Component Procedures: Wheels and Tires

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Component Procedures: Wheels and 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
Remove & Replace	Front Suspension > Suspension Components > Lu?	B	0.3	0.0
Remove & Replace	Front Suspension > Suspension Components > Lu?	B	0.1	0.0
Remove & Replace	Rear Suspension > Suspension Components > Lug?	B	0.3	0.0
Remove & Replace	Rear Suspension > Suspension Components > Lug?	B	0.1	0.0

Specifications Quick Reference (itype_439)

Quick Specifications
- item

General Description (Article 13632)

The factory installed tires are designed to operate satisfactorily with loads up to and including the full rated load capacity when these tires are inflated to the recommended pressures.
The following factors have an important influence on tire life:
- Correct tire pressures
- Correct wheel alignment
- Proper driving techniques
- Tire rotation

The following factors increase tire wear:
- Heavy cornering
- Excessively rapid acceleration
- Heavy braking

Tire and Wheel Assembly Balancing - Off Vehicle (Article 12665)

- 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 (½–¾ 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 and Wheel Assembly Balancing - On-Vehicle (Article 12667)

Special Tools
EL-38792-A - Electronic Vibration Analyzer (EVA) 2
If after following the tire and wheel vibration diagnostic process, some amount of tire and wheel vibration is still evident, an on-vehicle high-speed spin balancer may be used to perform an on-vehicle balance in an attempt to finish balance the tire and wheel assemblies, wheel hub s, brake rotors, brake drums, if equipped, and wheel trim, if equipped, simultaneously. On-vehicle balancing can also compensate for minor amounts of residual runout encountered as a result of mounting the tire and wheel assembly on the vehicle, as opposed to the balance which was achieved on the off-vehicle balancer.
In order to perform an on-vehicle balancing procedure, carefully follow the on-vehicle balancer manufacturer's specific operating instructions and carefully consider the following information before proceeding:
- Vehicles equipped with low profile, wide tread path, high performance tires and wheels are susceptible to small amounts of dynamic imbalance.
- When performing an on-vehicle balance, great care must be taken when placing the wheel balance weights on the wheels. If the wheel balance weights are not placed accurately, they can actually induce dynamic imbalance and thus increase the severity of the vibration.
- Inspect the vehicle wheel bearing s to ensure that they are in good condition.
- Thoroughly inspect all on-vehicle balancing equipment and ensure that it is fully within the manufacturer's recommended specifications.
- Do not remove the off-vehicle balance weights. The purpose of on-vehicle balance is to fine tune the assembly balance already achieved off-vehicle, not to start over.
- Leave all wheel trim installed whenever possible.
- If the on-vehicle balancer calls for more than 56 g (2 oz) of additional weight, split the weight between the inboard and outboard flanges of the wheel, so as not to upset the dynamic balance of the assembly achieved in the off-vehicle balance. For wheel balance weight information, refer to Tire and Wheel Assembly Balancing - Off Vehicle .
- If available, tape-off an area on top of the fenders and the quarter panels, then place the vibration sensor of the EL-38792-A - Electronic Vibration Analyzer (EVA) 2 on the fender or quarter panel above the specific tire and wheel assembly while it is being on-vehicle balanced. The EL-38792-A - Electronic Vibration Analyzer (EVA) 2 will provide a visual indication of the amplitude of the vibration, and the effect that the on-vehicle balance has on it.

Tire-to-Wheel Match-Mounting (Vectoring) (Article 12669)

- Mark the location of the high spot (3) on the tire as determined during the off-vehicle tire and wheel assembly runout measurement.
- Place a reference mark (2) on the tire sidewall at the location of the valve stem (5).
- Always refer to the valve stem as the 12 o'clock position.
- Refer to the location of the high spot (3) by its clock position on the wheel, relative to the valve stem.
- Mount the tire and wheel assembly on a tire machine and break down the bead. Do not dismount the tire from the wheel at this time.
- Rotate the tire 180 degrees on the rim so that the valve stem reference mark (8) is now at the 6 o'clock position in relation to the valve stem (6). You may need to lubricate the bead in order to easily rotate the

tire on the wheel.
- Reinflate the tire and seat the bead properly.
- Mount the assembly on the tire balancer and remeasure the runout. Mark the new location of the assembly runout high spot on the tire.
- If the assembly runout has been reduced and is within tolerance, no further steps are necessary. Balance the tire and wheel assembly, then install the assembly to the vehicle. Refer to the following:
- Tire and Wheel Assembly Balancing - Off Vehicle
- Tire and Wheel Removal and Installation
- If the clock location of the high spot remained at or near the original clock location of the high spot (7) and the assembly runout has NOT been reduced, the wheel is the major contributor to the assembly runout concern.
- If the clock location of the high spot has moved, however the assembly runout has NOT been reduced, perform the following steps: Click for full-size image
- If the clock location of the high spot (7) is now at or near a position 180 degrees from the original clock location of the high spot, the tire is the major contributor to the assembly runout concern.
- If the clock location of the high spot is now in-between the 2 extremes, then both the tire and the wheel are both contributing to the assembly runout concern. Rotate the tire an additional 90 degrees in both the clockwise and the counterclockwise directions to obtain the lowest amount of assembly runout.

Tire and Wheel Assembly-to-Hub/Axle Flange Match-Mounting (Article 12668)

- Mark the location of the high spot on the tire and wheel assembly as determined during the off-vehicle tire and wheel assembly runout measurement.
- Place a reference mark on the wheel stud that is located closest to the wheel valve stem.
- Always refer to the reference mark on the wheel stud as the 12 o'clock position.
- Refer to the location of the high spot by its clock position on the tire and wheel assembly, relative to the marked wheel stud.
- Remove the tire and wheel assembly from the hub /axle flange. Tire and Wheel Removal and Installation
- Rotate the tire and wheel assembly as close to 180 degrees as possible on the hub/axle flange, so that the wheel valve stem is now approximately at the 6 o'clock position in relation to the marked wheel stud.
- Reinstall the wheel lug nuts to secure the tire and wheel assembly in the new position. Tire and Wheel Removal and Installation
- If the assembly on-vehicle runout has been reduced and is within tolerance, no further steps are necessary.
- If the assembly runout has NOT been reduced, perform the following steps:
- If the clock location of the high spot remained at or near the original clock location of the high spot, the hub/axle flange and/or the brake rotor/drum mounting flange is the major contributor to the assembly on-vehicle runout concern.
- If the clock location of the high spot is now at or near a position 180 degrees from the original clock location of the high spot, the tire and wheel assembly is the major contributor to the assembly on-vehicle runout concern.
- If the clock location of the high spot is now in-between the 2 extremes, then both the tire and wheel assembly and the hub/axle flange are contributing to the assembly on-vehicle runout concern. Rotate the tire and wheel assembly as close to an additional 90 degrees as possible in both the clockwise and the counterclockwise directions to obtain the lowest amount of assembly on-vehicle runout.

Tire and Wheel Removal and Installation (w/ RT2) (Article 13641)

Special Tools
- CH-41013 - Rotor Resurfacing Kit
- CH-42450-A - Wheel Hub Resurfacing Kit
Equivalent regional tools: Special Tools
Removal Procedure
- Raise and support the vehicle. Lifting and Jacking the Vehicle
- Remove the wheel center cap, if equipped.
- Remove the wheel nut caps (1), if equipped. Click for full-size image
- Remove the wheel nuts (1). Click for full-size image
- Remove the tire and wheel assembly (1). Click for full-size image
- If the tire and wheel assembly is difficult to remove or cannot be removed, perform the following steps:
- Hand install the wheel nuts.
- Loosen the wheel nuts 2 complete turns.
- Lower the vehicle.

- Rock the vehicle from side to side.
- Repeat the procedure if necessary.
- When the tire and wheel assembly loosens, raise and support the vehicle. Lifting and Jacking the Vehicle
- Remove the wheel nuts.
- Remove the tire and wheel assembly.

Installation Procedure

- Using a wire brush or wire wheel, clean the wheel to brake rotor or drum mating surface.
- Using the CH-41013 - Rotor Resurfacing Kit , clean the rotor or drum to wheel contact area.
- Using the CH-42450-A - Wheel Hub Resurfacing Kit , clean the surfaces around the wheel studs .
- Clean the threads of the wheel studs.
- If the threads of the wheel stud are damaged, replace the wheel stud. Wheel Stud Replacement or Wheel Stud Replacement
- After cleaning all of the wheel and brake rotor or drum contact areas, use brake cleaner or denatured alcohol to remove any dirt and debris from the wheel nuts and the brake rotor or drum.
- Inspect and clean the contact areas of the wheel. Wheel Mounting Surface Check
- Apply a small amount of lubricant to the inner diameter of the wheel hub pilot hole (1) where it contacts the wheel hub flange. Adhesives, Fluids, Lubricants, and Sealers Click for full-size image
- Install the tire and wheel assembly (1). Click for full-size image
- Hand install the wheel nuts (1). Click for full-size image
- Using a torque wrench and the appropriate socket, alternately and evenly tighten the wheel nuts in the sequence illustrated. Click for full-size image
- Tighten wheel nuts with silver tint cone seats to 190 Nm (140 lb ft) .
- Tighten wheel nuts with blue tint cone seats to 150 Nm (111 lb ft) .
- Install the wheel nut caps (1), if equipped. Click for full-size image
- Install the wheel center cap, if equipped.

Tire and Wheel Removal and Installation (w/o RT2) (Article 13642)

Special Tools

- CH-41013 - Rotor Resurfacing Kit
- CH-42450-A - Wheel Hub Resurfacing Kit

For equivalent regional tools, refer to Special Tools .

Removal Procedure

- Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .
- Install the disc brake rotor protector (1) on the rotors. Click for full-size image
- Position the disc brake rotor protector (1) so that it covers the brake rotor (2). Click for full-size image
- Remove the wheel nut caps (1), if equipped. Click for full-size image
- Remove the wheel nuts (1). Click for full-size image
- Remove the tire and wheel assembly (1). Click for full-size image
- If the tire and wheel assembly is difficult to remove or cannot be removed, perform the following steps:
- Hand install the wheel nuts.
- Loosen the wheel nuts 2 complete turns.
- Lower the vehicle.
- Rock the vehicle from side to side.
- Repeat the procedure if necessary.
- When the tire and wheel assembly loosens, raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .
- Remove the wheel nuts.
- Remove the tire and wheel assembly.
- Remove the wheel center cap, if equipped.

Installation Procedure

- Using a wire brush or wire wheel, clean the wheel to brake rotor or drum mating surface.
- Using the CH-41013 - Rotor Resurfacing Kit , clean the rotor or drum to wheel contact area.
- Using the CH-42450-A - Wheel Hub Resurfacing Kit , clean the surfaces around the wheel studs .
- Clean the threads of the wheel studs.
- If the threads of the wheel stud are damaged, replace the wheel stud. Refer to Wheel Stud Replacement or Wheel Stud Replacement .
- After cleaning all of the wheel and brake rotor or drum contact areas, use brake cleaner or denatured alcohol to remove any dirt and debris from the wheel nuts and the brake rotor or drum.
- Inspect and clean the contact areas of the wheel. Refer to Wheel Mounting Surface Check .
- Apply a small amount of lubricant to the inner diameter of the wheel hub pilot hole (1) where it contacts

the wheel hub flange. Refer to Adhesives, Fluids, Lubricants, and Sealers . Click for full-size image
- Install the tire and wheel assembly (1). Click for full-size image
- Hand install the wheel nuts (1). Click for full-size image
- Using a torque wrench and the appropriate socket, alternately and evenly tighten the wheel nuts to 150 Nm (111 lb ft) in the sequence illustrated. Click for full-size image
- Install the wheel nut caps (1), if equipped. Click for full-size image
- Install the wheel center cap, if equipped.
- If equipped with RPO J57, remove the disc brake rotor protector (1) from the disc brake rotor. Click for full-size image

Tires and Wheels - Adhesives, Fluids, Lubricants, and Sealers (Article 13648)

Application Type of Material GM Part Number
United States Canada Brazil
Aluminum Wheel Adhesive/Sealant 12378478 88900041 Refer to Owner’s Manual and Electronic Parts Catalogue
Wheel Mounting Lubricant 12345884 88863415 Refer to Owner’s Manual and Electronic Parts Catalogue
Wheels Tar and Road Oil Remover 01050172 00992856 Refer to Owner’s Manual and Electronic Parts Catalogue
Wheel to Hub Lubricant 1051344 993037 Refer to Owner’s Manual and Electronic Parts Catalogue

Tire and Wheel Specifications (Article 13654)

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

Tire and Wheel Runout Specifications (Article 12674)

Application Specification
Metric English
Wheel , Aluminum
Lateral 0.762 mm 0.030 in
- Lateral
Radial 0.762 mm 0.030 in
- Radial
Wheel, Steel
Lateral 1.143 mm 0.045 in
Radial 1.015 mm 0.040 in
Wheel Hub /Axle Flange– Guideline 0.132 mm 0.0052 in
Wheel Stud– Guideline 0.25 mm 0.010 in

Tires and Wheels - Fastener Specifications (Article 13650)

Application Specification
Metric English
Wheel Nut Torque (with Silver tint cone seats) 190 Nm 140 lb ft
Wheel Nut Torque (with Blue tint cone seats) 150 Nm 111 lb ft

Tire and Wheel Specifications (Article 13655)

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

Tires and Wheels - Adhesives, Fluids, Lubricants, and Sealers (Article 13649)

Application Type of Material GM Part Number
United States Canada Brazil
Aluminum Wheel Adhesive/Sealant 12378478 88900041 Refer to Owner’s Manual and Electronic Parts Catalogue
Wheel Mounting Lubricant 12345884 88863415 Refer to Owner’s Manual and Electronic Parts Catalogue
Wheels Tar and Road Oil Remover 01050172 00992856 Refer to Owner’s Manual and Electronic Parts Catalogue
Wheel to Hub Lubricant 1051344 993037 Refer to Owner’s Manual and Electronic Parts Catalogue

All New Technical Service Bulletins (itype_432)

Tsbs
- Tire Sidewall Irregularities (25-NA-156, 2025/06/06)
- Chemical Staining, Pitting, Corrosion and/or Spotted Appearance of Chromed Aluminum Wheels (00-03-10-002M, 2024/07/22)
- 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)
- General Motors Position on Refinishing Fully Color Painted Aluminum Wheels with Base Paint (U.S. ONLY) (17-NA-052, 2024/04/08)

All Technical Service Bulletins (itype_100)

Tsbs
- Information on Removal/Cracking of Stainless Steel Wheel Nut Caps (PI0655A, 2014/12/18)
- 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)
- Tire Monitor System - TPMS Lamp On, No Tire Pressures Displayed (PI1241, 2014/05/16)
- Ratchet Click or Grind Noise From Front of Vehicle Slow Speeds (16-NA-298, 2016/09/13)
- Information on Tire/Wheel Characteristics (Vibration, Balance, Shake, Flat Spotting) of GM Original

Equipment Tires (03-03-10-007K, 2021/11/08)
- General Motors Position on Refinishing Fully Color Painted Aluminum Wheels with Base Paint (U.S. ONLY) (17-NA-052, 2024/04/08)
- Traction Control Lamp Flashes Under Hard Accel. At High Speed (16-NA-223, 2016/07/11)
- Use of Nitrogen Gas in Tires (05-03-10-020G, 2020/03/04)
- Non-Design Intent Wheel Lock Nuts and Lug Nuts (17-NA-126, 2017/04/19)
- Information on Guidelines When Changing Tire and Wheel Size (26-NA-069, 2026/03/02)
- Guidelines When Changing Tire And Wheel Size (PIT3271P, 2024/07/11)
- Wheels/Tires - Vibration Felt Between 58-72 MPH (12-03-10-002A, 2014/02/21)
- Wheel Weights for Black Painted Wheels (PI0569A, 2012/04/12)
- 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)
- Wheels - Preventing Chrome Clad Wheel Damage (09-03-10-016B, 2014/02/21)
- Wheels/Tires - Accessory Wheels/Tires Mounting and Balancing (08-03-10-004B, 2015/02/11)
- Tire Sidewall Irregularities (25-NA-156, 2025/06/06)
- Chemical Staining, Pitting, Corrosion and/or Spotted Appearance of Chromed Aluminum Wheels (00-03-10-002M, 2024/07/22)
- Information on Tire Radial Force Variation (RFV) (00-03-10-006Q, 2025/12/19)
- Wheels - Information on Swapping Wheels (PIC5280E, 2014/07/23)
- 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)

Customer Interest Bulletins (itype_109)

Tsbs
- Traction Control Lamp Flashes Under Hard Accel. At High Speed (16-NA-223, 2016/07/11)
- Ratchet Click or Grind Noise From Front of Vehicle Slow Speeds (16-NA-298, 2016/09/13)
- Wheels/Tires - Vibration Felt Between 58-72 MPH (12-03-10-002A, 2014/02/21)

Repair Tips (itype_110)

Tsbs
- Wheels/Tires - Accessory Wheels/Tires Mounting and Balancing (08-03-10-004B, 2015/02/11)
- Tire Monitor System - TPMS Lamp On, No Tire Pressures Displayed (PI1241, 2014/05/16)
- Wheels - Information on Swapping Wheels (PIC5280E, 2014/07/23)
- Wheels - Preventing Chrome Clad Wheel Damage (09-03-10-016B, 2014/02/21)

Wheel Mounting Surface Check (Article 13639)

Replace any wheels that are bent or dented, or have excessive lateral or radial runout. Wheels with runout greater than specified may cause objectionable vibrations.
- Use a straight edge 203–229 mm (8–9 in) long. Place the straight edge on the wheel inboard mounting surface. Try to rock the straightedge up and down within the mounting surface. Click for full-size image
- Repeat this procedure on at least 3–4 different positions on the inboard mounting surface.
- If you can rock the straight edge, the mounting surface is bent and you must replace the wheel.
- Inspect the mounting wheel/nut holes for damage caused from over-torquing the wheel/nuts. Inspect for collapsed wheel/nut bosses. Inspect for cracked wheel bosses.
- Damage to the wheel bearing , the wheel fastener s and the wheel
- Tire damage caused by the modified clearance to the adjacent vehicle components
- Adverse vehicle steering stability caused by the modified scrub radius
- Damage to the vehicle caused by the modified ground clearance
- Speedometer and odometer inaccuracy
- Replacement wheels must be equivalent to the original equipment wheels in the following ways:
- The load capacity
- The wheel diameter
- The rim width
- The wheel offset
- The mounting configuration
- A wheel of the incorrect size or type may affect the following conditions:
- Wheel and hub -bearing life

- Brake cooling
- Speedometer/odometer calibration
- Vehicle ground clearance
- Tire clearance to the body and the chassis
- Replace the wheel if the wheel is bent.
- Replace the wheel if the wheel/nut boss area is cracked.

To identify aluminum wheels the code, the part number, and the manufacturer identification cast into the back side of the wheel.

Tire Diagnosis - Irregular or Premature Wear (Article 13638)

Figure 1: Tire Wear

Inspection Procedure

- Inspect front tires for wear and damage.
- Inspect rear tires for wear and damage.
- Rotate the tire and wheel assembly if any of the following conditions exist:
- The amount of time or distance since the last tire rotation matches the maintenance schedule.
- The outer tread blocks are worn more than the middle tread blocks (1).
- The outer tread blocks are worn more than the inner tread blocks (2).
- The middle tread blocks are worn more than the outer tread blocks (4).
- Measure the wheel alignment. Refer to Wheel Alignment Measurement . If any of the following conditions exist:
- The tread blocks have feather edges (3).
- The inner tread blocks are worn more than the outer tread blocks (4).
- Inspect the struts or the shock absorber s if the tire tread exhibits a cupped appearance (3).

Radial Tire Lead/Pull Correction (Article 13637)

Step Action Yes No

DEFINITION: Lead/pull is the deviation of the vehicle from a straight path on a level road with no pressure on the steering wheel .

1 Did you perform the Vehicle Leads/Pull diagnostic table? Go to Step 2 Go to Vehicle Leads/Pulls

2 Road test the vehicle to verify the complaint. Select a smooth level surface to perform the test. Does the condition exist? Go to Step 3 System OK

3 Cross-switch the front tire / wheel assemblies. Refer to Tire and Wheel Removal and Installation . Road test the vehicle on a smooth level surface. Does the vehicle still lead/pull? Go to Step 4 System OK

- Cross-switch the front tire / wheel assemblies. Refer to Tire and Wheel Removal and Installation .
- Road test the vehicle on a smooth level surface.

4 Does the vehicle lead/pull in the opposite direction? Go to Step 5 Go to Wheel Alignment Measurement

5 Cross-switch the left front tire/wheel assembly with the left rear tire/wheel assembly. Refer to Tire and Wheel Removal and Installation . Road test the vehicle on a smooth level surface. Does the vehicle still lead/pull? Go to Step 6 Go to Step 7

- Cross-switch the left front tire/wheel assembly with the left rear tire/wheel assembly. Refer to Tire and Wheel Removal and Installation .

6 Cross-switch the right front tire/wheel assembly with the right rear tire/wheel assembly. Refer to Tire and Wheel Removal and Installation . Road test the vehicle on a smooth level surface. Does the vehicle still lead/pull? Go to Wheel Alignment Measurement Go to Step 8

- Cross-switch the right front tire/wheel assembly with the right rear tire/wheel assembly. Refer to Tire and Wheel Removal and Installation .

7 Replace the left rear tire. Refer to Tire Dismounting and Mounting . Is the repair complete? Go to Step 9 —

8 Replace the right rear tire. Refer to Tire Dismounting and Mounting . Is the repair complete? Go to Step 9 —

9 Verify proper vehicle operation. Does the original condition still exist? Go to Step 1 System OK

Vibration Diagnosis and Correction (Article 12620)

Non Standards

- Vibration Analysis - Tire and Wheel (12645)
- Tire and Wheel Inspection (12624)
- Tire and Wheel Assembly Runout Measurement - On-Vehicle (12623)
- Tire and Wheel Assembly Runout Measurement - Off Vehicle (12622)
- Tire and Wheel Assembly Isolation Test (12621)

Tires and Wheels - Special Tools (Article 13645)

Illustration Tool Number/ Description
Click for full-size image CH-41013 J-41013 Rotor Resurfacing Kit
Click for full-size image CH-42450–A J-42450–A Wheel Hub Resurfacing Kit

Noise (itype_156)

Tsbs
- Ratchet Click or Grind Noise From Front of Vehicle Slow Speeds (16-NA-298, 2016/09/13)

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)
- Wheels/Tires - Vibration Felt Between 58-72 MPH (12-03-10-002A, 2014/02/21)

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)
- Non-Design Intent Wheel Lock Nuts and Lug Nuts (17-NA-126, 2017/04/19)

OEM Policies and Procedures (itype_120)

Tsbs
- Wheel Weights for Black Painted Wheels (PI0569A, 2012/04/12)
- 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)
- General Motors Position on Refinishing Fully Color Painted Aluminum Wheels with Base Paint (U.S. ONLY) (17-NA-052, 2024/04/08)

Tools and Equipment (itype_113)

Tsbs
- Information on Hunter Road Force Balancer (17-NA-170, 2023/10/06)
- Wheels - Preventing Chrome Clad Wheel Damage (09-03-10-016B, 2014/02/21)

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)