

FLASHING ARROW PANEL

THIS ITEM OF WORK SHALL CONSIST OF PROVIDING, OPERATING, MAINTAINING AND SUBSEQUENTLY REMOVING A FLASHING ARROW PANEL AS HEREIN DESCRIBED OR SHOWN ON THE PLANS.

THE FLASHING ARROW PANEL SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FLASHER PANEL
- B. LAMPS
- C. CONTROLS
- D. POWER SUPPLY
- E. MOUNTING

COMPONENT SPECIFICATIONS

A. FLASHER PANEL

THE FLASHER PANEL SHALL BE OF EXTERIOR TYPE PLYWOOD OR CORROSION RESISTANT METAL CONSTRUCTION OF ADEQUATE DESIGN AND STRENGTH. THE PANEL FINISH SHALL BE FLAT BLACK.

FLASHER PANELS SHALL BE TWO SIZES. TYPE A PANELS SHALL BE A NOMINAL 48 INCHES HIGH BY 96 INCHES WIDE. TYPE B SHALL BE A NOMINAL 30 INCHES HIGH BY 54 INCHES WIDE.

B. LAMPS

LAMPS SHALL BE NUMBER 4412A (AMERICAN NATIONAL STANDARDS INSTITUTE, ANSI). THE LAMPS SHALL BE FITTED WITH CUTAWAY VISORS AT LEAST FIVE INCHES LONG. THE LAMPS SHALL BE SECURELY MOUNTED AND POSITIONED IN THE PANEL PERPENDICULAR TO THE PANEL FACE AND ORIENTED SO THAT THE LAMP LOCATING LUG (ON THE BACK OF THE LAMP) IS ON THE HORIZONTAL CENTER LINE THROUGH THE LENS. THE LUG WILL BE ON THE RIGHT SIDE OF THE LAMP AS VIEWED FROM THE FRONT.

THE LAMPS SHALL BE WIRED IN CIRCUITS THAT CAN BE SWITCHED TO DISPLAY ANY ONE OF THE FOLLOWING MESSAGE MODES: LEFT ARROW, RIGHT ARROW, LEFT AND RIGHT ARROW AND LIGHT BAR.

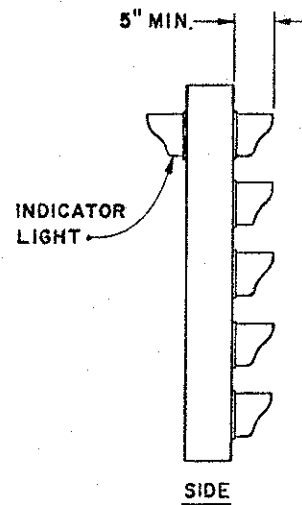
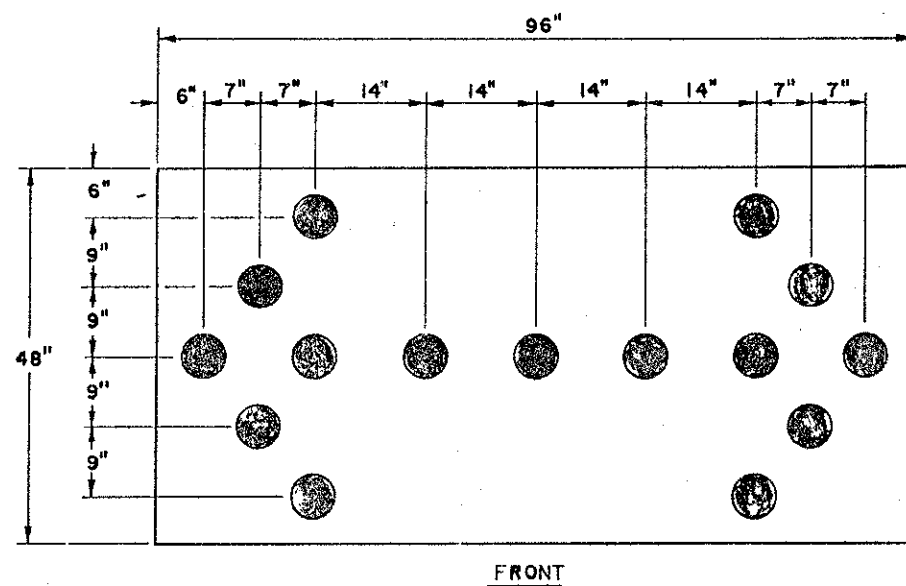
TYPE A PANELS SHALL CONTAIN 15 LAMPS AND TYPE B SHALL CONTAIN 13 LAMPS.

C. CONTROLS

EACH FLASHING ARROW PANEL SHALL CONTAIN A FLASHER CONTROL AND DIMMER CONTROL UNIT HOUSED IN A CABINET WHICH CAN BE LOCKED.

1. FLASHER CONTROL

THE FLASH RATE FOR THE SIGN PANEL SHALL BE AT A RATE OF 25 TO 35 FLASHES PER MINUTE. THE FLASHER SHALL NOT INTERFERE WITH RADIO BROADCAST OR RECEPTION.



THE FLASHING ARROW PANEL SHALL PROVIDE EITHER SYNCHRONOUS OR SEQUENTIAL FLASHING. SYNCHRONOUS FLASHING SHALL HAVE AN "ON TIME" OF 50%. SEQUENTIAL FLASHING SHALL BE AS FOLLOWS:

LEFT ARROW OR RIGHT ARROW DISPLAYS - LAMPS ALONG THE SHAFT, EXCEPT THE LAMP ADJACENT TO THE ARROW HEAD, AND ALL THE LAMPS IN THE ARROW HEAD SHALL BE LIGHTED AT UNIFORM INTERVALS DURING 1/4 OF THE FLASH CYCLE AND THEN ALL LAMPS SHALL REMAIN LIGHTED FOR 1/4 OF THE FLASH CYCLE.

A MINIMUM OF THREE INDICATOR LIGHTS SHALL BE PLACED ON THE BACK OF THE PANEL TO INDICATE WHICH MESSAGE MODE IS IN OPERATION.

2. DIMMER CONTROL

LAMP INTENSITY SHALL BE VARIABLE BY MEANS OF A PHOTOELECTRICALLY CONTROLLED CIRCUIT WHICH SHALL REDUCE LAMP OUTPUT DURING LOW AMBIENT LIGHT CONDITIONS. THE PHOTOELECTRIC CONTROL SHALL BE CALIBRATED TO ACTUATE A LAMP DIMMING CIRCUIT AT 2 TO 5 AMBIENT FOOT CANDLES AND TO RESTORE THE LIGHTS TO NORMAL AT 5 TO 10 AMBIENT FOOT CANDLES. A TIME DELAY SHALL BE BUILT INTO THE CONTROL TO PREVENT FALSE OPERATION DUE TO LIGHT FLASHES. THE PHOTOELECTRIC CONTROL SHALL CONTAIN A SWITCH WHICH SHALL OVERRIDE THE PHOTOELECTRIC CONTROL. THE DIMMING CIRCUIT SHALL BE EXTERNALLY ADJUSTABLE SUCH THAT THE LIGHT OUTPUT MAY BE ADJUSTED WITHIN THE RANGE OF 40% TO 100% OF THE NORMAL LAMP OUTPUT.

D. POWER SUPPLY

THE FLASHING ARROW PANEL SHALL OPERATE FROM POWER SOURCES CAPABLE OF FURNISHING 12 VOLTS DC AT THE LAMPS.

MOTOR GENERATORS, IF USED, SHALL BE OF MODERN DESIGN TO PROVIDE LOW EMISSION OF POLLUTANTS AND SHALL BE PROPERLY MUFFLED. THE MOTOR GENERATOR SHALL BE ENCLOSED IN A MESH ENCLOSURE WHICH CAN BE LOCKED. THE FUEL TANK SHALL HAVE A CAP WHICH CAN BE LOCKED. THE TANK CAPACITY SHALL BE SUFFICIENT TO PROVIDE UNATTENDED OPERATION FOR A MINIMUM OF 24 HOURS BUT SHALL NOT EXCEED 48 HOURS SUPPLY.

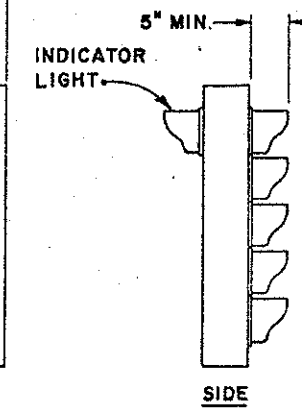
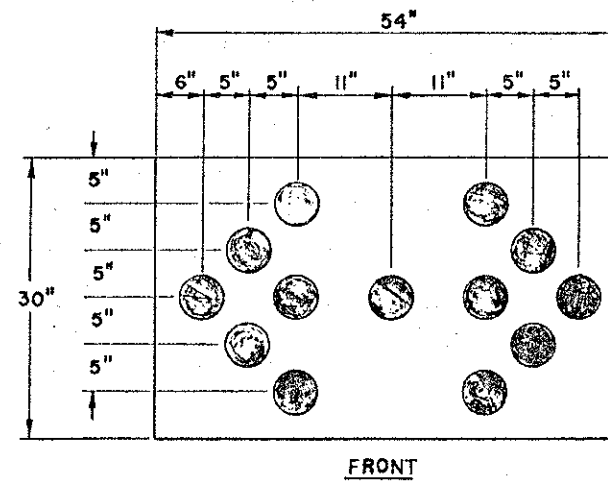
MOTOR GENERATORS SUPPLYING POWER TO A FLASHING ARROW SIGN SHALL NOT BE USED TO SUPPLY POWER TO OTHER EQUIPMENT.

E. MOUNTING

THE FLASHING ARROW PANEL MAY BE TRAILER OR VEHICLE MOUNTED OR MOUNTED ON A RIGID SUPPORTING DEVICE SUITABLE FOR MAINTAINING IT IN THE DESIGNATED POSITION. EACH OF THE MOUNTING METHODS SHALL BE SUITABLY STABLE SUCH AS TO PREVENT MOVEMENT DUE TO HIGH WINDS OR PASSAGE OF LARGE VEHICLES.

WHEN A TRAILER IS USED, CONSTRUCTION SHALL BE SUCH AS TO TRANSPORT THE FLASHING ARROW PANEL AND APPURTANCES ADEQUATELY AND LEGALLY AS WELL AS SUPPORT THEM PROPERLY DURING OPERATION. THE TRAILER SHALL BE EQUIPPED WITH DEVICES WHICH SHALL PROVIDE LEVELING AND STABILITY DURING OPERATION.

MINIMUM ARROW PANEL MOUNTING HEIGHT SHALL BE 7 FEET ABOVE THE PAVEMENT SURFACE (MEASURED TO THE BOTTOM OF THE PANEL).



GENERAL REQUIREMENTS

THE FLASHING ARROW PANEL SHALL BE DESIGNED FOR OPERATION IN 100% HUMIDITY AND TEMPERATURES FROM -20 TO +130 DEGREES FAHRENHEIT.

USE AND OPERATION

THE FLASHING ARROW PANEL SHALL BE LOCATED AS SHOWN IN THE MAINTENANCE OF TRAFFIC DRAWINGS OR AS DIRECTED BY THE ENGINEER AND OPERATED CONTINUOUSLY DURING TRAFFIC MAINTAINED PERIODS. THE CONTRACTOR SHALL SUPPLY ALL FUEL, LUBRICANTS AND PARTS NECESSARY TO OBTAIN CONTINUOUS OPERATION AND SHALL PROVIDE ALL SERVICE. THE CONTRACTOR SHALL ARRANGE WITH THE ENGINEER, AN ACCEPTABLE METHOD OF OBTAINING SERVICE FOR A MALFUNCTIONING PANEL WITHIN 30 MINUTES OF A REPORTED MALFUNCTION.

UNLESS OTHERWISE SPECIFIED, A FLASHING ARROW PANEL, TYPE A SHALL BE USED EXCEPT WHERE THE SPEED LIMIT OF THE APPROACH TO THE CONSTRUCTION AREA IS 35 MPH OR LESS, THEN A FLASHING ARROW PANEL, TYPE B MAY BE USED.

WHEN LEFT UNATTENDED, THE CONTROL CABINET, MOTOR GENERATOR ENCLOSURE AND FUEL TANK SHALL BE LOCKED.

WHEN NOT IN USE, THE FLASHING ARROW PANEL SHALL BE STORED AT A LOCATION WHICH WILL NOT BE HAZARDOUS TO TRAFFIC OR PEDESTRIANS.

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL	DATE 10/5/77
FLASHING ARROW PANEL	
STANDARD CONSTRUCTION DRAWING TC-35.10	
APPROVED: <i>E. J. [Signature]</i> Engineer of Design Services	