

TP-110P-03  
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U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

LABORATORY TEST PROCEDURE

FOR

FMVSS 110

Tire Selection and Rims for Motor Vehicles  
With a GVWR of 4,536 Kilograms or Less  
(For Passenger Car Tests Only)



ENFORCEMENT  
Office of Vehicle Safety Compliance  
Room 6111, NVS-220  
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Washington, DC 20590

OVSC LABORATORY TEST PROCEDURE NO. 110  
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**REVISION CONTROL LOG  
FOR OVSC LABORATORY  
TEST PROCEDURES**

TP-110P  
**TIRE SELECTION AND RIMS**  
(For Passenger Car Tests Only)

TEST PROCEDURE		FMVSS 110P		DESCRIPTION
REV. No.	DATE	AMENDMENT	EFFECTIVE DATE	
00	1/5/05	67FR69600 11/18/02	9/1/03	Final Rule
		68FR33655 6/5/03	9/1/04	Final Rule - response in part to petitions for reconsideration. <b>Effective date delayed.</b>
		68FR37981 6/26/03	9/1/04	Final Rule – correcting amendment.
		69FR31306 6/3/04	9/1/05	Final Rule - response to petitions for reconsideration.
		69FR51399 8/19/04	9/1/05	Correcting Amendment.
01	12/13/05	70FR14420 3/22/05	9/1/05	Final Rule – response to petitions for reconsideration – technical amendment.
02	1/10/06	71FR877 1/6/06	9/1/07	Final Rule – response to petitions for reconsideration. (Revised TP vehicle applicability dates on Page 2.)
03	8/14/07	71FR877 1/6/06	9/1/07	Final Rule – response to petitions for reconsideration. Certain performance requirements effective on 9/1/07.
04				
05				

## 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. These Laboratory Test Procedures do not constitute an endorsement or recommendation for use of any product or method. 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. 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. 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

**This Test Procedure applies only to Passenger Cars manufactured on and after September 1, 2007.**

Cars are to be equipped with tires that meet the requirements of FMVSS 139, New Pneumatic Radial Tires for Light Vehicles, except that passenger cars may be equipped with a non-pneumatic spare tire assembly that meets the requirements of FMVSS 129, New Non-Pneumatic Tires for Passenger Cars.

The vehicle maximum load on the tire is not to be greater than the applicable maximum load rating as marked on the sidewall of the tire.

The vehicle normal load on the tire is not to be greater than the value of 94 percent of the load rating at the vehicle manufacturer's recommended cold inflation pressure for that tire.

A single vehicle placard or a vehicle placard and a supplementary tire inflation pressure label must be affixed to each car.

Each rim is to be constructed according to the dimensions referred to in S4 of FMVSS 139 that is listed by the manufacturer of the tires for use with those tires and is to be capable of retaining a tire after a rapid loss of inflation pressure at 97 kilometers per hour.

49 CFR Part 575 – *Consumer Information Regulations*, sections 575.6(a)(4) and (5) require each vehicle owner's manual or other document to provide discussions or statements relating to vehicle labeling, tires and loading.

**Refer to TP-110T for testing vehicles other than passenger cars.**

### METRIC SYSTEM OF MEASUREMENT

As a general rule, use of the metric system of weights and measures is preferred. Performance parameters and test conditions in FMVSS are now specified in metric units. In this Laboratory Test Procedure metric values may be followed by English units only for reference (not necessarily equal). If test equipment is not available for direct measurement in metric units, the test laboratory calculates 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. Metric units are to be used in the Final Test Reports.

## 3. SECURITY

The contractor will provide appropriate security measures to protect the OVSC test vehicles and parts during the entire compliance test program. The contractor is also financially responsible for any acts of theft and/or vandalism that occur during the storage of test vehicles. Security problems that arise are to be reported by telephone to the COTR and 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 4 working days. The contractor will protect and segregate all photographs and data that evolve from compliance testing. No information concerning the vehicle safety compliance test program may 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, ARE TO BE ALLOWED TO WITNESS ANY VEHICLE COMPLIANCE TEST UNLESS SPECIFICALLY AUTHORIZED BY THE COTR.

#### **4. GOOD HOUSEKEEPING**

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

#### **5. TEST SCHEDULING AND MONITORING**

The contractor will submit a test schedule to the COTR prior to testing. Tests will be completed as required in the contract. Scheduling will be adjusted to permit sample motor vehicles to be tested to other FMVSS as may be required by the OVSC. All testing will be coordinated to allow monitoring by the COTR.

#### **6. TEST DATA DISPOSITION**

The contractor will make all vehicle 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), will be made available to the COTR within 5 working days. Additionally, the contractor will analyze the preliminary test results as directed by the COTR. All backup data sheets, strip charts, recordings, plots, technician's notes, etc., will 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 TEST VEHICLE

The Contractor has the responsibility of accepting each test vehicle whether delivered by a new vehicle dealership or another vehicle transporter. In both instances, the contractor acts in the OVSC's behalf when signing an acceptance of the test vehicle delivery. When a vehicle is delivered, the contractor will check to verify the following:

- A. All options listed on the "window sticker" are present,
- B. Tires and wheels 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. Owner's manual, warranty document, consumer information, and extra set of keys are present, and
- F. Proper fuel filler cap is supplied on the test vehicle.

A Vehicle Condition form will be supplied to the contractor when the test vehicle is transferred from the new vehicle dealership or between test contracts. The contractor will 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.

## NOTIFICATION OF COTR

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

## **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 will include the following as a minimum:

- A. Standards for calibrating the measuring and test equipment will be stored and used under appropriate environmental conditions to assure their

**8. CALIBRATION OF TEST INSTRUMENTS.....Continued**

accuracy and stability.

- B. All measuring instruments and standards will 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), will 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
- D. A written calibration procedure will 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 will be evident)
- E. Records of calibration for all test instrumentation will be kept by the contractor in a manner which assures the maintenance of established calibration schedules. All such records will be readily available for inspection when requested by the COTR. The calibration procedure will be approved by 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/NCSS Z540-1, "Calibration Laboratories and Measuring and Test Equipment - General Requirements".



## 9. PHOTOGRAPHIC DOCUMENTATION

Photographs for test reports will be 8 x 10 inches, and clearly illustrate the intended features. A tag, label, or placard identifying the test vehicle model, NHTSA number and date or item of equipment number and date will appear in each photograph and be legible. Each photograph will be labeled as to the subject matter. As a minimum, the following photographs will be included:

- A. 3/4 frontal view from left side of vehicle
- B. 3/4 rear view from right side of vehicle
- C. Vehicle's Certification Label
- D. Vehicle Placard
- E. Tire Inflation Pressure Label (if available)
- F. Tire showing brand and model
- G. Tire showing size, load index and speed symbol
- H. Tire showing load rating and inflation pressure
- I. Tire showing serial number
- J. Rim contour for full width of rim cross section
- K. Rim markings (if any)
- L. Close-up of test instrumentation used for tire blow-out
- M. Close-up of blow-out tire with ruler next to hole
- N. Close-up of interior seating position simulated occupant ballast
- O. Close-up of interior cargo simulated ballast
- P. View of vehicle on weight scales
- Q. Pertinent Owner's manual pages
- R. Close-up of all test failure areas and components

## 10. DEFINITIONS

### ACCESSORY WEIGHT

The combined weight (in excess of those standard items which may be replaced) of automatic transmission, power steering, power brakes, power windows, power seats, radio, and heater, to the extent that these items are available as factory-installed equipment (whether installed or not).

### CURB WEIGHT

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

**10. DEFINITIONS....continued****MAXIMUM LOADED VEHICLE WEIGHT**

The sum of curb weight, accessory weight, vehicle capacity weight, and production options weight.

**NORMAL OCCUPANT WEIGHT**

68 kilograms times the number of Normal Load occupants as determined by the vehicle's Designated Seating Capacity (DSC) in the following table:

VEHICLE DSC NUMBER OF OCCUPANTS	VEHICLE NORMAL LOAD NUMBER OF OCCUPANTS
2 through 4	2
5 through 10	3
11 through 15	5
16 through 22	7

**OCCUPANT DISTRIBUTION**

Distribution of normal load occupants as specified in the following table:

VEHICLE NORMAL LOAD NUMBER OF OCCUPANTS	OCCUPANT DISTRIBUTION
2	2 in Front
3	2 in Front and 1 in Second Seat
5	2 in Front, 1 in Second Seat, 1 in Third Seat, and 1 in Fourth Seat.
7	2 in Front, 2 in Second Seat, 2 in Third Seat, and 1 in Fourth Seat.

**PRODUCTION OPTIONS WEIGHT**

The combined weight of those installed regular production options weighing over 2.3 kilograms in excess of those standard items which they replace, NOT previously considered in Curb Weight or Accessory Weight, including heavy duty brakes, ride levelers, roof rack, heavy duty battery, and special trim.

**STOPPING DISTANCE**

Distance vehicle travels from start of pedal force to complete stop.

**10. DEFINITIONS....continued****VEHICLE CAPACITY WEIGHT**

The rated cargo and luggage load plus 68 kilograms times the vehicle's Designated Seating Capacity (DSC).

**VEHICLE MAXIMUM LOAD ON THE TIRE**

The load on an individual tire that is determined by distributing to each axle its share of the maximum Loaded Vehicle Weight and dividing by 2.

**VEHICLE NORMAL LOAD ON THE TIRE**

The load on an individual tire that is determined by distributing to each axle its share of the Curb Weight, Accessory Weight, and Normal Occupant Weight and dividing by 2.

**11. PRETEST REQUIREMENTS****IN-HOUSE COMPLIANCE TEST PROCEDURE**

Prior to conducting any compliance tests, contractors are required to submit a detailed in-house compliance test procedure and equipment list to the COTR which includes a step-by-step description of the methodology to be used and a detailed check-off list. Written approval will be obtained from the COTR before commencing testing so that all parties are in agreement. The contractor's test procedure will contain a complete listing of test equipment and a detailed check-off list. There will be no contradiction between the OVSC Laboratory Test Procedure and the contractor's in-house test procedure. The list of test equipment will include instrument accuracy and calibration dates.

**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 all costs associated with conducting the retest. The Contracting Officer of NHTSA is the only NHTSA official authorized to notify the contractor that a retest is required. The retest will 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.

## 11. PRETEST REQUIREMENTS....Continued

### SUGGESTED TEST EQUIPMENT

- A. Data acquisition system to measure, calculate and provide a continuous recording of the time, velocity, distance, longitudinal acceleration and tire pressure of a vehicle (Racelogic Velocity Box model VBOX II DGPS or equivalent). The system should have the following target unit resolution and accuracy:

<u>Unit</u>	<u>Min. Range</u>	<u>Resolution</u>	<u>Accuracy</u>
Velocity	161 km/h	0.01 km/h	0.1 km/h full scale
Distance	1610 m	1 cm	0.05 %
Time	5 min	0.01 sec	0.001 sec
Long. Accel.	5 m/sec <sup>2</sup>	0.01 g	0.5 %
Pressure	700 kPa	7 kPa	7 kPa

- B. Platform scales to measure individual wheel, axle, and vehicle loads with a maximum graduation of 0.5 kg (1 lb) and accuracy within  $\pm 1$  % of the measured reading. Scales are to allow for individual wheel measurements to be taken while maintaining all tire/ground interfaces on a common horizontal plane. Individual platform scale pad range/capacity is to exceed individual vehicle wheel loads.
- C. Temperature gage to measure ambient temperature with a 0 to 45 °C range, accuracy of  $\pm 0.5$ °C and a scale graduation of 1 degree.
- D. Tire pressure gage to measure static tire inflation pressure with a range of 700 kPa, accuracy of  $\pm 7$  kPa and with a maximum scale graduation of 7 kPa.
- E. Anemometer to measure wind speed. Ten m/s range with  $\pm 1$  m/s accuracy at 5 m/s and scale graduation of 1 m/s.
- F. Pressure Transducer to measure tire inflation pressure while test vehicle is in motion with a range of 700 kPa, accuracy of  $\pm 7$  kPa and with a maximum scale graduation of 7 kPa.
- G. Laser Level with Digital Protractor Inclinometer to measure road surface grade and for leveling weight scales during vehicle load analyses with 360 degree range and  $\pm 0.1$  degree accuracy and 0.1 degree resolution.
- H. Tape measure or ruler to measure rim dimensions with 1 m range and 1.0 mm scale graduation.

## 11. PRETEST REQUIREMENTS....Continued

- I. Latest edition of approved Tire and Rim reference manual as identified in FMVSS No. 110.

### GENERAL TEST CONDITIONS

- A. For the execution of this test the Maximum Loaded Vehicle Weight is the sum of the Vehicle Curb Weight and the Vehicle Capacity Weight. The Vehicle Normal Load Weight is the sum of the Vehicle Curb Weight and the Normal Occupant Weight. The Vehicle Curb Weight is the weight of the test vehicle as delivered including installed accessories and options, and the maximum capacity of fuel, oil and coolant.
- B. For loading of simulated occupant ballast each adjustable seat should be positioned to its mid forward-to-aft and mid up-to-down seat position adjustment ranges.
- C. Adult simulated occupant load ballast for each designated seating positions is 68 kg (150 lb). 54 kg (120 lb) of ballast should be placed on the seat and 14 kg (30 lb) should be placed on the floor directly in front of the respective seating position.
- D. All measurements, weighing and dynamic portions of the test should be performed with ambient air temperatures between 0°C and 38°C.
- E. The deflated tire retention test should be performed on a straight, dry and paved surface with grades in any direction not exceeding 1 % and a wind velocity not exceeding 5 m/s.
- F. At the start of the deflated tire retention test the fuel tank should be at least 90 percent full.
- G. The driver and observer (if present) should be restrained with the vehicle by properly adjusted seat belt, head restraint, and any protective device included in the vehicle during the deflated tire retention test. Other protective devices are optional to the testing agent.

## 12. COMPLIANCE TEST EXECUTION

Personnel supervising and/or performing the compliance test program should be thoroughly familiar with the requirements, test conditions, and equipment for the test to be conducted. Testing should be accomplished as indicated below. Test personnel should make note of all discrepancies and deviations from the applicable FMVSS and the Laboratory Test Procedure.

### 12.1 TEST VEHICLE INFORMATION (Data Sheet 1)

Identify options, accessories, and equipment installed on the vehicle at the time of delivery. Record test vehicle information as required on data sheet 1.

### 12.2 VEHICLE TIRE IDENTIFICATION (Data Sheet 2)

- A. Visually inspect all the tires on the vehicle including the spare tire. If all the tires are not the same size, explain under REMARKS.
- B. Record the tire sidewall information for the right front tire and the spare tire (if different). If the front axle tire size is different than the rear tire size also record the sidewall information for the left rear tire.
- C. Record the serial numbers from all vehicle tires.
- D. Verify that all tires are marked with "DOT" certifying compliance to applicable tire performance FMVSS.

### 12.3 VEHICLE RIM IDENTIFICATION (Data Sheet 3)

- A. Remove the right front and left rear wheels (tires and rims) from the vehicle. Before removing either wheel, place an identification mark on each rim and corresponding wheel hub, stud or bolt such that after removal the wheel may be remounted in its original position on the vehicle relative to the corresponding hub, stud or bolt.
- B. Remove each tire from its rim. Before removing a tire from its rim, place an identification mark on each tire and each corresponding rim flange such that after removal of the tire from the rim the tire may be remounted in its original position relative to the rim.
- C. Visually inspect each rim. Record any visible rim markings including manufacturer's name, symbol or trademark, rim size, load rating and maximum inflation pressure, date of manufacture, DOT symbol and any

other markings. Record any damage, rough or sharp areas, or defects that may affect the function or performance of the rim. Inspect the tire bead area for loose rubber, cords, or other defects that may affect its performance. Request COTR instruction for repair or replacement of any defects found.

- D. Measure the rim at a cross section within 8 cm of the valve hole and record the rim width and diameter. If the rim size is stamped on the rim verify that the stamped size is the same as the measured size. Mark the measured cross section with a durable mark.
- E. Provide a legible photograph of each the rim contour for the full width of the rim at the same location as measured and marked above.
- F. Verify that installed rim size and contour at each wheel position is suitable for the corresponding installed tire by comparing rim dimensions stamped and/or measured with those indicated in an approved tire and rim reference manual.
- G. Remount tires on corresponding rims and install wheels back onto the vehicle. Ensure tires are mounted in their original positions relative to each rim and vehicle hub, stud or bolt as marked in steps A. and B. above.
- H. Determine and report as Pass or Fail. Passenger car rims are to be suitable for installed tires but there are no rim marking requirements specified for passenger cars in FMVSS 110.

#### 12.4 VEHICLE PLACARD AND TIRE INFLATION PRESSURE LABEL (Data Sheet 4)

- A. Record locations of vehicle certification label, vehicle placard, and if provided, tire inflation pressure label.
- B. Compare the **Vehicle Placard** and, if provided, the **Tire Inflation Pressure Label** formats to the sample formats provided on data sheet 4 and verify that they are exactly the same and the text is in the English language. While comparing label formats review the labeling notes provided below the sample labels and note any discrepancies.
- C. Document the information provided on the vehicle placard and tire inflation pressure label including combined weight of occupants and cargo (vehicle capacity weight), seating capacity, tire size(s) and cold tire pressure(s).
- D. Compare the actual number of seating positions (belted positions) with the placard number of seating positions.

- E. Compare the vehicle installed tire size(s) with the labeled tire size(s).
- F. Verify that the labeled cold tire inflation pressures are equal to or less than the maximum tire inflation pressures marked on the sidewall of the installed tires.

12.5 CURB WEIGHT, NORMAL LOAD WEIGHT AND MAXIMUM VEHICLE WEIGHT  
(Data Sheet 5)

- A. Check all vehicle fluids and fill to manufacturer's recommended capacity.
- B. Adjust tire pressures of all tires to that appearing on the vehicle placard or tire inflation pressure label.
- C. Position appropriate scales on level surface in laboratory test area. Using a laser and digital protractor inclinometer (or equivalent) ensure leveling of scales front-to-back, side-to-side and corner-to-corner. Adjust scales to obtain tire/ground load measurements on a common horizontal plane.
- D. Weigh and record the **Vehicle Curb Weight** including weight of each wheel position and calculate axle and vehicle weights.
- E. Record total seating capacity from the vehicle placard.
- F. Determine the number of occupants and occupant distribution for vehicle normal load as specified in section 10, *Definitions*, of this test procedure. Calculate and record the total normal occupant load.
- G. Ballast the vehicle to simulate a normal occupant load by placing appropriate ballast in each of the respective normal load seating positions. For proper seat adjustment and ballast placement refer to the general test conditions in section 11. Record the weight of each wheel position and calculate the **Vehicle Normal Load on the Axles**.
- H. Calculate and record the "Vehicle Normal Load on the Tire" and "Value of 94% of the Load Rating at the Vehicle Manufacturer's Recommended Cold Inflation Pressure" as instructed on the Data Sheet 5 (Section B (5) and (6)). Verify that the Vehicle Normal Load on the Tire for each axle is not greater than the Value of 94% of the Load Rating at the Vehicle Manufacturer's Recommended Cold Inflation Pressure.
- I. Record total seating capacity and occupant distribution from the vehicle placard. Calculate and record weight of full occupant load.



- J. Ballast the vehicle to simulate a full occupant load by placing appropriate ballast in each of the designated seating positions. For proper seat adjustment and ballast placement refer to the general test conditions in section 11. Record the weight of each wheel position and calculate the **Vehicle Weight with Full Occupant Load**.
- K. Calculate the vehicle's luggage/cargo load as instructed on Data Sheet 5 (Section D. (1)–(3)).
- L. Ballast the vehicle to simulate the luggage/cargo load calculated above. The ballast should be placed in the appropriate cargo loading area(s) and distributed uniformly fore/aft and side/side. If the vehicle has more than one cargo area (trunk, behind the rear seat, roof rack, etc.) consult the owner's manual and the COTR for further guidance concerning cargo placement. Record the weight of each wheel position and calculate the **Vehicle Maximum Load on the Axles**.
- M. Calculate and record the "Vehicle Maximum Load on the Tire" as instructed on Data Sheet 5 (Section D. (5)).
- N. Verify that the Maximum Load on the Tire is not greater than the Maximum Load Rating on the tire sidewall as instructed on Data Sheet 5 (Section D. (6)).
- O. Verify that the "normal load on the tire" and the "maximum load on the tire" are not greater than the tire load ratings at the vehicle manufacturer recommended cold inflation pressure(s) provided on the vehicle placard or tire inflation pressure label as instructed on Data Sheet 5 (Section D. (7)).

#### 12.6 DEFLATED TIRE RETENTION (Data Sheet 6)

- A. Adjust tire pressure of all tires to the vehicle placard cold tire inflation pressure. Record final adjusted tire inflation pressures.
- B. Load vehicle to the maximum loaded vehicle weight and corresponding vehicle maximum load on each axle as obtained and recorded on Data Sheet 5 (Section D.(4)). of this test procedure. To obtain this load the vehicle is loaded with required test instrumentation, full fluids, a driver and simulated occupant/cargo ballast. Record weight by axle and wheel position.
- C. Secure all added items and ballast in vehicle.
- D. With the vehicle traveling in a straight line at 97 kmph (+ 0 kmph, - 2 kmph), simulate the rapid loss of inflation pressure in the left front tire

through an opening at least equal to a 1.3 cm diameter hole.

Upon initial release of air, bring the vehicle to a stop using the most rapid constant deceleration rate attainable not exceeding  $2.5 \text{ m/sec}^2$  ( $8 \text{ ft/sec}^2$ ) with no wheel skid. Record vehicle speed, tire pressure, deceleration, stopping distance (distance traveled after initial release of air), distance of uncontrolled deviation from a straight line, and test conditions. Permanent, continuous recording is required for time, vehicle speed, tire pressure and deceleration rate.

- E. With the vehicle remaining in the stopped position, photographically record and verbally describe all separation of the tire bead from the rim flange on both inboard and outboard sides of the rim under test. Rotation of the wheel to permit access to upper inboard positions of the tire should be done after outboard and lower inboard information is recorded.
- F. Return the vehicle to pretest condition. Repeat Items A through E, using the right rear tire position (or other as directed).
- G. Determine and report a pass or fail for each wheel position tested. Each rim should be capable of retaining its respective tire during a rapid loss of inflation pressure at 97 kilometers per hour and until the vehicle can be stopped with a controlled braking application.

#### 12.7 OWNER'S MANUAL REQUIREMENTS (Data Sheet 7)

Review the vehicle owner's manual, or other manufacturer provided document if an owner's manual is not provided, and verify that the information as specified on data sheet 7 is discussed and/or stated. The basis of these requirements is Part 575.6. Copy applicable pages of the owner's manual or other document for inclusion in the Final Test Report.

### 13. POST TEST REQUIREMENTS

Return the vehicle to pretest condition utilizing replacement tires of the exact brand, model and size as the original tires and wheels in their original positions on the vehicle as labeled and marked. Substitute tires may be installed only as directed by the COTR. Use of spare wheel and tire are to be as directed by the COTR.

## 14. REPORTS

### 14.1. MONTHLY STATUS REPORTS

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

### 14.2. APPARENT NONCOMPLIANCE

Any indication of a test failure will 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) will 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 will be at the COTR's discretion and will 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 copies of the Final Test Report will be submitted to the COTR for acceptance within three weeks of test completion. The Final Test Report format to be used by all contractors can be found in the "Report Section".

Where there has been no indication of an apparent noncompliance, three copies of each Final Test Report will be submitted to the COTR for acceptance within three 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 one 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. REPORTS...Continued

### 14.3.2 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 will 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) will be provided for the protection of the final report. The information required on the cover is as follows:

- (1) Final Report Number such as 110-ABC-0X-001, where –

110 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 110

Tire Selection and Rims

\*\*\*\*\*

ABC Motor Company  
 200X Saferider 4-door sedan  
 NHTSA No. CX0401

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

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

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

**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 Avenue, S.E.  
Washington, DC 20590

**14. REPORTS....Continued****B. FIRST PAGE AFTER FRONT COVER**

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

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

Prepared By:

Approved By:

Approval Date:

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By:

Acceptance Date:

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

A completed Technical Report Documentation Page (Form DOT F1700.7) will 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**

110-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 110 Compliance Testing of 200X Saferider  
4-door sedan, NHTSA No. CX0401

**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

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

## Block 9 — PERFORMING ORGANIZATION NAME AND ADDRESS

ABC Laboratories  
405 Main Street  
Detroit, MI 48070-1234

## Block 10 — WORK UNIT NUMBER

Leave blank

## Block 11 — CONTRACT OR GRANT NUMBER

DTNH22-0X-D-12345

## Block 12 — SPONSORING AGENCY NAME AND ADDRESS

United States Department of Transportation  
National Highway Traffic Safety Administration  
Office of Vehicle Safety Compliance  
1200 New Jersey Avenue, S.E.  
Washington, DC 20590

## Block 13 — TYPE OF REPORT AND PERIOD COVERED

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

## Block 14 — SPONSORING AGENCY CODE

NVS-220

## Block 15 — SUPPLEMENTARY NOTES

Leave blank



**14. REPORTS...Continued**

## Block 16 — ABSTRACT

Compliance tests were conducted on the subject 200X Saferider 4-door sedan in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-110P-0X for the determination of FMVSS 110 compliance. Test failures identified were as follows:

None

**NOTE:** Above wording will 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 110

## Block 18 — DISTRIBUTION STATEMENT

Copies of this report are available from —

National Highway Traffic Safety Administration  
Technical Information Services (NPO-411)  
1200 New Jersey Ave., S.E.  
Washington DC 20590

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

**14. REPORTS...Continued**

Block 22 — PRICE

Leave blank

**14.3.4 TABLE OF CONTENTS**

Final test report Table of Contents will include the following:

Section 1 — Purpose of Compliance Test

Section 2 — Test Procedure and Discussion of Results

Section 3 — Test Data

Section 4 — Test Equipment List and Calibration Information

Section 5 — Photographs

Section 6 — Notice of Test Failure (if applicable)

**15. DATA SHEETS**

## DATA SUMMARY SHEET (1 of 2)

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

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

VEHICLE TYPE: \_\_\_\_\_ DATE OF MANUFACTURE: \_\_\_\_\_

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

**PASSENGER CAR REQUIREMENTS****PASS/FAIL****General** (Data Sheet 2)

The vehicle is equipped with tires that meet the requirements of S139. \_\_\_\_\_  
(S110, S4.1)

**Tire Load Limits** (Data Sheet 5)

The vehicle maximum load on the tire is not greater than the \_\_\_\_\_  
maximum load rating as marked on the sidewall of the tire. (S110, S4.2.1.1)

The vehicle normal load on the tire is not greater than the value of \_\_\_\_\_  
94 percent of the load rating at the vehicle manufacturer's  
recommended cold inflation pressure for that tire. (S110, S4.2.1.2)

**Placard and Tire Inflation Pressure Label** (Data Sheets 4 and 5)

The placard and tire inflation pressure label (if provided) are affixed and \_\_\_\_\_  
located correctly, and display the information and format required.  
(S110, S4.3)

No inflation pressure other than the maximum permissible inflation \_\_\_\_\_  
pressure may be shown on the placard and, if any, tire inflation pressure  
label unless as required. (S110, S4.3.4)

**Rims** (Data Sheets 3 and 6)

Each rim is constructed to the dimensions of a rim referred to in \_\_\_\_\_  
FMVSS 139 that is listed by the manufacturer of the tires as suitable for use  
with those tires. (S110, S4.4.1(a))

Vehicle rims retain deflated tires during a controlled braking application. \_\_\_\_\_  
(S110, S4.4.1(b))

**15. DATA SHEETS....continued**

DATA SUMMARY SHEET (2 of 2)

**Owner's Manual** (Data Sheet 7)

Owner's manual or other document has discussion of Vehicle Placard, Loading and Tires. (575.6 (a)(4)) \_\_\_\_\_

Owner's manual includes exact statement relating to "Steps for Determining Correct Load Limits." (575.6(a)(5)) \_\_\_\_\_

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

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

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

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

15. DATA SHEETS....continued

**DATA SHEET 1  
TEST VEHICLE INFORMATION/RECEIVING INSPECTION**

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

NHTSA No.: \_\_\_\_\_ TEST DATE: \_\_\_\_\_

VIN: \_\_\_\_\_ MANUFACTURE DATE: \_\_\_\_\_

GVWR: \_\_\_\_\_ KG FRONT GAWR: \_\_\_\_\_ KG REAR GAWR \_\_\_\_\_ KG

SEATING POSITIONS: FRONT \_\_\_\_\_ MID \_\_\_\_\_ REAR \_\_\_\_\_

ODOMETER READING AT START OF TEST: \_\_\_\_\_ KILOMETERS

ENGINE DATA: \_\_\_\_\_ Cylinders \_\_\_\_\_ Liters \_\_\_\_\_ Cubic Inches

TRANSMISSION DATA: \_\_\_\_\_ Automatic \_\_\_\_\_ Manual \_\_\_\_\_ No. of Speeds

FINAL DRIVE DATA: \_\_\_\_\_ Rear Drive \_\_\_\_\_ Front Drive \_\_\_\_\_ 4 Wheel Drive

**CHECK APPROPRIATE BOXES FOR INSTALLED VEHICLE EQUIPMENT:**

<input type="checkbox"/>	Air Conditioning	<input type="checkbox"/>	Traction Control	<input type="checkbox"/>	Clock
<input type="checkbox"/>	Tinted Glass	<input type="checkbox"/>	Tachometer	<input type="checkbox"/>	Roof Rack
<input type="checkbox"/>	Power Steering	<input type="checkbox"/>	Cruise Control	<input type="checkbox"/>	Console
<input type="checkbox"/>	Power Windows	<input type="checkbox"/>	Rear Window Defroster	<input type="checkbox"/>	Driver Air Bag
<input type="checkbox"/>	Power Door Locks	<input type="checkbox"/>	Sun Roof or T-Top	<input type="checkbox"/>	Passenger Air Bag
<input type="checkbox"/>	Power Seat(s)	<input type="checkbox"/>	Tilt Steering Wheel	<input type="checkbox"/>	Side Curtain Air Bag(s)
<input type="checkbox"/>	Power Brakes	<input type="checkbox"/>	Stereo	<input type="checkbox"/>	Front Disc Brakes
<input type="checkbox"/>	Antilock Brake System	<input type="checkbox"/>	Telephone	<input type="checkbox"/>	Rear Disc Brakes
<input type="checkbox"/>	Navigation System	<input type="checkbox"/>	Trailer Hitch	<input type="checkbox"/>	Other -

REMARKS:

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

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

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

**15. DATA SHEETS....continued**

**DATA SHEET 2  
VEHICLE TIRE IDENTIFICATION**

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

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

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

All tires on the vehicle (excluding the spare) are the same size: ( ) YES ( ) NO

Spare tire is the same size as all other tires: ( ) YES ( ) NO

<b>Tire Sidewall</b>	<b>Right Front</b>	<b>Left Rear (If different)</b>	<b>Spare Tire (If different)</b>
Manufacturer and Model	_____	_____	_____
Tire Size Designation	_____	_____	_____
Load Index/Speed Symbol	_____	_____	_____
Maximum Inflation Pressure	_____	_____	_____
Maximum Load Rating	_____	_____	_____
Tread/Traction/Temperature	_____	_____	_____
Tires Have "DOT" markings	_____	_____	_____

Serial Number: Right Front- \_\_\_\_\_ Left Front- \_\_\_\_\_  
 Right Rear- \_\_\_\_\_ Left Rear- \_\_\_\_\_  
 Spare- \_\_\_\_\_

DATA INDICATES COMPLIANCE: PASS/FAIL \_\_\_\_\_

REMARKS:

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

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

15. DATA SHEETS....continued

**DATA SHEET 3  
VEHICLE RIM IDENTIFICATION**

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

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

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

<b>Rim Markings (if available):</b>	<b>Right Front</b>	<b>Left Rear</b>
Manufacturer's Name, Symbol or Trademark	_____	_____
Rim Size	_____	_____
Load Rating and Max Inflation Pressure	_____	_____
Date of Manufacture	_____	_____
Does Rim contain "DOT" symbol? (YES/NO)	_____	_____
Other Rim Markings	_____	_____

Rim Inspection Comments: \_\_\_\_\_

Tire Inspection Comments: \_\_\_\_\_

<b>Rim Size:</b>	<b>Tire Size</b>	<b>Measured Rim Width</b>	<b>Measured Rim Diameter</b>
Right Front Wheel	_____	_____	_____
Left Rear Wheel	_____	_____	_____

Does stamped rim size (if available) agree with the measured rim size? ( ) Not Applicable  
 Right front rim ( ) YES ( ) NO; Left rear rim ( ) YES ( ) NO

Installed rims are suitable for installed tires? ( ) YES ( ) NO  
 Reference document; \_\_\_\_\_

DATA INDICATES COMPLIANCE: PASS/FAIL \_\_\_\_\_

REMARKS:

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

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

**15. DATA SHEETS....continued**

**DATA SHEET 4 (1 of 3)  
VEHICLE PLACARD, AND TIRE INFLATION PRESSURE LABEL**

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

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

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

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

**Identification of Vehicle Labeling**

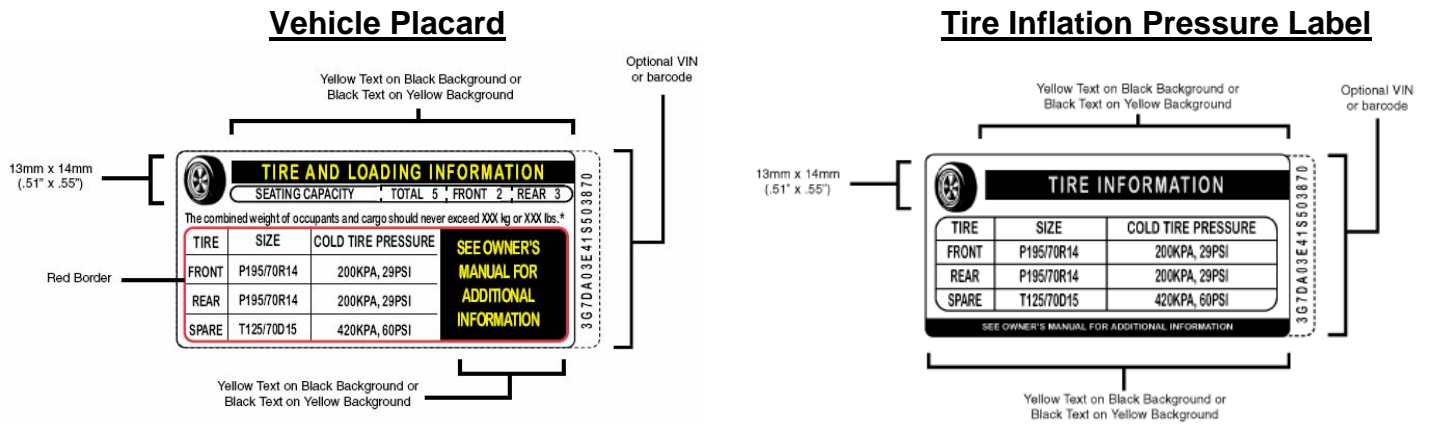
	(Yes/No)	Location	PASS/FAIL
1. Certification Label	_____	_____	<u>Not Applicable</u>
2. Vehicle Placard*	_____	_____	_____
3. Tire Inflation Pressure Label*	_____	_____	_____

\* Labels are to be affixed to the driver's side B-pillar otherwise refer to FMVSS 110 requirements.



15. DATA SHEETS...continued

**DATA SHEET 4 (2 of 3)**  
**VEHICLE PLACARD, AND TIRE INFLATION PRESSURE LABEL**



**FIGURE 1**  
**(70 FR 14425)**

**FIGURE 2**  
**(70 FR 14426)**

**Labeling Notes:**

1. Tire size and pressure can be omitted from the Vehicle Placard if same data is displayed on a Tire Inflation Pressure Label.
2. The Alphanumeric Identifier or Barcode, is optional. It can be located vertically, along the right edge or the left edge of the placard or the label, or horizontally, along the bottom edge of the placard or the label.
3. Tire size can include the tire load range identification symbol ( "XL" or "reinforced", "B", "C", "D", "E", or "F"), the load index number, and the speed rating symbol, located immediately to the right of the tire size designation.
4. The tire "SIZE" heading can be replaced with "ORIGINAL TIRE SIZE" or "ORIGINAL SIZE."
5. The "SPARE" tire heading can be replaced with "SPARE TIRE."
6. For full size spare tires, the recommended cold tire inflation pressure can be replaced with "SEE ABOVE".
7. If no spare tire is provided, the word "NONE" is to replace the manufacturer's cold tire inflation pressure.

**Vehicle Placard** has the exact color and format as specified in the above

Figure 1 and text is in English language.     ( ) YES     ( ) NO

If no, explain \_\_\_\_\_

**Tire Inflation Pressure Label**, if provided, has the exact color and format as specified in the above Figure 2 and text is in English language.     ( ) YES     ( ) NO

If no, explain \_\_\_\_\_

## 15. DATA SHEETS....continued

## DATA SHEET 4 (3 of 3)

**Vehicle Placard** and, if provided, **Tire Inflation Pressure Label** are permanently affixed.

( ) YES ( ) NO

**Vehicle Placard** information:

Combined weight of occupants and cargo \_\_\_\_\_ kg ( \_\_\_\_\_ lbs)

Seating Capacity: Total \_\_\_\_\_; Front \_\_\_\_\_; Rear \_\_\_\_\_;

Is the number of belted seating positions the same as the labeled seating capacity? ( ) YES ( ) NO

If no, explain \_\_\_\_\_

Is the tire size and pressure provided? ( ) YES ( ) NO

If no, is the tire size and pressure provided on a **Tire Inflation Pressure Label**?

( ) YES ( ) NO

**Vehicle Placard** or **Tire Inflation Pressure Label** tire information:

Tire size: Front \_\_\_\_\_; Rear \_\_\_\_\_

Tire Inflation Pressure: Front \_\_\_\_\_; Rear \_\_\_\_\_

Are the sizes of the installed tires the same as the sizes of the labeled tires?

( ) YES ( ) NO

If no, explain \_\_\_\_\_

Is the labeled cold tire inflation pressure equal to or less than the sidewall labeled maximum cold tire inflation pressure?

Front axle: ( ) YES ( ) NO Rear axle: ( ) YES ( ) NO

DATA INDICATES COMPLIANCE:

PASS/FAIL \_\_\_\_\_

REMARKS:

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

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

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

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

## 15. DATA SHEETS....continued

**DATA SHEET 5 (1 of 4)**  
**CURB WEIGHT, NORMAL LOAD WEIGHT & MAXIMUM VEHICLE WEIGHT**

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

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

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

Full Fluid Levels: Fuel \_\_\_\_\_ Coolant \_\_\_\_\_ Other Fluids \_\_\_\_\_ (specify)

Tire Pressures:    LF \_\_\_\_\_ KPA                      LR \_\_\_\_\_ KPA  
                           RF \_\_\_\_\_ KPA                      RR \_\_\_\_\_ KPA

**A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES**

LF \_\_\_\_\_ KG                      LR \_\_\_\_\_ KG  
 RF \_\_\_\_\_ KG                      RR \_\_\_\_\_ KG

Front Axle \_\_\_\_\_ KG                      Rear Axle \_\_\_\_\_ KG

Total Vehicle \_\_\_\_\_ KG

**B. MEASURED VEHICLE NORMAL LOAD WEIGHT**

- (1) Seating Capacity from Vehicle Placard = \_\_\_\_\_
- (2) Normal Load Number of Occupants (from Table in Section 10) \_\_\_\_\_
- Occupant Distribution:    Front Seat- \_\_\_\_\_    Second Seat- \_\_\_\_\_  
    Third Seat- \_\_\_\_\_    Fourth Seat- \_\_\_\_\_

- (3) Total Normal Occupant Load \_\_\_\_\_ KG  
 [# of occupants x 68 KG per occupant]

- (4) Measured Normal Load on Axles

LF \_\_\_\_\_ KG                      LR \_\_\_\_\_ KG  
 RF \_\_\_\_\_ KG                      RR \_\_\_\_\_ KG

Front Axle \_\_\_\_\_ KG                      Rear Axle \_\_\_\_\_ KG

15. DATA SHEETS....continued

**DATA SHEET 5 (2 of 4)**  
**CURB WEIGHT, NORMAL LOAD WEIGHT & MAXIMUM VEHICLE WEIGHT**

- (5) Calculated Vehicle Normal Load on the Tire  
 Front Tires [measured front axle normal load/2] = \_\_\_\_\_ KG  
 Rear Tires [measured rear axle normal load/2] = \_\_\_\_\_ KG
- (6) Value of 94 percent of the load rating at the vehicle manufacturer's recommended cold inflation pressure for that tire

	Front Axle	Rear Axle
Installed Tire Size	_____	_____
Load Rating at recommended cold inflation pressure	_____	_____
94% of load rating	_____	_____

Vehicle Normal Load on the Tire should not be greater than the Value of 94% of the load rating at the vehicle manufacturer's recommended cold inflation pressure

		PASS/FAIL
[(5) < (6)]	Front Tires	_____
	Rear Tires	_____

**C. MEASURED VEHICLE WEIGHT WITH FULL OCCUPANT LOAD**

- (1) Seating Capacity from Placard:

Total \_\_\_\_\_ Front \_\_\_\_\_ Rear \_\_\_\_\_

- (2) Full Occupant Load \_\_\_\_\_ KG  
 [# of occupants x 68 KG per occupant]

- (3) Measured Vehicle Weight with Full Occupant Load

LF _____ KG	LR _____ KG
RF _____ KG	RR _____ KG

Front Axle \_\_\_\_\_ KG      Rear Axle \_\_\_\_\_ KG

Total Vehicle \_\_\_\_\_ KG

15. DATA SHEETS....continued

**DATA SHEET 5 (3 of 4)**  
**CURB WEIGHT, NORMAL LOAD WEIGHT & MAXIMUM VEHICLE WEIGHT**

**D. MEASURED VEHICLE WEIGHT WITH MAXIMUM LOAD (PLACARD)**

- (1) Vehicle Capacity Weight (from placard) \_\_\_\_\_ KG
- (2) Full Occupant Load (from C.(2) above)) \_\_\_\_\_ KG
- (3) Luggage/Cargo Load (subtract (2) from (1)) \_\_\_\_\_ KG
- (4) Measured Vehicle Maximum Load on Axles

LF _____ KG	LR _____ KG
RF _____ KG	RR _____ KG

Front Axle \_\_\_\_\_ KG      Rear Axle \_\_\_\_\_ KG

Total Vehicle \_\_\_\_\_ KG

- (5) Calculated Vehicle Maximum Load on the Tire  
 Front Tires [measured front axle maximum load/2] = \_\_\_\_\_ KG  
 Rear Tires [measured rear axle maximum load/2] = \_\_\_\_\_ KG
- (6) Tire Sidewall Maximum Load Ratings

	Front	Rear
Installed Tire Size	_____	_____
Max. Load Rating on Sidewall	_____	_____

Vehicle Maximum Load on the Tire should not be greater than the Maximum Load Rating Marked on the Tire Sidewall.

		Pass/Fail
[(5) < (6)]	Front Tires	_____
	Rear Tires	_____

15. DATA SHEETS....continued

**DATA SHEET 5 (4 of 4)**  
**CURB WEIGHT, NORMAL LOAD WEIGHT & MAXIMUM VEHICLE WEIGHT**

(7) Tire Load Ratings at Vehicle Placard or Tire Inflation Pressure Label  
 Recommended Cold Tire Inflation Pressure.

	Front Axle	Rear Axle
Labeled Tire Size	_____	_____
Labeled Cold Inflation Pressure	_____	_____
Load Rating at This Pressure*	_____	_____

\*Reference used to obtain Load Rating: \_\_\_\_\_

Vehicle Normal Load on the Tire should not be greater than the Tire Load Rating at the Labeled Cold Tire Inflation Pressure.

		PASS/FAIL
[B(5) < D(7)]	Front Tires	_____
	Rear Tires	_____

Vehicle Maximum Load on the Tire should not be greater than the Tire Load Rating at the Labeled Cold Tire Inflation Pressure.

		PASS/FAIL
[D(5) < D(7)]	Front Tires	_____
	Rear Tires	_____

DATA INDICATES COMPLIANCE: PASS/FAIL \_\_\_\_\_

REMARKS:

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

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

## 15. DATA SHEETS....continued

**DATA SHEET 6 (1 of 2)**  
**DEFLATED TIRE RETENTION**

VEHICLE MAKE/MODEL/BODY STYLE:

\_\_\_\_\_

VEHICLE NHTSA NO. \_\_\_\_\_

VIN: \_\_\_\_\_

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

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

**Tire Pressures:**    LF \_\_\_\_\_ KPA                      LR \_\_\_\_\_ KPA  
                               RF \_\_\_\_\_ KPA                      RR \_\_\_\_\_ KPA

**Test Weight:**        LF \_\_\_\_\_ KG                      LR \_\_\_\_\_ KG  
                               RF \_\_\_\_\_ KG                      RR \_\_\_\_\_ KG  
                               Front Axle \_\_\_\_\_ KG      Rear Axle \_\_\_\_\_ KG

Total Vehicle \_\_\_\_\_ KG

**Retention Test Left Front:**

Odometer (START): \_\_\_\_\_

Fuel Level: \_\_\_\_\_

Ambient Temperature: \_\_\_\_\_ °C

Wind Speed: \_\_\_\_\_ m/s

Vehicle Speed at time of blow-out: \_\_\_\_\_ kmph

Maximum Deceleration Rate: \_\_\_\_\_ m/sec<sup>2</sup>    Deflation Opening Size: \_\_\_\_\_ cm (dia.)

Stopping Distance (Distance traveled after initial release of air): \_\_\_\_\_ m

Distance of Uncontrolled Deviation from a straight line: \_\_\_\_\_ cm

Description of Bead Separation, Outboard:

\_\_\_\_\_

Description of Bead Separation, Inboard:

\_\_\_\_\_

Vehicle stopped with a controlled brake application (driver opinion):    ( ) YES    ( ) NO

Deflated tire retained on rim for duration of test:    ( ) YES    ( ) NO

## 15. DATA SHEETS....continued

**DATA SHEET 6 (2 of 2)**  
**DEFLATED TIRE RETENTION**

**Retention Test Right Rear:**

Odometer (START): \_\_\_\_\_ Fuel Level: \_\_\_\_\_

Ambient Temperature: \_\_\_\_\_ °C Wind Speed: \_\_\_\_\_ m/s

Vehicle Speed at time of blow-out: \_\_\_\_\_ kmph

Maximum Deceleration Rate: \_\_\_\_\_ m/sec<sup>2</sup> Deflation Opening Size: \_\_\_\_\_ cm (dia.)

Stopping Distance (Distance traveled after initial release of air): \_\_\_\_\_ m

Distance of Uncontrolled Deviation from a straight line: \_\_\_\_\_ cm

Description of Bead Separation, Outboard:  
\_\_\_\_\_Description of Bead Separation, Inboard:  
\_\_\_\_\_

Vehicle stopped with a controlled brake application (driver opinion): ( ) YES ( ) NO

Deflated tire retained on rim for duration of test: ( ) YES ( ) NO

DATA INDICATES COMPLIANCE:		PASS/FAIL
LEFT FRONT		_____
RIGHT REAR		_____

REMARKS:

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

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

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

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



15. DATA SHEETS....continued

**DATA SHEET 7 (1 of 2)  
OWNER'S MANUAL REQUIREMENTS**

VEHICLE MAKE/MODEL/BODY STYLE:

\_\_\_\_\_

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

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

**Owner's Manual Discusses:**

Part 575.6(a) Paragraph	Required Discussion Topic	Discussed in Manual? (YES/NO)
(4)(i)	Tire labeling, including a description and explanation of each marking on the tires provided with the vehicle, and information about the location of the Tire Identification Number (TIN).	
(4)(ii)	(A) Description and explanation of recommended cold tire inflation pressure.	
	(B) Description and explanation of FMVSS 110 Vehicle Placard and Tire Inflation Pressure Label and their location(s).	
	(C) Description and explanation of adverse safety consequences of under-inflation including tire failure.	
	(D) Description and explanation for measuring and adjusting air pressure to achieve proper inflation.	
(4)(iii)	Glossary of tire terminology, including "cold tire pressure," maximum inflation pressure," and "recommended inflation pressure," and all non-technical terms defined in S3 of FMVSS 110 & 139.	
(4)(vi)	Tire care, including maintenance and safety practices.	
(4)(v)	(A) Description and explanation of locating and understanding load limit information, total load capacity, seating capacity, towing capacity, and cargo capacity.	
	(B) Description and explanation for calculating total and cargo load capacities with varying seating configurations including quantitative examples showing/illustrating how the vehicle's cargo and luggage capacity decreases as the combined number and size of occupants increases.	
	(C) Description and explanation for determining compatibility of tire and vehicle load capabilities.	
	(D) Description and explanation of adverse safety consequences of overloading on handling and stopping and on tires.	

15. DATA SHEETS....continued

DATA SHEET 7 (2 of 2)  
OWNER'S MANUAL REQUIREMENTS

The following verbatim statement, in the English language, is provided in the Owner's Manual. Reference Part 575.6(a)(5) YES ( ) NO ( )

Steps for Determining Correct Load Limit ---

- (1) Locate the statement "The combined weight of occupants and cargo should never exceed XXX kg or XXX lbs." on your vehicle's placard.
- (2) Determine the combined weight of the driver and passengers that will be riding in your vehicle.
- (3) Subtract the combined weight of the driver and passengers from XXX kg or XXX lbs.
- (4) The resulting figure equals the available amount of cargo and luggage load capacity. For example, if the "XXX" amount equals 1400lbs. and there will be five 150 lb passengers in your vehicle, the amount of available cargo and luggage load capacity is 650 lbs. (1400-750 (5x150) = 650 lbs.)
- (5) Determine the combined weight of the luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity calculated in Step 4.
- (6) If your vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult this manual to determine how this reduces the available cargo and luggage load capacity of your vehicle.

DATA INDICATES COMPLIANCE: PASS/FAIL \_\_\_\_\_

REMARKS:

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

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

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

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

16. FORMS

LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS NO.: 110 TEST DATE: \_\_\_\_\_

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

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

LABORATORY PROJECT ENGINEER'S NAME: \_\_\_\_\_

TEST SPECIMEN DESCRIPTION: \_\_\_\_\_

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

MFR: \_\_\_\_\_

TEST FAILURE DESCRIPTION: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

FMVSS REQUIREMENT, PARAGRAPH S \_\_\_\_\_:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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

REMARKS:

16. FORMS....Continued

MONTHLY TEST STATUS REPORT  
 FMVSS 110  
 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						

## 16. FORMS...Continued

MONTHLY VEHICLE STATUS REPORT  
FMVSS 110  
DATE OF REPORT:

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