MODIFYING THE AZDEN PCS-4000 FOR A 5/25 kHz STEP RATE

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The Azden PCS-4000 is a popular two metre transceiver but it lacks provision for a step/scan rate of 5/25 kHz.

The Azden PCS-4000 is quite a popular two metre transceiver, allowing a good deal of control from the front panel and the microphone. One thing that it lacks, however, (in common with many other rigs, I hasten to add) is the provision for a step/scan rate of 5/25 kHz, as opposed to the 5/10 kHz supplied as standard.

It seems that Australia is one of the few countries in the world utilising a 25 kHz channel spacing on the two metre FM sub-band, however the PCS-4000 is remarkably easy to modify in this regard. All that is required is a signal diode (1N914, etc), a bit of wire, a fine-tipped soldering iron and plenty of patience!

Reference to the circuit diagram shows that it is simple to convert the 10 kHz rate to 25 kHz. All that is required is a link between the "K3" and "R5" scanning lines as well as between "K1" and "R5" when the "STEP" button is depressed. Refer to Figure 1 for the Truth Table. It should be mentioned at this point that despite the apparent complexity of the control panel, very few functions are "hard switched" — which is to say that most functions are accomplished by scanning various control lines with suitable decoding firmware.

Figure 1 — "Step" Truth Table.
1 — Diode In
o — Diode Out

	R5							
Step Rate kHz	5	10	12.5	15	20	25	40	50
K3	o	o	o	o	1	1	1	1
K2	o	o	1	1	o	o	1	1
K1	o	1	o	1	o	1	o	1

CONSTRUCTION DETAILS

Remove the top and bottom covers, thus allowing the front panel to be removed. Most of the "body" is taken up with the RF section, with the microprocessor living just behind the front panel. The knobs are easily pulled off, allowing the front panel to slip off. There is a small board containing the three switches (STEP; SCAN and TONE) that can now be unscrewed. Try not to lose these tiny screws in the interior of the rig — it is embarrassing having to turn it upside down and shake it! Besides, they can do nasty things should they happen to contact the internal battery . . .

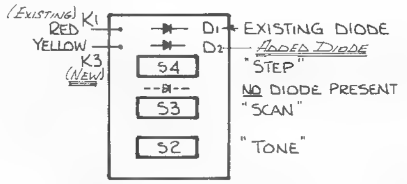

Figure 2 — Switch Board.

Referring to Figure 2, it can be seen there are vacant holes for extra diodes; currently only "D1" is installed. The modification is simplicity itself. First, insert an extra diode (1N914 or similar) in the "D2" position. It faces the same way as "D1" does.

Next, take a short length of wire from the "free" end of the diode to any "K3" point. A suitable location is on the back of the memory switch; the yellow wire is a "K3" scan-line. See the circuit diagram in Figure 3.

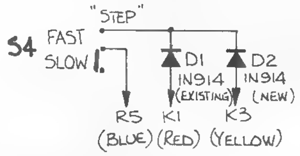

Figure 3 — Circuit Diagram.

Beware: the yellow wire on the switchboard is ***not*** a "K3" line. Also the circuit diagram has a mistake — the line shown as "K5" on the memory switch "SW1" is actually "K3" — the one we want.

With this being done, the unit may now be tested and then reassembled. The STEP switch will now give 25 kHz stepping when depressed, resulting in much quicker band-scanning and frequency selection. It will not increment the megahertz digit when stepping, but hopefully this will be the subject of a future article.

We have been unable to locate a schematic circuit for this transceiver, so we are unable to check all of the details — Tech Ed.

QSP

CORDLESS TELEPHONES

Some unapproved cordless telephones can cause harmonic interference, usually in the 3.500 MHz amateur band.

If you have such problems, identify the users name and telephone number by monitoring, then advise your state DOC office.

Prompt action is assured.