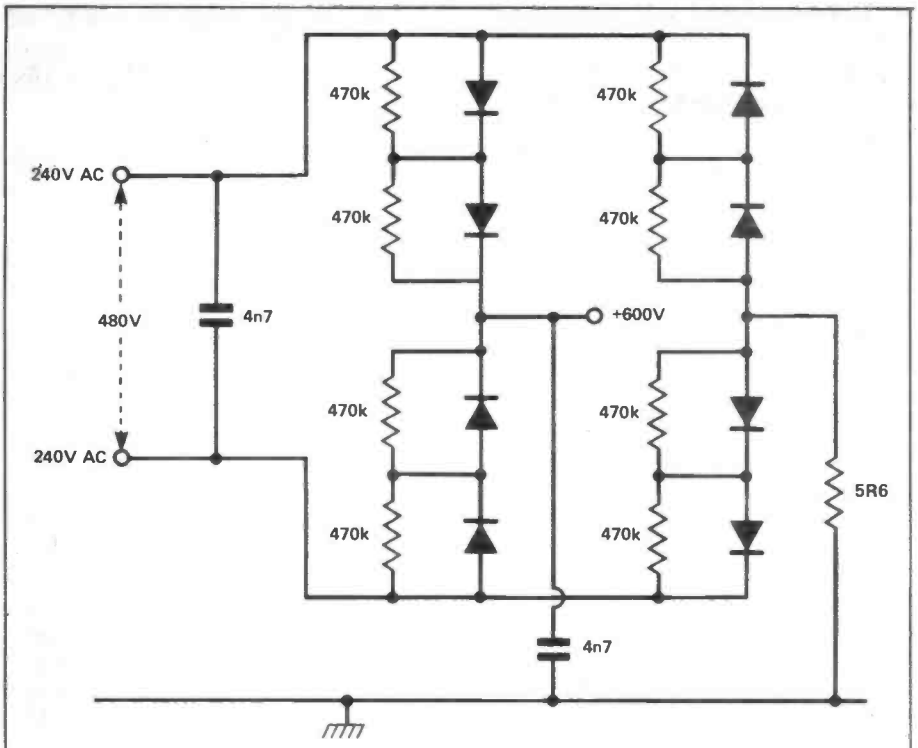

Fig. 1. HT rectifier circuit in most FT101s

Fuse blowing but HT rectifiers OK. Try operating the rig with the power amplifier valves removed. If all is OK, leave the valves out and measure the bias voltage at the grid connection of the power amplifier valves. This should be about −50V on transmit or −65V on recieve. Turn the band change switch and if the voltage falls below this, or even goes positive on any band, replace the relevant coupling capacitor from the anode of the driver valve. Note that a coupling capacitor of 80 or 100pF goes direct to the anode, whilst other capacitors are switched in parallel with this on 160m and 80m in some models. A short circuit here will have ruined the PA valves so once this fault has been cleared it will be necessary to fit new ones.

Fuse still blows, but PA and HT rectifiers OK. Sometimes the DC/DC inverter ('chopper') transistors go short circuit even if the rig is never used on a 12V supply, and cause fuse blowing. The *FT101* will work perfectly on an AC supply with the chopper transistors disconnected, hence the easiest way to test these is to disconnect them and try a new fuse. If these transistors are faulty, the cost of replacement is in the region of £20 to £40 a pair. If you do not anticipate DC operation simply remove them.

Fuse still blows! If all the suggested tests come to nothing try operating the *FT101* from a 24V AC supply. At such a low voltage even a bad short is unlikely to blow the fuse and every output of the rig's power supply should give one tenth of its rated voltage. Find the power supply output that is less than this and you are in with a fighting chance of discovering the cause.

ALC faults

Valves operating in class AB1 do not pass grid current until they are slightly overdriven. In the *FT101* any grid current caused by overdriving is rectified and fed back as a negative ALC voltage, rather like automatic gain control on a receiver, and so turns down the gain of a previous stage. In practice *slightly* over-driving a class AB1 amplifier does not do any harm and this system is used in much amateur equipment and works well.

No ALC indications. This is almost always a result of low drive to the power amplifier valves, and is commonly caused by an aging driver valve or misalignment.

ALC too active on one or more bands on some FT101's. The trouble here is usually caused by the radio frequency choke L12 picking up RF from the PA coil. The simple cure is to replace the choke with a 2.2K resistor. Only a limited number of *FT101Es* used this extra choke L12. Later *FT101Es* reverted back to the original circuit, see **Fig. 2.**

No transmit, ALC meter 'pings' hard over and is not adjustable. This fault is caused by a short circuit ALC transistor (Q1 on mod and oscillator board *FT101 Mk1, Mk2, B, EE, EX* and *E Mark 1;* or Q6 on processor on *FT101 Mk2* and *Mk3*). This fault may have been caused by a flashing PA valve or a leaky ALC coupling capacitor. As a replacement FET, an MPF102 will do if you get the connections right, or you can fit the 'spare' FET in the fix oscillator circuit which you are unlikely to use.

Set intermittently dead on one band, often 15m. This fault is usually caused by the first conversion crystal oscillator refusing to start. Slightly adjusting the relevant trimmer (see manual 'heterodyne crystal oscillator alignment') will usually bring it back to life again. The manual suggests adjusting using a

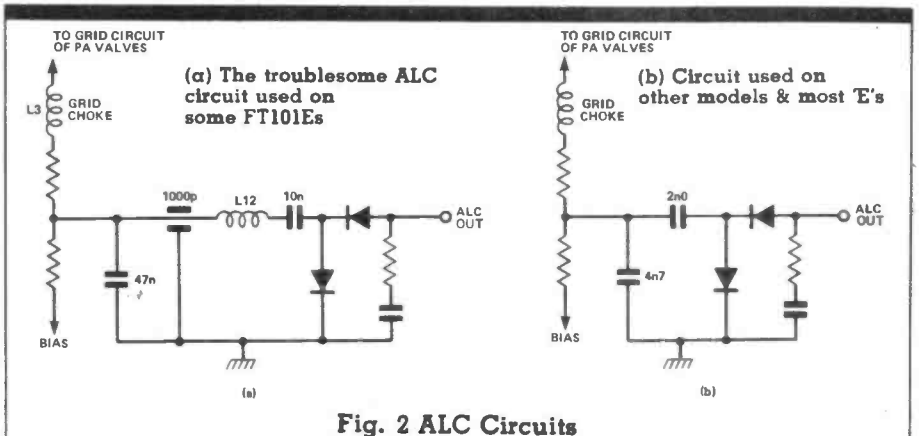

Fig. 2 ALC Circuits