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QST Issue: Dec 1979
Title: Semi-Break-In for the Century 21
Author: Charles Darrow, K8GZQ

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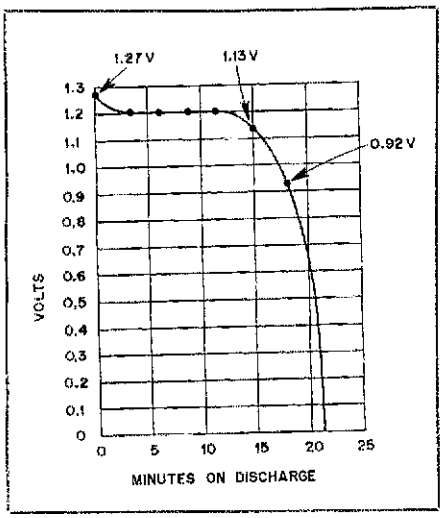
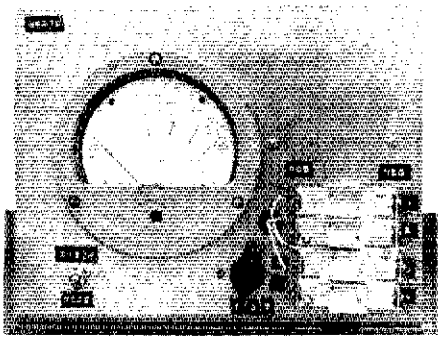


A typical voltage versus discharge time curve for NiCad cells. Load resistance is 0.9121 ohms.



W6RTK's NiCad discharge unit. A surplus military test instrument meter is mounted on the front panel. Rotary switch S1, near the bottom center, selects the cell under test and discharge. Toggle switch S2 at the left of the panel selects either the measure or discharge function.

required to discharge 10 cells is 3 hours, 48 minutes including time required to change cells. During discharge, no appreciable temperature change was observed in the cells or in the discharge resistor.

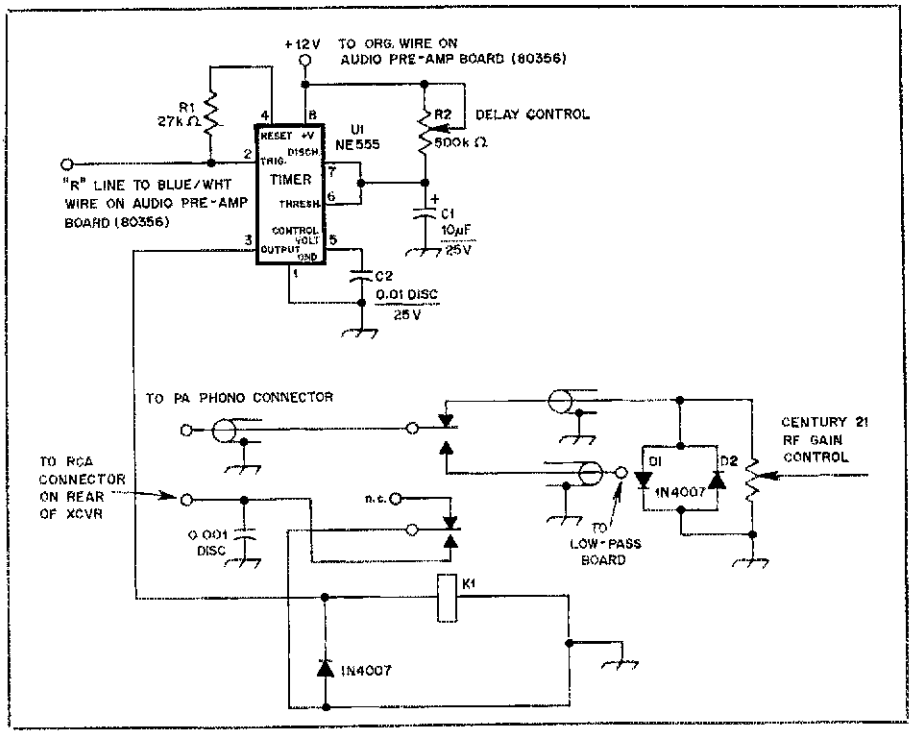
Wilson specifications state that battery drain during transmission is 900 mA. The Wilson charger delivers 60 mA and is said to fully charge the battery in six to 10 hours. My unit, operated during a bicycle race for five hours, provided almost continuous transmitting. The battery performed satisfactorily.

I should add that the cell voltage, as indicated by this instrument, is 1.27 V. This is a little high for a NiCad cell. I attribute the questionable reading to a faulty 2500-Ω multiplier resistor, soon to be replaced.

Appreciation is expressed to WB6KZN for furnishing the NiCad data. Thanks go to WA6ITE for the photograph. — *Marchal H. Caldwell, Sr., W6RTK (ex-W4DFM, ex-WA6TBU, ex-JA0IJ), Sacramento, CA*

SEMI-BREAK-IN FOR THE CENTURY 21

Believe me, full break-in and the electronic keyer are two great ideas for cw operation. When you want to add an amplifier to your transceiver, however, you may be faced with a problem. The difficulty is that there are many new and used amplifiers today which lack circuits for providing full break-in. I resolved this perplexing situation by settling for a modification that provides semi-break-in. I'm well pleased with this arrangement. It may be of interest to other owners of those fine Ten Tec Century 21 transceivers.



K8GZQ's semi-break-in circuit for the Century 21 when used with a linear amplifier. Coaxial leads are RG-174/U.
C1 — 10-μF, 25-V electrolytic.
C2 — 0.01-μF, 25-V disc.
C3 — 0.01 disc.
D1-D3, incl. — 1N4007 diodes.
K1 — Dpdt relay, 12 V, Radio Shack no. 275-206.
R1 — 2.7-kΩ, 1/4 watt.
R2 — 500-kΩ potentiometer.
U1 — NE555 timer.

My modification involves the use of an NE555 timer, a relay and a few other parts which I mounted on a piece of perforated board. The board is secured to the underside of the Century 21 by means of small L brackets. An area near the low-pass filter section at the rear of the transceiver is suited for this purpose.

The first step is to remove the top and bottom of the transceiver. Use care to avoid breaking the speaker leads. Locate the coaxial lead connected to the rf gain control. Unsolder it from printed-circuit board no. 80360, rerouting the lead to the underside of the radio: This is the receive line. Install two 1N4007 diodes back-to-back across the rf gain potentiometer (see the accompanying drawing). These diodes provide protection against backwave and high-level signals.

Next, locate the small coaxial cable wired to the amplifier. Remove the connector from the cable and reroute the line to the underside of the chassis. This cable is to be connected to the wiper of the relay on the NE555 board. Attach a phono connector to the end of a 1-foot (305-mm) length of RG-174/U cable. Route this cable, the transmit line, under the chassis. It is to be plugged into the power amplifier. Assemble the components on the perforated board and install the board as instructed above. The work should take about an hour.

The 555 IC operates as a monostable multivibrator. Operating voltage (+12 V) is obtained via the orange wire on the Century 21 audio preamplifier board (no. 80356). The R line is also obtained from this board. In the receive mode, this line is high (+12 V), going low in the transmit mode. This condition is required to start the NE555 which, I should mention, is capable of operating a 12-V relay with up to a 200-mA current draw. A 1N4007 diode is placed across the relay field coil (note polarity) to prevent field-collapse transient voltages from affecting the 555. Such transients could cause lockup. A 2.7-kΩ resistor from pin 2 of the 555 to pin 4 keeps the 555 constantly resetting. If this resistor is not included, the 555 will restart, causing the relay to trip during long transmissions of dits and dahs. Manufacturer's specification sheets provide detailed information on the 555. — *Charles Darrow, K8GZQ, Olmstead, OH*

ADAPTING THE HEATH NOISE BLANKER TO OLDER 75S-SERIES RECEIVERS

A recent article described the adaptation of the Heath SBA-104-1 noise blanker to the Collins 75S-3C receiver.[1] While this particular arrangement would work for that series of receivers, the earlier 75S-3 (no suffix) and 75S-1 models are mechanically arranged differently beneath the chassis; an alternative mounting procedure must be used if the noise-blanker feature is desired.

The most readily available place for the blanker board has one item, the fuse holder, denying access to that area. The obvious

[1] Lask, "A Noise Blanker for the Collins S-Line," *QST*, February 1979.