**CALIFORNIA HIGHWAY PATROL**

**GENERAL ORDER 100.5**

**REVISED DECEMBER 2023**

# REGULATED DEVICES

1. GENERAL.

   a. The Department has adopted regulations in Title 13, California Code of Regulations (CCR), that establish standards and specifications listed in Section 375 of the California Vehicle Code (CVC) for lighting equipment, safety belts, safety glazing, safety helmets, and sirens. Updated regulations regarding tire traction devices are also contained in this General Order (GO). Adoption and enforcement of these regulations are authorized by Section 26103 CVC.

   b. Sellers, manufacturers, and users must ensure these regulated devices meet the applicable requirements before being offered for sale or used on highways in California. The requirements are published as regulations in Title 13, CCR.

   c. Previous CVC provisions requiring certain items of automotive safety equipment be approved by the California Highway Patrol (CHP) prior to sale or use on a vehicle in California were deleted by the Legislature in 1979. The law, as amended, continues to stipulate these items meet requirements established by the CHP.

   d. Deletion of the device approval and conformity control elements from the 1979/80 fiscal year budget ended the issuance of certificates of approval effective September 1, 1979.

2. POLICY.

   a. Commercial Vehicle Section (CVS) is responsible for the adoption and revision of regulations establishing the standards and specifications, including mounting and aiming requirements, for the devices listed in this GO.

   b. When necessary, CVS will correspond with manufacturers to obtain test data on questionable devices.

   c. Commercial Vehicle Section shall have primary responsibility for determining acceptability of regulated devices.

3. INSPECTION GUIDELINES.

a. Questions concerning the acceptability of regulated devices may be resolved by referencing the CVC; Title 13, CCR; and annexes of this GO. In cases where these sources are inadequate, assistance may be obtained from CVS.

b. Responses to verbal or written inquiries as to the acceptability of a particular device should be determined as provided in paragraph 3.a. Should sellers, installers, etc., inquire as to how they can ascertain whether particular models they sell or install meet the requirements established by the CHP, they should be informed that Section 26104 CVC requires the manufacturer to have test data showing compliance with the state and federal requirements. To protect themselves, the sellers should obtain proof from the manufacturer that such data exists.

c. Inspection of regulated devices installed on a vehicle should be limited to a determination that the devices are properly marked, mounted as required, and not obviously unlawful or deficient in performance or design.

d. Inspection of specialized vehicles, such as armored cars, authorized emergency vehicles, school buses, school pupil activity buses, farm labor vehicles, modified limousines, and tow cars, shall conform to the specific inspection checklist forms and procedures for the type of vehicle inspected. Some checklist forms may be available on the CHP Intranet under Forms. Checklist forms not available on the CHP Intranet are available from the respective Office of Primary Interest for the vehicle type. Recording of the make and model number of lighting devices and sirens is no longer required as part of an inspection. If the legality of a regulated device is questioned, substantiating information should be requested from the vehicle owner who may obtain such information from the equipment vendor or manufacturer. Such substantiation should clearly indicate that the device conforms to Title 13, CCR.

e. Temporary operating authority for armored cars, ambulances, or permitted authorized emergency vehicles should not be denied because of questionable devices unless a required device is obviously deficient or unlawful. Issuance of the regular identification cards or permits may be denied until unacceptable devices are removed or replaced with acceptable items.

4. ENFORCEMENT GUIDELINES.

a. Section 26100 CVC prohibits selling, offering for sale, or using regulated devices that do not comply with the regulations or for which the manufacturer does not have laboratory test data showing compliance.

b. Section 26101 CVC prohibits selling, offering for sale, or using a device which modifies the original design or performance of any lighting device, safety glazing material, or other regulated device unless the modifying device complies with the regulations and the manufacturer has test data showing compliance.

c. Section 26104 CVC authorizes the CHP to request laboratory test data showing compliance with regulations and further authorizes the CHP to prohibit the sale of a device if proof of compliance is not received within 30 days of such a request.

d. The annexes of this GO contain additional equipment compliance guidelines.

OFFICE OF THE COMMISSIONER ANNEXES A, B, C, D, E, F

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## ANNEX A

## LIGHTING EQUIPMENT

1. GENERAL.

a. Requirements. Lighting equipment is regulated by Federal Motor Vehicle Safety Standard (FMVSS) 108, contained in Title 49 of the Code of Federal Regulations, Section 571.108, the CVC, and Title 13, CCR. Enforcement policy concerning installation, maintenance, and operation is contained in Highway Patrol Manual (HPM) 82.6, Commercial Enforcement Manual, Chapter 6, Equipment Requirements.

b. Federal Motor Vehicle Safety Standards. The FMVSSs apply to new vehicles at the time of manufacture and to replacement equipment, as specified in Section 24011 CVC. The FMVSSs which have been adopted into Title 13, CCR, have become departmental requirements and, as such, are enforceable under Sections 26100 and 26101 CVC. Questions concerning the federal standards may be referred to Commercial Vehicle Section (CVS).

c. Departmental Regulations. Section 26103 CVC authorizes the Department to adopt and enforce regulations establishing standards and specifications for lighting equipment listed in Section 375 CVC. The FMVSSs have been adopted by reference, as appropriate. In cases where no FMVSSs have been established, separate regulations have been developed. The departmental regulations are published in Title 13, CCR, and are enforceable under Sections 26100 and 26101 CVC.

d. Unlawful Equipment. Lamps or illuminating devices not required or permitted by the CVC are unlawful under Section 24003 CVC, with specific exceptions.

e. Reference Table. The Reference Table in this annex distinguishes between required and permitted lighting equipment, and references applicable state and federal requirements. The Society of Automotive Engineers (SAE) code in the far-right column references the function a lamp or device is designed to perform. Although SAE code markings are particularly useful in device identification and enforcement, they are optional and may not be present. The absence of SAE identification markings should not be considered a violation. The markings consist of the letters "SAE" followed by a code, such as P2, indicating the function the device is designed to serve, and one or two digits, such as 7 or 77, indicating the year of the SAE standard the device was designed to meet.

f. Devices used to perform a function other than that for which designed are unlawful (Section 26100 or 26101 CVC, as appropriate). For example, red lamps

marked "SAE P2" are designed for use as clearance lamps, side marker lamps, and identification lamps. They may not be sold or used as taillamps (Section 26100 CVC). The letters "CPSC" located in the FMVSS column refer to the Federal Consumer Product Safety Commission regulations adopted in Title 13, CCR, for bicycle reflectors.

2. MARKING REQUIREMENTS.

a. Devices not subject to FMVSSs must have the manufacturer's name, initial, or lettered trademark and model designation permanently marked on the housing and lens in letters and numbers at least one-eighth inch in height. Devices with nonseparable housing and lens may be marked on the lens alone. Sealed and semisealed optical units for fog, driving, and passing lamps must have the model marked or molded on the back of the unit. Officers should be aware that identification markings may not be visible when the lamp is installed.

b. Headlamps shall have the United States (US) Department of Transportation (DOT) acronym of "DOT" marked on the lens, indicating compliance with the FMVSS. Other devices may have DOT marked on the lens or housing, indicating compliance with the FMVSS, but are not required to be marked. Devices not marked with DOT must have the manufacturer's certification of compliance marked on the package or included in the package with the device.

3. HEADLAMPS.

a. Federal Motor Vehicle Safety Standard 108 currently permits the use of three distinct types of headlamp systems on motor vehicles:

(1) Sealed beam systems – The lens, reflector, and lamp filament are one sealed unit. This type of construction has been used for headlamps for many years and includes several halogen systems. (Most halogen lamps have a small glass envelope enclosing the filament which, upon close inspection, is visible through the lens. This envelope is necessary for the proper operation of a halogen lamp and should not be confused with a removable bulb type lamp. Halogen sealed beam lamps do not have a removable bulb.)

(2) Integral beam systems – They are mechanically and functionally similar to sealed beam systems with the lens, reflector, and lamp filament in one integral unit, but are not of standard dimensions and are not interchangeable with sealed beam units. They may be of conventional or halogen design. They are typically used on vehicles where the headlamps are an integral part of the aerodynamic design.

(3) Replaceable bulb systems – They are comprised of a bonded reflector and lens assembly, and a separate replaceable lamp. This system is similar in function and appearance to systems previously restricted to motorcycles and motor-driven cycles.

b. Federal Motor Vehicle Safety Standard 108 and the CVC previously required all motor vehicles, except motorcycles and motor-driven cycles, to be equipped with sealed beam type headlamps. Federal Motor Vehicle Safety Standard 108 currently allows the use of replaceable bulb headlamps on all motor vehicles. All headlamp systems, including replaceable bulb types, must bear the DOT marking. When attempting to determine if a headlamp is legal, officers should examine the unit. Headlamps which bear the DOT marking are legal; headlamp systems which do not bear the DOT marking are unlawful.

c. Headlamps must emit a white light. Amber or other colors are not acceptable. Title 13, CCR, Section 621, adopts the requirements contained in FMVSS 108 for all lighting devices regulated by the FMVSSs, which specifically includes headlamps. Federal Motor Vehicle Safety Standard 108 requires all headlamps to conform to applicable requirements contained in SAE standards J579 and J1383. Both SAE J579 and J1383 require that the light emitted from headlamps be white in color, as defined in SAE standard J578. White, as defined in SAE J578, is the common meaning of the color white, and is distinct from amber and other colors. The CHP is aware that some newer vehicles are equipped with headlamps which appear to have a blue tinge to the color, especially when viewed from an angle. Officers should be aware that these lamps meet FMVSS requirements, as evidenced by the DOT marking, and are legal. The CHP is further aware of an aftermarket headlamp known as "Color-Clear" which incorporates colored louvers or honeycomb mesh within the lamp, and which allows the lamps to have a colored appearance when turned off. These lamps also meet FMVSS requirements, as evidenced by the DOT marking, and are legal, provided the projected light to the front is white.

d. The Reference Table in this annex illustrates headlamp configurations approved by the DOT. Aiming requirements are contained in Title 13, CCR.

e. Motorcycles may have one motorcycle headlamp and one-half of any DOT-approved automotive headlamp system, for a maximum of two headlamps. Headlamps mounted in a vertical configuration must have the lower beam mounted on top.

f. Motor-Driven Cycles. These may have one motor-driven cycle headlamp, or any headlamp permitted on a motorcycle. Motor-driven cycles need not have a high beam headlamp.

g. Installation Requirements. Section 24400 CVC requires headlamps be mounted at a height between 22 inches and 54 inches as measured to the center of the headlamp from a level surface when the vehicle is without a load, pursuant to Section 24254 CVC. As a matter of policy, vehicles in apparently unmodified condition, with factory suspension and factory recommended tire sizes, shall not be cited if they fail to meet the minimum height requirement. Title 13, CCR, Section 692(b), prohibits the installation of any grill, lens cover, or any other obstruction in front of headlamps on all vehicles manufactured and first registered after January 1, 1968, except for concealment devices which automatically move out of the way when the headlamps are turned on and transparent covers installed as original equipment on motorcycles. Since styling and aerodynamic considerations may make it difficult to determine if headlamp covers are present, as a matter of policy, original factory equipment devices should be considered to be legal. All aftermarket devices placed in front of the headlamps should be considered unlawful.

h. Brightness and Wattage. The minimum and maximum brightness or luminous intensity of headlamps is governed by the FMVSSs and is expressed in "candela," which, for all practical purposes, is equivalent to candle power. However, the measurement of luminous intensity requires the use of laboratory equipment and is difficult to ascertain for enforcement purposes. As an aid to enforcement personnel and the general public, the FMVSSs also specify the maximum electrical power that headlamps may consume, limiting their maximum luminous intensity so that they are not blinding to oncoming motorists. These maximum power ratings are shown in the Reference Table in this annex. The CHP is aware that a variety of replacement bulbs are available with power ratings (and luminous intensities) in excess of that permitted by the FMVSSs.

i. The CHP is not aware of any higher-powered replacement headlamps or bulbs that comply with FMVSS requirements. Therefore, all headlamps and replacement bulbs which exceed FMVSSs are considered unlawful.

4. EMERGENCY REFLEX REFLECTORS. Commercially available emergency reflex reflectors are comprised of an equilateral triangle and base that supports the triangle when erected. Title 49, Federal Motor Carrier Safety Regulations, Section 393.95(f)(1), adopts the requirements in FMVSS 125 for emergency reflex reflectors. Federal Motor Vehicle Safety Standard 125 requires each face of the triangular portion have an outer border of red reflex reflective material and an inner border of orange fluorescent material. The devices must be marked with the manufacturer's name, month and year of manufacture, and the letters DOT on the device itself. Older devices which consist of reflectors in a stacked arrangement are still legal but are no longer available for sale.

5. DESIGN REQUIREMENTS. All required lighting equipment listed in Section 375 CVC must comply with FMVSSs and the engineering requirements and specifications, including mounting and aiming instructions contained in Title 13, CCR (Section 24012 CVC).

6. MAINTENANCE REQUIREMENTS. Policy guidelines on maintenance of required lighting equipment are contained in HPM 82.6, Chapter 6; all required lighting must be maintained. Permitted lighting equipment is not required to be maintained, but must not be defective to the extent of violating requirements as to color, intensity, or aim.

7. LIGHTING COVERS. Taillamp, stop lamp, and turn signal covers are not specifically prohibited by the CVC, but they must meet the respective visibility requirements contained in the CVC.

8. WARNING LAMPS AND OTHER LAMPS.

a. Legislative Policy. Section 30 CVC states, "It is declared as a matter of legislative policy that red lights and sirens on vehicles should be restricted to authorized emergency vehicles engaged in police, fire and lifesaving services; and that other types of vehicles which are engaged in activities which create special hazards upon the highways should be equipped with flashing amber warning lamps."

b. Authorized Emergency Vehicles. An authorized emergency vehicle (AEV) is:

(1) Any publicly owned and operated ambulance, lifeguard, or lifesaving equipment or any privately owned or operated ambulance licensed by the Commissioner of the CHP to operate in response to emergency calls.

(2) Any publicly owned vehicle operated by the following persons, agencies, or organizations:

(a) Any federal, state, or local agency, department, or district employing peace officers as that term is defined in Chapter 4.5 (commencing with Section 830) of Part 2 of Title 3 of the Penal Code, for use by those officers in the performance of their duties.

(b) Any forestry or fire department of any public agency or fire department organized as provided in the Health and Safety Code.

(3) Any vehicle owned by the state, or any bridge and highway district, and equipped and used either for fighting fires, or towing or servicing other

vehicles, caring for injured persons, or repairing damaged lighting or electrical equipment.

(4) Any state-owned vehicle used in responding to emergency fire, rescue, or communications calls and operated either by the Office of Emergency Services (OES) or by a public agency or industrial fire department to which the OES has assigned the vehicle.

(5) Any vehicle owned or operated by any department or agency of the United States government when the vehicle is used in responding to emergency fire, ambulance, or lifesaving calls or is actively engaged in law enforcement work.

(6) Any vehicle for which an AEV permit has been issued by the Commissioner of the CHP, such as privately owned ambulances, chiefs and assistant chiefs of volunteer fire departments, and others as defined in Section 2416 CVC.

c. All AEVs must have a steady red lamp to the front (Section 25252 CVC) and a siren (Section 27002 CVC). Vehicles without a steady red lamp to the front or a siren are not AEVs. Other steady and flashing warning lamps are permitted for specific vehicles by the CVC.

d. Emergency and special hazard warning lamps must meet the performance and mounting requirements contained in Title 13, CCR. The CHP does not maintain a list of approved warning devices. Purchasers of such equipment are advised to obtain written assurance from the manufacturer that the devices meet all CVC and Title 13, CCR, requirements. Reputable manufacturers of such equipment have conducted testing to determine which of their products comply with California requirements. Manufacturers seeking information regarding these requirements may be directed to CVS. Undercover vehicles (AEVs with special license plates permitted by Section 5001 CVC) need have only a fixed or handheld red spotlamp of at least 30 watts and producing at least 3,000 candelas at the brightest part of the beam. Steady red lamps on AEVs need not meet any other requirement.

e. Use of Warning Lamps.

(1) Use of Flashing Amber Warning Light. Section 25268 CVC states, "No person shall display a flashing amber warning light on a vehicle as permitted by this code except when an unusual traffic hazard exists."

(2) Use of Red Warning Light. Section 25269 CVC states, "No person shall display a flashing or steady burning red warning light on a vehicle except as permitted by Section 21055 or when an extreme hazard exists."

(3) These sections mean that the use of warning lamps shall be restricted to situations where warning other vehicles is essential to provide for the safe movement of traffic. Any unnecessary use of the lamps is not only in violation of the law, but decreases the effectiveness of the lamps and confuses the public.

f. Unlawful Lamps.

(1) Vehicle With Unlawful Lamps. Section 24003 CVC states, "No vehicle shall be equipped with any lamp or illuminating device not required or permitted in this code, nor shall any lamp or illuminating device be mounted inside a vehicle unless specifically permitted by this code."

(a) Warning lamps meeting requirements established by the CHP may be mounted inside an AEV.

(2) Unlawful Equipment. Per Sections 24005 and 26100 CVC, no person shall install, sell for use, or use on a vehicle any warning lamp that does not comply with requirements established by the CHP.

(3) Unlawful Flashing Lamps. Section 25250 CVC states, "Flashing lights are prohibited on vehicles except as otherwise permitted."

g. Refer to CHP 884, Warning Lamps for Authorized Emergency Vehicles and Special Hazard Vehicles, for a summary of required and permitted lighting devices on authorized emergency vehicles and other special hazard vehicles.

9. DAYTIME RUNNING LAMPS.

a. Any vehicle may be equipped with two white or amber daytime running lamps (Section 25109 CVC). Federal regulation permits all new vehicles to be equipped such that the headlamps may be activated at full or reduced power to act as daytime running lamps or turn signal lamps (which may appear to be parking lamps). Separate daytime running lamps may also be provided. No control is provided for the vehicle driver to turn off these lamps. Such lamps are not required by either federal or California law, need not be maintained (provided any required function contained within the same lamp housing remains functional, e.g., turn signal lamps, headlamps) and may be deactivated by modifying the appropriate wiring, if the owner desires. This federal regulation preempts state law. Taillamps are not lighted when such daytime running lamps are lighted.

b. The use of parking lamps without the headlamps is prohibited by Section 24800 CVC. The CVC does not prohibit the use of headlamps, auxiliary driving or passing lamps, or fog lamps during daylight (except that auxiliary driving and

passing lamps, and fog lamps may not be used in substitution of headlamps when their use is required).

10. UTILITY FLOOD AND LOADING LAMPS. Under Section 25110 CVC, the following vehicles may be equipped with utility flood or loading lamps mounted on the rear and sides, which project a white light illuminating an area to the side or rear of the vehicle for a distance not to exceed 75 feet at the level of the roadway.

a. Tow trucks which are used to tow disabled vehicles may display utility floodlights, but only during the period of preparation for towing at the location from which a disabled vehicle is to be towed.

b. Ambulances used to respond to emergency calls may display utility flood and loading lights, but only at the scene of an emergency or while loading or unloading patients.

c. Firefighting equipment designed and operated exclusively as such may display utility flood lamps only at the scene of an emergency.

d. Vehicles used by law enforcement agencies or organizations engaged in the detoxification of alcoholics may display utility flood or loading lights when loading or unloading persons under the influence of intoxicants.

e. Vehicles used by law enforcement agencies may display utility flood or loading lights when engaged in mobile blood alcohol testing, drug evaluation, or field sobriety testing.

f. Vehicles used by publicly or privately owned public utilities may display utility flood or loading lights when engaged in emergency roadside repair on electric, gas, telephone, telegraph, water, or sewer facilities.

g. Such lamps shall not be lighted except while the vehicle is parked, nor project any glaring light into the eyes of an approaching driver.

11. SPOTLAMPS. Section 24404 CVC permits any vehicle to be equipped with not more than two white spotlamps which may not be used in substitution of headlamps, may not exceed 32 candlepower or 30 watts, nor project a glaring light into the path of approaching traffic. Spotlamps are not required to be mounted in a specific location and need not be of a movable type, nor be controlled from within the vehicle. The main portion of the beam from a spotlamp may not strike the roadway to the left of the vehicle nor more than 300 feet from the vehicle. A fixed spotlamp meeting all the requirements of Section 24404 CVC may be mounted under the front bumper of a vehicle and may appear to be an auxiliary driving lamp or passing lamp.

12. BACKUP LAMPS. Section 24606 CVC requires that all vehicles of a type subject to registration, manufactured after January 1, 1969, except motorcycles, be equipped with one or more backup lamps, and permits any vehicle to be so equipped. Backup lamps must be white and illuminate the roadway to the rear of the vehicle for a distance not to exceed 75 feet. Backup lamps may not be lighted except when the vehicle is about to be or is moving backward. Backup lamps need not be activated automatically when the transmission control is moved to the reverse position. Vehicles are not limited to original equipment backup lamps nor to two backup lamps. As required lamps, backup lamps may extend beyond the permissible width of the vehicle to a distance not exceeding ten inches on each side (Section 35109 CVC).

13. FOG LAMPS. Any vehicle may be equipped with not more than two fog lamps which may not be used in substitution of headlamps (but may be used as daytime running lamps when headlamps are not required) and not more than two fog taillamps, which may be lighted along with the required taillamps, only when visibility is limited to less than 500 feet. Fog lamps may be white or amber. Fog taillamps must be red and must be wired to turn on only with the headlamps. A switch must be provided to turn the fog taillamps off when the headlamps are on and a yellow pilot light, indicating when the fog taillamps are on, must be readily visible to the driver.

14. OFF-HIGHWAY AUXILIARY LAMPS. Section 24411 CVC permits any vehicle to be equipped with not more than eight lamps for use as headlamps while the vehicle is operated off the highway. Such lamps need not meet any standard and must be turned off and covered with opaque material whenever the vehicle is operated on public roadways.

15. CONSPICUITY TAPE. Current FMVSSs require some commercial vehicles be equipped with alternating red and white area reflectorized material (DOT conspicuity tape). Because this material has reflective properties equal to reflex reflectors, vehicles that are equipped with DOT conspicuity tape need not be equipped with separate reflex reflectors.

16. DECORATIVE LAMPS. Section 24003 CVC prohibits all lamps and lighting devices except those specifically required or permitted by the code. Similarly, Section 25250 CVC prohibits all flashing lamps except those specifically required or permitted by the code. Consequently, any decorative lamps must be permitted by a CVC section. However, good judgement must be used in interpreting CVC sections regarding decorative lighting devices. For example, under-car lamps are permitted as diffused lights under Section 25400 CVC, providing the tubes are completely concealed from direct view and the color red is not displayed to the front. This section specifically permits any other color. These lamps may not flash or vary in intensity because

flashing lamps are prohibited under Section 25250 CVC. Conversely, neon tubes used as license plate frames, other than red on the rear or white or amber on the front, are prohibited because they do not meet the requirements for diffused lamps. Further, placement within 12 inches of a required lamp (license plate lamp) is prohibited. Red neon rear license plate frames may be considered supplemental taillamps and are therefore permitted. White or amber neon front license plate frames may be considered parking lamps and are therefore permitted (provided they are not illuminated without the headlamps, except when parked). However, license plate frames incorporating flashing or blinking lamps of any type, regardless of intensity, are prohibited under Section 25250 CVC.

17. COLOR OF LAMPS AND REFLECTORS. Section 25950 CVC generally requires that all lamps and reflectors shall be white or amber to the front, and red or amber to the rear. There are some specific exceptions, such as for diffused nonglaring lamps (Section 25400 CVC) and area reflectorized material (Section 25500 CVC). Section 25950 CVC specifically permits all lamps, except headlamps, to have any unlighted color provided the emitted light complies with the required color. The CHP is aware that orange lenses have been installed in place of required amber clearance/side marker lamps on some trucks, truck tractors, and trailers. Amber lamps must be yellow in color, not orange or red-orange. The CHP is also aware that some vehicle owners have modified the electrical wiring on their vehicles such that the amber turn signal lamps also act as taillamps. All taillamps must be red. Amber on the rear is restricted to stop lamps on vehicles manufactured before January 1, 1979, and to turn signal lamps.

Amber lamps must be yellow, not orange or red-orange. Red lamps must be red, not yellow or pink. Daytime running lamps and foglamps must be white or amber, not green, blue, or other colors. Headlamps and auxiliary driving and passing lamps must be white. While some lamps may appear to emit a tinted color when viewed from an angle, the emitted light when viewed from directly in front of the lamp must be the required color.

The CHP is aware that lenses and covers of various colors have been installed on headlamps, daytime running lamps, foglamps, and taillamps and that various color filters and pigments have been applied to lamp bulbs, lenses, and other lamp components in order to alter the emitted color of various lamps. Any means used to alter the color of emitted light to a prohibited color is unlawful. Light colors are defined in SAE standards and conform with the general perception of colors.

18. GRILLS AND COVERS. The CHP is aware that grills and covers, both clear and translucent, have been installed in front of headlamps to afford protection against damage or to alter the appearance of these lamps. Title 13, CCR, Section 692(b), specifically prohibits all grills, lens covers, and other obstructions in front of headlamps on all vehicles manufactured and first registered in California after January 1, 1968

(except automatic concealment devices meeting FMVSS 108). The CHP is also aware that grills and covers of various designs have been installed on taillamps. Section 26101 CVC prohibits the modification of any lighting device such that it no longer conforms with requirements adopted by the CHP. A number of such covers incorporate a slotted design, which covers a portion of the original equipment lamp while allowing the remainder of the light to be emitted. The CHP is aware of some such devices for which testing has been completed, demonstrating that lamps equipped with such covers continue to meet CVC and FMVSS requirements. These covers are legal provided the visibility requirements of the CVC are met (e.g., plainly visible from 1,000 feet for vehicles manufactured on or after January 1, 1969), the device does not alter the color of the emitted light to a prohibited color, the device appears to permit a total of at least 7.75 square inches of lens area (approximately equivalent to a 3-inch diameter circle) to be visible, and there is no other factor which indicates the lamp with the device installed fails to comply with the CVC.

Translucent covers which cover all or the vast majority of the rear lens and reduce the overall brightness or alter the color of the emitted light are unlawful unless the lamp clearly meets the visibility and color requirements contained in the CVC.

## REFERENCE TABLE

| LIGHTING DEVICE | REQUIRED | PERMITTED | CVC | Title 13 CCR | FMVSS | SAE CODE |
|---|---|---|---|---|---|---|
| Alley Lamps | See CHP 884 | | | | | |
| Advance Stop lamp Switch | | x | 24603f | None | None | |
| Back-up Lamp | x (1) | x | 24606 | None | 108 | R |
| Clearance Lamp | x (2) | | 25100 | 621 | 108 | P2 |
| | | | 25100.1 | | | |
| Combination Clearance-Side Marker Lamp | | x | 25100 | 621 | 108 | PC |
| Cornering Lamp | | x | 25107 | 720 | None | K |
| Courtesy Lamp | | x | 25105 | None | None | |
| Crime Alarm Lamp on Transit Buses | | x | 25275.5 | None | None | |
| Deceleration Lamp | | x | 25251.5 | 730 | None | |
| Diffused Nonglaring Lamp | | x | 25400 | None | None | |
| | | | 25401 | | | |
| Driving Lamp | | x | 24402 | 710 | None | Y |
| | | | 24405 | | | |
| Emergency Reflex Reflector | x (3) | | 25300 | 621 | 125 | W4 |
| Flood Light on Special Vehicles | See CHP 884 | | | | | |
| Fog Lamp | | x | 24403 | 710 | None | F |
| | | | 24405 | | | |
| Fog Taillamp | | x | 24602 | 740 | None | |
| Hazard Warning Flasher | | x | 25251 | 621 | 108 | J945b |
| Headlamp | x | | 24400 | 621 | 108 | H |

| | | | | | | |
|---|---|---|---|---|---|---|
| Headlamp, Replaceable Bulb | | x | 24400 | 621 | 108 | HR |
| Headlamp, Motorcycle | x | | 24400 | 621 | 108 | M |
| Headlamp, Motor Driven Cycle | x | | 24400 | 621 | 108 | M |
| Headlamp Beam Switching Device | x | | 24406 | 621 | 108 | |
| Headlamp Flashing System-Authorized Emergency Vehicles (AEV) | See CHP 884 | | | | | |
| Headlamp Flashing System-Motorcycle | | x | 25251.2 | None | 108 | |
| Identification Lamps | | x | 25350<br>25351 | None | 108 | P2 |
| Indicator Lamp-Headlamp Beam | x | | 24408 | None | 108 | |
| Indicator Lamp-Turn Signal, Pilot | | x | 25108 | None | 108 | |

(1) Required on all motor vehicles manufactured on and after January 1, 1969, except motorcycles.
(2) Required on all motor vehicles 80 inches or more in overall width.
(3) Required on all motor vehicles 80 inches or more in overall width and all truck tractors regardless of width.

## REFERENCE TABLE

| LIGHTING DEVICE | REQUIRED | PERMITTED | CVC | Title 13 CCR | FMVSS | SAE CODE |
|---|---|---|---|---|---|---|
| Lamps on Loads | x | | 24604<br>25103<br>25952 | None | | |
| License Plate Lamp | x | | 24601 | 621 | 108 | L |
| Loading Lamp | | x | 24003(b)<br>25110 | None | None | |
| Loading Lamp on Special Vehicles | See CHP 884 | | | | | |
| Off-Highway Headlamps | | x | 24411 | None | None | |
| Parking Lamp | | x | 24801 | None | 108 | P |
| Passing Lamp | | x | 24402 | 710 | None | Z |
| Reflectorized Bicycle Tire | | x | 24405<br>21201<br>21201.5 | 621 | CPSC (1) | |
| Reflex Reflector | x | | 24607 | 621 | 108 | A |
| Reflex Reflector-Bicycle Front | x | | 24608<br>21201<br>21201.5 | 621 | CPSC (1) | |
| Replacement Lenses | | x | | 765 | 108 | |
| Reserve Lighting and Outage Indicating System | | x | | 770 | None | |
| Running Lamp (2) | | x | 25103 | 780 | 108 | |
| School Bus Side Lamp | | x | 25102.5 | 785 | None | |
| School Bus Strobe Lamp | See CHP 884 | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| School Bus Warning Lamp | See CHP 884 | | | | | |
| Side Lamp- General | | x | 25102<br>25106 | None | None | |
| Side Marker Lamp | x | x | 25100<br>25106 | 621 | 108 | P2 |

(1) Consumer Product Safety Commission

(2) Daytime Running Lamps may meet either Title 13, CCR, Section 780, or FMVSS 108

| LIGHTING DEVICE | REQUIRED | PERMITTED | CVC | Title 13 CCR | FMVSS | SAE CODE |
|---|---|---|---|---|---|---|
| Side Turn Signal Lamp | | x | 24953 | 790 | None | E |
| Spotlamp | | x | 24404<br>24405 | None | None | 0 |
| Stop Lamp | x | | 24603<br>24605 | 621 | 108 | S |
| Supplemental Stop and Turn Signal Lamp | | x | 24953 | 790 | None | U |
| Taillamp | x | | 24600<br>24605 | 621 | 108 | T |
| Theft Alarm Lamp, Flashing | | x | 25251.4 | None | None | |
| Traffic Signal Priority Device - AEV | See CHP 884 | | | | | |
| Traffic Signal Priority Device - Buses | | x | 25352 | 785 | None | |
| Turn Signal Flashers | x | | 25251 | 621 | 108 | J590e |
| Turn Signal Lamp | x | x | 24605<br>24950<br>24951<br>24953 | 621 | 108 | |
| Turn Signal Lamp Motorcycle/Motor Driven Cycle | x (1) | | 24951 | 621 | 108 | D |
| Turn Signal Switch | x | x | 24951 | 621 | 108 | Q or QB |
| Warning Lamp Flasher | | x | 25257 | 800 | None | |
| Warning Lamps, AEV | See CHP 884 | | | | | |
| White Flashing Lamps, AEV | See CHP 884 | | | | | |

(1) Required for motorcycles manufactured and first registered on and after January 1, 1973.

## ANNEX B

## SIRENS

1. GENERAL REQUIREMENTS. Sirens are required on all AEVs by Section 27002 CVC, and must meet the requirements of Title 13, CCR, Article 8, beginning with Section 1020. Sirens are not permitted on any other vehicle except armored cars, which may sound the siren only when resisting armed robbery (Section 27003 CVC). Sirens are divided into three basic groups:

a. Electronic sirens which consist of a speaker/driver assembly and an amplifier/control head assembly.

b. Electromechanical sirens which consist of a stator and rotor driven by an electric motor.

c. Mechanical sirens which consist of a stator and rotor driven by a mechanical connection to a moving part of the vehicle or engine.

2. SIREN FUNCTIONS. Sirens must have a wail function and may also have yelp and manual functions. No other functions, such as a high-low sound alternating between a fixed high and a fixed low frequency, are permitted on sirens sold after January 1, 1982, except for voice communication.

a. Wail. The wail function is an automatic undulating pitch rate of not less than 10 nor more than 30 oscillations per minute.

b. Yelp. The yelp function is an automatic undulating pitch rate of not less than 150 nor more than 250 oscillations per minute.

c. Manual. Electronic sirens which include a manual function use the vehicle horn ring or other manual momentary contact switch to allow the vehicle operator to switch between the wail and yelp functions, to momentarily override the descending sound pattern of the automatic cycle when the control is set at wail, or to produce a manually cycled wail when the control is set at manual.

3. SOUND LEVEL OUTPUT. Sirens are required to meet the sound level requirements contained in Title 13, CCR. Installers should consult with manufacturers to ensure that sirens meet Title 13, CCR, requirements.

4. INSTALLATION REQUIREMENTS. Sirens are required to meet the installation requirements contained in Title 13, CCR. Sirens which are not installed according to the requirements in Title 13, CCR, will not produce satisfactory sound levels.

a. Class A electromechanical and mechanical sirens may be mounted outside, between the grill and radiator, or under the hood. Installers who wish to install sirens under the hood behind the radiator should first confirm that the siren meets the class A requirements. This information is available from the manufacturer who is required by Section 26104 CVC to have tests conducted to determine compliance and sound output.

b. Class B electromechanical and mechanical sirens must be mounted outside or between the grill and the radiator.

c. Class A and B electronic sirens installed after January 1, 1976, must be mounted outside or ahead of the radiator with the horn opening facing forward, its axis parallel to the road and longitudinal axis of the vehicle, and with a relatively unobstructed path for the sound to project forward.

d. Mechanical motorcycle sirens installed after January 1, 1981, must be capable of operating while the vehicle is stationary.

e. Undercover vehicles are not exempt from siren performance and mounting requirements.

5. NONCOMPLYING SIRENS. The following examples are illustrative of sirens that do not meet Title 13, CCR, requirements. When they are used or offered for sale, they are in violation of Sections 26100 and 26101 CVC.

a. A siren that is not permanently marked with the manufacturer's or vendor's name and model designation in letters and/or numbers at least one-eighth inch in height. The markings are required on each component, including speakers, drivers, amplifiers, control panels (if separate from the amplifier), and each mechanical and electromechanical siren.

b. Speakers and/or drivers for electronic sirens not marked with the design wattage capacity.

c. Control panels for electronic sirens which are not marked with the words yelp, wail, or manual or an appropriate abbreviation.

d. An electronic siren that does not incorporate a wail sound that produces a slow, continuous automatic cycling of increasing and decreasing frequencies and

sound levels. The wail sound must undulate at a rate of not less than ten nor more than 30 oscillations per minute.

e. An electronic siren that includes a yelp sound that does not produce a rapid, continuous automatic cycling of increasing and decreasing frequencies and sound levels. The yelp sound must undulate at a rate of not less than 150 nor more than 250 oscillations per minute.

f. An electronic siren that, when equipped with a manual override system, does not allow the operator to produce a wail sound by alternately applying and releasing a momentary contact switch to temporarily change the siren function from wail to yelp to wail, or to peak the wail function.

g. An electronic siren using a speaker which is rated at less than the rated power output of the amplifier or which causes the amplifier to exceed its rated power output.

h. A class A or B electronic siren installed after January 1, 1976, that is not mounted outside or ahead of the radiator with the horn opening facing forward and its axis parallel to the road and longitudinal axis of the vehicle, or which does not have a relatively unobstructed path for the sound to project forward.

i. A class A electromechanical or mechanical siren that is not mounted outside, between the grill and radiator or under the hood.

j. A class B electromechanical or mechanical siren that is mounted under the hood or is otherwise not mounted outside or between the grill and the radiator.

k. Mechanical sirens installed on motorcycles manufactured after January 1, 1981, that are not capable of operating when the vehicle is stationary.

l. Dual speakers for electronic sirens which are not connected in phase or which are installed such that the axes of the speakers are angled more than ten degrees outward from the centerline of the vehicle.

6. APPROVED SIRENS. The CHP does not maintain a list of approved sirens. Purchasers of such equipment are advised to obtain written assurance from the manufacturer that the device meets all CVC and Title 13, CCR, requirements. Reputable manufacturers of such equipment have conducted testing to determine which of their products comply with California requirements.

7. THEFT ALARMS. Any vehicle may be equipped with a theft alarm (Section 28085 CVC). Theft alarms may make any sound except that of a siren. Examples of sounds that may be used for theft alarms are as follows:

a. An unvarying sound.

b. A varying sound that cycles at a rate faster than 400 cycles per minute (CPM).

c. An intermittent sound (other than the vehicle horn) that repeats at rates slower than 90 CPM or faster than 400 CPM.

d. A sound frequency (and any second harmonics) lower than 100 Hertz (Hz) or higher than 5,000 Hz.

e. A high-low sound alternating between a fixed high and a fixed low frequency.

## ANNEX C

## HI-LO AUDIBLE WARNING SOUND

1. GENERAL REQUIREMENTS. A Hi-Lo audible warning sound is permitted on an AEV by Section 27002 CVC and must meet the requirements of Title 13, CCR.

2. PURPOSE. Section 27002 CVC authorizes a Hi-Lo audible warning sound for the purpose of notifying the public of an immediate evacuation in case of an emergency.

a. A Hi-Lo warning sound is not a siren and shall not be used in lieu of a siren for purposes of Section 21055 CVC.

NOTE: Authorization of a Hi-Lo audible warning sound is permissive on an AEV, but not required.

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## ANNEX D

## SAFETY GLAZING

1. GENERAL.

a. Requirements. Safety glazing is regulated by FMVSS 205, the CVC, and Title 13, CCR. Enforcement policy concerning installation, maintenance, and operation is contained in HPM 82.6, Chapter 6.

b. Federal Motor Vehicle Safety Standard 205. Federal Motor Vehicle Safety Standard 205 establishes requirements for safety glazing material and, like all FMVSSs, applies to new vehicles up to the time of first sale. The standard applies to original equipment glazing beginning with 1968 model vehicles and to all replacement glazing, regardless of vehicle year model. The FMVSSs frequently adopt other industry standards by reference and are revised periodically. Vehicles are subject only to the standards in effect at the time of manufacture. Since FMVSSs are performance standards, rather than prescriptive, and are enforceable with respect to in-use vehicles only in a limited manner, it is impractical to furnish these expensive publications to field personnel.

c. Departmental Regulations. Section 26103 CVC authorizes the Department to adopt and enforce regulations establishing standards and specifications for safety glazing material. However, since the FMVSSs preempt state regulations and are not enforceable by state agencies unless formally adopted as state requirements, the Department has adopted FMVSS 205 by reference in Sections 980, 981, and 984 of Title 13, CCR. As departmental requirements, they are enforceable under Sections 26100 and 26103 CVC.

2. MARKING REQUIREMENTS.

a. Vehicles Manufactured After January 1, 1936, and Prior to January 1, 1968. Section 26701 CVC requires these vehicles to be equipped with safety glazing material. Safety glazing material installed in these vehicles is usually of the laminated type. Previous to the FMVSSs, there were no requirements to mark safety glazing; therefore, glazing materials used in these vehicles may not be readily identifiable as safety glazing.

b. Vehicles Manufactured After January 1, 1968. Section 24011 CVC requires these vehicles to comply with the applicable federal standard, as noted below.

(1) Federal Motor Vehicle Safety Standard 205 requires that vehicles manufactured on or after January 1, 1968, and before April 1, 1973, shall be

equipped with safety glazing permanently marked with the manufacturer's name or logo, the letters "AS," followed by a number and a model number consisting of the letter "M," followed by a model number assigned by the manufacturer.

(2) Federal Motor Vehicle Safety Standard 205 requires that vehicles manufactured on or after April 1, 1973, shall be equipped with safety glazing permanently marked as required in paragraph 2.b.(1), and with the United States Department of Transportation acronym letters of "DOT," followed by a manufacturer's identification number assigned by the National Highway Traffic Safety Administration.

c. Replacement Glazing Material. Replacement glazing for any glazed opening is required, by Section 26703 CVC, to be safety glazing material defined in Section 26704 CVC.

(1) Replacement glazing used in vehicles manufactured prior to January 1, 1968, need not have any marking.

(2) Replacement safety glazing permanently marked as required in paragraph 2.b.(1) may only be used in vehicles manufactured before April 1, 1973.

(3) Replacement safety glazing permanently marked as required in paragraph 2.b.(2) may be used in any vehicle.

3. TYPE OF SAFETY GLAZING AND PERMITTED LOCATIONS.

a. The different types of safety glazing established by FMVSS 205 that are permitted or required at different locations on vehicles and campers are shown in the table at the end of this annex (current as of October 1, 1996).

b. Federal standards require specific safety glazing to be installed at certain locations and permit other types of safety glazing at various locations.

c. Improper safety glazing installed at locations where a specific type is required is a violation of Section 984 of Title 13, CCR, and may be cited under Sections 26100 and 26101 CVC. The table at the end of this annex shows the types of safety glazing that are either required or permitted at locations indicated.

4. WINDOW TINTING.

a. Factory tinting by the prime glazing manufacturer for the purpose of Section 26708.5 CVC is done by:

(1) Adding a tinting agent to the molten glass before tempering,

(2) Using a colored inner layer of plastic material between sections of laminated glazing, or

(3) Adding a tinting agent to the molten glass of one side of laminated glazing.

b. The common meaning of the term "tinted glass" is that the tint is made as an integral part at the time of manufacture of the complete laminated or tempered pane. The term "factory-installed" means that the tinted glass is installed at the factory where the vehicle was manufactured (not that a tint material was added to the glass at another factory).

c. Federal Motor Vehicle Safety Standard 205 allows windshields to have a dark shaded band across the top above the driver's eye height. The standard requires such windshields to be marked with either AS-1 incorporating a downward arrow or AS-2 incorporating an upward arrow at the approximate location where the dark band blends into the lighter areas near the right and left edges. The lightly tinted area that is totally below the arrow has a transmittance of at least 70 percent. The area above the base of the arrow may be less than 70 percent. Thus, any added tinting material that appears at all darker to the naked eye than the integral tint in the glass below the "AS" arrow has less than 70 percent transmittance. Windshields that do not have a tinted band at the top will comply with AS-1 over the entire surface and will not have an arrow in the designation.

d. Darkly tinted AS-3 safety glass that is made for motor vehicles is limited to windows not required for driving visibility (such as windows behind the driver's head in multipurpose passenger vehicles and standee windows in buses). The glass is the same as AS-2 except for having less than 70 percent light transmittance. Glass marked as AS-3 is not legal in California in the windshield or the front side windows to the immediate left and right of the driver.

(1) The CHP is aware that AS-3 glass has been installed in some vehicles, particularly those with flat windshields or side windows, such as truck-tractors, motorhomes, celebrity touring coaches, buses, and "beetle" model Volkswagens. Installation of such glazing in windshields or front side windows is unlawful under Section 26708.5(b) CVC. Installation of such material in windshields is also unsafe because it is not laminated safety glazing material, and does not provide the required impact resistance.

(2) The CHP is further aware that some persons have attempted to install dark tinted glass intended for office buildings and marked with an ANS1 Z-97 number. This glass is not legal on vehicles unless it is also marked with an "AS" number and a model number consisting of the letter "M" followed by a number assigned to the manufacturer.

5. AFTERMARKET TINTING.

a. Aftermarket window tinting is the addition of either spray-on material or transparent film to glazed openings in the vehicle and is governed by Sections 26708 and 26708.5 CVC. Modification of regulated safety glazing is a violation of Section 26101 CVC unless otherwise permitted by statute. All new vehicles and all items of equipment for which there is a federal standard are required to comply with that standard under Section 24011 CVC at the time of first sale.

b. Federal Motor Vehicle Safety Standard 205 does not permit added tinting material to be on any window at the time of first sale of the vehicle. Tinting material added to AS-1 or AS-2 safety glass after the glass has been manufactured and installed in a passenger vehicle has the potential of rendering inoperative at least two elements of that standard. First, the additional tinting material may reduce the transmittance of the glass to less than the 70 percent minimum required by the federal standard. Secondly, the tinting material cannot withstand the abrasion resistance test that is required on both sides of safety glass to limit scratches that would interfere with vision.

c. California law allows tinting material of any density (and any color other than red, yellow, or blue) to be applied to the surface of the safety glass on any side window behind the driver. Such tinting also may be applied to the rear window when the vehicle is equipped with an exterior rear-view mirror on each side, and also may be applied in a narrow strip at the top of the windshield as permitted by Section 26708(c) CVC.

d. California law allows “screening devices,” pursuant to Section 26708(a)(10) meeting Section 26708.2 CVC, to be installed on either side of a vehicle’s front seat, if the driver or passenger in the front seat has in their possession a letter or other document signed by a licensed physician and surgeon certifying that the person must be shaded from the sun due to a medical condition or, when applicable, a letter or other document signed by a licensed optometrist due to a visual condition. The device shall not be used during hours of darkness; therefore, permanent tinting film applied to front side windows does not meet the screening device exception.

6. DEFECTIVE WINDSHIELDS AND REAR WINDOWS.

a. Section 26710(a) CVC prohibits the operation of any motor vehicle if the windshield or rear window is in such defective condition that the driver's vision to the front or rear is impaired.

b. Conditions causing impaired vision would include, for example, extensive scratches, pitting, or cracking; however, discretion must be exercised. A windshield

with some scratches, pitting, or cracking may be distracting without actually impairing vision. As a matter of policy, a driver should not be cited unless vision is impaired to the degree that the safe operation of the vehicle is affected.

c. Section 26710(b) CVC requires any motor vehicle described in Section 34500 CVC to comply with the windshield requirements contained in Section 393.60(c) of Title 49 CCR.

d. Section 26708 CVC allows the rear window to be tinted, or even completely blocked, if the vehicle is equipped with outside rearview mirrors on both sides. A rear window should not be considered defective, even though visibility through it is impaired, if the vehicle is equipped with outside rearview mirrors on both sides. When so equipped, vision to the rear is not considered to be impaired.

| AS Designation | Type of Glazing | Permitted Locations |
|---|---|---|
| AS-1 | Laminated glass, light transmittance 70 percent or greater | Required in the windshield of all vehicles (except motorcycles and armored cars) and permitted at any other location (see AS-10) |
| AS-2 | Laminated glass or tempered glass, light transmittance 70 percent or greater | Required at all locations requisite for driving visibility and may be used at all other locations except the windshield |
| AS-3 | Laminated or tempered glass, light transmittance less | Permitted only at locations not requisite for driving visibility |
| AS-4 | Rigid plastic, light transmittance 70 percent or greater | Permitted only in interior partitions, auxiliary wind deflectors, folding doors, standee windows, readily removable windows, openings in the roof, glazing to the rear of the driver in trucks or truck tractors complying with Section 26709(b) CVC, rear windows of convertible tops, side windows and doors to the rear of the driver in buses and the rear windows of buses equipped with outside mirrors on the left and right side, windows to the rear of the driver and rear windows of motor homes, slide-in campers, and pickup covers |
| AS-5 | Rigid plastic, light transmittance less than 70 percent | Permitted only in the locations listed for AS-4 that are not requisite for driving visibility |
| AS-6 | Flexible plastic, light transmittance 70 percent or greater | Permitted only in rear windows of convertible tops, windscreens for motorcycles, readily removable windows, side windows to the rear of the driver and rear windows of motor homes, slide-in campers, and pickup covers except forward facing windows |

| AS Designation | Type of Glazing | Permitted Locations |
|---|---|---|
| AS-7 | Flexible plastic, light transmittance less than 70 percent | Permitted only in the location listed for AS-6 at levels not requisite for driving visibility and in standee windows of buses, interior partitions, and openings in the roof |
| AS-8 | Wire glass, limited areas of use | Permitted only in folding doors, standee windows in buses, rear windows of trucks and truck tractors, rear-most windows in buses, windows and doors in motor homes, except the windshield and windows to the immediate left and right of the driver, windows and doors in slide-in campers and pickup covers |
| AS-9 | Wire glass, limited areas of use | Permitted only in the locations listed for AS-8 at areas not requisite for driving visibility |
| AS-10 | Bullet resistant | Permitted at any location in an armored car |
| AS-11 | Bullet resistant, limited areas of use | Permitted at any location in an armored car except the windshield |
| AS-12 | Rigid plastic, limited areas of use | Permitted in the following specific locations at levels not requisite for driving visibility: windows and doors of slide-in campers, standee windows of buses, interior partitions, openings in the roof, readily removable windows, side windows to the rear of the driver in motor homes and buses |
| AS-13 | Flexible plastic, limited areas of use | Permitted in the following specific locations at levels not requisite for driving visibility: windows, except forward-facing window, and doors in slide-in campers and pickup covers, standee windows in buses, interior partitions, openings in the roof, readily removable windows, windows and doors in motor homes, except for the windshield, forward-facing windows, and windows to the immediate left and right of the driver |

| AS Designation | Type of Glazing | Permitted Locations |
|---|---|---|
| AS-14 | Glass-plastic, light transmittance 70 percent or greater* | Permitted anywhere in a vehicle |
| AS-15 | Annealed glass-plastic, light transmittance 70 percent or greater* | Permitted anywhere in a vehicle except the windshield |
| AS-16 | Glass-plastic, light transmittance less than 70 percent* | Permitted in areas not requisite for driving visibility |

*Glass-plastics are a laminate of one or more layers of glass and one or more layers of plastic in which a plastic surface of the glazing material faces inward when the glazing is installed in a vehicle. Glass-plastic glazing materials should not be confused with more conventional glazing materials to which an aftermarket tint film has been applied. Glass plastics are marked AS-14, AS-15, or AS-16.

## ANNEX E

## TIRE TRACTION DEVICES AND SNOW TIRES

1. TIRE TRACTION DEVICES.

a. Definition. Tire traction devices (including tire chains and alternative tire traction devices) are defined in Section 605 CVC and must meet the requirements of Title 13, CCR, Article 13, beginning with Section 1070. Tire traction devices may be of any design or composition capable of improving vehicle traction, braking, and cornering ability upon snow or ice-covered surfaces, and must be constructed to provide sufficient structural integrity and to prevent accidental detachment from vehicles.

(1) In addition, the manufacturer is required to have laboratory test data showing compliance with Section 605 CVC and to imprint a permanent trademark or other identification onto the device. Manufacturers are solely responsible for the design and effectiveness of these devices. The CHP does not conduct any testing or certification, nor does CHP receive a copy of the test data.

(2) There are many tire traction devices in use, including chains, which were purchased prior to the current labeling requirements, or which were purchased in other states, which may not have the manufacturer's identification mark. The use of these devices should not be considered unlawful providing the design of such devices does improve traction and is of adequate structural integrity.

b. Operation. Vehicles operating in posted chain control areas and not equipped with the appropriate tire traction devices may be cited under Section 27459 CVC or 27460 CVC.

c. Defects. Tire traction devices shall be considered not in compliance when one or more of the following conditions exist:

(1) Nonconformance with Section 605 CVC or Title 13, CCR, Sections 1070-1074.

(2) Broken or missing components.

(3) Inadequate repairs.

(4) All studs on any nonmetallic component are worn flush with the retainer.

d. Installation. The California Department of Transportation (Caltrans) has established statewide tire chain installation requirements for vehicles operated in chain control locations, shown at the end of this annex. Vehicles not in compliance with these requirements and operating within chain control areas when the highways are posted are in violation of Section 27459 or 27460 CVC.

e. Discretion. Enforcement personnel responsible for monitoring vehicle compliance in chain control areas may exercise discretion regarding tire traction devices. A vehicle equipped with a particular tire traction device may be prohibited if, based upon the observations and experience of the officer, that vehicle equipped with that specific traction device, under the specific weather and road conditions present at that time, is unlikely to be able to traverse the specific controlled area.

2. SNOW TIRES USED IN LIEU OF TIRE TRACTION DEVICES.

a. General Requirements.

(1) Law. Tires used in lieu of tire traction devices are defined in Section 558 CVC and governed by Sections 27459, 27460, 27465, and 27500 CVC.

(2) Regulations. Section 27500 CVC authorizes the Department to adopt and enforce regulations establishing standards and specifications for pneumatic tires. The Department has adopted the Rubber Manufacturers' Association definition for mud and snow tires by reference in Title 13, CCR, Section 1085(h), which provides that passenger car and light truck snow tires shall be permanently labeled on at least one sidewall with the words "MUD AND SNOW" or any contraction using the letters "M" and "S" (e.g., MS, M/S, or M & S).

b. Unmarked Tires. Some snow tires for light trucks and some "all weather" passenger car tires may not be marked MS. These are legal as snow tires, at the discretion of the officer, only when they have a relatively deep and aggressive tread pattern as specified in Section 558 CVC.

c. Worn Tires. Vehicles with snow-tread tires worn below 6/32 inch tread depth and not equipped with tire traction devices in posted control areas are in violation of Section 27465 CVC.

3. RESTRICTED SPEED ZONE. The Caltrans is authorized by Section 22363 CVC to establish prima facie speed limits of 25, 30, 35, or 40 miles per hour based on prevailing snow conditions. Vehicles operating in excess of the posted speeds are in violation of Section 22350 CVC.

4. FOUR-WHEEL DRIVE VERSUS ALL-WHEEL DRIVE. Many contemporary vehicles are now equipped with "all-wheel drive" systems which transmit some or all of the driving force to all four vehicle wheels instead of just two. While these systems may not provide the tractive effort of conventional four-wheel drive systems, and while these vehicles may not provide the ground clearance typical of conventional four-wheel drive systems, all-wheel drive vehicles are considered by Caltrans to be equivalent to four-wheel drive vehicles for the purposes of Section 27460 CVC.

5. CHAIN CONTROL SIGNING.

a. Chain control signs posted by Caltrans have the following meanings:


R-1: Tire traction devices are required on all vehicles except: passenger vehicles and motor trucks having an unladen weight of 6,000 pounds or less and equipped with snow tires on at least two drive wheels. Tire traction devices shall be carried by vehicles using snow tires. All vehicles towing trailers must have tire traction devices on one drive axle. Trailers with brakes must have tire traction devices on one axle.


R-2: Tire traction devices are required on all vehicles except four-wheel-drive vehicles having an unladen weight of 6,500 pounds or less and equipped with snow tires on all four wheels. Tire traction devices for one set of drive wheels shall be carried by four wheel-drive vehicles using snow tires.


R-3: Tire traction devices are required on all vehicles without exception.

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION (Caltrans)

# Chain Requirements

Revised 10/16


Vehicles are permitted in chain control areas when equipped with link-type chains or Alternative Traction Devices (ATD). Examples of ATDs include: cable chains, textile snow chains, wheel hub attached chains, and automatic tire chains. Tire traction devices are defined in the California Vehicle Code (CVC) Section 605. When the term "chains" is used here, it means any "tire traction device" which meets the requirements of (VC) Section 605.

Vehicles with cable chains as well as other less conventional devices are legal in California. However, these may be restricted at times due to local conditions.

Minimum legal tread depth for mud and snow tires is 6/32 of an inch. Caltrans and the California Highway Patrol (CHP) reserve the right to prohibit any vehicle from entering a chain control area when it is determined that the traction devices do not meet the requirements of (CVC) Section 605.

## LEGEND

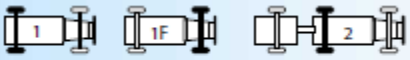
- Driving axle
- Non-driving axle
- Wheel with chains or ATD
- Wheel with no chains or ATD
- Drive axle must be chained.
- Chains on trailers may be staggered front and back.
- Caltrans and CHP may require chains on all drive wheels if conditions warrant.
- Both axles must be chained (four wheels with chains or ATD).
- Chains required on inside dual (if possible) .


## NOTES

- All vehicles, including four-wheel or all-wheel drive vehicles must carry chains upon entering a chain control area.
- All vehicles, including four-wheel or all-wheel drive vehicles, that are towing trailers must have chains on one drive axle.
- Trailers with brakes must have chains on one axle.
- Front-wheel drive vehicles must have chains on front (drive) axle.
- On any semi-trailer, only one set of chains is required regardless of number of axles.
- Chains are not required on tag axle.
- Trucks or tractors equipped with super singles, chains are required on all drive wheels.

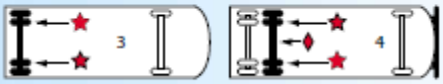

Acceptable on either axle of semi-trailers.

## AUTOS/PICKUPS




## BUSES/RECREATIONAL VEHICLES

*(Articulated buses must also chain outside wheels of last axle.)*

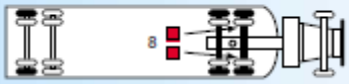



Type 2 Type 3

## TRUCKS

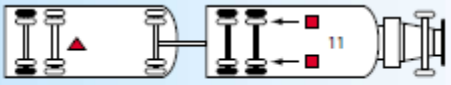

Truck Type 2


Truck Type 3 Tractor and Semi-trailer Single Dr.




Tractor and Semi-trailer Type 3-S-2


Tractor, Semi-trailer, and Trailer Type 3-S-1-T-2




Truck and Trailer Type 3-T-3 or 3-T-2

The following truck may be restricted when chains are required:


Tractor, Semi-trailer, and Trailer Type 2-S-1-T-2

## ANNEX F

## FEDERALLY REGULATED EQUIPMENT

## SEAT BELTS - CHILD PASSENGER RESTRAINTS - SAFETY HELMETS

1. GENERAL REQUIREMENTS. This annex provides technical information and requirements regarding seat belts, child passenger restraints, and safety helmets. Questions regarding technical requirements for these devices may be directed to CVS. Questions regarding enforcement policy should be directed to Research and Planning Section.

2. SEAT BELTS.

a. Seat belts are governed by Sections 27302, 27304, 27305, 27314, and 27315 CVC, and shall meet FMVSS 209. Section 27315 CVC requires seat belt use by all passenger and commercial vehicle drivers and passengers, with some exceptions. However, Section 27315(f) CVC does not require installation or maintenance of seat belts not required by FMVSSs at the time of a vehicle's initial sale. Therefore, 1967 and earlier model year passenger cars, and 1971 and earlier light trucks need not be equipped with seat belts.

b. Federal Motor Vehicle Safety Standard 209 requires seat belts to be permanently and legibly marked with the year of manufacture, model, and name or trademark of the manufacturer, or name or trademark of the distributor. The absence of such markings, unless the seat belts are clearly substandard and installed in a vehicle required by FMVSSs to be equipped with seat belts, should not be considered a violation.

3. PASSENGERS IN A PICKUP TRUCK BED.

a. Section 23116 CVC requires that all persons riding in the bed of a pickup or flatbed motor truck be properly restrained in seats by seat belts which comply with the requirements contained in FMVSSs 207, 209, and 210, with some specific exceptions. (These standards apply to seats, seat belts, and seat belt anchorages, respectively.) These FMVSSs are performance standards, which, in general, specify certain strength and other performance parameters, rather than specific sizes, materials, or construction methods. Therefore, there is no practical method to determine compliance with FMVSS requirements in the field using, for example, common measuring tools. The following guidelines have been developed as a practical guide for enforcement officers to use in making informed judgements regarding the use of these devices.

b. Compliance with Section 23116 CVC may be accomplished either by the installation of aftermarket devices specifically intended for this purpose or by the installation of seating and restraint devices previously installed and removed from another vehicle (e.g., used parts). In either case, each passenger must be provided with a separate seat belt assembly. Passengers may not share a seat belt.

4. AFTERMARKET DEVICES.

a. Under federal law, FMVSSs 207, 209, and 210, specifically, do not apply to aftermarket seating or restraint devices except as replacement parts for original equipment. However, Section 23116 CVC extends these standards to aftermarket seating devices that are retrofitted into the rear of pickup and flatbed trucks. Original equipment seating and restraint suppliers typically do not market their products for retrofit applications, nor provide instructions for such applications.

b. Aftermarket seating systems intended for retrofit applications must comply with all three FMVSS sections. Aftermarket products that do not claim to comply with all three standards should be considered not in compliance.

c. For enforcement purposes, Section 23116 CVC should be construed to mean only that seats and restraints installed in the bed of pickup trucks shall consist of components apparently designed for automotive applications (e.g., similar in structural integrity to original equipment components) and be securely fastened to the vehicle. The burden of proof that the equipment does not comply with Section 23116 CVC rests with the CHP.

d. Seat belt assemblies are required to carry labels indicating compliance with FMVSSs only at the time of initial retail sale. There is no requirement that such labeling be maintained by the owner. Therefore, the absence of labeling may not be considered indicative of lack of compliance.

5. USED PARTS.

a. All vehicles sold in the United States since 1968 conform with FMVSSs. Any seat and seat belt system factory-installed in any motor vehicle (other than in the habitable areas of recreational type vehicles) since 1968 shall be installed to satisfy the requirements of Section 23116 CVC. All components must be in good structural condition and the installation must be properly performed. The seats, seat belt assemblies, and anchorages should be inspected to determine if they appear to be automotive components and are installed in a manner similar to, or as securely as, the original installation. Aircraft or racing seat belts have not been tested for compliance with FMVSSs, but are of a similar or superior nature and may

be considered compliant. Substitute fasteners and reinforcing components may be used, provided they meet the requirements shown below. Seats need not be installed in their original orientation. They may seat passengers forward, backward, sideways, or at any angle.

b. Seats are not required by FMVSSs to have any labeling indicating such compliance. For enforcement purposes, seats should have sturdy metal frames which appear to be of automotive origin (e.g., cars, trucks, buses) and be fastened securely to the bed of the vehicle using suitable bolts, nuts, and washers. (Self-tapping sheet metal screws are not acceptable.) Nonautomotive seats, such as patio chairs and other home furnishings, park benches, commercial office chairs, metal or plastic library chairs, or improvised seating devices, are not acceptable unless they are clearly similar in construction and strength to automotive seats. (Aircraft seats should be considered compliant, provided they are installed properly.)

c. Similarly, all seat belts installed in motor vehicles since 1968, and in all domestic vehicles since 1962, comply with FMVSS requirements. As a practical matter, any automotive seat belt should be considered compliant, provided it appears to be in good condition and is installed properly. Seat belt assemblies are required to carry labels indicating compliance with FMVSSs only at the time of initial retail sale. There is no requirement that such labeling be maintained. Therefore, the absence of labeling should not be considered as an indicator of lack of compliance.

d. Seat belts must be installed in the vehicle in a manner similar to the original installation.

e. Seat belts must be attached to a metal portion of the vehicle or frame with bolts, nuts, and washers. Bolts should be 7/16 inch fine thread or 1/2 inch coarse thread minimum. Use of sheet metal screws or other similar fasteners is not acceptable. Seat belts attached to the bed or other sheet metal must be installed using either 2 inch x 2 inch square reinforcement plates or 2-1/4 inch diameter washers, either at least 1/16 inch thick, below or behind the sheet metal.

f. The seat belt should bear across the hip bones of the passenger, and pull rearward and downward at an angle of about 70 degrees (20-75 degrees preferred, not more than 90 degrees). Attachment points should be spaced laterally so that the seat belt assembly forms a "U" shaped loop when in use. In no case should both ends of one seat belt assembly be fastened or connected to the same anchorage or attachment point.

g. Seat belt webbing must be sewn to attaching plates or threaded through a slot in plates. In no case may bolts pierce or extend through the webbing. Webbing must be a minimum width of 1-3/4 inches. Wider racing or aircraft type belts are

acceptable. Belts must be adjustable enough so that they fasten securely and fit snuggly against the passenger.

h. Enforcement personnel should use reasonable judgement when determining compliance. Any seat which appears to be a motor vehicle seat, and which has the frame securely fastened to the bed or other integral vehicle component or structure should be considered in compliance.

6. APPROVALS.

a. Neither the CHP, nor its personnel, may approve any seat or seat belt device or installation except for the purpose of citation clearance. Officers should exercise care when clearing citations. Responses to inquiries regarding compliance with FMVSSs should be limited to stating that an installation is no longer obviously in violation and, therefore, the citation can be cleared. Officers should exercise similar care when advising motorists on methods of compliance.

7. CHILD PASSENGER RESTRAINTS.

a. General Requirements. Child passenger restraints governed by Section 27360 CVC shall meet FMVSS 213.

b. Federal Motor Vehicle Safety Standard 213 requires each child restraint system to be permanently labeled with:

(1) The model name or number of the system.

(2) The manufacturer's name.

(3) The statement, "Manufactured in_.," indicating the month and year of manufacture.

(4) The place of manufacture (city and state, or foreign country).

(5) The statement, "This child restraint system conforms to all applicable Federal Motor Vehicle Safety Standards."

(6) A statement recommending the maximum weight and height of children who can safely occupy the system.

(7) A statement indicating the location of the manufacturer's installation instructions for use of the system and any applicable warnings.

c. The absence of labeling, unless the restraint system is clearly substandard, should not be considered a violation.

8. SAFETY HELMETS.

a. General Requirements. Helmets for motorcycle riders and motorized bicycle riders are governed by Sections 27802 and 27803 CVC. Section 27802 CVC requires that all safety helmets offered for sale, for use by drivers and passengers of motorcycles and motorized bicycles, comply with the requirements of FMVSS 218. Section 27803 CVC requires that safety helmets worn by drivers or passengers of motorcycles or motor-driven cycles comply with FMVSS 218.

b. Federal Motor Vehicle Safety Standard 218 requires safety helmets to be permanently and legibly labeled with the following information:

(1) Manufacturer's name or identification.

(2) Model designation.

(3) Size.

(4) Month and year of manufacture.

(5) The symbol "DOT" on the outer surface.

c. The absence of such labeling should not be considered a violation if the helmet appears to be of a construction that is comparable to helmets which comply with FMVSS 218, or appears to be of substantial overall construction and designed and intended for such use.

(1) A helmet designated as "For Off-Road Use Only" or otherwise obviously not designed and intended for use by motorcycle drivers and passengers, such as a football helmet, is not lawful under Section 27803 CVC.

(2) A helmet designated as approved by the Snell Foundation has been manufactured to different and, in general, more stringent criteria than the US DOT requirements, and should be considered as complying with Sections 27802 and 27803 CVC, even if the DOT label is absent.

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