

repetition frequency (PRF) is very accurate, to a tolerance in the region of 10ppm, as is the duration for any given Woodpecker signal. Hence, if we generate a crystal derived 10Hz (or 16Hz) signal, and then phase-shift it to synchronise with the received Woodpecker signal, after introducing a delay in the received signal path, we should have an excellent control signal for the blanking gate. All this is done at signal frequency, with the gate being an SRA-1 Shottky wideband double balanced mixer.

This has considerable advantages over trying to do it all at AF, which is the alternative for an add-on unit. At AF the Woodpecker signal will still actuate the AGC, and if it is very strong the blanker may not be of much help as a result.

## Controls

The synchronisation is carried out manually from a front panel control, in conjunction with a blanking width control. Four other push-buttons are provided, for Power on/off, Blanker ON, or Standby, and 10Hz or 16Hz repetition rate. The last pushbutton provides an additional wideband preamplifier for

6dB gain when on, or 0dB when off. A red LED indicates when power is applied to the device. It is supplied from an external 12V source, at approximately 600mA, most of which is used to power the change-over relay which bypasses the circuitry on transmit — this uses RF sensing so it does not need any PTT-line connection to the transceiver. The relay is normally energised on receive.

The model reviewed is the *WB-1C*, which has the COR (carrier operated relay) facility, but there is also a *WB-1* which has no relay and is intended for receive applications only, or transmit applications with external transmit bypassing. The instructions do warn that serious damage will result if the transmitter is connected to the wrong socket on the back, so do read these carefully!

The rear panel carries the two SO239 sockets (antenna and transceiver), a variable pot to set the COR drop-out time, and the coaxial DC power connector.

Inside, the unit is well made, with a screened double-sided, through-plated PCB, with the component numbers screened on (useful if only we had the circuit!) A 74LS divider chain running from a 4MHz

crystal provides the 10 or 16Hz signals. The case is very robust, and should withstand rough handling.

## In use

The instructions are fairly comprehensive on how to set up and use the unit, but as is often the case, actually using it is easier than trying to describe it! When the Woodpecker appears, the blanker is switched on, with the WIDTH control set to about the two o'clock position. The SYNCH control is then adjusted until the interference disappears. The WIDTH is then reduced to the minimum possible, while re-adjusting the SYNCH control. The PRF control, marked 'RATE', should normally be at 10Hz, but if blanking is only taking out a few of the pulses, then it probably needs to be set at 16Hz.

All this works just as described, used with a KW2000A transceiver, and the unit is capable of reducing the Woodpecker to inaudibility. The manual states 45-50dB of blanking is obtainable most of the time — in theory, this should reduce an S9 signal just to inaudibility. There are conditions under which the degree of blanking will be reduced, such as when multi-path propagation is taking place. This results in delayed pulses arriving — the same effect will occur if two Woodpeckers are transmitting at the same time. Under these conditions the unit will only blank the set of pulses to which it is synchronise, although this can be overcome by increasing the blanking width.

## Blanking the signal

Bear in mind though that the longer the blanking pulse, the less audio there will be available from the non-blanked period, and there rapidly comes a point when there is insufficient audio left to pass intelligence (at above roughly 25% blanked).

Of course, all the time we are blanking the fairly wide Woodpecker signal (10-20mS every 100mS) we are also removing 15% or so of the received signal. With SSB stations, the effect is that of very rapid flutter (at 10Hz) which doesn't make the signal unreadable, and is preferable to trying to listen with the Woodpecker pulses present. The overall result is usually a

