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American Automobile Manufacturers Association

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Mr. Barry Felrice
Associate Administrator for Rulemaking
National Highway Traffic Safety Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

Dear Mr. Felrice:

Subject: AAMA Comments on: FMVSS: Fuel System Integrity; Crossover Lines (Docket No. 94-39: Notice 1), 59 FR 25590 No 94 (5/17/94)

Attached are the American Automobile Manufacturers Association comments for the subject docket. As detailed in the attached comments, AAMA's review of the agency's Preliminary Regulatory Evaluation and other accident data reports does not show a convincing need for this type of regulation. AAMA notes that the Society of Automotive Engineers is developing a Recommended Practice, J1624, Fuel Crossover Line, and this Practice covers similar points as covered in the proposed rule. If the agency proceeds with this rulemaking, it should be harmonized with an industry practice currently being developed.

AAMA staff is available to prove any additional information the agency may require pertaining to these comments.

Sincerely,

Vann H. Wilber, Director
Vehicle Safety & International
Engineering Affairs Division

cc: Docket Section - 10 copies

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**American Automobile Manufacturers Association Comments
Regarding Docket 94-39; Notice 1
Notice of Proposed Rulemaking
Federal Motor Vehicle Safety Standards
Fuel System Integrity; Crossover Fuel Lines**

The American Automobile Manufacturers Association (AAMA) provides the following comments regarding the subject Notice of Proposed Rulemaking (NPRM) published in the May 17, 1994 Federal Register. The National Highway Traffic Safety Administration (NHTSA) is proposing to amend Federal Motor Vehicle Safety Standard (FMVSS) No. 301 to add a new requirement applicable to vehicles with a crossover fuel line connecting dual fuel tanks. The crossover line typically is at or near the bottom of the fuel tanks and is used on certain medium and heavy duty trucks. Most of these trucks are diesel powered. The apparent purpose of the proposed amendment is to reduce the potential for crossover line fuel spillage caused primarily by impact from road debris. This proposed rulemaking is based in part on a petition from the California Highway Patrol (CHP).

The proposal would limit fluid spillage from a crossover fuel line to 30 gr (1 oz) during a 2-minute period following the end of application of an 11,000 N (2500 lb) test force to the line and/or its structural protection. Force application would be downward 15 degrees and to the rear in a vertical - longitudinal plane. The force would be applied anywhere along the crossover fuel line including any contiguous protective structure for the crossover line. A quasi-static pull test apparatus for force application is specified in the notice.

Safety Basis for Proposed Amendment

The notice indicates that crossover line fuel spillage may occur due to damage from certain road hazards, primarily road debris and undercarriage override (e.g., guardrail collision). The frequency of such occurrences is not well established, however. Nor is whether a fire ensues as a result of the spillage. This is not surprising considering the overall low frequency of heavy truck crashes with fire identified in the agency's September 1989 report "Heavy Truck Fuel System Safety..." (DOT HS 807 484). This report discusses the nature and consequences of heavy truck crashes that result in fires. The report states that "fires rarely occur when heavy trucks crash (0.6 percent of all crashes)." Fires due to fuel spillage from a crossover fuel line would be a subset of this small percentage. Those caused by contact with road debris would be an even smaller subset.

Although the notice mentions crossover line damage potential from undercarriage override, the proposed requirements and test procedure apparently focus on protection from impact by road debris. This is evident from the proposed test force (11,000 N) and its basis described in the March 1992 report titled "Testing to Develop Fuel System Integrity Standard" from NHTSA's Vehicle Research and Test Center (VRTC). Discussion in that report indicates that the proposed force apparently is intended to simulate a force level from a road debris impact (rather than an undercarriage override). This road debris focus also is consistent with the Society of Automotive Engineers (SAE) draft Recommended Practice

J1624 regarding similar aspects of crossover line performance. Override collision loads on the crossover line likely would be higher.

The limited heavy truck field incident data discussed in the notice and found in the reports referenced by the notice indicate the relative rarity of fires from crossover line fuel spillage clearly caused by road debris impacts. For example, the agency's Preliminary Regulatory Evaluation for this notice states that "In all 142 diesel fuel spills reported in the CHP petition, the diesel fuel was not ignited." Of these 142 spills recorded over 2 years (1984-1986) in California south of Los Angeles, 47 were associated with road debris. Twelve of these were attributed to a crossover line. The September 1989 NHTSA report (DOT HS 807 484) also confirms that "None of these incidents resulted in fires. "

The same NHTSA report summarizes the Texas Transportation Institute's study between 1986 and 1988 which screened heavy truck accidents with a fuel system breach occurring in their region of the country. Although 10 of the 27 cases in the Texas study included a fire, none were attributed to crossover line damage from road debris. All the cases were the result of collisions with other vehicles or fixed objects, rollovers or jackknives. At the very least, based on this data, the frequency of crossover fuel line spillage resulting in fire and clearly attributed to road debris impacts remains speculative.

Therefore, the referenced data provides little evidence if any, of a safety need relative to fires either caused or supported by fuel spillage from a crossover fuel line damage due to contact with road debris. We also believe any cost benefit analysis for this proposed requirement should be based, at least in part, on model volumes where a crossover line typically is used (primarily diesel powered medium and heavy duty trucks) and on those incidents intended to be mitigated by the proposed amendment's performance requirement (i.e., road debris impacts).

Harmonization with Draft Industry Practice

If the agency proceeds with this rulemaking, it should be harmonized with an industry practice currently being developed. As the notice acknowledges, the Society of Automotive Engineers (SAE) currently is drafting an SAE Recommended Practice, J1624, Fuel Crossover Line, covering similar aspects of performance to those covered by the NHTSA proposal. However, the SAE J1624 draft differs significantly from the performance requirement and test procedures in the proposed FMVSS 301 amendment. AAMA understands that the SAE J1624 working group will soon be considering how the draft SAE Recommended Practice and the NHTSA proposal should be harmonized in these respects. AAMA believes this is a reasonable objective because it is important to have a single set of performance criteria and a common test procedure if a clear safety need is established. Some of the subjects which should be addressed in such a harmonization effort include the representativeness of the test force level (mentioned above) and other issues covered later in our comments.

AAMA and the SAE working group stand ready to cooperate with the agency in this effort. The effort appears to hold promise for a test procedure which will achieve wider acceptance. AAMA also recommends that the agency withhold issuance of the final rule until this cooperative effort is complete. The agency could then determine whether incorporating the harmonized procedure would provide a more appropriate and effective requirement. On the basis of the indeterminate safety need associated with this rulemaking (see our Safety Basis comments), the additional time to harmonize the SAE and NHTSA-proposed procedures and requirements would not compromise motor vehicle safety.

Comments on the Proposed Amendment

If the agency proceeds with this rulemaking, AAMA believes certain clarifications and other issues need to be addressed regarding the proposed standard. These are outlined below.

The notice states that "Exposed portions of crossover lines would have to be tested if the exposed length of crossover line exceeds six inches." (FR 25593) However, neither the proposed rulemaking language nor the proposed test apparatus define "exposed portion". Similarly, the notice does not indicate whether this exposed length would include fittings, shut off valves, etc., if provided. If the agency proceeds with this rulemaking, both of these clarifications should be included in the regulatory language to facilitate issuance of an objective requirement. Exposed portions of a crossover fuel line typically occur at or near the juncture at the fuel tank. These portions likely would be complex to redesign to meet the proposed requirement due to the number of tank combinations offered.

Discussion in the notice also indicates:

"The proposed time period for evaluating the fuel spillage from the crossover line begins with the onset of the application of the test force and ends two minutes after the end of the test force application." (emphasis added)

However, the proposed rulemaking language specifying the fuel spillage limit requirement in Section 5.8 *Fuel spillage* states:

"Fuel spillage for each vehicle that is equipped with a crossover fuel line connecting two fuel tanks shall not exceed 30 grams (1 ounce) by weight of fuel in the two minute period following the end of test force application." (emphasis added)

The time period for spillage measurement is quite different between these two statements based on the proposed test conditions in Section 7.6.3. Section 7.6.3 proposes the

loading onset time (10-20 sec), how long the load is to be maintained (5-10 sec) and loading release time (5-10 sec). If the agency proceeds to a final rule containing such a specification, this confusion needs to be eliminated. AAMA believes the proposed time period should be a subject of the recommended SAE-NHTSA harmonization effort.

AAMA also observes that the 30 gr (1 oz) spillage limit, measured over the 2-minute period following test force application, is twice as stringent as any other fluid spillage limit specified in FMVSS 301, i.e., 1 oz (approximately 30 gr) per minute. We are unaware of any justification for this added stringency. Therefore, if the agency proceeds with this rulemaking, we recommend that the crossover line test fluid spillage limit be set at 60 grams for the 2 minute measurement period for consistency with the other FMVSS 301 fluid spillage limits.

Proposed Section 7.6.2 specifies the orientation and direction of the applied test force (summarized early in the AAMA comments). The proposed direction for the test load application (including a 15-degree downward component) is not representative of the likely direction in which load is applied when a forward moving truck (crossover line) contacts road debris. Although this force direction would vary, it is more likely that the principal impact force direction would be primarily horizontal and rearward (with a possible small upward component). The draft SAE J1624 practice specifies a horizontal rearward force direction. AAMA believes further evaluation is required to harmonize the appropriate force direction for the proposed test.

The proposed effective date does not allow sufficient time to set up, test and evaluate the current crossover line structural protection devices on the affected vehicles produced by AAMA member companies using the procedure and apparatus described in the notice. Until these results are available and analyzed and suitable performance requirements are established, AAMA cannot comment on the lead time needed to meet suitable performance requirements. Likewise, we are unable to comment on the proposed procedure until such testing is performed. However, the proposed one year lead time would be difficult to meet considering the need to manufacture test fixtures, perform development testing, and evaluate design iterations as necessary within already committed and constrained test resources.

Additional Comments

AAMA member company truck engineering activities have no experience with frangible valves in crossover fuel lines, and therefore AAMA is unable to comment on over-the-road experience with these devices.