By Electronic Submission

October 14, 2004

Mr. Stephen R. Kratzke
Associate Administrator for Rulemaking
National Highway Traffic Safety Administration
400 Seventh Street, SW
Washington, DC 20590

Re: Docket No. 17694; RIN-2127-AJ10;
Comments on National Highway Traffic Safety Administration's (NHTSA) Side Impact Protection Proposed Rule; FR Vol. 69, No. 95, May 17, 2004

Dear Mr. Kratze:

Maserati SpA (hereafter referred to as "Maserati") appreciates this opportunity to comment on the agency's proposed rule to upgrade the FMVSS 214 – Side Impact Protection. Maserati notes that it can provide only limited, preliminary comments on the proposal at this time, because the test dummies identified by NHTSA for the proposal have not been made available in sufficient quantities for manufacturer evaluation of the proposed revisions to FMVSS 214. Maserati is providing these comments today based on the information available in the proposed rule and its accompanying analyses, and may need to supplement these comments as further information becomes available.

1. Pole test proposal: Maserati supports the addition of a pole test to FMVSS 214 if based on international harmonization

Maserati believe that, under the correct circumstances, the introduction of a side impact pole test with head injury criteria could provide an improvement in occupant protection. Maserati therefore support the idea of such a pole test if it is done through international harmonization of the test, the barrier and dummy. We believe that this is the only way – particularly for small volume manufacturers (SVMs) – that such a test can meet the "reasonable and practicable" requirement imposed by 49 USC 30111(b)(3).

Maserati is concerned that NHTSA did not adequately consider international harmonization in developing the FMVSS 214 proposal. The agency merely states the general conclusion – unsupported by hard facts – that "today's proposal is consistent with NHTSA's international harmonization policy goal of harmonizing with non-U.S. safety

requirements except to the extent needed to address safety problems here in the U.S." More can be done towards achieving the goal of international harmonization.

The proposal cannot be justified from a harmonization point of view simply by saying – as NHTSA has done here -- that the US vehicle fleet has larger, heavier vehicles (e.g. SUVs) and that "vehicle compatibility is a relatively unique U.S. problem." The proposed pole test has nothing to do with vehicle compatibility.

Moreover, the agency's tentative conclusion that "adopting [the] proposed vehicle-to-pole test into FMVSS No. 214 would result in significantly greater benefits than those that would accrue from adopting EU 96/27/EC or the Euro NCAP side impact test" is without clear support in the record.[1] What are the "significantly greater benefits"?

NHTSA concedes that "the side impact protection requirements promulgated by Japan (Article 18, Attachment 23, "Technical Standard for the Protection of the Occupants in the Event of a Lateral Collision") and Australia (Australian Design Rule 72/00, "Dynamic Side Impact Occupant Protection") are those in ECE Regulation 95 EU/96/27/EC". But NHTSA then concludes, without clear explanation, that "a U.S. final rule adopting the vehicle-to-pole test proposed today would provide greater benefits than those requirements." Again, what are the "greater benefits?

Finally, NHTSA acknowledges that that the Euro NCAP optional pole test is close to the proposal's test as regards addressing head protection, but NHTSA then states that the oblique pole test in the proposed rule would provide "significantly more benefits" than the Euro 90-degree 29 km/h (18 mph) test. For a third time, we ask what are these "significantly more benefits"? [2]

In short, we believe that the pole test should follow a path similar to the path that NHTSA is following as regards the FMVSS 214 test dummies. Incorporation of the ES-2 dummy into FMVSS No. 214 in both the vehicle-to-pole and MDB tests is a step toward harmonizing the standard with non-U.S. regulations. [3]

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[1] The European NCAP (Euro NCAP) program incorporates a side impact, which involves a 50 kph (30 mph) barrier impact into the driver's side of a car, and an optional 29 km/h (18 mph) 90 degree pole test. (EuroNCAP Side impact testing Protocol, Version 4, January 2003.)

[2] At one point in the proposal's preamble, NHTSA says that the European tests do not address head protection. But NHTSA cannot dismiss the European tests simply with this observation. FMVSS 201 has been promulgated specifically to address upper interior injury head protection. If NHTSA requires overlapping double testing there could be problems complying with the law's mandate that a standard be "reasonable and practicable."

[3] The ES-2 dummy is used in the non-governmental Euro NCAP side impact program. While the ES-2 dummy has not yet replaced the EuroSID-1 dummy in the side impact directive of the European Union (EU 96/27/EC), there is work underway in WP.29 to replace EuroSID-1 in ECE Regulation 95 with the ES-2, and in the European Union to subsequently amend the EU Directive accordingly. The injury criteria proposed in the NPRM for the ES-2re dummy are consistent with the injury criteria now in EU 96/27/EC. The proposed requirement for maximum chest deflection for the ES-2re, the abdominal load injury

NHTSA acknowledges says that "work is continuing internationally on a side impact pole test. The International Harmonized Research Activities (IHRA) Side Impact Working Group (SIWG) is actively researching the side impact problem and has proposed that several test procedures be subjected to validation testing." Maserati maintains that until this work is completed, NHTSA should not take any steps to adopt a vehicle-to-pole test.

2. Pole test proposal: the addition of a pole test to FMVSS 214 is a good idea only if the standard is reasonable, practicable and appropriate for particular types of motor vehicles

The Safety Act requires that standards be "reasonable, practicable, and appropriate for a particular type of motor vehicle." 49 USC 30111(B)(3). To meet this requirement, NHTSA must take several points into consideration:

A. "Reasonable, practicable, and appropriate for a particular type of motor vehicle" means proper consideration of "cumulative effect"

In proposing the changes to FMVSS 214, NHTSA must consider the cumulative effect of its standards. One standard does not exist in a vacuum; it is part of the more than 65 FMVSS, and whenever a new standard or a change to an existing standard is proposed, NHTSA must consider the proposal's effect in the context of the effect of all standards taken as a whole.[4]

B. "Reasonable, practicable, and appropriate for a particular type of motor vehicle" means "worse case" testing

In order to make NHTSA crashworthiness standards "reasonable and practicable," NHTSA must limit the number of crash tests and focus on "worst case" testing.

C. "Reasonable, practicable, and appropriate for a particular type of motor vehicle" means costs that can be tolerated

NHTSA's estimated costs of compliance with the proposed rule are unrealistically low. Simply put, the agency's estimate that proposed changes will cost between $91 and

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criterion, and the pubic symphysis load injury criterion are the same as those applied in the European side impact regulation EU 96/27/EC.

[4] In 2002, NHTSA took the significant step of amending FMVSS 208 to require not just advanced air bags but also an entirely new and greatly expanded testing regime. At that time, Small Volume Manufacturers explained how the FMVSS 208 changes significantly increased both the number of destructive crash tests as well as the number of test vehicles needed for certification. The effect of the FMVSS 208 changes was to greatly increase an SVM's cost of certifying a model. In short, the huge costs of R&D, tooling, components and testing required by the cumulative effect FMVSS 208, 214, and recently upgraded FMVSS 301 are sustainable only by large manufacturers that have sufficiently large fleets over which to amortize these costs.

$208 per vehicle is only a fraction of the cost that Maserati projects. We anticipate the cost being between approximately $800 and $$2000 per vehicle.

NHTSA failed to consider the entire cost picture. After reviewing both the NPRM and the PEA we cannot identify where NHTSA thoroughly considered either the costs of R&D or the costs for manufacturers who currently are not using any side air bag technology at all (and thus have to start "from scratch").

Further, NHTSA admits in the NPRM that it did not consider the costs of changes to the structure of a vehicle necessitated by the proposal. NHTSA attempts to justify this failure by saying that because of the long lead-time proposed, manufacturers could build the structural changes into their normally scheduled model changes. But, irrespective of lead-time, the costs to Maserati are far in excess of the NHTSA prediction. [5]

D. "Reasonable, practicable, and appropriate for a particular type of motor vehicle" means requirements that are achievable by all vehicle types

NHTSA must consider the effects of the proposed pole test on sports cars that are built very low to the ground with limited interior room and unique types of seats. These cars provide very different and very significant challenges as regards the installation of side air bags. First, the limited interior space provides a significant obstacle to the installation of side air bags located in the roof side rails. Secondly, sports performance cars are usually fitted with form-fitting seats that are made of carbon fiber or similar materials, rendering the installation of side air bags in the seats virtually impossible. Significantly, these seats are not just aesthetic options – they provide important safety benefits as regards body support for the driver and maintaining the proper position of belted occupants.

NHTSA failed to take into consideration the fact that certain vehicles, like sports performance cars, have basic features and characteristics that make the structural changes necessitated by the proposal difficult if not impossible, irrespective of lead-time. This failure is in contravention of NHTSA's mandate to "consider whether a proposed standard is "… appropriate for a particular type of motor vehicle."

[5] As noted in the cumulative effect section of this comment, by focusing on "worse case" testing, the costs of NHTSA crash testing could be brought more under control.

E. "Reasonable, practicable, and appropriate for a particular type of motor vehicle" means requiring technology that is achievable and whose use will not be counterproductive

i. Achievability

NHTSA's own data in the NPRM throw doubt on the practicability of the pole test injury criteria. Not one of the vehicles tested by NHTSA passed all the criteria even though fitted with side and head air bags. This raises the serious question as to whether the technology really exists -- even for the main-line industry, let alone SVMs.

ii. NHTSA must confirm that proposed technology is not counterproductive

Before imposing a new requirement across the board, -- to all vehicle types – reasonableness and practicability require that the technology not pose a potentially unreasonable danger to occupants.

This is precisely what happened with overly aggressive frontal air bags. Indeed, if NHTSA moves too quickly to set a standard that, as everyone acknowledges, requires side air bags, it will run the risk of repeating the problems that frontal air bags caused as regards children and out-of-position occupants.[6]

Active interior protection has certain drawbacks. First, unlike passive systems -- such as padding used to comply with FMVSS 201U – active systems are not available throughout an accident involving multiple impacts (a situation quite common with side impacts). With air bags, there is no protection in a second or subsequent impact because the air bag has already deployed during the first impact. In addition, in most cases, the vehicle ECU will not be able to deploy active side protection after a frontal crash, even if the thorax protection module has not been fired in the first crash.

The proposed changes to FMVSS 214 could thus actually be counterproductive and result in a reduction of overall protection. NHTSA should not move too quickly to require active safety systems to protect occupants in side impacts, especially since US seat belt usage rates are at an all time high, and given that passive systems are less risky, less complicated, and less subject to malfunction.

Maserati strongly believes that active protection should only be required when there is no other way to provide adequate protection. For head protection in side crashes, this is the case, since there is the need for occupant visibility (through side glazing), and therefore no solid structure can be installed so as to protect the occupant's head. When

[6] We also note that under the Safety Act, FMVSS must be performance standards, not design standards. If a given standard can only be met with one technology, there may exist a conflict with this mandate. (Frontal air bags are a different matter as they are specifically required by statute.)

passive protection can be provided, as it is the case for thorax, abdomen, and pelvis, it is a preferable solution.

3. Pole test proposal: Maserati supports the introduction of a pole test with Head Injury Criteria in FMVSS 214. Maserati does not support the introduction of a pole test with chest injury criteria or other injury criteria in FMVSS 214.

Maserati urges NHTSA to reconsider the risk created by the introduction of a pole test with thorax injury criteria which would force manufacturers to focus their development efforts on providing extra thorax protection, driving resources away from the design and optimization of head protection systems. Maserati does not believe this is

NHTSA's desire, since the PEA clearly shows that head injuries are the the main cause for fatalities and MAIS 3+ injuries in impacts againsta narrow objects, as represented by the side pole crash test.

Maserati believes that the introduction of a pole test **with** Head Injury Criteria and **without** chest injury criteria or abdomen or pelvis injury criteria will allow manufacturers to focus on providing effective active protection for the head in pole crashes.

Moreover, in the PEA, NHTSA states that there is a known risk of injuries to out-of-position occupants from existing side air bags. Currently, manufacturers are voluntarily trying to assess and minimize risks to out-of-position occupants. The inclusion of a chest injury criterion in an FMVSS 214 pole test will force the use of more aggressive side air bags and which might not able to be properly deal with out-of-position issues.

Maserati urges NHTSA to assess the out-of-position risk for the type of side bags that are needed to satisfy the pole test with chest injury criteria prior to mandating such side air bags in the USA fleet.

Past experiences with over-powerful front air bags should be taken into account before mandating a technology with unknown effects.

4. Pole test proposal: Lead-time and request for additional exemptions

A. Exemption from the static test

The purpose of the static door crush resistance test in the existing FMVSS 214 is to guarantee the ability of the vehicle to provide some kind of protection in a side impact against a narrow object. With the adoption of a pole test, the same performance could be assessed in the pole test (maybe with the addition of a structural performance parameter

to the test, e.g. maximum pole intrusion), making the door crush resistance test redundant and unnecessarily burdensome.

Maserati requests that if the vehicle-to-pole test is adopted, any vehicle certified to the vehicle-to-pole test should be exempted from the static test in FMVSS 214 (on the basis that the static test would be repetitive).

B. Exemption from the vehicle-to-pole test

Under 49 CFR 571.214 S3(e)(1), a vehicle would be exempt from the static test requirements if its side door is located so that H-point of a manikin placed in any seat is below the sill of the vehicle and thus does not fall "within the transverse, horizontal projection of the door's opening". Maserati maintains that if a vehicle is exempt under current S3(e) it should likewise be exempt from the proposed pole test.

C. Small volume manufacturers need greater lead-time

Maserati supports the proposal to permit SVMs until the end of the vehicle-to-pole test phase-in before having to comply, and also supports the proposal as regards additional pole test lead-time for limited line manufacturers.

5. Conclusions

Based on the above, Maserati believes as follows:

1. **MDB proposal: Maserati supports the use of ES-2 dummy in the MDB dynamic side impact of FMVSS 214, in place of the SID dummy currently used.**
2. **MDB proposal: Maserati does <u>not</u> support the use of SID-2s in the MDB dynamic side impact of FMVSS 214, neither in place of the SID dummy currently used, nor in addition to the ES-2.**
3. **MDB proposal: Maserati supports the use of a phase-in for the introduction of changes to the MDB dynamic side impact of FMVSS214.**
4. **MDB proposal: Maserati supports the adoption of MDB injury criteria consistent with international harmonization.**
5. **Pole test proposal: Maserati supports the addition of a pole test to FMVSS 214 <u>if</u> based on international harmonization**
6. **Pole test proposal: the addition of a pole test to FMVSS 214 is a good idea only if the standard is reasonable, practicable and appropriate for particular types of motor vehicles. This means:**
   - NHTSA should consider the cumulative effect of its regulations;
   - NHTSA should reconsider the underestimated costs predicted in its proposal; should reconsider its proposal in light of the fact that certain vehicles, like sports performance cars, have basic features and characteristics that make the <u>structural</u> changes necessitated by the proposal difficult if not impossible, irrespective of lead-time; should reconsider its proposal the achievability and counter-productivity of the technology required by the proposal.
7. **Pole test proposal: Maserati supports the introduction of a pole test with Head Injury Criteria to FMVSS 214. Maserati does <u>not</u> support the introduction of a pole test with chest injury criteria or other injury criteria to FMVSS 214.**
8. **Pole test proposal: Lead-time and request for additional exemptions: NHTSA should provide an exemption under S5 from the vehicle-to-pole test if a vehicle would be exempt under current S3(e); and, if the pole test is adopted, the <u>static</u> test should be deleted as repetitive.**

Respectfully submitted,

Roberto Corradi, Director

Maserati Design & Development