

**TP-114-04**  
**July 28, 2010**

**U.S. DEPARTMENT OF TRANSPORTATION**  
**NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION**  
**LABORATORY TEST PROCEDURE**  
**FOR**  
**FMVSS 114**  
**Theft Protection and Rollaway Prevention**



**ENFORCEMENT**  
Office of Vehicle Safety Compliance  
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OVSC LABORATORY TEST PROCEDURE NO. 114  
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**REVISION CONTROL LOG  
FOR OVSC LABORATORY  
TEST PROCEDURES**

TP-114  
Theft Protection and Rollaway Prevention

TEST PROCEDURE		FMVSS 114		DESCRIPTION
REV. No.	DATE	AMENDMENT	EFFECTIVE DATE	
00	11/23/92	-----	-----	Final Rule
01	12/17/97	62FR29977 01/21/97	02/20/97	Final Rule Test procedure for vehicles with park position on 10% grade.
02	04/18/08	71FR17752 04/07/06	09/01/07	Final Rule Update terminology to reflect technological advances in the area of theft protection.
03	03/30/10	75FR15621	9/1/10	Final Rule BTSI section added
04	07/28/10	NONE	N/A	Minor updates Added a separate BTSI section under general requirements, modified the test procedure instructions, updated Data Sheet 3 to make the test procedure easier to follow.
05				
06				

## 1. PURPOSE AND APPLICATION

This document is a laboratory test procedure provided by the National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Compliance (OVSC) for the purpose of presenting guidelines for a uniform testing data and information recording format, and providing suggestions for the use of specific equipment and procedures for contracted testing laboratories. The data correspond to specific requirements of the Federal Motor Vehicle Safety Standard(s) (FMVSS). The OVSC test procedures include requirements that are general in scope to provide flexibility for contracted laboratories to perform compliance testing and 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 test procedures do not constitute an endorsement or recommendation for use of any particular product or testing method.

Prior to conducting compliance testing, contracted laboratories are required to submit a detailed test procedure to the COTR to demonstrate concurrence with the OVSC laboratory test procedure and the applicable FMVSS. If any contractor views any part of an OVSC laboratory test procedure to be in conflict with a 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 or as soon as practicable. The contractor's test procedure must include a step-by-step description of the methodology and detailed check-off sheets. Detailed check-off sheets shall also be provided for the testing instrumentation including a complete listing of the test equipment with make and model numbers. 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.

**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. 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.

## 2. GENERAL REQUIREMENTS

FMVSS 114 specifies vehicle performance requirements intended to reduce the incidence of crashes resulting from theft and accidental rollaway of motor vehicles. The purpose of this standard is to decrease the likelihood that a vehicle is stolen, or accidentally set in motion. This standard applies to passenger cars, trucks and multipurpose passenger vehicles having a Gross Vehicle Weight Rating (GVWR) of 4,536 kilograms (10,000 lb) or less. It does not apply to walk-in van-type vehicles.

### ***Theft Protection – for all vehicles***

Each vehicle must have a starting system which, whenever the key is removed from the starting system prevents:

- (a) The normal activation of the vehicle's engine or motor; and
- (b) Either steering, or forward self-mobility, of the vehicle, or both.

An audible warning to the vehicle operator must be activated whenever the key is in the starting system and the door located closest to the driver's designated seating position is opened. An audible warning to the vehicle operator need not activate:

- (a) After the key has been inserted into the starting system, and before the driver takes further action; or
- (b) If the key is in the starting system in a manner or position that allows the engine or motor to be started or to continue operating; or
- (c) For mechanical keys and starting systems, after the key has been withdrawn to a position from which it may not be turned.

If a vehicle is equipped with a transmission with a "park" position, the means for deactivating the vehicle's engine or motor must not activate any device that would prevent steering or forward self mobility unless the transmission is locked in the "park" position.

### ***Rollaway prevention – for vehicles equipped with transmissions with a "park" position.***

The starting system must prevent key (mechanical or electronic) removal unless the transmission or gear selection control is locked in "park" or becomes locked in "park" as the direct result of key removal. However, vehicle manufacturers can provide an optional key removal override device.

The vehicle must be designed such that the transmission or gear selection control cannot move from the "park" position, unless the key is in the starting system. However, vehicle manufacturers can provide an optional gear selection control override device.

Vehicles must not move more than 150mm on a 10% grade when the gear selection control is locked in "park".

## 2. GENERAL REQUIREMENTS....Continued

### ***Brake Transmission Shift Interlock (BTSI)***

The vehicle shall be equipped with a Brake Transmission Shift Interlock (BTSI). Each motor vehicle manufactured on or after September 1, 2010 with a GVWR of 4,536 Kilograms (10,000 pounds) or less with an automatic transmission that includes a "park" position shall be equipped with a system that requires the service brake to be depressed before the transmission can be shifted out of "park". This system shall function in any starting system key position in which the transmission can be shifted out of "park". This section does not apply to trailers or motorcycles.

Refer to the latest applicable revision of the FMVSS for the full text of requirements and related information.

### METRIC SYSTEM OF MEASUREMENT

Section 5164 of the Omnibus Trade and Competitiveness Act (Pub. L. 100-418) establishes that the metric system of measurement is the preferred system of weights and measures for trade and commerce in the United States. Executive order 12770 directs Federal agencies to comply with the Act by converting regulatory standards to the metric system after September 30, 1992. In a final rule published on March 15, 1990 (60 FR 13639), NHTSA completed the first phase of metrication, converting English measurements in several regulatory standards to the metric system. Since then, metrication has been applied to other regulatory standards (63 FR 28912).

Accordingly, the OVSC laboratory test procedures include revisions to comply with governmental directives in using the metric system. Regulatory standards converted to metric units are required to use metric measurements in the test procedures. For any testing equipment that is not available for direct measurement in metric units, the test laboratory shall calculate the exact metric equivalent by means of a conversion factor carried out to at least five significant digits before rounding consistent with the specified metric requirement.

All final compliance test reports are required to include metric measurements for standards using metrication.

**NOTE:** The methodology for rounding measurement in the test reports shall be made in accordance with ASTM E29-06b, "Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications."

## 3. SECURITY

The contractor shall provide appropriate security measures to protect the OVSC test vehicles and Government Furnished Property (GFP) 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 vehicles and GFP. Any security problems which arise shall be reported by telephone to the Industrial Property Manager (IPM), Office of Acquisition Management, within two working days after the incident. A letter containing specific details of the security problem shall be sent to the IPM (with copy to the COTR) within 48 hours.

### 3. SECURITY....Continued

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

**NOTE:** No individuals, other than contractor personnel directly involved in the compliance testing program or OVSC personnel, shall be allowed to witness any vehicle or equipment item compliance test or test dummy calibration unless specifically authorized by the COTR.

### 4. GOOD HOUSEKEEPING

Contractors shall maintain the entire vehicle 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 conducting the first compliance test. Tests shall be completed at intervals as required in the contract. If not specified, the first test shall be conducted within 6 weeks after receiving the first delivered unit. Subsequent tests shall be completed in no longer that 1 week intervals unless otherwise specified by the COTR.

Scheduling of tests shall be adjusted to permit vehicles (or equipment, whichever applies) to be tested to other FMVSSs as may be required by the OVSC. All compliance testing shall be coordinated with the COTR in order to allow monitoring by the COTR and/or other OVSC personnel if desired. The contractor shall submit a monthly test status report and a vehicle status report (if applicable) to the COTR. The vehicle status report shall be submitted until all vehicles are disposed of. The status report forms are provided in the forms section.

### 6. TEST DATA DISPOSITION

The Contractor shall make all preliminary compliance test data available to the COTR on location within 30 minutes after the test. Final test data, including digital printouts and computer generated plots, shall be available to the COTR in accordance with the contract schedule or if not specified within two working days. Additionally, the Contractor shall analyze the preliminary test results as directed by the COTR.

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

The contractor shall protect and segregate the data that evolves from compliance testing before and after each test.

TEST DATA LOSS

## 6. TEST DATA DISPOSITION....Continued

### A. INVALID TEST DESCRIPTION

An invalid compliance test is one, which does not conform precisely to all requirements/specifications of the OVSC Laboratory Test Procedure and Statement of Work applicable to the test.

### B. INVALID TEST NOTIFICATION

The Contractor shall notify NHTSA of any test not meeting all requirements/specifications of the OVSC Laboratory Test Procedure and Statement of Work applicable to the test, by telephone, within 24 hours of the test and send written notice to the COTR within 48 hours of the test completion.

### C. RETEST NOTIFICATION

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 2 weeks after receipt of notification by the Contracting Officer that a retest is required.

### D. WAIVER OF RETEST

NHTSA, in its sole discretion, reserves the right to waive the retest requirement. This provision shall not constitute a basis for dispute over the NHTSA's waiving or not waiving any requirement.

### E. TEST VEHICLE

NHTSA shall furnish only one vehicle for each test ordered. The Contractor shall furnish the test vehicle required for the retest. The retest vehicle shall be equipped as the original vehicle. The original vehicle used in the invalid test shall remain the property of NHTSA, and the retest vehicle shall remain the property of the Contractor. The Contractor shall retain the retest vehicle for a period not exceeding 180 days if it fails the test. If the retest vehicle passes the test, the Contractor may dispose of it upon notification from the COTR that the test report has been accepted.

### F. TEST REPORT

No test report is required for any test that is determined to be invalid unless NHTSA specifically decides, in writing, to require the Contractor to submit such report. The test data from the invalid test must be safeguarded until the data from the retest has been accepted by the COTR. The electronic data, draft final test report, dummy calibration report, and video shall be submitted within 14 days of the final test. The final test report, dummy calibration report, and video shall be submitted 7 days after receiving comments from the COTR.

### G. DEFAULT

The Contractor is subject to the default and subsequent procurement costs for nondelivery of valid or conforming test (pursuant to the Termination For Default clause in the contract).

## 6. TEST DATA DISPOSITION....Continued

### H. NHTSA'S RIGHTS

None of the requirements herein stated shall diminish or modify the rights of NHTSA to determine that any test submitted by the Contractor does not conform precisely to all requirements/specifications of the OVSC Laboratory Test Procedure and Statement of Work applicable to the test.

## 7. GOVERNMENT FURNISHED PROPERTY (GFP)

Inasmuch as the compliance test requirements for FMVSS 114 are nondestructive in nature and relatively simple, the Government will **NOT** furnish test vehicles for this purpose unless specifically stipulated in the contract. If GFP vehicles are authorized by contractual agreement, the contractor is responsible for the following.

### A. ACCEPTANCE OF TEST VEHICLES

The contractor has the responsibility of accepting each GFP test vehicle whether delivered by a new vehicle dealership or another vehicle transporter. In both instances, the Contractor acts on behalf of the OVSC when signing an acceptance of the GFP test vehicle delivery order. When a GFP vehicle is delivered, the contractor must verify:

1. All options listed on the "window sticker" are present on the test vehicle.
2. Tires and wheel rims are new and the same as listed.
3. There are no dents or other interior or exterior flaws in the vehicle body.
4. The vehicle has been properly prepared and is in running condition.
5. The glove box contains an owner's manual, warranty document, consumer information, and extra set of keys.
6. Proper fuel filler cap is supplied on the test vehicle.
7. Spare tire, jack, lug wrench and tool kit (if applicable) is located in the vehicle cargo area.
8. The VIN (vehicle identification number) on the vehicle condition report matches the VIN on the vehicle.
9. The vehicle is equipped as specified by the COTR.

A Vehicle Condition form will be supplied to the Contractor by the COTR when the test vehicle is transferred from a new vehicle dealership or between test contracts. The upper half of the form is used to describe the vehicle as initially accepted. The lower half of the Vehicle Condition form provides space for a detailed description of the post-test condition. The contractor must complete a Vehicle Condition form for each vehicle and deliver it to the COTR with the Final Test Report or the report will NOT be accepted for payment.

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

If the test vehicle is delivered by a government contracted transporter, the contractor should check for damage which may have occurred during transit.

GFP vehicle(s) shall not be driven by the contractor on public roadways unless authorized by the COTR.

### B. NOTIFICATION OF COTR

The COTR must be notified within 24 hours after a vehicle (and/or equipment item) has been delivered. In addition, if any discrepancy or damage is found at the time of delivery, a copy of the Vehicle Condition form shall be sent to the COTR immediately.

## 8. CALIBRATION OF TEST INSTRUMENTS

Before the Contractor initiates the vehicle safety compliance test program, a test instrumentation calibration system must 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 shall 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 exceeding 12 months for instruments and 12 months for the calibration standards except for static types of measuring devices such as rulers, weights, etc., which shall be calibrated at periodic intervals not to exceed two years. Records, showing the calibration traceability to the National Institute of Standards and Technology (NIST), shall be maintained for all measuring and test equipment.

Accelerometers shall be calibrated every twelve months or after a test failure or after any indication from calibration checks that there may be a problem with the accelerometer whichever occurs sooner.

- C. All measuring and test equipment and measuring standards shall 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
- 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.

## 8. CALIBRATION OF TEST INSTRUMENTS....Continued

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).
  6. The actual procedures and forms used to perform the calibrations.
- 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.
- F. All such records shall be readily available for inspection when requested by the COTR. The calibration system shall need the acceptance of the COTR before vehicle safety compliance testing commences.
- G. Test equipment shall receive a system functional check out using a known test input immediately before and after the test. This check shall be recorded by the test technician(s) and submitted with the final report.
- H. The Contractor may be directed by NHTSA to evaluate its data acquisition system.

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 General Requirements."

**NOTE:** In the event of a failure to meet the standard's minimum performance requirements additional calibration checks of some critically sensitive test equipment and instrumentation may be required for verification of accuracy. The necessity for the calibration will be at the COTR's discretion and shall be performed without additional cost.

## 9. SUGGESTED TEST EQUIPMENT

- A. Clinometer - A device used to measure elevation angles and/or grades. This device can be used to identify a 10% grade when performing section S5.2.5
- B. Metric scale ruler or tape measure
- C. Tire pressure gauge
- D. Vehicle weight scales

## 10. PHOTOGRAPHIC DOCUMENTATION

### Digital Photographs

The contractor shall take digital photographs of the test execution procedures. Photographs shall be taken in color and contain clear images. A tag, label or placard identifying the test item, NHTSA number (if applicable) and date shall appear in each photograph and must be legible. Each photograph shall be labeled as to the subject matter. The required resolution for digital photographs is a minimum of 1,600 x 1,200 pixels. Digital photographs are required to be created in color and in a JPG format. Glare or light from any illuminated or reflective surface should be minimized while taking photographs.

The test reports should include enough photographs to describe the testing in detailed and should be organized in a logical succession of consecutive pictures. The digital photographs should be included in the test report as 203 mm x 254 mm or 215.9 mm x 279 mm (8 x 10 or 8½ x 11 inch) pictures. All photographs are required to be included in the test report in the event of a test failure. Any failure must be photographed at various angles to assure complete coverage. Upon request, the photographs should be sent to the COTR on a CD or DVD and saved in a “read only” format to ensure that the digital photographs are the exact pictures taken during testing and have not been altered from the original condition.

### Photographic Views

As a minimum the following test photographs shall be included in each vehicle final test report, submitted by the contractor:

- A. 3/4 Frontal - Left Side View of the test vehicle
- B. Vehicle Certification Label
- C. FMVSS No. 110 vehicle placard and optional tire inflation pressure label
- D. Key or the device that stores the key if the key is an electronic code
- E. Starting system control to show all of the starting system positions
- F. Transmission gear selection control and identification of transmission shift positions
- G. Device which allows key removal from starting system without the transmission or gear selection control in the “park” position (if applicable)  
(Requirement S5.2.3)
- H. Device which allows moving gear selection control out of the “park” position when the key is removed from the starting system (if applicable)  
(Requirement S5.2.4)
- I. Any damage or apparent test failure that cannot be seen in the above photographs.

- J. Any visual warnings on the instrument panel or message center that alerts the driver that the key is left in the ignition or vehicle.
- K. Photo of key slot in dash. (if applicable)

## 11. DEFINITIONS

### ADVANCED KEY SYSTEM

The electronic access and authorization system which allows a driver to keep the car key in his or her pocket when starting the automobile. The advanced key system loads the electronic key code into the vehicle starting system once the key is in the range of detection. The driver must have the key inside the car before the vehicle can be started.

### Brake Transmission Shift Interlock (BTSI)

A system that requires the brake pedal to be depressed in order to shift the transmission out of the "park" position.

### CURB WEIGHT

Means the weight of a motor vehicle with standard equipment, maximum capacity of engine fuel, oil, and coolant, and, if so equipped, air conditioning and additional weight optional engine.

### IMMOBILIZER

An electrical or electronic system which prevents the unauthorized movement of a vehicle under its own power.

### KEY

Means a physical device or an electronic code which, when inserted into the starting system (by physical or electronic means), enables the vehicle operator to activate the engine or motor.

### NON-TRADITIONAL KEY

A key device that is used in place of a traditional metal key. Once inside the vehicle, the key device can input the key into the vehicle starting system in several different ways. For some systems, the key device is inserted into a slot near the steering column and the starter computer verifies the rolling code. In other systems, the key device utilizes infrared or radio frequency (RF) signals to communicate with the engine immobilizer system.

### OPEN-BODY TYPE VEHICLE

Means a vehicle having no occupant compartment doors or vehicle having readily detachable occupant compartment doors.

### STARTING SYSTEM

Means the vehicle system used in conjunction with the key to activate the engine or motor.

**11. DEFINITIONS.....Continued****VEHICLE TYPE**

Refers to passenger car, truck, or multipurpose passenger vehicle as those terms are defined in 49CFR571.3 (see vehicle certification label on driver's door or door jam, ref 49CFR567)

**12. 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,
- D. Review applicable revision of FMVSS 114,
- E. Review vehicle Owner's Manual (or equipment mfg. instructions)
- F. Set cold tire pressures according to the vehicle manufacturer's recommendations (where applicable), and
- G. Except where specified otherwise, the test surface shall be level.

**DETAILED TEST AND QUALITY CONTROL PROCEDURES REQUIRED**

Prior to conducting any compliance test, Contractors are required to submit a detailed in-house compliance test procedure to the COTR which includes:

- A. A step-by-step description of the methodology 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 on each task.
- C. A complete listing of test equipment with 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.

### 13. COMPLIANCE TEST EXECUTION

#### Test Personnel Performance

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

#### Compliance Test

Unless otherwise noted, all tests shall be conducted with the parking brake fully applied. Whenever changing gear selection positions the driver's foot shall remain on the service brake. The vehicle shall be tested at curb weight plus 91 kg (including the driver) with tires at manufacturer's recommended inflation pressure.

#### ***VEHICLE IDENTIFICATION (DATA SHEET 1)***

- A. Inspect test vehicle and owners manual. Document required test vehicle information.
- B. Describe the vehicle starting system including location, selectable settings, and how system is activated.
- C. Describe the vehicle key (mechanical metal device, key fob with embedded code, plastic card with embedded code, etc).
- D. Describe how key is inserted into the vehicles starting system, how the key is used to activate the starting system, and how the key is removed from the starting system. If an advanced key system is used, make note of the distance required to remove the electronic key from the starting system.
- E. Describe gear selection control, how it is activated, and all of its selectable settings.
- F. Identify if the vehicle is equipped with an immobilizer device and if so, describe how the device is used to prevent vehicle theft.
- G. Describe if the vehicle is equipped with optional release override devices (i.e. key removal, gear selection control, etc).
- H. Check vehicle fluids and adjust to the proper levels for operation.
- I. Document manufacturer recommended cold inflation pressure obtained from the vehicle tire placard.
- J. Check and adjust the tire inflation pressures if necessary to ensure that the test vehicle tires are inflated to the manufacturer recommended cold inflation pressures.
- K. Measure vehicle curb weight and the weight of the driver used during the execution of this test.

**THEFT PROTECTION (DATA SHEET 2)****A. FMVSS 114 Requirement S5.1.1**

Each vehicle must have a starting system which, whenever the key is removed from the starting system prevents:

- The normal activation of the vehicle's engine or motor; and
- Either steering, or forward self-mobility, of the vehicle, or both.

**TEST**

- (1) Apply the vehicle's parking brake. With the key removed from the starting system, attempt to start the vehicle engine or motor. If the vehicle is equipped with an advanced key system, it may be necessary to move the electronic key device outside the minimum effective range for loading the electronic key into the vehicle starting system. (Determine the minimum effective range for loading the electronic key into the starting system from the vehicle owner's manual or contact the COTR). Make note if depressing the service brake is required in order to start the vehicle's engine or motor.
- (2) Reference the vehicle's owners manual to identify the proper procedure for activating the vehicle starting system. Activate the vehicle starting system and start the engine or motor using the key. If the vehicle is equipped with an advanced key system, it may be necessary to have the electronic key device inside the vehicle for the starting system to detect the electronic key. Center the steering wheel.
- (3) Turn off the engine or motor and remove the key. If the vehicle is equipped with an advanced key system, it may be necessary to move the electronic key device outside the minimum effective range for loading the electronic key into the vehicle starting system. For some vehicles that have an advanced key technology, the electronic key code is removed from the starting system when the engine is turned off. Refer to the manufacturer's information that was submitted to OVSC to determine how the key gets removed from the starting system.
- (4) Determine if the steering wheel locks as a result of removing the key from the starting system by rotating the wheel in both directions. Note the position in which the steering wheel locks in both directions.
- (5) Determine if forward self-mobility is prevented whenever the key is removed from the starting system. If the vehicle is equipped with an advanced key system, it may be necessary to move the electronic key device outside the minimum effective range for loading the electronic key into the vehicle starting system. If the vehicle has a means to prevent forward self-mobility, describe the means. (i.e. Is the transmission locked in park, is the vehicle equipped with an immobilizer, etc)

**B. FMVSS 114 Requirement S5.1.3**

### 13. COMPLIANCE TEST EXECUTION....Continued

Each vehicle shall have an audible warning to the vehicle operator that activates whenever the key is in the starting system and the door located closest to the driver's designated seating position is opened. The audible warning to the vehicle operator need not activate:

- After the key has been inserted into the starting system, and before the driver takes further action; or
- If the key is in the starting system in a manner or position that allows the engine or motor to be started or to continue operating; or
- For mechanical keys and starting systems, after the key has been withdrawn to a position from which it may not be turned.

#### TEST

- (1) Reference the vehicle's owners manual to identify the proper procedure for activating the vehicle starting system. Activate the vehicle starting system and start the engine or motor using the key. Apply the vehicle's parking brake.
- (2) Move the gear selection control to the "drive" position. Shut off the vehicle engine or motor.
- (3) Open the door closest to the driver's designated seating position. There shall be an audible warning.
- (4) Repeat step (2) with the key in all other possible starting system key positions. There shall be an audible warning for all starting system positions with the exception of "on" and "start". Make note of all key/starting system positions.

**NOTE:** Open-body type vehicles that are manufactured for operation without doors and that either have no doors or have doors that are designed to be easily attached to and removed from the vehicle by the vehicle owner are not required to comply with S5.1.3

#### C. FMVSS 114 Requirement S5.1.4

If a vehicle is equipped with a transmission with a "park" position, the means for deactivating the vehicle's engine or motor must not activate any device installed which would prevent the vehicle's steering or forward self-mobility or both, unless the transmission is locked in the "park" position.

#### TEST

- (1) Activate the vehicle starting system and start the engine or motor using the key.
- (2) Move the gear selection control to the "drive" position and shut off the engine or motor. Release the parking and service brakes. Determine if the steering wheel can be rotated in both directions without locking. Determine if the

vehicle is free to roll forward. The vehicle's steering and forward self-mobility shall not be prevented.

- (3) Repeat step (2) for each additional gear selection position except "park" or "reverse".

### **ROLLAWAY PREVENTION (DATA SHEET 3)**

For vehicles equipped with transmissions with a "park" position.

#### **D. FMVSS 114 Requirement S5.2.1**

The starting system must prevent key removal unless the transmission or gear selection control is locked in "park" or becomes locked in "park" as the direct result of key removal. (See override option S5.2.3 below.)

#### **TEST**

- (1) Activate the starting system using the key and start the engine or motor.
- (2) Move the gear selection control to the "drive" position and shut off the engine or motor.
- (3) Try to remove the key from each of the vehicle starting system positions. The starting system shall prevent key removal. If the vehicle is equipped with an advanced key system, it may be necessary to move the electronic key device outside the minimum effective range to prevent the vehicle starting system from detecting the electronic key. After moving the electronic key device outside the minimum effective range, move the gear selection control to the "neutral" position and try to restart the engine to determine if the electronic key is still programmed. If the vehicle engine can be restarted with the electronic key device outside the minimum effective range, then the starting system remembers the electronic key code and it therefore remember the key.
- (4) Repeat step (3) for all of the remaining gear selection control positions with the exception of "park", including a position between any gear selection control positions where the gear selection control will remain without assistance. The starting system shall prevent key removal in **ALL** gear selection control positions other than "park".
- (5) In the event the key can be removed from the vehicle starting system when the gear selection control is not locked in "park", a mechanism shall exist which, upon key removal, the vehicle's transmission or gear selection control shall become locked in "park" as the direct result of removing the key. If such a mechanism exists, describe the mechanism and its function.
- (6) Return the transmission or gear selection control to the "park" position and remove the key from the vehicle starting system.

### 13. COMPLIANCE TEST EXECUTION....Continued

- (7) Attempt to move the gear selection control from the “park” position. The gear selection control shall be locked in “park”. If the vehicle is equipped with an advanced key system, it may be necessary to move the electronic key device outside the minimum effective range to prevent the vehicle starting system from detecting the electronic key.

#### E. FMVSS 114 Requirement S5.2.2

The vehicle must be designed such that the transmission or gear selection control cannot move from the “park” position, unless the key is in the starting system.

#### TEST

- (1) Verify the gear selection control is in the “park” position and the key is removed from the starting system. If the vehicle is equipped with an advanced key system, it may be necessary to move the electronic key device outside the minimum effective range to prevent the vehicle starting system from detecting the electronic key. (Determine the minimum effective range for loading the electronic key into the starting system from the vehicle owner’s manual).
- (2) Attempt to move the gear selection control out of the “park” position. The gear selection control should be locked in “park”.
- (3) Activate the vehicle starting system and start the engine or motor using the key. If the vehicle is equipped with an advanced key system, it may be necessary to have the electronic key device inside the vehicle for the starting system to detect the electronic key.
- (4) Simultaneously press the service brake and move the gear selection control to the “drive” position. The gear selection control should **NOT** be locked in “park”.
- (5) Return gear selection control to the “park” position and remove key from the starting system.

#### F. FMVSS 114 Requirement S5.2.3 - **KEY REMOVAL OVERRIDE OPTION**

At the option of the manufacturer, the key may be removed from the starting system without the transmission or gear selection control in the “park” position under one of the following conditions:

- In the event of an electrical failure, including battery discharge, the vehicle may permit key removal from the starting system without the transmission or gear selection control locked in the “park” position; or
- Provided that steering or self-mobility is prevented, the vehicle may have a device by which the user can remove the key from the starting system without the transmission or gear selection control locked in “park.” This device must require:

### 13. COMPLIANCE TEST EXECUTION....Continued

- The use of a tool, and
- Simultaneous activation of the device and removal of the key; or
- Providing that steering or self-mobility is prevented, the vehicle may have a device by which the user can remove the key from the starting system without the transmission or gear selection control locked in “park.” This device must be covered by an opaque surface which, when installed:
  - Prevents sight of and use of the device, and
  - Can be removed only by using a screwdriver or other tool.

#### TEST

- (1) To simulate an electrical failure or battery discharge, disconnect the vehicle battery. Try to remove the key from the vehicle starting system. Key removal from the vehicle starting system is permitted when the vehicle has an electrical failure or discharged battery although it is not required.
- (2) Check the vehicle owner’s manual to determine if the vehicle is equipped with an override device that will permit key removal when the transmission is in a gear position other than “park”. If the vehicle is equipped with such a device, describe the design and mode of activation. Photograph the device, its cover if applicable and its location.
- (3) If the vehicle is equipped with a key removal override device, record the type of device used and proceed to step (4), otherwise proceed to section G.
- (4) Move the transmission or gear selection control to the “park” position. Reconnect the vehicle battery.
- (5) Activate the vehicle starting system using the key and start the engine or motor. Move the transmission or gear selection control to the “drive” position. Shut off the vehicle engine or motor.
- (6) If the override device is covered by an opaque surface, continue with step (7) below, otherwise proceed to step (8).
- (7) Determine if the opaque surface prevents the sight of and use of the override device. Verify that the opaque surface cover can only be removed using a screwdriver or other tool.
- (8) Activate the key removal override device and remove the key from the vehicle starting system. Unless the override device was covered by an opaque surface cover, the override device must require the use of a tool and simultaneous activation of the device and removal of the key to remove the key from the vehicle starting system.
- (9) Verify that the removal of the key from the vehicle starting system prevents steering or self-mobility.

### 13. COMPLIANCE TEST EXECUTION....Continued

#### G. FMVSS114 Requirement S5.2.4 - **GEAR SELECTION CONTROL OVERRIDE OPTION**

The vehicle may have a device by which the user can move the gear selection control from “park” after the key has been removed from the starting system.

This device must be operable by one of the three options below:

- By use of the key; or
- By means other than the key, provided steering or forward self-mobility is prevented when the key is removed from the starting system. Such a means must require:
  - o The use of a tool, and
  - o Simultaneous activation of this means and movement of the gear selection control from “park;” or
- By a means other than the key, provided steering or forward self-mobility is prevented when the key is removed from the starting system. This device must be covered by an opaque surface which, when installed:
  - o Prevents sight of and use of the device, and
  - o Can be removed only by using a screwdriver or other tool.

#### TEST

- (1) Check the vehicle owner’s manual to determine if the vehicle has an override device that will allow the user to move the gear selection control from the “park” position after the key has been removed from the starting system. If the vehicle is equipped with such a device, describe the design and mode of activation. Photograph the device, its cover if applicable and its location.
- (2) Determine if the override device is operable by the use of a key. If the device is operable by the use of a key, proceed to step (4), otherwise continue with step (3).
- (3) Determine if the override device is covered by an opaque surface which prevents the sight of and use of the device and can only be removed by using a screwdriver or other tool. If the override device is covered by an opaque surface which prevents the sight of and use of the device, remove the opaque surface using a screwdriver or other tool.
- (4) Remove the key from the vehicle starting system. If the vehicle is equipped with an advanced key system, it may be necessary to move the electronic key device outside the minimum effective range for loading the electronic key into the vehicle starting system.
- (5) Verify that the removal of the key from the vehicle starting system prevents steering or forward self-mobility.

### 13. COMPLIANCE TEST EXECUTION....Continued

- (6) Activate the override device and move the gear selection control from the “park” position. The override device may require the use of a tool and simultaneously movement of the gear selection control from the “park” position when the key is removed from the starting system.
- (7) Return the gear selection control to the “park” position.

#### H. FMVSS 114 Requirement S5.2.5

Vehicles must not move more than 150mm on a 10% grade when the gear selection control is locked in “park”.

##### TEST

- (1) Drive the vehicle forward up a 10% grade and stop it with the service brakes. Apply the parking brake if present.
- (2) Move the gear selection control to the “park” position. Mark vehicle position relative to the grade surface.
- (3) Release the parking brake. Release the service brakes. Remove the key from the starting system.
- (4) Verify that the gear selection control is locked in the “park” position.
- (5) Measure distance the vehicle, at rest, has moved from the position noted prior to the release of the brakes.
- (6) If the vehicle fails on a grade of more than 10%, recheck and adjust weight and tire pressure if necessary, and repeat steps (1) through (5) on a grade of 9% to 10%.
- (7) Drive the vehicle forward down a 10% grade and stop it with the service brakes. Apply the parking brake if present. Repeat steps (2) through (6).

#### I. FMVSS 114 Requirement S5.3

Brake Transmission Shift Interlock (BTSI) - Each motor vehicle with an automatic transmission that includes a “park” position shall be equipped with a system that requires the service brake to be depressed before the transmission can be shifted out of “park”. This system shall function in any starting system key position in which the transmission can be shifted out of “park”.

##### TEST

### 13. COMPLIANCE TEST EXECUTION....Continued

- (1) Activate the vehicle starting system with the key and start the engine or motor. Try to shift the transmission or gear selection control from the "park" position without depressing the service brake pedal. The system shall prevent the transmission from shifting out of "park" unless the service brake is depressed.
- (2) Depress the service brake pedal and simultaneously move the transmission or gear selection control out of "park". The system should allow the transmission to shift out of "park" when the service brake is depressed.
- (3) Using a Brake Pedal force transducer or equivalent, record the brake pedal force required to allow the transmission to be shifted out of "park". (take five readings)
- (4) With the gear selection control in the "park" position, place the key in each of the starting system positions for which the transmission can be shifted out of "park". Verify that the transmission cannot be shifted out of "park" unless the brake pedal is depressed. (This includes ALL positions in which the key can remain without being held by the operator). This may also include positions between designated starting system positions.
- (5) Move the gear selection control to the "park" position. Disconnect the vehicle battery. Try to move the gear selection control from the "park" position. The gear selection control should be locked in "park".

### 14. 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.

### 15. REPORTS

#### 15.1 MONTHLY STATUS REPORTS

## 15. REPORTS....Continued

The contractor shall submit a monthly Test Status Report and a Vehicle Status Report to the COTR. The Vehicle Status Report shall be submitted until all vehicles are disposed of. Samples of the required Monthly Status Reports are contained in the report forms section.

### 15.2 APPARENT NONCOMPLIANCE

Any indication of a test failure shall be communicated by telephone to the COTR within 24 hours with written notification mailed within 48 hours (Saturdays and Sundays 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.

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.

### 15.3 FINAL TEST REPORTS

#### 15.3.1 COPIES

An electronic draft test report is required after completion of each test. The test report and content shall comply with the TP. The organization and content of test data sheets in the report shall be consistent with the applicable TP.

Within seven (7) days of receiving the COTR's comments on the draft test report, the Contractor shall submit up to seven (7) compact discs (at discretion of the COTR) of the final report for which the test items failed to meet the requirements of the test or the test was a retest (another test of a vehicle that previously exceeded the performance requirements). Four (4) compact discs of the final report shall be submitted for tests for which there were no failures.

**Note:** Prior to submission of the compact discs of the final report, the final report shall be electronically transmitted to the COTR to facilitate electronic signature for acceptance. The COTR shall sign the report then send the electronic file, containing the signature back to the contractor for the purposes of placing the file on compact disc. The final report shall be in PDF format.

The Final Test Report format to be used by all contractors can be found in Section – 14.3.2: "REQUIREMENTS".

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 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.

## 15. REPORTS....Continued

Electronic file copies of the Final Test Report shall be provided in accordance with the following:

- a. Electronic Master File:  
An electronic version of the final report shall be used as the "Master" report copy. The hard-copy and electronic reports shall be generated from this electronic master file. A copy of the electronic master file shall be provided to NHTSA as required.
- b. System Compatibility:
  1. All electronically submitted report copies shall be stored on compact discs (CD) in PDF format.
  2. The software application used to store the electronic file version (Master copy) of the final report shall be compatible with Microsoft Word, i.e., the file must be able to be opened, viewed and edited using Microsoft Word.
  3. All test report images (photographs, charts, graphs, etc.) shall be imbedded as part of a Microsoft Word file and shall be JPEG or TIFF file format.
- c. For any of the option periods exercised under this contract, NHTSA reserves the right to change the hardware and software requirements stated above, such that submitted electronic files continue to be compatible with computer systems utilized by the Office of Vehicle Safety Compliance.

If a Final Test Report is returned to the laboratory for correction, the report date shall be changed to the date of re-submission. Delivery of an unacceptable Final Test Report will not be construed as meeting the due date specified.

The data tapes recorded from the sensors during the test shall be provided on a compact disc or other acceptable media. The data shall be developed and formatted as specified by the Office of Crashworthiness Research Data References Guides. The guides can be located at NHTSA address:

<http://www-nrd.nhtsa.dot.gov/software/test-reference-guides/test-reference-guides.html>

### 15.3.2 REQUIREMENTS

The Final Test Report and 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.

## 15. REPORTS....Continued

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

### 15.3.3 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 114-ABC-XX-001 where  
 114 is the FMVSS tested  
 ABC are the initials for the laboratory  
 XX 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 114  
 Theft Protection and Rollaway Prevention

\*\*\*\*\*

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  
 Mail Code: NVS-220  
 1200 New Jersey Ave., SE  
 Washington, DC 20590

**15. REPORTS....Continued****B. FIRST PAGE AFTER FRONT COVER —**

When a contract test laboratory is reporting, a disclaimer statement and an acceptance signature block for the COTR shall be provided as follows:

This publication is distributed by the National Highway Traffic Safety Administration in the interest of information exchange. 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.

Prepared By: \_\_\_\_\_

Approved By: \_\_\_\_\_ \*

Approval Date: \_\_\_\_\_ \*

FINAL REPORT ACCEPTANCE BY OVSC: \*

Accepted By: \_\_\_\_\_

Acceptance Date: \_\_\_\_\_

\* These lines not required when OVSC staff writes the Test Report

**15. 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**

114-ABC-XX-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 114 Compliance Testing of 20XX XYZ,  
NHTSA No. CX1401

**Block 5 – REPORT DATE**

March 1, 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**

ABC-DOT-XXX-001

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

ABC Laboratories  
405 Main Street  
Detroit, MI 48070

**Block 10 – WORK UNIT NUMBER**

Leave blank

**15. REPORTS....Continued****Block 11 – CONTRACT OR GRANT NUMBER**

DTNH22-XX-D-XXXXX

**Block 12 – SPONSORING AGENCY NAME AND ADDRESS**

U.S. Department of Transportation  
National Highway Traffic Safety Administration  
Enforcement  
Office of Vehicle Safety Compliance  
Mail Code: NVS-220  
1200 New Jersey Ave., SE  
Washington, DC 20590

**Block 13 – TYPE OF REPORT AND PERIOD COVERED**

Final Test Report  
Month Day to Month Day, 20XX

**Block 14 – SPONSORING AGENCY CODE**

NVS-221

**Block 15 – SUPPLEMENTARY NOTES**

Leave blank

**Block 16 – ABSTRACT**

Compliance tests were conducted on the subject 20XX XYZ Carrier in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-114-XX for the determination of FMVSS 114 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.

**Block 17 – KEY WORDS**

Compliance Testing  
Safety Engineering  
FMVSS 114

**15. REPORTS....Continued****Block 18 – DISTRIBUTION STATEMENT**

Copies of this report are available from the following:

National Highway Traffic Safety Administration  
Technical Information Services Division, NPO-411  
1200 New Jersey Avenue SE (Room E12-100)  
Washington DC 20590

e-mail: [tis@nhtsa.dot.gov](mailto:tis@nhtsa.dot.gov)

FAX: 202-493-2833

**Block 19 – SECURITY CLASSIFICATION OF REPORT**

Unclassified

**Block 20 – SECURITY CLASSIFICATION OF PAGE**

Unclassified

**Block 21 – NUMBER OF PAGES**

Add appropriate number

**Block 22 – PRICE**

Leave blank

**15.3.4 TABLE OF CONTENTS**

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

Section 1 – Purpose of Compliance Test

Section 2 – Test Procedure and Discussion of Results

Section 3 – Compliance Test Data

Section 4 – Test Equipment List and Calibration Information

Section 5 – Photographs

Section 6 – Notice of Test Failure (if applicable)

Section 7 – Vehicle Owner's Manual (applicable pages)

**16. DATA SHEETS****DATA SHEET SUMMARY**  
FMVSS 114**THEFT PROTECTION: (Data Sheet 2)**

The engine cannot be started without using the key (S5.1.1a) PASS / FAIL

When the key is removed from the starting system, starting the engine or motor and either steering or self mobility is prevented. (S5.1.1b) PASS / FAIL

An audible warning is activated whenever the key is in any starting system position with the exception of “on” and “start” and the door closest to the driver’s designated seating position is opened. (S5.1.3) PASS / FAIL

With the vehicle engine or motor shut down and the transmission gear selection control in any position other than “park” or “rev”, the steering wheel can rotate without locking and the vehicle is free to roll. (S5.1.4) PASS / FAIL

**ROLLAWAY PREVENTION: (Data Sheet 3)**

The starting system prevents key removal in ALL gear selection control positions except “park”. (S5.2.1) PASS / FAIL

The gear selection control is locked in the “park” position when the key is removed from the starting system. (S5.2.2) PASS / FAIL

**KEY REMOVAL OVERRIDE DEVICE** (if applicable)

As a direct result of removing the key from the vehicle starting system, steering or self-mobility is prevented. (S.5.2.3) PASS / FAIL

**GEAR SELECTION CONTROL OVERRIDE DEVICE** (if applicable)

As a direct result of removing the key from the vehicle starting system, steering or self-mobility is prevented. (S.5.2.4) PASS / FAIL

**10% GRADE TEST**

The vehicle must not move more than 150 mm on a 10% percent grade when the gear selection control is locked in “park”. (S5.2.5) PASS / FAIL

**BRAKE TRANSMISSION SHIFT INTERLOCK**

The vehicle is equipped with a system that prevents the gear selection control from moving out of the “park” position unless the service brake is depressed. (S5.3) PASS / FAIL

**16. DATA SHEETS....Continued**

**DATA SHEET 1**  
**FMVSS 114, VEHICLE IDENTIFICATION**

**A. GENERAL VEHICLE INFORMATION:**

TEST DATE: \_\_\_\_\_ LAB.: \_\_\_\_\_

CONTRACT: DTNH22- \_\_\_\_\_ VEH. NHTSA NO.: \_\_\_\_\_

VIN: \_\_\_\_\_ BUILD DATE: \_\_\_\_\_

MY/MAKE/MODEL/BODY STYLE: \_\_\_\_\_

TRANSMISSION TYPE:

Automatic \_\_\_ Manual \_\_\_ Other \_\_\_ (describe: \_\_\_\_\_)

DRIVE TRAIN TYPE:

Front Wheel \_\_\_\_\_ Rear Wheel \_\_\_\_\_ 4-Wheel \_\_\_\_\_

FUEL TANK LEVEL: \_\_\_\_\_ (% of max.) MILEAGE: \_\_\_\_\_

**B. VEHICLE STARTING SYSTEM:**

Location of the starting system:

\_\_\_\_\_

Selectable settings:

\_\_\_\_\_

**C. KEY:**

Description of the key:

\_\_\_\_\_

**D. STARTING SYSTEM ACTIVATION:**

Describe how the key is inserted into the starting system:

\_\_\_\_\_

Describe how the key is used to activate the starting system:

\_\_\_\_\_

Describe how the key is removed from the starting system:

\_\_\_\_\_

**16. DATA SHEETS....Continued****E. GEAR SELECTION CONTROL:**

Describe the gear selection control:

---

Describe how the gear selection control is activated:

---

Describe all of the selectable settings:

---

**F. IMMOBILIZER:**

Is the vehicle equipped with an Immobilizer?

YES / NO

Describe the immobilizer device and how it prevents vehicle theft (if equipped):

---

**G. OPTIONAL RELEASE DEVICES:**

Describe if the vehicle is equipped with optional release devices:

---

OPTIONAL RELEASE DEVICES:

Key removal \_\_\_\_\_ Gear selection control \_\_\_\_\_ None \_\_\_\_\_ Other \_\_\_\_\_

**H. VEHICLE FLUIDS:**

Check all vehicle fluids and adjust to the proper levels for operation. \_\_\_\_\_

**I. VEHICLE TIRE PLACARD INFORMATION:**

Vehicle Mfg. Recommended Tire Inflation Pressure  
(kPa): Front \_\_\_\_\_ Rear \_\_\_\_\_

**J. TIRE INFLATION PRESSURES:**

Measured (kPa): LF \_\_\_\_\_ LR \_\_\_\_\_ RF \_\_\_\_\_ RR \_\_\_\_\_

**K. WEIGHT**

VEHICLE CURB WEIGHT (kg): \_\_\_\_\_ WEIGHT OF DRIVER (kg): \_\_\_\_\_ [target = 91 kg]

16. DATA SHEETS....Continued

**DATA SHEET 2**  
FMVSS 114, THEFT PROTECTION

<b>REQUIREMENT S5.1.1</b>		
Engine can only be started by using the key.	YES / NO	PASS / FAIL
<p>With key removed, steering locks:</p> <p style="text-align: right;">YES / NO</p> <p>Identify the steering wheel locking position(s) on the circle using arrows</p> <p>Clockwise: _____(degrees) Counterclockwise: _____(degrees)</p> <p>Service brake must be depressed in order to start the engine</p> <p style="text-align: right;">YES / NO</p> <p>Key removal prevents forward self-mobility:</p> <p style="text-align: right;">YES / NO</p> <p>If <u>yes</u>, describe:</p>		
<p>When the key is removed from the starting system, starting of the engine or motor and either steering or self mobility is prevented.</p> <p style="text-align: right;">YES / NO</p>		PASS / FAIL

<b>REQUIREMENT S5.1.3</b>		
<p>An audible warning is activated whenever the key is in the starting system in a position other than "on" or "start" and the door closest to the driver's designated seating position is opened.</p> <p style="text-align: right;">YES / NO</p> <p>Identify ALL key/starting system position settings:</p> <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/>		PASS / FAIL

## 16. DATA SHEETS....Continued

REQUIREMENT S5.1.4		
With the vehicle engine or motor shut down and the transmission gear selection control in any position other than "park";		PASS / FAIL
The steering wheel can rotate without locking? YES / NO		
The vehicle is free to roll forward? YES / NO		PASS / FAIL

REMARKS:

RECORDED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

## 16. DATA SHEETS....Continued

**DATA SHEET 3** [FOR VEHICLES EQUIPPED W/ TRANSMISSIONS W/ A "PARK"  
POSITION] FMVSS 114, ROLLAWAY PREVENTION

VEH. NHTSA NO.: \_\_\_\_\_

TEST DATE: \_\_\_\_\_

<b>REQUIREMENT S5.2.1</b>	
<p>The starting system prevents key removal in <b>ALL</b> gear selection control positions except "park".</p> <p align="center">YES / NO</p> <p>Can the gear selection control be placed between each gear selection position and will it remain there without assistance?</p> <p align="center">YES / NO</p> <p>If <u>yes</u>, can the key be removed from the starting system?</p> <p align="center">YES / NO</p> <p>If the key can be removed from the vehicle starting system when the gear selection control is not locked in "park", a mechanism shall exist which, upon key removal, the vehicle's transmission or gear selection control shall become locked in "park" as the direct result of removing the key. If such a mechanism exists, describe the mechanism and its function:</p>	PASS / FAIL

<b>REQUIREMENT S5.2.2</b>	
<p>The gear selection control is locked in the "park" position when the key is removed from the starting system.</p> <p align="center">YES / NO</p>	PASS / FAIL

## 16. DATA SHEETS....Continued

<b>REQUIREMENT S5.2.3</b>		
<p><b><u>KEY REMOVAL OVERRIDE OPTION:</u></b> The vehicle is equipped with an override device that allows the user to remove the key from the starting system without the transmission or gear selection control in the “park” position:</p> <p style="text-align: center;">YES / NO</p> <p>If <u>yes</u>, describe the override device design and mode of activation:</p> <p>Fill in the section below that describes the condition for which the user is allowed to remove the key from the starting system without the transmission or gear selection control in the “park” position:</p>		
<p><b><u>ELECTRICAL FAILURE:</u></b> In the event of an electrical failure, including battery discharge, key removal from the starting system without the transmission or gear selection control locked in “park” is permitted</p> <p style="text-align: center;">YES / NO</p>		PASS / FAIL
<p><b><u>VERRIDE DEVICE WITH NO COVER:</u></b> The following condition is prevented:</p> <p style="text-align: center;">steering / self-mobility</p> <p>The device requires both the use of a tool to activate <u>and</u> simultaneous activation of the override device and removal of the key from the starting system:</p> <p style="text-align: center;">YES / NO</p>		PASS / FAIL
<p><b><u>VERRIDE DEVICE WITH AN OPAQUE COVER:</u></b> The following condition is prevented:</p> <p style="text-align: center;">steering / self-mobility</p> <p>The device is covered by an opaque surface which prevents sight of and use of the device</p> <p style="text-align: center;">YES / NO</p> <p>The opaque surface can only be removed by using a screwdriver or other tool</p> <p style="text-align: center;">YES / NO</p>		PASS / FAIL

## 16. DATA SHEETS....Continued

<b>REQUIREMENT S5.2.4</b>		
<p><b><u>GEAR SELECTION CONTROL OVERRIDE DEVICE</u></b>            The vehicle is equipped with an override device that allows the user to move the gear selection control from “park” <u>after</u> the key has been removed from the starting system</p> <p style="text-align: center;">YES / NO</p> <p>If <u>yes</u>, select the type of override device used:            key ____ opaque cover ____ no cover ____</p> <p>Describe the override device design and mode of activation (if equipped):</p>		PASS / FAIL
<p><b>FILL IN THE SECTION BELOW THAT APPLIES:</b></p> <p><b><u>VERRIDE OPERATED WITH THE KEY:</u></b>            The key is required to operate the override device that allows the user to move the gear selection control from “park” after the key has been removed from the starting system</p> <p style="text-align: center;">YES / NO</p>		PASS / FAIL
<p><b><u>VERRIDE DEVICE WITH NO COVER:</u></b>            As a direct result of removing the key from the starting system, the following is prevented:</p> <p style="text-align: center;">steering / self-mobility</p> <p>The override device requires the use of a tool to operate:            YES / NO</p> <p>Simultaneous activation of the override device and movement of the gear selection control from “park” is required:            YES / NO</p>		PASS / FAIL
<p><b><u>VERRIDE DEVICE WITH AN OPAQUE COVER:</u></b>            As a direct result of removing the key from the starting system, the following is prevented:</p> <p style="text-align: center;">steering / self-mobility</p> <p>The opaque surface cover prevents sight of and use of the device:            YES / NO</p> <p>The opaque surface cover can only be removed by using a screwdriver or other tool:            YES / NO</p>		PASS / FAIL

## 16. DATA SHEETS....Continued

REQUIREMENTS S5.2.5	
<p><u>Vehicle facing uphill on 10% Grade:</u> With the gear selection control in "park", measure movement of the vehicle down the slope upon releasing the service brake.</p> <p>Test grade: _____ % (9% to 15%) Measured movement: _____ mm (150mm maximum)</p> <p><b>NOTE:</b> Repeat procedure if vehicle fails on grade in excess of 10%.</p> <p>Test grade: _____ % (9% to 10%) Measured movement: _____ mm (150 mm maximum)</p> <p><u>Vehicle facing downhill on 10% Grade:</u> With the gear selection control in "park", measure movement of the vehicle down the slope upon releasing the service brake.</p> <p>Test grade: _____ % (9% to 15%) Measured movement: _____ mm (150mm maximum)</p> <p><b>NOTE:</b> Repeat procedure if vehicle fails on grade in excess of 10%.</p> <p>Test grade: _____ % (9% to 10%) Measured movement: _____ mm (150 mm maximum)</p>	PASS / FAIL

REMARKS:

RECORDED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

16. DATA SHEETS....Continued

<b>REQUIREMENTS S5.3</b>		PASS / FAIL	
With the key in the "OFF" position, the transmission will shift out of "PARK" without applying the service brake	YES / NO		
With the key in the "ACC" position, the transmission will shift out of "PARK" without applying the service brake	YES / NO		
With the key in the "ON" position ( <i>engine off</i> ), the transmission will shift out of "PARK" without applying the service brake	YES / NO		
With the key in the "START" position, the transmission will shift out of "PARK" without applying the service brake	YES / NO		
With the key in the "OTHER" position ( <i>please specify</i> ), the transmission will shift out of "PARK" without applying the service brake	YES / NO		
The key will stay between starting system positions without being held by operator: (Mechanical Keys only) If <u>yes</u> , please describe _____	YES / NO		
With the vehicle battery disconnected, the gear selection control is locked in the "park" position	YES / NO		
Brake force readings (force required to allow the transmission to shift out of "PARK"):			
The vehicle is equipped with adjustable pedals:	YES / NO		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top; padding: 5px;"> <b>Fore position:</b>                      reading 1 _____                      reading 2 _____                      reading 3 _____                      reading 4 _____                      reading 5 _____  <b>avg.</b> _____                 </td> <td style="width: 50%; vertical-align: top; padding: 5px;"> <b>Aft position: (if applicable)</b>                      reading 1 _____                      reading 2 _____                      reading 3 _____                      reading 4 _____                      reading 5 _____  <b>avg.</b> _____                 </td> </tr> </table>	<b>Fore position:</b> reading 1 _____ reading 2 _____ reading 3 _____ reading 4 _____ reading 5 _____ <b>avg.</b> _____	<b>Aft position: (if applicable)</b> reading 1 _____ reading 2 _____ reading 3 _____ reading 4 _____ reading 5 _____ <b>avg.</b> _____	
<b>Fore position:</b> reading 1 _____ reading 2 _____ reading 3 _____ reading 4 _____ reading 5 _____ <b>avg.</b> _____	<b>Aft position: (if applicable)</b> reading 1 _____ reading 2 _____ reading 3 _____ reading 4 _____ reading 5 _____ <b>avg.</b> _____		
* For vehicles equipped with adjustable pedals, record readings for both the Fore & Aft positions. For non-adjustable pedal vehicles, use the Fore position column to record values.			

REMARKS:

RECORDED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

**17. FORMS**

## LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS NO.: 114 TEST DATE: \_\_\_\_\_

LABORATORY: \_\_\_\_\_

CONTRACT NO.: \_\_\_\_\_ DELV. ORDER NO: \_\_\_\_\_

LAB. PROJECT ENGINEER'S NAME: \_\_\_\_\_

TEST SPECIMEN DESCRIPTION:

VEHICLE NHTSA NO.: \_\_\_\_\_ VIN: \_\_\_\_\_

PART NO.: \_\_\_\_\_ MFR: \_\_\_\_\_

TEST FAILURE DESCRIPTION:

FMVSS REQUIREMENT, PARAGRAPH § \_\_\_\_\_ :

NOTIFICATION TO NHTSA (COTR: \_\_\_\_\_

DATE: \_\_\_\_\_ BY: \_\_\_\_\_

REMARKS:

17. FORMS....Continued

MONTHLY TEST STATUS REPORT

FMVSS 114

DATE OF REPORT: \_\_\_\_\_

NO.	VEHICLE NHTSA NO., MAKE & MODEL	COMPLIANCE TEST DATE	PASS/ FAIL	DATE REPORT SUBMITTED	DATE INVOICE SUBMITTED	INVOICE PAYMENT DATE
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

17. FORMS....Continued

MONTHLY VEHICLE STATUS REPORT

FMVSS 114

DATE OF REPORT: \_\_\_\_\_

NO.	VEHICLE NHTSA NO., MAKE & MODEL	DATE OF DELIVERY	ODOM. READING	TEST COMPLETE DATE	VEHICLE SHIPMENT DATE	ODOM. READING
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						