2. In § 515.2, revise paragraph (c) to read as follows:

§ 515.2 Definitions.

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(c) Branch office means any office in the United States established by or maintained by or under the control of a licensee for the purpose of rendering intermediary services, which office is located at an address different from that of the licensee's designated home office.

* * * * *

3. In § 515.11, revise paragraph (c) to read as follows:

§ 515.11 Basic requirements for licensing; eligibility.

* * * * *

(c) *Affiliates of intermediaries.* An independently qualified applicant may be granted a separate license to carry on the business of providing ocean transportation intermediary services even though it is associated with, under common control with, or otherwise related to another ocean transportation intermediary through stock ownership or common directors or officers, if such applicant submits: a separate application and fee, and a valid instrument of financial responsibility in the form and amount prescribed under § 515.21. The qualifying individual of one active licensee shall not also be designated as the qualifying individual of an applicant for another ocean transportation intermediary license, unless both entities are commonly owned or where one directly controls the other.

* * * * *

4. In § 515.12, revise paragraph (a) to read as follows:

§ 515.12 Application for license.

(a) Application and forms.

(1) Any person who wishes to obtain a license to operate as an ocean transportation intermediary shall submit, in duplicate, to the Director of the Commission's Bureau of Tariffs, Certification and Licensing, a completed application Form FMC–18 Rev. (''Application for a License as an Ocean Transportation Intermediary'') accompanied by the fee required under § 515.5(b). All applicants will be assigned an application number, and each applicant will be notified of the number assigned to its application. Notice of filing of such application shall be published in the **Federal Register** and shall state the name and address of the applicant and the name and address of the qualifying individual. If the applicant is a corporation or partnership, the names of the officers or partners thereof shall be published.

(2) An individual who is applying for a license in his or her own name must complete the following certification:

I, (Name), , certify under penalty of perjury under the laws of the United States, that I have not been convicted, after September 1, 1989, of any Federal or state offense involving the distribution or possession of a controlled substance, or that if I have been so convicted, I am not ineligible to receive Federal benefits, either by court order or operation of law, pursuant to 21 U.S.C. 862.

* * * * *

By the Commission.

Bryant L. VanBrakle,

Secretary.

[FR Doc. 00–7097 Filed 3–21–00; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 572

[Docket No. NHTSA–2000–7051]

RIN 2127–AG 77

Anthropomorphic Test Devices; 3-Year-Old Child Crash Test Dummy

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

ACTION: Final rule.

SUMMARY: This document amends our regulation for Anthropomorphic Test Devices by adding a new, more advanced 3-year-old child dummy. The new dummy, part of the family of Hybrid III test dummies, is more representative of humans than the existing Subpart C 3-year-old child dummy in our regulation. Adding the dummy to our regulation is a step toward using the dummy in the tests we conduct to determine compliance with our safety standards. The use of the dummy in our compliance tests will be addressed in separate rulemaking proceedings.

DATES: The amendment is effective on May 22, 2000. The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of May 22, 2000.

Petitions for reconsideration of the final rule must be received by May 8, 2000.

ADDRESSES: Petitions for reconsideration should refer to the docket number of this document and be submitted to: Administrator, Room 5220, National Highway Traffic Safety Administration, 400 Seventh Street, SW., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: For nonlegal issues: Stan Backaitis, Office of Crashworthiness Standards (telephone: 202–366–4912). For legal issues: Deirdre R. Fujita, Office of the Chief Counsel (202–366–2992). Both can be reached at the National Highway Traffic Safety Administration, 400 Seventh St., SW., Washington, DC, 20590.

SUPPLEMENTARY INFORMATION: This document amends our regulation for Anthropomorphic Test Devices (49 CFR part 572) by adding a new, more advanced 3-year-old child dummy. The new dummy, part of the family of Hybrid III test dummies, is more representative of humans than the existing 3-year-old child test dummy in part 572, and allows the assessment of the potential for more types of injuries in automotive crashes. The new dummy can be used to evaluate the effects of air bag deployment on out-of-position children, and can provide a fuller evaluation of the performance of child restraint systems in protecting young children.

NHTSA has already specified a number of child test dummies in part 572, including a 3-year-old child dummy (the specifications for which are set forth in subpart C of part 572). That dummy, along with dummies representing a newborn infant, a 9-month-old and a 6-year-old child, are used to test child restraint systems to the requirements of Federal Motor Vehicle Safety Standard No. 213 (49 CFR 571.213). These test devices enable NHTSA to evaluate motor vehicle safety systems dynamically, in a manner that is both measurable and repeatable.

Today's final rule is part of NHTSA's effort to add improved child test dummies in part 572. We recently amended part 572 to add a new, more advanced, Hybrid III type 6-year-old child test dummy. We will soon issue a final rule adding a 12-month-old (CRABI 12) child test dummy. Together with the dummy adopted today, the new child test dummies would be used in tests we have proposed in our occupant crash protection standard (49 CFR 571.208) to assess the risks of air bag deployment for children, particularly unrestrained or improperly restrained children. The new child test dummies could also be incorporated into Standard No. 213 for use in compliance testing of child restraint systems. (Today's final rule only concerns adding the new 3-year-old test dummy to part 572. Issues relating to whether this or the other new dummies should be incorporated into the compliance tests for Standards Nos. 208 or 213, or into other standards, will be decided in separate rulemaking actions.)

Summary of Final Rule

The specifications for the Hybrid III type 3-year-old test dummy (hereinafter referred to as the H–III3C dummy) consist of a drawing package that shows the component parts, the subassemblies, and the assembly of the complete dummy. The drawing package also defines materials and material treatment processes for all the dummy's component parts, and specifies the dummy's instrumentation and instrument installation methods. In addition, there is a manual containing disassembly, inspection, and assembly procedures, and a dummy parts list. These drawings and specifications ensure that the dummies will vary little from each other in their construction and are capable of consistent and repeatable response in the impact environment. The parts list and drawings are available for inspection in NHTSA's docket (room 5220, 400 Seventh St., SW., Washington, DC 20590, telephone (202) 366–4949). (We are using NHTSA's docket because the drawings cannot be electronically scanned into the DOT Docket Management System.) Copies may also be obtained from Reprographic Technologies, 9000 Virginia Manor Road, Beltsville, MD 20705; Telephone: (301) 210–5600.

NHTSA is specifying impact performance criteria to serve as calibration checks and to further assure the kinematic uniformity of the dummy and the absence of structural damage and functional deficiency from previous use. The tests address head, neck, and thorax impact responses and assess the resistance of the lumbar spine-abdomen region to upper torso flexion motion.

The agency has adopted generic specifications for all of the dummy-based sensors. For most earlier dummies, the agency specified sensors by make and model. However, we believe that approach is unnecessarily restrictive and limits innovation and competition. Accordingly, the specifications adopted today reflect performance characteristics of the sensors used in our evaluation tests of the dummy, that are identified by make and model in a NHTSA technical report ''Development and Evaluation of the Hybrid III 3-year-old Child Dummy'' (December 1998). A copy of this report is in the docket for the notice of proposed rulemaking that we published for this final rule (Docket No. 99–5032). Those sensor characteristics were also the basis for our discussions with a special task force of the Society of Automotive Engineers (SAE) J–211 Instrumentation Committee concerning our work on the dummy.

Background

The need for the H–III3C dummy arose as it became evident that air bags posed risks for out-of-position children. Experience in using the existing 3-year-old dummy in part 572 (Subpart C) showed it to be adequate for the purpose of evaluating the ability of child restraints to protect against the risk of injury under the test conditions specified by Standard No. 213. However, that dummy's injury assessment is limited to head and chest measurements; it is not adequate for evaluating the safety of an air bag environment.

For example, neck injury is one of the primary causes of air bag-related fatalities to out-of-position children. Thus, to evaluate the effects of air bag deployment, a dummy must have a high degree of biofidelity in kinematics and impact responses during neck flexion and extension. However, because the neck of the existing dummy does not have a multi-segment design, it has limited biofidelity in these areas.

By contrast, the more advanced H–III3C dummy provides a more human-like impact response than the existing 3-year-old child dummy, as well as a broader selection of instruments to assess the injury potential to child occupants. Of particular significance are the multi-segmented neck, multi-rib thorax, and the ability to monitor submarining tendencies that could be related to abdominal loading. Because of the greater biofidelity and extended measurement capability of the H–III3C dummy, it can be used to evaluate the safety of children in a much wider array of environments than the existing dummy, including assessing the effects of air bag deployment on out-of-position children.

The H–III3C dummy is part of a family of Hybrid III-type dummies. The first Hybrid III dummy was a 50th percentile male dummy. NHTSA has specified use of this dummy for compliance testing under Standard No. 208, *Occupant Crash Protection,* since 1986, initially for optional use, and more recently on a mandatory basis. The need for a family of Hybrid III-type dummies, having considerably improved biofidelity and anthropometry, was recognized by the Centers for Disease Control and Prevention (CDC) in 1987 when it awarded a contract to Ohio State University under the title ''Development for Multi-sized Hybrid III Based Dummy Family.'' At that time, the funding covered only the development of dummies representing a small female adult and a large male adult. Development of a Hybrid III 3-year-old dummy began in 1992 when the SAE Small Female, Large Male and Six-Year-Old Child Dummies Task Group [1] identified a need for a new dummy equipped with sufficient instrumentation capable of assessing a child's interaction with both air bags and child restraints. The task group noted that the dummy should be suitable for use in sitting, kneeling and standing postures. After a preliminary design was conceived and reviewed, a prototype dummy was developed and evaluated by the task group from 1995 to 1997.

In May 1997, NHTSA initiated a thorough test and evaluation program of the dummy. On completion of our evaluation in the fall of 1998, we tentatively concluded that it was ready for incorporation into part 572. On January 28, 1999, we published an NPRM proposing to incorporate the H–III3C dummy into part 572 as subpart P, and invited comments (64 FR 4385).

Comments on the NPRM

We received comments from eight organizations: Robert A. Denton, Inc. (Denton), General Motors North America (GM), Advocates for Highway and Auto Safety (Advocates), Toyota Motor Corporation (Toyota), National Transportation Safety Board (NTSB), Mitsubishi Motors R & D of America, Inc. (Mitsubishi), the Alliance of Automobile Manufacturers (Alliance), and the SAE Dummy Testing Equipment Subcommittee (SAE).

No commenter opposed adding the H–III3C dummy to part 572. Advocates, Toyota and NTSB expressly supported the incorporation of the H–III3C test dummy. GM, based on its experience with the H–III3C dummy, believes the test dummy is generally suitable for use in crash testing. GM supported the proposal with suggested changes to correct or clarify various specifications in the NPRM for the dummy.[2] Denton (which manufactures load cells used in crash dummies), Mitsubishi and Toyota also had technical comments on various aspects of the proposal. In general, commenters addressed the following issues: calibration procedures and

[1] The task group has been renamed the ''Hybrid III Dummy Family Task Group''. Minutes of the task groups meetings are available for review in the NHTS docket (Docket no. NHTSA98–4283)

[2] The Alliance's comment consisted of a letter fully endorsing the docket comments submitted by GM.

specifications for the head, neck flexion and extension, thorax, and torso flexion; instrumentation specifications; dimensional changes to dummy drawings; and the dummy's user's manual.

Calibration Procedures and Specifications

Head

For calibration, the agency proposed a head drop test in which the head response must not be less than 250 g or more than 280 g. The only comment we received on the proposed corridor was from GM, which agrees with it. The commenter states that the corridor is consistent with available data reviewed by the SAE. In view of the comment received, we have adopted the corridor as proposed in the NPRM.

In the proposed head drop test, the head assembly is suspended for forehead impact from a specified height at an angle of 62±1 degrees between plane D (*i.e.,* the reference surface plane of the head) and the plane of the impact surface. Mitsubishi said that the H–III3C dummy's head is smaller than that of the 50th percentile dummy and thus the surface defining plane D on the neck load mass simulator is too small to correctly insert an angle meter. The commenter states that this makes it very difficult to set up the angle between the lower surface plane of the neck load mass simulator and the plane of impact surface to the required 62±1 degrees. Mitsubishi feels that the angle for the head drop test can be more easily determined and set if an angle of 28 degrees is taken from the transverse plane of the skull cap to skull interface with the skull cap removed. Mitsubishi also recommends using a concave shaped setting jig to hold the dummy head when the angle is measured.

We agree with Mitsubishi's observation that in the head test procedure, it would be easier to set the head orientation relative to the skull/skull cap interface. However, we believe it would be more convenient for test purposes to establish a reference ''D plane'' perpendicular to the skull/skull cap interface. This is because we could use the same ''D plane'' definition for head drop tests and neck pendulum tests in which a headform is used. Further, it is the same D plane definition as used for Hybrid III 6-year-old child and 5th percentile female adult test dummies. As the ''D plane'' is defined to be perpendicular to the skull/skull cap interface, there would not be a need to remove the skull cap or to use a setting jig. With respect to Mitsubishi's suggestion to use a concave-shaped setting jig to hold the head while the angle is set, we do not see a need for requiring such a tool. However, we would not object to its use as long as the final setup of the head orientation does not change once the jig is removed and the skull cap is reattached.

Neck Flexion and Extension

For calibration, the agency proposed a pendulum-mounted headform-neck assembly impact test and corresponding neck flexion and extension performance requirements.

For flexion:

(1) Plane D of the headform must rotate in the direction of preimpact flight with respect to the pendulum's longitudinal centerline not less than 70 degrees and not more than 82 degrees occurring between 45 milliseconds (ms) and 60 ms from time zero, and (2) the peak moment about the occipital condyles must not be less than 44 Newton meters (N-m) and not more than 56 N-m occurring within the minimum and maximum rotation interval and (3) the positive moment shall decay for the first time to 10 N-m in the time frame between 60 ms and 80 ms.

For extension:

(1) Plane D of the headform must rotate in the direction of preimpact flight with respect to the pendulum's longitudinal centerline not less than 80 degrees and not more than 90 degrees occurring between 50 ms and 65 ms from time zero, and (2) the peak negative moment about the occipital condyles must have a value not less than −42 N-m and not more than −53 N-m occurring within the minimum and maximum rotation interval and the negative moment shall decay for the first time to −10 N-m in the time frame between 60 and 80 ms.

The regulatory text proposed for the H–III3C dummy states in § 572.143(c)(3)(i), ''The moment and rotation data channels are defined to be zero when the longitudinal centerline of the neck and pendulum are parallel.'' Section 572.143(c)(4)(i) states that time-zero is defined as the time of initial contact between the pendulum striker plate and the honeycomb material. The pendulum accelerometer data channel shall be at the zero level at this time.

Toyota suggests that all data channels for the neck extension and flexion tests be at the zero level at time zero, rather than only the pendulum accelerometer data channel. We disagree. Our tests indicate that the H–III3C dummy neck is much more flexible than those of the Hybrid III 6-year-old and 5th percentile female adult dummies. As a result, the head-neck complex of the H–III3C dummy experiences some pre-impact kinematic lag as the inclined pendulum accelerates downward towards the vertical. If all data channels, including rotation and moment channels, were made zero at impact, as Toyota suggests, the pre-impact neck rotation lag would not be accounted for in the total rotation of the neck, which would not be in line with the method by which biomechanical corridors were established.

The neck biomechanical response corridors were based on ''flexion'' and ''extension,'' or forward and backward bending of the neck, respectively, due to inertial forces of the head from its neutral position. In order to measure true flexion and extension during calibration tests, the zero level of the data channels must be established prior to initiation of the drop test, when the longitudinal centerline of the neck and pendulum are parallel with respect to each other, *i.e.,* when the pendulum hangs down in a vertical position. With regard to the pendulum accelerometer data channel, that channel must be zeroed at time zero in order to get the correct integrated velocity curve from which the velocity pulse readings are taken at specific time intervals. Accordingly, as proposed in the NPRM, the final rule will retain the time zero setting procedure for the pendulum data channel, but not for the neck channels.

Neck Flexion

GM states that according to SAE-compiled data from necks produced by First Technology Safety Systems (FTSS), a dummy manufacturer, we should adjust the peak moment corridor from the proposed 44–56 N-m range to 40–53 N-m. The proposed range was based on an average of 50 N-m, while the suggested adjusted corridor is based on an average of 46.5 N-m. GM agrees with the rest of the neck flexion performance requirements and the pendulum pulse specifications in NPRM.

We agree that the corridor should be adjusted, but not to the extent suggested by GM. Our analysis of the recommended corridor for the neck flexion moment, based on a complete database consisting of all data submitted by the SAE and additional test data from NHTSA's Vehicle Research and Test Center, indicates that the average peak moment is at 46.6 N-m with a standard deviation (s.d.) of 3.3. Two standard deviations about the mean yield a corridor width of ±14.2%. While GM is correct that narrowed calibration corridors reduce the probability that a complying test dummy can be produced, a wide corridor of this magnitude could permit the manufacture of necks with a degree of variability that could complicate enforcement efforts. It is accepted practice in the biomechanics community to judge the adequacy of a component's variability in subsystems tests as 0–5% being in the excellent range, 5–8% good, 8–10 % marginally acceptable and above 10% not acceptable. The values proposed by GM would lie outside the acceptable range of variability. Using the 10% value as the maximum allowable variability, we are revising the corridor for neck flexion to a value of 42 N-m minimum and 53 N-m maximum. The above specification will have minimal effects on dummy users, but dummy manufacturers will have to produce necks to lower levels of variability than is indicated in test data generated by dummy manufacturer FTSS. Because FTSS has produced necks with a lower variability, achieving the range is practicable.

Neck Extension

GM notes that SAE compiled data suggest a need to shift the peak rotation corridor in extension from 80–90 degrees to 83–93 degrees. This suggested revision does not increase the width of the corridor proposed in the NPRM, but raises the mean value from 85 degrees to 88 degrees. Also, GM believes that the data indicate a need to widen the peak negative extension moment corridor from the range of −42 N-m to −53 N-m to a range of −41 N-m to −56 N-m as a reflection of a slightly larger spread of the SAE data base. The revised peak moment corridor has nearly the same average (–48 N-m), but is 4% larger in spread than that proposed in the NPRM (15.5% vs. 11.5%). GM agrees with the rest of the neck extension performance corridor requirements and pendulum pulse specifications in NPRM.

We have examined all of the available extension calibration data. The data indicate that the mean peak rotation is 88 degrees with a s.d. at ±2.2. degrees. Accordingly, we agree with GM that the peak rotation corridor should be adjusted to the recommended 83–93 degrees range. As for peak negative moment, we agree with GM's recommended mean value of −48.5 N-m but do not agree with the recommended corridor range of ±15.5%. The available data yields a s.d. of 3.7 which corresponds to the ±15% response corridor at 2 s.d. As explained above in the discussion of neck flexion requirements, the desirable dispersion range for consistency in repeatability should be below 8%, but should not exceed 10%. Applying the 10% limit value yields a peak force response corridor between −43.7 N-m and −53.3 N-m. The revised range is particularly important to assure that the variability of the critical extension moment is not the cause of contention in vehicle compliance tests. As noted in the above discussion, improvements in quality control of necks in production would achieve the desired repeatability in response.

Neck-Headform Flexion/Extension Rotation

The NPRM proposed headform rotation versus time requirements in flexion and extension, in 572.143(b)(1)(i) and 572.143(b)(2)(i), that were identical to the requirements for the existing 3-year-old child dummy specified in subpart C. When the Subpart C dummy was adopted into part 572 in 1979, a means of measuring the peak moment of the neck was not available, so the rotation-displacement specifications were needed. Since 1979, however, the moment-measuring load cell became available for this purpose. With the use of a six-axis load cell on the H–III3C dummy, the timing of the peak moment can be measured and more precisely expressed than when using a headform rotation plot. We believe that specifying a minimum-maximum peak moment within a maximum headform rotation window is sufficient to control the dynamic properties of the neck (to control head kinematics) without having also headform rotation in time requirements. A six-axis load cell simplifies the procedure and removes the need for a redundant requirement for measuring head translation/rotation versus time characteristics.

Accordingly, this final rule does not adopt proposed sections 572.143(b)(1)(i) and 572.143(b)(2)(i) of the NPRM.

Thorax

For calibration, the agency proposed the following impactor probe test and performance requirements: (1) The maximum sternum displacement relative to the spine must be not less than 32 mm and not more than 38 mm, and (2) during this displacement interval, the peak force measured by the probe must be not less than 600 N and not more than 800 N.

Mitsubishi is concerned about the NPRM's lack of dimensional tolerance for the 50.8 mm diameter of the thorax impact test probe. The commenter recommends the probe diameter at 50.8±0.25 mm. We have added the suggested dimensional tolerance along with other modifications involving the development of generic specifications for all impactors.

GM indicates agreement with most of the thorax performance requirements and probe specifications in the NPRM, with the exception of the peak force corridor. GM suggests, based on SAE data, that the corridor should be shifted upward from the proposed range of 600–800 N to 650–850 N. GM's suggested corridor is based on an average of 750 N, and therefore its percentage is slightly lower in width (by approximately 1% (13 % vs. 14%)).

We examined all of the thorax impact data available to us, which includes the SAE data supplied in docket comments and our data generated at VRTC. The combined data sets yield an average impact response of 746 N with s.d. of 32 N, indicating that the NPRM corridor needs adjustment in both the mean response value and the corridor's width. The data suggest that the response corridor's width can be set at ±2 s.d. while remaining just above the 8% good to marginal acceptability norm. Accordingly, this final rule adjusts the thorax response corridor to a new range between 680 N minimum and 810 N maximum, which is within but slightly narrower than the response range recommended by GM.

This final rule also adjusts the limit in § 572.144(b)(1) of the NPRM that the peak force measured during the sternum-to-spine displacement interval must not be more than 800 N at any time. In its comment on the NPRM for the Hybrid III 5th percentile female dummy, TRC suggested that an inertial data spike at the beginning of the test should not be subject to this limit. The agency determined that the initial force spike is an artifact of the inertial mass interaction between the impactor and the dummy, has no biomechanical significance, and is not an indicator of a bad rib set. The final rule for the 5th percentile female adult dummy accommodated the existence of the initial data spike by limiting peak force measurements only to a specified sternum displacement after the initial force spike has occurred. Today's final rule for the Hybrid III 3-year-old child dummy uses the same approach in accommodating the initial data spike, and accordingly excludes force data from the first 12.5 mm of sternum compression.

Thus, this final rule limits peak forces that occur in what we term a ''transition compression zone'' prior to reaching the specified sternum compression corridor limit. The transition compression zone starts at 12.5 mm and ends at 32 mm. We selected 12.5 mm as the beginning of the zone based on available force-compression data which indicate that the initial inertial force spikes occur between 6 to 8 mm of compression. Thereafter, the force diminishes and does not begin to rise again well after the sternum reaches 12.5 mm of compression.

Unlike the initial force spikes, forces within the transition compression zone should be limited because excessively large force spikes are indicative of deficiencies in the chest structure. Biomechanical response corridors indicate that high peaks in the transition compression zone would not be humanlike and not likely to occur in a well functioning physical spring-mass system, which is representative of the dummy's rib cage. An excessively high peak force occurring in the transition compression zone would indicate a mechanical deficiency within the rib cage structure, even though the peak force requirement within the specified compression corridor is met. Accordingly, an additional upper force peak limit prior to the specified displacement corridor would provide significant assurance that the dummy's rib cage has human-like response and adequate structural integrity. Limiting force peaks in the transition zone is consistent with the specifications for the Hybrid III 6-year-old child and 5th percentile female adult dummies.

We have analyzed the H–III3C dummy's thorax response and found that statistically the peak force of a well-functioning dummy in the transition compression zone could be as high as 860 N. Accordingly, we are including in § 572.144 (b)(1) a 860 N peak force limit for a compression zone bounded between 12.5 mm and 32 mm.

We have also expanded § 572.144(b)(2) to include an explanation of how internal hysteresis of the rib cage is to be measured and included in subsection (c) a more precise description of the clothing that is used on this dummy during the thorax impact test.

Torso

For calibration, the agency proposed the following torso flexion test and performance requirements: (1) When the torso is flexed 45 degrees from vertical by an applied force vector at 62 degrees to 65 degrees from horizontal, the resistance force must not be less than 130 N and not more than 180 N, and (2) upon removal of the force, the upper torso assembly returns to within 10 degrees of its initial position.

Mitsubishi believes the 0.75 kg mass for the loading adapter bracket that holds the torso is proportionally too large considering the dummy's relatively small mass and its soft spine with respect to the larger size Hybrid III dummies. The commenter also believes that a better definition of the loading adapter bracket is needed to avoid possible interference with the dummy during this test. Mitsubishi recommends specifying a ±0.02 kg tolerance to the 0.75 kg weight of the loading adapter bracket.

We agree with Mitsubishi that the mass of the loading bracket should be reduced. In light of the comment, we have reviewed the masses involved in the system that flexes the dummy. As a result of this review, we are revising the specification of mass associated with the pull test to a maximum of 0.70 kg. This mass includes all of the dummy-based attachments and hardware, ⅓ of the pulling wire, and the load cell that is used to measure the pull load. Inasmuch as the same load cell is being used for tests of other size dummies, there is little flexibility to reduce its weight short of designing a new one, which would unnecessarily delay this rulemaking. Because we are specifying a maximum weight for the entire system, test facilities will have some flexibility in selecting the weight of individual components of the system, such as the loading adaptor bracket. Thus, a weight tolerance for the loading adaptor bracket is not needed.

We have clarified section S572.145(c), which specifies the installation of the loading bracket, its design, the attachment of the pulling mechanism and the sequence of applying and releasing of the pull forces. Figure P5 contains considerable additional detail regarding the loading bracket, its installation on the dummy, and alignment of the point of load application with respect to the occipital condyle.

Toyota suggests removal of the upper and lower arms for the calibration test, which is consistent with the procedure for the 50th percentile male dummy in subpart B of part 572. Toyota believes that the applied load will vary due to interference between the lower arm and femur and a flat rigid seating surface. As the mass-moment of the upper body of the dummy will be reduced by the removal of the upper and lower arms, Toyota requests the agency to review the test condition for the load application.

We have reviewed data from our tests and found that the procedure specified in our calibration tests has not generated any interference problems by the arms as Toyota suggests. We do not believe our test procedure will cause the problem described by the commenter. Accordingly, this aspect of the proposed test procedure is unchanged.

Toyota requests that the pull force angle be applied perpendicular to the posterior surface of the spine box, *i.e.,* 45 degrees from the horizontal, rather than at an angle of 62–65 degrees from horizontal. Toyota believes that the applied pull force at the 62–65 degree angle produces not only a flexion moment, but also a compression force on the lumbar spine. Toyota states that applying the force perpendicular to the posterior surface of the spine box is a more reasonable method to evaluate flexion characteristics of the lumbar spine, since it will minimize compression. Toyota notes that the lumbar flexion procedure for the Hybrid III 6-year-old dummy specifies the applied force angle perpendicular to the thoracic spine box instrumentation cavity mating surface.

We do not share Toyota's concern about compression forces on the lumbar spine during the flexion test. The compressive force on the lumbar spine is of little consequence since it is always of the same magnitude from test to test if the dummy conforms to specified pull force requirements. We also note that in any flexion test, compression forces within the lumbar spine are unavoidable. However, in line with Toyota's suggestion, the H–III3C torso flexion calibration procedure has been revised to be consistent with the new Hybrid III 6-year-old child dummy and 5th percentile adult female adult dummy, in that the pulling force is applied perpendicularly to the thoracic spine box instrumentation cavities' rearmost surface. This location does not remove the vertical forces on the lumbar spine as Toyota has suggested, but it does clarify the orientation of the pull force relative to the torso.

Toyota recommends specification of recovery time between repeated tests to enable the dummy skin to recover and thereby increase the likelihood of repeatable calibration tests. The commenter suggests a thirty-minute waiting (recovery) period, to be consistent with specifications in part 572 for the Hybrid III 50th percentile male dummy. We had included a thirty-minute period in the NPRM, see proposed § 572.146(p), and have adopted it in this final rule.

GM objects to the proposed requirement of the torso flexion test as a calibration test. The commenter believes that the dummy's torso flexion performance can be adequately controlled by specifying lumbar spine and abdominal insert designs, and that periodic inspections would be adequate to assure dummy performance rather than a calibration test. GM also states that the proposed injury measurements from out-of-position (OOP) tests with air bags are not expected to be affected by the lumbar spine-abdomen region of the dummy, because typically in OOP tests maximum loading of the dummy occurs well before gross motion of the upper torso. The commenter also believes that with regard to the use of the dummy in testing child restraint systems, the dummy would be expected to be reasonably well restrained, which would limit the flexion of the upper torso. For these reasons, GM believes the calibration test is not critical for incorporation of the dummy into part 572 and should not be required. Alternatively, GM suggests, if we were to mandate this test, the 10-degree torso return angle requirement should be removed because GM believes it is not needed to evaluate the bending stiffness of the lumbar spine/upper torso assembly.

We disagree with GM that the torso flexion calibration tests should not be required. During a crash test, the dummy's parts interact with each other as a system. This type of interaction can be best controlled or verified by a test that exercises all of the interacting parts. Further, we believe that the dummy's torso flexion stiffness also affects the kinematics of the head, neck, and upper torso with respect to the lower torso. The torso stiffness will thus influence, for example, how far and at what velocity the dummy's head or other parts will move, and will partly determine the orientation of the dummy's upper body half when encountering a deploying air bag. Accordingly, it is important that the torso flexion calibration test for this dummy be included to validate the dummy prior to a dynamic test.

Inasmuch as there were no comments opposing the proposed requirement that the torso's resistance force must be from 130 N to 180 N force when flexed 45 degrees from vertical, we are adopting the proposed specification. We are also adopting the 10-degree torso return angle requirement, as proposed in the NPRM. GM suggests in its comment that "* * * the proposed torso return angle requirement (§ 572.145(b)(2)) (should) be removed, because it is not needed to evaluate the bending stiffness of the lumbar spine/upper torso assembly." We believe there will be a substantial difference in overall torso kinematics between a seated dummy that can and a seated dummy that cannot return its upper torso half from a flexed position to an upright posture, particularly after full flexion has occurred. Without return, the flexion is substantially plastic, while evidence of a specific return would be indicative of the torso mid-section having certain elastic, more human-like properties. Evidence of consistent return would indicate that the forces of restitution are intact, while no or indefinite return would indicate a substantial change within the internal mechanisms of the mid-torso structure, such as failure of the lumbar spine, abdomen, or a substantial shift between interfacing body segments within the abdominal cavity.

Other Issues Relating to Calibration Requirements and Procedures

GM suggests that the specifications for the H–III3C dummy should include a requirement that the dummy must meet calibration specifications following a NHTSA compliance test. The commenter states that part 572 has such a requirement for dummies adopted previously, while the rulemaking proposals on the new Hybrid III 6-year-old, 5th percentile female adult, and on the CRABI 12-month-old infant have not included such a requirement. GM believes that the post-test dummy state of compliance is very important because non-complying compliance test results may be dummy-related. Without post-test dummy verification (calibration), GM claims, no one can determine with reasonable certainty whether a non-compliance is due to a test dummy anomaly or to a real vehicle issue.

We disagree. The pre-test calibration should adequately address the suitability of the dummy for testing. We are concerned that the post-test calibration requirement could handicap and delay our ability to resolve a potential vehicle or motor vehicle equipment test failure solely because the post-test dummy might have experienced a component failure and might no longer conform to all of the specifications. On several occasions during the past few years, a dummy has been damaged during a compliance test such that it could not satisfy all of the post-test calibration requirements. Yet the damage to the dummy at the time it occurred did not affect the dummy's ability to accurately measure the performance requirements of the standard. We are also concerned that the interaction between the vehicle or equipment and the dummy could be directly responsible for the dummy's inability to meet calibration requirements. In such an instance, the failure of the test dummy should not preclude the agency from seeking compliance action. Thus, we conclude that a post-calibration requirement would not be in the public interest, since it could impede our proceeding with a compliance investigation in those cases where the test data indicate that the dummy measurements were not markedly affected by the dummy damage or that some aspect of vehicle or equipment design was responsible for the dummy failure.[3]

Instrumentation

The agency proposed generic specifications for all of the dummy-based sensors, which included—

(1) The accelerometer designated as SA572–S4;
(2) Force and/or moment transducers:
(a) Anterior-superior iliac spine load cell SA572–S17,
(b) Pubic load cell SA572–S18,
(c) Neck SA572–S19,
(d) Lumbar spine SA572–S20,
(e) Shoulder load cell SA572–S21, and
(f) Acetabulum load cell SA572–S22; and
(3) The thorax based chest deflection potentiometer SA572–S50.

Comments on proposed generic sensors were received from Denton and GM.

Load Cell Sensitivity (Output)

Denton notes that the load cell sensitivity specification was unnecessarily restrictive without notable benefit. Denton argues that input/output specifications were not needed because future technology may produce systems that could change their definition. Accordingly, Denton requests that all references to the type of output be removed from drawings SA572–S17, –S18, –S19, –S20, –S21, and –S22.

We do not agree with Denton that output specifications are not needed. A sensor is only good if it is capable of generating some kind of a controlled output for a given input. Accordingly, we are retaining input/output requirements for all of the specified generic sensors.

Bridge Resistance Specifications

Denton suggests that bridge resistance specifications, shown in drawings SA572–S18, –S19 and –S21, are not needed and should be removed. The commenter believes that some test facilities may prefer using other bridge resistances than those shown on the draft drawings due to their particular data acquisition systems. However, their ability to use those transducers would be necessarily curtailed because of the restrictive specification in the drawings, even though different bridge resistances may give identical performance. We agree with this suggestion and have removed the bridge resistance

[3] We issued our final rules on the Hybrid III-type 6-year-old child and 5th percentile adult female dummies since the date of the Alliance's comment. Consistent with today's rule, those final rules do not include a post-test calibration requirement.

specifications from the revised generic sensor drawings.

Load Cell Free Air Resonant Frequency and Weight Specifications

Denton suggests that the assignment of free air resonant frequencies (the first order ringing frequency of a freely suspended load cell) should be consistent with those for the new 6-year-old dummy and a new 5th percentile female adult dummy. Denton also believes that several drawings should indicate a maximum weight, and not a nominal weight. We concur with these suggestions. While we would prefer to establish nominal weights for the load cells,[4] there is no acceptable method of weighing the load cells, particularly those containing integral cables. Because of this, weight tolerances for the load cells could not be established. Until an acceptable weighing procedure is developed, dummy manufacturers must take into account the variabilities of load cell weights to assure that each subsystem weight specification, as shown in sheet 6 of drawing 210–0000, is met. Accordingly, we have specified in the sensor drawings only maximum weights and minimum free air resonant frequencies. They are as follows:

—Drawing SA572–S17 (ASIS)—0.20 kg (0.44 lb) maximum each side and 2000 Hz minimum free air resonant frequency;
—Drawing SA572–S18 (pubic load cell)—0.24 kg (0.53 lb) maximum and 2000 Hz minimum free air resonant frequency;
—Drawing SA572–S19 (neck load cell)—0.24 kg (0.52 lb) maximum and 3000 Hz minimum free air resonant frequency;
—Drawing SA572–S20 (lumbar load cell)—0.26 kg (0.58 lb) maximum and 3000 Hz minimum free air resonant frequency;
—Drawing SA572–S21 (shoulder load cell)—0.09 kg (0.19 lb) maximum and 2000 Hz minimum free air resonant frequency; and
—Drawing SA572–S22 (acetabulum load cell)—0.19 kg (0.42 lb) maximum and 5000 Hz minimum free air resonant frequency.

Denton also suggests that the load cell weight specifications should clarify that the specified weight does not include any cable or mounting hardware, except as noted. The commenter states that drawing S19 should indicate that the weight includes the head washer and four 10–24 × 3⁄4″ flat head cap screws. All of the agency specifications for accelerometers and load cells indicate what is considered as part of the load cell. We have modified drawing S19 to include the head washer and four 10–24 × 3⁄4″ head cap screws.

Accelerometer Specifications

GM supports generic specification for sensors to reduce the restrictive nature of instrumentation specifications seen in the past. However, GM believes that the sensor specifications included in the NPRM are not sufficiently generic. GM notes that the accelerometer specified in drawing SA572–S4 limits the users to only two models, based on ability to meet the seismic mass and hole pattern requirements. The commenter states that other accelerometers might be acceptable but can not be used under the proposed specification. GM feels a more functional description is needed that would define, by dimensions and tolerances, an intersection location of the triaxial accelerometer sensing masses.

We are aware of at least two manufacturers that have in the past or are now marketing accelerometers that match the specifications listed in drawing SA572–S4. As to the specific hole patterns and associated mounting platforms, they are needed for mounting the accelerometers. Since the same accelerometer specifications apply to all other dummies, the accelerometer must be attachable to the new Hybrid III 6-year-old and the 5th percentile female adult as well as to the CRABI 12-month-old dummies, all of which use the common hole pattern for attachment. Although the sensing mass of each accelerometer is defined relative to reference surfaces of the accelerometer structure, hole patterns and mounting platforms need also to be known to assure existence and compatibility of space and mating surfaces and methods of attachment in the areas that they are to be mounted. In addition, the mounting surfaces and attachments must have appropriate structural integrity for vibration control purposes. The defined structure and methods of attachment assure that this is met. The concept, as GM suggests, of defining a location in space for the intersection center of seismic masses of several accelerometers rather than specifying it in design parameters is an attractive concept and warrants further consideration, as this approach could allow greater use of equivalent alternatives. However, none of the commenters offered a model to further this concept and not enough is known at this time on the consequences of the suggested approach were it to be adopted in this final rule.

Accelerometer Frequency Response

GM requested clarification as to what it means for a piece of instrumentation to meet SAE J211 CFC 1000 specifications. GM stated that most accelerometers do not fully meet the roll-off specification and no damped accelerometers can meet any of the roll-off requirements. Denton, in its comments on frequency response for the 5th percentile dummy (Docket No NHTSA–1998–4283–10), suggested adding a note on each of the sensor drawings indicating ''* * * what CFC channel class should be used for recording data with that type of transducer.'' This is a reasonable suggestion, since the SAE J211 clearly deals with the entire data channel and not with a particular sensor within the data channel. Accordingly, a note has been added to the SA572–S4 drawing saying that ''Signal output must be compatible with and recordable in the data channel defined by SAE J211.''

Optional Transducers

GM believes pelvis accelerometers should be optional as they are not required for any proposed injury measurement requirement. GM suggests changing the NPRM language from ''(these accelerometers) are to be mounted'' to ''(these accelerometers) are allowed to be mounted * * *'' We agree with the GM comment and have revised § 572.146(k) to indicate optional use of pelvis accelerometers and § 572.146(c) to indicate optional use of the neck load cell at the lower neck transducer location.

Dimensional Changes to Dummy Drawings

Denton requests that drawing 210–4512 be revised to correct the location of the 1.880 inch dimension. Denton also noted that additional specifications are needed in drawing 210–4510 to assure a fit of the load cell on the mounting surfaces. Denton suggests adding further dimensions on drawing 210–4512 to allow for machining after welding, and a specification to drawing 210–4510 to require that a region at least 1.300 inch from center on each side of the part (total width 2.600 inch) must be flat within 0.005 in. We agree with the recommended changes and have revised the drawings as suggested.

Title and Features of the Users Manual

The NPRM noted in §§ 572.140(a)(2) and 572.141(a)(2) that the final rule package will contain a ''User's Manual''

[4] Load cell weights with only ''maximum'' weight designations could vary considerably. While not specifying a minimum load cell weight may not matter much for larger adult test dummies, lack of such a specification poses a potentially larger problem for the smaller child test dummies.

for the H–III3C dummy. The manual would contain identified procedures on how to inspect, assemble and disassemble the dummy, similar to procedures published for other part 572 dummies. Responding to the NPRM, the SAE notes that it has developed a User's Manual for this dummy and suggests its incorporation by reference into part 572. We have reviewed its content, but decline to reference it for several reasons.

Our review found the SAE's manual containing, besides inspection and assembly procedures, several calibration procedures and response requirements. Calibration procedures and response requirements are set forth by this final rule in part 572. It is not advisable to establish requirements in a separate document, which could contain calibration procedures and response requirements that are inconsistent or in conflict with the part 572 requirements. Further, while the SAE manual appears to be reasonably well developed and well suited for research use, it has a number of redundancies and ambiguities which render it less suited for regulation and compliance testing purposes. Further, the SAE User's Manual is copyrighted by both the SAE and FTSS, which restrict its use and distribution as a public document.

Because we concluded that the SAE manual should not be incorporated into part 572, we generated and incorporated into part 572 our own document addressing procedures for inspection, assembly and disassembly of the H–III3C dummy. We have titled the document *Procedures for Assembly, Disassembly and Inspection (PADI), subpart P, Hybrid III 3-year-old Child Crash Test Dummy (H–III3C, Alpha version), February 2000.* Our incorporation of the PADI does not in itself prohibit anyone from using the procedures contained in the SAE User's Manual. However, persons using the SAE document in tests assuring compliance with our safety standards are responsible for ensuring that the test dummies they use meet the specifications adopted today and are suitable for compliance testing.

Nomenclature

The H–III3C dummy is incorporated into part 572 as subpart P. Today's final rule designates the dummy adopted today as alpha version. Further notable changes to the dummy will be designated as beta, gamma, etc., to assure that modifications can be easily tracked and identified.

Regulatory Analyses and Notices

Executive Order 12866 and DOT Regulatory Policies and Procedures

This rulemaking document was not reviewed by the Office of Management and Budget under E.O. 12866, ''Regulatory Planning and Review.'' The rulemaking action is also not considered to be significant under the Department's Regulatory Policies and Procedures (44 FR 11034, February 26, 1979).

This document amends 49 CFR part 572 by adding design and performance specifications for a new 3-year-old child dummy that the agency may later incorporate into Federal motor vehicle safety standards. This rule indirectly imposes requirements on only those businesses which choose to manufacture or test with the dummy, in that the agency will only use dummies for compliance testing that meet all of the criteria specified in this rule. It may affect vehicle and air bag manufacturers if it is incorporated by reference into the advanced air bag rulemaking, and may affect child restraint manufacturers if it is incorporated into the child restraint system standard.

The cost of an uninstrumented 3-year-old dummy is approximately $30,000. Instrumentation would add $15,000 to $50,000 to the cost, depending on the amount of instrumentation the user chooses to add.

Because the economic impacts of this final rule are minimal, no further regulatory evaluation is necessary.

Executive Order 13132

We have analyzed this rule in accordance with Executive Order 13132 (''Federalism''). We have determined that this rule does not have sufficient Federalism impacts to warrant the preparation of a federalism assessment.

Executive Order 13045

Executive Order 13045 (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is determined to be ''economically significant'' as defined under E.O. 12866, and (2) concerns an environmental, health or safety risk that NHTSA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, we must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by us.

This rule is not subject to the Executive Order because it is not economically significant as defined in E.O. 12866. It also does not involve decisions based on health risks that disproportionately affect children.

Executive Order 12778

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.

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 notice of rulemaking for any 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). However, no regulatory flexibility analysis is required if the head of an agency certifies the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities.

I have considered the effects of this rulemaking action under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) and certify that this rule will not have a significant economic impact on a substantial number of small entities. The rule does not impose or rescind any requirements for anyone. The Regulatory Flexibility Act does not, therefore, require a regulatory flexibility analysis.

National Environmental Policy Act

We have analyzed this amendment 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.

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 OMB control number. This rule does not have any new information collection requirements.

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 us to use voluntary consensus standards in 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 H–III3C dummy that is the subject of this document was developed under the auspices of the SAE. All relevant SAE standards were reviewed as part of the development process. The following voluntary consensus standards have been used in developing the 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) 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 a 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.

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. Thus, this rule is not subject to the requirements of sections 202 and 205 of the UMRA.

Regulation Identifier Number (RIN)

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.

List of Subjects in 49 CFR Part 572

Motor vehicle safety, Incorporation by reference.

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

PART 572—ANTHROPOMORPHIC TEST DUMMIES

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.

2. 49 CFR part 572 is amended by adding a new subpart P consisting of §§ 572.140–572.146, to read as follows:

Subpart P—Hybrid III 3-Year-Old Child Crash Test Dummy, Alpha Version

Subpart P—3-year-Old Child Crash Test Dummy, Alpha Version

§ 572.140 Incorporation by reference.

(a) The following materials are hereby incorporated in this subpart P by reference:

(1) A drawings and specifications package entitled ''Parts List and Drawings, Subpart P Hybrid III 3-year-old child crash test dummy, (H–III3C, Alpha version) February 2000'', incorporated by reference in § 572.141 and consisting of :

(i) Drawing No. 210–1000, Head Assembly, incorporated by reference in §§ 572.141, 572.142, 572.144, 572.145, and 572.146;

(ii) Drawing No. 210–2001, Neck Assembly, incorporated by reference in §§ 572.141, 572.143, 572.144, 572.145, and 572.146;

(iii) Drawing No. TE–208–000, Headform, incorporated by reference in §§ 572.141, and 572.143;

(iv) Drawing No. 210–3000, Upper/Lower Torso Assembly, incorporated by reference in §§ 572.141, 572.144, 572.145, and 572.146;

(v) Drawing No. 210–5000–1(L), –2(R), Leg Assembly, incorporated by reference in §§ 572.141, 572.144, 572.145 as part of a complete dummy assembly;

(vi) Drawing No. 210–6000–1(L), –2(R), Arm Assembly, incorporated by reference in §§ 572.141, 572.144, and 572.145 as part of the complete dummy assembly;

(2) A procedures manual entitled ''Procedures for Assembly, Disassembly and Inspection (PADI), Subpart P, Hybrid III 3-year-old Child Crash Test Dummy, (H–III3C, Alpha Version) February 2000'', incorporated by reference in § 572.141;

(3) SAE Recommended Practice J211/1, Rev. Mar 95 ''Instrumentation for Impact Tests—Part 1-Electronic Instrumentation'', incorporated by reference in § 572.146;

(4) SAE J1733 1994–12 ''Sign Convention for Vehicle Crash Testing'' incorporated by reference in § 572.146.

(5) The Director of the Federal Register approved those 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 NHTSA's Docket Section, 400 Seventh Street SW, room 5109, Washington, DC, or at the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC.

(b) The incorporated materials are available as follows:

(1) The drawings and specifications package referred to in paragraph (a)(1) of this section and the PADI document referred to in paragraph (a)(2) of this section are available from Reprographic Technologies, 9000 Virginia Manor Road, Beltsville, MD 20705 (301) 419–5070.

(2) The SAE materials referred to in paragraphs (a)(3) and (a)(4) of this section are available from the Society of Automotive Engineers, Inc., 400

Commonwealth Drive, Warrendale, PA 15096.

§ 572.141 General description

(a) The Hybrid III 3-year-old child dummy is described by the following materials:

(1) Technical drawings and specifications package 210–0000 (refer to § 572.140(a)(1)), the titles of which are listed in Table A of this section;

(2) Procedures for Assembly, Disassembly and Inspection document (PADI) (refer to § 572.140(a)(2)).

(b) The dummy is made up of the component assemblies set out in the following Table A of this section:

TABLE A

Component assembly	Drawing No.
Head Assembly	210–1000
Neck Assembly (complete)	210–2001
Upper/Lower Torso Assembly	210–3000
Leg Assembly	210–5000–1(L), –2(R)
Arm Assembly	210–6000–1(L), –2(R)

(c) Adjacent segments are joined in a manner such that except for contacts existing under static conditions, there is no contact between metallic elements throughout the range of motion or under simulated crash impact conditions.

(d) The structural properties of the dummy are such that the dummy conforms to this part in every respect only before use in any test similar to those specified in Standard 208, *Occupant Crash Protection,* and Standard 213, *Child Restraint Systems.*

§ 572.142 Head assembly and test procedure.

(a) The head assembly (refer to § 572.140(a)(1)(i)) for this test consists of the head (drawing 210–1000), adapter plate (drawing ATD 6259), accelerometer mounting block (drawing SA 572–S80), structural replacement of ½ mass of the neck load transducer (drawing TE–107–001), head mounting washer (drawing ATD 6262), one ½–20x1″ flat head cap screw (FHCS) (drawing 9000150), and 3 accelerometers (drawing SA–572–S4).

(b) When the head assembly in paragraph (a) of this section is dropped from a height of 376.0+/−1.0 mm (14.8+/−0.04 in) in accordance with paragraph (c) of this section, the peak resultant acceleration at the location of the accelerometers at the head CG shall not be less than 250 g or more than 280 g. The resultant acceleration versus time history curve shall be unimodal, and the oscillations occurring after the main pulse shall be less than 10 percent of the peak resultant acceleration. The lateral acceleration shall not exceed +/−15 G (zero to peak).

(c) Head test procedure. The test procedure for the head is as follows:

(1) Soak the head assembly in a controlled environment at any temperature between 18.9 and 25.6 °C (66 and 78 °F) and at any relative humidity between 10 and 70 percent for at least four hours prior to a test.

(2) Prior to the test, clean the impact surface of the head skin and the steel impact plate surface with isopropyl alcohol, trichlorethane, or an equivalent. Both impact surfaces must be clean and dry for testing.

(3) Suspend the head assembly with its midsagittal plane in vertical orientation as shown in Figure P1 of this subpart. The lowest point on the forehead is 376.0±1.0 mm (14.76±0.04 in) from the steel impact surface. The 3.3 mm (0.13 in) diameter holes, located on either side of the dummy's head in transverse alignment with the CG, shall be used to ensure that the head transverse plane is level with respect to the impact surface.

(4) Drop the head assembly from the specified height by a means that ensures a smooth, instant release onto a rigidly supported flat horizontal steel plate which is 50.8 mm (2 in) thick and 610 mm (24 in) square. The impact surface shall be clean, dry and have a finish of not less than 203.2×10^{-6} mm (8 micro inches) (RMS) and not more than 2032.0 x 10^{-6} mm (80 micro inches) (RMS).

(5) Allow at least 2 hours between successive tests on the same head.

§ 572.143 Neck-headform assembly and test procedure.

(a) The neck and headform assembly (refer to §§ 572.140(a)(1)(ii) and 572.140(a)(1)(iii)) for the purposes of this test, as shown in Figures P2 and P3 of this subpart, consists of the neck molded assembly (drawing 210–2015), neck cable (drawing 210–2040), nylon shoulder bushing (drawing 9001373), upper mount plate insert (drawing 910420–048), bib simulator (drawing TE–208–050), urethane washer (drawing 210–2050), neck mounting plate (drawing TE–250–021), two jam nuts (drawing 9001336), load-moment transducer (drawing SA 572–S19), and headform (drawing TE–208–000).

(b) When the neck and headform assembly, as defined in § 572.143(a), is tested according to the test procedure in paragraph (c) of this section, it shall have the following characteristics:

(1) Flexion.

(i) Plane D, referenced in Figure P2 of this subpart, shall rotate in the direction of preimpact flight with respect to the pendulum's longitudinal centerline between 70 degrees and 82 degrees. Within this specified rotation corridor, the peak moment about the occipital condyle may not be less than 42 N-m and not more than 53 N-m.

(ii) The positive moment shall decay for the first time to 10 N-m between 60 ms and 80 ms after time zero.

(iii) The moment and rotation data channels are defined to be zero when the longitudinal centerline of the neck and pendulum are parallel.

(2) Extension.

(i) Plane D referenced in Figure P3 of this subpart shall rotate in the direction of preimpact flight with respect to the pendulum's longitudinal centerline between 83 degrees and 93 degrees. Within this specified rotation corridor, the peak moment about the occipital condyle may be not more than −43.7 N-m and not less than −53.3 N-m.

(ii) The negative moment shall decay for the first time to −10 N-m between 60 and 80 ms after time zero.

(iii) The moment and rotation data channels are defined to be zero when the longitudinal centerline of the neck and pendulum are parallel.

(c) Test Procedure

(1) Soak the neck assembly in a controlled environment at any temperature between 20.6 and 22.2 °C (69 and 72 F) and a relative humidity between 10 and 70 percent for at least four hours prior to a test.

(2) Torque the jam nut (drawing 9001336) on the neck cable (drawing 210–2040) between 0.2 N-m and 0.3 N-m.

(3) Mount the neck-headform assembly, defined in paragraph (a) of this section, on the pendulum so the midsagittal plane of the headform is vertical and coincides with the plane of motion of the pendulum as shown in Figure P2 of this subpart for flexion and Figure P3 of this subpart for extension tests.

(4) Release the pendulum and allow it to fall freely to achieve an impact velocity of 5.50±0.10 m/s (18.05 + 0.40 ft/s) for flexion and 3.65±0.1 m/s (11.98±0.40 ft/s) for extension tests, measured by an accelerometer mounted on the pendulum as shown in Figure 22 of this part 572 at time zero.

(i) The test shall be conducted without inducing any torsion twisting of the neck.

(ii) Stop the pendulum from the initial velocity with an acceleration vs. time pulse which meets the velocity change as specified in Table B of this section. Integrate the pendulum acceleration data channel to obtain the velocity vs. time curve as indicated in Table B of this section.

(iii) Time-zero is defined as the time of initial contact between the pendulum striker plate and the honeycomb material. The pendulum data channel shall be zero at this time.

TABLE B.—PENDULUM PULSE

Time	Flexion		Time	Extension	
ms	m/s	ft/s	ms	m/s	ft/s
10	2.0–2.7	6.6–8.9	6	1.0–1.4	3.3–4.6
15	3.0–4.0	9.8–13.1	10	1.9–2.5	6.2–8.2
20	4.0–5.1	13.1–16.7	14	2.8–3.5	9.2–11.5

§ 572.144 Thorax assembly and test procedure.

(a) Thorax (Upper Torso) Assembly (refer to § 572.140(a)(1)(iv)). The thorax consists of the upper part of the torso assembly shown in drawing 210–3000.

(b) When the anterior surface of the thorax of a completely assembled dummy (drawing 210–0000) is impacted by a test probe conforming to § 572.146(a) at 6.0±0.1 m/s (19.7±0.3 ft/s) according to the test procedure in paragraph (c) of this section.

(1) Maximum sternum displacement (compression) relative to the spine, measured with the chest deflection transducer (SA–572–S50), must not be less than 32mm (1.3 in) and not more than 38mm (1.5 in). Within this specified compression corridor, the peak force, measured by the probe-mounted accelerometer as defined in paragraph § 572.146(a) and calculated in accordance with paragraph (b)(3) of this section, shall be not less than 680 N and not more than 810 N. The peak force after 12.5 mm of sternum compression but before reaching the minimum required 32.0 mm sternum compression shall not exceed 860 N.

(2) The internal hysteresis of the ribcage in each impact, as determined from the force vs. deflection curve, shall be not less than 65 percent and not more than 85 percent. The hysteresis shall be calculated by determining the ratio of the area between the loading and unloading portions of the force deflection curve to the area under the loading portion of the curve.

(3) The force shall be calculated by the product of the impactor mass and its deceleration.

(c) Test procedure. The test procedure for the thorax assembly is as follows:

(1) The test dummy is clothed in cotton-polyester-based tight-fitting shirt with long sleeves and ankle-length pants whose combined weight is not more than 0.25 kg (0.55 lbs)

(2) Soak the dummy in a controlled environment at any temperature between 20.6 and 22.2 °C (69 and 72 °F) and at any relative humidity between 10 and 70 percent for at least four hours prior to a test.

(3) Seat and orient the dummy on a seating surface without back support as shown in Figure P4, with the lower limbs extended horizontally and forward, the upper arms parallel to the torso and the lower arms extended horizontally and forward, parallel to the midsagittal plane, the midsagittal plane being vertical within ±1 degree and the ribs level in the anterior-posterior and lateral directions within ±0.5 degrees.

(4) Establish the impact point at the chest midsagittal plane so that the impact point of the longitudinal centerline of the probe coincides with the dummy's mid-sagittal plane and is centered on the center of No. 2 rib within ±2.5 mm (0.1 in.) and 0.5 degrees of a horizontal plane.

(5) Impact the thorax with the test probe so that at the moment of contact the probe's longitudinal center line is within 2 degrees of a horizontal line in the dummy's midsagittal plane.

(6) Guide the test probe during impact so that there is no significant lateral, vertical or rotational movement.

§ 572.145 Upper and lower torso assemblies and torso flexion test procedure.

(a) The test objective is to determine the resistance of the lumbar spine and abdomen of a fully assembled dummy (drawing 210–0000) to flexion articulation between upper and lower halves of the torso assembly (refer to § 572.140(a)(1)(iv)).

(b)(1) When the upper half of the torso assembly of a seated dummy is subjected to a force continuously applied at the occipital condyle level through the rigidly attached adaptor bracket in accordance with the test procedure set out in paragraph (c) of this section, the lumbar spine-abdomen assembly shall flex by an amount that permits the upper half of the torso, as measured at the posterior surface of the torso reference plane shown in Figure P5 of this subpart, to translate in angular motion in the midsagittal plane 45±0.5 degrees relative to the vertical transverse plane, at which time the pulling force applied must not be less than 130 N (28.8 lbf) and not more than 180 N (41.2 lbf), and

(2) Upon removal of the force, the upper torso assembly returns to within 10 degrees of its initial position.

(c) Test procedure. The test procedure is as follows:

(1) Soak the dummy in a controlled environment at any temperature between 18.9° and 25.6 °C (66 and 78 °F) and at any relative humidity between 10 and 70 percent for at least 4 hours prior to a test.

(2) Assemble the complete dummy (with or without the lower legs) and seat it on a rigid flat-surface table, as shown in Figure P5 of this subpart.

(i) Unzip the torso jacket and remove the four ¼–20×¾″ bolts which attach the lumbar load transducer or its structural replacement to the pelvis weldment (drawing 210–4510) as shown in Figure P5 of this subpart.

(ii) Position the matching end of the rigid pelvis attachment fixture around the lumbar spine and align it over the four bolt holes.

(iii) Secure the fixture to the dummy with the four ¼–20×¾″ bolts and attach the fixture to the table. Tighten the mountings so that the pelvis-lumbar joining surface is horizontal within ±1 deg and the buttocks and upper legs of the seated dummy are in contact with the test surface.

(iv) Attach the loading adapter bracket to the upper part of the torso as shown in Figure P5 of this subpart and zip up the torso jacket.

(v) Point the upper arms vertically downward and the lower arms forward.

(3)(i) Flex the thorax forward three times from vertical until the torso reference plane reaches 30±2 degrees from vertical. The torso reference plane, as shown in figure P5 of this subpart, is defined by the transverse plane tangent to the posterior surface of the upper backplate of the spine box weldment (drawing 210–8020).

(ii) Remove all externally applied flexion forces and support the upper torso half in a vertical orientation for 30 minutes to prevent it from drooping.

(4) Remove the external support and after two minutes measure the initial orientation angle of the upper torso reference plane of the seated, unsupported dummy as shown in Figure P5 of this subpart. The initial orientation of the torso reference plane may not exceed 15 degrees.

(5) Attach the pull cable at the point of load application on the adaptor bracket while maintaining the initial torso orientation. Apply a pulling force in the midsagittal plane, as shown in Figure P5 of this subpart, at any upper torso flexion rate between 0.5 and 1.5 degrees per second, until the torso reference plane reaches 45±0.5 degrees of flexion relative to the vertical transverse plane.

(6) Continue to apply a force sufficient to maintain 45±0.5 degrees of flexion for 10 seconds, and record the highest applied force during the 10-second period.

(8) Release all force at the loading adaptor bracket as rapidly as possible and measure the return angle with respect to the initial angle reference plane as defined in paragraph (c)(4) of this section 3 to 4 minutes after the release.

572.146 Test conditions and instrumentation.

(a) The test probe for thoracic impacts shall be of rigid metallic construction, concentric in shape, and symmetric about its longitudinal axis. It shall have a mass of 1.70±.01 kg (3.75±0.02 lb) and a minimum mass moment of inertia 283 kg-cm*2 (0.25 lb-in-sec*2) in yaw and pitch about the CG of the probe. ⅓ of the weight of suspension cables and their attachments to the impact probe must be included in the calculation of mass and such components may not exceed five percent of the total weight of the test probe. The impacting end of the probe, perpendicular to and concentric with the longitudinal axis, is at least 25 mm (1.0 in) in length, has a flat, continuous, and non-deformable 50.8±0.2 mm (2.00±0.01 inch) diameter face with a maximum edge radius of 12.7 mm (0.5 in). The probe's end opposite to the impact face has provisions for mounting an accelerometer with its sensitive axis collinear with the longitudinal axis of the probe. No concentric portions of the impact probe may exceed the diameter of the impact face. The impact probe has a free air resonant frequency not less than 1000 Hz.

(b) Head accelerometers shall have the dimensions, response characteristics, and sensitive mass locations specified in drawing SA 572–S4 and be mounted in the head as shown in drawing 210–0000.

(c) The neck force-moment transducer shall have the dimensions, response characteristics, and sensitive axis locations specified in drawing SA 572–S19 and be mounted at the upper neck transducer location as shown in drawing 210–0000. A lower neck transducer as specified in drawing SA 572–S19 is allowed to be mounted as optional instrumentation in place of part No. ATD6204, as shown in drawing 210–0000.

(d) The shoulder force transducers shall have the dimensions and response characteristics specified in drawing SA 572–S21 and be allowed to be mounted as optional instrumentation in place of part No. 210–3800 in the torso assembly as shown in drawing 210–0000.

(e) The thorax accelerometers shall have the dimensions, response characteristics, and sensitive mass locations specified in drawing SA 572–S4 and be mounted in the torso assembly in triaxial configuration at the T4 location, as shown in drawing 210–0000. Triaxial accelerometers may be mounted as optional instrumentation at T1, and T12, and in uniaxial configuration on the sternum at the midpoint level of ribs No. 1 and No. 3 and on the spine coinciding with the midpoint level of No. 3 rib, as shown in drawing 210–0000. If used, the accelerometers must conform to SA–572–S4.

(f) The chest deflection potentiometer shall have the dimensions and response characteristics specified in drawing SA–572–S50 and be mounted in the torso assembly as shown drawing 210–0000.

(g) The lumbar spine force/moment transducer may be mounted in the torso assembly as shown in drawing 210–0000 as optional instrumentation in place of part No. 210–4150. If used, the transducer shall have the dimensions and response characteristics specified in drawing SA–572–S20.

(h) The pubic force transducer may be mounted in the torso assembly as shown in drawing 210–0000 as optional instrumentation in place of part No. 921–0022–036. If used, the transducer shall have the dimensions and response characteristics specified in drawing SA–572–S18.

(i) The acetabulum force transducers may be mounted in the torso assembly as shown in drawing 210–0000 as optional instrumentation in place of part No. 210–4522. If used, the transducer shall have the dimensions and response characteristics specified in drawing SA–572–S22.

(j) The anterior-superior iliac spine transducers may be mounted in the torso assembly as shown in drawing 210–0000 as optional instrumentation in place of part No. 210–4540–1, –2. If used, the transducers shall have the dimensions and response characteristics specified in drawing SA–572–S17.

(k) The pelvis accelerometers may be mounted in the pelvis in triaxial configuration as shown in drawing 210–0000 as optional instrumentation. If used, the accelerometers shall have the dimensions and response characteristics specified in drawing SA–572–S4.

(l) The outputs of acceleration and force-sensing devices installed in the dummy and in the test apparatus specified by this part shall be recorded in individual data channels that conform to the requirements of SAE Recommended Practice J211/1, Rev. Mar 95 ''Instrumentation for Impact Tests—Part 1-Electronic Instrumentation'' (refer to § 572.140(a)(3)), with channel classes as follows:

(1) Head acceleration—Class 1000
(2) Neck
(i) force—Class 1000
(ii) moments—Class 600
(iii) pendulum acceleration—Class 180
(3) Thorax:
(i) rib/sternum acceleration—Class 1000
(ii) spine and pendulum accelerations—Class 180
(iii) sternum deflection—Class 600
(iv) shoulder force—Class 180
(4) Lumbar:
(i) forces—Class 1000
(ii) moments—Class 600
(iii) torso flexion pulling force—Class 60 if data channel is used
(5) Pelvis
(i) accelerations—Class 1000
(ii) acetabulum, pubic symphysis—Class 1000,
(iii) iliac wing forces—Class 180

(m) Coordinate signs for instrumentation polarity shall conform to the Sign Convention For Vehicle Crash Testing, Surface Vehicle Information Report, SAE J1733, 1994–12 (refer to § 572.140(a)(4)).

(n) The mountings for sensing devices shall have no resonance frequency less than 3 times the frequency range of the applicable channel class.

(o) Limb joints shall be set at lG, barely restraining the weight of the limbs when they are extended horizontally. The force required to move a limb segment shall not exceed 2G throughout the range of limb motion.

(p) Performance tests of the same component, segment, assembly, or fully assembled dummy shall be separated in time by a period of not less than 30 minutes unless otherwise noted.

(q) Surfaces of dummy components are not painted except as specified in this part or in drawings subtended by this part.

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Figure P1

HEAD DROP TEST SET-UP SPECIFICATIONS

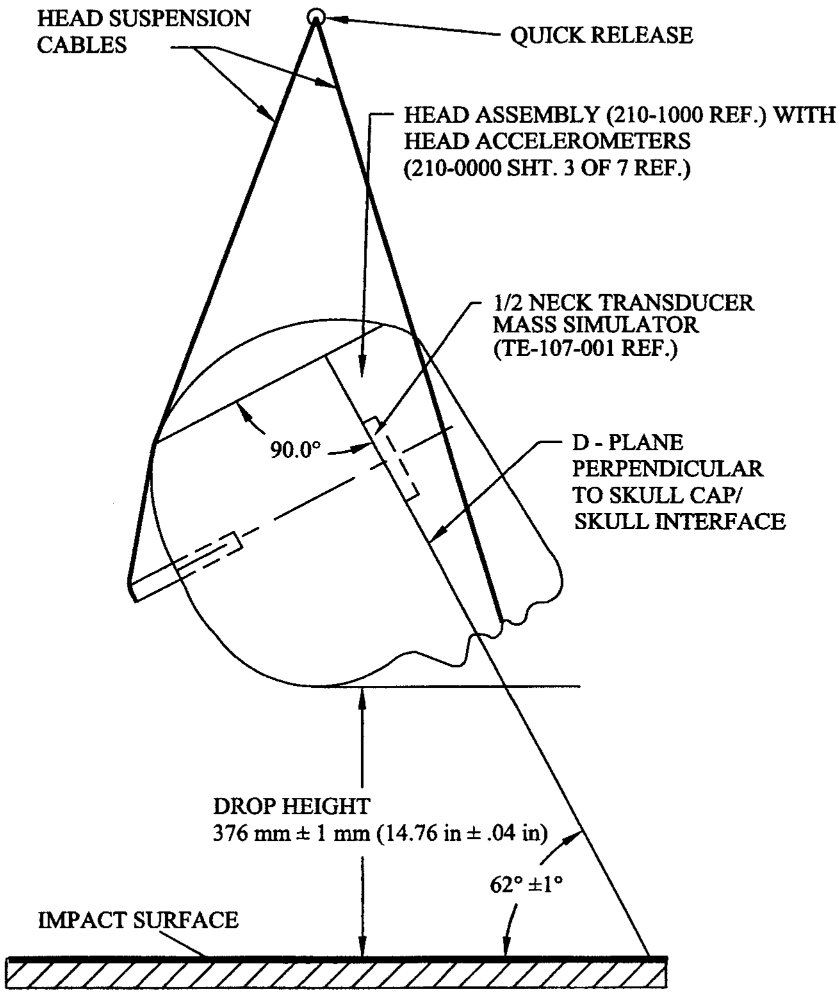
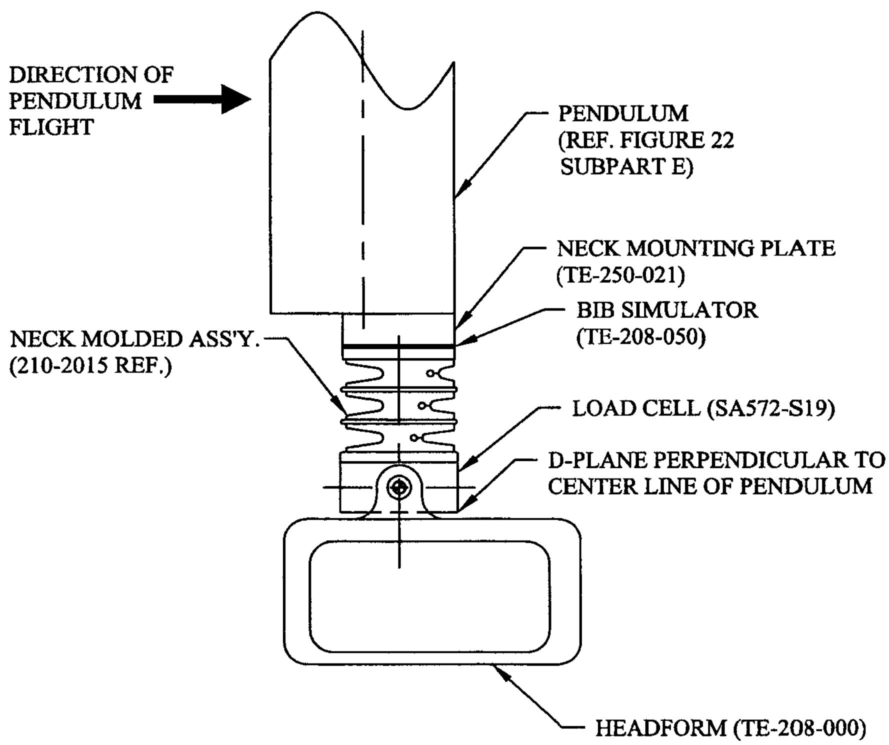


Figure P2

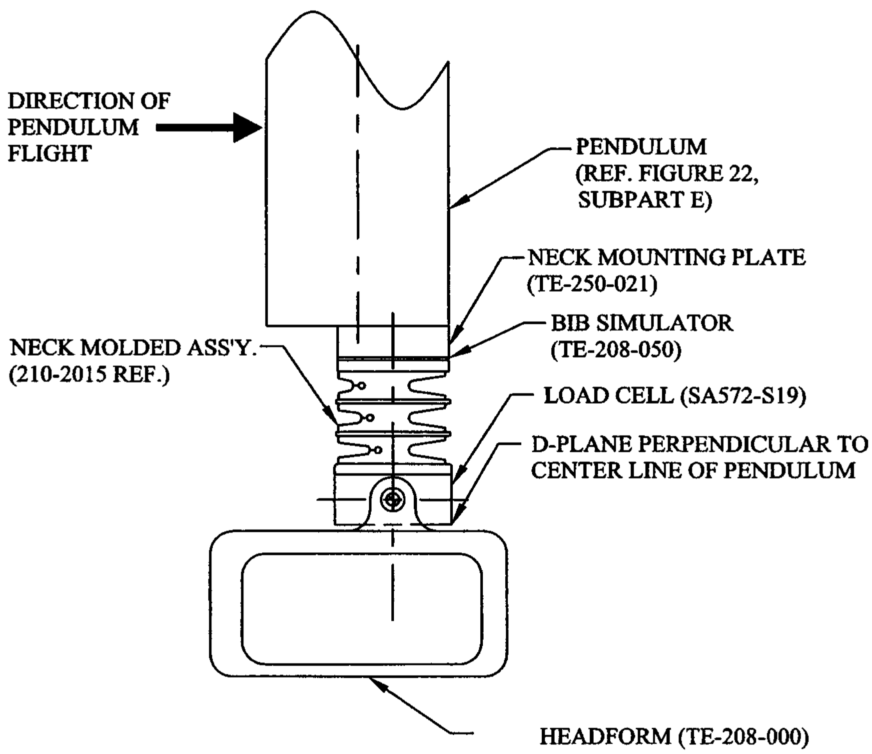
NECK FLEXION TEST SET-UP SPECIFICATIONS



NOTE: MOUNT NECK AT LEADING EDGE OF PENDULUM TO AVOID INTERFERENCE WITH HEADFORM MOTION. PENDULUM SHOWN IN VERTICAL ORIENTATION.

Figure P3

NECK EXTENSION TEST SET-UP SPECIFICATIONS



NOTE: MOUNT NECK AT LEADING EDGE OF PENDULUM TO AVOID INTERFERENCE WITH HEADFORM MOTION.
PENDULUM SHOWN IN VERTICAL ORIENTATION.

Figure P4

THORAX IMPACT TEST SET-UP SPECIFICATIONS

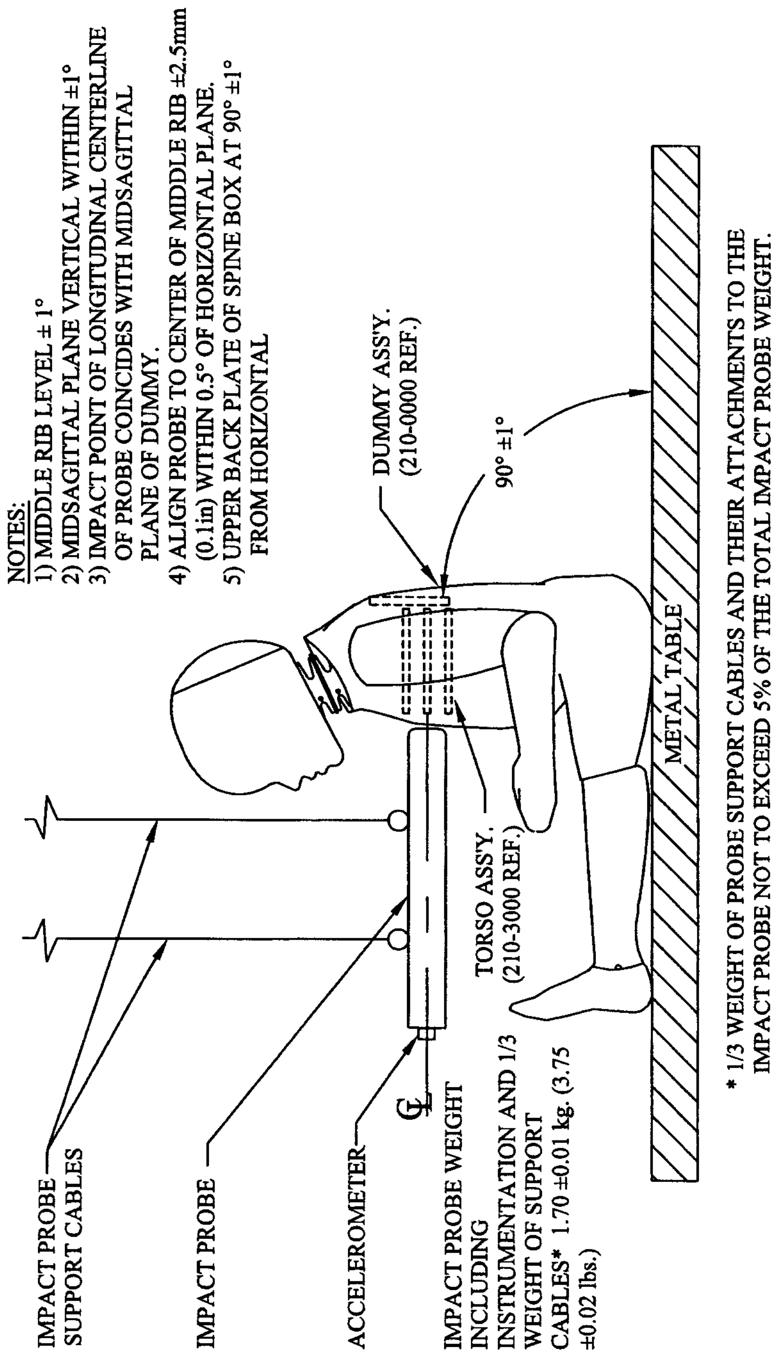
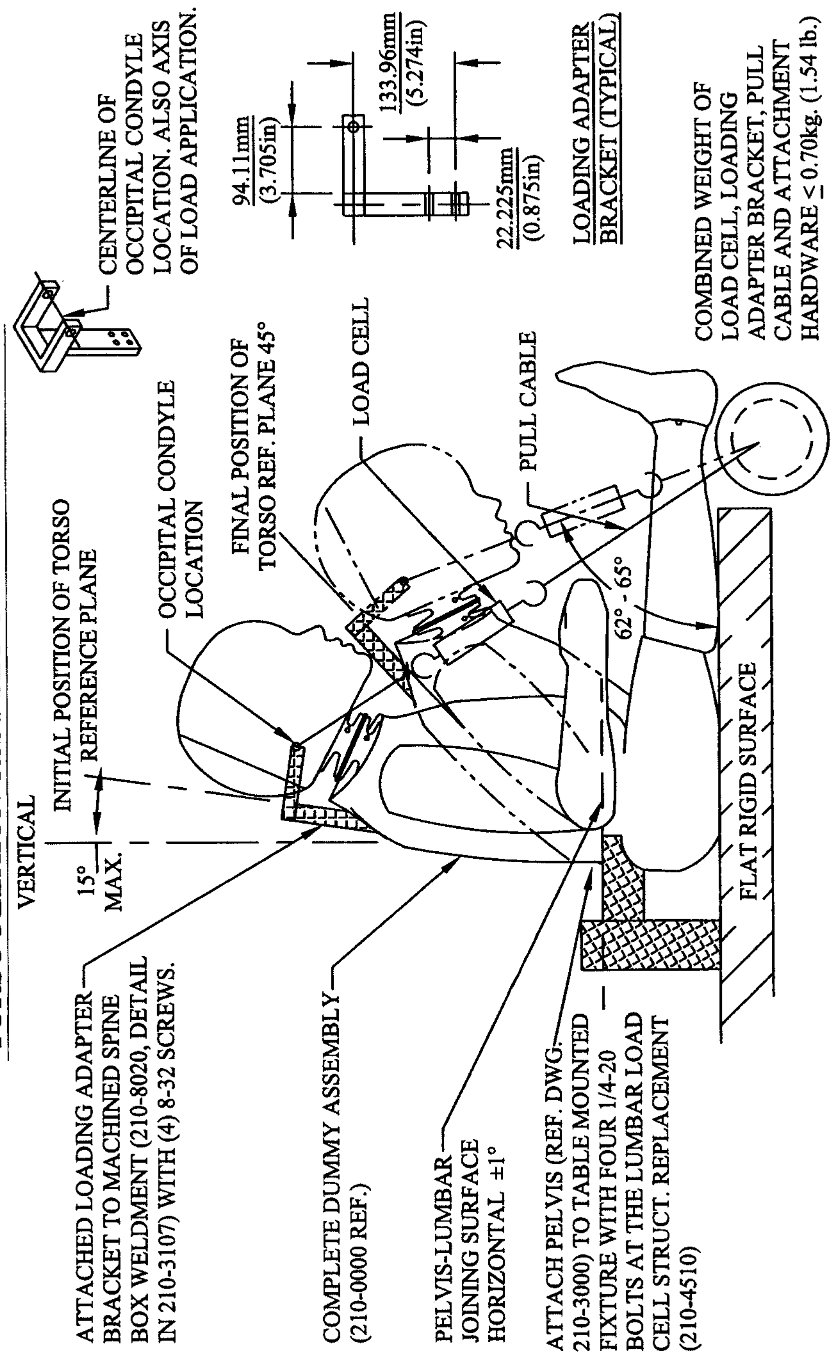


Figure P5

TORSO FLEXION TEST SET-UP SPECIFICATION



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Rosalyn G. Millman,

Acting Administrator.

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 679

[Docket No. 000211039–0039–01; I.D. 031600A]

Fisheries of the Exclusive Economic Zone Off Alaska; Pollock in Statistical Area 630 of the Gulf of Alaska

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

ACTION: Closure.

SUMMARY: NMFS is prohibiting directed fishing for pollock in Statistical Area 630 outside the Shelikof Strait conservation area in the Gulf of Alaska (GOA). This action is necessary to prevent exceeding the B season allowance of the pollock total allowable catch (TAC) for Statistical Area 630 outside the Shelikof Strait conservation area.