



Circuit diagram of the Ferranti 1737 and 2037 receivers. The coupling between L17 and L18 is variable, enabling the selectivity to be controlled. X represents the tag link at the rear of the chassis, which is removed when using a pick-up, thus muting radio.

COMPONENTS AND VALUES

| RESISTANCES | | Values (ohms) |
|-------------|-----------------------------------------------------|---------------|
| R1 | V1 tetrode C.G. decoupling | 250,000 |
| R2 | V1 fixed tet. G.B. resistance | 300 |
| R3 | V1 tetrode anode H.T. feed | 1,000 |
| R4 | V1 osc. C.G. resistance | 100,000 |
| R5 | V1 osc. anode H.T. feed | 30,000 |
| R6 | V1 osc. anode S.W. stabiliser | 1,000 |
| R7 | V1 osc. anode M.W. and L.W. stabiliser | 120,000 |
| R8 | V1, V2 S.G.'s potential divider | 25,000 |
| R9 | V2 fixed G.B. resistance | 600 |
| R10 | I.F. stopper | 100,000 |
| R11 | Manual volume control | 1,000,000 |
| R12 | V3 triode C.G. decoupling | 100,000 |
| R13 | V3 signal diode load | 500,000 |
| R14 | V3 triode G.B. and A.V.C. diode voltage resistances | 1,700 |
| R15 | V3 triode anode load | 8,000 |
| R16 | V3 A.V.C. diode load resistances | 40,000 |
| R17 | V3 triode anode load | 4,000,000 |
| R18 | V3 A.V.C. diode load resistances | 1,000,000 |
| R19 | T.I. anode H.T. feed | 1,000,000 |
| R20 | T.I. C.G. decoupling | 1,000,000 |
| R21 | V4 C.G. resistance | 250,000 |
| R22 | V4 C.G. decoupling | 60,000 |
| R23 | V4 C.G. decoupling | 100,000 |
| R24 | Automatic G.B. potential divider | 250,000 |

| OTHER COMPONENTS (Continued) | | Approx. Values (ohms) |
|------------------------------|-------------------------------|-----------------------|
| L7 | Band-pass coupling coil | 0.2 |
| L8 | Aerial S.W. tuning coil | 0.05 |
| L9 | Band-pass secondary coils | 6.0 |
| L10 | Osc. circuit S.W. tuning coil | 40.0 |
| L11 | Osc. circuit M.W. tuning coil | Very low |
| L12 | Osc. circuit L.W. tuning coil | 8.8 |
| L13 | Osc. circuit S.W. reaction | 23.0 |
| L14 | Osc. circuit M.W. reaction | 0.7 |
| L15 | Osc. circuit L.W. reaction | 7.0 |
| L16 | 1st I.F. trans. | 8.0 |
| L17 | 2nd I.F. trans. | 85.0 |
| L18 | Speaker speech coil | 85.0 |
| L19 | Hum neutralising coil | 4.0 |
| L20 | Speaker field coil | 0.25 |
| L21 | Speaker input trans. | 1,600.0 |
| L22 | Speaker input trans. | 150.0 |
| L23 | Speaker input trans. | 0.3 |
| T1 | Speaker input trans. | 35.0 |
| T2 | Speaker input trans. | 0.05 |
| T3 | Speaker input trans. | 0.1 |
| T4 | Speaker input trans. | 380.0 |
| T5 | Speaker input trans. | — |
| T6 | Speaker input trans. | — |
| T7 | Speaker input trans. | — |
| T8 | Speaker input trans. | — |
| T9 | Speaker input trans. | — |
| T10 | Speaker input trans. | — |
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| T97 | Speaker input trans. | — |
| T98 | Speaker input trans. | — |
| T99 | Speaker input trans. | — |
| T100 | Speaker input trans. | — |

S17 is the Q.M.B. mains switch, ganged with the volume control R12.

Coils.—L1-L5; L7, L9, L10; L11-L16 and the I.F. transformers L17, L18 and L19, L20 are in five screened units on the chassis deck. The L11-L16 unit also contains the pre-set trackers C35 and C38 and the extra fixed condensers C7 and C8 which are connected in parallel with them. The I.F. units contain their associated trimmers, and the second also contains R11, R14, C17 and C18.

L6 and L8 are unscreened, and are on a tubular former beneath the chassis, below the L1-L5 unit. L8 is the thick wire winding.

Scale Lamps.—There are two of these, one for the Magnascopic and main scales and the other for the waveband indicator. Both are Ever Ready 6.2 V, 0.3 A M.E.S. types, but the former has a tubular bulb, and the latter a spherical white painted bulb.

CIRCUIT ALIGNMENT

I.F. Stages.—Adjust signal generator to 125 KC/S and feed output between V1 control grid (top cap) and chassis. Adjust trimmers C42, C41, C40 and C39, in that order, to obtain maximum reading on output meter.

R.F. and Oscillator Stages.—Set tuning pointer to 200 m. with the condenser vanes fully out of mesh (anti-clockwise). Set wavechange switch to M.W. and tuning condenser to 228 m. and feed in a 228 m. signal between V1 top cap and chassis. Screw oscillator trimmer C34 to maximum (anti-clockwise) and then slowly clockwise until the second maximum peak output is obtained.

Now apply the 228 m. signal to A and E terminals via an artificial aerial or 0.0002 μF condenser and adjust band-pass trimmers C30, C31 for maximum output. Adjust tuning condenser and signal generator to 500 m. and adjust M.W. tracker C35 for maximum output while rocking the gang.

Switch to L.W., tune to 1,000 m. on scale, feed in a 1,000 m. signal, and adjust C37 for maximum output. Feed in an 1,800 m. signal, tune it in, and adjust C38 for maximum output while rocking the gang.

Switch to S.W., set tuning condenser to 19.7 m. (marked by black line at top of scale), and feed in a 19.7 m. signal. Screw oscillator trimmer C36 to maximum (anti-clockwise) and then slowly clockwise until second maximum peak output is obtained. To verify adjustment, turn tuning condenser slightly to right and the image output should be obtained.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 233 V, using the 230 V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but there was no signal input.

Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

If V1 should become unstable when measurements are being made of its anode current, as in our case, it can be stabilised by connecting a non-inductive condenser of about 0.1 μF from grid (top cap) to chassis.

| Valve | Anode Voltage (V) | Anode Current (mA) | Screen Voltage (V) | Screen Current (mA) |
|-----------|-------------------|--------------------|--------------------|---------------------|
| V1 VHT4 | 247 | 2.0 | 69 | 3.4 |
| V2 VPT4 | 55 | 1.1 | 69 | 1.5 |
| V3 H4D | 250 | 3.2 | 69 | 1.5 |
| V4 LP4 | 162 | 1.6 | 69 | 1.5 |
| V5 R4 | 242 | 54.0 | 69 | 1.5 |
| T.I. VFT4 | 357† | — | Target 250 | 2.1 |

† Each anode, A.C.

GENERAL NOTES

Switches.—S1-S15 are the waveband switches, in four rotary units beneath the chassis, which are indicated in our under-chassis view, and shown in detail in the diagrams on page VIII. The table (p. viii) gives the switch positions for the three control settings, starting from fully anti-clockwise. A dash indicates open, and C closed.

S16 is the Q.M.B. internal speaker muting switch, of the rotary type, mounted on the bracket at the rear of the speaker magnet.

* Electrolytic. † Variable. ‡ Pre-set.

TABLE AND DIAGRAMS OF SWITCH UNITS

| Switch | S.W. | M.W. | L.W. |
|--------|------|------|------|
| S1 | — | — | — |
| S2 | — | — | — |
| S3 | — | — | — |
| S4 | — | — | — |
| S5 | — | — | — |
| S6 | — | — | — |
| S7 | — | — | — |
| S8 | — | — | — |
| S9 | — | — | — |
| S10 | — | — | — |
| S11 | — | — | — |
| S12 | — | — | — |
| S13 | — | — | — |
| S14 | — | — | — |
| S15 | — | — | — |

FERRANTI 1737 & 2037

