

ROAD COMMISSION FOR OAKLAND COUNTY

SPECIAL PROVISION
FOR
TRAFFIC SIGNAL BACKPLATE, RETROFIT

RCOC/TOC

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RCOC20SP820A

ORG:05-07-21

REV: 03-01-25

a. Description

This work consists of providing all labor, equipment, and material required to remove and replace or install traffic signal backplates on existing traffic signals, as directed by the Engineer. All work must be done in accordance with sections 204, 818, 820, and 921 of the Standard Specifications for Construction except as herein provided.

As applicable, this work includes removal and installation of hardware, connectors, fittings, mounting hardware, and all material necessary to complete the work.

b. Materials

Material must meet sections 921 of the Standard Specifications for Construction.

1. Provide backplates with a 3M 4081 ASTM Type XI reflective fluorescent yellow tape border. Ensure that a 1-inch border is used with yellow signal heads and visors, and a 2-inch border is used with black signal heads and visors.
2. Provide a one-piece or two-piece backplate for 1, 3, or 4 section traffic signal heads as indicated on the plans or as directed by the Engineer.

Ensure that 5 section signal head combinations are provided with no more than 3 vacuum formed pieces.

Ensure that HAWK signal backplates match the pre-existing shape and provide with one or two vacuum formed pieces.

3. Do not cut the backplate for installation.
4. Provide backplates that are designed to precisely fit the manufacturer's signal heads and supplied with necessary hardware to attach the backplate to the signal.
5. Provide backplates that are vacuum formed from 0.125-inch-thick black acrylonitrile butadiene styrene (ABS) plastic with a hair cell finish on the front side (facing approaching traffic) to reduce glare.

Use 0.156-inch-thick ABS plastic for 5 section and HAWK.

6. Provide backplates that are constructed with a minimum 5/8-inch flange on all sides to provide structural rigidity. Ensure the backplates are provided with a three-inch corner radius.

7. Ensure that all backplates extend approximately five inches around the perimeter of the traffic signal combinations after installation.

8. Proposed backplates must be measured and counted in the field by the Contractor to verify proposed backplate size, type, signal type/manufacturer, and quantity before ordering backplates for the project.

9. Proposed backplates must accommodate case signs on traffic signal heads.

10. Aluminum Signal Reinforcing Plates

Contractor must place on the bottom signal housing (inside and outside) of the existing traffic signal head per MDOT and manufacturers requirements. The reinforcing plates are required for traffic signals with bottom tethers.

11. Backplates shall be attached with stainless steel bolts, washers, and lock nuts; or self-tapping screws and washers, or as directed by the Engineer. The washer should be 1 inch by 0.5 inch or as directed by the Engineer.

12. Warranty and Guarantee

Provide materials with a manufacturer's warranty/guarantee, transferable to the Road Commission for Oakland County, that the supplied materials will be free from all defects in materials and workmanship for one (1) year from the date of final project acceptance. If requested by the Engineer, supply manufacturer's warranty and guarantee documents from the manufacturer and a copy of the invoice showing date of shipment.

The contractor shall repair and replace any backplates that the reflective fluorescent yellow tape border has been removed from the backplate prior to final project acceptance.

13. Acceptance

Provide General Certification per the *MDOT's Materials Quality Assurance Procedures Manual* to the Engineer that the materials meet the requirements specified herein.

c. Construction

Complete this work in accordance with sections 818 and 820 of the Standard Specifications for Construction, as shown on the plans, and as directed by the Engineer. Remove, store, and dispose of material in accordance with section 204 of the Standard Specifications for Construction.

1. Signal head adjustment

Adjust the signal head to meet the following requirements. After the backplate is installed, verify the following or as directed by the engineer:

A. Maintain a minimum under clearance of 17 feet over roadway when attached to mast arm per RCOC details.

B. Maintain a minimum under clearance of 17 feet over roadway when all span wires at an intersection attach to steel signal poles.

C. Maintain a minimum under clearance of 18 feet over roadway when one or more span wires at an intersection attach to a wood utility pole.

All signal head adjustments are not paid for separately and are included in the retrofit pay item.

2. Special Tools

No special tools shall be required. If special tools are required for any other application in the repair, assembly, or installation of this equipment, forty (40) complete sets of such tools shall be furnished.

3. Submittals / Working Drawings

If requested by the engineer, submit a detailed dimensional drawing of all equipment, material specification list which shows the materials to be used, equipment to be furnished, and assembly/installation method.

4. Samples

If required by the engineer, a complete sample backplate must be delivered within seven (7) working days after the request is submitted.

Special consideration shall be given to workmanship, materials and superior features demonstrated by the sample.

d. Measurement and Payment

The completed work, as described, will be measured and paid for at the contract unit price using the following pay item(s).

Pay Item	Pay Unit
Backplate, Retrofit, RCOC.....	Each
Backplate, Retrofit, 1 Sect, RCOC.....	Each
Backplate, Retrofit, 3 Sect, RCOC.....	Each
Backplate, Retrofit, 4 Sect, RCOC.....	Each
Backplate, Retrofit, 5 Sect, RCOC.....	Each
Backplate, Retrofit, HAWK, RCOC.....	Each
Backplate, Retrofit, 1 Sect, with case sign, RCOC.....	Each
Backplate, Retrofit, 3 Sect, with case sign, RCOC.....	Each
Backplate, Retrofit, 4 Sect, with case sign, RCOC.....	Each
Backplate, TS, Rem, RCOC.....	Each

Backplate, Retrofit, RCOC (Ea) includes installing any type and size backplate on existing or new signal head(s) at location(s) shown on the plans where installation is specified. Furnish and install a new traffic signal backplate, reinforcing plates, and associated hardware, as indicated on the plans or as directed by the Engineer. Adjust the traffic signal head and associated items.

Backplate, Retrofit, _____, RCOC (Ea) includes installing the backplate on existing or new signal head(s) at location(s) shown on the plans where installation is specified. Furnish and install a new traffic signal backplate, reinforcing plates, and associated hardware, as indicated on the plans or as directed by the Engineer. Adjust the traffic signal head and associated items.

Backplate, Retrofit, _____, with case sign, RCOC (Ea) includes installing the backplate on existing or new signal head(s) at location(s) shown on the plans where installation is specified. Furnish and install a new traffic signal backplate, reinforcing plates, and associated hardware, as indicated on the plans or as directed by the Engineer. Adjust the traffic signal head and associated items. Backplates must accommodate the signal heads with case signs.

Backplate, TS, Rem, RCOC (Ea) includes removing the existing backplate (of any type), hardware, and other appurtenances, required for a complete removal where removal is specified. Dispose of removed materials.