ARRL Periodicals Archive – Search Results

A membership benefit of ARRL and the ARRL Technical Information Service

ARRL Members: You may print a copy for personal use. Any other use of the information requires permission (see Copyright/Reprint Notice below).

Need a higher quality reprint or scan? Some of the scans contained within the periodical archive were produced with older imaging technology. If you require a higher quality reprint or scan, please contact the ARRL Technical Information Service for assistance. Photocopies are $3 for ARRL members, $5 for nonmembers. For members, TIS can send the photocopies immediately and include an invoice. Nonmembers must prepay. Details are available at www.arrl.org/tis or email photocopy@arrl.org.

QST on CD-ROM: Annual CD-ROMs are available for recent publication years. For details and ordering information, visit www.arrl.org/qst.

Non-Members: Get access to the ARRL Periodicals Archive when you join ARRL today at www.arrl.org/join. For a complete list of membership benefits, visit www.arrl.org/benefits.

Copyright/Reprint Notice

QST Issue: Jun 1981
Title: Reducing HW-101 Sidetone Volume
Author: Stan Smith, VE3IOI

Click Here to Report a Problem with this File

Radio Shack (no. 276-1740). Also Radio Shack's pc board potentiometer no. 271-333 is satisfactory for R1. Their no. 276-1363 heat sink will meet the needs of Q1. A nice, but optional, item is the LED indicator, DS1.

For the meter, choose one that has a 100-mA, full-scale movement and make a shunt of Nichrome wire or low-value resistors in parallel to give a switchable 1-ampere range. For best regulation, the unshunted internal resistance of the meter should be less than 2 ohms.

The diode in the S-1, which protects the pack from the momentary short when the charger is plugged in, has a voltage drop of 0.71 V at 25 mA. Therefore, R1 should be adjusted to set the unloaded output of the regulator (measured at the collector of Q1) at 1.43 V × 8 + 0.71 V, which equals 12.15 V. If you don't have a digital voltmeter, you can set R1 in the following manner: (1) Charge the pack with the trickle charger for 14 hours, then unplug it; (2) set the regulator output for 10 V, then connect it to the S-1 in the taper charge mode and slowly adjust R1 upward until the current meter indicates 15 mA.

To check the current limit, connect a 10-watt (or larger) 10-ohm power resistor to the regulator output. The current meter should indicate between 650 and 850 mA. If the indicated current is not within this range, change the value of R2. The value of R2 is not critical.

Depending on how you package the unit, rf can affect the regulator. If rf does affect the operation, install a 0.01-μF bypass capacitor at the input, another at the output and one directly across the 723 regulator supply pins 12 and 7. One of these is included in the diagram.

When using this charger/regulator circuit with other than Tempo hand-held sets, be sure there is a diode between the regulator and the battery pack to prevent damage to the regulator when the input voltage is off. Choose a diode with at least a 1-ampere rating, such as the 1N4001. With the added diode, the charger should work with the Kenwood TR-2400. Be sure, however, you are aware that the battery plug on this radio is "backwards," with the center pin grounded. ICOM has two NiCad packs for the IC-2: The standard one has seven cells and the higher power pack has nine cells. The seven-cell pack requires a lower regulator voltage setting. To accommodate the nine-cell pack, change R1 to a 2-kΩ potentiometer. The input voltage should be at least 13.7 V. Also, note that the two screws on the bottom of an IC-2 battery pack are connected directly to the + and − battery terminals. For this reason a charger stand is practical.

As a final word of caution, do not overcharge NiCads, even with a trickle charger. Unless the radio is in actual use, do not leave it connected to the charger for long periods after charging is completed. — *Joe Moell, KØOV/WA6JFP, Fullerton, California*

CENTURY 21 DRESS-UP

☐ The analog dial and meter faces of the Ten-Tec Century 21 may be made more eye-catching by attaching pieces of colored plastic in front of the cutouts on the subpanel. I used some red plastic (from a discarded box) that I cut to the proper sizes. Quick-drying epoxy, spotted around the perimeter of the plastic, is sufficient to hold it in place. The resultant coloring is quite appealing, especially in low ambient light areas.

Some '21 owners may have found as I did that the ZERO-BEAT and SET DRIVE push buttons stick or become intermittent after a period of use. Replacement of the switches is the route to follow. Substitutions for the original switches may be found at the local Radio Shack store. Two types of switches are available — momentary contact types (275-618) like the originals or push-on/push-off (275-617). The type to use is a matter of personal preference. Some might prefer to use the push-on/push-off switch for the SET DRIVE control; it will maintain a key-down situation without the need for the operator to keep the button depressed during drive or antenna matching network adjustment. Aesthetically, the switches offer a contrasting red/black styling, which adds some pizzazz to the rather conservative gray/black front panel of the transceiver.

The knobs, control nuts and front panel must be removed to gain access to the switch mounting clips. Since these clips are difficult to loosen, it is easier to cut them off with a pair of diagonal cutters. The removal and replacement process should take less than a half hour. — *Paul K. Pagel, N1FB, ARRL Hq.*

REDUCING HW-101 SIDETONE VOLUME

☐ If the cw sidetone volume of your HW-101 is too loud, add this simple and inexpensive modification that was dropped by Heath when the product line was switched from the SB-101 to the HW-101. The circuit boards in the HW-101 still have the holes for the additional components to be added. No retuning is necessary. (See Fig. 6.)

Begin by locating the audio circuit board. Then remove and discard R326 (1 MΩ). Refer to your manual. Temporarily remove R336 (330 kΩ); it will be replaced later. Add C319 (0.005 μF/disc) as shown — this is Heath part no. 21-27 or Radio Shack no. 272-130.

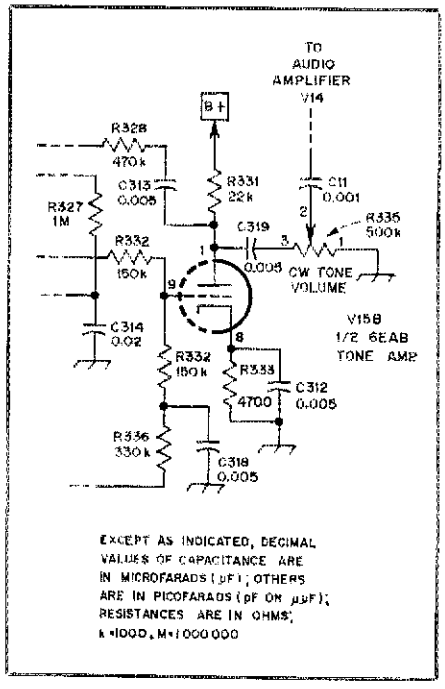

Fig. 6 — Control of the sidetone volume of the HW-101 is accomplished with the addition of a potentiometer, as indicated in the diagram. Stan Smith, VE3IOI, provides the details in the text.

Next, add the volume control, R335 (500 kΩ), which can be Heath no. 10-149, Radio Shack no. 271-1723 or the equivalent. Mount the control from the foil side of the circuit board; space is available adjacent to R336. Be sure to solder the rear of the control cover to the foil. Have the shaft project up through the board. Replace R336 (330 kΩ as shown. Then pack up, fire up and enjoy! — *Stan Smith, VE3IOI, New Market, Ontario*

ANOTHER APPROACH TO GETTING ON 10 METERS WITH A CB YAGI

☐ Several people advised me at the time I got my ticket in April 1979, to modify an 11-meter CB antenna for use on the 10-meter amateur band. Because I had not seen the WB3GCN antenna modification in March 1979 *QST*, I set about the task in a slightly different way than outlined by Mr. Inverso, but with equally satisfactory results. Luck assisted me in obtaining a very nice 11-meter, three-element aluminum Yagi from a dealer's dusty shelf for $30, and the project was launched.

The elements were shortened according to formulas in *The ARRL Antenna Book*. These state that the driven-element length in feet equals $475/f_{MHz}$, the director length in feet equals $455/f_{MHz}$ and the reflector length in feet equals $500/f_{MHz}$. Since the elements are composed of telescoping sections, the outer section was simply slipped inward slightly and firmly clamped by stainless steel, gas line clamps obtained at an auto parts store. These clamps also permit easy tuning of the elements as needed by loosening the clamps and altering element lengths.

Turning to the *Antenna Book* table entitled "Optimum Element Spacings for Multielement Yagi-Arrays," I found that the element spacing had to *increase* over the spacing distance the CB designer posted. Guided by the graph for spacing from the director to the fed element, I chose a spacing of 0.177 wavelength. This meant the element spacing had to be "blown open" about 5 feet (1.5 meters) over the CB design. An appropriate length of aluminum tubing, therefore, was bolted to the boom to lengthen it.

Information in the back of the *Antenna Book* indicated that the gamma match had to be moved out from 3-3/4 inches (95 mm) to 4 inches (102 mm), accomplished with the cutting of a couple of new straps.

With just simple tools the work can be done in an hour. Time for mounting is additional. The method of mounting is left to the builder.

Although placed deep among 100-foot (30-m) oaks and pines, the antenna really sparkles. On the first try the SWR ranged from 1.0 to 1.3, so it was left alone. West Coast reports jumped to consistent S-9s from previous S-6.

Amateur Radio has its foundation well set on experimentation and ingenuity. My hope is that this simple experiment will be of value to you, increasing your enjoyment of 10-meter operation. — *Dr. F. W. Shield, KA4HIP, Hampton, Virginia*

MARITIME ANTENNA FOR 2 METERS

☐ For some time I searched for a good 2-meter antenna for my boat. Requirements were simplicity, low SWR, insensitivity to location, a single mast without radials and resistance to corrosion. Simple coaxial antennas, as you