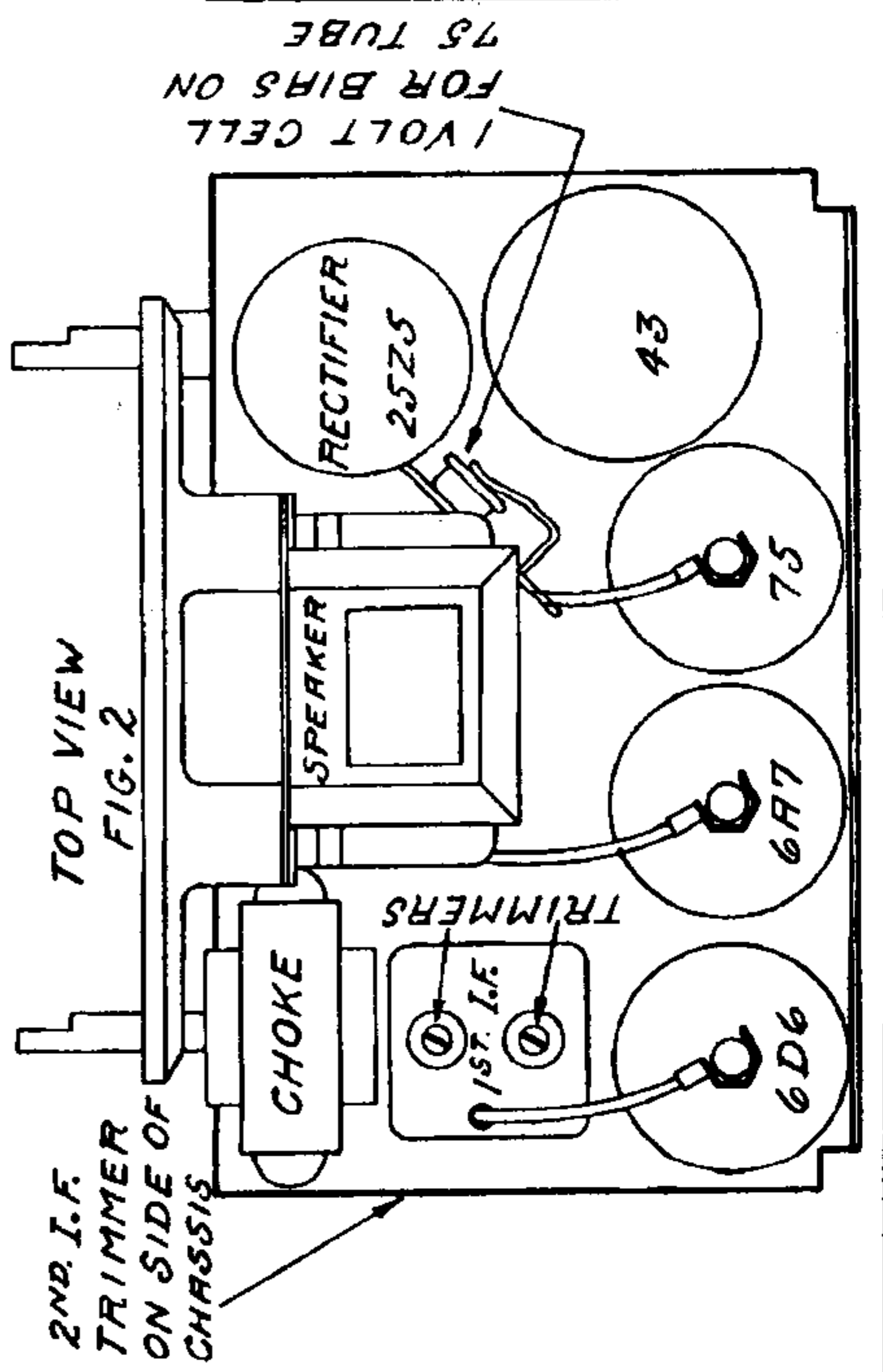
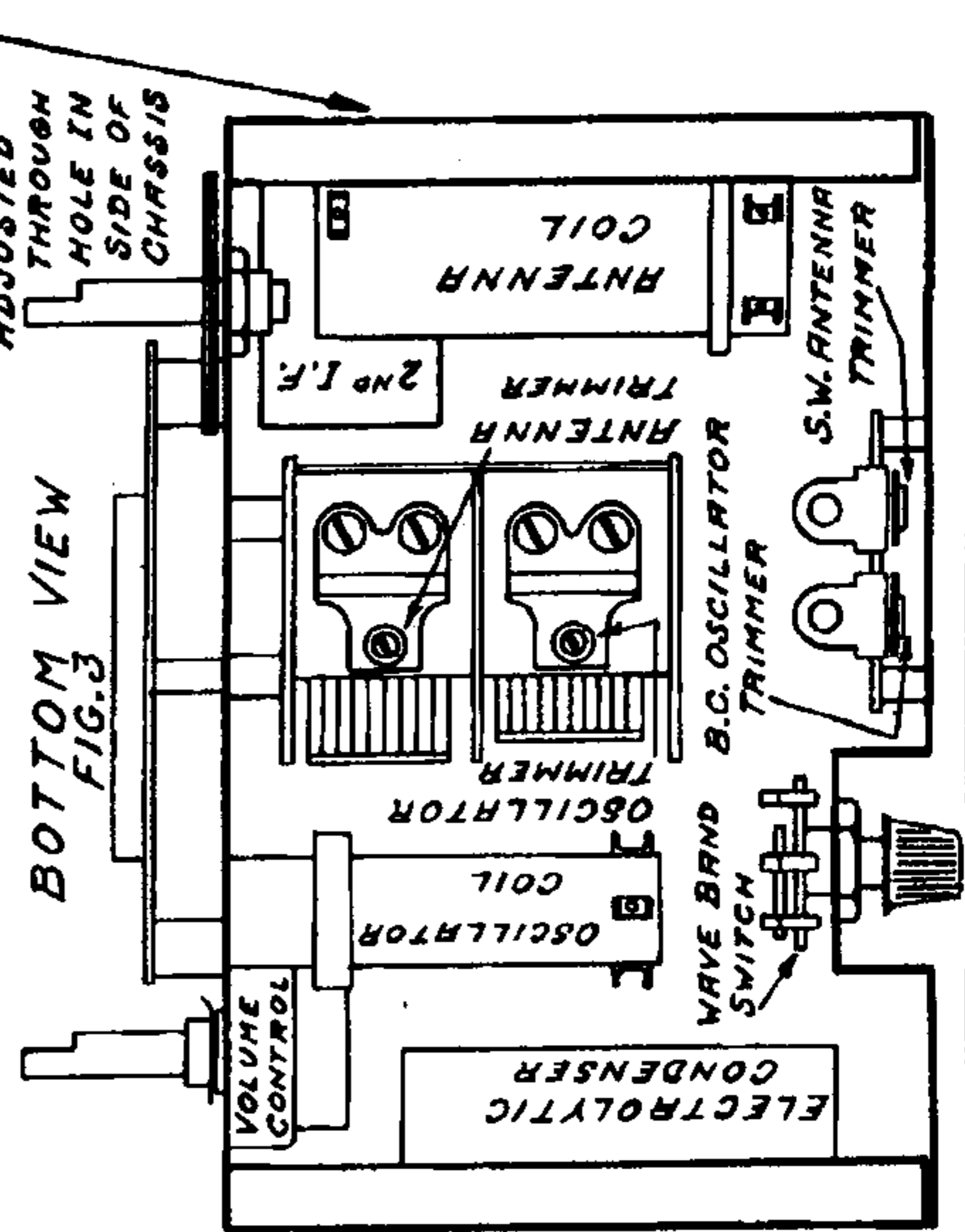
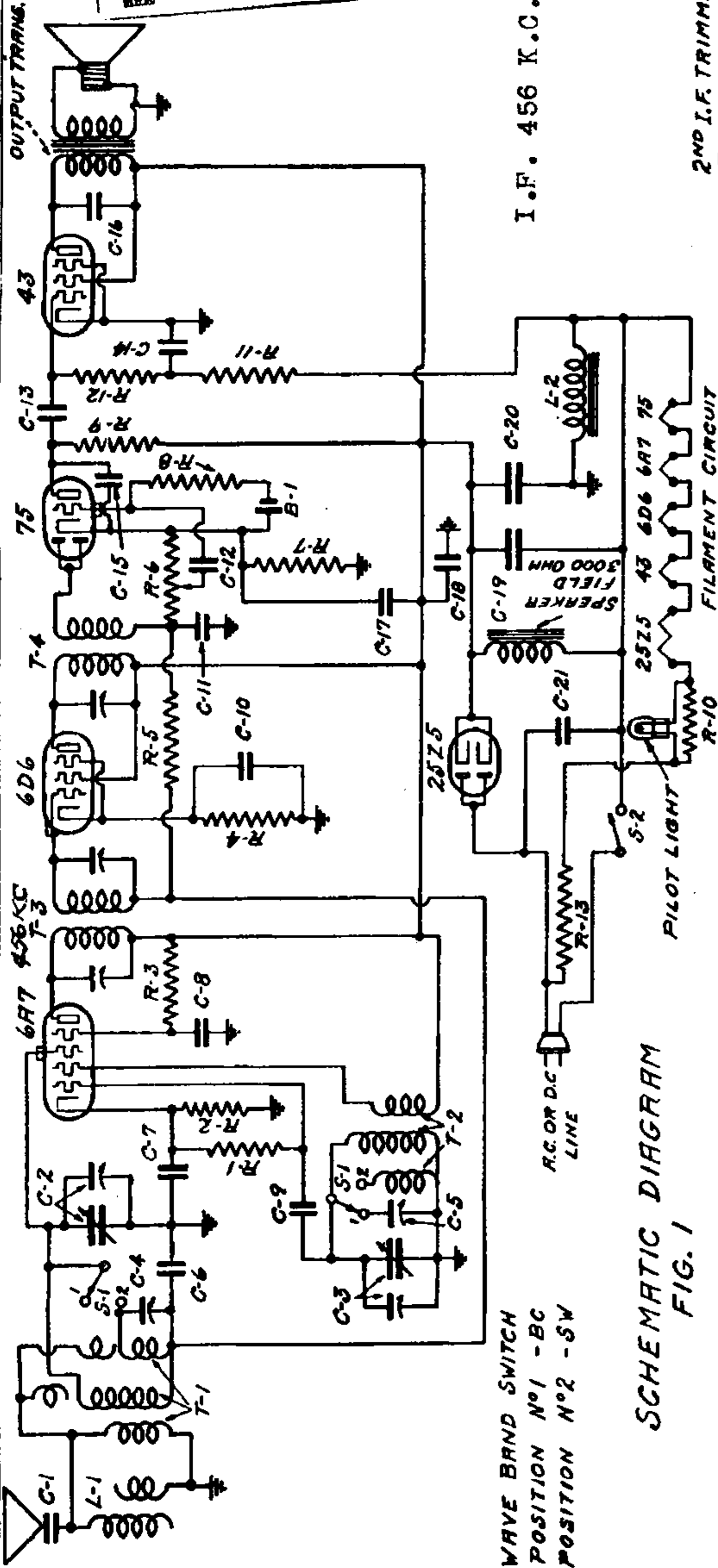


# EMERSON RADIO AND PHONOGRAPH CORPORATION

Ned. Ver. v. Historie v/d Radio

MODELS 108,110  
Chassis U5A  
Schematic  
Socket, Trimmers



MODELS 108, 110  
Chassis U5A  
Alignment  
Voltage, Parts

EMERSON RADIO AND PHONOGRAPH CORPORATION

TUBE DATA

The tube layout is illustrated in a diagram on the next page, Fig. 2. The complement of tubes and their functions are as indicated in the following table:

- 1-6A7—Pentagrid oscillator-modulator.
- 1-6D6—I-f amplifier.
- 1-75—Diode detector, audio amplifier, automatic volume control
- 1-48—Pentode power output
- 1-25Z5—Dual half-wave rectifier.

VOLTAGE ANALYSIS

Readings should be taken with a 1000 ohms-per-volt meter. Voltages listed below are from point indicated to ground. Line voltage for these readings was 117.6 volts, 60 cycles, a.c.

Tube	Plate	Screen	Cathode	Oct. Plate	Fil.
6A7	105	85	1.6	105	6
6D6	105	105	3.0	—	6
75	45	—	0	—	6
48	100	105	0	—	24

Voltage across speaker field (25Z5 cathode to line switch)—125 volts.  
Voltage across speaker choke (chassis to line switch)—20 volts.

REPLACEMENT PARTS

Item	Part No.	DESCRIPTION
L2	ZZT-196	Filter choke—500 ohms
T1, L1	2DT-199	Two-band antenna coil with 456 kc wave trap
T2	2DT-200	Two-band oscillator coil
T3	2DT-201	456 kc first i-f transformer
T4	2DT-202A	456 kc second i-f transformer
R1	XR-58	50,000 ohm 1/4 watt carbon resistor
R2	CCR-140	350 ohm 1/2 watt wire-wound resistor
R3	2ZE-196	30,000 ohm 1/4 watt carbon resistor
R4	AAR-119	300 ohm 1/2 watt wire-wound resistor
R5, R8	XR-57	1 megohm 1/4 watt carbon resistor
R6, R2	2DR-169	Volume control with line switch—0.5 megohm
R7	PR-79	1,000 ohm 1/4 watt carbon resistor
R9, R11, R12	KE-56	0.5 megohm 1/4 watt carbon resistor
R10	2DR-200	25 ohm wire-wound metal clad resistor
R13	SDW-42	145 ohm, 15 watt resistor wire in line cord
C1, C11	IG-47A	0.0005 mf mica condenser
C2, C8	2DC-302	Two gang variable condenser
C4, C3	2DC-312	Dual trimmer on bakelite strip 3 to 30 mmf—each trimmer
C6, C14, C21	AC-5	0.1 mf, 200 volt tubular condenser
C7, C8, C10	BC-12	0.05 mf, 200 volt tubular condenser
C9	EC-24A	0.0001 mf mica condenser
C12, C18	CCC-127	0.01 mf, 200 volt tubular condenser
C15	AC-7A	0.00025 mf mica condenser
C16	HC-34	0.006 mf, 500 volt tubular condenser
C17	EC-19	0.5 mf, 200 volt tubular condenser
C18	BC-13	0.25 mf, 200 volt tubular condenser
C19, C20	2DC-303	Multiple 8 and 16 mf electrolytic filter condenser C19—16 mf, 150 volts. C20—8 mf, 150 volts.
B1	XXZ-213	Bias cell, one volt
S1	2DS-102A	Wave-band switch
	KS-98B	5" dynamic speaker
	KL-6	Pilot light, 6-8 volt, .15 amp.
	2DW-62	Line cord with built-in resistor wire (R-18)
		Dial Assembly consists of:
	2DD-21A	Dial scale and bracket
	2DD-21B	Pyralin drive disc
	2DD-21C	Vernier friction drive
	2DD-21D	Dial crystal
	2DD-21E	Dial pointer

MODELS 108 and 110

Chassis Model U5A

- Voltage rating ..... 105-130 volts
- Current drain ..... 0.4 amp.
- Frequency ranges ..... 530-1550 kc, 1500-3800 kc.

GENERAL NOTES

1. Bias for the grid of the audio section of the 75 tube is obtained by means of a very small one-volt battery (bias cell). The cell assembly is mounted on a bakelite strip on top of the chassis. Do not put a voltmeter across this bias cell. If the set distorts, check the cell by temporarily replacing with a new cell, or some other one-volt source, and nothing results. To remove the bias cell, simply pull up on the spring clip and lift the cell from its cup. On replacing it be sure the clip makes good contact.
2. If replacements are made or the wiring disturbed in the r-f section of the circuit, the receiver should be carefully realigned.
3. One side of the power line is directly grounded to the chassis base. Under no circumstances, therefore, should a ground wire be permitted to come in contact with any metal part of the receiver.
4. The filament dropping resistor, (R13—see schematic), is a resistance wire in the special line cord. The cord will, therefore, become warm under normal operating conditions. To insure good heat radiation stretch out the line cord to its full length. Do not attempt to shorten it by cutting.
5. In operating the receiver on d-c it may be necessary to reverse the line plug for correct polarity.
6. The color coding of the i-f transformer leads is as follows:  
Grid—green  
Plate—blue  
Grid return—black

ADJUSTMENTS

The diagrams, Fig. 2 and Fig. 3, on the second page illustrate the location of the trimmers on the chassis. Note that the first i-f transformer, part No. 2DT-201, has two trimmers, located at the top of the can. The second i-f transformer is mounted on the inside of the right-hand chassis wall and has one trimmer, accessible through a hole in the chassis.

Two trimmers are mounted on the metal tray at the rear of the chassis. The trimmer nearest the wave-band switch is for the broadcast oscillator coil. The trimmer furthest away from the wave-band switch is for the short-wave antenna coil. The antenna stage trimmer will be found on the front section of the variable condenser and the oscillator stage trimmer on the rear section.

Alignment Procedure:

- An oscillator with frequencies of 456, 1425, 2500 and 3600 kc should be used.
- An output meter should be used across the voice coil or output transformer for observing maximum response.

  1. Turn the wave-band switch clockwise, to the broadcast position, and rotate the variable condenser to minimum.
  2. Feed a 456 kc signal to the grid of the 6A7 tube.
  3. Adjust the three i-f trimmers for maximum response.
  4. Turn the wave-band switch counter-clockwise, to the short-wave position.
  5. Set the dial pointer to 3600 and feed 3600 kc through the antenna lead.
  6. Adjust the variable condenser oscillator trimmer (rear) for maximum response.
  7. Turn wave-band switch to broadcast position and set the dial pointer to 1425.
  8. Feed 1425 kc through the antenna and adjust the broadcast oscillator trimmer (on rear dual-trimmer strip, nearest band switch) for maximum response. Then adjust the antenna (front) section of variable condenser for maximum response.
  9. Turn the wave-band switch counter-clockwise to the short-wave position. Set the dial pointer to 2500 and feed 2500 kc through the antenna.
  10. Adjust the short-wave antenna trimmer (on rear strip, furthest from band switch) for maximum response.

## Emerson 108, 110

The changes listed below have been made in Chassis USA, on models bearing serial numbers above 758,100. The schematic for models 108 and 110 appeared on *Emerson page 6-17 of Rider's Volume VI*.

Resistor, R-9, changed from 500,000 ohms, Part No. KR-56, to 50,000 ohms, Part No. KR-53. Resistor, R-11, changed from 500,000 ohms to 200,000 ohms, Part No. LR-61. Resistor, R-12, changed from 500,000 ohms to 100,000 ohms, Part No. KR-54. Condenser, C-13, changed from 0.01 mf., Part No. CCC-127, to 0.02 mf., 200 volts, Part No. FC-29. Condenser, C-14, from 0.1 mf. to 0.9 mf., 200 volts, Part No. BBC-131.