

AMBASSADOR**Model 548**

General Description : Five-valve (including rectifier) three-waveband superheterodyne receiver with internal frame aerial. Released April 1948.

Power Supplies : A.C. and A.C./D.C. models, 200–250 volts.

Intermediate Frequency : 452 kc/s.

Valves : (V₁) CCH35; (V₂) EF39; (V₃) EBC33; (V₄) CL33; (V₅) CY31.

General Notes : Apart from a small number of the first run, this chassis uses A.C./D.C. technique for both A.C. and A.C./D.C. chassis. 200-mA. valves are used, all heaters being connected in series. On the A.C. chassis, heaters are supplied from an 80-volt winding on the mains transformer; on the A.C./D.C. chassis via a standard ballast resistor.

The dial lamps on the A.C. chassis are 3.5-volt lamps wired in series and supplied from a winding on the mains transformer; on the A.C./D.C. they are wired in series with the heaters and shunted by a 150-ohm resistor.

On both chassis the bias for all valves is supplied from two resistors in the negative H.T. lead, the output valve-grid leak is taken to the negative end of the resistors, and the A.V.C. line to the junction of them. This supplies delay to the A.V.C. diode and bias to the F.C. and I.F. valves.

The aerial-input circuit is rather unusual. The frame aerial takes the place of the M.W. coil, and on long waves it is switched in series with the L.W. coil to give frame pick-up on long waves. The external aerial is coupled to both long and medium waves by a coupling coil, which is tuned by the aerial capacitance and a fixed capacitor to the frequency of Luxembourg. This has the effect of giving a band-pass filter when the set is operated on long waves, at the Luxembourg frequency, and considerably reduces the Light Programme second channel interference.

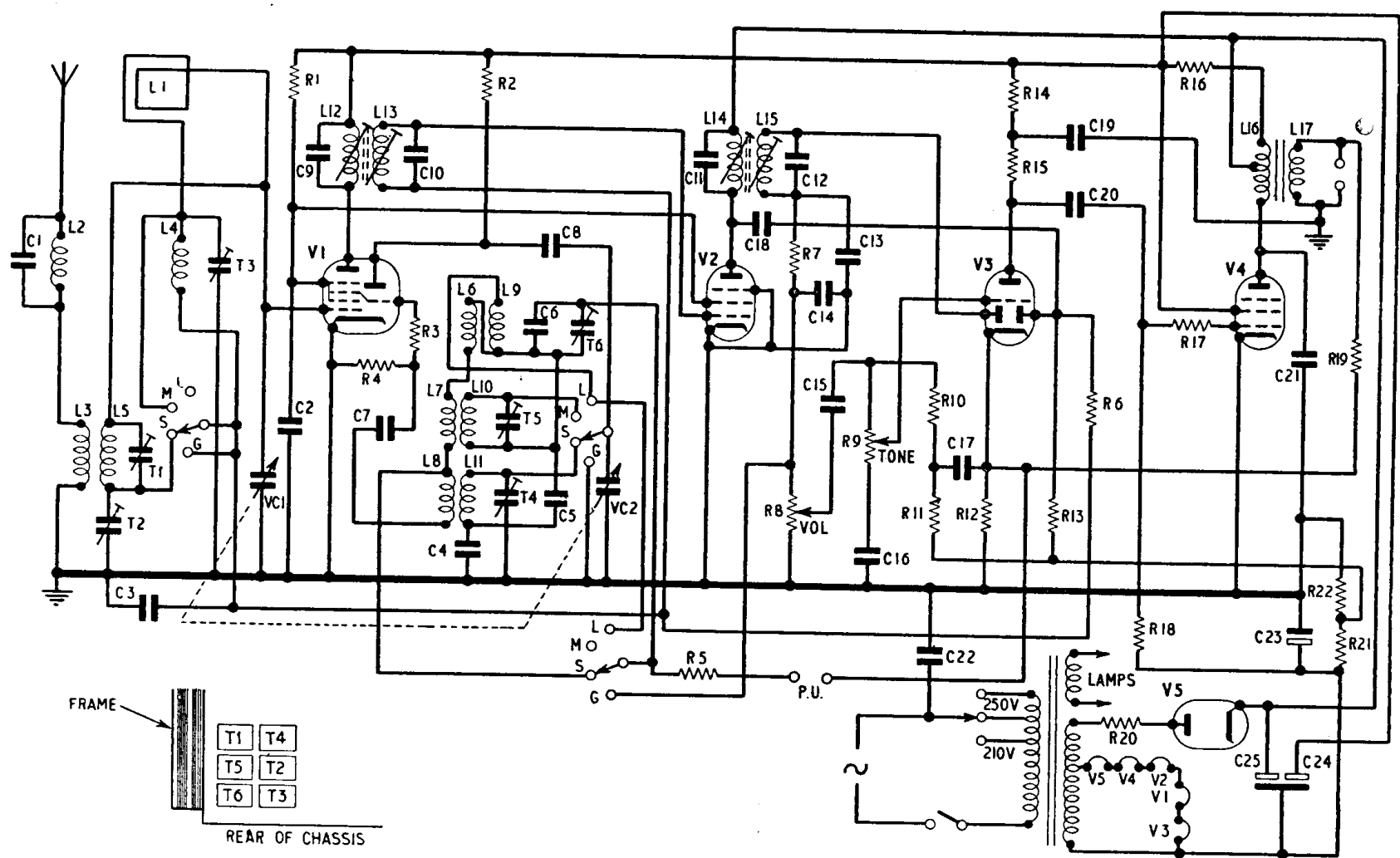
Faults : If modulation hum is experienced it can be considerably reduced by connecting a 0.02- μ F. capacitor from anode to cathode of the rectifier.

Instability on M.W. can arise in several ways. If general over the band, the electrolytic by-passing the negative bias resistor must be checked for O/C. If at the low frequency end of M.W. only, a 150,000-ohm resistor wired across the primary of the 1st I.F. transformer should effect a cure.

On A.C./D.C. chassis, if the dial lamps tend to burn out, it may be necessary to fit a Brimistor in the heater chain.

Alignment Procedure :

| <i>Apply Signal</i> | <i>Tune Receiver to</i> | <i>Trim in Order Stated</i> |
|-----------------------------------|-------------------------|---|
| 452 kc/s. to G1 of V ₁ | — | L ₁₅ , L ₁₄ , L ₁₃ , L ₁₂ |
| 15 Mc/s. to Aerial socket | 20 m. | T ₄ , T ₁ |
| 1.2 Mc/s. to Aerial socket | 250 m. | T ₅ , T ₂ |
| 250 kc/s. to Aerial socket | 1200 m. | T ₆ , T ₃ |



CIRCUIT AND TRIMMER LAY-OUT DIAGRAMS—AMBASSADOR MODEL 548

Capacitors.

| | |
|-----|----------|
| C1 | 300 pF. |
| C2 | 0.1 |
| C3 | 0.1 |
| C4 | 6000 pF. |
| C5 | 625 pF. |
| C6 | 300 pF. |
| C7 | 120 pF. |
| C8 | 120 pF. |
| C9 | 100 pF. |
| C10 | 100 pF. |

| | |
|-----|---------|
| C11 | 140 pF. |
| C12 | 140 pF. |
| C13 | 120 pF. |
| C14 | 120 pF. |
| C15 | 0.02 |
| C16 | 300 pF. |
| C17 | 0.1 |
| C18 | 15 pF. |
| C19 | 0.1 |
| C20 | 0.05 |

| | |
|-----|-------------|
| C21 | 0.01 |
| C22 | 0.01 |
| C23 | 50 |
| C24 | 16 (450 v.) |
| C25 | 16 |

Resistors.

| | |
|----|-----|
| R1 | 47k |
| R2 | 39k |

| | |
|-----|-------------|
| R3 | 33 |
| R4 | 22k |
| R5 | 47k |
| R6 | 2.2M |
| R7 | 47k |
| R8 | 0.5M (Pot.) |
| R9 | 0.5M (Pot.) |
| R10 | 2.2M |
| R11 | 1M |
| R12 | 22 |

| | |
|-----|------|
| R13 | 1M |
| R14 | 100k |
| R15 | 100k |
| R16 | 3.3k |
| R17 | 220k |
| R18 | 680k |
| R19 | 100 |
| R20 | 82 |
| R21 | 90 |
| R22 | 39 |

D.C. Resistance (ohms.)

| | |
|-----|----------|
| L1 | 2.5 |
| L2 | 11 |
| L3 | Very low |
| L4 | 11 |
| L5 | Very low |
| L6 | Very low |
| L7 | Very low |
| L8 | Very low |
| L9 | 2.5 |
| L10 | 2 |
| L12 | 6 |
| L13 | 6 |
| L14 | 7.5 |
| L15 | 5.5 |
| L16 | 175 |
| L17 | Very low |
| L18 | 3 |
| L19 | 400 |
| L21 | 60 |

AMBASSADOR RECEIVERS

GENERAL NOTES

Manufacturers : R. N. Fitton, Ltd., Princess Works, Brighouse, Yorkshire.

Removal of Chassis :

(a) *Table Models.* Lie receiver on back and unscrew chassis-retaining bolts on underside of cabinet. Stand receiver upright and remove back panel and loudspeaker plugs, etc. Remove knobs (clip-on knobs which are stiff can be removed by pressing string underneath them) and withdraw chassis from cabinet.

(b) This system also applies to *Table Radiograms* and *Consoles*. Large radiograms employ various methods, but no difficulty should be experienced, as fitting has always been kept as simple as possible.

I.F. Alignment : Except on Models 4756, 548, 849 and 650H, all alignment is carried out in the normal manner, *i.e.*, adjustment of each I.F. trimmer, in turn, for maximum output. On the chassis types 4756, 548 and 849 a damping stick is necessary. This takes the form of a 22k resistor in series with a 0.01- μ F. capacitor. In use, the 0.01- μ F. capacitor is clipped on to the chassis and the free end of the 22k resistor is connected to the live end of one winding; the other winding of the same transformer is then adjusted for maximum output. The 22k resistor is then transferred to this winding and the first winding adjusted. This alignment method gives a broad and flat I.F. response, with a consequent improvement in reproduction.

In the 650 receiver it is necessary to supply external bias from a battery during alignment. The positive terminal of a 9-volt battery is connected to chassis, and the 6-volt terminal to the A.V.C. end of the I.F. valve grid coil. The signal generator earthy lead is connected to -4.5 volts. Alignment of the second I.F. is then carried out with damping, as above. The first I.F. is then adjusted for maximum output, without damping. The primary and secondary adjustments must be carried out two or three times. The resultant I.F. response has a main peak at 420 kc/s., and should not fall below -4 db. until the generator output is varied beyond 8 kc/s. to one side of 420 kc/s. On the other side of 420 kc/s. it should be sharply attenuated.

A non-metallic trimming tool must be used for aligning the 849 and later models.

On A.C./D.C. table models produced before 1948, a 0.01- μ F. capacitor is used to isolate the pick-up from chassis. If it is desired to use a record player, a crystal pick-up can be employed without alteration. If it is desired to use a magnetic pick-up the isolation capacitor must be shorted out. It would be wiser in this case to use a pick-up which has its windings isolated from the player board, so that the latter can be earthed.