

# EMERGENCY HOUSEHOLD LAMP



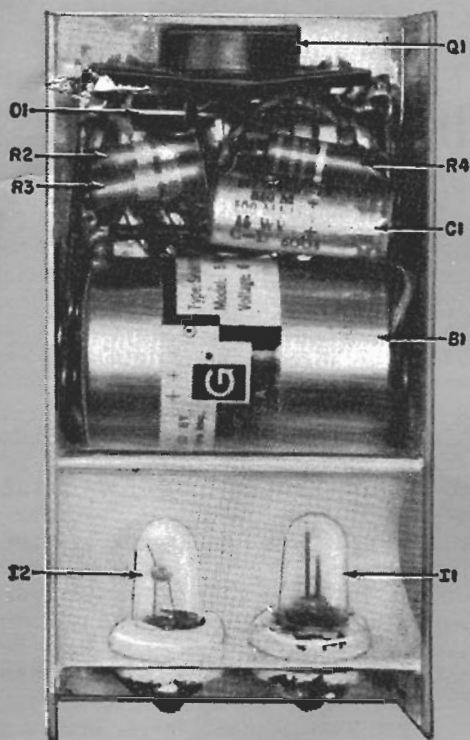
*Don't be left in the dark—  
here's a gadget that will provide  
instant light when the power falls*

**By R. L. WINKLEPLECK**

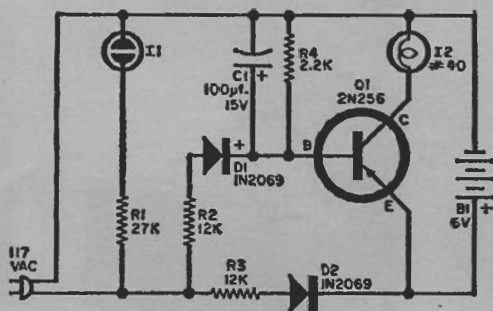
**W**HAT happens at your house when the power suddenly goes off at night? Do you stumble around trying to find a flashlight or a candle and some matches? If so, here's the answer to your problem. It's a modernized, scaled-down version of the emergency lights you've probably seen in public halls, railway stations, and other places where crowds gather. It goes on automatically when the power goes off, eliminating the possibility that you will be left in complete darkness.

This emergency light, unlike the big commercial types, is a convenient, miniature unit. It can be plugged into a home wall outlet and forgotten. An additional feature is a small neon night light which draws almost no current and remains on all the time. This was incorporated in the design because the location for an emergency light is often one where a night light is needed regularly. The small metal box has a male plug on the back to fit directly into any a.c. outlet. A plastic-covered window on the front protects the two small lamps in a reflector. One lamp is lit when the power is on—the other when the power is off.

The schematic diagram on page 57 reveals the heart of the emergency light: a small 6-volt rechargeable nickel-cadmium battery which is



The entire emergency night light is compactly built in a cut-down Minibox. A larger housing can be used if desired. The arrangement of components is not critical.



When charged, C1 keeps Q1 from conducting. If power fails, current flows, causing I2 to light.

### PARTS LIST

- B1—6-volt, 180-ma./hour nickel cadmium re-chargeable battery (Gulton Type 6VO—.180, or Burgess CD21 rated at 150-ma./hour)
  - C1—100- $\mu$ f., 15-volt electrolytic capacitor
  - D1, D2—350-ma., 200-PIV silicon rectifier (Texas Instruments 1N2069 or General Electric 1N92)
  - I1—NE-51H neon lamp
  - I2—#40 pilot lamp, 6 volts, 150 ma.
  - Q1—Power transistor (2N256 or equivalent)
  - R1—27,000 ohms
  - R2, R3—12,000 ohms
  - R4—2200 ohms
- } All resistors  
} 1 watt
- 1—4" x 2 $\frac{1}{8}$ " x 1 $\frac{5}{8}$ " Minibox—see text
- Misc.—Tin can stock, epoxy cement, two rubber grommets to hold lamps (approx.  $\frac{3}{8}$ " o.d.), a.c. plug for panel mounting (Amphenol 61-M1), terminal strips, hookup wire, hardware, etc.

nents are larger than absolutely necessary. Only a little over 3 ma. flows through the battery charging circuit, and about the same current is required to keep the capacitor charged. Obviously, half-watt resistors are adequate, but one-watters have a longer life potential. Likewise, the capacitor, transistor and rectifiers are all over-rated for the job. This is one way of building in dependability.

**Construction.** The model shown was built in a 4" x 2 $\frac{1}{8}$ " x 1 $\frac{5}{8}$ " Minibox cut down to just over an inch in thickness, so that it would not protrude from the wall more than necessary. Any housing of this size or larger can be used. The reflector is made of tin can stock glued in place with epoxy cement. Two holes are drilled in the bottom of the reflector to take grommets of a size that will se-

curely hold the neon and pilot lamps. Before mounting the lamps, spray the reflector compartment glossy white.

For mounting the other parts, use terminal strips on each side of the box to serve as anchors for the capacitor, resistors and transistor. The battery is wedged in place between them. There is no isolation transformer, and care must be taken to insure that all components including the body of the transistor, are isolated from the metal box.

**Charging.** The battery used in the emergency household lamp will be completely discharged as the wiring is completed. Because the trickle charging rate is quite low, it will take several days to recharge it, but the unit can be checked to see if it's working with only a partial charge—the lamp will simply burn for a somewhat shorter time.