SECTION 712 - MISCELLANEOUS

Make the following amendments to said Section:

(I) Amend **712.39 (A)(1) - Optical Units** as follows:

"**(1) Optical Units.** Each optical unit includes a lens, reflector, a lampholder, and a clear traffic signal lamp visible to traffic.

Standard lenses shall be of the color shown, circular in shape, and a diameter of about 12 inches. Each lens shall be true to color, free from imperfections and of high luminous transmission. The manufacturer may make the lens of glass or of polycarbonate resin. Glass lens shall conform to the latest ANSI standard for glass lens. Mold polycarbonate lens of ultraviolet, pre-tinted transparent polycarbonate.

Each reflector includes a one piece, clear glass parabolic reflector, free from bubbles and striae or Alzak processed aluminum alloy. Silver the convex surface of the clear glass by chemical deposition. The thickness shall be such that the lighted filament of a 150-watt incandescent lamp shall not be visible through the silver layer. Protect the silvered surface by an additional coating of electrolytically deposited copper. The opening in the back of the reflector for the lampholder shall have no dark spots cast on the lens.

The lampholder shall be of weatherproof, molded construction, immune to the operating temperatures in the unit, of the vibration-proof type, and shall be substantially supported. Provide the lampholder with two wires of sufficient length so that the lampholder may be connected to the terminal block specified. These socket leads shall be directly soldered to the socket. The lampholder contacts and screwshell shall be made of corrosion-resistant metal. The reflector and lampholder assembly shall position the lamp filament at the focal center of the reflector.

Design each reflector, lens and hood to minimize sun phantom.

Lamps for 12-inch units shall be 100 watts, 120 volt, 5000 hour rated life, clear, traffic signal lamps, conforming to the latest edition of the Institute of Transportation Engineers, 'Standard for Traffic Signal Lamps', or as otherwise accepted.

The following pertains to the incandescent vehicle non-programmable signal only:

Replace the incandescent signal of the vehicle signal head with a LED signal assembly comprised of a high-out LED light source protected by an impact-resistant polycarbonate lens. The LED head assembly shall replace the standard 12-inch incandescent polycarbonate signal head. Operating at 60 - 135 volts and with a maximum power consumption of 22 watts.

To ensure quality and performance, the LED head shall have a prior history of testing and use by CALTRANS, exceeds ITE standards, failure of one LED shall not affect any other LED, fully-encapsulated electronic circuitry, and configuration for 12-inch ball. McCain Traffic Supply 12-inch LED Traffic Head or equal."

(II) Amend **712.39(E) Pedestrian Signal Push Button with Integral Sign** to read as follows:

"**(E) Pedestrian Signal Push Button With Integral Sign.** The pedestrian push button unit shall consist of a one-piece assembly that can be secured to traffic poles with standard banding straps, tamper proof, weatherproof, and constructed so that electrical shocks are impossible to receive.

The one-piece assembly shall consist of a raised walking person, a raised arrow indication, and a pushbutton. Paint the unit black and paint the raised walking person, arrow, and pushbutton white. The pushbutton shall extend from the sign faceplate approximately three inches. The pushbutton actuator shall be of the mushroom plunger type, ADA acceptable, two inches in diameter, and have a tension of less than five pounds when pressed. The raised walking person and arrows shall be directional and match the directional indication as shown on the plans. All wire connections shall be accessible from the back of the assembly."

(III) Amend **712.39 Traffic Signals and Appurtenances** by adding the following:

"**(G) Preemption Detectors.**

(1) Description. Preemption Detectors are located on traffic signal standards to convert optical signals emitted from an emergency vehicle to electrical pulses for emergency preemption of the traffic signals. Electrical signals from the optical detector are transmitted by a 4 conductor cable to the preemption module M752 located in an input slot of the controller cabinet. The M752 preemption module will direct and hold the controller in a preemption mode until the signal disappears. A preprogrammed selection of phases and signal displays are controlled by the Local Intersection Program. Since Honolulu's preemption system already employs the 3M Opticom System, all new preemption equipment will be by this manufacturer.

All astro-mini brackets or similar for attaching preemption detector to poles shall be included as part of the detector bid.

(2) **Materials.**

(a) Type 7 Cable. The Type Preemption Detector (Opticom) Cables are the specific cables which run continuously from the Optical Detectors mounted on the traffic signal standards to the terminal blocks for the M752 Phase Module in the controller cabinet. The Type Preemption Detector cable shall be 3M's M138 Optical Detector Cable compatible and consistent with the requirements for the Opticom Preemption System. The M138 Cable shall be BerkTek Type B, Shield Jacket, 3-Insulated Conductor, 20AWG Stranded Copper, 1-20AWG Bare Stranded Ground, 600 Volts, Orange-Blue-Yellow Color Coded, and 5/16 diameter.

(b) M752 Optical Preemption Module. The M752 Module is part of Section 712.37(D) Controller Equipment-Auxiliary Equipment.

(c) Model 711 Preemption Detector. This Optical Detector is designed and installed for uni-direction signal reception and single channel-phase operation. Signal reception will be adjustable and up to 2500 ft. Detector will be constructed from high-impact polycarbonate."

END OF SECTION