REPORT NUMBER 110(IND)-GTL-03-037

SAFETY COMPLIANCE TESTING FOR
FMVSS NO. 110(INDICANT)
TIRE SELECTION AND RIMS

FORD MOTOR CO. IN. U.S.A.
2003 FORD F-150 PICKUP TRUCK
NHTSA NO. C30214

GENERAL TESTING LABORATORIES, INC.
1623 LEEDSTOWN ROAD
COLONIAL BEACH, VIRGINIA 22443

SEPTEMBER 26, 2003
FINAL REPORT

PREPARED FOR

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW
ROOM 6111 (NVS-220)
WASHINGTON, D.C. 20590
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: [Signature]

Approved By: [Signature]

Approval Date: 09/26/03

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: [Signature]

Acceptance Date: 09/30/03
### Title and Subtitle
Final Report of FMVSS 110 (Indicant) Test of 2003 FORD F-150 PICKUP TRUCK NHTSA No. C30214

### Author(s)
- Grant Farrand, Project Engineer
- Debbie Messick, Project Manager

### Performing Organization Name and Address
General Testing Laboratories, Inc.
1623 Leadstown Road
Colonial Beach, Va 22443

### Sponsoring Agency Name and Address
U.S. Department of Transportation
Safety Enforcement
Office of Vehicle Safety Compliance (NVS-220)
400 7th Street, S.W., Room 6111
Washington, DC 20590

### Abstract
This test was conducted on the subject 2003 Ford F-150 Pickup Truck in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-110-02 (partial), to gather data relating to the normal load requirements specified in FMVSS 110. NHTSA's Office of Safety Performance Standards requested this data to support the agency's TREAD tire rulemaking efforts.

### Key Words
- Vehicle Testing
- Safety Engineering
- FMVSS 110

### Distribution Statement
Copies of this report are available from NHTSA NHTSA Technical Reference Div., Rm. 5108 (NPO-230)
400 7th St., S.W. Washington, DC 20590
Telephone No. (202) 366-4946

### Security Classification
- UNCLASSIFIED
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
</tr>
<tr>
<td>2</td>
<td>Test Procedure and Summary of Results</td>
</tr>
<tr>
<td>3</td>
<td>Test Data</td>
</tr>
<tr>
<td>4</td>
<td>Test Equipment List</td>
</tr>
<tr>
<td>5</td>
<td>Photographs</td>
</tr>
<tr>
<td>5.1</td>
<td>¾ Frontal View of Vehicle</td>
</tr>
<tr>
<td>5.2</td>
<td>Vehicle's Certification and Tire Information Label</td>
</tr>
<tr>
<td>5.3</td>
<td>Vehicle's Monroney Label</td>
</tr>
<tr>
<td>5.4</td>
<td>Tire Showing Brand</td>
</tr>
<tr>
<td>5.5</td>
<td>Tire Showing Model</td>
</tr>
<tr>
<td>5.6</td>
<td>Tire Showing Size, Load Index and Speed Symbol</td>
</tr>
<tr>
<td>5.7</td>
<td>Tire Showing Max Load Rating</td>
</tr>
<tr>
<td>5.8</td>
<td>Tire Showing Max Inflation Pressure</td>
</tr>
<tr>
<td>5.9</td>
<td>Vehicle Ballasted to Simulate Normal Load Condition</td>
</tr>
</tbody>
</table>

APPENDIX - Normal Load Occupation Distribution
SECTION 1

INTRODUCTION

1.0 PURPOSE OF INDICANT TEST

A 2003 Ford F-150 Pickup Truck was subjected to a FMVSS No. 110 (Indicant) test intended to gather data relating to the normal load requirements specified in FMVSS 110. NHTSA’s Office of Safety Performance Standards requested this data to support the agency’s TREAD tire rulemaking efforts.

1.1 TEST VEHICLE

The test vehicle was a 2003 Ford F-150 Pickup Truck. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 1FTRW08613KC82592

B. NHTSA No.: C30214

C. Manufacturer: FORD MOTOR CO. IN U.S.A.

D. Manufacture Date: 03/03

1.2 TEST DATE

The test vehicle was subjected to testing on June 02, 2003.
SECTION 2

TEST PROCEDURE AND SUMMARY OF RESULTS

2.0 TEST PROCEDURE

The vehicle was inspected, photographed and filled with fuel. It was then weighed to establish total curb weight and the weights of all wheels were measured and recorded. The vehicle was then ballasted to its normal load condition (refer to appendix) and the weights of all wheels were measured and recorded. Tire information labeling data and tire sidewall data were recorded.

This indicative test did not include any other requirements in FMVSS 110.

2.1 SUMMARY OF RESULTS

Currently FMVSS 110 applies only to passenger cars. The subject Ford F-150 Pickup is a truck and therefore it is not required to meet FMVSS 110 requirements. It was subjected to the normal load testing as executed for FMVSS 110 compliance verification for information only.
SECTION 3
TEST DATA
DATA SHEET 1
SUMMARY

VEHICLE MAKE/MODEL/BODY STYLE: 2003 FORD F-150 PICKUP TRUCK
VEHICLE NHTSA NO.: C30214; VIN: 1FTRW08613KC82592
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 06/02/03

REQUIREMENT

**YES/NO**

The vehicle is equipped with tires that meet the requirements of FMVSS 109 or FMVSS 119.  

**YES**

The vehicle normal load on the tire is not greater than the high speed performance test load specified in FMVSS 109 paragraph S5.5 or FMVSS 119 paragraph S7.4.  

**YES**

For passenger cars, the tire information placard is permanently affixed to the glove compartment door or equally accessible location; and displays the required information (FMVSS 110, S4.3).  

**N/A**

For vehicles other than passenger cars, a combined certification/tire information label or separate tire information label is permanently affixed to either the hinge pillar, door-latch post or to the inward-facing surface of the door next to the driver's seating position (FMVSS 120, S5.3).  

**YES**

REMARKS:

RECORDED BY: [Signature]  
DATE: 06/02/03

APPROVED BY: [Signature]
DATA SHEET 2
TEST VEHICLE INFORMATION/RECEIVING INSPECTION

LABORATORY: GENERAL TESTING LABORATORIES    DATE: 06/02/03

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 FORD F-150 PICKUP TRUCK

MANUFACTURE DATE: 03/03    NHTSA NO.: C30214    BODY COLOR: WHITE

VIN: 1FTRW08613KC82592    VEHICLE TYPE: TRUCK

GVWR: 2948 kg (6500 lbs)    GAWR(Fr): 1832 kg (3600 lbs)    GAWR(Rr): 1723 kg (3800 lbs)

BELTED SEATING POSITIONS: FRONT 3    MID  N/A    REAR 3    OTHER N/A

ENGINE DATA:    _8_ Cylinders    _4.6_ Liters    _Cubic Inches

TRANSMISSION DATA:    X Automatic    ___ Manual    ___ No. of Speeds

FINAL DRIVE DATA:    ___ Rear Drive    ___ Front Drive    X 4 Wheel Drive

INSTALLED TIRE DATA: Size - P255/70R16    Mfr. - GOODYEAR

CHECK APPROPRIATE BOXES FOR VEHICLE EQUIPMENT/MAKE SURE ALL OPTIONS ON WINDOW STICKER ARE LISTED:

<table>
<thead>
<tr>
<th></th>
<th>Traction Control</th>
<th>Clock</th>
</tr>
</thead>
<tbody>
<tr>
<td>X  Air Conditioning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X  Tinted Glass</td>
<td>All Whee' Drive</td>
<td>Roof Rack</td>
</tr>
<tr>
<td>X  Power Steering</td>
<td>X Cruise Control</td>
<td>X Console</td>
</tr>
<tr>
<td>X  Power Windows</td>
<td>Rear Window Defroster</td>
<td>X Driver Air Bag</td>
</tr>
<tr>
<td>X  Power Door Locks</td>
<td>Sun Roof or T-Top</td>
<td>X Passenger Air Bag</td>
</tr>
<tr>
<td>X  Power Driver's Seat</td>
<td>X Tachometer</td>
<td>X Front Disc Brakes</td>
</tr>
<tr>
<td>X  Power Brakes</td>
<td>X Tilt Steering Wheel</td>
<td>X Rear Disc Brakes</td>
</tr>
<tr>
<td>X  Antilock Brake System</td>
<td>X AM/FM/CD</td>
<td>Other</td>
</tr>
</tbody>
</table>

ARE ALL OPTIONS LISTED ON "WINDOW STICKER" PRESENT ON THE TEST VEHICLE: (YES/NO)       Yes

REMARKS:

RECORDED BY: M. C. DATE: 06/02/03

APPROVED BY: N. M.
DATA SHEET 3
CURB WEIGHT WITH OPTIONS AND NORMAL LOAD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 FORD F-150 PICKUP TRUCK
VEHICLE NHTSA NO.: C30214; VIN: 1FTRW08613K82592
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 06/02/03

Full Fluid Levels:
Fuel Full; Coolant Full; Other Fluids Full

Tire Pressure:
LF 205 KPA (30 psi) LR 240 KPA (35 psi)
RF 205 KPA (30 psi) RR 240 KPA (35 psi)

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

<table>
<thead>
<tr>
<th></th>
<th>LF</th>
<th>870 KG (1477 LB)</th>
<th>LR</th>
<th>487 KG (1074 LB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RF</td>
<td>854 KG (1442 LB)</td>
<td>RR</td>
<td>507 KG (1117 LB)</td>
</tr>
</tbody>
</table>

Front Axle 1324 KG (2919 LB) Rear Axle 994 KG (2191 LB)

Total Vehicle 2318 KG (5110 LB)

B. MEASURED VEHICLE WEIGHT IN NORMAL LOAD CONDITION

(1) Seating Capacity (from Tire Information Placard) = N/A
    Seating Capacity (# of belted seating positions) = 6

(2) Normal Load # of Occupants from Appendix
    Occupant Distribution: Front Seat- 2  Second Seat- 1
    Third Seat - N/A  Fourth Seat- N/A

(3) Total Normal Occupant Load 204 KG (450 LB)
    (# of occupants x 68 KG per occupant)

(4) Measured Normal Load on each Wheel and Axles (Sum)
    LF 726 KG (1600 LB) LR 530 KG (1169 LB)
    RF 709 KG (1563 LB) RR 556 KG (1225 LB)
    Frt Axle 1435 KG (3163 LB) Rr Axle 1086 KG (2394 LB)

Total Vehicle 2521 KG (5557 LB)
DATA SHEET 3 – CONTINUED

(5) Calculated Vehicle Normal Load on the Tire
Front Tires (measured front axle normal load/2) = \( \frac{718}{2} \) KG (1582 LB)
Rear Tires (measured front axle normal load/2) = \( \frac{543}{2} \) KG (1197 LB)

(6) High Speed Test Load from ( ) FMVSS 109 (S5.5), or (X) FMVSS 119 (S7.4)

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Rear</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Installed Tire Size</td>
<td>P255/70R16</td>
<td>P255/70R16</td>
</tr>
<tr>
<td>Max. Load Rating on Sidewall</td>
<td>1030 KG (2271 LBS)</td>
<td>1030 KG (2271 LBS)</td>
</tr>
<tr>
<td>Reduced Sidewall Load Rating (If applicable)*</td>
<td>936 KG (2065 LBS)</td>
<td>936 KG (2065 LBS)</td>
</tr>
<tr>
<td>High Speed Test Load (88% of sidewall max. load rating)</td>
<td>824 KG (1817 LBS)</td>
<td>624 KG (1417 LBS)</td>
</tr>
<tr>
<td>(b) Optional Tire Size(s)</td>
<td>NONE</td>
<td>NONE</td>
</tr>
</tbody>
</table>

* If a passenger car tire is installed on a multipurpose passenger vehicle (MPV), truck or bus, the tire’s load rating shall be reduced by dividing by 1.10.

REMARKS: The Vehicle Normal Load on the Tire is not greater than the High Speed Test Load.

RECORDED BY: [Signature] DATE: 06/02/03
APPROVED BY: [Signature]
DATA SHEET 4
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 FORD F-150 PICKUP TRUCK
VEHICLE NHTSA NO.: C30214; VIN: 1FTRW08613KC82592
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 08/02/03

A. Vehicle Type from Certification Label: TRUCK

B. Identify Vehicle Labeling:

Vehicle has a combined Certification Tire Information Label ___(X) Yes ___( ) No
Is Label Permanently Affixed: ___(X) Yes ___( ) No
Label Location: "B" Pillar
Description of Label: Black/White Sticker

Vehicle has a separate Tire Information Label or Placard ___( ) Yes ___(X) No
Is Label Permanently Affixed: ___( ) Yes ___( ) No
Label Location:
Description of Label:

C. Enter Information from Combined or Separate Tire Information Label/Placard

Vehicle Capacity Weight - N/A(see remarks).

Designated Seating Capacity (DSC) - N/A(see remarks)
Expressed In—
(1) Total No. of Occupants ___(X) Yes ___( ) No
(2) Terms of Occupants for Each Seat Location ___( ) Yes ___( ) No

Manufacturer's Recommended Tire Size(s) and Cold Tire Inflation Pressure(s) for
Maximum Load Vehicle Weight:

P255/70R16
FRONT - 205 kPa (30 psi)
REAR - 240 kPa (35 psi)

Manufacturer's Recommended Tire Size(s) and Cold Tire Inflation Pressure(s) for Other
Load Conditions: NONE

REMARKS: The vehicle labeling requirements of FMVSS 120 for a truck do not include
Vehicle Capacity Weight (VCW) or Designated Seating Capacity (DSP) as required by FMVSS
110 passenger car labeling.

RECORDED BY: [Signature] DATE: 06/02/03

APPROVED BY: [Signature]
DATA SHEET 5
VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2003 FORD F-150 PICKUP TRUCK
VEHICLE NHTSA NO.: C30214; VIN: 1FTRW08613KC82592
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 06/02/03

All tires on the vehicle are the same size: (Yes/No) Yes

INFORMATION FROM TIRE SIDEWALL:

Right Front Tire

Tire Size Designation: P255/70R16
Tire Load Index/Speed Symbol: 109S
Maximum Inflation Pressure: 300 kPa (44 psi)
Maximum Load Rating: 1030 KG (2271 LBS)
Mfr. Name or Brand & Code: GOODYEAR WRANGLER
Tube or Tubeless: TUBELESS
Treadwear/Traction/Temp. Grades: 340/A/B
Sidewall (Plies & Composition): 2 PLY POLYESTER
Tread (Plies & Composition): 2 PLY POLYESTER

Serial Number: Right Front - DOT 4BCU C6WR 0703
Tire has "DOT" markings: (X) YES ( ) NO ( ) UNDETERMINED

REMARKS:

RECORDED BY: [Signature] DATE: 06/02/03
APPROVED BY: [Signature]
## SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

### TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>DESCRIPTION</th>
<th>MODEL/ SERIAL NO.</th>
<th>CAL. DATE</th>
<th>NEXT CAL. DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAD SCALES</td>
<td>#1 199744LF</td>
<td>199744LF</td>
<td>06/02</td>
<td>06/03</td>
</tr>
<tr>
<td></td>
<td>#2 199744RF</td>
<td>199744RF</td>
<td>06/02</td>
<td>06/03</td>
</tr>
<tr>
<td></td>
<td>#3 199744LR</td>
<td>199744LR</td>
<td>06/02</td>
<td>06/03</td>
</tr>
<tr>
<td></td>
<td>#4 199744RR</td>
<td>199744RR</td>
<td>06/02</td>
<td>06/03</td>
</tr>
<tr>
<td>PRESSURE GAGE</td>
<td>WEISKLER</td>
<td>0-100</td>
<td>03/03</td>
<td>05/04</td>
</tr>
<tr>
<td>SURFACE LEVEL</td>
<td>GTL</td>
<td>N/A</td>
<td>BEFORE USE</td>
<td>BEFORE USE</td>
</tr>
</tbody>
</table>
SECTION 5
PHOTOGRAPHS
2003 FORD F-150 PICK-UP
NHTSA NO. C30214
FMVSS NO. 110 (INDICANT)
### APPENDIX

Table 1 – Occupant Loading and Distribution for Vehicle Normal Load for Various Designated Seating Capacities

<table>
<thead>
<tr>
<th>Designated Seating Capacities, numbers of Occupants</th>
<th>Vehicle normal load, number of occupants</th>
<th>Occupant distribution in a normally loaded vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 through 4</td>
<td>2</td>
<td>2 in front</td>
</tr>
<tr>
<td>5 through 10</td>
<td>3</td>
<td>2 in front, 1 in second seat</td>
</tr>
<tr>
<td>11 through 15</td>
<td>5</td>
<td>2 in front, 1 in second seat, 1 in third seat, 1 in fourth seat</td>
</tr>
<tr>
<td>16 through 22</td>
<td>7</td>
<td>2 in front, 2 in second seat, 2 in third seat, 1 in fourth seat</td>
</tr>
</tbody>
</table>

**NOTE:** For the indicant test each seat was adjusted to its full down and mid forward to aft position with the seat back adjusted to a 25° reclined angle. Each designated seat position was ballasted with 54 KG (120 LBS) in the seat and 14 KG (30 LBS) on the floor directly in front of the respective seat position.