



'TROUGH LINE 3' F.M. TUNER

INSTALLATION • OPERATION • MAINTENANCE

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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 $10\frac{1}{8}'' \times 3\frac{1}{4}''$ (27.5 × 9.5 cms.). To mount on a panel: take off the cover by removing the wing-screw which passes through a hole in the cover fixing bracket and threads into a hank-bush in the centre of the rear panel of the tuner. Pass the body of the tuner through the cut-out until the front plate butts against the panel, replace the cover and wing-screw and tighten just enough to prevent the front plate on the tuner from slipping on the panel.
2. The mains transformer primary is wound for voltages of 110, 117, 130, 210, 230, 250 (50 to 60 c/s). The circular voltage selector (situated at the back of the tuner) should be withdrawn to its fullest extent, rotated so that the arrow indicates the voltage nearest to your supply and then reinserted.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 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 r.m.s. 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.

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 (B+) supply from the tuning indicator.
8. In locations of very high signal strength, the sensitivity switch should be set to 'LOCAL'; 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:	1.5 micro-volts at the aerial terminals for full limiting.
Aerial Impedance:	The choice of 300 ohms balanced or 75 ohms unbalanced.
Audio Output:	Cathode follower output delivers approximately 1 volt r.m.s. 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, where available.
Power Supply:	110, 117, 130, 210, 230, 250 volts, 50/60 c/s consumption 45 watts.
Valves (Tubes):	2 × ECF80, ECC84, ECC85, EF80, EM84, EZ80, 2 × OA79, 1 festoon lamp 6V 2 watt.
Dimensions:	11½" × 4¼" × 8¼" deep. (29.2 × 10.8 × 21 cms.).
Mounting:	Free-standing on non-scratch felt feet or panel mounted through a cut-out of 10¾" × 3¼" (27.5 × 9.5 cms.).
Weight:	12 lbs. 8 ozs. (5.65 kgs.).

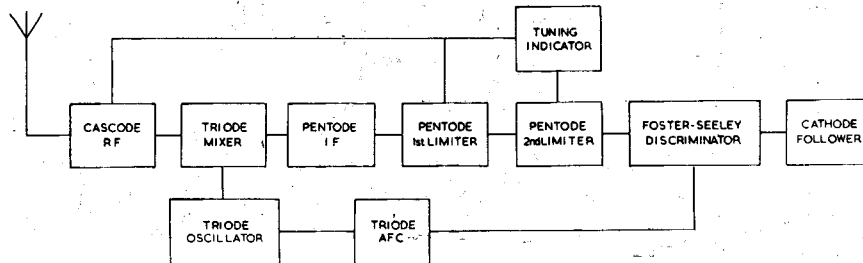
SERVICING

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

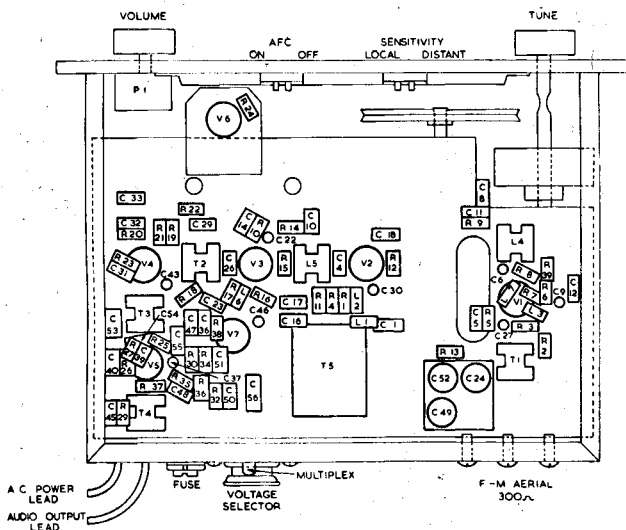
It is not possible for an F.M. tuner of this calibre to be accurately aligned without using a double beam oscilloscope, F.M. signal generator complete with an accurate 'marker' oscillator and a D.C. valve voltmeter.

These requirements should be emphasised to a potential service engineer, and if all the above equipment is not available, work should not be started.

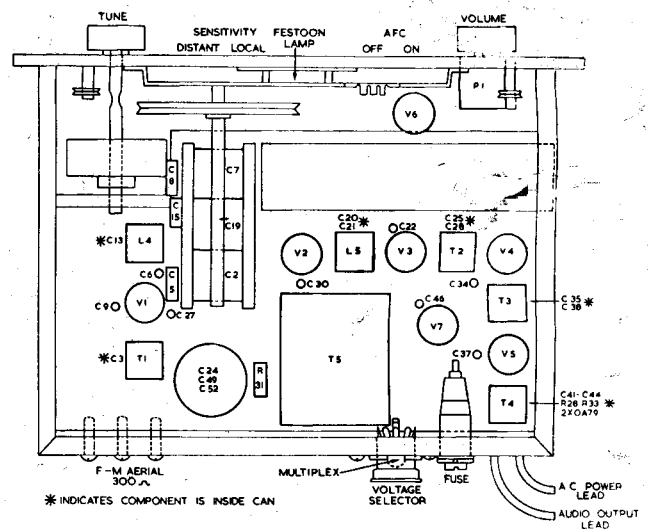
BLOCK CIRCUIT DIAGRAM OF 'TROUGH-LINE 3' F.M. TUNER



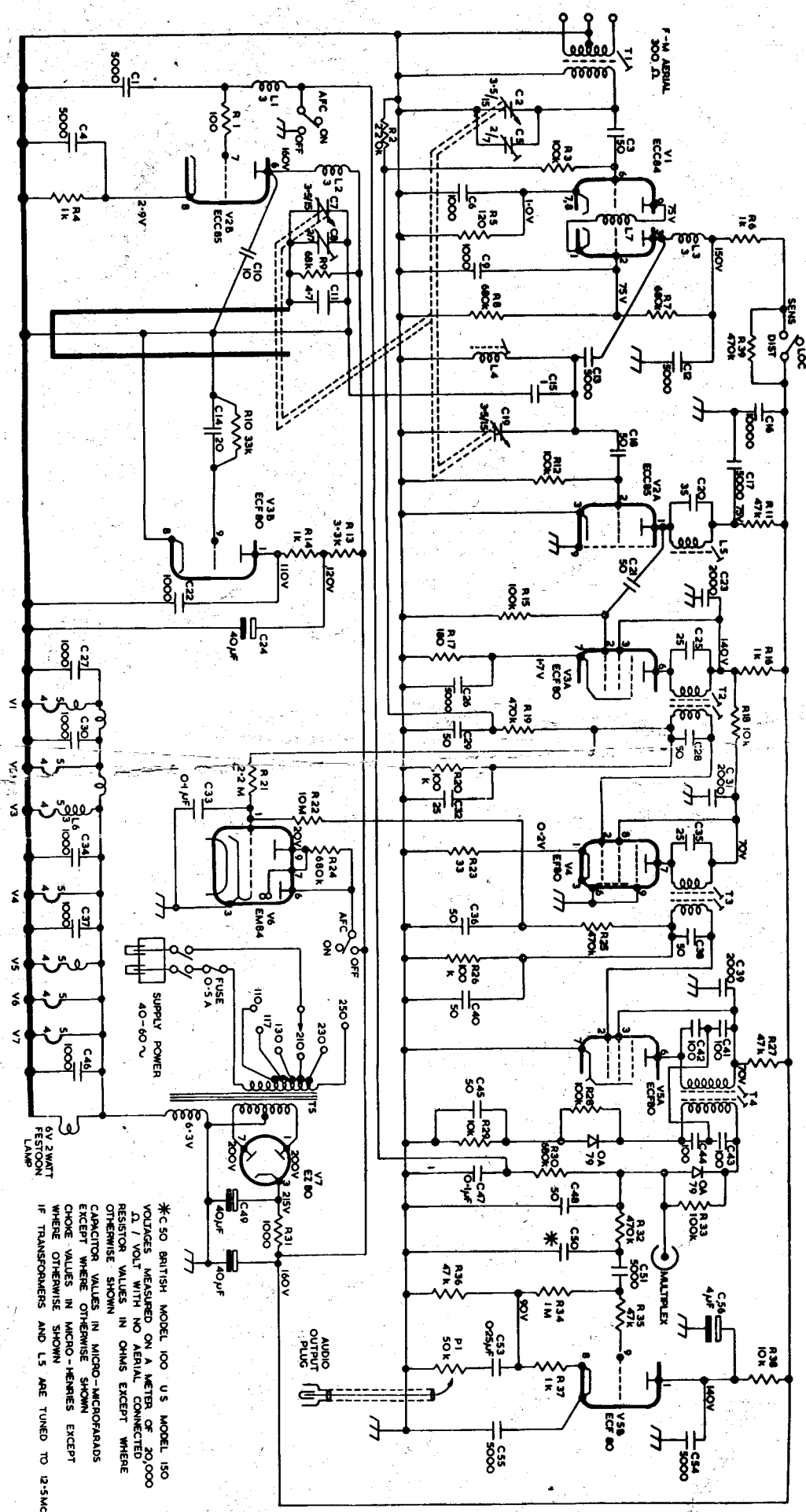
UNDER CHASSIS



TOP CHASSIS



* INDICATES COMPONENT IS INSIDE CAN



CIRCUIT DIAGRAM OF LEAK TROUGH-LINE 3 F.M. TUNER

*C 50 BRITISH MODEL 100 U.S. MODEL 150
 VOLTAGES MEASURED ON A METER OF 20,000
 Ω / VOLT WITH NO AERIAL CONNECTED
 RESISTOR VALUES IN OHMS EXCEPT WHERE
 OTHERWISE SHOWN
 CAPACITOR VALUES IN MICRO-MICROFARADS
 EXCEPT WHERE OTHERWISE SHOWN
 CHOKE VALUES IN MICRO-HENRIES EXCEPT
 WHERE OTHERWISE SHOWN
 IF TRANSFORMERS AND L5 ARE TUNED TO 2.5MC/S

H. J. LEAK & CO., LTD.

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