

REPORT NUMBER 110(IND)-GTL-03-017

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

**GENERAL MOTORS CORP.
2003 CHEVROLET SUBURBAN, MPV
NHTSA NO. C30117**

**GENERAL TESTING LABORATORIES, INC.
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SEPTEMBER 11, 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
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16. Abstract This test was conducted on the subject 2003 Chevrolet Suburban 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 TEST

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

- A. Vehicle Identification Number: 1GNEC16Z53J120259
- B. NHTSA No.: C30117
- C. Manufacturer: GENERAL MOTORS CORP.
- D. Manufacture Date: 09/02

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 Suburban 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 SUBURBAN MPV
 VEHICLE NHTSA NO.: C30117 ; VIN: 1GNEC16Z53J120259
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/21/03

REQUIREMENT	<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. Gha*

DATE: 05/21/03

APPROVED BY: *R. Messick*

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 SUBURBAN MPV

MANUFACTURE DATE: 09/02 NHTSA NO.: C30117 BODY COLOR: SANDALWOOD

VIN: 1GNEC16Z53J120259 VEHICLE TYPE: MPV

GVWR 3175 kg (7000 lbs) GAWR(Fr) 1452 kg (3200 lbs) GAWR(Rr) 1814 kg (4000 lbs)

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

ENGINE DATA: 8 Cylinders 5.3 Liters Cubic Inches

TRANSMISSION DATA: X Automatic Manual 4 No. of Speeds

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

INSTALLED TIRE DATA: Size - P285/70R16 Mfr. - FIRESTONE

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
<input checked="" type="checkbox"/>	Power Seat Driver Side	<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.P. Bla

DATE: 05/21/03

APPROVED BY: D. Messic

DATA SHEET 3
CURB WEIGHT WITH OPTIONS AND NORMAL LOAD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET SUBURBAN MPV
 VEHICLE NHTSA NO.: C30117 ; VIN: 1GNEC16Z53J120259
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/21/03

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	<u>666</u>	KG (1468 LB)		LR	<u>599</u>	KG (1321 LB)
RF	<u>583</u>	KG (1286 LB)		RR	<u>611</u>	KG (1346 LB)
Front Axle <u>1249 KG (2754 LB)</u>				Rear Axle <u>1210 KG (2667 LB)</u>		
Total Vehicle <u>2459 KG (5421 LB)</u>						

B. MEASURED VEHICLE WEIGHT IN NORMAL LOAD CONDITION

- (1) Seating Capacity (from Tire Information Placard) = N/A
 Seating Capacity (# of belted seating positions) = 8
- (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 | <u>720</u> | KG (1587 LB) | | LR | <u>645</u> | KG (1423 LB) |
| RF | <u>639</u> | KG (1408 LB) | | RR | <u>659</u> | KG (1452 LB) |
| Frt Axle <u>1359 KG (2995 LB)</u> | | | | Rr Axle <u>1304 KG (2875 LB)</u> | | |
| Total Vehicle <u>2663 KG (5870 LB)</u> | | | | | | |

DATA SHEET 3 – CONTINUED

- (5) Calculated Vehicle Normal Load on the Tire
 Front Tires (measured front axle normal load/2) = 679 KG (1498 LB)
 Rear Tires (measured front axle normal load/2) = 652 KG (1438 LB)
- (6) High Speed Test Load from () FMVSS 109 (S5.5), or (X) FMVSS 119 (S7.4)
- | | Front | Rear |
|--|-------------------------|-------------------------|
| (a) Installed Tire Size | <u>P265/70R16</u> | <u>P265/70R16</u> |
| Max. Load Rating on Sidewall | <u>1090KG(2403 LBS)</u> | <u>1090KG(2403 LBS)</u> |
| Reduced Sidewall Load Rating
(if applicable)* | <u>991 KG(2185 LBS)</u> | <u>991 KG(2185 LBS)</u> |
| High Speed Test Load
(88% of sidewall max. load rating) | <u>872 KG(1923 LBS)</u> | <u>872 KG(1923 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: 

DATE: 05/21/03

APPROVED BY: 

DATA SHEET 4
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET SUBURBAN MPV
 VEHICLE NHTSA NO.: C30117; VIN: 1GNEC16Z53J120259
 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: Driver's 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:

P265/70R16 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: 05/21/03

APPROVED BY: 

DATA SHEET 5
VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET SUBURBAN MPV

VEHICLE NHTSA NO.: C30117 ; VIN: 1GNEC16Z53J120259

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 P265/70R16

Tire Load Index/Speed Symbol 111S

Maximum Inflation Pressure 300 kPa (44 psi)

Maximum Load Rating 1090 KG (2403 LBS)

Mfr. Name or Brand & Code FIRESTONE WILDERNESS

Tube or Tubeless TUBELESS

Treadwear/Traction/Temp. Grades 480/A/B

Sidewall (Plies & Composition) 2 PLY POLYESTER

Tread (Plies & Composition) 2 PLY POLYESTER
2 PLY STEEL

Serial Number: Right Front - DOT-E402 7679

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

REMARKS:

RECORDED BY: M. A. G. [Signature] DATE: 05/21/03

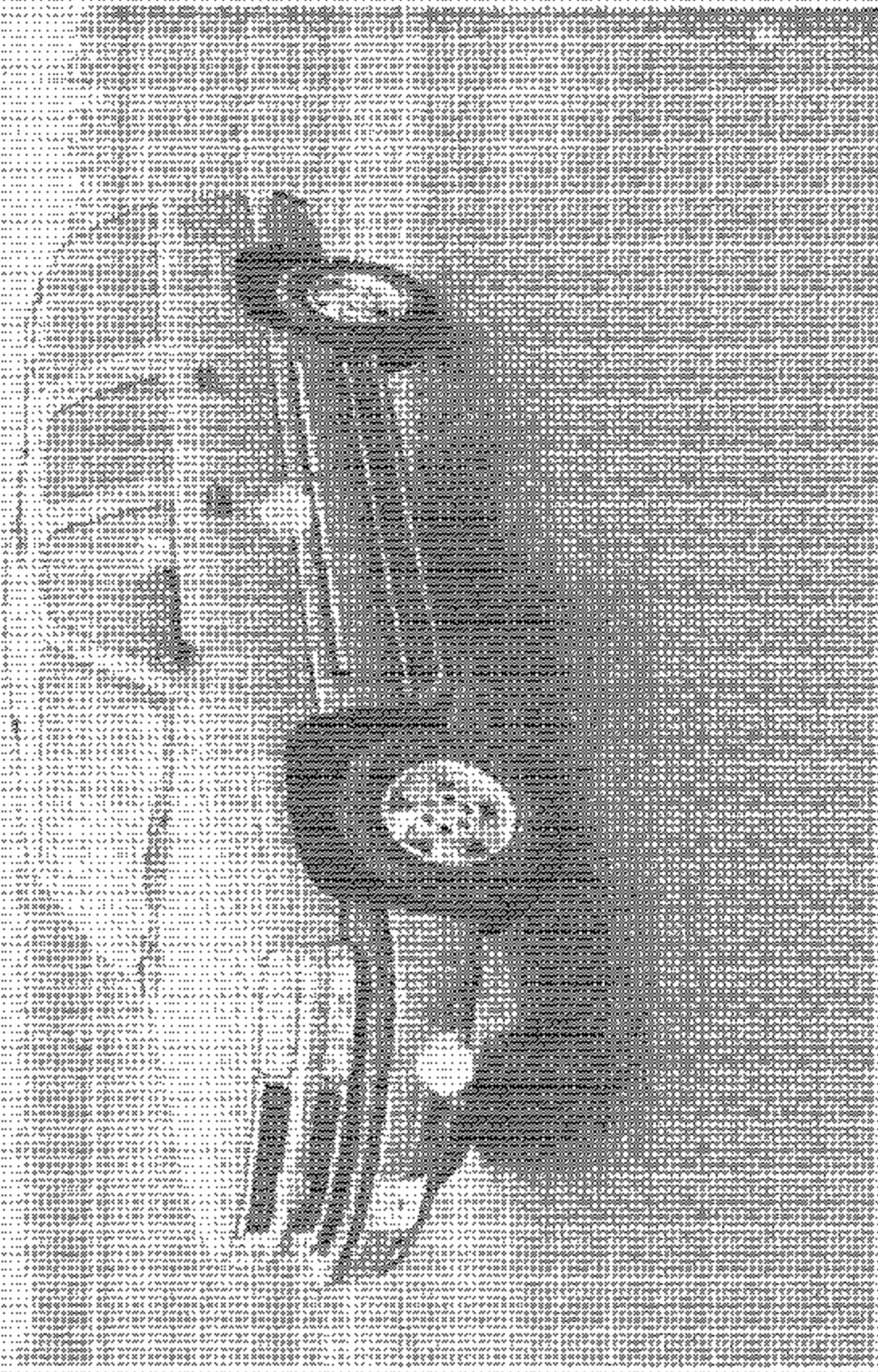
APPROVED BY: D. Mersic [Signature]

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

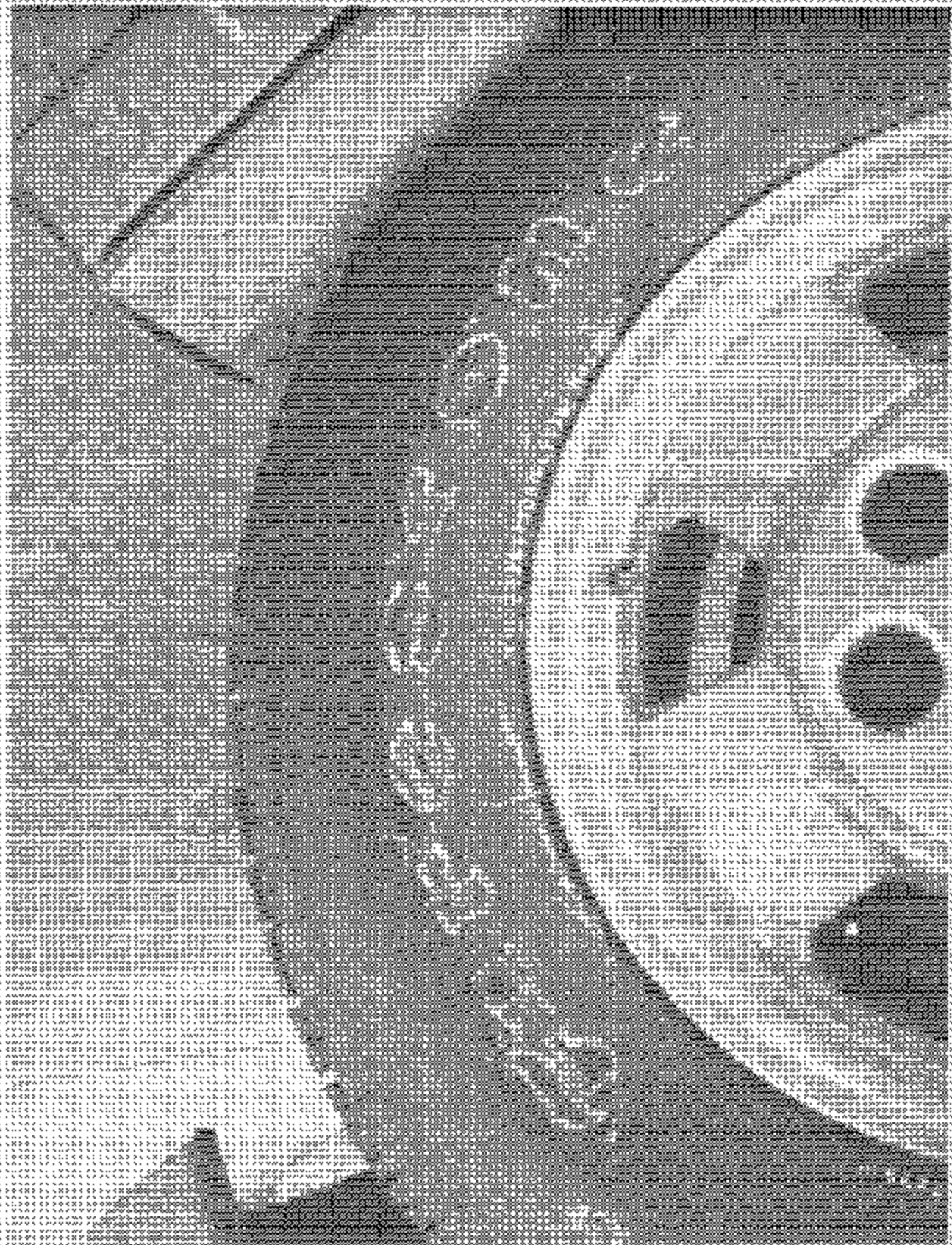
EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
PAD SCALES	#1 199744LF	199744LF	06/02	06/20/03
	#2 199744RF	199744RF	06/02	06/20/03
	#3 199744LR	199744LR	06/02	06/20/03
	#4 199744RR	19974RR	06/02	06/20/03
PRESSURE GAGE	WESKLER	0-100	09/02	05/04
SURFACE LEVEL	GTL	N/A	BEFORE USE	BEFORE USE

SECTION 5
PHOTOGRAPHS



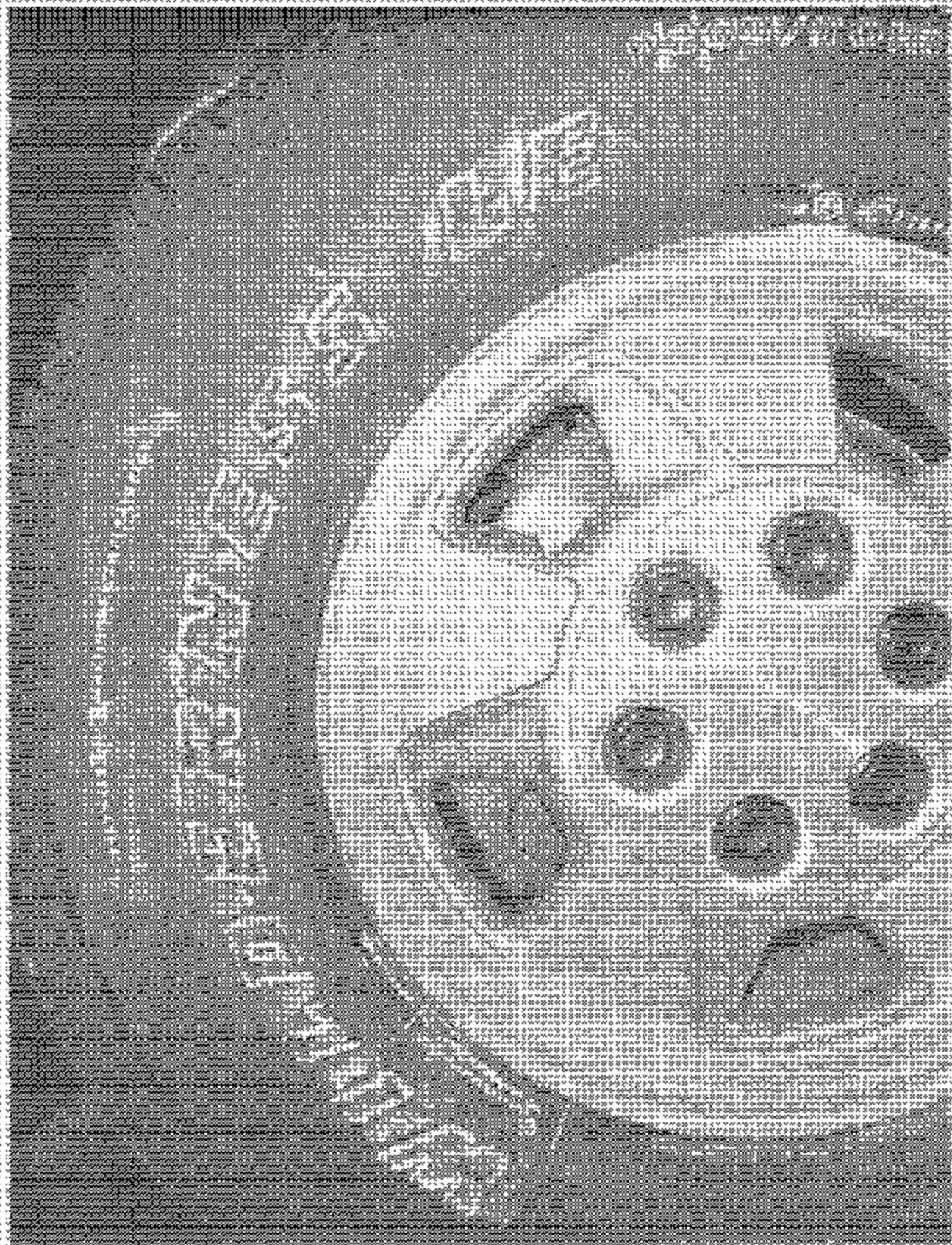
AUX. CHEVROLET SUBURBAN
MITSUB. NO. 52017
ANVSS (Nº) 170 (INDICANT)

FIGURE 5
3/4 FRONTAL VIEW OF VEHICLE



2004 CHEVROLET SUBURBAN
NHTSA NO. 2004-1
EPA NO. 119 (MERCANT)

FIGURE 33
THE SHOWING STAND



2003 CHEVROLET SUBURBAN
NHTSA NO. 34017
FMVSS NO. 201 (INDICANT)

FIGURE 54
THE SHOWING MODEL



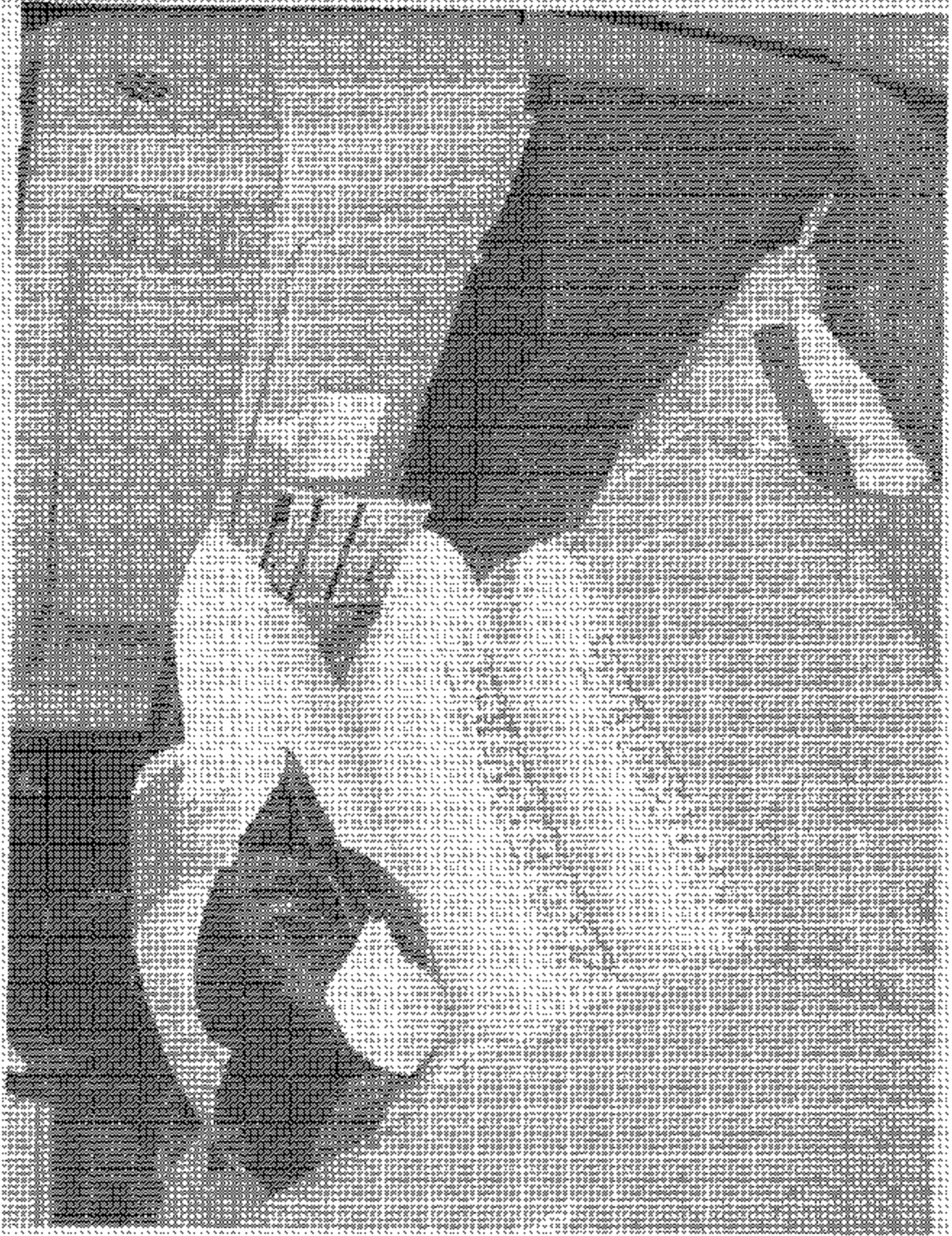
SUO: CHEVROLET SUEURJAN
MHTSANG CROUET
FIVSNO: 510 (INDICANT)

FIGURE 5.5
THE SHOWING SIZE LEAD INDEX AND BIFID
SYMBOL



2003 CHEVROLET SUBURBAN
NHTSA NO. C30117
FMVSS NO. 110 (INDICANT)

FIGURE 3.6
TIRE SHOWING MAXIMUM RATINGS AND MAX
INFLATION PRESSURE



2001 CHEVROLET SUBURBAN
PHYS. NO. C30117
EMISS. NO. 310 HINDICANE

FIGURE 17
VEHICLE REAR ASSESS 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.