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

DAIMLERCHRYSLER CORPORATION
2003 DODGE GRAND CARAVAN, MPV
NHTSA NO. C30310

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

SEPTEMBER 15, 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-229)
WASHINGTON, D.C. 20590
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June 3, 2003

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16. Abstract
This test was conducted on the subject 2003 Dodge Caravan 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.

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Test Procedure and Summary of Results</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Test Data</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Test Equipment List</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Photographs</td>
<td>11</td>
</tr>
<tr>
<td>5.1 ¾ Frontal View of Vehicle</td>
<td></td>
</tr>
<tr>
<td>5.2 Vehicle’s Certification and Tire Information Label</td>
<td></td>
</tr>
<tr>
<td>5.3 Tire Showing Brand</td>
<td></td>
</tr>
<tr>
<td>5.4 Tire Showing Model</td>
<td></td>
</tr>
<tr>
<td>5.5 Tire Showing Size, Load Index and Speed Symbol</td>
<td></td>
</tr>
<tr>
<td>5.6 Tire Showing Max Load Rating</td>
<td></td>
</tr>
<tr>
<td>5.7 Tire Showing Max Inflation Pressure</td>
<td></td>
</tr>
<tr>
<td>5.8 Tire Showing Serial Number</td>
<td></td>
</tr>
<tr>
<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 Dodge Caravan 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 Dodge Caravan MPV. Nomenclature applicable to the test vehicle are:

A. **Vehicle Identification Number** 2D4GP34393R164425

B. **NHTSA No.**: C30310

C. **Manufacturer**: DAIMLERCHRYSLER CORPORATION

D. **Manufacture Date**: 11/02

1.2 TEST DATE

The test vehicle was subjected to testing on June 3, 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 Dodge Caravan 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 DODGE GRAND CARAVAN MPV
VEHICLE NHTSA NO.: C30310; VIN: 2D4GP34393R164425
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 06/03/03

REQUIREMENT

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: 06/03/03
APPROVED BY: [Signature]
DATA SHEET 2
TEST VEHICLE INFORMATION/RECEIVING INSPECTION

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

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 DODGE GRAND CARAVAN MPV

MANUFACTURE DATE: 11/02  NHTSA NO.: C30310  BODY COLOR: BLUE

VIN: 2D4GP3439164425  VEHICLE TYPE: MPV

GVWR 2518 kg (5500 lbs)  GAWR(Fr) 1293 kg (2850 lbs)  GAWR(Rr) 1293 kg (2850 lbs)

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

ENGINE DATA: 6 Cylinders 3.3 Liters  ____ Cubic inches

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

FINAL DRIVE DATA:  ____ Rear Drive  ____ Front Drive  ____ 4 Wheel Drive AWD

INSTALLED TIRE DATA: Size: __P215/70R15____  Mfr. - ____ GOODYEAR _____

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

<table>
<thead>
<tr>
<th>X</th>
<th>Air Conditioning</th>
<th>Traction Control</th>
<th>X</th>
<th>Clock</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Tinted Glass</td>
<td>All Wheel Drive</td>
<td></td>
<td>Roof Rack</td>
</tr>
<tr>
<td>X</td>
<td>Power Steering</td>
<td>X Cruise Control</td>
<td></td>
<td>Console</td>
</tr>
<tr>
<td>X</td>
<td>Power Windows</td>
<td>X Rear Window Defroster</td>
<td>X</td>
<td>Driver Air Bag</td>
</tr>
<tr>
<td>X</td>
<td>Power Door Locks</td>
<td>Sun Roof or T-Top</td>
<td>X</td>
<td>Passenger Air Bag</td>
</tr>
<tr>
<td></td>
<td>Power Seat(s)</td>
<td>X Tachometer</td>
<td>X</td>
<td>Front Disc Brakes</td>
</tr>
<tr>
<td>X</td>
<td>Power Brakes</td>
<td>X Tilt Steering Wheel</td>
<td></td>
<td>Rear Disc Brakes</td>
</tr>
<tr>
<td></td>
<td>Antilock 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: 06/03/03

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

VEHICLE MAKE/MODEL/BODY STYLE: 2003 DODGE GRAND CARAVAN MPV
VEHICLE NHTSA NO.: C30310; VIN: 2D4GP34393R164425
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 06/03/03

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

Tire Pressure:
LF: 248 KPA (36 psi) LR: 248 KPA (36 psi)
RF: 248 KPA (36 psi) RR: 248 KPA (36 psi)

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LF</td>
<td>542</td>
<td>KG (1185 LB)</td>
</tr>
<tr>
<td>RF</td>
<td>528</td>
<td>KG (1164 LB)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LR</td>
<td>406</td>
<td>KG (895 LB)</td>
</tr>
<tr>
<td>RR</td>
<td>404</td>
<td>KG (890 LB)</td>
</tr>
<tr>
<td>Front Axle</td>
<td>1070</td>
<td>KG (2359 LB)</td>
</tr>
<tr>
<td>Rear Axle</td>
<td>810</td>
<td>KG (1785 LB)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Vehicle</td>
<td>1880</td>
<td>KG (4144 LB)</td>
</tr>
</tbody>
</table>

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)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LF</td>
<td>609</td>
<td>KG (1342 LB)</td>
</tr>
<tr>
<td>RF</td>
<td>571</td>
<td>KG (1259 LB)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LR</td>
<td>456</td>
<td>KG (1006 LB)</td>
</tr>
<tr>
<td>RR</td>
<td>446</td>
<td>KG (984 LB)</td>
</tr>
<tr>
<td>Frt Axle</td>
<td>1180</td>
<td>KG (2601 LB)</td>
</tr>
<tr>
<td>Rr Axle</td>
<td>903</td>
<td>KG (1990 LB)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Vehicle</td>
<td>2082</td>
<td>KG (4591 LB)</td>
</tr>
</tbody>
</table>
(5) Calculated Vehicle Normal Load on the Tire
Front Tires (measured front axle normal load/2) = 590 KG (1301 LB)
Rear Tires (measured front axle normal load/2) = 451 KG (995 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>750 KG (1653 LBS)</td>
<td>750 KG (1653 LBS)</td>
</tr>
<tr>
<td>Reduced Sidewall Load Rating (if applicable)*</td>
<td>682 KG (1503 LBS)</td>
<td>682 KG (1503 LBS)</td>
</tr>
<tr>
<td>High Speed Test Load (88% of sidewall max. load rating)</td>
<td>600 KG (1323 LBS)</td>
<td>600 KG (1323 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: 06/03/03

APPROVED BY: [Signature]
DATA SHEET 4
TIRED INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 DODGE GRAND CARAVAN MPV
VEHICLE NHTSA NO.: C30310  VIN: 2D4GP34393R164425
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 06/03/03

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: (X) Yes ( ) No
Label Location: ___ __________ __________ Driver Door
Description of Label: __________ Vinyl 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 FRONT - 248 kPa (36 psi)
REAR - 248 kPa (36 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: M. A. DATE: 06/03/03
APPROVED BY: D. M. N.
DATA SHEET 5
VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2003 DODGE GRAND CARAVAN MPV
VEHICLE NHTSA NO.: C30310
VIN: 2D4GP34393R164425
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 06/03/03

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: 98S
Maximum Inflation Pressure: 300 kPa (44 psi)
Maximum Load Rating: 750 KG (1653 LBS)
Mfr. Name or Brand & Code: GOODYEAR INTEGRITY
Tube or Tubeless: TUBELESS
Treadwear/Traction/Temp. Grades: 460/A/B
Sidewall (Plies & Composition): 1 PLY POLYESTER
Tread (Plies & Composition): 1 PLY POLYESTER
2 PLY STEEL

Serial Number: Right Front - DOT-MD34 C9WR

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

REMARKS:

RECORDED BY: DATE: 06/03/03
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>11/02</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.