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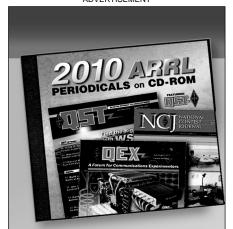
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QST Issue: Mar 1981

**Title:** Instant Break-In For The Heath SB-200 **Author:** Hank Garretson, K2SSX/W6SX

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### Hints and Kinks

Conducted By Stuart Leland, W1JEC

#### INSTANT BREAK-IN FOR THE HEATH SB-200

[] The recent article by Clements' and two earlier articles244 presented similar schemes for adding electronic bias switching to the Heath SB-220. In each case the SB-220 cathode-bias circuit was modified by using a Darlington pair as a series switch to control the bias applied to the 3-500Z final tubes. This bias scheme is readily adapted to the SB-200 even though the SB-200 uses a grid-bias arrangement.

The circuit is shown in Fig. 1. Instead of modifying the Heath bias circuit, a positive voltage is applied to the normally grounded filament winding center tap through the Darlington pair. When excitation is applied to the SB-200, the two transistors turn on, the center tap is grounded and the amplifier operates normally. With no rf applied, the transistors are off, the center tap is at +125 V and the 572B tubes are cut off. The 7500-pF capacitor ensures that the center tap stays at rf ground.

The component values are not critical. 1 started with Clement's circuit and ended up where my junk box took me. All components were mounted on a small piece of perf board supported by the two spacers which hold terminal strip S (the terminal strip which allows selection of 110- or 220-V operation). The filament-transformer center tap comes through the grommet near the terminal strip.

Installation of the circuit in Fig. 1 can be made in cookbook fashion but much can be gained by a careful reading of the three referenced articles. They are well written and provide insights into how and why the scheme works.

The approach presented here, leaving an existing grid-bias circuit intact and applying cutoff hias to the filaments and cathodes, can be used with many commercial and homemade amplifiers. The scheme is extremely simple and has the added advantage that existing alc circuitry does not have to be changed. I am particularly indebted to Fred Jensen, K6DGW, for technical advice freely given. - Hank Garretson, K2SSX/W6SX, Loomis, California

#### References

'Clements, "All Solid-State QSK for the Heath SB-220," QST, January 1980. 'Frey, "How to Modify Linea: Amplifiers for Full Break-In Operation," Ham Radio, April 1978. 'Reyant, "Electronic Bias Switching for Rh Power Amplifiers," QST, May 1974.

#### POSITIVE MUTING OF DRAKE TR-4C

☐ This modification provides positive muting of the TR-4C when used in conjunction with an external receiver. PTO dial-lamp switching for the R-4C external receiver is also provided as an operational status indicator. Fig. 2 illustrates the circuit modifications.

C-217 is removed from the TR-4C as are the switch jumpers (dashed lines). Add the phono connector I, as shown in the diagram. If the line to J from the receiver side of the transceiver/receiver switch is made very short, it need not be shielded.

Install a cable from J to the PTO lamp jack on the R-4C. The PTO dial lamp on the R-4C is



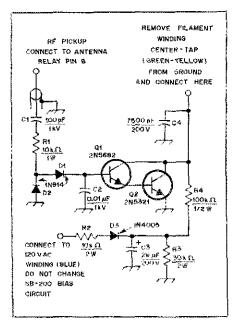


Fig. 1 - Electronic bias switching for the SB-200

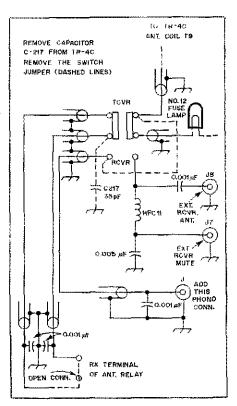


Fig. 2 - These simple changes in the Drake TR-4C provide positive muting when using the set in conjunction with an external receiver, J. is an added jack. If feedthrough capacitors are used to bring the switch leads through the under chassis if cage wall, the shielded leads may be replaced by unshielded wire. Likewise, the two 0.001 µF capacitors from these leads to ground may be omitted. The 0.001 μF capacitor in shunt with J is needed for proper operation.

illuminated only when that unit is the active receiver. After modification, you will find that the audio gain on the TR-4C does not have to be turned off when the external receiver is in operation. - William F. Cade, K5HU. Tupelo, Mississippi

#### TEMPO S-1 TRANSMISSION-LINE ADAPTER

1 recently purchased a Tempo S-1 transceiver, a fine piece of equipment except for the 1/8-inch (3-mm) phone jack used for connecting the autenna transmission line. In addition to being a nonstandard antenna connector, the jack-seems to lack the durability to withstand the leverage exerted by RG-58/U coax. To avoid damage to the connector, 1 made an adapter consisting of a short length of RG-174/U with the appropriate connecting hardware obtained from Radio Shack.

At one end of the 4-foot (1.2-m) piece of RG-174/U, I soldered a 1/8-inch (3-mm) shielded miniature phone plug (RS no. 274-288). A small length of 1/4-inch (6-mm) dia heat-shrink tubing is slipped over the other end of the RG-174/U and that end prepared as shown in Fig. 3. The coaxial cable is laid aside momentarily. After tinning the center conductor, prepare a solderless PL-259 (RS no. 278-196) by filing 1/4 inch (6 mm) of the plating from the neck of the plug. This area of the plug is then coated thinly with solder.

The next step is to push the braid back, insert the center conductor in the neck and pin of the P1-259 where the conductor is soldered in place. To complete the adapter, the braid is pulled down over the neck of the PL-259 and soldered to the tinned area. After sliding the shrink tubing over the neck of the plug, it is shrunk by heating,

Finally, attach a PL-258 double female connector (RS no. 278-1369) to the PL-259. You now have an adapter that accepts a PL-259 but does not threaten to damage the rig. To ease the minds of the "worry-warts" among us, the insertion loss for such a short piece of RG-174/U is less than 1/2 dB. - Hat Steinman, KIET/KIFHN

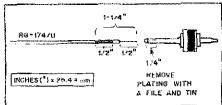


Fig. 3 — The antenna jack on the Tempo S-1 can be protected from possible damage by use of the simple adapter illustrated above. It consists of a short length of RG-174/U and connectors for each end.

#### **ECONOMICAL SIGNAL** GENERATOR FOR SSB RIGS

i telt the need for a signal generator that would have high output peaks but low average voltage. It seemed such a device would be useful in tuning up my ssb transmitter and linear amplifier without unduly overpowering the dummy antenna.