

Component Procedures: Tires

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Component Procedures: Tires

Parts and Labor (itype_189)

Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Balance	Chassis & Wheels > Wheels, Balance > One	C	0.5	0.0
Balance	Chassis & Wheels > Wheels, Balance > Each Add?	C	0.3	0.0
Rotate	Chassis & Wheels > Wheels, Rotate > 4 Wheels	C	0.4	0.0
Rotate	Chassis & Wheels > Wheels, Rotate > 4 Wheels ?		0.1	
Remove & Replace	Chassis & Wheels > Wheels, R&R > One	C	0.5	0.0

Tire and Wheel Specifications (Article 13656)

Description Specifications

Alloy Wheels

Rim Width Code 8J

- Rim Width Code

Diameter Code 18, 19

- Diameter Code

Maximum Permissible Radial runout All Models 0.4 mm

- Maximum Permissible Radial runout All Models

Offset

18" x 8", 19" x 8" 48 mm (positive)

- 18" x 8", 19" x 8"

Wheel Tire Designation Recommended Cold Inflation kPa

Up to 3 Passengers Up to Max. Load

Front Rear Front Rear

8J x 18 alloy RPO : QFX 245/45 R18 96V 230 230 250 270

8J x 18 alloy RPO : R1L 245/45 R18 100V 230 230 250 270

8J x 19 alloy RPO : RP2 245/40 R19 94W 250 250 250 270

8J x 19 alloy RPO : QWT 245/40 R19 98W 250 250 250 270

For speeds above 160 km/h 250 250 270 300

P-Metric Sized Tires Description (Article 13634)

The tire sidewall has a coded marking system, which provides information about the tire.

Tire Marking Example:

P 245 50 R 16 95 S

P Passenger Vehicle Designation

245 Section Width in mm (245 mm)

50 Aspect Ratio % (Section Height to Section Width) (50 = 50%)

R tire Construction (R = Radial)

16 Rim Diameter in inches (16 = 16")

C Note: Some European and Japanese light truck tires use C instead of LT for the same purpose. Service

Application Code (C or LT = Light Truck or Multi-purpose Passenger Vehicle)

95 Max Load Index 91 = 615 kg

92 = 630 kg

93 = 650 kg

94 = 670 kg

95 = 690 kg

96 = 710 kg

97 = 730 kg

99 = 775 kg

104 = 900 kg

106 = 950 kg

S Speed Rating R = 170 km/h

S = 180 km/h

H = 210 km/h

V = 240 km/h

W = 270 km/h

Tire Inflation Description (Article 13636)

This vehicle has been engineered to operate up to the stated load capacity with wheel and tyre assemblies of the type, size, construction, and configuration as originally installed. Maintenance of the tyre inflation pressures is critical to the continued satisfactory performance, handling, and operating economy of the vehicle.

Operating the vehicle with incorrectly inflated tyres can adversely affect vehicle performance and may contribute to the following:

- Reduced fuel economy
- Tyre overloading
- Reduced tyre life
- Excessive tyre wear
- Uneven tyre wear
- Vehicle handling concerns

Inspect the tyre pressures when the vehicle has not been driven for at least 3 hours or not more than 1.6 km (1 mi) and when the tyres are cool to the touch.

Replace any missing or damaged tyre valve stem extensions and/or caps to prevent the intrusion of water and contaminants.

One pound per square inch (psi) equals 6.9 kilopascals (kPa). The following table illustrates the conversion of kilopascals to pounds per square inch:

kPa	psi	kPa	psi
140	20	215	31
145	21	220	32
155	22	230	33
160	23	235	34
165	24	240	35
170	25	250	36
180	26	275	40
185	27	310	45
190	28	345	50
200	29	380	55
205	30	415	60

Conversion: 6.9 kPa = 1 psi

For the correct inflation pressures refer to the vehicle's tyre placard.

Tyres inflated to a higher than recommended pressure can contribute to the following conditions:

- A hard ride
- Tyre bruising
- Rapid tread wear at the center of the tyre

Tyres inflated to a lower than recommended pressure can contribute to the following conditions:

- Tyre squeal on turns
- Hard steering
- Rapid and/or uneven wear on the outer edges of the tread
- Tyre rim bruises and tyre rim rupture
- Tyre cord breakage
- High tyre temperatures
- Sluggish vehicle handling
- Higher fuel consumption

Unequal pressure on the same axle can cause the following conditions:

- Uneven braking action
- Steering lead
- Imprecise vehicle handling

Tire Repair (Article 13644)

- Tire changing can be dangerous and should be done by trained professionals using proper tools and procedures. Always read and understand any manufacturer's warnings contained in their customers literature or molded into the tire sidewall.

- Serious eye and ear injury may result from not wearing adequate eye and ear protection while repairing tires

.

- NEVER inflate beyond 275 kPa (40 pounds) pressure to seat beads.

- NEVER stand, lean or reach over the assembly during inflation.

- NEVER repair tires worn to the tread indicators 1.59 mm (2/32 in) remaining depth.
- NEVER repair tires with a tread puncture larger than 6.35 mm (1/4 in).
- NEVER substitute an inner tube for a permissible or non-permissible repair.
- NEVER perform an outside-in tire repair (plug only, on the wheel).
- Every tire must be removed from the wheel for proper inspection and repair.
- Regardless of the type of repair used, the repair must seal the inner liner and fill the injury.
- Consult with repair material supplier/manufacturer for repair unit application procedures and repair tools/repair material recommendations.

Three basic steps for tire puncture repair:

- Remove the tire from the wheel for inspection and repair.
- Fill the injury (puncture) to keep moisture out.
- Seal the inner liner with a repair unit to prevent air loss.

External Inspection

- Prior to demounting, inspect the tire surface, the valve and the wheel for the source of the leak by using a water and soap solution. Mark the injured area and totally deflate the tire by removing the valve core.
- Demount the tire from the wheel and place the tire on a well-lighted spreader.

Internal Inspection

- Spread the beads and mark the puncture with a tire crayon. [Click for full-size image](#)
- Inspect the inner tire for any signs of internal damage.
- Remove the puncturing object, noting the direction of the penetration.
- Probe the injury with a blunt awl in order to determine the extent and direction of the injury.
- Remove any loose foreign material from the injury.
- Punctures exceeding 6.35 mm (1/4 in) should not be repaired.

Cleaning

- Clean the area around the puncture thoroughly with a proper liner cleaner, clean cloth and a scraper. This step serves to remove dirt and mold lubricants to insure proper adhesion and non-contamination of the buffing tool. [Click for full-size image](#)
- Refer to information on the product or manufacturer's Material Safety Data Sheet and follow guidelines for handling and disposal.

Clean the Injury Channel

- Use a proper hand reamer, carbide cutter or drill bit to ream the puncture channel from the inside of the tire in order to clean the injury. [Click for full-size image](#)
- Remove steel wires protruding above the liner surface to prevent damage to the repair unit.
- Consult your repair material supplier for recommended reaming tool(s).

Fill the Injury

- It is necessary to fill the injury channel to provide back up for the repair unit and to prevent moisture from entering the tire fabric and steel wires. [Click for full-size image](#)
- For combination repair/plug units skip this step. Cement the injured channel and fill the injury from the inside of the tire with the repair plug per repair material manufacturer's recommendations. Without stretching the plug, cut the plug off just above the inside tire surface.
- Consult your repair material supplier for proper repair material selection.

Repair Unit Selection

- Center the repair unit over the injury as a reference and outline an area larger than the unit so that buffing will not remove the crayon marks. [Click for full-size image](#)
- Remove the repair unit.
- DO NOT overlap previous or multiple repair units.
- Consult your repair material supplier for proper repair unit selection.

Buffing

- To prevent contamination and preserve the outline, buff within the marked area thoroughly and evenly with a low speed buffing tool using a fine wire brush or gritted rasp. [Click for full-size image](#)
- Buff to a smooth velvet surface (RMA #1 or #2 buffed texture).
- Use caution not to gouge the inner liner or expose casing fabric.
- Remove any buffing dust with a vacuum cleaner.
- Consult your repair material supplier for a proper buffing tool.

Cementing

Apply chemical cement according to the repair material manufacturer's procedures.

Repair Unit Application

The tire must be in the relaxed position when the repair unit is installed. Do not spread the beads excessively.

Two-Piece Plug and Repair Units

- If applicable, install the repair unit so that the alignment is correct.
- Center the repair unit over the injury and stitch down thoroughly with the stitching tool, working from the center out.
- Being careful not to stretch the plug material, cut the plug flush with the outer tread. Click for full-size image

Combination Repair/Plug Units

- Pull the plug through the injury until the repair just reaches the liner. Stitch down thoroughly.
- Follow the repair material manufacturer's recommendations for further installation instructions. Consult your repair material supplier for the proper stitching tool.

Safety Cage

Some run flat tires and high performance tires may require more than 275 kPa (40 psi) to seat the bead. In such a case, a tire safety cage must be used. Consult the tire manufacturer for its individual repair policy.

Final Inspection

- After remounting and inflating the tire, check both beads, the repair and the valve with a water and soap solution in order to detect leaks. Click for full-size image
- If the tire continues to lose air, the tire must be demounted and reinspected.
- Balance the tire and wheel assembly. Refer to Tire and Wheel Assembly Balancing - Off Vehicle .

For additional tire puncture repair information, contact:

Website: www.rma.org

Tire and Wheel Balancing (Article 12666)

- Clean away any dirt or deposits from the inside of the wheels .
- Remove any stones from the tread.
- Wear eye protection.
- Use coated weights on aluminum wheels.

Tire and Wheel Assembly Balancer Calibration

Tire and wheel balancers can drift out of calibration over time, or can become inaccurate as a result of heavy use. There will likely not be any visual evidence that a calibration problem exists. If a balancer is not calibrated within specifications, and a tire and wheel assembly is balanced on that machine, the assembly may actually be imbalanced.

Tire and wheel assembly balancer calibration should be checked approximately every 2 weeks, if the machine is used frequently, and/or whenever the balance readings are questionable.

Tire and Wheel Assembly Balancer Calibration Test

Inspect the calibration of the tire and wheel assembly balancer according to the manufacturer's recommendations, or perform the following test.

- Spin the balancer without a wheel or any of the adapters on the shaft. Click for full-size image
- Inspect the balancer readings. Specification Zero within 7 g (¼ oz)

Zero within 7 g (¼ oz)

- If the balancer is within the specification range, balance a tire and wheel assembly – that is within radial and lateral runout tolerances – to ZERO, using the same balancer.
- After the tire and wheel assembly has been balanced, add an 85 g (3 oz) test weight to the wheel at any location.
- Spin the tire and wheel assembly again. Note the readings.
- In the static and dynamic modes, the balancer should call for 85 g (3 oz) of weight, 180 degrees opposite the test weight.
- In the dynamic mode, the weight should be called for on the flange of the wheel opposite the test weight.
- With the assembly imbalanced to 85 g (3 oz), cycle the balancer 5 times.
- Inspect the balancer readings: Specification Maximum variation: 7 g (¼ oz)

Maximum variation: 7 g (¼ oz)

- Index the tire and wheel assembly on the balancer shaft, 90 degrees from the previous location.
- Cycle the balancer with the assembly at the new location.
- Repeat steps 8 through 10 until the tire and wheel assembly has been cycled and checked at each of the 4 locations on the balancer shaft.

Tire and Wheel Assembly Balancing Guidelines

If the runout of the tire and wheel assemblies has not yet been measured, refer to Tire and Wheel Assembly Runout Measurement - Off Vehicle before proceeding.

There are 2 types of tire and wheel balance:

Static Balance

Static balance is the equal distribution of weight around the wheel circumference. The wheel balance weights (2) are positioned on the wheel in order to offset the effects of a heavy spot (3). Wheels that have static

imbalance can produce a bouncing action called tramp.

Dynamic Balance

Dynamic balance is the equal distribution of weight on each side of the tire and wheel assembly centerline.

The wheel balance weights (2) are positioned on the wheel in order to offset the effects of a heavy spot (3).

Wheels that have dynamic imbalance have a tendency to move from side to side and can cause an action called shimmy.

Most off-vehicle balancers are capable of checking both types of balance simultaneously.

As a general rule, most vehicles are more sensitive to static imbalance than to dynamic imbalance; however, vehicles equipped with low profile, wide tread path, high performance tires and wheels are susceptible to small amounts of dynamic imbalance. As little as 14–21 g ($\frac{1}{2}$ – $\frac{3}{4}$ oz) imbalance is capable of inducing a vibration in some vehicle models.

Balancing Procedure

- Raise and support the vehicle. Lifting and Jacking the Vehicle

- Mark the location of the wheels to the wheel studs and mark the specific vehicle position on each tire and wheel – LF, LR, RF, RR.

- Remove the tire and wheel assemblies one at a time and mount on a spin-type wheel balancer. Tire and Wheel Removal and Installation

- Carefully follow the wheel balancer manufacturer's instructions for proper mounting techniques to be used on different types of wheels. Regard aftermarket wheels, especially those incorporating universal lug patterns, as potential sources of runout and mounting concerns.

- Be sure to use the correct type of wheel balance weights for the type of wheel rim being balanced. Be sure to use the correct type of coated wheel balance weights on aluminum wheels. Refer to Wheel Weight Usage.

- Balance all four tire and wheel assemblies as close to zero as possible.

- Using the matchmarks made prior to removal, install the tire and wheel assemblies to the vehicle. Tire and Wheel Removal and Installation

- Lower the vehicle.

Wheel Weight Usage

Tire and wheel assemblies can be balanced using either the static or dynamic method.

Clip-on Weights

These coated weights reduce the potential for corrosion and damage to aluminum wheels.

- MC (1) and AW (2) series weights are approved for use on aluminum wheels.

- P (3) series weights are approved for use on steel wheels only.

- T (4) series coated weights are approved for use on both steel and aluminum wheels.

The contour and style of the wheel rim flange will determine which type of clip-on wheel weight (1) should be used. The weight should follow the contour of the rim flange. The weight clip should firmly grip the rim flange.

Wheel Weight Placement – Clip-on Weights

When static balancing, locate the wheel balance weights on the inboard flange (2) if only 28 g (1 oz) or less is called for. If more than 28 g (1 oz) is called for, split the weights as equally as possible between the inboard (2) and outboard (1) flanges.

When dynamic balancing, locate the wheel balance weights on the inboard (2) and outboard (1) rim flanges at the positions specified by the wheel balancer.

Adhesive Weights

Adhesive wheel balance weights may be used on factory aluminum wheels. Perform the following procedure to install adhesive wheel balance weights.

- Determine the correct areas for placement of the wheel weights on the wheel.

- When static balancing, locate the wheel balance weights along the wheel centerline (1) on the inner wheel surface if only 28 g (1 oz) or less is called for. If more than 28 g (1 oz) is called for, split the weights as equally as possible between the wheel centerline and the inboard edge of the inner wheel surface (2).

- When dynamic balancing, locate the wheel balance weights along the wheel centerline and the inboard edge of the inner wheel surface (2) at the positions specified by the wheel balancer.

- Ensure that there is sufficient clearance between the wheel weights and brake system components.

- Using a clean cloth or paper towel with a general purpose cleaner, thoroughly clean the designated balance weight attachment areas of any corrosion, overspray, dirt or any other foreign material.

- To ensure there is no remaining residue, wipe the balance weight attachment areas again, using a clean cloth or paper towel with a mixture of half isopropyl alcohol and half water.

- Dry the attachment areas with hot air until the wheel surface is warm to the touch.

- Warm the adhesive backing on the wheel balance weights to room temperature.

- Remove the protective covering from the adhesive backing on the back of the balance weights. DO NOT touch the adhesive surface.

- Apply the wheel balance weights to the wheel, press into place with hand pressure.
- Secure the wheel balance weights to the wheel with a 90 N (21 lb) force applied with a roller.

Tire Dismounting and Mounting (Article 13643)

- Remove the valve core from the valve stem.
- Deflate the tire completely.
- Use the tire changer in order to remove the tire from the wheel. Follow steps 4–7 to remove the tire from the wheel.
- When separating the tire bead from the wheel, position the bead breaking fixture 90, 180 and 270 degrees from the valve stem. Click for full-size image
- Position the wheel and tire so the valve stem is at the 7 o'clock position relative to the head. Apply tire bead lubricant to the pry bar to prevent damage to the tire bead. The tire iron or pry bar can be inserted when prying the outer tire bead up and over the mounting/dismounting head.
- Position the wheel and tire so the valve stem is again at the 7 o'clock position relative to the head. The tire iron or pry bar can be inserted when prying the inner tire bead up and over the mounting/dismounting head. Click for full-size image
- Remove all residual liquid sealant from the inside of the tire and wheel surfaces. If any tire sealant is noted upon tire dismounting on vehicles equipped with TPM, replace the tire pressure sensor . Refer to Tire Pressure Indicator Sensor Replacement .
- Use medium coarseness steel wool in order to remove any rubber, light rust or corrosion from the wheel bead seats.
- Apply mounting lubricant to the tire bead and the wheel rim. Refer to Adhesives, Fluids, Lubricants, and Sealers .
- Position the rim so the valve stem (1) is at the 7 o'clock position relative to the head (2). This will protect the sensor when the bottom bead seats. Click for full-size image
- Using the tire machine, rotate the tire/wheel assembly clockwise when transferring the tire bead to the inside of the wheel rim. Ensure that the valve stem (1) is at the 7 o'clock position. Click for full-size image
- After the bottom bead is on the wheel, reposition the wheel and tire so that the valve stem (1) is at the 7 o'clock position relative to the head. This will protect the sensor while mounting the tire bead to the outside of the wheel. Click for full-size image
- Use the tire changer in order to install the tire to the wheel. Click for full-size image
- Inflate the tire until it passes the bead humps. Be sure that the valve core is not installed at this time.
- Install the valve core to the valve core stem.
- Inflate the tire to the proper air pressure.
- Ensure that the locating rings are visible on both sides of the tire in order to verify that the tire bead is fully seated on the wheel.

All New Technical Service Bulletins (itype_432)

Tsbs

- Tire Sidewall Irregularities (25-NA-156, 2025/06/06)
- Information on Tire Radial Force Variation (RFV) (00-03-10-006Q, 2025/12/19)
- Driving Characteristics of Rear Wheel Drive Vehicles and Available Winter Tires (04-03-10-013K, 2017/01/13)
- Characteristics of Wide Low Aspect Ratio Tires, Vehicle Pulls Left or Right, Wanders, Follows Depressions in Road Surface, Tramlining (17-NA-087, 2026/05/29)
- Information on Guidelines When Changing Tire and Wheel Size (26-NA-069, 2026/03/02)
- Tire Slowly Goes Flat, Tire Air Loss, Low Tire Pressure Warning Light Illuminated, Aluminum Wheel Bead Seat Corrosion (Clean and Resurface Wheel Bead Seat) (08-03-10-006I, 2025/03/14)
- Guidelines When Changing Tire And Wheel Size (PIT3271P, 2024/07/11)

All Technical Service Bulletins (itype_100)

Tsbs

- Statement on Tire Sealant Included in GM Inflator Kits (Supplied with New Vehicles or as GM Accessory) (09-03-10-013B, 2014/05/30)
- Warranty Administration – General Motors New Vehicle Tire Warranty Program (U.S. Dealers Only) (00-03-10-003Z, 2020/04/29)
- Information on Hunter Road Force Balancer (17-NA-170, 2023/10/06)
- Vibration Shortly After Tires are Mounted/Preventing Vibration from Wheel Slip (Tire Sliding on Wheel)

(12-03-10-001E, 2023/05/22)

- Driving Characteristics of Rear Wheel Drive Vehicles and Available Winter Tires (04-03-10-013K, 2017/01/13)
- Characteristics of Wide Low Aspect Ratio Tires, Vehicle Pulls Left or Right, Wanders, Follows Depressions in Road Surface, Tramlining (17-NA-087, 2026/05/29)
- Information on Tire/Wheel Characteristics (Vibration, Balance, Shake, Flat Spotting) of GM Original Equipment Tires (03-03-10-007K, 2021/11/08)
- Traction Control Lamp Flashes Under Hard Accel. At High Speed (16-NA-223, 2016/07/11)
- Tire Sidewall Irregularities (25-NA-156, 2025/06/06)
- Information on Tire Radial Force Variation (RFV) (00-03-10-006Q, 2025/12/19)
- Use of Nitrogen Gas in Tires (05-03-10-020G, 2020/03/04)
- Information on Guidelines When Changing Tire and Wheel Size (26-NA-069, 2026/03/02)
- Tire Slowly Goes Flat, Tire Air Loss, Low Tire Pressure Warning Light Illuminated, Aluminum Wheel Bead Seat Corrosion (Clean and Resurface Wheel Bead Seat) (08-03-10-006I, 2025/03/14)
- Guidelines When Changing Tire And Wheel Size (PIT3271P, 2024/07/11)

Customer Interest Bulletins (itype_109)

Tsbs

- Traction Control Lamp Flashes Under Hard Accel. At High Speed (16-NA-223, 2016/07/11)

Vibration (itype_176)

Tsbs

- Vibration Shortly After Tires are Mounted/Preventing Vibration from Wheel Slip (Tire Sliding on Wheel) (12-03-10-001E, 2023/05/22)

Miscellaneous Information (itype_111)

Tsbs

- Statement on Tire Sealant Included in GM Inflator Kits (Supplied with New Vehicles or as GM Accessory) (09-03-10-013B, 2014/05/30)
- Driving Characteristics of Rear Wheel Drive Vehicles and Available Winter Tires (04-03-10-013K, 2017/01/13)

OEM Policies and Procedures (itype_120)

Tsbs

- Tire Sidewall Irregularities (25-NA-156, 2025/06/06)
- Information on Tire Radial Force Variation (RFV) (00-03-10-006Q, 2025/12/19)
- Use of Nitrogen Gas in Tires (05-03-10-020G, 2020/03/04)
- Information on Tire/Wheel Characteristics (Vibration, Balance, Shake, Flat Spotting) of GM Original Equipment Tires (03-03-10-007K, 2021/11/08)
- Guidelines When Changing Tire And Wheel Size (PIT3271P, 2024/07/11)

Tools and Equipment (itype_113)

Tsbs

- Information on Hunter Road Force Balancer (17-NA-170, 2023/10/06)

Warranty Information (itype_119)

Tsbs

- Warranty Administration – General Motors New Vehicle Tire Warranty Program (U.S. Dealers Only) (00-03-10-003Z, 2020/04/29)