REPORT NUMBER 110-GTL-18-003

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 110 TIRE SELECTION AND RIMS FOR MOTOR VEHICLES WITH A GVWR OF 4536 KILOGRAMS OR LESS FOR PASSENGER CAR TESTS

MAZDA MOTOR MANUFACTURING DE MEXICO S.A. DE C.V.
2018 TOYOTA YARIS iA, PASSENGER CAR
NHTSA NO. C20185103

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

December 20, 2017

FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
1200 NEW JERSEY AVE., SE
WASHINGTON, D.C. 20590

Prepared By: Debbie Messick

Approved By: Grant Farrand

Approval Date: 12/20/17

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: H. Kerrin Bressant

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7. Author(s) Grant Farrand, Project Engineer Debbie Messick, Project Manager		8. Performing Organ. Rep# GTL-DOT-18-110-003
9. Performing Organization Name and Address General Testing Laboratories, Inc. 1623 Leedstown Road Colonial Beach, Va 22443		10. Work Unit No. (TRAIS) N/A 11. Contract or Grant No. DTNH22-16-D-00031
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Admin. Enforcement Office of Vehicle Safety Compliance (NEF-200) 1200 New Jersey Ave., S.E., Washington, DC 20590		13. Type of Report and Period Covered Final Test Report November 30- December 12, 2017 14. Sponsoring Agency Code NEF-200

15. Supplementary Notes

16. Abstract

Compliance tests were conducted on the subject 2018 TOYOTA YARIS iA PASSENGER CAR in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-110P-04 for the determination of FMVSS 110 compliance.

Test failures identified were as follows:
None

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SECTION 1

INTRODUCTION

1.0 PURPOSE OF COMPLIANCE TEST

A 2018 TOYOTA YARIS iA PASSENGER CAR was subjected to FMVSS No. 110 testing to determine if the vehicle was in compliance with the requirements of the standard. All tests were conducted in accordance with NHTSA, Office of Vehicle Safety Compliance (OVSC) Laboratory Procedure, TP-110P-04 dated 28 September 2012 and General Testing Laboratories, Inc (GTL) Test Procedure, TP-110P-04 dated 20 May 2015.

1.1 TEST VEHICLE

The test vehicle was a 2018 TOYOTA YARIS iA PASSENGER CAR. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 3MYDLBYV3JY305635

B. NHTSA No.: C20185103

C. Manufacturer: MAZDA MOTOR MANUFACTURING DE MEXICO S.A. DE C.V.

D. Manufacture Date: 09/17

E. Color: Abyss/AZ70

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 110 testing during the time period November 30 - December 12, 2017.

SECTION 2

TEST PROCEDURE AND SUMMARY OF RESULTS

2.0 GENERAL

The 2018 TOYOTA YARIS iA PASSENGER CAR, NHTSA No. C20185103, was subjected to FMVSS No. 110 testing during the time period November 30 - December 12, 2017.

2.1 TEST PROCEDURE

Prior to test, the test vehicle was inspected for completeness, systems operability and appropriate fuel and liquid levels, i.e., oil and coolant. The vehicle was then photographically documented as required by the DOT/NHTSA and GTL test procedures. Subsequent events included weighing the vehicle to establish delivered curb weight and the distribution of weight on the front and rear axles and each wheel position. The vehicle normal load as well as the maximum load on each wheel was measured. Data from each tire furnished with the vehicle were recorded. The vehicle tire placard was surveyed and photographed. Required dimensional data and other identifying data for the left front and right rear rims were obtained. The contour of the aforementioned rims was documented photographically.

2.2 SUMMARY OF RESULTS

The test vehicle appears to be in compliance with the requirements of FMVSS No. 110.

SECTION 3

TEST DATA

DATA SHEET 1 (1 of 2)
SUMMARY

VEHICLE MAKE/MODEL/BODY STYLE: 2018 TOYOTA YARIS iA PASSENGER CAR
VEHICLE NHTSA NO.: C20185103 ; VIN: 3MYDLBYV3JY305635
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 09/17
LABORATORY: General Testing Laboratories, Inc.
TEST DATE: November 30 - December 12, 2017

PASSENGER CAR REQUIREMENTS	PASS/FAIL
GENERAL (DATA SHEET 2)	
The vehicle must be equipped with tires that meet the requirements of S139. (S110, S4.1)	Pass
TIRE LOAD LIMITS (DATA SHEET 5)	
The vehicle maximum load on the tire is not greater than the maximum load rating as marked on the sidewall of the tire. (S110, S4.2.1.1)	Pass
The vehicle normal load on the tire is not greater than the value of 94 percent of the load rating at the vehicle manufacturer's recommended cold inflation pressure for that tire.(S110, S4.2.1.2)	Pass
PLACARD, TIRE INFLATION PRESSURE LABEL AND LOAD CARRYING CAPACITY MODIFICATION LABEL (DATA SHEETS 4 AND 5)	
The placard and tire inflation pressure label (if provided) and load carrying Capacity modification label (if attached) are affixed and located correctly, and display the information and format required. (S110, S4.3)	Pass
No inflation pressure other than the maximum permissible inflation pressure may be shown on the placard and, if any, tire inflation pressure label unless as required. (S110, S4.3.4)	Pass
RIMS (DATA SHEETS 3 AND 6)	
Each rim is constructed to the dimensions of a rim referred to in FMVSS 139 that is listed by the manufacturer of the tires as suitable for use with those tires. (S110, S4.4.1(a)).	Pass

DATA SUMMARY SHEET (2 of 2)

PASSENGER CAR REQUIREMENTS	PASS/FAIL
Vehicle rims retain deflated tires during a controlled braking application (S110, S4.4.1(b)).	Pass
OWNER'S MANUAL (DATA SHEET 7)	
Owner's manual or other documentation has discussion of Vehicle Placard, Loading and Tires (575.6 (a)(4)).	Pass
Owner's manual includes exact statement to "Steps for Determining Correct Load Limits." (575.6(a)(5))	Pass

REMARKS:

RECORDED BY: G. FARRAND DATE: 12/12/17
APPROVED BY: D. MESSICK

DATA SHEET 2
TEST VEHICLE INFORMATION/RECEIVING INSPECTION

VEHICLE MODEL YEAR/MAKE/BODY STYLE: 2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO.: C20185103 TEST DATE: 11/30/17
VIN.: 3MYDLBYV3JY305635 MANUFACTURE DATE: 09/17

GVWR 1539 KG (3393 LBS) GAWR(Fr) 814 KG (1795 LBS) GAWR(Rr) 738 KG (1627 LBS)

SEATING POSITIONS: FRONT 2 MID ____ REAR 3 OTHER ___

BODY COLOR: Abyss/AZ70

ODOMETER READINGS: ARRIVAL - 9.7 KILOMETERS (6 MILES)

ENGINE DATA: 4 Cylinders 1.5 Liters ___ Cubic Inches __ Electric

TRANSMISSION DATA: X Automatic ____ Manual 6 No. of Speeds

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

TIRE DATA: Size – P185/60R16 Mfr. - Toyo

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

X	Air Conditioning	X	Traction Control	X	Clock
X	Tinted Glass		Telephone		Roof Rack
X	Power Steering	X	Cruise Control	X	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
	Power Seat(s)	X	Tachometer	X	Side Curtain Air Bag(s)
X	Power Brakes	X	Tilt Steering Wheel	X	Front Disc Brakes
X	Antilock Brake System	X	Stereo		Rear Disc Brakes
	Navigation System		Trailer Hitch	X	Other – BACKUP CAMERA
					Other -

REMARKS:

RECORDED BY: G. Farrand ; DATE: 11/30/17
APPROVED BY: D. Messick

DATA SHEET 3
VEHICLE TIRE IDENTIFICATION

VEHICLE MAKE/MODEL/BODY STYLE: 2018 TOYOTA YARIS iA PASSENGER CAR
VEHICLE NHTSA NO: C20185103 VIN: 3MYDLBYV3JY305635
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 09/17
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 11/30/17

All tires on the vehicle (excluding the spare) are the same size: (X) Yes ( ) No

Spare tire is the same size as all other tires: ( ) Yes (X) No ( ) N/A

TIRE SIDEWALL	Right Front	Left Rear	Spare Tire
Manufacture and Model	Toyo Proxes A27	Toyo Proxes A27	Kenda
Tire Size Designation	P185/60R16	P185/60R16	T125/70R15
Load Index/Speed Symbol	86H	86H	95M
Maximum Inflation Pressure	350 KPA (51 psi)	350 KPA (51 psi)	420 KPA (60 PSI)
Maximum Load Rating	530 KG (1168 lbs)	530 KG (1168 lbs)	690 KG (1521 lbs)
Tread/Traction/ Temperature	240 AA	240 AA	Not Found
Tires have “DOT” Symbol	YES	YES	YES

Serial Number: Right Front DOT N3ELV572317 Left Front DOT N3ELV572317

Right Rear DOT N3ELV572317 Left Rear DOT N3ELV572317

Spare 7YMNANA2717

DATA INDICATES COMPLIANCE: PASS/FAIL PASS

REMARKS:

RECORDED BY: G. Farrand ; DATE: 11/30/17
APPROVED BY: D. Messick

DATA SHEET 4
VEHICLE RIM IDENTIFICATION

VEHICLE MAKE/MODEL/BODY STYLE: 2018 TOYOTA YARIS iA PASSENGER CAR
VEHICLE NHTSA NO: C20185103 VIN: 3MYDLBYV3JY305635
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 09/17
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 12/01/17

RIM MARKINGS (if available)	Right Front	Left Rear
Manufacturer's Name, Symbol or Trademark	MAZDA	MAZDA
Rim Size	16 x 5.5J	16 x 5.5J
Load Rating and Max Inflation Pressure	N/A	N/A
Date of Manufacture	090117	090117
Does Rim contain "DOT" Symbol (Yes/No)	YES	YES
Other Rim Markings	See Photos	See Photos

Rim Inspection Comments: Same as listed on Tire Placard
Tire Inspection Comments: Same as listed on Tire Placard

RIM SIZE:	Tire Size	Measured Rim Width	Measured Rim Diameter
RIGHT FRONT	P185/60R16	5.5"	16"
LEFT REAR	P185/60R16	5.5"	16"

Does stamped rim size (if available) agree with the measured rim size?
Right Front Rim (X) Yes ( ) No Left Rear Rim (X) Yes ( ) No ( ) Not Applicable

Installed rims are suitable for installed tires? (X) Yes ( ) No

REFERENCE USED: 2017 TIRE AND RIM ASSOCIATION MANUAL

DATA INDICATED COMPLIANCE: PASS/FAIL PASS

RECORDED BY: G. Farrand ; DATE: 12/01/17
APPROVED BY: D. Messick

DATA SHEET 5 (1 of 4)
VEHICLE PLACARD, AND TIRE INFLATION PRESSURE LABEL AND OTHER LABELS

VEHICLE MAKE/MODEL/BODY STYLE: 2018 TOYOTA YARIS iA PASSENGER CAR
VEHICLE NHTSA NO: C20185103 VIN: 3MYDLBYV3JY305635
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 09/17
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 11/30/17

IDENTIFICATION OF VEHICLE LABELING

	(Yes/No)	Location	Pass/Fail
1. Monroney Label(if attached)	YES	IN GLOVE BOX	PASS
2. Certification Label*	YES	DRIVER B PILLAR	PASS
3. Alterer's Label(if attached)	N/A	N/A	N/A
4. Vehicle Placard*	YES	DRIVER B PILLAR	PASS
5. Tire Inflation Pressure Label*	NO	N/A	N/A
6. Load Carrying Capacity Modification Label*	YES	DRIVER B PILAR	*
7. Dealer/Distributor Optional Equipment Added Label (if attached)	N/A	N/A	N/A

*** Labels are to be affixed to the driver's side B-pillar otherwise refer to FMVSS 110 requirements.**

Note: * Load Carrying Capacity Modification Label present but blank.

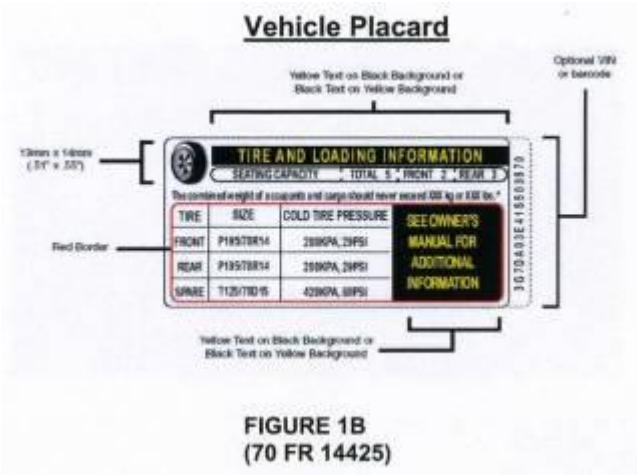


FIGURE 1B
(70 FR 14425)

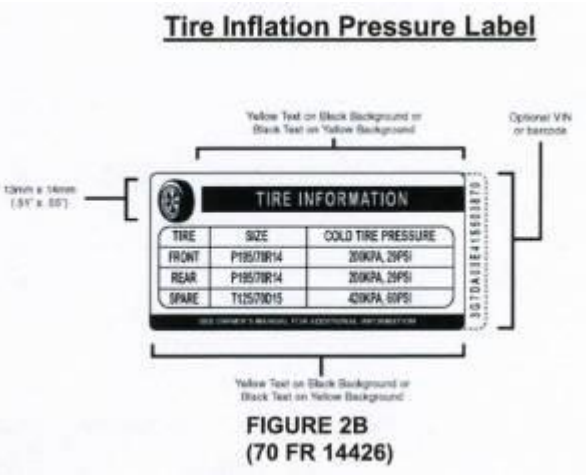


FIGURE 2B
(70 FR 14426)

CAUTION: LOAD CARRYING CAPACITY REDUCED
Modifications to this vehicle have reduced the original load carrying capacity by
_____kg or _____lbs

Black print on yellow background with minimum print size of 2.4 mm high.
FIGURE 3
(72 FR 68465

DATA SHEET 5 (2 of 4)
VEHICLE PLACARD, AND TIRE INFLATION PRESSURE LABEL AND OTHER LABELS

Labeling Notes:
1. Tire size and pressure can be omitted from Vehicle Placard if same data is displayed on a Tire Inflation Pressure Label.
2. The Alphanumeric Identifier or Barcode, is optional. It can be located vertically, along the right edge or the left edge of the placard or label, or horizontally, along the bottom edge of the placard or label.
3. Tire size can include the tire load range identification symbol(“XL” or “reinforced”, “B”, “C”, “D”, “E”, or “F”), the load index number, and speed rating symbol, located immediately to the right of the tire size designation.
4. The tire “SIZE” heading can be replaced with “ORIGINAL TIRE SIZE” or “ORIGINAL SIZE”
5. The “SPARE” tire heading can be replaced with “SPARE TIRE.”
6. For full size spare tires, the recommended cold tire inflation pressure can be replaced with “SEE ABOVE.”
7. If no spare tire is provided, the word “NONE” is to replace the manufacturer’s cold tire inflation pressure.

DATA SHEET 5 (3 of 4)
VEHICLE PLACARD, AND TIRE INFLATION PRESSURE LABEL AND OTHER LABELS

Vehicle Placard has the exact color and format as specified in the above Figure 1B and text is in English. (X) Yes ( ) No
If no, explain:_____

Tire Inflation Pressure Label, if provided, has the exact color and format as specified in the above Figure 2B and text is in English. ( ) Yes ( ) No (X) N/A
If no, explain:_____

Load Carrying Capacity Modification Label, if attached, has the exact color and format as specified in the above Figure 3 and text is in the English language. Verify the label is within 25 mm of vehicle placard and has minimum print size of 2.4 mm high.
(X) Yes* ( ) No ( ) N/A
If no, explain:_____
Note: *Label present but not filled out

Vehicle Placard and, if provided, **Tire Inflation Pressure Label** and **the Load Carrying Capacity Modification Label** are permanently affixed. (X) Yes ( ) No

Vehicle Placard information:

Combined weight of occupants and cargo 385 kg (850 lbs)
Seating capacity: Total 5 Front 2 Rear 3
Is the number of belted seating positions the same as the labeled seating capacity?
(X) Yes ( ) No
If no, explain_____

Is the tire size and pressure provided? (X) Yes ( ) No
If no, is the tire size and pressure provided on a Tire Inflation Pressure Label?
( ) Yes ( ) No

Vehicle Placard or Tire Inflation Pressure Label tire information:

Tire size Front P185/60R16 Rear P185/60R16
Tire Inflation Pressure Front 250KPA (36psi) Rear 230KPA (33psi)
Are the sizes of the installed tires the same as the sizes of the labeled tires?
(X) Yes ( ) No
If no, explain_____

Is the labeled cold tire inflation pressure equal to or less than the sidewall labeled maximum cold tire inflation pressure?
Front axle: (X) Yes ( ) No Rear axle: (X) Yes ( ) No

Note:

DATA SHEET 5 (4 of 4)
VEHICLE PLACARD, AND TIRE INFLATION PRESSURE LABEL AND OTHER LABELS

Load Carrying Capacity Modification Label information:

Distance label is from vehicle placard (no more than 25 mm): 4 mm
Label letter height (must be at least 2.4 mm in height): 2.5 mm
Load Carrying Capacity reduction: _____ kg

Monroney Label (if attached) information:

Tire Size Listed: Front P185/60R16 Rear P185/60R16

Installed tire sizes same as labeled tire sizes? (X) YES ( ) NO

Separate Distributor/Dealer Optional Equipment label (if attached):

Equipment Listed: N/A

DATA INDICATES COMPLIANCE: **PASS/FAIL PASS**

REMARKS:

RECORDED BY: G. Farrand ; DATE: 12/01/17
APPROVED BY: D. Messick

DATA SHEET 6 (1 of 4)
CURB WEIGHT, NORMAL LOAD WEIGHT & MAXIMUM VEHICLE WEIGHT

VEHICLE MAKE/MODEL/BODY STYLE: 2018 TOYOTA YARIS iA PASSENGER CAR
VEHICLE NHTSA NO: C20185103 VIN: 3MYDLBYV3JY305635
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 09/17
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 12/01/17

Full Fluid Levels: Fuel Full Coolant Full Other Fluids Full

Tire Pressures: LF 250 KPA (36 psi) LR 230 KPA (33 psi)
RF 250 KPA (36 psi) RR 230 KPA (33 psi)

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

LF 337.5 KG (744 lbs) LR 228.5 KG (504 lbs)
RF 336 KG (741 lbs) RR 203.5 KG (449 lbs)

Front Axle 673.5 KG (1485 lbs) Rear Axle 432 KG (952 lbs)

Total Vehicle 1105.5 KG (2437 lbs)

B. MEASURED VEHICLE NORMAL LOAD WEIGHT

1. Seating Capacity from Vehicle Placard 5

2. Normal Load Number of Occupants(from table in Section 11) 3
Occupant Distribution: Front Seat 2 Second Seat 1
Third Seat Fourth Seat

3. Total Normal Occupant Load 204 KG (450 lbs)
(# of occupants x 68 KG per occupant)

4. Measured Normal Load on Axles
LF 380 KG (838 lbs) LR 289 KG (637 lbs)
RF 379.5 KG (837 lbs) RR 261 KG (575 lbs)

Front Axle 759.5 KG (1674 lbs) Rear Axle 550 KG (1213 lbs)

Total Vehicle 1309.5 KG (2887 lbs)

5. Calculated Vehicle Normal Load on the Tire
Front Tires (Measured front axle normal load/2) 379.75 KG (837 lbs)
Rear Tires (Measured rear axle normal load/2) 275 KG (606 lbs)

DATA SHEET 6 (2 of 4)
CURB WEIGHT, NORMAL LOAD WEIGHT & MAXIMUM VEHICLE WEIGHT

6. Value of 94 percent of the load rating at the vehicle manufacturer's recommended cold inflation pressure for that tire

	Front Axle	Rear Axle
Installed Tire Size	P185/60R16	P185/60R16
Load Rating at recommended cold inflation pressure	530 KG (1168 lbs)	530 KG (1168 lbs)
94% of load rating	498.2 KG (1098 lbs)	462.48 KG(1020 lbs)

Vehicle Normal Load on the Tire should not be greater than the Value of 94% of the load rating at the vehicle manufacturer's recommended cold inflation pressure.

		PASS/FAIL
[(5) < (6)]	Front Tires	PASS
	Rear Tires	PASS

C. MEASURED VEHICLE WEIGHT WITH FULL OCCUPANT LOAD

1 Seating Capacity from Placard:
Total 5 Front 2 Rear 3

2. Full Occupant Load 340 KG (750 lbs)
(# of occupants x 68 KG per occupant)

3. Measured Vehicle Weight with Full Occupant Load

LF 391 KG (862 lbs) LR 345.5 KG (762 lbs)
RF 396 KG (873 lbs) RR 313.0 KG (690 lbs)

Front Axle 787 KG (1735 lbs) Rear Axle 658.5 KG (1452 lbs)

Total Vehicle 1445.5 KG (3187 lbs)

D. MEASURED VEHICLE WEIGHT WITH MAXIMUM LOAD (PLACARD)

1. Vehicle Capacity Weight (from placard) 385 KG (850 lbs)

2. Reduced Capacity Weight if applicable 0 KG (lbs)
(from load carrying capacity modification label)

3. Reduced Vehicle Capacity Weight 385 KG (850 lbs)
Subtract (2) from (1)

DATA SHEET 6 (3 of 4)
CURB WEIGHT, NORMAL LOAD WEIGHT & MAXIMUM VEHICLE WEIGHT

4. Full Occupant Load (from C.2 above) 340 KG (750 lbs)

5. Luggage/Cargo Load (subtract 4 from 3) 45 KG (99 lbs)

6. Measured Vehicle Maximum Load on Axles

LF 389 KG (858 lbs) LR 370 KG (816 lbs)
RF 395.5 KG (872 lbs) RR 336 KG (741 lbs)

Front Axle 784.5 KG (1730 lbs) Rear Axle 706 KG (1556 lbs)

Total Vehicle 1490.5 KG (3286 lbs.)

7. Calculated Vehicle Maximum Load on the Tire

Front Tires (Measured front axle maximum load/2) 392.25 KG (865 lbs)
Rear Tires (Measured rear axle maximum load/2) 353 KG (778 lbs)

8. Tire Sidewall Maximum Load Ratings

	Front	Rear
Installed Tire Size	P185/60R16	P185/60R16
Max. Load Rating on Sidewall	530 KG (1168 lbs)	530 KG (1168 lbs)

Vehicle Maximum Load on the Tire should not be greater than the Maximum load rating marked on the Tire Sidewall.

		PASS/FAIL
[(7) < (8)]	Front Tires	PASS
	Rear Tires	PASS

9. Tire Load Ratings at Vehicle Placard and Tire Inflation Pressure Label Recommended Cold Tire Inflation Pressure.

	Front Axle	Rear Axle
Labeled Tire Size	P185/60R16	P185/60R16
Labeled Cold Inflation Pressure	250 KPA (36 psi)	230 KPA (33 psi)
Load Rating at this Pressure*	530 KG (1168 lbs)	497 KG (1095 lbs)

*Reference used to obtain Load Rating: 2017 TIRE AND RIM ASSOCIATION MANUAL

DATA SHEET 6 (4 of 4)
CURB WEIGHT, NORMAL LOAD WEIGHT & MAXIMUM VEHICLE WEIGHT

Vehicle Normal Load on the Tire should not be greater than the Tire Load Rating at the Labeled Cold Tire Inflation Pressure.

		PASS/FAIL
[B (5) < D (9)]	Front Tires	PASS
	Rear Tires	PASS

Vehicle Maximum Load on the Tire should not be greater than the Tire Load Rating at the Labeled Cold Tire Inflation Pressure.

		PASS/FAIL
[D (7) < D (9)]	Front Tires	PASS
	Rear Tires	PASS

DATA INDICATES COMPLIANCE: PASS/FAIL PASS

REMARKS:

RECORDED BY: G. Farrand ; DATE: 12/01/17
APPROVED BY: D. Messick

DATA SHEET 7 (1 of 2)
DEFLATED TIRE RETENTION

VEHICLE MAKE/MODEL/BODY STYLE: 2018 TOYOTA YARIS iA PASSENGER CAR
VEHICLE NHTSA NO: C20185103 VIN: 3MYDLBYV3JY305635
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 09/17
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 12/12/17

Tire Pressures: LF 250 KPA (36 psi) LR 230 KPA (33 psi)
RF 250 KPA (36 psi) RR 230 KPA (33 psi)

Test Weight:
LF 389 KG (858 lbs) LR 370 KG (816 lbs)
RF 395 KG (871 lbs) RR 336 KG (741 lbs)

Front Axle 784 KG (1728 lbs) Rear Axle 706 KG (1556 lbs)

Total Vehicle 1490 KG (3285 lbs)

Retention Test Left Front:

Odometer (START): 8 miles Fuel Level: Full

Ambient Temperature: 11 °C Wind Speed: 800 m/s

Vehicle Speed at time of blow-out: 99 kmph

Maximum Deceleration Rate: 2 m/sec^2 Deflation Opening Size 1.3 cm (dia.)

Stopping Distance (Distance traveled after initial release of air): 199 m

Distance of Uncontrolled Deviation from a straight line: 0 cm

Description of Bead Separation, Outboard:
None

Description of Bead Separation, Inboard:
None

Vehicle stopped with a controlled brake application (driver opinion): (X) Yes ( ) No

Deflated tire retained on rim for duration of test: (X) Yes ( ) No

DATA SHEET 7 (2 of 2)
DEFLATED TIRE RETENTION

Retention Test Right Rear:

Odometer (START): 10 miles Fuel Level: Full

Ambient Temperature: 11 °C Wind Speed: 800 m/s

Vehicle Speed at time of blow-out: 100 kmph

Maximum Deceleration Rate: 2 m/sec^2 Deflation Opening Size 1.3 cm (dia.)

Stopping Distance (Distance traveled after initial release of air): 152 m

Distance of Uncontrolled Deviation from a straight line: 0 cm

Description of Bead Separation, Outboard:
None

Description of Bead Separation, Inboard:
None

Vehicle stopped with a controlled brake application (driver opinion): (X) Yes ( ) No

Deflated tire retained on rim for duration of test: (X) Yes ( ) No

DATA INDICATES COMPLIANCE:

	PASS/FAIL
Left Front	P
Right Rear	P

REMARKS:

RECORDED BY: G. Farrand ; DATE: 12/12/17
APPROVED BY: D. Messick

DATA SHEET 8 (1 of 2)
OWNER'S MANUAL REQUIREMENTS

VEHICLE MAKE/MODEL/BODY STYLE: 2018 TOYOTA YARIS iA PASSENGER CAR
VEHICLE NHTSA NO: C20185103 VIN: 3MYDLBYV3JY305635
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 09/17
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 11/30/17

Owner's Manual Discusses:

Part 575.6(a) Paragraph	Required Discussion Topic	Discussed in Manual? (Yes/No)
(4) (i)	Tire labeling, including a description and explanation of each marking on the tire provided with the vehicle, and information about the location of the Tire Identification Number (TIN)	YES
(4) (ii)	A. Description and explanation of recommended cold tire inflation pressure.	YES
	B. Description and explanation of FMVSS 110 Vehicle Placard and Tire Inflation Pressure Label and their location(s)	YES
	C. Description and explanation of adverse safety consequences of under-inflation including tire failure	YES
	D. Description and explanation for measuring and adjusting air pressure to achieve proper inflation	YES
(4) (iii)	Glossary of tire terminology, including "cold tire pressure", "maximum inflation pressure", and all non-technical terms defined in S3 of FMVSS 110 and 139	YES
(4) (iv)	Tire care, including maintenance and safety practices	YES
(4) (v)	A. Description and explanation of locating and understanding load limit information, total load capacity, seating capacity, towing capacity and cargo capacity.	YES
	B. Description and explanation for calculating total and cargo load capacities with varying seating configurations including quantitative examples showing/illustrating how the vehicle's cargo and luggage capacity decreases as the combined number and size of occupants increases.	YES
	C. Description and explanation for determining compatibility of tire and vehicle load capabilities	YES
	D. Description and explanation of adverse safety consequences of overloading on handling and stopping and on tires	YES

DATA SHEET 8 (2 of 2)
OWNER'S MANUAL REQUIREMENTS

The following verbatim statement, in the English language, is provided in the Owner's Manual.
Reference Part 575.6 (a)(5) (X)Yes ( ) No

Steps for Determining Correct Load Limit:

1. Locate the statement "The combined weight of occupants and cargo should never exceed XXX kg or XXX lbs." on your vehicle's placard.
2. Determine the combined weight of the driver and passenger that will be riding in your vehicle
3. Subtract the combined weight of the driver and passenger from XXX kg or XXX lbs.
4. The resulting figure equals the available amount of cargo and luggage load capacity. For example, if the XXX amount equals 1400 lbs and there will be five 150 lb passenger in your vehicle, the amount of available cargo and luggage load capacity is 650 lbs. (1400 –750 (5 x 150) = 650 lbs.)
5. Determine the combined weight of the luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity calculated in Step 4.
6. If you vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult the manual to determine how this reduces the available cargo and luggage load capacity of your vehicle.

DATA INDICATES COMPLIANCE PASS/FAIL PASS

REMARKS:

RECORDED BY: G. Farrand ; DATE: 11/30/17
APPROVED BY: D. Messick

SECTION 4
TEST EQUIPMENT LIST

TABLE 1 – TEST AND EQUIPMENT LIST

EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
PAD SCALES	INTERCOMP #1 23008LF #2 23008RF #3 23008LR #4 23008RR	23008LF 23008RF 23008LR 23008RR	03/17 03/17 03/17 03/17	03/18 03/18 03/18 03/18
PRESSURE GAGE	BLH	65409	BEFORE USE	BEFORE USE
SURFACE LEVEL	STANLEY	641186	03/17	03/18
INCLINOMETER	MITUTOYO	PRO 360	BEFORE USE	BEFORE USE
PRESSURE TRANSDUCER	BLH	65409	BEFORE USE	BEFORE USE
DATA ACQUISITION COMPUTER	GATEWAY		BEFORE USE	BEFORE USE
ANEMOMETER	OMEGA	53668	04/17	04/19
V-BOX	RACELOGIC	4337	11/17	11/19
SLIP RING ASSEMBLY	GTL	N/A	N/A	N/A
DECELEROMETER	AMMCO		BEFORE USE	BEFORE USE

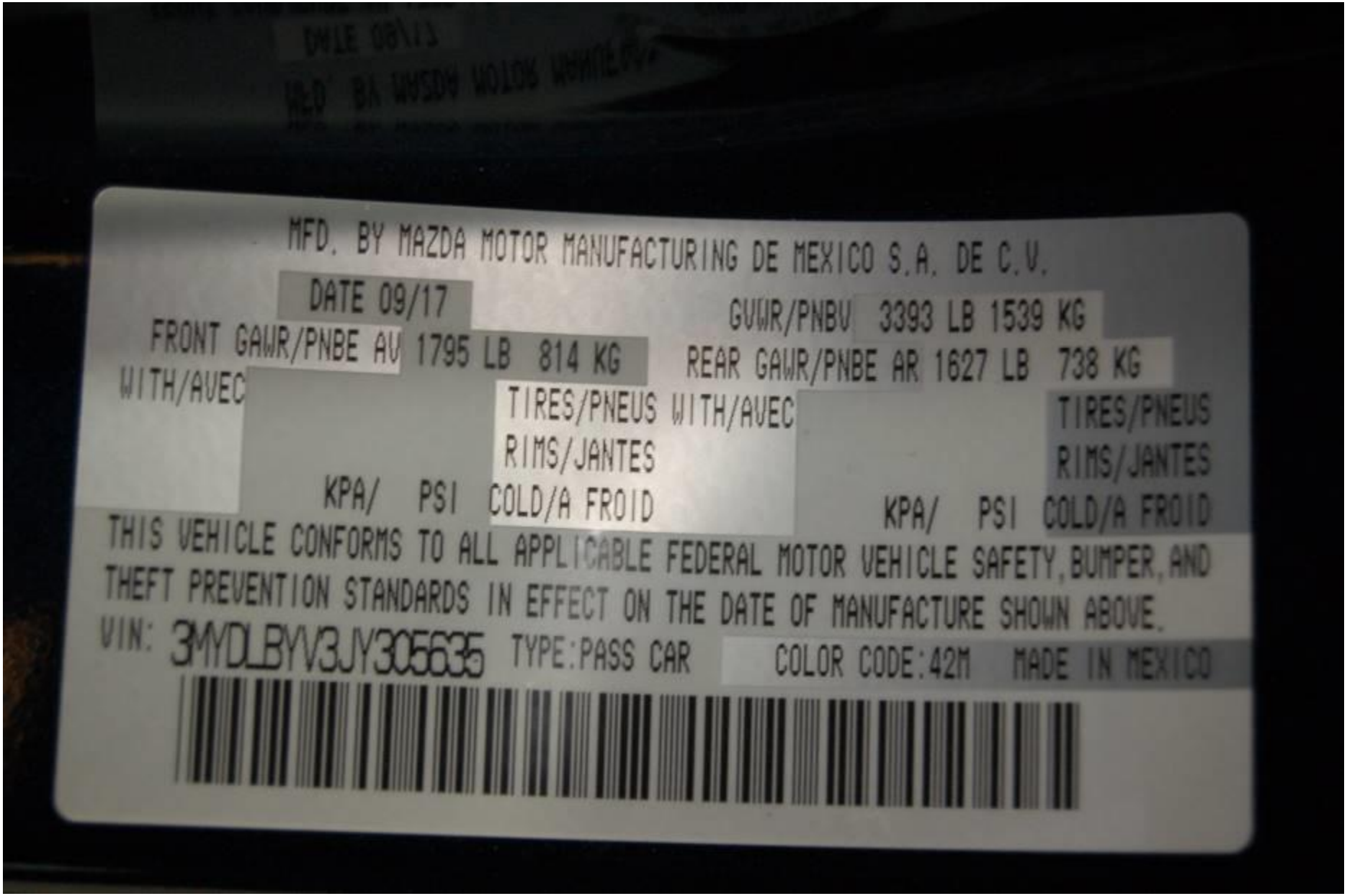
SECTION 5
PHOTOGRAPHS

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.1
¾ LEFT FRONT VIEW OF VEHICLE

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.2
¾ RIGHT REAR VIEW OF VEHICLE



2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.3
VEHICLE CERTIFICATION LABEL

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.4
VEHICLE TIRE INFORMATION LABEL

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.5
OVERALL VIEW OF TIRE AND RIM

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.6
TIRE SHOWING MANUFACTURER

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.7
TIRE SHOWING MODEL

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.8
TIRE SHOWING LOAD PRESSURE AND RATINGS

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.9
TIRE SHOWING SIZE

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.10
TIRE SHOWING DOT SERIAL NUMBERS

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.11
RIM SHOWING MANUFACTURER

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.12
RIM SHOWING SIZE

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.13
RIM SHOWING DOT

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.14
RIM SHOWING DATE CODE

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.15
RIM SHOWING OTHER MARKINGS

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.16
RIM SHOWING OTHER MARKINGS

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

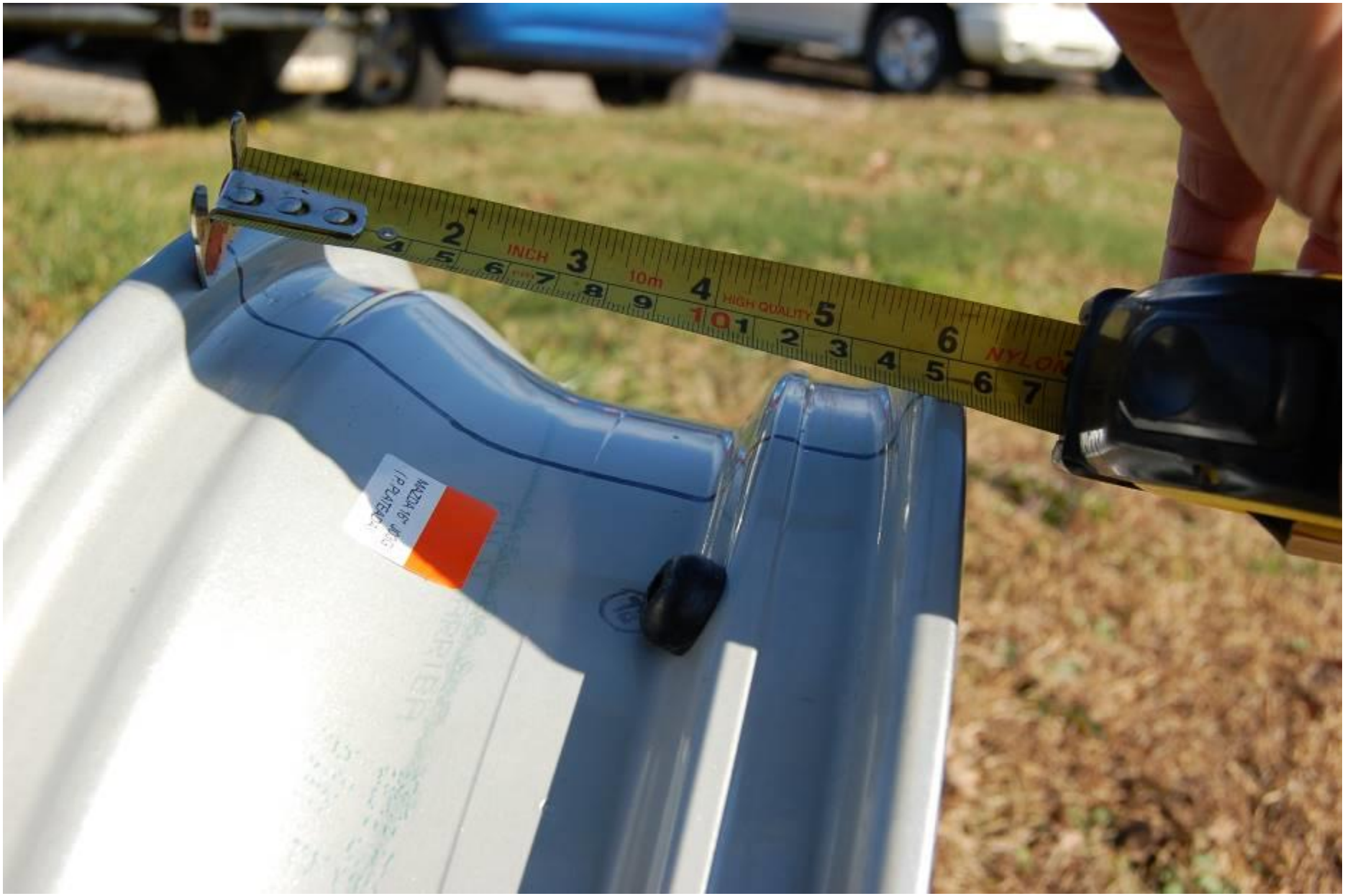
FIGURE 5.17
RIM SHOWING OTHER MARKINGS

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.18
RIM SHOWING OTHER MARKINGS

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.19
RIM SHOWING OTHER MARKINGS

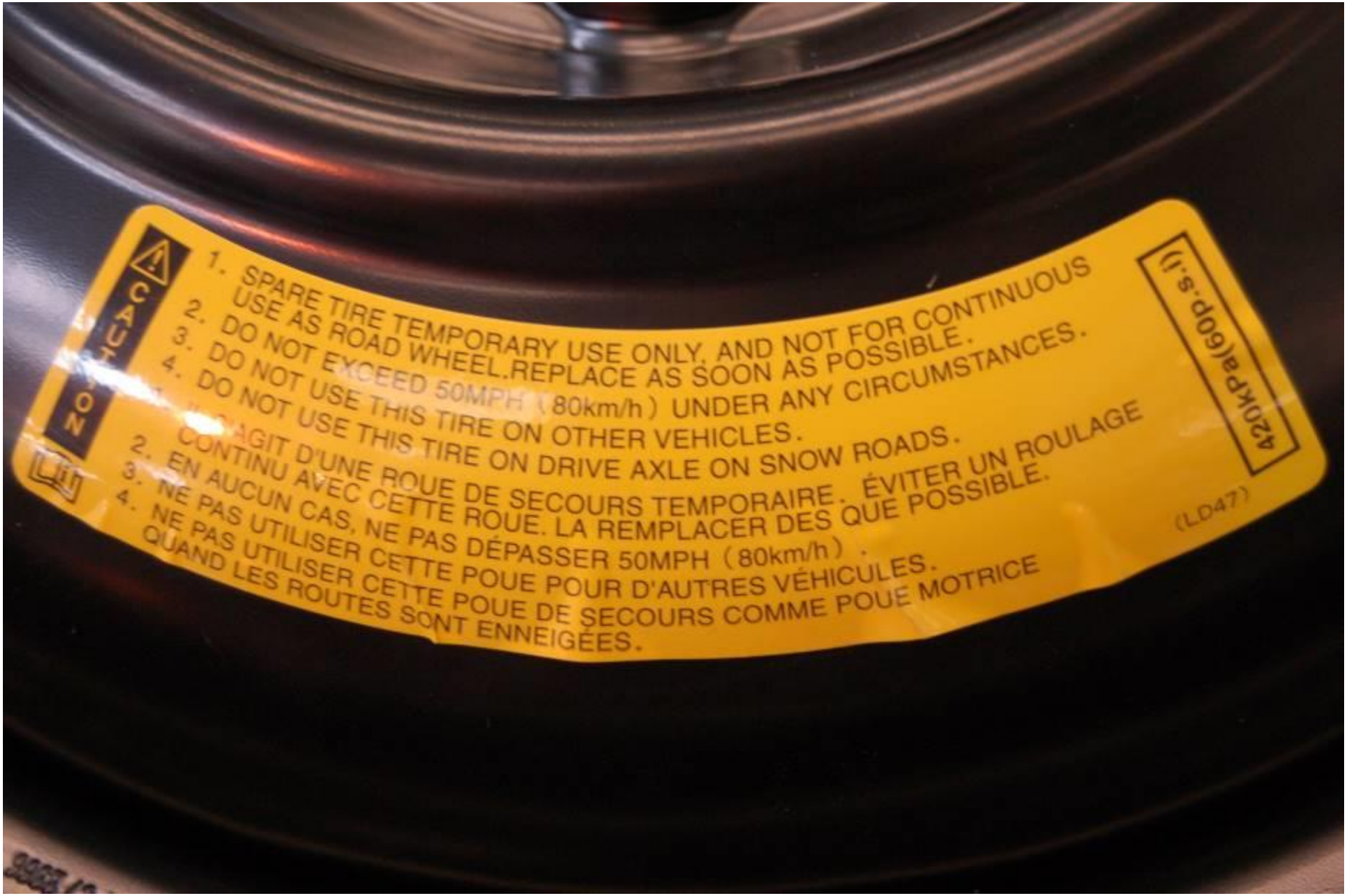


2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.20
RIM SHOWING CONTOUR

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.21
SPARE TIRE AND RIM ASSEMBLY



2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.22
SPARE TIRE LABEL

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NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.23
VIEW OF VEHICLE ON SCALES

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NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.24
REAR SEAT BALLASTED FOR NORMAL LOAD

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NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.25
FRONT SEAT BALLASTED FOR NORMAL LOAD

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.26
VEHICLE BALLASTED FOR FULL LOAD

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.27
VEHICLE BALLASTED FOR CARGO LOAD

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.28
PRE-TEST SETUP RIM RETENTION TEST – LEFT FRONT TIRE

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.29
POST TEST RIM RETENTION TEST – LEFT FRONT TIRE

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.30
POST TEST RIM RETENTION TEST – LEFT FRONT TIRE

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.31
PRE-TEST SETUP RIM RETENTION TEST – RIGHT REAR TIRE

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.32
POST TEST RIM RETENTION TEST – RIGHT REAR TIRE

2018 TOYOTA YARIS iA PASSENGER CAR
NHTSA NO. C20185103
FMVSS NO. 110

FIGURE 5.33
POST TEST RIM RETENTION TEST – RIGHT REAR TIRE

SECTION 6
OWNER'S MANUAL INFORMATION

Overloading

⚠ WARNING

■Be careful not to overload your vehicle

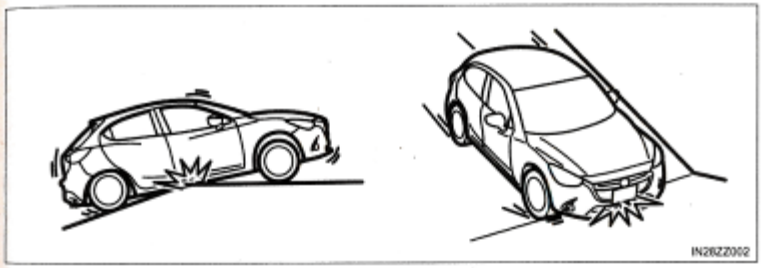
The gross axle weight rating (GAWR) and the gross vehicle weight rating (GVWR) of the vehicle are on the Motor Vehicle Safety Standard Label on the driver's door frame. Exceeding these ratings can cause an accident or vehicle damage. You can estimate the weight of the load by weighing the items (or people) before putting them in the vehicle.

Driving on Uneven Road

Your vehicle's suspension and underbody can be damaged if driven on rough/uneven roads or over speed bumps at excessive speeds. Use care and reduce speed when traveling on rough/uneven roads or over speed bumps.

Use care not to damage the vehicle's underbody, bumpers or muffler(s) when driving under the following conditions:

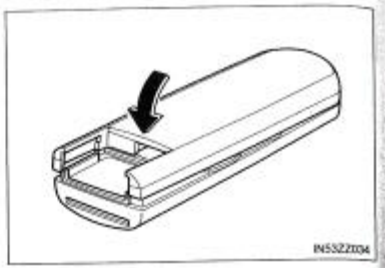
- Ascending or descending a slope with a sharp transition angle
- Ascending or descending a driveway or trailer ramp with a sharp transition angle



⚠ NOTICE

This vehicle is equipped with low profile tires allowing class-leading performance and handling. As a result, the sidewall of the tires are very thin and the tires and wheels can be damaged if driven through potholes or on rough/uneven roads at excessive speeds. Use care and reduce speed when traveling on rough/uneven roads or through potholes.

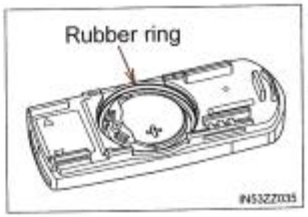
7 Close the cover.



8 Reinsert the auxiliary key.

NOTICE

- Make sure the battery is installed correctly. Battery leakage could occur if it is not installed correctly.
- When replacing the battery, be careful not to touch any of the internal circuitry and electrical terminals, bend the electrical terminals, or get dirt in the smart key as the smart key could be damaged.
- There is the danger of explosion if the battery is not correctly replaced.
- Dispose of used batteries according to the following instructions.
  - Insulate the plus and minus terminals of the battery using cellophane or equivalent tape.
  - Never disassemble.
  - Never throw the battery into fire or water.
  - Never deform or crush.
- Replace only with the same type battery (CR2025 or equivalent).
- Be careful not to allow the rubber ring shown in the figure to be scratched or damaged.
- If the rubber ring detaches, reattach it before inserting a new battery.



Tires

For reasons of proper performance, safety, and better fuel economy, always maintain recommended tire inflation pressures and stay within the recommended load limits and weight distribution.

WARNING

■Using Different Tire Types

Driving your vehicle with different types of tires is dangerous. It could cause poor handling and poor braking; leading to loss of control.

Except for the limited use of the temporary spare tire, use only the same type tires (radial, bias-belted, bias-type) on all four wheels.

■Using Wrong-Sized Tires

Using any other tire size than what is specified for the vehicle (→P. 560) is dangerous. It could seriously affect ride, handling, ground clearance, tire clearance, and speedometer calibration. This could cause you to have an accident. Use only tires that are the correct size specified for the vehicle.

Tire Inflation Pressure

Inspect all tire pressures monthly (including the spare) when the tires are cold. Maintain recommended pressures for the best ride, handling, and minimum tire wear.

Refer to the specification charts (→P. 560).

With tire pressure monitoring system:

After adjusting the tire pressure, initialization of the tire pressure monitoring system is necessary to make the system operate normally.

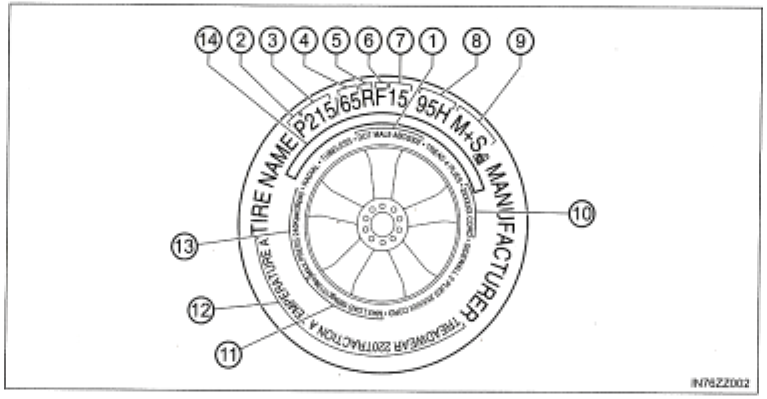
Refer to Tire Pressure Monitoring System Initialization on P. 221.

Tire Labeling

Federal law requires tire manufacturers to place standardized information on the sidewall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a tire identification number for safety standard certification and in case of a recall.

Information on Passenger Vehicle Tires

Please refer to the sample below.



① TIN: U.S. DOT tire identification number
② Passenger car tire
③ Nominal width of tire in millimeters
④ Ratio of height to width (aspect ratio)
⑤ Radial
⑥ Run-flat tire
⑦ Rim diameter code
⑧ Load index & speed symbol
⑨ Severe snow conditions
⑩ Tire ply composition and materials used
⑪ Max. load rating
⑫ Tread wear, traction and temperature grades
⑬ Max. permissible inflation pressure
⑭ SAFETY WARNING

P215/65R15 95H is an example of a tire size and load index rating. Here is an explanation of the various components of that tire size and load index rating. Note that the tire size and load index rating may be different from the example.

● P

Indicates a tire that may be installed on cars, SUVs, minivans and light trucks as designated by the Tire and Rim Association (T&RA).

If your tire size does not begin with a letter this may mean it is designated by either ETRTO (European Tire and Rim Technical Organization) or JATMA (Japan Tire Manufacturing Association).

● 215

"215" is the nominal width of the tire in millimeters. This three-digit number gives the width in millimeters of the tire from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

● 65

"65" is the aspect ratio. This two-digit number indicates the tire's ratio of height to width.

● R

"R" is the tire construction symbol. R indicates "Radial ply construction".

● 15

"15" is the wheel rim diameter in inches.

● 95

"95" is the Load Index. This two-or three-digit number indicates how much weight each tire can support.

● H

"H" is the speed rating. The speed rating denotes the maximum speed for which the use of the tire is rated.

Letter Rating	Speed Rating
Q	99 mph
R	106 mph
S	112 mph
T	118 mph
U	124 mph
H	130 mph
V	149 mph
W	168* mph
Y	186* mph

*: For tires with a maximum speed capability over 149 mph, tire manufacturers sometimes use the letters ZR. For tires with a maximum speed capability over 186 mph, tire manufacturers always use the letters ZR.

■ M+S or M/S: Mud and Snow

AT: All Terrain.

AS: All Season. The "M+S" or "M/S" indicates that the tire has some functional use in mud and snow.

■ U.S. DOT Tire Identification Number (TIN)

This begins with the letters "DOT" which indicates the tire meets all federal standards. The next two numbers or letters are the plant code where it was manufactured, and the last four numbers represent the week and year the tire was manufactured. For example, the numbers 457 means the 45st week of 1997. After 2000 the numbers go to four digits. For example, the number 2102 means the 21th week of 2002. The other numbers are marketing codes used at the manufacturer's discretion. This information is used to contact consumers if a tire defect requires a recall.

■ Tire Ply Composition and Materials Used

The number of plies indicates the number of layers of rubber-coated fabric in the tire.

In general, the greater the number of plies, the more weight a tire can support. Tire manufacturers also must indicate the tire materials, which include steel, nylon, polyester, and other.

■ Maximum Load Rating

This number indicates the maximum load in kilograms and pounds that can be carried by the tire.

■ Maximum Permissible Inflation Pressure

This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

■ Tread Wear, Traction and Temperature Grades

- Tread wear: The tread wear grade is a comparative rating based on the wear rate of the tire when tested under controlled conditions on a specified government test course. For example, a tire graded 150 would wear one and one-half (1 1/2) times as well on the government course as a tire graded 100.
- Traction: The traction grades, from highest to lowest are AA, A, B, and C. The grades represent the tire's ability to stop on wet pavement as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tire marked C may have poor traction performance.
- Temperature: The temperature grades are A (the highest), B and C, representing the tire's resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel.

■ Snow Tires

In some heavy snow areas, local governments may require true snow tires, those with very deeply cut tread. These tires should only be used in pairs or placed on all four wheels. Make sure you purchase snow tires that are the same size and construction type as the other tires on your vehicle.

■ SAFETY WARNING

The following safety warning appears on the tire's sidewall. SERIOUS INJURY MAY RESULT FROM:

- EXPLOSION OF TIRE/RIM ASSEMBLY DUE TO IMPROPER MOUNTING-MATCH TIRE DIAMETER TO RIM DIAMETER; NEVER EXCEED 40 psi (275 kPa) TO SEAT BEADS-ONLY SPECIALLY TRAINED PERSONS SHOULD MOUNT TIRES.
- TIRE FAILURE DUE TO UNDER-INFLATION/OVERLOADING/DAMAGE-FOLLOW OWNER'S MANUAL AND PLACARD IN VEHICLE-FREQUENTLY CHECK INFLATION PRESSURE AND INSPECT FOR DAMAGE.

Information on Temporary Tires

Please refer to the sample below.

① Temporary tires
② Nominal width of tire in millimeters
③ Ratio of height to width (aspect ratio)
④ Diagonal
⑤ Rim diameter code
⑥ Load index & speed symbol

T115/70D16 90M is an example of a tire size and load index rating. Here is an explanation of the various components of that tire size and load index rating. Note that the tire size and load index rating may be different from the example.

● T

Indicates a tire that may be installed on cars, SUVs, minivans and light trucks as designated by the Tire and Rim Association (T&RA).

● 115

"115" is the nominal width of the tire in millimeters. This three-digit number gives the width in millimeters of the tire from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

● 70

"70" is the aspect ratio. This two-digit number indicates the tire's ratio of height to width.

● D

"D" is the tire construction symbol. D indicates "diagonal ply construction".

● 16

"16" is the wheel rim diameter in inches.

● 90

"90" is the Load Index. This two-or three-digit number indicates how much weight each tire can support.

● M

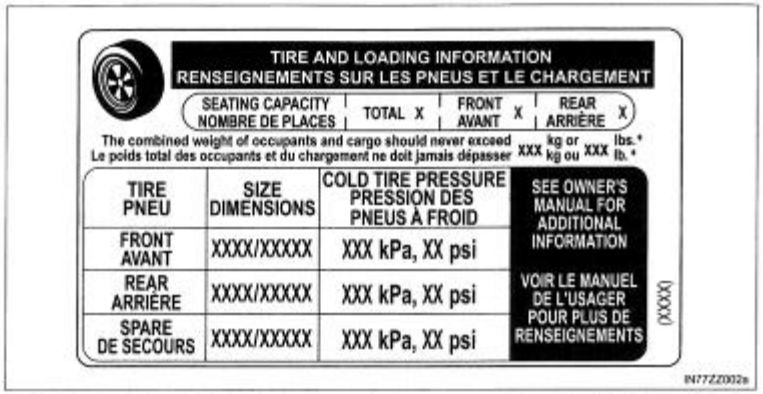
"M" is the speed rating. The speed rating denotes the maximum speed for which the use of the tire is rated.

Letter Rating	Speed Rating
M	81 mph

Location of the Tire Label (Placard)

You will find the tire label containing tire inflation pressure by tire size and other important information on the driver's side B-pillar or on the edge of the driver's door frame.

SAMPLE



Recommended Tire Inflation Pressure

On the tire label you will find the recommended tire inflation pressure in both kPa and psi for the tires installed as original equipment on the vehicle. It is very important that the inflation pressure of the tires on your vehicle is maintained at the recommended pressure. You should check the tire pressure regularly to insure that the proper inflation pressure is maintained. Refer to Tires on P. 560.

Tire pressures listed on the vehicle placard or tire information label indicate the recommended cold tire inflation pressure, measured when the tires are cold, after the vehicle has been parked for at least 3 hours. As you drive, the temperature in the tire warms up, increasing the tire pressure.

⚠ WARNING

■ **Always check the tire inflation pressures on a regular basis according to the recommended tire inflation pressure on the tire label and in conjunction with the information in this owner's manual**

Driving your vehicle with under-inflated tires is dangerous.

Under-inflation is the most common cause of failures in any kind of tire and may result in severe cracking, tread separation or "blowout", with unexpected loss of vehicle control and increased risk of injury. Under-inflation increases sidewall flexing and rolling resistance, resulting in heat buildup and internal damage to the tire. It results in unnecessary tire stress, irregular wear, loss of control and accidents. A tire can lose up to half of its air pressure and not appear to be flat!

It is impossible to determine whether or not tires are properly inflated just by looking at them.

Checking Tire Pressure

1. When you check the air pressure, make sure the tires are cold - meaning they are not hot from driving even a mile.
2. Remove the cap from the valve on one tire.
3. Firmly press a tire gauge onto the valve.
4. Add air to achieve recommended air pressure.
5. If you overfill the tire, release air by pushing on the metal stem in the center of the valve. Then recheck the pressure with your tire gauge.
6. Replace the valve cap.
7. Repeat with each tire, including the spare.
8. Visually inspect the tires to make sure there are no nails or other objects embedded that could poke a hole in the tire and cause an air leak.
9. Check the sidewalls to make sure there are no gouges, cuts, bulges, cracks or other irregularities.

Some spare tires require higher inflation pressure.

Glossary of Terms

- Tire Placard: A label indicating the OE tire sizes, recommended inflation pressure, and the maximum weight the vehicle can carry.
- Tire Identification Number (TIN): A number on the sidewall of each tire providing information about the tire brand and manufacturing plant, tire size, and date of manufacture.
- Inflation Pressure: A measure of the amount of air in a tire.
- kPa: Kilopascal, the metric unit for air pressure.
- psi: Pounds per square inch, the English unit for air pressure.
- B-pillar: The structural member at the side of the vehicle behind the front door.
- Original Equipment (OE): Describes components originally equipped on the vehicle.
- Vehicle Load Limit: The maximum value of the combination weight of occupants and cargo.
- Bead Area of the Tire: Area of the tire next to the rim.
- Sidewall Area of the Tire: Area between the bead area and the tread.
- Tread Area of the Tire: Area on the perimeter of the tire that contacts the road when it's mounted on the vehicle.
- Seating capacity means the total allowable number of vehicle occupants. Seating capacity is described on the tire label.
- Production options weight is the combination weight of installed regular production options weighing over 2.3 kilograms in excess of the standard items which they replace, and not previously considered in the curb weight or accessory weight, including heavy duty brakes, ride levelers, roof rack, heavy duty battery, and special trim.
- Rim is the metal support (wheel) for a tire or a tire and tube assembly upon which the tire beads are seated.

Tire Maintenance

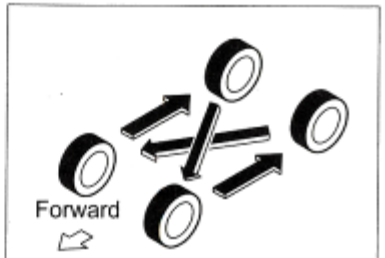
Improper or inadequate vehicle maintenance can cause tires to wear abnormally. Here are some important maintenance points:

Tire Inflation Pressure

Inspect all tire pressure monthly (including the spare) when the tires are cold. Maintain recommended pressures for the best ride, top handling, and minimum tire wear. Use the pressures specified on the vehicle tire information placard or tire label for optimum service.

Tire Rotation

To equalize tire wear and extend tire life, Toyota recommends that tire rotation is carried out at the same interval as tire inspection.



Do not include (TEMPORARY USE ONLY) spare tire in rotation.

I53ZZ094

Inspect the tires for uneven wear and damage. Abnormal wear is usually caused by one or a combination of the following:

- Incorrect tire pressure
- Improper wheel alignment
- Out-of-balance wheel
- Severe braking

After rotation, inflate all tire pressures to specification (→P. 560) and inspect the lug nuts for tightness.

⚠ NOTICE

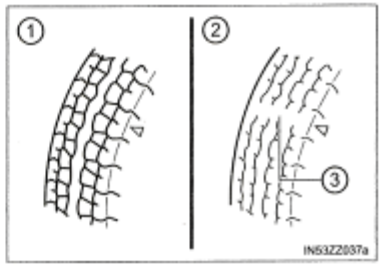
Rotate unidirectional tires and radial tires that have an asymmetrical tread pattern or studs only from front to rear, not from side to side. Tire performance will be weakened if rotated from side to side.

Replacing a Tire

If a tire wears evenly, a wear indicator will appear as a solid band across the tread. Replace the tire when this happens.

You should replace the tire before the band crosses the entire tread.

① New tread
② Worn tread
③ Tread wear indicator



Tires degrade over time, even when they are not being used on the road. It is recommended that tires generally be replaced when they are 6 years or older. Heat caused by hot climates or frequent high loading conditions can accelerate the aging process. You should replace the spare tire when you replace the other road tires due to the aging of the spare tire. The period in which the tire was manufactured (both week and year) is indicated by a 4-digit number.
Refer to Tire Labeling on P. 532.

⚠ WARNING

■ Always use tires that are in good condition

Driving with worn tires is dangerous. Reduced braking, steering, and traction could result in an accident.

Safety Practices

The way you drive has a great deal to do with your tire mileage and safety. So cultivate good driving habits for your own benefit.

- Observe posted speed limits and drive at speeds that are safe for the existing weather conditions
- Avoid fast starts, stops and turns
- Avoid potholes and objects on the road
- Do not run over curbs or hit the tire against the curb when parking

⚠ NOTICE

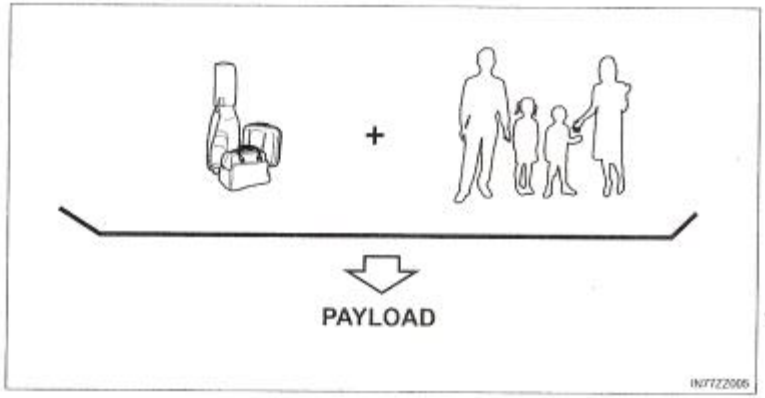
If you feel a sudden vibration or ride disturbance while driving or you suspect your tire or vehicle has been damaged, immediately reduce your speed. Drive with caution until you can safely pull off the road. Stop and inspect the tire for damage. If the tire is under-inflated or damaged, deflate it, remove the tire and rim and replace it with your spare tire. If you cannot detect a cause, have the vehicle towed to the nearest vehicle or tire dealer to have the vehicle inspected.

Vehicle Loading

This section will guide you in the proper loading of your vehicle, to keep your loaded vehicle weight within its design rating capability. Properly loading your vehicle will provide maximum return of vehicle design performance. Before loading your vehicle, familiarize yourself with the following terms for determining your vehicle's weight ratings, from the vehicle's Safety Certification Label and Tire and Load Information Label:

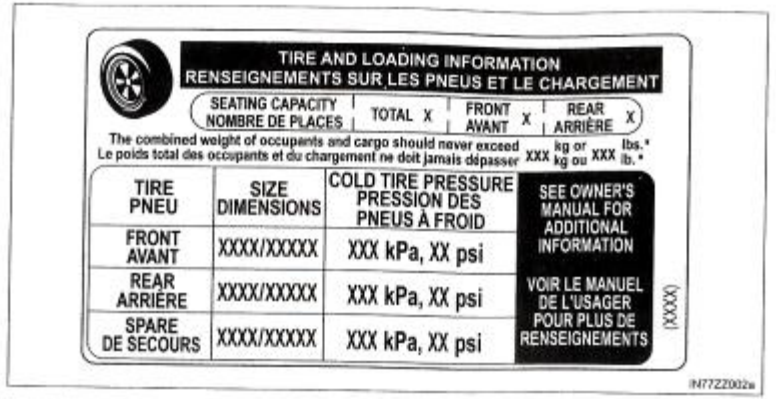
Base Curb Weight is the weight of the vehicle including a full tank of fuel and all standard equipment. It does not include passengers, cargo, or optional equipment.

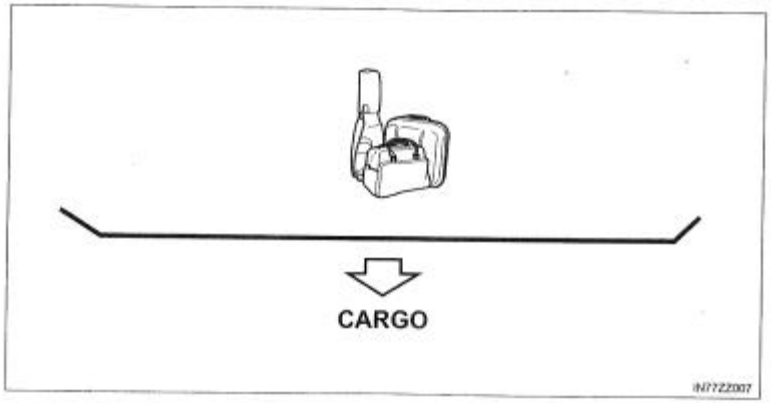
Vehicle Curb Weight is the weight of your new vehicle when you picked it up from your dealer plus any aftermarket equipment.



Payload is the combination weight of cargo and passengers that the vehicle is designed to carry. The maximum payload for your vehicle can be found on the Tire and Load Information label on the driver's door frame or door pillar. Look for "THE COMBINATION WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED XXX kg or XXX lb." for your maximum payload. The payload listed on the tire label is the maximum payload for the vehicle as built by the assembly plant. If any aftermarket or dealer installed equipment has been installed on the vehicle, the weight of the equipment must be subtracted from the payload listed on the tire label in order to be accurate.

SAMPLE





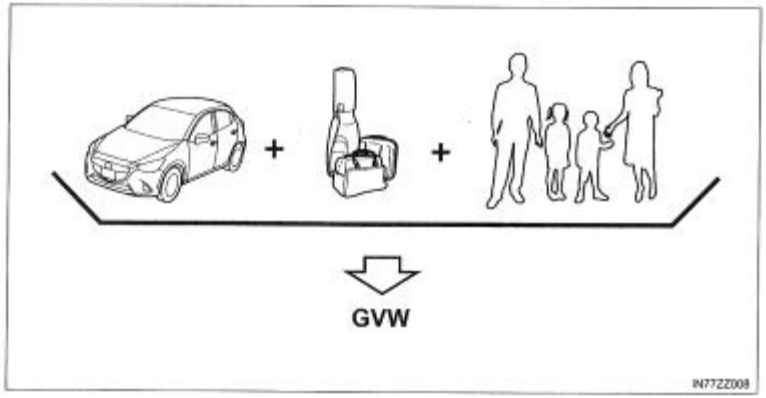
Cargo Weight includes all weight added to the Base Curb Weight, including cargo and optional equipment.

The cargo weight limit decreases depending on the number of vehicle occupants. The cargo weight limit can be calculated by subtracting the total weight of the vehicle occupants from the "combination weight of occupants and cargo should never exceed" value on the tire label.

Examples: Based on a single occupant weight of 150 lb. (68 kg), and a value of 849 lb. (385 kg) for the "combination weight of occupants and cargo should never exceed":
The cargo weight limit with one occupant is 849 lb. (385 kg) - 150 lb. (68 kg) = 699 lb. (317 kg)
The cargo weight limit with two occupants is 849 lb. (385 kg) - (150 x 2) lb. ((68 x 2) kg) = 549 lb. (249 kg)
If the weight of the occupant increases, the cargo weight limit decreases by that much.

GAW (Gross Axle Weight) is the total weight placed on each axle (front and rear) - including vehicle curb weight and all payload.

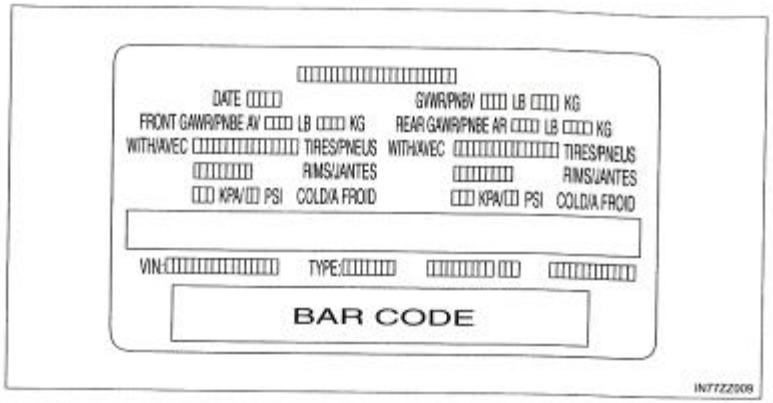
GAWR (Gross Axle Weight Rating) is the maximum allowable weight that can be carried by a single axle (front or rear). These numbers are shown on the Safety Compliance Certification Label located on the driver's door frame or door pillar. The total load on each axle must never exceed its GAWR.

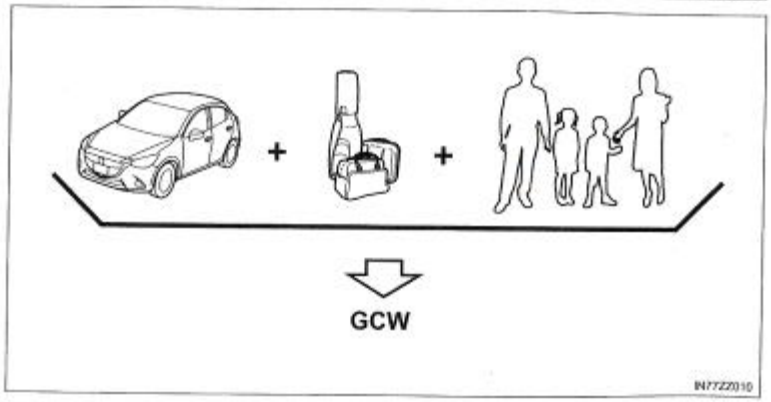


GVW (Gross Vehicle Weight) is the Vehicle Curb Weight + cargo + passengers.

GVWR (Gross Vehicle Weight Rating) is the maximum allowable weight of the fully loaded vehicle (including all options, equipment, passengers and cargo). The GVWR is shown on the Safety Compliance Certification Label located on the driver's door frame or door pillar. The GVW must never exceed the GVWR.

SAMPLE





GCW (Gross Combination Weight) is the weight of the loaded vehicle (GVW).

GCWR (Gross Combination Weight Rating) is the maximum allowable weight of the vehicle - including all cargo and passengers - that the vehicle can handle without risking damage. The GCW must never exceed the GCWR.

⚠ WARNING

■Do not tow a trailer with this vehicle

Towing a trailer with this vehicle is dangerous because it has not been designed to tow a trailer and doing so will affect the drive system which could result in vehicle damage.

■Overloaded Vehicle

Overloading a vehicle is dangerous. The results of overloading can have serious consequences in terms of passenger safety. Too much weight on a vehicle's suspension system can cause spring or shock absorber failure, brake failure, handling or steering problems, irregular tire wear, tire failure or other damage.

Overloading makes a vehicle harder to drive and control. It also increases the distance required for stopping. In cases of serious overloading, brakes can fail completely, particularly on steep grades. The load a tire will carry safely is a combination of the size of the tire, its load range, and corresponding inflation pressure.

Never overload the vehicle and always observe the vehicle's weight ratings from the vehicle's Safety Certification and Tire and Load Information labels.

■Never Exceed Axle Weight Rating Limits

Exceeding the Safety Certification Label axle weight rating limits is dangerous and could result in death or serious injury as a result of substandard vehicle handling, performance, engine, transmission and/or structural damage, serious damage to the vehicle, or loss of control.

Always keep the vehicle within the axle weight rating limits.

■Never Exceed GVWR or GAWR Specifications

Exceeding the GVWR or the GAWR specified on the certification label is dangerous. Exceeding any vehicle rating limitation could result in a serious accident, injury, or damage to the vehicle.

Do not use replacement tires with lower load carrying capacities than the originals because they may lower the vehicle's GVWR and GAWR limitations. Replacement tires with a higher limit than the originals do not increase the GVWR and GAWR limitations. Never exceed the GVWR or the GAWR specified on the certification label.

Steps for Determining the Correct Load Limit

Steps for Determining Correct Load Limit-

(1) Locate the statement "The combined weight of occupants and cargo should never exceed XXX kg or XXX lbs." on your vehicle's placard.

(2) Determine the combined weight of the driver and passengers that will be riding in your vehicle.

(3) Subtract the combined weight of the driver and passengers from XXX kg or XXX lbs.

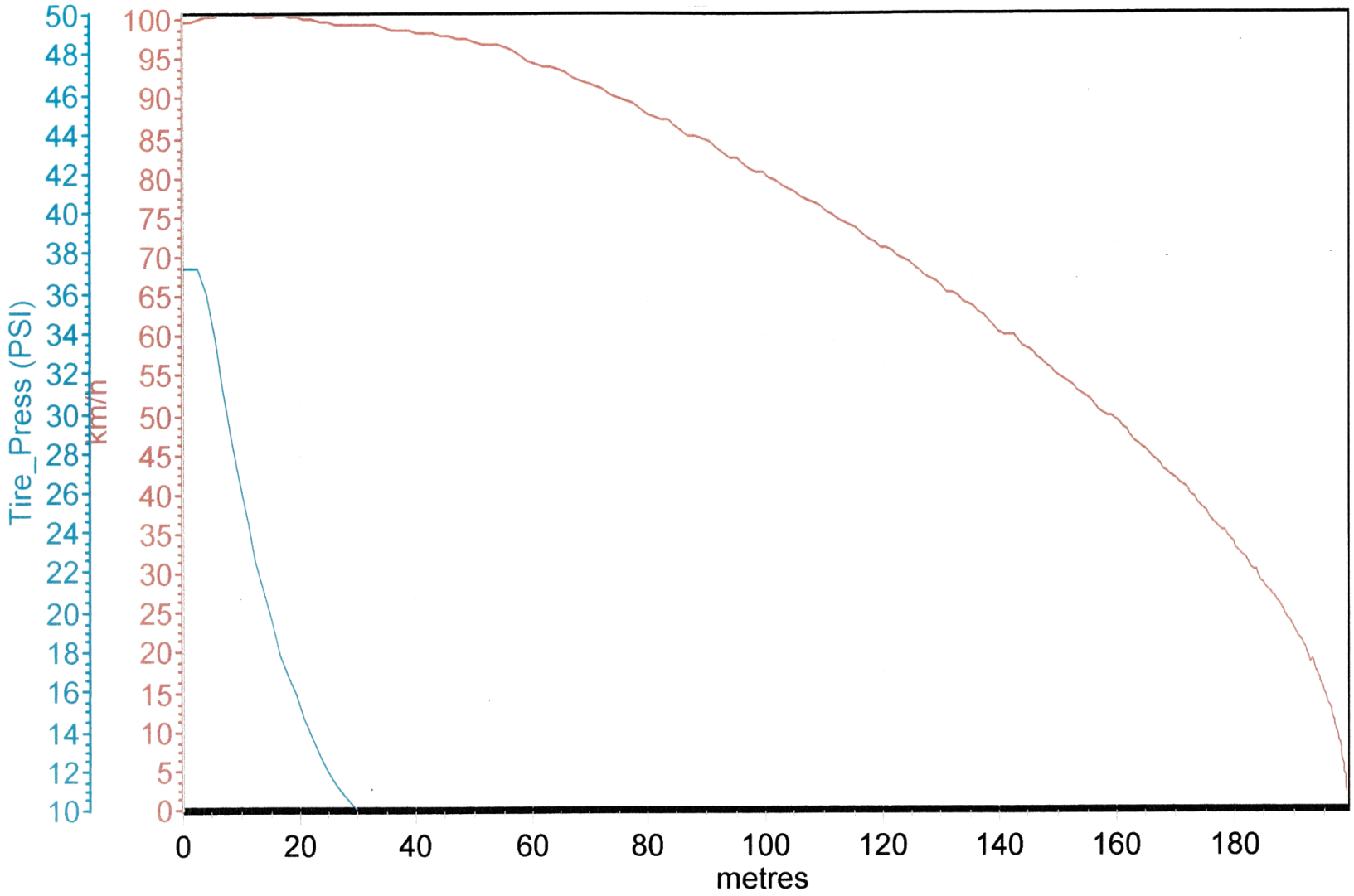
(4) The resulting figure equals the available amount of cargo and luggage load capacity. For example, if the "XXX" amount equals 1400 lbs. and there will be five 150 lb passengers in your vehicle, the amount of available cargo and luggage load capacity is 650 lbs. (1400 - 750 (5 x 150) = 650 lbs.)

(5) Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity calculated in Step 4.

(6) If your vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult this manual to determine how this reduces the available cargo and luggage load capacity of your vehicle.

SECTION 6
TEST PLOTS

FMVSS 110 Deflated Tire Retention
2018 Toyota Yaris NHTSA # C20185103
Left Front Tire, 12-11-2017



FMVSS 110 Deflated Tire Retention
2018 Toyota Yaris NHTSA # C20185103
Right Rear Tire, 12-11-2017