

248637

Memorandum

U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

Subject: Background Information

Date: JUL 17 2003

From: Taylor Vinson *TV*
Senior Attorney

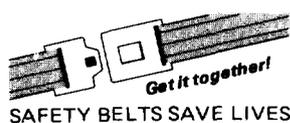
Reply to
Attn. of:

To: Docket No. NHTSA 03-15651 - 1

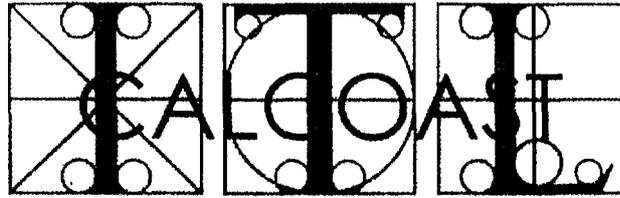
Attached are two requests for interpretation submitted by Calcoast-ITL, a testing company, concerning how Standard No. 108, Lamps, Reflective Devices, and Associated Equipment, applies to replacement equipment. Also attached are interpretation letters sent by NHTSA to Mr. Daniel Watt and Mr. Galen Chen. These materials provide background for our Notice of draft interpretations; request for comments.

Attachments

JUL 17 2003
13:00:00



LIGHTING TECHNOLOGY



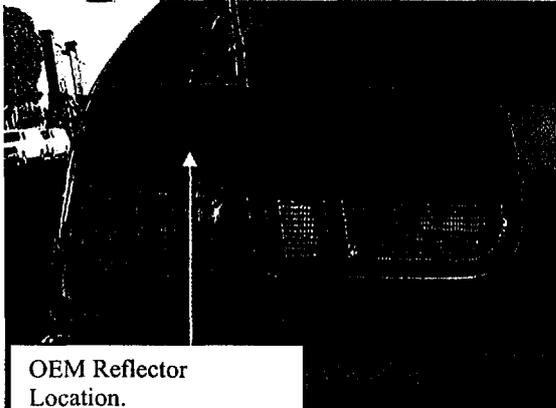
PHOTOMETRIC TESTING

INDUSTRIAL TESTING LABORATORY

The Chief Counsel
National Highway Traffic Safety Adm, NCC-01
400 7th Street, NW
Washington, DC 20590

Dear Sir:

I am requesting a NHTSA interpretation on allowable location for rear reflex reflector. Two manufacturers have submitted lamps to Calcoast-ITL for testing. In both cases the lamps are modifications of OEM lamps (various Honda Civics). The lamps are paired lamps with a fender mount and decklid mount that is very typical. In each case, the manufacturer has moved the location of the reflex reflector from the fender mount replacement lamp to the decklid mount replacement lamp.



OEM Reflector Location.
Outboard Edge of Reflex Reflector Located 8" From Outboard Edge of Vehicle



Aftermarket Replacement Lamp Located the Reflex Reflector as a Ring Around the Backup Lamp. This Moves the Outboard Edge of the Reflex Reflector 3" Inboard

I understand that reflex reflectors are permitted to be mounted on the decklid of a vehicle. I am aware that table IV requires that the reflex reflectors be as far apart as practicable. My issue is – does moving the reflex reflector inboard from the vehicle manufacturer's location constitute a violation of Table IV requirements?

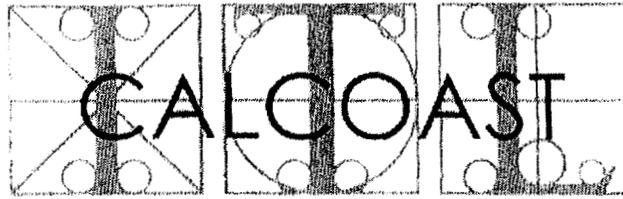
Does a replacement lamp have to have all the functions of the original lamp? My concern is that someone can purchase or install the outboard lamps only thus losing the reflex reflector function.

Sincerely,

Mark Evans
Calcoast-ITL

2003 MAR -6 A 11:31
NHTSA 20590
CHIEF COUNSEL

LIGHTING TECHNOLOGY



PHOTOMETRIC TESTING

INDUSTRIAL TESTING LABORATORY

The Chief Counsel
National Highway Traffic Safety Adm, NCC-01
400 7th Street, NW
Washington, DC 20590

Dear Sir:

I am requesting a NHTSA interpretation on allowable light source modifications of aftermarket lamps. Many manufacturers have submitted lamps to Calcoast-ITL for testing which are meant to replace the OEM lamps. These lamps are both front and rear combination lamps. The lamps fall under the following categories:

1) Replacement Lamp Uses OEM Wiring Harness & Sockets

- a) Can lamp manufacturer design the lamp to use a different wattage bulb such as switching from an 1157 to 2057? If yes, what is the acceptable method of informing the purchaser? Would bulb type markings on the lamp housing, bulb type markings on the lamp shipping container, sticker to be placed in owner's manual or letter to be placed in the glove box suffice?
- b) Can lamp manufacturer design the lamp to use a different color bulb? Some manufacturers are switching from a clear bulb behind a red or amber rear turn signal lens to an amber bulb behind a clear lens. If this is permitted, then what is an acceptable method of informing/reminding the purchaser?

2) Replacement Lamp Uses Modified Wiring Harness and Sockets Supplied with Lamp

- a) Some car lamp manufacturers are completely changing the bulbs used including wattage, color and base type by including a replacement wiring harness and sockets. If this is permitted, then what is the acceptable method of informing/reminding the purchaser as to which bulb type(s) are correct for replacement after failure?
- b) Some car lamp manufacturers change the source type from incandescent to sealed LED. In which case the LEDs may last the life of the vehicle and failure would necessitate complete replacement of the lamp. This would eliminate incorrect bulb replacement issues. Is this permitted?

In all of the above cases, the lamps are purchased and installed by the vehicle owners.

Sincerely,

A handwritten signature in cursive script that reads "Mark A. Evans".

Mark Evans
Calcoast-ITL

CHIEF
COUNSEL

NOV 11 11:31

WASHINGTON, DC 20590

Mr. Daniel Watt
280 Lindo Court
Unit A
Morgan Hill, CA 95037

Dear Mr. Watt:

This is in reply to your email of August 22, 2001, to Michael Cole of this agency.

You related having seen trucks using light emitting diodes (LEDs) instead of incandescent bulbs for their taillamps, and asked whether "red LEDs installed in place of a bulb [in] a clear taillight meet the color 'red' requirements. Or would that be a non-compliance because the housing was not certified for use with LEDs?"

Under Federal law, lighting equipment on motor vehicles must be designed to comply with 49 CFR 571.108 Standard No. 108, Lamps, Reflective Devices, and Associated Equipment. The manufacturer of the vehicle then certifies that the vehicle complies with all applicable Federal motor vehicle safety standards including Standard No. 108. The original rear lamps on the trucks that you saw were equipped with incandescent bulbs.

Paragraph S5.8.1 of Standard No. 108 specifies that "each lamp, reflective device, or item of associated equipment manufactured to replace any lamps, reflective device, or item of associated equipment on any vehicle to which [Standard No. 108] applies shall be designed to conform to this standard." This means that a replacement item must be designed to conform to the standard in the same manner as the vehicle manufacturer certified compliance with the original equipment installed. A rear replacement lamp equipped with LEDs would not be designed to conform to the standard in the same manner as the original equipment, and would therefore not comply with S5.8.1. Whether it is legal to use replacement equipment such as the LEDs on the public roads is not a matter of Federal law but of State law. We are not conversant with state laws and cannot advise you about this. You might want to contact the California Department of Highway Patrol for its views on this subject.

Substituting LEDs into a lamp that was designed to incorporate incandescent light sources raises safety concerns. An incandescent light source emits light when an electric current passes through a resistant metallic wire (filament). The position and shape of the filament, along with other design elements, define the unique electrical and photometric characteristics of the light source. Lamp designers incorporate these characteristics into the original optical design of the lamp. Thus, substitution of the original light source with one of a different design may negatively impact the photometric performance of a lamp below the minimum required for compliance with Standard No. 108. In addition, other functions required by Standard No. 108 may be affected by substitution of an LED, such as operation of the illuminated turn signal pilot indicator (S5.5.6).

Sincerely,

John Womack
Acting Chief Counsel

ref:108
d.2/4/02

Mr. Galen Chen
Marketing Department
Maxzone Vehicle Lighting Corp.
5100 Walnut Grove Avenue
San Gabriel, CA 91776

Dear Mr. Chen:

This is in reply to your email (copy enclosed) concerning replacement lighting equipment. We apologize for the delay in our response.

You reported that your company is developing "a new headlamp" for 1998-2001 model Honda Accord passenger cars (we shall refer to this as the "Maxzone headlamp"). You informed us that the original equipment (OE) headlamp for these vehicles consists of "High Beam (9005 bulb), Low Beam (9006 bulb), Park Signal and reflector. No fog lamp function." (We would also note that the OE headlamp on this model Honda Accord appears to incorporate the required front turn signal and side marker lamp as well.) The Maxzone headlamp consists of "High Beam (H1 bulb), Low Beam (H3 bulb), Park Signal and we've added Fog Lamp (H3 bulb) to this headlamp assembly. It also comes with reflector." You informed us "the numbers of different functions after tests all pass SAE/DOT requirements." You asked whether the Maxzone headlamp could be certified and sold as legal replacements for the 1998-2001 Honda Accord models. As discussed below, the answer to this question is no.

Under S5.8, *Replacement equipment*, of Standard No. 108, "Each lamp . . . manufactured to replace any lamp . . . on any vehicle to which this standard applies, shall be designed to conform to this standard." (S5.8.1)

S7.1 of Standard No. 108 requires a motor vehicle, other than a motorcycle, to "be equipped with a headlighting system designed to conform to the requirements of S7.3, S7.4, S7.5, or S7.6." Maxzone stated that the OE headlighting system on the 1998-2001

Honda Accord consists of headlamps with HB3 (9005) and HB4 (9006) replaceable light sources. Thus, a replacement headlamp for this vehicle must be evaluated according to the requirements of S7.5, *Replaceable bulb headlamp systems*.

S7.5(b) requires that each headlamp in the system be designed to conform to the photometrics as specified in S7.5(c) through (e) using any light source of the type intended for use in such system. Considering that this particular vehicle incorporates HB3 and HB4 replaceable light sources in its OE headlighting system, we view S5.8.1 and S7.5(b) as requiring each replacement headlamp for this vehicle to be designed to conform to the specified photometry when using HB3 and HB4 replaceable light sources. Because replaceable light sources are, by regulation, designed to be non-interchangeable, it would not be possible for the Maxzone replacement headlamp to comply with the applicable photometry using HB3 and HB4 replaceable light sources when the Maxzone headlamp is designed to use replaceable light sources other than HB3 and HB4. Therefore, the Maxzone headlamp could not be certified and sold as a replacement for a 1998-2001 Honda Accord headlamp. This also means that a headlamp dealer or motor vehicle repair business could not remove the original headlamp and install the Maxzone headlamp as a replacement without violating 49 U.S.C. 30122. This section prohibits manufacturers, distributors, dealers, and motor vehicle repair businesses from making inoperative equipment installed in

accordance with a Federal motor vehicle safety standard.

You also informed us that the Maxzone headlamp "comes with reflector." We are unsure of your meaning. We interpret S5.8.1 as requiring replacement lighting equipment designed for specific motor vehicles to incorporate, at a minimum, the same required functionality as included on the original equipment lamp it is intended to replace. If the original Accord headlamp incorporated an amber side reflex reflector in compliance with Standard No. 108, each replacement headlamp for that Accord must also incorporate an amber side reflex reflector if we are to regard it being "designed to conform to this standard" within the meaning of S5.8.1.

I hope that this information is useful to you. If you have any questions, you may call Taylor Vinson of this Office (202-366-5263).

Sincerely,

Jacqueline Glassman
Chief Counsel

Enclosure
ref:108
d.3/13/03