



**Highway Maintenance Manual**  
**Chapter 05 Traffic Services and Safety**  
**Section 01 Truck Safety**  
**Subject 05 Maintenance Truck Lighting**

**Bureau of Highway Operations**  
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## **1.0 Authority/Statutory Provisions/Administrative Code Rules**

The following state statutes and administrative codes contain laws and administrative rules related to highway maintenance truck lighting requirements.

### State Statute 347 - Equipment of Vehicles, Lighting Equipment

- 347.06 - When lighted lamps are required;
- 347.07 - Special restrictions on lamps and the use thereof;
- 347.09 - Headlamps on motor vehicles;
- 347.10 - Headlamps specifications for motor vehicles;
- 347.23 - Lamps on highway maintenance equipment;
- 347.26 - Restrictions on certain optional lighting equipment;
- 347.26(6) - Warning lamps on tow trucks and service vehicles;
- 347.26(7) - Warning lamps on certain highway vehicles;
- 347.26(11) - Flashing warning lamps.

### Administrative Rule Trans 305 - Standards for Vehicle Equipment

- Trans 305.075 - Auxiliary lamps;
- Trans 305.08 - Back up lamps;
- Trans 305.09 - Direction signal lamps;
- Trans 305.11 - Headlamps;
- Trans 305.48 - Subchapter IV-Heavy Trucks.

### Administrative Rule Trans 327 - Motor Carrier Safety

- Trans 327.03 - Federal regulations adopted - Federal Motor Carrier Safety Regulations, Volume I - Driver Regulations, 49CFR, Part 393 - Parts and Accessories Necessary for Safe Operation.

## **2.0 Definitions**

Auxiliary Lamp - means any lamp mounted on a maintenance truck with a bulb having wattage in excess of 10 watts and which is not required equipment under State Statute Ch. 347 or Trans 305, except a spotlight.

Back Up Lamp - means any lamp designed to provide road illumination to the rear of a maintenance truck when the vehicle is in reverse gear.

All-Directional Lamp - means an auxiliary lamp mounted at the highest practicable point on a maintenance truck to give an adequate warning of the presence of the truck and to show safe clearance for passing or overtaking the truck.

Heavy Truck - means a motor truck, truck tractor, or road tractor with a gross vehicle weight rating or actual gross weight of more than 10,000 pounds.

Maintenance Truck - means a highway maintenance truck used for winter maintenance operations.

Plow Lamp - means an auxiliary, or replacement, headlamp mounted on a maintenance truck used during snow plowing or salting operations.

Safety Lamp - means an auxiliary lamp on a maintenance truck mounted to be able to warn vehicles approaching from the rear of the truck.

### **3.0 Required Maintenance Truck Lighting**

The following lamps are required on highway winter maintenance trucks in accordance with State Statutes and Administrative Codes:

- Headlamps - In accordance with s.s. 347.09 and 347.10, Wis. Stats., and Trans 305.11.
- Plow Lamps - In accordance with ss. 347.09(1)(a) and 347.09(2), Wis. Stats., and Trans 305.075.
- All-Directional Lamps - In accordance with s.s. 347.23(4) and s.s. 347.26(7), Wis. Stats.

Snow and ice control equipment operating on the state highway system are required to have all-directional lamp(s) with the following minimum lighting specifications for standard identification:

1. Mount all-directional lamp(s) located on the truck cab either on a self-leveling bracket on the front end of the truck box body or in a rubber seat on the cab protector (optional) so the light is visible when the truck body is in a raised position.
2. Amber (only) in color and visible from all directions (360°).
  - a. All-directional lamps shall be a flashing (strobe) type or a revolving (beacon) type. If a flashing (strobe) type, the number of flashes per minute shall be 60 to 120 flashes per minute. If a revolving (beacon) type, the number of revolutions shall be 45 to 90 r.p.m. Flashing (strobe) type shall be high-intensity with a wide-angle pattern.
  - b. Minimum light intensity shall be:
    1. Flashing (strobe) type = 500,000 candle power (c.p.)
    2. Revolving (beacon) types = two bulbs @ 35,000 c.p. each. (L.E.D. type lamps recommended)
3. Rear safety lamps - in accordance with s.s. 347.26(7) and s.s. 347.26(11), Wis. Stats.
  - a. All snow and ice control maintenance trucks operating on the state highway system shall have, in addition to the all-directional lamp(s), flashing (strobe), amber safety lamps mounted to provide warning to vehicles approaching from the rear of the truck. Mount lamps so they are clearly visible to approaching traffic and functional when the truck box is in the raised position.
  - b. Alternating, flashing (strobe) safety lamps shall be wide-angle, fog, 8,800 c.p. each, mounted in or on the truck box corner post, type model. An alternative model is the flashing (strobe) high-intensity or L.E.D. model with a wide-angle (or vertical 180°) pattern. The number of flashes shall be 60 to 120 flashes per minute.
4. Auxiliary lamps - in accordance with s.s. 347.07 and s.s. 347.26, Wis. Stats., and Trans 305.075.

Equip maintenance trucks used on high volume (>25,000 AADT) highway winter patrol sections including Interstate, or four-lane, or more, freeways or expressway type highways with the following auxiliary lamps.

- a. High intensity discharge (H.I.D.) plow lamps that comply with s. 347.26(2), Wis. Stats. Bulb should be a 35 watt, xenon lamp using xenon gas and no filament. Color temperature should be a minimum of 4,100 degrees K.
- b. Wing plow (left or right) lamp(s) and wing-end marker to be used to warn approaching vehicles of the presence of the wing plow when in operation. A self-contained light emitting diode (L.E.D.), red lamp is recommended. All LED lamps shall meet the appropriate federal regulations for its design.

Notes:

1. A string of lights (PVC tube totally encasing mini-lamps, spaced at 1" intervals that produce a glowing neon-like appearance) outlining the top and outer edge of the wing plow is an acceptable alternative for the wing plow lamp.
2. A white lamp mounted on the rear view mirror and aimed at the extreme edge of the wing plow will assist the snow plow operator with seeing the end of the plow but is not an acceptable alternative for the wing plow lamp and/or wing-end marker.

#### **4.0 Optional Truck Lighting**

The following lamps are optional on all highway winter maintenance trucks:

1. Salt spreader auxiliary lamp(s) used to illuminate the spreader for the benefit of the operator shall be in accordance with s. 347.07(2), Wis. Stats. (referenced to color) and s. 347.13(3), Wis. Stats. (referenced to visible distance).
2. Amber or white color lamps may be mounted and aimed to shine on the salt spreader and not visible to the rear at a distance greater than 50 feet.
3. Suggested mounting locations are on the rear corner of the truck box or on the side of the salt spreader unit.

The following lamps are optional on patrol trucks normally assigned to winter patrol sections on low volume (<25,000 AADT), two lane state highways:

- a. High intensity discharge (H.I.D.) lamps - refer to Guideline 05-01-05 Section 3.4 for guidelines.
- b. Wing plow (left or right) lamp(s) and wing end marker - refer to Guideline 05-01-05 Section 3.4 for guidelines.

#### **5.0 Supplemental Truck Lighting Information and References.**

1. Effective Date: maintenance trucks purchased after January 1, 2005 used for winter maintenance activities on state highways shall meet the truck lighting requirements contained within this chapter.
2. Trucks normally assigned to low volume (<25,000 AADT) state highway winter patrol sections that assist on high volume (>25,000 AADT) state highway winter patrol sections during extreme winter weather conditions shall meet the required truck lighting section (Section 3) of this chapter.
3. Winter patrol sections or county highway winter patrol sections assisting on high volume (>25,000 AADT) state highway winter patrol sections during extreme winter weather conditions shall meet the required truck lighting section (Section 3) of this chapter.
4. The installation of signage on the rear of winter maintenance trucks is at the discretion of the county highway departments. Signage such as "Stay Back 200' is appropriate. Guidelines for sign size, letter size, thickness and spacing, and exact wording are available from the Department.
5. Guidelines for Truck Conspicuity Marking can be found in Chapter 05-01-06.