

REPORT NUMBER 110(IND)-GTL-03-022

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

**GENERAL MOTORS CORP.
2003 CHEVROLET MALIBU PASSENGER CAR
NHTSA NO. C30118**

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SEPTEMBER 16, 2003

FINAL REPORT

PREPARED FOR

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NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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16. Abstract This test was conducted on the subject, 2003 Chevrolet Malibu passenger car 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 Malibu passenger car 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 Malibu passenger car. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 1G1ND52J13M605499

B. NHTSA No.: C30118

C. Manufacturer: GENERAL MOTORS CORP

D. Manufacture Date: 10/02

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

Test results are provided in Section 3.

SECTION 3

TEST DATA

DATA SHEET 1
SUMMARY

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET MALIBU PASSENGER CAR
 VEHICLE NHTSA NO.: C30118 ; VIN: 1G1ND52J13M605499
 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>YES</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>N/A</u>

REMARKS:

RECORDED BY: M. A. Oger

DATE: 05/21/03

APPROVED BY: D. Messer

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 MALIBU

MANUFACTURE DATE: 10/02 NHTSA NO.: C30118 BODY COLOR: WHITE

VIN: 1G1ND52J13M605499 VEHICLE TYPE: PASSENGER CAR

GVWR 1829 kg (4033 lbs) GAWR(Fr) 1000 kg (2205 lbs) GAWR(Rr) 829 kg (1828 lbs)

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

ENGINE DATA: 6 Cylinders 3.1 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 - P215/60R15 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		Roof Rack
<input checked="" type="checkbox"/>	Power Steering	<input checked="" type="checkbox"/>	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
	Power Brakes	<input checked="" type="checkbox"/>	Tilt Steering Wheel		Rear Disc Brakes
	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. [Signature]

DATE: 05/21/03

APPROVED BY: A. [Signature]

DATA SHEET 3
CURB WEIGHT WITH OPTIONS AND NORMAL LOAD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET MALIBU PASSENGER CAR
 VEHICLE NHTSA NO.: C30118 ; VIN: 1G1ND52J13M605499
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/21/03

Full Fluid Levels:

Fuel Full ; Coolant Full ; Other Fluids Full

Tire Pressure: LF 200 KPA (29 psi) LR 180 KPA (26 psi)
 RF 200 KPA (29 psi) RR 180 KPA (26 psi)

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

LF <u>448</u> KG (987 LB)	LR <u>254</u> KG (559 LB)
RF <u>441</u> KG (972 LB)	RR <u>253</u> KG (558 LB)
Front Axle <u>889</u> KG (1959 LB)	Rear Axle <u>507</u> KG (1117 LB)
Total Vehicle <u>1395</u> KG (3076 LB)	

B. MEASURED VEHICLE WEIGHT IN NORMAL LOAD CONDITION

(1) Seating Capacity (from Tire Information Placard) = 5
 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 Each Wheel and Axles (Sum)

LF <u>490</u> KG (1080 LB)	LR <u>308</u> KG (680 LB)
RF <u>493</u> KG (1086 LB)	RR <u>308</u> KG (680 LB)
Frt Axle <u>982</u> KG (2166 LB)	Rr Axle <u>617</u> KG (1360 LB)
Total Vehicle <u>1599</u> KG (3526 LB)	

DATA SHEET 3 – CONTINUED

- (5) Calculated Vehicle Normal Load on the Tire
 Front Tires (measured front axle normal load/2) = 491 KG (1083 LB)
 Rear Tires (measured front axle normal load/2) = 308 KG (680 LB)
- (6) High Speed Test Load from (X) FMVSS 109 (S5.5), or () FMVSS 119 (S7.4)

	Front	Rear
(a) Installed Tire Size	<u>P215/60R15</u>	<u>P215/60R15</u>
Max. Load Rating on Sidewall	<u>640 KG(1411 LBS)</u>	<u>640 KG(1411 LBS)</u>
Reduced Sidewall Load Rating (if applicable)*	<u>N/A</u>	<u>N/A</u>
High Speed Test Load (88% of sidewall max. load rating)	<u>563 KG(1242 LBS)</u>	<u>563 KG(1242 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. A. [Signature]

DATE: 05/21/03

APPROVED BY: D. [Signature]

DATA SHEET 4
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET MALIBU PASSENGER CAR
 VEHICLE NHTSA NO.: C30118 ; VIN: 1G1ND52J13M605499
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/21/03

A. Vehicle Type from Certification Label: Passenger Car

B. Identify Vehicle Labeling:

Vehicle has a combined Certification Tire Information Label ☐ Yes ☒ No
 Is Label Permanently Affixed: ☐ Yes ☐ No
 Label Location: _____
 Description of Label: _____

Vehicle has a separate Tire Information Label or Placard ☒ Yes ☐ No
 Is Label Permanently Affixed: ☒ Yes ☐ No
 Label Location: Inside Door Jam
 Description of Label: White/Black Sticker

C. Enter Information from Combined or Separate Tire Information Label/Placard

Vehicle Capacity Weight - 416 KG (917 LBS)

Designated Seating Capacity (DSC) - 5

Expressed In—

(1) Total No. of Occupants ☒ Yes ☐ No

(2) Terms of Occupants for Each Seat Location ☒ Yes ☐ No

Manufacturer's Recommended Tire Size and Cold Tire Inflation Pressure For Maximum Load Vehicle Weight:

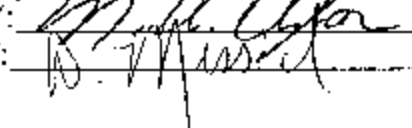
P215/60R15 FRONT - 200 kPa (29 psi)
 REAR - 180 kPa (26 psi)

Manufacturer's Recommended Tire Size and Cold Tire Inflation Pressure For Other Load Conditions: NONE

REMARKS:

RECORDED BY: 

DATE: 05/21/03

APPROVED BY: 

DATA SHEET 5
VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET MALIBU PASSENGER CAR
 VEHICLE NHTSA NO.: C30118 ; VIN: 1G1ND52J13M605499
 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:

Left Front Tire

Tire Size Designation	<u>P215/60R15</u>
Tire Load Index/Speed Symbol	<u>93T</u>
Maximum Inflation Pressure	<u>240 kPa (35 psi)</u>
Maximum Load Rating	<u>640 KG (1411 LBS.)</u>
Mfr. Name or Brand & Code	<u>FIRESTONE AFFINITY</u>
Tube or Tubeless	<u>TUBELESS</u>
Treadwear/Traction/Temp. Grades	<u>500/A/B</u>
Sidewall (Plies & Composition)	<u>1 PLY POLYESTER</u>
Tread (Plies & Composition)	<u>1 PLY POLYESTER</u> <u>2 PLY STEEL</u>
Serial Number: Right Front -	<u>DOT-8XMW AAA 4002</u>

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

REMARKS:

RECORDED BY: 

DATE: 05/21/03

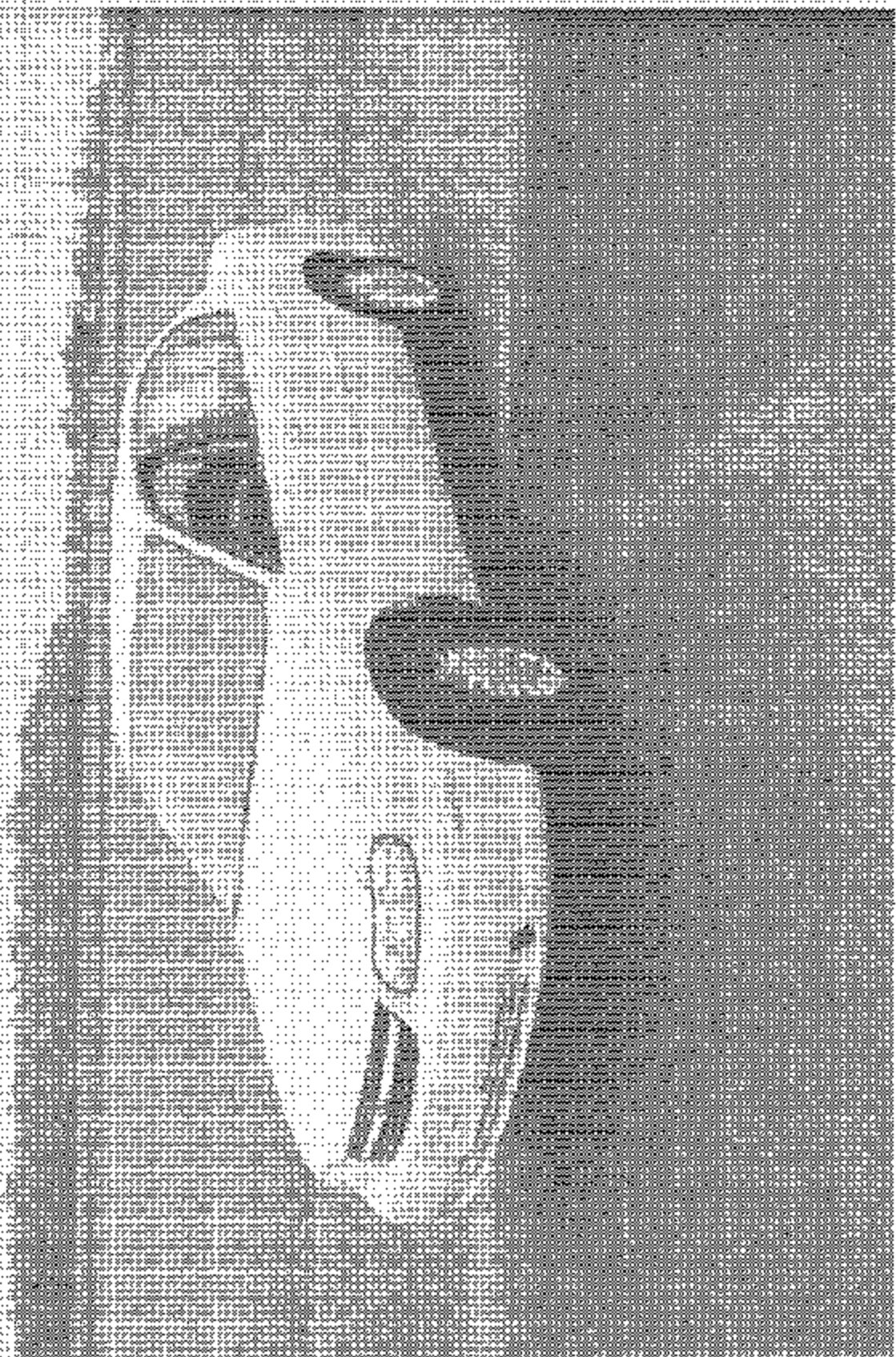
APPROVED BY: 

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	199744RR	06/02	06/20/03
PRESSURE GAGE	WESKLER	0-100	05/03	05/04
SURFACE LEVEL	GTL	N/A	BEFORE USE	BEFORE USE

SECTION 5 PHOTOGRAPHS



2001 CHEVROLET MALIBU
NHTSA NO. Q50114
FMVSS NO. 110 INDICANT

FIGURE 5-1
FRONTAL VIEW OF VEHICLE

[illegible]

CONFIDENTIAL
REF ID: A64888
PASSAD TO ADCKT

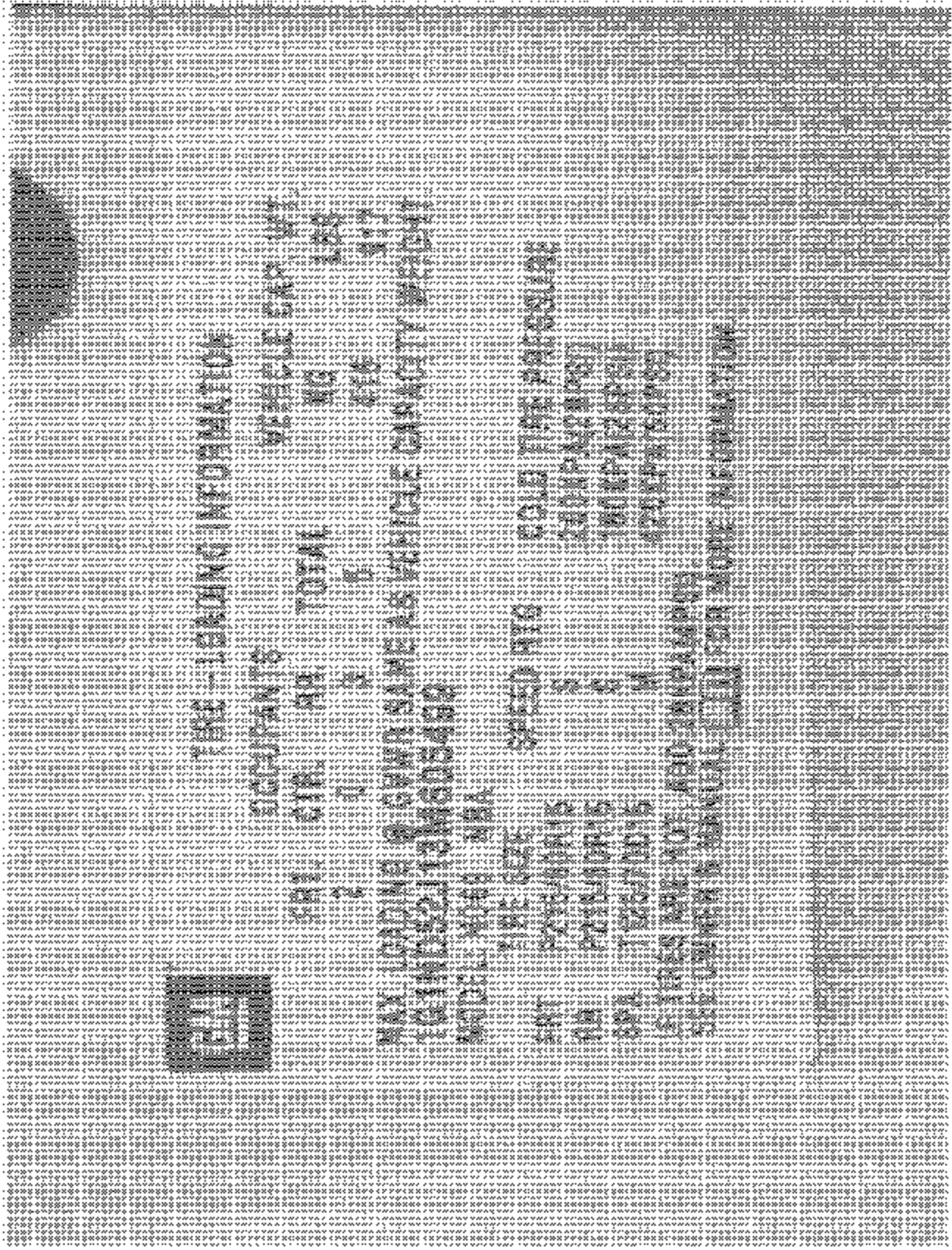


FIGURE 53
VEHICLES TIRE INFORMATION LANE

2003 CHEVROLET MALIBU
VIN: 1G1SA01C20013
TIRE: P185/65 R15

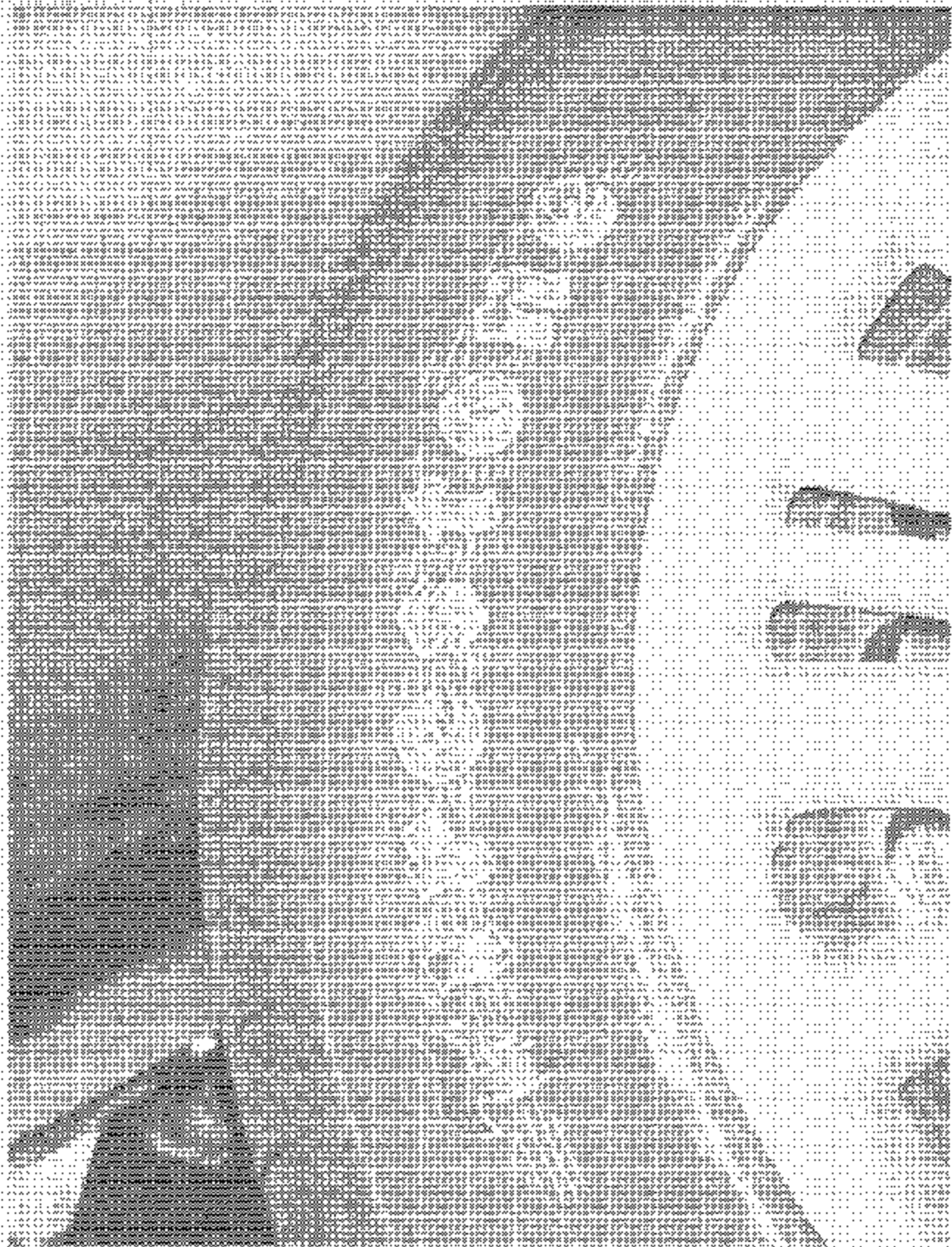


FIGURE 5.4
FIRE SMOGGING BRAND

2003 CHEVROLET MALIBU
NHTSA NO. 000116
FMVSS NO. 110 (INDICANT)



FIGURE 5.5
FRESHWING MODEL

2003 CHEVROLET MALIBU
NHTSA NO. C80116
FVSS NO. 110 (INDICANT)



2003 CHEVROLET MALIBU
NHTSA NO. C30118
FMVSS NO. 110 (INDICATED)

FIGURE 5-5
PRE-SHOWING SIZE, LOAD, INDEX AND SPEED
SYMBOL

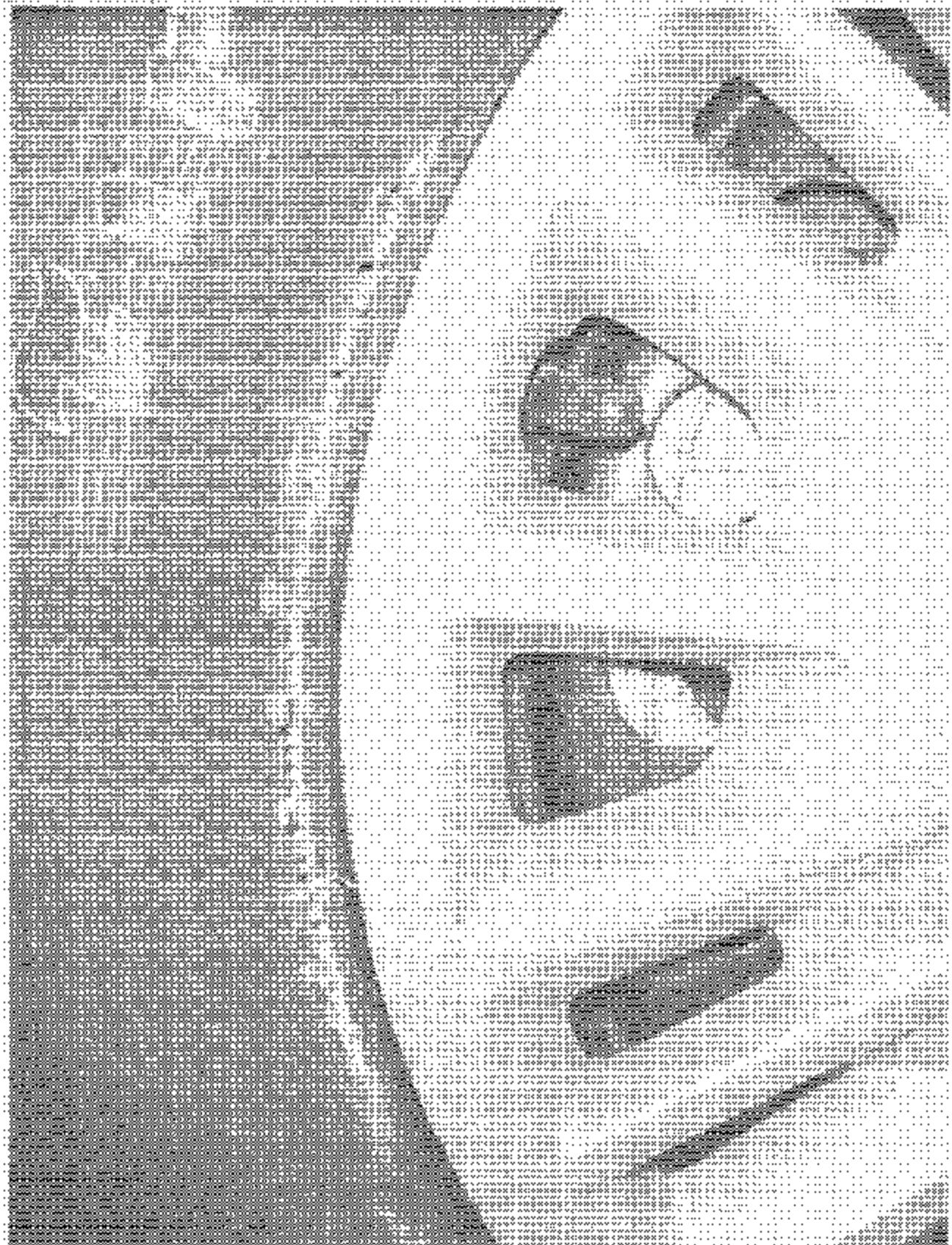


FIGURE 5.7
TIRE SHOWING MAX LOAD IDLING AND MAX
INFLATION PRESSURE

2005 CHEVROLET MALIBU
NHTSA NO. C20112
SAFETY NO. 110 (INDICANT)

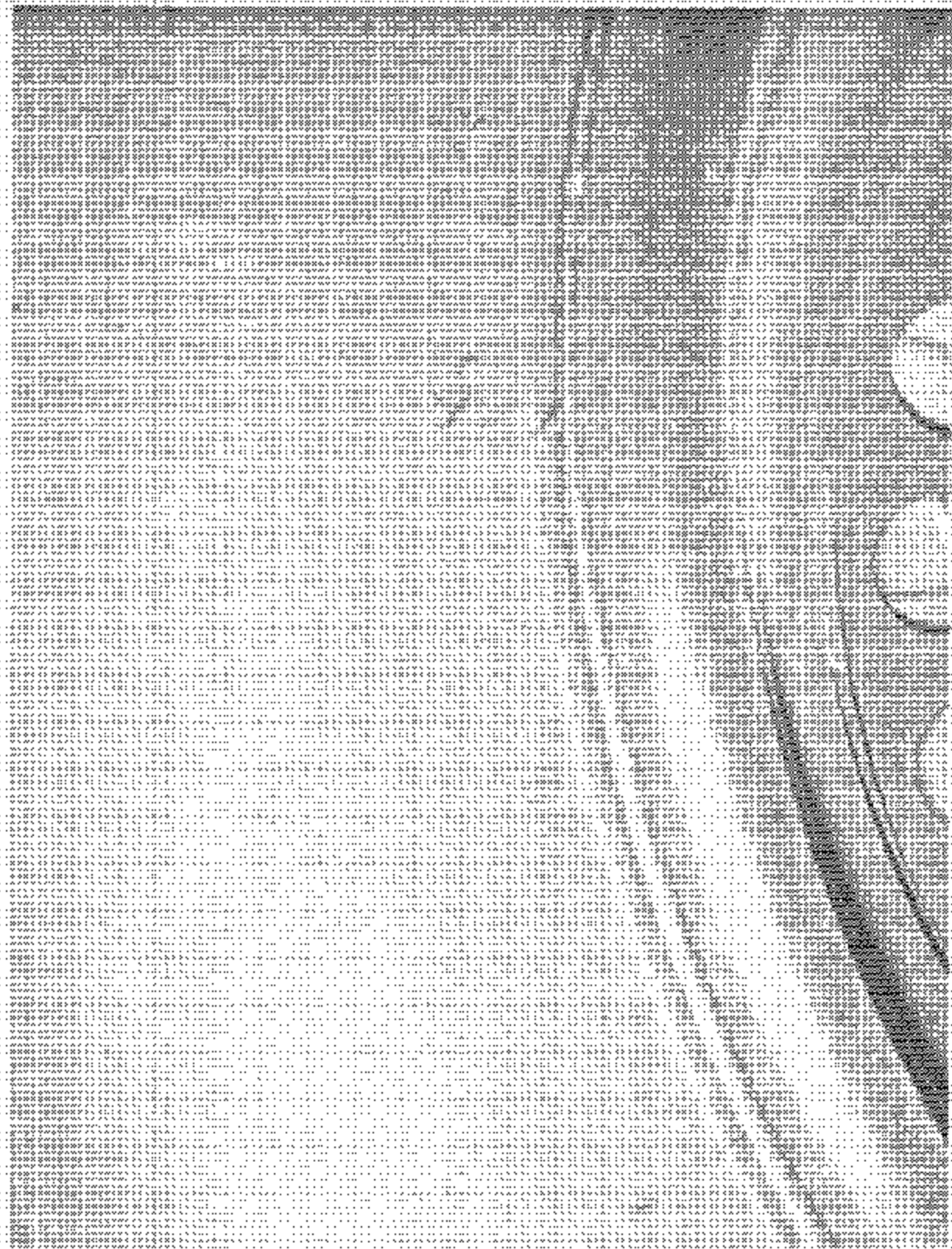
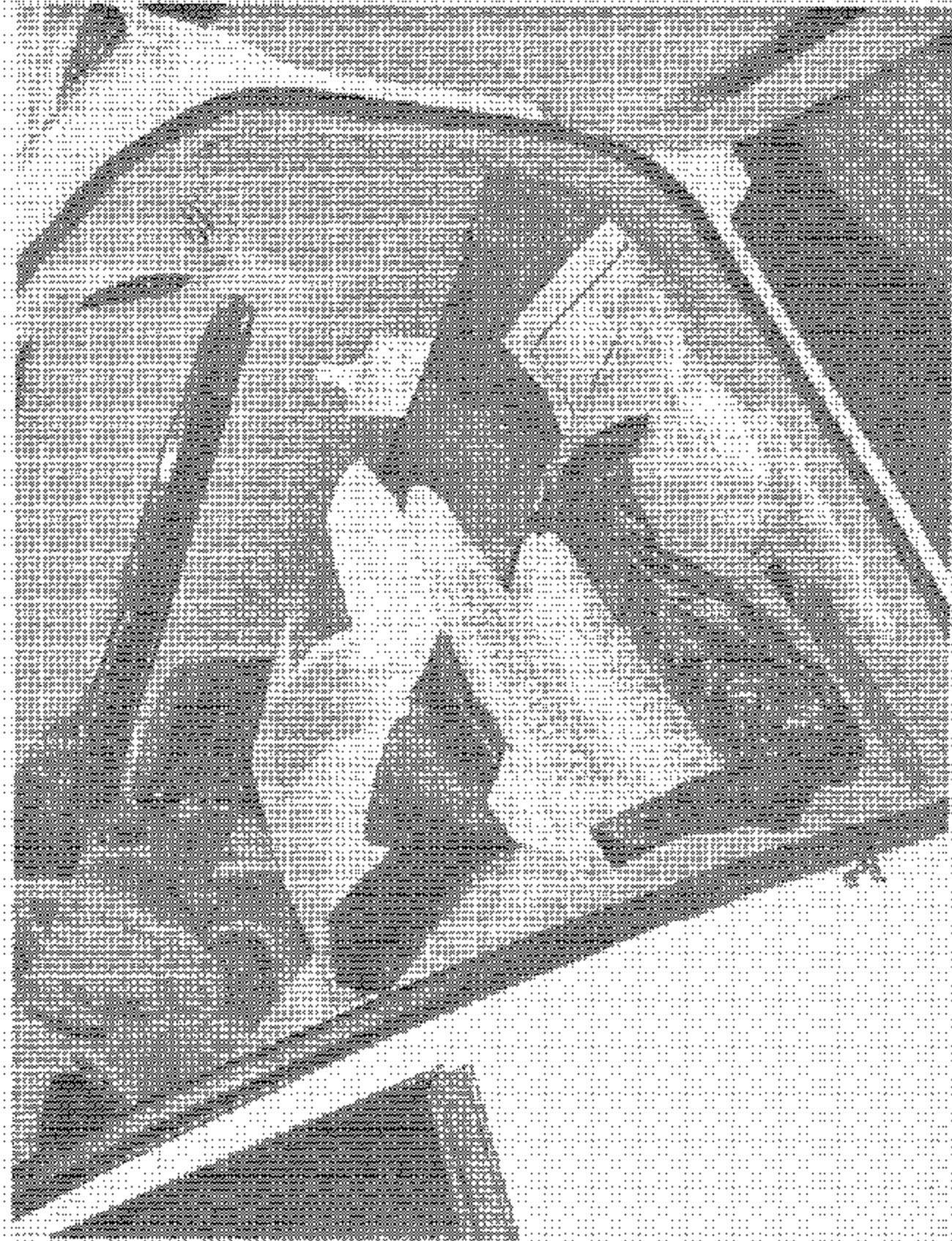


FIGURE S-8
THREE SHOWING SERIAL NUMBER
2003 CHEVROLET MALIBU
NHQA NO. C30418
FAVSS NO. 110 (NEICANT)



2002 CHEVROLET MALIBU
NHTSA NC 020113
FMVSS NO. 110 (MIDCANT)

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

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.