



F.M. TUNERS

FMT3M AND FMT3S

INSTALLATION

1. GENERAL

The FMT3 is manufactured as a stereophonic tuner but is designated in two types, ie. FMT3S Standard tuner for monophonic and stereophonic reception; FMT3M Standard tuner but not fitted with plug-in multiplex decoder module.

2. REAR TERMINATIONS AND CONTROLS (Fig. 1)

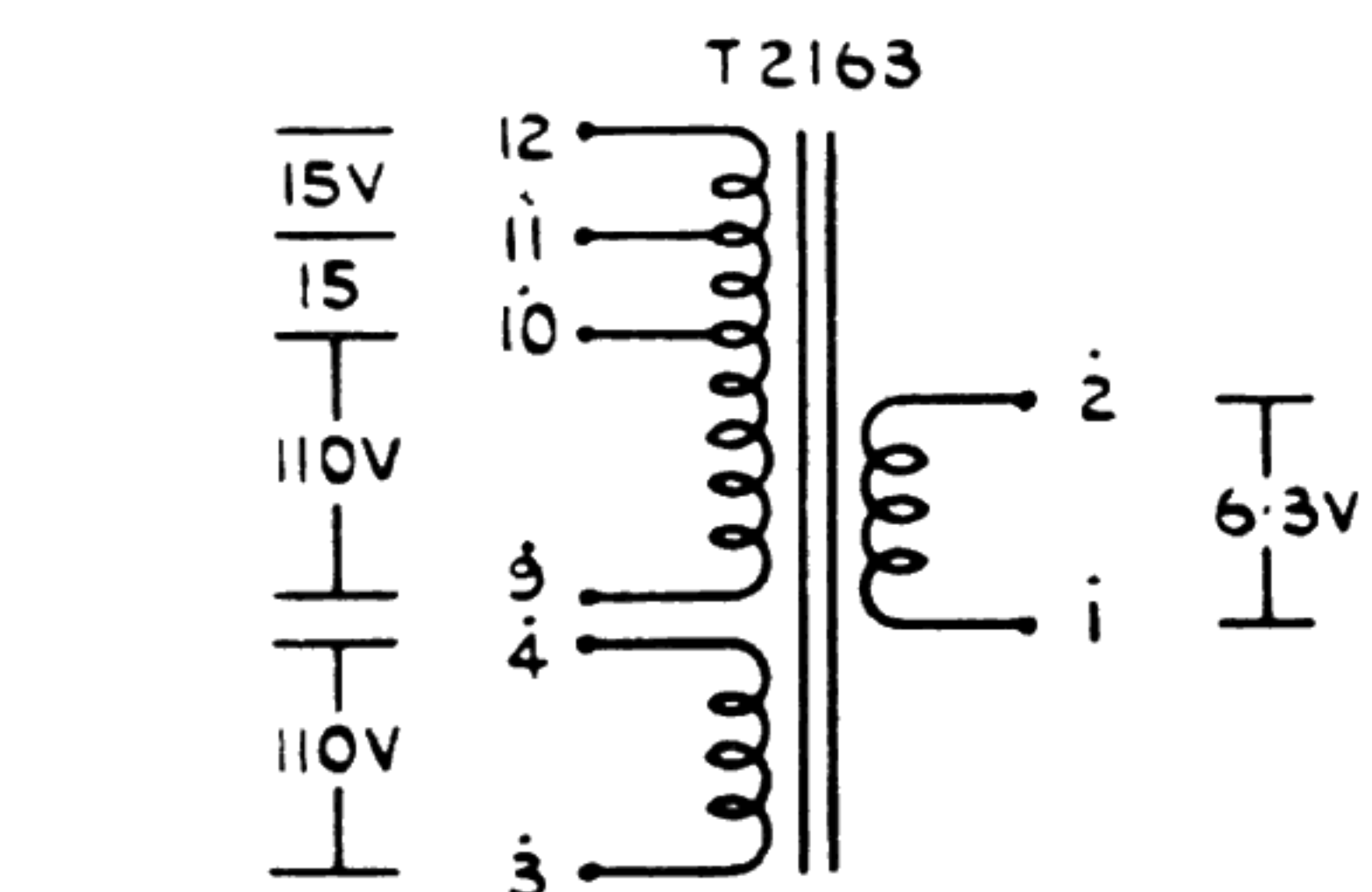
2:1 Mains Connections

The tuner is suitable for use on A.C. supplies of 100–150 V. and 200–250 V., 50–60 Hz. A flexible cable is provided for the supply connection. Tuners are despatched set for 240 V. mains input. If the supply voltage is different from this, adjustment is necessary, as below.

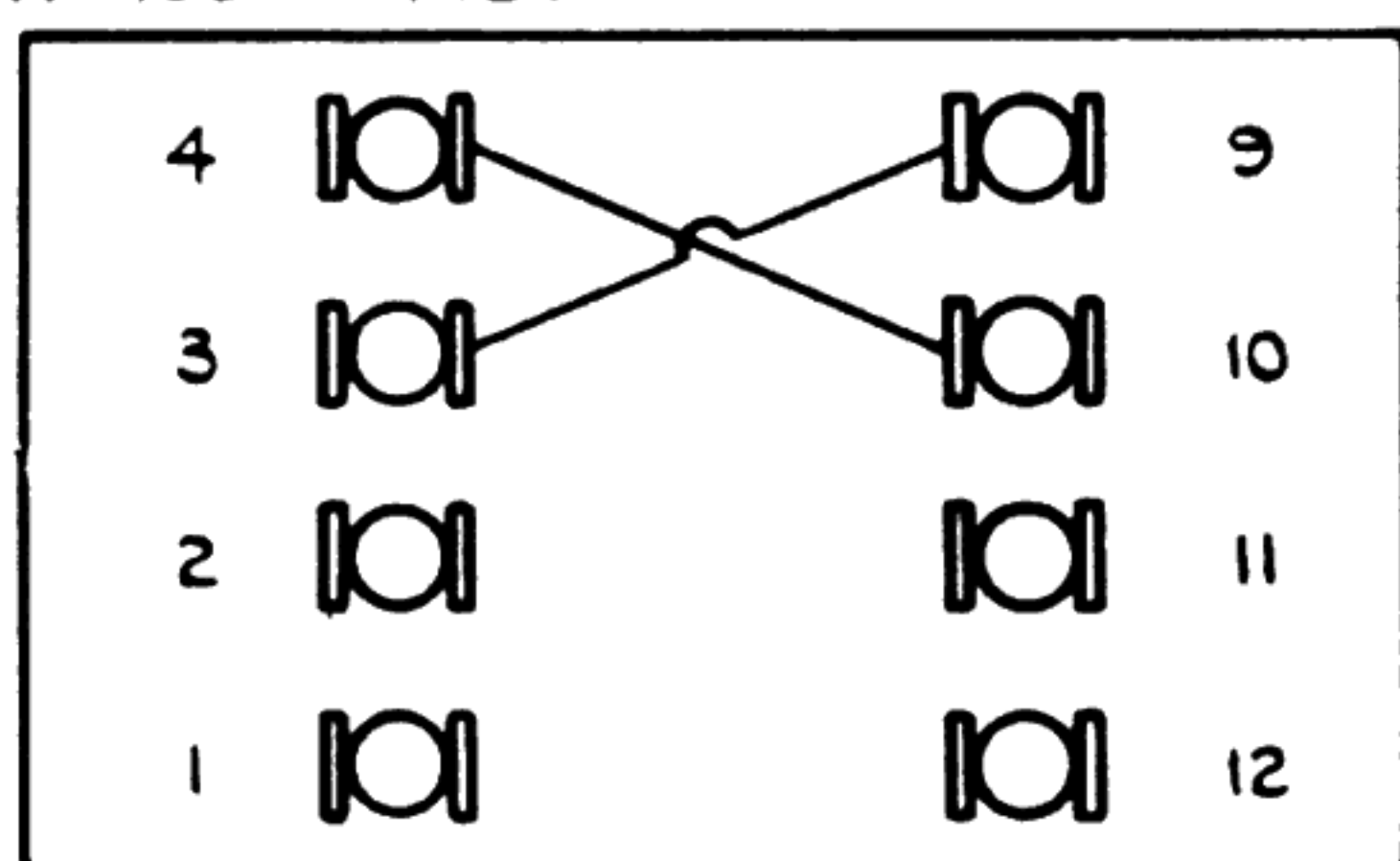
2:2 Mains Voltage Adjustment

Voltage selection within the range is effected by the voltage selector switch marked 'pull to change'. The voltage required should be set opposite the arrow on the rear panel.

To change the range it is necessary to adjust the mains primary connections as shown in the diagram Fig. 2.

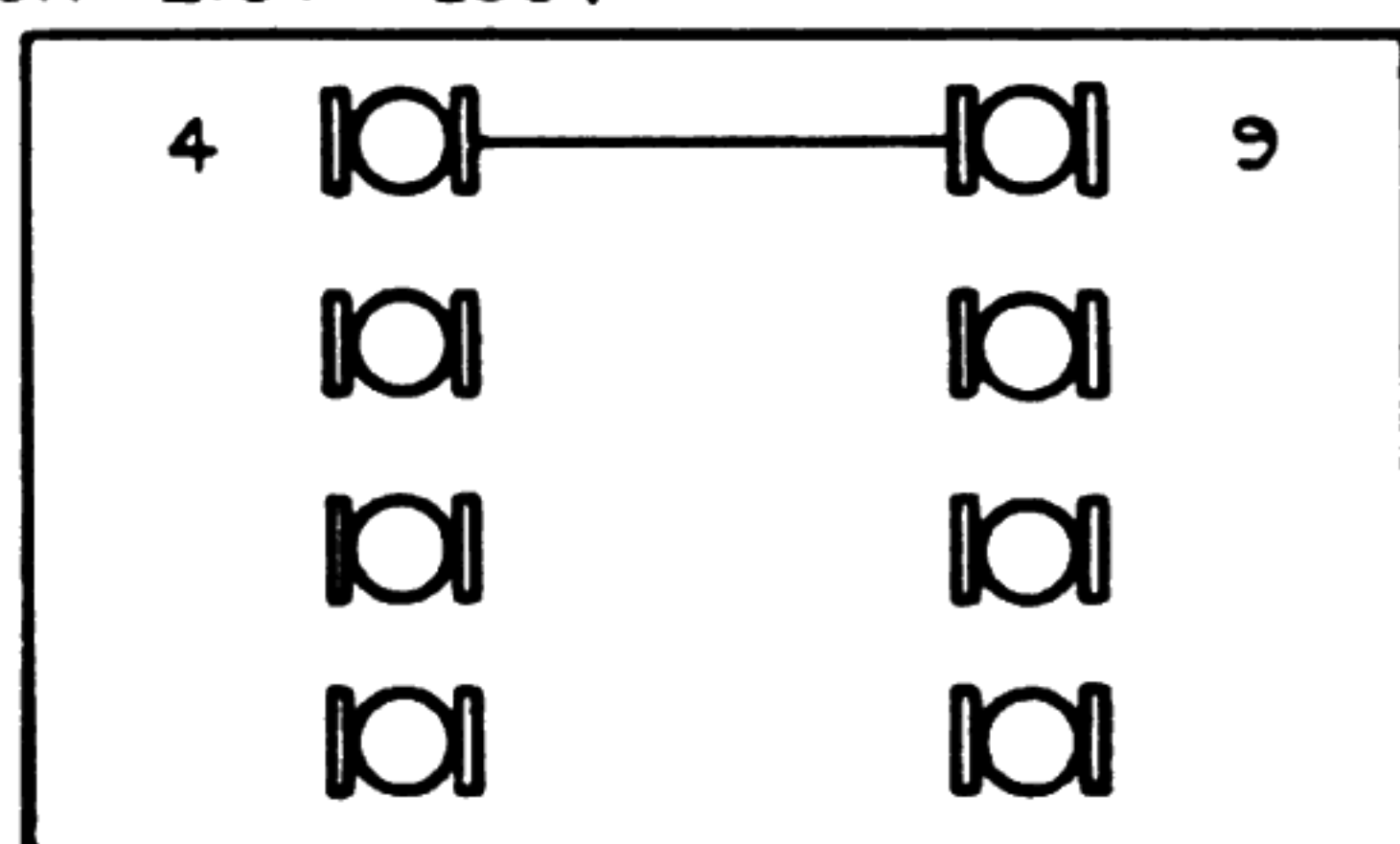


FOR 105V - 145V



JOIN 4-10
AND 3-9

FOR 210V - 250V



JOIN 4-9
ONLY

2:3 Mains Fuse

The mains fuse recommended for all inputs is 0.5 Amp.

2:4 Aerial (Antenna) Input

The receiver aerial transformer is designed for use with balanced 300 Ohm feeder or unbalanced 75 Ohm co-axial cable. With 300 Ohm balanced input use the 2-pin plug, and for 75 Ohm input the standard co-axial connector. The plugs are supplied with the equipment.

2:5 Audio Output Sockets

An audio output of 2 V. approximately is available on channel 'L' and channel 'R' output sockets for a 100% modulated signal. As the average modulation is generally of the order of 30% the input sensitivity of the pre-amplifier should be approximately 100–150 mV.

2:6 Audio Output Volume Adjustment

A 2 gang potentiometer is fitted to the rear panel marked 'Output Volume' which should be adjusted to suit the pre-amplifier in use. It is suggested that the control be adjusted to provide the same output level to the loudspeakers as obtained on disc reproduction with the main volume control in the same position.

3. PANEL CONTROLS

3:1 Tuning

The tuner covers a band of frequencies from 87.5 to 108.5 MHz. A centre zero meter is provided to show when the receiver is correctly tuned. It will be noted that when a transmission is received, the pointer of the tuning indicator will move to the left on one side of the station, and to the right on the other side. The correct tuning position is in the square between the green rectangles.

The receiver is fitted with 'A.F.C.' (automatic frequency control) which attempts to pull the station being received into correct tune when mistuned within a small band of frequencies (± 200 kHz.). 'A.F.C.' is applied to the receiver by depressing the button on the front panel so marked. The tuner should be adjusted as accurately as possible without 'A.F.C.' When 'A.F.C.' is applied the tuner will adjust itself to the correct tuning position for lowest distortion and maximum separation between stereophonic channels.

3:2 Mains On/Off

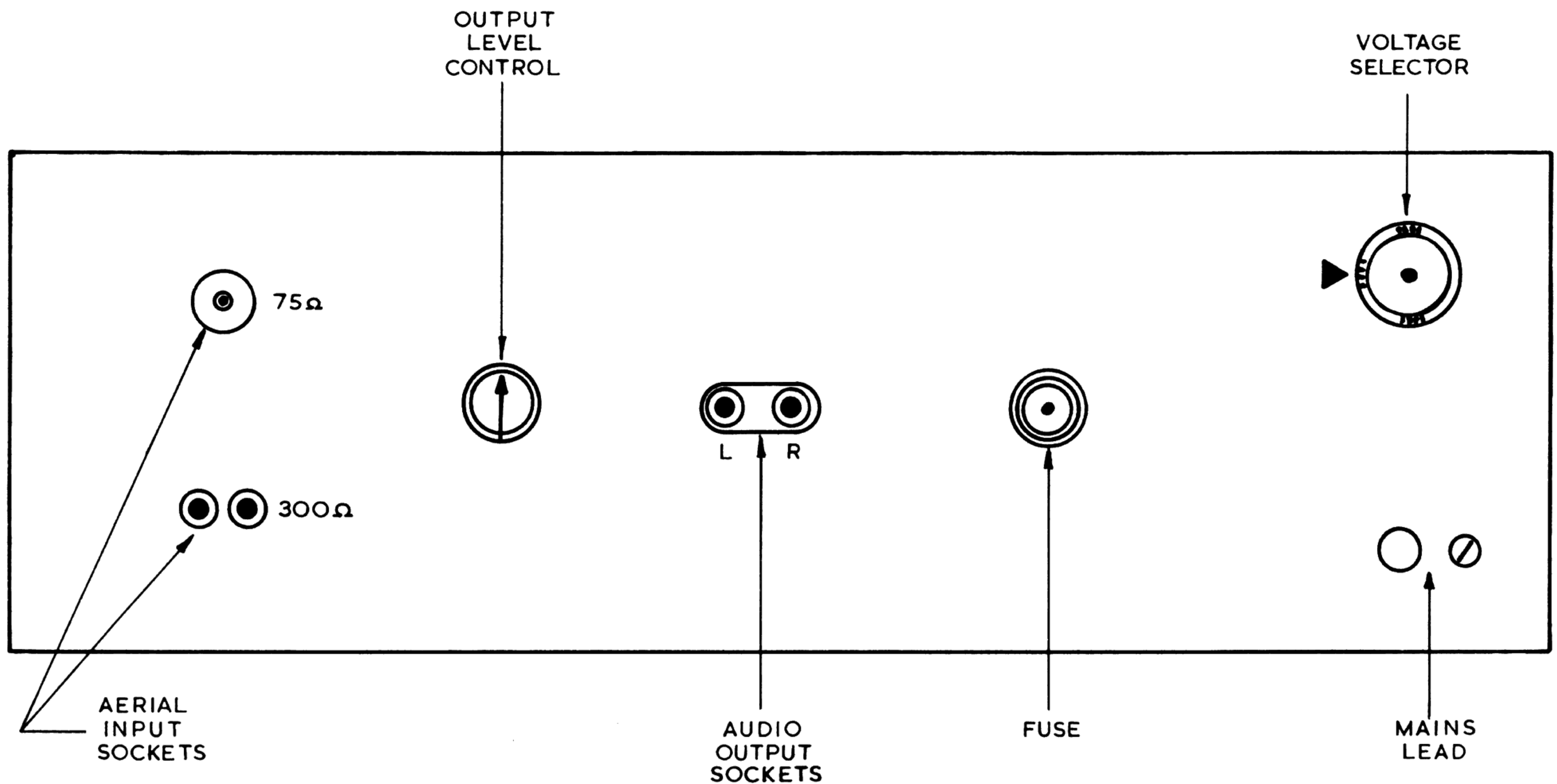
The mains On/Off switch is fitted to the front panel to enable the tuner to be independently switched off when not in use.

3:3 Auto/Stereo Operation

A button is provided on the front panel for switching from mono to automatic stereophonic operation. This is further described in the section on stereophonic reception.

3:4 Interstation Noise Suppression

When the button marked 'Muting' is pressed in, a circuit which senses amplitude modulation at 400 KHz is introduced which desensitizes the audio frequency section of the receiver and provides quiet listening between stations.



4. STEREOPHONIC RECEPTION

4:1 Mono/Stereo Switching

4:1:1 Monophonic Operation

When the push-button marked AUTO STEREO/MONO is in the OUT position the receiver will function only in the monophonic mode. Stereophonic transmissions will be reproduced monophonically at both output sockets.

4:1:2 Stereophonic Operation

When the AUTO STEREO button is depressed the receiver will automatically switch to the stereophonic mode when a stereo transmission is tuned.

4:2 Signal Strength for Stereo Reception

Since, even under ideal conditions, the signal-to-noise ratio of stereophonic reception is approximately 23 dB worse than a monophonic signal, and that stereo reception has a greater distortion susceptibility due to multipath reception, it is important that an efficient aerial system be used, particularly in areas remote from the transmitter.

4:3 Recording of Stereophonic Broadcasts

In the stereophonic decoding process, the carrier, sub-carrier and harmonic frequencies are present in the output of the decoder, namely 19KHz, 38KHz and 76KHz. Unusual attention has been given in the FMT3 to the filtering of these spurious frequencies to avoid interference caused by beating with the oscillator bias frequency and its harmonics in the tape machine. Spurious frequency rejection is better than 60 db at these frequencies and a clean, distortion free recording is possible. Should any difficulties occur it will invariably be due to faulty action of the tape machine and the manufacturer of the machine should be consulted.

5. HUM

All RADFORD equipment is designed to have a hum level so low as to be inaudible. If hum is apparent when various units are connected together to form a complete system, a 'hum loop' may have been introduced between the separate units. To avoid hum loops it is essential that an earth connec-

tion be made to one unit only, usually the pre-amplifier control unit. A separate true earth is rarely required and earthing via the mains by the green lead of the 3-core cable to the power amplifier is usually satisfactory.

6. WARNING

The alignment of this receiver has been carried out with extreme care to ensure a low distortion output and to meet the published specification in respect of other parameters. Adjustments to the tuned circuits should NEVER be attempted except as described in the relevant "Technical Instruction", with the recommended test equipment.

7. TECHNICAL SPECIFICATION CHARACTERISTICS

For full specification characteristics and details of design, reference should be made to the relevant sales leaflet.

8. MAINTENANCE

The FMT3 is constructed in a manner to make maintenance simple and to avoid any requirement for retuning and alignment. The power supply, intermediate frequency amplifier, and Multiplex decoder, are in plug-in modular form. Should a fault develop in any of these units it is merely necessary to plug in a replacement board. It is not practical to have the radio frequency 'front end' unit plugable for performance reasons and it is therefore mounted directly to the mother board. In the unlikely event of a fault occurring it is quite simply replaced by separating the mother board from the chassis base.

The part numbers of the plug-in type modules are:—

Power supply board	M3293
I.F. Amplifier board	M3291
Multiplex decoder board	M3294
Stereo Dummy board	M3296

The FMT3 is manufactured as a Stereophonic Tuner. If it is required for use on monophonic signals only it is supplied fitted with the stereo dummy board. The unit is made operational for stereophonic broadcasts by changing the dummy board for the decoder board.

Should any fault develop in the Tuner it should be returned to the dealer from whom it was purchased or if this is not possible to the nearest appointed Radford dealer.



Radford Audio Limited.

Bristol BS3 2HZ, England

B15
1069