

DEPARTMENT OF TRANSPORTATION**National Highway Traffic Safety Administration****49 CFR Part 572**

[Docket Nos. NHTSA 2000–7052 and NHTSA 2001–11111]

Anthropomorphic Test Devices; Denial of Petitions for Reconsideration Regarding the Hybrid III 3-Year Old Child and CRABI Test Dummies

AGENCY: National Highway Traffic Safety Administration (NHTSA), DOT.

ACTION: Denial of petitions for reconsideration.

SUMMARY: This notice denies two petitions for reconsideration submitted by Ford Motor Company. The petitions ask the agency to reconsider some aspects of final rules, adopting design and performance characteristics of the 12-month-old Child Restraint Airbag Interaction (CRABI) dummy and the 3-year-old Hybrid III child dummy. The petitioner specifically requests that the agency disregard the neck readings in certain circumstances. We are denying these petitions for two reasons. One, we believe that the neck readings do not require special or different instructions and procedures for their analysis, beyond those used for data treatment in the safety standards. Two, we feel that questions related to either the selection of injury criteria or interpretation of compliance test results should be resolved within the relevant safety standard rather than 49 CFR, part 572.

FOR FURTHER INFORMATION CONTACT: *For non-legal issues:* Mr. Nathaniel Beuse, Office of Crashworthiness Standards, NVS–111, National Highway Traffic Safety Administration, 400 Seventh Street, SW., Washington, DC 20590. Telephone: (202) 366–1740. Fax: (202) 473–2629.

For legal issues: Ms. Deirdre Fujita, Office of Chief Counsel, NCC–112, National Highway Traffic Safety Administration, 400 Seventh Street, SW., Washington, DC 20590. Telephone: (202) 366–2992. Fax: (202) 366–3820.

Summary of the Petitions

Ford Motor Company (Ford) petitioned the National Highway Traffic Administration (NHTSA), in a letter dated September 28, 2001, to reconsider the specifications for the CRABI dummy in 49 CFR part 572, subpart R. Specifications for the dummy were published in an August 30, 2001, final rule. Ford claimed in its petition that in rear-facing child restraints, the dummy produces unacceptably high neck

extension moment readings when the neck is not substantially extended. Based on this claim, Ford asked the agency to disregard the CRABI dummy neck extension readings in certain circumstances and to specify the circumstances under which the neck extension readings would be disregarded.

On January 30, 2002, Ford submitted an additional petition for reconsideration concerning a December 13, 2001, final rule establishing the Hybrid III 3-year-old child dummy. In that petition, Ford raised nearly identical concerns as it did for the CRABI dummy.

Issues Raised in the Petitions

In the petitions, Ford expressed concerns with the CRABI and Hybrid III 3-year-old child dummies' neck responses when the dummies are tested in rear-facing child seats. Ford claimed that the dummies produce "falsely" high upper neck extension moments while their torsos and heads are fully supported by the support surface of the child restraint. Ford asserted that this occurs in 56 KMPH (35 MPH) full frontal rigid barrier vehicle tests. Ford believes the high neck extension moments, with practically no head translation, could also occur in compliance tests conducted pursuant to Federal Motor Vehicle Safety Standard (FMVSS) No. 213, "Child restraint systems," and the out-of-position airbag tests specified in FMVSS No. 208, "Occupant crash protection." Ford stated that their engineers disregard high neck extension moments in evaluation tests with these child dummies when the neck is not substantially extended. Ford claims that such a judgment is not practicable for complying with the relevant safety standards. Ford asked the agency to disregard the CRABI dummy neck extension readings in certain circumstances, and to specify the circumstances under which the neck extension readings would be disregarded during its compliance testing.

Analysis of Petitions

Ford claimed that both the CRABI and Hybrid III 3-year-old child dummies produce artificially high neck extension moments when the head shows no substantial translation. Ford stated that this occurs in rear facing CRABI and Hybrid III 3-year-old child dummies during 56 KMPH (35 MPH) frontal rigid barrier vehicle crash tests. Inasmuch as the Ford petition did not include any test data to support the claims, the agency reviewed its own relevant test

data. The agency has very limited data with these dummies in rear facing child restraints in 56 KMPH (35 MPH) frontal barrier crashes, but does have more extensive data on these dummies in the rear facing position at other speeds. The agency's own data did not indicate any signal abnormalities that would undermine the relevance and usefulness of the CRABI and the Hybrid III 3-year-old child dummies. Subsequently, in January 2002 and again in March 2002, the agency asked Ford to provide data that would help the agency better understand Ford's assertions. Failing to receive a response, the agency approached the chairman of the Hybrid III Dummy Family Task Group of the Society of Automotive Engineers (which was instrumental in developing these dummies) to determine if such issues were raised in its discussions. The chairman of the task group found no evidence or knowledge of such concerns.

Similarly, we have examined comments to the advanced airbag final rule (65 FR 30680, Docket No. NHTSA 00–7013). Neither the comments, nor the agency's data, have suggested that the CRABI and Hybrid III 3-year-old child dummies are inappropriate for use in testing under FMVSS No. 208.

As part of on-going research, the agency previously conducted tests using the FMVSS No. 213 sled pulse and the CRABI dummy in a rear-facing child restraint. In those tests, extension moments were recorded without considerable head translation. The agency examined the test results in considerable detail. We believe that extension moments without head translation can happen in at least two situations. In the first event, the extension moments could be a result of head contact with the child restraint system (CRS) seatback before substantial translation of the dummy's torso had occurred. In this case, an extension moment in the neck can be developed when the seat back of the CRS interacts with the back of the dummy's head below its center of gravity. A shear force, caused by the CRS interacting with the head, coupled to a moment arm, can result in an extension moment at the upper neck load cell. In the second event, a moment can be generated by a frictional force caused by even a minute vertical motion of the head of the dummy that is imbedded into the CRS seat back. During the impact, the torso, as it is being pushed into the seat back cushion by inertial forces, has a tendency to ramp-up. The ramping action is resisted through the neck by the frictional force at the back of the dummy head. The two opposing