DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 572

[Docket No. 2008–0111]

RIN 2127–AK21

Anthropomorphic Test Devices; ES–2re Side Impact Crash Test Dummy 50th Percentile Adult Male

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

ACTION: Final rule, response to petitions for reconsideration, technical amendment.

SUMMARY: This final rule responds to petitions for reconsideration of a December 6, 2006 final rule establishing in 49 CFR part 572 a new mid-size adult male side crash test dummy, called the ''ES–2re'' test dummy. The petitions were submitted by the Alliance of Automobile Manufacturers, First Technology Safety Systems, and Denton ATD. In response to the petitions, this document slightly revises the specifications for conducting the neck assembly qualification test, narrows the tolerances for the tuning spring rates for the dummy's thorax, revises performance corridors for the full body thorax test, corrects cross-references in the Part 572 regulatory text and makes minor changes to the drawing package and user's manual for the test dummy.

DATES: This final rule is effective August 15, 2008. The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of August 15, 2008. If you wish to petition for reconsideration of this rule, your petition must be received by July 31, 2008.

ADDRESSES: If you wish to petition for reconsideration of this rule, you should refer in your petition to the docket number of this document and submit your petition to: Administrator, National Highway Traffic Safety Administration, 1200 New Jersey Avenue, SE., Washington, DC, 20590.

The petition will be placed in the docket. Anyone is able to search the electronic form of all documents received into any docket by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (Volume 65, Number 70; Pages 19477–78).

FOR FURTHER INFORMATION CONTACT: For non-legal issues, you may call Ms. Kristin Kirk, NHTSA Office of Crashworthiness Standards (telephone 202–493–0516). For legal issues, you may call Ms. Deirdre Fujita, NHTSA Office of Chief Counsel (telephone 202–366–2992) (fax 202–366–3820). You may send mail to these officials at the National Highway Traffic Safety Administration, 1200 New Jersey Avenue, SE., Washington, DC, 20590.

SUPPLEMENTARY INFORMATION:

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I. Introduction

This final rule responds to petitions for reconsideration of a final rule (71 FR 75304; Docket No. NHTSA–2004–25441) that was published on December 14, 2006, amending 49 CFR Part 572 to add specifications and qualification requirements in Subpart U for a new mid-size adult male side impact test dummy, called the ''ES–2re'' test dummy, for use in Federal Motor Vehicle Safety Standard (FMVSS) No. 214 (''Side impact protection''). The notice of proposed rulemaking (NPRM) preceding the December 14, 2006 final rule was published on September 15, 2004 (69 FR 55550; Docket 18864; reopening of comment period, January 12, 2005, 70 FR 2105).

The ES–2re is technically superior to both the SID–HIII 50th percentile adult male test dummy (49 CFR Part 572, subpart M) currently used in the optional pole test of FMVSS No. 201 and the side impact New Car Assessment Program tests, and the SID 50th percentile adult male test dummy (49 CFR Part 572, subpart F) now used in the moving deformable barrier (MDB) test of FMVSS No. 214. The ES–2re can be instrumented with a wide array of sensors to better predict a wider range of injury potential than any other currently available mid-size male side impact test dummy. It can assess the potential for head injury (measuring the resultant head acceleration, which is used to calculate the Head Injury Criterion (HIC)); thoracic injuries in terms of spine and rib accelerations and rib deflections; abdominal injuries through three load cells to assess the magnitude of lateral and oblique forces; pelvic injuries, and other injuries.

The use of the ES–2re test dummy in FMVSS No. 214 was discussed in and made part of a final rule upgrading FMVSS No. 214 (49 CFR 571.214) published on September 11, 2007 (72 FR 51908; Docket No. NHTSA–29134).[1] The final rule added a dynamic pole test to FMVSS No. 214, to supplement the MDB test currently in the standard. In the dynamic pole test, a vehicle is propelled sideways into a rigid pole at an angle of 75 degrees, at any speed up to 32 km/h (20 mph). Compliance with the pole test will be determined in two test configurations, one using the ES–2re test dummy representing mid-size adult males and the other using a test dummy representing small adult females.[2] The final rule required vehicles to protect against head, thoracic and other injuries as measured by the two test dummies. The final rule also specified using the dummies in FMVSS No. 214's MDB test, which simulates a vehicle-to-vehicle, ''T-bone'' type intersection crash.

II. Summary of ES–2RE Part 572 Final Rule

For any test dummy to be a useful test device in a compliance or vehicle rating setting, responses to controlled inputs must be reproducible and repeatable. The December 14, 2006 ES–2re final rule specified a qualification process for the ES–2re dummy, *i.e.*, a series of specified component and whole body-level tests, to verify that a test dummy's response measurements fall within prescribed ranges. The tests and response ranges (or performance corridors) for the ES–2re, specified in 49

[1] The September 11, 2007 final rule fulfilled the mandate of Section 10302 of the ''Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users,'' (SAFETEA–LU), *Pub. L.* 109–59 (Aug. 10, 2005; 119 Stat. 1144). Section 10302(a) of SAFETEA–LU provides:

Sec. 10302. Side-Impact Crash Protection Rulemaking.

(a) Rulemaking.—The Secretary shall complete a rulemaking proceeding under chapter 301 of title 49, United States Code, to establish a standard designed to enhance passenger motor vehicle occupant protection, in all seating positions, in side impact crashes. The Secretary shall issue a final rule by July 1, 2008.

We received petitions for reconsideration of the FMVSS No. 214 final rule and will be publishing our response to those petitions at a future date.

[2] NHTSA published a final rule adding the specifications for the small female dummy (SID–IIsD) to 49 CFR Part 572 on December 14, 2006 (71 FR 75342; Docket No. NHTSA–25442). We received petitions for reconsideration of the final rule and expect to publish our response to those petitions in 2008.

CFR Part 572 Subpart U, ensure that the dummy's responses to controlled inputs are reproducible and repeatable, thus assuring full and accurate evaluation of occupant injury risk in vehicle tests. The test procedures and performance specifications for qualification of the ES–2re as set forth in the December 14, 2006 final rule established performance levels for the dummy's head assembly, neck assembly, lumbar spine, shoulder assembly, thorax (upper torso) assembly, abdomen assembly and pelvis. (An overview of the test requirements is provided in Appendix A to this preamble.)

Today's document relates to the following test procedures and performance specifications of the final rule:

- *Neck Assembly:* The neck-headform assembly of the ES–2re is attached to a specified pendulum which is released so that it contacts a decelerating mechanism at an impact velocity of 3.4 meters per second (m/s). As the pendulum decelerates, its velocity must fall within time-dependent velocity corridors described in the regulatory text, and at zero velocity, the pendulum must be vertical within ±1 degree. The rotation of the neck-headform in time is measured to evaluate the dummy's performance.
- *Lumbar Spine:* The lumbar spine is tested in a similar fashion as the neck. The spine is assembled with the headform assembly and attached to a specified pendulum. The pendulum is then released from a height so that it impacts the decelerating mechanism at a velocity of 6.05 m/s. The deceleration of the pendulum is defined by time-dependent velocity corridors. As with the neck assembly test, the rotation of the lumbar spine-headform assembly in time is measured and must fall within the specified response corridors.
- *Thorax (upper torso) Assembly:* Two procedures are specified to test the response of the ES–2re thorax. The first is an individual rib drop test. In this test, each rib module is mounted in a test fixture and a guided mass is dropped from two different heights to impact the rib. For each drop height, the resulting deflection of the rib is measured and used to determine the rib's suitability for compliance testing. The second thorax test is a full-body test performed on a seated dummy with its complete set of ribs. This test involves impacting the side of a seated dummy at the centerline of the middle rib, at a velocity of 5.5 m/s ± 0.1 m/s. Response ranges used to qualify the dummy are defined for the deflections of the upper, middle and lower ribs, and for the maximum force of the impactor at 6 ms or more after time zero.

III. Petitions for Reconsideration

The Alliance of Automobile Manufacturers (Alliance), Denton ATD (Denton) and First Technology Safety Systems (FTSS) petitioned for reconsideration of the December 14, 2006 final rule. The petitioners generally supported the incorporation of the ES–2re into 49 CFR Part 572,[3] but had concerns with engineering aspects of the Part 572 specifications and with the drawings incorporated by reference into the regulation. The suggestions of each of the petitioners are summarized below:

a. The Alliance petitioned to specify the use and thickness of aluminum honeycomb in the test procedures for assessing the neck assembly and the lumbar spine. The petitioner also asked NHTSA to revise specifications for the thorax assembly tolerances for rib module tuning springs, to eliminate the thorax individual rib drop test and to reduce the speed for the full body thorax test. The petitioner also suggested corrections to cross-references and typographical errors in the Part 572 regulatory text.

b. Denton also petitioned to specify the use of honeycomb material in the neck qualification test procedure. In addition, the petitioner requested that NHTSA eliminate the full body thorax impact test because of concerns that the test reduces the durability of the dummy, and because Denton believed ''it impossible for the certification test to be a repeatable and reproducible evaluation of the dummy.'' Alternatively, Denton suggested that if NHTSA retained the full body thorax impact test, that the agency adopt new corridors for the test developed by the Society of Automotive Engineers (SAE) Dummy Testing Equipment Subcommittee (DTESC) of the Human Biomechanics and Simulation Standards Committee. Denton also identified portions of the regulatory text and a number of drawings incorporated by reference into Part 572 that the petitioner believed needed correction.

c. FTSS requested that NHTSA consider data for the full-body thorax impact test from FTSS, Denton and GM and revise the probe force after 6 millisecond specification. FTSS also identified a number of drawings that the petitioner believed needed correction.

[3] The Alliance stated that it believes that WorldSID is the most appropriate side impact dummy representing the 50th percentile adult male, but that ''until WorldSID is placed into Part 572, the Alliance generally supports the interim adoption of the ES–2re.''

IV. Response to the Petitions

In response to the petitions for reconsideration of the December 14, 2006 final rule, this document slightly revises the specifications for conducting the neck assembly qualification test, narrows the tolerances for the tuning spring rates for the dummy's thorax, revises performance corridors for the full body thorax test, corrects cross-references and typographical errors in the Part 572 regulatory text and makes minor changes to the drawing package and NHTSA user's manual (Procedures for Assembly, Disassembly and Inspection) for the dummy.

a. Neck Assembly Qualification Test

The Alliance believed that the requirement in § 572.183(c) that at zero velocity, the pendulum must be vertical within ±1 degree ''is broad and that it would not be possible to fail this requirement as long as a 3 inch piece of aluminum honeycomb is used.'' The Alliance stated that ''it would be more precise to simply state in the regulation the need to utilize a 3-inch thick piece of aluminum honeycomb, rather than include the more complicated specification for verticality of the pendulum beam.'' Denton also petitioned that a 3-inch piece of aluminum honeycomb should be specified as the decelerating mechanism for the neck pendulum in place of the current angular position specification. Denton claimed that retaining the specification for ±1 degree from vertical at 0 m/s would only ''add expense and difficulty to the test with no value,'' as labs would have to measure the angular position of the pendulum for every test. This petitioner believed that the angular position specification came from ''ES–2 user's manuals from TNO and FTSS,'' but it was ''originally intended by TNO to show that 3 inch thick honeycomb should be used for this test.''

Agency Response

We generally concur with the request. The requirement to measure the pendulum to ±1 degree from vertical was taken from the manufacturer's user's manual for the dummy. While this measurement would not require a great amount of effort to attain, we conclude that its removal from the test procedure would not affect dummy responses. Additionally, for all Hybrid III dummies, as well as for the SID–IIsD dummy, there is no requirement for the vertical alignment of the pendulum at zero velocity, nor is there a specified honeycomb thickness. All of these dummies reference the pendulum in 49 CFR Part 572 Subpart E (Figure 22),

which only specifies the honeycomb density and the horizontal distance between the pivot of the pendulum and the honeycomb face. By maintaining consistency between test procedures for different dummies, the familiarity of lab technicians with the instructions for the dummy is increased, as will be the ease and efficiency of conducting tests.

Accordingly, NHTSA has decided to remove the requirement for the pendulum to be vertical ±1 degree at zero velocity, as petitioned. However, we are not adding a specification for honeycomb thickness, since laboratories may have alternative pendulum designs that achieve the desired deceleration. These changes will allow for the ES–2re neck qualification test to be consistent with those for all other currently-used dummies.

b. Lumbar Spine

Similar to its recommendation to specify the neck pendulum decelerating mechanism as a 3-inch thick piece of aluminum honeycomb, the Alliance also petitioned to add to § 572.187(b)(3) a specification that the decelerating mechanism should have a thickness of 6 inches.

Agency Response

We do not agree to this request. Honeycomb thickness is not specified for any pendulum qualification tests for the Hybrid III family of dummies or for the SID–IIsD. The deceleration of the pendulum in neck or lumbar tests is defined by the velocity-time profile provided in the regulatory text, thus it is unnecessary to specify a honeycomb thickness.

c. Thorax Assembly, Rib Drop Test

1. Use of the Individual Rib Drop Test

The Alliance petitioned to delete the rib drop test because ''it may not sufficiently identify poor performing ribs.'' The petitioner referred to Denton data from six rib drop tests (three tests at 3 meters per second (m/s) and three at 4 m/s).

Agency Response

We are denying the request. It is not evident how the Denton results supported the request, and the petitioner did not explain its point. The six results provided by the Alliance all fell within the displacement corridors of the NPRM and the final rule. Presumably, the Alliance believes that some or all of these ribs should have failed this test as ''poor'' performers. However, no indication was given that these ribs were problematic, or that they should not have met the requirements of the rib drop test.

While analyzing the petitioner's data to try to understand the Alliance concern, we noticed that although the tests were conducted after the issuance of the final rule, the procedures used by the petitioner followed the NPRM specifications (which specified impact velocities) rather than the final rule's procedures (which specified drop heights). For all six tests, drop heights (which the agency calculated from the provided impact velocities) did not meet the specifications of the final rule.[4] Assuming that the Alliance was trying to illustrate that tests conducted outside the specifications of the final rule could still meet the deflection corridors, we still do not concur that this occurrence indicates that the test is deficient. Because of variation in dummy responses, the rib response at drop heights close to the final rule specifications may or may not also fall within the deflection corridor. No source of support for the Alliance petition could be identified in the provided data.

The individual rib drop test was originally specified in the manufacturer's user's manual and has received support throughout the rulemaking process. The Alliance's test results do not appear to demonstrate inadequacies in the individual rib drop test nor has the petitioner provided an explanation of the alleged deficiency of this test. Accordingly, the agency is denying the request to delete the individual rib drop test.

2. Tuning Springs

Petitioners raised two issues about the final rule's tuning springs specifications. First, the Alliance, Denton and FTSS pointed out a discrepancy between the user's manual (Procedures for Assembly, Disassembly and Inspection (PADI)) and Drawing 175–4040 regarding the spring rate for the middle (black) spring. The PADI specifies the spring rate as 16.6 Newtons per millimeter (N/mm), whereas the drawing has a 16.4 N/mm specification. The Alliance believed that the latter specification is correct. We confirm that the spring rate of 16.4 N/mm is correct and we have corrected the typographical error in the PADI.

The second issue relates to the 10 percent tolerance of the spring rates shown in several drawings of the springs (Note 2 in drawing 175–4040, black spring (16.4 N/mm spring rate); in drawing 175–4041, white spring (13.8 N/mm); and in drawing 175–4042, blue spring (19.0 N/mm)). (Each rib of the dummy contains a spring that can be changed out to adjust the amount of rib deflection upon impact.) All petitioners believed that the tolerances were too large. FTSS and Denton recommended a tolerance of ±1 N/mm for all three drawings. Denton noted that with the currently specified spring tolerances which allow overlap of the spring rates, springs could be replaced for tuning purposes but the lab will not ''get the expected effect because of spring variability.'' Denton states that they have manufactured these springs under tighter tolerances than ±1 N/mm, and that although it increases the spring cost to do so, ''it prevents much larger costs that result from trial and error in testing while trying to tune rib modules.'' The Alliance stated that the tolerances for the three tuning springs are such that the specified spring rates can overlap and recommended that the tolerance on the springs be limited to ±5 percent, rather than the current tolerance of ±10 percent. The Alliance stated that the SAE DTESC also recommended a tolerance of ±5 percent.

Agency Response

NHTSA agrees that the tolerance of ±10 percent is too large for the reasons provided by the petitioners and has decided to adopt a ±1 N/mm tolerance as recommended by FTSS and Denton. Changing the tolerance to ±1 N/mm will result in a tighter control of the rib response than the specification of the final rule and will prevent overlap of the tuning spring rates, while providing more leeway in meeting the tolerance than the ±5 percent tolerance suggested by the Alliance. Accordingly, we have revised drawings 175–4040, 175–4041 and 175–4042 to specify a spring rate tolerance of ±1.0 N/mm.

d. Thorax Assembly, Full-Body Test

1. Use of the Full Body Thorax Impact Test

Denton requested that the full-body thorax impact test be eliminated because the petitioner believed the test ''is destructive, and redundant to the drops [sic] tests in 572.185.'' Denton stated that the impact—

causes damage to the foam on the dummy ribs with every impact that is done * * * [W]e estimate that the foam on the dummies ribs will need to be replaced after only 20–50 certification tests on the dummy. * * * [U]sers may experience limited durability of the dummy due to the certification test, caused by a lack of fully understanding the batch to batch foam variations. * * * [T]he fact that the dummy changes with every test

[4] In the 3 m/s data set, calculated drop heights exceeded the final rule specification of 454–464 mm, ranging from 471–474 mm, while in the 4 m/s data set, the calculated drop heights ranged from 779–783 mm, which does not reach the final rule specification of 807–823 mm.

makes it impossible for the certification test to be a repeatable and reproducible evaluation of the dummy. (Denton petition, pp. 2–3)

Alternatively, Denton suggested new performance corridors for the dummy's response ranges (deflections of the upper, middle and lower ribs, and the maximum force of the impactor at 6 ms or more after time zero) based on a DTESC-compiled data set, which included test data from NHTSA, Denton and GM. Denton endorsed the DTESC's use of ±3 times the standard deviation of the data set to establish corridors. In contrast to Denton's endorsement of corridors based on ±3 times the standard deviation, in its petition the Alliance stated that it analyzed the DTESC data and recommended corridors based on ±2 times the standard deviation of the data set.

Agency Response

NHTSA is denying the request to eliminate the full body thorax impact test. The test is necessary to assess the dummy's thorax performance as a system, as opposed to assessing the performance of each rib individually in the rib drop test. A full-body test such as the ES–2re full body thorax impact test is also included in the qualification test procedures for other side impact dummies, including the SID, SID–IIsD and WorldSID.[5] Performance corridors for the full body thorax test were formed as discussed below in section IV.d.5 of this preamble.

2. Full Body Thorax Test Impact Velocity

The Alliance petitioned to revise the test speed for the full body thorax impact test ''such that it does not significantly degrade the rib foam.'' The petitioner stated that a study by Denton showed that force variation was shown to occur in repeat tests due to degradation of the rib foam material, eventually resulting in responses falling out of the corridor for the maximum force of the impactor 6 ms or more after time zero. The Alliance stated that ''force [is] the most sensitive parameter and increase[s] as more tests are conducted due to rib foam degradation. This could require rib replacement after approximately 20–50 certification tests, which the Alliance considers unacceptable in terms of durability.'' (Alliance petition, p. 3)

Agency Response

The agency is not reducing the impact velocity for the test. The impact velocity was reduced from the NPRM's value of 6.7 m/s to the final rule's value of 5.5 m/s, in response to FTSS's comment to the NPRM (NHTSA Docket No. 18864–22) that the impact velocity (6.7 m/s) was too severe, and that a more appropriate impact velocity would probably be between 5.0 and 6.0 m/s. NHTSA evaluated the comment by conducting full-body thorax qualification tests to determine a more appropriate test speed. The results of the test series led to the establishment of an impact speed of 5.5 m/s, which fell within the range suggested by FTSS.

The impact velocity for the ES–2re full body thorax impact test was chosen to achieve rib deflections at the levels considered for the ES–2re Injury Assessment Reference Value (IARV) in the FMVSS No. 214 rulemaking that incorporated the test dummy into the side impact protection safety standard. The September 11, 2007 FMVSS No. 214 final rule specifies that the deflection of any of the upper, middle, and lower ribs shall not exceed 44 millimeters (mm) (1.65 inches).[6] NHTSA sought an impact velocity for the full body thorax impact test that verified the dummy's response at this IARV level of rib deflection. Repeatable, reliable responses in qualification tests that exercise the ribs to this IARV level will ensure repeatable and reliable results from one vehicle test to another. As described in the report, ''Development of a Reduced-Severity Full Body Thorax Certification Procedure and Response Requirements for the ES–2re Dummy'' (Docket DMS 25441–13), the impact velocity of 5.5 m/s was chosen because it was the lowest impact velocity that produced rib deflections near the IARV. A lower impact speed would not produce sufficient rib deflection and thus would not give indication of the dummy's performance at the critical 44 mm deflection levels.

Following establishment of an impact speed of 5.5 m/s, the agency conducted a series of tests to generate performance corridors for the full-body thorax test. These tests subjected three dummies to 15 impacts each, with five impacts for each tuning spring stiffness. Although some impacts produced deflections that were above the IARV of 44 mm, no problems with rib durability were observed. Furthermore, the petitioners did not provide conclusive evidence that the 5.5 m/s impact speed produced the reported rib degradation. Rib durability is discussed further below; however, it does not appear to be an issue related to the test speed.

3. Durability

The Alliance, referencing the SAE DTESC meeting minutes from January 19, 2007, stated that repeat full-body thorax tests caused degradation of the rib foam material, which in turn resulted in variation of the ''Impactor Force after 6 ms'' measurements. This caused force responses to eventually fall outside the prescribed corridor. The Alliance also referenced linear regression plots showing ''the variation of rib deflections and force as repeat full body thorax tests were conducted,'' and additional linear regression plots provided in the DTESC meeting attachments that indicate that the impactor force is the ''most sensitive parameter and increas[es] as more tests are conducted due to rib foam degradation.'' The Alliance claimed that the ribs could require ''replacement after approximately 20–50 certification tests,'' which it ''considers unacceptable in terms of durability.'' Denton, which also referenced the January 19, 2007 DTESC Meeting Minutes, had similar comments regarding durability.

Agency Response

As mentioned in the previous discussion, the full body thorax impact test is necessary for evaluation of the dummy as a system. Additionally, the test is conducted at 5.5 m/s because this speed is required to induce rib deflections at the level of the IARV. The dummy must be tested at this level of deflection to ensure that its performance in a crash test will be reliable.

Results from agency full-body thorax qualification tests conducted at 5.5 m/s cannot be appropriately analyzed for trends such as those described by the petitioners, as there are not enough tests of any one dummy to confidently state that the responses are behaving in a certain manner (5 tests are available for each dummy). However, these five tests per dummy do not show strong trends in the behavior of the peak impactor force. The durability of the ES–2re was an issue discussed in response to comments to the December 14, 2006 NPRM. In responding to the comments, the agency discussed the durability of the ES–2re in agency testing. It was found that after full-body thorax impacts conducted at 6.7 m/s[7] on two

[5] WorldSID is not yet codified in 49 CFR Part 572. It was developed by industry representatives from the U.S., Europe and Japan, with the support of the European and Japanese governments and is considered by many to be the next-generation 50th percentile male side impact dummy (see DMS Docket No. 2000–17252).

[6] A chest deflection threshold of 44 mm corresponds to a 50 percent risk of AIS 3+ injury for a 45-year-old.

[7] 6.7 m/s was the proposed impact velocity for the full-body thorax impact test discussed in the NPRM.

dummies (5 impacts on one dummy, 15 on the other), no parts of the dummy exhibited any observable component damage or failure. Additionally, no significant durability problems were identified after 14 pole tests and 14 MDB vehicle crash tests. The final rule therefore concluded that the durability of the ES–2re is fully acceptable for its intended use in FMVSS No. 214.

Although NHTSA has conducted a number of tests on the ES–2re dummy without any durability issues arising in the ribs, the data provided in the DTESC meeting attachments submitted by Denton and referenced by the Alliance were also carefully analyzed, and the following observations were made:

• The ''Impactor Force after 6 ms'' data [8] that the Alliance refers to as eventually falling outside the prescribed corridor is a compilation of results from a number of different dummies. Most of the dummies produced fairly consistent results, whether within or somewhat outside the final rule performance corridor. The ES2–LAB dummy, tested at Denton ATD, had rising response measurements that eventually exceeded the final rule corridor limit (see middle set of ''Removed Dummies'' in Figure 4 of this preamble, *infra*.). Three ES2–LAB dummy measurements significantly exceeded the upper performance limit; these were conducted after an ''investigational test series,'' the conditions of which were not provided. The photograph of a damaged rib provided by Denton in the DTESC minutes was taken after these three tests. Therefore it is unknown whether the damage was related to the final rule qualification procedures or to the investigational test series conducted earlier on this dummy. The reason that this dummy responded in this manner is unknown; however, the trend was unique to this dummy and does not indicate durability problems with the ES–2re in general.

• The linear regression plot of the ''Impactor Force after 6 ms'' results referred to by petitioners Denton and the Alliance shows a positive slope, suggesting that the response is rising as more tests are conducted. However, the correlation is very weak ($R^2 = 0.1072$), and furthermore all data fall within the final rule corridors. Therefore, this plot does not illustrate any problematic responses.

• It appears that as more tests are conducted, the impactor force before 6 ms rises. However, this response is not important for qualification or crash tests. As long as the dummy responds in a consistent manner at high deflections, such as those in qualification and crash tests, its inertial response (before 6 ms) is inconsequential.

As discussed, the petitioners do not provide strong evidence of rib durability problems. However, the agency recognizes that other side impact dummies (*i.e.*, SID–IIsD, WorldSID) are specified to have an impact speed of 4.3 m/s for testing the full-body thorax. Therefore, to ensure that the severity of qualification tests is consistent between side impact dummies, the rib deflections required for qualification of the SID–IIsD were compared to their respective IARV levels. (For the WorldSID, an IARV is not yet available as injury criteria are still under development.) The SID–IIsD dummy has a monitored IARV limit of 38 mm for all thoracic ribs,[9] although at this time FMVSS No. 214 does not specify a rib deflection limit for this dummy. To make a fair comparison between the deflection levels of the qualification test versus the IARV for the SID–IIsD and ES–2re, the SID–IIsD test conditions should be as close as possible to the ES–2re test conditions. Therefore, the deflections of the SID–IIsD ''thorax without arm'' test (rather than the ''thorax with arm'' test) were compared to its monitored IARV limit because the ES–2re full body thorax test is conducted with the struck-side arm removed. The rib deflection corridors for qualification of the SID–IIsD dummy are presented in Table 1 below.

TABLE 1.—RIB DEFLECTIONS SPECIFIED FOR SID–IIsD THORAX QUALIFICATION

Qualification test	Deflection (mm)		
	Lower rib	Middle rib	Upper rib
Thorax without Arm	36–43	39–45	33–40
Thorax with Arm	32–38	30–36	26–32

Comparison of the qualification test corridors to the monitored IARV limit of the SID–IIsD thoracic ribs show that the deflections for the thorax without arm qualification test are in line with the monitored IARV for the thoracic ribs. Thus, even though the impact speed is slower for the SID–IIsD qualification than for the ES–2re, the induced rib deflections, like those in the ES–2re qualification test, are at the level of the monitored IARV.

A similar comparison can be made using the Hybrid III 50th percentile male (Subpart E) dummy. For qualification of this dummy's thorax, the front of the dummy thorax is impacted using the same probe as that used on the ES–2re at a velocity of 6.7 m/s (22 feet per second (fps)), and the sternum displacement relative to the spine is specified to be 68 ± 4.57 mm (2.68 ± 0.18 inches). As of September 2006,[10] FMVSS No. 208's frontal barrier tests specify a maximum compressive deflection of the sternum of 63 mm for the Hybrid III 50th percentile male driver and passenger dummies in these tests. Therefore again, the amount of compression specified in the qualification test is consistent with the IARV required by the corresponding vehicle crash test.

Finally, both the Alliance and Denton estimated that under the current qualification test procedure, the ribs would require replacement after 20–50 certification (qualification) tests. However, inasmuch as dummies are rarely subjected to such high numbers of repeat qualification tests, this number does not provide a clear indication of dummy durability. The purpose of qualification is to assure the dummy's performance in a sled or crash test, therefore after it is qualified, the dummy will be used in these types of tests. Because sled and crash tests can be of varying severity, wear-and-tear on the dummy over time will differ based on the test conditions. Thus, the life of the dummy's components is more dependent on the severity, rather than the number, of tests to which the

[8] Attachments 17–19 of the SAE DTESC January 17, 2007 minutes. Submitted as part of Denton's petition for reconsideration to the ES–2re final rule, NHTSA Docket No. 25441–17.

[9] Kuppa, S. ''Injury Criteria for Side Impact Dummies.'' National Transportation Biomechanics Research Center, NHTSA. January 2006.

[10] The date that all new light vehicles were required to comply with the advanced air bag requirements set forth in section S14 of FMVSS No. 208. Prior to this requirement, vehicles not certified to section S14 could comply under tests that specified a maximum compressive deflection of the sternum relative to the spine of 76 mm.

dummy is subjected. Given this, the agency cannot concur that replacement after 20–50 qualification tests is indicative of poor rib durability.

In conclusion, an issue with rib durability cannot be clearly identified by the data provided, and the relative severity of the test with respect to the resulting rib deflection is comparable to those of the SID–IIsD and Hybrid III 50th percentile male dummies. Although petitioners provide an estimated number of qualification tests before rib replacement would be necessary, this estimate does not reflect the typical use of dummies and thus does not give an indication of the level of rib durability. Therefore, the full body thorax test will remain a requirement for ES–2re qualification, and the impact speed will remain as specified in the final rule.

4. Repeatability and Reproducibility

Denton believed that ''the fact that the dummy changes with every test makes it impossible for the certification test to be a repeatable and reproducible evaluation of the dummy.'' This comment refers to the petitioner's earlier discussion on rib durability, where they claim that ''this full body thorax impact test causes damage to the foam on the dummy ribs with every impact that is done'' and ''every single impact to the dummy degrades the foam on the ribs.''

Agency Response

As discussed in previous sections, the data provided by the petitioner do not sufficiently support a finding of a dummy durability problem for the ES–2re. Also, the data set used to form performance corridors shows very good repeatability and reproducibility. This data set included five different dummies from two labs and two manufacturers that were each tested at least five times. The coefficient of variations (CVs) for rib deflection responses from individual dummies ranged from 0.44 percent—2.09 percent, and the CVs for peak force after 6 ms ranged from 0.82 percent—3.85 percent, indicating excellent repeatability. In terms of reproducibility, rib deflection CVs ranged from 2.66 percent—2.96 percent, and the CV for peak force after 6 ms was 4.76 percent (see Table 2, below). These low CV values show that measurements from one dummy to the next were very consistent, *i.e.*, the test results are reproducible.[11] For these reasons, the agency disagrees with the petitioner that this test does not provide a repeatable and reproducible evaluation of the dummy.

TABLE 2.—MEAN, STANDARD DEVIATION, AND COEFFICIENT OF VARIANCE (CV) FOR ES2–RE DUMMIES TESTED IN THE FULL BODY THORAX QUALIFICATION TEST

[Bold text indicates dummies that were removed from the data set for the formation of performance corridors; see section d.5 of this preamble]

Lab and dummy No.		Upper rib peak disp (mm)	Middle rib peak disp (mm)	Lower rib peak disp (mm)	Peak force after 6 ms (N)
VRTC* 009	mean	35.4	39.72	38.46	5713.7
	SD	0.738	0.795	0.586	219.9
	CV	2.09%	2.00%	1.52%	3.85%
VRTC 70	mean	37.26	40.74	39.64	5678.2
	SD	0.747	0.404	0.462	128.1
	CV	2.00%	0.99%	1.16%	2.26%
VRTC 71	mean	39.4	42.6	40.26	5594.0
	SD	0.187	0.187	0.385	45.9
	CV	0.47%	0.44%	0.96%	0.82%
Denton 154	**mean**	**38.6**	**41.9**	**41.7**	**5521.3**
	SD	**0.785**	**0.659**	**0.432**	**72.138**
	CV	**2.03%**	**1.57%**	**1.04%**	**1.31%**
Denton 184	mean	37.3	40.4	41.2	5760.6
	SD	0.610	0.586	0.628	147.031
	CV	1.63%	1.45%	1.52%	2.55%
Denton ES2–LAB	**mean**	**37.7**	**40.5**	**40.4**	**6020.0**
	SD	**0.764**	**0.603**	**0.937**	**365.095**
	CV	**2.03%**	**1.49%**	**2.32%**	**6.06%**
Denton ES2–3	mean	38.0	42.4	41.4	5049.5
	SD	0.662	0.441	0.387	111.434
	CV	1.74%	1.04%	0.93%	2.21%
GM #2	**mean**	**40.2**	**43.9**	**44.6**	**5020.0**
	SD	**0.707**	**0.283**	**0.071**	**0.000**
	CV	**1.76%**	**0.64%**	**0.16%**	**0.00%**
FTSS ES2–001	**mean**	**35.0**	**40.1**	**40.0**	**5422.3**
	SD	**1.371**	**0.871**	**0.800**	**100.021**
	CV	**3.92%**	**2.17%**	**2.00%**	**1.84%**
FTSS 175–0000–023	**mean**	**36.1**	**41.2**	**40.1**	**5536.4**
	SD	**1.032**	**0.410**	**0.014**	**132.363**
	CV	**2.86%**	**1.00%**	**0.04%**	**2.39%**
ALL (non-bold only)	Mean	37.4	40.8	40.7	5643.3
	Stdev	1.11	1.09	1.08	268.38
	CV	2.96%	2.67%	2.66%	4.76%
ALL (including bold)	Mean	37.5	40.9	40.8	5667.3
	Stdev	1.31	1.13	1.20	326.92
	CV	3.49%	2.75%	2.95%	5.77%

* NHTSA's Vehicle Research and Test Center.

[11] When all dummies were included in a reproducibility analysis (i.e., dummies included in the data set for corridor formation as well as those that were excluded), rib deflection CVs ranged from 2.75%–3.49%, and the CV for peak force after 6 ms was 5.77%.

5. Performance Corridors

With regard to the performance corridors for the full body thorax test, NHTSA is revising the performance corridors to reflect responses obtained from a greater sample of dummies than was available when forming the final rule corridors. The revised corridors were derived from analysis of the DTESC data set. As explained below, most but not all of the DTESC data were used.

The basis for formation of the final rule performance corridors was discussed in the report, ''Development of a Reduced Severity Full Body Thorax Certification Procedure and Response Requirements for the ES–2re Dummy,'' (Docket NHTSA 2006–25441–13). As NHTSA was developing the full body thorax response corridors, the agency believed that the ideal test scenario would be to use ribs that met the individual rib drop specifications precisely at the upper and lower bounds of the individual rib drop corridor. Measurements taken with these ribs would allow for prediction of all possible full body thorax responses when individually qualifying ribs are installed in the dummy. However, given the limited number of rib sets available for testing, it was not possible to obtain ribs that responded precisely at the limits of acceptable performance. Therefore, some ribs tested in the full body test had individual rib drop responses somewhat above or below the corridor bounds, while others were within the corridor. The results of the full body impact tests were then plotted against the corresponding individual rib responses and a linear regression was performed to relate the responses of these two tests. Using this regression, the rib responses in a full body test at the upper and lower limits of the individual rib drop corridor were predicted. Performance corridors for the full body test were formed based on the intersection of this regression line with the performance limits of the individual rib drop test.[12]

The agency only used full body tests with the out-of-specification individual ribs in the regression and did not use them to determine the overall response variability of the thorax. The data set used for the formation of performance corridors by statistical means (as discussed in the following paragraphs) only included the full body thorax impact responses that were generated using ribs that met the requirements of the individual rib drop test.

FTSS petitioned for changes in the ''Peak Impactor Force after 6 ms'' corridor based on statistical analysis of all NHTSA data along with additional data from FTSS, Denton and GM. However, the FTSS data set included NHTSA results derived using out-of-specification ribs. Moreover, corresponding rib drop results were not provided for the full body impact tests conducted by FTSS, Denton and GM. Though the NHTSA results using out-of-specification ribs could be removed from the data set, it is unknown whether the responses from FTSS, Denton and GM were based on ribs that passed qualification tests individually. Therefore, results from this data set were not considered for the formulation of new performance corridors.

The data set with which the Alliance and Denton recommended new performance corridors was compiled by the SAE DTESC and submitted by Denton. This data set contained results from full body and individual rib qualification tests conducted at NHTSA, Denton and GM,[13] and is the source for the data analysis and corridor formation discussed in the following sections. However, as discussed below, before using this data set to establish performance corridors, some results were removed.

NHTSA data, which was taken from the report ''Development of a Reduced Severity Full Body Thorax Certification Procedure and Response Requirements for the ES–2re Dummy'' (supra), included results from three different dummies. One set of NHTSA responses—included in the DTESC dataset—was obtained with a middle rib that did not meet individual rib drop specifications (dummy 009, blue springs). Because the performance of the dummy in full body impacts would be affected by the out-of-spec middle rib, we removed the five tests in this series from the data set.

Denton performed full body thorax tests on four dummies, three of which had corresponding individual rib drop test results. We eliminated from consideration for corridor formation the dummy that did not have individual rib drop results (#154). Two other dummies' responses in the DTESC data set were also removed. The first was another dummy from Denton, ES2–LAB, which (as discussed previously) showed unusual peak impactor force responses in that as more tests were conducted, the peak impactor force measurement climbed consistently. This appeared to be indicative of a problem with this particular dummy, as the responses of other Denton dummies were fairly consistent. Denton also indicated that the three highest responses of this dummy were ''after an investigational test series.'' Based on the SAE DTESC minutes attached to Denton's petition, it appears that this ''investigational series'' was actually two series: The first a study of the effect of velocity on full body thorax impact results, and the second a study looking at the effects of twist angle, tilt angle, and vertical position of the dummy. However, the conditions of these test series were not provided; therefore it is unknown whether the dummy response in the last three qualification tests was altered due to previous test conditions.

The second removed dummy was tested at GM, where two full body thorax impact tests were conducted on one dummy. Although passing individual rib drop results were provided, this dummy consistently showed low impactor force responses and high rib deflections for all three ribs, indicating that its behavior differs from the majority of dummies. Information on the prior test exposures for this dummy was not provided.

The agency analyzed the resulting data set to evaluate the corridors of the final rule and those of the petitions for reconsideration, to determine if adjustments to the final rule corridors were warranted. Figures 1 to 4 below show the data that was retained for corridor formation for each of the four response measurements for the full body thorax impact test, as well as—for illustration purposes—the data from the removed dummies with passing or unknown individual rib drop results (which included three Denton dummies, two FTSS dummies, and one GM dummy, as discussed above). (Data from those dummies are presented in Figures 1–4 as ''Removed Dummies'' and were not included in the data set for statistical analysis, *i.e.*, calculation of the mean, standard deviation, etc.)

Table 3 below summarizes the petitioners' suggested performance corridors for the full body thorax impact test, and the corridors adopted today in response to the petitions for reconsideration of the final rule.

[12] Although some tests were conducted outside the limits for individual rib qualification, the regression showed a fairly good linear correlation between the full body response and the individual rib response. Therefore the ''outside'' points did not distort the regression.

[13] Attachment 17 to the Unconfirmed Minutes of the January 19, 2007 SAE DTESC meeting, submitted as part of Denton's petition for reconsideration to the ES–2re final rule, NHTSA Docket No. 25441–17.

TABLE 3.—CURRENT, SUGGESTED AND REVISED PERFORMANCE CORRIDORS FOR THE FULL BODY THORAX IMPACT QUALIFICATION TEST

Measurement	December 14, 2006 final rule	Alliance (±2stdev)	FTSS	Denton	NHTSA response to petitions
Peak Upper Rib Deflection (mm)	33.2–41.3	35–40	33.2–41.3	33.2–41.3	34–41
Peak Middle Rib Deflection (mm)	37.1–45.4	38–43	37.1–45.4	37.1–45.4	37–45
Peak Lower Rib Deflection (mm)	35.6–43.0	38–44	35.6–43.0	36.4–44.9	37–44
Peak Impactor Force after 6 ms (N)	5173–6118	5045–6344	5039–6159	4720–6669	5100–6200

(i) Upper Rib Deflection

All of the data in the complete dataset (*i.e.*, without any dummies removed) fit within the specified final rule corridor of 33.2–41.3 mm, as seen in Figure 1 below. The Alliance petitioned to narrow the corridor bounds to a range of 35–40 mm. The data set with the indicated dummy responses removed (''revised data set'') has a mean deflection of 37.4 mm, a standard deviation of 1.11 mm and a CV of 2.96 percent. In that this CV is less than 3 percent, we could adopt corridor bounds that are expanded ±3 standard deviations from the mean,[14] or a range of 34.1–40.8 mm. When rounded to the next whole numbers away from the mean, this corridor becomes 34–41 mm, which is only slightly narrowed compared to the final rule. This corridor contains nearly all the NHTSA and DTESC data points, and is well-centered about the mean.

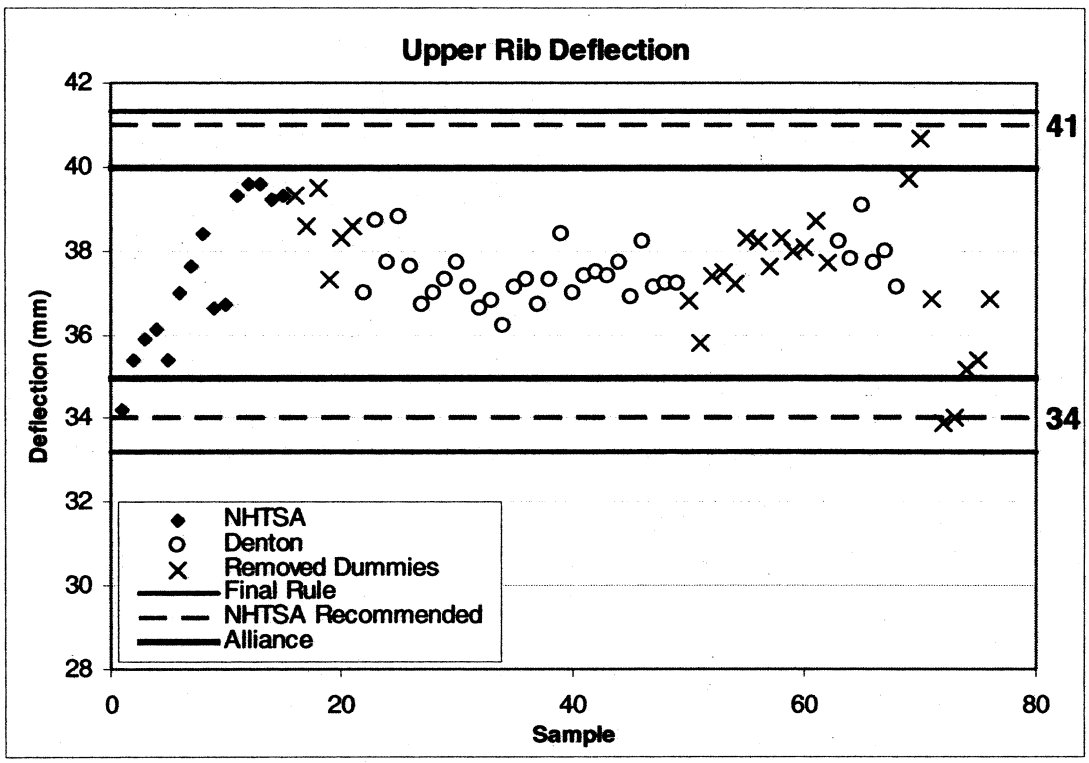


FIGURE 1: FULL BODY THORAX IMPACT TEST RESULTS FOR UPPER RIB DEFLECTION

(ii) Middle Rib Deflection

All data in the complete DTESC data set also fit within the corridors specified in the final rule for middle rib deflection, 37.1–45.4 mm (see Figure 2 below). However, the Alliance petitioned for narrowed corridor bounds of 38–43 mm. Statistical analysis of the revised data set resulted in a mean response of 40.8 mm, a standard deviation of 1.09 mm and a CV of 2.67 percent. This CV allows for corridor bounds placed at ±3 standard deviations from the mean, or a range of 37.6–44.1 mm (37–45 mm when rounded away from the mean). This corridor is very close to the corridor specified in the final rule, and includes all the data submitted by the petitioners as well as all NHTSA data. Thus, NHTSA is amending the peak middle rib deflection corridor to 37–45 mm.

[14] In rulemakings involving the ES–2re and SID–IIsD, performance corridors have been formed under the following method: for a CV less than or equal to 3 percent, limits are expanded ±3 standard deviations from the mean. For CVs between 3 percent and 5 percent, corridor bounds are set at ±2 standard deviations from the mean. Finally, if the CV is above 5 percent but below 10 percent, the bounds are set ±10 percent from the mean. Following this initial placement, the corridor limits are rounded to the next whole number away from the mean, then adjusted further if warranted, on a case-by-case basis.

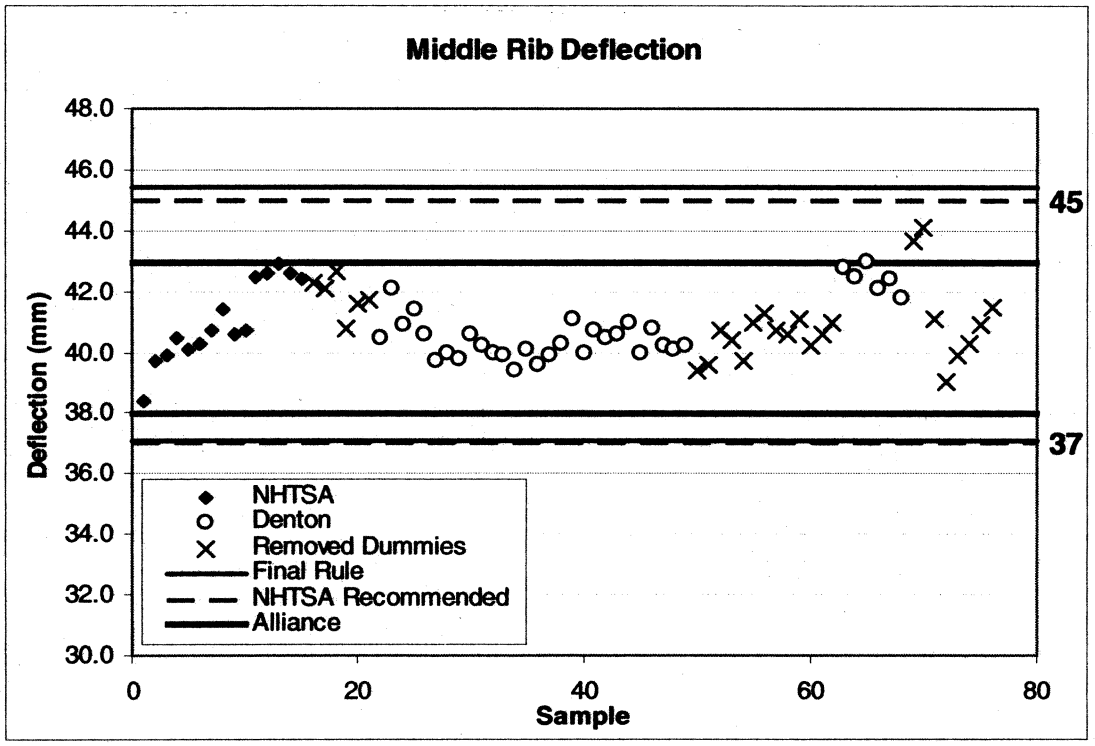


FIGURE 2: MIDDLE RIB DEFLECTION RESULTS FROM FULL-BODY THORAX IMPACT TESTS

(iii) Lower Rib Deflection

Denton and GM dummies in the DTESC-compiled data set submitted in Denton's petition for reconsideration show deflections that are generally higher than those measured by NHTSA. The final rule specified a range of 35.6–43.0 mm, while the Alliance and Denton recommended corridors ranging from 38–44 mm and 36.4–44.9 mm, respectively. Based on statistical analysis of the revised DTESC data set, an adjustment of the corridor bounds to reflect these higher responses from a larger population of dummies is appropriate. The revised data set has a mean response of 40.7 mm, a standard deviation of 1.08 mm, and a CV of 2.66 percent. This CV allows for expansion of the bounds ±3 standard deviations from the mean, producing a range of 37.5–43.9 mm, or 37–44 mm when rounded away from the mean. This corridor is slightly smaller than and shifted upward from the final rule corridor, but wider than the corridor for which the Alliance petitioned. This corridor contains nearly all petitioner-submitted data as well as all NHTSA data (Figure 3).

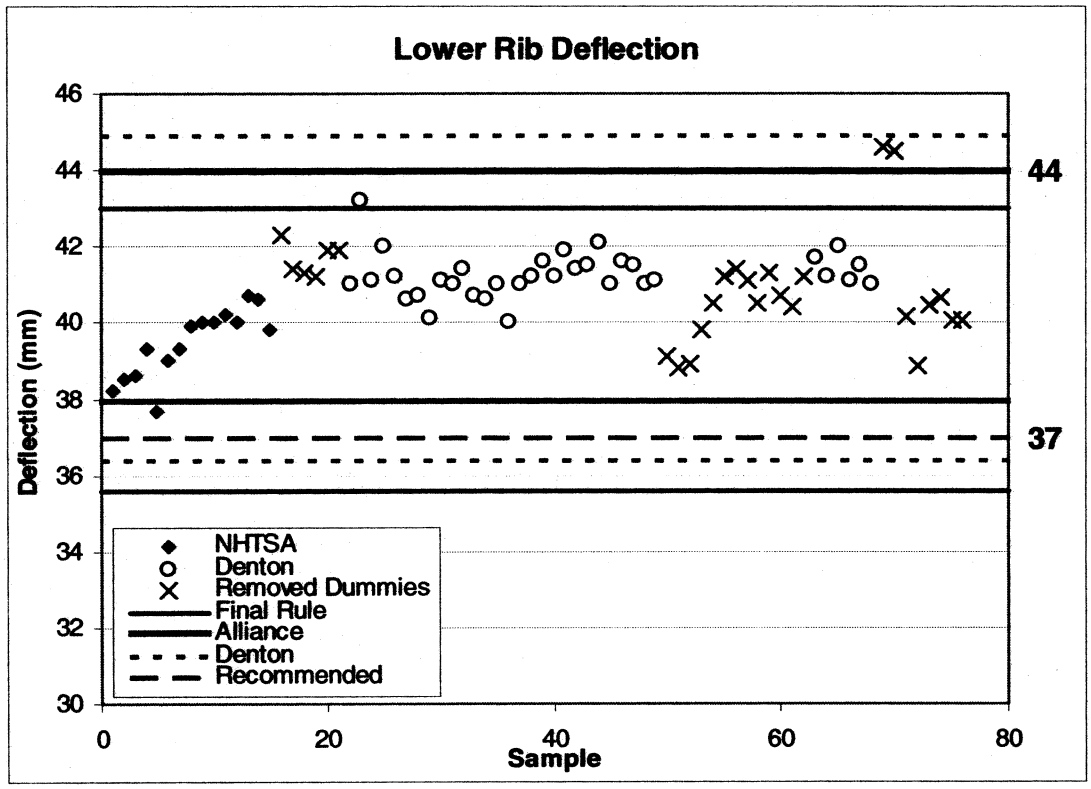


FIGURE 3: LOWER RIB DEFLECTION RESULTS FROM FULL BODY THORAX IMPACTS

(iv) Peak Impactor Force After 6 ms

The additional peak impactor force data compiled by the SAE DTESC and submitted by Denton provide additional points with which to form statistically-based corridors. In its petition, the Alliance used this data set to propose a corridor of 5045–6344 N, while Denton recommended a range of 4720–6669 N, as shown in Figure 4. FTSS recommended a performance corridor of 5039–6159 N for this measure. (The FTSS corridor is close to the Alliance recommendation, therefore to avoid clutter in Figure 4, it is shown to correspond to the Alliance corridor.) The mean response derived from the revised data set was 5643 N, with a SD of 268 N and a CV of 4.76 percent. This CV allows for setting the corridor limits at ±2 standard deviations from the mean, at 5107–6180 N. Rounded away from the mean, the lower and upper corridor bounds of the recommended corridor are 5100 N and 6200 N, respectively, a range very close to that which was petitioned by FTSS.

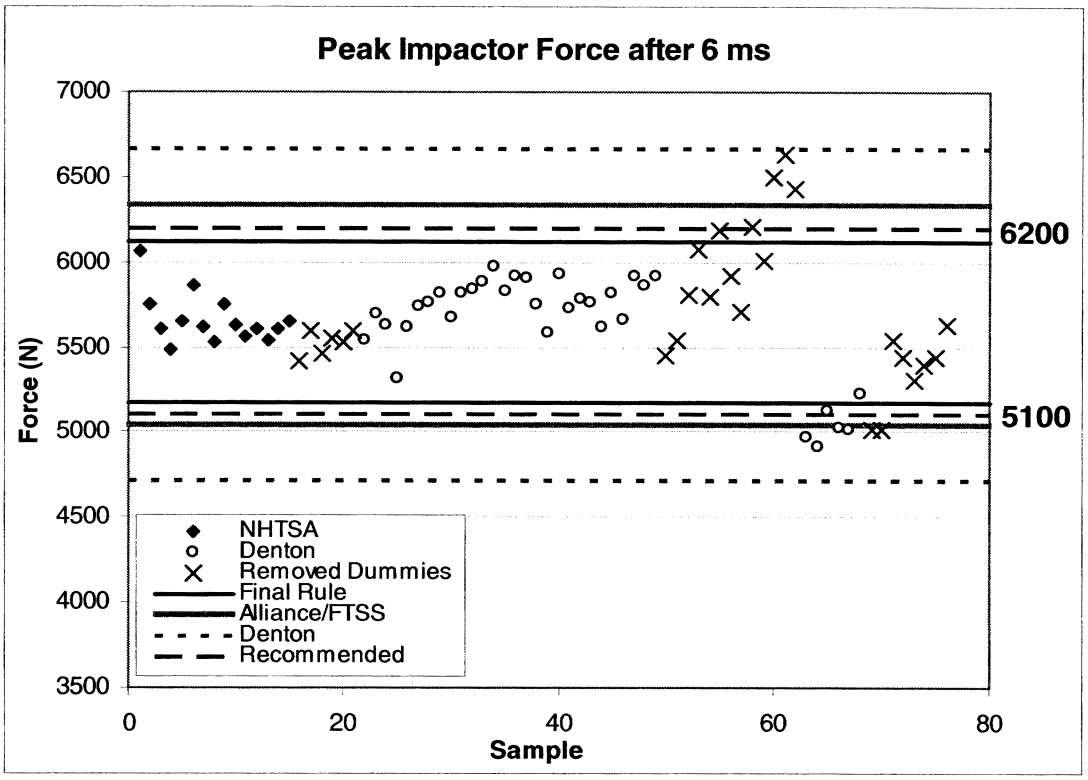


FIGURE 4: TEST RESULTS FOR THE "PEAK IMPACTOR FORCE AFTER 6 MS" MEASUREMENT AS COLLECTED BY NHTSA, DENTON, GM AND FTSS

(v) Width of Performance Corridors

Denton endorsed the SAE DTESC recommendation to establish performance corridor bounds at ±3 standard deviations from the mean of the data set since the petitioner believed there is ''very limited lab-to-lab, technician to technician, and dummy to dummy variability included in the data set. Since this is a brand new test, it was difficult to accumulate much data * * * since this data set is very limited, 99% of the available data should be included since test variation always occurs.''

The agency believes that the data set has sufficient lab-to-lab and dummy-to-dummy variability to form performance corridors using the standard method (see previous footnote on the method used in rulemakings, *supra*). In all, 76 tests were conducted on ten dummies at four laboratories. However, performance corridors were formed based on the results of five dummies at two laboratories (49 tests). Although data from five dummies were removed for corridor formation due to missing individual rib drop results or suspected problems with the dummy, nearly all of these results still fit within the revised corridors (Figures 1–4, *supra*). Furthermore, due to the relatively low amount of variation that was seen in the data (both the data that was used to generate corridors and that which was removed) as shown in Table 2, all corridors in the full-body thoracic test with the exception of the peak impactor force were set at ±3 standard deviations from the mean when using the standard method.

e. Cross-References and Typographical Errors in Regulatory Text

The Alliance and Denton noted a number of incorrect cross-references in the December 14, 2006 final rule. Denton noted these by attaching a copy of the January 19, 2007 SAE DTES meeting minutes.[15] The suggested corrections are discussed below. Also, at the end of this section we correct two minor errors that we found on our own.

1. In 572.183(b)(1), reference 572.189(o) should be 572.189(n).

NHTSA agrees that Part 572.183(b)(1) should be amended to read, ''Soak the neck-headform assembly in a test environment as specified in § 572.189(n)'' * * *

2. In 572.185(b)(1)(i), reference 572.189(o) should be 572.189(n).

We agree that 572.185(b)(1)(i) should be changed to read, ''Soak the rib modules (175–4002) in a test environment as specified in § 572.189(n)'' * * *

3. In 572.183(b)(5), reference 572.189(k) should be 572.189(j).

We agree that in 572.183(b)(5), ''Time zero is defined in § 572.189(k)'' should be changed to ''Time zero is defined in § 572.189(j).''

4. The table name for the table between 572.183(b)(5) and 572.183(c), ''Table to 1 to Paragraph (A),'' should be ''Table 1 to Paragraph (a),'' as called out in 572.183(b)(3). The agency agrees to correct the typographical error in the title for this table to read: ''Table 1 to Paragraph (a)'' (changing ''A'' to lower case ''a'' and removing the word ''to'' between ''Table'' and ''1'').

5. Petitioners believe that in 572.186(b)(6), reference 572.189(k) should be 572.189(j).

NHTSA does not agree that the reference should be 572.189(j). Qualification tests of the abdomen require that time zero be determined using the procedures specified in § 572.189(k). Thus, the reference should remain as in the final rule.

6. In 572.187(b)(1), reference 572.189(o) should be 572.189(n).

We agree to changing the reference as petitioned, so that the text of 572.187(b)(1) reads, ''Soak the lumbar spine-headform assembly in a test

[15] Submitted in Denton's petition for reconsideration, NHTSA Docket No. 25441–17.

environment as specified in § 572.189(n)'' * * *

7. In 572.187(b)(5), reference 572.189(k) should be 572.189(j).

NHTSA agrees that in 572.187(b)(5), ''Time zero is defined in § 572.189(k).'' should be changed to ''Time zero is defined in § 572.189(j).''

8. In 572.188(b)(4), reference ''Figure U5'' should be ''Figure U6.''

We agree. In the NPRM, the reference in 572.188(b)(4) to Figure U5 was correct. However, with the addition of a figure for thorax impact in the final rule, the pelvis impact illustration became Figure U6. Therefore, 572.188(b)(4) should be amended to read, ''* * *as shown in Figure U6 in Appendix A * * *'' Additionally, there is an omission in section 572.188(b). The section fails to define the procedure for determining time zero. NHTSA is adding 572.188(b)(6) to state: ''Time zero is defined in § 572.189(k).''

9. Petitioners stated that in 572.188(c)(1), reference 572.189(k) should be 572.189(j).

NHTSA does not agree that the reference should be 572.189(j). For correct analysis of pelvis qualification data, time zero must be defined following the procedures given in § 572.189(k). However, since the correct specification for time zero was added in 572.188(b)(6), the reference to time zero in this section is unnecessary and is hereby removed.

10. Petitioners believe that in 572.188(c)(2), reference 572.189(k) should be 572.189(j).

We do not agree. Pelvis qualification tests require that time zero be defined according to the procedure specified in § 572.189(k). However, since the correct specification for time zero was added in 572.188(b)(6), the reference to time zero in this section is unnecessary and is hereby removed.

11. The agency has found an error in Figure U2–A, which specifies the pendulum for neck/lumbar spine qualification tests to be the ''Part 572 Subpart E Pendulum (Figure #15)''. The description and figure number do not refer to the same pendulum. This document makes a technical amendment by correcting the reference to read, ''Part 572 Subpart E Pendulum (Figure #22)''.

12. 572.181(a)(5) references SAE 1733 Information Report, ''Sign Convention for Vehicle Crash Testing,'' dated July 15, 1986. The correct reference should be to SAE J1733 dated December 1994.

f. Drawing Package and PADI

The petitions for reconsideration suggested minor changes to a number of drawings in the ES–2re drawing package. These requests are discussed below, along with agency responses. Corrections are also made to the PADI. Because the drawings in the drawing package and the PADI are being changed as discussed below, this final rule updates the references to the drawing package, parts list, and PADI incorporated by reference by the December 14, 2006 final rule. The December 2006 final rule referenced materials dated September 2006; today's final rule references a drawing package, parts list, and PADI dated February 2008.

1. Drawing 175–2000, Neck Assembly Test/Cert

Denton stated that the screws listed in item number 5, M6x18, ''are too long and will interfere with the rubber of the neck.'' Denton recommended shortening the length so that item 5 lists screws M6x16.

Agency Response: We agree with the change. The Neck Bracket attachment area has a thickness of 12 mm and the Neck Head & Torso Interface Plate has a thickness of 5.0 mm at threads for a total thickness of 17 mm, thus an 18 mm fastener could possibly interfere with the rubber in the neck. A 16 mm fastener should be sufficient. Thus, on drawing 175–2000, we have modified item number 5 to read ''Screw, SHCS M6x16.'' Conforming changes were also made to the PADI and parts/drawings list.

2. Drawing 175–2002, Neck Intermediate Plate

FTSS indicated that the 8.7 mm dimension in section B–B is incorrect, and should be 9.0 mm. Denton also requested that this dimension be changed to 9 mm, as it was changed from 9.0 mm in the NPRM ''without comment or documentation'' to 8.7 mm in the final rule.

Agency Response: It is not possible to measure this part without destroying it because it is molded into the neck. However, given that both manufacturers have asked for the same value, which is only 0.3 mm from the existing dimension, we have decided to accept the petitioned value. Additionally, as stated by Denton, this dimension was 9 mm in the ES–2re NPRM drawing package, and no reason was provided as to why the value was changed. Accordingly, we are modifying drawing 175–2002 by replacing the dimension 8.7 +0/−0.2 in section B–B with 9.0 +0.0/−0.2.

3. Drawing 175–2004, Half Spherical Screw

FTSS believes that the specification for plating was removed and needs to be added.

Agency Response: The petitioner seeks to reinsert a phrase that was in the original drawing, which called for ''ZINC PLATE AND COLOR PASSIVE PLATE THICKNESS 5 TO 8 MICRONS.'' The petitioner did not provide justification for requiring this finish. However, since referring to this finish would provide some guidance to dummy users, we are adding the following note to drawing 175–2004: ''OPTIONAL FINISH: ZINC PLATE AND COLOR PASSIVE PLATE THICKNESS 5 TO 8 MICRONS.''

4. Drawing 175–2505, Eye Bolt

FTSS recommended removal of the note ''NO UNDER CUT,'' believing it to be unnecessary.

Agency Response: FTSS is correct. We have removed the note ''NO UNDER CUT'' from drawing 175–2505.

5. Drawing 175–3002, Shoulder Spacer Block

FTSS requested that the ''location dimension for dimension M5x12 (B3), center line symbol * * * be added to the left view.'' Denton also commented that there is no location dimension for the M5x12 hole.

Agency Response: We have added a center line symbol to the left view to define the location of the M5x12 DP dimension.

6. Drawing 175–3003, Shoulder ''U'' Spring

FTSS stated that the tolerance ±0.001 is unrealistic, and recommends increasing it to 0.010.

Agency Response: The shoulder response would not be adversely affected by the suggested change, as the shoulder cord plays a much more significant role in the shoulder response. We thus agree to change the tolerance of the 0.710 dimension from ±0.001 to ±0.010.

7. Drawing 175–3004, Shoulder Cam Clavicle Assembly

Denton requested that this drawing have an option note similar to the note on load cell SA572–S72, which allows optional use of M6x16 FHCS instead of M6x16 BHCS.

Agency Response: Although drawing 175–3004 specifies use of M6x18 BHCS, not M6x16 BHCS as the petitioner cited, we assume that the petitioner's issue lies in the optional use of FHCS (rather than screw length). However, as we were considering this suggested change,

we noticed that while drawing 175–3004 specifies use of M6x1x18 BHCS, the corresponding load cell drawing (SA572–S72) specifies M6x1x16 BHCS/FHCS. NHTSA believes that either screw length is acceptable. Nonetheless, since the load cell specifies M6x16 and the petitioner sought to specify the M6x16 length screws, we are changing the screw specification on drawing 175–3004 to M6x1x16. With regard to the petitioner's specific request, the proposed change to optionally allow the use of FHCS would make the shoulder cam clavicle and shoulder load cell structural replacement consistent with the actual shoulder load cell. Accordingly, we have modified drawing 175–3004 by changing item number 3 to read ''SCREW, BHCS M6x1x16'' and adding a note that optionally allows use of FHCS M6x1x16 over the BHCS M6x1x16 of that drawing. (A conforming change was made to the parts/drawings list). Also in this drawing, the description of item #1 was corrected to be ''SHOULDER CAM CLAVICLE ASSY,'' and the spellings of ''CAM'' and ''CLAVICLE'' in revision record C were corrected.

8. Drawings 175–3017, Shoulder Cam Clavicle; 175–3005–2 and 175–3005–3, T-Inserts

In its original petition for reconsideration, FTSS recommended merging drawings 175–3005–2 and 175–3005–3 to prevent damage to the shoulder cam clavicle caused by over-tightening the screws. In an addendum to the petition, FTSS stated that ''a number of ES–2re dummy users have inadvertently used longer screws than specified on the drawing and accidentally cracked the shoulder cam due to the bottoming out of the screws.'' To prevent this, FTSS recommended ''[changing] the threaded insert into a one piece design, with a through thread.'' The drawing for the new part was provided in the FTSS addendum, and given part no. 175–3005–4, ''Insert, Shoulder Cam Load Cell.'' FTSS also recommended that the name of drawing 175–3017 be changed to ''Shoulder Cam Clavicle For Load Cell,'' and that item #1 (175–3005–3, T-insert, M6) be deleted and replaced with ''175–3005–4, Insert, Shoulder Cam Load Cell.''

Agency Response: We understand that FTSS is suggesting that insert 175–3005–2 remain unchanged, and that insert 175–3005–3 should be replaced with 175–3005–4.

With regard to the requested name change for drawing 175–3017, NHTSA sought clarification from FTSS regarding its request. Since the shoulder cam clavicle is compatible with both the load cell and the structural replacement, it was unclear why FTSS recommended that the name specify the load cell alone. FTSS responded that originally, in the ES–2 dummy, there was no clavicle load cell and the part was named ''Shoulder Cam Clavicle.'' When the clavicle load cell was introduced, FTSS re-named the ES–2 part ''Shoulder Cam Clavicle for Load Cell'' to distinguish between the two parts. When the clavicle load cell became standard in the ES–2re NPRM, the part name was changed back to ''Shoulder Cam Clavicle,'' which FTSS stated has caused confusion in the industry. FTSS therefore recommended that the name be changed to ''Shoulder Cam Clavicle for Load Cell'' to eliminate this confusion and for consistency between the ES–2 and ES–2re part names.

After considering this information, NHTSA has determined that the name change to ''Shoulder Cam Clavicle for Load Cell'' may still cause confusion, since the part is compatible with the load cell or structural replacement. However, we have decided that changing the name to ''Shoulder Cam Clavicle for Load Cell or Structural Replacement'' is acceptable.

Thus, we have replaced 175–3005–3 with the FTSS suggested drawing 175–3005–4. However, this part was given the name ''Insert, Shoulder Cam'' due to the fact that it is used in the ''Shoulder Cam Clavicle for Load Cell or Structural Replacement,'' and not in the load cell exclusively. We have updated the drawing views and reference to this part on drawing 175–3017. Also, we have changed the name of 175–3017 to ''Shoulder Cam Clavicle for Load Cell or Structural Replacement,'' as reflected in this drawing as well as in item 1 of drawing 175–3016. Conforming changes were also made to the parts/drawings list.

9. Drawing 175–3018, Shoulder Load Cell, Structural Replacement

Denton stated that this part should have an option note similar to the SA572–S72 load cell note that gives the option to use a countersink for a M6x16 FHCS.

Agency Response: As stated above for drawing 175–3004 (above), the suggested change would make the structural replacement consistent with the load cell. Accordingly, we have modified drawing 175–3018 by adding a note that optionally allows countersinks for M6x16 FHCS.

10. Drawing 175–3007, Elastic Cord Holder

FTSS requested that the phrase ''EXCEPT FOR MOUNTING HOLES'' be deleted from note 3.

Agency Response: This request is denied. Note 3 in drawing 175–3007 actually states ''EXCEPT FOR MOUNTING HOLE CENTERS.'' If a tolerance of ±1 mm were allowed on the hole center dimension, this would allow the hole centers to vary from 69.0 mm to 71.0 mm. The corresponding holes on mating parts 175–3001 ''SHOULDER BOTTOM PLATE'' and 175–3008 ''SHOULDER TOP PLATE'' have centers separated by 70.0 mm ± 0.1 mm (69.9 mm to 70.1 mm). Although the holes in part 175–3007 are clearance holes, their diameter is only 0.3 mm larger than the diameter of the corresponding holes in 175–3001 and –3008. Therefore, to achieve alignment of the clearance and threaded holes, the hole centers of the elastic cord holder and shoulder plate can only differ a maximum of 0.15 mm. The FTSS approach would allow a maximum distance of 0.55 mm between the elastic cord holder hole centers and the shoulder plate hole centers, which would result in the potential for misalignment of the holes.

11. Drawing 175–3010, Shoulder Foam Pad

Denton recommended that a weight of 0.5–0.7 lb be specified ''to help control the reproducibility of the part.''

Agency Response: This request is denied. NHTSA weighed several shoulder foam pads, with samples from each manufacturer. The Denton ATD samples were: Dummy #D038–0.56 lb (0.25 kg) and Dummy #D037–0.53 lb (0.24 kg); while the FTSS samples were: Dummy #016–0.38 lb (0.17 kg) (very soft foam); Dummy #070–0.50 lb (0.25 kg); and Dummy #071–0.41 lb (0.19 kg). Although the majority of the shoulder foam pads would meet the suggested requirement, the requirement is unnecessary because the weight of dummy components is sufficiently defined by the segment weight (in this case, the thorax segment weight defined on 175–0000, sheet 2 of 6). In addition, it is not evident that the shoulder foam pad plays a significant role in the response of the dummy such that tighter controls on the foam pad weight are necessary.

12. Drawing 175–3501, Arm Flesh Assembly, Left/Right

Denton recommended specifying a weight of 2.86 ± 0.22 lb ''to help control the reproducibility of the part.''

Agency Response: This request is denied. Denton's proposed specification

of 2.86 ± 0.22 lb for the arm flesh assembly when converted to the international system of units is equivalent to the 1.3 ± 0.1 kg listed on 175–0000 for the whole arm. The whole arm, as defined on 175–0000, consists of the arm flesh assembly (drawing 175–3501) plus the pivot stop plate (175–3502). Thus the arm flesh alone cannot have the same weight specification as that for the whole arm.

13. Drawing 175–4003, Rib Assembly-Rib Extensions

FTSS stated that ''the two holes of [diameter] 10 on the lower side of the left view (C7) are not used. It was carried from the standard ES–2 design, and shall be removed.'' Similarly, Denton claimed ''two of the holes on the non-struck side are not used for anything. These holes add cost and have no value. We request that they be removed or made optional.''

Agency Response: While there is no obvious function of the holes, the holes might be useful in the manufacturing process for location and/or alignment purposes. Accordingly, we have modified drawing 175–4003 by indicating that the two holes on the lower side of the left view (the non-struck side) are optional.

14. Drawing 175–4004, Rib, Bent Rib Extension

FTSS requested a material change from CS80 to CS70. Additionally, FTSS notes that ''the two holes 2x n4.75 of the left view (C7) is [sic] unnecessary and shall be removed (related to 175–4003).'' Denton gave the same comment as for drawing 175–4003 (above).

Agency Response: As stated above, we agree that the holes are unnecessary and can be made optional. Thus, we have modified drawing 175–4004 by adding ''OPTIONAL'' to the hole note describing the two 4.75 mm diameter holes. With regard to the suggested material change from CS80 to CS70, it is not evident that the change would result in equivalent dummy performance. However, it is noted that the specified material is not a requirement (*i.e.*, it states ''Material Ref.'' where Ref. is short for ''Reference''). As such, the manufacturer is free to use the material of its choice, provided that the final assembly complies with all the applicable performance requirements, such as rib drops and thorax impacts. Accordingly, we have denied the request to change the material to CS70.

15. Drawing 175–4010, Rail Guide Assembly

Denton stated that the bushing, item 6, is an extra part that should be made optional as it ''adds cost and no value if item 2 is made without a counterbore.'' This request is related to that for drawing 175–4012 below.

Agency Response: We agree to make item 6 (bushing) optional. See response relating to drawing 175–4012 below.

16. Drawing 175–4011, M-Rail

FTSS noted a location dimension of 3.5 mm from the center line needs to be added for the threaded hole 4xM3x.5. Denton also noted that these holes (2 on each end of part) do not have location dimensions.

FTSS also requested that a note stating ''clearance cut when necessary'' be added and point to the tip of the ''V'' groove. Similarly, Denton requested ''that an undercut be allowed at the bottom of the V-groove as an option to simplify the manufacturing,'' as it will not ''change the functionality of the part.''

Agency Response: The agency agrees with the request to add a location dimension for the 4xM3x.5 hole. Additionally, using a clearance cut (or undercut) is a common manufacturing process for this type of V-groove feature and will not affect performance in any way. We have thus modified drawing 176–4011 to add dimensions to define the locations of the 4xM3x.5 holes, and a note ''CLEARANCE CUT WHEN NECESSARY'' to point to the tip of the V-groove.

17. Drawing 175–4012, V-Rail

Denton stated that the bushing (item 6 in 175–4010) is unnecessary and can rattle. They therefore request that the 8.5 mm counterbore in the V-rail be listed as optional so that this bushing can be left out to reduce costs.

Agency Response: We agree that the bushing is unnecessary and have made its use optional in drawing 175–4010 (above). Since the bushing is optional, we have modified drawing 175–4012 by adding a note that the counterbores are optional.

18. Drawing 175–4020, Piston Thorax

Denton requested that the M2.5 threaded hole be made 7 mm deep instead of 6 mm to make sure that the long screw (item 15 on 175–4006) does not bottom out.

Agency Response: We agree. The suggested change will not affect performance. We have modified the M2.5 dimension to indicate 7.0 mm of depth instead of 6.0 mm.

19. Drawing 175–4022, Transducer Mount Thorax

Denton stated that the screws and potentiometer could make contact in the current configuration. To prevent contact, Denton requested that the 9.2 mm dimension be increased to 9.35 mm.

Agency Response: We agree. The agency believes that this request will eliminate the potential for damaging the potentiometer housing due to interference with the fastener, without affecting the dummy's performance. Thus, we have modified drawing 175–4022 by increasing the 9.2 mm dimension to 9.35 mm.

20. Inconsistency Between Drawing 175–4040, Spring 16.4 N/mm Black, and PADI

As discussed in the preamble, the petitioners pointed out an inconsistency between the drawing and the PADI manual (page 29, table 5.9) as to the spring rate of 16.4 N/mm versus 16.6 N/mm.

Agency Response: As discussed in the preamble, the spring rate of 16.4 N/mm shown in the drawing is correct. We have corrected the PADI to provide a spring rate of 16.4 N/mm.

21. Drawings 175–4040 (Spring 16.4 N/mm Black), 175–4041 (Spring 13.8 N/mm White), 175–4042 (Spring 19.0 N/mm Blue)

As discussed in the preamble, the petitioners recommended changes to the tolerance values for the spring rates shown in Note 2 of all three drawings.

Agency Response: As discussed in the preamble, we revised drawings 175–4040, 175–4041 and 175–4042 to specify a spring rate tolerance of ±1.0 N/mm.

22. Drawings 175–4032 (Rib Accelerometer Mount), SA572–S81 (Accelerometer Mount, Head C.G.), SA572–S82 (Accel Mounting Block, Upper Spine/Pelvis SA572–S4), SA572–S83 (Accel Mount Block, Spine T12 SA572–S4)

Denton recommended adding a note that instructs machinist to scribe ''M1.4'' near one set of these holes to indicate that metric screws are necessary for mounting the accelerometers and to prevent possible damage to the holes if standard screws were used.

Agency Response: We agree that the note is desirable to make clearer the type of fastener required for this application, as it is unusual to use a metric fastener for this application. However, inasmuch as this inscription is only for convenience, we have made the note ''Optional.'' We have thus modified the above drawings by adding

a note that the machinist can optionally scribe M1.4 near one of the holes to indicate that metric screws are to be used. Additionally, for drawing 175–4032, Rib Accelerometer Mount, two M1.6 holes are also present on the same face of this part; thus, a separate note was added to optionally scribe ''M1.6'' near this set of holes.

23. Drawing 175–5010, Abdomen Molded Assembly, Certified

Denton recommended specifying the weight of this component to be 7.0–9.0 lb ''to help control the reproducibility of the part.''

Agency Response: We are denying this request. The abdomen molded assembly weight is sufficiently specified by the abdominal assembly weight on sheet 2 of 175–0000. Further, the agency weighed a sample molded abdomen assembly from manufacturers Denton and FTSS. The Denton dummy was: #D038—8.03 lb (3.64 kg); while the FTSS dummy was: #016—8.29 lb (3.76 kg). Both manufacturers met the suggested requirement in the absence of the weight specification.

24. Drawing 175–5012–1, Ballast, Lead, Left and Drawing 175–5012–2, Ballast, Lead, Right

Denton noted that drawing 175–5012–1 is found twice in the drawing package, where revision notes are included on one drawing but not the other. FTSS and Denton noted that drawing 175–5012–2, Ballast Lead, Right, was not included in the drawing package.

FTSS also recommended renaming drawing 175–5012–1[16] as ''Ballast, Left'' and changing the note ''LEAD FILLED SLAB'' to ''LEAD OR EQUIVALENT FILLED SLAB.'' The petitioner stated that adding ''or equivalent'' would allow dummy manufacturers to use materials other than lead in the future. FTSS also wanted NHTSA to add ''or equivalent'' to the missing drawing 175–5012–2 for the same reason.

Agency Response: With regards to 175–5012–1 being found twice in the drawing package and 175–5012–2 not at all, we have named the first drawing 175–5012–1 ''BALLAST, LEFT.'' We have changed the number and name of the second copy of drawing 175–5012–1 to 175–5012–2, ''BALLAST, RIGHT,'' respectively. Further, we agree that changing the note ''LEAD FILLED SLAB'' to ''LEAD OR EQUIVALENT FILLED SLAB'' for both drawings would allow the use of alternate materials, and that the change will not affect the dummy's performance. We have changed the titles of the revised drawings to ''BALLAST, LEFT'' and ''BALLAST, RIGHT,'' to reflect the fact that the part would not necessarily be made of lead. Conforming changes were also made to the parts/drawings list.

25. Drawing 175–5501, Lumbar Spine Molded

FTSS stated that the 135 mm length dimension should be changed to 136 mm.

Agency Response: This part is a common part with the Hybrid II 50th male spine, which is defined in ATD–7102 as 5.375 inches, or 136.5 mm. NHTSA measured samples from each dummy manufacturer. The results were: Denton #D038 = 135 mm; FTSS #016 = 137 mm. Thus it appears that both manufacturers could meet the suggested dimension and the change would be consistent with the part used in the Hybrid II dummy. Thus, we have modified drawing no. 175–5501 by changing the 135±2 dimension to 136±2.

26. Drawing 175–6041, Sacrum Cover Plate

FTSS stated that the optional cut out shown in C3 and detail A should be removed because it is unnecessary.

Agency Response: The request is denied. The optional cutout is in place to allow instrumentation cables to exit from the dummy without being pinched. FTSS dummies have clearance for cables without this cutout but Denton dummies do not have sufficient clearance, and thus the cutout is needed. It is noted that the cutout is optional; therefore if FTSS does not want to include the cutout, it is entirely acceptable to omit it. Accordingly, the cutout will remain optional. However, we are correcting the spelling of the word ''MATERIAL'' in the drawing.

27. Drawing 175–6045, Lumbar Mounting Plate

FTSS requested removal of the 3x120° dimension and updating of the isometric view of the part to show the 4-hole pattern. Likewise, Denton requested the updating of all views (isometric and side view) to show the 4-hole pattern, and removal of the ''extra angle dimension.''

Agency Response: We agree with the suggested changes. The original design of the mounting plate was for a 3-hole pattern. The mistakes identified by the petitioners have been carried over from the original design. NHTSA has revised the isometric and side views and has removed the unnecessary angle dimension in drawing 175–6045 to show the 4-hole pattern that is illustrated in the top view. Correction was also made to the pelvis assembly drawing, 175–6000 to show the 4-hole pattern on this part, and the quantity of item 28 (screw, SHCS ¼–20 x ⅝) on 175–6000 was increased to 4. Conforming changes were also made to the PADI and parts/drawings list.

28. Drawing 175–6050, Pelvis Molded, Certified

Denton recommended specifying the weight of this part as 6.5–6.9 lb ''to help control the reproducibility of the part.''

Agency Response: This request is denied. NHTSA weighed sample parts from each manufacturer and they both met the suggested tolerance. Nonetheless, the segment weights specified in 175–0000, sheet 2 of 6, sufficiently define the dummy's weight distribution.

29. Drawing SA572–S53, Rotary Potentiometer

Denton recommended reducing the independent linearity to ±0.10%. They claim that the current ±0.25% value allows for an error of ±0.88° (a total of 1.75°), which is greater than 10% of the width of the neck and lumbar corridors (10°). A ±0.10% linearity value would allow for a total error of only 0.7°, and potentiometers can be purchased with this tolerance level.

Agency Response: The request is denied. While the suggested potentiometer would provide less error in measuring the dummy's response, it is not clear there is a problem that needs addressing, or what the cost ramifications of the suggested change would be. We do not believe it would be appropriate to introduce this change at this time.

30. Drawing SA572–S70, 6 Axis Upper Neck Load Cell

FTSS recommended removing the Y axis symbol on the main view and the Z axis symbol on the right view because they ''do not follow J211 sign convention and are unnecessary.'' FTSS also believed that My,oc is calculated with a minus sign rather than a plus sign. Denton stated that the sign between terms for calculating My,oc should be '−' rather than '+'. Denton also recommended removing the Y and Z arrows from the side and top view, as they are incorrectly labeled: ''the load cell side view shows Z force in compression, this is incorrect. The load cell top view shows the top of the load cell to the right, this is incorrect.'' Denton recommended keeping only the arrows under the isometric view.

[16] In its petition, FTSS referred to Drawing 175–5011–1 regarding this matter. Based on the context of the petition, we assume that FTSS meant to refer to Drawing 175–5012–1 when it referred to drawing 175–5011–1.

Agency Response: We agree that the Y- and Z-axis symbols are confusing and should be removed. Additionally, the My,oc formula is incorrect as currently written on the print and the ''+'' should be a ''−''. Accordingly, we have modified drawing SA572–S70 by removing the Y- and Z-axis symbols from the top and side views, and by correcting the formula for My,oc as petitioned. The spelling of ''Newton'' in ''Newton-Meters'' was also corrected.

31. Drawing SA572–S71–1, Lower Neck Load Cell Assembly

FTSS recommended removing the X–Z coordinate system between the top and side views, as it is incorrect (according to SAE J211 sign convention) and unnecessary. Denton made a similar recommendation for this drawing, but referenced all three drawings of this assembly (SA572–S71–1, –2 and –3).

Agency Response: The petitioners' comments are correct. It is assumed that Denton was referring only to the side view polarity arrows in drawing SA572–S71–1, but as polarity arrows were also provided on drawing SA572–S71–2, it is recommended that these be removed as well. We have removed the polarity arrows in drawings SA572–S71–1 and –2.

32. Drawing SA572–S71–3, Lower Neck Load Cell-Mounting Bracket

Denton recommended deleting this drawing, as the base shown is ''specific to a lower neck load cell manufactured by FTSS.'' The Denton mounting bracket has a different hole pattern. Denton claimed that ''drawing SA572–S71–1 can define the assembly,'' with dimensions added to specify the overall size dimensions of the assembly.

Agency Response: Because no additional details were provided in the petition, the agency requested that the petitioner provide more information supporting its request. (A September 14, 2007 memorandum describes this communication with Denton, see Docket NHTSA–2006–25441–0020.) Denton provided a suggested method for adding dimensions to the drawing specifying the overall size of the mounting bracket and ensuring that the load cell is properly located. (*Id.*) The agency has evaluated the petitioner's recommendation and has determined that it is acceptable. Thus, as petitioned, drawing SA572–S71–3 is removed, and critical dimensions are added to drawing SA572–S71–1 to define the mounting bracket. Additionally, load cell information from drawing SA572–S71–2 is moved to drawing SA572–S71–1 and SA572–S71–2 is also removed from the drawing package. The ''REV'' and ''No. SHT'' entries for drawings SA572–S71–2 and SA572–S71–3 were removed from the parts/drawings list, but the parts remain on the list since they are referenced on drawing SA572–S71–1.

33. Drawing SA572–S76, Lumbar Load Cell

FTSS stated that the X and Y symbols below the side and top view should be removed, as they ''do not follow SAE J211 sign convention and are unnecessary.'' Denton made a similar comment, and added that the axes label under the isometric view should remain in the drawing. Denton also stated that Fx in the channel list should be changed to Fz.

Agency Response: The petitioners' comments are correct. We have modified the drawing to remove the X–Y and X–Z coordinate system symbols from the top and side views of drawing SA572–S76. In the channel list, ''F_x'' has been changed to ''F_z''.

34. Drawing SA572–S77, Pubic Load Cell

FTSS recommended removing the ''Y'' symbol because ''it can be installed both ways and may not reflect the SAE J211 sign convention.'' Denton recommended either reversing the arrow for Fy polarity ''or [moving it] to the other side of the load cell to show tension on the load cell for correct polarity.''

Agency Response: It is not essential to show the load cell polarity on this drawing, therefore we have deleted the ''Y'' symbol from the side view of drawing SA572–S77.

35. Drawing SA572–S81, Accelerometer Mount, Head C.G.

It was brought to NHTSA's attention by FTSS that the ES–2re head assembly drawings do not allow for placement of the three head accelerometers such that their axis intersection point [17] coincides with the head center of gravity. Specifically, the z-axis location of the axis intersection point is 4.6 mm below the head CGz location as specified in drawings 175–0000 sheet 2 of 6 and 175–1000.

Agency Response: To rectify this situation, the agency is modifying the head accelerometer mount (SA572–S81) by increasing its thickness 4.6 mm. This change raises the mounting location of the x- and y-axis accelerometers, thereby raising the z-axis location of the axis intersection point.

36. Drawing SA572–S82, ''Accel Mounting Block, Upper Spine/Pelvis SA572–S4''

Denton recommended adding a hole note to define the M1.4 threaded holes.

Agency Response: The petitioner is correct that the tapped hole note is missing. We have revised drawing SA572–S82 by adding a hole note as Denton suggested.

37. Weight and Center of Gravity (CG)

FTSS stated that they are currently evaluating weight and CG specifications, and ''will submit recommended values if different than the Final Rule drawings.''

Agency Response: FTSS did not provide additional information regarding the weight and CG specifications of the ES–2re dummy. The weight and CG specifications listed in the December 14, 2006 final rule are unchanged.

38. Other Changes to Drawing Package, PADI, and Parts/Drawings List

- The revision letters on the drawings and in the parts/drawings list were updated for all changed drawings.
- Drawing 175–3000, Shoulder Assembly: The description of item 4, ''Shoulder Cam Clavicle Assembly for Loadcell'' was corrected to be ''Shoulder Cam Clavicle Assembly''. The revision was updated on the drawing and parts/drawings list as a result of this change.
- Parts/Drawings List, Drawing 175–3016: The spelling of the drawing name was corrected.
- PADI, page 2: The docket number and the Web site for the location of the revised drawings were updated.
- PADI, page 31: The spelling of ''too'' was corrected.

V. Rulemaking Analyses and Notices

Executive Order 12866 and DOT Regulatory Policies and Procedures

Executive Order 12866, ''Regulatory Planning and Review,'' provides for making determinations whether a regulatory action is ''significant'' and therefore subject to Office of Management and Budget (OMB) review and to the requirements of the Executive Order. This rulemaking action was not considered a significant regulatory action under Executive Order 12866. This rulemaking action was also determined not to be significant under the Department of Transportation's (DOT's) regulatory policies and procedures (44 FR 11034, February 26, 1979).

[17] Each accelerometer has one axis (called a seismic axis) along which it measures acceleration. The axis intersection point is the location in space where the seismic axes from each of the three head accelerometers meet.

NHTSA's specifications in 49 CFR Part 572 for a 50th percentile adult male side impact dummy that the agency will use in research, compliance tests of the Federal side impact protection safety standards, and consumer information programs do not impose any requirements on anyone. Businesses would be affected only if they choose to manufacture or test with the dummy. The cost of an uninstrumented ES–2re is in the range of $54–57,000. Instrumentation adds approximately $43–47,000 for minimum requirements and approximately $80–84,000 for maximum instrumentation to the cost of the dummy, depending on the number of data channels the user chooses to collect. The amendments made in today's document will not affect the cost of the dummy. Because the economic impacts of this final rule are minimal, no further regulatory evaluation is necessary.

Regulatory Flexibility Act

Pursuant to the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever an agency is required to publish a proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (*i.e.*, small businesses, small organizations, and small governmental jurisdictions), unless the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The Small Business Administration's regulations at 13 CFR Part 121 define a small business, in part, as a business entity ''which operates primarily within the United States.'' (13 CFR 121.105(a)).

We have considered the effects of this rulemaking under the Regulatory Flexibility Act. I hereby certify that this rulemaking action will not have a significant economic impact on a substantial number of small entities. This action will not have a significant economic impact on a substantial number of small entities because the rule does not impose or rescind any requirements for anyone. The amendments made in this document will not affect the cost of the dummy. NHTSA does not require anyone to manufacture the dummy or to test vehicles with it.

National Environmental Policy Act

NHTSA has analyzed this final rule for the purposes of the National Environmental Policy Act and determined that it will not have any significant impact on the quality of the human environment.

Executive Order 13132 (Federalism)

Executive Order 13132 requires NHTSA to develop a process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' is defined in the Executive Order to include regulations that have ''substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.'' Under Executive Order 13132, the agency may not issue a regulation with federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, the agency consults with State and local governments, or the agency consults with State and local officials early in the process of developing the regulation.

NHTSA has examined today's final rule pursuant to Executive Order 13132 (64 FR 43255, August 10, 1999) and concluded that no additional consultation with States, local governments or their representatives is mandated beyond the rulemaking process. The agency has concluded that the rule does not have federalism implications because the rule does not have ''substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.'' Moreover, the amendments made in this document will not affect the cost of the dummy.

Unfunded Mandates Reform Act

Section 202 of the Unfunded Mandates Reform Act of 1995 (UMRA) requires Federal agencies to prepare a written assessment of the costs, benefits and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local or tribal governments, in the aggregate, or by the private sector, of more than $100 million in any one year (adjusted for inflation with base year of 1995). Before promulgating an NHTSA rule for which a written statement is needed, section 205 of the UMRA generally requires us to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows us to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if we publish with the final rule an explanation why that alternative was not adopted.

This rule does not impose any unfunded mandates under the Unfunded Mandates Reform Act of 1995. This rule does not meet the definition of a Federal mandate because it does not impose requirements on anyone. Further, it will not result in costs of $100 million or more to either State, local, or tribal governments, in the aggregate, or to the private sector. The amendments made in this document will not affect the cost of the dummy. Thus, this rule is not subject to the requirements of sections 202 and 205 of the UMRA.

Civil Justice Reform

Pursuant to Executive Order 12778, ''Civil Justice Reform,'' we have considered whether this rule will have any retroactive effect. This rule does not have any retroactive effect. A petition for reconsideration or other administrative proceeding will not be a prerequisite to an action seeking judicial review of this rule. This rule does not preempt the States from adopting laws or regulations on the same subject, except that it does preempt a State regulation that is in actual conflict with the Federal regulation or makes compliance with the Federal regulation impossible or interferes with the implementation of the Federal statute.

Paperwork Reduction Act

Under the Paperwork Reduction Act of 1995, a person is not required to respond to a collection of information by a Federal agency unless the collection displays a valid control number from the Office of Management and Budget (OMB). This final rule does not have any requirements that are considered to be information collection requirements as defined by the OMB in 5 CFR Part 1320.

National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104–113, section 12(d) (15 U.S.C. 272) directs NHTSA to use voluntary consensus standards in its regulatory activities unless doing so would be inconsistent with applicable law or

otherwise impractical. Voluntary consensus standards are technical standards (*e.g.*, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies, such as the Society of Automotive Engineers (SAE). The NTTAA directs us to provide Congress, through OMB, explanations when we decide not to use available and applicable voluntary consensus standards.

The following voluntary consensus standards have been used in developing the ES–2re dummy:

• SAE Recommended Practice J211, Rev. Mar95 ''Instrumentation for Impact Tests''; and

• SAE J1733 of 1994–12, ''Sign Convention for Vehicle Crash Testing.''

Unfunded Mandates Reform Act

Section 202 of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, requires Federal agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of more than $100 million annually (adjusted for inflation with base year of 1995). Before promulgating an NHTSA rule for which a written statement is needed, section 205 of the UMRA generally requires the agency to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule.

This final rule will not impose any unfunded mandates under the UMRA. This rule does not meet the definition of a Federal mandate because it does not impose requirements on anyone. This rule affects only those businesses that choose to manufacture or test with the dummy, and even in that regard, the amendments made in this document will not affect the cost of the dummy. This rule does not result in costs of $100 million or more to either State, local, or tribal governments, in the aggregate, or to the private sector.

Plain Language

Executive Order 12866 requires each agency to write all rules in plain language. Application of the principles of plain language includes consideration of the following questions:

—Has the agency organized the material to suit the public's needs?

—Are the requirements in the rule clearly stated?

—Does the rule contain technical language or jargon that is not clear?

—Would a different format (grouping and order of sections, use of headings, paragraphing) make the rule easier to understand?

—Would more (but shorter) sections be better?

—Could the agency improve clarity by adding tables, lists, or diagrams?

—What else could the agency do to make this rule easier to understand?

If you have any responses to these questions, please write to us about them.

Regulation Identifier Number

The Department of Transportation assigns a regulation identifier number (RIN) to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. You may use the RIN contained in the heading at the beginning of this document to find this action in the Unified Agenda.

Appendix A to Preamble—The Test Procedures and Performance Specifications of the December 14, 2006 Final Rule for Qualification of the ES–2re

• Head Assembly: The head is tested by a similar procedure as the Hybrid III 50th percentile male frontal crash test dummy. It involves dropping the head from a specified height and angular orientation, and measuring the acceleration that results from the impact. However, while the head of the Hybrid III 50th percentile male receives impact to the forehead, the ES–2re head is dropped so that the lateral surface of the head is impacted.

• Neck Assembly: See discussion in preamble.

• Lumbar Spine: See discussion in preamble.

• Shoulder Assembly: The dummy is seated on a flat, horizontal, rigid surface in a position as specified in the regulatory text. An impactor is then used to contact the shoulder at a velocity of 4.3 m/s. Qualification of the dummy is based on the peak acceleration of the impactor during this contact.

• Thorax (upper torso) Assembly: See discussion in preamble.

• Abdomen Assembly: The ES–2re is seated in a specified manner and impacted on its side at the center point of the middle load-measuring sensor at a velocity of 4.0 m/s. The maximum impactor force and the sum of the forces measured by three abdominal load sensors, in time, are used to assess the dummy's quality for compliance testing.

• Pelvis: The ES–2re pelvis response is tested with a whole, seated dummy. An impactor contacts a specified location of the pelvis at a velocity of 4.3 m/s. The force of the impactor and the load measured in the pubic symphysis in time are evaluated to assure that dummy performance is within specifications.

List of Subjects in 49 CFR Part 572

Incorporation by reference, Motor vehicle safety.

■ In consideration of the foregoing, NHTSA amends 49 CFR part 572 as follows:

PART 572—ANTHROPOMORPHIC TEST DEVICES

■ 1. The authority citation for part 572 continues to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30117 and 30166; delegation of authority at 49 CFR 1.50.

Subpart U—ES–2re Side Impact Crash Test Dummy, 50th Percentile Adult Male

■ 2. Section 572.180 is amended by revising paragraph (a)(1), the introductory paragraph of (a)(2), paragraphs (a)(3), (b), and (c)(1), to read as follows:

§ 572.180 Incorporated materials.

(a) * * *

(1) A parts/drawing list entitled, ''Parts/Drawings List, Part 572 Subpart U, Eurosid 2 with Rib Extensions (ES2re), February 2008,''

(2) A drawings and inspection package entitled ''Parts List and Drawings, Part 572 Subpart U, Eurosid 2 with Rib Extensions (ES–2re, Alpha Version), February 2008,'' consisting of:

* * * * *

(3) A procedures manual entitled ''Procedures for Assembly, Disassembly and Inspection (PADI) of the EuroSID–2re 50th Percentile Adult Male Side Impact Crash Test Dummy, February 2008,'' incorporated by reference in §§ 572.180(a)(2), and 572.181(a);

* * * * *

(b) The Director of the Federal Register approved the materials incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of the materials may be inspected at the Department of Transportation, Docket Operations, Room W12–140, 1200 New Jersey Avenue, SE., Washington, DC 20590, telephone (202) 366–9826, and at the National Archives and Records Administration (NARA), and in electronic format through *Regulations.gov*. For information on the availability and inspection of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/*

ibr_locations.html. For information on the availability and inspection of this material at *Regulations.gov*, call 1–877–378–5457, or go to: *http://www.regulations.gov*.

(c) * * *

(1) The Parts/Drawings List, Part 572 Subpart U, Eurosid 2 with Rib Extensions (ES2re), February 2008, referred to in paragraph (a)(1) of this section, the Parts List and Drawings, Part 572 Subpart U, Eurosid 2 with Rib Extensions (ES–2re, Alpha Version), February 2008, referred to in paragraph (a)(2) of this section, and the PADI document referred to in paragraph (a)(3) of this section, are available in electronic format through Regulations.gov and in paper format from Leet-Melbrook, Division of New RT, 18810 Woodfield Road, Gaithersburg, MD 20879, telephone (301) 670–0090.

* * *

■ 3. Section 572.181 is amended by revising paragraphs (a), (b), and (c), to read as follows:

§ 572.181 General description.

(a) The ES–2re Side Impact Crash Test Dummy, 50th Percentile Adult Male, is defined by:

(1) The drawings and specifications contained in the ''Parts List and Drawings, Part 572 Subpart U, Eurosid 2 with Rib Extensions (ES–2re, Alpha Version), February 2008,'' incorporated by reference in § 572.180, which includes the technical drawings and specifications described in Drawing 175–0000, the titles of which are listed in Table A;

TABLE A

Component assembly	Drawing number
Head Assembly	175–1000
Neck Assembly Test/Cert	175–2000
Neck Bracket Including Lifting Eyebolt.	175–2500
Shoulder Assembly	175–3000
Arm Assembly-Left	175–3500
Arm Assembly-Right	175–3800
Thorax Assembly with Rib Extensions.	175–4000
Abdominal Assembly	175–5000
Lumbar Spine Assembly	175–5500
Pelvis Assembly	175–6000
Leg Assembly, Left	175–7000–1
Leg Assembly, Right	175–7000–2
Neoprene Body Suit	175–8000

(2) ''Parts/Drawings List, Part 572 Subpart U, Eurosid 2 with Rib Extensions (ES2re), February 2008,'' containing 8 pages, incorporated by reference in § 572.180,

(3) A listing of available transducers-crash test sensors for the ES–2re Crash Test Dummy is shown in drawing 175–0000 sheet 4 of 6, dated February 2008, incorporated by reference in § 572.180,

(4) Procedures for Assembly, Disassembly and Inspection (PADI) of the ES–2re Side Impact Crash Test Dummy, February 2008, incorporated by reference in § 572.180,

(5) Sign convention for signal outputs reference document SAE J1733 Information Report, titled ''Sign Convention for Vehicle Crash Testing'' dated December 1994, incorporated by reference in § 572.180.

(b) Exterior dimensions of ES–2re test dummy are shown in drawing 175–0000 sheet 3 of 6, dated February 2008.

(c) Weights of body segments (head, neck, upper and lower torso, arms and upper and lower segments) and the center of gravity location of the head are shown in drawing 175–0000 sheet 2 of 6, dated February 2008.

* * * * *

■ 4. Section 572.183 is amended by revising paragraphs (b)(1), (b)(5), the heading of Table 1 to Paragraph (a), and paragraph (c)(1), to read as follows:

§ 572.183 Neck assembly.

* * * * *

(b) * * *

(1) Soak the neck-headform assembly in a test environment as specified in § 572.189(n);

* * * * *

(5) Time zero is defined in § 572.189(j).

Table 1 to Paragraph (a)—ES–2re Neck Certification Pendulum Velocity Corridor

* * * * *

(c) * * *

(1) The pendulum deceleration pulse is to be characterized in terms of decrease in velocity as determined by integrating the filtered pendulum acceleration response from time-zero.

* * * * *

■ 5. Section 572.185 is amended by revising paragraphs (b)(1)(i) and (c)(2), to read as follows:

§ 572.185 Thorax (upper torso) assembly.

* * * * *

(b) * * *

(1) * * *

(i) Soak the rib modules (175–4002) in a test environment as specified in 572.189(n);

* * * * *

(c) * * *

(2) *Performance Criteria.*

(i) The individual rib modules shall conform to the following range of deflections:

(A) Upper rib not less than 34 mm and not greater than 41 mm;

(B) Middle rib not less than 37 mm and not greater than 45 mm;

(C) Lower rib not less than 37 mm and not greater than 44 mm.

(ii) The impactor force shall be computed as the product of the impact probe acceleration and its mass. The peak impactor force at any time after 6 ms from time zero shall be not less than 5100 N and not greater than 6200 N.

■ 6. Section 572.187 is amended by revising paragraphs (b)(1) and (b)(5), to read as follows:

§ 572.187 Lumbar spine.

* * * * *

(b) * * *

(1) Soak the lumbar spine-headform assembly in a test environment as specified in § 572.189(n);

* * *

(5) Time zero is defined in § 572.189(j).

* * * * *

■ 7. Section 572.188 is amended by revising paragraph (b)(4), adding paragraph (b)(6), and revising paragraph (c), to read as follows:

§ 572.188 Pelvis.

* * * * *

(b) * * *

(4) The impactor is guided, if needed, so that at contact with the pelvis its longitudinal axis is within ±0.5 degrees of a horizontal plane and perpendicular to the midsagittal plane of the dummy and the centerpoint on the impactor's face is within 5 mm of the center of the H-point in the pelvis, as shown in Figure U6 in Appendix A to this subpart;

* * *

(6) Time zero is defined in § 572.189(k).

(c) *Performance criteria.*

(1) The impactor force (probe acceleration multiplied by its mass) shall be not less than 4,700 N and not more than 5,400 N, occurring between 11.8 ms and 16.1 ms from time zero;

(2) The pubic symphysis load, measured with load cell specified in § 572.189(f) shall be not less than 1,230 N and not more than 1,590 N occurring between 12.2 ms and 17.0 ms from time zero.

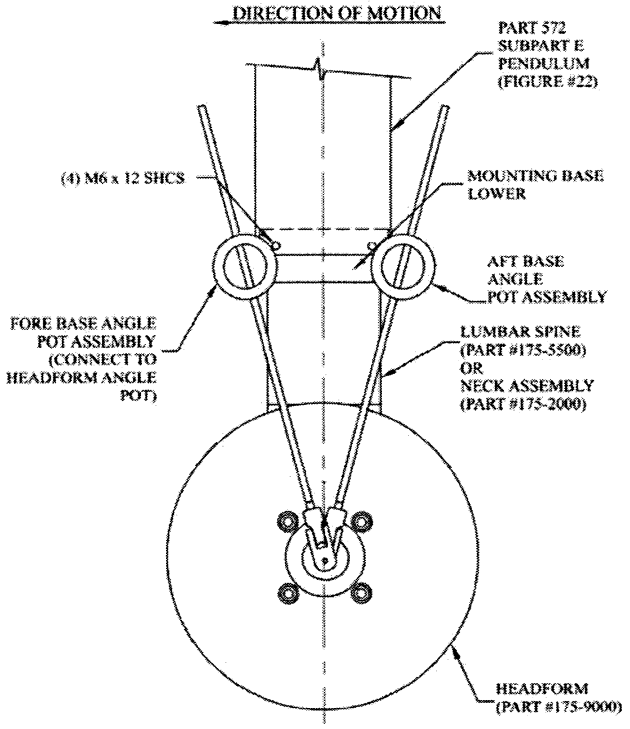
■ 8. Figure U2–A in ''APPENDIX A TO SUBPART U OF PART 572—FIGURES'' is revised to read as follows:

Appendix A To Subpart U Of Part 572—Figures

* * *

Figure U2-A

NECK/LUMBAR SPINE/HEADFORM ATTACHED TO PENDULUM



* * * * *

Issued: May 30, 2008.

James F. Ports, Jr.,

Deputy Administrator.

[FR Doc. E8–13063 Filed 6–13–08; 8:45 am]

BILLING CODE 4910–59–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 648

[Docket No. 080123074–8654–02]

RIN 0648–AW31

Fisheries of the Northeastern United States; Northeast Multispecies Fishery; Scallop Dredge Exemption Areas; Addition of Monkfish Incidental Catch Trip Limits

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule.

SUMMARY: This action modifies the regulations implementing the Northeast (NE) Multispecies Fishery Management Plan (FMP) to create three NE Multispecies Scallop Exemptions that are identical to the current scallop exemptions, except for the addition of an incidental monkfish catch limit. These new scallop exemptions are restricted to vessels issued either a General Category Atlantic sea scallop permit or a limited access Atlantic sea scallop permit (when not fishing under a scallop days-at-sea (DAS) limitation), when fishing for scallops with small dredge gear (combined width not to exceed 10.5 ft (3.2 m)). Vessels that land an incidental catch of monkfish within these new scallop exemptions are required to possess, and have onboard, a valid limited access monkfish permit, or an open access monkfish Incidental Catch permit. The intent of this action is to allow small scallop dredge vessels to land monkfish that are currently being discarded, consistent with the bycatch reduction objectives of the FMP and National Standard 9 of the Magnuson-Stevens Fishery Conservation and Management Act.

DATES: Effective July 16, 2008.

ADDRESSES: Copies of this regulatory amendment, and its small entity compliance guide, are available from Patricia A. Kurkul, Regional Administrator, National Marine Fisheries Service, 1 Blackburn Drive, Gloucester, MA 01930. The small entity compliance guide is also accessible via the Internet at *http://www.nero.noaa.gov/*.

FOR FURTHER INFORMATION CONTACT: Timothy Cardiasmenos, Fishery Policy Analyst, phone (978) 281–9204, fax (978) 281–9135.

SUPPLEMENTARY INFORMATION:

Background

Current regulations, implemented under Framework Adjustment 9 to the FMP, and expanded under Amendment 7 to the FMP, contain a NE multispecies fishing mortality and bycatch reduction measure that is applied to the Gulf of Maine (GOM), Georges Bank (GB), and Southern New England (SNE) Exemption Areas. This measure prohibits vessels from fishing in these areas unless they are fishing under a NE multispecies or a scallop DAS allocation, are fishing with exempted gear, are fishing under the Small Vessel Handgear (A or B) or Party/Charter permit restrictions, or are fishing in an exempted fishery. The procedure for adding, modifying, or deleting fisheries from the list of exempted fisheries is found in § 648.80. A fishery may be exempted by the Administrator, Northeast Region, NMFS (RA), after consultation with the New England Fishery Management Council (Council), if the RA determines, based on available data or information, that the bycatch of regulated species is, or can be reduced to, on average, less than 5 percent per trip, by weight on board, and that such