

TP-401-00

May 19, 2003

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

LABORATORY TEST PROCEDURE

FOR

**FMVSS 401
Interior Trunk Release**



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

OVSC LABORATORY TEST PROCEDURE NO. 401
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**REVISION CONTROL LOG
FOR OVSC LABORATORY
TEST PROCEDURES**

TP-401
INTERIOR TRUNK RELEASE

TEST PROCEDURE		FMVSS 401		DESCRIPTION
REV. No.	DATE	AMENDMENT	EFFECTIVE DATE	
00	5/19/2003	65 FR 63014 10/20/2000	9/1/2001	New FMVSS
		66FR 43121 8/17/2001	9/1/2001	Response to petitions for reconsideration
		67FR19518 4/22/2002	8/30/2002	Response to petitions for reconsideration
01				
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1. PURPOSE AND APPLICATION

The Office of Vehicle Safety Compliance (OVSC) provides contractor laboratories with Laboratory Test Procedures as guidelines for obtaining compliance test data. The data are used to determine if a specific vehicle or item of motor vehicle equipment meets the minimum performance requirements of the subject Federal Motor Vehicle Safety Standard (FMVSS). The purpose of the OVSC Laboratory Test Procedures is to present a uniform testing and data recording format, and provide suggestions for the use of specific equipment and procedures. If any contractor views any part of an OVSC Laboratory Test Procedure to be in conflict with a Federal Motor Vehicle Safety Standard (FMVSS) or observes deficiencies in a Laboratory Test Procedure, the contractor is required to advise the Contracting Officer's Technical Representative (COTR) and resolve the discrepancy prior to the start of compliance testing.

Every contractor is required to submit a detailed 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 complete listing of test equipment with make and model number and a detailed check-off sheet. The list of test equipment shall include instrument accuracy and calibration dates. All equipment shall be calibrated in accordance with the manufacturer's instructions. There shall be no contradictions between the Laboratory Test Procedure and the contractor's in-house test procedure. Written approval of the in-house test procedures shall be obtained from the COTR before initiating the compliance test program. The OVSC Laboratory Test Procedures are not intended to limit or restrain a contractor from developing or utilizing any testing techniques or equipment which will assist in procuring the required compliance test data. These Laboratory Test Procedures do not constitute an endorsement or recommendation for use of any product or method. However, the application of any such testing technique or equipment is subject to prior approval of the COTR.

NOTE: The OVSC Laboratory Test Procedures, prepared for the limited purpose of use by independent laboratories under contract to conduct compliance tests for the OVSC, are not rules, regulations or NHTSA interpretations regarding the meaning of a FMVSS. The Laboratory Test Procedures are not intended to limit the requirements of the applicable FMVSS(s). In some cases, the OVSC Laboratory Test Procedures do not include all of the various FMVSS minimum performance requirements.

1. PURPOSE AND APPLICATION....Continued

Recognizing applicable test tolerances, the Laboratory Test Procedures may specify test conditions that are less severe than the minimum requirements of the standard. In addition, the Laboratory Test Procedures 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 standard itself and within the scope of the contract. Laboratory Test Procedures 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 necessarily guaranteed if the manufacturer limits its certification tests to those described in the OVSC Laboratory Test Procedures.

This test document is separated into two sections; procedures for testing conventional trunks 12.3, and procedures for front trunk compartments with front opening hoods, 12.4.

2. GENERAL REQUIREMENTS

Passenger cars that have trunk compartments must be equipped with an interior trunk release mechanism that makes it possible for a person trapped inside to escape from the compartment. The release can be manual or automatic. Manual release mechanism must be visible inside the closed trunk. Automatic systems must unlatch within 5 minutes of trunk closure.

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 leasing a replacement vehicle and all costs associated with conducting the retest. The original test specimen (vehicle or equipment item) 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 at least 180 days. If there is no test failure, the Contractor may dispose of the test specimen upon notification from the COTR that the final test report has been accepted.

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 notification by the Contracting Officer that a retest is required. If a retest is conducted, no test report is required for the original test.

3. SECURITY

The contractor shall provide appropriate security measures to protect the OVSC test samples 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 samples. Any security problems which arise shall be reported by telephone to the Industrial Property Manager (IPM), Office of Contracts and Procurement, within two 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 compliance testing program shall be released to anyone except the COTR, unless specifically authorized by the COTR or the COTR's Branch or Division Chief.

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

4. GOOD HOUSEKEEPING

Contractors shall maintain the compliance testing area, test fixtures and instrumentation in a neat, clean and painted 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. Scheduling shall be adjusted to permit sample motor vehicles to be tested to other FMVSS as may be required by the OVSC. All testing shall be coordinated to allow monitoring by the FMVSS 401 COTR.

6. TEST DATA DISPOSITION

The contractor shall make all 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 within five working days. Additionally, the contractor shall analyze the preliminary test results as directed by the COTR.

All backup data sheets, strip charts, recordings, plots, technician's notes, etc., shall be either sent to the COTR or destroyed at the conclusion of each delivery order, purchase order, etc.

7. GOVERNMENT FURNISHED PROPERTY (GFP)

ACCEPTANCE OF VEHICLE

The Contractor has the responsibility of accepting test vehicles from distributors/manufacturers. The contractor acts in the OVSC's behalf when signing an acceptance of a test vehicle. When a vehicle is delivered by a dealer/distributor/manufacture, the contractor must check to verify the following:

- A. All options listed on the "window sticker" are present.
- B. Tires and wheel rims are new and the same as listed.
- C. There are no dents or other interior or exterior flaws.
- D. The vehicle has been properly prepared and is in running condition.
- E. Receipt of an owner's manual, warranty document, consumer information, and extra set of keys.
- F. Proper fuel filler cap is supplied.

In addition, if the test vehicle is delivered by a government contracted transporter, the contractor should check for damage which may have occurred during transit or previous use such as testing at another location.

A "Vehicle Condition" form will be supplied to the contractor by the COTR when the test vehicle is transferred from the new car dealer or between test contracts. The upper half of the form describes the vehicle condition in detail prior to test, and the lower half provides space for a description of the post test condition.

7. **GOVERNMENT FURNISHED PROPERTY (GFP)....Continued**

A vehicle Condition form must be completed and delivered to the COTR with the Final Test Report or the report will NOT be accepted.

NOTIFICATION OF COTR

The COTR must be notified within 24 hours after a vehicle has or all equipment items have been delivered.

8. **CALIBRATION OF TEST INSTRUMENTS**

Before the contractor initiates the safety compliance test program, a test instrumentation calibration system will be implemented and maintained in accordance with established calibration practices. The calibration system shall be set up and maintained as follows:

- 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 which assures the maintenance of established calibration schedules. All such records shall be readily available for inspection when requested by the COTR. The calibration system will need the acceptance of the COTR before the test program commences.

Further guidance is provided 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 B General Requirements".

9. PHOTOGRAPHIC COVERAGE

Photographs shall be 8-1/2 x 11 inches, and properly focused for clear images. A label or placard identifying the test vehicle make, model, NHTSA number and date or item of equipment part number and date shall appear in each photograph and must be legible. Each photograph shall be labeled as to the subject matter.

As a minimum the following photographs shall be included in each final test report, where applicable:

- a. Front of vehicle
- b. Left side view of vehicle
- c. Right side view of vehicle
- d. Left rear quarter view
- e. Right rear quarter view
- f. Closeup view of vehicle's certification label
- g. Closeup view of vehicle trunk compartment interior showing original equipment installed e.g. spare tire, tools, etc.
- h. Closeup view of vehicle trunk compartment manual release mechanism (handle, lever, push button)
- i. Closeup view of release mechanism grab handle, lever, or push button with test equipment (force transducer) attached
- j. View of test observer in trunk compartment
- k. Close-up view of trunk lid exterior
- l. View of 3 year-old child dummy simulator
- m. View of 3 yr old child dummy simulator positioned in trunk compartment
- n. If manual system, release mechanism handle, lever, or button inside closed trunk showing illumination. (remove device from car if necessary)
- o. Tow system, push mechanism, or vehicle on jack stands used to simulate driven vehicle
- p. Test failure or other noteworthy condition

10. DEFINITIONS

BACK DOOR

A back door means a door or door system on the back end of a passenger car through which cargo can be loaded or unloaded. The term includes the hinged back door on a hatchback or a station wagon.

TRUNK COMPARTMENT

(a) means a space that:

- (1) Is intended to be used for carrying luggage or cargo,
- (2) Is wholly separated from the occupant compartment of a passenger car by a permanently attached partition or by a fixed or fold-down seat back and/or rigid partition,
- (3) Has a trunk lid, and
- (4) Is large enough so that the three-year-old child dummy described in Subpart C of Part 572 can be placed inside the trunk compartment, and the trunk lid can be closed and latched with all removable equipment furnished by the passenger car manufacturer stowed in accordance with label(s) on the passenger car or information in the passenger car owner=s manual, or, if no information is provided, as located when the passenger car is delivered. (Note: For purposes of this standard, the Part 572 Subpart C test dummy need not be equipped with the accelerometers specified in Part 572.21.)

(b) Does not include a sub-compartment within the trunk compartment.

TRUNK LID

A trunk lid means a movable body panel that is not designed or intended as a passenger car entry point for passengers and that provides access from outside a passenger car to a trunk compartment. The term does not include a back door or the lid of a storage compartment located inside the passenger compartment of a passenger car.

11. PRETEST REQUIREMENTS

Prior to conducting a compliance test, the contractor shall:

- A. Verify COTR approval of contractor's in-house Test Procedure
- B. Verify the training of technicians for performance of this test
- C. Verify the calibration status of test equipment including force transducer and timing device.
- D. Review applicable revision of FMVSS 401

VEHICLE PREPARATION

Park vehicle on a level surface.

Verify that battery has sufficient charge to power lights, trunk latch, and crank engine.

PERMANENT RECORDING OF DATA

Data shall be recorded on standard report forms. Changes or corrections shall be made by drawing a line through the original entry, which must remain legible, adding the change above or alongside, and initialed.

12. COMPLIANCE TEST EXECUTION

12.1 COMPLETE THE VEHICLE DESCRIPTION SHEET - **Data Sheet 1.**

12.2 GENERAL TEST CONDITIONS:

1. Stationary and low speed vehicle tests can be conducted with an occupant enclosed in the trunk compartment with the lid shut, or by a person reaching rearward from inside the vehicle through a folded down rear seat or partition (if so equipped).

NOTE: An assistant must be present when laboratory personnel are enclosed in a locked trunk and be prepared to release the occupant if necessary

2. Vehicle in motion tests, and in situations where an occupant is unable to physically access the trunk release mechanism as described in 1 above, a remote release mechanism such as a solenoid device or a string/pulley system can be installed to apply load to the force transducer which is attached to the release mechanism.

NOTE: Under no circumstances should an occupant be in the trunk compartment when the vehicle is operated at speeds greater than 10 km/h.

3. For small trunk compartments, determination of a three-year-old child dummy, described in Subpart C of Part 572, to be placed inside the trunk compartment and the trunk lid closed and latched must be conducted with a child dummy or equivalent. The compartment is evaluated with all removable equipment furnished by the manufacturer stowed in accordance with vehicle label instructions, and the lid may contact the dummy prior to latching. If the trunk lid contacts the dummy prior to closure, the lid can be latched by an external force application, or by a closure assisting device if so equipped.

4. To achieve the required test speeds, the vehicle can be driven, or if available, a tow cable or push mechanism can be utilized. As an option to simulate vehicle in motion tests, jack stands or vehicle lift can be used to elevate the drive wheels off the ground. In such cases, wheel chocks or similar must be used to ensure that the vehicle remains in place.

5. Use of a contact or optical fifth wheel, wheel tachometers, or GPS based system can be used to measure vehicle speed. The vehicle speedometer can be utilized if resolution of speeds below 5km/h can be observed.

12. COMPLIANCE TEST EXECUTION....Continued

12.3 ALL TRUNKS EXCEPT FOR FRONT TRUNK COMPARTMENTS WITH FRONT OPENING HOODS

12.3 A. MANUAL RELEASE SYSTEMS - S4.2(a), S4.3(a)

1. Determine the means by which a trapped person within the trunk would escape from the compartment e.g. Pull of a T-handled release mechanism, rotation of fixed lever release mechanism, push of a button, etc.

2. Install a linear force transducer to the release mechanism determined from above, in order to record the force required to be applied by the trapped occupant to escape.

3. Verify that the release mechanism is visible in the darkened trunk S4.2(a), and determine method used e.g. phosphorescence or auxiliary lighting. Some time may be required to allow for the eyes to adjust to the darkened environment within the trunk compartment. If test person is unable to enter the closed trunk compartment, the release mechanism must be removed and observed in a darkened environment. Photograph if possible the lighted release mechanism.

4. With the vehicle stationary and **no key in the ignition** (representing unoccupied vehicle), actuate the release mechanism and verify that the trunk lid releases from all latching positions. Record force required during 3 attempts to release trunk latching mechanism.

5. Repeat step 4 above except with the **engine idling**.

6. Actuate the release mechanism with the vehicle traveling at approximate speeds of 10 km/h, 20 km/h and 30 km/h and confirm that for each test, the trunk lid is released from all latching positions. One test per vehicle speed.

Record results on **Data Sheet 2**.

12. COMPLIANCE TEST EXECUTION....Continued

12.3 B. AUTOMATIC RELEASE SYSTEMS S4.2 (b), S4.3(a)

1. Have a laboratory test person enter trunk compartment and have an assistant close and latch the trunk. With the vehicle stationary and **no key in the ignition**, the occupant shall remain as close to motionless as possible to represent the most severe detection situation. Record the time from trunk closure to automatic trunk release, up to 6 minutes. Perform 3 times. Trunk lid must unlatch within 5 minutes from all latch positions.

If unable to occupy the closed trunk space, utilize an object in size similar to a 3 year old child dummy at a temperature of 98 degrees F, +/- 5 degrees F, for at least 6 minutes. Consult COTR if this method is required.

2. Repeat Step1 above with the vehicle **engine idling**.

3. Conduct additional tests with child dummy simulator in the trunk. Accelerate to approximately 10 km/h and record the time for trunk release. Repeat for vehicle speeds of 20 km/h and 30 km/h (one test per vehicle speed). At all vehicle speeds, the trunk lid must unlatch within 5 minutes from all latch positions.

Record results on **Data Sheet 3**.

12. COMPLIANCE TEST EXECUTION....Continued

12.4 FRONT TRUNK COMPARTMENT WITH A FRONT OPENING HOOD

12.4 A. MANUAL RELEASE SYSTEMS - S4.2(a), S4.3

1. Determine the means by which a trapped person within the trunk would escape from the compartment e.g. Pull of a T-handled release mechanism, rotation of fixed lever release mechanism, push of a button, etc.
2. Install a linear force transducer to the release mechanism determined from above, in order to record the force required to be applied by the trapped occupant to escape.
3. Verify that the release mechanism is visible in the darkened trunk S4.2(a), and determine method used e.g. phosphorescence or auxiliary lighting. Some time may be required to allow for the eyes to adjust to the darkened environment within the trunk compartment. If test person is unable to enter the closed trunk compartment, the release mechanism must be removed and observed in a darkened environment. Photograph if possible the lighted release mechanism.
4. With the vehicle stationary and **no key in the ignition** (representing unoccupied vehicle), actuate the release mechanism and verify that the trunk lid releases from all latching positions. Record force required during 3 attempts to release trunk latching mechanism.
5. Repeat step 4 above except with the **engine idling**.
6. With the vehicle driven at a speed less than **5 km/h** (greater than 0), actuate the trunk release mechanism 3 separate times and verify that the trunk lid is released from the primary or all latching positions. Record the speed at which each test is conducted.
7. With the vehicle driven at approximately **5 km/h** (not less than), actuate the trunk release mechanism 3 separate times and verify that the trunk lid is released from the primary latching position only.
8. Accelerate to approximately 10 km/h and actuate the trunk release mechanism. Repeat for vehicle speeds of 20 km/h and 30 km/h (one test per vehicle speed). At all vehicle speeds greater than 5km/h, the trunk lid must unlatch from the primary latch position only.

Record results on **Data Sheet 4**.

12.4 B. AUTOMATIC RELEASE SYSTEMS - S4.2(a), S4.3

1. Have a laboratory test person enter trunk compartment and have an assistant close and latch the trunk. With the vehicle stationary and **no key in the ignition**, the occupant shall remain as close to motionless as possible to represent the most severe detection situation. Record the time from trunk closure to automatic trunk release, up to 6 minutes. Perform 3 times. Trunk lid must unlatch within 5 minutes from all latch positions.

If unable to occupy the closed trunk space, utilize an object in size similar to a 3 year old child dummy, at a temperature of 98 degrees F, +/- 5 degrees F, for at least 6 minutes. Consult COTR if this method is required.

2. Repeat Step 1 above with the vehicle **engine idling**.

3. With laboratory personnel motionless or child dummy simulator in the trunk, accelerate the vehicle to a speed of **5 km/h** or less (greater than 0), and record the time from trunk closure to automatic opening. Time must not exceed 5 minutes, and the trunk lid must be released from the primary or all latching positions. Do not test beyond 6 minutes.

4. With laboratory personnel motionless or child dummy simulator in the trunk, accelerate the vehicle to an approximate speed of **5 km/h** (not less than), and record the time from trunk closure to automatic opening. Time must not exceed 5 minutes, and the trunk lid must be released from the primary latching position only. Do not test beyond 6 minutes.

5. Conduct additional tests with child dummy simulator in the trunk. Accelerate to approximately 10 km/h and record the time for trunk release. Repeat for vehicle speeds of 20 km/h and 30 km/h (one test per vehicle speed). At all vehicle speeds greater than 5km/h, the trunk lid must unlatch within 5 minutes from the primary latch position only.

Record results on **Data Sheet 5**.

13. POST TEST REQUIREMENTS

After the required tests are completed, the contractor shall:

- A. Restore vehicle to original condition
- B. Verify all instrumentation, data sheets and photographs
- C. Complete the Vehicle Condition report form including a word description of its post test condition
- D. Copy applicable pages of the vehicle Owner's Manual for attachment to the final test report
- E. Move the test vehicle to a secure area, and
- F. Place all original records in a secure and organized file awaiting test data disposition.

14. REPORTS

14.1 MONTHLY STATUS REPORTS

The contractor shall submit a monthly Test Status Report and a Vehicle Status Report to the COTR. Samples of the required reports are found in the report forms section.

14.2 APPARENT TEST FAILURE

Any indication of a test failure shall be communicated by telephone or to the COTR within 24 hours with written notification mailed within 48 hours (Saturday and Sunday hours excluded). A Notice of Test Failure (see report forms section) with a copy of the particular compliance test data sheet(s) and preliminary data plot(s) shall be included. If possible repeat that portion of the test where the failure was noted to ensure that there is a test failure. 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

In the case of an apparent test failure, **SEVEN (7)** copies of the Final Test Report shall be submitted to the COTR for acceptance within 3 weeks of test completion.

Where there has been no indication of an apparent noncompliance, **THREE (3)** copies of each Final Test Report shall be submitted to the COTR for acceptance within 3 weeks of test completion. No payment of contractor's invoices for conducting compliance tests will be made prior to the Final Test Report acceptance by the COTR. Contractors are requested to NOT submit invoices before the COTR is provided with copies of the Final Test Report. Contractors are required to submit the first Final Test Report in draft form within 1 week 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.

14.3.2 REQUIREMENTS

The Final Test Report, associated documentation (including photographs), are 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. 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 pages of the final test report are provided for 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 401-ABC-0X-001 where
 - 401 is the FMVSS tested
 - ABC are the initials for the laboratory
 - 0X is the Fiscal Year of the test program
 - 001 is the Group Number (001 for the 1st test, 002 for the 2nd test, etc.)

- (2) Final Report Title And Subtitle such as

SAFETY COMPLIANCE TESTING FOR FMVSS 401
INTERIOR TRUNK RELEASE

XYZ Car Manufacturer
Make and Model
NHTSA No. CX1401

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

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

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
400 Seventh Street, SW
Room 6115 (NVS-220)
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: _____

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**

401-ABC-0X-001

Block 2 ◻ **GOVERNMENT ACCESSION NUMBER**

Leave blank

Block 3 ◻ **RECIPIENT'S CATALOG NUMBER**

Leave blank

Block 4 ◻ **TITLE AND SUBTITLE**

Final Report of FMVSS 401 Compliance Testing of 200X XYZ,
NHTSA No. CX1401

Block 5 ◻ **REPORT DATE**

March 1, 200X

Block 6 ◻ **PERFORMING ORGANIZATION CODE**

ABC

Block 7 ◻ **AUTHOR(S)**

John Smith, Project Manager / Bill Doe, Project Engineer

Block 8 ◻ **PERFORMING ORGANIZATION REPORT NUMBER**

ABC-DOT-XXX-001

Block 9 ◻ **PERFORMING ORGANIZATION NAME AND ADDRESS**

ABC Laboratories
405 Main Street
Detroit, MI 48070

14. REPORTS....Continued**Block 10 c WORK UNIT NUMBER**

Leave blank

Block 11 c CONTRACT OR GRANT NUMBER

DTNH22-0X-D-12345

Block 12 c SPONSORING AGENCY NAME AND ADDRESS

US Department of Transportation
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance (NVS-220)
400 Seventh Street, SW, Room 6115
Washington, DC 20590

Block 13 c TYPE OF REPORT AND PERIOD COVERED

Final Test Report
Feb. 15 to Mar. 15, 200X

Block 14 c SPONSORING AGENCY CODE

NVS-221

Block 15 c SUPPLEMENTARY NOTES

Leave blank

Block 16 c ABSTRACT

Compliance tests were conducted on the subject 200X XYZ Carrier in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-401-0X for the determination of FMVSS 401 compliance.

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.

14. REPORTS....Continued**Block 17 c KEY WORDS**

Compliance Testing
 Safety Engineering
 FMVSS 401

Block 18 c DISTRIBUTION STATEMENT

Copies of this report are available from c

NHTSA Technical Reference Division
 Room 5108 (NPO-230)
 400 Seventh St., SW
 Washington, DC 20590
 Telephone No.: 202-366-4946

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Add appropriate number

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Leave blank

14.3.4 TABLE OF CONTENTS

The final test report Table Of Contents shall include the following as a minimum:

Section 1 c Purpose of Compliance Test

Section 2 c Test Procedure and Discussion of Results

Section 3 c Compliance Test Data

Section 4 c Test Equipment List and Calibration Information

Section 5 c Photographs

Section 6 c Notice of Test Failure (if applicable)

Section 7 c Vehicle Owner=s Manual (applicable pages)

15. DATA SHEETS

15.1 DATA SHEET 1

FMVSS 401 - VEHICLE DESCRIPTION

VEHICLE MY/MAKE/MODEL: _____

BODY STYLE: _____

VEH. NHTSA NO.: _____ VIN: _____

DATE OF TEST: _____ TEST LAB: _____

GVWR: _____ KG MANUFACTURED DATE: _____

TRUNK LOCATION: REAR _____ FRONT _____

If Front, Front Opening? _____

NUMBER OF TRUNK LID LATCHING POSITIONS: _____

INTERIOR TRUNK RELEASE: MANUAL ___; AUTOMATIC ___; BOTH ___; NONE ___

EQUIPPED WITH POWER CLOSURE ASSISTING DEVICE: YES ___ NO ___

OWNER=S MANUAL DESCRIPTION OF TRUNK RELEASE: YES ___ NO ___

REMOVABLE EQUIPMENT DELIVERED IN TRUNK:

SPARE TIRE: _____ (SIZE) _____

TIRE JACK: _____

LUG WRENCH: _____

TOOL BOX: _____ (SIZE) _____

OTHER: _____

REMARKS:

RECORDED BY: _____

DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

15.2 DATA SHEET 2 (1 of 2)

FMVSS 401 - All trunks except for front trunk compartments with front opening hoods**MANUAL TRUNK RELEASE OPERATION**

VEHICLE MY/MAKE/MODEL/BODY STYLE: _____

VEH. NHTSA NO.: _____ VIN: _____

DATE OF TEST: _____

Method used to actuate interior trunk release: _____ (Grab handle, Rotating lever, Push button, etc.)

Can test personnel enter trunk and be closed within: Yes ___ No ___
If Yes, size of occupant: _____

Is there access to the trunk compartment by folding down rear seat or partition:

Yes ___ No ___

Does Release Mechanism require electric power: Yes ___ No ___

Can release mechanism be easily seen inside the closed trunk: Yes ___ No ___

Describe method used by vehicle manufacturer to ensure that release mechanism is visible in a closed trunk compartment: _____ (Phosphorescence, auxiliary lighting, etc)

Describe laboratory test method used to determine visibility of release mechanism: (Trunk entry, darkened room, etc.)

Vehicle Stationary (0 km/h) NO KEY IN IGNITION	Force Required to Release Trunk Lid (Newtons) [no requirement]	Trunk Released from <u>All</u> latching positions	Pass/Fail
Attempt 1			
Attempt 2			
Attempt 3			
Average -			

15. DATA SHEETS....Continued

15.2 DATA SHEET 2 (2 of 2)

FMVSS 401 - MANUAL TRUNK RELEASE OPERATION (continued)

Vehicle Stationary (0 km/h) ENGINE IDLING	Force Required to Release Trunk Lid (Newtons) [no requirement]	Trunk Released from <u>All</u> latching positions	Pass/Fail
Attempt 1			
Attempt 2			
Attempt 3			
Average -			

Vehicle Speed (km/h)	Force Required to Release Trunk Lid (Newtons) [no requirement]	Trunk Released from <u>All</u> latching positions	Pass/Fail
10			
20			
30			

Describe method used to propel vehicle: _____

Describe method used by laboratory to release trunk lid while car is moving:

PASS _____, FAIL _____

REMARKS:

RECORDED BY: _____

DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued**15.3 DATA SHEET 3 (1 of 2)****FMVSS 401 - All trunks except for front trunk compartments with front opening hoods****AUTOMATIC TRUNK RELEASE**

VEHICLE MY/MAKE/MODEL/BODY STYLE: _____

VEH. NHTSA NO.: _____ VIN: _____

DATE OF TEST: _____ AMBIENT TEMP. _____ C

Manufacturer method used to detect person in trunk: _____ (Infrared, motion, etc.)

Can test personnel enter trunk and be closed within: Yes ___ No ___
If Yes, size of occupant: _____

If unable for person to enter trunk, method used to simulate a living person: _____

Is there access to the trunk compartment by folding down rear seat or partition:
Yes ___ No ___

Vehicle Stationary (0 km/h) NO KEY IN IGNITION	Time to unlatch trunk lid after closure (5 min. max.)	Trunk Released from All latching positions	Pass/Fail
Attempt 1			
Attempt 2			
Attempt 3			
Average -			

Vehicle Stationary (0 km/h) ENGINE IDLING	Time to unlatch trunk lid after closure (5 min. max.)	Trunk Released from All latching positions	Pass/Fail
Attempt 1			
Attempt 2			
Attempt 3			
Average -			

15. DATA SHEETS....Continued**15.3 DATA SHEET 3 (2 of 2)****FMVSS 401 - AUTOMATIC TRUNK RELEASE (continued)**

Vehicle Speed km/h	Time to unlatch trunk lid after closure (5 min. max.)	Trunk Released from <u>All</u> latching positions	Pass/Fail
10			
20			
30			

Describe method used to propel vehicle: _____

PASS _____, FAIL _____

REMARKS:

RECORDED BY: _____

DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

15.4 DATA SHEET 4 (1 of 3)

FMVSS 401 - Front trunk compartments with front opening hoods

MANUAL TRUNK RELEASE OPERATION

VEHICLE MY/MAKE/MODEL/BODY STYLE: _____

VEH. NHTSA NO.: _____ VIN: _____

DATE OF TEST: _____

Method used to actuate interior trunk release: _____ (Grab handle, Rotating lever, Push button, etc.)

Can test personnel enter trunk and be closed within: Yes ___ No ___
If Yes, size of occupant: _____

Does Release Mechanism require electric power: Yes ___ No ___

Can release mechanism be easily seen inside the closed trunk: Yes ___ No ___

Describe method used by vehicle manufacturer to ensure that release mechanism is visible in a closed trunk compartment: _____ (Phosphorescence, auxiliary lighting, etc)

Describe laboratory test method used to determine visibility of release mechanism: (Trunk entry, darkened room, etc.)

Vehicle Stationary (0 km/h) NO KEY IN IGNITION	Force Required to Release Trunk Lid (Newtons) [no requirement]	Trunk Released from All latching positions	Pass/Fail
Attempt 1			
Attempt 2			
Attempt 3			
Average -			

15. DATA SHEETS....Continued

15.4 DATA SHEET 4 (2 of 3)

FMVSS 401 - MANUAL TRUNK RELEASE OPERATION (continued)

Vehicle Stationary (0 km/h) ENGINE IDLING	Force Required to Release Trunk Lid (Newtons) [no requirement]	Trunk Released from All latching positions	Pass/Fail
Attempt 1			
Attempt 2			
Attempt 3			
Average -			

Vehicle Speed Less than 5 km/h (greater than 0)	Force Required to Release Trunk Lid (Newtons) [no requirement]	Trunk Released from Primary or ALL latching positions (indicate)	Pass/Fail
Attempt 1	Km/h		
Attempt 2			
Attempt 3			
Average -			

Describe method used to propel vehicle: _____

Vehicle Speed approx. 5 km/h (not less than)	Force Required to Release Trunk Lid (Newtons) [no requirement]	Trunk Released from Primary latching position only	Pass/Fail
Attempt 1	Km/h		
Attempt 2			
Attempt 3			
Average -			

Describe method used to propel vehicle: _____

15. DATA SHEETS....Continued

15.4 DATA SHEET 4 (3 of 3)

FMVSS 401 - MANUAL TRUNK RELEASE OPERATION (continued)

Vehicle Speed km/h	Force Required to Release Trunk Lid (Newtons) [no requirement]	Trunk Released from Primary latching position only	Pass/Fail
10			
20			
30			

Describe method used to propel vehicle: _____

Describe method used by laboratory to release trunk lid while car is moving: _____

PASS _____, FAIL _____

REMARKS:

RECORDED BY: _____

DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

15.5 DATA SHEET 5 (1 of 2)

FMVSS 401 - Front trunk compartments with front opening hoods

AUTOMATIC TRUNK RELEASE OPERATION

VEHICLE MY/MAKE/MODEL/BODY STYLE: _____

VEH. NHTSA NO.: _____ VIN: _____

DATE OF TEST: _____ AMBIENT TEMP. _____ C

Manufacturer method used to detect person in trunk: _____ (Infrared, motion, etc.)

Can test personnel enter trunk and be closed within: Yes ____ No ____
If Yes, size of occupant: _____

If unable for person to enter trunk, method used to simulate a living person: _____

Vehicle Stationary (0 km/h) NO KEY IN IGNITION	Time to unlatch trunk lid after closure (5 min. max.)	Trunk Released from All latching positions	Pass/Fail
Attempt 1			
Attempt 2			
Attempt 3			
Average -			

Vehicle Stationary (0 km/h) ENGINE IDLING	Time to unlatch trunk lid after closure (5 min. max.)	Trunk Released from All latching positions	Pass/Fail
Attempt 1			
Attempt 2			
Attempt 3			
Average -			

15. DATA SHEETS....Continued

15.5 DATA SHEET 5 (2 of 2)

AUTOMATIC TRUNK RELEASE OPERATION (continued)

Vehicle Speed Less than 5 km/h (greater than 0)		Time to unlatch trunk lid after closure (5 min. max.)	Trunk Released from Primary or ALL latching positions. (Indicate)	Pass/Fail
Attempt 1	Km/h			
Attempt 2				
Attempt 3				
Average -				

Describe method used to propel vehicle: _____

Vehicle Speed Approx. 5 km/h (not less than)		Time to unlatch trunk lid after closure (5 min. max.)	Trunk Released from Primary latching position only.	Pass/Fail
Attempt 1	Km/h			
Attempt 2				
Attempt 3				
Average -				

Describe method used to propel vehicle: _____

Vehicle Speed km/h	Time to unlatch trunk lid after closure (5 min. max.)	Trunk Released from Primary latching position only	Pass/Fail
10			
20			
30			

Describe method used to propel vehicle: _____

PASS _____, FAIL _____

REMARKS:

RECORDED BY: _____

DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

15.6 DATA SHEET 6

FMVSS 401 - TEST SUMMARY

	PASS	FAIL	COMMENTS
Automatic or Manual release mechanism inside the trunk compartment. S4.1			
If manual release, lighting feature is included. S4.2(a)			
If automatic release, unlatches trunk lid within 5 minutes. S4.2(b)			
Except as provided by S4.3(b), actuation of release mechanism required by S4.1 completely releases trunk lid from all latching positions of the trunk lid latch. S 4.3(a)			
For front trunk compartments, front opening hoods, when vehicle is stationary latch releases trunk lid from all locking positions. When moving forward at a speed less than 5km/h, must release the primary latch and may release all latches. At speeds greater than 5km/h must release the primary latch only. S4.3(b)			

PASS _____, FAIL_____

REMARKS:

RECORDED BY: _____

DATE:_____

APPROVED BY:_____

16. FORMS

LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS NO.: 401 TEST DATE: _____

LABORATORY: _____

CONTRACT NO.: _____ ; DELV. ORDER NO.: _____

LABORATORY PROJECT ENGINEER'S NAME: _____

TEST VEHICLE DESCRIPTION: _____

VEHICLE NHTSA NO.: _____ ; VIN: _____

VEHICLE MANUFACTURER: _____

TEST FAILURE DESCRIPTION: _____

S401 REQUIREMENT, PARAGRAPH S _____ :

NOTIFICATION TO NHTSA (COTR):

DATE: _____ ; BY: _____

REMARKS:

16. FORMS....Continued

MONTHLY TEST STATUS REPORT
FMVSS 401
DATE OF REPORT:

No.	VEHICLE NHTSA No., MAKE & MODEL	SCHEDULED TEST START DATE	COMPLETED COMPLIANCE TEST DATE	PASS/ FAIL	DATE REPORT SUBMITTED	DATE INVOICE SUBMITTED	INVOICE PAYMENT DATE
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

16. FORMS....Continued

MONTHLY VEHICLE STATUS REPORT
FMVSS 401

DATE OF REPORT:

No.	VEHICLE NHTSA No., MAKE & MODEL	DATE OF DELIVERY	TEST COMPLETE DATE	VEHICLE SHIPMENT DATE	CONDITION OF VEHICLE
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

