

REPORT NUMBER 110(IND)-GTL-03-021

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

**GENERAL MOTORS CORPORATION
2003 CHEVROLET CAVALIER PASSENGER CAR
NHTSA NO. C30114**

**GENERAL TESTING LABORATORIES, INC.
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SEPTEMBER 16, 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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1. Report No. 110(IND)-GTL-03-021	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle Final Report of FMVSS 110 (Indicant) Test of 2003 CHEVROLET CAVALIER PASSENGER CAR NHTSA No. C30114	5. Report Date September 16, 2003	6. Performing Organ. Code GTL
7. Author(s) Grant Farrand, Project Engineer Debbie Messick, Project Manager	8. Performing Organ. Rep# GTL-DOT-03-110(INDICANT)-021	
9. Performing Organization Name and Address General Testing Laboratories, Inc. 1623 Leedstown Road Colonial Beach, Va 22443	10. Work Unit No. (TRAIS)	11. Contract or Grant No. DTNH22-01-C-11025
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Admin. Safety Enforcement Office of Vehicle Safety Compliance (NVS-220) 400 7 th Street, S.W., Room 6111 Washington, DC 20590	13. Type of Report and Period Covered Final Test Report May 22, 2003	14. Sponsoring Agency Code NVS-120 & NVS 220
15. Supplementary Notes		
16. Abstract This test was conducted on the subject, 2003 Chevrolet Cavalier 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.		
17. Key Words Vehicle Testing Safety Engineering FMVSS 110	18. Distribution Statement Copies of this report are available from NHTSA NHTSA Technical Reference Div., Rm. 5108 (NPO-230) 400 7 th St., S.W. Washington, DC 20590 Telephone No. (202) 366-4946	
19. Security Classif. (of this report) UNCLASSIFIED	21. No. of Pages 28	22. Price
20. Security Classif. (of this page) UNCLASSIFIED		

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SECTION 1

INTRODUCTION

1.0 PURPOSE OF INDICANT TEST

A 2003 Chevrolet Cavalier 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 Cavalier passenger car. Nomenclature applicable to the test vehicle are:

- A. Vehicle Identification Number: 1G1JH12F237299001
- B. NHTSA No.: C30114
- C. Manufacturer: GENERAL MOTORS CORPORATION
- D. Manufacture Date: 03/03

1.2 TEST DATE

The test vehicle was subjected to testing on May 22, 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.

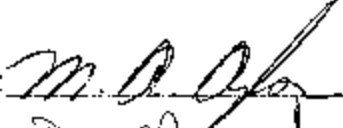
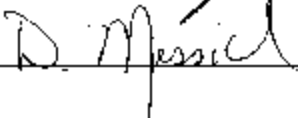
SECTION 3 TEST DATA

DATA SHEET 1
SUMMARY

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET CAVALIER PASSENGER CAR
VEHICLE NHTSA NO.: C30114 VIN: 1G1JH12F237299001
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/22/03

<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: DATE: 05/22/03APPROVED BY: 

DATA SHEET 2 TEST VEHICLE INFORMATION/RECEIVING INSPECTION

LABORATORY: GENERAL TESTING LABORATORIES DATE: 05/22/03

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 CHEVROLET CAVALIER

MANUFACTURE DATE: 03/03 NHTSA NO.: C30114 BODY COLOR: SILVER METALLIC

VIN: 1G1JH12F237299001 VEHICLE TYPE: PASSENGER CAR

GVWR 1661 kg (3662 lbs) GAWR(Fr) 906 kg (1997 lbs) GAWR(Rr) 755 kg (1665 lbs)

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

ENGINE DATA: 4 Cylinders 2.2 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 - P205/55R16 Mfr. - GOODYEAR

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

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

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

REMARKS:

RECORDED BY: M. A. Oja

DATE: 05/22/03

APPROVED BY: D. Messick

DATA SHEET 3
CURB WEIGHT WITH OPTIONS AND NORMAL LOAD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET CAVALIER PASSENGER CAR
 VEHICLE NHTSA NO.: C30114 ; VIN: 1G1JH12F237299001
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/22/03

Full Fluid Levels:

Fuel Full; Coolant Full; Other Fluids Full

Tire Pressure: LF 210 KPA (30 psi) LR 210 KPA (30 psi)
 RF 210 KPA (30 psi) RR 210 KPA (30 psi)

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

LF 415 KG (914 LB) LR 219 KG (482 LB)
 RF 384 KG (846 LB) RR 235 KG (519 LB)

Front Axle 798 KG (1760 LB) Rear Axle 454 KG (1001 LB)

Total Vehicle 1252 KG (2761 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 461 KG (1016 LB) LR 275 KG (606 LB)
 RF 428 KG (944 LB) RR 293 KG (646 LB)

Frt Axle 889 KG (1960 LB) Rr Axle 568 KG (1252 LB)

Total Vehicle 1457 KG (3212 LB)

DATA SHEET 3 – CONTINUED

- (5) Calculated Vehicle Normal Load on the Tire
 Front Tires (measured front axle normal load/2) = 445 KG (980 LB)
 Rear Tires (measured front axle normal load/2) = 284 KG (626 LB)
- (6) High Speed Test Load from (X) FMVSS 109 (S5.5), or () FMVSS 119 (S7.4)

	Front	Rear
(a) Installed Tire Size	<u>P205/55R16</u>	<u>P205/55R16</u>
Max. Load Rating on Sidewall	<u>580 KG(1279 LBS)</u>	<u>580 KG(1279 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>510 KG(1126 LBS)</u>	<u>510 KG(1126 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. Oja

DATE: 05/22/03

APPROVED BY:

D. Messick

DATA SHEET 4
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET CAVALIER PASSENGER CAR
 VEHICLE NHTSA NO.: C30114 ; VIN: 1G1JH12F237299001
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/22/03

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 Driver's Door Jam
 Description of Label: White/Black Sticker

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

Vehicle Capacity Weight - 400 KG (882 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:

P205/5516 FRONT - 210 kPa (30 psi)
 REAR - 210 kPa (30 psi)

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

REMARKS:

RECORDED BY: [Signature]
 APPROVED BY: [Signature]

DATE: 05/22/03

DATA SHEET 5
VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2003 CHEVROLET CAVALIER PASSENGER CAR
 VEHICLE NHTSA NO.: C30114 ; VIN: 1G1JH12F237299001
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/22/03

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

INFORMATION FROM TIRE SIDEWALL:

Right Front Tire

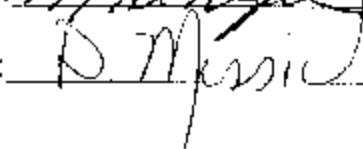
Tire Size Designation	<u>P205/55R16</u>
Tire Load Index/Speed Symbol	<u>89H</u>
Maximum Inflation Pressure	<u>300 kPa (44 psi)</u>
Maximum Load Rating	<u>580 KG (1279 LBS.)</u>
Mfr. Name or Brand & Code	<u>GOODYEAR EAGLE</u>
Tube or Tubeless	<u>TUBELESS</u>
Treadwear/Traction/Temp. Grades	<u>260/A/A</u>
Sidewall (Plies & Composition)	<u>2 PLY POLYESTER</u>
Tread (Plies & Composition)	<u>2 PLY POLYESTER</u> <u>2 PLY STEEL</u> <u>1 PLY NYLON</u>
Serial Number: Right Front -	<u>NOT ON OUTSIDE OF WHEEL</u>

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

REMARKS:

RECORDED BY: 

DATE: 05/22/03

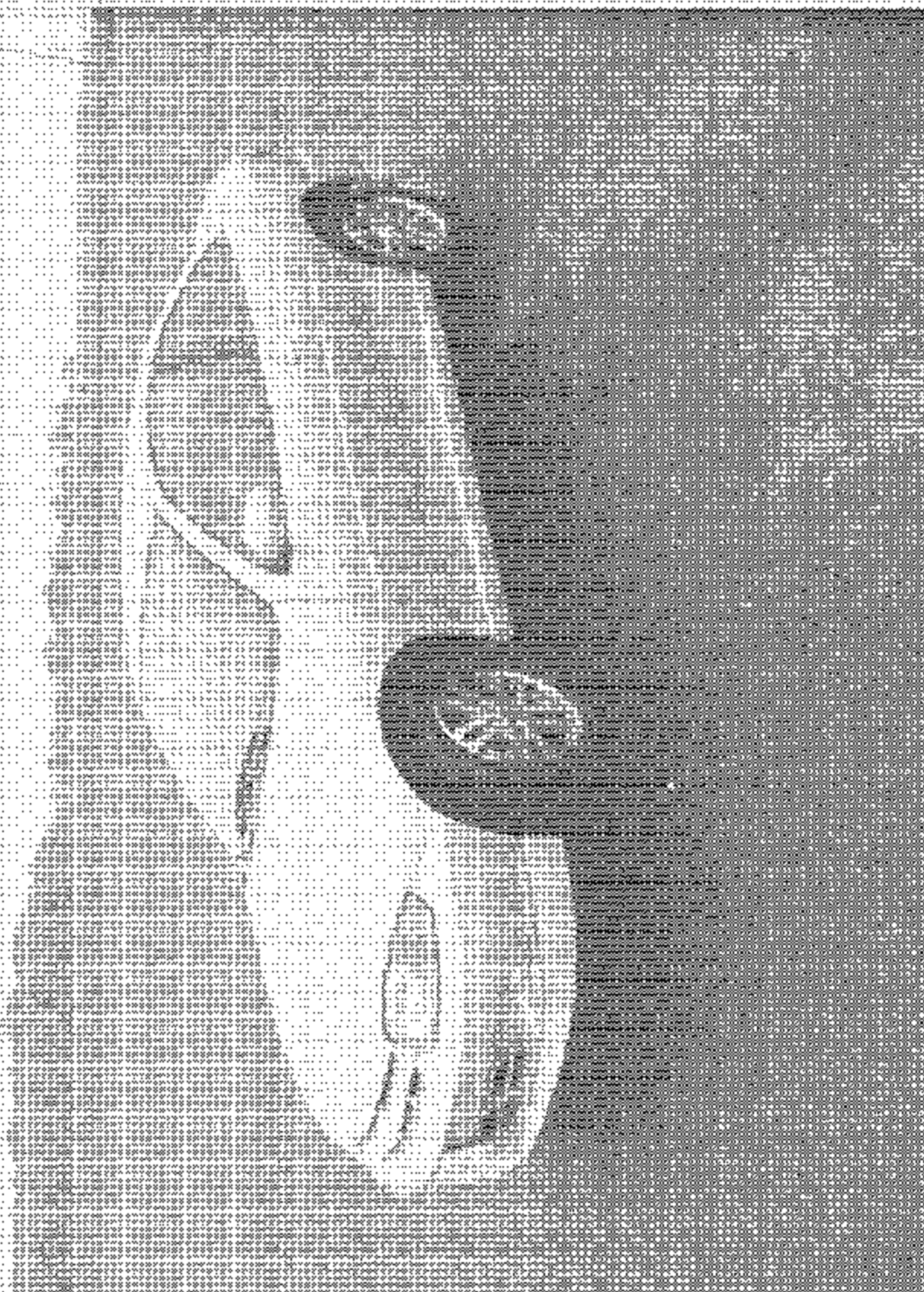
APPROVED BY: 

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

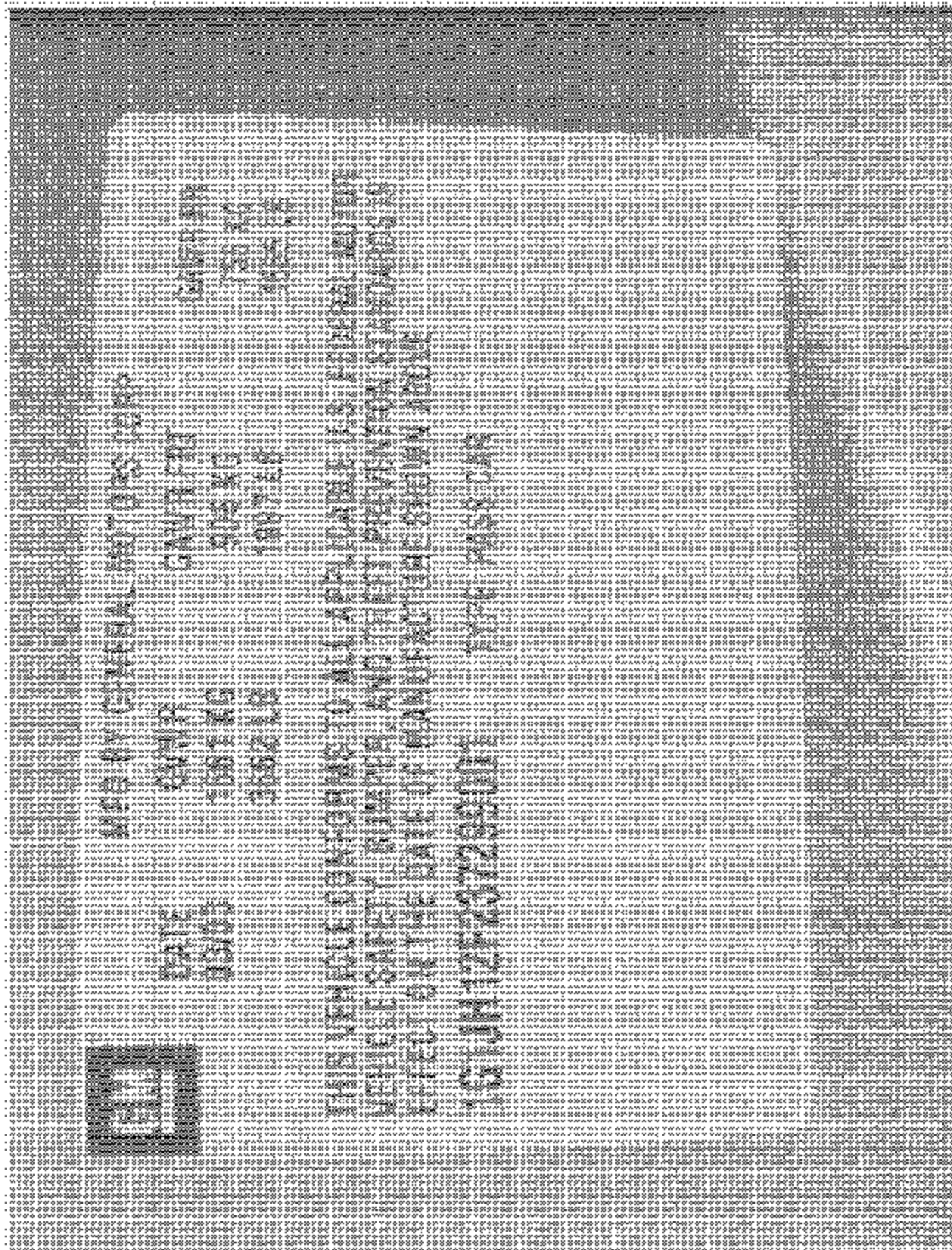
EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
PAD SCALES	#1 199744LF	199744LF	06/02	06/20/03
	#2 199744RF	199744RF	06/02	06/20/03
	#3 199744LR	199744LR	06/02	06/20/03
	#4 199744RR	199744RR	06/02	06/20/03
PRESSURE GAGE	WESKLER	0-100	05/03	05/04
SURFACE LEVEL	GTL	N/A	BEFORE USE	BEFORE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

SECTION 5 PHOTOGRAPHS



2003 CHEVROLET CAVALIER LS
NHTSA NO. 120114
FMVSS NO. 110 (INDICANT)

FIGURE 5-1
3/4 FRONTAL VIEW OF VEHICLE



REPORT 2737001
SERVICES (CERTIFICATION)

2004 CHEVROLET CAVALIER LS
#1134 NO. 03014
#1655 NO. 1101515XAN

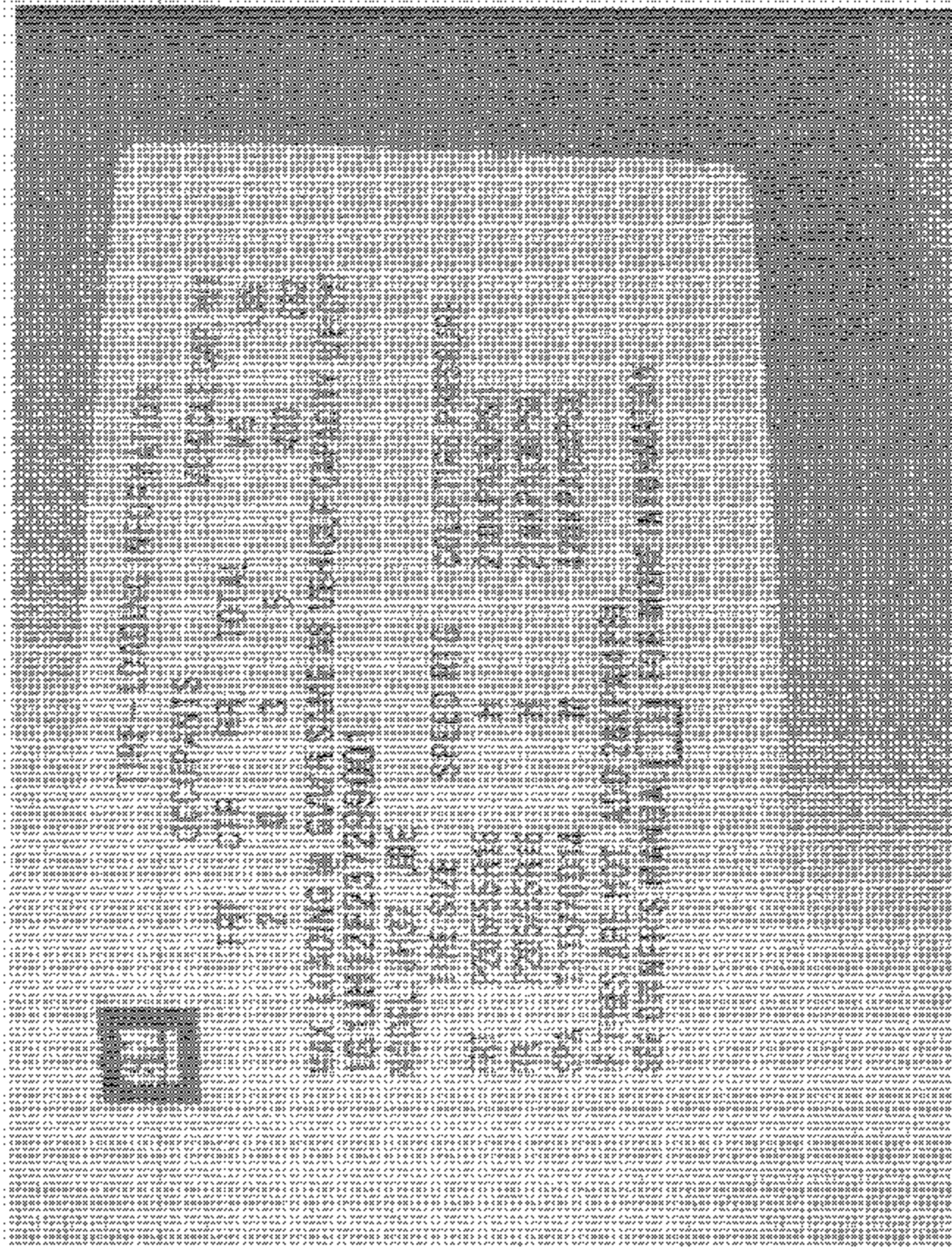


FIGURE 5-3
VEHICLE'S FIRE INFORMATION LABEL

2003 CHEVROLET CAVALIER LS
NHTSA NO. C00116
FMVSS NO. 101 (INFLAMMANT)

[illegible]

FIGURE 54
VEHICLES MONETARY LABEL (PART I)

2003 CHEVROLET CAVALIER LS
 4MT 5A NO CRIM
 SVS55 NO TID INCANT

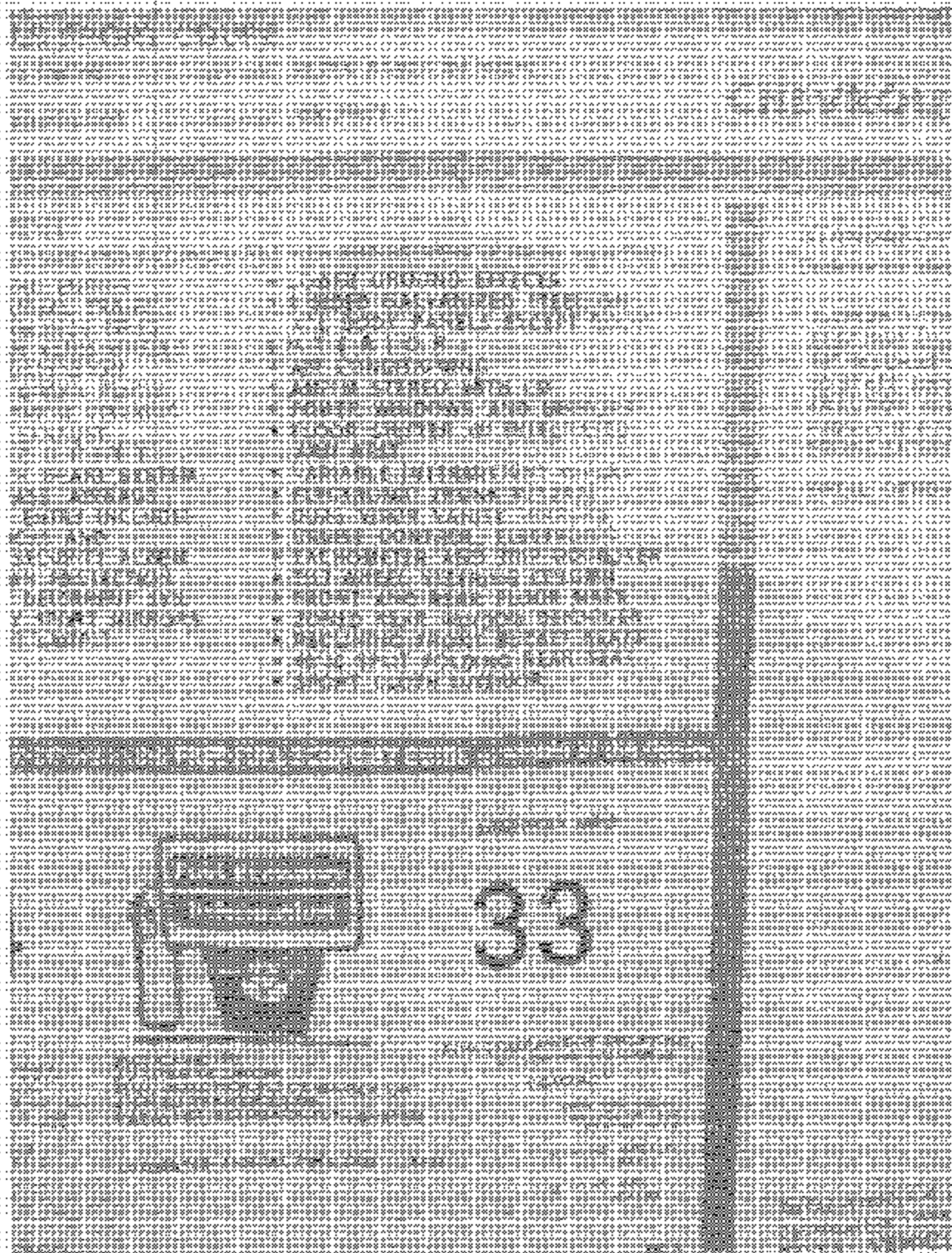


FIGURE 55
VEHICLE'S MONEY LABEL (PART 2)

2003 CHEVROLET CAVALIER LS
NHTSA NO. C30016
FMVSS NO. 110 (INDICANT)

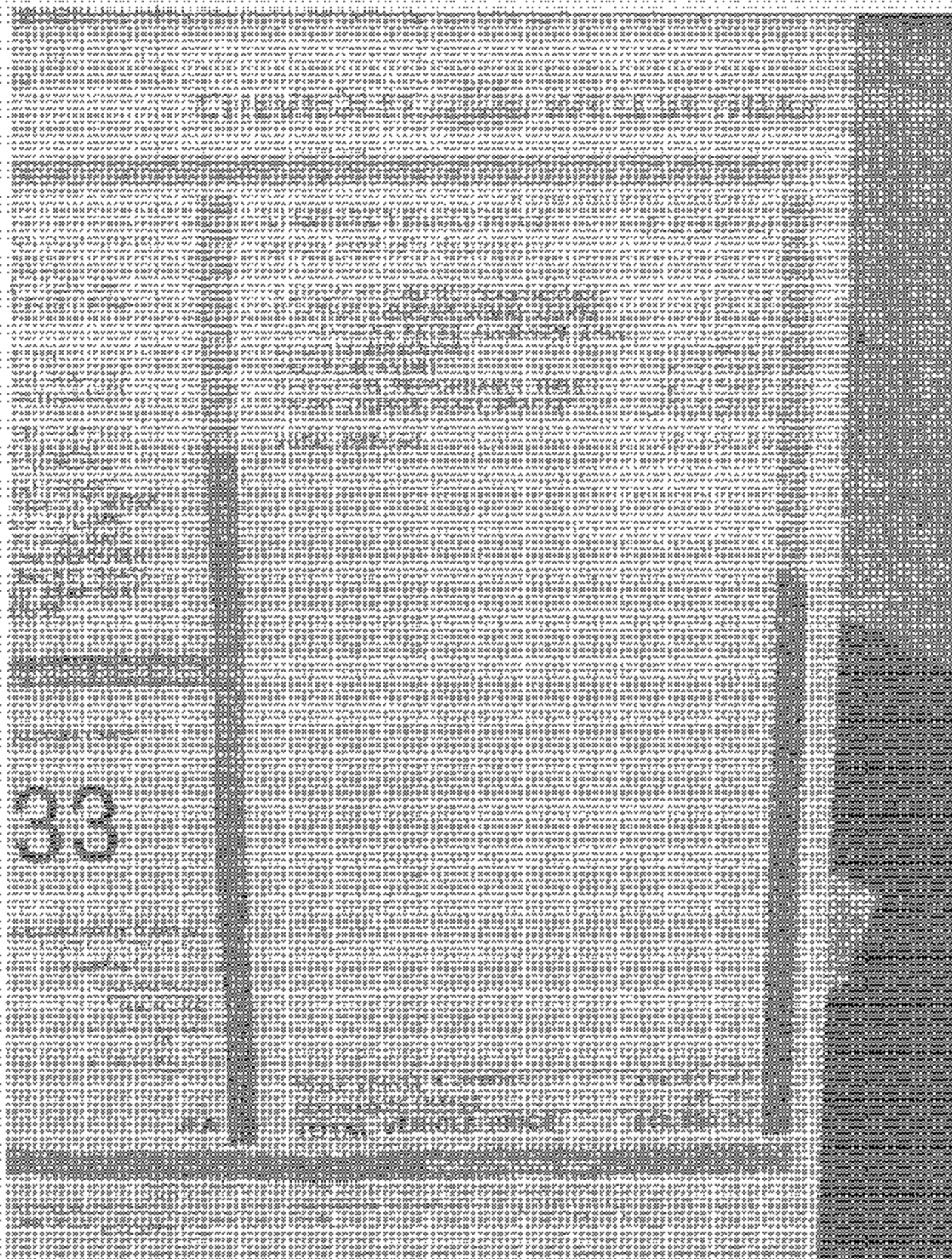


FIGURE 66
VEHICLES MONITORING LABEL (PART 3)

2003 CHEVROLET CAVALIER LS
NHTSA NO. 020114
EPA/SS NO. 110 (INFRACANT)

33

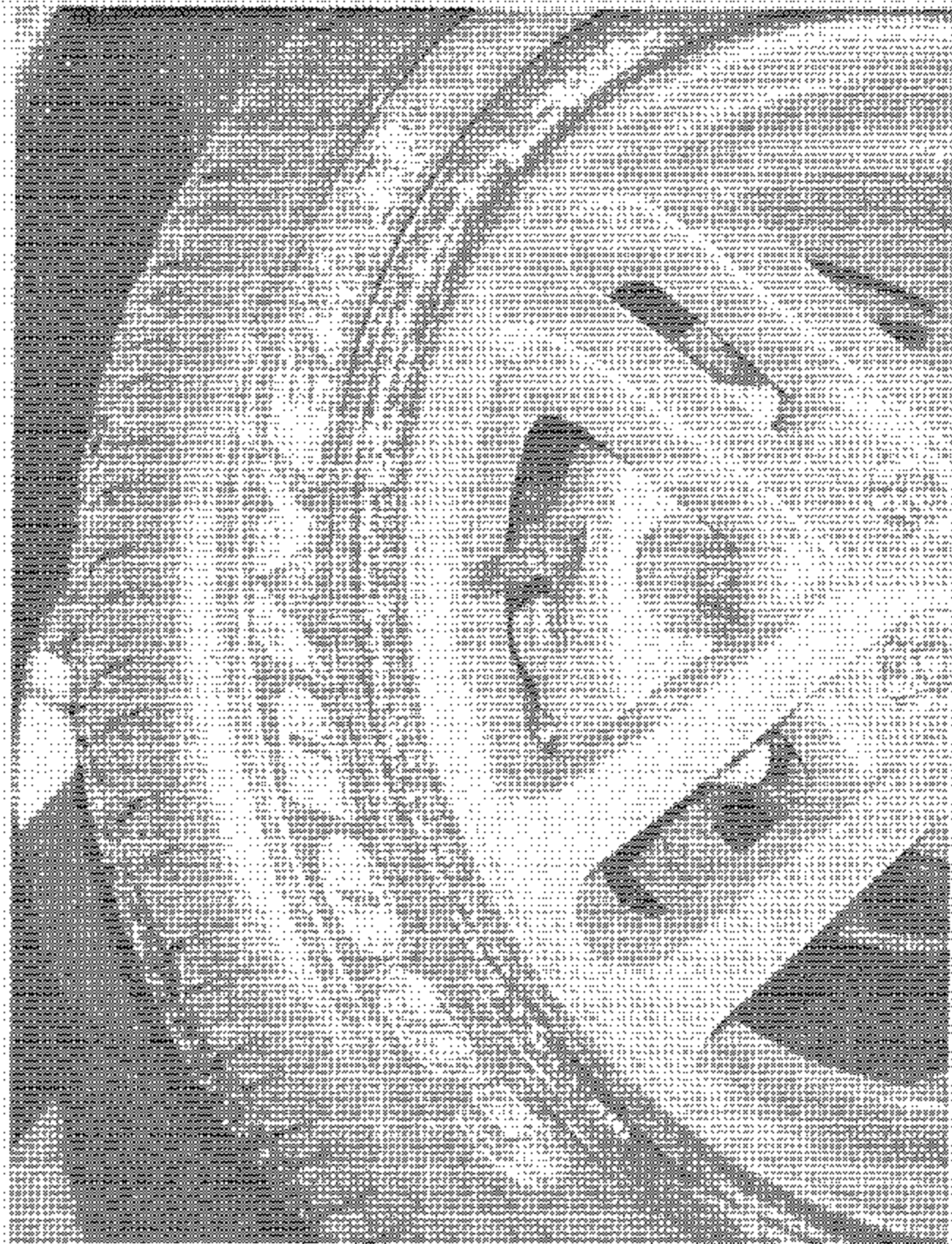


FIGURE 5
TRENDS SHOWING BROAD

2022 CONSUMER AWARENESS
NATASA CONSULTING
RESEARCH & ANALYTICS

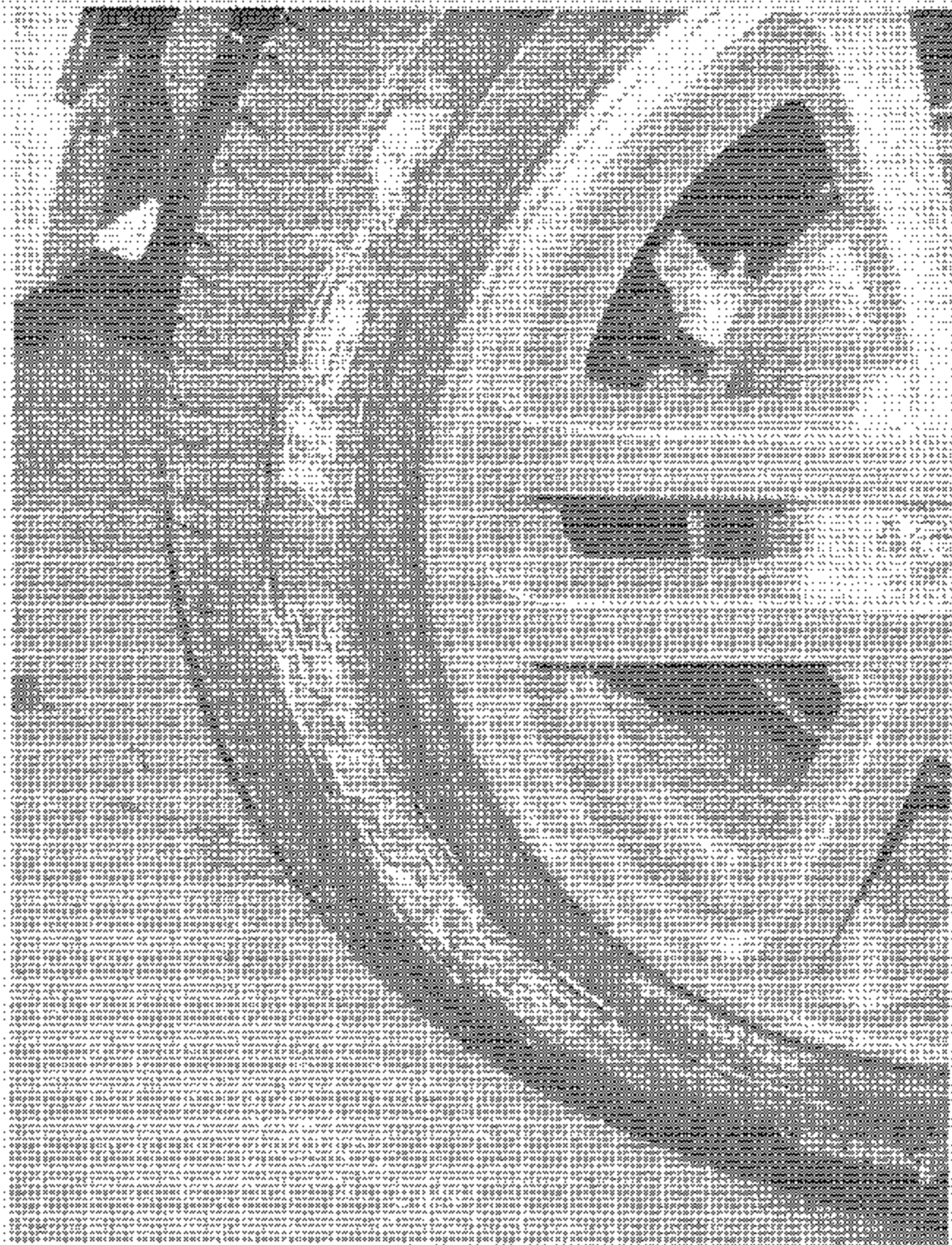


FIGURE 6-3
1963 CHEVROLET CAVALIER, 15
NHTSA NO. C20014
FAYSS NO. 110 (INDICANT)
FIRE SHOWING MODEL



2003 CHEVROLET CAVALIER 1.5
 NHTSA REG. C80411
 FMVSS NO. 110 (INDICANT)

FIGURE 5.9
 TIRE SHOWING SIZE, LOAD INDEX AND SPEED
 SYMBOL

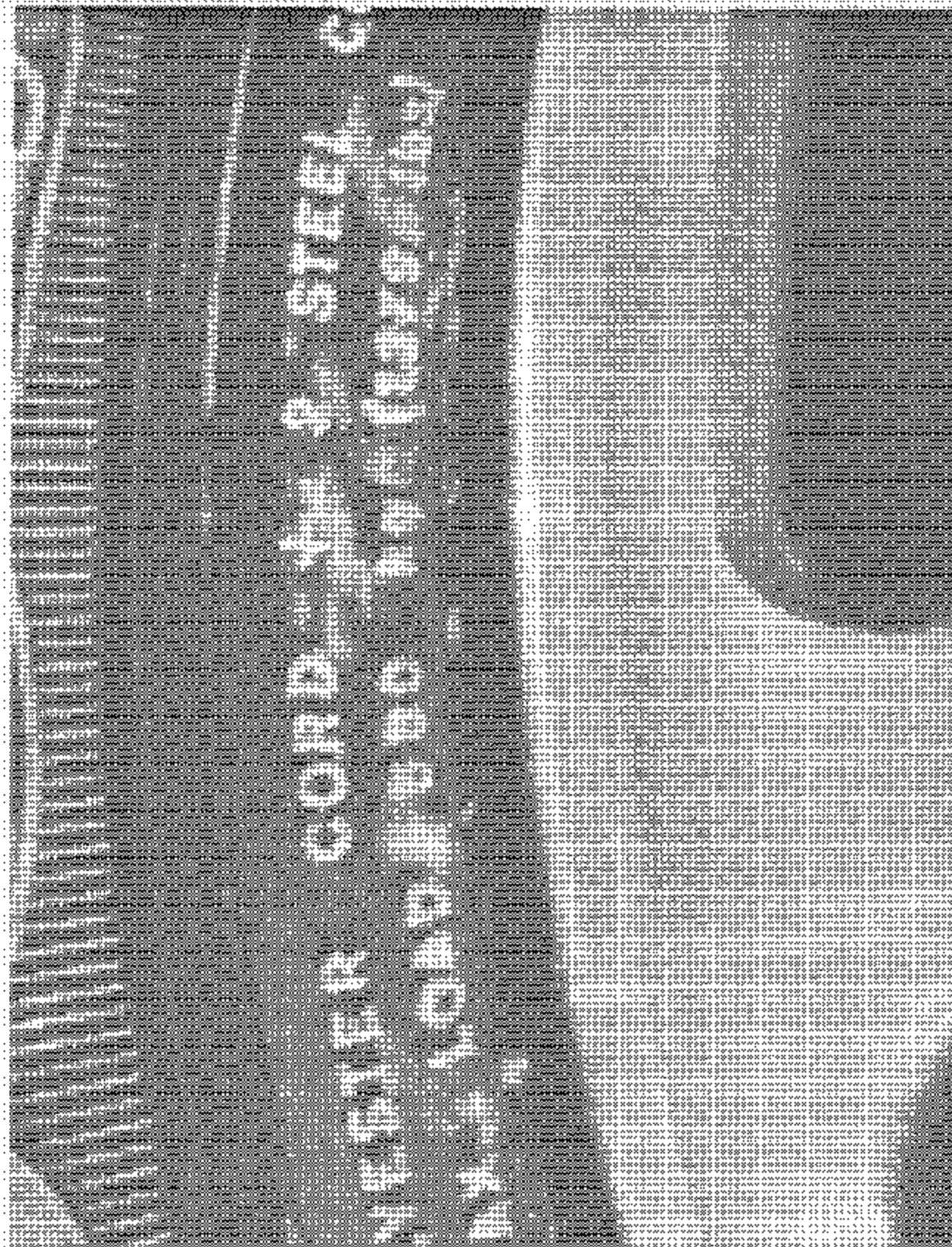
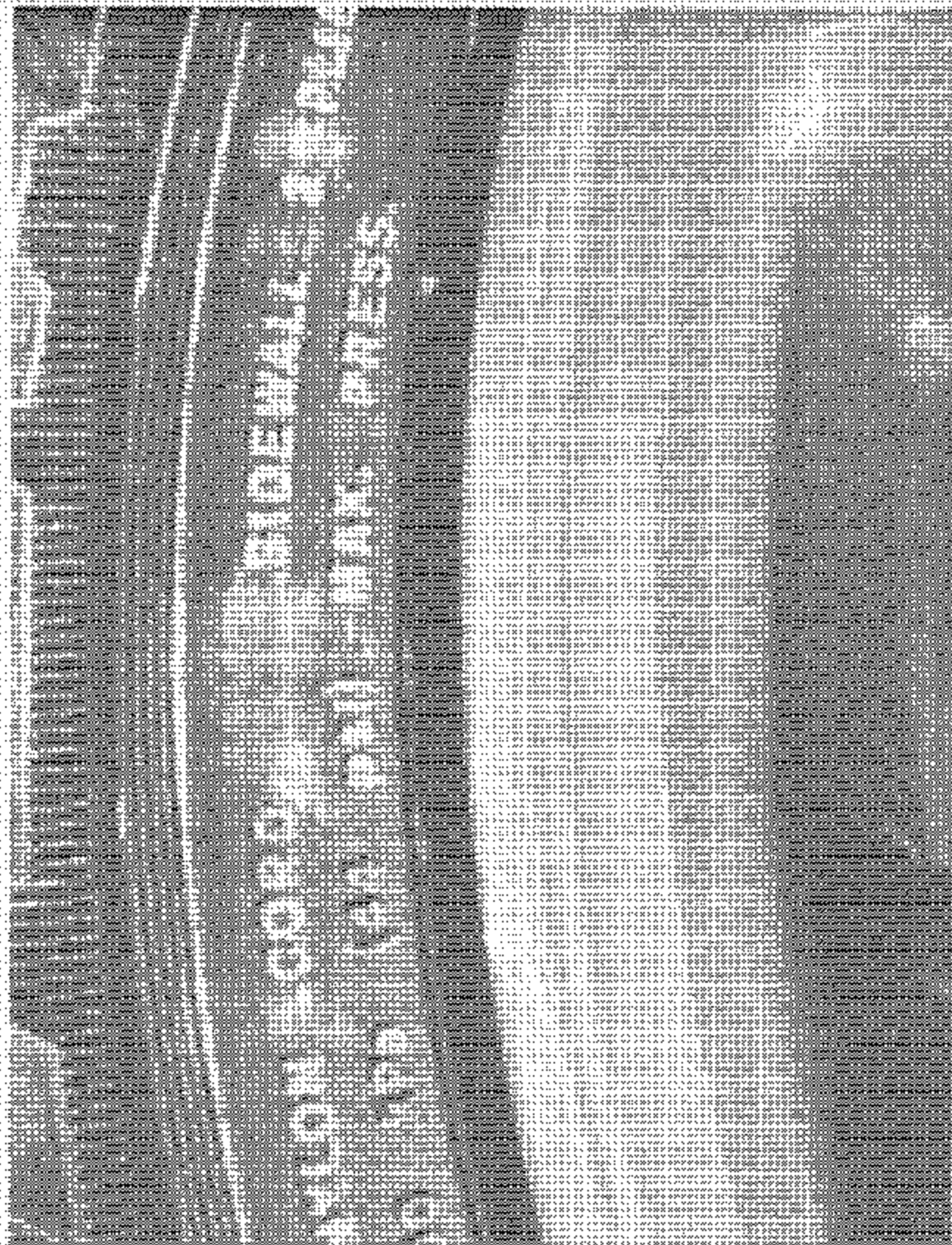


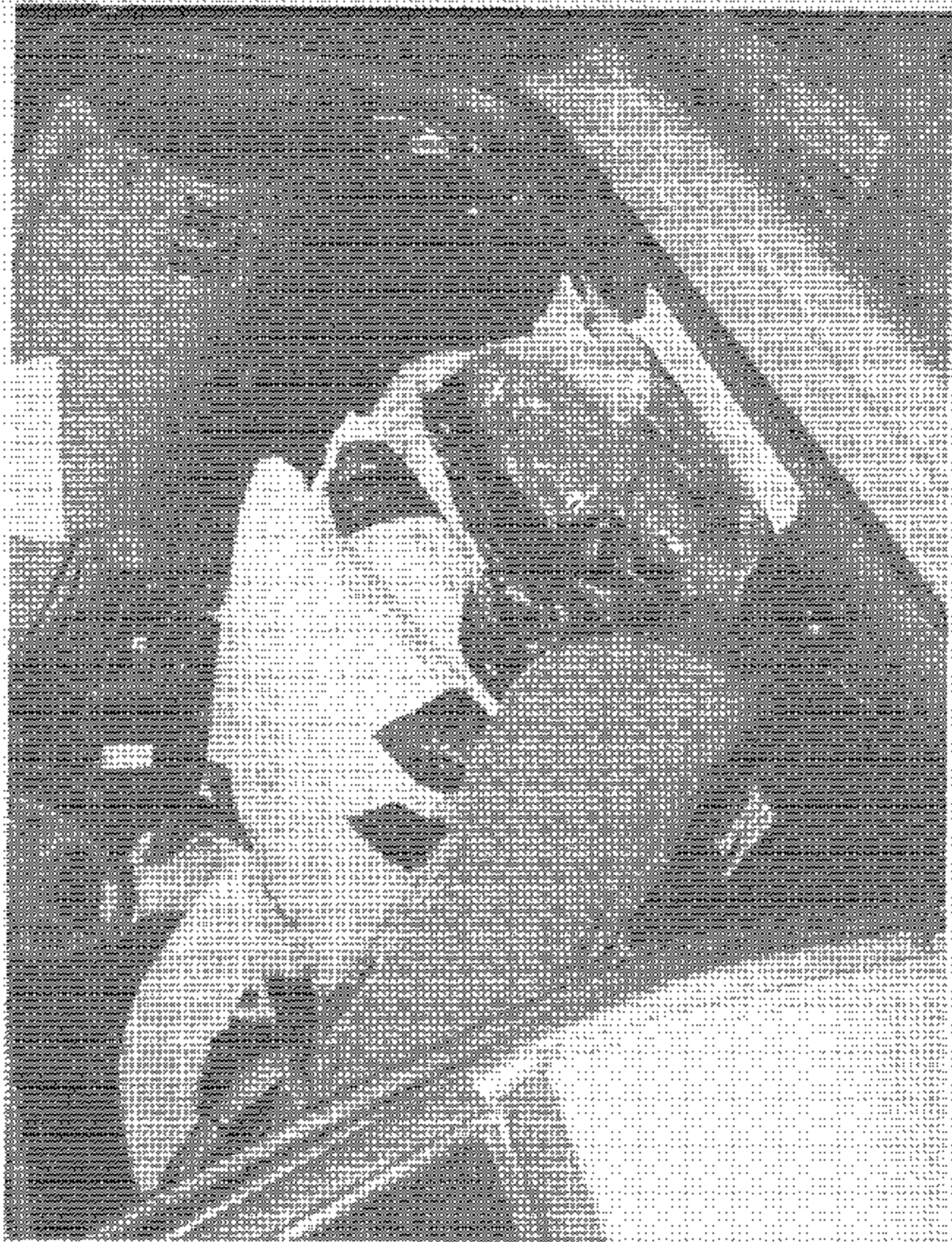
FIGURE 5-10
TIRE SHOWING MAX LOAD RATING

2003 CHEVROLET CAVALIER LS
NHTSA NO. 000114
FMVSS NO. 110 (INFLUENT)



2003 CHEVROLET CAVALIER LS
NHTSA NO. C30114
PNVS NO. 110 (INDICANT)

FIGURE 5-1
FIREWORKING MAX INFLATION PRESSURE



2003 CHEVROLET CAVALIER LS
NHTSA NO. C30114
FMVSS NO. 110 (INDICANT)

FIGURE 3.12
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.