



# the hallicrafters co.

## SERVICE BULLETIN No. 2 FOR MODEL S-38

**GENERAL:** Model S-38 is a 6 tube AC/DC superheterodyne table model, radio receiver, incorporating 4 bands of AM, CW reception, as follows: band #1, 540 kc to 1650 kc; band #2, 1650 kc to 5.0 mc; band #3, 5.0 mc to 14.5 mc; band #4, 13.5 mc to 32.0 mc. Provision for AVC, noise limiting, BFO pitch, headset reception, standby operation, and bandspreading are provided.

**REAR PANEL CONNECTIONS:** Consist of line cord with plug, antenna and ground connector strip, and headset connector plug strip.

**POWER SUPPLY DATA:** 105 to 125 volts AC/DC line voltage. Power drain is 30 watts.

**TUBE TYPES AND FUNCTION:** 12SA7—mixer-oscillator; 12SK7—IF amplifier; 12SQ7GT—detector, AVC, audio amplifier; 35L6GT—audio power amplifier; 12SQ7GT—BFO and ANL; 35Z5GT—power rectifier for AC operation.

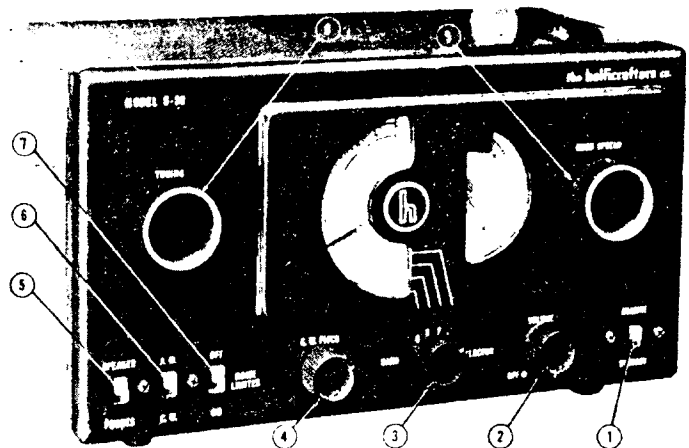


Fig. 1. Front view of receiver showing control locations.

### DETAILED SERVICE INFORMATION

IF FREQUENCY	IF SELECTIVITY	IMAGE RATIO	SENSITIVITY	AUDIO OUTPUT
455 kc	7 kc wide at 6 db down 65 kc wide at 60 db down (for 50 milliwatt output)	2.7:1 at 30 mc 6:1 at 14 mc 10:1 at 5 mc 35:1 at 1500 kc	12 microvolt at 600 kc 12 microvolt at 5 mc 11 microvolt at 14 mc 23 microvolt at 30 mc (for 50 milliwatt output)	675 milliwatt with less than 10% distortion at 400 cycles

### CONTROL SETTINGS FOR PRELIMINARY TEST OPERATION (Broadcast Band)

REF. NO. (in Fig. 1)	NAME	FUNCTION	SETTING	REF. NO. (in Fig. 1)	NAME	FUNCTION	SETTING
1	STANDBY RECEIVE	Receiver temporary standby	At "RECEIVE"	5	SPEAKER/PHONES	Output selector switch	At "SPEAKER"
2	VOLUME	Audio gain control and receiver on/off switch	Half clockwise; adj. as necessary	6	CW/AM	BFO on/off switch AVC on/off switch	At "AM" (AVC on)
3	BAND SELECTOR	Operating band selector	Clockwise to "1"	7	NOISE LIMITER	Noise peak limiting	At "OFF"
4	PITCH CONTROL	CW beat note pitch selector	Any position (not in use)	8	TUNING	Main tuning control	To local station freq. on main dial scale
				9	BAND SPREAD	Short wave band spreading	To "0" on small dial scale

### HOW TO RESTRING DIAL CORDS

To restring the main tuning dial cord, cut a 14" length of 30 lb. test dial cord and tie one end to the tension spring of the main tuning capacitor drive pulley at position "1" on the diagram. Following the numbers 1 through 15, wind the cord on the pulley and knob drive shaft. At position "15," stretch the tension spring and tie the cord securely. Cut off the excess cord. Note that two complete turns are wound on the knob drive shaft.

To restring the bandspread tuning dial cord, cut a 16" length of dial cord and follow the procedure as explained above, except start at position "A" on the diagram and proceed through position "S." Note that the knob drive shaft has two complete turns.

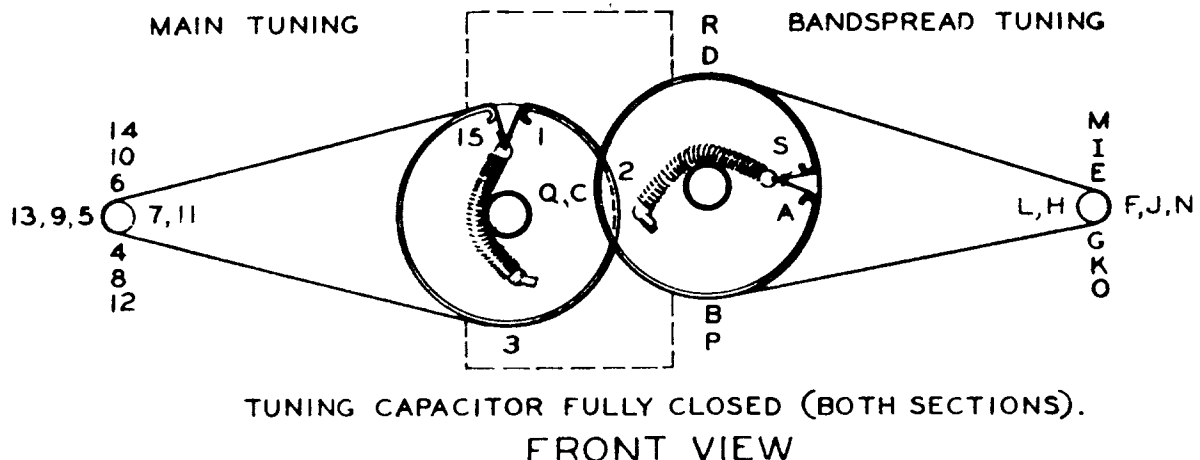


Fig. 2. Dial cable stringing procedure.

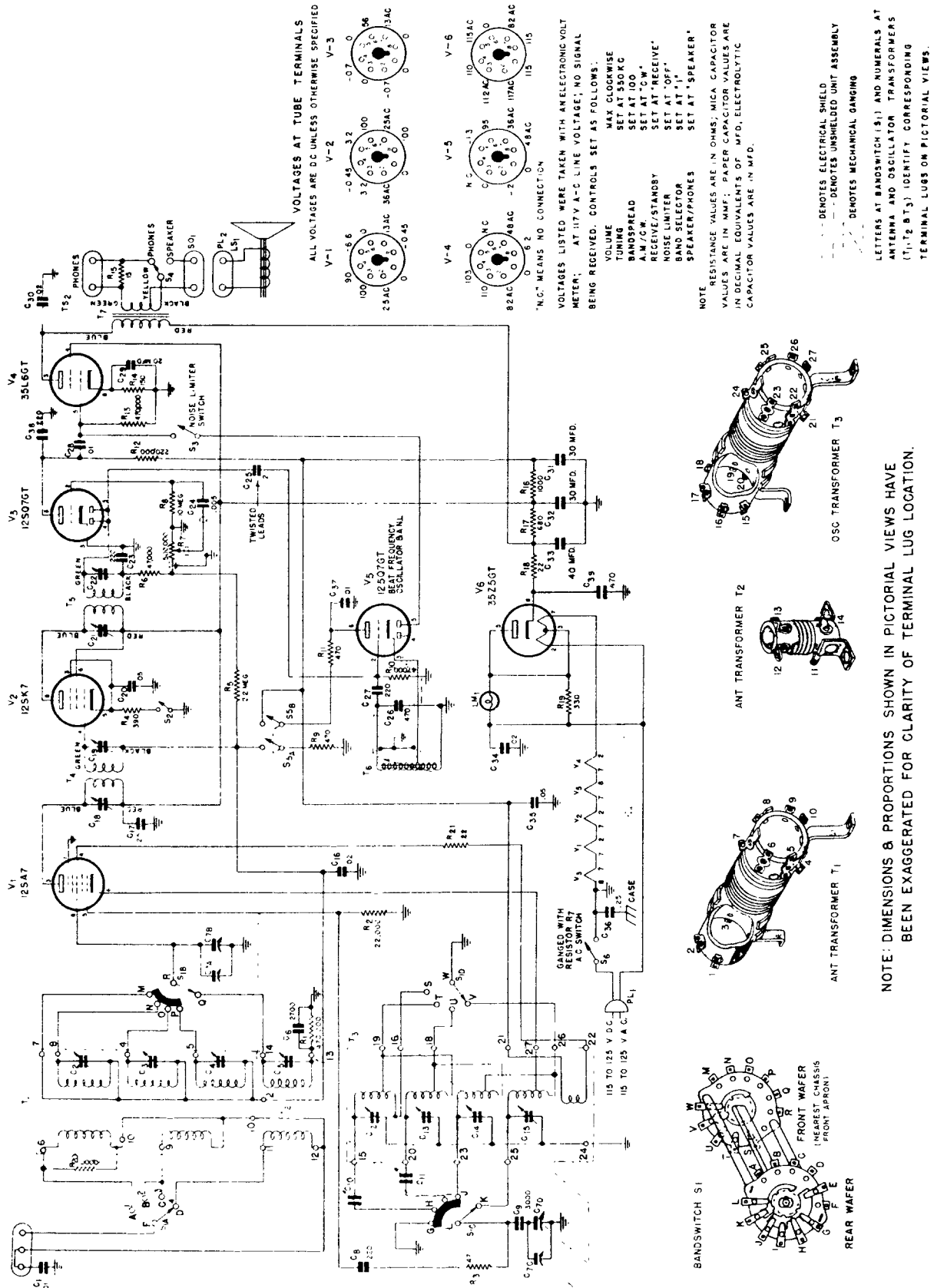


Fig. 3 Schematic diagram including tube terminal voltages and pictorial views of bandswitch, mixer and oscillator coil forms for terminal lug location and cross reference to the schematic.

# ALIGNMENT INSTRUCTIONS

## ATTENTION

Do not tamper with any part of the equipment while it is in operation. If you are not familiar with the operation of the receiver, consult the instruction manual.

Do not touch the antenna or hand frame while the receiver is in operation.

Do not touch the RMU (battery compartment) while the receiver is in operation. Do not touch the antenna while the receiver is in operation. Do not touch the antenna while the receiver is in operation.

Do not touch the antenna while the receiver is in operation.

**ANTENNA TUNING:** Connect the Speaker Control cable to the speaker control terminal strip on the front panel of the receiver. Do not connect the antenna to the antenna socket.

Connect the antenna to the antenna socket on the front panel of the receiver. Do not touch the antenna while the receiver is in operation. Do not touch the antenna while the receiver is in operation.

Adjust the antenna to the antenna socket on the front panel of the receiver. Do not touch the antenna while the receiver is in operation. Do not touch the antenna while the receiver is in operation.

**ANTENNA TUNING:** After allowing the receiver to warm up for 10 minutes, adjust the antenna to the antenna socket on the front panel of the receiver. Do not touch the antenna while the receiver is in operation. Do not touch the antenna while the receiver is in operation.

**ANTENNA TUNING:** Switch the SPEAKER control to the OFF position.

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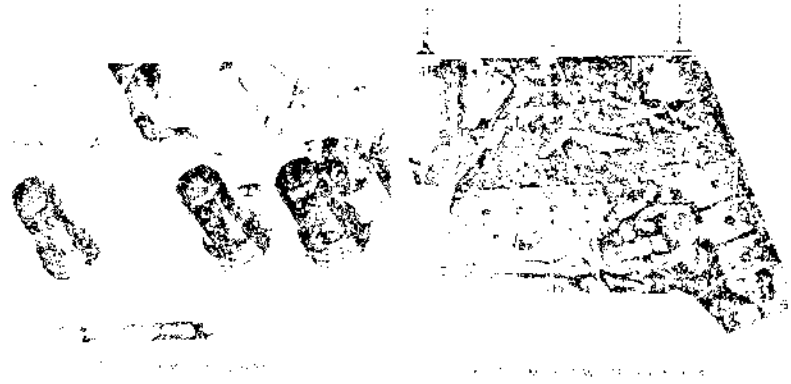


Fig. 3. Top and bottom views of the receiver antenna assembly showing the antenna elements and the speaker control cable connection.

STANDARD RMA DUTY	FUNCTION OF SPEAKER CONTROL CABLE	SPEAKER CONTROL CABLE	ANTENNA ELEMENTS	ANTENNA ELEMENTS	ANTENNA ELEMENTS	ANTENNA ELEMENTS	ANTENNA ELEMENTS	ANTENNA ELEMENTS
<b>BAND 1 - ADJUSTMENT</b>								
Standard	Speaker plates of rear sect. of tuning gang	1-4	1-4	1-4	1-4	1-4	1-4	1-4
<b>NOTE:</b> Turn the Speaker Control switch to the OFF position. Turn the Speaker Control switch to the OFF position. Turn the Speaker Control switch to the OFF position.								
Standard	Speaker plates of rear sect. of tuning gang	1-4	1-4	1-4	1-4	1-4	1-4	1-4
<b>BAND 2 - ADJUSTMENT</b>								
Standard	Antenna strap	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm
<b>NOTE:</b> Make sure you are in the antenna adjustment position. Make sure you are in the antenna adjustment position. Make sure you are in the antenna adjustment position.								
Standard	Antenna strap	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm
<b>BAND 3 - ADJUSTMENT</b>								
Standard	Antenna strap	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm
<b>NOTE:</b> Make sure you are in the antenna adjustment position. Make sure you are in the antenna adjustment position. Make sure you are in the antenna adjustment position.								
Standard	Antenna strap	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm
<b>BAND 4 - ADJUSTMENT</b>								
Standard	Antenna strap	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm
<b>NOTE:</b> Make sure you are in the antenna adjustment position. Make sure you are in the antenna adjustment position. Make sure you are in the antenna adjustment position.								
Standard	Antenna strap	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm

It may be necessary to open the antenna strap to adjust the antenna. Do not touch the antenna while the receiver is in operation. Do not touch the antenna while the receiver is in operation.

## ATTENTION

Always give Model and Serial No. of equipment when ordering replacement parts or requesting information.

REPLACEMENT PARTS

EXHAUST

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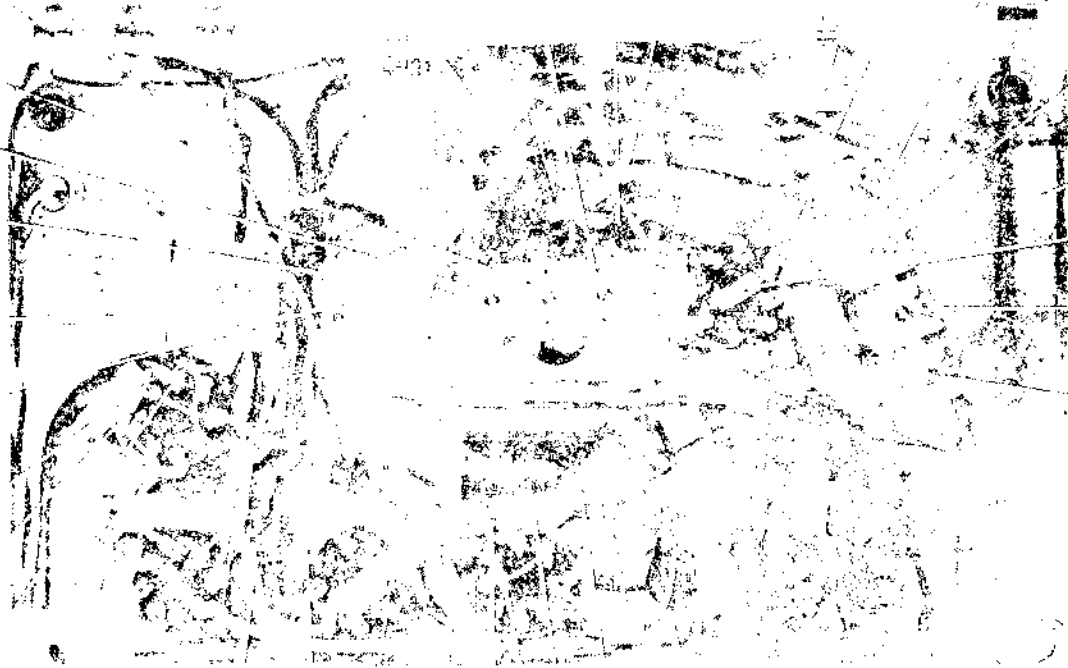
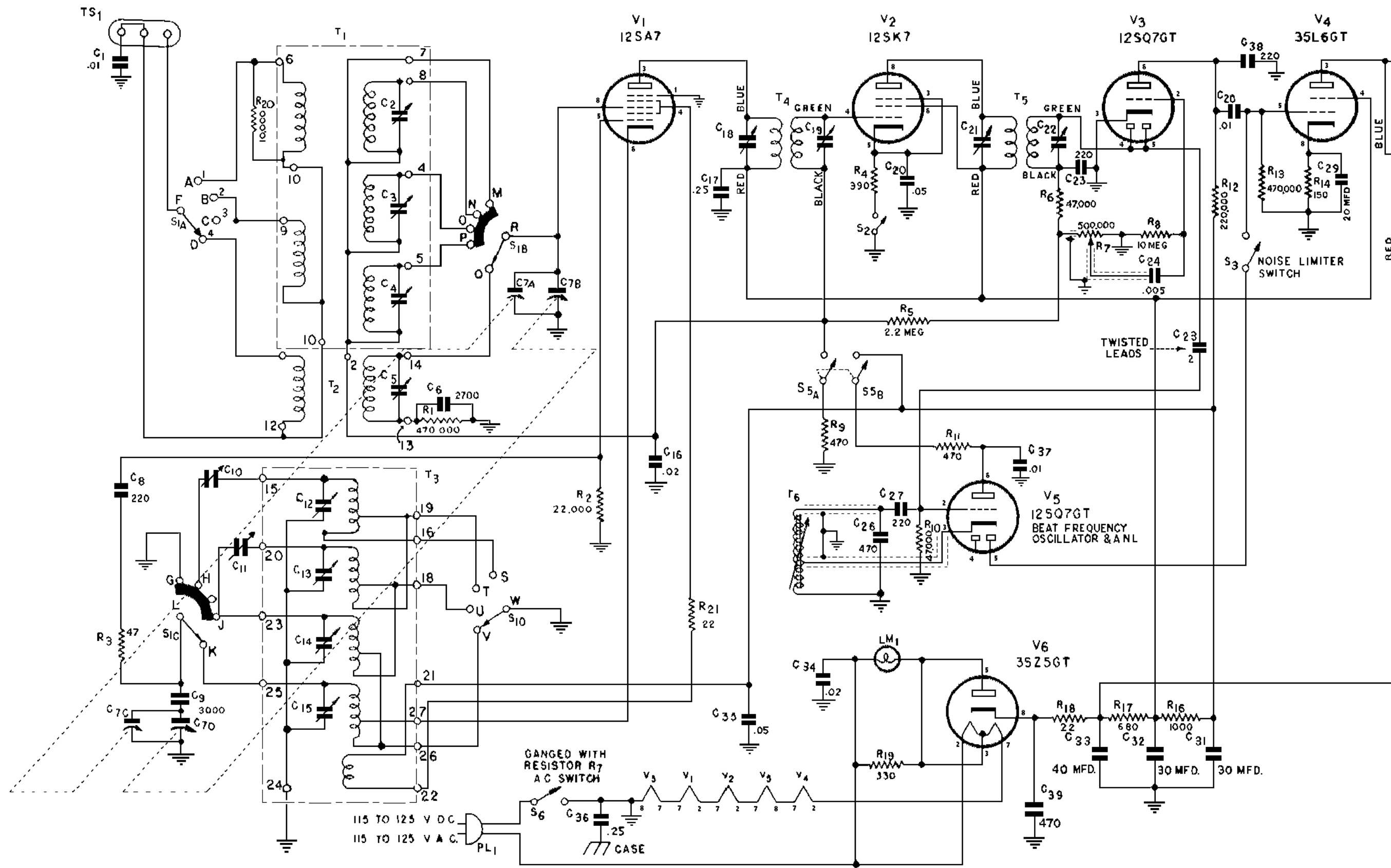
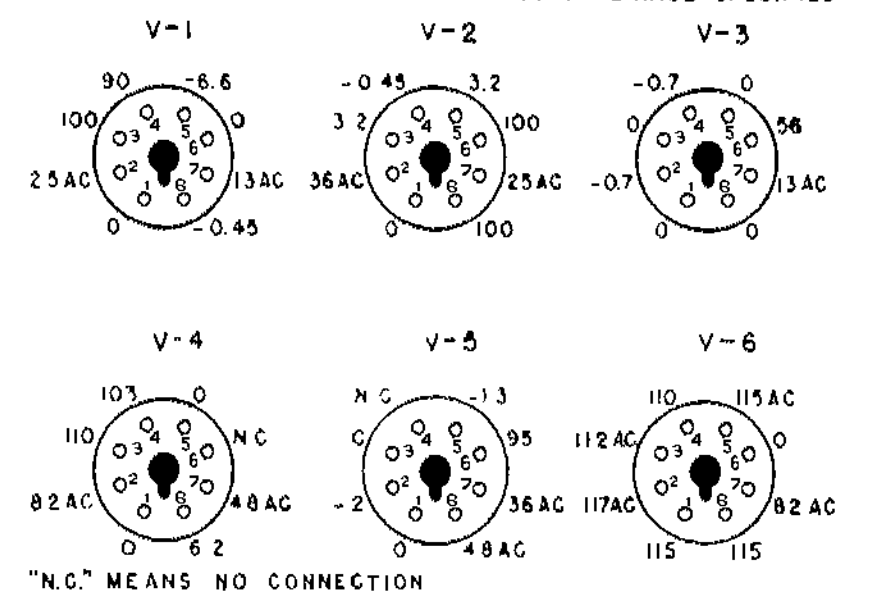


Fig. 4. Bottom view of the engine assembly.



VOLTAGES AT TUBE TERMINALS  
ALL VOLTAGES ARE DC UNLESS OTHERWISE SPECIFIED



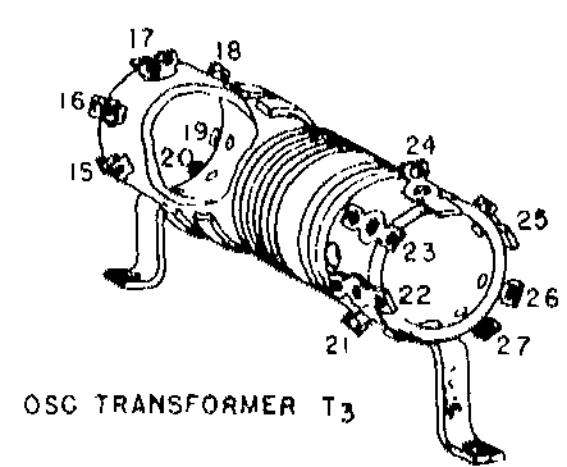
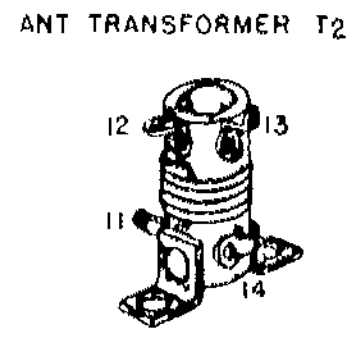
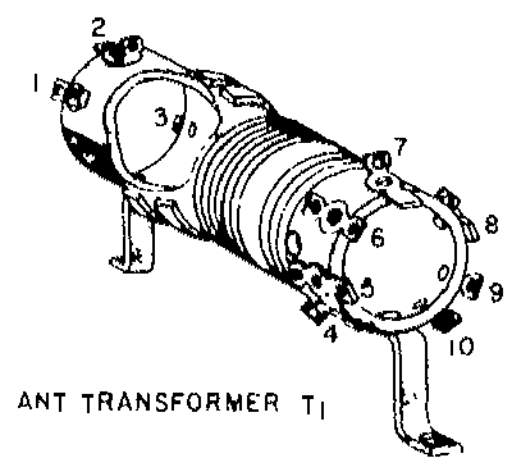
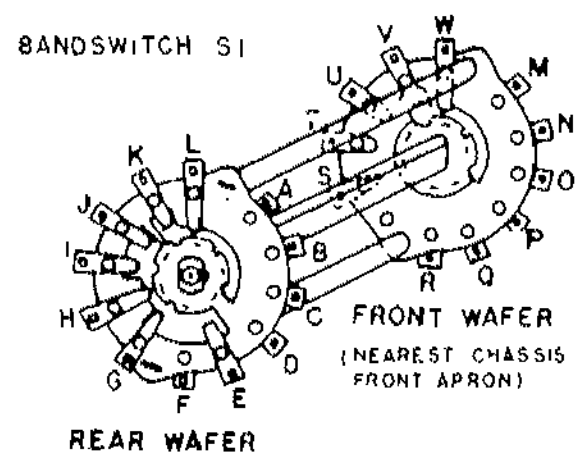
VOLTAGES LISTED WERE TAKEN WITH AN ELECTRONIC VOLT METER; AT 117V A-C LINE VOLTAGE; NO SIGNAL BEING RECEIVED. CONTROLS SET AS FOLLOWS:

VOLUME	MAX CLOCKWISE
TUNING	SET AT 550 KC
BANDSPREAD	SET AT 100
A.M./G.W.	SET AT 'CW'
RECEIVE/STANDBY	SET AT 'RECEIVE'
NOISE LIMITER	SET AT 'OFF'
BAND SELECTOR	SET AT '1'
SPEAKER/PHONES	SET AT 'SPEAKER'

NOTE: RESISTANCE VALUES ARE IN OHMS; MICA CAPACITOR VALUES ARE IN MMF; PAPER CAPACITOR VALUES ARE IN DECIMAL EQUIVALENTS OF MFD; ELECTROLYTIC CAPACITOR VALUES ARE IN MFD.

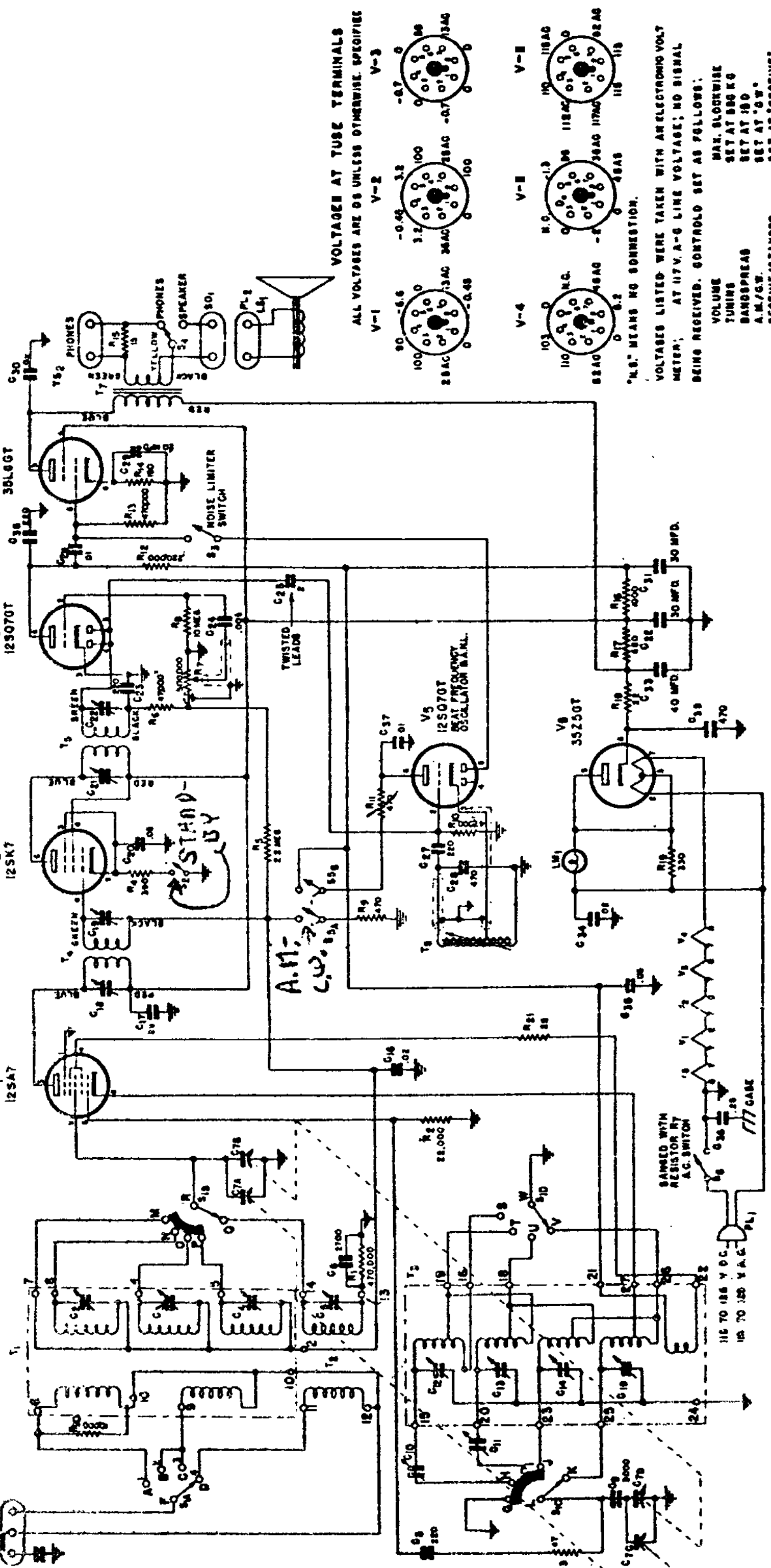
----- DENOTES ELECTRICAL SHIELD.  
- - - - - DENOTES UNSHIELDED UNIT ASSEMBLY  
- - - - - DENOTES MECHANICAL GANGING.

LETTERS AT BANDSWITCH (S1) AND NUMERALS AT ANTENNA AND OSCILLATOR TRANSFORMERS (T1, T2 & T3) IDENTIFY CORRESPONDING TERMINAL LUGS ON PICTORIAL VIEWS.

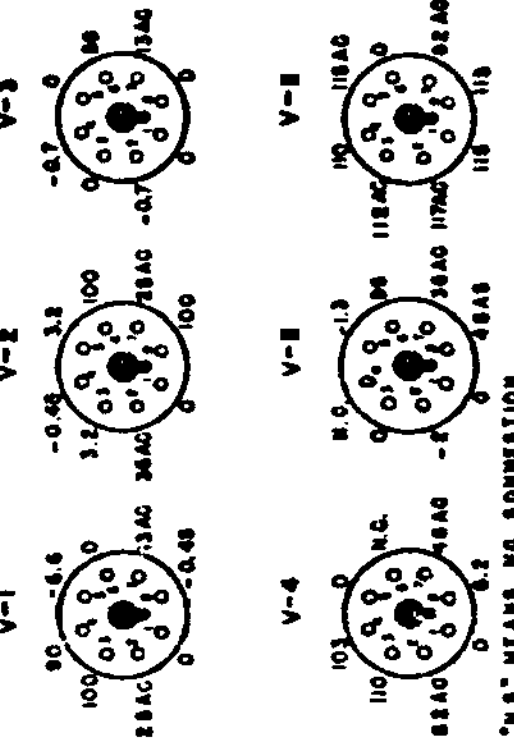


the hallicrafters co.  
MODEL S-38

NOTE: DIMENSIONS & PROPORTIONS SHOWN IN PICTORIAL VIEWS HAVE BEEN EXAGGERATED FOR CLARITY OF TERMINAL LUG LOCATION.



VOLTAGES AT TUBE TERMINALS  
ALL VOLTAGES ARE 00 UNLESS OTHERWISE SPECIFIED



"N.S." MEANS NO CONNECTION.

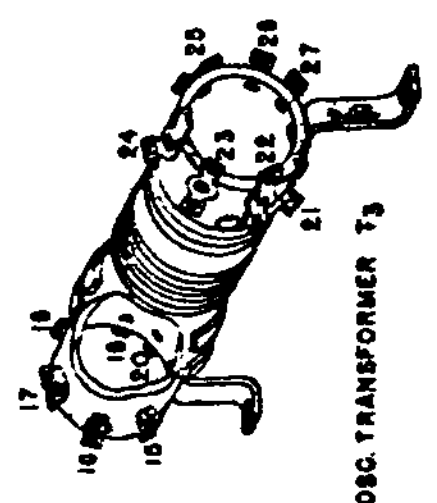
VOLTAGES LISTED WERE TAKEN WITH AN ELECTRONIC VOLT METER; AT 117 V. A-C LINE VOLTAGE; NO SIGNAL BEING RECEIVED. CONTROL SET AS FOLLOWS:

- VOLUME: MAX. CLOCKWISE
- TUNING: SET AT 800 KC
- BANDSPREAD: SET AT 180 A.M./C.W.
- RECEIVE/STANDST: SET AT "RECEIVE"
- NOISE LIMITER: SET AT "OFF"
- BAND SELECTOR: SET AT "1"
- SPEAKER/PHONES: SET AT "SPEAKER"

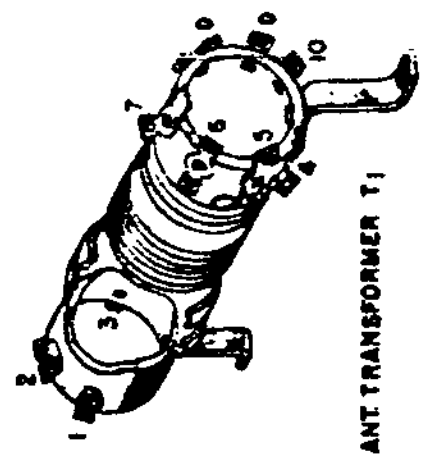
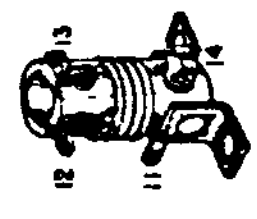
NOTE: RESISTANCE VALUES ARE IN OHMS; MICA CAPACITOR VALUES ARE IN MMF; PAPER CAPACITOR VALUES ARE IN DECIMAL EQUIVALENTS OF MFD; ELECTROLYTIC CAPACITOR VALUES ARE IN MFD.

--- DENOTES ELECTRICAL SHIELD  
- - - - - DENOTES UNSHIELDED UNIT ASSEMBLY  
- - - - - DENOTES MECHANICAL ASSEMBLY

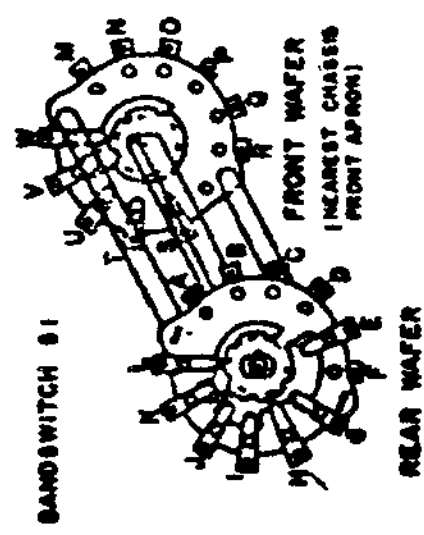
LETTERS AT BANDSWITCH (01) AND NUMERALS AT ANTENNA AND OSCILLATOR TRANSFORMERS (1, 1', 1'', 1''', 1'''' AT) IDENTIFY CORRESPONDING TERMINAL LUGS ON PICTORIAL VIEWS.



ANT. TRANSFORMER T2



ANT. TRANSFORMER T1



BANDSWITCH S1

NOTE: DIMENSIONS & PROPORTIONS SHOWN IN PICTORIAL VIEWS HAVE BEEN EXAGGERATED FOR CLARITY OF TERMINAL LUG LOCATION.

## DETAILED SERVICE INFORMATION

IF FREQUENCY	IF SELECTIVITY	IMAGE RATIO	SENSITIVITY	AUDIO OUTPUT
455 kc	-7 kc wide at 6 db down 65 kc wide at 60 db down (for 50 milliwatt output)	2.7:1 at 30 mc 6:1 at 14 mc 10:1 at 5 mc 35:1 at 1500 kc	12 microvolt at 600 kc 12 microvolt at 5 mc 11 microvolt at 14 mc 23 microvolt at 30 mc (for 50 milliwatt output)	675 milliwatt with less than 10% distortion at 400 cycles