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ITEM #

[MG]² INC.

A Quick-disconnect Fixture Lowering System

- **Safe and simple ground level installation, maintenance or replacement**
- **Costly and cumbersome lift trucks eliminated**
- **Eliminates design constraints with regard to location or mounting height**
- **Maintenance cost drastically reduced**
- **Reduces Risk to motorists during servicing**
- **The field proven lowering system in use within the DOT**
- **Special designed molded pin and socket connector rated for 600 volts**

AN INNOVATIVE HIGHWAY LIGHTING CONCEPT

Traffic and maintenance engineers are given the tasks of maintaining traffic signals and lighting systems in congested traffic areas. When maintenance is needed, some system components, such as signal heads, require a disruption of traffic flow because of their location and function. Other components, such as lighting luminaires, can be located on the edge, or in a median, of a traveled way. This means that while the system components are over the shoulder of a roadway, lane closures are almost always necessary to protect oncoming traffic from outriggers and the articulated boom movement of the bucket trucks commonly used for servicing. As well, an additional heavy truck with flashing signs frequently is placed upstream from a maintenance location to protect workers from serious injury if motorists do not recognize a temporary lane closure. Traffic control is time consuming, disruptive to traffic flow and hence, costly.

A product which has been used for many years in industrial wiring systems has been redesigned recently for use in the transportation field. This lowering device allows a fixture to be detached from its position atop a pole - up to 140 feet high - and lowered on a stainless steel cable to ground level for maintenance. The contact unit at the top of the pole contains a specially designed electrical disconnect - a contact suspension system - that accommodates common highway lighting needs.

Luminaires for low-mast operations have adjustable reflectors so that the 'throw' of the light can be adjusted to different lighting patterns for any lighting situation. Other features are: Greater efficiency because reflectors can be positioned so that the lighting source can be placed as much as 30 to 40 feet behind edge of pavement at a lower cost; Corrosion resisting vinyl laminate housings with a coating for protection from ultra violet rays provide extra long life.

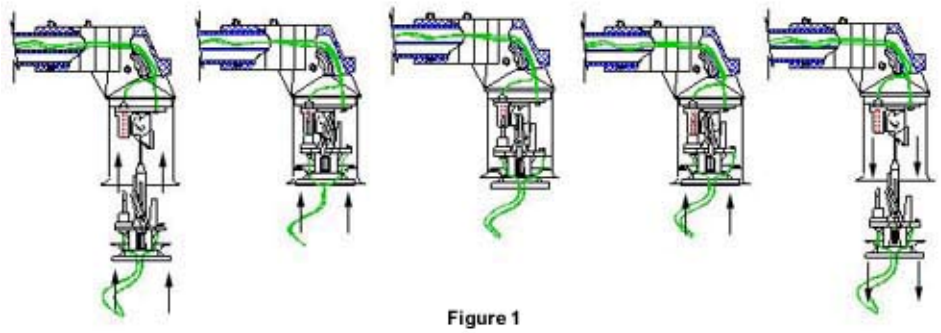

Figure 1

The Contact Suspension System allows a fixture to be lowered without moving electrical cables over pulleys. This is the key to this innovative technology. (See Figure 1.) It is simple to operate and includes: Electrical contacts that are self-aligning and self-cleaning providing reduced maintenance and reliable conductive properties and a cast tracking maze with two locking cams which assure automatic lining up and locking as the fixture returns to its original position at the top of a pole. Lifting and lowering is done with a portable device specially equipped with a gear box having an operating gear ratio of 50:1. (This provides better holding ability requiring little strength to operate and prevents the device from 'free wheeling' - See Figure 2.) When in position, twin tracking support arms hold the weight of a luminaire so that there is no tension in the lowering cable (generally referred to as a control cable).

Poles of 25- to 42-meter height (85 to 140 feet) are less expensive than the usual high-mast options. There is no need to house lifting and lowering equipment internally, hence, poles for this new system are smaller in diameter and are more economical. As well, there is no luminaire ring required because each luminaire has its own lifting and lowering device. Thus structural requirements for the poles are considerably less than for standard high-mast lighting. Costs are less than for other systems because, the advantages result in cost efficient lighting with simple maintenance procedures. Because of the portability of components, personnel do not need heavy motorized equipment to service a site. Hence, the system is ideally suited for lighting needs in difficult locations such as highway rest areas, busy parking areas, parking garages inaccessible by boom trucks (particularly on upper decks), rapid transit yards, and other municipal plants. (See also Design, Construction and Maintenance of Highway Safety Features and Appurtenances: Users Handbook, Federal Highway Administration, US DOT