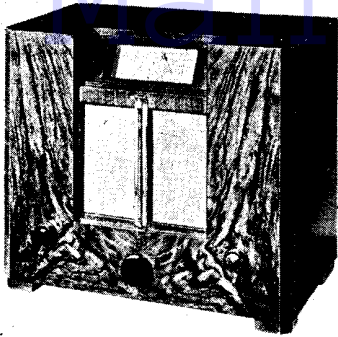


G.E.C. FIDELITY S.W.5 SUPERHET



CIRCUIT.—A five-valve A.C. mains-operated receiver for working on three wave ranges, the usual medium and long and a short waveband of 16.5 to 50 metres.

On medium and long waves the input to V1, the frequency changer, is through a rejector circuit, tuned to the intermediate frequency, and an inductively coupled band-pass filter.

On short waves coupling is again inductive, through two coils. Part of the muting control operates on V1 and consists of resistances and shorting switches which vary the bias on the cathode.

The output of V1 passes to V2, an H.F. pentode, through an I.F. transformer tuned to 445 kc.

A second I.F. transformer feeds the signals to the second detector valve, V3,

a double diode triode. Coupling between the windings of both I.F. transformers is manually variable giving variable selectivity.

Volume is controlled on V3 by varying the input to the grid. The L.F. output of V3, passes to V4, an output pentode, through a resistance and capacity stage. Attention is drawn to R35 which is only in circuit on the short waves.

Tone is controlled by means of a fixed condenser C22 and a variable resistance R33.

Mains equipment consists of transformer, full-wave rectifier, electrolytic condensers and smoothing chokes.

Special Notes.—The external speaker is

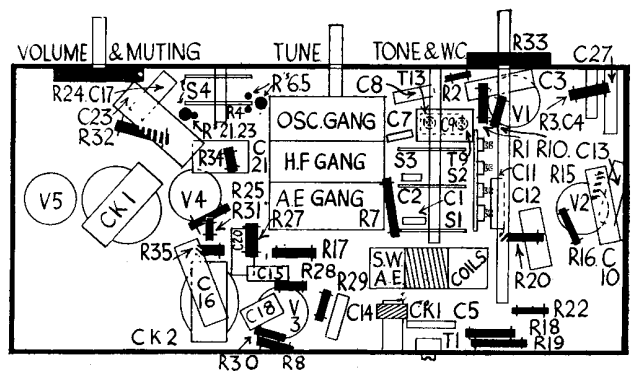
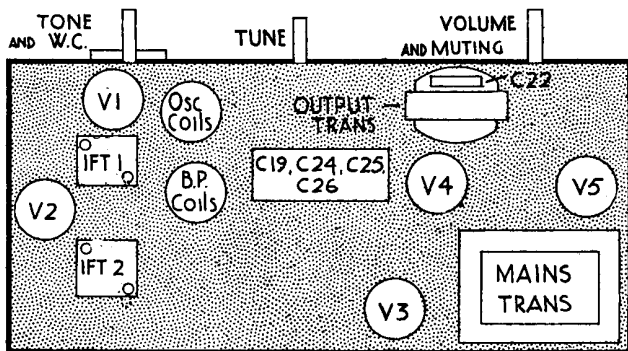
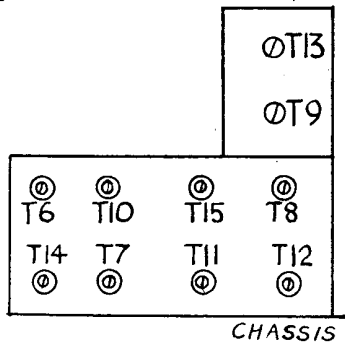
connected on the secondary of the output transformer and should have a speech coil impedance of 2 to 3 ohms. The internal speaker is a permanent magnet model.

The socket employed for connection of an external speaker is of the dual type. Partial insertion of the plug connects both speakers in circuit and complete insertion disconnects the internal speaker.

The dial lamps are rated at 3.5 volts .3 amps. The holders are secured to the dial assembly by spring clips around which is wrapped a small piece of adhesive tape. To remove them, pull off the adhesive tape until the end of the spring clip is revealed. They may then be removed by a direct pull.

Removing Chassis.—Remove the three knobs from the front of the cabinet (spring clips) and the two switch controls which pull off. Next slacken off the four wood screws that are found on each side of the dial assembly and which pass through metal retaining strips. These strips will pivot about the lower screws.

Remove four bolts from underneath the cabinet and unsolder the speaker leads from the top of the output transformer. The tags have similarly coloured leads going to them from the chassis, so that reconnection presents no difficulty.



These three diagrams show (left) the top of the chassis of the G.E.C. Fidelity S.W.5, (right) the underside of the chassis and (above) the trimmer arrangement.



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G.E.C. FIDELITY S.W. FIVE

ALIGNMENT NOTES

During all adjustments set the selectivity control fully anti-clockwise and volume at maximum.

I.F. Circuits.—Connect a modulated oscillator tuned to 445 kc. to the grid of V1, and an output meter across the external speaker terminals.

Adjust the four trimmers on the I.F. coils for maximum reading on the output meter.

I.F. Filter.—Inject a signal of 445 kc. to the aerial and earth terminals, and adjust T1 for minimum output.

Medium Waves.—Inject a signal of 214 metres to the aerial and earth terminals through a dummy aerial and tune it in. Adjust T6, T7 and T8 for maximum reading on the output meter.

Disconnect the oscillator section of the gang condenser and in its place connect an ordinary .0005 mfd. variable condenser. Inject a signal of 500 metres, and by means of the receiver tuning control and the external condenser, tune it in. When resonance is obtained, disconnect the external condenser temporarily and reconnect the oscillator condenser. Without retuning, adjust T9 for maximum output.

Return to 214 metres, and repeat the adjustments of the trimmers to check the accuracy.

Long Waves.—Inject and tune in a signal of 1,000 metres and trim T10, T15 and T11 for maximum output.

Inject a signal of 1,820 metres and, repeating the procedure used at 500 metres, adjust T13 for maximum output.

Return to 1,000 metres for check. The oscillator gang condenser lead can now be resoldered.

Short Waves.—Inject and tune in a 17 metre signal (18 mc.) and adjust T14 and T12 for maximum output. Two peaks will be obtained during the adjustment of T12. The one near minimum capacity is the correct.

Calibration.—With the gang condenser vanes fully meshed the pointer should be on the 562 metres mark.

VALVE READINGS

No signal. Volume maximum. Muting switch on 1. 200 volt A.C. mains.

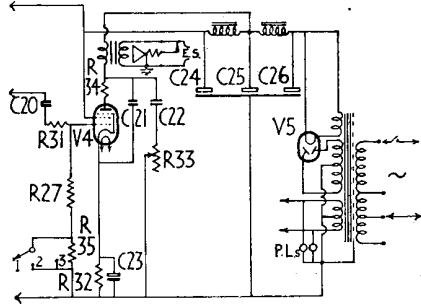
| V. | Type. | Electrode. | Volts. | Ma. |
|----|------------|------------|--------|-----|
| 1 | W41 (7) | Anode | 270 | 2.3 |
| | | Screen | 80 | 2.3 |
| | | Osc. anode | 85 | 3.1 |
| 2 | W42 (7) | Anode | 180 | 8.5 |
| | | Screen | 80 | 2.1 |
| 3 | MHD4 (7) | Anode | 105 | 1.5 |
| 4 | N41 (7) | Anode | 270 | 40 |
| | | Screen | 270 | 8.9 |
| 5 | U12 | Filament | 320 | — |
| | All Osram. | | | |

RESISTANCES

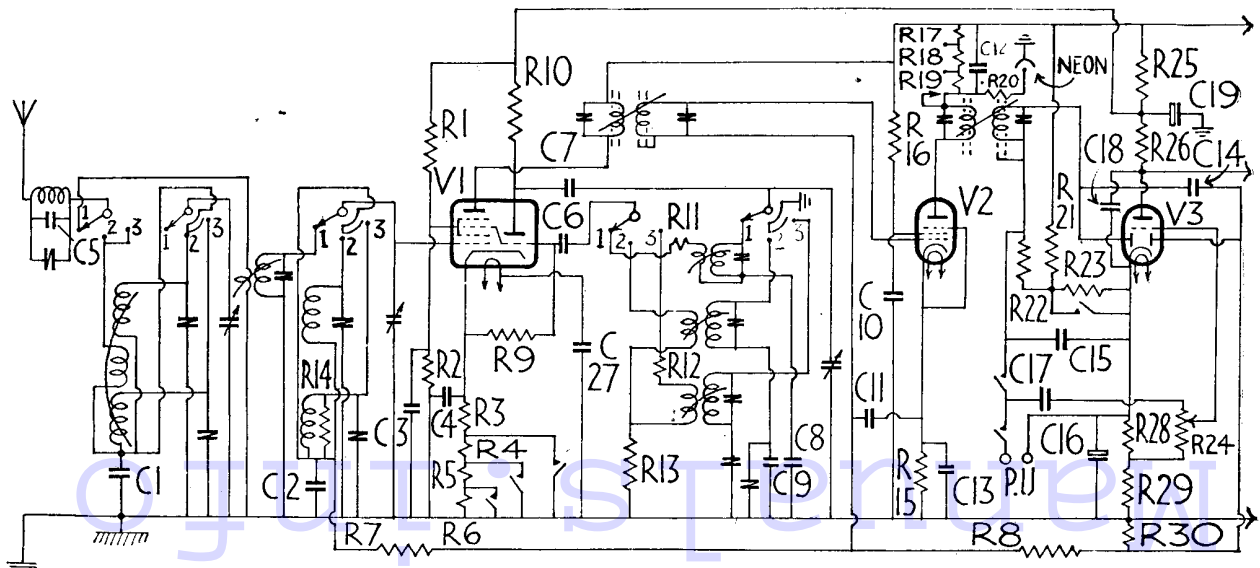
| R. | Purpose. | Ohms. |
|----|---------------------------------|---------|
| 1 | V1 screen decoupling | 33,000 |
| 2 | V1 screen decoupling | 55,000 |
| 3 | V1 cathode bias | 220 |
| 4 | Muting | 500 |
| 5 | Muting | 500 |
| 6 | Muting | 22,000 |
| 7 | V1 A.V.C. decoupling | 220,000 |
| 8 | V2 A.V.C. decoupling | 440,000 |
| 9 | V1 osc. grid leak | 55,000 |
| 10 | V1 osc. anode feed | 33,000 |
| 11 | Oscillation modifier | 29 |
| 12 | Oscillation modifier | 3,300 |
| 13 | Oscillation modifier | 500 |
| 14 | Long-wave response widening | 440,000 |
| 15 | V2 cathode bias | 300 |
| 16 | V2 screen decoupling | 77,000 |
| 17 | Neon adjuster | 7,700 |
| 18 | Neon adjuster | 2,200 |
| 19 | Neon adjuster | 2,200 |
| 20 | Neon feed | 44,000 |
| 21 | Demodulator diode positive ptr. | 99,000 |
| 22 | Demodulator diode load | 220,000 |
| 23 | Demodulator diode positive ptr. | 2,200 |
| 24 | Volume control | 400,000 |
| 25 | V3 anode decoupling | 5,500 |
| 26 | V3 anode load | 55,000 |
| 27 | V4 grid leak | 77,000 |
| 28 | V3 cathode bias | 500 |
| 29 | V3 cathode bias | 500 |
| 30 | A.V.C. diode load | 440,000 |
| 31 | V4 grid stopper | 220,000 |
| 32 | V4 cathode bias | 99 |
| 33 | Tone control | 50,000 |
| 34 | V4 anode stabiliser | 99 |
| 35 | Tone control (short-wave only). | 99,000 |

CONDENSERS

| C. | Purpose. | Mfds. |
|----|------------------------|-------|
| 1 | Matching C2 | .0026 |
| 2 | V1 grid decoupling | .0028 |
| 3 | V1 screen decoupling | .05 |
| 4 | V1 cathode bias shunt | .05 |
| 5 | I.F. filter | .001 |
| 6 | V1 osc. grid | .0001 |
| 7 | V1 osc. anode coupling | .0005 |
| 8 | Short-wave padding | .005 |
| 9 | Medium-wave padding | .0001 |
| 10 | V2 screen decoupling | .05 |
| 11 | V2 A.V.C. decoupling | .05 |
| 12 | Neon feed shunt | .25 |
| 13 | V2 cathode bias shunt | .05 |
| 14 | Diode coupling | .0001 |
| 15 | H.F. by-pass | .0003 |
| 16 | V3 cathode bias shunt | 35 |
| 17 | L.F. coupling | .05 |
| 18 | H.F. by-pass | .0003 |
| 19 | V3 anode decoupling | 7 |
| 20 | L.F. coupling | .02 |
| 21 | Pentode compensating | .001 |
| 22 | Tone control | .02 |
| 23 | V4 cathode bias shunt | 35 |
| 24 | H.T. smoothing | 3 |
| 25 | H.T. smoothing | 7 |
| 26 | H.T. smoothing | 7 |
| 27 | Heater decoupling | .05 |



The output and rectifier stages of the G.E.C. Fidelity S.W.5.



The circuit of the G.E.C. Fidelity S.W.5, with the exception of the output and rectifier stages, shown in the small diagram above.