

# SURFACE VEHICLE INFORMATION REPORT

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Summary of Stop Lamp-Related Federal Motor Vehicle Safety Standards and NHTSA Interpretations, Relative to ATC, Stability Control Interventions, Engine Retarders/Exhaust Brakes

## RATIONALE

The following summary was compiled at the request of SAE Truck and Bus Council. The intent is to summarize the relevant US Federal regulations that address stop lamp activation when brakes are activated by automatic systems. This topic is specifically requested at this time as systems which can automatically apply the service brakes—ESC and collision mitigation systems—are being made available by the industry.

This document is in no way binding or a definitive expectation of performance; determining compliance with applicable laws and regulations is the responsibility of the vehicle manufacturer, per the requirements of DOT.

### 1. SCOPE

Provide previous stop light activation research into single document for future reference.

Relevant documents and interpretations noted in Table 1.

**Table 1**

|                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------|
| 49 Code of Federal Regulations Part 571 Federal Motor Vehicle Safety Standard (FMVSS) 121: Air Brake Systems          |
| FMVSS 108: Lamps, Reflective Devices and Associated Equipment                                                         |
| FMVSS 108: Interpretations: Mills (Triumph), Watt (Flexible), Farber (SAE), Terry (GM), and Ehrlich (Wabash National) |
| FMVSS 108: Terry interpretation as referenced in FMVSS 126, Docket No. NHTSA-200727662                                |

- 1.1 All interpretations noted are in the public domain and can be found in their entirety on [www.nhtsa.gov](http://www.nhtsa.gov) or via federal register search. Updates may be published and will not be reflected in this document. It is the user's responsibility to confirm the current status of the applicable rules and interpretations.

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**Table 2 - Federal motor vehicle safety standards for stop lamp illumination**

| Standard              | Section | Requirement                                                                                                                                                                                                    |
|-----------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FMVSS 121             | S5.1.7  | Service brake stop lamp switch. A switch that lights the stop lamps when the service brake control is statically depressed to a point that produces a pressure of 6 psi or less in the service brake chambers. |
| FMVSS 108             | S5.5.4  | The stop lamps on each vehicle shall be activated upon application of the service brakes. The high-mounted stop lamp on each vehicle shall be activated only upon application of the service brakes.           |
| FMVSS 108             | S5.1.3  | No additional lamp, reflective device or other motor vehicle equipment shall be installed that impairs the effectiveness of lighting equipment required by this standard.                                      |
| FMVSS 108             | Table I | Applicable document for stop lamps-SAE J1398, May 1985                                                                                                                                                         |
| SAE J1398<br>May 1985 | N/A     | Lamps...(which) indicate the intention of the operator of a vehicle to stop or diminish speed by braking                                                                                                       |

NOTE: SAE J1398 was cancelled in June 1998. A NHTSA letter to Triumph appears to indicate that the definitions contained in SAE J1398 May 1985 would remain in effect. FMVSS 108 is being re-written for clarity. The re-write will include the definitions contained in the obsolete SAE documents. At the time of this writing, FMVSS 108 re-write was not complete.

## 2. REFERENCES

See all documents in Tables 1 and 2.

## 3. SUMMARY OF NHTSA INTERPRETATION CONCEPTS

The following summaries combine the interpretation concepts in an attempt to form a clearer overall picture of the intent, across individual interpretations.

1. Stop lamps may be illuminated when engine/exhaust retarders are activated, but it is not required (Flexible/Wabash National).
2. If the intent of the (service) brake application is to reduce vehicle speed beyond that of normal vehicle coast-down, the stop lamps must be illuminated. (SAE/GM/Wabash National/FMVSS 126).
3. If the intent of the brake application is to change vehicle heading (ESC), the stop lamps do not have to be activated (GM/FMVSS 126).
4. ATC (automatic traction control) events must not activate the stop lamps (GM).

## 4. SUMMARY OF NHTSA INDIVIDUAL INTERPRETATION LETTERS

The summary in Table 3 is based on an assessment of relevant factors and omit much of the commentary. Long-form excerpts are provided in Appendix A. This summary is presented as a convenience; it is the user's responsibility to determine the applicability of the information provided to the specific situation in question.