636785

REPORT NUMBER 110(IND)-GTL-03-001

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

AUTO ALLIANCE INTERNATIONAL, INC
FOR
MAZDA MOTOR CORPORATION
2003 MAZDA 6, 4 DOOR PASSENGER CAR
NHTSA NO. C35401

GENERAL TESTING LABORATORIES, INC.
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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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Accepted By: John Tsumura

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Technical Report Documentation Page

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15. Supplementary Notes		

16. Abstract

This test was conducted on the subject, 2003 Mazda 6 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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INTRODUCTION

1.0 PURPOSE OF INDICANT TESTING

A 2003 Mazda 6 4-door 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 Mazda 6 4-door passenger car. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 1YVFP80C335M20688

B. NHTSA No.: C35401

C. Manufacturer: AUTO ALLIANCE INTERNATIONAL FOR MAZDA MOTOR CORPORATION

D. Manufacture Date: 01/03

1.2 TEST DATE

The test vehicle was subjected to testing on May 23, 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 MAZDA 6 4-DOOR PASSENGER CAR
VEHICLE NHTSA NO.: C35401 ; VIN: 1YVFP80C335M20688
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/23/03

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

REMARKS:

RECORDED BY: M. A. Alam DATE: 05/23/03

APPROVED BY: D. Mussi

DATA SHEET 2
TEST VEHICLE INFORMATION/RECEIVING INSPECTION

LABORATORY: GENERAL TESTING LABORATORIES DATE: 05/23/03

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 MAZDA 6, 4-DOOR

MANUFACTURE DATE: 01/03 NHTSA NO.: C35401 BODY COLOR: PERMANENT WHITE

VIN: 1YVFP80C335M20688 VEHICLE TYPE: PASSENGER CAR

GVWR 1958 kg (4317 lbs) GAWR(Fr) 1070 kg (2359 lbs) GAWR(Rr) 888 kg (1958 lbs)

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

ENGINE DATA: ___ Cylinders 2.3 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 - P205/60R16 Mfr. - MICHELIN

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		Console
X	Power Windows	X	Rear Window Defroster	X	Driver Air Bag
X	Power Door Locks		Sun Roof or T-Top	X	Passenger Air Bag
X	Power Seat Driver Side	X	Tachometer	X	Front Disc Brakes
	Power Brakes	X	Tilt Steering Wheel		Rear Disc Brakes
	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. Ogbon DATE: 05/23/03

APPROVED BY: D. Mesic

DATA SHEET 3
CURB WEIGHT WITH OPTIONS AND NORMAL LOAD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 MAZDA 6 4-DOOR PASSENGER CAR
VEHICLE NHTSA NO.: C35401 ; VIN: 1YVFP80C335M20688
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 432 KG (953 LB) LR 286 KG (630 LB)
RF 418 KG (922 LB) RR 285 KG (629 LB)

Front Axle 851 KG (1875 LB) Rear Axle 571 KG (1259 LB)

Total Vehicle 1422 KG (3134 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 481 KG (1060 LB) LR 342 KG (755 LB)
RF 463 KG (1020 LB) RR 340 KG (749 LB)

Frt Axle 943 KG (2080 LB) Rr Axle 682 KG (1504 LB)

Total Vehicle 1626 KG (3584 LB)

DATA SHEET 3 – CONTINUED

(5) Calculated Vehicle Normal Load on the Tire
Front Tires (measured front axle normal load/2) = 472 KG (1040 LB)
Rear Tires (measured front axle normal load/2) = 341 KG (752 LB)

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

	Front	Rear
(a) Installed Tire Size	P205/60R16	P205/60R16
Max. Load Rating on Sidewall	615 KG(1356 LBS)	615 KG(1356 LBS)
Reduced Sidewall Load Rating (if applicable)*	N/A	N/A
High Speed Test Load (88% of sidewall max. load rating)	541 KG(1193 LBS)	541 KG(1193 LBS)
(b) Optional Tire Size(s)	P215/50R17 93V	P215/50R17 93V
Max. Load Rating on Sidewall (from 2003 Tire and Rim Association Yearbook)	650 KG (1433 LBS)	650 KG (1433 LBS)
Reduced Sidewall Load Rating (if applicable)*	N/A	N/A
High Speed Test Load (88% of sidewall max. load rating)	572 KG(1261 LBS)	572 KG(1261 LBS)

* 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. Ayala DATE: 05/23/03

APPROVED BY: D. Mossi

DATA SHEET 4
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 MAZDA 6 4-DOOR PASSENGER CAR
VEHICLE NHTSA NO.: C35401 ; VIN: 1YVFP80C335M20688
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/23/03

A. Vehicle Type from Certification Label: Passenger Car

B. Identify Vehicle Labeling:

Vehicle has a combined Certification Tire Information Label ( ) Yes (X) No
Is Label Permanently Affixed: ( ) Yes ( ) No
Label Location:
Description of Label:

Vehicle has a separate Tire Information Label or Placard (X) Yes ( ) No
Is Label Permanently Affixed: (X) Yes ( ) No
Label Location: Driver's Side Lower B Pillar
Description of Label: White/Black Sticker

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

Vehicle Capacity Weight - 385 KG (850 LBS)

Designated Seating Capacity (DSC) - 5
Expressed In—
(1) Total No. of Occupants (X) Yes ( ) No
(2) Terms of Occupants for Each Seat Location (X) Yes ( ) No

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

P205/60R16	FRONT -	220 kPa (32 psi)
	REAR -	220 kPa (32 psi)
P215/50R17	FRONT -	220 kPa (32 psi)
	REAR -	220 kPa (32 psi)

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

REMARKS:

RECORDED BY: [signature] DATE: 05/23/03
APPROVED BY: [signature]

DATA SHEET 5
VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2003 MAZDA 6 4-DOOR PASSENGER CAR
VEHICLE NHTSA NO.: C35401 ; VIN: 1YVFP80C335M20688
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/23/03

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

INFORMATION FROM TIRE SIDEWALL:

	Right Front Tire
Tire Size Designation	P205/60R16
Tire Load Index/Speed Symbol	91H
Maximum Inflation Pressure	300 kPa (44 psi)
Maximum Load Rating	615 KG (1356 LBS.)
Mfr. Name or Brand & Code	MICHELIN ENERGY
Tube or Tubeless	TUBELESS
Treadwear/Traction/Temp. Grades	400/A/A
Sidewall (Plies & Composition)	2 PLY POLYESTER
Tread (Plies & Composition)	2 PLY POLYESTER 1 PLY POLYAMIDE 2 PLY STEEL
Serial Number: Right Front -	DOT-APXV W1MX 0103

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

REMARKS:

RECORDED BY: [signature] DATE: 05/23/03

APPROVED BY: [signature]

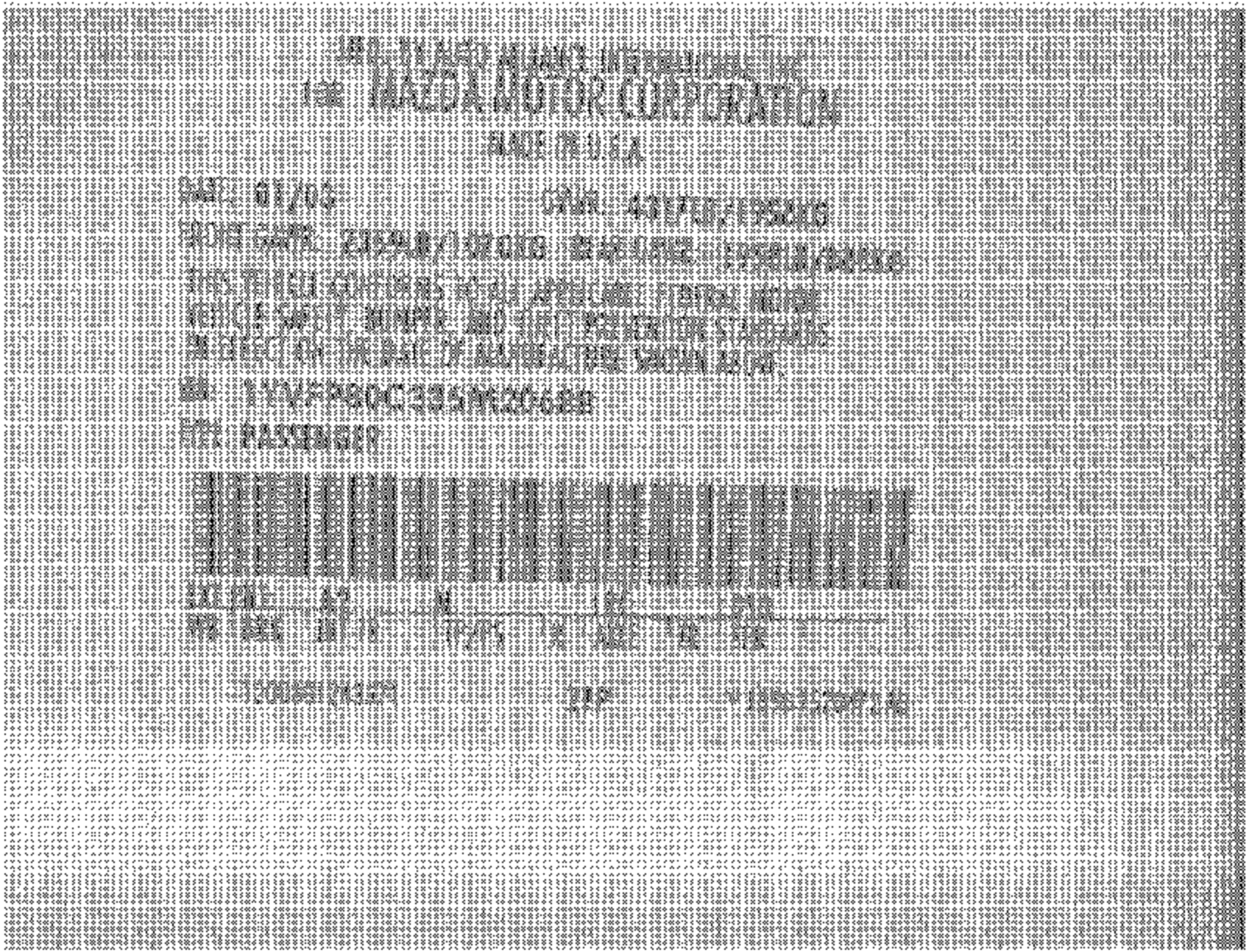
SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

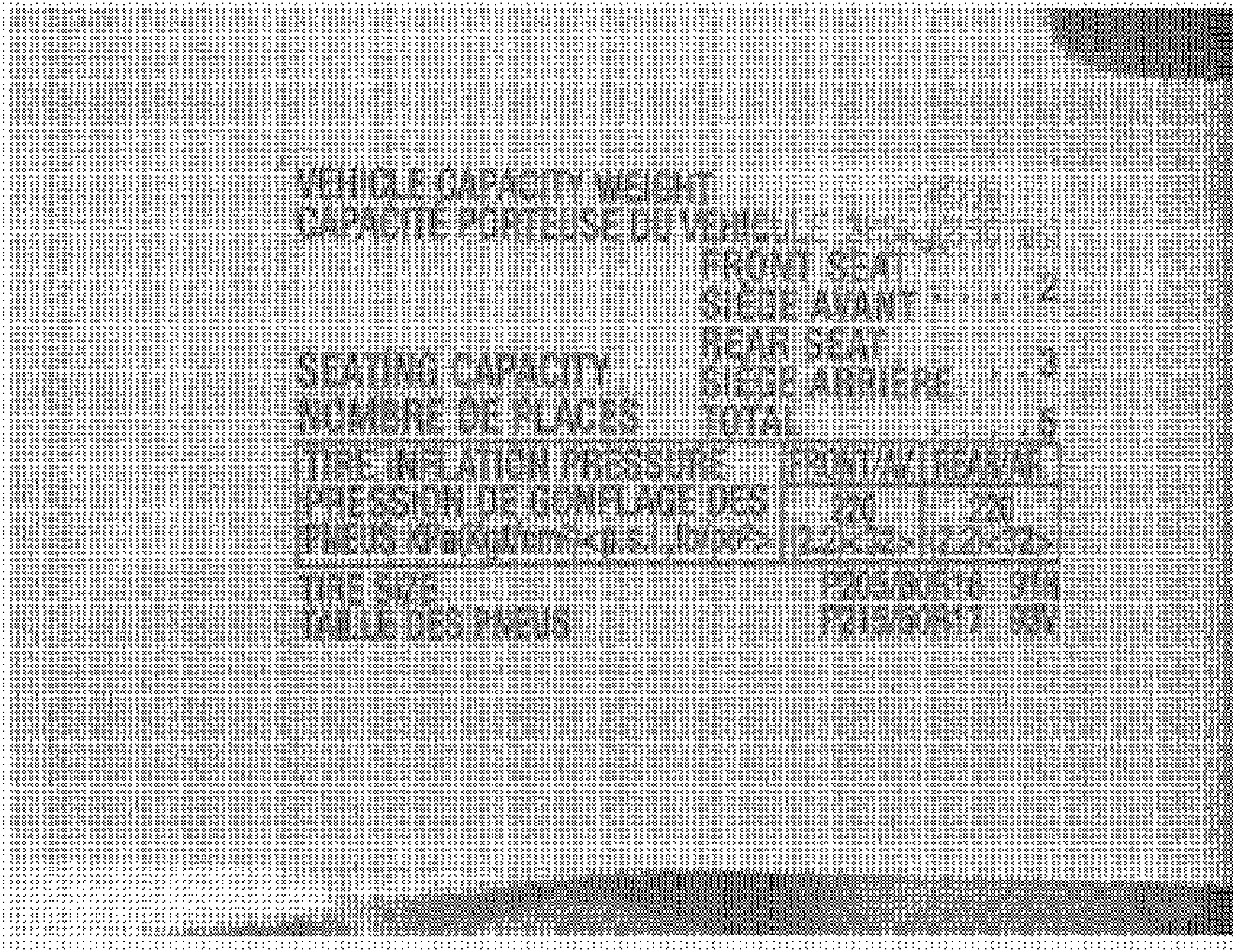
TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

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

SECTION 5
PHOTOGRAPHS

FIGURE 3.0
3/4 FRONTAL VIEW OF VEHICLE

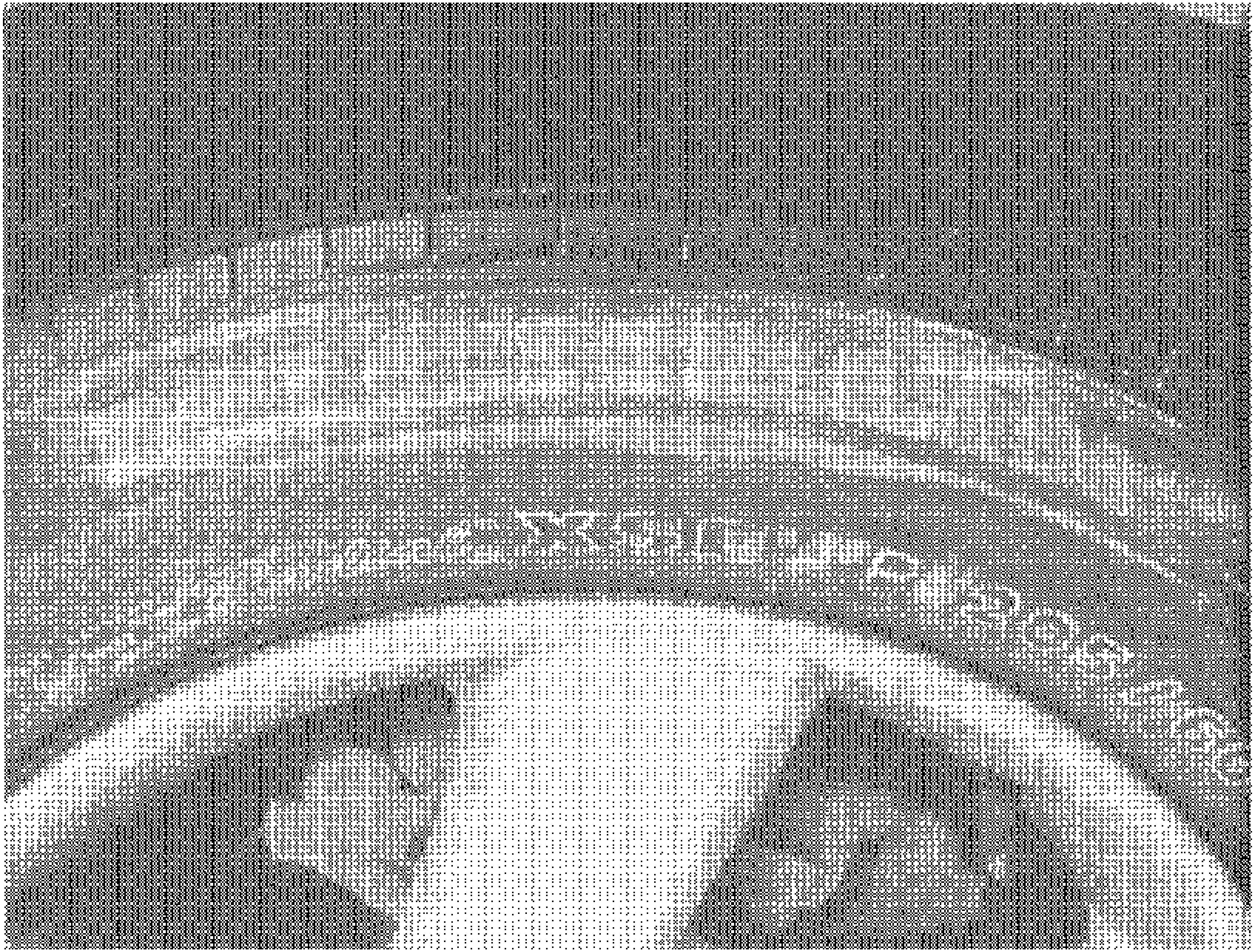

MAZDA MOTOR CORPORATION
MADE IN U.S.A.
PASSENGER



2003 MAZDA 6
NHTSA NO. C35401
FMVSS NO. 110

FIGURE 53
VEHICLE TIRE INFORMATION LABEL

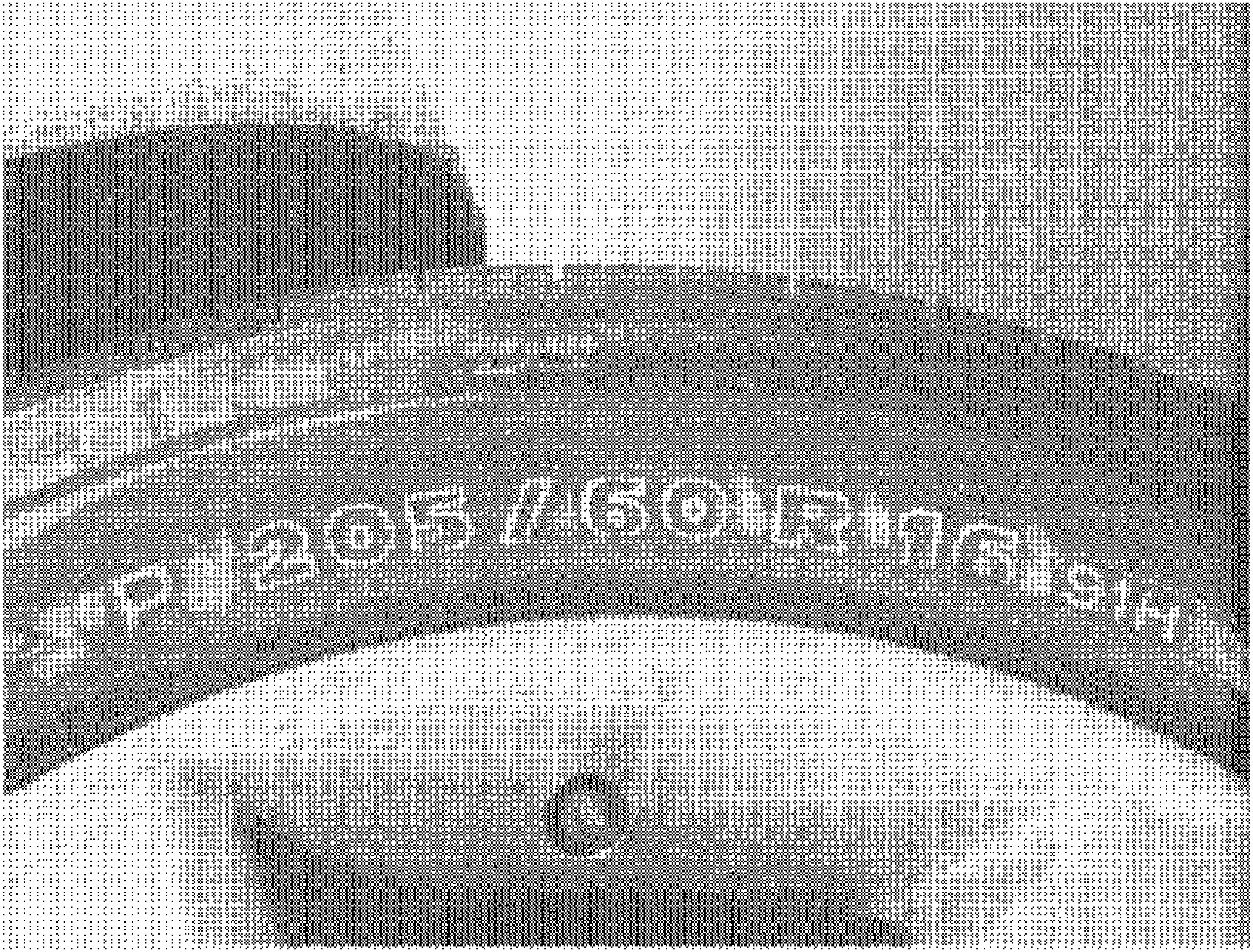
Fig. 1



2003 MAZDA 6
NHTSA NO. C35401
[PASS NO. ... (COMPLIANT)]

FIGURE 5-5
TIRE SIDEWALL BRAND

FIGURE 1



2003 MAZDA 6
NHTSA NO. C35001
FMVSS NO. 110 (INDICANT)

FIGURE 57
TIRE SHOWING SIZE, LOAD INDEX AND SPEED SYMBOL

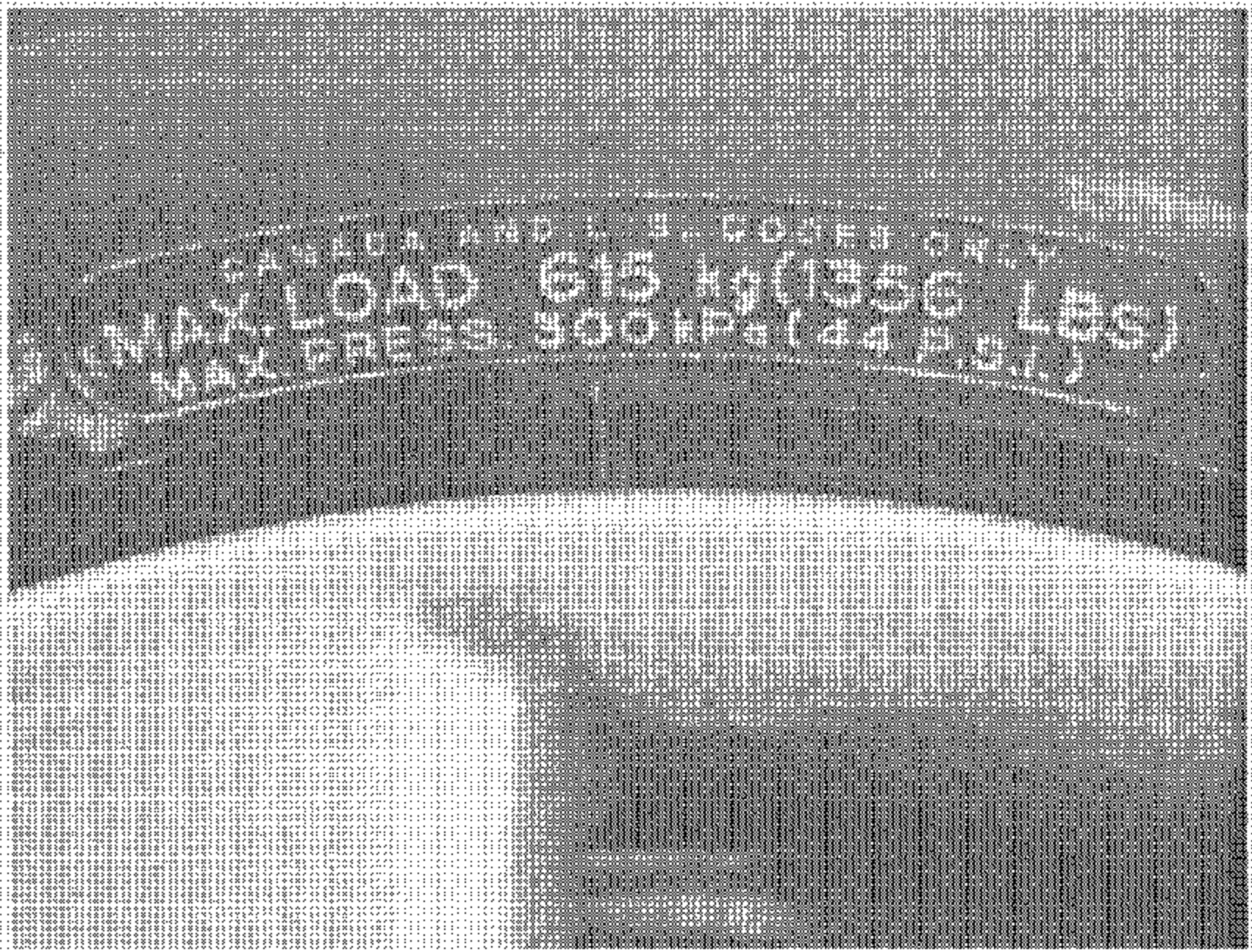
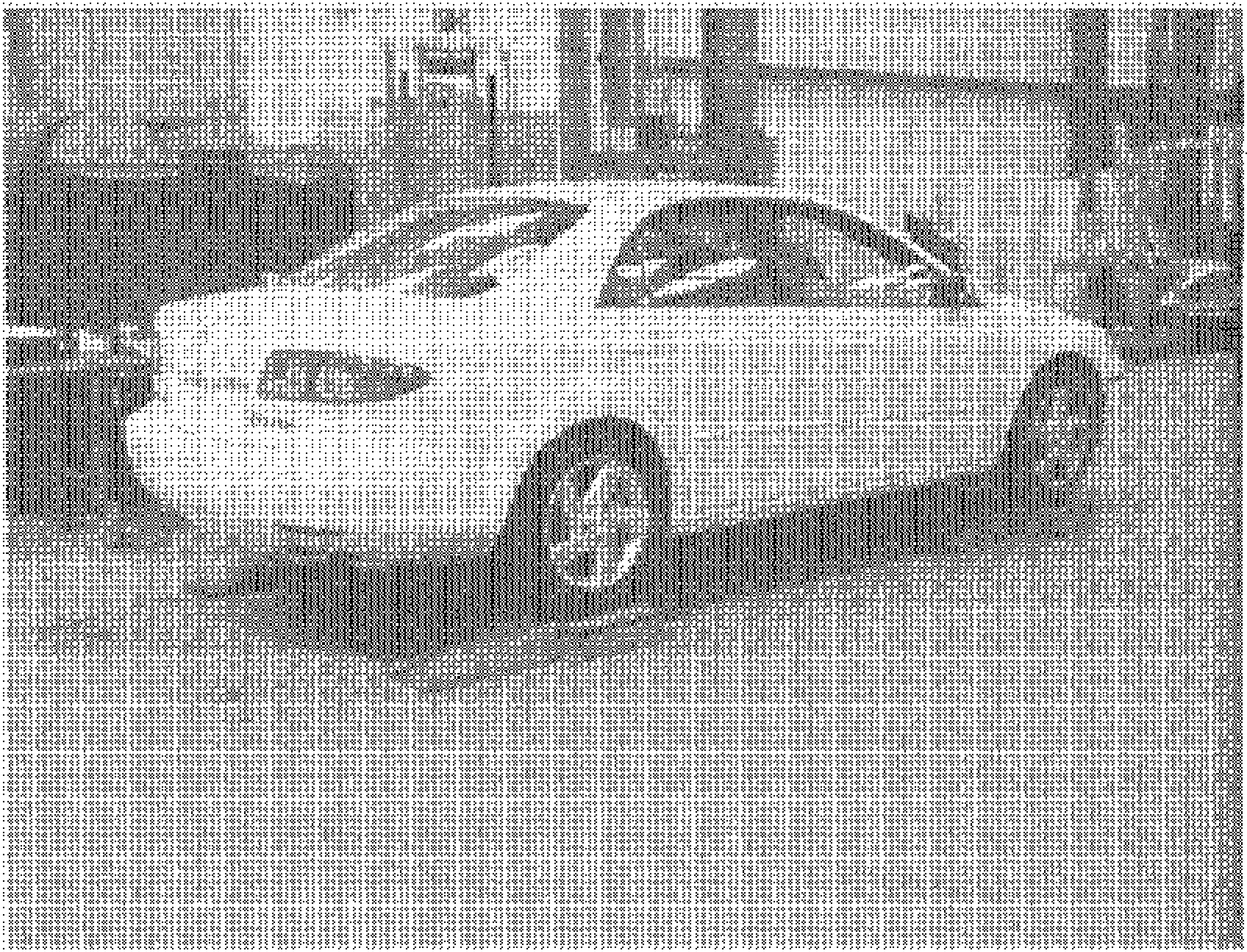

MAX. LOAD 615 kg (1356 Lbs)
MAX. PRESS. 300 kPa (44 psi)

FIGURE 5
TIRE SHOWING SERIAL NUMBER

2003 MAZDA 6
NHTSA NO. C35402
FMVSS NO. 110 INDICANTS

FIGURE 5
VEHICLE BALLASTED TO SIMULATE
NORMAL LOAD CONDITION



2003 MAZDA 6
NHTSA NO. C35402
FMVSS NO. 110 (INDICANT)

FIGURE 3-11
VIEW OF VEHICLE ON SCALES

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.