

REPORT NUMBER 110(IND)-GTL-03-002

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

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

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SEPTEMBER 03, 2003

FINAL REPORT

PREPARED FOR

**U. S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
SAFETY ENFORCEMENT  
OFFICE OF VEHICLE SAFETY COMPLIANCE  
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15. Supplementary Notes		
16. Abstract 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.		
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## 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: 1GNDS13S332347689

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: 1GNDS13S332347689  
 LABORATORY: GENERAL TESTING LABORATORIES  
 TEST DATE: 05/21/03

<u>REQUIREMENT</u>	<u>YES/NO</u>
The vehicle is equipped with tires that meet the requirements of FMVSS 109 or FMVSS 119.	<u>YES</u>
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.	<u>YES</u>
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).	<u>N/A</u>
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).	<u>YES</u>

REMARKS:

RECORDED BY:

M. A. B. L. A.

DATE: 05/21/03

APPROVED BY:

D. M. M. I. C. I.



**DATA SHEET 2**  
**TEST VEHICLE INFORMATION/RECEIVING INSPECTION**

LABORATORY: GENERAL TESTING LABORATORIESDATE: 05/21/03VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 CHEVROLET TRAILBLAZER MPVMANUFACTURE DATE: 04/03 NHTSA NO.: C30116 BODY COLOR: DARK GRAY METALLICVIN: 1GNDS13S332347689VEHICLE TYPE: MPVGVWR 2518 kg (5550 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/AENGINE DATA: 6 Cylinders 4.2 Liters Cubic InchesTRANSMISSION DATA: X Automatic Manual 4 No. of SpeedsFINAL DRIVE DATA: X Rear Drive Front Drive 4 Wheel DriveINSTALLED TIRE DATA: Size - P245/70R16 Mfr. - B.F. GOODRICH

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

<input checked="" type="checkbox"/>	Air Conditioning		Traction Control	<input checked="" type="checkbox"/>	Clock
<input checked="" type="checkbox"/>	Tinted Glass		All Wheel Drive	<input checked="" type="checkbox"/>	Roof Rack
<input checked="" type="checkbox"/>	Power Steering		Cruise Control	<input checked="" type="checkbox"/>	Console
<input checked="" type="checkbox"/>	Power Windows	<input checked="" type="checkbox"/>	Rear Window Defroster	<input checked="" type="checkbox"/>	Driver Air Bag
<input checked="" type="checkbox"/>	Power Door Locks		Sun Roof or T-Top	<input checked="" type="checkbox"/>	Passenger Air Bag
	Power Seat(s)	<input checked="" type="checkbox"/>	Tachometer	<input checked="" type="checkbox"/>	Front Disc Brakes
<input checked="" type="checkbox"/>	Power Brakes	<input checked="" type="checkbox"/>	Tilt Steering Wheel	<input checked="" type="checkbox"/>	Rear Disc Brakes
<input checked="" type="checkbox"/>	Antilock Brake System	<input checked="" type="checkbox"/>	AM/FM/CD		Other -

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

REMARKS:

RECORDED BY: M. A. GhaDATE: 05/21/03APPROVED BY: D. M. M. M. M.

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	<u>551</u>	KG (1214 LB)	LR	<u>470</u>	KG (1036LB)
RF	<u>518</u>	KG (1141 LB)	RR	<u>480</u>	KG (1059LB)
Front Axle <u>1068</u> KG (2355 LB)			Rear Axle <u>950</u> KG (2095LB)		
Total Vehicle <u>2018</u> 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	<u>591</u>	KG (1304 LB)	LR	<u>526</u>	KG (1160 LB)
RF	<u>564</u>	KG (1244 LB)	RR	<u>541</u>	KG (1193 LB)
Frt Axle <u>1156</u> KG (2548 LB)			Rr Axle <u>1067</u> KG (2353 LB)		
Total Vehicle <u>2223</u> 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	<u>P245/70R16</u>	<u>P245/70R16</u>
Max. Load Rating on Sidewall	<u>950 KG(2094 LBS)</u>	<u>950 KG(2094 LBS)</u>
Reduced Sidewall Load Rating (if applicable)*	<u>864 KG(1904 LBS)</u>	<u>864 KG(1904 LBS)</u>
High Speed Test Load (88% of sidewall max. load rating)	<u>760 KG(1676 LBS)</u>	<u>760 KG(1676 LBS)</u>
(b) Optional Tire Size(s)	<u>NONE</u>	<u>NONE</u>

\* 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:

M. D. P. P.

DATE: 05/21/03

APPROVED BY:

R. M. M.

DATA SHEET 4  
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET TRAILBLAZER MPV  
 VEHICLE NHTSA NO.: C30116 ; VIN: 1GNDS13S332347689  
 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: ☒ 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 ☒ 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: 

DATE: 05/21/03

APPROVED BY: 

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	<u>P245/70R16</u>
Tire Load Index/Speed Symbol	<u>106S</u>
Maximum Inflation Pressure	<u>240 kPa (35 psi)</u>
Maximum Load Rating	<u>950 KG (2094 LBS.)</u>
Mfr. Name or Brand & Code	<u>B.F. GOODRICH, OPEN TRAIL T/A</u>
Tube or Tubeless	<u>TUBELESS</u>
Treadwear/Traction/Temp. Grades	<u>420/B/B</u>
Sidewall (Plies & Composition)	<u>2 PLY POLYESTER</u>
Tread (Plies & Composition)	<u>2 PLY POLYESTER</u> <u>2 STEEL</u>

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: M. A. B. B. DATE: 05/21/03  
 APPROVED BY: D. M. M.

SECTION 4  
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
PAD SCALES	#1 199744LF	199744LF	06/02	06/03
	#2 199744RF	199744RF	06/02	06/03
	#3 199744LR	199744LR	06/02	06/03
	#4 199744RR	19974RR	06/02	06/03
PRESSURE GAGE	WESKLER	0-100	05/03	05/04
SURFACE LEVEL	GTL	N/A	BEFORE USE	BEFORE USE

## SECTION 5 PHOTOGRAPHS



2003 CHEVROLET TRAILBLAZER  
NHISA NO. C30116  
FMVSS NO. 110 (INDICANT)

FIGURE S-1  
¾ FRONTAL VIEW OF VEHICLE





GM BY GENERAL MOTORS CORP

2400

GMV

SAVR FRT

SAVR RR

2512K0550LB

1300R02950LB

1452K02020LB

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR  
VEHICLE SAFETY AND THEFT PREVENTION STANDARDS IN EFFECT ON  
THE DATE OF MANUFACTURE SHOWN ABOVE.

10ND8129332347689

TYPE: M.P.V.

MODEL: 5150SS PAYLOAD = 488KG(1072LB)

SPAC TIRE SIZE SPEED RIG RIM

FRT P245/70R16 S 16X7J

RR P245/70R16 S 16X7J

SPA P245/70R16 S 16X7J

SEE OWNER'S MANUAL ☒ FOR MORE INFORMATION.

COLD TIRE PRESSURE

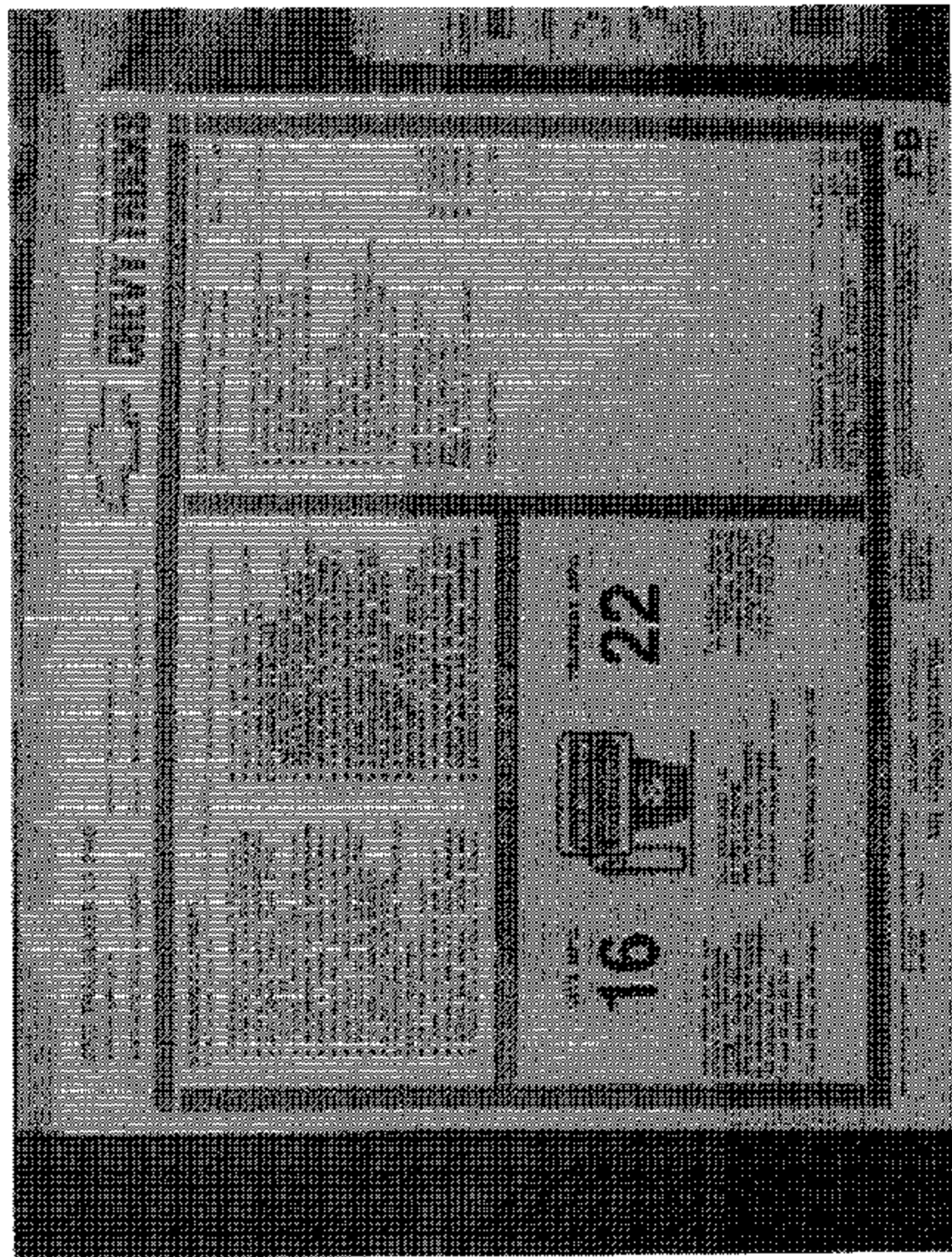
220KPA(32PSI)

220KPA(32PSI)

240KPA(35PSI)

2003 CHEVROLET TRAILBLAZER  
NHTSA NO. C30116  
FMVSS NO. 110 (INDICANT)

FIGURE S.2  
VEHICLE'S CERTIFICATION LABEL AND TIRE  
INFORMATION LABEL



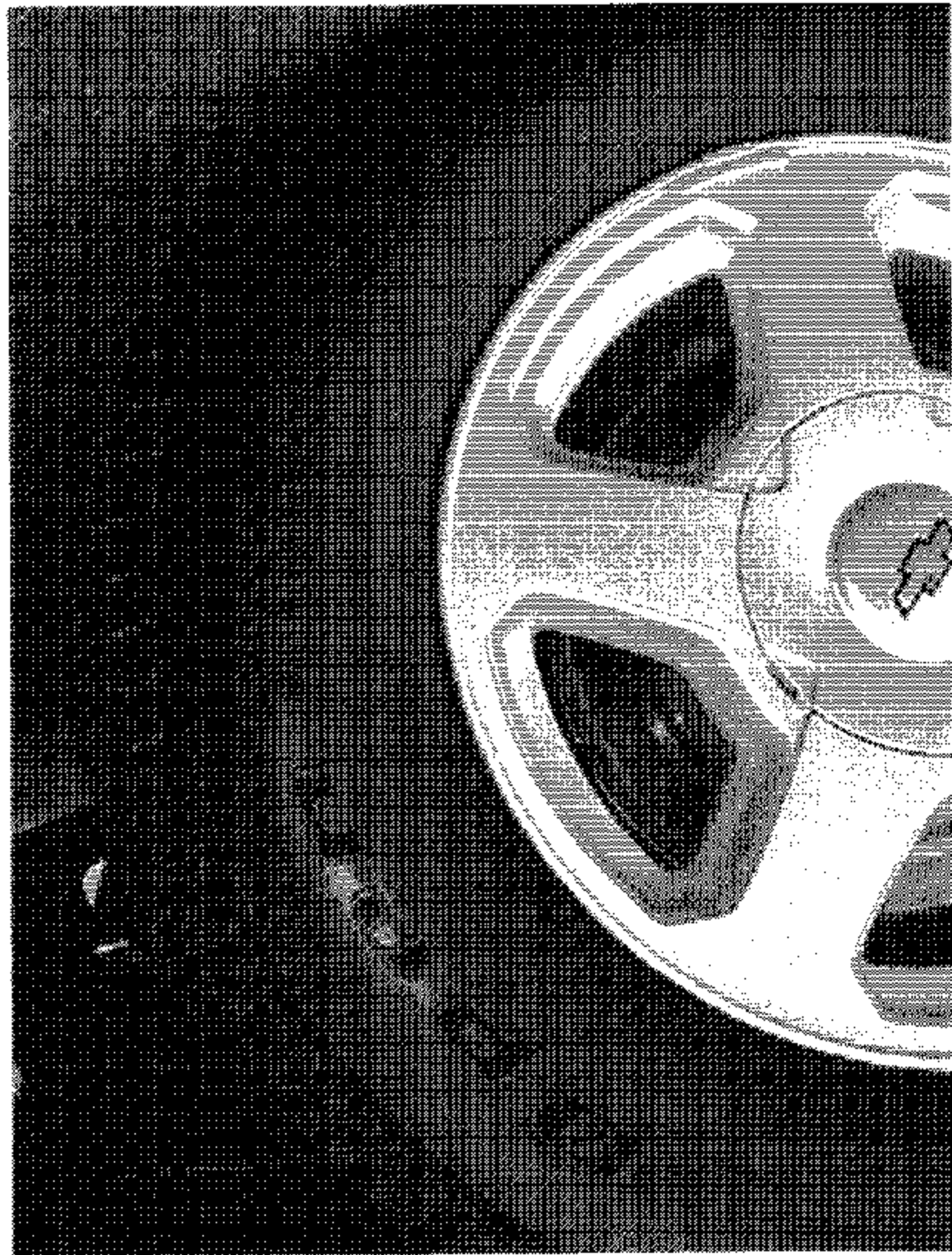
2003 CHEVROLET TRAILBLAZER  
NHTSA NO. C30116  
FMVSS NO. 110 (INDICANT)

FIGURE 5.3  
VEHICLE'S MONRONEY LABEL



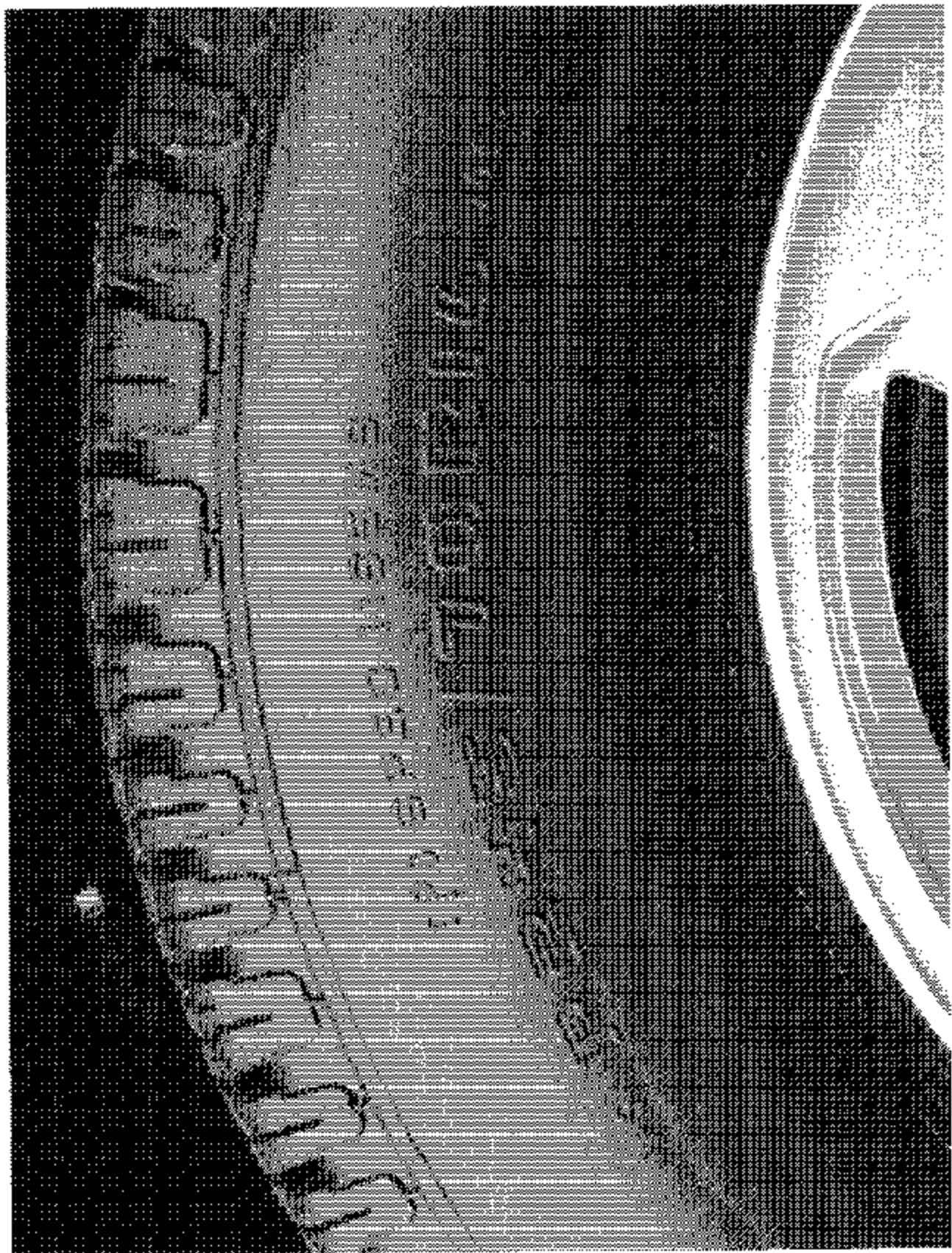
2003 CHEVROLET TRAILBLAZER  
NHTSA NO. C30116  
FMVSS NO. 110 (INDICANT)

FIGURE 5.4  
TIRE SHOWING BRAND



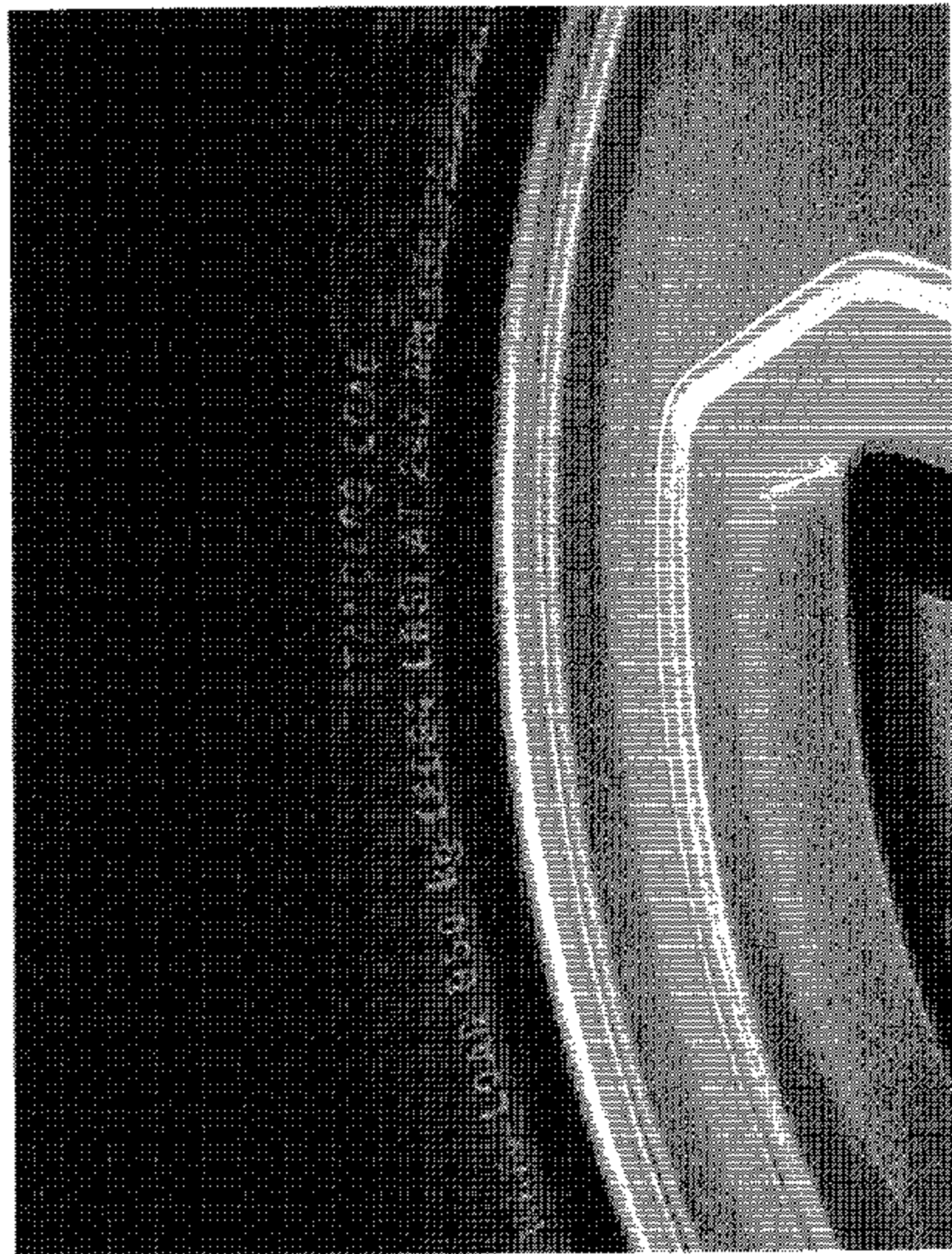
2003 CHEVROLET TRAILBLAZER  
NHTSA NO. C30116  
FMVSS NO. 110 (INDICANT)

FIGURE 5.5  
TIRE SHOWING MODEL



2003 CHEVROLET TRAILBLAZER  
NITSA NO. C30116  
FMVSS NO. 110 (INDICANT)

FIGURE 5-6  
TIRE SHOWING SIZE, LOAD INDEX AND SPEED  
SYMBOL



2003 CHEVROLET TRAILBLAZER  
NHTSA NO. C30116  
FMVSS NO. 110 (INDICANT)

FIGURE 5.7  
TIRE SHOWING MAX LOAD RATING AND MAX  
INFLATION PRESSURE



2003 CHEVROLET TRAILBLAZER  
NHTSA NO. C30116  
FMVSS NO. 110 (INDICANT)

FIGURE 58  
VEHICLE BALLASTED TO SIMULATE  
NORMAL LOAD CONDITION

## APPENDIX

**Table 1 – Occupant Loading and Distribution for Vehicle Normal Load for Various Designated Seating Capacities**

Designated Seating Capacities, numbers of Occupants	Vehicle normal load, number of occupants	Occupant distribution in a normally loaded vehicle
2 through 4	2	2 in front
5 through 10	3	2 in front, 1 in second seat
11 through 15	5	2 in front, 1 in second seat, 1 in third seat, 1 in fourth seat
16 through 22	7	2 in front, 2 in second seat, 2 in third seat, 1 in fourth seat

**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.