

REPORT NUMBER 110(IND)-GTL-03-033

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

**TOYOTA MOTOR MANUFACTURING KENTUCKY, INC.  
2003 TOYOTA CAMRY PASSENGER CAR  
NHTSA NO. C35109**

**GENERAL TESTING LABORATORIES, INC.  
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COLONIAL BEACH, VIRGINIA 22443**



SEPTEMBER 25, 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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FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: John Zimmerman  
Acceptance Date: 9/30/03

1. Report No. 110(IND)-GTL-03-033	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle Final Report of FMVSS 110 (Indicant) Test of 2003 TOYOTA CAMRY PASSENGER CAR NHTSA No. C35109	5. Report Date September 25, 2003	6. Performing Organ. Code GTL
	8. Performing Organ. Rep# GTL-DOT-03-110(INDICANT)-033	
7. Author(s) Grant Farrand, Project Engineer Debbie Messick, Project Manager	10. Work Unit No. (TRAIS)  11. Contract or Grant No. DTNH22-01-C-11025	
9. Performing Organization Name and Address General Testing Laboratories, Inc. 1623 Leedstown Road Colonial Beach, Va 22443	13. Type of Report and Period Covered Final Test Report June 11, 2003	
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 <sup>th</sup> Street, S.W., Room 6111 Washington, DC 20590	14. Sponsoring Agency Code NVS-120 & NVS 220	
	15. Supplementary Notes	
16. Abstract This test was conducted on the subject, 2003 Toyota Camry 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 <sup>th</sup> St., S.W. Washington, DC 20590 Telephone No. (202) 366-4946	
19. Security Classif. (of this report) UNCLASSIFIED	21. No. of Pages 23	22. Price
20. Security Classif. (of this page) UNCLASSIFIED		

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## SECTION 1

### INTRODUCTION

#### 1.0 PURPOSE OF INDICANT TEST

A 2003 Toyota Camry 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 Toyota Camry. Nomenclature applicable to the test vehicle are:

- A. Vehicle Identification Number: 4T1BE30K13U741389
- B. NHTSA No.: C35109
- C. Manufacturer: TOYOTA MOTOR MANUFACTURING KENTUCKY INC.
- D. Manufacture Date: 05/03

#### 1.2 TEST DATE

The test vehicle was subjected to testing on June 11, 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 TOYOTA CAMRY PASSENGER CAR  
VEHICLE NHTSA NO.: C35109 ; VIN: 4T1BE30K13U741389  
LABORATORY: GENERAL TESTING LABORATORIES  
TEST DATE: 06/11/03

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

DATE: 06/11/03



**DATA SHEET 2**  
**TEST VEHICLE INFORMATION/RECEIVING INSPECTION**

LABORATORY: GENERAL TESTING LABORATORIES      DATE: 06/11/03

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 TOYOTA CAMRY

MANUFACTURE DATE: 05/03    NHTSA NO.: C35109    BODY COLOR: SILVER

VIN: 4T1BE30K13U741389      VEHICLE TYPE: PASSENGER CAR

GVWR 1900 kg (4189 lbs)    GAWR(Fr) 1210 kg (2668 lbs)    GAWR(Rr) 1210 kg (2668 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:      X Automatic      Manual      4 No. of Speeds

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

INSTALLED TIRE DATA: Size - P205/65R15      Mfr. - BRIDGESTONE

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
	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
<input checked="" type="checkbox"/>	Power Brakes	<input checked="" type="checkbox"/>	Tilt Steering Wheel		Rear Disc Brakes
<input checked="" type="checkbox"/>	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: 06/11/03

APPROVED BY: [Signature]

DATA SHEET 3  
CURB WEIGHT WITH OPTIONS AND NORMAL LOAD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 TOYOTA CAMRY PASSENGER CAR  
 VEHICLE NHTSA NO.: C35109 ; VIN: 4T1BE30K13U741389  
 LABORATORY: GENERAL TESTING LABORATORIES  
 TEST DATE: 06/11/03

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>455</u> KG (1003 LB)	LR <u>285</u> KG (628 LB)
RF <u>405</u> KG (893 LB)	RR <u>314</u> KG (692 LB)
Front Axle <u>860</u> KG (1896 LB)	Rear Axle <u>599</u> KG (1320 LB)
Total Vehicle <u>1459</u> KG (3216 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>503</u> KG (1108 LB)             | LR <u>341</u> KG (751 LB)       |
| RF <u>450</u> KG (993 LB)              | RR <u>367</u> KG (809 LB)       |
| Frt Axle <u>953</u> KG (2101 LB)       | Rr Axle <u>708</u> KG (1560 LB) |
| Total Vehicle <u>1661</u> KG (3661 LB) |                                 |

## DATA SHEET 3 – CONTINUED

- (5) Calculated Vehicle Normal Load on the Tire  
 Front Tires (measured front axle normal load/2) = 477 KG (1051 LB)  
 Rear Tires (measured front axle normal load/2) = 354 KG (780 LB)
- (6) High Speed Test Load from (X) FMVSS 109 (S5.5), or ( ) FMVSS 119 (S7.4)

	Front	Rear
(a) Installed Tire Size	<u>P205/65R15</u>	<u>P205/65R15</u>
Max. Load Rating on Sidewall	<u>635 KG(1400 LBS)</u>	<u>635 KG(1400 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>559 KG(1232 LBS)</u>	<u>559 KG(1232 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: 

DATE: 06/11/03

APPROVED BY: 

DATA SHEET 4  
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 TOYOTA CAMRY PASSENGER CAR  
VEHICLE NHTSA NO.: C35109 ; VIN: 4T1BE30K13U741389  
LABORATORY: GENERAL TESTING LABORATORIES  
TEST DATE: 06/11/03

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: "B" Pillar  
Description of Label: Vinyl

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

Vehicle Capacity Weight - 410 KG (900 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:

P205/65R15 FRONT - 200 kPa (29 psi)  
REAR - 200 kPa (29 psi)

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

REMARKS:

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

DATE: 06/11/03

DATA SHEET 5  
VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2003 TOYOTA CAMRY PASSENGER CAR  
 VEHICLE NHTSA NO.: C35109 ; VIN: 4T1BE30K13U741389  
 LABORATORY: GENERAL TESTING LABORATORIES  
 TEST DATE: 06/11/03

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

INFORMATION FROM TIRE SIDEWALL:

Right Front Tire

Tire Size Designation	<u>P205/65R15</u>
Tire Load Index/Speed Symbol	<u>92T</u>
Maximum Inflation Pressure	<u>300 kPa (44 psi)</u>
Maximum Load Rating	<u>635 KG (1400 LBS.)</u>
Mfr. Name or Brand & Code	<u>BRIDGESTONE POTENZA</u>
Tube or Tubeless	<u>TUBELESS</u>
Treadwear/Traction/Temp. Grades	<u>160/A/A</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 Y7UR PFA 1803</u>

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

REMARKS:

RECORDED BY: *M. A. [Signature]*

DATE: 06/11/03

APPROVED BY: *D. [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	199744LF	06/02	06/20/03
	#2 199744RF	199744RF	06/02	06/20/03
	#3 199744LR	199744LR	06/02	06/20/03
	#4 199744RR	19974RR	06/02	06/20/03
PRESSURE GAGE	WESKLER	0-100	05/03	05/04
SURFACE LEVEL	GTL	N/A	BEFORE USE	BEFORE USE

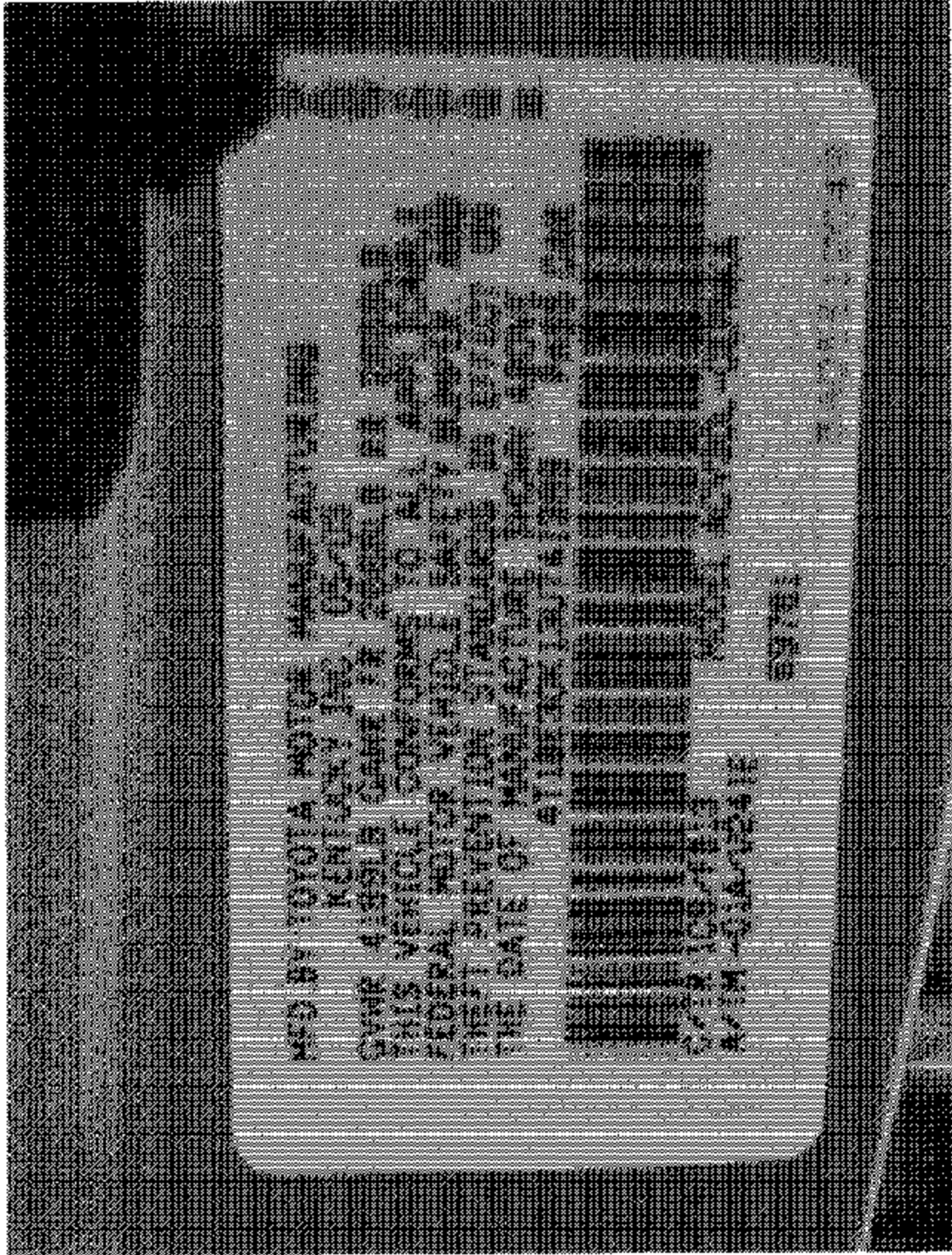
SECTION 5  
PHOTOGRAPHS



2003 TOYOTA CAMRY  
NHTSA NO. C35109  
FMVSS NO. 110 (INDICANT)

FIGURE 5.1  
¾ FRONTAL VIEW OF VEHICLE





2003 TOYOTA CAMRY  
NHTSA NO. C35109  
FMVSS NO. 110 (INDICANT)

FIGURE 5.2  
VEHICLE'S CERTIFICATION LABEL

# TIRE-LOADING INFORMATION

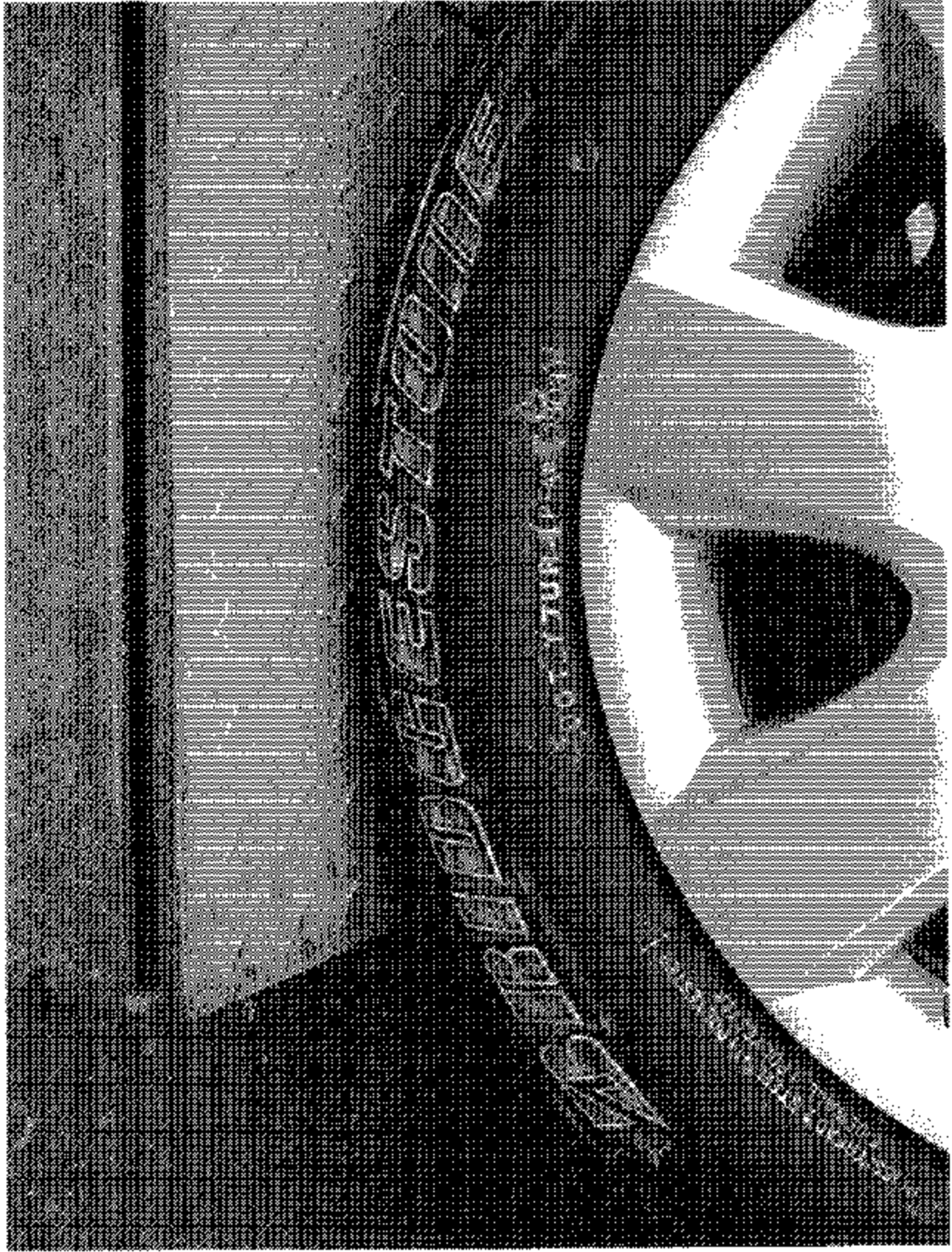
VEHICLE CAPACITY WEIGHT VARIATION: SEE IN  
OPERATOR'S MANUAL FOR TIRE # 10345 #  
LOAD TIRE PRESSURE: 30 PSI  
IF IS VEHICLE CAPACITY WEIGHT FOR TIRE # 10345 #  
TIRE #10345 #, CHECK WITH TIRE #10345 #  
SPARE TIRE  
CHECK TIRE PRESSURE 30 PSI 10345 #  
TIRE #10345 #, CHECK WITH TIRE #10345 #  
SEE OPERATOR'S MANUAL FOR APPROVED TIRE #10345 #

0 6 4 3 0

729

2003 TOYOTA CAMRY  
NHTSA NO. C35109  
FMVSS NO. 110 (INDICANT)

FIGURE 5.3  
VEHICLE'S TIRE INFORMATION LABEL



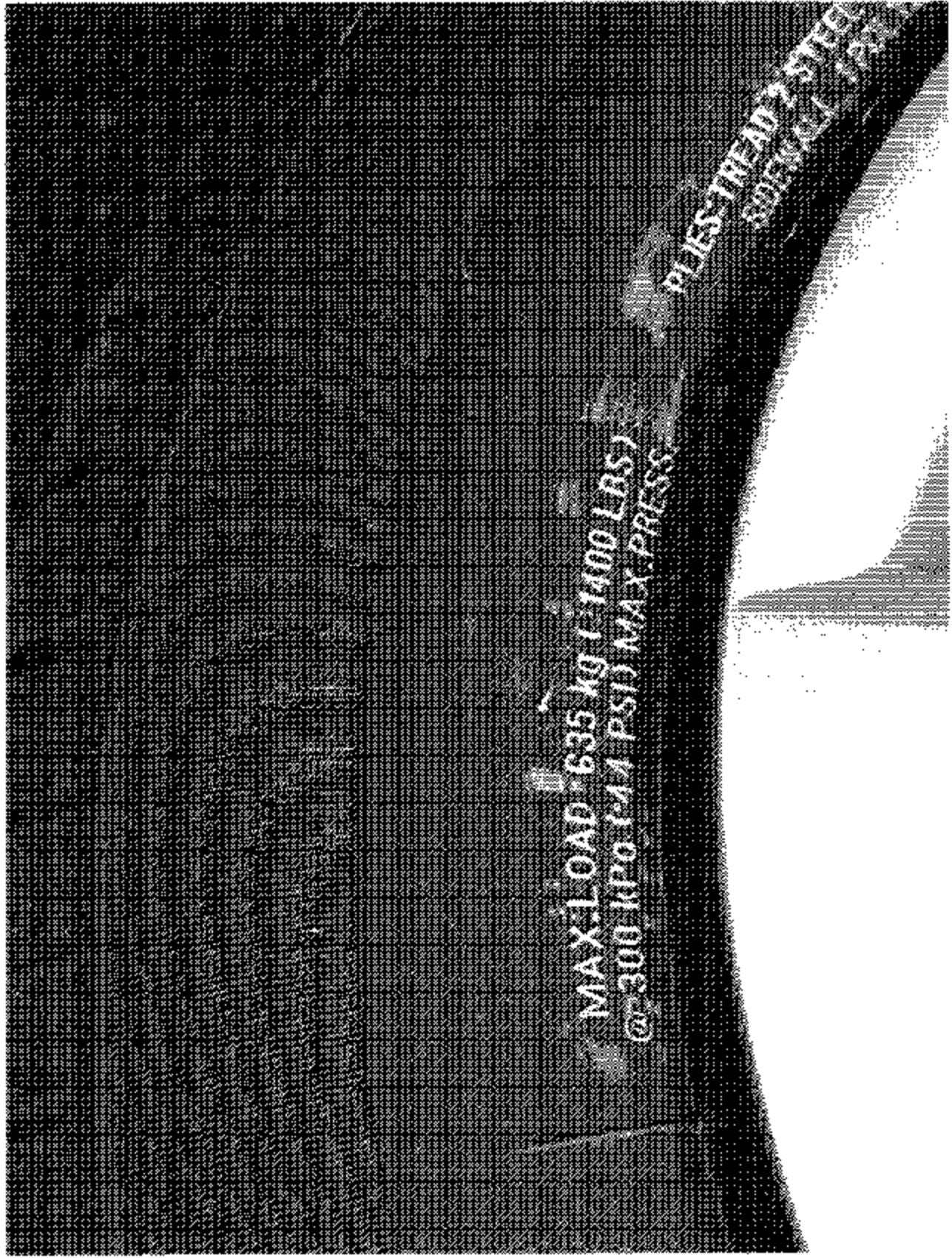
2003 TOYOTA CAMRY  
NHTSA NO. C35109  
FMVSS NO. 110 (INDICANT)

FIGURE 5.4  
TIRE SHOWING BRAND AND SERIAL NUMBER



2003 TOYOTA CAMRY  
NHTSA NO. C35109  
FMVSS NO. 110 (INDICANT)

FIGURE 5.5  
TIRE SHOWING MODEL, SIZE, LOAD INDEX AND  
SPEED SYMBOL



2003 TOYOTA CAMRY  
NHTSA NO. C35109  
FMVSS NO. 110 (INDICANT)

FIGURE 5.6  
TIRE SHOWING MAX LOAD RATING AND MAX  
INFLATION PRESSURE



2003 TOYOTA CAMRY  
NHTSA NO. C35109  
FMVSS NO. 110 (INDICANT)

FIGURE 5.7  
VEHICLE BALLASTED TO SIMULATE NORMAL  
LOAD CONDITIONS

## 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.