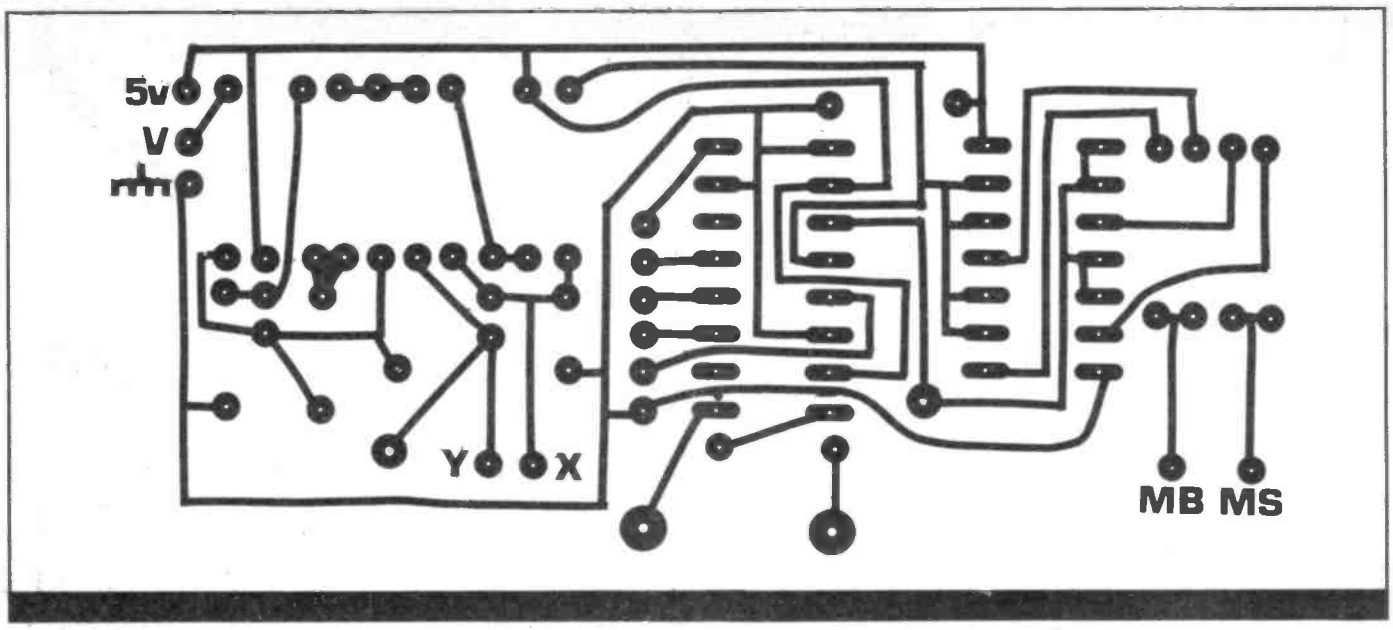

Test Pattern and Sync Generator Module

This is the first module in our TV station. A good source of TV test waveforms is essential for setting up the rest of the station.

Grey scale being the most useful waveform for checking out our TV station, but crosshatch is very useful for setting up your TV set.

The circuit revolves around the Ferranti Pattern Generator ZNA 234. All the waveforms required are generated within the chip, but for some reason known only to Ferranti they are not processed with mixed blanking which is available from the chip. Ferranti also generate the grey scale waveform up side down, ie, it is a falling staircase not a rising one as convention dictates. In order to keep the circuit as simple as possible I did not invert the staircase as its polarity is unimportant when adjusting your TV station. The ZNA 234 requires a 2.5MHz xtal oscillator. All the electronics are within the chip with the exception of the xtal which goes between pins 8 and 9 and requires a small 22pF capacitor in series with Pin 8 (C1). The value of this capacitor can be varied to adjust the line speed of the generator.

The TV waveform requires holes cutting in it so as to accommodate the pulse information which is essential to a TV transmission in order to start the line and field scan generators of the receiver at the correct time (sync pulses). These holes are cut by a mixed blanking signal which turns on the 1N914 diode and turns off TR1, and thus supresses the video signal.

It would seem to follow from the circuit diagram that by turning off TR1 we would also turn TR2 off, but things are not always what they seem, both Pin 3 and Pin 4 of the ZNA234 are returned to the +5 by 3K3 resistors within the chip.

The next stage is to add sync pulses to the waveform. This is done by using the mixed sync output to turn TR2 off. You can do this by reducing its base potential below the limit set by the internal pull up resistor on Pin 3 and R3 R6 R7.

The sync pulses are narrower than the blanking pulses and are offset slightly to cause two holes in the