

resulting tends to have a disastrous effect on the rest of the circuit!

By far the best way is to use a signal generator as a signal source, or any oscillator capable of giving a single signal within the current receive coverage for the VFO being used. If you have a scope, all the better.

1) Temporarily connect a 1n capacitor from point Y to earth (to simulate the effect of the 1n feed-through capacitor that will connect to this point later.)

2) Connect point J to +12V, and turn the BLANKER LEVEL control fully off (anticlockwise — wiper at 0V). using a suitable single signal source, locate the signal with the VFO. Then:

a) If a scope is available (set to DC coupling, 1V/cm) slowly advance the blanker level until the scope reading starts to go negative. Peak IFT7 and 8 (reducing the blanker level if necessary) for best deflection. Once aligned, peak deflection (maximum blanking) should be around 4-5 volts.

b) If no scope is available, advance the blanker level until you hear the audio from the receiver starting to be cut off. Then adjust the cores of IFT7 and 8 while backing off the BLANKER LEVEL if needed, until the blanking action starts at as low a level as possible. Turning the control fully clockwise should turn the audio off completely well before the stop is reached, if the signal being used is fairly strong.

Using the blanker

If you now connect an aerial, it should be possible to eliminate impulse and 'woodpecker' noises completely by advancing the control. If

the control is advanced too far, or the level of interference is not much higher than adjacent signals (say a broadcast band nearby), the normal audio may well be blanked as well. It is in the nature of a blanker that the unwanted interference to be eliminated must be of much higher amplitude than the wanted signal, which it normally is with, for instance, the Woodpecker.

Also, under certain conditions, notably at night, it may not be possible to blank the Woodpecker at all. This is because its level is likely to be much closer to adjacent signals, and because of the composition of the pulses themselves. There may well be multiple pulses, with one pulse of lower amplitude than the others. This smaller pulse will tend to be missed by the blanking action. Propagation effects can also reduce the blanking efficiency.

In the main, you can expect the Woodpecker to disappear completely, or be very much reduced, and be replaced by holes of silence.

Don't forget that as the blanker is wideband, it will pick up pulses that you cannot hear through the narrowband IF filter, so you may notice blanking when there is apparently nothing to blank!

If loud clicks are apparent instead of near silent 'holes' in the audio, then either you haven't got the board on its mounting plate, or the transformers T1 and 2 are incorrectly wound or connected. (In which case the signal path will probably not be blanked properly, either, with signals only marginally attenuated.) Alternatively D9 is not connected properly. Keeping leads above the board too long can lead to the same effect. If you laid out your own PCB — try again and look at keeping the 10.7MHz signal from Q12 getting back into the IF input. If

this is the problem, then the AGC may also be exhibiting a very slow attack time.

Transmit

At this stage you can only check the functioning of the TX oscillator.

1) Remove power from the +12V Rx terminal (U) only and connect points Y and Z to earth. Connect the +12V supply to +12V TX.

2) Screw the core of T4 carefully to its lower limit. Connect point L to earth with a temporary lead and then slowly screw the T4 core upwards until the oscillator (heard via the sidetone) stops — then screw the core back in one eighth of a turn. Adjust VC 2 for a beat note of about 800Hz.

Keying point L to earth should give a good CW note, whose level can be adjusted over a limited range by RV3. If you have a scope or RF voltmeter, there should be about 100mV of signal coming from the RF terminal on the mixer when it is terminated in 50 ohms (providing you have sufficient LO injection).

Finishing off

You should now be in a position to use the IF as a receiver for a while if you have a temporary VFO, to check it out and get the feel of it, pending building the correct VFO. You may also wish to build it into its diecast box as follows. This box also houses the AF filter (described in a separate article in this issue) which is mounted underneath the lid, and the AF, RF, BLANKER, AGC DELAY and filter switching controls.

The PCB should be placed in

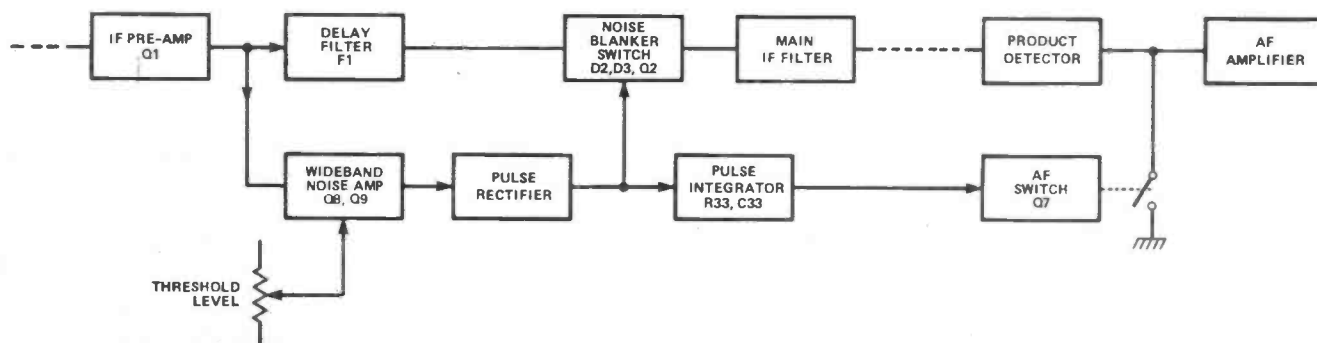


Fig 6. Block diagram of pulse and static crash blanker. The actual circuitry is incorporated within the CIFPU