Model Number	Description
217	500Hz IF crystal filter
218	1.8kHz IF crystal filter
219	250Hz IF crystal filter
220	8 pole SSB filter
223	Noise blanker
224	CW audio filter
226	Calibrator
227	ATU without SWR bridge
228	ATU with SWR bridge
645	Dual paddle keyer
670	Single paddle keyer
700	Hand mocrophone
215	Desk micorphone
214/234	Desk microphone and speech processor
222	Mobile mount
1125	DC circuit breaker
1126	Linear amplifier switching kit

Table 1 Optional modules and accessories

Three types of filter are available, the Model *218*, which is a 1.8kHz filter for SSB reception, and the models *217* and *219* for CW, these being 500Hz and 250Hz wide respectively. The optional filter is followed by the main IF amplifier, an MC1350 IC, which then feeds a dual gate MOSFET product detector. The audio from this is fed via an active notch filter to the optional CW audio filter, model *224*, which is a separate board. This filter narrows the bandwidth to 450Hz or 150Hz, selected by two push buttons on the front panel. If the filter is not fitted, a shorting plug is fitted in its socket, from which the signal passes to the AF output stages. The AGC, which is audio derived, is fed from this point and controls the IF amplifier; no AGC is applied to the RF stage.

*The change from LSB on 3.5, 7 and 10MHz to USB on the remaining bands is achieved by placing the local oscillator on the high side of the signal frequency on the lower bands and on the low side on the higher bands.

Transmit path

The transmit signal is generated at 9MHz by the SSB GEN board. The crystal in the carrier oscillator has different values of load capacitance, switched in by transistor switches, to give the correct carrier frequencies for SSB normal, SSB reversed and CW.* The output of the carrier oscillator is fed to a CA3053 balanced modulator, and also to the receive product detector. The transmit audio signal from the microphone is amplified by a two stage IC amplifier, the mic gain control (labelled DRIVE on the front panel) being placed between the two stages, and is then applied to the balanced modulator. In the CW mode a DC voltage is applied to one port of the balanced modulator, unbalancing it and hence introducing carrier. At the same time a variable voltage from a second gang of the DRIVE control potentiometer is applied to another pin of the balanced modulator IC, varying its gain and hence controlling the amplitude of the CW signal.

The output from the balanced modulator is fed to the RF/Mixer board, where it pases through the main 9MHz crystal filter and is then fed to the transmit mixer, an MC1496 double balanced mixer IC. Here the signal is mixed with the local oscillator signal to produce the output frequency. After passage through a buffer amplifier it is fed to the main bandpass filter, and then to the recceive RF amplifier, which is used as a buffer amplifier on transmit. ALC, derived from the built-in SWR bridge, is applied to this stage. Following the RF amplifier is another stage, also ALC controlled, before the signal is fed to the final amp board. This board houses the driver and PA stages, both operating in class AB1 push-pull. The output of the driver stage is fed away from the board to the high/low power switch and then back to the PA input. This allows the driver to be routed direct to the aerial in the lower power position, bypassing the PA. The PA stage has negative feedback to improve its