

CHAPTER 21 – TRAFFIC CONTROL SIGNAL CABINETS

TRAFFIC CONTROL SIGNAL CABINETS

The traffic control signal cabinet is the heart and brain of the traffic control signal. It provides power to the signal indications, contains the electronic control equipment that senses traffic movements on the road, and controls the signal lights.

With the exception of wood pole temporary traffic control signal systems, all new MnDOT signal projects will be furnished with TS-2 Type 1 traffic control signal cabinets and as time goes on you will begin to see 350 (double wide) and 352 (single wide) ATCC cabinets on projects. The ATCC is going to become the MnDOT standard. For MnDOT projects, the traffic control signal cabinet will be furnished to the contractor by MnDOT for installation.



Figure 21-1: TS-2 (Type 1) Cabinet

The contractor is required to pick up the MnDOT furnished cabinet for the project and must notify MnDOT’s Electrical Services Section (ESS) as specified in the contract documents so that it can be prepared for delivery.

The contractor is required by contract documents to provide thirty days advance notice of the cabinet being required on the project and three days advance notice of intent to pick up the cabinet.



Figure 21-2: 350 and 352 ATC Cabinets

Upon pick-up, the cabinet needs to be carefully inspected for scratches and dents. Care must be taken to protect the anodized finish.

The contractor must protect the cabinet pallet and return it to ESS after cabinet installation. These pallets are used for specific cabinet racks at ESS.



Figure 21-3: Cabinet Pallet

21.1 Cabinet Equipment

The contractor must sign a packing slip to verify that the cabinet and equipment was received in good condition from ESS.

Make sure all electronic equipment (except controller unit) and connectors are secured with tape or tie wraps before any attempt is made to move and transport it. The controller unit must be removed from the cabinet during transport.

The electronic equipment presented below is normally sent out with the cabinet.

21.1.1 LOOP DETECTOR AMPLIFIERS

As indicated in Figure 21-4, several loop detector amplifiers are included with the cabinet.

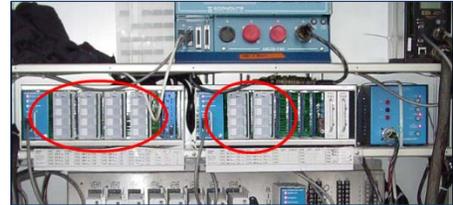


Figure 21-4: Loop Detector Amplifiers

21.1.4 MALFUNCTION MANAGEMENT UNIT (MMU2)

A malfunction management unit (MMU2) is included in Type TS-2 Type 1 cabinets.

MMU2's support exiting local flash requirements as defined by the Minnesota Manual on Uniform Traffic Control Devices (MnMUTCD).



Figure 21-5: MMU2

21.1.5 CABINET POWER SUPPLY

A cabinet power supply unit is included in Type TS-2 (Type 1) cabinets.



Figure 21-6: Cabinet Power Supply

21.1.6 LOAD SWITCHES

Several load switches are provided.

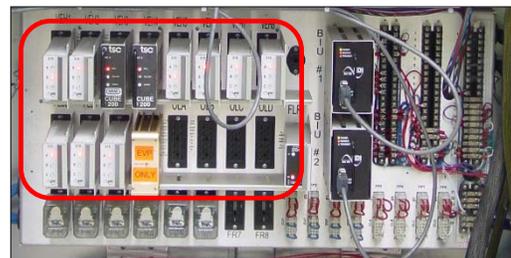


Figure 21-7: Load Switches

21.1.7 RUBBER GASKET

A four-section rubber gasket, and four anchor bolts including nuts and stainless-steel washers.



Figure 21-8: Rubber Gasket

21.2 Installation Techniques

Before the cabinet is installed, make sure that all proper conduits are in place and the anchor bolts fit the cabinet. Refer to the contract documents for details. Clean any dirt and debris from the top of the foundation.



Figure 21-9: Cabinet Foundation

Lifting ears with holes are provided on the cabinet so that the cabinet can be loaded and unloaded and transported in an upright position.

The contractor must use the proper methods and equipment to move the cabinet so that the cabinet shell, internal equipment, and wiring are not damaged in any way.



Figure 21-10: Lifting Cabinet

Lay the rubber gasket carefully in place and set the cabinet on top of the gasket, making sure the gasket is neatly positioned under the cabinet. Be sure to leave the required 1/2-inch gap between two of the rubber gasket pieces to allow for drainage.

The cabinet must be securely bolted to the cast in-place pad with anchor bolts.



Figure 21-11: Secure to Pad

If necessary, an enclosure may be erected to protect the inside of the cabinet from the elements while working on it. The door should be closed if unattended to prevent damage, vandalism, dirt, and debris or precipitation from entering the cabinet.



Figure 21-12: Cabinet Enclosure

MnDOT lighting and signal cabinets are constructed of aluminum with an anodized finish. There is no good way of field repairing a scratched anodized aluminum surface.

The inspector must be notified when the cabinet is picked up and be present when it is unloaded so that they can check for any damage.

As field repairing a scratched anodized aluminum surface is very difficult, any damage to the finish should be inspected and evaluated in order to select an effective method of preventing corrosion.



Figure 21-13: Damaged Cabinet

21.3 Chapter 21 Resources

- MnDOT Electrical Services Section