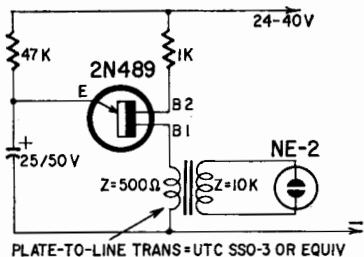


UNIUNCTION PILOT LAMP

Transistor equipment designers generally run into the problem of providing a visual on-off indicator. A type 47 pilot lamp draws around 900 *milliwatts*—far more than the power consumed by many battery-powered transistor devices. Here is a simple



low-power pilot-lamp circuit for transistorized equipment operating from 24-40-volt batteries. Power drain is reduced by using a flashing indicator with a short-duty cycle.

The circuit (see diagram) uses a 2N489 unijunction transistor as a low-frequency pulse generator. The generator output is stepped up by the transformer and applied to a NE-2 neon lamp, causing it to flash.

In operation, the capacitor charges through the 47,000-ohm resistor until the voltage across it reaches the critical value, which is from 0.51 to 0.62 times the supply voltage (this figure varies with the particular type of unijunction transistor used). When this voltage is reached, the transistor turns on and the capacitor discharges rapidly to ground through the transistor and transformer. The resulting stepped-up pulse fires the neon lamp. The indicator flashes about once each second and draws from 3.2 ma at 24 volts (77 mw) to 5.5 ma at 40 volts (220 mw). The light flash is just noticeable in a lighted room with a 24-volt supply and readily perceptible at 30 volts.—*Paul S. Lederer*