Westinghouse fluorescent replacement for incandescent bulb

A new energy-saving fluorescent light bulb developed by the Lamp Divisions of Westinghouse Electric Corporation incorporates proven fluorescent technology into a compact package. In developing the compact fluorescent lamp, Westinghouse had a smaller ballast developed to fit into the base of the lamp. This "finger ballast" is only one-half inch by one-half inch by three inches long.

The base of the Westinghouse compact fluorescent lamp, which contains the ballast, can be screwed into a standard incandescent socket. The top section contains the light producing "bulb," which inserts into the base through four contact pins. The advantage of having two sections is that the ballast, which lasts longer than the bulb, can be used with replacement bulbs.

The bulb is actually a 17-inch-long fluorescent tube that is 3/4 inch in diameter. Folded into a double-U shape, it occupies an area four inches long and two inches in diameter. A plastic globe encloses the top and sides of the tube, giving the lamp a contemporary appearance.

The combined length of the top and base is 7-1/2 inches, and the lamp has a maximum diameter of 3-1/4 inches. Because it is compact, the lamp can fit inside the harp of many table lamps. Consuming 27 W of electricity, the compact fluorescent lamp produces 1000 lm. The output of light is essentially midway between a 60-W incandescent bulb, which produces 850 lm, and a 75-W bulb, with an output of 1170 lm. The fluorescent lamp lasts between 7-1/2 and nine times longer (7500 hours, compared with 100 hours for 60-W incandescent bulbs and 850 hours for 75-W bulbs). This rating is based upon three hours of burning time per start; in continuous use, the lamp is rated at 15,000 hours. The compact fluorescent reproduces colors in a pleasing manner. Its color temperature is 3000 degrees Kelvin. (Circle No. 45)

GTE metal halide replacement for incandescent bulb

GTE has announced the development of a low-wattage Sylvania metal-halide lamp which will last about five years in average residential use and will consume less energy than today's standard incandescent household lamp. Called the Miniarc lamp, the highly efficient 40-W unit will produce slightly more illumination than a standard 100-W incandescent tamp and has the added advantage of fitting into any standard incandescent lamp socket.

GTE said it expects to market the lamp in late 1981. It will be priced between $12 and $15 and the company estimates that with electricity and lamp replacement savings the Miniarc lamp will pay for itself after 4500 hours of operation, which is about three years of average residential use.

Each Miniarc lamp, as compared to a standard 100-W incandescent lamp, will save the homeowner $20.70 over its lifetime of 7500 hours, based on an electricity cost of 4.6 cents/kWh. When the cost of replacement incandescent bulbs is added, the savings increase to over $25.

The Miniarc lamp measures seven inches long and two-and-one half inches in diameter. The compact size will permit its use in table lamps and household lighting fixtures. The lamp is controlled by high-frequency electronic circuitry that consumes very little power. The control circuitry has been miniaturized and is housed in the base of the lamp.

The principal lamp inventors were William Keeffe, Harold Rothwell and John A. Scholz. The ballast design was developed by a team of GTE engineers under the supervision of Sheppard Cohen, an industry expert in ballasting of metal-halide lamps.

The Miniarc lamp produces light by the discharge of an arc between two electrodes through the metal halide. During operation, the metal halide is heated to vaporization. At first the arc in the halide gas gives off very little visible light. As the heat vaporizes more of the metal halide, pressure builds within the arc tube reducing the resistance between the electrodes, thereby causing the current to flow and the lamp to glow.

Because of this lag in full illumination inherent in the lamp's operation, the designers of the Miniarc lamp will provide for an instant-on capability. There are several methods by which this can be accomplished, one of which will be incorporated in the final design. (Circle No. 46)

(Below) Westinghouse fluorescent lamp. (Right) GTE Miniarc metal halide lamp.