

are shown in Fig. 2. The test points for 9-volt batteries are spaced $\frac{1}{2}$ " apart. There is only one test point for 1½-volt batteries, with connection to the positive terminal of the battery being made with a test lead. This arrangement has proven to be very handy in testing batteries, as opposed to using battery holders.

One could, of course, build a more elaborate battery tester by expansion of

the idea shown. One also might wish to make provisions for testing each type of battery under different types of load conditions which approach the load placed on a battery in actual service. Obviously, some batteries which are approaching the end of their lives if fully loaded can still be useful for an extended time if only lightly loaded.

There is a problem, how-

ever, in approaching a more sophisticated method of checking batteries: obtaining accurate data on a battery's rated capacity. Nicads in the AA size usually have a 10-hour discharge rate of 45/50 mA. The discharge rate is 190 mA for C cells, and 400 mA for D cells. For these types of batteries, or for other types where some data is known, one can tailor the test load used to corre-

spond to the performance the battery should deliver.

For the garden-variety forms and brands of batteries, however, the loading used in the battery tester as presented has worked very well.

A final note: When testing batteries, hold the battery on the tester for a few seconds. The true state of some batteries will not be revealed if they are loaded for only an instant. ■

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Getting the SB-220 to Idle

— a final-saving mod for Heath's popular linear

Several articles have been written concerning modifications to the Heath SB-220 linear amplifier which will prevent current surges in the filament of the 3-500Z tubes. The surges can lead to grid/filament shorts and ultimate tube destruction.

This modification, while not eliminating the current surges, does much to cut down on the number of times that the amplifier is turned on and off and ultimately lessens the chance of tube destruction.

In checking over the specifications for the new Drake L7 linear amplifier, I noticed that a new feature had been incorporated that would allow you to have the L7 on, but in a standby condition. A quick check of the SB-220 diagram

showed that relay RL-1 is made operative by bringing terminal #10 to ground via the RCA connector on the rear apron of the amplifier. My Drake T-4XC, as well as any modern transmitter or transceiver, has a terminal provided which will ground the relay and make the amplifier operative.

The trick, then, is to open the line from the transmitter to the linear and put in a switch so that you can control what the SB-220 will do. Where to put the switch seemed to be the big question. A good "no-holes" location turned out to be at the sensitivity control on the front panel. The original control is replaced with one with a switch. A push-pull switch would be ideal since you would not disturb the set-

ting of the sensitivity when using the switch. Not being able to locate a push-pull at the local parts supply house (an ongoing problem), a regular switch was used.

The old control, R26, is removed from the front panel and the replacement is installed in its place. The wires are then connected as in the original installation. The blue wire coming from the RCA connector on the rear apron, marked "relay" and leading to terminal #10 of the relay, is removed. A new wire is run from the RCA connector to one of the terminals of the switch on the front panel. A second wire is run from the other terminal of the switch to terminal #10 of the relay. That's it!

To operate the SB-220, turn on the ac power

switch and then the switch on the sensitivity control. Your amplifier will then run just as it did before. When you key the transmitter, the linear comes on-line and the relative-power meter functions. If you want to place the SB-220 in the bypass condition, just turn off the switch on the sensitivity control. The filament and the high voltage are still on, but the relay is inoperative.

The filament current surges have not been eliminated, but you have cut down on the number of times that the amplifier is turned on and off. The chances of tube failure have been reduced by a good factor and you have an operating convenience found on one of the latest linear amplifiers on the market. ■