

SECTION 653

PEDESTRIAN SIGNAL ASSEMBLIES

Articles 653-1 and 653-2 shall be deleted entirely and the following substituted:

653-1 SCOPE AND GENERAL REQUIREMENTS

653-1.1 Scope:

This section specifies the equipment and material requirements for pedestrian signals. The components of the pedestrian signal are:

- (a) Housing
- (b) Door Frame
- (c) Messages
- (d) Message Module
- (e) Electrical
- (f) Visor

653-1.2 General Requirements:

1) Design Requirements:

The general construction of the pedestrian signal shall include a single piece cast aluminum housing, sealed message module(s) with a glass message lens, a single piece cast aluminum swing down door frame, a blankout crate-type sun visor, and appropriate other hardware. Optically, the pedestrian signal shall be capable of displaying, brightly and uniformly through the use of Light Emitting Diodes (LED), the alternate international symbol messages "**HAND**" in Portland Orange and "**WALKING PERSON**" in Lunar White while being subject to strong ambient light conditions. Under the same strong ambient light conditions, the messages shall "blankout" when the signal is not energized.

2) Materials and Construction:

All components of the pedestrian signal assembly shall be on non-corrosive materials, which are so constructed as to be clean, smooth and free from all flaws, cracks, blowholes and other imperfections. Construction and materials shall be such as to guarantee a strong, durable and watertight unit.

653-2 LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL

653-2.1 Housing:

The maximum overall dimensions of the pedestrian signal shall be 20 inches wide, 20 inches high, and 10 inches deep including a crate type visor and hinges.

The case for pedestrian signals shall be dustproof, weatherproof and corrosion-resistant, and shall provide for easy access to and replacement of all components.

The housing shall have openings at the top and bottom of the case to accommodate standard 1½-inches Tri-Stud brackets. The top and bottom opening of the signal case shall have a shurlock boss integrally cast into the case. The teeth shall be clean and sharp, and provide full engagement. The radial angular grooves off the shurlock boss when used with standard shurlock fittings, shall provide positive positioning of the entire signal to Tri-Stud brackets. The radial angular grooves off the shurlock boss when used with standard shurlock fittings shall provide positive positioning of the entire signal to eliminate rotation or misalignment of the signal.

653-2.2 Door Frame:

The door frame shall be a one piece corrosion-resistant aluminum alloy die casting complete with two (2) hinge lugs cast at the bottom and two (2) latch slots cast at the top of each door. The door shall be attached to the case by means of two (2) Type 304 stainless steel spring pins. Two (2) stainless steel hinged bolts with captive stainless steel wingnuts and washers shall be attached to the case with the use of stainless steel spring pins. Hence, latching and unlatching of the door shall require no tools.

Each pedestrian signal shall be provided with a crate-type visor to eliminate sun phantom.

653-2.3 Messages --- International Symbols:

Messages shall be the Portland Orange "**HAND**" and the Lunar White "**WALKING PERSON**" illuminated by Light Emitting Diodes.

The "**HAND-WALKING PERSON**" symbols shall be a minimum of 12-inches in height and 7-inches in width.

The inside face of the message lens shall be painted in all areas except where the desired symbols are formed. The first coating of paint shall be black to form a contrasting background when viewed from the outside. The second coating of paint shall be white to reflect internal light in between symbols.

653-2.4 Message Module:

The message module shall be covered with a glass lens

653-2.5 Electrical Requirements:

The field terminal assembly shall include a three (3) terminal pair (6-screw) screw type terminal block for termination of the three (3) field wires for AC+ for "**HAND**" display, AC+ for "**WALKING PERSON**" display and AC-. The field terminal assembly shall include an aluminum base plate that is bolted to the pedestrian signal housing. Electrically bonded to this base plate shall be a male quick disconnect lug and bonding lug.

653-2.6 Visor:

Each signal shall be provided with a crate type visor designed to eliminate sun phantom.

The crate type sunshield shall be installed parallel to the face of the "**HAND/WALKING PERSON**" message. The crate visor assembly shall be held in place by the use of stainless steel screws.

653-2.7 Painting:

Prior to final assembly, the case, doorframe and crate visor (aluminum portion only) shall be thoroughly cleaned and a chromate conversion coating inside and out per Military specification MIL-C-5541. A synthetic enamel conforming to Military Specification TTE-529 shall be electrostatically applied. The housing and crate visor shall be Flat Black in color. The finish shall be oven-cured for a minimum of twenty (20) minutes at 350 degrees F.

653-2.8 Mounting:

All trunnions, brackets and suspensions used in mounting pedestrian signals shall be standard non-corrosive cast aluminum fittings, galvanized pipe or equivalent as approved by the Department and the Maintaining agency. All screws, studs, washers, etc., shall be stainless steel. The inside area of the cross section of the tubular arms shall not be less than the inside area of a 1½-inch ID pipe, to permit signal control wires to be routed through them. The mounting assembly shall be watertight and free of sharp edges or protrusions, which might damage the conductor insulation. Pedestrian signal mountings may be mounted to poles or pedestals as follows:

- (1) Concrete and Steel Pole -- Side mounting shall be accomplished by the use of a 1½-inch horizontal threaded cast aluminum or bronze hub. The

hub may be attached to the pole by drilling and tapping for steel poles and lead anchors for concrete poles. Mounting hubs shall fit flush on the pole or mounting surface. The Contractor shall be responsible for field drilling (if needed) of the 1½-hole (for wiring) in the concrete pole, assuring that no reinforcing steel in the pole is damaged or exposed.

- (2) Wood Pole -- May be accomplished by the use of 1½-inch horizontal threaded cast aluminum or bronze hub with a vertical threading for conduit. The hub may be attached to the pole by the use of galvanized lag screws.
- (3) Aluminum Pedestal -- May be accomplished by the use of a 4½-inches slip fitter (adapter) with setscrews.

The mounting assembly shall include all necessary mounting hardware, rubber O-rings, serrated locking rings (compatible with serrated locking on pedestrian housing), etc.