

EMERSON 426, 433

Single waveband, 540-1,630 kc (555-184 m), six-valve superhet for operation on 105-125-volt AC or DC mains, or on dry batteries (9 volts low tension; 90 volts high tension). A suitable external line cord is supplied with the set to allow it to work on 230-volt AC or DC mains. This line cord must not be cut.

The receiver has a self-contained aerial and normally does not require additional aerial or earth connections. For permanent home installations, however, an additional outside aerial and earth may be used for distant stations. Two leads for such connections (blue for aerial, black for earth) are seen when the chassis is removed from the cabinet.

The internal aerial has directional properties and the set should be rotated to the position where the desired station is received with maximum volume.

For battery operation the plug at the end of the mains lead must be inserted into the sockets on the bottom of the

chassis (visible when the cabinet is tipped up).

The type of battery is Emerson Uni-Power-Pac, No. 749.

The colour coding of the battery cable is as follows:—

- Red HT - (67.5 v).
- Blue HT -
- Yellow LT (7.5 v).
- Black LT-

The aerial coil L1 is tuned with C2 (C20) and the oscillator coil L2 with C3 (C21). The IF transformers are peaked at 455 kc—the first one being double-tuned, and the second one tuned on the secondary side only.

The colour coding of the IF trans-

former leads is as follows:—

- Green—grid. Blue—anode.

Black—grid return. Red—HT + AVC voltage is applied to the frequency-changer and IF valves.

The single diode pentode is resistance-capacity coupled by R16, C11, R17, to the beam power output valve, and tone correction is obtained with C14.

The heater circuit has all the valves (except the rectifier) in series and, when used on the mains, both the LT and HT supplies are derived from the rectifier output. There is no dial light.

If replacements are made to the HF section of the circuit, the receiver should be carefully re-aligned.

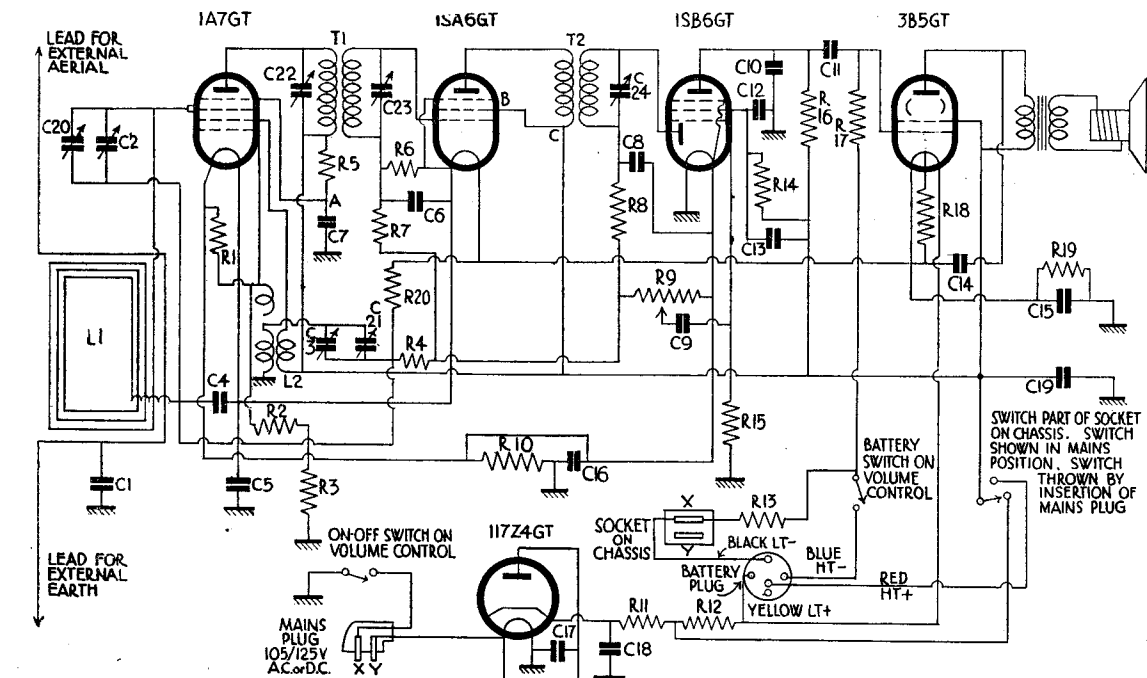
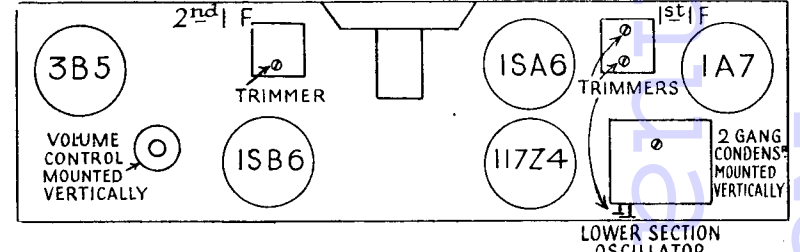
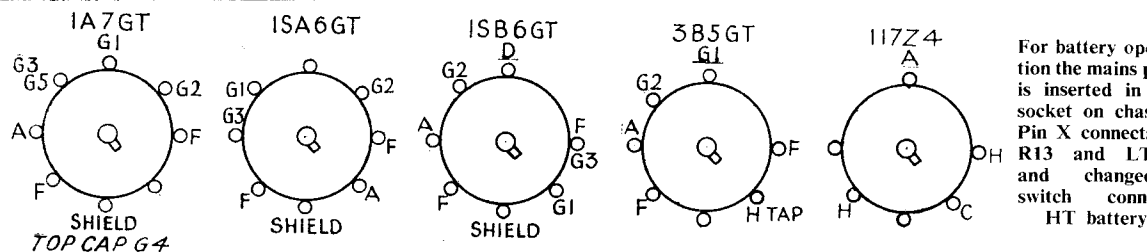
VOLTAGE ANALYSIS

Readings taken with a 1,000 ohm-per-volt meter. Voltages listed are from point indicated to chassis with the volume control turned on full and no signal. Mains voltage (after the line cord) for these readings was 117.5 v AC. Measurements on DC will be lower.

V.	Type.	Anode.	Screen.	Osc. Anode.	Fil.*
1	1A7GT	69	46	69	1.4
2	1SA6GT	69	70	—	1.4
3	1SB6GT	9	5	—	1.4
4	3B5GT	67	69	—	2.5
5	117Z4GT	Cathode 125 v.		—	125v

*Readings across valve pins.

Current drain on batteries: LT, 20 ma; HT, 7 ma.



- ### COILS
- L1 Loop aerial.
 - L2 Oscillator coil.
 - T1 1st IF transformer.
 - T2 2nd IF transformer.
- ### RESISTANCES
- R1 220,000 ohm 1/2-watt carbon.
 - R2, R16 1 megohm 1/2-watt carbon.
 - R3 470,000 ohm 1/2-watt carbon.
 - R4 3.3 megohm 1/2-watt carbon.
 - R5, R6, R17 22,000 ohm 1/2-watt carbon.
 - R7, R20 10 megohm 1/2-watt carbon.
 - R8 47,000 ohm 1/2-watt carbon.
 - R9 1.5 megohm volume control.
 - R10 290 ohm 1/2-watt wire-wound.
 - R11, R12 R11—960 ohm 3.5 watts; R12—1,375 ohm 3.6 watts, ballast.
 - R13 290 ohm 1/2-watt metallised filament, ceramic coated.
 - R14, R15 4.7 megohm 1/2-watt carbon.
 - R18 510 ohm 1-watt wire-wound.
 - R19 800 ohm 1-watt wire-wound.

- ### GANGING
- IF Circuits.**—Rotate the variable condenser to the minimum capacity position. Feed 455 kc from a signal generator to the control grid of the 1A7GT valve through a .01 mfd condenser and adjust the three IF trimmers for maximum response.
- HF Circuits.**—Set the dial pointer at 140. Set the signal generator to 1,400 kc and feed its output into a loop of wire about 12 in. in diameter. Hold this radiating loop about 12 in. from and parallel with the internal aerial. Increase the output of the signal generator until a satisfactory deflection is obtained on the output meter.
- Adjust first the oscillator trimmer (lower section of gang) and then the aerial trimmer for maximum response.

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- ### CONDENSERS
- C1, C9, C11, C14 .002 mfd. 600-volt tubular.
 - C2, C3 Variable condenser—2 gang.
 - C4, C16 .1 mfd. 200-volt tubular.
 - C5 .25 mfd 100-volt tubular.
 - C6 .01 mfd 400-volt tubular.
 - C7 5 mfd 100-volt dry electrolytic.
 - C8 .0002 mfd mica.
 - C10 .00006 mfd. mica.
 - C12 .03 mfd 200-volt tubular.
 - C13 .003 mfd 600-volt tubular.
 - C15 40 mfd 40-volt dry electrolytic.
 - C17 .05 mfd 400-volt tubular.
 - C18, C19 Dual 40 mfd. 150-volt dry electrolytic.
 - C20, C21 Trimmers, part of variable condenser.
 - C22, C23, C24 Trimmers, part of IF transformers.

carbon resistance as a dummy aerial feed 12 mc from the ganging oscillator to the external aerial lead.

Adjust first the short-wave oscillator trimmer C6 and then the short-wave aerial trimmer C5 for maximum response.

Turn the waveband switch to the medium-wave position (clockwise). Set the dial pointer at 160 and feed 1,600 kc from the ganging oscillator into a loop of wire about 12 in. in diameter. Hold this radiating loop about 12 in. away from the aerial coil and advance the input until a satisfactory deflection is obtained on the output meter.

Adjust first the oscillator trimmer C4 and then the aerial trimmer C3 for maximum response. The oscillator condenser is the rear section of the gang condenser.

Note.—It will be found that there are many small circuit variations even among receivers of the same type.

EARLIER CHASSIS A-B CONNECTED; B-C DISCONNECTED
LATER CHASSIS A-B DISCONNECTED; B-C CONNECTED