

REPORT NUMBER 110(IND)-GTL-03-019

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

**FORD MOTOR CO.
2003 FORD WINDSTAR, MPV
NHTSA NO. C30208**

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



SEPTEMBER 15, 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
ROOM 6111 (NVS-220)
WASHINGTON, D.C. 20560**

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Prepared By: Debbie Messick
Approved By: M. R. Olson
Approval Date: 09/15/03

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16. Abstract This test was conducted on the subject 2003 Ford Windstar 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 Ford Windstar 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 Ford Windstar MPV. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 2FMZA53493BA03994

B. NHTSA No.: C30208

C. Manufacturer: FORD MOTOR CO.

D. Manufacture Date: 08/02

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 Ford Windstar 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 FORD WINDSTAR MPV
 VEHICLE NHTSA NO.: C30208; VIN: 2FMZA53493BA03994
 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>NO*</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: *Normal Load on the front axle tires is greater than the high speed performance test load specified in FMVSS 119 paragraph S7.4.

RECORDED BY: M. A. Bla

DATE: 05/20/03

APPROVED BY: D. Messer

DATA SHEET 2
TEST VEHICLE INFORMATION/RECEIVING INSPECTION

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

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 FORD WINDSTAR MPV

MANUFACTURE DATE: 08/02 NHTSA NO.: C30208 BODY COLOR: SPRUCE GREEN

VIN: 2FMZA53493BA03984 VEHICLE TYPE: MPV

GVWR 2549 kg (5620 lbs) GAWR(Fr) 1315 kg (2900 lbs) GAWR(Rr) 1251 kg (2760 lbs)

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

ENGINE DATA: Cylinders 3.8 Liters Cubic Inches

TRANSMISSION DATA: X Automatic Manual 4 No. of Speeds

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

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

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

X	Air Conditioning		Traction Control	X	Clock
X	Tinted Glass		All Wheel Drive	X	Roof Rack
X	Power Steering	X	Cruise Control	X	Console
X	Power Windows	X	Rear Window Defroster	X	Driver Air Bag
	Power Door Locks		Sun Roof or T-Top	X	Passenger Air Bag
X	Power Seat(s)		Tachometer	X	Front Disc Brakes
	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. G. [Signature]*

DATE: 05/20/03

APPROVED BY: *D. M. [Signature]*

DATA SHEET 3
CURB WEIGHT WITH OPTIONS AND NORMAL LOAD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 FORD WINDSTAR MPV
 VEHICLE NHTSA NO.: C30208 ; VIN: 2FMZA53493BA03994
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/20/03

Full Fluid Levels:

Fuel Full ; Coolant Full ; Other Fluids Full

Tire Pressure: LF 241 KPA (35 psi) LR 241 KPA (35 psi)
 RF 241 KPA (35 psi) RR 241 KPA (35 psi)

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

LF	<u>582</u>	KG (1283 LB)	LR	<u>406</u>	KG (894 LB)
RF	<u>568</u>	KG (1252 LB)	RR	<u>397</u>	KG (875 LB)
Front Axle		<u>1150</u>	KG (2535 LB)	Rear Axle	
			<u>802</u>	KG (1769 LB)	
Total Vehicle			<u>1952</u>	KG (4304 LB)	

B. MEASURED VEHICLE WEIGHT IN NORMAL LOAD CONDITION

(1) Seating Capacity (from Tire Information Placard) = 7
 Seating Capacity (# of belted seating positions) = 7

(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>624</u>	KG (1376 LB)	LR	<u>446</u>	KG (984 LB)
RF	<u>632</u>	KG (1394 LB)	RR	<u>453</u>	KG (998 LB)
Frt Axle		<u>1256</u>	KG (2770 LB)	Rr Axle	
			<u>899</u>	KG (1982 LB)	
Total Vehicle			<u>2155</u>	KG (4752 LB)	

DATA SHEET 3 – CONTINUED

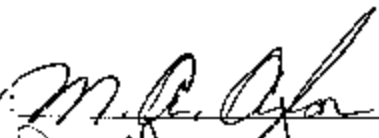
- (5) Calculated Vehicle Normal Load on the Tire
 Front Tires (measured front axle normal load/2) = 628 KG (1385 LB)
 Rear Tires (measured front axle normal load/2) = 450 KG (991 LB)

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

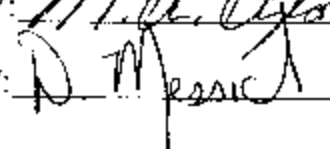
	Front	Rear
(a) Installed Tire Size	<u>P225/60R16</u>	<u>P225/60R16</u>
Max. Load Rating on Sidewall	<u>730 KG (1609 LBS)</u>	<u>730 KG (1609 LBS)</u>
Reduced Sidewall Load Rating (if applicable)*	<u>664 KG (1463 LBS)</u>	<u>664 KG (1463 LBS)</u>
High Speed Test Load (88% of sidewall max. load rating)	<u>584 KG (1287 LBS)</u>	<u>584 KG (1287 LBS)</u>
(b) Optional Tire Size(s)	<u>P215/65R16</u>	<u>P215/65R16</u>
Max. Load Rating on Sidewall (From the 2003 Tire and Rim Association Yearbook)	<u>710 KG (1565 LBS)</u>	<u>710 KG (1565 LBS)</u>
Reduced Sidewall Load Rating (if applicable)*	<u>645 KG (1423 LBS)</u>	<u>645 KG (1423 LBS)</u>
High Speed Test Load (88% of sidewall max. load rating)	<u>568 KG (1252 LBS)</u>	<u>568 KG (1252 LBS)</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 Front Axle Normal Load on the Tire is greater than the High Speed Test Load for the P225/60R16 and P215/65R16 size tires.

RECORDED BY: 

DATE: 05/20/03

APPROVED BY: 

DATA SHEET 4
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 FORD WINDSTAR MPV
 VEHICLE NHTSA NO.: C30208 ; VIN: 2FMZA53493BA03994
 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 Lower "B" Pillar
 Description of Label: Vinyl 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 - "Maximum Load" 544 KG (1200 LBS)

Designated Seating Capacity (DSC) - 7
 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:

P215/65R16 FRONT - 241 kPa (35 psi)
 REAR - 241 kPa (35 psi)

Manufacturer's Recommended Tire Size(s) and Cold Tire Inflation Pressure(s) for Other
 Load Conditions: NONE

REMARKS: The Windstar is equipped with an FMVSS 110 type label information even though
 it is an MPV required to meet the requirements of FMVSS 120.

RECORDED BY: M. A. Goy

DATE: 05/20/03

APPROVED BY: D. M. Smith

DATA SHEET 5 VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2003 FORD WINDSTAR MPV

VEHICLE NHTSA NO.: C30208 ; VIN: 2FMZA53493BA03994

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

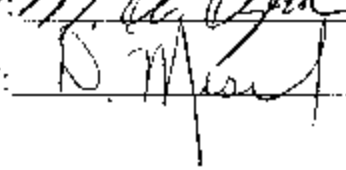
Tire Size Designation	<u>P225/60R16</u>
Tire Load Index/Speed Symbol	<u>97S</u>
Maximum Inflation Pressure	<u>240 kPa (35 psi)</u>
Maximum Load Rating	<u>730 KG (1609 LBS)</u>
Mfr. Name or Brand & Code	<u>MICHELIN SYMMETRY</u>
Tube or Tubeless	<u>TUBELESS</u>
Treadwear/Traction/Temp. Grades	<u>460/A/B</u>
Sidewall (Plies & Composition)	<u>1 PLY POLYESTER</u>
Tread (Plies & Composition)	<u>1 PLY POLYESTER</u> <u>1 PLY POLYAMIDE</u> <u>2 PLY STEEL</u>
Serial Number: Right Front -	<u>DOT-APXO D89X 2702</u>

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	08/02	05/04
SURFACE LEVEL	GTL	N/A	BEFORE USE	BEFORE USE

SECTION 5 PHOTOGRAPHS

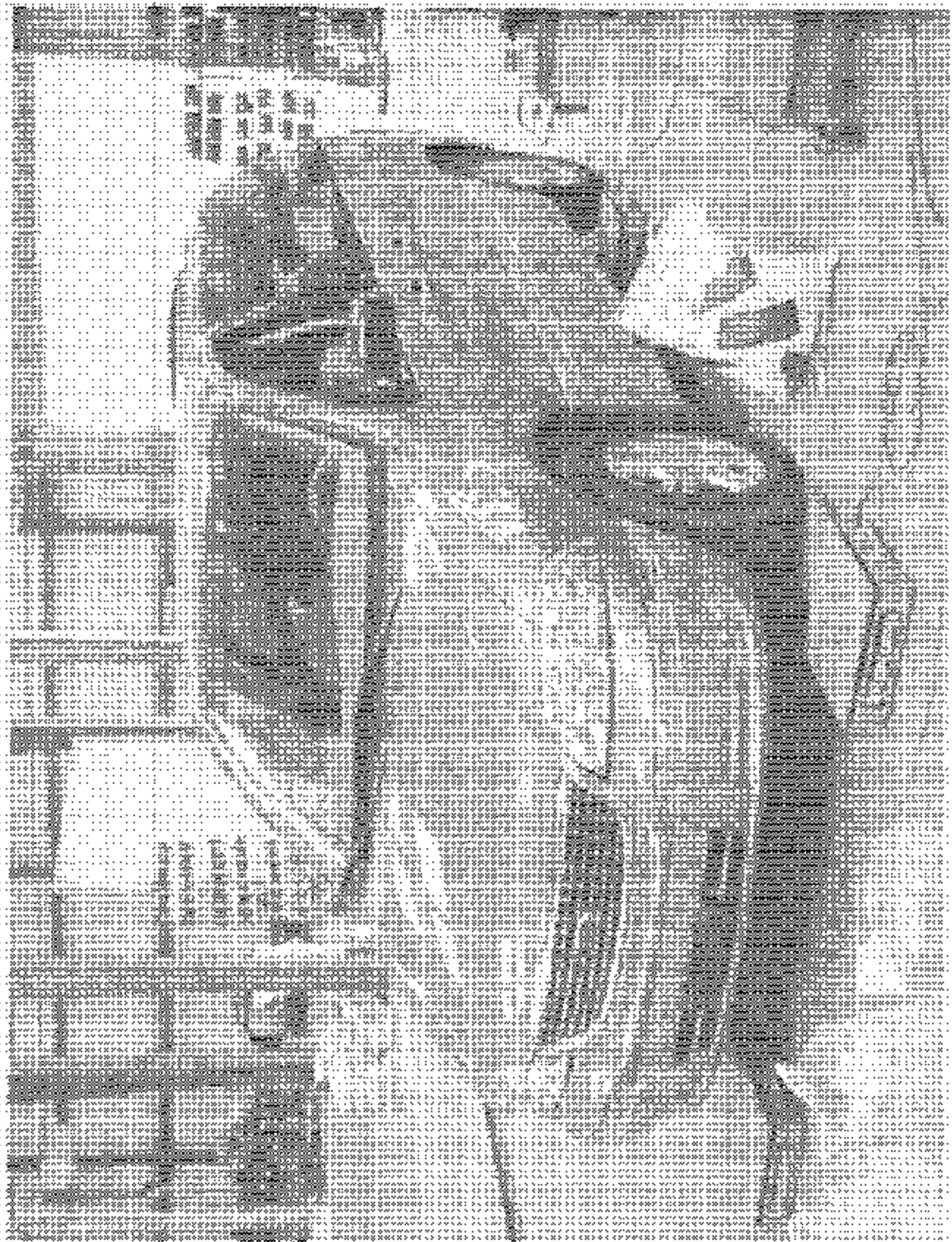
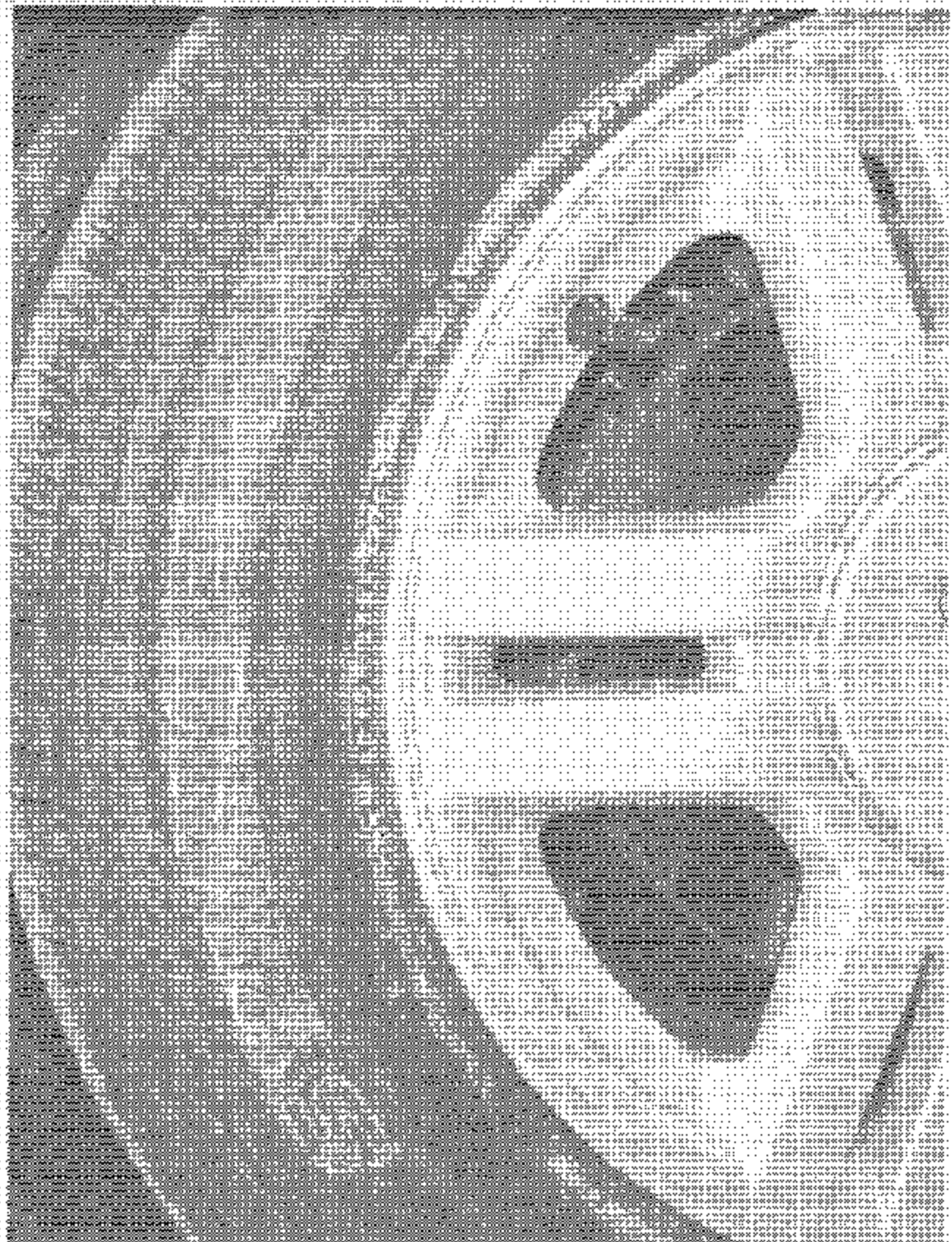


FIGURE 5.1
4. FRONTAL VIEW OF VEHICLE

2003 FORD WINDSTAR
NHTSA REG. C8X208
PLATE NO. 110 (IN NCANT)



2008 FORD WINDSTAR
MUTSA NO. 090008
PAGES NO. 140 (MUTSA)

FIGURE 51
FIRE SHOWING BRAND AND SERIAL NUMBER

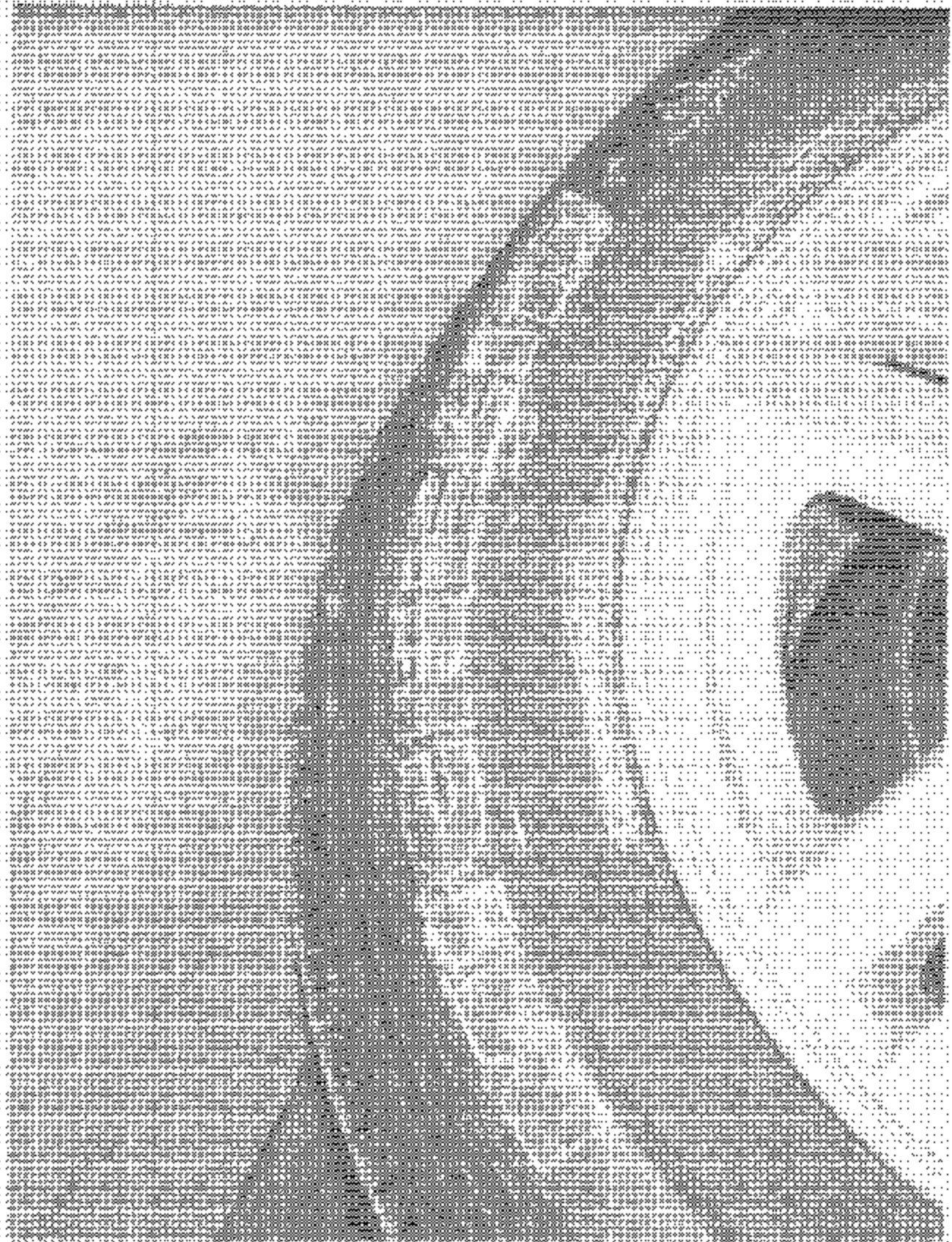
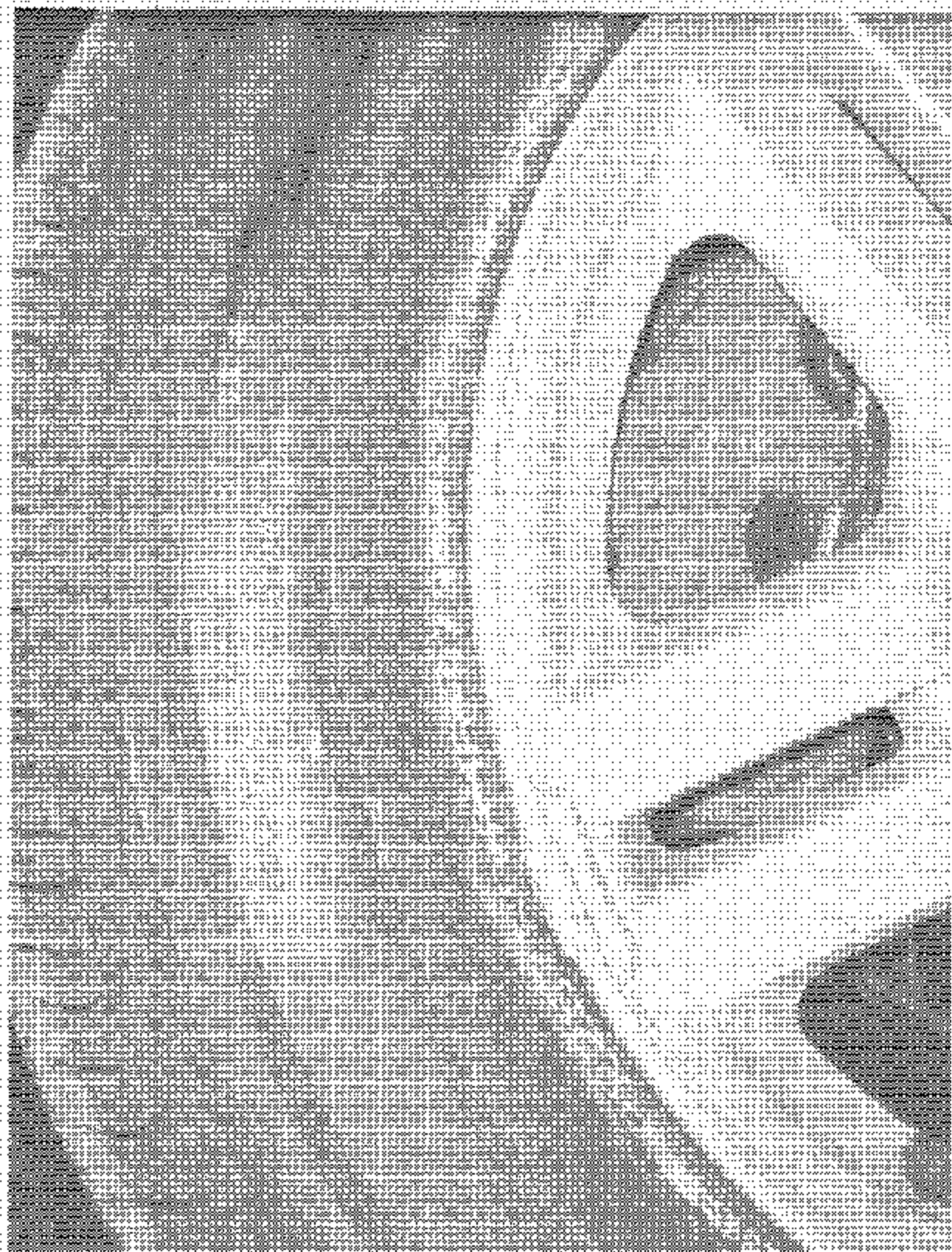


FIGURE 5-4
THE SHOWING MODEL

2003 FORD MONDIA
MITSUBISHI OUTLANDER
SAVANA 110 (MILKANT)



2102 FORD WINESTAR
 NHTSA NO. 030206
 FMVSS NO. 110 (IMPACT)

FIGURE 5-6
 TABLE SHOWING SIZE, LOAD INDEX AND SPEED
 SYMBOL

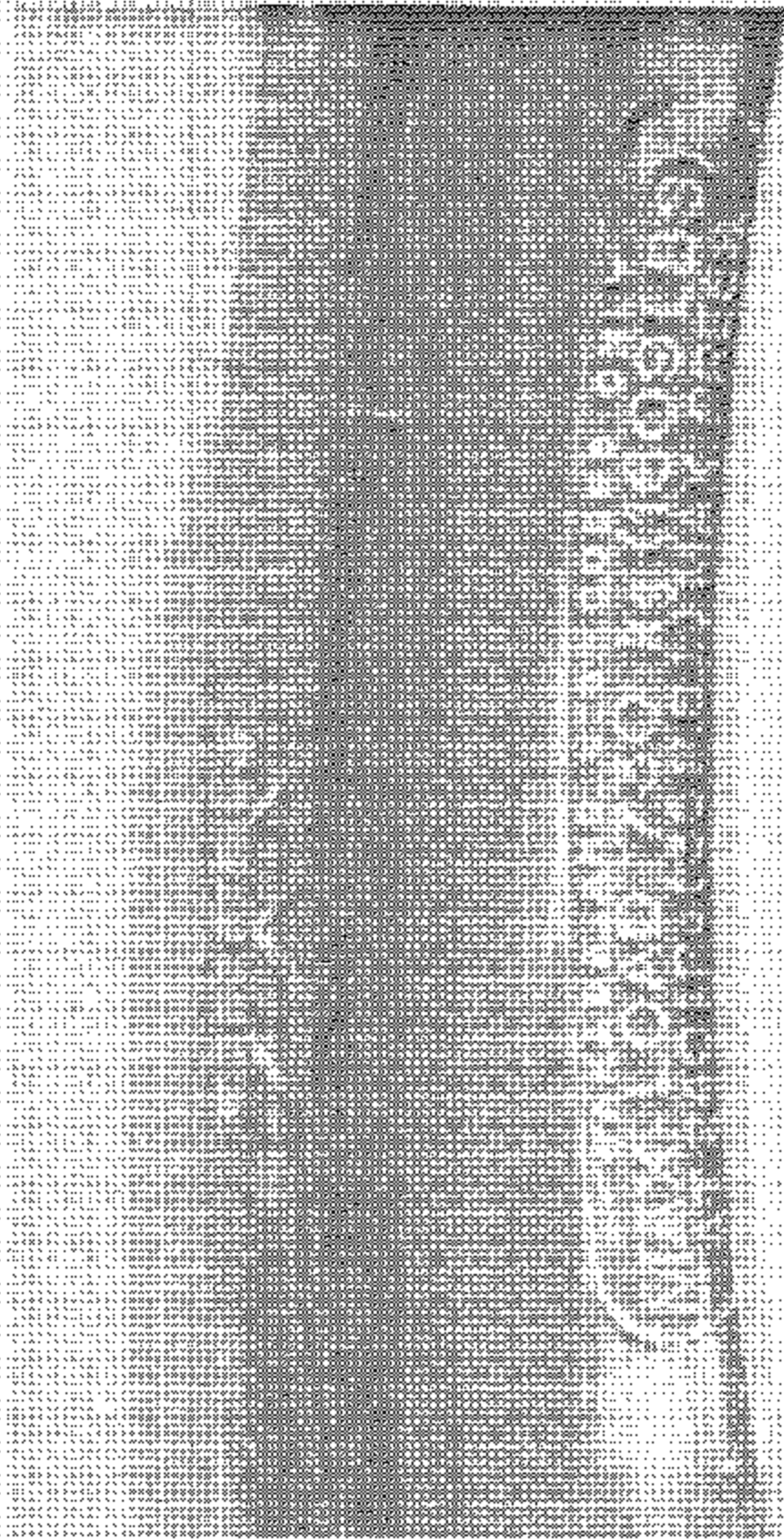


FIGURE 5-6
THREE SHOWING MAX LOAD RATING AND MAX
INFLATION PRESSURE

2005 FORD VENDESTAR
WHT6A NO. C90203
FMVSS NO. 110 (INDICATED)

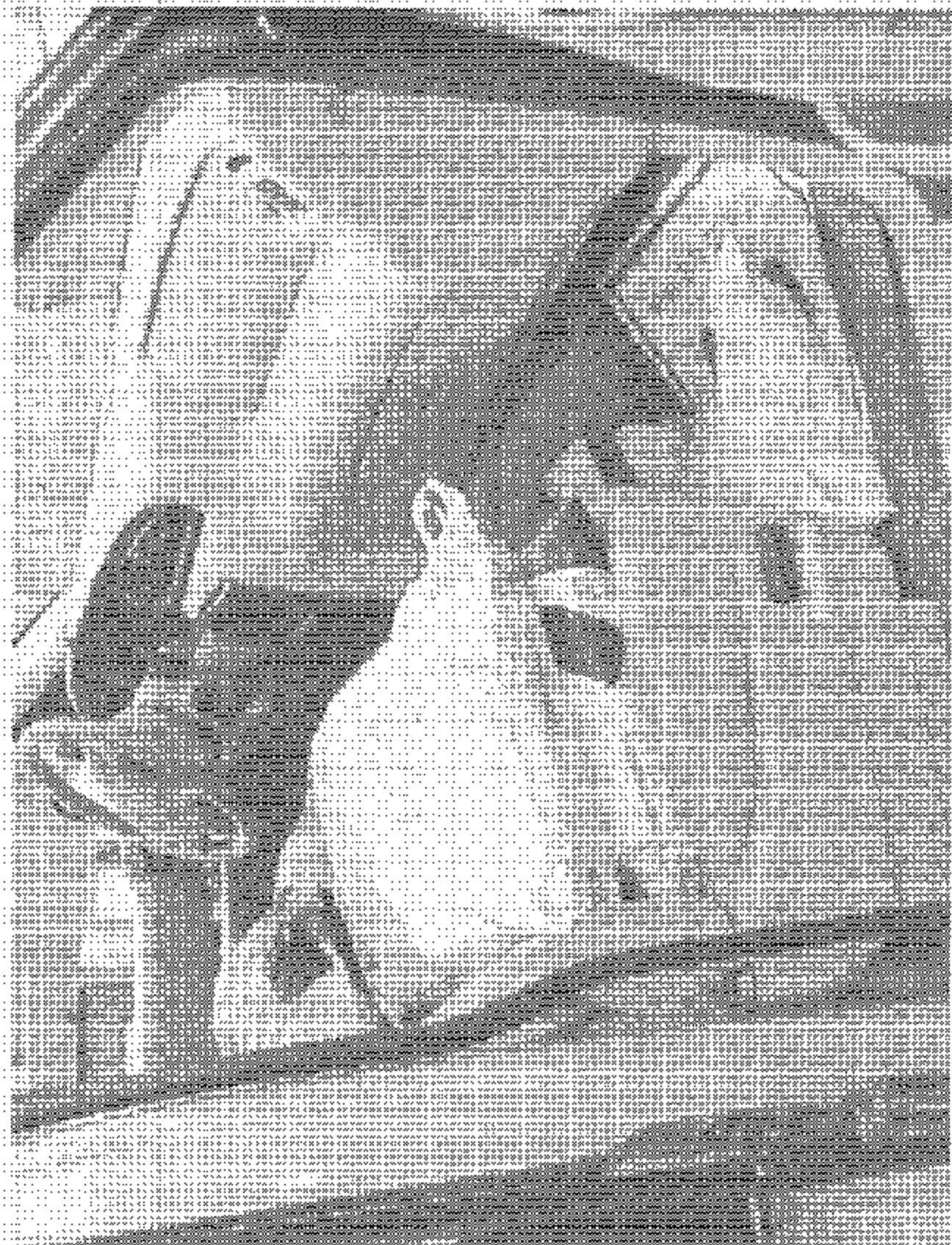


FIGURE 57
VEHICLE DATA SYSTEMS IN NORMAL
LOAD CONDITION

2003 FORD WINDSTAR
NHTSA NO. 030208
FMVSS NO. 110 (INTERIOR)

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.