

GENERAL NOTES

FED RD DIVISION	STATE	PROJECT	FISCAL YEAR
5	OHIO	T-4030(II)	1973

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33

WILLOUGHBY CITY SIGNALS LAKE COUNTY
LAK 20/84/640

THE ASSEMBLY SHALL BE DESIGNED SO THAT IT CAN BE SWUNG OUT OF THE HOUSING AND EASILY REMOVED WITHOUT USE OF TOOLS. ADDITIONALLY, THE ASSEMBLY SHALL INCLUDE A NEOPRENE GASKET BETWEEN THE REFLECTOR AND RETAINING RING.

THE LAMP RECEPTACLE SHALL BE A BAIL SPRING MOUNTED, ROTATING-POSITION TYPE TO PROVIDE A RIGID INSTALLATION WHICH IS ADJUSTABLE TO PERMIT THE POSITIONING OF THE LAMP FILAMENT AT THE CORRECT FOCAL POINT OF THE REFLECTOR.

THE RECEPTACLE SHALL BE SUCH THAT THE SOCKET WILL ROTATE THRU 360° WITH EIGHT STOP POSITIONS OF ADJUSTMENT FOR THE POSITIONING AND REPOSITIONING OF THE LAMP. LAMPS SHALL BE INSTALLED WITH THE OPEN PORTION OF THE FILAMENT IN THE UPWARD POSITION.

STANDARD TRAFFIC SIGNAL LAMPS WITH A MINIMUM OF 6,000 HOUR RATING SHALL BE FURNISHED WITH ALL SIGNAL UNITS. ONE HUNDRED FIFTY WATT LAMPS SHALL BE INSTALLED IN ALL 12 INCH SECTIONS EXCEPT YELLOW, 121 WATTS IN ALL 8 INCH RED OR GREEN SECTIONS, 69 WATT LAMPS SHALL BE FURNISHED WITH ALL AMBER SECTIONS. TRAFFIC SIGNALS SHALL BE INSTALLED SUCH THAT THE LOWEST POINT OF THE SIGNAL IS SIXTEEN (16) TO SEVENTEEN (17) FEET ABOVE THE PAVEMENT SURFACE.

ALL SIGNAL SECTIONS SHALL HAVE PROVISION AND SPACE FOR THE MOUNTING OF AN EIGHT SCREW TERMINAL BLOCK, HOWEVER, ONE SECTION OF EACH ASSEMBLED UNIT SHALL HAVE AT LEAST A FIVE SCREW TERMINAL BLOCK.

PAYMENT FOR ITEM 625 TRAFFIC SIGNALS WILL BE AT THE UNIT PRICE BID PER EACH, COMPLETE AND INSTALLED, INCLUDING SIGNAL HEAD, LIGHT SOURCE, MOUNTING BRACKETS, MISCELLANEOUS FITTINGS AND TESTING.

625 PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED LAMP

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING INCANDESCENT COLORED LAMP PEDESTRIAN SIGNAL HEADS OF THE SIZE SHOWN ON THE PLANS, AND INSTALLING THEM AS SHOWN ON THE DETAIL SHEET NO. 33 AND AS HEREIN SPECIFIED. PEDESTRIAN SIGNALS SHALL BE IN ACCORDANCE WITH "ADJUSTABLE FACE PEDESTRIAN SIGNAL HEAD STANDARD" AS APPROVED BY THE INSTITUTE OF TRAFFIC ENGINEERS (ITE) BOARD OF DIRECTION JUNE 29, 1963, WITH THE FOLLOWING EXCEPTIONS AND QUALIFICATIONS:

A PEDESTRIAN SIGNAL HEAD SHALL BE A COMPLETE UNIT CAPABLE OF DISPLAYING BOTH THE INDICATIONS "WALK" AND "DON'T WALK" TO ONE APPROACH OF PEDESTRIAN TRAFFIC, TOGETHER WITH ALL INCIDENTAL ITEMS DESCRIBED BELOW AND IN THE DETAILS WHICH ARE REQUIRED TO COMPLETE THE INSTALLATION.

THE NOMINAL SIZE OF EACH UNIT LENS FACE SHALL BE 16 X 16 INCHES. THE "WALK" INDICATION SHALL BE "LUNAR WHITE" LIGHT AND THE "DON'T WALK" INDICATION SHALL BE "PORTLAND ORANGE" LIGHT.

VISORS SHALL BE 6 INCHES IN LENGTH AND SHALL EXTEND FROM THE TOP AND BOTH SIDES OF THE LENS.

EXTERIOR METAL SURFACES INCLUDING MOUNTING BRACKETS SHALL BE FINISHED WITH BLACK COLOR PAINT WITH THE EXCEPTION OF THE INTERIOR SURFACE OF VISORS WHICH SHALL BE FINISHED WITH FLAT BLACK (INSTRUMENT BLACK) PAINT.

ALL NECESSARY BRACKETS, NIPPLES, CONDUIT, TRUNNIONS, AND OTHER HARDWARE REQUIRED FOR EITHER PEDESTAL TOP OR POLE MOUNTING AS SHOWN ON THE PLANS AND DETAILS, SHALL BE INCLUDED IN, AND CONSIDERED INCIDENTAL TO, THE UNIT PRICE BID FOR PEDESTRIAN SIGNAL HEADS.

INCANDESCENT COLORED LAMP TYPE PEDESTRIAN SIGNALS SHALL BE SIMILAR IN CONSTRUCTION TO GAS FILLED GRID TYPE PEDESTRIAN SIGNALS WITH THE FOLLOWING EXCEPTIONS:

- ILLUMINATION SHALL BE PROVIDED BY TYPE A-U INCANDESCENT LAMPS WHICH SHALL EMIT A LUNAR WHITE OR ORANGE LIGHT AS REQUIRED BELOW THE "DON'T" LENS OR THE "WALK" LENS. ONE ORANGE PRODUCING LAMP SHALL BE PLACED IN THE "DON'T" LENS COMPARTMENT AND ONE WHITE AND ONE ORANGE LAMPS SHALL BE PLACED IN THE "WALK" LENSE COMPARTMENT. WIRING AND CONNECTIONS SHALL BE ARRANGED IN A MANNER THAT DURING ONE PERIOD BOTH THE "DON'T" AND "WALK" LENSES ARE ILLUMINATED BY ORANGE LAMPS AND THERE SHALL BE NO POSSIBILITY OF ONE ORANGE LAMP NOT FUNCTIONING, THEREBY PROVIDING ILLUMINATION OF ONLY ONE LAMP; AND DURING ANOTHER PERIOD ONLY THE "WALK" LENS WILL BE ILLUMINATED BY THE WHITE LAMP. THERE SHALL BE NO LEAKAGE OF LIGHT BETWEEN THE TWO LENS COMPARTMENTS. THERE SHALL BE NO POSSIBILITY OF ONLY ONE LENS COMPARTMENT BEING ILLUMINATED DURING THE "DON'T WALK" INTERVAL DUE TO BULB FAILURE OR OTHER MALFUNCTION.
- THE REFLECTOR, IF ASSEMBLED OF MORE THAN ONE PIECE, SHALL BE FABRICATED WITH WELDS, SCREWS, RIVETS OR OTHER POSITIVE LOCKING FASTENERS.
- THE REFLECTOR SHALL BE ASSEMBLED OR CONSTRUCTED OF A MATERIAL WHICH WILL NOT CORRODE, CHANGE COLOR OR CHANGE REFLECTIVE PROPERTIES SIGNIFICANTLY UNDER NORMAL URBAN ATMOSPHERIC CONDITIONS.
- A POSITIVE ELECTRICAL "FAIL SAFE" SHALL BE PROVIDED WHICH SHALL GUARANTEE AGAINST THE DISPLAY OF AN ORANGE "DON'T" OR AN ORANGE "WALK" SEPARATELY. A LAMP BURN-OUT OR OTHER FAULT CONDITION SHALL NEVER RESULT IN EITHER LENS BEING ILLUMINATED IN ORANGE WITHOUT THE OTHER LENS BEING SIMILARLY ILLUMINATED. THIS SHALL BE ACCOMPLISHED WITHOUT THE USE OF RELAYS, MECHANICAL MEANS, MOVING PARTS OR SEPARATE FILTERS.

PAYMENT FOR ITEM 625 PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED LAMP WILL BE AT THE UNIT PRICE BID PER EACH, COMPLETE AND INSTALLED, INCLUDING SIGNAL HEAD, LIGHT SOURCE, MOUNTING BRACKETS, MISCELLANEOUS FITTINGS AND TESTING.

625 TRAFFIC SIGNAL CONTROLLERS

GENERAL

ALL SIGNALS RELATING TO THE CONTROL OF TRAFFIC AT A SINGLE INTERSECTION SHALL BE CONTROLLED BY A SEPARATE CONTROLLER UNIT.

TYPE

ALL CONTROLLERS USED IN THE SYSTEM(S) SHALL BE SOLID STATE TIMERS USING FULLY DIGITAL TIMING TECHNIQUES. ALL TIMERS SHALL BE CAPABLE OF EXPANSION TO A MINIMUM OF FOUR PHASES WITH FOUR OVERLAPS.

INTERSECTION CONTROL UNITS

EACH INTERSECTION CONTROL UNIT SHALL BE FABRICATED OF A SIGNAL CONTROL TIMING UNIT, FLASHER AND LOCAL FLASH SWITCH, POWER DISCONNECT SWITCH, DIAL COORDINATING UNIT, FUSE AND TERMINAL BLOCKS AND ALL ACCESSORY EQUIPMENT NECESSARY FOR A COMPLETE OPERATING UNIT ALL BEING NEATLY AND ACCESSIBLY INSTALLED IN A BASE MOUNTED, WEATHER PROOF CABINET OF AMPLE DIMENSIONS. THE LOCAL CONTROLLERS SHALL BE SEMI-VEHICLE ACTUATED, THREE PHASE FULL VEHICLE ACTUATED OR FOUR PHASE FULL VEHICLE ACTUATED AS INDICATED ON THE PLANS. ALL CONTROLLERS IN THE SYSTEM (S) SHALL BE CAPABLE OF BEING OPERATED IN AN INTER-CONNECTED TRAFFIC RESPONSIVE TYPE OF SYSTEM.

THE TIMERS SHALL BE MODULAR USING A MAXIMUM OF ONE PHASE MODULE OPENING FOR EACH PHASE.

THE TIMER SHALL BE CAPABLE OF SKIPPING ANY PHASE IN THE ABSENCE OF DEMAND AND SHALL SERVE ONLY PHASES WITH ACTUAL DEMAND.

THE CONTROLLERS SHALL BE FURNISHED WITH A JACK MOUNTED, TWO CIRCUIT FLASHER WITH A NOISE SUPPRESSOR AND MANUAL SWITCH. THE FLASHING SEQUENCE SHALL BE IN CONFORMANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

THE CONTROLLERS SHALL ALSO BE EQUIPPED WITH AN AUTOMATIC FLASHING FEATURE FOR FAILURE OTHER THAN POWER LOSS.

POLICE PANEL DOOR

THE POLICE PANEL IN THE CONTROLLER DOOR SHALL CONTAIN FOUR DOUBLE POLE, DOUBLE THROW, MAINTAINED CONTACT TOGGLE SWITCHES WHICH SHALL CONTROL THE FOLLOWING FUNCTIONS:

"FREE OPERATION" TO MANUALLY REMOVE THE CONTROLLER FROM THE SYSTEM AND SEEK ITS OWN LEVEL OF OPERATION.

SIGNAL ON/OFF.

AUTOMATIC/MANUAL.

FLASHER.

TIMER

THE TIMER SHALL BE HOUSED IN A COMPACT PORTABLE ALUMINUM ENCLOSURE WITH ALL TIMING DEVICES, CONNECTORS, OPERATING SWITCHES, ETC., NECESSARY FOR NORMAL PROGRAMMING LOCATED ON THE TIMER FRONT PANEL.

ALL PRINTED CIRCUIT BOARDS SHALL BE PROVIDED ON PLUG-IN ASSEMBLIES.

ALL CONNECTORS SHALL BE ROUND THREADED MS TYPE EACH UNIQUELY KEYPED TO PREVENT INTERMIXING.

ALL MODULES AND PRINTED CIRCUIT BOARD ASSEMBLIES SHALL BE INTER-CHANGEABLE FOR LIKE FUNCTIONS BUT SHALL BE MECHANICALLY KEYPED TO PREVENT INSERTION OF ASSEMBLIES WITH UNLIKE FUNCTIONS.

PHASE AND INTERVAL SEQUENCING LOGIC CIRCUITRY SHALL BE PROVIDED ON SEPARATE PLUG-IN MODULES REMOVABLE FROM THE FRONT.

ALL MAINTENANCE SHALL BE ACCOMPLISHED FROM THE FRONT.

THE POWER SUPPLY SHALL BE REMOVABLE FROM THE FRONT.

SIGNAL TIMING

ALL TIMING SHALL BE ACCOMPLISHED USING DIGITAL METHODS AND BE DERIVED FROM THE POWER LINE FREQUENCY FOR ACCURACY. THE FOLLOWING TIME SETTING RANGES SHALL BE PROVIDED OF ALL INTERVALS WHERE REQUIRED.

INITIAL, WALK AND PEDESTRIAN CLEARANCE - 0-50 SECONDS WITH ONE SECOND INCREMENTS.

EXTENSION AND YELLOW CLEARANCE - 0-19.9 SECONDS WITH 0.1 SECOND INCREMENTS.

RED CLEARANCE - 0-19.9 SECONDS WITH 0.1 SECOND INCREMENTS.

ALL TIMER SETTING DEVICES SHALL BE MOUNTED ON THE FRONT OF THE TIMER AND CLEARLY MARKED AS TO FUNCTION. NO TOOLS OR SPECIAL EQUIPMENT SHALL BE REQUIRED TO PROGRAM THE TIMER FOR OPERATION. TIME SETTING DEVICES SHALL BE PUSH-BUTTONS OR SIMILAR APPROVED MEANS THAT CAN BE CONVENIENTLY OPERATED BY AN INSTALLER WITH A GLOVED HAND.

INDICATORS

INDICATORS SHALL BE PROVIDED ON THE TIMER FRONT PANEL TO DISPLAY ALL FUNCTION TIMING AND TIMER TERMINATIONS. OPERATING MODES IN EFFECT SHALL BE INDICATED.

VEHICLE CALLS SHALL BE INDICATED MOMENTARILY ON A SEPARATE LIGHT WHEN RECEIVED.

ALL INDICATING LIGHTS SHALL BE REPLACEABLE FROM THE FRONT WITHOUT TOOLS AND RATED FOR 20,000 HOURS OF OPERATION.

A SWITCH ON THE TIMER FRONT PANEL SHALL BE PROVIDED TO DE-ENERGIZE THE INDICATORS.

OPERATING MODE SWITCHES

EACH VEHICLE PHASE MODULE SHALL INCLUDE A SELECTOR SWITCH TO PROVIDE THE FOLLOWING OPERATION VARIATIONS:

RECALL EXTENDIBLE

RECALL MAXIMUM

MEMORY OFF

MEMORY ON

VEHICLE PHASE MODULES EQUIPPED WITH PEDESTRIAN TIMING AND EXCLUSIVE PEDESTRIAN MODULES SHALL INCLUDE A TWO POSITION SWITCH WHICH IN THE "ON" POSITION WILL PLACE THE PHASE ON "RECALL-PEDESTRIAN".