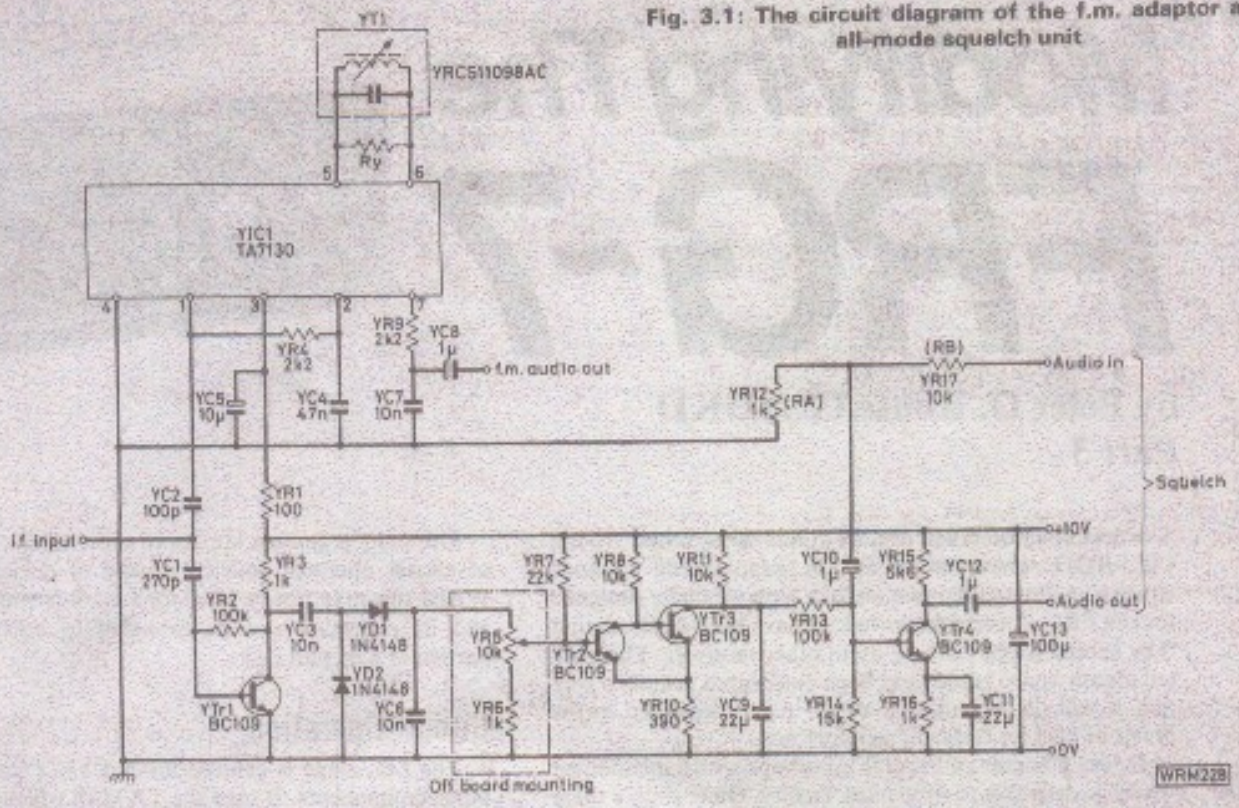

Fig. 3.1: The circuit diagram of the f.m. adaptor and all-mode squelch unit

However, an incoming signal will cause more current to appear at the base of YTr2, it will start to turn on and in doing so will start to switch YTr3 off, continuing until the Schmitt action causes a definite switching. As a result, YTr4 is turned on and the audio signal is amplified and fed back to the FRG-7 volume control via YC12.

Several other points should be noted about the circuitry. Resistor YR5 is a log control operated in reverse and the value of YR6 ensures that best use is made of the log taper. If you have carried out the previous modifications then the old volume control will be ideal for this application. If not, note that a linear control can be used although the value of YR6 will have to be adjusted to bring the no-signal turn-off point to about 30 per cent of the track. Another feature concerns the capacitor YC9. Although the Schmitt trigger has sufficient hysteresis to stop it from chattering on marginal signals, this capacitor has been included to slug the switching rate of YTr4 and so soften the switching thump associated with this type of circuit.

The final point concerns the divider network YR12/17 which determines the amount of audio fed to YTr4. The values shown are optimised for the FRG-7 but if the unit is to be fitted to a receiver that needs extra audio gain, these values can be adjusted accordingly by increasing YR12 and reducing YR17.

Construction and Fitting

A p.c.b. layout is given in Fig. 3.2, and this board matches the earlier one for the switched filter unit and fits the same stand-off panel. There is however no reason why other methods should not be adopted. Circuit layouts are not critical and the only point to watch is that there should be fairly short leads around YIC1. There is also, of course, no reason why only one of the circuits should be built.

Assuming the circuit board is being fitted to the FRG-7, the logical way to switch f.m. will be to include it on the mode switch in the position occupied by the automatic noise limiter (a.n.l.). In the author's view the a.n.l. is not very effective anyway. The a.n.l. connection is on the outer wafer of the mode switch and it is only necessary to break one bridging link between two tags and connect the f.m. audio as shown in Fig. 3.3.

Once the tap-off point for the i.f. has been located, connection to the board should be made with a short piece of miniature coaxial cable.

Refer again to Fig. 3.3 and locate the audio coaxial cable which runs from the mode switch to the volume control. Disconnect this at the volume control and connect it to the a.f. input of the squelch. Use another piece of coaxial cable to connect the squelch output back to the volume control.

The problem now arises as to where to fit the squelch control. If you are using the old volume control then the easiest way round this is to remove the RECORD socket, widen the hole slightly and fit the control here. The RECORD socket leads can be extended and this facility re-sited on the back panel next to the loudspeaker socket.

Should you need to buy a potentiometer then a suitable miniature one is available from the Alps range stocked by Cirkit (formerly Ambit International) who also have control knobs to fit the 6mm shafts of these components.

Finally it only remains for the circuit to be connected to the 10 volt stabilised supply available in the FRG-7.

Setting-up and Testing

Assuming all connections have been checked, switch on the receiver and select f.m. Transformer YT1 must now be