

TP-206-07
February 6, 2007

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

LABORATORY TEST PROCEDURE

FOR

FMVSS No. 206

Door Locks and Door Retention Components



ENFORCEMENT
Office of Vehicle Safety Compliance
Room 6111, NVS-220
400 Seventh Street, SW
Washington, DC 20590

OVSC TEST PROCEDURE No. 206
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**REVISION CONTROL LOG
FOR OVSC LABORATORY
TEST PROCEDURES**

TP-206

TEST PROCEDURE		FMVSS 206		DESCRIPTION
REV. No.	DATE	AMENDMENT	EFFECTIVE DATE	
00				Original release signed by O.D.
01				
02				
03				
04				
05				
06		3/16/98		
07	2/6/07	72FR5385	September 1, 2009	Test procedure upgrade for bench level door latch and hinge tests per amendment, including extension to sliding door latches, and including reference to inertial load and sliding door transverse load test procedures.
08				
09				
10				
11				
12				

1. PURPOSE AND APPLICATION

The Office of Vehicle Safety Compliance (OVSC) is providing this Laboratory Test Procedure (TP) for the use of its contractor laboratories. The purpose of this TP is to provide guidelines for obtaining data in OVSC compliance testing programs and a uniform data recording format. This TP does not limit a laboratory's testing methods to the procedures specified in the TP or specific brands of testing equipment. However, any deviation from the TP's testing procedures or recommended testing equipment must be approved by the Contracting Officer's Technical Representative (COTR).

The data obtained in an OVSC compliance test are used to determine if the test specimen, a specific vehicle or item of motor vehicle equipment, meets the requirements specified in the TP. In some cases the TP does not include all of the various minimum performance requirements that are part of the associated Federal Motor Vehicle Safety Standard (FMVSS). Recognizing applicable test tolerances, the TP may specify test conditions that are less severe than the minimum requirements specified in the FMVSS.

If a contract laboratory views any part of the TP to be in conflict with the associated FMVSS or observes deficiencies in the TP, the contract laboratory shall advise the COTR and resolve the discrepancy prior to the start or resumption of compliance testing.

Legal Note: The OVSC Test Procedures are prepared for the limited purpose of use by independent laboratories under contract to conduct compliance tests for the OVSC. The TP's are not rules, regulations or NHTSA interpretations regarding the FMVSS. The TP's are not intended to limit the requirements of the applicable FMVSS(s). In addition the TP's may be modified by the OVSC at any time without notice, and the COTR may direct or authorize contractors to deviate from these procedures, as long as the tests are performed in a manner consistent with the FMVSS itself and within the scope of the contract. TP's may not be relied upon to create any right or benefit in any person. Therefore, compliance of a vehicle or item of motor vehicle equipment is not guaranteed if the manufacturer limits its certification tests to those described in the TP.

2. GENERAL REQUIREMENTS

Federal Motor Vehicle Safety Standard (FMVSS) No. 206 establishes minimum performance requirements for motor vehicle door locks and door retention components. The purpose of Standard 206 is to minimize the likelihood of occupants being thrown from a vehicle as a result of impact. The standard applies to vehicle door locks and door retention components on side or back doors that lead directly into a compartment that contains one or more seating accommodations in passenger cars, multipurpose vehicles, and trucks, and in buses with a gross vehicle weight rating (GVWR) of 4,536 kg or less (excluding folding doors, roll-up doors, detachable doors, and bus doors that are used only for emergency egress and labeled accordingly). This procedure provides requirements for compliance testing of motor vehicle door locks and door retention components to the load test requirements of FMVSS No. 206. The tables below summarize the load test requirements specified in FMVSS No. 206. As noted below, detailed test procedure information for the full vehicle and door only inertial load test requirements, and for the full vehicle sliding door transverse load test requirements are contained in test procedures TP-206I-00 and TP-206S-00, respectively.

A. Hinged Doors

Test Requirement	FMVSS 206 Section	Test Procedure Section
Door Latch Load Test One - Fully Latched 11,000 N - Secondary Latched 4,500 N	S4.1.1.1	12.2A & B
Door Latch Load Test Two - Fully Latched 9,000 N - Secondary Latched 4,500 N	S4.1.1.2	12.2C & D
Door Latch Load Test Three ¹ - Fully Latched 9,000 N	S4.1.1.3	12.2E
Door Latch Inertial Load Test - Vehicle Test - Door Only Test	S4.1.1.3	See TP-206I-00
Door Hinge ² - Longitudinal Load 11,000 N - Transverse Load 9,000 N - Back Door - Load Test One 11,000 N - Load Test Two 9,000 N - Load Test Three 9,000 N ¹	S4.1.2.1	12.4

¹Back doors that open upward.

²In some circumstances, it may be necessary to conduct evaluations of individual hinges in a hinge system. In that case, the hinge must bear a load proportional to the total number of hinges in the hinge system. (For example, an individual hinge in a two-hinge system must be capable of withstanding 50% of the load requirements of the total system).

2. GENERAL REQUIREMENTS....Continued

B. Sliding Side Doors

Test Requirement	FMVSS 206 Section	Test Procedure Section
Door Latch Load Test One - Fully Latched 11,000 N - Secondary Latched 4,500 N (if equipped)	S4.2.1.1	12.3A & B
Door Latch Load Test Two - Fully Latched 9,000 N - Secondary Latched 4,500 N (if equipped)	S4.2.1.2	12.3C & D
Door Latch Inertial Load Test - Vehicle Test - Door Only Test	S4.2.1.3	See TP-206I-00
Vehicle Transverse Load Test - Door Load 18,000 N	S4.2.2.1	See TP-206S-00

The test methods and procedures are also based on the following Society of Automotive Engineers (SAE) standards:

- A. SAE J839b, "Passenger Car Side Door Latch Systems", June 1991
- B. SAE J934, "Vehicle Passenger Door Hinge Systems", July 1982

2. GENERAL REQUIREMENTS....Continued

2.1 APPLIED TEST LOADS

The loads to be applied during the conduct of each test are specified in the following table. The applied loads specified are greater than those specified in FMVSS No. 206 in order to assure that the devices are at least exposed to the required load, while also providing an indication of the degree of margin in the strength of the items under test. The applied loads may be exceeded if additional test data is desired, as directed by the COTR. For example, for latch testing, the tests are normally conducted until latch failure (i.e. separation of the latch and striker). The PASS/FAIL determination shall be based only upon the required loads specified in FMVSS No. 206, which are also provided in the table shown below.

Hinged Door Test Requirement	Required Load (N)	Applied Load (N)
Door Latch Load Test One		
- Fully Latched	11,000 N	13,800
- Secondary Latched	4,500 N	7,000
Door Latch Load Test Two		
- Fully Latched	9,000 N	11,600
- Secondary Latched	4,500 N	7,000
Door Latch Load Test Three ¹		
- Fully Latched	9,000 N	11,600
Door Hinge ²		
- Longitudinal Load	11,000 N	13,800
- Transverse Load	9,000 N	11,600
- Back Door		
- Load Test One	11,000 N	13,800
- Load Test Two	9,000 N	11,600
- Load Test Three ¹	9,000 N	11,600
Sliding Side Door Test Requirement	Required Load (N)	Applied Load (N)
Door Latch Load Test One		
- Fully Latched	11,000 N	13,800
- Secondary Latched (if equipped)	4,500 N	7,000
Door Latch Load Test Two		
- Fully Latched	9,000 N	11,600
- Secondary Latched (if equipped)	4,500 N	7,000

¹Back doors that open upward.

²In some circumstances, it may be necessary to conduct evaluations of individual hinges in a hinge system. In that case, the hinge must bear a load proportional to the total number of hinges in the hinge system. (For example, an individual hinge in a two-hinge system must be capable of withstanding 50% of the load requirements of the total system).

3. SECURITY

The contractor shall provide appropriate security measures to protect the OVSC test equipment from unauthorized personnel during the entire compliance-testing program. The contractor is financially responsible for any acts of theft and/or vandalism, which occur during the storage of test items. Any security problems, which arise, shall be reported by telephone to the Industrial Property Manager (IPM), Office of Contracts and Procurement, within two (2) working days after the incident. A letter containing specific details of the security problem will be sent to the IPM (with copy to the COTR) within 48 hours.

The contractor shall protect and segregate the data that evolves from compliance testing before and after each test. No information concerning the safety compliance-testing program shall be released to anyone except the COTR, unless specifically authorized by the COTR, the COTR's Division Chief, or by the Contracting Officer.

NOTE: NO INDIVIDUALS, OTHER THAN CONTRACTOR PERSONNEL, SHALL BE ALLOWED TO WITNESS ANY COMPLIANCE TEST UNLESS SPECIFICALLY AUTHORIZED BY THE COTR.

4. GOOD HOUSEKEEPING

Contractors shall maintain the entire equipment compliance testing area, test fixtures and instrumentation in a neat and clean condition with test instruments arranged in an orderly manner consistent with good test laboratory housekeeping practices.

5. TEST SCHEDULING AND MONITORING

The contractor shall submit a test schedule to the COTR prior to testing. Tests shall be completed as required in the contract. All testing shall be coordinated to allow monitoring by the COTR.

6. TEST DATA DISPOSITION

The contractor shall make all equipment preliminary compliance test data available to the COTR on location within four hours after the test. Final test data, including digital printouts and computer generated plots (if applicable), shall be furnished to the COTR in accordance with the contract schedule.

All backup data sheets, strip charts, recordings, plots, technicians' notes, etc., shall be retained by the contractor for a minimum of one year after conclusion of each delivery order, purchase order, etc. The COTR shall direct final disposition at that time.

7. GOVERNMENT FURNISHED TEST ITEMS (GFTI)

TEST SAMPLE IDENTIFICATION AND STORAGE

Upon receipt at the laboratory, the items to be tested shall be assigned laboratory test group numbers and shall also be tagged, when known, with the vehicle model year, make and model, location (in vehicle), and sample name and part number.

EXAMPLE: 2006 XYZ Safe Rider 2-door coupe left front door hinge

An inventory shall be made of the number, name and condition of samples received.

The test samples shall be stored in a dry, clean, dust free area specifically designated by the Laboratory Project Manager.

8. CALIBRATION OF TEST INSTRUMENTS

Before the contractor initiates the safety compliance test program, a test instrumentation calibration system shall be implemented and maintained in accordance with established calibration practices. The calibration system shall include the following as a minimum:

- A. Standards for calibrating the measuring and test equipment will be stored and used under appropriate environmental conditions to assure their accuracy and stability.
- B. All measuring instruments and standards shall be calibrated by the contractor, or a commercial facility, against a higher order standard at periodic intervals **NOT TO EXCEED TWELVE (12) MONTHS!** Records, showing the calibration traceability to the National Institute of Standards and Technology (NIST), shall be maintained for all measuring and test equipment.
- C. All measuring and test equipment and measuring standards will be labeled with the following information:
 - (1) Date of calibration
 - (2) Date of next scheduled calibration
 - (3) Name of the technician who calibrated the equipment

8. CALIBRATION OF TEST INSTRUMENTS.....CONTINUED

D. A written calibration procedure shall be provided by the contractor which includes as a minimum the following information for all measurement and test equipment:

- (1) Type of equipment, manufacturer, model number, etc.
- (2) Measurement range
- (3) Accuracy
- (4) Calibration interval
- (5) Type of standard used to calibrate the equipment (calibration traceability of the standard must be evident)

E. Records of calibration for all test instrumentation shall be kept by the contractor in a manner that assures the maintenance of established calibration schedules. All such records shall be readily available for inspection when requested by the COTR. The calibration system need the acceptance by the COTR before the test program commences.

Further guidance is proved in the International Standard ISO 10012-1, "Quality Assurance Requirements for Measuring Equipment" and American National Standard ANSI/NCSL Z540-1, "Calibration Laboratories and Measuring and Test Equipment – General Requirements."

9. PHOTOGRAPHIC DOCUMENTATION

9.1 Photographs

Each final test report shall include digital photographs (minimum size 8 x 10 inches) of the test setup used for each phase of testing, including pre-test and post-test photographs of the item being tested. The photographs shall include a placard in view that identifies the test laboratory, the test date, test vehicle year, make and model, the specific FMVSS 206 test, the test item name and part number, and the words "Pre-Test" or "Post-Test" as appropriate.

If a test failure occurs, additional digital photographs shall be taken to document each test failure.

9.2 Video Coverage

9.2.1 Door Latch and Hinge Load Test Video Coverage

Each latch and hinge load test shall be recorded with a digital video camera fully documenting the entire load test. The video coverage shall include a placard in view just before the start of each test that identifies the test laboratory, the test date, test vehicle year, make and model, the specific FMVSS 206 test, and the test item name and part number.

10. DEFINITIONS

Auxiliary Door Latch is a latch equipped with a fully latched position, with or without a secondary latched position, and fitted to a door or door system equipped with a primary door latch system.

Auxiliary Door Latch System consists of door latches and strikers other than those associated with the primary latch system.

Back Door is a door or door system on the back end of a motor vehicle through which passengers can enter or depart the vehicle or cargo can be loaded or unloaded. It does not include:

A trunk lid; or

A door or window composed entirely of glazing material and whose latches and/or hinge systems are attached directly to the glazing material.

Body Member is that portion of the hinge normally affixed to the body structure.

Door Hinge System is one or more hinges used to support a door.

Door Latch System consists of latches and strikers installed on a door system.

Door Member is that portion of the hinge normally affixed to the door structure and constituting the swinging member.

Door System is the door, latch, striker, hinges, sliding track combinations and other door retention components on a door and its surrounding doorframe. The door system of a double door includes both doors.

Double Door is a system of two doors where the front door or wing door opens first and connects to the rear door or bolted door, which opens second.

Folding Door is a movable barrier, which will close off an entranceway to a bus, multipurpose passenger vehicle or truck, consisting of two or more hinge panels that swing, slide, or rotate; does not have a striker and latch assembly

Fork-bolt is the part of the latch that engages and retains the striker when in a latched position.

Fork-bolt Opening Direction is the direction opposite to that in which the striker enters the latch to engage the fork-bolt.

Fully Latched Position is the coupling condition of the latch that retains the door in a completely closed position.

Hinge is a device system used to position the door relative to the body structure and control the path of the door swing for passenger ingress and egress.

10. DEFINITIONS.....CONTINUED

Hinge Pin is that portion of the hinge normally interconnecting the body and door members and establishing the swing axis.

Latch is a device employed to maintain the door in a closed position relative to the vehicle body with provisions for deliberate release (or operation).

Primary Door Latch is a latch equipped with both a fully latched position and a secondary latched position and is designated as a "primary door latch" by the manufacturer (by the time it certifies the vehicle and may not thereafter alter the designation).

Primary Door Latch System consists of a primary door latch(s) and a striker(s).

Secondary Latched Position refers to the coupling condition of the latch that retains the door in a partially closed position.

Side Front Door is a door that, in a side view, has 50 percent or more of its opening area forward of the rearmost point on the driver's seat back, when the seat back is adjusted to its most vertical and rearward position.

Side Rear Door is a door that, in a side view, has 50 percent or more of its opening area to the rear of the rearmost point on the driver's seat back, when the driver's seat is adjusted to its most vertical and rearward position.

Striker is a device with which the latch engages to maintain the door in the fully latched or secondary latched position.

Trunk Lid is a movable body panel that provides access from outside the vehicle to a space wholly partitioned from the occupant compartment by a permanently attached partition or fixed or fold-down seat back.

11. PRETEST REQUIREMENTS

11.1 IN-HOUSE TEST PROCEDURE

Every contractor is required to submit a detailed in-house test procedure to the COTR before initiating the compliance test program. The procedure must include a step-by-step description of the methodology to be used. The contractor's test procedure shall contain a detailed check-off sheet and a complete listing of test equipment with makes and model numbers. The list of test equipment shall include instrument accuracy and calibration dates. There shall be no contradictions between the OVSC Laboratory Test Procedure and the contractor's in-house procedure without COTR agreement. The procedures shall cover all aspects of testing from test item receipt to submission of the final report. Written approval of the in-house test procedure and all subsequent revisions shall be obtained from the COTR. The in-house procedure shall include the following:

- A. A step-by-step description of the methodology and test procedure to be used.
- B. A written Quality Control (QC) procedure which shall include calibrations, the data review process, report review, and the people assigned to perform QC per task.
- C. A complete listing of test equipment which shall include instrument accuracy and calibration dates.
- D. Detailed check-off lists to be used during the test and during data review. These lists shall include all test procedure requirements and FMVSS requirements pertaining to the safety standard for which testing is being performed. Each separate check-off sheet shall identify the lab, test date, vehicle and test technicians. These check sheets shall be used to document that all requirements and procedures have been complied with. These sheets shall be submitted with the test report.

11.2 INSTRUMENTATION AND DATA ACQUISITION

11.2.1 Hinged Doors and Sliding Side Doors – Latch System and Hinge Load Testing

Load testing shall use a load cell and data acquisition system providing continuous recording (or discrete measurements recorded at an adequately high sampling rate) for all load tests and shall be capable of providing data accurate to within ± 1 percent up to each of the required test loads of 4,500 N, 9,000 N, and 11,000 N. This does not include the 900 N force on latches during longitudinal loading.

The test system shall be calibrated after contract award, in all load ranges to be used, unless current calibration is less than six months old and covers the entire load ranges to be used.

11. PRETEST REQUIREMENTS....CONTINUED

11.3 TEST DATA LOSS

A compliance test is not to be conducted unless all of the various test conditions specified in the applicable OVSC Laboratory Test Procedure have been met. Failure of a contractor to obtain the required test data and to maintain acceptable limits on test parameters in the manner outlined in the applicable OVSC Laboratory Test Procedure may require a retest at the expense of the contractor. The retest costs will include the cost of the replacement item of motor vehicle equipment and all costs associated with conducting the retest. The original test specimen used for the invalid test shall remain the property of OVSC, and the retest specimen shall remain the property of the contractor. If there is a test failure, the contractor shall retain the retest specimen for a period not exceeding two (2) years.

The Contracting Officer of NHTSA is the only NHTSA official authorized to notify the contractor that a retest is required. The retest shall be completed within two (2) weeks after receipt of replacement equipment, and notification by the Contracting Officer that a retest is required, whichever is later. If a retest is conducted, no test report is required for the original test.

11.4 TEST CONDITIONS

Unless otherwise specified, all tests and measurements shall be conducted under the following environmental conditions:

- A. Temperature: $75^{\circ}\text{F} \pm 15^{\circ}\text{F}$
- B. Relative Humidity: $50\% \pm 10\%$
- C. Atmospheric Pressure: 28 to 32 inches of mercury

Continuous recording of environmental temperature and relative humidity of the testing area shall be available during all tests. Test samples, unless otherwise specified, shall be stabilized at test room ambient conditions for a period of at least 24 hours immediately prior to testing.

11. PRETEST REQUIREMENTS....Continued

11.5 TEST PERSONNEL PERFORMANCE

Personnel supervising and/or performing the compliance test program shall be thoroughly familiar with the requirements, test conditions, equipment for the test to be conducted, and safety requirements.

11.6 RECORDING OF TEST DATA

Environmental data and test data shall be recorded on permanent strip charts, circular recording charts, or other print-out media, and/or analog or digital data recording devices acceptable to the COTR. Where permanent trace recording is not required, data will be recorded on standard report forms. Changes or corrections shall be made by drawing a line through the original entry, which must still remain legible, and adding the change alongside.

Data will be submitted on the Test Data Sheet forms specified for use in the final test report. Data will be typed before the sheets are submitted. One set of Inspection and Test Data sheets shall be completed for each vehicle manufacturer. The following are requirements for each inspection entry:

11.7 FOR HINGES –

- A. VEHICLE MANUFACTURER – the manufacturer of the vehicle for which the test samples were intended including address
- B. HINGE MANUFACTURER – include the name and address of manufacturers of hinge assemblies, if known, and if other than the vehicle manufacturer
- C. HINGE MARKINGS – all letters, numbers and trade marks
- D. APPARENT MATERIALS – apparent materials of hinge body, pin, and attaching hardware if present. Material determination is to be by visual observation and magnet. Plated materials are to be scratched in an unstressed area to see base material.
- E. DESCRIPTION – include the following:
 - (1) Overall dimensions
 - (2) Probable method of fabrication
 - (3) Whether stamped and bent or cast, etc.

Describe configuration (flat, offset) type of mounting or attachment.

11. PRETEST REQUIREMENTS....Continued

11.8 FOR LATCHES –

- A. LATCH MANUFACTURER – same information as for HINGES
- B. LATCH MARKINGS – all letters, numbers and trade marks
- C. APPARENT MATERIALS – same requirements as for HINGES
- D. DESCRIPTION – dimensions, type of mechanism, fabrication and method of attachment

Any unusual or significant observations shall be added on the bottom of the Test Data Sheets. Any spaces not entered on the data forms shall be marked "N/A".

12. COMPLIANCE TEST EXECUTION

12.1 GENERAL REQUIREMENTS

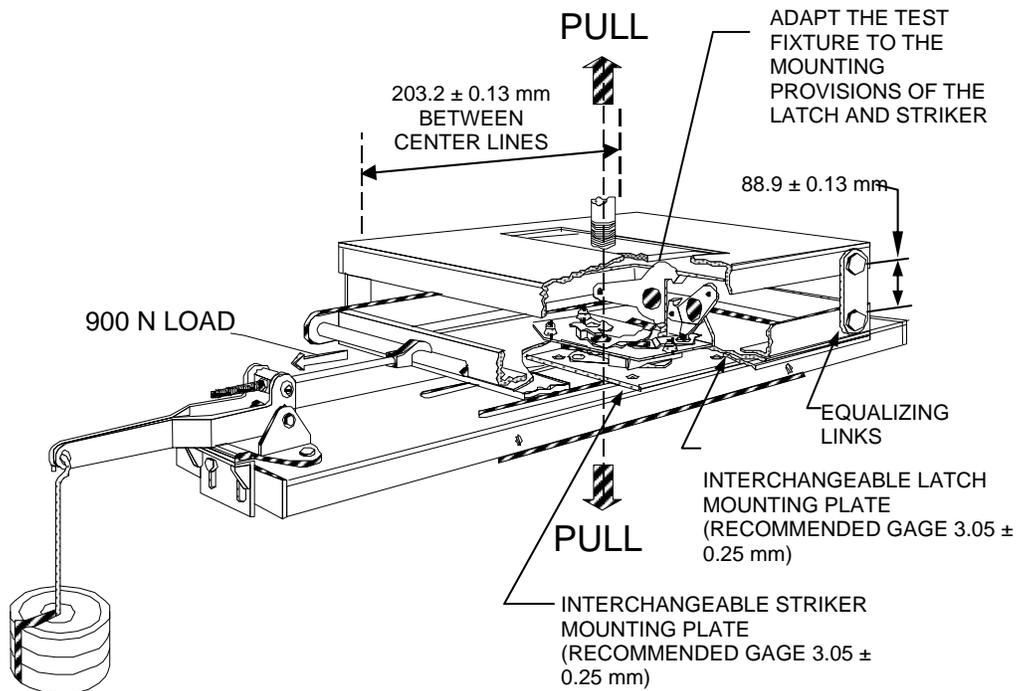
- A. Test fixtures shall be sufficiently stiff to prevent localized stress to the hinge systems, or to latch-striker, especially in transverse pull.
- B. Test fixture and attachment shall be subject to NHTSA approval.
- C. The means of attachment of the sample to the test fixture shall be adequate to prevent failure of the attachment.
- D. If alternate attachment bolt or screw heads are needed, they shall be the same size, shape, and strength as those used in attaching to the vehicle.
- E. Fixture surfaces shall mate at attachment points. Where mounting holes are countersunk on latch and striker, fixture surfaces shall be formed to provide close contact, with correct angle of countersink provided to latch/striker surface and to screw head.
- F. Reinforced test fixturing shall be used for the latch system testing. The fixturing shall be of the same general design as that specified in SAE recommended practice J839. The latch and striker mounting plates will be at least 0.25 inch thick and other parts of the fixturing will be reinforced proportionately. Replacement of these plates when they become distorted through testing to the extent that mounting of the test system (latch/striker) is not feasible shall be the responsibility of the Contractor. Maintenance of these fixtures, if required, shall also be the responsibility of the contractor during the life of the contract.
- G. If needed (typically necessary) the test plate to which the door latch is mounted shall have a striker cut-out configuration similar to the environment in which the door latch will be mounted on normal vehicle doors.

12. COMPLIANCE TEST EXECUTION...Continued

12.2 HINGED DOOR LATCHES

A. Door Latch Load Test One, Fully Latched Position (see Figure 1).

FIGURE 1 - DOOR LATCH – TENSILE TESTING FIXTURE FOR LOAD TEST ONE



- (1) Position latch and striker on the test fixture as shown in Figure 1 such that the tensile force will be applied perpendicular to the face of the latch, and such that the latch and the striker are not compressed against each other.
- (2) Attach the latch and striker to the test fixture as positioned in the preceding step. Align the direction of engagement parallel to the linkage of the fixture.
- (3) Engage latch and striker in the fully latched position.
- (4) Apply a 900 N force to the latch, to load the latch and striker in the latch-opening direction, as shown in Figure 1.
- (5) While operating the data recorder, apply the tensile force at a rate not to exceed 5 mm per minute up to the applicable load specified in section 2.1, or until failure (i.e. latch/striker separation). Record the condition of the test items at the conclusion of the test.

12. COMPLIANCE TEST EXECUTION...Continued

B. Door Latch Load Test One, Secondary Latched Position.

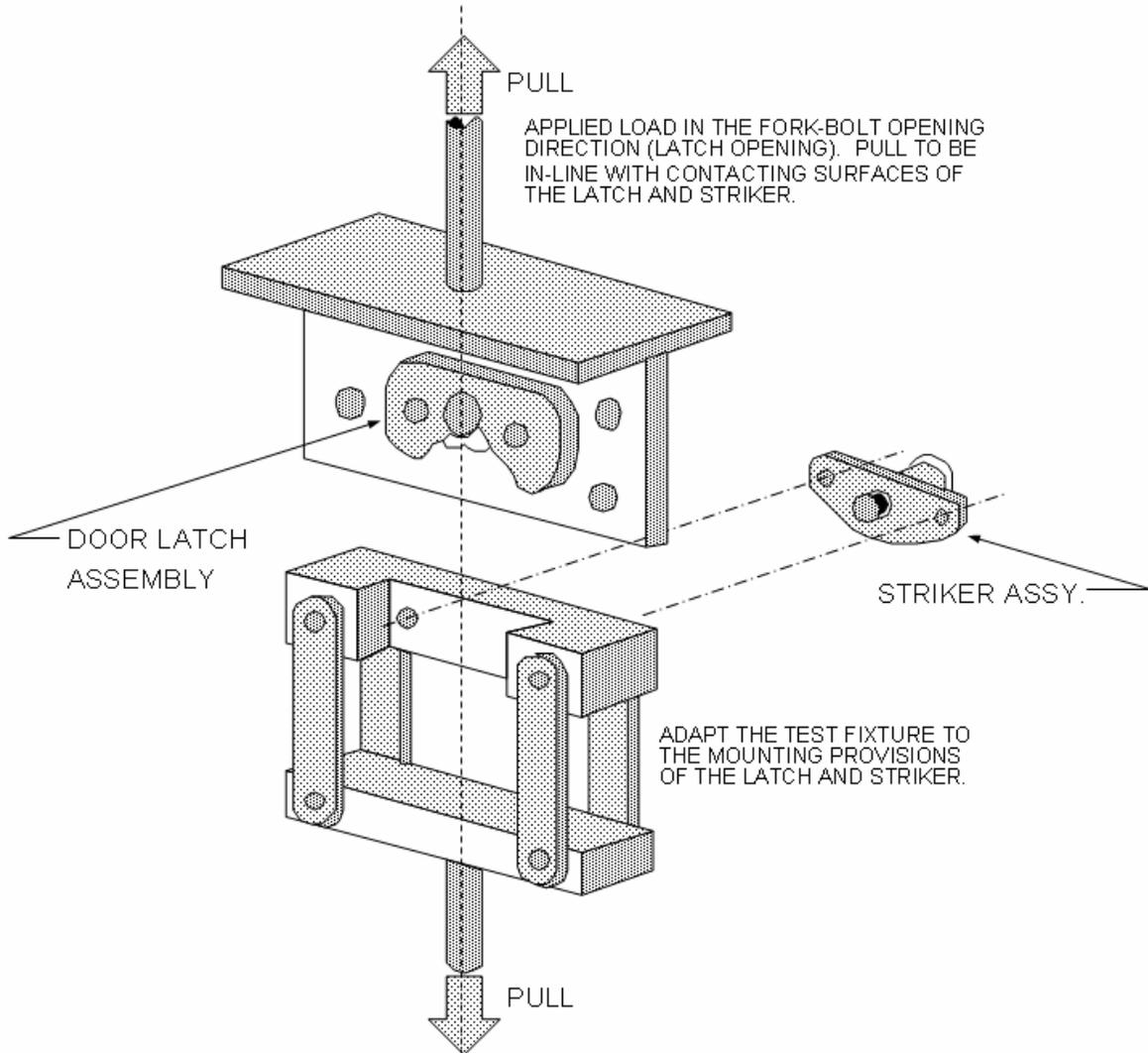
- (1) Position latch and striker on the test fixture as shown in Figure 1 such that the tensile force will be applied perpendicular to the face of the latch, and such that the latch and the striker are not compressed against each other.
- (2) Attach latch and striker to the test fixture as positioned in the preceding step. Align the direction of engagement parallel to the linkage of the fixture.
- (3) Engage latch and striker in secondary latched position.
- (4) Apply a 900 N force to the latch, to load latch and striker in the latch-opening direction, as shown in Figure 1.
- (5) While operating the data recorder, apply the tensile force at a rate not to exceed 5 mm per minute up to the applicable load specified in section 2.1, or until failure (i.e. latch/striker separation). Record the condition of the test items at the conclusion of the test.

C. Door Latch Load Test Two, Fully Latched Position.

- (1) Position latch and striker on the test fixture as shown in Figure 2 such that the tensile force will be applied parallel to the face of the latch and in the fork-bolt opening direction.
- (2) Attach latch and striker to the test fixture as positioned in the preceding step.
- (3) Engage latch and striker in the fully latched position.
- (4) While operating the data recorder, apply the tensile force at a rate not to exceed 5 mm per minute up to the applicable load specified in section 2.1, or until failure (i.e. latch/striker separation). Record the condition of the test items at the conclusion of the test.

12. COMPLIANCE TEST EXECUTION...Continued

FIGURE 2 – DOOR LATCH – TENSILE TESTING FIXTURE FOR LOAD TEST TWO



12. COMPLIANCE TEST EXECUTION...Continued

D. Door Latch Load Test Two, Secondary Latched Position.

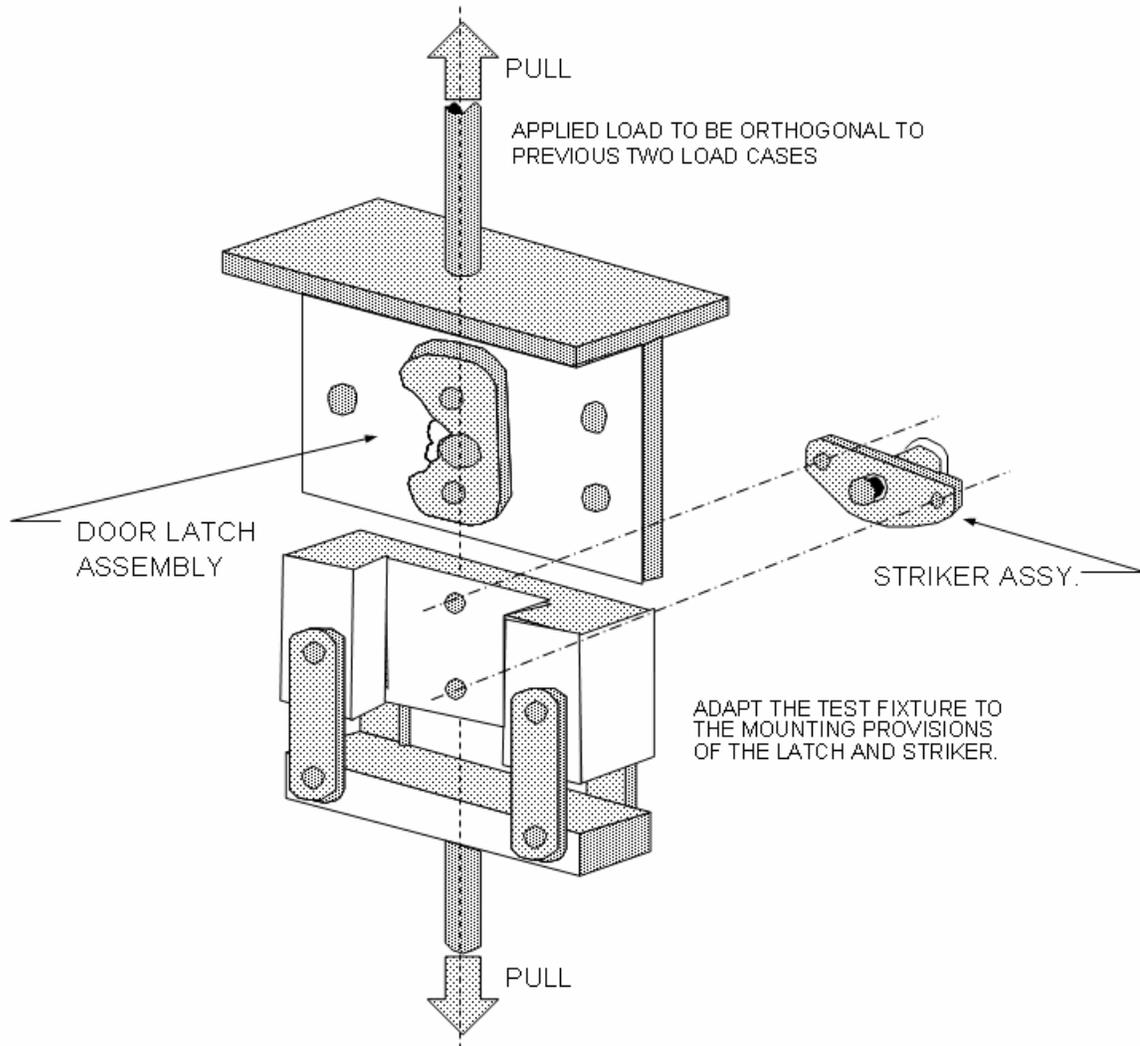
- (1) Position latch and striker on the test fixture as shown in Figure 2 such that the tensile force will be applied parallel to the face of the latch and in the fork-bolt opening direction.
- (2) Attach the latch and striker to the test fixture as positioned in the preceding step.
- (3) Engage latch and striker in secondary latched position.
- (4) While operating the data recorder, apply the tensile force at a rate not to exceed 5 mm per minute up to the applicable load specified in section 2.1, or until failure (i.e. latch/striker separation). Record the condition of the test items at the conclusion of the test.

E. Door Latch Load Test Three, Fully Latched Position (only for back doors that open upward).

- (1) Position latch and striker on the test fixture as shown in Figure 3 such that the tensile force will be applied in a direction that is orthogonal to the load directions specified in Load Test One and Load Test Two (see Figure 4).
- (2) Attach latch and striker to the test fixture as positioned in the preceding step.
- (3) Engage latch and striker in fully latched position.
- (4) While operating the data recorder, apply the tensile force at a rate not to exceed 5 mm per minute up to the applicable load specified in section 2.1, or until failure (i.e. latch/striker separation). Record the condition of the test items at the conclusion of the test.

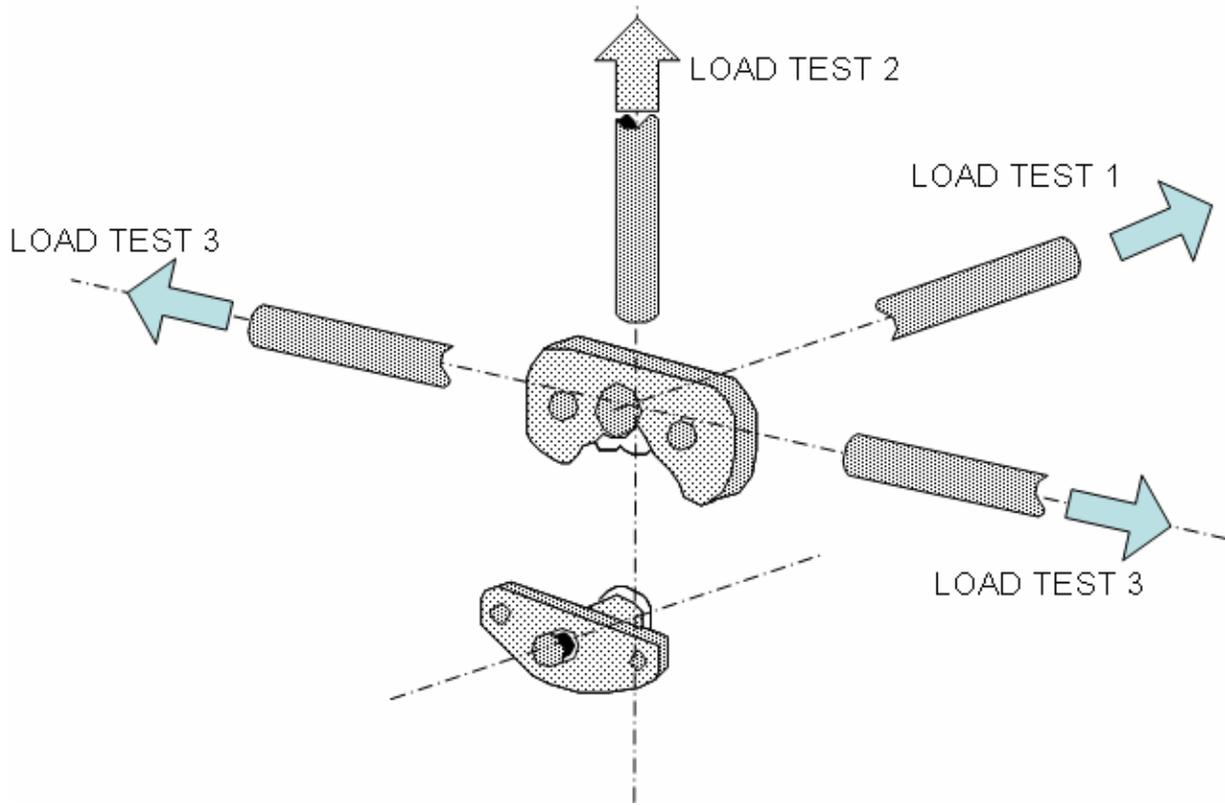
12. COMPLIANCE TEST EXECUTION...Continued

FIGURE 3 – DOOR LATCH – TENSILE TESTING FIXTURE FOR LOAD TEST THREE (BACK DOORS ONLY)



12. COMPLIANCE TEST EXECUTION...Continued

FIGURE 4 – DOOR LATCH STATIC LOAD TEST DIRECTIONS



12. COMPLIANCE TEST EXECUTION...Continued

12.3 SLIDING SIDE DOOR LATCHES

A. Door Latch Load Test One, Fully Latched Position.

The test shall be conducted as specified in section 12.2 A.

B. Door Latch Load Test One, Secondary Latched Position.

If the sliding side door latch is equipped with a secondary latched position (for a primary door latch system), the test shall be conducted as specified in section 12.2 B.

C. Door Latch Load Test Two, Fully Latched Position.

The test shall be conducted as specified in section 12.2 C.

D. Door Latch Load Test Two, Secondary Latched Position.

If the sliding side door latch is equipped with a secondary latched position (for a primary door latch system), the test shall be conducted as specified in section 12.2 D.

12.4 DOOR HINGES

12.4.1 Multiple Hinge System

A. Door Hinge Longitudinal Load Test

- (1) See Figures 5 and 6, and SAE Recommended Practice J934 (July 1982).
- (2) Attach the hinge system to the test fixture as shown in Figure 5. The hinge attitude shall simulate the closed-door vehicle position relative to the hinge centerline.
- (3) The distance between the extreme ends of the hinge system shall be 406 mm \pm 4 mm (see Figure 5).
- (4) The tensile force shall be applied equidistant between the linear center of the engaged portions of the hinge pins and through the centerline of the hinge pin in the longitudinal vehicle direction (see Figure 6).
- (5) While operating the data recorder, apply the tensile force at a rate not to exceed 5 mm per minute up to the applicable load specified in section 2.1, or until failure (i.e. separation of either hinge). Record the condition of the test items at the conclusion of the test.

12. COMPLIANCE TEST EXECUTION...Continued

B. Door Hinge Transverse Load Test

- (1) See Figures 5 and 6, and SAE Recommended Practice J934 (July 1982).
- (2) Attach the hinge system to the test fixture as shown in Figure 5. The hinge attitude shall simulate the closed-door vehicle position relative to the hinge centerline.
- (3) The distance between the extreme ends of the hinge system shall be 406 mm \pm 4 mm (see Figure 5).
- (4) The tensile force shall be applied equidistant between the linear center of the engaged portions of the hinge pins and through the centerline of the hinge pin in the transverse vehicle direction (see Figure 6).
- (5) While operating the data recorder, apply the tensile force at a rate not to exceed 5 mm per minute up to the applicable load specified in section 2.1, or until failure (i.e. separation of either hinge). Record the condition of the test items at the conclusion of the test.

C. Back Door Hinge Load Test One

- (1) See Figures 5 and 7.
- (2) Attach the hinge system to a test fixture similar to that shown in Figure 5. The hinge attitude shall simulate the closed-door vehicle position relative to the hinge centerline.
- (3) The distance between the extreme ends of the hinge system shall be 406 mm \pm 4 mm (Figure 5).
- (4) The tensile force shall be applied equidistant between the linear center of the engaged portions of the hinge pins and through the centerline of the hinge pin, and perpendicular to the hinge face plate (longitudinal load test) such that the hinge plates are not compressed against each other (see Figure 7).
- (5) While operating the data recorder, apply the tensile force at a rate not to exceed 5 mm per minute up to the applicable load specified in section 2.1, or until failure (i.e. separation of either hinge). Record the condition of the test items at the conclusion of the test.

12. COMPLIANCE TEST EXECUTION...Continued

D. Back Door Hinge Load Test Two

- (1) See Figures 5 and 7.
- (2) Attach the hinge system to the test fixture similar to that shown in Figure 5. The hinge attitude shall simulate the closed-door vehicle position relative to the hinge centerline.
- (3) The distance between the extreme ends of the hinge system shall be 406 mm \pm 4 mm (see Figure 5).
- (4) The tensile force shall be applied equidistant between the linear center of the engaged portions of the hinge pins and through the centerline of the hinge pin, and perpendicular to the axis of the hinge pin and parallel to the hinge face plate (transverse load test) such that the hinge plates are not compressed against each other (see Figure 7).
- (5) While operating the data recorder, apply the tensile force at a rate not to exceed 5 mm per minute up to the applicable load specified in section 2.1, or until failure (i.e. separation of either hinge). Record the condition of the test items at the conclusion of the test.

E. Back Door Hinge Load Test Three (only for back doors that open upward)

- (1) See Figures 5 and 7.
- (2) Attach the hinge system to a test fixture similar to that shown in Figure 5, noting that the test fixture shall contain provisions for applying the tensile load along the axis of the hinge pin. The hinge attitude shall simulate the closed-door vehicle position relative to the hinge centerline.
- (3) The distance between the extreme ends of the hinge system shall be 406 mm \pm 4 mm (see Figure 5).
- (4) The tensile force shall be applied through the centerline of the hinge pin and in the direction of the axis of the hinge pin (see Figure 7).
- (5) While operating the data recorder, apply the tensile force at a rate not to exceed 5 mm per minute up to the applicable load specified in section 2.1, or until failure (i.e. separation of either hinge). Record the condition of the test items at the conclusion of the test.

12. COMPLIANCE TEST EXECUTION...Continued

12.4.2 Single Hinge of a Hinge System

In some circumstances, it may be necessary to test the individual hinges of a hinge system. In such cases, the results for an individual hinge, when tested in accordance with the procedures specified in section 12.4.1, shall be such as to indicate that system requirements S4.1.2 of FMVSS No. 213 are met. The hinge must bear a load proportional to the total number of hinges in the hinge system. For example, an individual hinge in a two-hinge system must be capable of withstanding 50% of the load requirements of the total system. When tested in accordance with the procedures specified in section 12.4.1, the adjacent hinge spacing requirement of 406 mm \pm 4 mm is not applicable. A typical single hinge test fixture is shown in Figure 8.

12.4.3 Full Length (Piano) Hinge System

Full length (piano) hinges shall be tested in accordance with the procedures specified in section 12.4.1 noting that the hinge spacing requirement of 406 mm \pm 4 mm is not applicable, and ensuring that the applicable tensile force is applied to the complete hinge system.

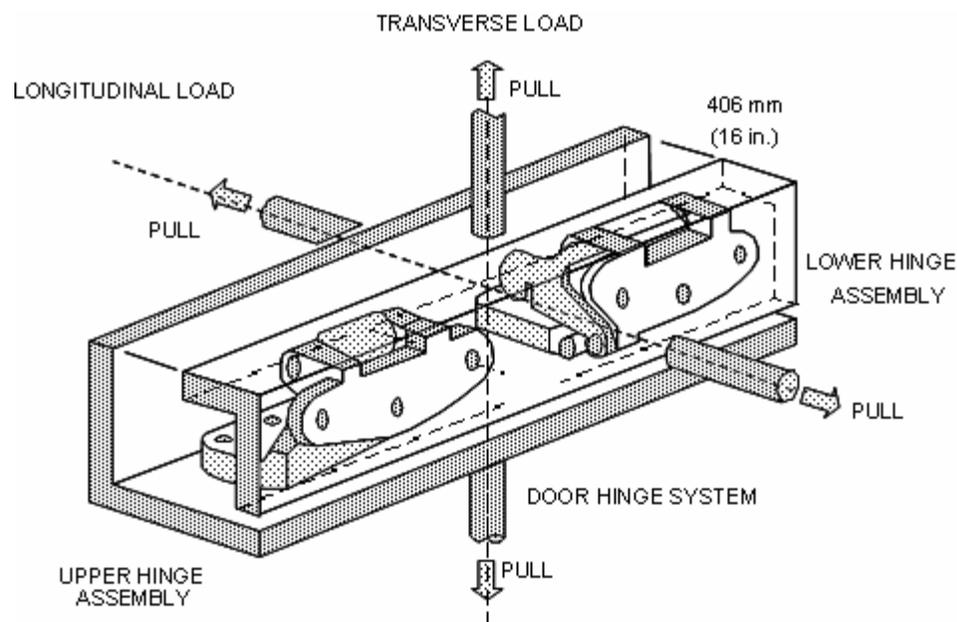


Figure 5 - Hinge Static Load Fixture

(Note: In Figure 5 above, the 406 mm dimension refers to the distance between the extreme ends of the hinge system).

12. COMPLIANCE TEST EXECUTION...Continued

HINGE LOAD APPLICATION DIRECTIONS

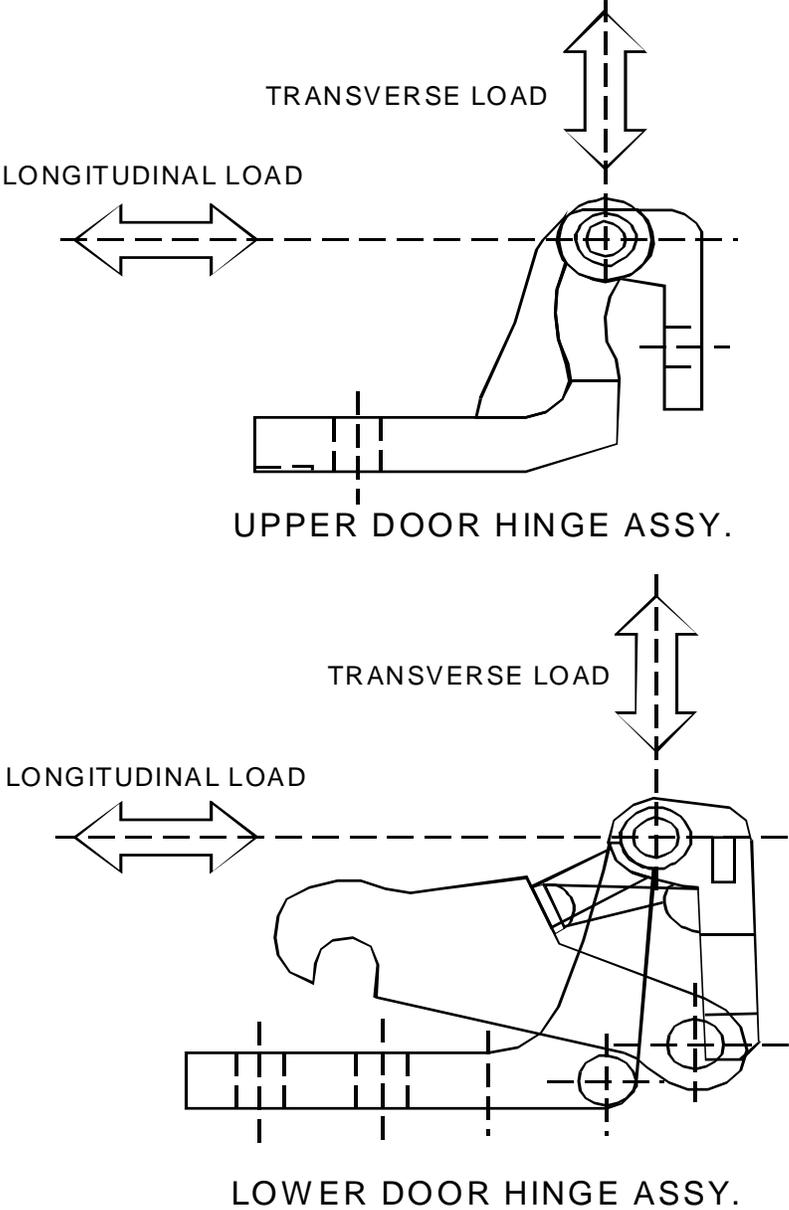
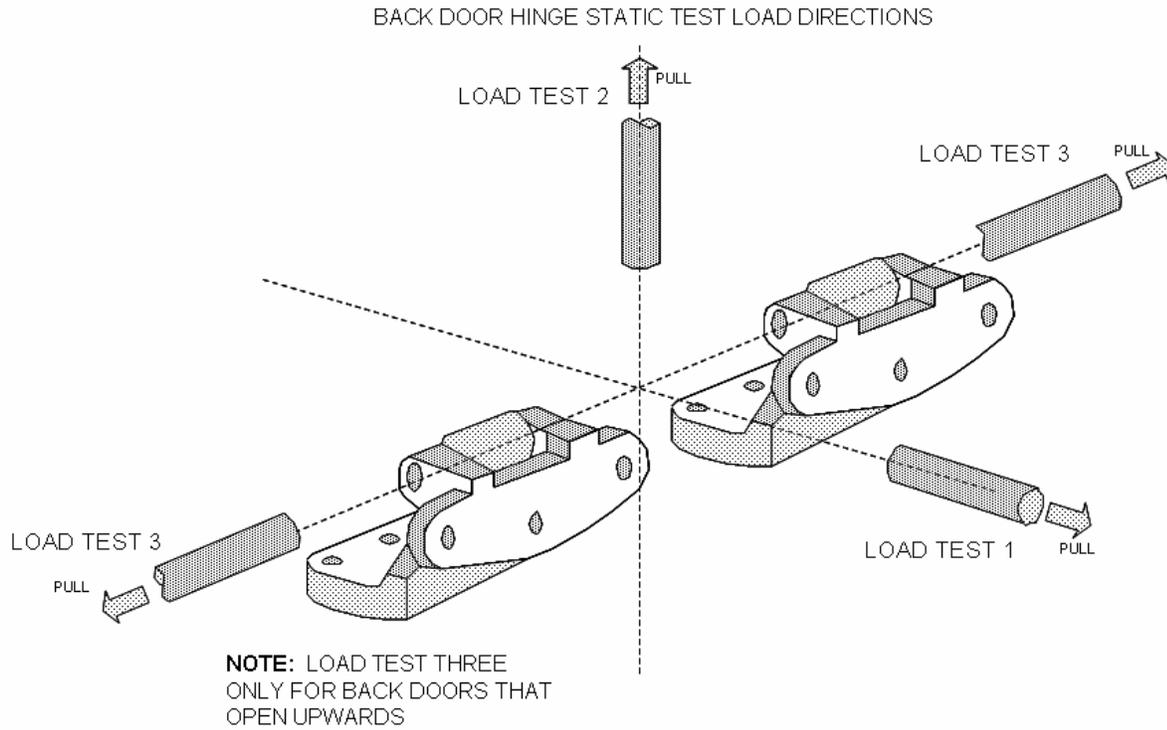


FIGURE 6

NOTE: The relative position of the hinge elements shown is for illustrative purposes only. The hinges must be positioned as in the closed-door position and tested in either the vehicle longitudinal or transverse direction as appropriate.

12. COMPLIANCE TEST EXECUTION...Continued

FIGURE 7 – HINGE STATIC TEST LOAD DIRECTIONS FOR BACK DOORS



12. COMPLIANCE TEST EXECUTION...Continued

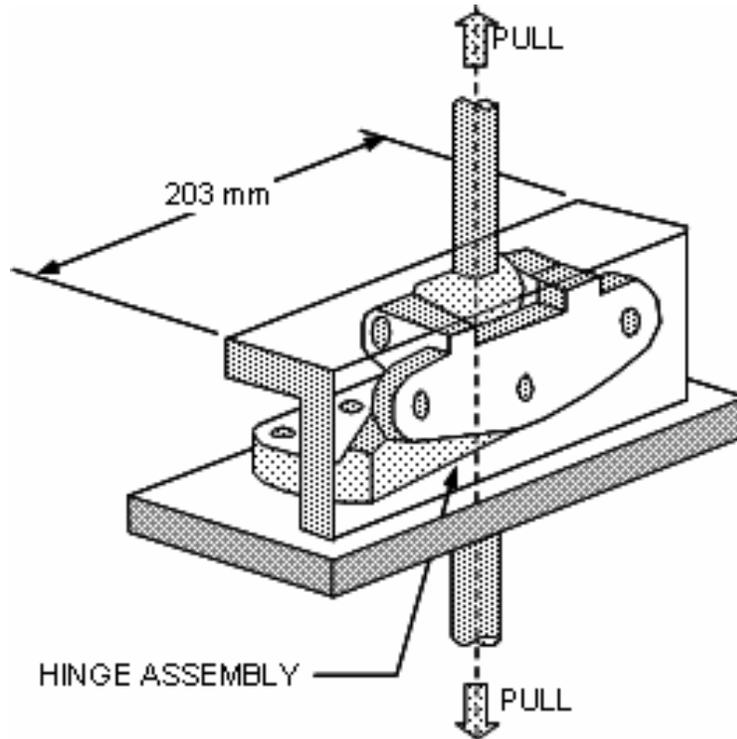


Figure 8 – Singe Hinge Test Fixture

13. POST TEST REQUIREMENTS

The contractor shall re-verify all instrumentation and check data sheets and photographs. The contractor shall ensure the appropriate data is recorded in all data blocks on every compliance test data sheet.

Test sample items that have “passed” compliance requirements shall be stored at no additional cost until receipt of disposition instructions from the COTR after all testing, inspection and acceptance of the Final Test Report.

Test sample items that have “failed” requirements shall be stored, up to two years, at no additional cost until receipt of disposition instructions from the COTR.

14. REPORTS

14.1 MONTHLY STATUS REPORTS

The contractor shall submit a monthly Test Status Report and an Equipment Status Report to the COTR by the 8th day of the month. The Equipment Status Report shall be submitted until all final reports are accepted. Samples of the required Monthly Status Reports are contained in the report forms section.

14.2 APPARENT TEST FAILURE

Any indication of a test failure shall be communicated by telephone to the COTR within one (1) working day with written notification mailed within two (2) working days. A Notice of Test Failure (see report forms section) with a copy of the particular compliance test data sheet(s) shall be included.

In the event of a test failure, a post test calibration check of some critically sensitive test equipment and instrumentation may be required for verification of accuracy. The necessity for the calibration shall be at the COTR's discretion and shall be performed without additional costs to the OVSC.

14.3 FINAL TEST REPORTS

14.3.1 COPIES

Two hard copies of each Final Test Report and one electronic copy shall be submitted to the COTR for acceptance within two weeks of test completion. The Final Test Report format to be used by all contractors is specified in the following subsections, and sample Data Sheet formats are included in section 15. The electronic copy shall be submitted on Compact Disc Recordable (CDR) in Microsoft Soft (MS) Word format and Portable Document Format (PDF), or the electronic copy may be emailed directly to the COTR.

Payment of contractor's invoices for completed compliance tests may be withheld until the Final Test Report is accepted by the COTR. Contractors are requested to NOT submit invoices before the COTR is provided copies of the Final Test Report.

Contractors are required to submit the first Final Test Report in typed draft form within two (2) weeks after the compliance test is conducted. The contractor and the COTR will then be able to discuss the details of both test conduct and report content early in the compliance test program.

Contractors are required to PROOF READ all Final Test Reports before submittal to the COTR. The OVSC will not act as a report quality control office for contractors. Reports containing a significant number of errors will be returned to the contractor for correction, and a "hold" will be placed on invoice payment for the particular test.

14. REPORTS....Continued

14.3.2 REQUIREMENTS

The Final Test Report, associated documentation (including photographs) is relied upon as the chronicle of the compliance test. The Final Test Report will be released to the public domain after review and acceptance by the COTR. For these reasons, each final report must be a complete document capable of standing by itself.

The contractor should use detailed descriptions of all compliance test events in the compliance test data summary. Any events that are not directly associated with the standard but are of technical interest should also be included. The contractor should include as much detail as possible in the report.

Instructions for the preparation of the first three (3) pages of the final test report are provided below for the purpose of standardization.

14.3.3 FIRST THREE PAGES

A. FRONT COVER

A heavy paperback cover (or transparency) shall be provided for the protection of the final report. The information required on the cover is as follows:

- (1) Final Report Number such as 206-ABC-20XX-001/00X, where –

206 is the FMVSS tested
 ABC are the initials for the laboratory
 20XX is the Fiscal Year of the test program
 001/00X is the Group Number (001 for the 1st brand longitudinal test,
 and 00X for the 1st brand transverse test, etc.)

- (2) Final Report Title And Subtitle such as:

SAFETY COMPLIANCE TESTING FOR FMVSS 206
 Door Locks and Door Retention Components
 * * * * *
 World Motors Corporation
 20XX Safe Rider 2-door Coupe

- (3) Contractor's Name and Address such as

COMPLIANCE TESTING LABORATORIES, INC.
 4335 West Dearborn Street
 Detroit, Michigan 48090-1234

14. REPORTS....Continued

NOTE: DOT SYMBOL WILL BE PLACED BETWEEN ITEMS (3) AND (4)

- (4) Date of Final Report completion
- (5) The words "FINAL REPORT"
- (6) The sponsoring agency's name and address as follows

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
Room 6116 (NVS-222)
400 Seventh Street, SW
Washington, DC 20590

14. **REPORTS....Continued**

B. FIRST PAGE AFTER FRONT COVER

A disclaimer statement and an acceptance signature block for the COTR shall be provided as follows:

This publication is distributed by the U. S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By: _____

Approved By: _____

Approval Date: _____

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: _____

Acceptance Date: _____

14. REPORTS....Continued**C. SECOND PAGE AFTER FRONT COVER**

A completed Technical Report Documentation Page (Form DOT F1700.7) shall be completed for those items that are applicable with the other spaces left blank. Sample data for the applicable block numbers of the title page follows.

Block 1 — REPORT NUMBER

206-ABC-20XX-001/00X

Block 2 — GOVERNMENT ACCESSION NUMBER

Leave blank

Block 3 — RECIPIENT'S CATALOG NUMBER

Leave blank

Block 4 — TITLE AND SUBTITLE

Final Report of FMVSS 206 Compliance Testing of Door Locks and
Door Hinges from a 20XX Safe Rider 2-door coupe, Part Nos.
8456782 & 9123123

Block 5 — REPORT DATE

March 7, 20XX

Block 6 — PERFORMING ORGANIZATION CODE

ABC

Block 7 — AUTHOR(S)

John Smith, Project Manager
Bill Doe, Project Engineer

Block 8 — PERFORMING ORGANIZATION REPORT NUMBER

206-ABC-20XX-001

14. REPORTS....Continued

Block 9 — PERFORMING ORGANIZATION NAME AND ADDRESS

ABC Laboratories
405 Main Street
Detroit, MI 48070-1234

Block 10 — WORK UNIT NUMBER

Leave blank

Block 11 — CONTRACT OR GRANT NUMBER

DTNH22-9X-D-12345

Block 12 — SPONSORING AGENCY NAME AND ADDRESS

U.S. Department of Transportation
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance (NVS-222)
400 Seventh Street, SW, Room 6116
Washington, DC 20590

Block 13 — TYPE OF REPORT AND PERIOD COVERED

Final Test Report
Feb. 15 to Mar. 15, 20XX

Block No. 14 — SPONSORING AGENCY CODE

NVS-222

Block 15 — SUPPLEMENTARY NOTES

Leave blank

14. REPORTS....Continued

Block 16 — ABSTRACT

Compliance tests were conducted on Door Locks and Door Hinges from a 20XX XYZ Safe Rider 2-door coupe passenger car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-206-0X. Test failures identified were as follows:

None

NOTE: Above wording must be shown with appropriate changes made for a particular compliance test. Any questions should be resolved with the COTR.

Block 17 — KEY WORDS

Compliance Testing
Door Locks and Door Retention Components
FMVSS 206

Block 18 — DISTRIBUTION STATEMENT

Copies of this report are available from

National Highway Traffic Safety Administration
Technical Information Services (NPO-405)
400 Seventh St., SW, Room 2336
Washington, DC 20590
FAX No.: 202-493-2833
Email: tis@nhtsa.dot.gov

Block 19 — SECURITY CLASSIFICATION OF REPORT

Unclassified

Block 20 — SECURITY CLASSIFICATION OF PAGE

Unclassified

Block 21 — NUMBER OF PAGES

Add appropriate number

14. REPORTS....Continued

Block 22 — PRICE

Leave blank

14.3.4 TABLE OF CONTENTS

Final test report Table of Contents shall include the following:

Section 1	Purpose of Compliance Test
Section 2	Compliance Test Data Summary
Section 3	Test Data
Section 4	Test Failure Details (if applicable)
Appendix A	Interpretations or Deviations From FMVSS 206
Appendix B	Test Equipment List and Calibration Information
Appendix C	Photographs

15. DATA SHEETS

DATA SHEET 1
INSPECTION DATA - FMVSS 206

TEST GROUP NO.: _____ ; INSPECTION DATE: _____

TESTING
LABORATORY: _____

LABORATORY TECHNICIAN(S): _____

VEHICLE MANUFACTURER: _____

VEHICLE MAKE/MODEL: _____

HINGE INFORMATION:

A. DOOR TYPE: _____

B. MANUFACTURER: _____

C. MARKINGS:

UPPER: _____

LOWER: _____

D. APPARENT MATERIALS: _____

E. DIMENSIONS AND DESCRIPTION:

UPPER: _____

LOWER: _____

F. STAMPED AND FORMED, BOLTING MOUNTING: _____

(Continued on next page)

15. DATA SHEETS....Continued

LATCH INFORMATION:

A. DOOR TYPE: _____

B. MANUFACTURER: _____

C. MARKINGS:

LATCH: _____

STRIKER: _____

D. APPARENT MATERIALS: _____

E. DIMENSIONS AND DESCRIPTION:

LATCH: _____

STRIKER: _____

F. LATCH TYPE:

PRIMARY or AUXILIARY: _____

COMMENTS:

RECORDED BY: _____

DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 2A
HINGED SIDE DOORS
SUMMARY OF TEST RESULTS

TEST GROUP NO.: _____ ;

TEST DATE: _____

INDICATE P - PASS OR F - FAIL

GROUP NO.	VEHICLE MODEL	TEST DATE	APPLIED TEST LOAD (N)	REQUIRED LOAD (N)	FAILURE MODE*	PASS/ FAIL**
1	FULL LATCH Longitudinal Load			11,000		
2	SEC. LATCH Longitudinal Load			4,500		
3	FULL LATCH Transverse Load			9,000		
4	SEC. LATCH Transverse Load			4,500		
5	HINGE Longitudinal Load			11,000		
6	HINGE Transverse Load			9,000		

* FAILURE MODE shall only apply when load requirements are NOT met.

** PASS/FAIL criteria shall be based upon FMVSS 206 required loads.

REMARKS:

A. LATCH –

CONDITION

(1) Longitudinal Load

Full Latch - _____

Secondary Latch - _____

(2) Transverse Load

Full Latch - _____

Secondary Latch - _____

(Continued on next page)

15. DATA SHEETS....Continued

B.	HINGE –	CONDITION
(1)	Longitudinal Load _____	
(2)	Transverse Load _____	

REMARKS:

RECORDED BY: _____

DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 2B
HINGED BACK DOORS
SUMMARY OF TEST RESULTS

TEST GROUP NO.: _____;

TEST DATE: _____

INDICATE P - PASS OR F - FAIL

GROUP NO.	VEHICLE MODEL	TEST DATE	APPLIED TEST LOAD (N)	REQUIRED LOAD (N)	FAILURE MODE*	PASS/ FAIL**
1	FULL LATCH Load Test 1			11,000		
2	SEC. LATCH Load Test 1			4,500		
3	FULL LATCH Load Test 2			9,000		
4	SEC. LATCH Load Test 2			4,500		
5	FULL LATCH Load Test 3			9,000		
6	HINGE Load Test 1			11,000		
7	HINGE Load Test 2			9,000		
8	HINGE Load Test 3			9,000		

* FAILURE MODE shall only apply when load requirements are NOT met.

** PASS/FAIL criteria shall be based upon FMVSS 206 required loads.

REMARKS:

A. LATCH –

CONDITION

(1) Load Test 1

Full Latch - _____

Secondary Latch - _____

(2) Load Test 2

Full Latch - _____

Secondary Latch - _____

(Continued on next page)

15. DATA SHEETS....Continued

(3) Load Test 3

Full Latch - _____

B. HINGE –

(1) Load Test 1 _____

(2) Load Test 2 _____

(3) Load Test 3 _____

REMARKS:

RECORDED BY: _____

DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 2C
SLIDING SIDE DOORS
SUMMARY OF TEST RESULTS

TEST GROUP NO.: _____ ;

TEST DATE: _____

INDICATE P - PASS OR F - FAIL

GROUP NO.	VEHICLE MODEL	TEST DATE	APPLIED TEST LOAD (N)	REQUIRED LOAD (N)	FAILURE MODE*	PASS/ FAIL**
1	FULL LATCH Longitudinal Load			11,000		
2	SEC. LATCH ¹ Longitudinal Load			4,500		
3	FULL LATCH Transverse Load			9,000		
4	SEC. LATCH ¹ Transverse Load			4,500		

¹If Equipped

* FAILURE MODE shall only apply when load requirements are NOT met.

** PASS/FAIL criteria shall be based upon FMVSS 206 required loads.

REMARKS:

RECORDED BY: _____

DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 3
EQUIPMENT LIST AND CALIBRATION RECORD

TEST GROUP NO.: _____ ; INSPECTION DATE: _____

TESTING LABORATORY: _____

NOTE: Information to be included for each item of test instrumentation is as follows:

EQUIPMENT DESCRIPTION: _____

EQUIPMENT MANUFACTURER: _____

TYPE AND/OR MODEL: _____

SERIAL NUMBER: _____

LIMITS: _____

ACCURACY: _____

FREQUENCY OF CALIBRATION: _____

EXPIRATION OF CALIBRATION: _____

USED ON TEST NUMBER: _____

REMARKS:

RECORDED BY: _____ ;

DATE: _____

APPROVED BY: _____

16. FORMS

LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS 206

TEST DATE: _____

LABORATORY: _____

CONTRACT NO.: _____;

DELV. ORDER NO: _____

LABORATORY PROJECT ENGINEER'S NAME: _____

TEST SPECIMEN DESCRIPTION –

VEHICLE MFR. & MODEL: _____

COMPONENT MFR: _____

IDENTIFICATION NO: _____

PART NO.: _____

TEST FAILURE DESCRIPTION: _____

FMVSS REQUIREMENT, PARAGRAPH: _____

NOTIFICATION TO NHTSA (COTR): _____

DATE: _____

BY: _____

REMARKS:

16. FORMS....Continued

INVENTORY AND PROGRAM SCHEDULE RECORD
FMVSS No. 206

Grp No.	Mfr Model	Recd	Fixture Compl	Latch Long. Prim.	Latch Long. Sec.	Latch Trans Prim	Latch Trans Sec.	Latch Load 3 Prim.	Hinge Long.	Hinge Trans	Hinge Ortho	Report Sent Date
001												
002												
003												
004												
005												
006												
007												
008												
009												
010												

REMARKS: