Daimler Trucks
North America LLC

Recall Campaign

March 2021
FL872A
NHTSA #21V-007
Transport Canada #2021-007

Subject: Cascadia Bridgestone Steer Tire Failures

Models Affected: Specific Model Year 2020-2022 Freightliner Cascadia model vehicles, manufactured February 5, 2019, through January 6, 2021, equipped with Bridgestone R284, R268, or R283S ECOPIA steer axle tires, in conjunction with a specific air dam.

General Information

Daimler Trucks North America LLC (DTNA), on behalf of its Freightliner Trucks Division, has decided that a defect that relates to motor vehicle safety exists on the vehicles mentioned above.

On certain trucks, the tread on the steer axle tires could separate while driving. If this happens, the tire could fail and suddenly lose air pressure. A tire failure could cause a loss of control and increase the risk of a crash. Note: This recall only affects trucks equipped with a specific air dam and certain Bridgestone R284, R268, or R283S ECOPIA tires.

Daimler Trucks North America (DTNA) will notify owners by mail and instruct them to take their truck to one of four tire distributors listed in the owner notice, or a DTNA authorized service facility, to replace the steer tires, as necessary. Please reference the owner notice to view the tire distributor map/contact info. DTNA recommends that drivers should pay special attention to tire inflation, loading, and perform extra inspections of the tire tread and sidewall before and after each trip.

There are approximately 4,390 vehicles involved in this campaign.

Additional Repairs

Dealers must complete all outstanding Recall and Field Service campaigns prior to the sale or delivery of a vehicle. A Dealer will be liable for any progressive damage that results from its failure to complete campaigns before sale or delivery of a vehicle.

Owners may be liable for any progressive damage that results from failure to complete campaigns within a reasonable time after receiving notification.

Tire Distributors

To minimize customer downtime we have enlisted four tire distributors to assist with this recall. Customers should be contacting the tire distributors as the first option, and only in unusual situations will a Daimler Trucks dealership need to complete the repair. Please reference the owner notice to view the tire distributor map/contact info.

Work Instructions

Please refer to the attached work instructions. Prior to performing the campaign, check the vehicle for a completion sticker (Form WAR260).

Replacement Parts

Table 1 - Replacement Tires for FL872

MFR	PLY RATING 14	PLY RATING 16
BF GOODRICH	ST230 275/80R22.5 ST244 11R22.5 ST244 275/80R22.5	N/A
CONTINENTAL	HSR3 295/75R22.5 HS3 ECO PLUS 295/75R22.5 HS3+ ECO PLUS 11R22.5 HS3+ ECO PLUS 295/75R22.5 HS3 HYBRID 11R22.5 HS3 HYBRID 295/75R22.5 HSL2 ECO PLUS 11R22.5 HSL2 ECO PLUS 275/80R22.5 HSL3 11R22.5 HSL3 295/75R22.5 HSR2 11R22.5 HSR2 275/80R22.5	HS3 ECO PLUS 295/75R22.5 HS3+ ECO PLUS 295/75R22.5 HS3 HYBRID 295/75R22.5 HSL 3 295/75R22.5 HSL2 ECO PLUS 275/80R22.5 HSR2 275/80R22.5
GOODYEAR	ENDURANCE LHS 11R22.5 ENDURANCE LHS 295/75R22.5 ENDURANCE RSA 295/75R22.5 FUEL MAX LHS 295/75R22.5 FUEL MAX RSA 295/75R22.5	ENDURANCE LHS 295/75R22.5 FUEL MAX LHS 295/75R22.5 FUEL MAX RSA 295/75R22.5
HANKOOK	AL11 11R22.5 AL11 295/75R22.5 AL21 11R22.5 AL21 295/75R22.5 AH24 295/75R22.5 AH37 295/75R22.5	AL11 295/75R22.5 AL21 295/75R22.5
MICHELIN	X LINE ENERGY Z 11R22.5 X LINE ENERGY Z 275/80R22.5 X MULTI ENERGY Z 11R22.5 XZE2 11R22.5 XZE2 275/80R22.5	X LINE ENERGY Z 275/80R22.5 X MULTI ENERGY Z 275/80R22.5 XZE 275/80R22.5
YOKOHAMA	101ZL 11R22.5 101ZL 295/75R22.5 RY023 11R22.5 RY023 295/75R22.5 RY617 11R22.5 RY617 295/75R22.5	101ZL 295/75R22.5

Table 1, Replacement Tires for FL872

Table 2 - Recall Completion Sticker for FL872

Campaign Number	Part Number	Part Description	Qty.
FL872	WAR260	BLANK COMPLETION STICKER	1 ea

Table 2, Recall Completion Sticker for FL872

Removed Tires

Tires must be disabled/destroyed per the procedure in the work instructions titled, Verified Tire Destruction. All subject tires must be properly disposed of in accordance with applicable laws and should be channeled, where possible, into a category of positive reuse (shredding, crumbling, recycling, recovery) or another alternative beneficial non-vehicular use. The DOT TIN from each removed tire must be provided on the recall claim.

Labor Allowance

Table 3 - Labor Allowance

Campaign Number	Procedure	Time Allowed (hours)	SRT Code	Corrective Action
FL872A	BOTH FRONT TIRES, INSPECT	0.1	996-R120A	06-Inspect
	BOTH FRONT TIRES, INSPECT AND REPLACE	1.2	996-R120B	12-Repair Recall/Campaign

Table 3

IMPORTANT: When the Recall has been completed, locate the base completion label in the appropriate location on the vehicle, and attach the red completion sticker provided in the recall kit (Form WAR260). If the vehicle does not have a base completion label, clean a spot on the appropriate location of the vehicle and first attach the base completion label (Form WAR259). If a recall kit is not required or there is no completion sticker in the kit, write the recall number on a blank sticker and attach it to the base completion label.

Claims for Credit

You will be reimbursed for your parts, labor, and handling (landed cost for Export Distributors) by submitting your claim through the Warranty system within 30 days of completing this campaign. Please reference the following information in OWL:

Instructions for Tire Distributors/Tire Service Facilities:

- Create a detailed invoice, and email it to the DTNA dealer you are working with.

  (McCarthy, Parkhouse, Pomp's, and Southern Tire Mart: Send invoice to tirerecall@empiretruck.com.)

  The DTNA dealership will submit a sublet claim on your behalf using the DTNA warranty system.

  Invoice must include: Customer Signature & Name, Full VIN#, DOT Tire Identification Numbers (TIN) of Removed Tires, Mileage/Km, Replacement Tire Description, Labor Description, Tire Cost, Labor Cost.

Instructions for Daimler Trucks Locations:

- **Claim Type:** Recall Campaign
- **Campaign Field:** FL872-A
- **Repair Details:** Must Include DOT TIN (Tire Identification Number) of Removed Tires.

  Include Replacement Tire Description: Brand, Model, Size, Ply Rating.
- **Primary Failed Part Number:** 25-FL872-000
- **VMRS Component Code:** F99-999-005, **Cause Code:** A1 - Campaign
- **For Repairs Performed at Sublet Locations (Tire Distributors/Tire Service Facilities):**

  Repair Details: Must Include DOT TIN (Tire Identification Number) of Removed Tires.

  Include Replacement Tire Description: Brand, Model, Size, Ply Rating.

  Parts: No Entry, **Labor:**No Entry

  Other Charges:

  - (Expense Type - Other), (Description - FL872 Recall), (Amount - Invoice Total)

    (Expense Type - Other), (Description - Filing Fee), (Amount - $75.00)

    Attach Invoice.

- **For Repairs Performed at Daimler Trucks Dealership:**

  Repair Details: Must Include DOT TIN (Tire Identification Number) of Removed Tires.

  Parts: Enter any appropriate parts although there should be no parts involved other than tires (do not in-clude tires in this section).

  Labor: Enter appropriate SRT from Labor Allowance Table (Admin time is included automatically as SRT 939-6010A for 0.3 hours.)

  Other Charges:

  - (Expense Type - Parts), (Description - Tires), (Amount - Tire Invoice Total)

    Attach Invoice.

- **U.S. and Canada -- Reimbursement for Prior Repairs.** When a customer asks about reimbursement, please do the following:
  - Accept the documentation of the previous repair.
  - Make a brief check of the customer's paperwork to see if the repair may be eligible for reimburse-ment. (See the "Copy of Owner Letter" section of this bulletin for reimbursement guidelines.)
  - Submit an OWL Recall Pre-Approval Request for a decision.
  - Include the approved amount on your claim in the Other Charges section.
  - Attach the documentation to the pre-approval request.
  - If approved, submit a based-on claim for the pre-approval.
  - Reimburse the customer the appropriate amount.

IMPORTANT: OWL must be viewed prior to performing the recall to ensure the vehicle is involved and the campaign has not been previously completed. Also, check for a completion sticker prior to beginning work.

U.S. and Canadian dealers, contact the Warranty Campaigns Department via Web inquiry at DTNAConnect.com/WSC, if you have any questions or need additional information. Export distributors, submit a Web inquiry or contact your International Service Manager.

The letter notifying U.S. and Canadian vehicle owners is included for your reference.

Please note that the National Traffic and Motor Vehicle Safety Act, as amended (Title 49, United States Code, Chapter 301), requires the owner's vehicle(s) be corrected within a reasonable time after parts are available to you. The Act states that failure to repair a vehicle within 60 days after tender for repair shall be prima facie evidence of an unreasonable time. However, circumstances of a particular situation may reduce the 60 day period. Failure to repair a vehicle within a reasonable time can result in either the obligation to (a) replace the vehicle with an identical or reasonably equivalent vehicle, without charge, or (b) refund the purchase price in full, less a reasonable allowance for depreciation. The Act further prohibits dealers from selling a vehicle unless all outstanding recalls are performed. Any lessor is required to send a copy of the recall notification to the lessee within 10 days. Any subsequent stage manufacturer is required to forward this notice to its distributors and retail outlets within five working days.

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Copy of Notice to Owners

Subject: Cascadia Bridgestone Steer Tire Failures

For the Notice to U.S. Customers: This notice is sent to you in accordance with the National Traffic and Motor Vehicle Safety Act. **For the Notice to Canadian Customers:** This notice is sent to you in accordance with the requirements of the Motor Vehicle Safety Act. This is to inform you that your vehicle may contain a defect that could affect the safety of a person.

Daimler Trucks North America LLC (DTNA), on behalf of its Freightliner Trucks Division, has decided that a defect that relates to motor vehicle safety exists on specific Model Year 2020-2022 Freightliner Cascadia model vehicles, manufactured February 5, 2019, through January 6, 2021,with Bridgestone R284, R268, or R283S ECOPIA steer axle tires, in conjunction with a specific air dam.

On certain trucks, the tread on the steer axle tires could separate while driving. If this happens, the tire could fail and suddenly lose air pressure. A tire failure could cause a loss of control and increase the risk of a crash. **Note:** This recall only affects trucks equipped with Bridgestone R284, R268, or R283S ECOPIA tires, in conjunction with a specific air dam.

The Bridgestone steer tires will be replaced, as necessary. DTNA recommends that drivers should pay special attention to tire inflation, loading, and make extra inspections of the tire tread and sidewall before and after each trip. Repairs may be performed by Daimler Trucks North America authorized service facilities.

To complete the Recall the following options are available:

- Contact an authorized Daimler Trucks North America dealer to perform the repair.
- Contact one of the following four tire service locations using the map and contact details on the final page of this owner notice (McCarthy Tire Service, Parkhouse Tire, Pomp's Tire Service, or Southern Tire Mart).

Note: Available replacement tire brands include **BF Goodrich, Continental, Goodyear, Hankook, Michelin, and Yokohama.** If you require a specific tire brand please ensure availability with the repairing location prior to scheduling the repair.

If you choose to visit an authorized Daimler Trucks North America dealer to perform the recall please call the dealership and ensure that replacement tires are available. To locate an authorized DTNA dealer, go to Daimler-TrucksNorthAmerica.com/contact-us/. Scroll down to "Locate a Dealer," and select the appropriate brand. The Recall will take approximately one hour and will be performed at no charge to you. You may also confirm your vehicle's involvement in this recall at this URL: https://dtna-dlrinfo.prd.freightliner.com:48518/VinLookup/vin-module/getVinLookupPage.

You may be liable for any progressive damage that results from your failure to complete the Recall within a reasonable time after receiving notification.

If you do not own the vehicle that corresponds to the identification number(s) which appears on the Recall Notification, please return the notification to the Warranty Campaigns Department with any information you can furnish that will assist us in locating the present owner. If you have leased this vehicle, Federal law requires that you forward this notice to the lessee within 10 days. If you are a subsequent stage manufacturer, Federal law requires that you forward this notice to your distributors and retail outlets within five working days. If you have paid to have this recall condition corrected prior to this notice, you may be eligible to receive reimbursement. Please see the reverse side of this notice for details.

If you have questions about this Recall, please contact the Warranty Campaigns Department at (800) 547-0712, 7:00 a.m. to 4:00 p.m. Pacific Time, Monday through Friday, e-mail address DTNA.Warranty.Campaigns@Daimler.com. **For the Notice to U.S. Customers:** If you are not able to have the defect remedied without charge and within a reasonable time, you may wish to submit a complaint to the Administrator, National Highway Traffic Safety Administration, 1200 New Jersey Avenue, SE., Washington, DC 20590; or call the Vehicle Safety Hotline at (888) 327-4236 (TTY: 800-424-9153); or to http://www.safercar.gov.

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For the Notice to Canadian Customers: If you have a safety concern relating to this Recall, you may wish to contact Transport Canada – Motor Vehicle Safety, 80 rue Noel, Gatineau, Quebec J8Z 0A1, or phone (800) 333-0510.

We regret any inconvenience this action may cause but feel certain you understand our interest in motor vehicle safety.

WARRANTY CAMPAIGNS DEPARTMENT

Enclosure

Reimbursement to Customers for Repairs Performed Prior to Recall

If you have already **paid** to have this recall condition corrected you may be eligible to receive reimbursement.

Requests for reimbursement may include parts and labor. Reimbursement may be limited to the amount the repair would have cost if completed by an authorized Daimler Trucks North America LLC dealer. The following documentation must be presented to your dealer for consideration for reimbursement.

Please provide original or clear copies of all receipts, invoices, and repair orders that show:

- The name and address of the person who paid for the repair
- The Vehicle Identification Number (VIN) of the vehicle that was repaired
- What problem occurred, what repair was done, when the repair was done
- Who repaired the vehicle
- The total cost of the repair expense that is being claimed
- Proof of payment for the repair (such as the front and back of a cancelled check or a credit card receipt)

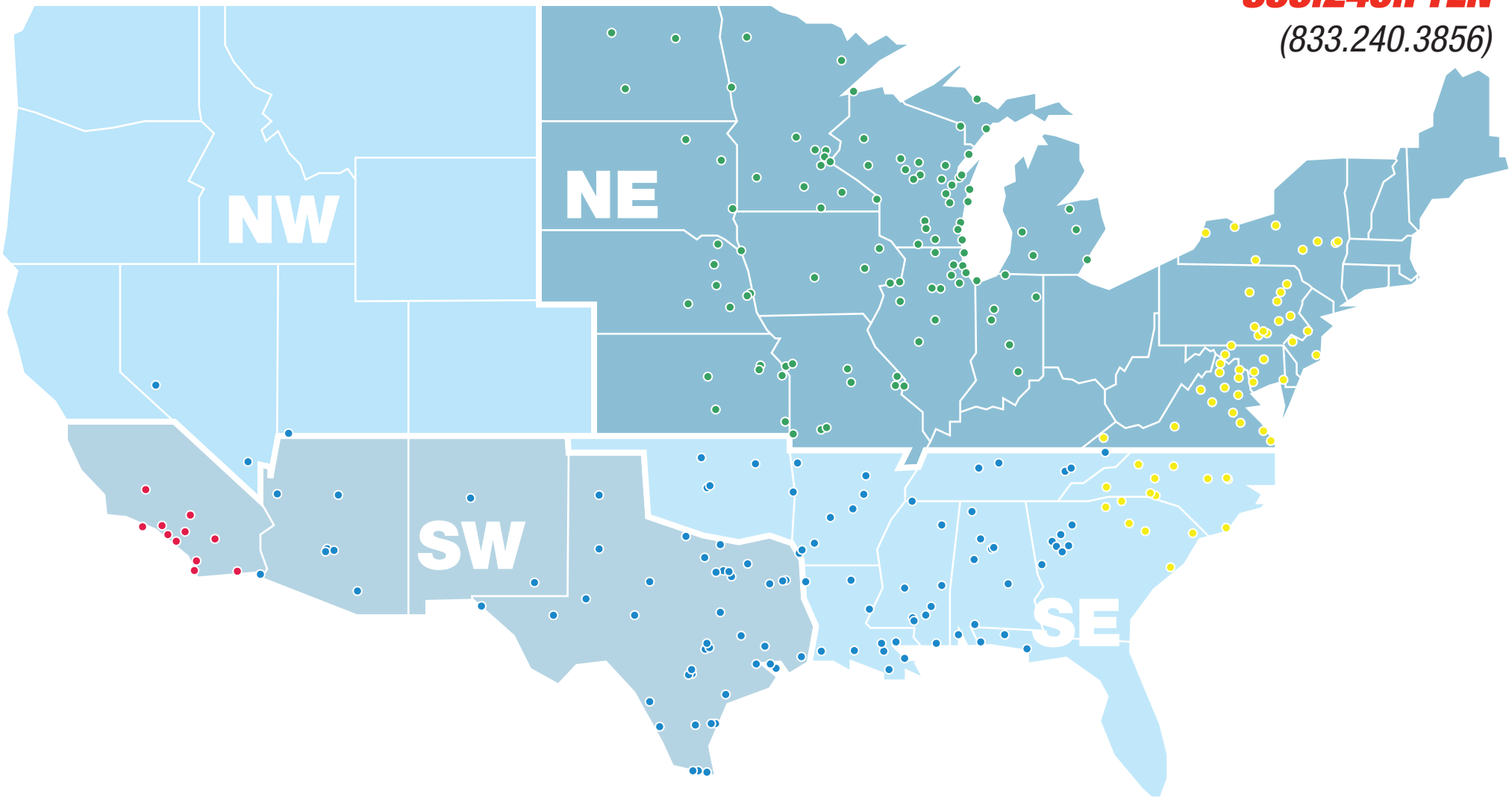
Reimbursement will be made by check from your Daimler Trucks North America LLC dealer.

Please speak with your Daimler Trucks North America LLC authorized dealer concerning this matter.

Call for Your Nearest Location

833.240.FTLN

(833.240.3856)



- **Parkhouse Locations** *ParkHouseTire.com*
- **Southern Tire Mart Locations** *STMTires.biz*
- **Pomp's Locations** *PompsTire.com*
- **McCarthy Tire Locations** *McCarthyTire.com*

Work Instructions

Subject: Cascadia Bridgestone Steer Tire Failures

Models Affected: Specific Model Year 2020-2022 Freightliner Cascadia model vehicles, manufactured February 5, 2019, through January 6, 2021, equipped with Bridgestone R284, R268, or R283S ECOPIA steer axle tires, in conjunction with a specific air dam.

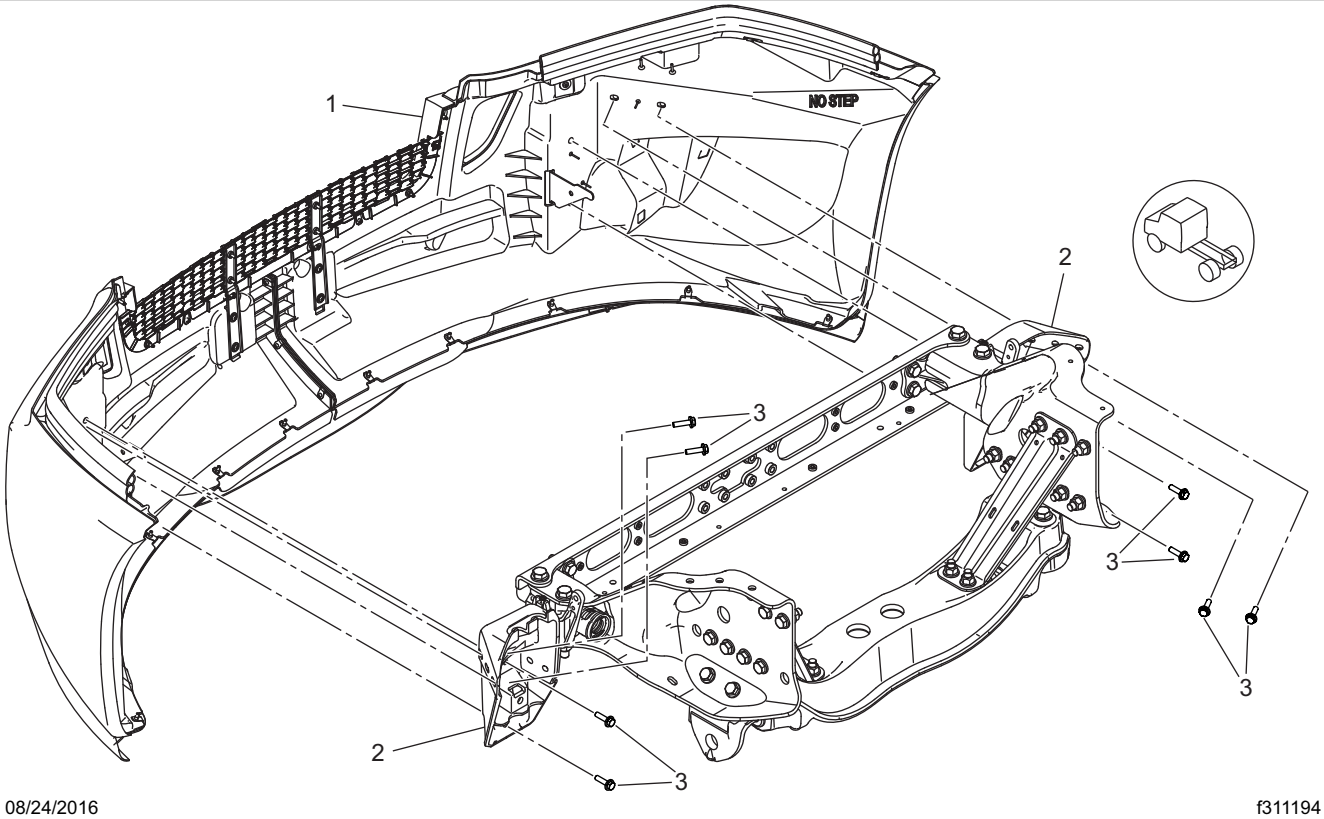
Tire Inspection

1. Check the base label (Form WAR259) for a completion sticker for FL872 (Form WAR260) indicating this work has been done. The base label is usually located on the passenger-side door about 12 inches (30 cm) below the door latch. If a completion sticker is present, no work is needed. If a completion sticker is not present, continue with the next step.
2. Park the vehicle, shut down the engine, and apply the parking brake. Chock the tires.
3. Inspect the front steer axle tires.
    - If both front steer axle tires have already been replaced, and are not Bridgestone tires, then file an FL872 inspection claim.
    - If either tire is a Bridgestone, replace both tires. The two replacement tires must be a matched set from the same manufacturer. Follow the procedures below.

Aerodynamic Bumper Removal

1. Disconnect all electrical connectors, such as foglights, from the bumper.
2. If equipped, remove the towhook bracket and the towhooks.
3. Remove the foglight wiring brackets from the bumper mounting brackets.

4. Remove the four fasteners on each side of the bumper that attach the bumper to the bumper mounting brackets. See **Fig. 1**.

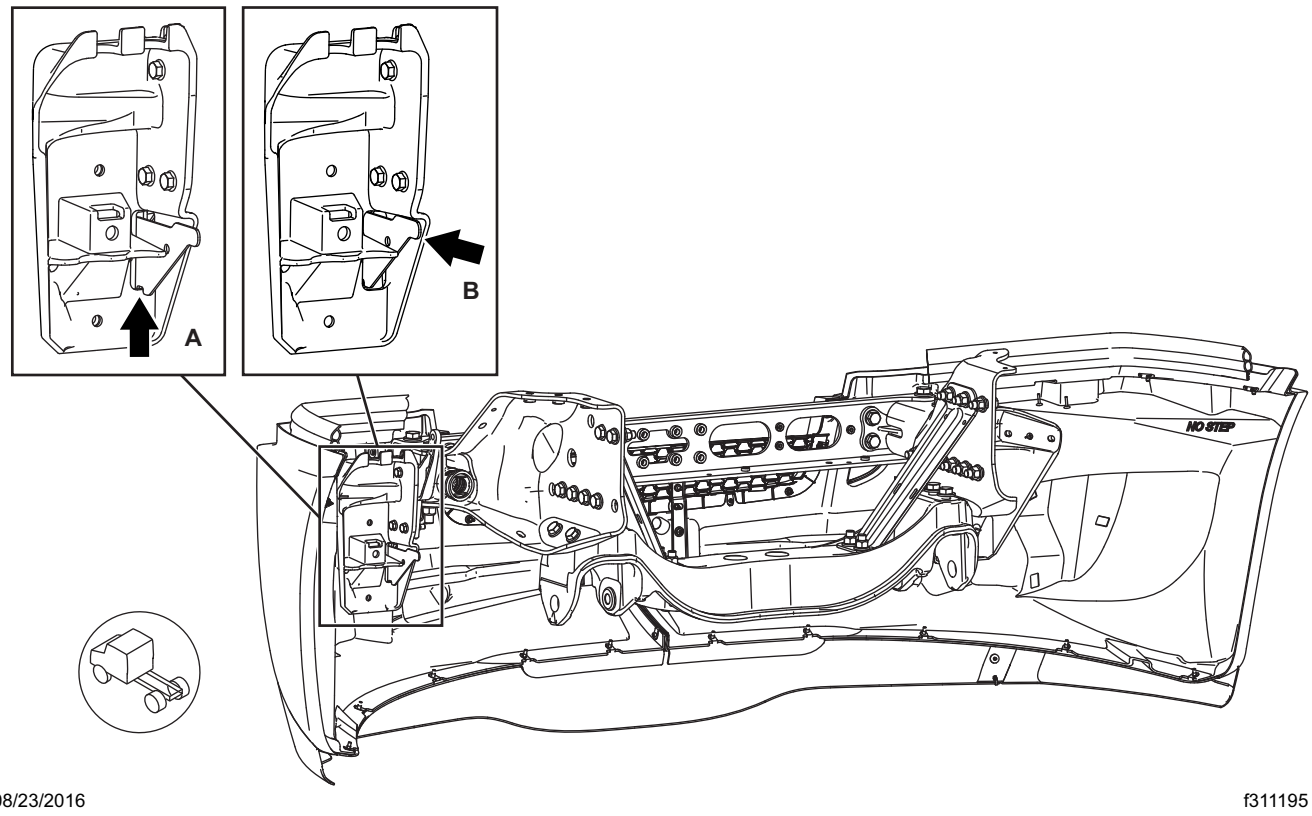


1. Bumper
2. Bumper Mounting Bracket
3. Capscrews

Fig. 1, Aerodynamic Bumper

5. Close the hood. Latching the hood is not necessary.

6. Lift slightly up on the bumper to move the bumper tabs up off the bumper casting sockets, then pull the bumper off. See **Fig. 2**.



A. Lift up slightly on the bumper to lift the bumper tabs off the socket rim.

B. Once the tab is clear of the socket rim, pull the bumper out and off.

Fig. 2, Aerodynamic Bumper Removal, Mounting Tabs

Wheel Removal

1. Raise the front axle, and place safety stands under the front axle.
2. Turn the wheel until one hub-pilot pad is in the top-center position.
3. Place a jack or wheel-and-tire dolly under the wheel assembly being serviced.

NOTICE

Keep the wheel square to the hub during removal. The wheel center hole and hub pilot have close tolerances. If the wheel is not kept square to the hub, it could bind during removal and damage the stud threads or hub-pilot pads.

IMPORTANT: On both sides of the vehicle, the two-piece flange nuts have right-hand threads.

4. Leaving one top and one bottom nut to keep the wheel straight, remove the other eight two-piece flange nuts from the wheel; then remove the top and bottom nuts.

5. Remove the wheel. Do not let it drop on, or drag across the stud threads.

Demounting Tubeless Tires

Five-Degree Full Drop Center

⚠ WARNING

Read the information in Section 40.00, Subject 110 of the *New Cascadia Workshop Manual***. Failure to follow the precautions, before and during tire demounting and mounting, could cause tire damage while servicing or in use. An incorrectly mounted tire can burst which could cause personal injury and equipment damage.**

To demount tubeless tires on 5-degree full drop center rims, regular or safety type, follow the same procedures used to demount tubeless automobile tires.

Fifteen-Degree Tapered Drop Center

1. Deflate the tire being serviced by removing the valve core.
2. Loosen both beads from the wheel.
   - 2.1 Place the wheel on a wooden floor or rubber mat with the wide side up.
   - 2.2 Drive the flat end of the tire tool between the tire bead and the wheel flange.
   - 2.3 Holding the tool upright, hammer on the neck to free the tire bead from the wheel. See **Fig. 3**.
   - 2.4 Repeat at 8-inch (20-cm) intervals around the flange, until the bead is free from the wheel.
   - 2.5 Turn the wheel over and repeat the previous substeps to loosen the second bead from the wheel.

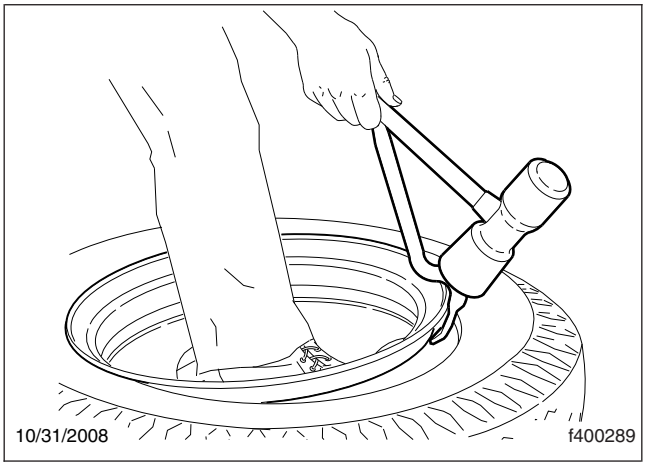


Fig. 3, Loosening the Beads

3. Remove one bead from the wheel.
   - 3.1 Make sure the wide side of the wheel is down.
   - 3.2 Lubricate the tire bead and the wheel.
   - 3.3 Insert the curved end of two tire tools between the bead and the wheel, just to one side of the tire valve. See **Fig. 4**.
   - 3.4 Step on the side of the tire opposite to the valve to force the first bead into the wheel well.

3.5 Hold one of the tools in place with your foot and pry with the second tool, to force the bead up over the wheel flange.

3.6 Continue prying around the tire to work the first bead off of the wheel. Leave the second bead in the wheel well.

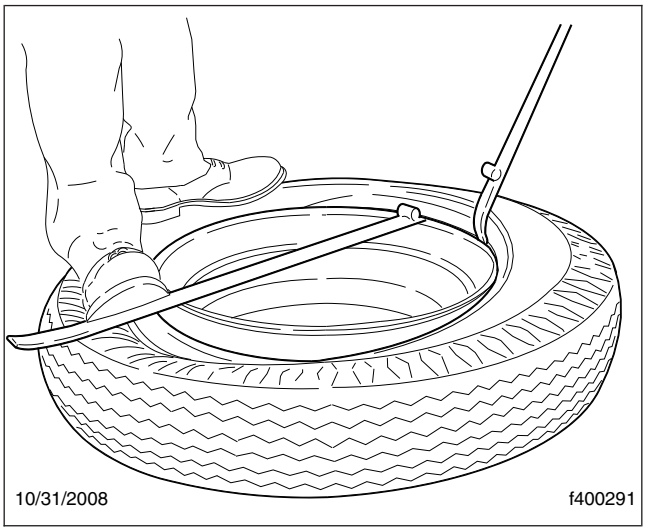


Fig. 4, Forcing First Bead From Wheel

4. Remove the wheel from the tire.

4.1 Stand the wheel and tire assembly upright, with the valve stem near the top.

4.2 Lubricate the second bead and wheel.

4.3 Insert the straight end of the tool between the tire bead and the back wheel flange, hooking the tool over the second flange. See **Fig. 5**.

4.4 Lean the tire assembly toward the tool and use a rocking or bouncing action to pry the wheel out of the tire.

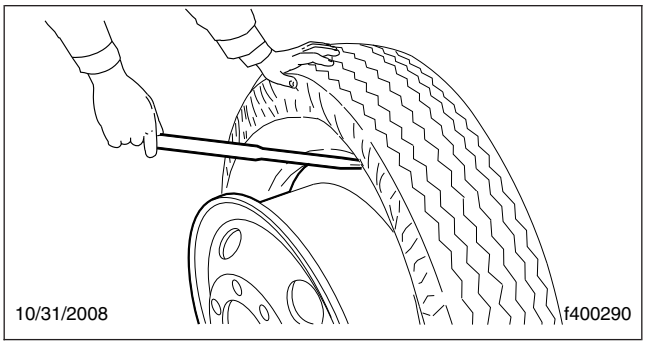


Fig. 5, Prying the Wheel Out of the Tire

5. Clean and inspect all parts. For instructions, refer to **Section 40.00, Subjects 130 and 140** of the *New Cascadia Workshop Manual*.

Verified Tire Destruction

1. Locate the tire identification number (TIN) on each tire. See **Fig. 6**.

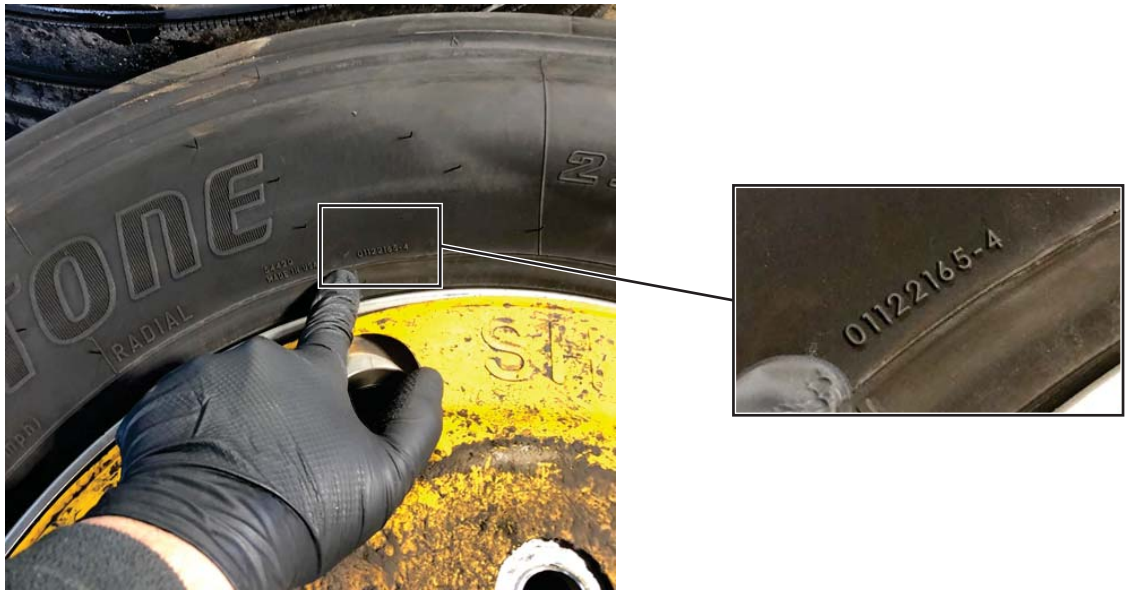
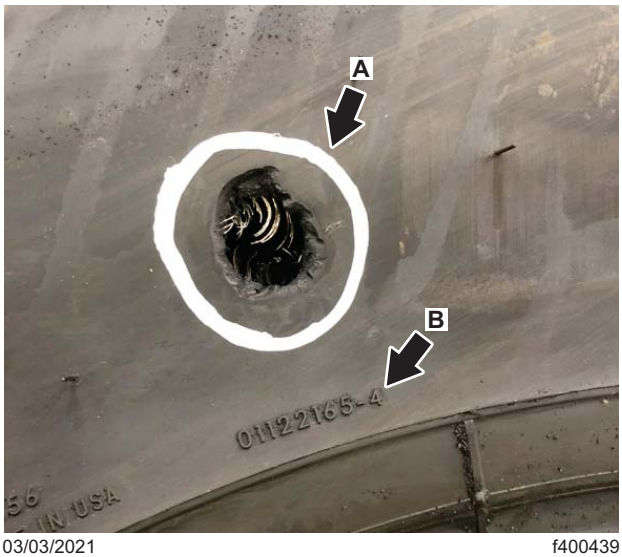


Fig. 6, Bridgestone TIN Location

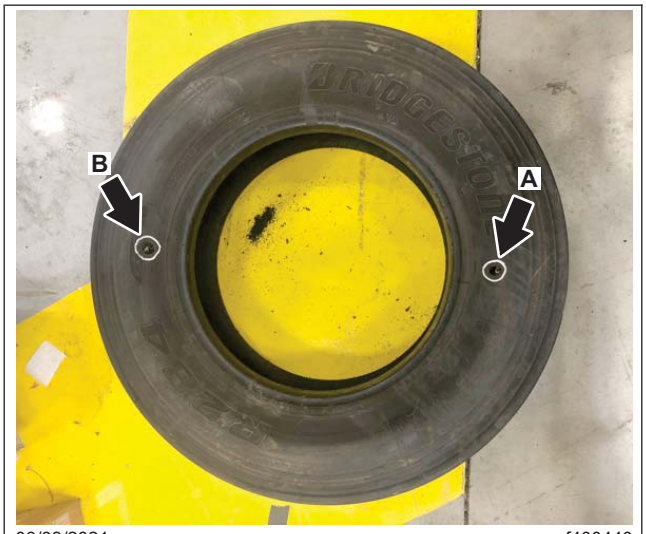
2. Drill a 1.0" +/- 0.25" diameter hole above the TIN as shown in **Fig. 7**.



A. 1.0" +/- 0.25" diameter hole drilled above TIN.
B. TIN

Fig. 7, Hole Drilled Above the TIN

3. Drill another hole of the same diameter 180 degrees away from the first hole, on the same side of the tire. See **Fig. 8**.



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A. First hole drilled above the TIN.
B. Second hole drilled 180 degrees away from the first hole, on the same side.

Fig. 8, Both Holes Drilled

IMPORTANT: TIN (Tire Identification Number) must be included in the “Repair Details” section of the recall claim prior to submission; failing to do so will result in an invalid claim.

Mounting Tubeless Tires

Five-Degree Full Drop Center

⚠ WARNING

Read the information in Section 40.00, Subject 110 of the *New Cascadia Workshop Manual*. Failure to follow the precautions, before and during tire demounting and mounting, could cause tire damage while servicing or in use. An incorrectly mounted tire can burst, which could cause personal injury and equipment damage.

To mount tubeless tires on 5-degree full drop center rims, regular or safety type, follow the same procedures used to mount tubeless automobile tires.

Fifteen-Degree Tapered Drop Center

1. Remove the old valve stem, and install a new valve stem in the wheel.
   1.1 Place the valve stem, with a rubber washer, through the valve hole from the tire side of the wheel.
   1.2 Screw the valve nut onto the stem from the opposite side. Make sure the rubber bushing and metal collar or nut are centered and fit snugly in the valve hole. See **Fig. 9**.
   1.3 Tighten the nut securely.

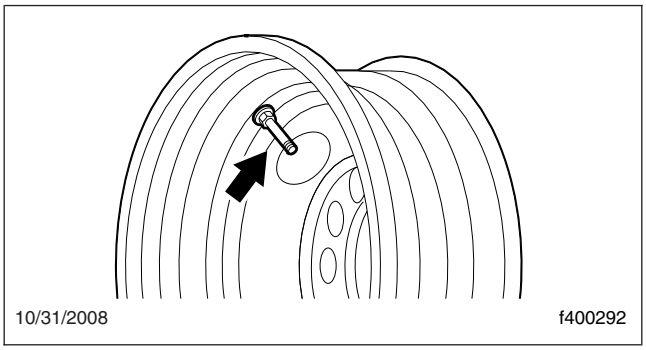


Fig. 9, Valve Stem Installation

2. Lubricate the bead seats on the wheel and both tire beads.
   2.1 Place the wheel on a wooden floor or rubber mat with the wide side down.
   2.2 Using a brush or swab, lubricate both bead seats (flanges) of the wheel, and both tire beads, with an approved lubricant. Do not let excess lubricant run inside the tire.

   Apply enough lubricant to enable correct bead seating and to make mounting easier.
3. Work the lower tire bead into the wheel well.
   3.1 Lay the tire on the wheel. If there is a balance mark on the tire, align the mark with the valve stem.
   3.2 Push one area of the lower bead over the flange and into the wheel well.
   3.3 Using the straight end of the tire tool, with the stop resting on the wheel flange, work small sections until the remaining bead slips into the wheel. See **Fig. 10**.

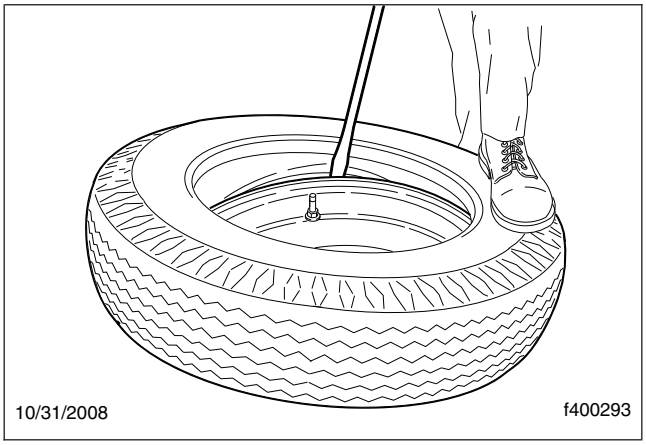


Fig. 10, Working the Lower Bead into the Wheel

4. Work the upper tire bead into the wheel well.
   4.1 Start the upper tire bead over the wheel flange and into the wheel well by standing on the tire. If necessary, push a section of the bead into the wheel well and anchor it by attaching Vise-Grip® pliers to the wheel flange with the snub side toward the tire.
   4.2 Using the spoon end of the tire iron, and with the stop toward the wheel, work around the bead. See **Fig. 11**. Work small sections, until the bead slips over the flange and into the wheel well.
   4.3 If necessary, insert a second tire iron and lubricate the last 8 inches (20 cm) of the bead again.

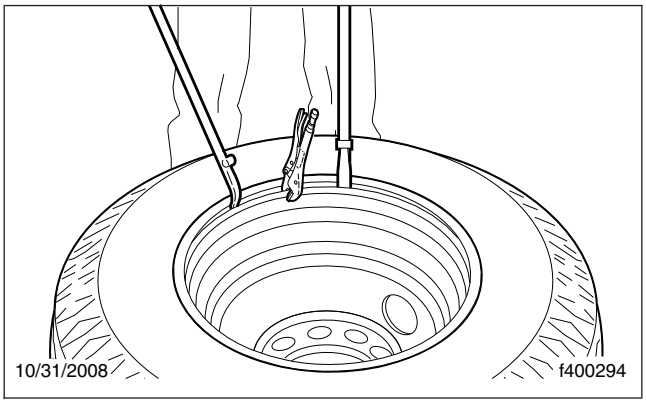


Fig. 11, Working the Upper Bead into the Wheel

IMPORTANT: Inflate tires immediately after mounting, before the tire lubricant dries. Once the lubricant dries, bead positioning is not possible, even with increased inflation pressure.

Tire Inflation

1. Check all parts to make sure they are correctly seated prior to inflation.

⚠ WARNING

During initial tire inflation, there is the possibility of an explosion of the assembly. Observe the following safety rules to reduce the possibility of serious physical injury in the event of an explosion.

- Inflate tires in a safety cage or an approved portable restraining device.
- Always use a clip-on chuck with an inline valve and gauge.
- Make sure the inflation hose is long enough to permit standing to the side of the tire during inflation.
- Never sit on, or stand in front of an assembly that is being inflated.

2. Place the tire in a safety cage, or an approved portable restraining device. See **Fig. 12**.

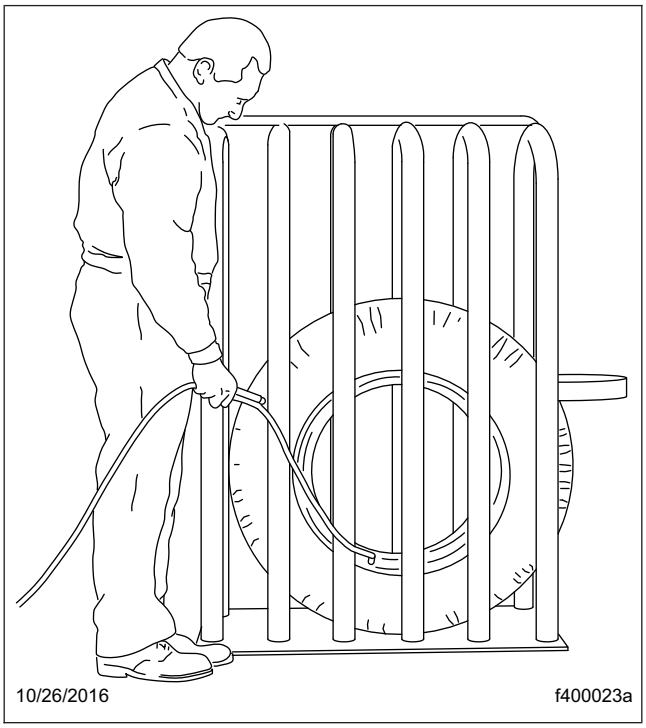


Fig. 12, Safety Cage for Tire Inflation

IMPORTANT: Water in the tire can cause ply separation. During tire inflation, air tank reservoirs and lines must be dry. Use well-maintained air line moisture traps, and service them regularly.

3. Inflate the tire 10 psi (69 kPa).
4. Check the parts for correct seating. If the seating is not correct, completely deflate the tire and correct the problem. Never attempt to seat rings or other parts by hammering on an inflated or partially inflated tire.

IMPORTANT: Due to the different flex characteristics of radial sidewalls, it may be necessary to use an inflation aid, such as the following, to help seat tubeless tire beads:

- Metal rings, which use a blast of compressed air to seat the beads.
- Rubber rings, which seal between the tire bead and rim, allowing the bead to move out and seat correctly. A well-lubricated, heavy-duty bicycle tube can be used to help seal between the tire bead and rim.

5. Continue to inflate the tire to the recommended pressure. Refer to **Group 40** of the *New Cascadia Workshop Manual* for correct cold-inflation pressures.
    - Michelin Tire Corporation recommends an initial pressure of 90 to 100 psi (620 to 690 kPa) for this step to correctly seat the tire beads.

- The position of the beads, flap, and tube with 4 to 5 psi (28 to 35 kPa) pressure is shown in **Fig. 13**. The tube is fully rounded-out within the tire, but there isn't enough pressure to move the beads on wide-base rims.

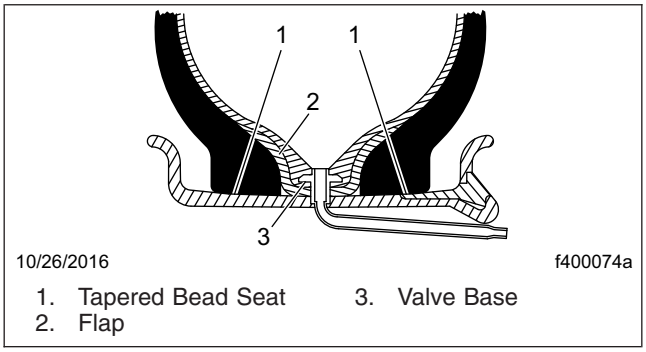


Fig. 13, Position of Beads, Flap, and Tube at 4 to 5 psi (28 to 35 kPa)

- Depending on the tire size and rim condition, from 20 to 40 psi (140 to 275 kPa) pressure is needed to push the beads onto the bead seat. See **Fig. 14**.

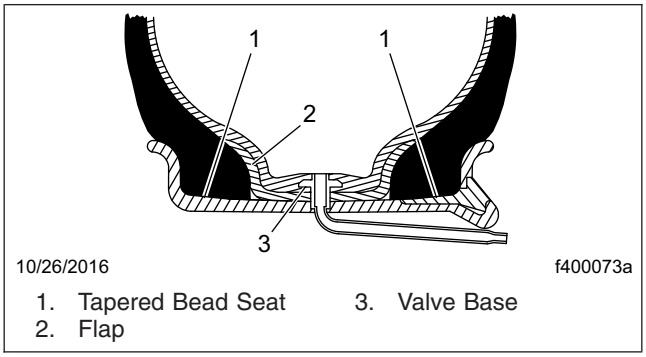


Fig. 14, Beads Pressured Onto the Bead Seat

NOTICE

Inflating tube-type tires incorrectly can crack or tear the edge or inside of the valve base. Once seated, the tube can stretch only in the rim area. Because resistance to stretch is greatest at the valve base, there is often enough tension to break the tube at the edge of the valve base or in the valve base.

6. After the initial inflation, completely deflate the tire by removing the valve core. This ensures correct bead seating, and prevents buckling or overstretching the tube in tube-type tires.

⚠ WARNING

Inflate tires to the specified pressure. Tire underinflation or overinflation will damage wheels and tires, and could result in a blowout, which could cause personal injury and property damage.

- Driving on overinflated tires weakens the cords by reducing their ability to absorb road shocks, and increases the danger of cuts, snags, and punctures.
- Overinflation overstresses and damages the rims.
- Driving on underinflated tires generates excessive heat, which weakens the tire body and reduces tire strength.

NOTICE

Use tires of the same size, type, and capacity to carry the load at the recommended cold pressure. Attempting to increase the load capacity of a tire by overinflation will damage the tire assembly.

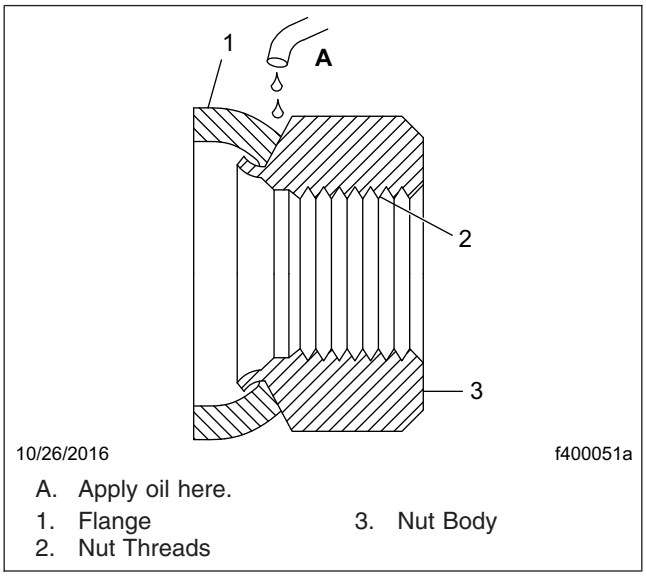
7. Inflate the tire to the recommended cold inflation pressure. Refer to **Group 40** of the *New Cascadia Workshop Manual* for correct cold-inflation pressures.
8. Install the valve cap and tighten finger-tight.
9. Check the inflation pressure 24 hours after mounting new tires.

NOTE: Testing a vehicle on a dynamometer can cause severe tire damage. Because manufacturers differ in their recommendations for preventing tire damage, refer to the manufacturer's instructions for testing a vehicle on a dynamometer.

Wheel Installation

1. Inspect the wheel and tire assembly. For instructions, refer to **Section 40.00, Subjects 130 and 140** of the *New Cascadia Workshop Manual*. Replace any damaged wheels and tires. Refer to tire matching and mixing requirements in **Section 40.00, Subject 50** of the *New Cascadia Workshop Manual*.
2. Clean the hub and wheel mounting surfaces, the fasteners, and between the rims of dual wheels.
3. Make sure the tire is correctly inflated. For instructions, refer to **Section 40.00, Subject 150** of the *New Cascadia Workshop Manual*.

4. Apply a few drops of light engine oil to the wheel studs, the area between the body and the flange of each nut, and the hub pilot. Wipe off any excess oil. See **Fig. 15** for lubrication of the two-piece flange nuts.



A. Apply oil here.
1. Flange
2. Nut Threads
3. Nut Body

Fig. 15, Two-Piece Flange Nut

IMPORTANT: Freightliner "Turbo" wheel assemblies require directional mounting, as shown in **Fig. 16**.

IMPORTANT: Before installing the wheels, make sure the drum is in position on the raised step of the pilot pad. One of the hub pilot pads must be centered at the top. To help keep the drum in place, it may be necessary to adjust the brakes before installing the wheels.

5. Turn the hub until one hub-pilot pad is in the top-center position.

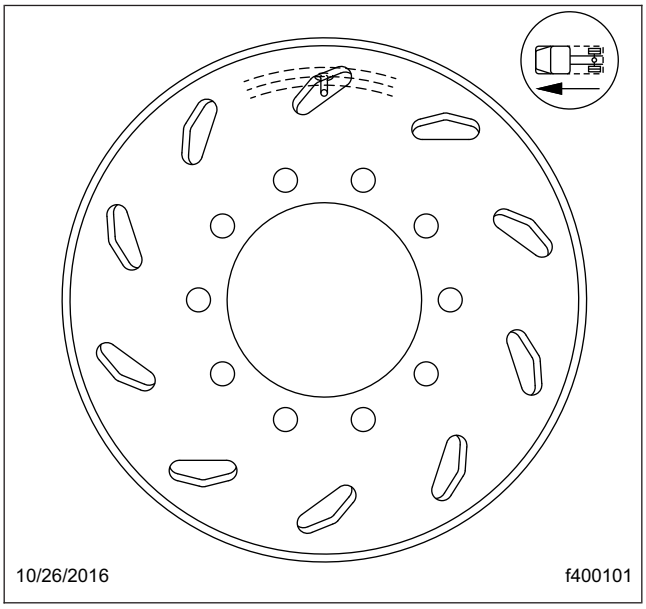


Fig. 16, Directional Freightliner "Turbo" Wheel

NOTICE

Keep the wheel square to the hub during installation. The wheel center hole and hub pilot have close tolerances. If the wheel is not kept square to the hub, it could bind during installation and damage the stud threads or hub-pilot pads.

IMPORTANT: Install the wheel assembly so that the balance weight(s) on the wheel are opposite the balance weight(s) on the brake drum.

6. Using a jack or wheel-and-tire dolly, install the wheel assembly (inner wheel on a dual wheel assembly) on the hub. Make sure the wheel is square to the hub. Be careful not to damage the threads or hub-pilot pads.
   - 6.1 Before placing the wheel assembly on the hub, rotate the wheel as needed until the balance weight(s) on the wheel are 180 degrees from the weight(s) on the brake drum.
   - 6.2 Make sure the hub-pilot pad is still centered at the top after the wheel is installed.
7. On a dual wheel assembly, repeat the previous step to mount the outer wheel against the inner wheel.

   Before placing the outer wheel assembly on the hub, rotate the wheel as needed until the balance weight(s) on the wheel are 180 degrees from the weight(s) on the brake drum. If this causes the valve stems to be in the same wheel hole, mount the outer wheel so that the outer wheel balance weight(s) are on the same side as the brake drum balance weight(s).

NOTICE

The wheel nuts have right-hand metric threads. Do not try to install a similar size SAE nut on a stud, or the stud and nut will be damaged.

8. Install and hand-tighten the two-piece flange nuts on the top and bottom studs.
9. Check that the wheel is correctly seated against the hub, and on the hub-pilot pads.

10. Install and hand-tighten the remaining nuts.

NOTICE

Use the specified torque values and follow the correct tightening sequence. Too little wheel nut torque can cause wheel shimmy, wheel damage, stud breakage, and extreme tire tread wear. Too much wheel nut torque can break studs, damage threads, and crack discs in the stud hole area.

11. Tighten the nuts in two stages. Follow the sequence in **Fig. 17**.
    - 11.1 Tighten the flange nuts initially to 50 to 100 lbf·ft (68 to 136 N·m).
    - 11.2 Tighten the flange nuts to 450 to 500 lb·ft (610 to 678 N·m).

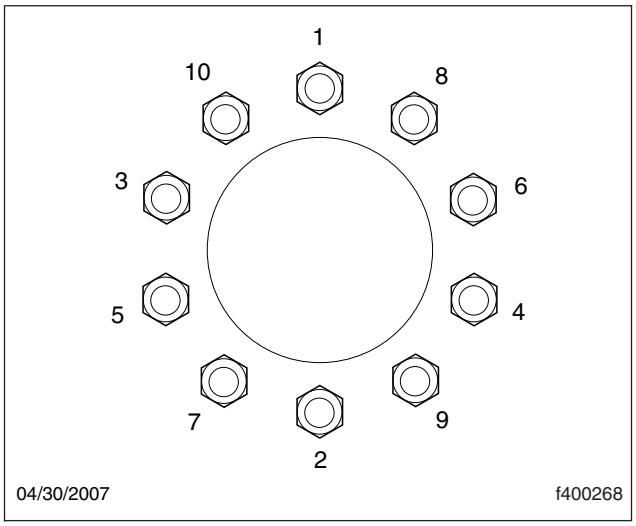


Fig. 17, 10-Hole Disc Wheel Tightening Sequence

IMPORTANT: If the wheel nuts cannot be tightened to minimum torque values, the studs could be turning in the hub flange, having lost their locking ability. In this situation, the wheel hub assembly is damaged and must be replaced with a new assembly. Failure to reach minimum torque values could also be caused by stripped threads on the wheel studs or wheel nuts.

⚠ WARNING

Always replace damaged parts with new parts. Failure to replace damaged parts could result in the loss of a wheel or loss of vehicle control, which could cause personal injury or property damage.

12. Replace any damaged parts. For instructions to replace front-axle parts, refer to **Section 33.01**, and for rear-axle parts, refer to **Section 35.01** of the **New Cascadia Workshop Manual**.
13. Remove the safety stands, lower the vehicle, and remove the chocks.

IMPORTANT: The wheel nuts seat during vehicle operation. As a result, it is necessary to periodically tighten the nuts to the specified torque.

14. After operating the vehicle for 50 to 100 miles (80 to 160 km), tighten the wheel nuts again to the original specification, following the tightening sequence in **Fig. 17**.

15. Tighten the wheel nuts every 50,000 miles (80 000 km) thereafter.

Aerodynamic Bumper Installation

1. Insert the bumper tabs into the bumper casting slots and position the bumper.
2. Open the hood.
3. On the mounting points on each side of the bumper, install and hand-tighten the two aft-facing capscrews first, then the capscrews on the side. If equipped, install the foglight wiring brackets.
4. Tighten the bumper capscrews 20 lbf·ft (27 N·m).
5. If equipped, install the towhook bracket and the towhooks. Tighten the long capscrew 20 lbf·ft (27 N·m).
6. As needed, install the bulbs and connect all electrical connectors.
7. Clean a spot on the base label (Form WAR259). Write the recall number, FL872, on a completion sticker (Form WAR260), and attach it to the base label to indicate this recall has been completed.