

SERVICE PROCEDURE

24516
December, 2024

SUBJECT: SAFETY RECALL
Meritor® Front Steer Drive (FSD) MX-20-130 axles
on certain 2024 and 2025 International® HV™
Series trucks built 10/10/2023 through 09/12/2024
with feature code 0002GAK.

CUSTOMER LETTER

Print ready (PDF file) copy of the [Customer Letter](#)

DEFECT DESCRIPTION

Meritor® Front Steer Drive (FSD) axles may not have sufficient grease installed in the hubs, at the time of assembly. Insufficient grease may result in wheel bearing damage and in extreme instances, separation of the wheel end.

MODELS INVOLVED

This safety recall involves certain 2024 and 2025 International® HV™ trucks built 10/10/2023 through 9/12/2024 with feature code 0002GAK.

ELIGIBILITY

This procedure applies ONLY to vehicles marked in the International® Service PortalSM with Safety Recall 24516. Also complete any other open campaigns listed on the Service Portal at this time.

PARTS INFORMATION

NOTE: All vehicles in this recall will require both steer axle hubs to be removed and inspected. If there is no damage found, then reassemble the hubs with new seals, nuts, and washers. If damage is found, replace only the damaged components. Refer to the parts table for replacement part numbers.

NOTE: This campaign is referencing FSD-18/20/23 axles. Please reference Pages 1–3 and 10–12 of the Meritor documents.

Part Number	Part Description	Quantity per Wheel End
1695026C1	Axle nut	2
1695027C1	Spindle Washer	1
1695033C1	Wheel Seal	1
1695040C1	Hub Seal	1

Table 1 Parts Information for Inspection Procedures

Part Number	Part Description	Quantity per Wheel End
2518164C91	Spindle	1 - If required
2607863C1	Bearing Cone	1 - If required
2608416C1	Bearing Cup	1 - If required
2520908C91	Hub	1 - If required

Table 2 Parts Information for Damaged Components

SERVICE PROCEDURE

GOVERNMENT REGULATION: Engine fluid (oil, fuel, and coolant) may be a hazard to human health and the environment. Handle all fluid and other contaminated materials (such as filters and rags) in accordance with applicable regulations. Recycle or dispose of engine fluids, filters, and other contaminated materials according to applicable regulations.

WARNING! To prevent personal injury and / or death, or damage to property, park vehicle on hard flat surface, turn the engine off, set the parking brake and install wheel chocks to prevent the vehicle from moving in either direction.

WARNING! To prevent personal injury and / or death, or damage to property, if the vehicle must be raised, do not work under the vehicle supported only by jacks. Jacks can slip or fall over.

WARNING! To prevent personal injury and / or death, always wear safe eye protection when performing vehicle maintenance.

WARNING! To prevent personal injury and / or death, or damage to property, allow engine / vehicle components to cool before servicing.

WARNING! To prevent personal injury and / or death, or damage to property, keep flames or sparks away from vehicle and do not smoke while servicing the vehicle's batteries. Batteries expel explosive gases.

WARNING! To prevent personal injury and / or death, or damage to property, remove the ground cable from the negative terminal of the battery box before disconnecting any electrical components. Always connect the ground cable last.

1. Park vehicle on flat surface.
2. Shift transmission to Park or Neutral and set parking brake.
3. Turn vehicle ignition to Key OFF position.
4. Install wheel chocks.

NOTE: This campaign is referencing FSD-18/20/23 axles. Please reference Pages 1–3 and 10–12 of the Meritor documents.

NOTE: All International VINs in this campaign have a suspect axle and no inspection of the axle serial number is required.

5. Refer to the attached Meritor inspection and repair procedure, and follow the instructions in the FSD-18/20/23 Inspection Procedures located at the end of this document.
6. Remove wheel chocks.

END OF SERVICE PROCEDURE

LABOR INFORMATION

Operation Number	Description	Time
A40-24516-01	Remove both hubs, inspect components, and reassemble	5.0 hr
T-1	Replace damaged components	Attach time stamps

Table 3 Labor Information

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*International Motors, LLC d/b/a International Motors USA LLC in Illinois, Missouri, New Jersey, Ohio, and Utah.

CAMPAIGN IDENTIFICATION LABEL

Each vehicle corrected in accordance with this campaign must be marked with a CTS-1075 Campaign Identification Label.

Complete the label and attach on a clean surface next to the vehicle identification number (VIN) plate.



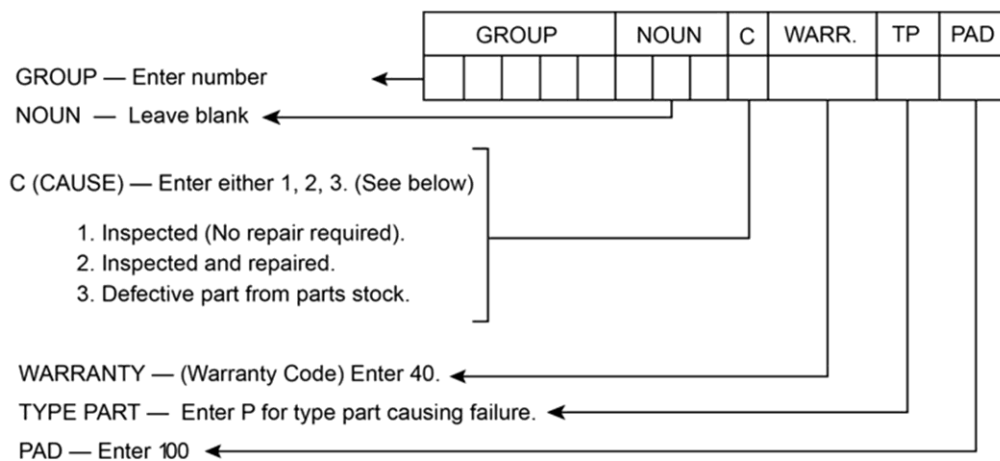
ADMINISTRATIVE / DEALER RESPONSIBILITIES

WARRANTY CLAIMS

Warranty claim expense is to be charged to Warranty. Claims are to be submitted in the normal manner, making reference to Safety Recall 24516.

Section 7 of the Warranty Policy and Procedures Manual contains further information related to the submission and processing of AFC / Recall claims.

As with all claim submissions, items acquired locally must be submitted in the "Other Charges" tab. The cost of any bulk items (such as a bag of cable tie straps, roll of wire, barrel of oil, or tube of silicone) should be prorated for the cost of the individual pieces / amount used during each repair.



0000047910

UNITED STATES AND POSSESSIONS

The National Traffic and Motor Vehicle Safety Act, as amended, provides that each vehicle that is subject to a vehicle recall campaign must be adequately repaired within a reasonable time after the owner has tendered it for repair. A failure to adequately repair within 60 days after a tender of a vehicle is prima facie evidence of failure to repair within a reasonable time. If the condition is not adequately repaired within 60 days, the owner may be entitled to replacement with an identical or reasonable equivalent vehicle at no charge, or to a refund of the purchase price less a reasonable allowance for depreciation.

Dealers must correct all vehicles subject to this campaign at no charge to the owner, regardless of mileage, age of vehicle, or ownership, from this time forward.

Dealers should proceed immediately to make necessary correction to units in inventory. Federal law prohibits a dealer from delivering under a sale or lease, a new motor vehicle or any new or used item of motor vehicle equipment (including a tire) covered by the notification of a recall until the defect or noncompliance is remedied.

Dealers must make every effort to promptly schedule an appointment with each owner to repair his or her vehicle as soon as possible. However, consistent with the customer notification, dealers are expected to complete the repairs on the mutually agreed upon service date.

Dealers involved in the recall process will be furnished a listing of owner names and addresses to enable them to follow up with owners and have the vehicles corrected. Use of this listing must be limited to this campaign because the list may contain information obtained from state motor vehicle registration records, and the use of such motor vehicle registration data for purposes other than this campaign is a violation of law in several states.

CANADA

Dealers must correct all vehicles subject to this campaign at no charge to the owner, regardless of mileage, age of vehicle, or ownership, from this time forward.

Dealers should proceed immediately to make necessary correction to units in inventory. All inventory vehicles subject to this recall campaign must be corrected prior to sale, transfer or delivery. If vehicles have been sold or transferred and you are in receipt of Customer Notification Letters and

Authorization for Recall Service cards for those vehicles, the transfer location or customer must be notified immediately from your dealer location.

Dealers must make every effort to promptly schedule an appointment with each owner to repair his or her vehicle as soon as possible. However, consistent with the customer notification, dealers are expected to complete the repairs on the mutually agreed upon service date.

Dealers involved in the recall process will be furnished a listing of owner names and addresses to enable them to follow up with owners and have the vehicles corrected. Use of this listing must be limited to this campaign because the list may contain information obtained from state motor vehicle registration records, and the use of such motor vehicle registration data for purposes other than this campaign is a violation of law in several states.

EXPORT

Export Distributors should proceed immediately to make necessary correction to units in inventory. All inventory vehicles subject to this recall campaign must be corrected prior to sale, transfer or delivery. If vehicles have been sold or transferred and you are in receipt of Customer Notification Letters and Authorization for Recall Service cards for those vehicles, the transfer location or customer must be notified immediately from your distributor location.

Export Distributors are to submit warranty claims in the usual manner making reference to this recall number.

Export Distributors are expected to provide full cooperation and follow-up with respect to this important subject matter. If you have any questions or need further assistance, please contact the Regional Service Manager at your regional office.

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***International Motors, LLC d/b/a International Motors USA LLC in Illinois, Missouri, New Jersey, Ohio, and Utah.**

Meritor Front Drive Steer Axles

INSPECTING WHEEL ENDS ON FSD 8K-23K SERIES FRONT DRIVE STEER AXLES BUILT OCT. 1, 2023-SEPT. 30, 2024

Hazard Alert Messages

Read and observe all hazard alert messages in this publication.

DANGER

Indicates imminent danger. Failure to follow this instruction will result in death or serious injury.

WARNING

Indicates a possibly impending danger. Failure to follow this instruction can result in death or serious injury.

CAUTION

Indicates a hazardous situation or unsafe practice which, if not avoided, could result in injury or damage to components.

How to Obtain Additional Maintenance, Service and Product Information

Refer to Meritor [TP-2224, Wheel End Yoke Shaft Replacement Procedure \(FSD 20\)](#). To obtain this and other Meritor publications, visit [Literature on Demand at Cummins.com](#). Additional information can also be found in [Fabco-FSD-08A-10A-12A-13A-14A Service Manual](#) and [Fabco-FSD-18A-21A-23A Service Manual](#).

Contact the Meritor OnTrac™ Customer Service Center

If you have questions about the procedures in this bulletin, contact the Meritor OnTrac™ Customer Service Center at 866-668-7221 (US and Canada) between 7:30 AM and 10:00 PM ET Monday through Friday, and between 9:00 AM and 6:00 PM ET on Saturday; 001-800-889-1834 (Mexico); or visit our website: www.cummins.com/components/drivetrain-systems/warranty. Reference program number C24AM.

Purpose

The purpose of this bulletin is to provide instructions for inspecting wheel bearings for the presence of grease on FSD 8K through 23K axles built between October 1, 2023 and September 30, 2024.

Meritor recommends performing this inspection as soon as possible. Operating the axle with insufficient grease in the wheel end can cause overheating of the wheel bearings which can lead to damage and/or seizing of bearings, deformation of plastic components, and possible separation of the wheel end from the axle.

Use ID tag below to identify axle serial number. Figure 1.

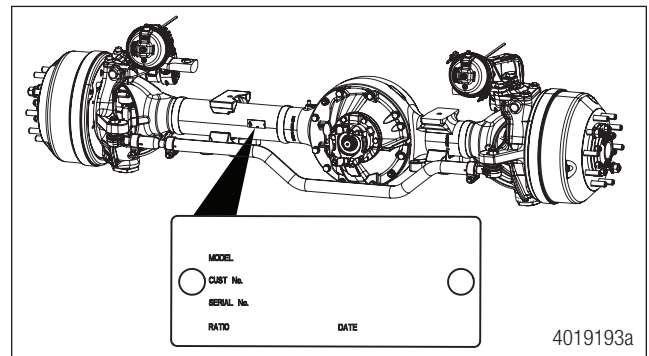


Figure 1

- If the axle falls within the affected serial numbers, proceed with the instructions in this document.
- If the axle does not fall within the affected serial numbers, disregard this bulletin and return the vehicle to service.

Hub Inspection Parts Required

- Hub Seal
- Lock Washer

Hub Replacement Parts, If Necessary

Part	FSD-8/10/ 12/13/14	FSD-18/23	FSD-20
Hub Assembly ¹	482-0078-001 482-0078-002	482-0068-006	482-0084-002 482-0068-006
Hub Seal	732-0334	732-0373 736-0967	
Inner Bearing Cone/Cup	233-0396 233-0397	233-0459 233-0462	
Outer Bearing Cone/Cup	233-0528 233-0527		
Wheel Nut/ Hardware	688-0747 688-0748 927-0846 688-0697-002	688-0699 ² 927-0769	

¹ Includes bearing cups and wheel studs

² Quantity 2 per wheel end

Safety Precautions

Before performing the procedures in this publication, read and understand the following safety precautions.

DANGER

Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands NEVER work under a vehicle supported only by jacks. Jacks can slip and fall over. Failure to use safety stands can result in death or serious personal injury and damage to components.

DANGER

Follow all safety guidelines and instructions provided by the lifting device manufacturer. Check that the lift capacity marked on the lifting device, straps and chains is correct for the weight being lifted. If they are not marked with the lift capacity, do not use them. Inspect lifting straps to ensure they are not damaged NEVER subject lifting straps to shocks or drop-loading. Failure to follow these directives can result in death or serious personal injury and damage to components.

WARNING

To prevent eye injury, always wear eye protection when performing vehicle maintenance or service.

Inspection

The following provides instructions for inspection of the hub and bearings for grease. Detailed disassembly steps for each model are provided in the next sections.

For FSD-8/10/12/13/14, refer to FSD-8/10/12/13/14 Inspection Procedures on page 4.

For FSD-18/20/23, refer to FSD-18/20/23 Inspection Procedures on page 10.

1. Remove the front wheel and tire assemblies, brake drums, drive flange, and wheel bearing lock nut hardware according to the correct model instructions.
2. With the drive flange and lock nut hardware removed, inspect the outer wheel bearing for the presence of grease. Figure 2. Look for damage due to lack of grease and excessive heat. Refer to the Wheel Bearing Cone and Cup Damage Examples on page 3.



Figure 2

3. Support the hub while rocking it in place to loosen the outer bearing. Remove the outer bearing from the hub.
4. Remove the hub from the spindle, pulling the assembly straight out to avoid cocking the inner bearing cone.
5. Inspect the hub cavity and wheel bearings for the presence of grease. Look for damage due to lack of grease and excessive heat. Refer to the Wheel Bearing Cone and Cup Damage Examples on page 3.

If grease is insufficient and damage to the bearing is found:

Replace the inner and outer bearing cones and cups. Replace the hub if the hub is damaged. Refer to the appropriate steps for the axle model being serviced.

If there is sufficient grease and no signs of damage:

Repack the bearings with grease, reassemble the wheel end using a new hub seal and return the vehicle to service. Refer to the appropriate steps for the axle model being serviced.

Wheel Bearing Cone and Cup Damage Examples

A bearing damaged by insufficient lubricant will overheat, and the color may change from silver to deep blue. Figure 3. If the bearing is black, it is an indication that it seized and caused metal to separate from the bearing and weld to other mating components. Figure 4 and Figure 5. Bearings damaged by insufficient lubricant require replacement.



Figure 3



Figure 4



Figure 5

Uneven wear damage on the bearing, as well as spalling on the cup and cone may occur. Both conditions require bearing replacement. Figure 6 and Figure 7.

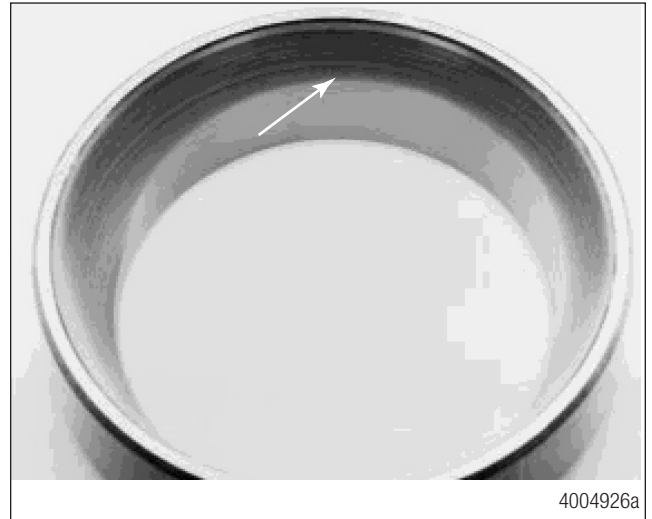


Figure 6



Figure 7

FSD-8/10/12/13/14 Inspection Procedures

1. Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Raise the front of the vehicle so the front wheels are off the ground. Support the vehicle with safety stands.
2. Remove the front wheel and tire assemblies per the OEM recommended instructions.
3. Remove the brake drums using a suitable lifting device. Figure 8.

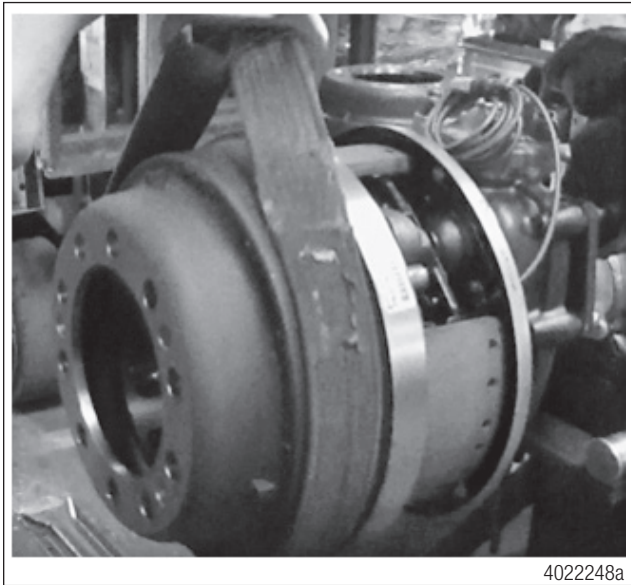


Figure 8

4. Remove the eight 1/2" drive flange lock nuts. Figure 9.

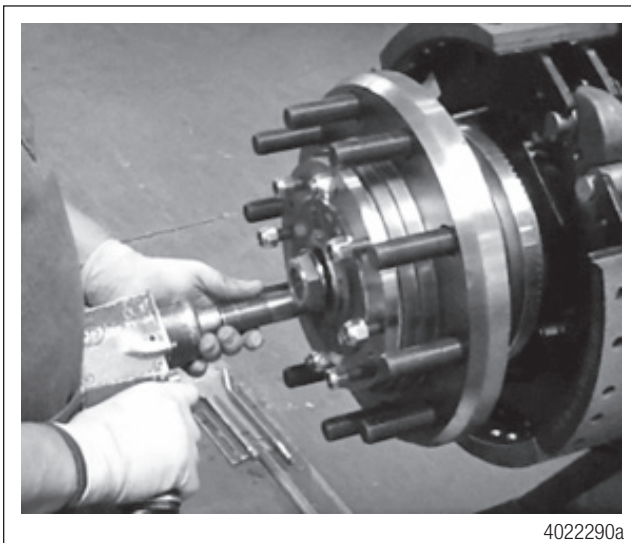


Figure 9

5. Remove the flanged hex nut next to the axle lock nut. Figure 10.

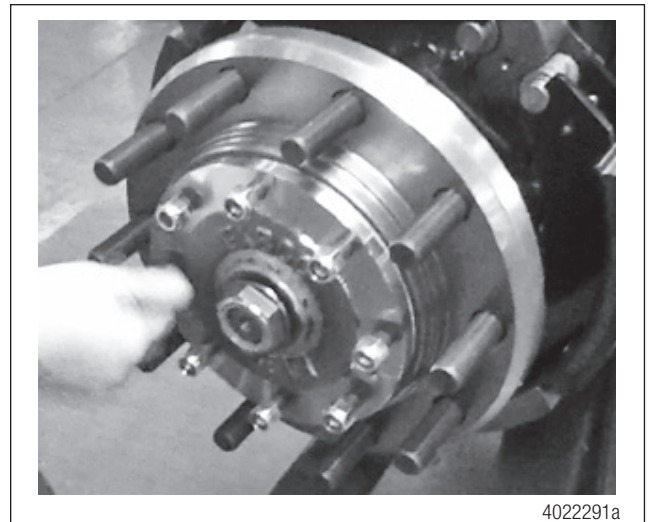


Figure 10

6. Remove the 1-1/4" flanged axle lock nut. Figure 11.

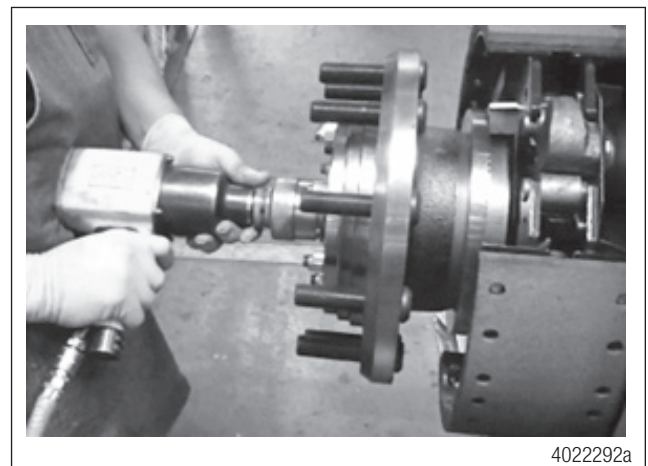


Figure 11

7. Remove the drive flange. If it is not loose enough to remove by hand, install two 3/8"-16 bolts in the extractor holes to loosen the drive flange and then remove it. Figure 12.

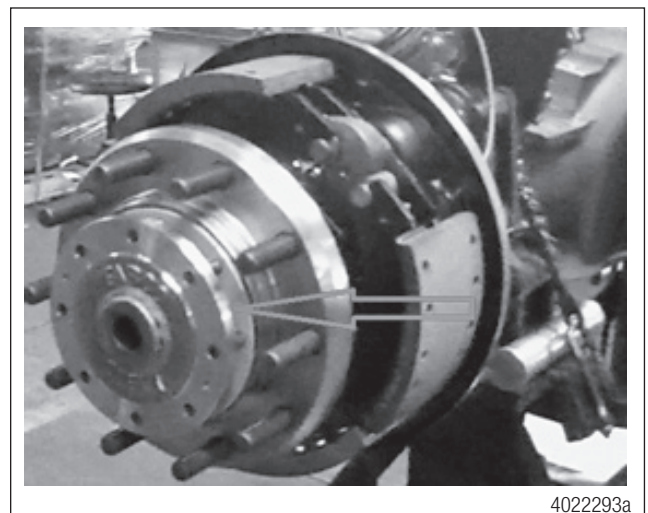


Figure 12

8. Remove the shim pack from the face of the wheel end. Set the shims aside for use during reassembly. Figure 13.

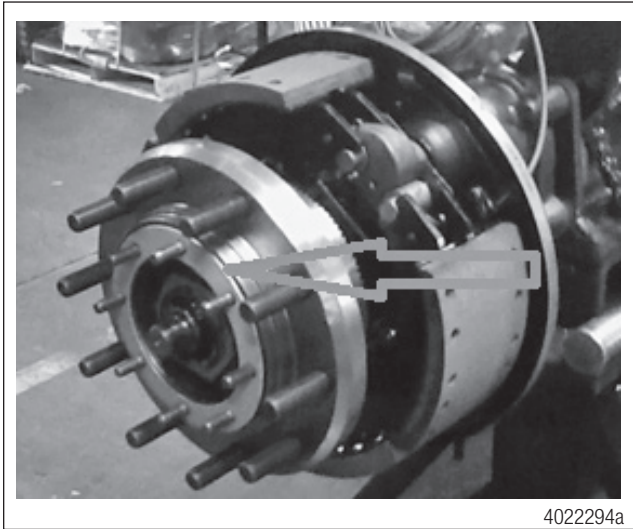


Figure 13

9. Remove the wheel bearing lock nut from the spindle. Figure 14.

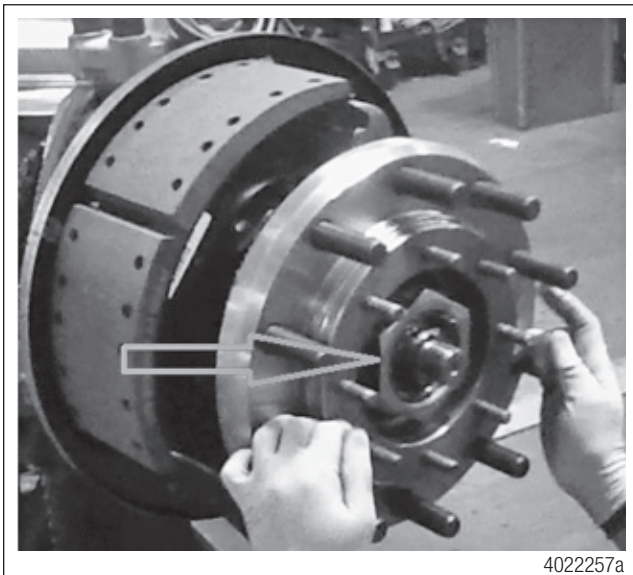


Figure 14

10. Remove the washer with the holes from the spindle. Figure 15.

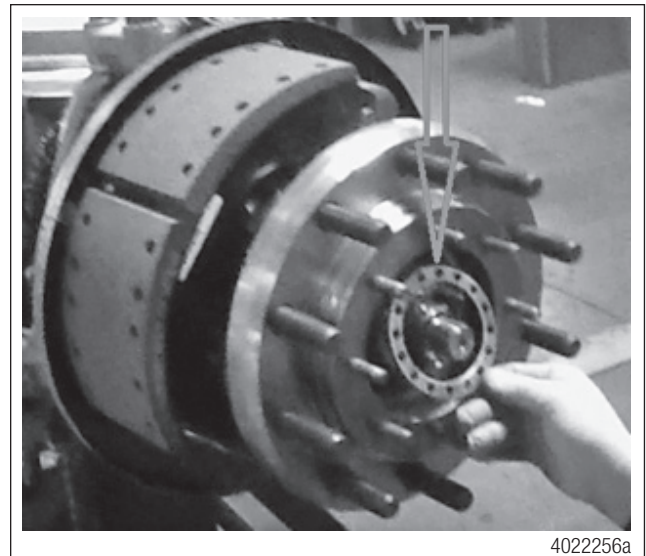


Figure 15

11. Remove the adjusting nut from the spindle. Figure 16.

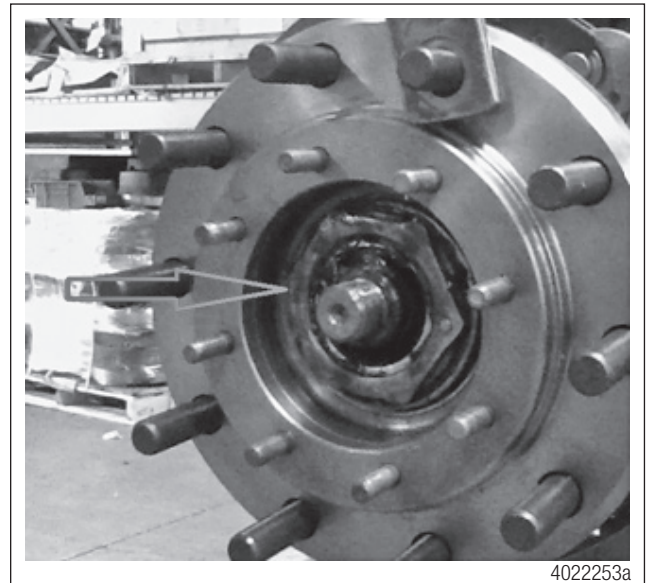


Figure 16

INSPECTION

Inspect parts as they are removed according to Inspection on page 2.

12. Rock the hub in place to loosen the outer wheel bearing cone. Remove the bearing cone.

13. Remove the hub from the spindle, pulling the assembly straight out to avoid cocking the inner bearing cone. If the cone binds against the spindle, try rocking the hub to free it. It may be necessary to use a pry bar under the inner surface of the hub to free it. To avoid damaging the inner seal, pry against the hub only. Figure 17.

If the inner bearing remains on the spindle when the hub is removed, use a suitable bearing puller to remove it. Pull only against the bearing race. Alternately, tap lightly on the race's outboard surface with a small drift to straighten the alignment and try to remove it again by hand.

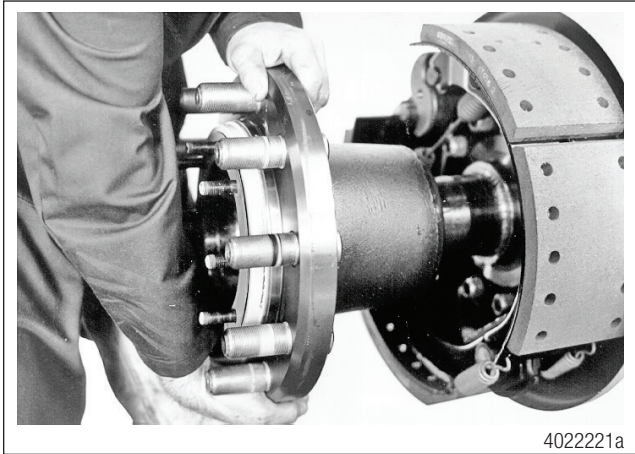


Figure 17

14. Inspect the bearings and hub. Refer to Inspection on page 2 for correct instructions.
15. If necessary, remove the wheel bearing cups from the hub. Use a bearing puller in the slots provided in the hub's inner cavity. Pull the cup out evenly using both slots.

Hub Assembly

1. If removed, use a suitable driver to install the bearing cups in the hub.
2. Thoroughly pack both bearing cones, and coat the inside surfaces of the hub and bearing cups with grease. Figure 18.

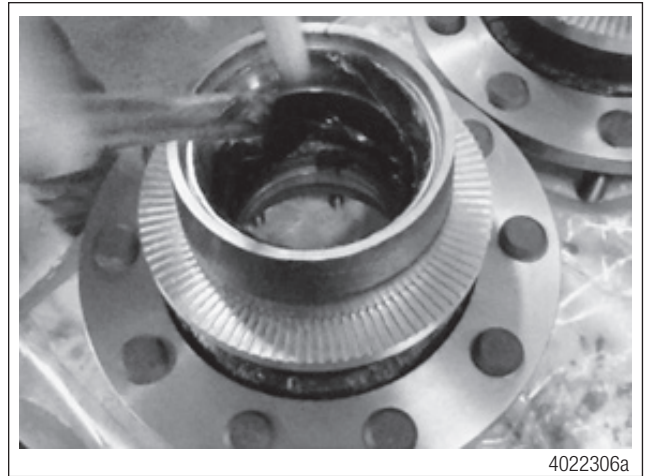


Figure 18

3. Install the inner bearing cone inside the hub assembly. Figure 19.

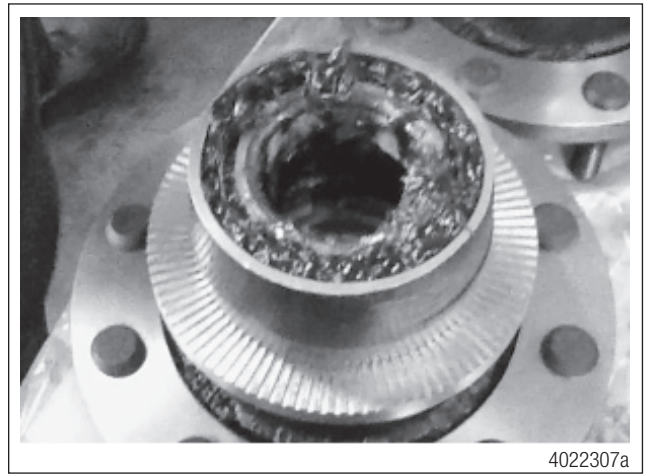


Figure 19

4. Place the wheel seal on the hub assembly. Figure 20.

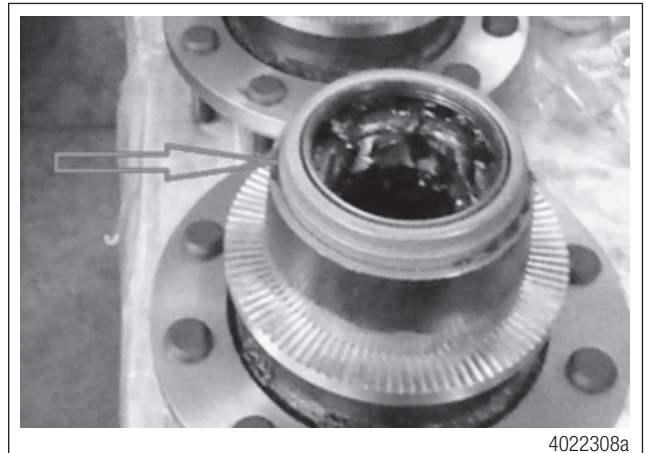


Figure 20

5. Use hub seal driver (866-0707) to drive the seal on the hub assembly until completely seated. Figure 21. Refer to Figure 41 for a tool drawing.

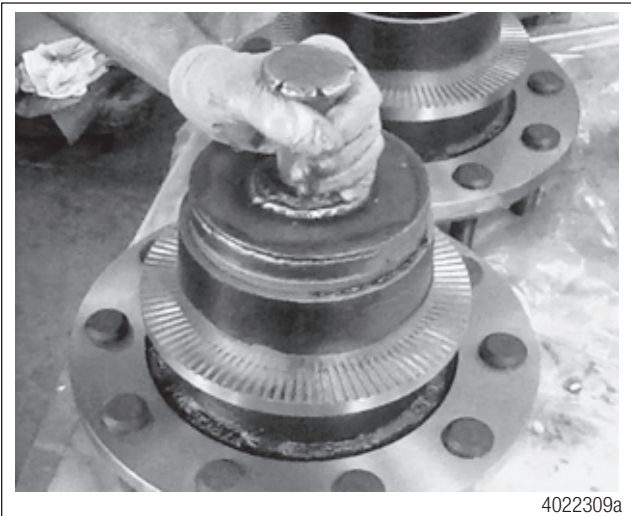


Figure 21

6. Apply more grease to the inner surfaces of the seal and the bearing cone. Figure 22.

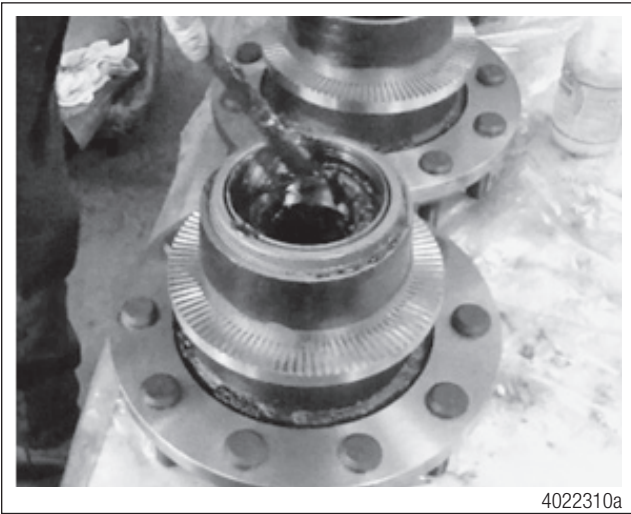


Figure 22

7. Use a dry rag to wipe the outer surface.
8. Fill the inner cavity of the hub with grease.
9. Clean the outer surface of the wheel hub seal with a dry rag.

Reassembly and Wheel Bearing Adjustment

1. Apply grease to the outer surfaces of the spindle and axle shaft. Figure 23.

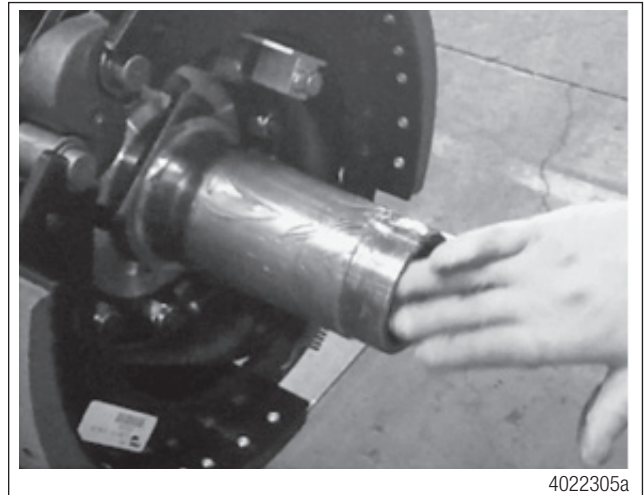


Figure 23

2. Install the hub assembly on the spindle with the help of a crane and hoist. Push the hub in all the way to ensure it is seated against the spindle. Figure 24.

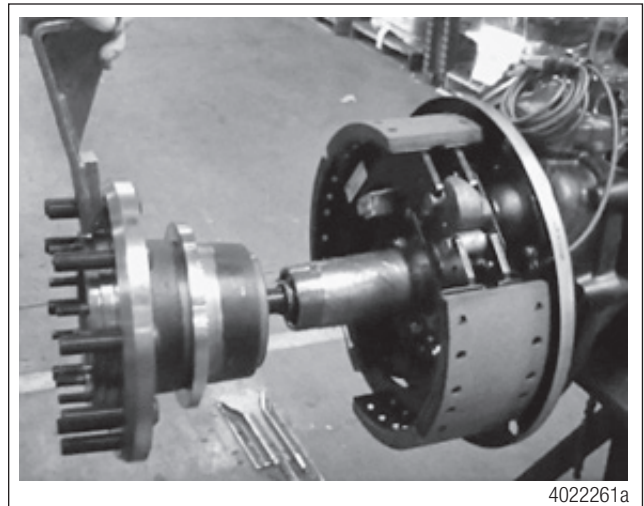


Figure 24

3. Install the greased outer bearing into the hub assembly. Ensure that it is correctly seated. Figure 25.

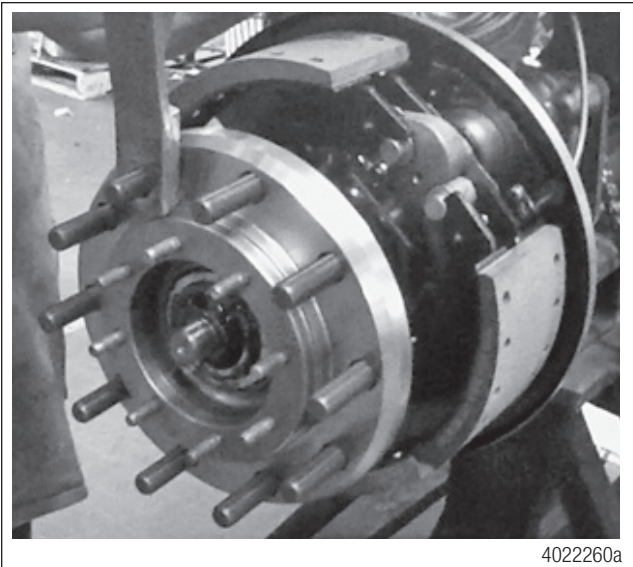


Figure 25

4. Install the bearing adjusting nut (with the dowel facing outward). Figure 26.

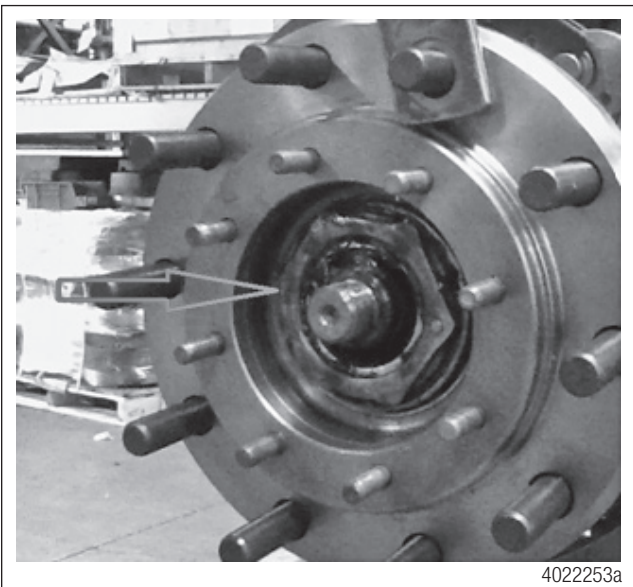


Figure 26

5. Tighten the bearing adjusting nut to 50 lb-ft (68 Nm) while simultaneously rotating the hub assembly. Loosen the nut and repeat this procedure 2-3 times to ensure that the bearings are seated properly. After the final tightening, back off the nut 1/4 turn. Figure 27.

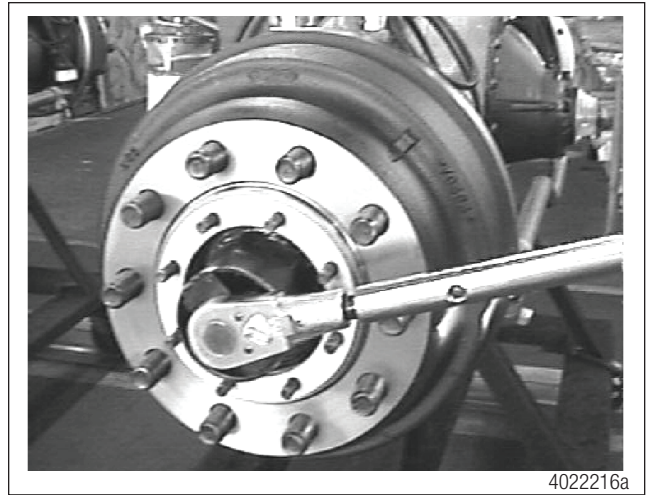


Figure 27

6. Install the lock washer over the nut. If necessary, back off the adjusting nut just enough to allow the dowel pin to engage in the closest hole in the lock washer. Figure 28.

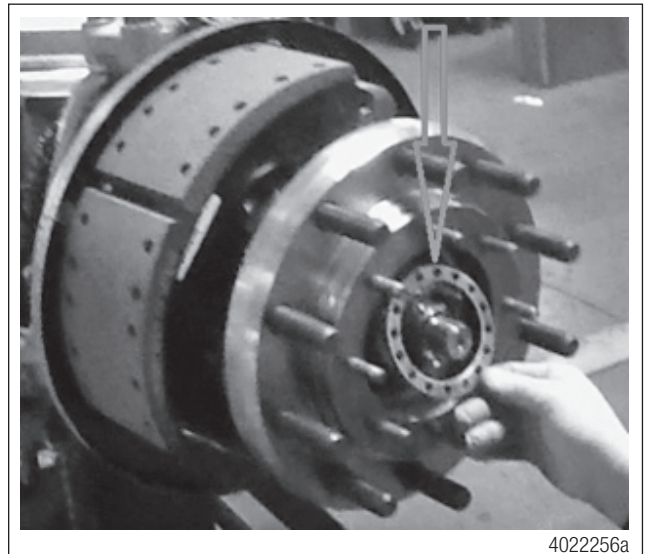


Figure 28

7. Install the lock nut over the washer and tighten to 400 lb-ft (542 Nm). Figure 29.

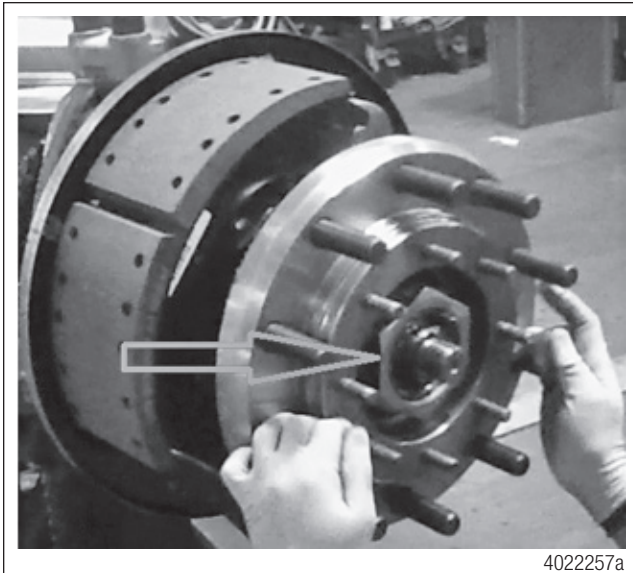


Figure 29

8. Check the end play with a dial indicator. The correct setting is 0.002"-0.004" (0.0508-0.1016 mm). If necessary, repeat the steps until the correct end play is achieved. Figure 30.

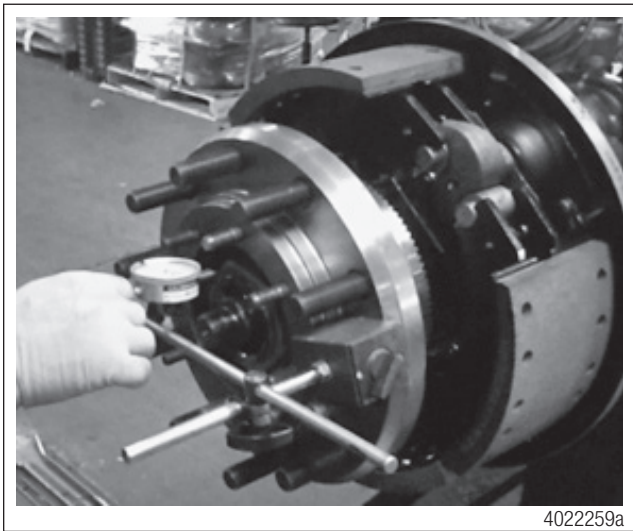


Figure 30

9. Reinstall the shims on the hub. Figure 31.

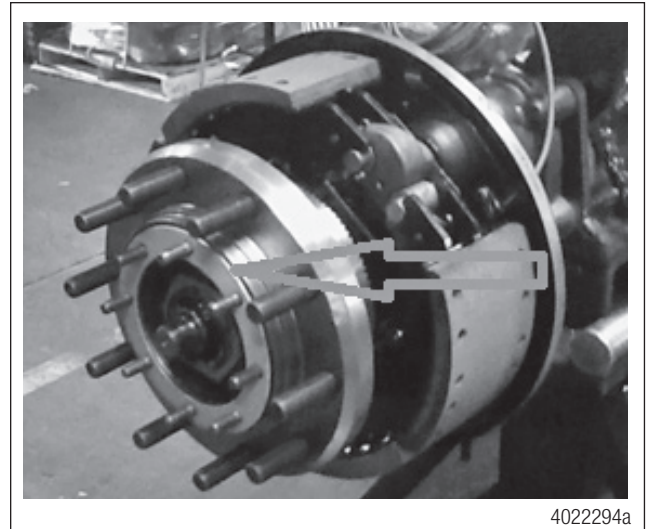


Figure 31

10. Reinstall the drive flange on the hub assembly. Tighten the drive flange lock nuts to 100 lb-ft (135.5 Nm) and the flanged axle lock nut to 400 lb-ft (542 Nm). Figure 32.



Figure 32

11. Reinstall the brake drums.
12. Reinstall the wheel and tire assemblies per the OEM instructions and return the vehicle to service.

FSD-18/20/23 Inspection Procedures

1. Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Raise the front of the vehicle so the front wheels are off the ground. Support the vehicle with safety stands.
2. Remove the front wheel and tire assemblies per the OEM recommended instructions.
3. Remove the brake drums using a suitable lifting device. Figure 33.

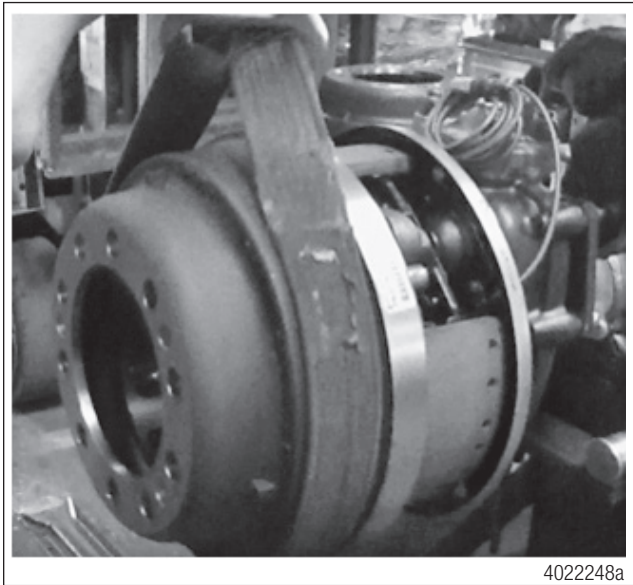


Figure 33

4. Remove the eight 5/8" drive flange lock nuts, then remove the drive flange from the hub. If it is not loose enough to remove by hand, use two 1/2"-20 bolts in the extractor holes to loosen it for removal. Figure 34.

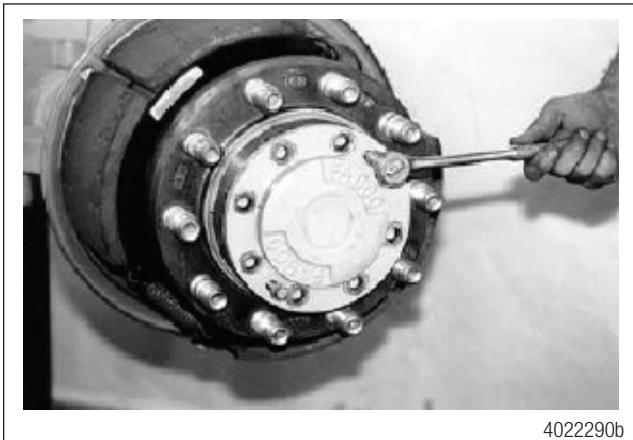


Figure 34

5. Remove the wheel bearing lock nut using a 4-1/8", 6-point socket (OTC 1915 4-1/8" or Snap-On ANS 1915A 4-1/8"). Remove the washer and adjusting nut from the spindle. Figure 35.

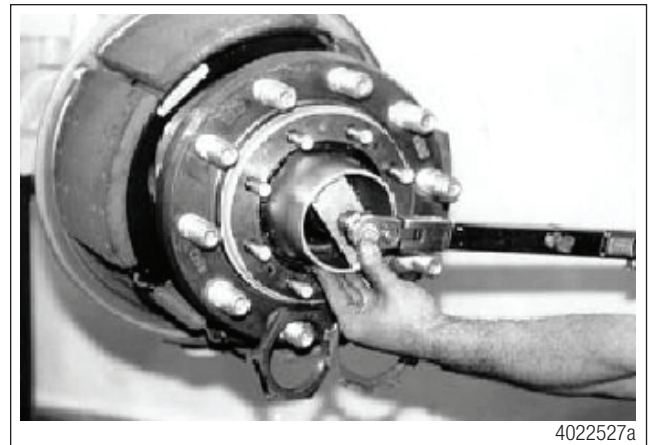


Figure 35

INSPECTION

Inspect parts as they are removed according to Inspection on page 2.

6. Rock the hub in place to loosen the outer wheel bearing cone and remove the bearing from the hub.
7. Remove the hub from the spindle, pulling the assembly straight out to avoid cocking the inner bearing cone. If the cone binds against the spindle, try rocking the hub to free it. If necessary, use a pry bar under the inner surface of the hub to free it. Pry only against the hub to avoid damaging the inner seal. Figure 36.

If the inner bearing remains on the spindle when the hub is removed, use a suitable bearing puller to remove it. Pull only against the bearing race. Alternately, tap lightly on the race outboard surface with a small drift to straighten the alignment and try to remove it again by hand.

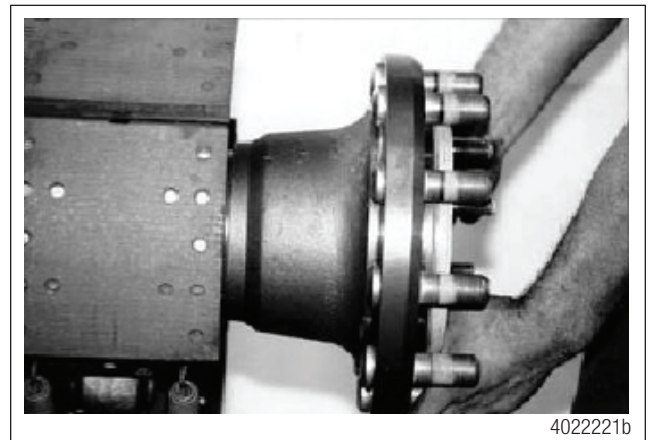


Figure 36

8. Inspect the bearings and hub. Refer to Inspection on page 2 for correct instructions.
9. If necessary, remove the wheel bearing cups from the hub. Pull the cups out evenly using a bearing cup puller or other suitable tool.

Hub Assembly

1. Press the wheel bearing cups into the hub using a suitable driver.
2. Thoroughly pack both bearing cones with grease. Coat the inside surfaces of the hub and bearing cups with grease.
3. Install the inner wheel bearing cone.
4. Place the hub seal on the hub assembly.
5. Use hub seal driver (350-0882) to drive the seal on the hub assembly until completely seated. Figure 37. Refer to Figure 42 for a tool drawing.

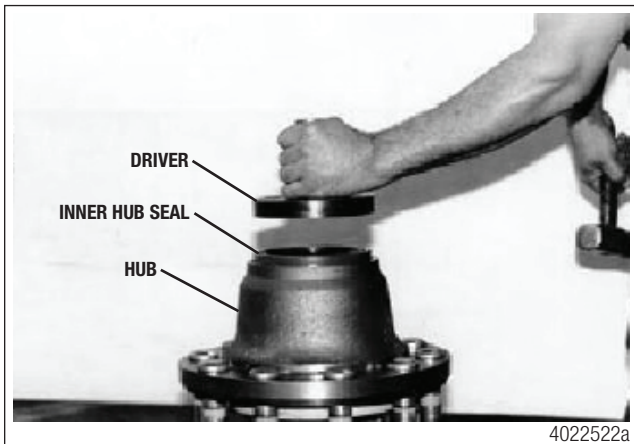


Figure 37

Reassembly and Wheel Bearing Adjustment

1. Lightly coat the outer surface of the spindle with grease to reduce the chance of the inner wheel bearing cocking when the hub is installed.
2. Grasping the outer part of the hub at the 12 and 6 o'clock positions, push the hub straight on to the spindle. If difficulty is encountered, try rocking the hub slightly to free the inner bearing. Figure 38.

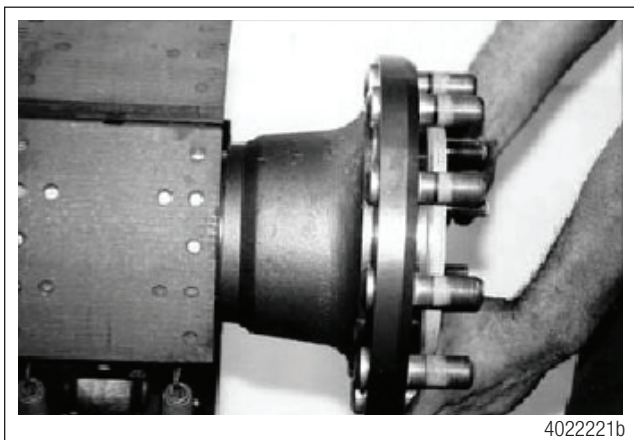


Figure 38

3. Install the greased outer bearing into the hub assembly. Ensure that it is correctly seated.
4. Install the inner bearing adjusting nut. Tighten the bearing adjusting nut to 50 lb-ft (68 Nm) while rotating the hub assembly. Loosen the nut and repeat this procedure 2-3 times to ensure that the bearings are correctly seated. After the final tightening, back off the nut 1/4 turn. Figure 39.

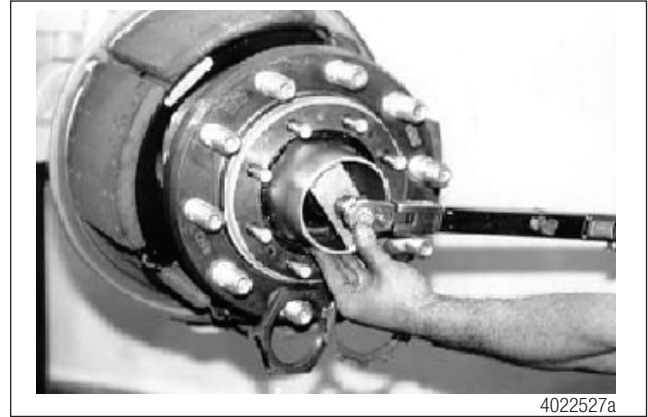


Figure 39

5. Install the wheel bearing lock washer and lock nut, then tighten the lock nut to 400 lb-ft (542 Nm). When the outer lock nut is tightened to specification, the wheel hub should rotate freely.
6. Bend one tab on the lock washer inward and bend one outward across the flattest part of the nut.
7. Check the wheel bearing end play with a dial indicator. The correct end play setting is 0.002"-0.004" (0.0508-0.1016 mm). If necessary, repeat the steps until the correct end play is achieved. Figure 40.

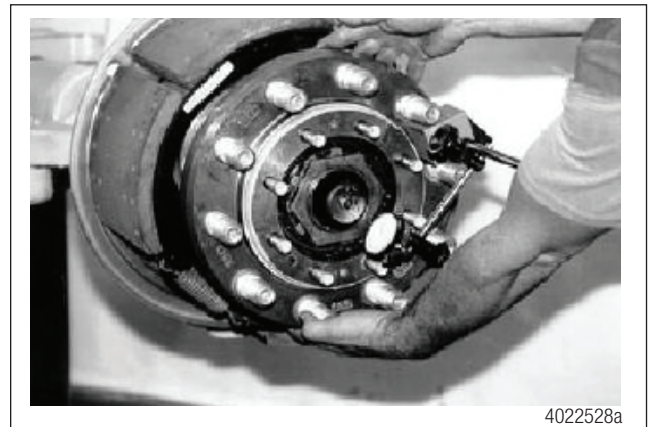


Figure 40

8. Reinstall the drive flange over the hub assembly. Install the lock nuts and tighten to 175 lb-ft (237 Nm).
9. Reinstall the brake drums.
10. Reinstall the wheel and tire assemblies per the OEM instructions and return the vehicle to service.

Hub Seal Driver (866-0707) for FSD-08/10/12/13/14

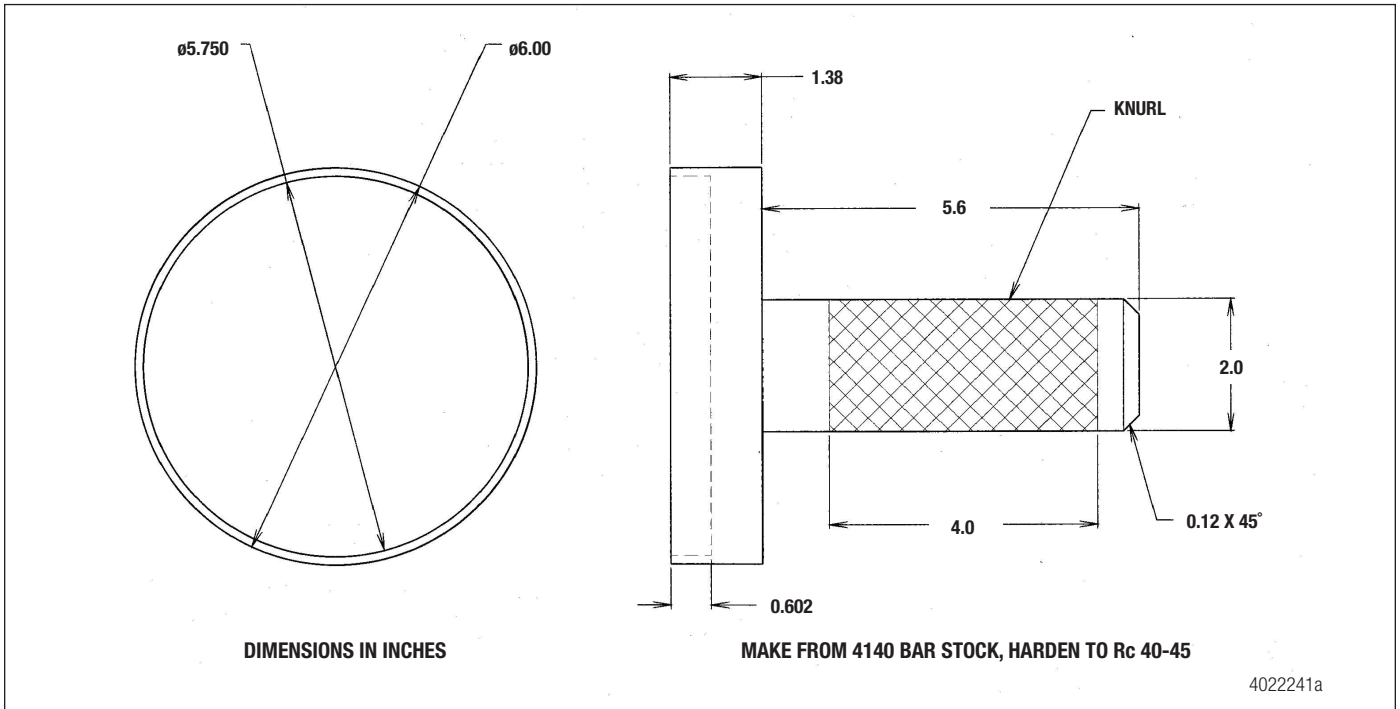


Figure 41

Hub Seal Driver (350-0882) for FSD-18/20/23

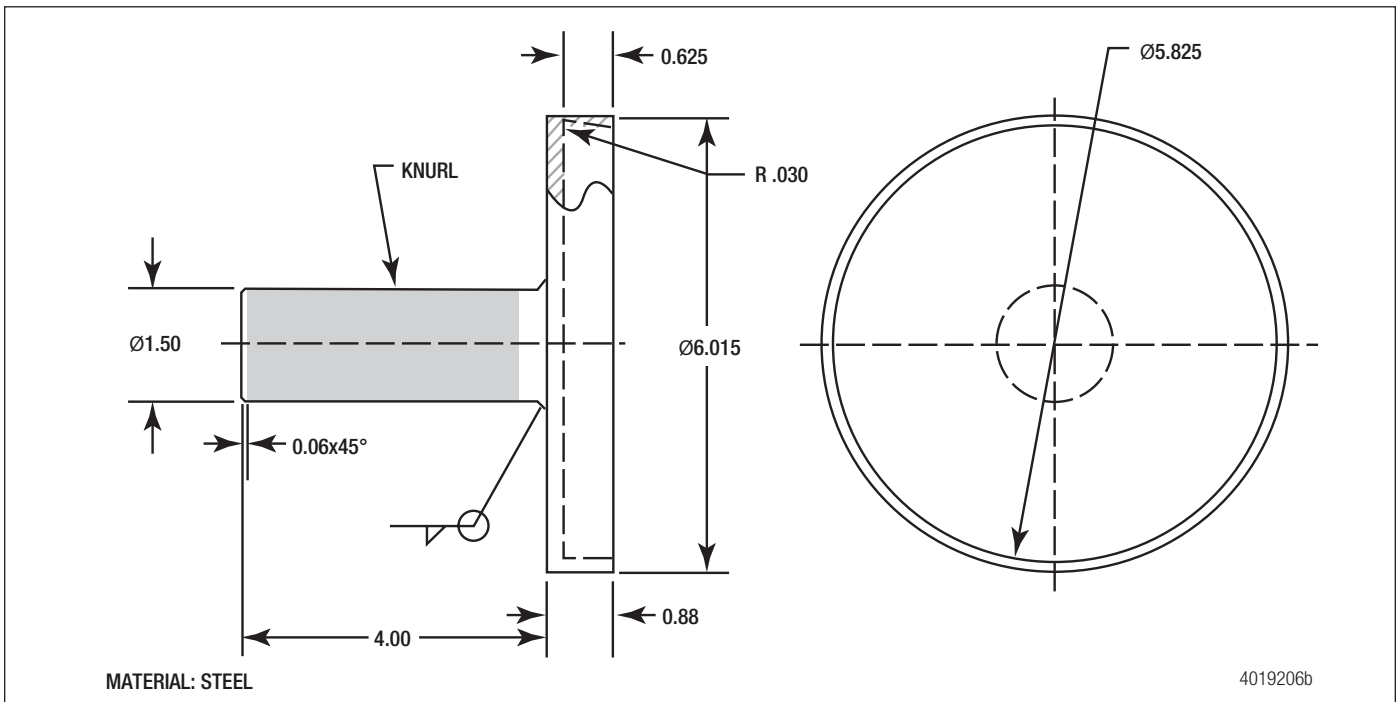


Figure 42



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Printed in USA

TP-2431
 Issued 11-24
 (16579)