

“TROUGH-LINE II” F.M. TUNER

INSTALLATION, OPERATION and MAINTENANCE

Connecting the F.M. Tuner.

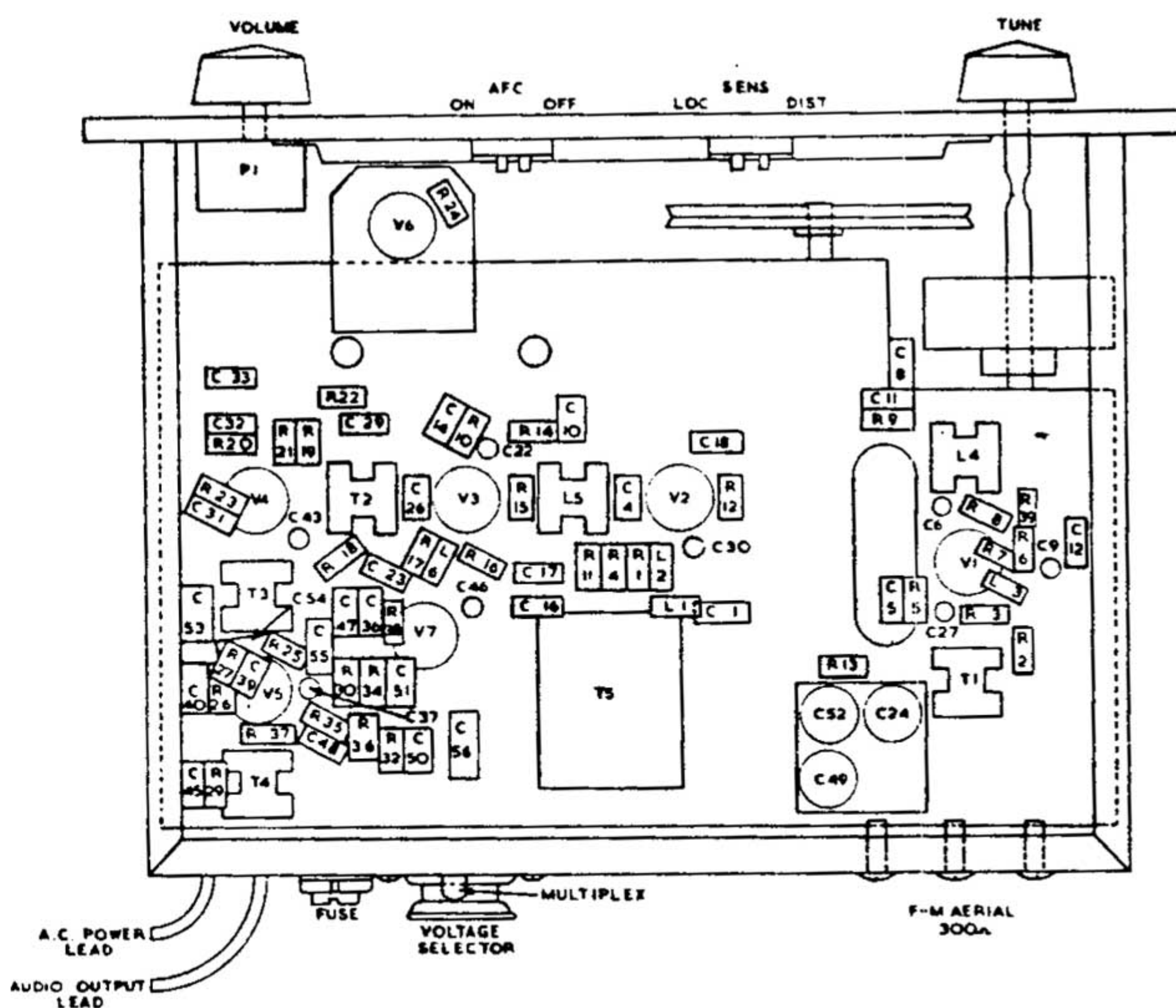
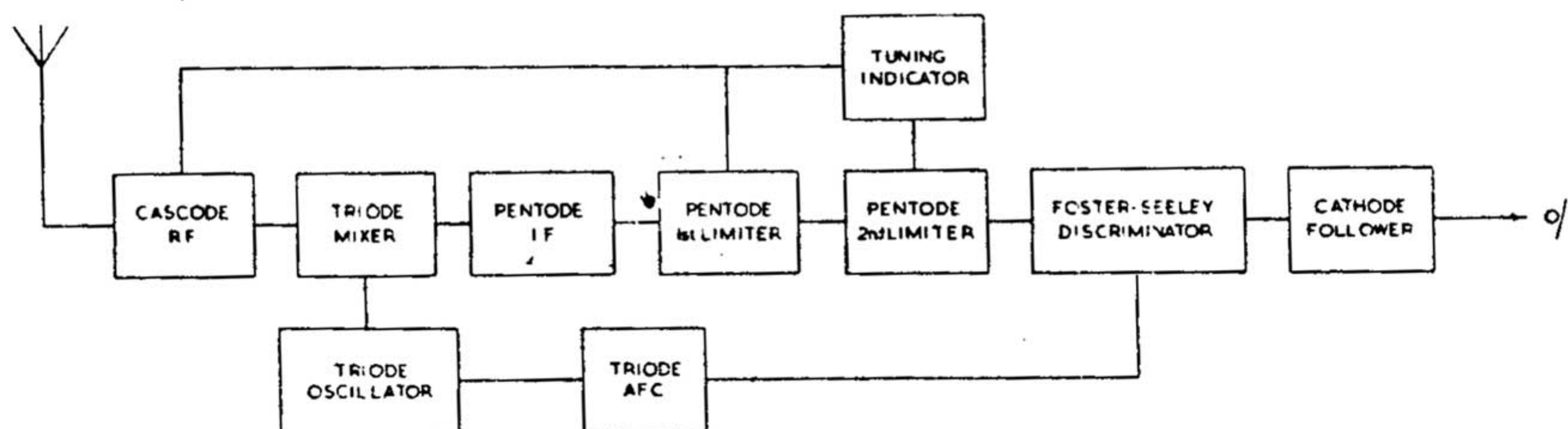
1. This unit may be used free-standing on a table, or it may be mounted on a panel of any thickness, through a cut-out of $10\frac{1}{8}'' \times 3\frac{7}{8}''$ (27 cms. \times 9.85 cms.). To mount on a panel: remove the rubber feet by pulling smartly out of their retaining holes; pass the body of the tuner through the cut-out until the front plate butts against the panel, then pass the U-shaped bracket over the back of the tuner and fix it by passing the wing screw through the hole in the bracket and into the threaded hand-bush in the centre of the rear panel on the tuner. Tighten the wing screw just enough to prevent the metal backing on the front plate of the tuner from slipping on the panel.
2. The mains transformer primary is wound for voltages between 210 and 250 (50 to 60 c/s) or on the alternative model for voltages between 110 and 124 (50 to 60 c/s). The circular voltage selector (situated at the back of the tuner) should be withdrawn to its fullest extent, rotated to the voltage nearest to your supply and reinserted.
3. When used with a LEAK power amplifier the mains supply for the tuner can be obtained by inserting the “A.C. POWER” plug into the A.C. outlet socket on the power amplifier. The tuner is switched on by turning the volume control.
4. The 300 ohm aerial input is balanced to earth. When using 300 ohm twin feeder, the conductors should be connected to the outer aerial terminals. When using an unbalanced 70-80 ohm feeder, the inner central conductor should be connected to either of the outside terminals and the outer screening connected to the centre chassis terminal.
In many localities (covering perhaps 80% of the population) good reception of the B.B.C. transmissions will be possible with an indoor aerial, but it should be remembered that the signal/noise ratio will always be better with an efficient outdoor aerial. Even with a very sensitive receiver such as this it is desirable to use an outdoor aerial correctly orientated, the optimum position being indicated by maximum closure of the tuning indicator pattern.
5. The output voltage from this tuner is approximately 1 volt. Due to the use of a cathode follower output stage the output impedance does not exceed 12,000 ohms. This means that up to 20 ft. of low-loss co-axial screened cable can be used to connect the tuner to its associated pre-amplifier without audible loss of high frequencies.
6. This tuner unit is earthed to its associated pre-amplifier via the screening of the AUDIO OUTPUT lead, and no additional earth connection should be made to any part of the tuner.

Servicing.

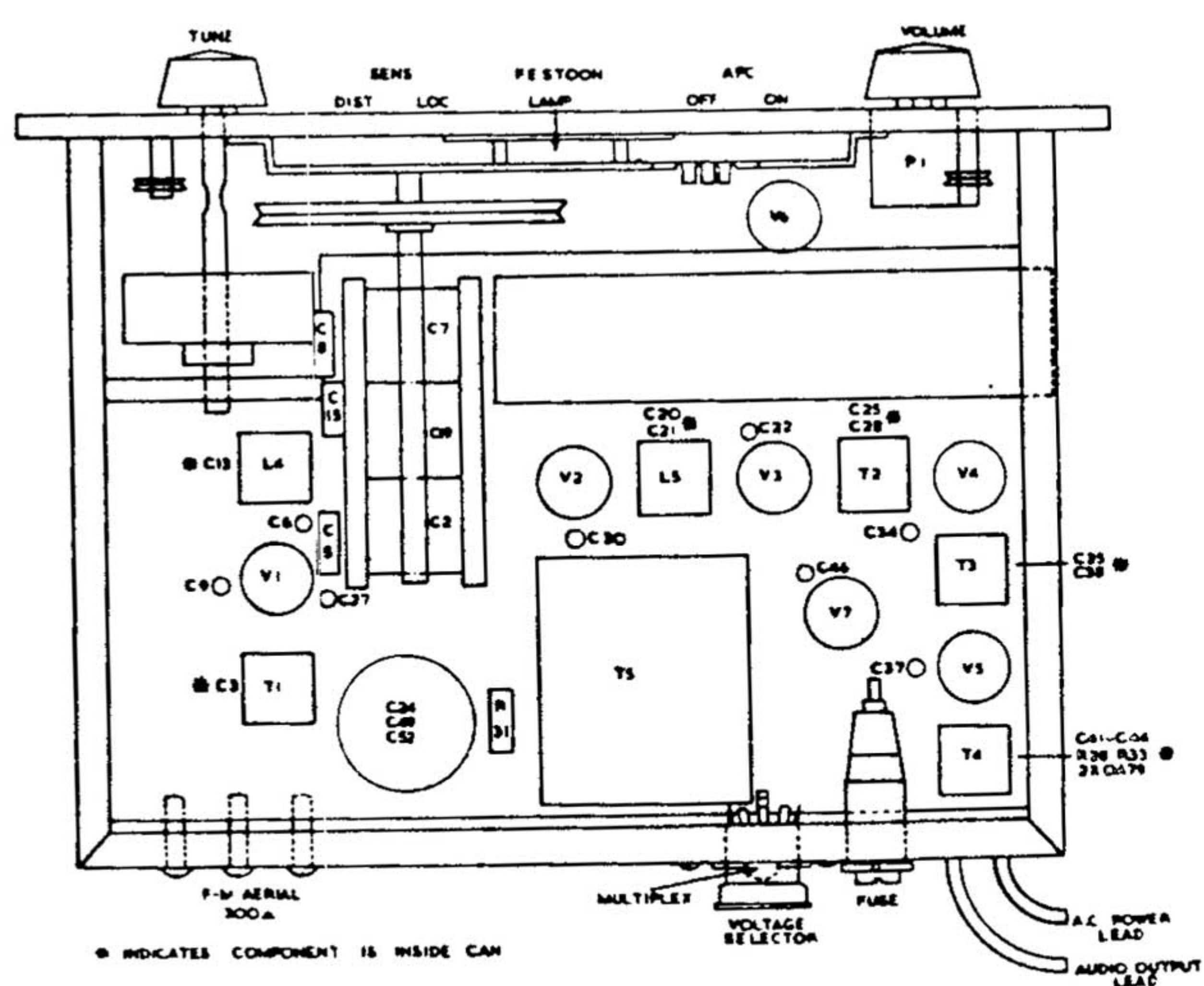
On no account should the pre-set trimmer capacitor C8 or the pre-set tuning slugs be tampered with or adjusted in any way.

It is not possible for an F.M. tuner of this calibre to be accurately aligned without using a double beam oscilloscope, F.M. signal generator complete with an accurate 'marker' oscillator and a D.C. valve voltmeter. These requirements should be emphasised to a potential service engineer, and if all the above equipment is not available, work should not be started.

BLOCK CIRCUIT DIAGRAM OF TROUGH-LINE II F.M. TUNER



UNDER CHASSIS



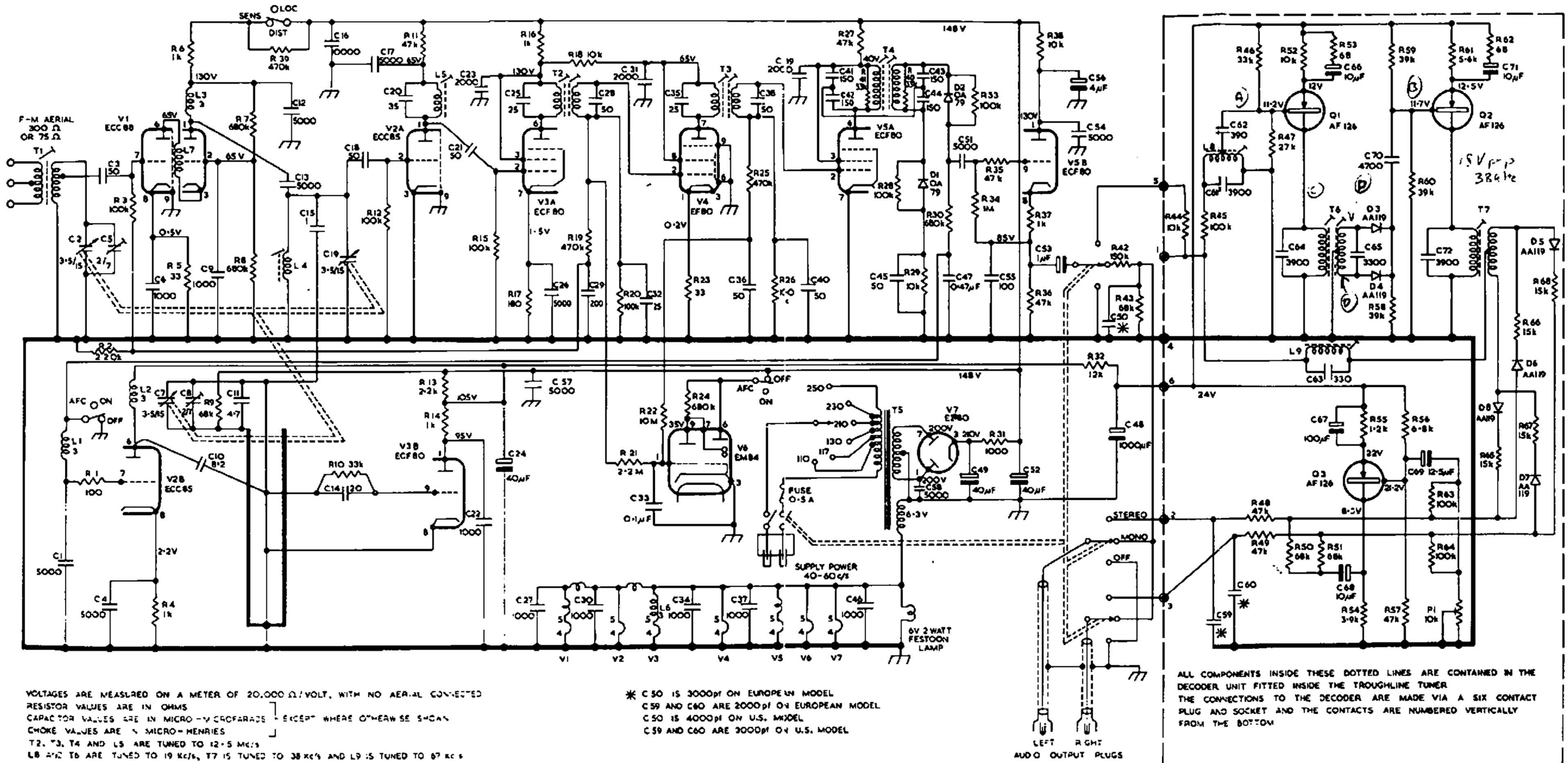
TOP CHASSIS

Operating the F.M. tuner.

7. The tuning indicator used on this F.M. tuner is of the maximum closure type and only becomes operative when the AFC is switched "OFF". In order to tune in a station, it is therefore necessary to switch off the AFC and adjust the tuning control until a minimum gap exists between the two vertical light strips. Switching the AFC "ON" locks the station in tune and removes the HT supply from the tuning indicator.
8. In locations of very high signal strength, the sensitivity switch should be set to "LOC": following this procedure will suppress some of the unwanted inter-station noise.

SPECIFICATION

Frequency Range:	88—108 Mc s.
Drift:	3 kc/s maximum with AFC "ON", 15 kc s maximum with AFC "OFF".
Sensitivity:	2 micro-volts at the aerial terminals for full limiting.
Aerial Impedance:	300 ohms, balanced with centre tap earthed (70/80 ohm unbalanced).
Audio Output:	Cathode follower output delivers approximately 1 volt and facilitates the use of long output leads with negligible high frequency attenuation.
Multiplex Output:	For connection to a multiplex adaptor to obtain stereophonic reproduction from stereo F.M. transmissions, when these are available.
A.C. Power:	200/250 volts, 50/60 c/s 45 watts. Alternative model 110/124 volts, 50/60 c/s 45 watts.
Valves:	2 × ECF80, ECC84, ECC85, EF80, EM84, EZ80, 2 × OA79, 1 festoon lamp 6V 2 watt.
Dimensions:	Front panel: $11\frac{1}{2}" \times 4\frac{7}{8}"$ (29.2 × 11.2 cms.). Chassis: $10\frac{1}{2}" \times 3\frac{3}{4}" \times 7\frac{3}{4}"$ (26.6 × 9.5 × 19.7 cms.). Cut-out: $10\frac{5}{8}" \times 3\frac{7}{8}"$ (27 × 9.85 cms.).
Weight:	11 lb. (5kgs.).



VOLTAGES ARE MEASURED ON A METER OF 20,000 Ω/VOLT, WITH NO AERIAL CONNECTED
 RESISTOR VALUES ARE IN OHMS
 CAPACITOR VALUES ARE IN MICRO-MICROFARADS - EXCEPT WHERE OTHERWISE SHOWN
 CHOKE VALUES ARE IN MICRO-HENRIES
 T2, T3, T4 AND L5 ARE TUNED TO 12.5 Mc/s
 L8 AND T6 ARE TUNED TO 19 Kc/s, T7 IS TUNED TO 38 Kc/s AND L9 IS TUNED TO 67 Kc/s

* C50 IS 3000pf ON EUROPEAN MODEL
 C59 AND C60 ARE 2000pf ON EUROPEAN MODEL
 C50 IS 4000pf ON U.S. MODEL
 C59 AND C60 ARE 3000pf ON U.S. MODEL

ALL COMPONENTS INSIDE THESE DOTTED LINES ARE CONTAINED IN THE
 DECODER UNIT FITTED INSIDE THE TROUGHLINE TUNER
 THE CONNECTIONS TO THE DECODER ARE MADE VIA A SIX CONTACT
 PLUG AND SOCKET AND THE CONTACTS ARE NUMBERED VERTICALLY
 FROM THE BOTTOM

CIRCUIT DIAGRAM

