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

GENERAL MOTORS CORPORATION
2003 CHEVROLET TRAILBLAZER, MPV
NHTSA NO. C30116

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

SEPTEMBER 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: [Date]

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Accepted By: [Signature]

Acceptance Date: [Date]
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<td>Final Report of FMVSS 110 Indicant Testing of 2003 CHEVROLET TRAILBLAZER MPV</td>
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<td>Debbie Messick, Project Manager</td>
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<td>9. Performing Organization Name and Address</td>
<td>General Testing Laboratories, Inc.</td>
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<tr>
<td></td>
<td>1623 Leedstown Road</td>
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<td>May 21, 2003</td>
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<td>16. Abstract</td>
<td>This test was conducted on the subject, 2003 Chevrolet Trailblazer 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>NHTSA Technical Reference Div., Rm. 5108 (NPO-230)</td>
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<tr>
<td></td>
<td>400 7th St., S.W. Washington, DC 20590</td>
</tr>
<tr>
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<td>Telephone No. (202) 366-4946</td>
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APPENDIX – Normal Load Occupation Distribution
SECTION 1

INTRODUCTION

1.0 PURPOSE OF INDICANT TESTING

A 2003 Chevrolet Trailblazer 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 Chevrolet Trailblazer MPV. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 1GNDS13S332347589

B. NHTSA No.: C30116

C. Manufacturer: GENERAL MOTORS CORPORATION

D. Manufacture Date: 04/03

1.2 TEST DATE

The test vehicle was subjected to testing on May 21, 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 Chevrolet Trailblazer 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
DATA SHEET 1
SUMMARY

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET TRAILBLAZER MPV.
VEHICLE NHTSA NO.: C30116; VIN: 1GNDS135332347689
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/21/03

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: [Signature]  DATE: 05/21/03
APPROVED BY: [Signature]

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

LABORATORY: GENERAL TESTING LABORATORIES      DATE: 05/21/03

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 CHEVROLET TRAILBLAZER MPV

MANUFACTURE DATE: 04/03   NHTSA NO.: C30116   BODY COLOR: DARK GRAY METALLIC

VIN: 1CND513283247669   VEHICLE TYPE: MPV

GVWR 2618 kg (5650 lbs)   GAWR (Fr) 1338 kg (2950 lbs)   GAWR (Rr) 1452 kg (3200 lbs)

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

ENGINE DATA: 6 Cylinders 4.2 Liters   Cubic Inches

TRANSMISSION DATA: X Automatic ___ Manual   4 No. of Speeds

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

INSTALLED TIRE DATA: Size - P245/70R16   Mfr. - B.F. GOODRICH

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>X</th>
<th>Clock</th>
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</thead>
<tbody>
<tr>
<td>X Air Conditioning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Tinted Glass</td>
<td>All Wheel Drive</td>
<td>X</td>
<td>Roof Rack</td>
</tr>
<tr>
<td>X Power Steering</td>
<td>Cruise Control</td>
<td></td>
<td>Console</td>
</tr>
<tr>
<td>X Power Windows</td>
<td>Rear Window Defroster</td>
<td>X</td>
<td>Driver Air Bag</td>
</tr>
<tr>
<td>X Power Door Locks</td>
<td>Sun Roof or T-Top</td>
<td>X</td>
<td>Passenger Air Bag</td>
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<td>Power Seat(s)</td>
<td>Tachometer</td>
<td>X</td>
<td>Front Disc Brakes</td>
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<td>X Power Brakes</td>
<td>Tilt Steering Wheel</td>
<td>X</td>
<td>Rear Disc Brakes</td>
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<tr>
<td>X Anti-lock Brake System</td>
<td>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: 05/21/03

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

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET TRAILBLAZER MPV
VEHICLE NHTSA NO.: C30116 ; VIN: 1GNDS13S332347689
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/23/03

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

Tire Pressure:
LF _____ 220 _ KPA (32 psi)__ LR ____ 220 _____ KPA (32 psi)_
RF _______ 220 _ KPA (32 psi)__ RR ____ 220 ____ KPA (32 psi)

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

  LF ____  551 _ KG (1214 LB) ____ LR _______ 470 ___ KG (1036LB)
  RF ______ 518 _ KG (1141 LB) ___ RR _______ 480 ___ KG (1059LB)
  Front Axle ____ 1068 _ KG (2355.LB) ______ Rear Axle __ 950 _ KG (2095LB)

  Total Vehicle _______ 2018 _ KG (4450 LB)_______

B. VEHICLE NORMAL LOAD ON THE TIRE

  (1) Seating Capacity (from Tire Information Placard) = _______ N/A _______
  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 Axles

  LF _______ 591 _ KG (1304 LB) ______ LR _______ 526 __ KG (1160 LB)
  RF _______ 564 _ KG (1244 LB) ______ RR _______ 541 __ KG (1193 LB)

  Frt Axle ______ 1156 _ KG (2548 LB)   Rr Axle ______ 1067 _ KG (2353 LB)

  Total Vehicle ______ 2223 _ KG (4901 LB)_______
DATA SHEET 3 – CONTINUED

(5) Calculated Vehicle Normal Load on the Tire
Front Tires (measured front axle normal load/2) = 578 KG (1274 LB)
Rear Tires (measured front axle normal load/2) = 534 KG (1177 LB)

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

Front | Rear
---|---
(a) Installed Tire Size | P245/70R16 | P245/70R16
Max. Load Rating on Sidewall | 950 KG (2094 LBS) | 950 KG (2094 LBS)
Reduced Sidewall Load Rating (if applicable)* | 864 KG (1904 LBS) | 864 KG (1904 LBS)
High Speed Test Load (88% of sidewall max. load rating) | 760 KG (1676 LBS) | 760 KG (1676 LBS)
(b) Optional Tire Size(s) | NONE | NONE

* 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: ___________________________ DATE: 05/21/03

APPROVED BY: ___________________________
DATA SHEET 4
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET TRAILBLAZER MPV
VEHICLE NHTSA NO.: C30116 ; VIN: 1GNDS183332347689
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/21/03

A. Vehicle Type from Certification Label: MPV

B. Identify Vehicle Labeling:

Vehicle has a combined Certification Tire Information Label ( ) Yes ( ) No
Is Label Permanently Affixed: (X) Yes ( ) No
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:

P245/70R16
FRONT - 220 kPa (32 psi)
REAR - 220 kPa (32 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: [Signature] DATE: 05/21/03

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

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET TRAILBLAZER MPV
VEHICLE NHTSA NO.: C30116 VIN: 1GNDS13S332347689
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/21/03

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

INFORMATION FROM TIRE SIDEWALL:

Right Front Tire

Tire Size Designation
P245/70R16

Tire Load Index/Speed Symbol
106S

Maximum Inflation Pressure
240 kPa (35 psi)

Maximum Load Rating
950 KG (2094 LBS.)

Mfr. Name or Brand & Code
B.F. GOODRICH, OPEN TRAIL T/A

Tube or Tubeless
TUBELESS

Treadwear/Traction/Temp. Grades
420/B/B

Sidewall (Plies & Composition)
2 PLY POLYESTER

Tread (Plies & Composition)
2 PLY POLYESTER
2 STEEL

Serial Number: Right Front - COULD NOT LOCATE ON OUTSIDE OF TIRE

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

REMARKS: The "DOT" marking did not appear on the outside sidewall of the installed tires and the inside sidewalls were not easily accessible.

RECORDED BY: D. M. DATE: 05/21/03
APPROVED BY: D. M.
# SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

## TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

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<td>199744LF</td>
<td>06/02</td>
<td>06/03</td>
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<td></td>
<td>#2 199744RF</td>
<td>199744RF</td>
<td>06/02</td>
<td>06/03</td>
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<td></td>
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<td>199744LR</td>
<td>06/02</td>
<td>06/03</td>
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<tr>
<td></td>
<td>#4 199744RR</td>
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<td>PRESSURE GAGE</td>
<td>WESKLER</td>
<td>0-100</td>
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<tr>
<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
FIGURE 5.2
VEHICLE'S CERTIFICATION LABEL AND TIRE INFORMATION LABEL
FIGURE 5.7
TIRE SHOWING MAX LOAD RATING AND MAX INFLATION PRESSURE
2003 CHEVROLET TRAILBLAZER
NHTSA NO. C30116
FMVSS NO. 110 (INDICANT)

FIGURE 5.8
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>
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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.