

REPORT NUMBER 110(IND)-GTL-03-015

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

**MITSUBISHI MOTORS CORPORATION
2003 MITSUBISHI OUTLANDER, MPV
NHTSA NO. C35600**

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



SEPTEMBER 10, 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 Mitsubishi Outlander 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 Mitsubishi Outlander 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 Mitsubishi Outlander. Nomenclature applicable to the test vehicle are:

- A. Vehicle Identification Number: JA4LZ41G93U030448
- B. NHTSA No.: C35600
- C. Manufacturer: MITSUBISHI MOTORS CORPORATION
- D. Manufacture Date: Sep 2002

1.2 TEST DATE

The test vehicle was subjected to testing on May 20, 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 Mitsubishi Outlander 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

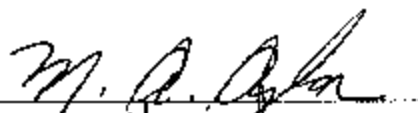
DATA SHEET 1
SUMMARY

VEHICLE MAKE/MODEL/BODY STYLE: 2003 MITSUBISHI OUTLANDER MPV
VEHICLE NHTSA NO.: C35600 ; VIN: JA4LZ41G93U030448
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/20/03

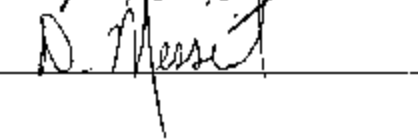
<u>REQUIREMENT</u>	<u>YES/NO</u>
The vehicle is equipped with tires that meet the requirements of FMVSS 109 or FMVSS 119.	<u>YES</u>
The vehicle normal load on the tire is not greater than the high speed performance test load specified in FMVSS 109 paragraph S5.5 or FMVSS 119 paragraph S7.4.	<u>YES</u>
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:

DATE: 05/20/03

APPROVED BY:



DATA SHEET 2 TEST VEHICLE INFORMATION/RECEIVING INSPECTION

LABORATORY: GENERAL TESTING LABORATORIES DATE: 05/20/03

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 MITSUBISHI OUTLANDER MPV

MANUFACTURE DATE: Sep 2002 NHTSA NO.: C35600 BODY COLOR: SILVER

VIN: JA4LZ41G93U030448 VEHICLE TYPE: MPV

GVWR 1980 kg (4365 lbs) GAWR(Fr) 1050 kg (2315 lbs) GAWR(Rr) 1065 kg (2348 lbs)

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

ENGINE DATA: 4 Cylinders 2.4 Liters Cubic Inches

TRANSMISSION DATA: Automatic X Manual No. of Speeds 5

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

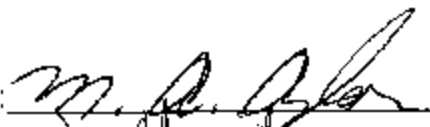
INSTALLED TIRE DATA: Size - P225/60R16 Mfr. - YOKOHAMA

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

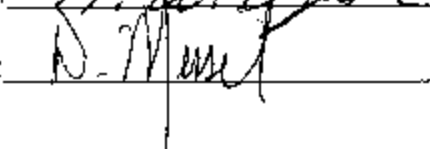
☒	Air Conditioning		Traction Control	☒	Clock
☒	Tinted Glass	☒	All Wheel Drive	☒	Roof Rack
☒	Power Steering		Cruise Control	☒	Console
☒	Power Windows	☒	Rear Window Defroster	☒	Driver Air Bag
☒	Power Door Locks		Sun Roof or T-Top	☒	Passenger Air Bag
	Power Seat(s)	☒	Tachometer	☒	Front Disc Brakes
	Power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

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

REMARKS:

RECORDED BY: 

DATE: 05/20/03

APPROVED BY: 

DATA SHEET 3
CURB WEIGHT WITH OPTIONS AND NORMAL LOAD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 MITSUBISHI OUTLANDER MPV
 VEHICLE NHTSA NO.: C35600 ; VIN: JA4LZ41G93U030448
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/20/03

Full Fluid Levels:

Fuel Full ; Coolant Full ; Other Fluids Full

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

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

LF	<u>464</u>	KG (1022 LB)	LR	<u>344</u>	KG (759 LB)
RF	<u>459</u>	KG (1012 LB)	RR	<u>340</u>	KG (749 LB)
Front Axle <u>923</u> KG (2034 LB)			Rear Axle <u>684</u> KG (1508LB)		
Total Vehicle <u>1607</u> KG (3542 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>511</u>	KG (1126 LB)	LR	<u>400</u>	KG (881 LB)
RF	<u>508</u>	KG (1120 LB)	RR	<u>396</u>	KG (873 LB)
Frt Axle <u>1019</u> KG (2246 LB)			Rr Axle <u>796</u> KG (1754 LB)		
Total Vehicle <u>1814</u> KG (4000 LB)					

DATA SHEET 3 - CONTINUED

- (5) Calculated Vehicle Normal Load on the Tire
 Front Tires (measured front axle normal load/2) = 509 KG (1123 LB)
 Rear Tires (measured front axle normal load/2) = 398 KG (877 LB)

- (6) High Speed Test Load from () FMVSS 109 (S5.5), or (X) FMVSS 119 (S7.4)

	Front	Rear
(a) Installed Tire Size	<u>P225/60R16</u>	<u>P225/60R16</u>
Max. Load Rating on Sidewall	<u>730 KG(1609 LBS)</u>	<u>730 KG(1609 LBS)</u>
Reduced Sidewall Load Rating (if applicable)*	<u>664 KG(1463 LBS)</u>	<u>664 KG(1463 LBS)</u>
High Speed Test Load (88% of sidewall max. load rating)	<u>584 KG(1287 LBS)</u>	<u>584 KG(1287 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. Gbor

DATE: 05/20/03

APPROVED BY: D. Messer

DATA SHEET 4
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 MITSUBISHI OUTLANDER MPV
 VEHICLE NHTSA NO.: C35600 ; VIN: JA4LZ41G93U030448
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/20/03

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 Side "B" Pillar
 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: Driver's Side "B" Pillar
 Description of Label: White/Black Sticker

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

Vehicle Capacity Weight - "Total Weight" 375 KG (827 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

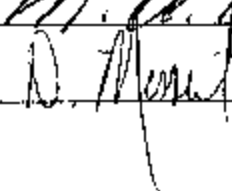
Manufacturer's Recommended Tire Size(s) and Cold Tire Inflation Pressure(s) for Maximum Load Vehicle Weight:

P225/60R16 FRONT - 200 kPa (29 psi)
 REAR - 200 kPa (29 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, however, the Outlander labeling includes this information.

RECORDED BY:  DATE: 05/20/03

APPROVED BY: 

DATA SHEET 5
VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2003 MITSUBISHI OUTLANDER MPV
VEHICLE NHTSA NO.: C35600; VIN: JA4LZ41G93U030448
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/20/03

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

INFORMATION FROM TIRE SIDEWALL:

Right Front Tire

Tire Size Designation P225/60R16
Tire Load Index/Speed Symbol 97H
Maximum Inflation Pressure 300 kPa (44 psi)
Maximum Load Rating 730 KG (1609 LBS.)
Mfr. Name or Brand & Code YOKOHAMA GEOLANDAR
Tube or Tubeless TUBELESS
Treadwear/Traction/Temp. Grades 180/B/A
Sidewall (Plies & Composition) 1 PLY POLYESTER
Tread (Plies & Composition) 1 PLY POLYESTER
2 PLY STEEL
1 PLY NYLON
Serial Number: Right Front - DOT-FDA6 NTD 3502

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

REMARKS:

RECORDED BY:

DATE: 05/20/03

APPROVED BY:

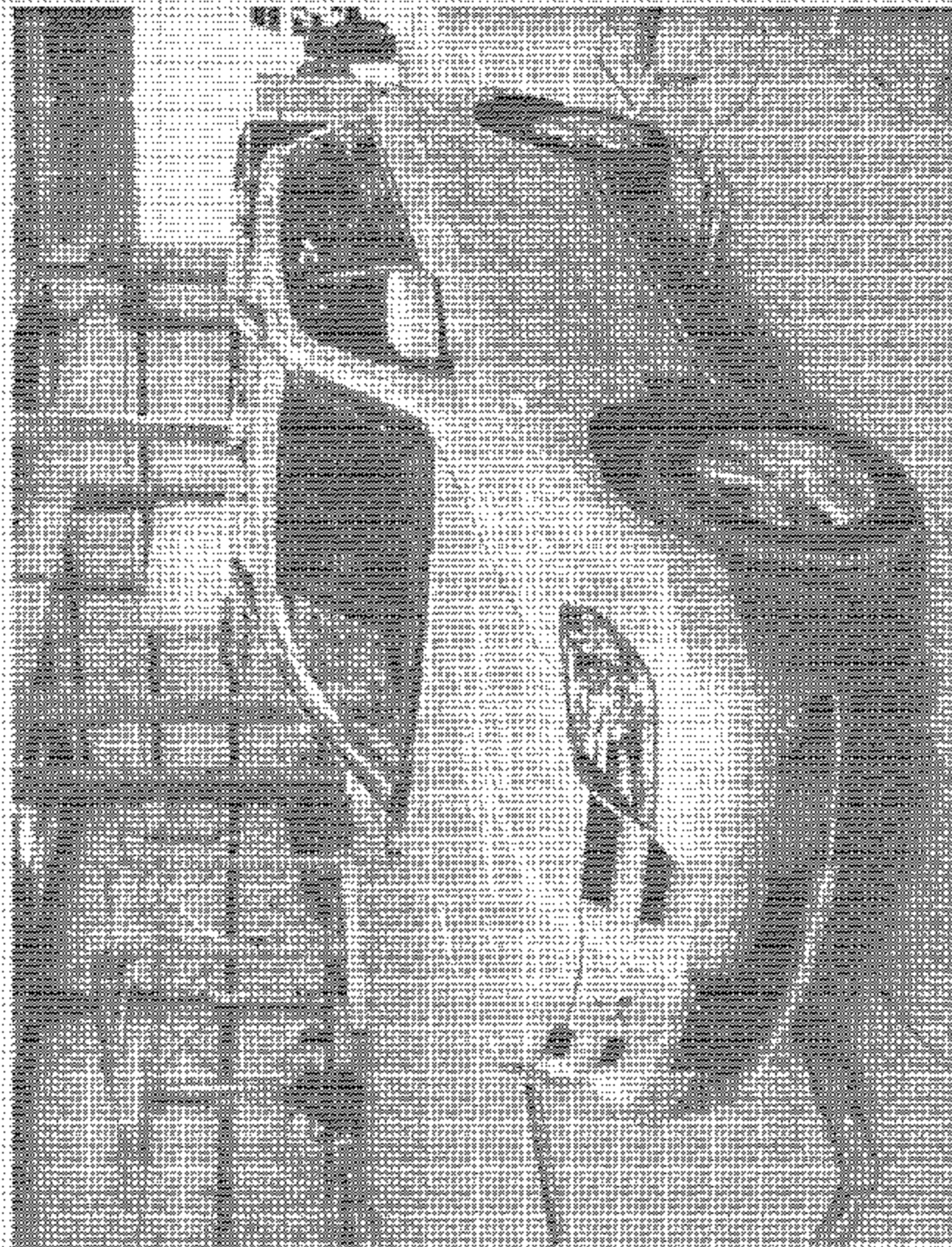


SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
PAD SCALES	#1 199744LF	199744LF	06/02	06/03
	#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

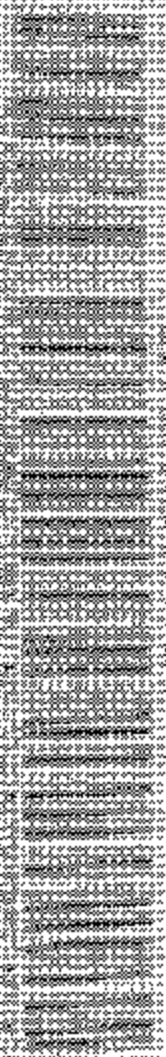
SECTION 5 PHOTOGRAPHS



2003 MITSUBISHI OUTLANDER
 NHTSA NC 325500
 PAVLS NO. 110 (MILICANT)

FIGURE 5.1
 5. FRONTAL VIEW OF VEHICLE

2003 MITSUBISHI OUTLANDER
VIN: JF1E1E1E1E1E1E1E1E1E
ENGINE: 2.4L I4 16V
TRANSMISSION: 5-SP
DRIVE: FWD
MODEL: 2.4 4M4J
YEAR: 2003
MAKE: MITSUBISHI
MODEL: OUTLANDER
VIN: JF1E1E1E1E1E1E1E1E1E



2003 MITSUBISHI OUTLANDER
VIN: JF1E1E1E1E1E1E1E1E1E

2003 MITSUBISHI OUTLANDER
VIN: JF1E1E1E1E1E1E1E1E1E
ENGINE: 2.4L I4 16V
TRANSMISSION: 5-SP
DRIVE: FWD
MODEL: 2.4 4M4J
YEAR: 2003
MAKE: MITSUBISHI
MODEL: OUTLANDER
VIN: JF1E1E1E1E1E1E1E1E1E

2003 MITSUBISHI OUTLANDER
VIN: JF1E1E1E1E1E1E1E1E1E
ENGINE: 2.4L I4 16V
TRANSMISSION: 5-SP
DRIVE: FWD
MODEL: 2.4 4M4J
YEAR: 2003
MAKE: MITSUBISHI
MODEL: OUTLANDER
VIN: JF1E1E1E1E1E1E1E1E1E

TIRE INFLATION PRESSURE
CHECK WITH TIRE COOL

STANDARD INFLATION PRESSURE
FOR ALL LOADS

1ST SEAT - 2 PASSENGERS

2ND SEAT - 3 PASSENGERS

TOTAL - 5 PASSENGERS

LOBBAGE - 30 PSI (200 kPa)

TOTAL WEIGHT - 3750 LBS (1700 kg)

TIRE SIZE - FRONT & REAR

P225/60R16

29 PSI
(200 kPa)

TEMPORARY TIRE SIZE

T135/90D16

60 PSI (420 kPa)

MF8513031

FIGURE 3-3
VEHICLE'S SEPARATE TIRE INFORMATION
LABEL

2003 MITSUBISHI OUTLANDER
MTEA NO. 123560
FMVSS NO. 110 (INDICANT)

Driving Safely

Quality Construction

Safety and Security

Reliability

Performance

Value

Comfort

Convenience

Control

Efficiency

Flexibility

Functionality

Integration

Innovation

Intelligence

Insight

Intuition

Interaction

Interactivity

Interfacing

Interfession

Interfession

Interfession

Interfession

Interfession

Interfession

Interfession

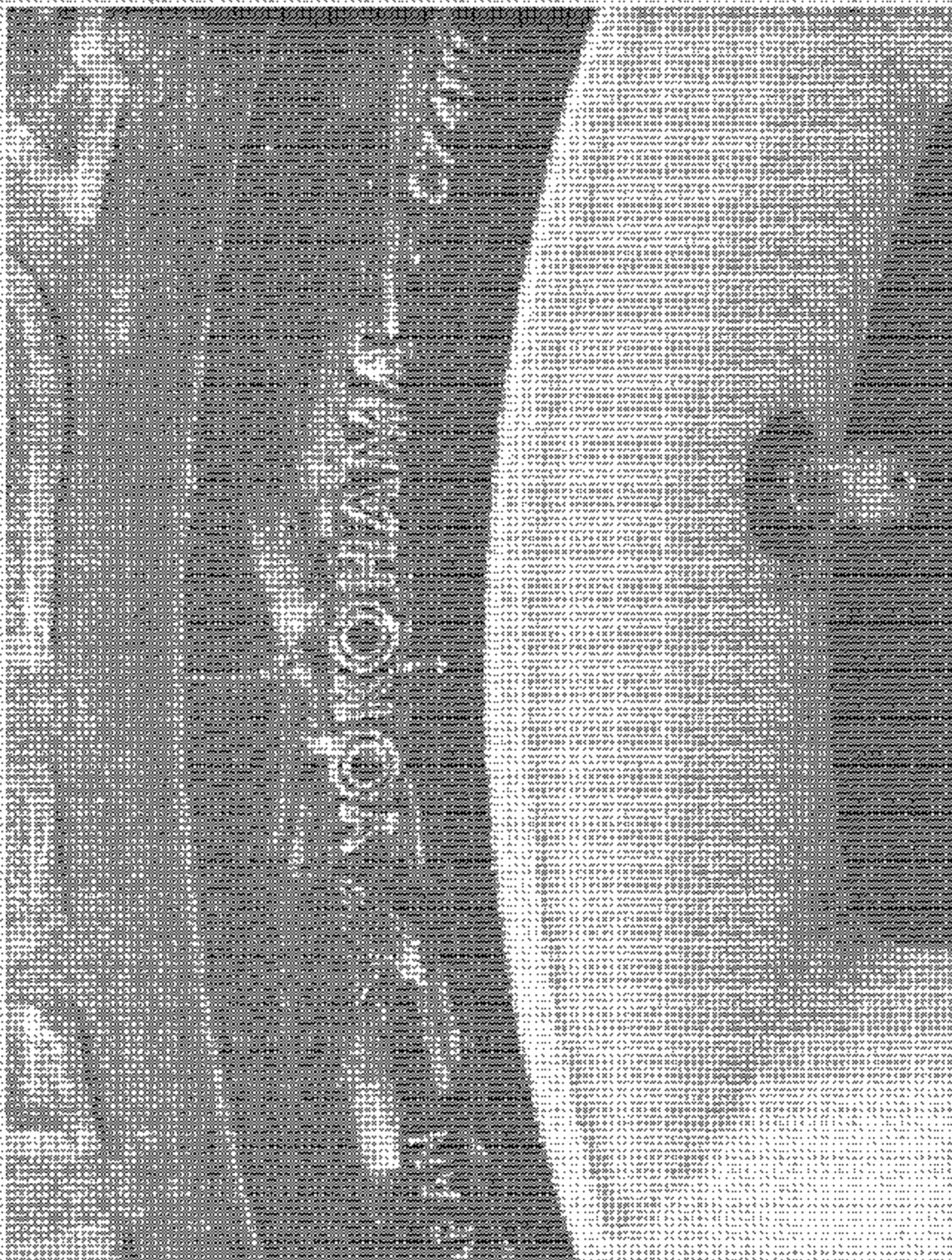
Interfession

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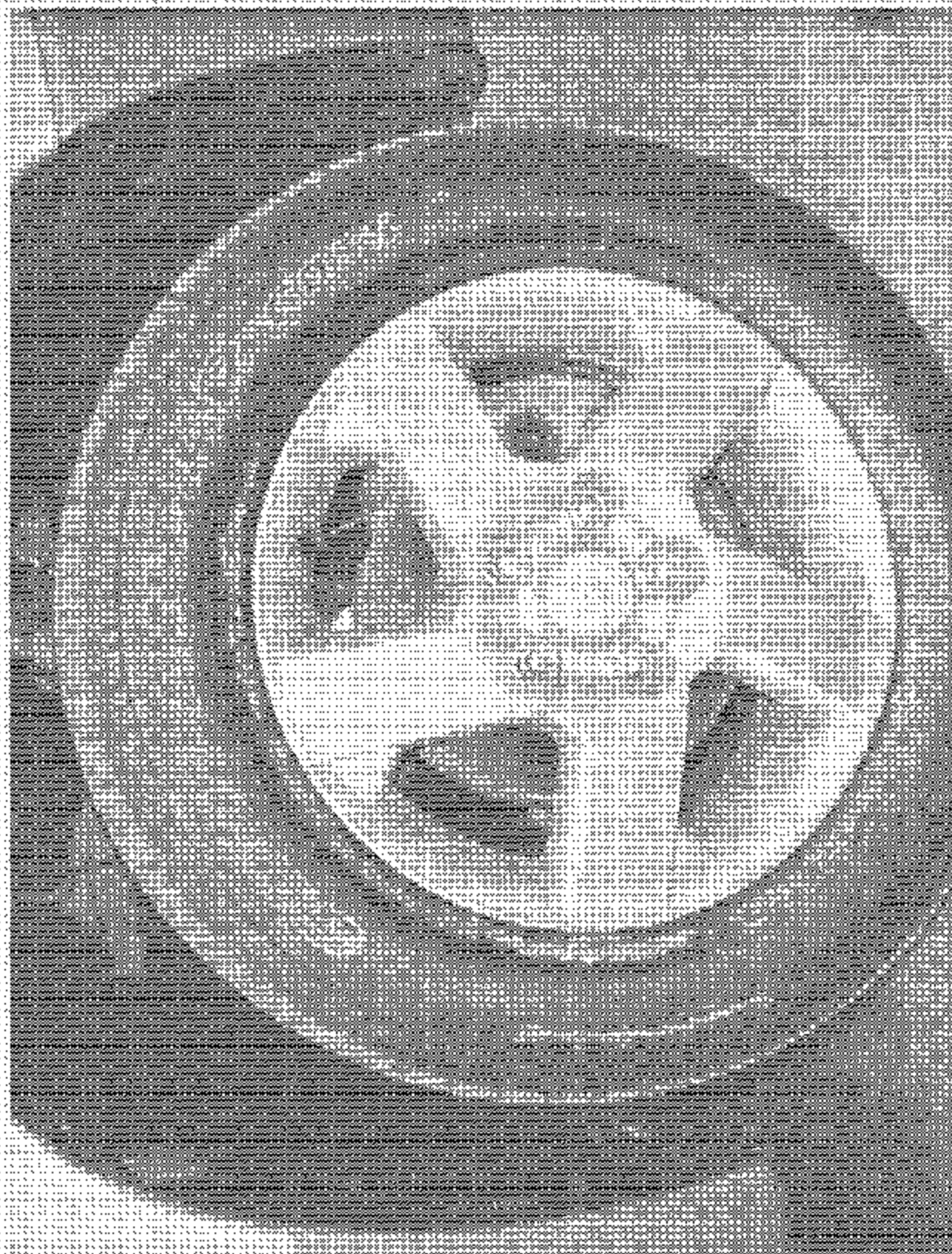
FIGURE 5A
VEHICLE'S MONROY LABEL

2003 HONDA CIVILIAN
NHTSA NO. C-55000
SEVSS NO. 110 (MEDIAN)



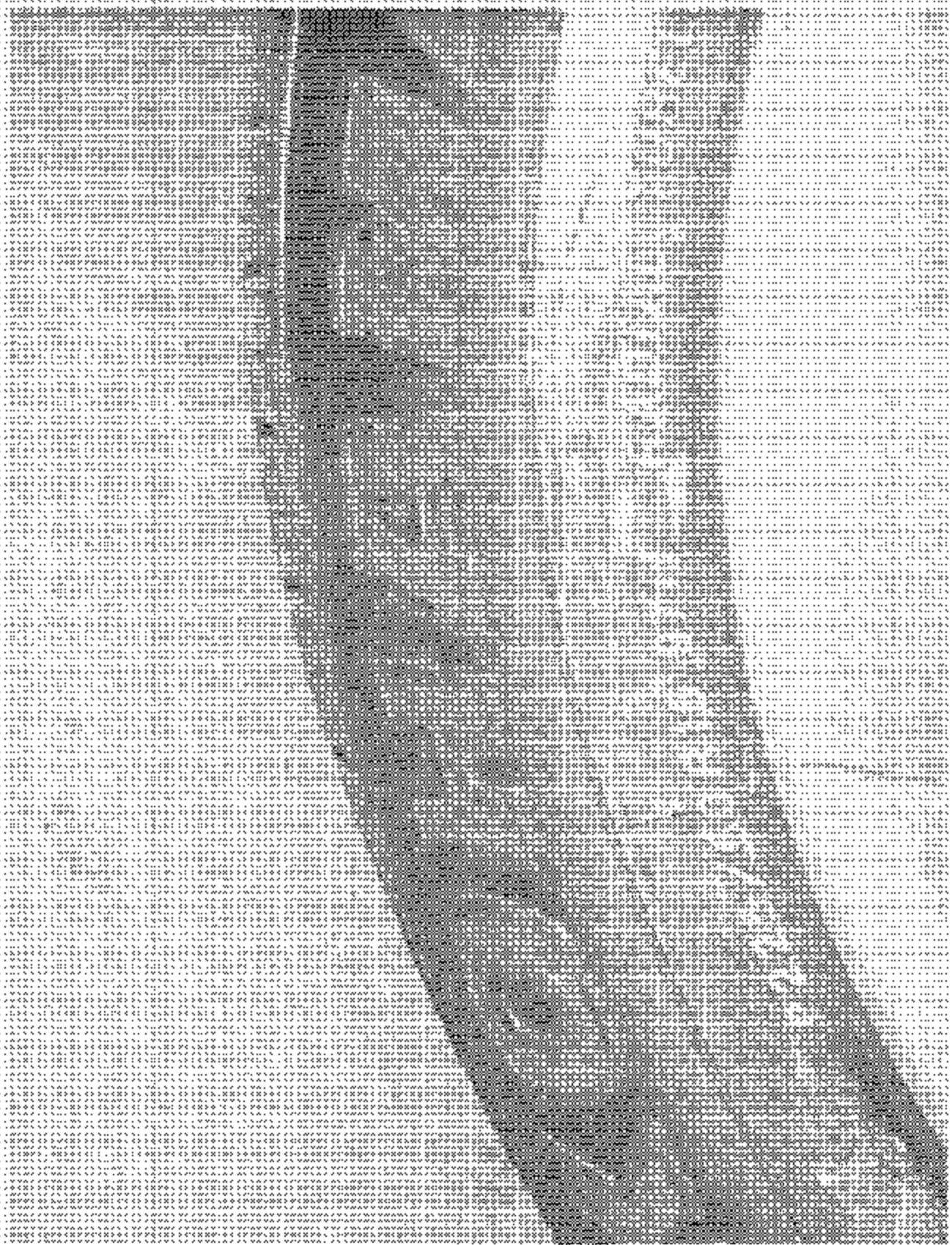
2003 NISSAN OUTLANDER
AIR SA NO. 125000
FLVSS NO. 110 (INDICANT)

FIGURE 55
DRE SHIVING BRAND



2103: MITSUBISHI OUTLANDER
MITSUBA NO. 123500
FMVSS NO. 110 INDICANT

FIGURE 5.8
ORE SHOWING MODEL

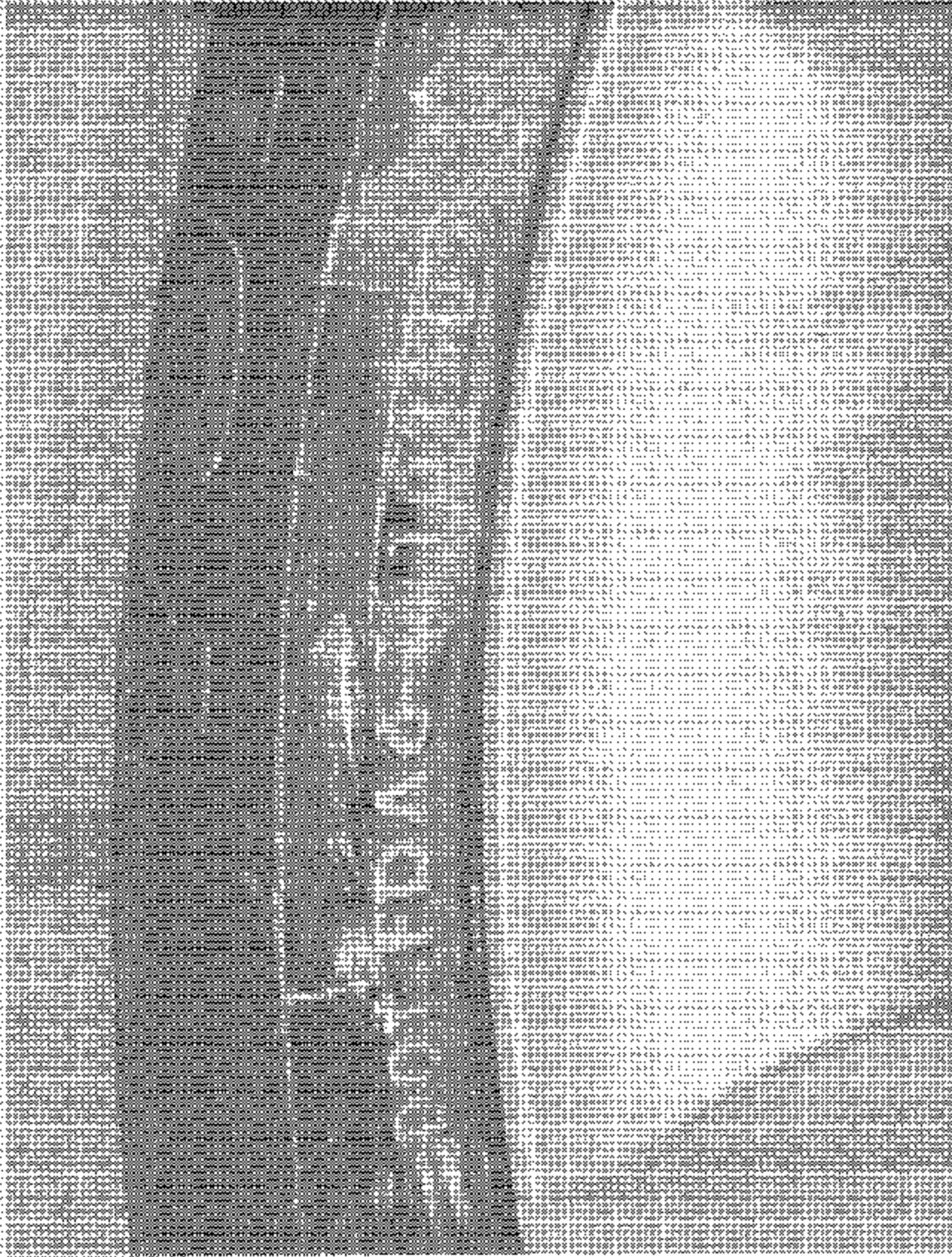


2003 MITSUBISHI OUTLANDER
NHTSA NO. DZ5502
FMVSS NO. 110 (INDICANT)

FIGURE 5.7
PRE-SHOWING SIZE, LOAD INDEX AND SPEED
SYMBOL

[illegible]

FIGURE 38
TIME SHOWING MAX LOAD VARIATION AND MAX
RELATION OF PRESSURE



2003 MEDIUM OUTLANDER
MITSUBISHI NO. 225500
EVSSE NO. 110 (INDICANT)

FIGURE 3.9
THE SHOWING SERIAL NUMBER

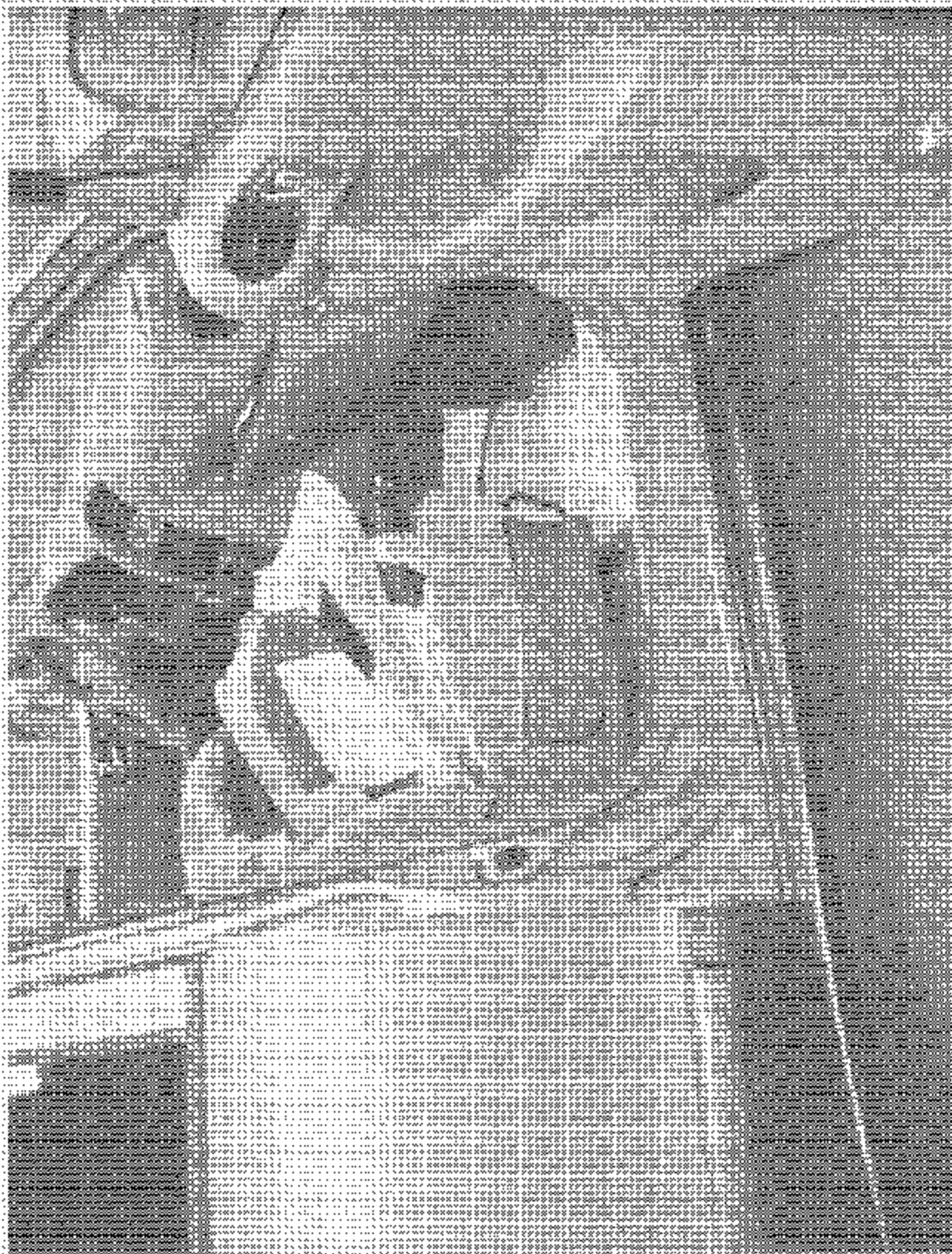


FIGURE 3.10
VEHICLE BALLASTED TO SIMULATE NORMAL
LOAD CONDITION

2003 MITSUBISHI OUTLANDER
NHTSA NC-035655
FRASE ID: 110 (INDICANT)

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.