REPORT NUMBER 114-GTL-11-010

# SAFETY COMPLIANCE TESTING FOR FMVSS NO. 114 THEFT PROTECTION

## FORD MOTOR CO.
## 2011 XLT FORD EXPLORER, TRUCK
## NHTSA NO. CB0202

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


June 21, 2011

**FINAL REPORT**

**PREPARED FOR**

**U. S. DEPARTMENT OF TRANSPORTATION**
**NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION**
**ENFORCEMENT**
**OFFICE OF VEHICLE SAFETY COMPLIANCE**
**1200 NEW JERSEY AVE., SE**
**WASHINGTON, D.C. 20590**

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Technical Report Documentation Page

| | | |
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| 4. Title and Subtitle<br>Final Report of FMVSS 114 Compliance Testing of a 2011 XLT FORD EXPLORER TRUCK<br>NHTSA No. CB0202 | | 5. Report Date<br>June 21, 2011<br>6. Performing Organ. Code<br>GTL |
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| 9. Performing Organization Name and Address<br>General Testing Laboratories, Inc.<br>1623 Leedstown Road<br>Colonial Beach, Va 22443 | | 10. Work Unit No. (TRAIS)<br>N/A<br>11. Contract or Grant No.<br>DTNH22-06-C-00032 |
| 12. Sponsoring Agency Name and Address<br>U.S. Department of Transportation<br>National Highway Traffic Safety Admin. Enforcement<br>Office of Vehicle Safety Compliance (NVS-220)<br>1200 New Jersey Ave., S.E.,<br>Washington, DC 20590 | | 13. Type of Report and Period Covered<br>Test Date<br>June 15, 2011<br>14. Sponsoring Agency Code<br>NVS-221 |
| 15. Supplementary Notes | | |
| 16. Abstract<br>Compliance tests were conducted on the subject 2011 XLT Ford Explorer Truck in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-114-04 for the determination of FMVSS 114 compliance.<br><br>Test failures identified were as follows:<br>None | | |
| 17. Key Words<br>Compliance Testing<br>Safety Engineering<br>FMVSS 114 | 18. Distribution Statement<br>Copies of this report are available from NHTSA Technical Information Services (TIS)<br>Room W45-212 (NPO-411)<br>1200 New Jersey Ave., S.E.<br>Washington, DC 20590<br>Telephone No. (202) 366-4947 | |
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# SECTION 1

# PURPOSE OF COMPLIANCE TEST

## 1.0 PURPOSE OF TEST

A model year 2011 XLT Ford Explorer Truck was subjected to Federal Motor Vehicle Safety Standard (FMVSS) No. 114 testing to determine if the vehicle was in compliance with the requirements of the standard. FMVSS 114 specifies requirements to decrease the likelihood that a vehicle is stolen, or accidentally set in motion.

1.1 The test vehicle was a 2011 XLT Ford Explorer Truck. The vehicle was identified as follows:

A. Vehicle Identification Number: 1FMHK8D80BGA49457

B. NHTSA No.: CB0202

C. Manufacturer: FORD MOTOR CO.

D. Manufacture Date: 03/11

E. Color: Kona Blue Metallic

## 1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 114 testing on June 15, 2011.

# SECTION 2

# TEST PROCEDURE AND SUMMARY OF RESULTS

## 2.0 TEST PROCEDURE

All tests were conducted in accordance with NHTSA, Office of Vehicle Safety Compliance (OVSC) Laboratory Procedure TP-114-04 and General Testing Laboratories, Inc. (GTL) Test Procedure, TP-114-04, “Theft Protection and Rollaway Prevention”.

## 2.1 SUMMARY OF RESULTS

Test data indicate the FMVSS 114 requirements appear to have been satisfied. All test data resulting from the tests were recorded on test data sheets in Section 3.

# SECTION 3

# TEST DATA

## 3.0 TEST RESULTS

The following data sheets document the results of FMVSS 114 testing on the 2011 XLT Ford Explorer.

FMVSS 114, THEFT PROTECTION
DATA SHEET 1 – VEHICLE IDENTIFICATION

TEST DATE: 06/15/11 LAB.: General Testing Laboratories
CONTRACT: DTNH22-06-C-00032 VEH. NHTSA NO.: CB0202
VIN: 1FMHK8D80BGA49457 BUILD DATE: 03/11

MY/MAKE/MODEL/BODY STYLE: 2011 Ford Explorer

TRANSMISSION TYPE:
Automatic X; Manual ____; Other ____ (describe: 6 speed)

DRIVE TRAIN TYPE:
Front Wheel ____; Rear Wheel ____; 4-Wheel X

FUEL TANK LEVEL: 100 (% OF max.) MILEAGE: 146

VEHICLE STARTING SYSTEM:

Location of the starting system:
Located on Dash to the Right Side of Steering Column.

Selectable settings:
Off, Accessory, On, Start

Explain how the system is activated:
The system is activated when the key is inserted into receptacle and turned clockwise.

KEY
Description of the key:
Traditional Metal Key with embedded key code.

STARTING SYSTEM ACTIVATION
Describe how the key is inserted into the starting system:
The key is inserted into the starting system by physical means.

Describe how the key is used to activate the starting system:
The System is activated by inserting the key into the starting system and turning it to the start position.

Describe how the key is removed from the starting system:
Turn key to the off position and pull key out of key cylinder.

FMVSS 114, THEFT PROTECTION
DATA SHEET 1 continued

GEAR SELECTION CONTROL

Describe the gear selection control:
Automatic transmission gear selector located on center console between front seats.

Describe how the gear selection control is activated:
With the brake pedal depressed, depress the release button on the gear selector and move the gear selector to the desired position.

Describe all of the selectable settings:
Park, Reverse, Neutral, Drive, and Manual Mode (M); the driver can change gears up or down as desired.

IMMOBILIZER

Is the vehicle equipped with an immobilizer YES X NO

Describe the immobilizer device and how it prevents vehicle theft (if equipped):
The vehicle is equipped with a passive anti-theft system (PATS) which is an engine immobilizer system which locks the starting system by preventing the engine from being started unless a coded key (mechanical or electrical) is programmed to the vehicle.

OPTIONAL RELEASE DEVICES

Describe if the vehicle is equipped with optional release devices:
YES

OPTIONAL RELEASE DEVICES:

Key Removal Gear Selection Control X None Other

VEHICLE FLUIDS
Check all vehicle fluids and adjust to the proper levels for operation: Full

VEHICLE TIRE PLACARD INFORMATION

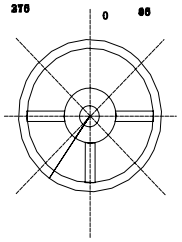
Vehicle Mfg. Recommended Tire Inflation Pressure
(kPa): Front 240 Rear 240

TIRE INFLATION PRESSURES:

Measured (kPa): LF 240 LR 240 RF 240 RR 240

WEIGHT
Vehicle Curb Weight(kg): 2120 Weight of Driver (kg): 91 (target = 91kg)

FMVSS 114, THEFT PROTECTION
DATA SHEET 2

| REQUIREMENT S5.1.1 | PASS | FAIL |
|---|---|---|
| Engine cannot be started without using the key _X_Yes ___No | X | |
| With key removed, steering wheel locks:<br>Yes: ____ No: _X<br><br>Identify steering wheel locking position(s) on wheel using arrow(s)<br><br>Clockwise: _____ (degrees)<br>Counterclockwise:_____ (degrees)<br><br>  <br><br><br>Service brake must be depressed in order to start engine<br>Yes_____ No_X<br><br>Key removal prevents forward self-mobility:<br>Yes:_X___ No:_____<br><br>If yes describe: Engine will not start when the coded key is not present. | | |
| When key is removed from the starting system, starting of the engine or motor and either steering or self mobility is prevented.<br>Yes:_X__ No:_____ | X | |

REMARKS:

FMVSS 114, THEFT PROTECTION
DATA SHEET 2 continued

| REQUIREMENT S5.1.3 | 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.<br>Yes__X__ No ____<br><br>Identify ALL key/starting system position setting:<br>OFF, ACCESSORY, ON, START | X | |

| REQUIREMENT S5.1.4 | PASS | FAIL |
|---|---|---|
| With the vehicle engine or motor shut down and the transmission gear selection control in any position other than “park”;<br><br>The steering wheel can rotate without locking? Yes__X___ No_____ | X | |
| The vehicle is free to roll forward? Yes__X___ No_____ | X | |

REMARKS:

RECORDED BY: G. Farrand DATE: 06/15/11
APPROVED BY: D. Messick

FMVSS 114, ROLLAWAY PREVENTION
DATA SHEET 3
(for vehicles equipped with transmission with a “park” position)

VEH. NHTSA NO.: CB0202 TEST DATE: 06/15/11

| REQUIREMENT S5.2.1 | PASS | FAIL |
|---|---|---|
| The starting system prevents key removal in ALL gear selection control positions except “park”.<br>Yes X No ____<br><br>Can the gear selection control be placed between each gear selection position and will it remain there without assistance?<br>Yes ____ No X<br><br>If yes, can the key be removed from the starting system?<br>Yes ____ No ____<br><br>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 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: | X | |

| REQUIREMENT S5.2.2 | PASS | FAIL |
|---|---|---|
| The gear selection control is locked in the “park” position when the key is removed from the starting system.<br>Yes X No ____ | X | |

REMARKS:

DATA SHEET 3 continued

| REQUIREMENT S5.2.3 | PASS | FAIL |
|---|---|---|
| KEY REMOVAL OVERRIDE OPTION:<br><br>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. Yes_____ No _X_<br><br>If yes, describe the override device design and mode of activation:<br><br>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:<br><br>ELECTRICAL FAILURE<br><br>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". Yes_____ No _X_<br><br>OVERRIDE DEVICE WITH NO COVER:<br><br>The following condition is prevented:<br>Steering_____ Self-Mobility_____<br><br>The device requires both the use of a tool to activate and simultaneous activation of the override device and removal of the key from the starting system Yes_____ No_____<br><br>OVERRIDE DEVICE WITH AN OPAQUE COVER<br><br>The following condition is prevented:<br>Steering_____ Self-Mobility_____<br><br>The device is covered by an opaque surface which prevents sight of and use of the device. Yes_____ No_____<br><br>The opaque surface can only be removed by using a screwdriver or other tool: Yes_____ No_____ | X<br><br>X<br><br>N/A<br><br>N/A | |

REMARKS:

DATA SHEET 3 continued

| REQUIREMENT S5.2.4 | PASS | FAIL |
|---|---|---|
| GEAR SELECTION CONTROL OVERRIDE DEVICE<br><br>The vehicle is equipped with an override device that allows the user to move the gear selection control from “park” after the key has been removed from the starting system. Yes__X__ No_____<br><br>If yes, select the type of override device used:<br>Key_____ Opaque Cover__X__ No Cover_____<br><br>Describe the override device design and mode of activation (if equipped):<br>Small cover on right side of shifter which when removed allows a key to be inserted to release shifter.<br><br>**FILL IN THE SECTION BELOW THAT APPLIES:**<br><br>OVERRIDE OPERATED WITH KEY:<br><br>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.<br>Yes_____ No_____<br><br>OVERRIDE DEVICE WITH NO COVER<br><br>As a direct result of removing the key from the starting system, the following is prevented: Steering_____ Self-Mobility_____<br><br>The override device requires the use of a tool to operate.<br>Yes_____ No_____<br>Simultaneous activation of the override device and movement of the gear selection control from “park” is required Yes_____ No_____<br><br>OVERRIDE DEVICE WITH AN OPAQUE COVER<br><br>As a direct result of removing the key from the starting system, the following is prevented: Steering_____ Self-Mobility__X<br><br>The opaque surface cover prevents sight of and use of the device:<br>Yes__X__ No_____<br><br>The opaque surface cover can only be removed by using a screwdriver or other tool: Yes__X__ No_____ | X<br><br>N/A<br><br>N/A<br><br>X | |

REMARKS:

DATA SHEET 3 continued

| REQUIREMENTS S5.2.5 | PASS | FAIL |
|---|---|---|
| VEHICLE FACING UPHILL ON 10% GRADE<br><br>With the gear selection control in “park” measure movement of the vehicle down the slope upon releasing the service brake.<br><br>Test grade: 15 % (9% to 15%)<br>Measured movement: 48 mm (150mm maximum)<br><br>**NOTE:** Repeat procedure if vehicle fails on grade in excess of 10%.<br><br>Test grade: _____ % (9% to 10%)<br>Measured movement: _____ mm (150 mm maximum) | X | |
| VEHICLE FACING DOWNHILL ON 10% GRADE<br><br>With the gear selection control in “park” measure movement of the vehicle down the slope upon releasing the service brake.<br><br>Test grade: 15 % (9% to 15%)<br>Measured movement: 39 mm (150mm maximum)<br><br>**NOTE:** Repeat procedure if vehicle fails on grade in excess of 10%.<br><br>Test grade: _____ % (9% to 10%)<br>Measured movement: _____ mm (150 mm maximum) | X | |

REMARKS:

DATA SHEET 3 continued

| REQUIREMENTS S5.3 | PASS | FAIL |
|---|---|---|
| With the key in the "OFF" position, the transmission will shift out of "PARK" without the service brake being applied. Yes____ No X | X | |
| With the key in the "ACC" position, the transmission will shift out of "PARK" without the service brake being applied. Yes____ No X | X | |
| With the key in the "ON" position (engine off), the transmission will shift out of "PARK" without the service brake being applied. Yes____ No X | X | |
| With the key in the "START" position, the transmission will shift out of "PARK" without the service brake being applied. Yes____ No X | X | |
| With the key in the "OTHER" position (please specify), the transmission will shift out of "PARK" without the service brake being applied. Yes____ No____ | N/A | |
| Does the key stay between starting system positions without being held by operator? Yes____ No X<br>If so, please describe. | X | |
| With the vehicle battery disconnected, the gear selection control is locked in the "PARK" position. Yes__X__ No____ | X | |
| Brake force readings (force required to allow the transmission to shift out of "park"): | | |
| The vehicle is equipped with adjustable pedals: Yes____ No X | | |
| Fore Position: / Aft Position (if applicable) | | |
| Reading 1 80 N / Reading 1 _____<br>Reading 2 78 N / Reading 2 _____<br>Reading 3 80 N / Reading 3 _____<br>Reading 4 79 N / Reading 4 _____<br>Reading 5 80 N / Reading 5 _____<br>Avg. 79.4 N / Avg. _____ | | |
| *For vehicles equipped with adjustable pedals, record readings for both the Fore and Aft positions. For non-adjustable pedal vehicles, use the Fore position column to record values. | X | |

REMARKS:

RECORDED BY: G. Farrand DATE: 06/15/11

APPROVED BY: D. Messick

SECTION 4
TEST EQUIPMENT LIST

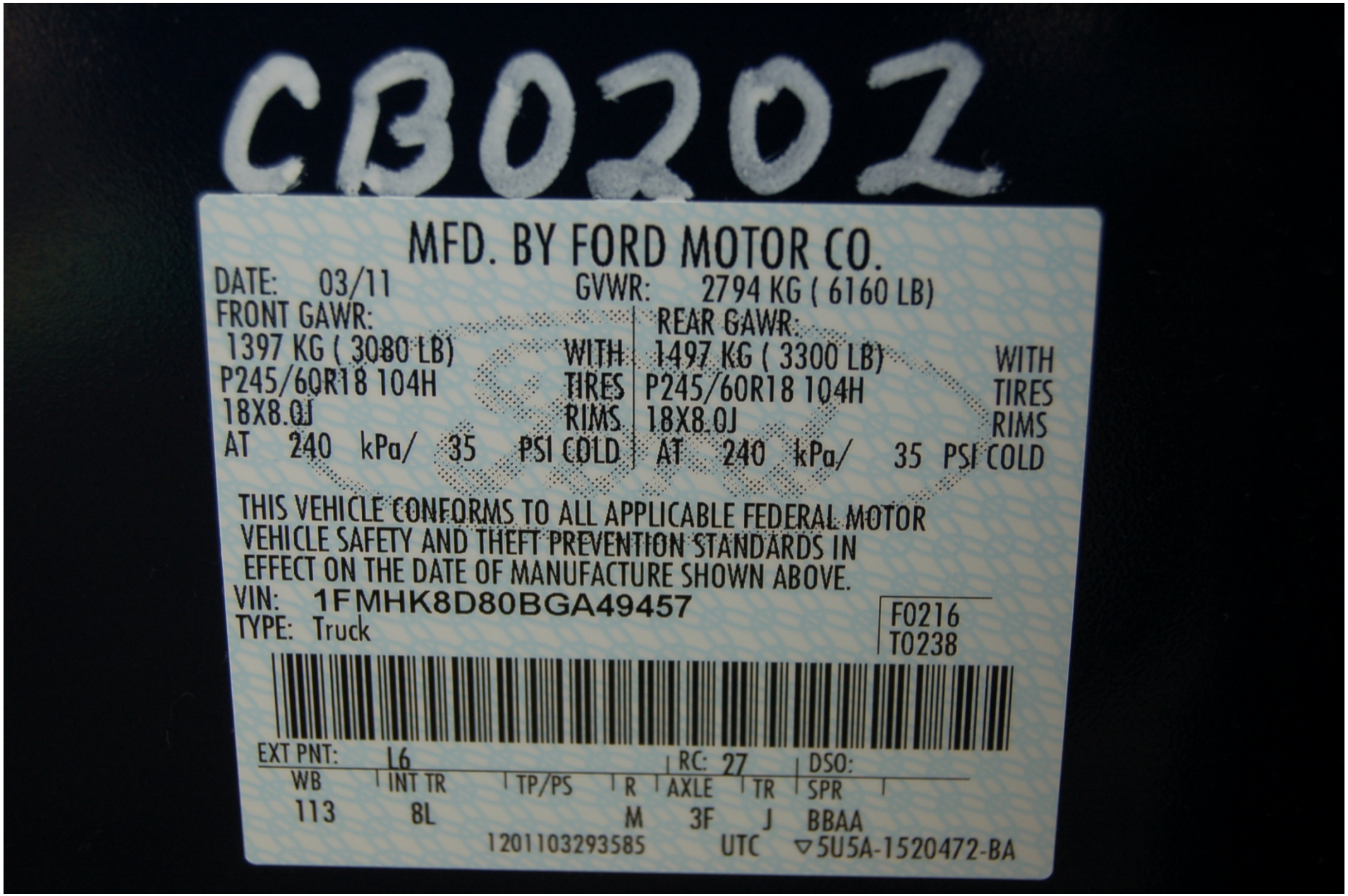
| ITEM | MFR | MODEL | S/N | CAL. PERIOD | DATE OF NEXT CALIB. | REMARKS |
|---|---|---|---|---|---|---|
| SLR DIGITAL CAMERA | NIKON | D50 | N/A | N/A | N/A | |
| TIRE PRESSURE GAUGE | WESKLER | 45-0/100 | 107 | 12 MO. | 04/12 | |
| INCLINOMETER | MITUTOYO | PRO 360 | 950-315 | N/A | BEFORE USE | |
| STEEL TAPE | STANLEY | FAT MAX | 33-890 | 12 MO. | 01/12 | |
| WHEEL SCALES | INTERCOMP | SERIES 94 | 199744 | 12 MO. | 03/12 | |
| WHEEL SCALES | INTERCOMP | SERIES 94 | 199744 | 12 MO. | 03/12 | |
| WHEEL SCALES | INTERCOMP | SERIES 94 | 199744 | 12 MO. | 03/12 | |
| WHEEL SCALES | INTERCOMP | SERIES 94 | 199744 | 12 MO. | 03/12 | |
| SPRING SCALE | CHATILLON | DPP-10 | 4729 | 12 MO. | BEFORE USE | |

# SECTION 5

# PHOTOGRAPHS

2011 XLT FORD EXPLORER
NHTSA NO. CB0202
FMVSS NO. 114

FIGURE 5.1
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE




2011 XLT FORD EXPLORER
NHTSA NO. CB0202
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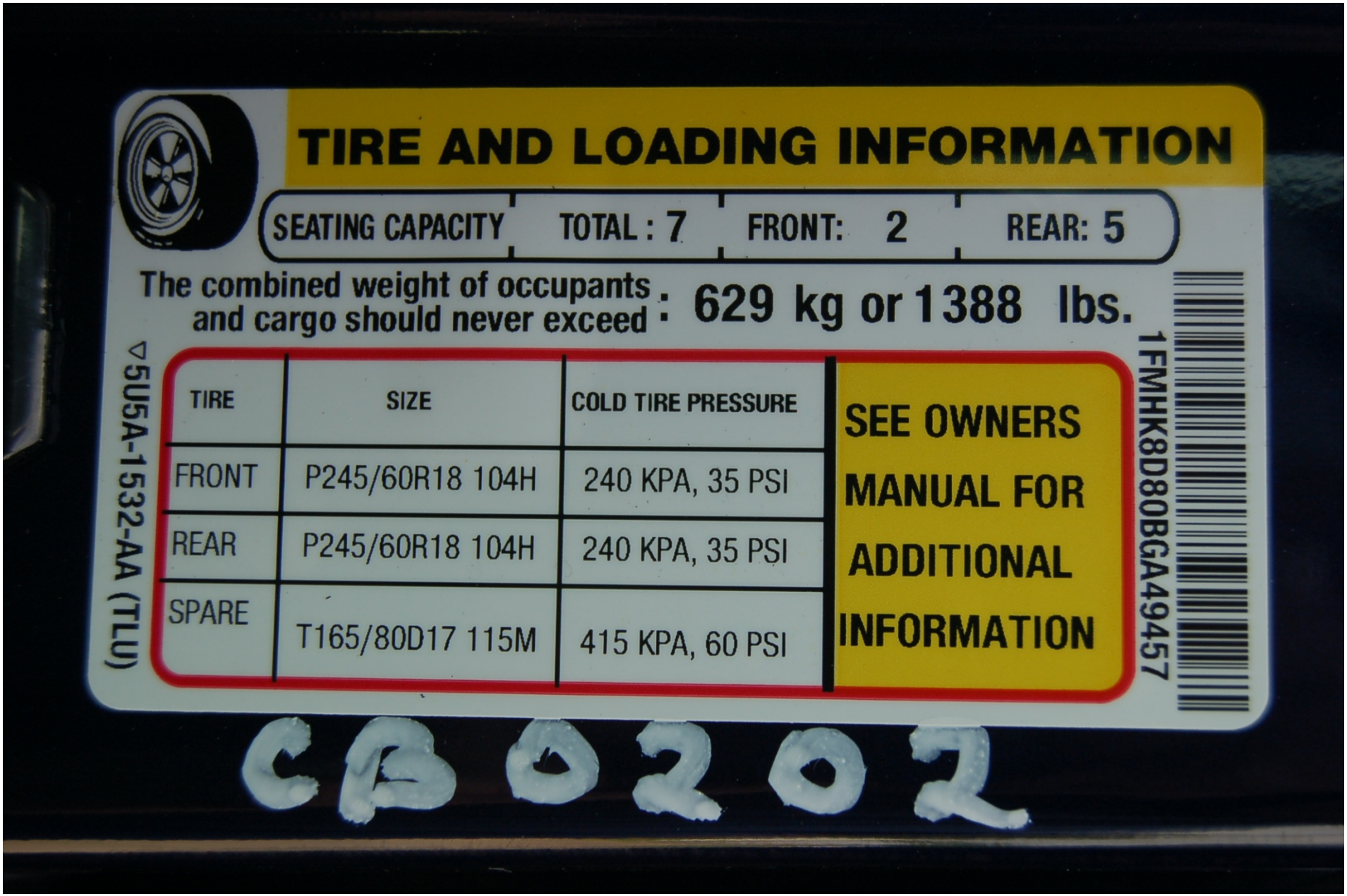
FIGURE 5.2
VEHICLE CERTIFICATION LABEL




2011 XLT FORD EXPLORER
NHTSA NO. CB0202
FMVSS NO. 114

FIGURE 5.3
VEHICLE TIRE INFORMATION LABEL


2011 XLT FORD EXPLORER
NHTSA NO. CB0202
FMVSS NO. 114

FIGURE 5.4
CLOSE-UP VIEW OF IGNITION KEY

2011 XLT FORD EXPLORER
NHTSA NO. CB0202
FMVSS NO. 114

FIGURE 5.5
CLOSE-UP VIEW OF IGNITION SWITCH


2011 XLT FORD EXPLORER
NHTSA NO. CB0202
FMVSS NO. 114

FIGURE 5.6
TRANSMISSION GEAR SELECTION CONTROL

2011 XLT FORD EXPLORER
NHTSA NO. CB0202
FMVSS NO. 114

FIGURE 5.7
LOCATION OF PARK OVERRIDE DEVICE