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

GENERAL MOTORS CORP.
2003 PONTIAC SUNFIRE PASSENGER CAR
NHTSA NO. C30123

GENERAL TESTING LABORATORIES, INC.
1623 LEEDSTOWN ROAD
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SEPTEMBER 17, 2003
FINAL REPORT

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Acceptance Date: 09/29/03
**Title andSubtitle**
Final Report of FMVSS 110 (Indicant) Test of 2003 PONTIAC SUNFIRE PASSENGER CAR
NHTSA No. C30123

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**Abstract**
This test was conducted on the subject, 2003 Pontiac Sunfire passenger car 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**
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Safety Engineering
FMVSS 110

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<thead>
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<th>SECTION</th>
<th>PAGE</th>
</tr>
</thead>
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<tr>
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<td>2</td>
<td>2</td>
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<td>3</td>
<td>3</td>
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<tr>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>11</td>
</tr>
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<td></td>
</tr>
<tr>
<td>5.2 Vehicle’s Certification Label</td>
<td></td>
</tr>
<tr>
<td>5.3 Vehicle’s Tire Information Label</td>
<td></td>
</tr>
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<td></td>
</tr>
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<td>5.5 Tire Showing Model</td>
<td></td>
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<td></td>
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<td>5.9 Vehicle Ballasted to Simulate Normal Load Condition</td>
<td></td>
</tr>
</tbody>
</table>

APPENDIX - Normal Load Occupation Distribution
SECTION 1
INTRODUCTION

1.0 PURPOSE OF INDICANT TEST

A 2003 Pontiac Sunfire passenger car 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 Pontiac Sunfire. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 1G2JB12F437186129

B. NHTSA No.: C30123

C. Manufacturer: GENERAL MOTORS CORP

D. Manufacture Date: 10/02

1.2 TEST DATE

The test vehicle was subjected to testing on May 22, 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 indciant test did not include any other requirements in FMVSS 110.

2.1 SUMMARY OF RESULTS

Test results are provided in Section 3.
SECTION 3
TEST DATA
VEHICLE MAKE/MODEL/BODY STYLE: 2003 PONTIAC SUNFIRE PASSENGER CAR  
VEHICLE NHTSA NO.: C30123; VIN: 1G2JB12F437186129  
LABORATORY: GENERAL TESTING LABORATORIES  
TEST DATE: 05/22/03

REQUIREMENT

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

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.  

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).  

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).

REMARKS:

RECORDED BY: M.C. DATE: 05/22/03
APPROVED BY:
DATA SHEET 2
TEST VEHICLE INFORMATION/RECEIVING INSPECTION

LABORATORY: GENERAL TESTING LABORATORIES

DATE: 06/22/03

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 PONTIAC SUNFIRE

MANUFACTURE DATE: 10/02    NHTSA NO.: C30123    BODY COLOR: BLACK

VIN: 1G2JB12F437186129         VEHICLE TYPE: PASSENGER CAR

GVWR 1616 kg (3562 lbs)    GAWR(Fr) 869 kg (1916 lbs)    GAWR(Rr) 747 kg (1647 lbs)

BELTED SEATING POSITIONS: FRONT 2    MID N/A    REAR 3    OTHER N/A

ENGINE DATA: 4 Cylinders    2.2 Liters    Cubic Inches

TRANSMISSION DATA: Automatic    Manual    5 No. of Speeds

FINAL DRIVE DATA: Rear Drive    Front Drive    4 Wheel Drive

INSTALLED TIRE DATA: Size - P195/65R15    Mfr. - B.F. GOODRICH

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

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Air Conditioning</td>
<td>Traction Control</td>
<td>X</td>
</tr>
<tr>
<td>X</td>
<td>Tinted Glass</td>
<td>All Wheel Drive</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Power Steering</td>
<td>Cruise Control</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Power Windows</td>
<td>X Rear Window Defroster</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Power Door Locks</td>
<td>Sun Roof or T-Top</td>
<td>X</td>
</tr>
<tr>
<td>Power Seat(s)</td>
<td>X Tachometer</td>
<td>X Front Disc Brakes</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Power Brakes</td>
<td>Tilt Steering Wheel</td>
<td>Rear Disc Brakes</td>
</tr>
<tr>
<td>Antilock Brake System</td>
<td>X AM/FM/CD</td>
<td></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: [Signature]      DATE: 05/22/03

APPROVED BY: [Signature]
DATA SHEET 3
CURB WEIGHT WITH OPTIONS AND NORMAL LOAD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 PONTIAC SUNFIRE PASSENGER CAR
VEHICLE NHTSA NO.: C30123 ; VIN: 1G2JB12F437186129
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/22/03

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

Tire Pressure:
LF 210 KPA (30 psi) LR 210 KPA (30 psi)
RF 210 KPA (30 psi) RR 210 KPA (30 psi)

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

LF 402 KG (886 LB) LR 211 KG (466 LB)
RF 367 KG (808 LB) RR 228 KG (498 LB)
Front Axle 768 KG (1694 LB)
Rear Axle 437 KG (964 LB)

Total Vehicle 1206 KG (2658 LB)

B. MEASURED VEHICLE WEIGHT IN NORMAL LOAD CONDITION

1) Seating Capacity (from Tire Information Placard) = 5
Seating Capacity (# of belted seating positions) = 5

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 446 KG (984 LB) LR 268 KG (593 LB)
RF 413 KG (911 LB) RR 281 KG (620 LB)
Frt Axle 860 KG (1895 LB) Rr Axle 550 KG (1213 LB)

Total Vehicle 1410 KG (3108 LB)
DATA SHEET 3 – CONTINUED

(5) Calculated Vehicle Normal Load on the Tire
   Front Tires (measured front axle normal load/2) = 430 KG (948 LB)
   Rear Tires (measured front axle normal load/2) = 275 KG (607 LB)

(6) High Speed Test Load from (X) FMVSS 109 (S5.5), or ( ) 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>P195/65R15</td>
<td>P195/65R15</td>
</tr>
<tr>
<td>Max. Load Rating on Sidewall</td>
<td>580 KG (1279 LBS)</td>
<td>580 KG (1279 LBS)</td>
</tr>
<tr>
<td>Reduced Sidewall Load Rating (if applicable)*</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>High Speed Test Load (88% of sidewall max. load rating)</td>
<td>511 KG (1126 LBS)</td>
<td>511 KG (1126 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: 05/22/03
APPROVED BY: [Signature]
DATA SHEET 4
TIRED INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 PONTIAC SUNFIRE PASSENGER CAR
VEHICLE NHTSA NO.: C30123; VIN: 1G2JB12F437186129
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/22/03

A. Vehicle Type from Certification Label: Passenger Car

B. Identify Vehicle Labeling:

Vehicle has a combined Certification Tire Information Label ( ) Yes (X) No ______
Is Label Permanently Affixed: ( ) Yes ( ) No ______
Label Location: _______________________________________.
Description of Label: ______________________________________

Vehicle has a separate Tire Information Label or Placard (X) Yes ( ) No ______
Is Label Permanently Affixed: (X) Yes ( ) No ______
Label Location: _______ Inside Door Jam
Description of Label: _______ White/Black Sticker

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

Vehicle Capacity Weight - 400 KG (882 LBS)

Designated Seating Capacity (DSC) - 5
Expressed In—
(1) Total No. of Occupants (X) Yes ( ) No ______
(2) Terms of Occupants for Each Seat Location (X) Yes ( ) No ______

Manufacturer's Recommended Tire Size and Cold Tire Inflation Pressure For Maximum Load Vehicle Weight:

P195/65R15 FRONT - 210 kPa (30 psi)
REAR - 210 kPa (30 psi)

Manufacturer's Recommended Tire Size and Cold Tire Inflation Pressure For Other Load Conditions: NONE

REMARKS:

RECORDED BY: __________________________ DATE: 05/22/03
APPROVED BY: __________________________
VEHICLE MAKE/MODEL/BODY STYLE: 2003 PONTIAC SUNFIRE PASSENGER CAR
VEHICLE NHTSA NO.: C30123; VIN: 1G2JB12F437186129
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/22/03

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

INFORMATION FROM TIRE SIDEWALL:

<table>
<thead>
<tr>
<th>Tire Size Designation</th>
<th>P195/65R15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tire Load Index/Speed Symbol</td>
<td>88S</td>
</tr>
<tr>
<td>Maximum Inflation Pressure</td>
<td>240 kPa (35 psi)</td>
</tr>
<tr>
<td>Maximum Load Rating</td>
<td>580 KG (1279 LBS.)</td>
</tr>
<tr>
<td>Mfr. Name or Brand &amp; Code</td>
<td>B.F. GOODRICH TOURING TA</td>
</tr>
<tr>
<td>Tube or Tubeless</td>
<td>TUBELESS</td>
</tr>
<tr>
<td>Treadwear/Traction/Temp. Grades</td>
<td>540/A/B</td>
</tr>
<tr>
<td>Sidewall (Plies &amp; Composition)</td>
<td>1 PLY STEEL</td>
</tr>
<tr>
<td>Tread (Plies &amp; Composition)</td>
<td>1 PLY POLYESTER</td>
</tr>
<tr>
<td></td>
<td>2 PLY STEEL</td>
</tr>
</tbody>
</table>

Serial Number: Right Front - LOCATED ON INSIDE OF TIRE

Tire has "DOT" markings: (X) YES ( ) NO ( ) UNDETERMINED

REMARKS:

RECORDED BY: DATE: 05/22/03
APPROVED BY:
### 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>06/20/03</td>
</tr>
<tr>
<td></td>
<td>#2 199744RF</td>
<td>199744RF</td>
<td>06/02</td>
<td>06/20/03</td>
</tr>
<tr>
<td></td>
<td>#3 199744LR</td>
<td>199744LR</td>
<td>06/02</td>
<td>06/20/03</td>
</tr>
<tr>
<td></td>
<td>#4 199744RR</td>
<td>199744RR</td>
<td>06/02</td>
<td>06/20/03</td>
</tr>
<tr>
<td>PRESSURE GAGE</td>
<td>WESKLER</td>
<td>0-100</td>
<td>05/03</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
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.