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

FORD MOTOR CO.
2003 MERCURY GRAND MARQUIS PASSENGER CAR
NHTSA NO. C30215

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

SEPTEMBER 17, 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 8111 (NVS-220)
WASHINGTON, D.C. 20590
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Prepared By: [Signature]
Approved By: [Signature] 09/17/63

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: [Signature] 09/03/63
Technical Report Documentation Page

   110(IND)-GTL-03-025

2. Government Accession No.

3. Recipient's Catalog No.

4. Title and Subtitle
   Final Report of FMVSS 110 (Indicant) Test of
   2003 MERCURY GRAND MARQUIS PASSENGER CAR
   NHTSA No. C30215

5. Report Date
   September 17, 2003

   GTL

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   GTL-DOT-03-110(INDICANT)-025

9. Performing Organization Name and Address
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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
    Safety Enforcement
    Office of Vehicle Safety Compliance (NVS-220)
    400 7th Street, S.W., Room 6111
    Washington, DC 20590

13. Type of Report and Period Covered
    Final Test Report
    June 02, 2003

    NVS-120 & NVS-220

15. Supplementary Notes

16. Abstract
   This test was conducted on the subject, 2003 Mercury Grand Marquis 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 7th St., S.W. Washington, DC 20590
    Telephone No. (202) 366-4946

19. Security Classif. (of this report)
    UNCLASSIFIED

20. Security Classif. (of this page)
    UNCLASSIFIED

21. No. of Pages
    24

22. Price

Form DOT F 1700.7 (8-72)
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APPENDIX - Normal Load Occupation Distribution
SECTION 1

INTRODUCTION

1.0 PURPOSE OF INDICANT TEST

A 2003 Mercury Grand Marquis 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 Mercury Grand Marquis. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 2MFM75W63X643171

B. NHTSA No.: C00215

C. Manufacturer: FORD MOTOR CO.

D. Manufacture Date: 09/02

1.2 TEST DATE

The test vehicle was subjected to testing on June 02, 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 labelling 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 MERCURY MARQUIS PASSENGER CAR
VEHICLE NHTSA NO.: C30215

LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 06/02/03

REQUIREMENT

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. J. 

DATE: 06/02/03

APPROVED BY: D. M. J. W.
DATA SHEET 2
TEST VEHICLE INFORMATION/RECEIVING INSPECTION

LABORATORY: GENERAL TESTING LABORATORIES DATE: 06/02/03

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 MERCURY GRAND MARQUIS
MANUFACTURE DATE: 09/02 NHTSA NO.: C30215 BODY COLOR: ICE BLUE
VIN: 2MFM75W63X643171 VEHICLE TYPE: PASSENGER CAR
GVWR 2494 kg (5500 lbs) GAWR(Fr) 1247 kg (2750 lbs) GAWR(Rr) 1247 kg (2750 lbs)
BELTED SEATING POSITIONS: FRONT 3 MID N/A REAR 3 OTHER N/A
ENGINE DATA: 8 Cylinders 4.6 Liters ___ Cubic Inches
TRANSMISSION DATA: X Automatic___ Manual ___ No. of Speeds
FINAL DRIVE DATA: X Rear Drive ___ Front Drive ___ 4 Wheel Drive
INSTALLED TIRE DATA: Size - P225/60R16 Mfr. - MICHELIN

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

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

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

REMARKS:

RECORDED BY: [Signature] DATE: 06/02/03
APPROVED BY: [Signature]
DATA SHEET 3
CURB WEIGHT WITH OPTIONS AND NORMAL LOAD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 MERCURY MARQUIS PASSENGER CAR
VEHICLE NHTSA NO.: C30215 ; VIN: 2MEFM75W63X643171
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 06/02/03

Full Fluid Levels:
Fuel _______ Full ;  Coolant________ Full ;  Other Fluids______ Full

Tire Pressure:
LF  221 KPA (32 psi)  LR  241 KPA (36 psi)
RF  221 KPA (32 psi)  RR  241 KPA (36 psi)

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

LF  512 KG (1128 LB)  LR  411 KG (905 LB)
RF  528 KG (1164 LB)  RR  420 KG (926 LB)

Front Axle  1040 KG (2292 LB)  Rear Axle  831 KG (1831 LB)

Total Vehicle  1870 KG (4123 LB)

B. MEASURED VEHICLE WEIGHT IN NORMAL LOAD CONDITION

(1) Seating Capacity (from Tire Information Placard) = _______ 6
    Seating Capacity (# of belted seating positions) = _______ 6

(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  555 KG (1224 LB)  LR  467 KG (1030 LB)
    RF  572 KG (1262 LB)  RR  479 KG (1056 LB)
    Frt Axle  1128 KG (2486 LB)  Rr Axle  946 KG (2086 LB)

    Total Vehicle ______ 2074 KG (4572 LB)
DATA SHEET 3 – CONTINUED

(5) Calculated Vehicle Normal Load on the Tire
Front Tires (measured front axle normal load/2) = 564 KG (1243 LB)
Rear Tires (measured front axle normal load/2) = 473 KG (1043 LB)

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

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Rear</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Installed Tire Size</td>
<td>P225/60R16</td>
<td>P225/60R16</td>
</tr>
<tr>
<td>Max. Load Rating on Sidewall</td>
<td>730 KG(1609 LBS)</td>
<td>730 KG(1609 LBS)</td>
</tr>
<tr>
<td>Reduced Sidewall Load Rating (if applicable)*</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>High Speed Test Load (88% of sidewall max. load rating)</td>
<td>642 KG(1416 LBS)</td>
<td>642 KG(1416 LBS)</td>
</tr>
<tr>
<td>(b) Optional Tire Size(s)</td>
<td>NONE</td>
<td>NONE</td>
</tr>
</tbody>
</table>

* 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: [Signature]          DATE: 06/02/03
APPROVED BY: [Signature]
DATA SHEET 4
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 MERCURY MARQUIS PASSENGER CAR
VEHICLE NHTSA NO.: C30215 ; VIN: 2MEFM75W63X643171
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 06/02/03

A. Vehicle Type from Certification Label: Passenger Car

B. Identify Vehicle Labeling:

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

Vehicle has a separate Tire Information Label or Placard ( ) Yes (X) 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" 499 KG (1100 LBS)

Designated Seating Capacity (DSC) - 6
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:

P225/60R16
FRONT - 221 kPa (32 psi)
REAR - 241 kPa (35 psi)

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

REMARKS:

RECORDED BY: [Signature] DATE: 06/02/03
APPROVED BY: [Signature]
VEHICLE MAKE/MODEL/BODY STYLE: 2003 MERCURY MARQUIS PASSENGER CAR
VEHICLE NHTSA NO.: C39215 ; VIN: 2MEFM75W63X643171
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 06/02/03

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

INFORMATION FROM TIRE SIDEWALL:

Left Front Tire

Tire Size Designation
P225/60R16

Tire Load Index/Speed Symbol
97T

Maximum Inflation Pressure
240 kPa (35 psi)

Maximum Load Rating
730 KG (1609 LBS.)

Mfr. Name or Brand & Code
MICHELIN ENERGY

Tube or Tubeless
TUBELESS

Treadwear/Traction/Temp. Grades
500/A/A

Sidewall (Plies & Composition) 1 PLY POLYESTER

Tread (Plies & Composition)

Serial Number: Right Front - DOT B93VA LHX 2302

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

REMARKS:

RECORDED BY: DATE: 06/02/03

APPROVED BY:


## SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

### TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>DESCRIPTION</th>
<th>MODEL/ SERIAL NO.</th>
<th>CAL. DATE</th>
<th>NEXT CAL. DATE</th>
</tr>
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<tbody>
<tr>
<td>PAD SCALES</td>
<td>#1 199744LF</td>
<td>199744LF</td>
<td>06/02</td>
<td>06/20/03</td>
</tr>
<tr>
<td></td>
<td>#2 199744RF</td>
<td>199744RF</td>
<td>06/02</td>
<td>06/20/03</td>
</tr>
<tr>
<td></td>
<td>#3 199744LR</td>
<td>199744LR</td>
<td>06/02</td>
<td>06/20/03</td>
</tr>
<tr>
<td></td>
<td>#4 199744RR</td>
<td>199744RR</td>
<td>06/02</td>
<td>06/20/03</td>
</tr>
<tr>
<td>PRESSURE GAGE</td>
<td>WESKLER</td>
<td>0-100</td>
<td>05/03</td>
<td>05/04</td>
</tr>
<tr>
<td>SURFACE LEVEL</td>
<td>GTL</td>
<td>N/A</td>
<td>BEFORE USE</td>
<td>BEFORE USE</td>
</tr>
</tbody>
</table>
SECTION 5
PHOTOGRAPHS
**APPENDIX**

Table 1 – Occupant Loading and Distribution for Vehicle Normal Load for Various Designated Seating Capacities

<table>
<thead>
<tr>
<th>Designated Seating Capacities, numbers of Occupants</th>
<th>Vehicle normal load, number of occupants</th>
<th>Occupant distribution in a normally loaded vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 through 4</td>
<td>2</td>
<td>2 in front</td>
</tr>
<tr>
<td>5 through 10</td>
<td>3</td>
<td>2 in front, 1 in second seat</td>
</tr>
<tr>
<td>11 through 15</td>
<td>5</td>
<td>2 in front, 1 in second seat, 1 in third seat, 1 in fourth seat</td>
</tr>
<tr>
<td>16 through 22</td>
<td>7</td>
<td>2 in front, 2 in second seat, 2 in third seat, 1 in fourth seat</td>
</tr>
</tbody>
</table>

**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.