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Heathkit SB630 Control Console

The old saying about good things coming in small packages could have been written with Heathkit's SB630 console in mind. There are four operating conveniences in this one compact unit—SWR bridge, hybrid phone patch, 24-hour digital clock and an entirely independent 10-minute timer which reminds you when it's time to identify. This last provides you with a choice of a brightly lit *identify* on the panel, or the internal buzzer may be switched on so that light and sound both remind you that it's time for a station break.

Styled to match the rest of the ever-growing Heathkit SB-family, the SB630 can, of course, be used with any gear. Panel height is identical with the other Heath units, but a variety of feet come with the kit to let you change it to whatever suits you best.

SWR bridge

The hardware and circuitry of the built-in bridge appear to be identical to the HM-15 SWR meter. Two sets of resistors are supplied with the kit, allowing use with either 50-52 ohm or 70-75 ohm transmission lines. It's a good idea to keep the unused resistors handy; you can tape them to the chassis in

case you decide to change feedlines.

For full scale forward deflection on 75 meters, 70 watts of output are required but as frequency rises, less power is needed. At 6 meters only 2 or 3 watts pin the needle when the sensitivity pot is wide open. Despite these requirements, the bridge can be used at lower power levels too, with some slight loss of accuracy. If for example, the forward reading is only 50% of full scale, the indication of reflected power is proportional.

Perhaps even more important than any discussion of the bridge's characteristics is the manual's lucid and concise explanation of SWR and line losses, and what they mean to the amateur.

Phone patch

The SB630's meter has two functions—SWR, as already mentioned, and the indication of phone line listening level. When the mode switch is turned to **phone patch**, the meter reads accordingly.

In addition, there's a two-position slide switch on the rear apron. At the **monitor** position, which is where you'll normally use it, the meter indicates signal level on the phone line, so you can set the gain to avoid

crosstalk on the line. The other position, null, is optional if you want to work patches with VOX control; even then you only use it once, following a simple null adjustment procedure described in the manual. In this position of the switch, meter sensitivity is increased, making it easier to find the null. Once set, it should need no further attention.

Ten-minute timer

The circuit of the identification timer is very interesting. Three resistors and two capacitors comprise an RC network with a very long charge time. When this charge reaches a critical point, it causes a neon bulb to conduct, sending a positive pulse to the grid of a 6EW6 relay control tube, energizing the relay. Several things then occur.

One set of contacts lights the pilot lamps (and sounds the buzzer—if the front panel switch has selected this option). Another set of points lets a capacitor discharge through a pair of resistors to hold the grid positive for about a second, the time in which *identify* lights up and the buzzer sounds. In passing, I found this cycle too short to suit me, but it took only a few moments to add another capacitor across C25 to increase the hold-in time. I could have changed a resistor (R27) for a higher value to get the same results, but the capacitor was easier to get at.

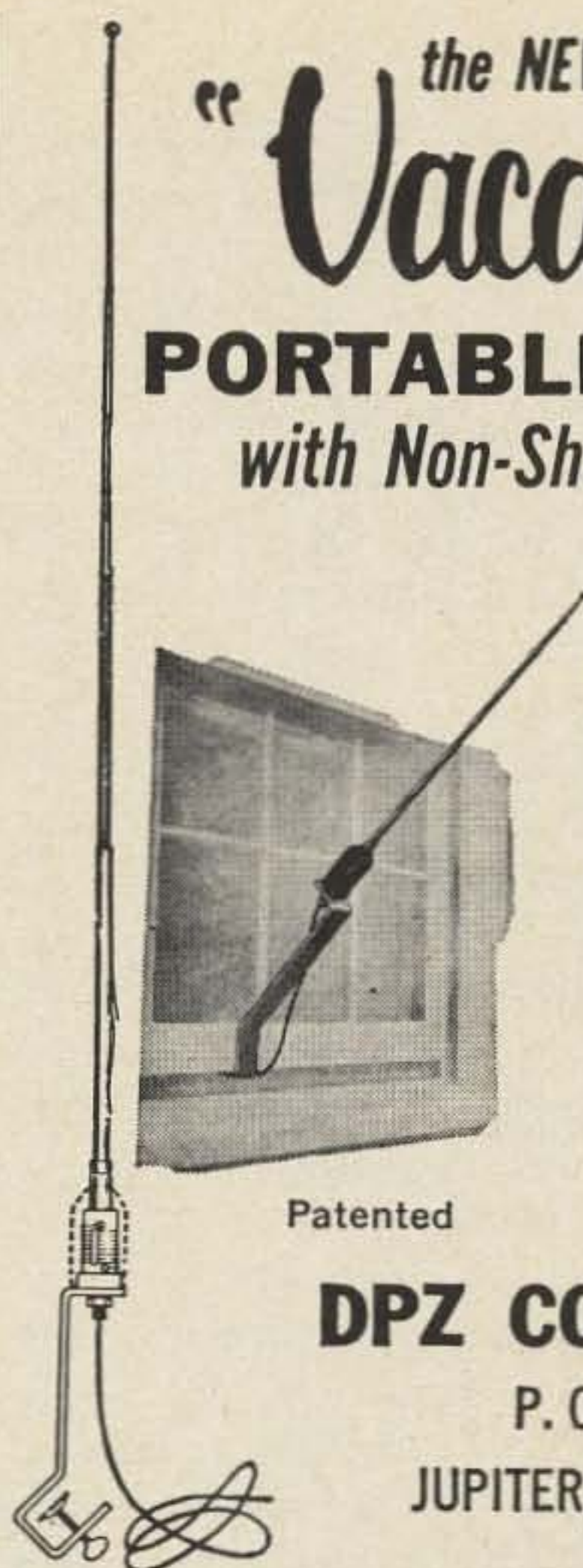
A third pair of contacts discharges the timing capacitors. When the contacts re-open, the 10-minute timing cycle begins all over again. You expect a regulated voltage source in this circuit if there is to be any accuracy. There is one—an OA2 gives you 150 volts of regulated voltage.

Adjustment of the timing is simple and quick. There's a "coarse" control you set once. Then touch up a "fine" adjustment until you have a cycle of exactly 10 minutes. Although broadcast studio precision isn't a necessity, you can get it easily. On the very first try, I got the cycle to 9 minutes, 57 seconds. Two touchups later I had it right on the nose. As this is written, following about 3 weeks of use, it has held its calibration perfectly.

To use the timer, touch the reset button on the panel at the beginning of each QSO, to start the 10-minute cycle. The 24-hour clock runs all the time, of course, completely free and independent of the ten-minute timer.

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