

TITLE 67. TRANSPORTATION
PART I. DEPARTMENT OF TRANSPORTATION
Subpart A. VEHICLE CODE PROVISIONS
ARTICLE VII. VEHICLE CHARACTERISTICS
CHAPTER 173. FLASHING OR REVOLVING LIGHTS ON EMERGENCY AND
AUTHORIZED VEHICLES

§ 173.1. Purpose.

This chapter pertains to the nature, display, color, minimum performance standards and configuration of flashing, oscillating or revolving lights that are permissible for display by emergency and authorized vehicles.

§ 173.2. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

Authorized vehicle--The term as defined in 75 Pa.C.S. § 102 (relating to definitions).

Emergency vehicle--The term as defined in 75 Pa.C.S. § 102.

Flash--An intermittent burst of light.

Flash rate--The rate of flash, revolution or oscillation per minute of a single light, when that light is observed from a fixed position.

Flashing headlamp system--A system designed to automatically flash the high intensity-high beam--portion of the headlamps of a vehicle in either an alternate or simultaneous flash. The system shall be designed so that activation of the high intensity--high beam--portion of the standard headlamp system overrides the flashing headlamp system.

Flashing light--A light designed to flash by current interruption, or by other means providing an intermittent change in intensity when the light is observed from a fixed position.

Hazard warning system--Driver-controlled flashing front and rear lights used to warn approaching motorists when a vehicle is broken down or is traveling at a slow speed.

Intersection light--A flashing red, blue, white, or clear light used as part of a flashing, oscillating, or revolving light system to enhance the visibility of an emergency vehicle from the front and side as it approaches or travels through an intersection.

Light activation indicator--An audible signal or an illuminated switch or pilot light which provides the driver of an emergency or authorized vehicle with a clearly audible or visible and continual indicator that a flashing or revolving light, flashing headlamp

system, traffic control emergency directional light or authorized nonflashing or nonrevolving light is activated.

Light-bar assembly--A device or devices designed and constructed to provide and display more than one steady burning, flashing, oscillating or revolving light.

Oscillating light--A light designed to flash by movement back and forth between two or more points, including the alternation between the maximum and minimum voltage.

Revolving light--A light designed to give the appearance of flashing by its rotation around a fixed axis through a 360° arc, on a horizontal plane.

Single light--A device containing one or more lenses, lamps or bulbs which are designed to produce, when viewed from a fixed position or point, the appearance of one flashing or revolving beam of light.

Traffic control emergency directional light assembly--A device electronically designed to display amber or yellow warning signal lights in a distinctive motion-lighting pattern-- arrow left, arrow right, center out or alternately flashing--to warn motorists that they are approaching a hazard or to direct them around an impending hazard.

Unmarked police vehicle--A police vehicle not equipped with a roof-mounted light-bar assembly. The vehicle may display graphics, markings or decals, identifying the agency or department.

§ 173.3. Display requirements.

(a) *Color*. White, clear, red, blue, amber or yellow are the only colors permitted for use in flashing or revolving lights.

(1) *Chromaticity coordinates*. A flashing, revolving or oscillating light must meet or exceed the Chromaticity Coordinates, CIE 1931, Standard Colorimetric System as provided in SAE Standard J578d, Color Specification for Electrical Signal Lighting Devices, September 1978 or subsequent SAE Standards. This requirement does not apply to flashing headlamp systems.

(2) *Red lights*. A vehicle may display red lights as provided by 75 Pa.C.S. § 4571 (relating to visual and audible signals on emergency vehicles).

(3) *Blue lights*. A vehicle may display blue lights as provided for by 75 Pa.C.S. § 4572(a) (relating to visual signals on authorized vehicles). Vehicles described in 75 Pa.C.S. § 4572(a) may be equipped with a light-bar assembly using only blue lights. See Figure 3.1.

(4) *Combination red-and-blue lights*. Vehicles listed under 75 Pa.C.S. § 4571(b) may display combination red-and-blue lights. The privately-owned vehicles

defined as an emergency vehicle under 75 Pa.C.S. § 102 (relating to definitions) must be equipped under 75 Pa.C.S. § 4571(a).

(5) *Yellow or amber lights.* A vehicle may display yellow or amber lights as follows:

(i) Under 75 Pa.C.S. § 4572(b), an authorized vehicle as defined in 75 Pa.C.S. § 102 and designated in Chapter 15 (relating to authorized vehicles and special operating privileges) may be equipped with flashing or revolving yellow or amber lights or one or more light-bar assemblies containing only yellow or amber lights. See Figure 3.1.

(ii) An authorized vehicle which is used in the construction, repair or maintenance of a bridge or highway maybe equipped with traffic control emergency directional light assemblies.

(iii) Emergency vehicles may be equipped with yellow or amber lights, in addition to traffic control emergency directional light assemblies. The yellow or amber lights shall be mounted on the rear of the vehicle or face rearward so that they are visible from behind the vehicle.

(6) *White or clear lights.* In addition to flashing or revolving red or combination red-and-blue lights, an emergency vehicle may be equipped with a flashing headlamp system and no more than one flashing, revolving or oscillating white or clear light, or with a light-bar assembly containing no more than three flashing, revolving or oscillating white or clear lights. The vehicle may also be equipped with additional preemptive traffic control devices.

(i) When the light-bar assembly contains three flashing, revolving or oscillating white or clear lights, the center light must be mounted to flash white or clear light only to the front.

(ii) When the vehicle is stationary, the light-bar assembly may not display white or clear light to the rear.

(iii) Flashing, revolving or oscillating white or clear lights and flashing headlamp systems may only be used in conjunction with the flashing or revolving red or combination red-and-blue lights. Flashing, revolving or oscillating white or clear lights and flashing headlamp systems that are not used in conjunction with flashing or revolving red or combination red-and-blue lights do not constitute visual signals under 75 Pa.C.S. §§ 3325 and 4571 (relating to duty of driver on approach of emergency vehicle; and visual and audible signals on emergency vehicles).

(7) *Steady burning lights.* Red, blue, amber or yellow nonflashing or nonrevolving lights--steady burning lights--may be used in conjunction with flashing or

revolving lights.

(8) *Utility lights.* Clear or white forward or side facing steady burning utility lights (that is, take down, alley, spotlight) may not be used as a visual signal for purposes of 75 Pa.C.S. § 3325. These lights may be used while the vehicle is in motion or stationary for the purpose of an emergency, for the safety of the public, or in the enforcement of the law.

(9) *Other lights.* A vehicle, other than those identified in this chapter, may not be equipped with lights or systems identical or similar to those specified by this subsection, except that school buses and urban mass transit buses which will be used for carrying school children may be equipped with flashing lights as permitted by 75 Pa.C.S. §§ 4552(b) and 4553(a) (relating to general requirements for school buses; and general requirements for other vehicles transporting school children), and Chapters 15 and 171 (relating to school buses; and school vehicles).

(10) *Hazard warning systems and turn signals.* Hazard warning systems and turn signals are not considered flashing lights for the purposes of this chapter.

(b) *360° visibility.* Except for unmarked police vehicles, when flashing or revolving red, blue, yellow or amber lights are mounted on a vehicle, one or more of these lights shall be mounted to provide visibility to vehicles approaching from any direction (360° visibility), regardless of the method of mounting.

(1) When only one light is used to provide 360° visibility, this light must be in compliance with SAE Standard J845, 360° Emergency Warning Lamps, May 1997, or subsequent SAE Standards.

(2) When more than one light is used to provide 360° visibility, the number of lights used may not exceed those specified in 75 Pa.C.S. §§ 4571 and 4572.

(c) *Visibility for unmarked police vehicles.* When the combination of lights are mounted on an unmarked police vehicle, these lights shall be mounted to provide visibility to vehicles approaching from the front and rear, regardless of the method of mounting.

(d) *Flash rate.* The flash rate, when observed from a fixed position, must be between 60 and 260 flashes per minute. When the flash rate is produced by the interruption of current, the period of illumination must be long enough to permit the bulb to come to full brightness.

(e) *Mounting location.* The following applies to mounting locations for flashing or revolving lights:

(1) *Emergency vehicles, except police vehicles.* Flashing or revolving lights,

excluding flashing headlamp systems, may be permanently mounted on the vehicle or attached to a mounting device, in a workmanlike manner, in the following locations only:

- (i) On a cab or roof of the vehicle.
- (ii) No more than 18 inches above the highest fixed point of the vehicle.
- (iii) Behind, in front of, or on the grille of emergency vehicles. A flashing light may be mounted so as to flash through or in front of the grille on emergency vehicles when the vehicle is also equipped with one or more flashing or revolving red lights that meet the 360° visibility requirements of subsection (b).
- (iv) With respect to fender intersection lights, close to the front upper edge of each front fender of an emergency vehicle and not protruding more than 2 inches from the fender.
- (v) Inside of existing vehicular lighting modules/assemblies, such as headlights, parking lights, taillights. This does not include reverse lights.
 - (A) This subsection does not apply to privately owned vehicles that otherwise qualify as emergency vehicles as defined in 75 Pa.C.S. § 102.
 - (B) Vehicles mounting lights as outlined in this subsection must also mount, in another location, flashing or revolving lights that meet the 360° visibility requirements. This does not include reverse lights.

(2) *Police vehicles.* Flashing or revolving lights may be permanently mounted on the vehicle or attached to a mounting device, in a workmanlike manner, in the following locations only:

- (i) On a cab or roof of the vehicle.
- (ii) No more than 18 inches above the highest fixed point of the vehicle.
- (iii) With respect to combination red-and-blue lights only, behind, in front of, or on the grille. Police vehicles mounting lights as outlined in this subsection must also mount flashing or revolving lights in another location visible from the front of the vehicle.
- (iv) Inside the passenger compartment, clearly visible through the front windshield. (See original equipment manufacturer for mounting locations.)
- (v) Inside the passenger compartment, clearly visible through the rear window.

(vi) In or on the trunk lid.

(vii) Inside of existing vehicular lighting modules/assemblies, such as headlights, parking lights, taillights (not including reverse lights). Police vehicles mounting lights as outlined in this subsection must also mount, in another location, flashing or revolving lights visible from the front and rear of the vehicle.

(viii) With respect to flashing lights only, within the nondriver's compartment-side window.

(ix) With respect to combination red-and-blue lights, in a location visible from the front and rear of the vehicle.

(x) With respect to fender intersection lights, close to the front upper edge of each front fender of a police vehicle and not protruding more than 2 inches from the fender.

(xi) With respect to motorcycles, at a location in accordance with the manufacturer's specifications.

(3) *Authorized vehicles.*

(i) Flashing or revolving lights may be permanently mounted on the vehicle or attached to a mounting device, in the following locations only:

(A) On a cab, cab protector or roof of the vehicle.

(B) No more than 18 inches above the highest fixed point of the vehicle.

(C) On the front or rear of the bed or body of an authorized vehicle.

(D) On the tailgate of an authorized vehicle.

(E) In a location other than as set forth in clauses (A)--(D) as needed to comply with the 360° requirement in subsection (b).

(ii) The installation or use of additional flashing or strobe lights in existing vehicular lighting modules/assemblies, such as headlights, parking lights, taillights, is expressly prohibited.

(4) *Traffic control emergency directional light assemblies.* Traffic control emergency directional light assemblies may not interfere with permanently installed lights. These assemblies may be permanently mounted on the vehicle or attached to a mounting device, in a workmanlike manner, in a location visible to approaching traffic.

(e) *Mounting devices.* Flashing or revolving lights, excluding flashing headlamp systems, grille-mounted flashing lights and intersection lights, may be mounted on one of the following devices:

- (1) A magnetic base.
- (2) A roof rack, light-bar or other device that is welded or bolted onto the vehicle, or is mounted on the vehicle by using suction cups equipped with nylon or steel straps and clips which hook onto the drip rail or molding.
- (3) A self-leveling gimbal device.
- (4) Grommet mounting is acceptable for flush mounted flashing lights.

§ 173.4. Wiring.

Wiring shall be installed using the industry's best practices.

- (1) Wiring must be primary SAE rated and be of proper gauge to handle applied load. Ground wiring must be of equal gauge.
- (2) Wiring may not be loaded to more than 80% of its rated capacity.
- (3) The wiring must be permanently installed and routed through the vehicle in a manner to avoid short circuits or interfering with the operation of the vehicle.
- (4) Grommets shall be used when wires pass through bulkheads and other sharp metal surfaces.
- (5) Each accessory will be protected with the proper circuit protection as recommended by the manufacturer (that is, fuses or circuit breakers). The main circuit protection will be as close to the power source as possible.
- (6) Additional wiring installed for emergency equipment may not impede or compromise the original equipment manufacturer circuits or original equipment manufacturer equipment functions as intended by the vehicle manufacturer.
- (7) Tapping power off of original equipment manufacture circuits, such as in fuse blocks, must be only as recommended by the vehicle manufacturer. Tapping power off air bag or ABS brake and brake light circuits is prohibited.
- (8) These requirements do not apply to flashing or revolving lights that are attached to a vehicle with a magnetic base.

173.5. Light activation indicator.

Emergency and authorized vehicles which are equipped with lights or light systems provided for in this chapter shall also be equipped with a light activation indicator which will automatically activate whenever a flashing or revolving light, flashing headlamp system, traffic control emergency directional light or authorized nonflashing or nonrevolving light is engaged. (November 6, 1993)

173.6. Nonconforming or authorized lighting systems.

A violation of this chapter is a summary offense and subject to sanctions imposed under 75 Pa.C.S. 6502(b) (relating to summary offenses). Under 75 Pa.C.S. 6104(c) (relating to administrative duties of department), the Department of Transportation may make necessary and reasonable investigations to procure information required to enforce this chapter. (November 6, 1993)