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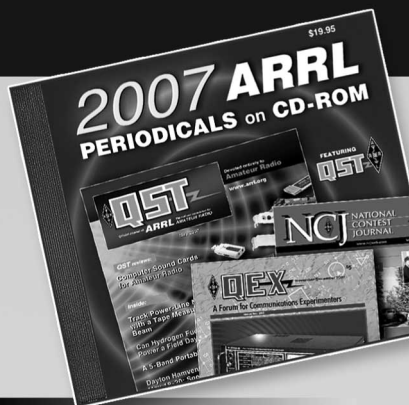
QST Issue: Oct 1982

Title: Improved Carrier Suppression For The HW-101

Author: John Dolan, KE4IK

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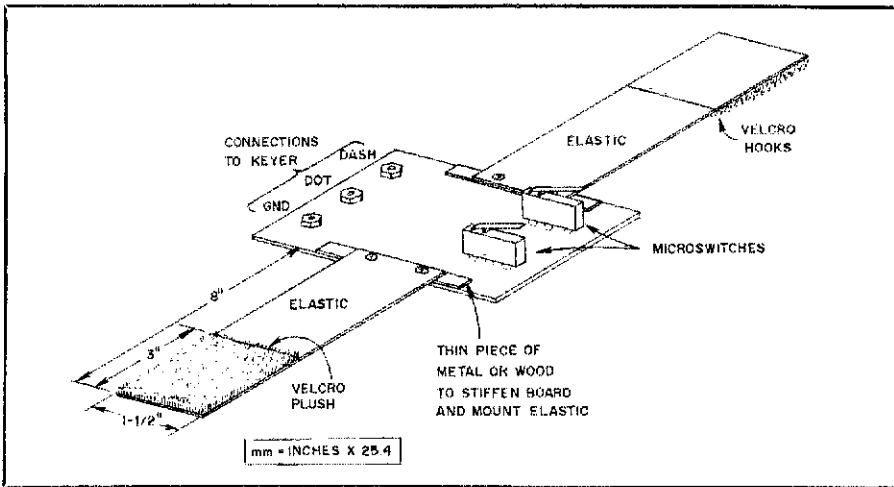


Fig. 3 — Sketch of the basic design of the Sneaky Knee Key. The two microswitches are spaced to be operated conveniently by your fingers.

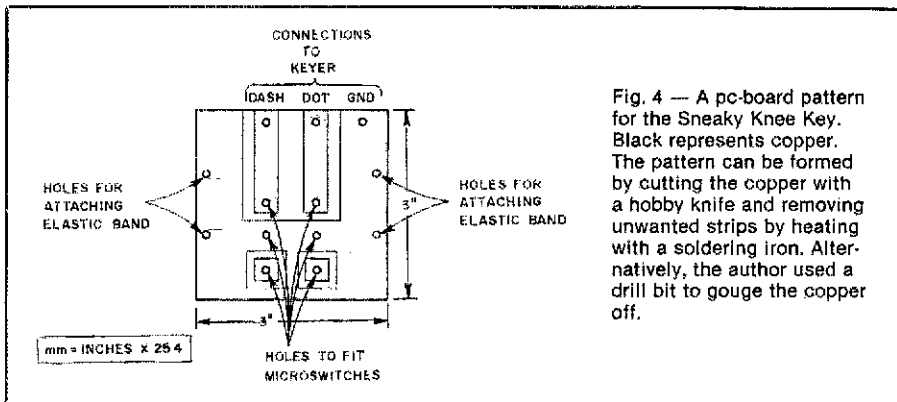


Fig. 4 — A pc-board pattern for the Sneaky Knee Key. Black represents copper. The pattern can be formed by cutting the copper with a hobby knife and removing unwanted strips by heating with a soldering iron. Alternatively, the author used a drill bit to gouge the copper off.

in this project is not critical (Fig. 4). All of the components are inexpensive and easy to replace.

The paddles have been in almost constant use on my mobile cw expeditions, and have held up extremely well. My right hand is never far from the steering wheel or gear shift. When trouble arises on the road, I send a quick little AS, and the other station stands by until I am clear of danger. It helps to have full break-in at both ends of the conversation. I use a Ten-Tec Argonaut, which has this feature, as well as RIT. To help keep the amount of hardware flopping around on my front seat to a minimum, I built a CMOS version of the Accukeyer inside the base of my Argonaut.

A basic requirement of mobile cw is being able to copy in your head. If you have not mastered this skill, please don't operate mobile cw while driving. Try copying someone else's cw in your head, and you will gain the skill quickly. To me there is something extremely fascinating about a mobile cw QSO that makes the miles roll swiftly by. I always get a little lift when I hear the other station reply, "You're a mobile station?" — Mike Richardson, NSMR, Orangevale, California

EASY NO-HOLES BUMPER MOUNT FOR YOUR ANTENNA

□ When I bought a Datsun B-210, I needed a way to attach an antenna mount without drilling holes in the car or bumper. My solution was to fabricate a steel plate that fastens to the

car by means of two existing bolts on the bottom of the bumper. The plate extends beyond the back of the car far enough to hold the ball mount. A right-angle connector is used on the bottom of the plate to connect the coaxial cable.

Depending on how the bumper is bolted to your car, you may have to bend the bracket to achieve the best position. If there is enough room it may be better to route the bracket over the top of the bumper in order to obtain more grounded clearance than I have. — Bill Gardner, W8WG, Athens, Ohio

IMPROVED CARRIER SUPPRESSION FOR THE HW-101

□ I improved the carrier suppression and rf output of my Heath HW-101 in the ssb mode. I replaced the diodes CR1, CR2, CR3 and CR4 in the balanced modulator with Schottky diodes. HPA-2800 devices should work well. The diodes must be matched for forward and reverse resistances.

After replacing the diodes, I connected a wattmeter and a dummy load to the transceiver and adjusted the carrier-balance potentiometer and the carrier-null capacitor for minimum output in both the upper and lower sideband positions. I injected a 1000-Hz signal at the mike input and keyed the transmitter on 3.700-MHz lsb. Then T1 was adjusted for maximum output. Finally, I adjusted both slugs in T102 for maximum output on lsb and usb. — John Dolan, KE4IK, Greenville, Tennessee

KENWOOD TR-2400 TONE-PAD INTERMITTENT

□ While operating my Kenwood TR-2400, I had difficulty using the autopatch, and was getting reports of intermittent tones and audio. The problem was getting worse, but the solution was elusive. After removing the rear case half, I discovered that the screws that hold the circuit board in place were loose. I tightened them, and the problem disappeared. Installing lock washers under the heads of these screws has prevented the problem from recurring. — Charles Rabley, WA8RUO, Arcanum, Ohio

HINTS FROM ABROAD

Rejuvenation of Nickel-Cadmium Batteries

□ It is sometimes possible to overcome the problem of NiCd cells that have developed short circuits; however, this is not the only problem that can arise with old cells. David Foster, G3KQR, carried out some rewarding experiments on a large batch of secondhand NiCds.

He writes: "The most important finding was that old cells had lost weight. For C cells, the loss was as much as 1.4 oz (40 g). This appeared to be caused by pressure venting and loss of fluid. I reasoned that the weight loss was most probably due to water loss, and not so much from loss of hydroxide. These 'sealed' cells have a pressure-relief vent, which seems to allow blow-off at a pressure of about 2 atmospheres.

"The vent is under the positive terminal, sometimes obscured by a brass soldering terminal. This terminal can be drilled by shallow penetration with, say, a no. 55 drill. Pressure venting is made possible by the synthetic-rubber plug that is placed between the top of the positive terminal and the top disc during manufacture. The two metal pieces are spot-welded together.

"Access to the cell can be gained with a hypodermic needle and syringe thrust vertically through the hole in the top, through the rubber and into the cell. The needle track will heal itself when the needle is withdrawn. Top up the cell with distilled water. I found that old cells required about 3 ml (0.1 oz) of water.

"This procedure is simple and safe. There is no contact with the hydroxide. Hundreds of cells seem to have been given a new lease on life using this technique."

David recognizes that the venting, which is the basic cause of the weight loss, probably results also in some hydroxide loss. There may be no practical way to replace this lost hydroxide (in *Rad Com* "technical topics," Jan. 1977, it was noted that any attempt to use potassium hydroxide, even on the large screw-on-cap cells, could more easily result in a medical emergency than a revitalized battery).

For those wishing to use the G3KQR water-replacement technique, there may be the problem of acquiring hypodermic needles and syringes. Your pharmacist may wonder whether it really is a NiCd you want to "fix"! But that should hardly deter a real Amateur Radio "addict." — Reprinted from *Radio Communication*, June/July 1980, "technical topics," Pat Hawker, G3VA, p. 636.

OLD TIMERS' NOTEBOOK

Wire Device Protects MOS Transistors from Damage

□ Destructive damage can be done to metal