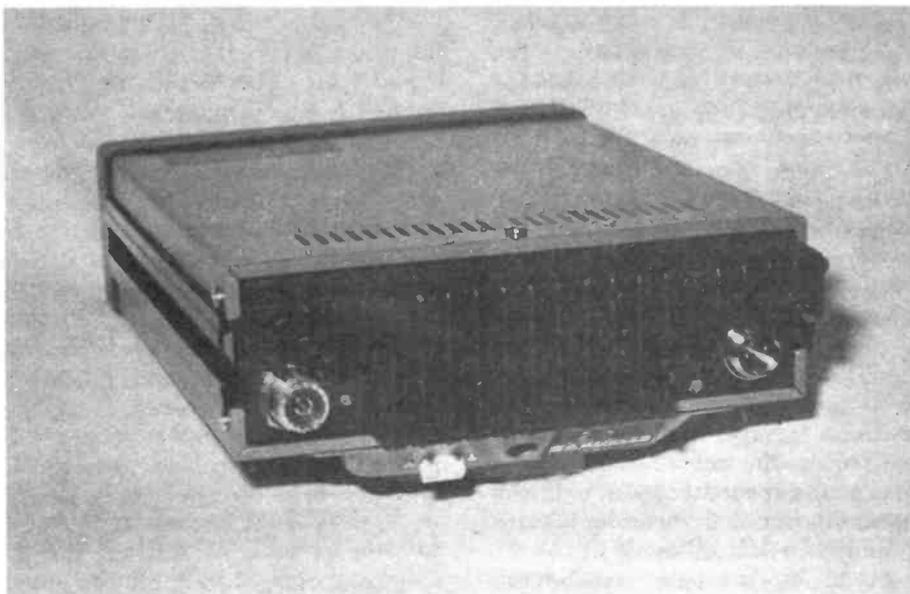


on FM and 5kHz, 100Hz on SSB/CW. These are selected by the digital step (DS) button which, to my mind, is placed just a little too close to the main dial and could be knocked inadvertently. A problem/feature of the DS button is that, when the step length is changed, the frequency reverts automatically to the next lowest base frequency for that step. This can be awkward if you quickly want to check on another frequency and then go back to the first one. I found the 5kHz step on SSB very useful for quick scanning and except under exceptional circumstances (contests, aurora, big lifts etc when stations can be very close packed), 5kHz seems the maximum step length one can use without missing stations on the band. 1kHz steps can be achieved by pressing the scan button and this makes for a very versatile set of features. RIT on the 9130 is performed by a separate control giving $\pm 800\text{Hz}$ and the only problem here is in forgetting to reset it to zero when returning at the end of a QSO.

The synthesiser on the 290E is enough to baffle anyone and with frequency steps of 25kHz and 1kHz on FM and 1kHz and 100Hz on SSB/CW one is very limited. Quick QSYs are very difficult to make and the inclusion of shifts to the centre frequency for each mode makes switching FM/SSB etc very tedious. The displayed frequencies (assuming f for frequency in FM mode) are: for CW, $f-700\text{Hz}$; for USB, $f-1.5\text{kHz}$; for LSB, $f+1.5\text{kHz}$. This, coupled with the fact that there is no way to reset to the correct base frequency for a particular mode, means that switching to, say, FM could leave you on 145.505.6MHz with no way to get back to 145.500MHz except by switching back to SSB on the 100Hz step length, going down to 145.505MHz, changing to the 1kHz step length, going down to 145.500MHz and then switching back to FM to continue. If you are prone to setting up horizontal FM skeds on SSB, warn the other guy to hang on for a few minutes! Here is another case where VFOs A and B do no seem to behave in the same way but please don't ask me to explain. I give up at this point and you'll have to try it for yourself (there must be some logic in there somewhere). The RIT operates in much the same way as the 9130's, having a separate control, however,



Rearview: Yaesu FT-480R

the absence of any indicator to warn you when RIT is switched in is very annoying. Also the RIT control itself, being concentric with the volume control, can cause problems. *(Most of the time the features mentioned here are totally irrelevant. This applies to all three transceivers — Ed.)*

Using repeaters

Repeater operation on the 480R is marred by the absence of a direct 'listen on the input' facility, although one could program the input frequency into one of the memories (fiddly to do when mobile.) The repeater shift is set at $\pm 600\text{kHz}$ by one of the nasty switches on the underside of the rig. Odd shifts can be catered for by VFO 'B' but the auto tone burst is accessed by another of the underside switches (I lost count of the number of times I worked simplex with the tone burst on).

On the 9130 a 'listen on the input' button, labelled REV, is available, non-standard frequency shifts can be catered for by Memory 6 (which is standard Trio practice) and the auto tone burst can be switched in easily (note the improvement over the Trio 9000).

At first sight, the 290E has no 'listen on the input' facility but I discovered that once the repeater shift is switched in, the WRITE button does give this facility (where's the logic there?) Non-standard frequency shifts can be programmed using the OFFSET WRITE button and the default value is $\pm 600\text{kHz}$.

One major failing is the lack of auto tone burst. The only way to access the repeater is to press a front panel button on the rig and then to operate the PTT on the mic for audio (shades of the IC2E?). Having to operate the rig button for tone burst on each over could make mobile operation very 'interesting'. Another problem with the 290E is that, unlike the other two rigs, the repeater shift is not cancelled in SSB or CW mode.

Memories and scanning

Entering frequencies into the six memories of the 9130 is a single button operation, with memory recall and memory scan facilities equally easy to use. The major criticism is the very limited memory scan facility, where it stops on busy channels only, but I believe that Lowe Electronics have a mod for improving this. A novel feature is the use of a piezo-electric transducer which gives bleeps on certain button pressings and is particularly useful for warning the operator when frequency storage in memory 6 is attempted. A second pressing of the 'M' button shuts it up if you wish to use memory 6 as a simplex memory. Although this 'bleeper' is a nice touch, it can't be heard in a noisy environment.

The four memories on the 480R are equally easy to programme and when memories are recalled the memory number appears on the display. An added feature of the 'priority channel' is that the dial frequency will be momentarily replaced by the selected memory frequen-