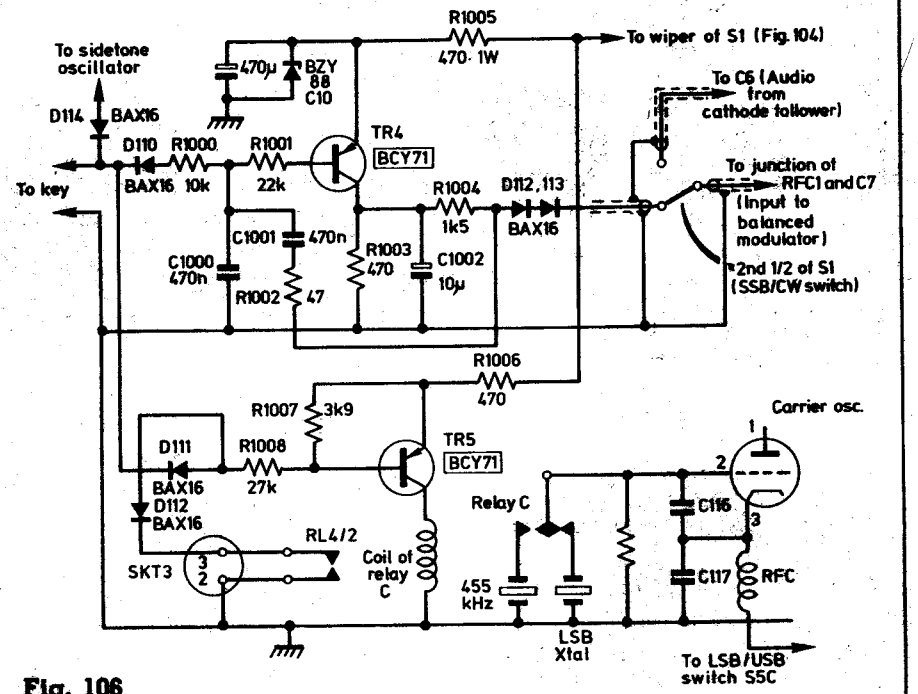

Fig. 106

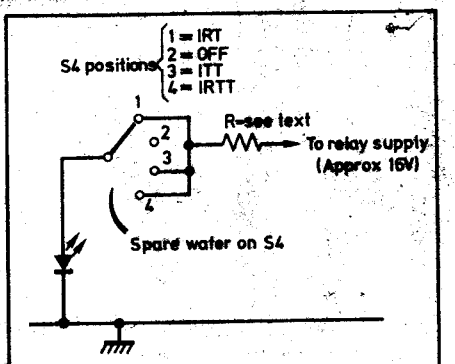

Fig. 121

outgoing transmission will sound like a cross between FSK and normal on/off CW! TR5 will stay biased on during the hold-in time of the VOX cirucit, or for as long as the rig is held in transmit by the INT MOX setting or by an external send/receive switch, provided that S1 is set to the CW position. Also under key down conditions TR4 is biased on via D110, R1000 and R1001, the turn-on and turn-off times being controlled by R1000, R1001, R1002, C1000, C1001 and C1002. These components are required to completely remove any thumps or clicks on the signal; there is therefore no need for further key click filters across the key or keyer contacts, and in fact they are positively harmful to the operation of this circuit.

When TR4 is biased on (key down), a voltage is developed across R1003 and C1002. This voltage is fed via R1004, D112, D113 and the second pole of S1 to the LF input of the balanced modulator, thus unbalancing it and producinga carrier at its output. This carrier will, of course, be fed on to the later stages of the transmitter. The two diodes D112 and D113 are used to prevent any slight leakage in TR4 unbalancing the modulator, which would, or course, produce a carrier under key-up conditions. D114 prevents this circuit being activated in the TUNE mode.

Variable transmitter output power

It has been found useful to be able to vary the output power of the *KW2000* when, for example, driving a transverter or linear amplifier. As the rig stands there is no way of doing this except by adjusting the MIC GAIN control, which is a very undesirable way of varying power output, particularly at low output levels. Although the ratio of *peak* output power to the suppressed carrier at normal mic gain settings may well exceed 40dB, as the mic gain is reduced the carrier level due to leakage round the balanced modulator will remain the same while the peak output power will be reduced. Thus the effective carrier suppression will be reduced. The writers feel that it is best to vary the output power *after* the balanced modulator, and this can most easily be done by varying the gain of the transmit IF amplifier V3, which is in any case a variable-mu valve controlled by the ALC.

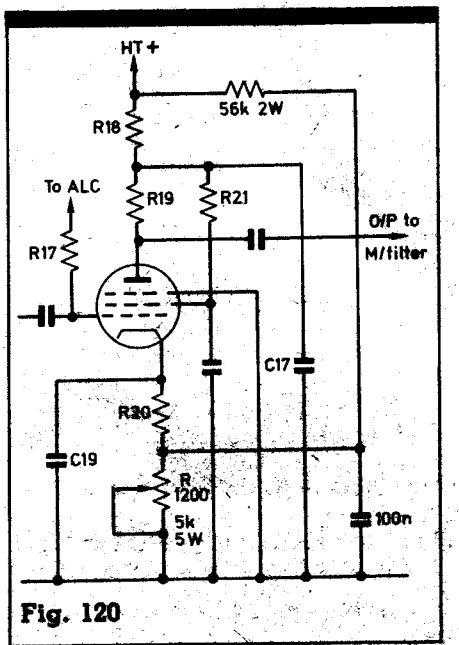

Fig. 120

The simplest way of controlling V3 without upsetting the ALC action is to insert a variable resistor in the cathode circuit to vary the bias. A circuit for doing this, employing only three extra components, is shown in **Fig. 120**. At full gain the output level is the same as with an unmodified *KW2000*, while at minimum gain it is possible for the output to be reduced to below one watt. This method leaves the mic gain control set as for normal operation, giving the advantage that at low power output levels the carrier suppression is not degraded.

IRT IN USE indicator

A small but useful extra feature has been the addition of a warning LED to indicate that the IRT/ITT selector switch is on. The extra switching for this is already fitted, although left unused. There is a spare pole on S4, which can be wired as shown in **Fig. 121.** The LED is conveniently mounted approximately 1¼" to the left of the switch. The value of the series resistor depends on the particular LED used and the brightness required.

The next article, in our September issue, will deal with the important question of modifying the *KW2000* to cover the 10, 18 and 24MHz bands, as well as the missing sections of the exisiting bands.