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

GENERAL MOTORS CORP.
2003 PONTIAC MONTANA, MPV
NHTSA NO. C30122

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

SEPTEBER 03, 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
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Prepared By: [Signature]
Approved By: [Signature]
Approval Date: 9/03/03

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: [Signature]
Acceptance Date: 9/04/03
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<th>7. Author(s)</th>
<th>8. Performing Organ. Rep#</th>
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<tbody>
<tr>
<td>Grant Farrand, Project Engineer</td>
<td>GTL-DOT-03-110(INDICANT)-003</td>
</tr>
<tr>
<td>Debbie Messick, Project Manager</td>
<td></td>
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<th>9. Performing Organization Name and Address</th>
<th>10. Work Unit No. (TRAIS)</th>
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<tr>
<td>General Testing Laboratories, Inc.</td>
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</tr>
<tr>
<td>1623 Leedstown Road</td>
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<td>Colonial Beach, Va 22443</td>
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<th>12. Sponsoring Agency Name and Address</th>
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<td></td>
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<td></td>
<td>Office of Vehicle Safety Compliance (NVS-220)</td>
</tr>
<tr>
<td></td>
<td>400 7th Street, S.W., Room 6111</td>
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<tr>
<td></td>
<td>Washington, DC 20590</td>
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<td>Final Test Report May 22, 2003</td>
<td>NVS-120 &amp; NVS 220</td>
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<th>15. Supplementary Notes</th>
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<td>This test was conducted on the subject, 2003 Pontiac Montana MPV 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.</td>
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<td>Vehicle Testing</td>
<td>Copies of this report are available from NHTSA</td>
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<tr>
<td>Safety Engineering</td>
<td>NHTSA Technical Reference Div., Rm. 5108 (NPO-230)</td>
</tr>
<tr>
<td>FMVSS 110</td>
<td>400 7th St., S.W. Washington, DC 20590</td>
</tr>
<tr>
<td></td>
<td>Telephone No. (202) 366-4946</td>
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<td>UNCLASSIFIED</td>
<td>23</td>
<td></td>
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Form DOT F 1700.7 (8-72)
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>PAGE</th>
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<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>
</tbody>
</table>

5.1 ¾ Frontal View of Vehicle
5.2 Vehicle’s Certification and Tire Information Label
5.3 Tire Showing Brand
5.4 Tire Showing Model
5.5 Tire Showing Size
5.6 Tire Showing Max Load Rating and Max Inflation Pressure
5.7 Vehicle Ballasted to Simulate Normal Load Condition

**APPENDIX** – Normal Load Occupation Distribution
SECTION 1

INTRODUCTION

1.0 PURPOSE OF INDICANT TEST

A 2003 Pontiac Montana MPV 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 Montana MPV. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 1GMDX03EX3D111197

B. NHTSA No.: C30122

C. Manufacturer: GENERAL MOTORS CORP.

D. Manufacture Date: 07/02

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 indicant 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 Pontiac Montana is a multipurpose passenger vehicle (MPV) 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
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).  

NO*

REMARKS: * The label did not appear to be permanently affixed.

RECORDED BY:  

DATE: 05/22/03

APPROVED BY:  

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

LABORATORY: GENERAL TESTING LABORATORIES

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 PONTIAC MONTANA MPV

MANUFACTURE DATE: 07/02  NHTSA NO.: C30122  BODY COLOR: GALAXY SILVER METALLIC

VIN: 1GMDX03FX3D111197

VEHICLE TYPE: MPV

GVWR 2430 kg (5357 lbs)  GAWR(Fr) 1250 kg (2755 lbs)  GAWR(Rr) 1250 kg (2755 lbs)

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

ENGINE DATA: 6 Cylinders 3.4 Liters  Cubic Inches

TRANSMISSION DATA:  X Automatic  Manual  4 No. of Speeds

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

INSTALLED TIRE DATA: Size - P215/70R15  Mfr. - GENERAL

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>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Air Conditioning</td>
<td>Traction Control</td>
</tr>
<tr>
<td>X</td>
<td>Tinted Glass</td>
<td>All Wheel Drive</td>
</tr>
<tr>
<td>X</td>
<td>Power Steering</td>
<td>X Cruise Control</td>
</tr>
<tr>
<td>X</td>
<td>Power Windows</td>
<td>X Rear Window Defroster</td>
</tr>
<tr>
<td>X</td>
<td>Power Door Locks</td>
<td>Sun Roof or T-Top</td>
</tr>
<tr>
<td>X</td>
<td>Power Seat Driver Side</td>
<td>X Tachometer</td>
</tr>
<tr>
<td>X</td>
<td>Power Brakes</td>
<td>X Tilt Steering Wheel</td>
</tr>
<tr>
<td>X</td>
<td>Antilock Brake System</td>
<td>X AM/FM/CD</td>
</tr>
</tbody>
</table>

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

REMARKS:

RECORDED BY:  DATE: 05/22/03

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

VEHICLE MAKE/MODEL/ BODY STYLE: 2003 PONTIAC MONTANA MPV

VEHICLE NHTSA NO.: C30122
VIN: 1GMDX03EX3D111197
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/22/03

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

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

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

   LF ____ 554 KG (1222 LB)  LR ____ 370 KG (816 LB)
   RF ____ 494 KG (1089 LB)  RR ____ 393 KG (866 LB)

   Front Axle ____ 1048 KG (2311 LB)  Rear Axle ____ 763 KG (1682 LB)

   Total Vehicle ____ 1811 KG (3993 LB)

B. MEASURED VEHICLE WEIGHT IN NORMAL LOAD CONDITION

1) Seating Capacity (from Tire Information Placard) = N/A
   Seating Capacity (# of belted seating positions) = 7

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 ____ 606 KG (1336 LB)  LR ____ 415 KG (916 LB)
   RF ____ 551 KG (1215 LB)  RR ____ 442 KG (975 LB)

   Frt Axle ____ 1157 KG (2551 LB)  Rr Axle ____ 858 KG (1891 LB)

   Total Vehicle ____ 2015 KG (4442 LB)
DATA SHEET 3 – CONTINUED

(5) Calculated Vehicle Normal Load on the Tire
Front Tires (measured front axle normal load/2) = 579 KG (1276 LB)
Rear Tires (measured front axle normal load/2) = 429 KG (945 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>P215/70R15</td>
<td>P215/70R15</td>
</tr>
<tr>
<td>Max. Load Rating on Sidewall</td>
<td>735 KG (1620 LBS)</td>
<td>735 KG (1620 LBS)</td>
</tr>
<tr>
<td>Reduced Sidewall Load Rating <em>(if applicable)</em></td>
<td>668 KG (1473 LBS)</td>
<td>668 KG (1473 LBS)</td>
</tr>
<tr>
<td>High Speed Test Load <em>(88% of sidewall max. load rating)</em></td>
<td>588 KG (1296 LBS)</td>
<td>588 KG (1296 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
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 PONTIAC MONTANA MPV
VEHICLE NHTSA NO.: C30122; VIN: 1GMDX03EX3D111197
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/22/03

A. Vehicle Type from Certification Label: MPV

B. Identify Vehicle Labeling:

Vehicle has a combined Certification Tire Information Label (x) Yes ( ) No
Is Label Permanently Affixed: ( ) Yes (X) No (Label is Loose)
Label Location: Inside Driver's Side Door Jam
Description of Label: White/Black 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 ( ) 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:

P215/70R15 240 kPa (35 psi)
FRONT - 240 kPa (35 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 an MPV do not include Vehicle Capacity Weight (VCW) or Designated Seating Capacity (DSP) as required by FMVSS 110 passenger car labeling.

RECORDED BY: DATE: 05/22/03
APPROVED BY:
DATA SHEET 5
VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2003 PONTIAC MONTANA MPV
VEHICLE NHTSA NO.: C30122 ; VIN: 1GMDX03EX3D111197
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:

Right Front Tire

Tire Size Designation P215/70R15
Tire Load Index/Speed Symbol 97S
Maximum Inflation Pressure 300 kPa (44 psi)
Maximum Load Rating 735 KG (1620 LB.)
Mfr. Name or Brand & Code GENERAL XP 2000 GT
Tube or Tubeless TUBELESS
Treadwear/Traction/Temp. Grades 400/A/B
Sidewall (Plies & Composition) 2 PLY POLYESTER
Tread (Plies & Composition) 2 PLY POLYESTER
2 PLY STEEL
Serial Number: Right Front - LOCATED ON INSIDE OF TIRE

Tire has “DOT” markings: (X) YES ( ) NO ( ) UNDETERMINED

REMARKS:

RECORDED BY: [Signature] DATE: 05/22/03
APPROVED BY: [Signature]
# SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

## TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

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<tr>
<th>EQUIPMENT</th>
<th>DESCRIPTION</th>
<th>MODEL/ SERIAL NO.</th>
<th>CAL. DATE</th>
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<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>
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<td></td>
<td>#4 199744RR</td>
<td>199744RR</td>
<td>06/02</td>
<td>06/03</td>
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<td>PRESSURE GAGE</td>
<td>WEiskler</td>
<td>0-100</td>
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<td>SURFACE LEVEL</td>
<td>GTL</td>
<td>N/A</td>
<td>BEFORE USE</td>
<td>BEFORE USE</td>
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SECTION 5
PHOTOGRAPHS
2003 PONTIAC MONTANA
NHTSA NO. C30122
FMVSS NO. 110 (INDICANT)

FIGURE 5.3
TIRE SHOWING BRAND
2003 PONTIAC MONTANA
NHTSA NO. C30122
FMVSS NO. 110 (INDICANT)

FIGURE 5.7
VEHICLE BALLASTED TO SIMULATE
NORMAL LOAD CONDITION
## 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>
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<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.