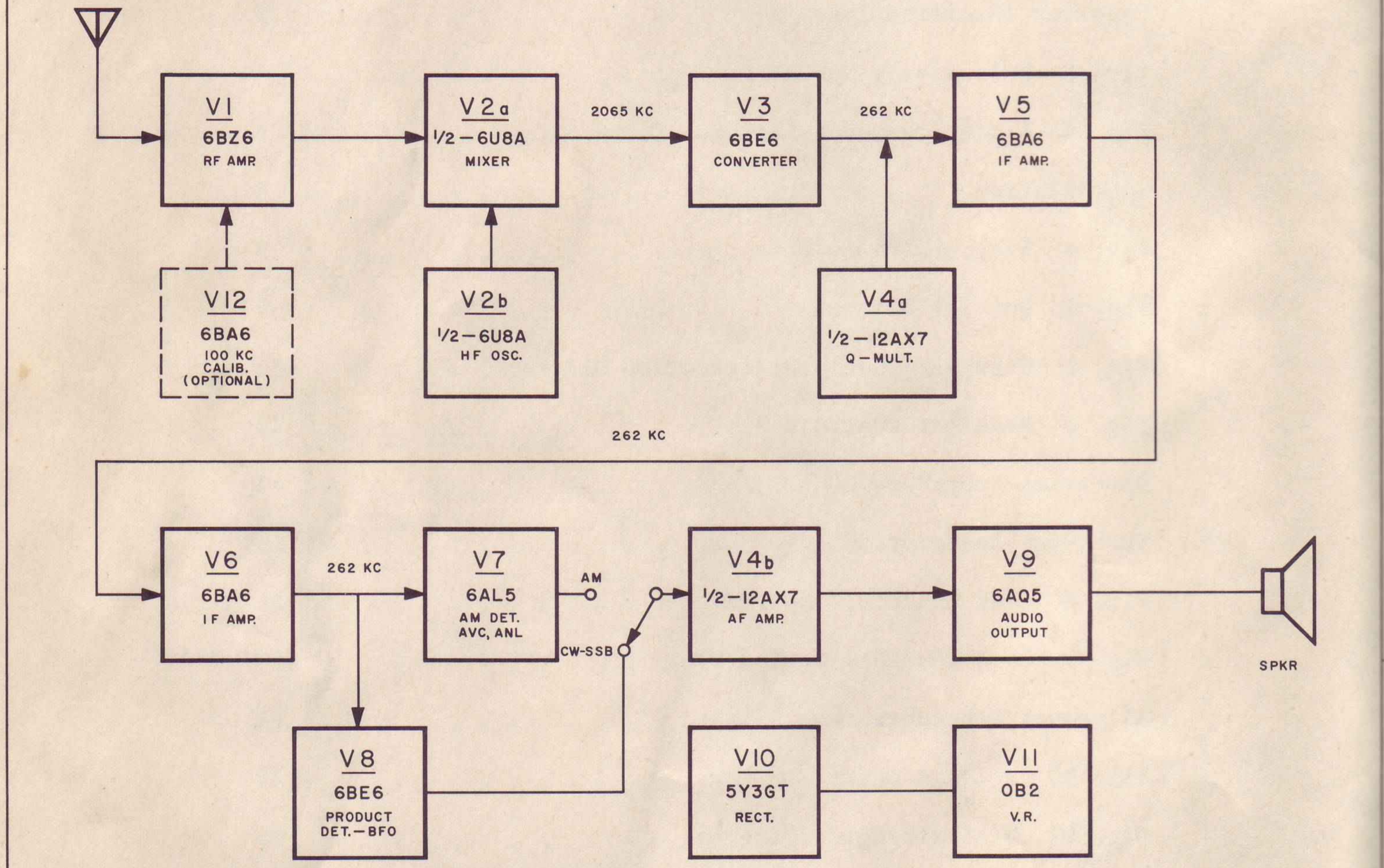


FIG. 1 G-63 BLOCK DIAGRAM

RECEIVER SPECIFICATIONS

Frequency Ranges: Band 1 -- 3.5 - 4.0 megacycles

Band 2 -- 7.0 - 7.3 megacycles

Band 3 -- 14 - 14.35 megacycles

Band 4 -- 21 - 21.45 megacycles

Band 5 -- 28 - 29.7 megacycles

Band 6 -- 50 - 54 megacycles

Sensitivity: Approximately 1 microvolt at 50 ohms for signal-plus-noise to noise ratio of 6 decibels.

Selectivity:

	Q-Multi.Off	Q-Multi.On, Near Threshold
6 db	3.3 kc	200 cycles
20 db	7.3 kc	3.5 kc
40 db	12.1 kc	8.5 kc
60 db	17 kc	13 kc

(See Fig. 2 for complete curves on selectivity)

Image Rejection:

Typical Figures:

Signal Input	Image
3.8 mc	86 db down
7 mc	73 db
14 mc	64 db
21 mc	72 db
28 mc	54 db
50 mc	40 db

Stability: Temperature compensated on all bands. Warmup drift approximately .01 per cent. Mechanical shock or vibration produces negligible frequency shift. Muting circuitry designed to produce no frequency change during transmit periods.

Antenna Input: Designed for 50 to 100 ohms unbalanced line (coaxial cable); satisfactory operation with balanced or unbalanced line from 25 to 300 ohms impedance.

Intermediate Frequencies

First I.F. - - - - - 2065 kc

Second I.F.- - - - - 262 kc

Second Oscillator

Frequency - - - - - 2327 kc

Detectors: Vacuum diode for AM. Product detector for single sideband and CW.

Noise Limiter: Automatic type, switched in or out with front panel control.

Function Selector: Special circuitry reduces switching and control juggling in changing from AM to SSB or CW to one simple operation.

Audio Output: 3.2 ohms nominal to speaker voice coil or headphones, (low or high impedance). Audio power at 3.2 ohms, 3 watts maximum. Response limited to voice range from 200 to 4000 cycles. See A.F. response curve, Fig. 3.

Power Requirements 117 volts, nominal at 50-60 cycles alternating current. Approximately 65 watts, total power consumption.

Accessories: 100 kc Crystal Calibrator, Gonset Model No. 3269. Plugs into accessory socket provided on G-63 chassis.

Matching Speaker, Gonset Model No. 3285.
Plugs into the speaker jack on the back of the G-63.

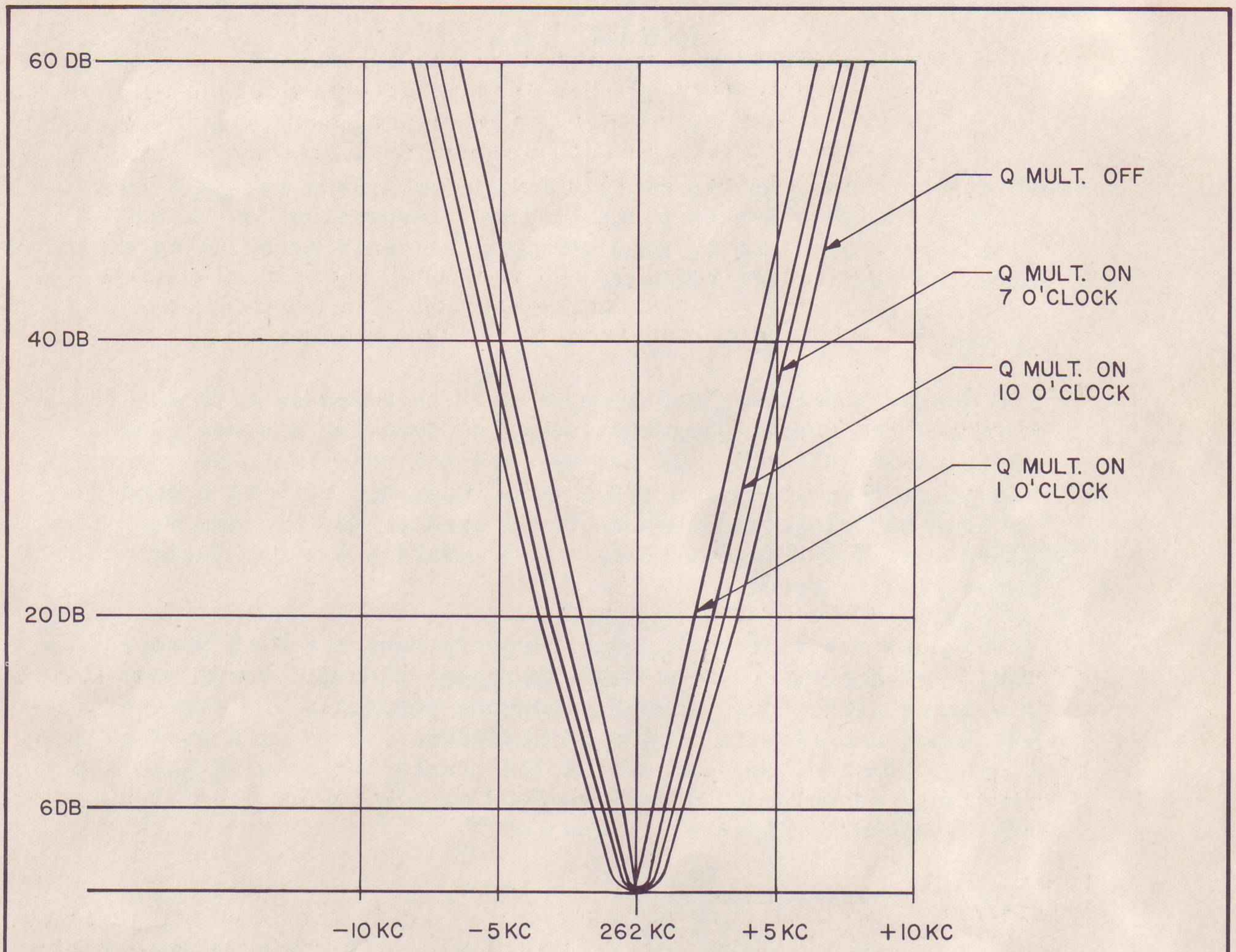


FIG. 2 SELECTIVITY CURVES

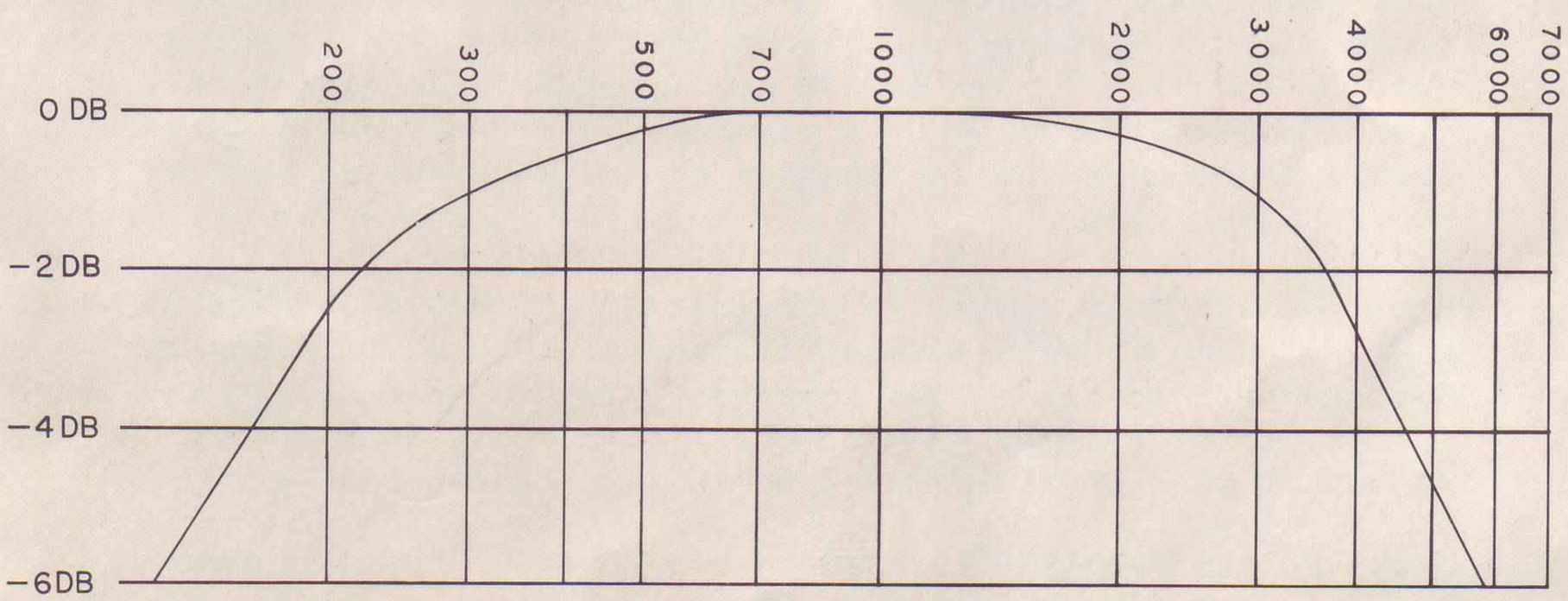


FIG. 3 AUDIO FREQUENCY RESPONSE CURVE

INSTALLATION

After unpacking the receiver, check to make sure that all tubes and pilot lights are in place. Visual inspection can be made with a portable lamp shining through the ventilation holes at the sides or rear of the cabinet.

Speaker

The Gonset Model No. 3285 speaker unit is supplied with a 4 ft. cord and the proper plug for insertion into the speaker jack on the back of the G-63. If another speaker unit is to be used, it should preferably have a voice coil impedance of 3 to 4 ohms for optimum matching, although an 8 ohm speaker may be used with some power loss due to mismatching. A standard 1/4 inch, 2-circuit phone plug is required.

Headphones may also be plugged directly into the G-63 output jack. They may be either low or high impedance phones. Power loss due to the large difference between headphone impedance and receiver output impedance results in normal headphone volume with average settings of the volume control. A load resistor is built into the receiver, assuring a protective load at all times, regardless of the headphone or speaker impedance.

Antenna

The G-63 input circuit is designed for a nominal impedance of 100 ohms, unbalanced. Coaxial cable of 52, 75 or 95 ohm impedance is recommended. Balanced line of 75, 150 or 300 ohm impedance may also be used by simply connecting one lead to the "Ant." terminal, and the other lead to the "Gnd." terminal.

A single wire antenna of 20 to 100 feet or greater length will provide quite good reception. The lead-in from such an antenna connects to the "Ant." terminal, as illustrated in Fig. 4. A ground connection to the "Gnd." terminal is not absolutely necessary, but generally gives improved reception. A lightning arrestor, as illustrated, is highly recommended for protection of the receiver as well as persons near the receiver.

Best results will always be obtained with a resonant antenna system, and a reasonably well matched transmission line to couple the antenna voltage efficiently to the receiver. The antenna design may range from a simple, single band doublet, to a multi-band directional array. A doublet with coaxial feed line is illustrated in Fig. 5.

Whenever the receiver is used in conjunction with a transmitting station, best results are generally obtained if a relay or electronic TR switch is used to connect the transmitting antenna to the receiver during the receive period.

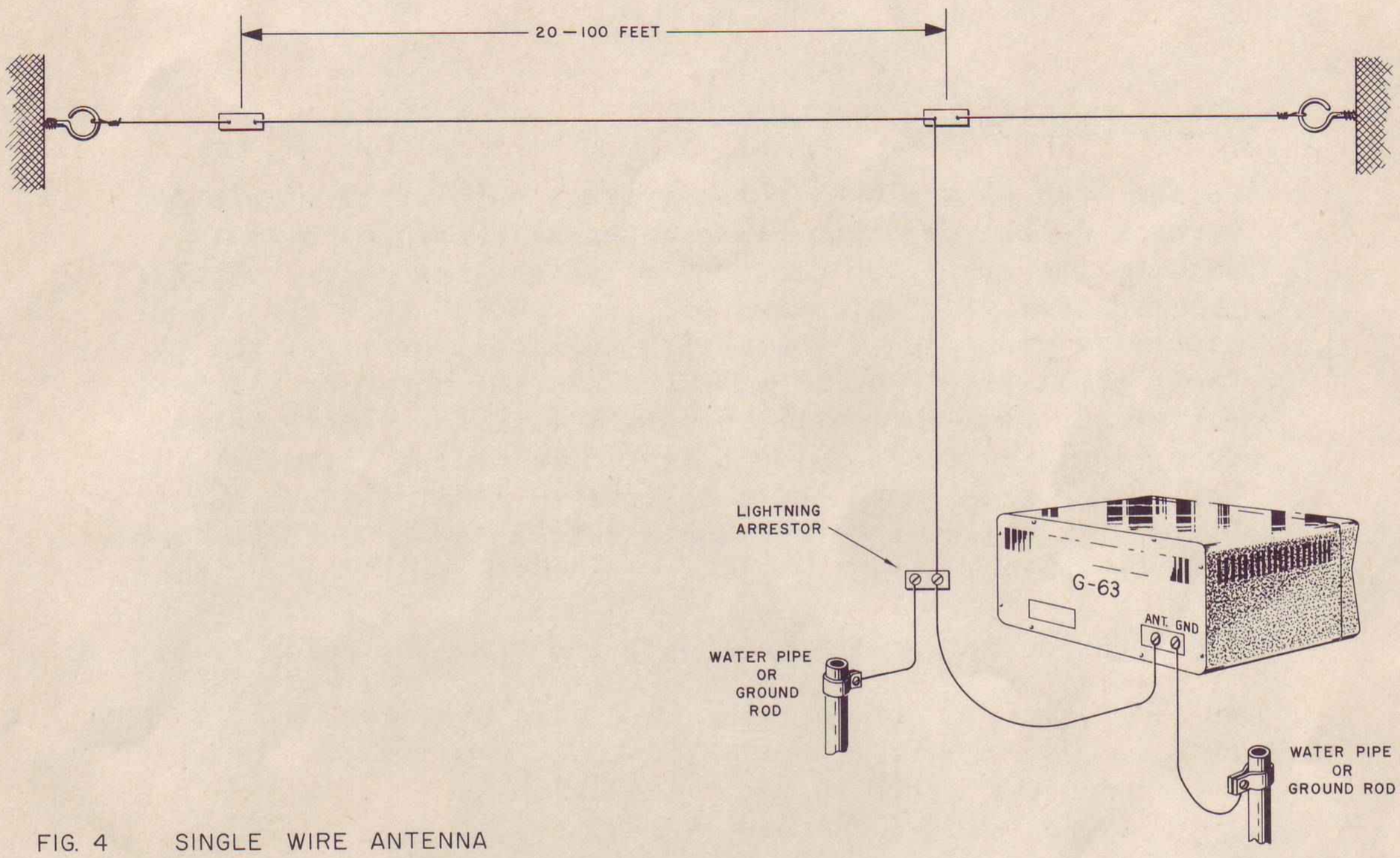
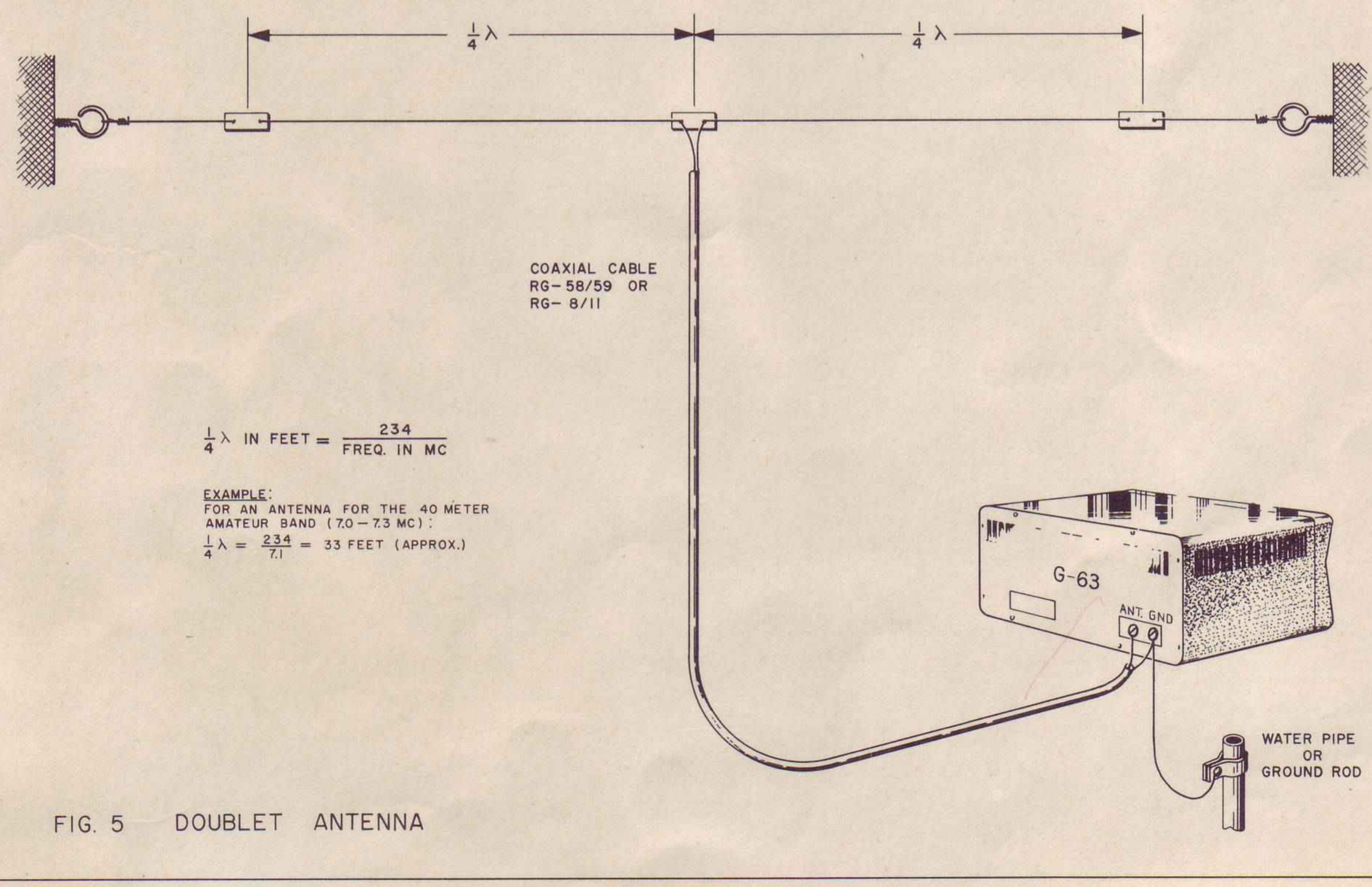


FIG. 4 SINGLE WIRE ANTENNA



$\frac{1}{4}\lambda$ IN FEET $= \frac{234}{\text{FREQ. IN MC}}$

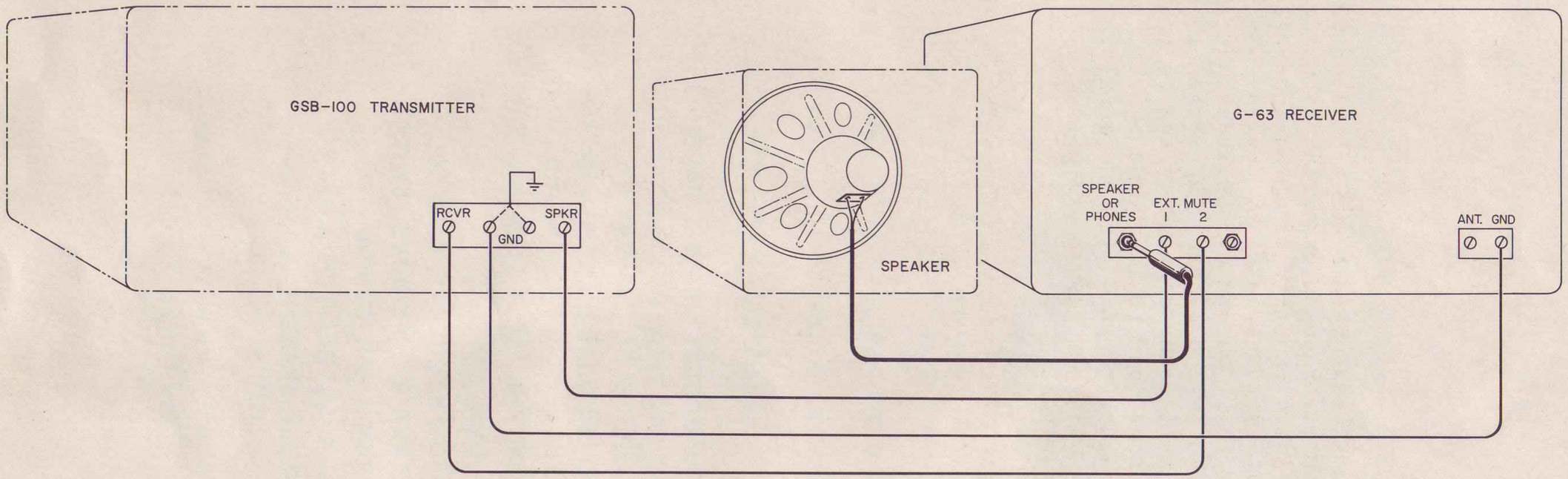
EXAMPLE:
FOR AN ANTENNA FOR THE 40 METER AMATEUR BAND (7.0 — 7.3 MC):
$\frac{1}{4}\lambda = \frac{234}{7.1} = 33$ FEET (APPROX.)

FIG. 5 DOUBLET ANTENNA

Muting Terminals

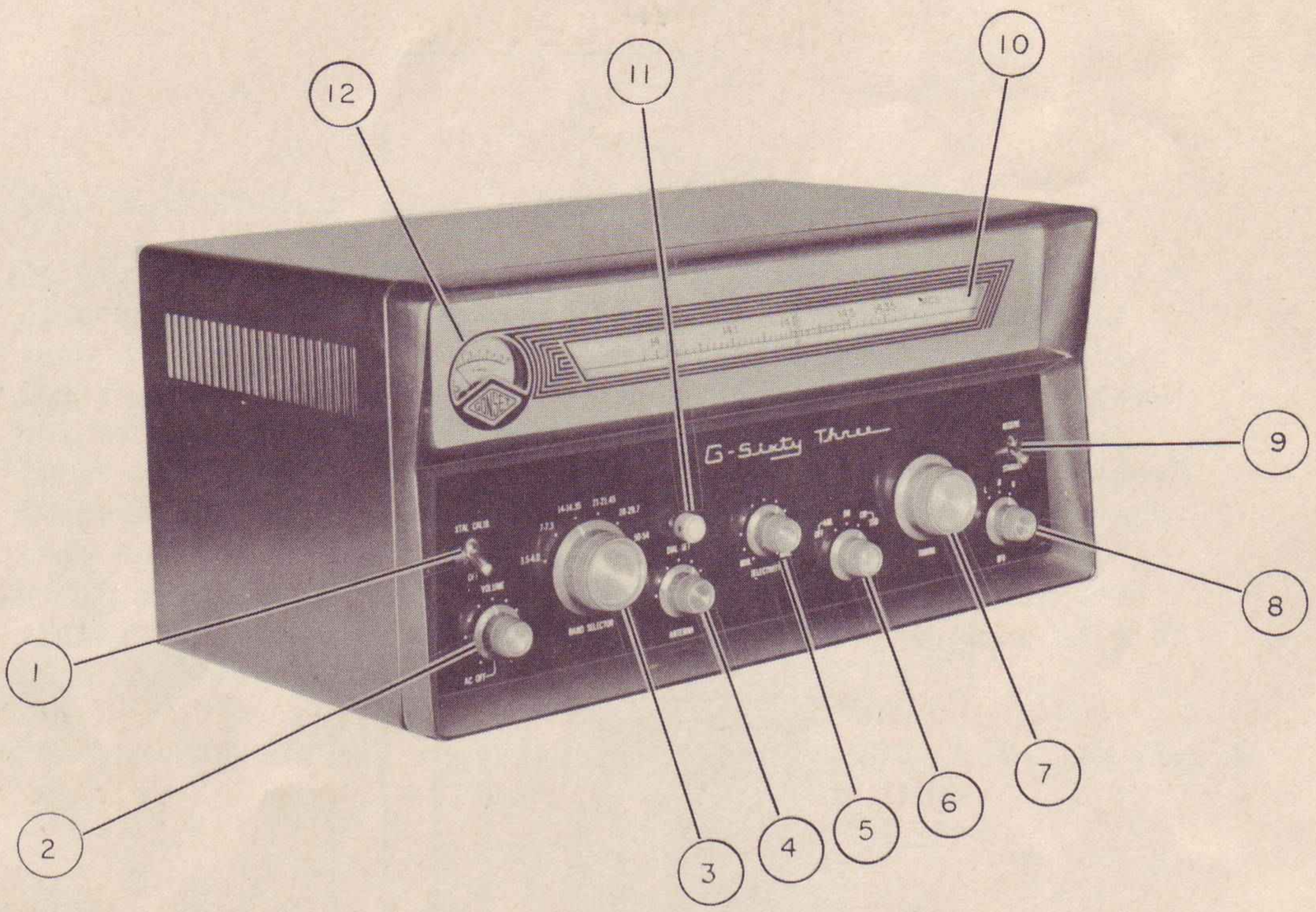
On the back of the G-63 chassis are a pair of terminals for connecting the receiver to an external switching circuit, such as the auxiliary contacts of an antenna relay. Thus, the receiver will be turned off, or "muted" when the transmitter is turned on. The muting terminals parallel the front panel toggle switch marked "Rec.-Standby" on the G-63. Therefore, when muting the receiver with the remote relay, this toggle switch should be left down in the "Standby" position, except when it is desired to monitor the transmitter, in which case the toggle switch may be used to override the relay control.

For interconnecting the G-63 with the GSB-100, refer to Fig. 6.



G-63/GSB-100 INTERCONNECTION DIAGRAM

FIG. 6



1. CALIBRATOR ON-OFF SWITCH
2. VOLUME CONTROL & AC ON-OFF SWITCH
3. BAND SELECTOR SWITCH
4. ANTENNA TRIMMER CONTROL
5. SELELECTIVITY CONTROL
6. FUNCTION SELECTOR SWITCH
7. TUNING CONTROL
8. BFO FREQUENCY CONTROL
9. STAND BY-RECEIVE SWITCH
10. DRUM TYPE TUNING DIAL
11. DIAL CORRECTOR CONTROL
12. SIGNAL STRENGTH METER

FIG. 7 RECEIVER CONTROLS

OPERATING PROCEDURE

Amplitude Modulated Signals

(a) Fun c tion Selector.....ANL off or on, as required.

(b) Righthand Toggle Switch-Receive position (see Note 1).

(c) Lefthand Toggle Switch -Down (Cal. off).

(d) Band Selector.....Set to desired range.

(e) Selectivity.....Broad position, full CCW (see Note 2).

(f) Dial Set.....Straight up, 12 o'clock (see Note 4).

(g) Tuning Dial.....Adjust for maximum S-meter reading on desired signal.

(h) Antenna Trimmer.....Adjust for maximum meter reading.

(i) Volume Control.....Set to desired volume level.

Single Sideband, Suppressed Carrier Signals

(a) Function Selector.....CW-SSB position.

(b) Righthand Toggle Switch-Receive position (see Note 1).

(c) Lefthand Toggle Switch -Down (Cal. off).

(d) Band Selector.....Set to desired range.

(e) Selectivity.....Broad position, full CCW (see Note 2).

(f) Dial Set.....Straight up, 12 o'clock (see Note 4).

(g) BFO Frequency.....Set to "USB" mark for upper sideband or "LSB" for lower sideband.

(h) Tuning Dial.....Adjust for most natural voice quality.

(i) Antenna Trimmer.....Adjust for maximum volume.

(j) Volume Control.....Set to desired volume level.

CW Code Signals

(a) Function Selector.....CW-SSB position.

(b) Righthand Toggle Switch.....Receive position (see Note 1).

(c) Lefthand Toggle Switch.....Down (Cal. off).

(d) Band Selector.....Set to desired range.

(e) Selectivity.....Set to about 12 o'clock (see Note 3).

(f) Dial Set.....12 o'clock (see Note 4).

(g) BFO Frequency.....Set to either "USB" or "LSB" mark.

(h) Tuning Dial.....Adjust for maximum loudness of desired CW signal. Then, go back to the BFO control and set it for desired pitch. This adjustment need only be made when it is found desirable to change the pitch.

(i) Antenna Trimmer.....Adjust for maximum volume.

(j) Volume Control.....Set to desired volume level.

Operating Notes

(1) See discussion on "Muting Terminals" under Installation Instructions, Page 10.

(2) For most AM or single sideband voice reception, selectivity is optimum in the "Broad" position, being approximately 3.3 kc wide at 6 db down in this position. Under some conditions of interference, signals may be separated with increased selectivity. This is accomplished by turning the "Selectivity" control gradually in a clockwise direction. A position of 9 or 10 o'clock is the maximum that can be tolerated in voice reception without excessive loss of fidelity.

(3) The selectivity control may be advanced further in CW use, if desired, up to the point where the Q multiplier breaks into oscillation. This point will occur at approximately 3 o'clock, and produces a steady audio tone in the speaker headphones. Just below this position, known as the "threshold", is the point of maximum useable selectivity. Bandwidth will be

approximately 200 cycles at the 6 db points, and each CW signal will be found to occupy a very narrow portion of the dial, a favorable condition when the band is heavily congested. For normal use, a position of about 12 o'clock for the selectivity control will be found optimum for ease of tuning.

(4) To check tuning dial calibration accuracy, switch the calibrator on (lefthand toggle switch up), and locate the nearest 100 kc marker signal on the dial. Use the "dial set" control to move the marker signal to exact position on the dial. Ordinarily the dial set control will set very close to 12 o'clock (straight up) when the tuning dial is reading correctly. With long term aging effects, humidity, etc. dial accuracy may gradually shift, requiring compensation with the dial set control to varying degrees on each band. Eventually, the oscillator adjustments should be reset to restore original dial accuracy (See Alignment Procedure, Page 22). These effects are generally spread over many months of operation. Note that the 100 kc calibrator is an optional plug-in accessory, and must be purchased as an extra.

(5) The BFO is factory adjusted so its frequency coincides with the center of the I.F. pass band when the BFO control is straight up (12 o'clock). This can be tested by shorting or disconnecting the antenna and, with the function selector in the "CW-SSB" position, sweeping the BFO control back and forth. The "hiss" caused by BFO injection will be found to pass through a point of lowest pitch. This should occur with the control somewhere between 11 and 1 o'clock, preferably right at 12 o'clock. If it does not, adjustment may be made by reseting the core of the BFO transformer, T8, until the above condition is met. This adjustment will require a GC #8606 tool, and is made from the top side of T8.

(6) If it is not known which sideband a station is transmitting, it may be necessary to first try one side, and then the other. It will be found that when the BFO is set to the wrong side, the signal cannot be tuned to an understandable point. In such a case, move the BFO control to the other side, and adjust the tuning dial again until a natural voice is heard.

TECHNICAL DESCRIPTION

The G-63 employs a double conversion superheterodyne circuit which provides exceptionally high image rejection, plus the desired narrow bandpass and steep skirt selectivity. The pentode section of a 6U8A, V2a, functions as the first frequency converter, while the triode section, V2b, serves as the variable high frequency oscillator. Signals are first amplified by the 6BZ6, V1, R. F. amplifier, after which they are coupled to the 6U8A where they are heterodyned against the oscillator and converted to the first intermediate frequency of 2065 kc. Frequency separation between image signal and the desired signals is 4130 kc, an amount which allows a high degree of rejection by the tuned circuits of the R. F. amplifier. Typical image rejection figures are listed in the Technical Outline on Page 5.

The 2065 kc I.F. signal is coupled through a double tuned bandpass transformer to the second frequency converter, V3, a 6BE6, where it is heterodyned against a 2327 kc oscillator, producing the 262 kc second I. F. Signal. Two stages of amplification, using 6BA6's, are employed at 262 kc. Eight tuned circuits, plus the high-Q transformer of the Q multiplier, result in the excellent selectivity characteristics shown by the graph in Fig. 2. Skirt selectivity and shape factor are exceptionally good.

One half of a 12AX7, V4a, is used in the Q multiplier circuit. A single panel control turns the Q multiplier on or off, and adjusts for various degrees of selectivity from the 3.3 kc bandwidth with the Q multiplier off, to approximately 200 cycle bandwidth when the selectivity control is set just below the threshold level. For reception of most voice-modulated signals, selectivity is adequate in the broad, 3.3 kc position, although with heavy band congestion it may be found that a bandwidth of 2 to 2.5 kc, obtained by just turning the Q multiplier is obtained in CW, where bandwidth may be narrowed to a few hundred cycles.

Stability

A number of special features result in a high degree of frequency stability in the G-63.

(a) The restricted frequency ranges, just covering an amateur band on each range, provides a degree of mechanical stability which cannot be duplicated in a general coverage receiver. The operating desk may be bumped or jarred severely with little or no effect on frequency, even in single sideband or CW reception.

(b) The tuned plate oscillator circuit, employed in the 6U8A tuneable oscillator, is well known for its exceptional voltage stability. This circuit, coupled with the OB2 voltage regulator, allows for wide excursions in line voltage with negligible frequency shift.

(c) Stability on the 3 higher bands, 15, 10 and 6 meters, is further enhanced by the fact that the oscillator is tuned to 1/2 the actual injection frequency, and its second harmonic is heterodyned with the signal. Considerable improvement in stability is gained by this feature.

(d) Temperature compensation is applied individually to each band. Frequency drift will be approximately .01 per cent during the first 10 minutes of operation, after which it levels off to a negligible amount. Temperature compensation and voltage regulation are also applied to the second conversion oscillator.

Another important feature which concerns stability is the method employed in muting the receiver during transmit or standby periods. Only the audio output circuit is opened by the "standby" switch, or by the external muting terminals on the back of the G-63 chassis. Thus, the receiver remains in an operative condition at all times and does not pass through a warmup cycle each time it is switched back to "receive" position.

Sensitivity

This is determined primarily by the efficiency of the tuned circuits at the input of the receiver, and the characteristics of the first R.F. amplifier tube. A 6BZ6 was selected for the G-63 because of its high sensitivity, and also because of its ability to handle large input voltages with a minimum of overload and cross-modulation.

High Q, permeability-tuned coils are used in both the input and output circuits of the R. F. amplifier. Approximately 1 microvolt of signal at 50 ohms input termination produces a signal-plus-noise to noise ratio of 6 db. This high sensitivity is effective throughout the entire frequency range of the G-63.

Detectors

A vacuum diode (1/2 of a 6AL5), is used in reception of amplitude modulated signals, while for single sideband or CW code signals, a pentagrid product detector is used (6BE6). This stage also functions as a beat frequency oscillator. Switching of detectors is taken care of by the function selector. The diode detector also supplies AVC voltage to the 6BZ6 R.F. amplifier, the 6BE6 converter, and the 6BA6 first I.F. amplifier. The AVC system functions only on AM. The other half of the 6AL5 is used as a highly effective automatic noise limiter (ANL) switched in or out, as desired, by the function selector. The noise limiter functions only on AM.

Ease of Operation

The G-63 has been designed with particular emphasis on simplicity and ease of operation, with no unnecessary controls to complicate and clutter the front panel. Of special interest is the single volume control, replacing the separate audio and R.F. gain controls usually found on other receivers. Through the use of a unique circuit, the function selector automatically adjusts the various receiver parameters for optimum reception of amplitude modulated, single sideband, or CW signals. Changing modes is reduced to the simple action of setting the function selector to the desired mode, and adjusting the volume control to the desired loudness level. The need for juggling A.F. and R.F. controls, switching AVC in or out, and other unnecessary motions is completely eliminated.

In addition to the automatic function selector, special attention has been given to physical placement of controls. The volume control is located at the lower left for natural lefthand operation, while the tuning control is the large knob on the right side for natural righthand tuning. Notice that its height has been carefully chosen so the receiver may be tuned with the wrist resting comfortably on the desk.

Still another operating advantage is the large, easy to read drum dial, which displays only the frequency range in use by employing large, clear figures.

Audio Amplifier

The second half of V4, the 12AX7, is used as an audio amplifier, driving V9, the 6AQ5 power amplifier. Overall frequency response is limited to the range from 200 to 4000 cycles for optimum voice reproduction. Refer to the graph on Fig. 3 for roll-off characteristics. Output impedance is designed for 3 to 4 ohms, and power output is approximately 3 watts at 10 per cent harmonic distortion. The Gonset Model No. 3285 is designed to match this output, and is the recommended speaker for use with the G-63. Headphones may also be plugged directly into the output jack. They may be either a high or low impedance type. The large mismatch prevents excessive coupling of power to the headphones, and volume settings will be approximately the same as when using a speaker A built-in load resistor assures a nominal load on the output stage when using headphones, as well as when the receiver is in "standby" position.

Signal Strength Meter

The S meter operates in a bridge circuit and provides an indication of carrier strength on amplitude modulated signals. An input signal of approximately 100 microvolts at 50 ohms input termination is required for a meter reading of "S9". "S" units are spaced about 6 decibels apart. A bridge balance control is provided on the back of the chassis for setting the meter to "zero". This adjustment should be made with the antenna shorted or disconnected, no signal and the function selector in the "ANL off" position.

Crystal Calibrator

The Gonset Model 3269, 100 kc crystal calibrator is available as a plug-in accessory for the G-63. A socket is provided on the receiver chassis for the calibrator. It is suggested that a frequency check be made occasionally on the calibrator frequency. This requires use of a receiver which will tune to one of the several WWV frequencies. A trimmer is provided on the calibrator for adjusting the 100 kc harmonic to exact zero beat with WWV. This is best accomplished during the latter 2-minute period of each 5-minute periods, when the tone modulation is removed from WWV transmissions. Once the calibrator has been adjusted, it s frequency will be quite reliable for a period of several months, or longer. However, it is important to always remember that unless a means is employed for frequent monitoring of its frequency, there is a chance the 100 kc will drift slightly, and band edge operation should bear this fact in mind.

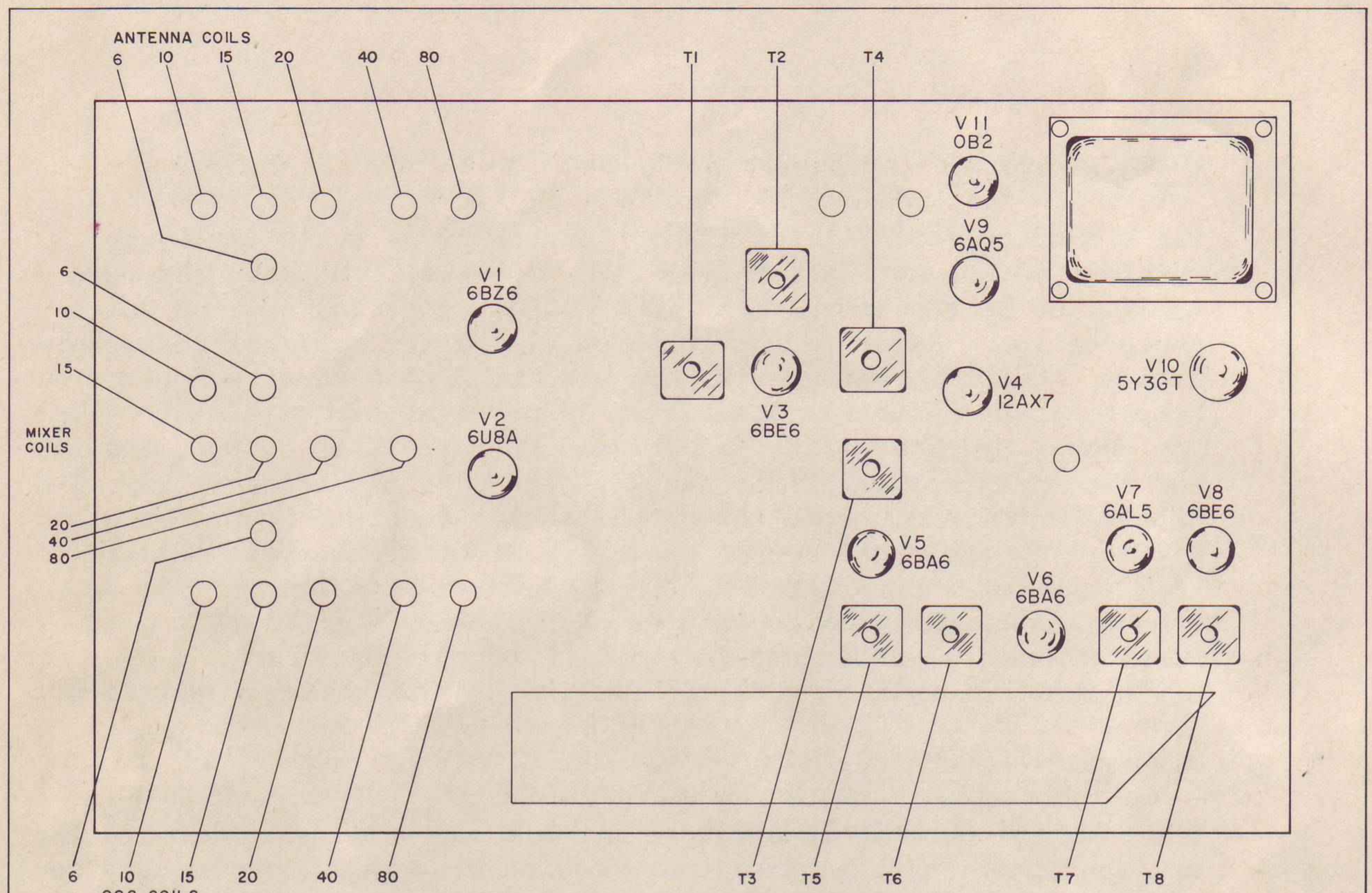


FIG. 8
G-63 CHASSIS, TOP VIEW

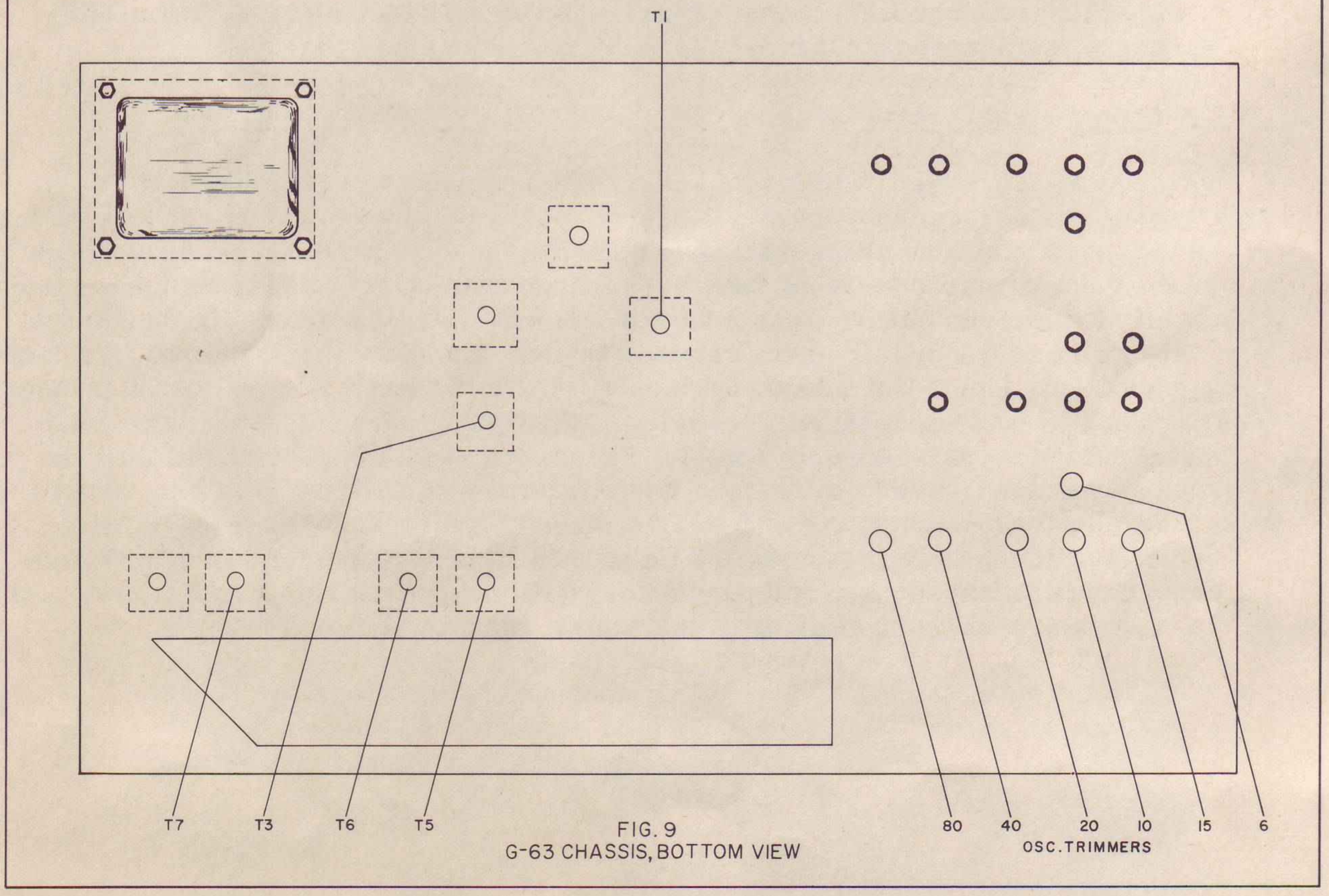


FIG. 9
G-63 CHASSIS, BOTTOM VIEW

ALIGNMENT PROCEDURES

Alignment Tools Required:

(a) General Cement Number 5097, or equivalent, for 262 kc transformer alignment, T3, T5, T6 and T7.

(b) General Cement Number 8606, or equivalent, for all other transformers and tuner coils.

(c) Small insulated screwdriver for oscillator trimmer capacitors.

262 kc I.F. Alignment:

Couple the signal generator through a .001 mfd blocking capacitor to pin 7 of V3, the 6BE6 converter. Connect a VTVM to the AVC bus (white leads). Accurate frequencies at 260, 262, and 264 kc are required. Harmonics of the signal generator may be checked in the broadcast band against stations of known frequency for accuracy. For example, the 260 kc frequency may be checked by heterodyning its fifth harmonic with a station at 1300 kc. It is generally possible to find a station, or stations, on every 10 kc point across the BC band at night. Likewise, 262 kc may be checked with its fifth harmonic at 1310 kc, and 264 kc with its fifth at 1320 kc.

Start alignment at 262 kc, setting the input level for an AVC voltage of -2 to -3 volts The Function Selector must be set to "ANL-OFF" during I.F. alignment. Use the following chart for alignment guide:

Trans.	Top Adjustment	Bottom Adjustment	Tool
T3	262 kc	Screw out, full CCW	GC 5097
T4	262	None	GC 8606
T5	260	264 kc	5097
T6	260	264	5097
T7	262	262	5097

Adjust each transformer for maximum AVC voltage at frequencies as indicated in the chart. Repeat the procedure 3 or 4 times to compensate for minor interaction. (Note: T5 and T6 are stagger tuned at 260 and 264 kc in order to provide the desired passband and shape factor. Center of the passband is nominally at 262 kc.)

After adjusting each transformer for maximum AVC voltage at frequencies as listed above, switch the Function Selector to "CW-SSB", and adjust T8 (BFO) (top adjustment only), with a GC 8606 tool for zero beat, with the signal generator set to 262 kc, and the BFO front panel control at 12 o'clock (Ø). The zero beat in this case will be heard in the speaker, volume control adjusted for desired loudness.

2065 kc I.F. Alignment

Couple the signal generator through a .001 mfd. blocking capacitor to Pin 2 of V2, the 6U8A Mixer. Set the generator frequency to exactly 2065 kc, and adjust T1 and T2 for maximum AVC voltage, as follows:

	Trans.	Top Adjustment	Bottom Adjustment	Tool
Step 1	T2	2327 kc	None	8606
Step 2	T1	2065 kc	2065 kc	Insulated Screwdriver

Note: T2 is the second converter oscillator transformer and its adjustment will be quite critical. When correctly adjusted, it will be oscillating at 2327 kc, and its output may be monitored on a receiver tuned to this frequency.

Tuner Alignment

First check to make certain that the dial pointer is set to the left end marker of the dial scale. It is particularly important that this be checked after replacing the dial cord.

Oscillator Section

Although not essential, it is desirable that the G-63 be equipped with the plug in 100 kc calibrator, Gonset Model 3269, as an aid in oscillator alignment. In fact, if oscillator adjustments have not been greatly changed since the receiver was factory aligned, the 100 kc harmonic check points should be sufficient for proper alignment, and a signal generator will not be required. The following chart indicates the low end and high end frequencies to be used on each frequency range:

Band	Low Frequency End 8606 Tool		High Frequency End (Screwdriver)	
80	3.55 MC	L1	3.95 MC	C59
40	7.05 MC	L2	7.25 MC	C57
20	14.05 MC	L3	14.3 MC	C54
15	21.05 MC	L4	21.4 MC	C51
10	28.1 MC	L5	29.6 MC	C49
6	50.2 MC	L6	53.5 MC	C48

Before touching any oscillator adjustments, set receiver controls as follows:

(a) Function Selector in "CW-SSB" position.
(b) Righthand toggle switch in Receive position.
(c) Lefthand toggle switch up, Calibration on.
(d) Band Selector, start with 80 meter band.
(e) Selectivity, full CCW, broad position.
(f) Dial Set.....Straight up - 12 o'clock.
(g) BFO.....Straight up - 12 o'clock (Ø).
(h) Tuning Dial....As indicated in above chart.
(i) Antenna Trimmer, 12 o'clock.
(j) Volume Control, as required.

Step 1: Using tool #8606, adjust the 80 meter oscillator coil (L1) so that the 3.55 MC signal, as heard in the speaker, coincides with the 3.55 MC dial marker.

Step 2: Using a small screwdriver, either metal or insulated, adjust the 80 meter oscillator trimmer (C59) so that the 3.95 MC signal zero beats at the 3.95 MC dial marker. This trimmer is mounted directly on the bottom of the oscillator coil.

Step 3: Due to interaction between these adjustments, repeat Steps 1 and 2 until the 3.55 and 3.95 MC signals occur at their respective dial markers without need for further adjustment. Oscillator alignment for this range is now complete.

Step 4: Repeat the above procedure on each of the other bands.

Note: If there is any question about which 100 kc harmonic is being tuned, an accurate signal generator will be required for alignment. Or, alternately, an antenna may be connected to the receiver, and incoming signals observed for accuracy. For example, phone signals should be heard only between 3.8 and 4.0 MC, etc.

Mixer and Antenna Coil Adjustment

(a) All receiver controls set the same as in oscillator alignment, except that Function Selector is set to "ANL-OFF".

(b) Use GC #8606 tool.

(c) Couple signal generator in series with a 47 or 50 ohm composition resistor to ANT. terminal. Connect shield lead from generator to GND. terminal.

(d) Starting with 80 meter band, tune in signal at 3.8 MC. Adjust generator output for S-meter reading of about S7.

(e) Peak 80 meter mixer coil and 80 meter antenna coil for maximum meter reading. (Make certain that the antenna trimmer is set to 12 o'clock).

(f) Repeat above adjustments on other bands, using frequencies: 7.2 MC, 14.2 MC, 21.3 MC, 29 MC, and 50.5 MC, respectively.

Note: Since harmonics from the 100 kc calibrator are very strong, they cannot be used for peaking the mixer or antenna coils. An external signal source must be used.

VOLTAGE CHART — G-63 RECEIVER

TUBES	PIN NUMBERS								
	1	2	3	4	5	6	7	8	9
V1 6BZ6	−0.5 (1)	+0.9	0	6.3 VAC	+180	+115	0	−	−
V2 6U8A	+40	−1	+7	0	6.3 VAC	+195	0	0	−3.5
V3 6BE6	−5	0	6.3 VAC	0	+210	+105	−0.5 (1)	−	−
V4 12AX7	+210	0	+2 (2)	0	0	+125	0	+1	6.3 VAC
V5 6BA6	−0.5 (1)	0	0	6.3 VAC	+200	+75(AM) +20(CW)	+1.5	−	−
V6 6BA6	0	0	0	6.3 VAC	+200	+100	+2.5	−	−
V7 6AL5	0	−0.5	4.0 VAC	0	−0.5	0	−0.5 (1)	−	−
V8 6BE6	−15 (3)	0	0	6.3 VAC	+40	+110	0	−	−
V9 6AQ5	0	+10	0	6.3 VAC	+205	+210	0	−	−
V10 5Y3GT	0	+220	0	225 VAC	0	225 VAC	0	+220	−
V11 0B2	0	0	0	0	+105	0	0	−	−

ALL DC VOLTAGES TAKEN WITH VTVM
ALL VOLTAGES MEASURED TO GROUND
LINE VOLTAGE 117 VAC
AM POSITION
14.0 MC BAND
Q MULT. OFF
ANL OFF

(1) AVC VOLTAGES APPROX.
(2) Q MULT. ON (7 O'CLOCK)
(3) BFO ON

FIG. 10

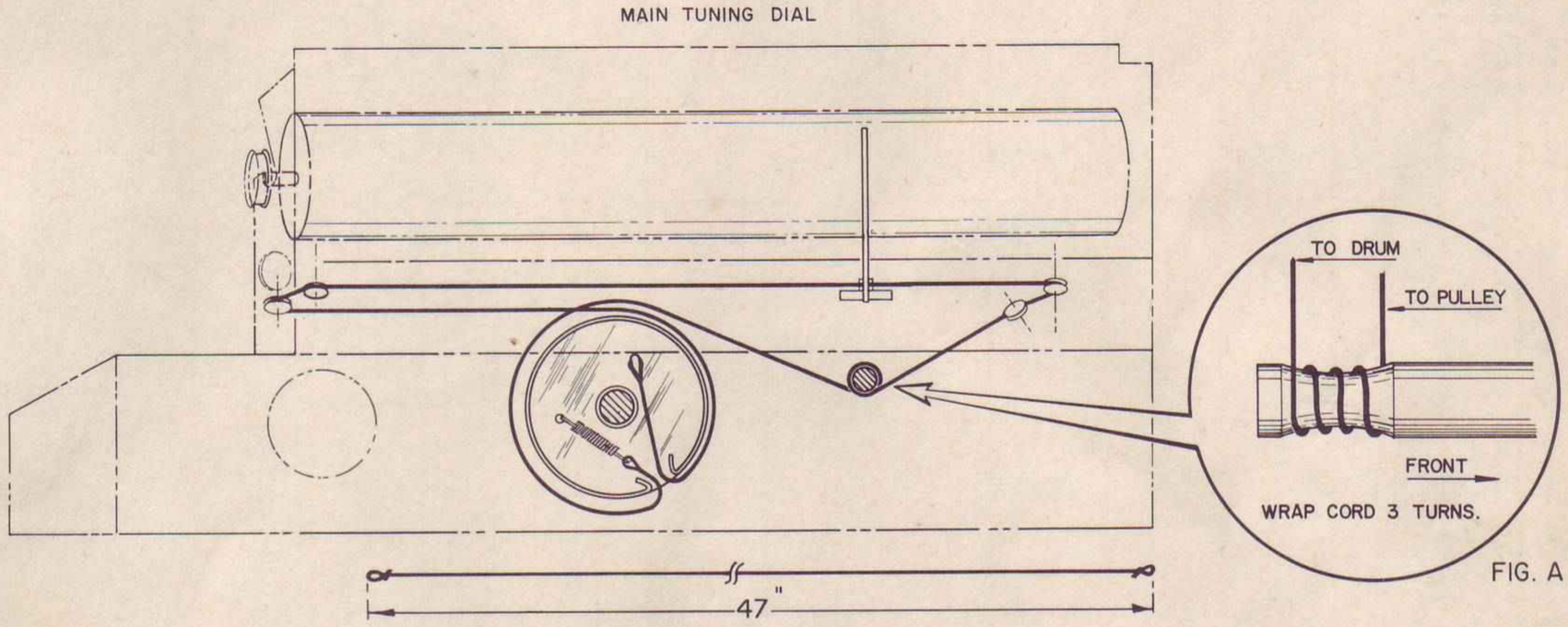
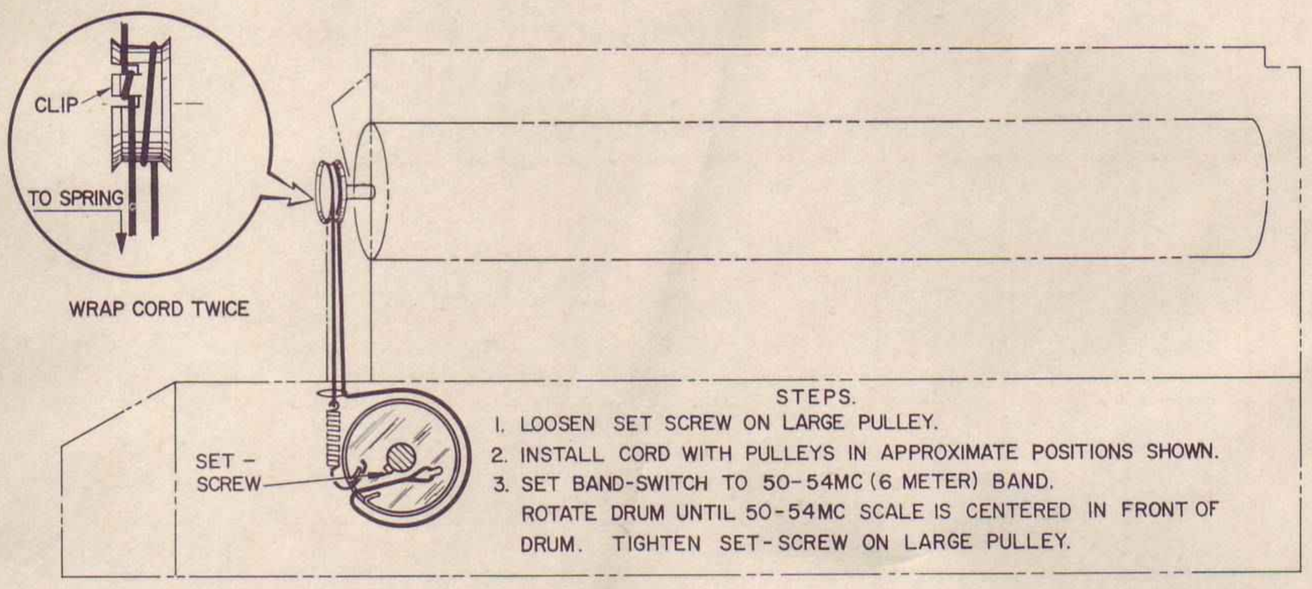
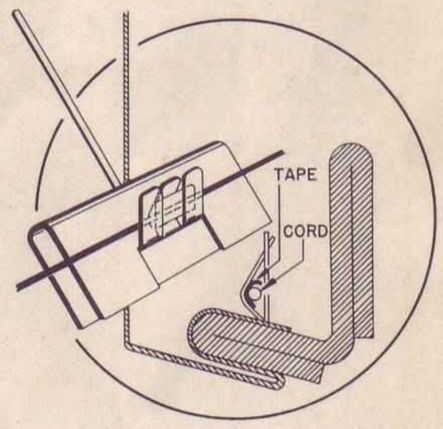


FIG. A





METHOD OF ATTACHING CORD TO DIAL POINTER

NOTE: ATTACH POINTER AFTER CORD IS INSTALLED. POINTER IS ADJUSTED TO POSITION 2 1/8 IN. FROM LEFT EDGE OF THE DIAL DRUM WHEN TUNING CAPACITOR IS FULLY MESHED (MARK ON DRUM)

FIG. 11

GONSET BURBANK. CALIF.	
DIAL STRINGING DIAGRAM. MODEL G-63	
DWN. ANR 2-26-60	APP. PBR
DWG. NO. 505-233	

SCHEMATIC NO.	DESCRIPTION	GONSET PART NO.
R1	10 Ω 1/2 W. 10%	
R2	100 Ω 1/2 W. 10%	
R3	470K Ω 1/2 W. 10%	
R4	10 Ω 1/2 W. 10%	
R5	47K Ω 1/2 W. 10%	
R6	100K Ω 1/2 W. 10%	
R7	33K Ω 1/2 W. 10%	
R8	4.7 MEG Ω 1/2 W. 10%	
R9	2200 Ω 1/2 W. 10%	
R10	150K Ω 1/2 W. 10%	
R11	10 Ω 1/2 W. 10%	
R12	22K Ω 1/2 W. 10%	
R13	2200 Ω 1/2 W. 10%	
R14	150K Ω 1/2 W. 10%	
R15	2.2 MEG Ω 1/2 W. 10%	
R16	2700 Ω 1/2 W. 10%	
R17	10K Ω POTENTIOMETER W. SWITCH (S2)	052-084
R18	100 Ω 1/2 W. 10%	
R19	150 Ω 1/2 W. 10%	
R20	27K Ω 2 W. 10%	
R21	2200 Ω 1/2 W. 10%	
R22	470 Ω 1/2 W. 10%	
R23	100 Ω 1/2 W. 10%	
R24	200 Ω POTENTIOMETER	052-096
R25	47K Ω 1/2 W. 10%	
R26-A	10K Ω POTENTIOMETER] DUAL POT. W. SW. (S4)	052-084
R26-B	1 MEG Ω POTENTIOMETER]	
R27	68K Ω 1/2 W. 10%	
R28	2200 Ω 1/2 W. 10%	
R33	47K Ω 1/2 W. 10%	
R35	150 K Ω 1/2 W. 10%	
R36	270K Ω 1/2 W. 10%	
R37	22K Ω 1/2 W. 10%	
R38	270K Ω 1/2 W. 10%	
R39	4700 Ω 1 W. 10%	
R40	47K Ω 1/2 W. 10%	
R41	4700 Ω 1 W. 10%	
R42	27 Ω 1/2 W. 10%	
R43	270 Ω 1 W. 10%	
R44	470K Ω 1/2 W. 10%	
R45	3500 Ω 7 W. 10% WIRE WOUND	049-001
R46	2700 Ω 1/2 W. 10%	
R47	6.8 Ω 1 W. 10%	
R48	3300 Ω 1/2 W. 10%	
R49	33K Ω 1/2 W. 10%	
R50	22K Ω 1/2 W. 10%	
R51	2200 Ω 1/2 W. 10%	
C1	5-50 μμF VARIABLE	074-113
C2	50 μμF DISC N750 TOL. ±10%	084-239
C3	100 μμF TUBULAR GP 20%	071-089
C4	.01 μF DISC 300 V GMV	072-169
C5	.01 μF DISC 500 V GMV	072-173
C6	10 μμF TUBULAR GP 10%	071-050
C7	2.2 μμF TUBULAR NPO TOL. ±.25 μμF	084-083
C9	.01 μF DISC 500 V GMV	072-173
C10	.01 μF DISC 500 V GMV	072-173
C11	.01 μF DISC 300 V GMV	072-169
C12	100 μμF SILVER MICA 5%	088-017
C14	22 μμF DISC N470 TOL. ±5%	084-243
C15	.01 μF DISC 500 V GMV	072-173
C16	.01 μF DISC 500 V GMV	072-173
C17	.01 μF DISC 300 V GMV	072-169
C20	270 μμF DISC GP 20%	072-214
C21	.1 μF PAPER TUBULAR 200 V 20%	085-022
C22	.01 μF DISC 500 V GMV	072-173
C23	0.68 μμF TUBULAR 10%	071-020
C24	.1 μF PAPER TUBULAR 200 V 20%	085-022
C25	.1 μF PAPER TUBULAR 200 V 20%	085-022
C26	.01 μF DISC 500 V GMV	072-173
C27	.01 μF DISC 500 V GMV	072-173
C28	.01 μF DISC 300 V GMV	072-169
C31	10 μμF TUBULAR GP 10%	071-050
C32	470 μμF DISC GP 20%	072-213
C33	.002 μF DISC GP 20%	072-209
C34	.001 μF DISC GP 20%	072-108
C35	.01 μF DISC 300 V GMV	072-169
C36	100 μμF TUBULAR GP 20%	071-089
C38	.01 μF DISC 500 V GMV	072-173
C39	3-30 μμF VARIABLE	074-115
C40	.01 μF DISC 500 V GMV	072-173
C41	470 μμF DISC GP 20%	072-213
C42	100 μμF TUBULAR GP 20%	071-089
C43	.002 μF DISC GP 20%	072-209
C44	.0068 μF PAPER TUBULAR 600 V 20%	085-052
C45-A	20 μF @ 25 WVDC] 3-SECTION ELECTROLYTIC	
C45-B	50 μF @ 350 WVDC]	073-122
C45-C	30 μF @ 300 WVDC]	
C46	.0047 μF DISC GP 1500 WVDC	072-215
C47	.0047 μF DISC GP 1500 WVDC	072-215
C48	5-25 μμF ROTARY TRIMMER NPO	089-002
C49	5-25 μμF ROTARY TRIMMER NPO	089-002
C50	50 μμF DISC N080 TOL. ±2%	084-240
C51	5-25 μμF ROTARY TRIMMER	089-002
C52	40 μμF DISC N330 TOL. ±2%	084-247
C53	250 μμF SILVER MICA TOL. ±2%	088-178
C54	5-25 μμF ROTARY TRIMMER NPO	089-002
C55	40 μμF DISC N330 TOL. ±2%	084-247

SCHEMATIC NO.	DESCRIPTION	GONSET PART NO.
C56	250 μμF SILVER MICA TOL. ±2%	088-178
C57	5-25 μμF ROTARY TRIMMER NPO	089-002
C58	140 μμF DISC N080 TOL. ±2%	084-251
C59	5-25 μμF ROTARY TRIMMER NPO	089-002
C60	100 μμF DISC N080 TOL. ±2%	084-250
C61	470 μμF SILVER MICA TOL. ±5%	088-016
C62	160 μμF SILVER MICA TOL. ±1%	088-008
C63	2.5-5.5 μμF VARIABLE	074-112
C64	56 μμF TUBULAR N330 TOL. ±2%	084-246
C65 A & B	2-SECTION TUNING CAPACITOR	074-111
C66	100 μμF SILVER MICA TOL. ±5%	088-017
C67	.01 μF DISC 500 V GMV	072-173
C68	5 μμF TUBULAR GPSL 10%	071-007
C69	91 μμF DISC N2200 TOL. ±5%	084-245
C70	56 μμF DISC N750 TOL. ±5%	084-241
C71	15 μμF TUBULAR N470 TOL. ±5%	084-242
C72	56 μμF DISC N750 TOL. ±5%	084-241
C73	47 μμF SILVER MICA TOL. ±2%	088-176
C74	56 μμF SILVER MICA TOL. ±2%	088-177
C75	22 μμF TUBULAR N330 TOL. ±2%	084-244
C76	.01 μF DISC 500 V GMV	072-173
C77	68 μμF DISC N750 TOL. ±10%	084-236
C78	68 μμF DISC N750 TOL. ±10%	084-236
C79	50 μμF DISC N750 TOL. ±10%	084-239
C80	50 μμF DISC N750 TOL. ±10%	084-239
C81	27 μμF TUBULAR GP 10%	071-020
Z1	PRINTED NOISE CLIPPER CIRCUIT	069-004
M1	"S" METER 0-1 MA MOVEMENT	112-005
S1	TOGGLE SWITCH (CALIBRATOR ON-OFF) SPST	172-039
S2	PART OF SELECTIVITY CONTROL (R17)	
S3	TOGGLE SWITCH (STANDBY-RECEIVE) SPST	172-039
S4	PART OF VOLUME CONTROL (R26) A.C. ON-OFF	
S5	FUNCTION SWITCH	171-097
S6 A-E	5-SECTION BAND SWITCH	171-098
T1	I-F TRANSFORMER 2065 KC	014-008
T2	H-F OSCILLATOR TRANSFORMER 2327 KC	014-059
T3	I-F TRANSFORMER 262 KC	014-066
T4	Q-MULTIPLIER TRANSFORMER 262 KC	014-057
T5	I-F TRANSFORMER 262 KC	014-066
T6	I-F TRANSFORMER 262 KC	014-066
T7	I-F TRANSFORMER 262 KC	014-066
T8	BFO TRANSFORMER 262 KC	014-058
T9	AUDIO OUTPUT TRANSFORMER	272-036
T10	POWER TRANSFORMER	271-072
CH1	FILTER CHOKE 5 H.	274-002
CR1	SELENIUM DIODE 46 PIV	475-010
DS1	DIAL LAMP #12	471-003
DS2	DIAL LAMP #12	471-003
DS3	DIAL LAMP #12	471-003
DS4	DIAL LAMP #51 (S METER)	471-002
J1	6 PIN WAFER SOCKET	341-518
J2	OPEN CIRCUIT JACK	342-019
J3	A.C. INTERLOCK SOCKET	344-020
TB1	BINDING POST STRIP	147-009
TB2	BINDING POST STRIP	147-009
L1	OSC. COIL 3.5 MC	012-418
L2	OSC. COIL 7 MC	012-419
L3	OSC. COIL 14 MC	012-420
L4	OSC. COIL 21 MC	012-421
L5	OSC. COIL 28 MC	012-422
L6	OSC. COIL 50 MC	012-423
L7	MIXER COIL 3.5 MC	012-424
L8	MIXER COIL 7 MC	012-425
L9	MIXER COIL 14 MC	012-426
L10	MIXER COIL 21 MC	012-427
L11	MIXER COIL 28 MC	012-428
L12	MIXER COIL 50 MC	012-429
L13	ANTENNA COIL 3.5 MC	012-430
L14	ANTENNA COIL 7 MC	012-431
L15	ANTENNA COIL 14 MC	012-432
L16	ANTENNA COIL 21 MC	012-433
L17	ANTENNA COIL 28 MC	012-434
L18	ANTENNA COIL 50 MC	012-435

REPLACEMENT PARTS LIST

GONSET PART NO.	DESCRIPTION	NO. REQ.
211-016	KNOB, SMALL W. INDEX	5
211-017	KNOB, LARGE W. INDEX	1
212-017	KNOB, LARGE NO INDEX	1
211-053	KNOB, SMALL KNURLED	1
218-005	POINTER	1
696-002	A.C. LINE CORD, INTERLOCK TYPE	1
411-013	PAINTED DIAL BEZEL	1
411-024	PAINTED CABINET	1
465-078	DRUM DIAL ASSEMBLY	1
505-217	REAR COVER	1
505-218	LOWER FRONT PANEL	1
505-221	DIAL WINDOW	1
520-510	INSTRUCTION MANUAL	1

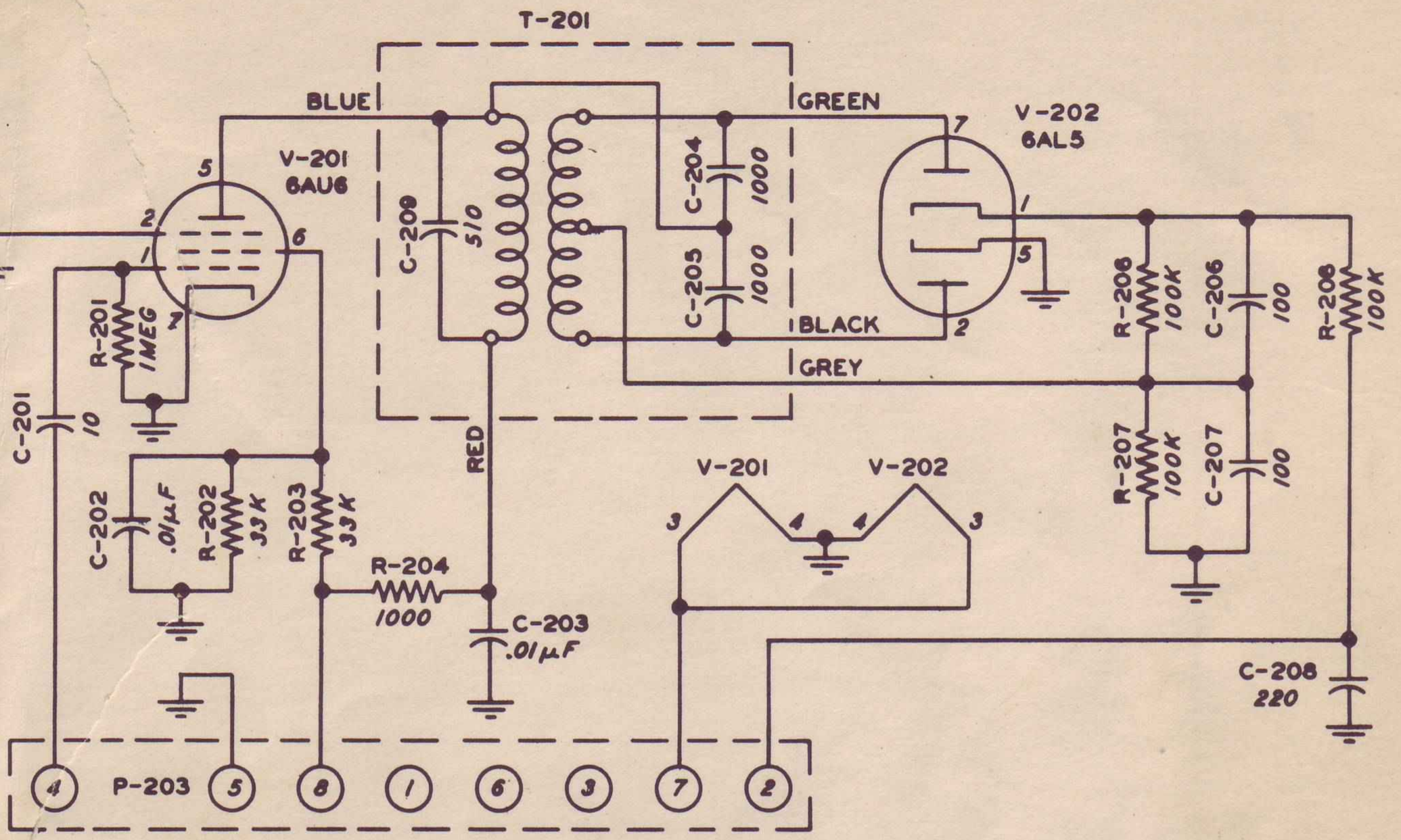


Figure 5-6 148C-1 NBFM Adaptor Schematic Diagram

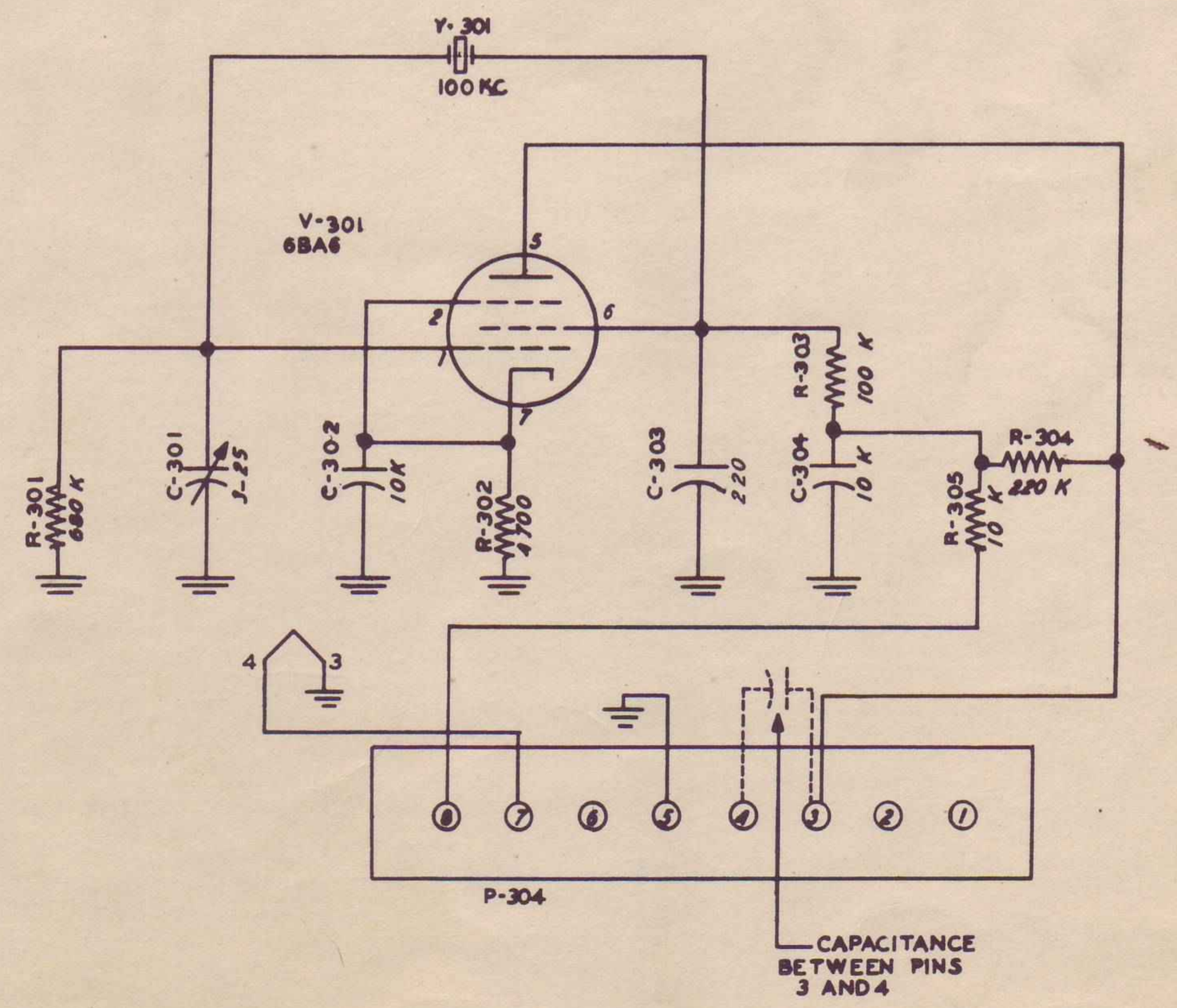
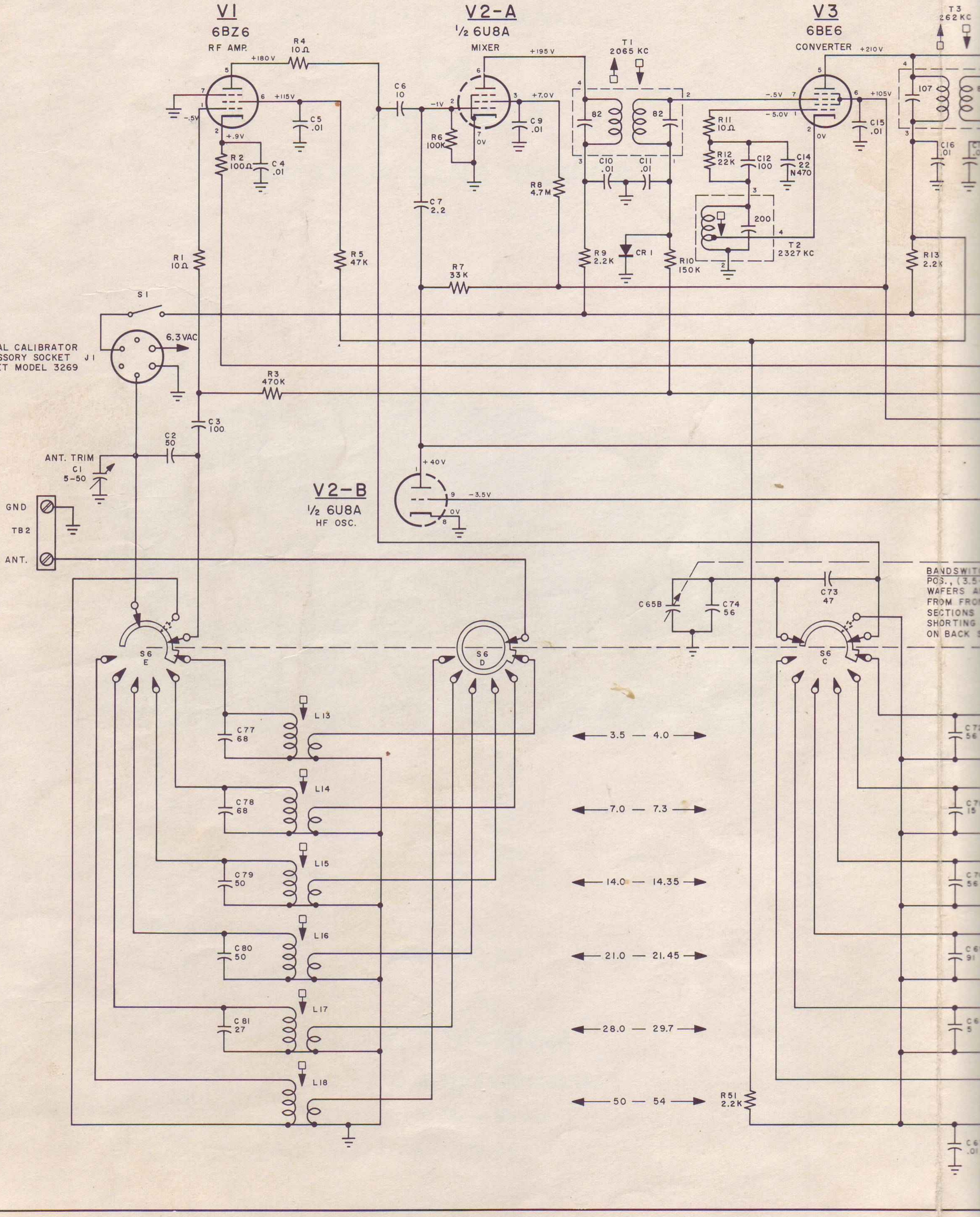


Figure 5-7 8R-1 Crystal Calibrator Schematic Diagram


V1
6BZ6
RF AMP.
R4
10Ω
+180V
+115V
-.5V
+.9V
C5
.01
R2
100Ω
C4
.01
C6
10
V2-A
½ 6U8A
MIXER
+195V
-1V
+7.0V
R6
100K
C9
.01
C7
2.2
R8
4.7M
T1
2065 KC
82
82
C10
.01
C11
.01
R1
10Ω
R5
47K
R7
33K
R9
2.2K
CR1
R10
150K
V3
6BE6
CONVERTER
+210V
-.5V
-5.0V
+105V
0V
R11
10Ω
R12
22K
C12
100
C14
22
N470
200
T2
2327 KC
C15
.01
T3
262 KC
107
C16
.01
R13
2.2K
S1
CRYSTAL CALIBRATOR
ACCESSORY SOCKET J1
GONSET MODEL 3269
6.3VAC
R3
470K
C3
100
C2
50
ANT. TRIM
C1
5-50
GND
TB2
ANT.
V2-B
½ 6U8A
HF OSC.
+40V
-3.5V
0V
S6
E
S6
D
S6
C
C65B
C74
56
C73
47
L13
C77
68
L14
C78
68
L15
C79
50
L16
C80
50
L17
C81
27
L18
3.5 — 4.0
7.0 — 7.3
14.0 — 14.35
21.0 — 21.45
28.0 — 29.7
50 — 54
R51
2.2K
BANDSWIT
POS., (3.5
WAFERS A
FROM FRO
SECTIONS
SHORTING
ON BACK

V4-A
½ 12AX7
Q MULT.

V5
6BA6
1st IF AMP.

V6
6BA6
2nd IF AMP.

T3 262 KC
T4 262 KC
T5 264KC 260KC
T6 264KC 260KC
T7 262 KC

+210V
+200V
+100V
+105 V
+210 V
AVC (−0.5 V NOMINAL)
-.5V
0V
+2V
+1.5V
+2.5V
+75 V (AM)
+20 V (CW)

107
89
.002
.0062
C16 .01
C17 .01
C20 270
R15 2.2M
R16 2.7K
Q MULT. ON 7 O'CLOCK
SELECTIVITY
S2
R17 10K
R13 2.2K
R14 150K
R18 100Ω
C21 .1
C22 .01
R20 27K, 2W
R19 150Ω
R21 2.2K
C76 .01
C23 .68μμF
R22 470Ω
0-1 MA
M1
R23 100Ω
C24 .1
C27 .01
R24 200Ω S-METER ZERO ADJ. (REAR)
R25 47K
C26 .01
R48 3.5K
R28 2.2K
C25 .1
R27 68K
R26 A 10K
C28 .01
1.0M
Z-1
R49 33K
VOLUME CONTROL
R48 3.5K

C75 22 N330
C61 470
C62 160
R50 22K
C66 100
DIAL SET
TUNING
C65A
C64 56 N330
C63 2.5-5.5
BANDSWITCH (S6) SHOWN IN CCW POS., (3.5-4.0 MC RANGE).
WAFERS ARE SHOWN AS VIEWED FROM FRONT.
SECTIONS A, C, AND E HAVE SHORTING RING AND CONTACTS ON BACK SIDE.
S6 B
S6 A
L1
L2
L3
L4
L5
L6
C60 100 N080
C58 140 N080
C56 250
C55 40 N330
C53 250
C52 40 N330
C50 50 N080
C59 5-25
C57 5-25
C54 5-25
C51 5-25
C49 5-25
C48 5-25
25
C72 56
C71 15
C70 56
C69 91
C68 5
C67 .01
L7
L8
L9
L10
L11
L12

V1
V2
V3
V4

T7
52 KC

89

C 31
10

V7
6AL5
AM DET.-AVC-ANL

-.5V
-.5V
-.5V

R33
47 K

V8
6BE6
BFO-PROD. DET.

+40 V
R36
270 K
+110V R39
4.7 K, 1W
R40
47K
C 41
470
0 V
-15V (BFO ON)
C38
.01
C40
.01
C34
.001
C36
100
R37
22 K
0 V
C32
470
R35
150K
470
T8
262KC
BFO
PITCH
C39
3-30
R41
4.7K
1W

C28
.01
C33
.002
C35
.01
1.0M
100K
.01
1.0M
82K
100
1.0M
R26B
1.0M
R38
270K

NOTES:

ALL CAPACITANCE VALUES LESS THAN 1.0 ARE IN μF; 1.0 AND ABOVE ARE IN μμF, EXCEPT AS INDICATED.

ALL RESISTORS ½ WATT, EXCEPT AS NOTED.

ALL VOLTAGES TAKEN IN AM POSITION, 14.0 MC, Q MULT. OFF, ANL OFF, EXCEPT AS NOTED.

FUNCTION SWITCH
POS. 1 — ANL OFF
POS. 2 — ANL ON
POS. 3 — CW-SSB

SWITCH SHOWN IN CCW POS., (POS. 1) VIEWED FROM FRONT.

S5

V4-B
½ 12AX7
1st AUDIO

+125 V
C42
100
C43
.002
R44
470K
+10V
R46
2.7K
R43
270Ω
1W
C45A
20μF
△

V9
6AQ5
PWR. AUDIO
T9
+205V
+210V
C44
.0068
R42
27Ω

EXT MUTE
STAND BY
S3
RECEIVE
2
1
TB 1
J2
3.2Ω OUTPUT TO SPKR OR HEADPHONES

R45
3.5K
7W
+220V
+105V

V10
5Y3GT
RECT.
T 10
+225 VAC
CH 1
85 MA
+225 VAC
5 VAC, 2A
S4
C45B
50μF
C45C
30μF
C46
.0047
1.6 KV
C47
.0047
1.6 KV
J3
117 V, 50-60 ~

V11
OB 2
VOLT. REG.

6.3 VAC, 3.8 A
R47
6.8Ω
1W
4.0 VAC
DS 4
DS 3
DS 2
DS 1

V4
V5
V6
V7
V8
V9

	H.V.D.	2-1-1960
	R.B.P.	2-29-60
	J.H.H.	2-23-60
ENGINEER H.G. JOHNSON		

PROJECT 210
MODEL 3260

SCHEMATIC G-63 AMATEUR BAND RECEIVER

GONSET
DIVISION OF YOUNG SPRING & WIRE CORP.
BURBANK, CALIF.

510-073

SHT 1 OF 1 REV

Warranty Policy

The Gonset Division warrants its equipment, when properly registered, against defects in workmanship, materials, and construction under normal use and service for a period of 90 days from the date of original purchase. Under this warranty our obligation is limited to repairing or replacing any defective parts.

This warranty does not apply to any equipment which has been tampered with in any way, or which has been misused or damaged by accident or negligence, or which has had the serial number removed, altered or effaced.

On equipment employing a vibrator, all components are covered by the warranty with the exception of the vibrator itself.

This warranty is valid only when the enclosed card is properly filled in and returned within ten days from purchase date.

DO NOT SEND EQUIPMENT TO THE FACTORY WITHOUT FIRST SECURING AUTHORIZATION TO DO SO.

THIS WARRANTY DOES NOT INCLUDE TRANSPORTATION COSTS TO AND FROM THE FACTORY.

GONSET DIVISION

YOUNG SPRING AND WIRE CORPORATION

801 SOUTH MAIN STREET, BURBANK, CALIFORNIA

No. 520-117 MBP