

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear High Torque - Mustang

2008 DRIVELINE/AXLES

Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear High Torque - Mustang

SPECIFICATIONS

Material

Item	Specification	Fill Capacity
Additive Friction Modifier XL-3 (US); CXL-3 (Canada)	EST-M2C118-A	118 ml (4 oz.)
High Temperature Nickel Anti-Seize Lubricant XL-2 (US); CXG-2-B (Canada)	ESE-M12A4-A	-
Motorcraft High Contrast Hypoid Gear Marking Compound XG-14	-	-
Motorcraft SAE 75W-140 Synthetic Rear Axle Lubricant XY-75W140-QL (US); CXY-75W140-1L (Canada)	WSL-M2C192-A	2.0L (4.25 pt) to the bottom of the fill hole with the axle at ride height
Premium Long-Life Grease XG-1-C or XG-1-K (US); CXG-1-C (Canada)	ESA-M1C75-B	-
Silicone Gasket and Sealant TA-30	WSE-M4G323-A4	-

GENERAL SPECIFICATIONS

Item	Specification
Clearance, Tolerance and Adjustments	
Maximum axle shaft end play	0.762 mm (0.030 in)
Pinion bearing preload	1.8-3.3 N.m (16-29 lb-in)
Pinion flange runout	0.25 mm (0.010 in) T.I.R.
Ring gear backlash	0.203-0.304 mm (0.008-0.012 in)
Variation between teeth maximum backlash	0.102 mm (0.004 in)

TORQUE SPECIFICATIONS

Description	Nm	lb-ft	lb-in
Anti-lock sensor bolt	7	-	62
Axle fill plug	30	22	-
Differential bearing cap bolts	105	77	-
Differential housing cover bolts	46	33	-
Differential pinion shaft lock bolt	30	22	-
Handle adapter for 205-S127	2.2	-	20
Lower control arm rear bolt	175	129	-

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Lower shock absorber nuts and bolt	115	85	-
Trailing arm nut and bolts	175	129	-
Upper control arm bushing nut and bolt	175	129	-

DESCRIPTION AND OPERATION

REAR DRIVE AXLE AND DIFFERENTIAL

The rear drive axle consists of the following:

- The axle housing is a cast center section with 2 steel tube assemblies and a stamped differential housing cover
- The differential housing cover uses silicone sealant as a gasket
- The hypoid-design gearset (which is not serviced) consists of an 8.8-in ring gear and a drive pinion gear
- Two opposed tapered roller bearings (drive pinion bearings) support the drive pinion in the axle housing
- A drive pinion collapsible spacer, located on the differential pinion shaft, maintains drive pinion bearing preload
- The pinion nut adjusts the drive pinion bearing preload
- Differential bearing shims control the differential bearing preload and the differential ring gear backlash
- Two opposed tapered roller bearings (differential bearings) support the differential assembly in the axle housing
- Removable bearing caps retain the differential assembly in the axle housing
- The differential case is a one-piece design with 2 openings to allow for lubricant flow
- Inside the differential assembly, the differential pinion shaft supports 2 differential pinion gears
- The pinion gears engage the differential side gears, to which the axle shafts are splined
- The differential pinion shaft lock bolt retains the differential pinion shaft in the differential case
- The semi-floating axle shafts are held in the housing by U-washers positioned in the slot on the axle shaft splined end
- These U-washers also fit into a recess in the differential side gears within the differential case
- Independent center spring in Traction-Lok® applications for clutch disc pressure

The 8.8-in high torque differential ring gear should not be removed from the differential flange. If directed to replace the differential ring and pinion gearset or differential case in the Diagnosis and Testing procedure in **DRIVELINE SYSTEM - GENERAL INFORMATION** article, it will be necessary to replace the entire axle assembly. This includes the differential case internals such as side and pinion gears, Traction-Lok® discs and plates, thrust washers or ring gear bolts.

The rear axle assembly receives rotational input from the driveshaft through a piloted pinion flange. The drive pinion drives the ring which is bolted to the differential case. The design of the differential allows the side gears in the case to rotate at different speeds. The axle shafts are splined to the side gears permitting the vehicle to manipulate corners without sliding the inside tire. The weight of the vehicle is carried through the axle shaft bearing located in the tubes of the axle housing.

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The axle identification tag identifies a particular axle design, a specific ratio and if it is a conventional or limited slip (Traction-Lok®) type. In addition, the plant code will not change as long as that particular axle assembly never undergoes an external design change. If, however, an internal design change takes place during the production life of the axle and that internal change affects parts interchangeability, a dash and numerical suffix is added to the plant code. This means that as an assembly, both axles are interchangeable; however, internally they are different. Therefore, each requires different internal parts at the time of repair.

DIAGNOSTIC TESTS

REAR DRIVE AXLE AND DIFFERENTIAL

Refer to **DRIVELINE SYSTEM - GENERAL INFORMATION** article.

IN-VEHICLE SERVICING

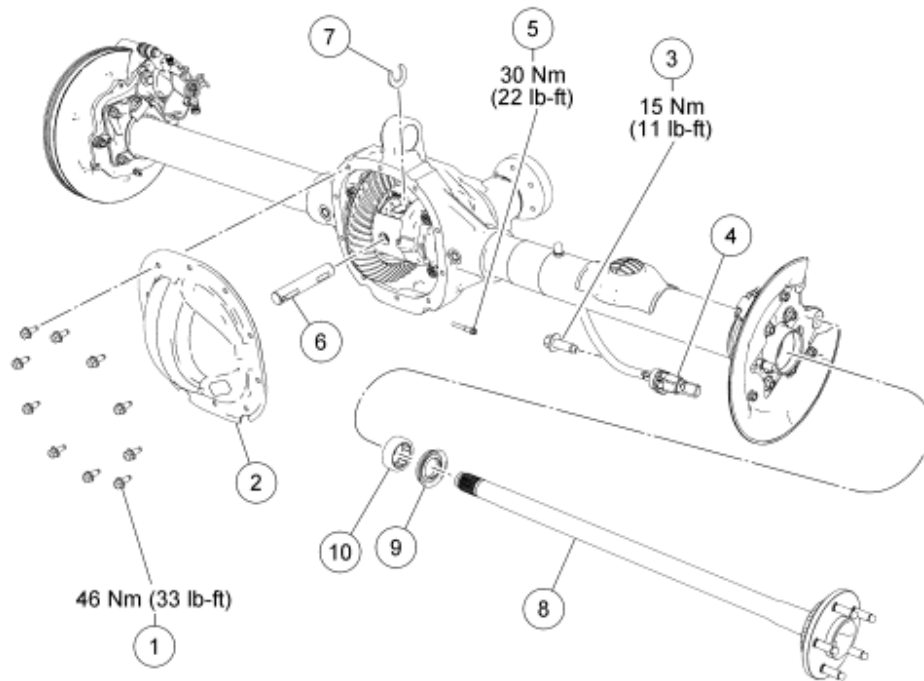
AXLE SHAFT

Material

Item	Specification
High Temperature Nickel Anti-Seize Lubricant XL-2 (US); CXG-2-B (Canada)	ESE-M12A4-A
Premium Long-Life Grease XG-1-C or XG-1-K (US); CXG-1-C (Canada)	ESA-M1C75-B
Threadlock and Sealer TA-25	WSK-M2G351-A5

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Fig. 1: Exploded View Of Axle Shaft With Torque Specifications
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	4346	Differential housing cover bolt (10 required)
2	4033	Differential housing cover
3	-	Wheel speed sensor bolt
4	2C190	Wheel speed sensor
5	4241	Differential pinion shaft lock bolt
6	4211	Differential pinion shaft
7	4N237	Axle shaft U-washer
8	4234	Axle shaft
9	1177	Axle shaft seal
10	1225	Axle shaft bearing

REMOVAL

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING AND LIFTING** article.
2. Remove the rear brake disc. For additional information, refer to **REAR DISC BRAKE** article.

CAUTION: Damage to the rear brake anti-lock sensor may occur if it is not removed before the axle shaft U-washer.

3. Remove the anti-lock sensor bolt, then remove the anti-lock sensor from the hub.

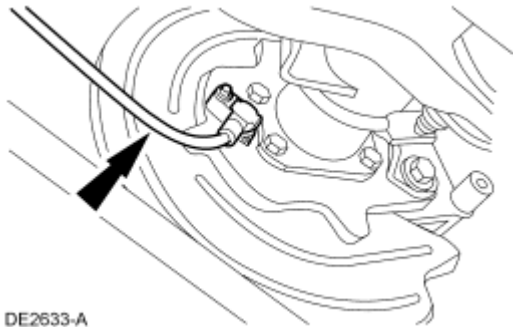


Fig. 2: Identifying Anti-Lock Sensor & Bolt
Courtesy of FORD MOTOR CO.

4. Remove the differential housing cover. For additional information, refer to **Differential Housing Cover**.
5. Remove the differential pinion shaft.
 1. Remove and discard the differential pinion shaft lock bolt.
 2. Remove the differential pinion shaft.

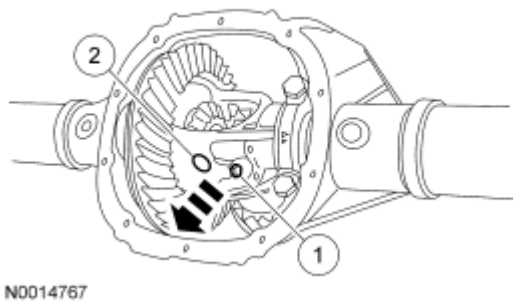


Fig. 3: Locating Differential Pinion Shaft And Lock Bolt
Courtesy of FORD MOTOR CO.

CAUTION: Do not damage the rubber O-ring in the axle shaft grooves.

6. Remove the axle shaft U-washer.
 1. Push in on the axle shaft.
 2. Remove the U-washer.

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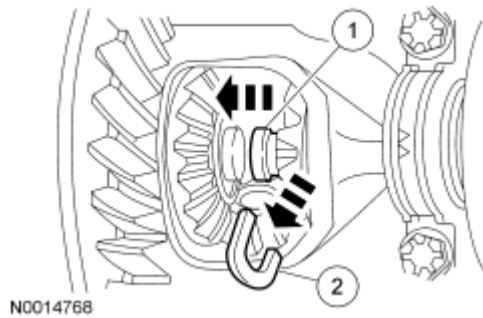


Fig. 4: Removing The U-Washer
Courtesy of FORD MOTOR CO.

CAUTION: Do not damage the axle shaft oil seal.

7. Remove the axle shaft.

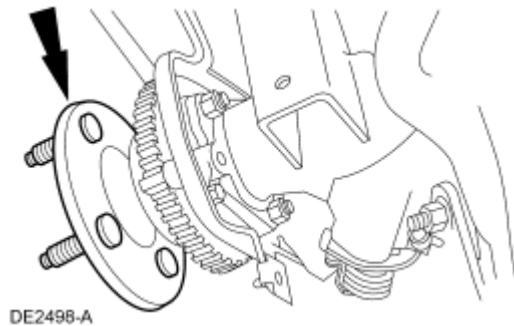


Fig. 5: Locating Axle Shaft
Courtesy of FORD MOTOR CO.

INSTALLATION

1. Lubricate the lip of the axle shaft oil seal with grease.

CAUTION: Do not damage the axle shaft oil seal.

2. Install the axle shaft.

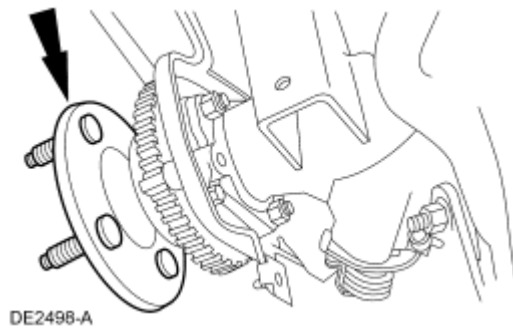


Fig. 6: Locating Axle Shaft
Courtesy of FORD MOTOR CO.

CAUTION: Do not damage the rubber O-ring in the U-washer groove.

3. Install the axle shaft U-washer.
 1. Position the U-washer on the button end of the axle shaft.
 2. Pull the axle shaft outward.

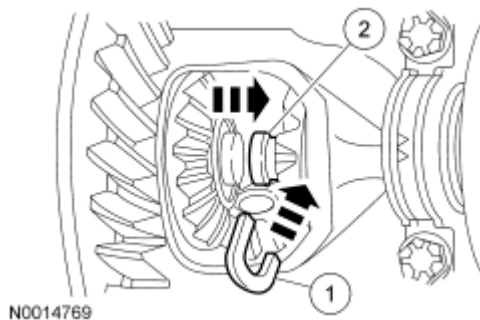
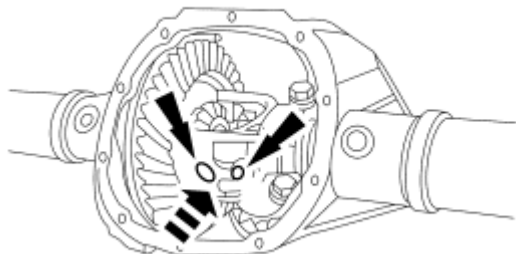


Fig. 7: Installing Axle Shaft U-Washer
Courtesy of FORD MOTOR CO.

NOTE: If a new differential pinion shaft lock bolt is unavailable, coat the threads of the old differential pinion shaft lock bolt with threadlock and sealer.

4. Install the differential pinion shaft.
 - Align the hole in the differential pinion shaft with the differential case lock bolt hole.
 - Install a new differential pinion shaft lock bolt.
 - Tighten to 30 Nm (22 lb-ft).

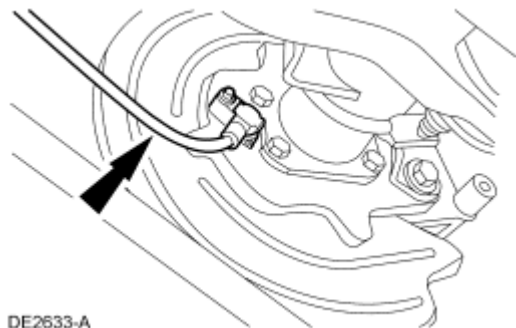


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Fig. 8: Identifying Differential Pinion Shaft Lock Bolt
Courtesy of FORD MOTOR CO.

NOTE: Be sure to apply anti-seize lubricant to the sensor body where it will make contact when installed.

5. Install the anti-lock sensor and the bolt.
 - Tighten to 7 Nm (62 lb-in).



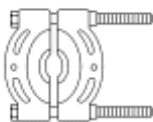
DE2633-A

Fig. 9: Identifying Anti-Lock Sensor & Bolt
Courtesy of FORD MOTOR CO.

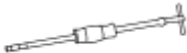
6. Install the brake disc. For additional information, refer to [**REAR DISC BRAKE**](#) article.
7. Install the differential housing cover. For additional information, refer to [**Differential Housing Cover**](#).

REAR WHEEL BEARING AND AXLE SHAFT SEAL

Special Tools

Illustration	Tool Name	Tool Number
 ST1895-A	Adapter For 303-224	205-153 (T80T-4000-W)

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 ST1713-A	Installer, Axle Shaft Bearing	205-124 (T78P-1225-A)
 ST2039-A	Installer, Rear Axle Oil Seal	205-390 (T97T-1177-B)
 ST3030-A	Remover, Axle Bearing	205-219 (T85L-1225-AH)
 ST1185-A	Slide Hammer	100-001 (T50T-100-A)

Material

Item	Specification
Motorcraft SAE 75W-140 Synthetic Rear Axle Lubricant XY-75W140-QL (US); CXY-75W140-1L (Canada)	WSL-M2C192-A
Premium Long-Life Grease XG-1-C or XG-1-K (US); CXG-1-C (Canada)	ESA-M1C75-B

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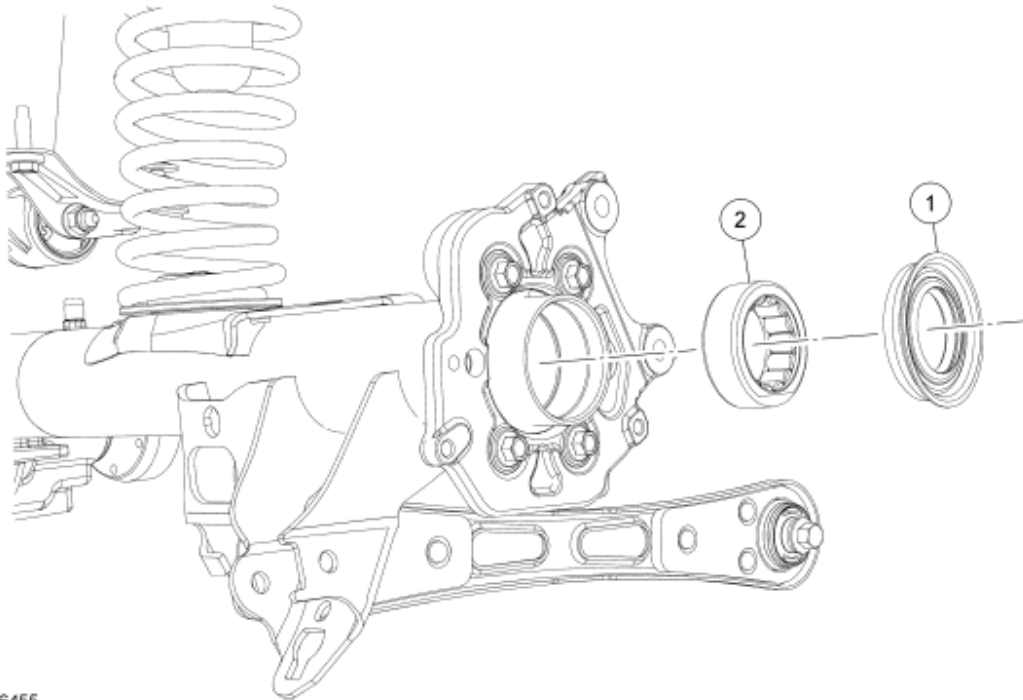


Fig. 10: Exploded View Of Rear Wheel Bearing & Axle Shaft Seal
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	1177	Axle shaft oil seal
2	1225	Rear axle wheel bearing

REMOVAL

1. Remove the axle shaft. For additional information, refer to [Axle Shaft](#).

NOTE: If the axle shaft oil seal is leaking, the axle housing vent may be plugged.

2. Using the special tools, remove the rear wheel bearing and axle shaft oil seal.

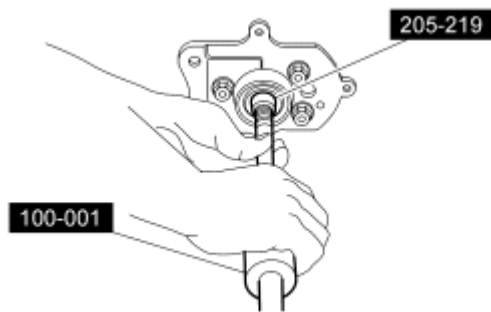


Fig. 11: Removing Rear Wheel Bearing & Axle Shaft Oil Seal Using Special Tools 100-001 & 205-219

Courtesy of FORD MOTOR CO.

INSTALLATION

- 1. Lubricate the new rear wheel bearing with the axle lubricant.
- 2. Using the special tools, install the new rear wheel bearing.

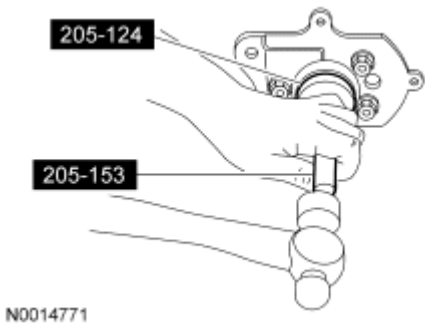


Fig. 12: Installing New Rear Wheel Bearing Using Special Tools 205-153 & 205-124
Courtesy of FORD MOTOR CO.

- 3. Lubricate the lip of the new axle shaft oil seal with grease.
- 4. Using the special tools, install the new axle shaft oil seal.

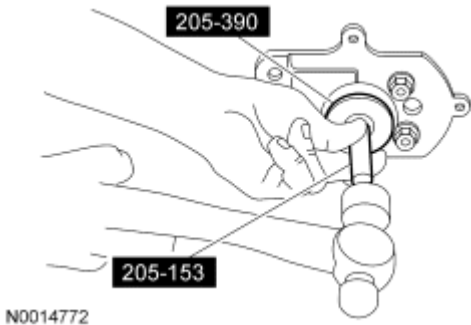


Fig. 13: Installing New Axle Shaft Oil Seal Using Special Tools 205-153 & 205-390
Courtesy of FORD MOTOR CO.

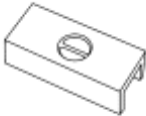
- 5. Install the axle shaft. For additional information, refer to [Axle Shaft](#).

DRIVE PINION FLANGE AND DRIVE PINION SEAL

Special Tools

Illustration	Tool Name	Tool Number

2008 Ford Mustang
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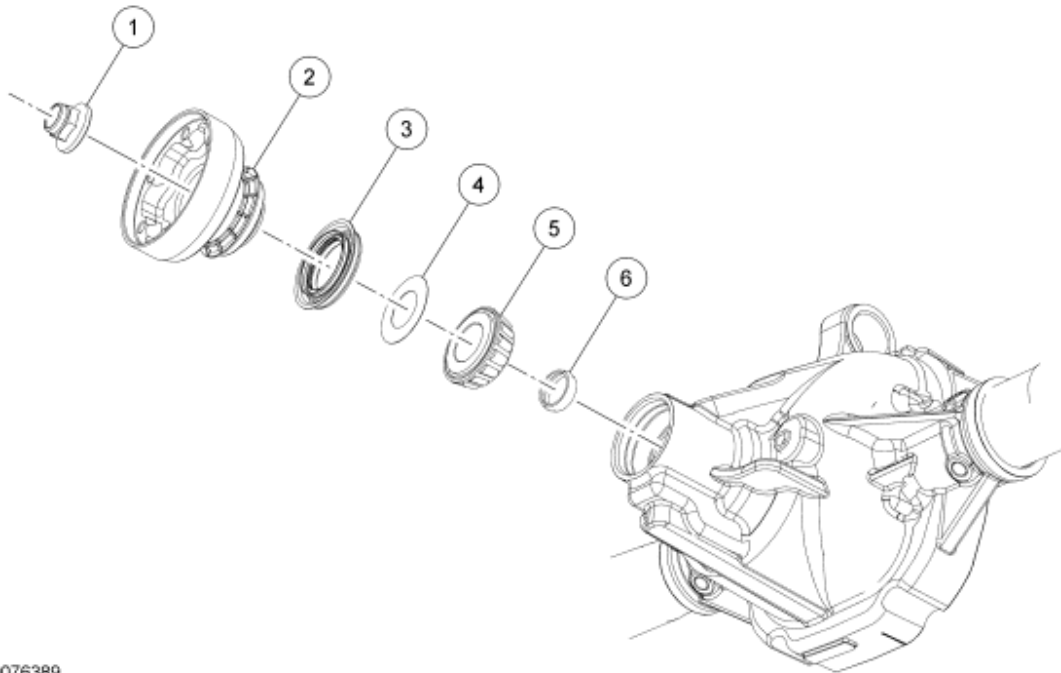
 ST1254-A	Holding Fixture, Drive Pinion Flange	205-126 (T78P-4851-A)
	Installer, Drive Pinion Flange	205-002 (TOOL-4858-E)
 ST1325-A	Installer, Drive Pinion Oil Seal	205-208 (T83T-4676-A)
 ST2026-A	2-Jaw Puller	205-D072 (D97L-4221-A) or equivalent

Material

Item	Specification
Motorcraft SAE 75W-140 Synthetic Rear Axle Lubricant XY-75W140-QL (US); CXY-75W140-1L (Canada)	WSL-M2C192-A
Premium Long-Life Grease XG-1-C or XG-1-K (US); CXG-1-C (Canada)	ESA-M1C75-B

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N0076389

Fig. 14: Exploded View Of Drive Pinion Flange & Drive Pinion Seal
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	4320	Pinion nut
2	4851	Pinion flange
3	4676	Drive pinion seal
4	4670	Drive pinion oil slinger
5	4621	Outer drive pinion bearing
6	4662	Drive pinion collapsible spacer

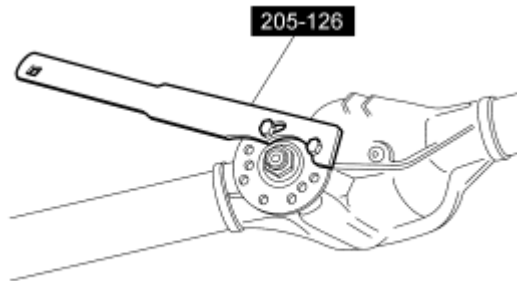
REMOVAL

CAUTION: This operation disturbs the pinion bearing preload. Carefully reset the pinion bearing preload during assembly or damage to the component may occur.

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING AND LIFTING** article.
2. Remove the driveshaft. For additional information, refer to **DRIVESHAFT** article.

NOTE: The disc brake calipers must be removed to prevent brake drag during drive pinion bearing preload adjustment.

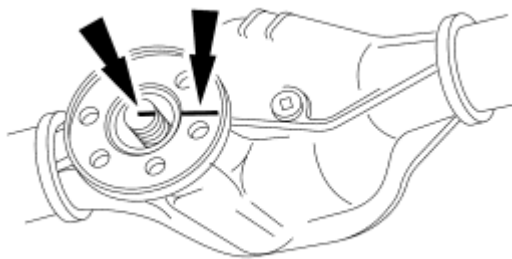
3. Remove the rear brake disc. For additional information, refer to **REAR DISC BRAKE** article.
4. Using the special tool to hold the pinion flange, remove and discard the pinion nut.



N0015317

Fig. 15: Holding Pinion Flange Using Special Tool
Courtesy of FORD MOTOR CO.

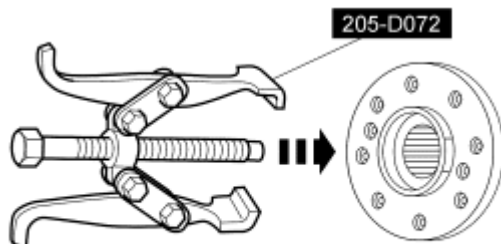
5. Index-mark the pinion flange in relation to the drive pinion stem to make sure of correct alignment during installation.



N0016975

Fig. 16: Locating Index-Mark To Drive Pinion
Courtesy of FORD MOTOR CO.

6. Using the special tool, remove the pinion flange.



N0015316

Fig. 17: Removing Pinion Flange Using Special Tool (205-D072)
Courtesy of FORD MOTOR CO.

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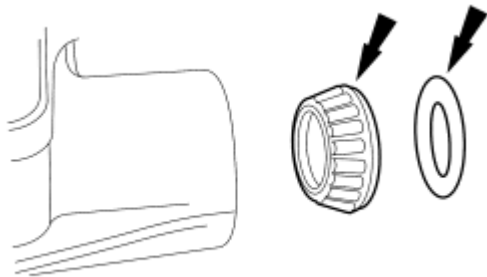
7. Force up on the metal flange of the drive pinion seal. Install gripping pliers and strike with a hammer until the drive pinion seal is removed.



A0008803

Fig. 18: Removing Drive Pinion Oil Seal And Slinger
Courtesy of FORD MOTOR CO.

8. Remove the pinion shaft oil slinger and the outer drive pinion bearing.



GE1074-A

Fig. 19: Identifying Outer Drive Pinion Bearing And Drive Pinion Shaft Oil Slinger
Courtesy of FORD MOTOR CO.

9. Remove and discard the drive pinion collapsible spacer from the pinion stem.

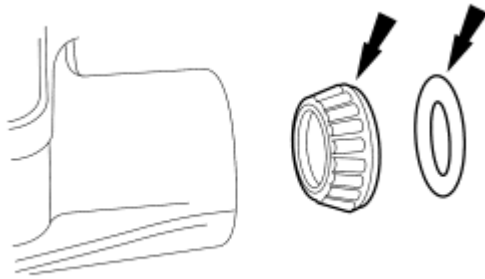
INSTALLATION

CAUTION: Both the collapsible spacer and drive pinion nut supplied in the kit must be installed new or damage to the component may occur.

1. Position the new collapsible spacer from the 4C121 kit on the drive pinion.
2. Position the outer drive pinion bearing and pinion shaft oil slinger on the drive pinion.

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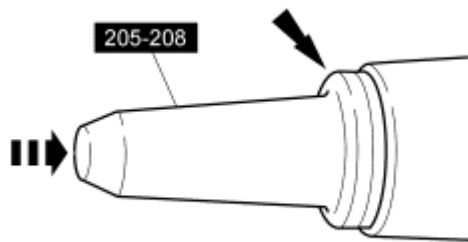
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Fig. 20: Identifying Outer Drive Pinion Bearing And Drive Pinion Shaft Oil Slinger
Courtesy of FORD MOTOR CO.

3. Lubricate the new drive pinion seal with grease.

NOTE: If the new drive pinion seal becomes misaligned during installation, remove the drive pinion seal and install a new drive pinion seal.

4. Using the special tool, install a new drive pinion seal.



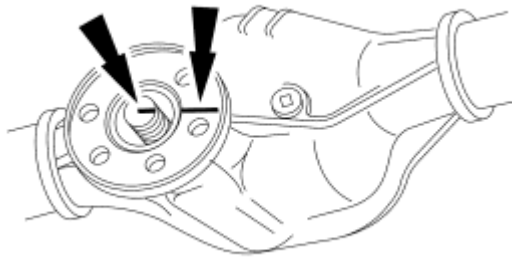
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Fig. 21: Using Special Tool (205-208) To Install Drive Pinion Seal
Courtesy of FORD MOTOR CO.

5. Lubricate the pinion flange splines with axle lubricant.

NOTE: Disregard the scribe marks if a new pinion flange is being installed.

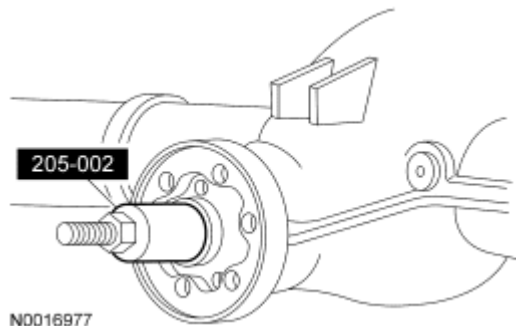
6. Align the pinion flange with the drive pinion shaft.



N0016975

Fig. 22: Locating Index-Mark To Drive Pinion
Courtesy of FORD MOTOR CO.

7. Using the special tool, install the pinion flange.



N0016977

Fig. 23: Installing Pinion Flange Using Special Tool 205-002
Courtesy of FORD MOTOR CO.

CAUTION: Install the new pinion nut from the 4C121 kit or damage to the component may occur.

8. Install the new pinion nut. Only hand-tighten the pinion nut at this time.

NOTE: Under no circumstances is the pinion nut to be backed off to reduce drive pinion bearing preload. If reduced drive pinion bearing preload is required, a new drive pinion collapsible spacer and pinion nut must be installed.

NOTE: Remove the special tool while taking drive pinion bearing preload readings with the Nm (lb-in) torque wrench.

9. Using the special tool to hold the pinion flange, tighten the pinion nut.
 - Rotate the drive pinion occasionally to make sure the drive pinion bearings are seating correctly.
 - Install a Nm (lb-in) torque wrench on the pinion nut.
 - Rotating the drive pinion through several revolutions, take frequent drive pinion bearing preload readings until the drive pinion bearing preload reading is obtained. For additional information, refer

to **SPECIFICATIONS.**

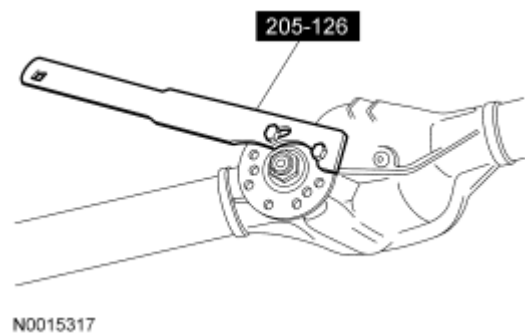


Fig. 24: Holding Pinion Flange Using Special Tool
Courtesy of FORD MOTOR CO.

- 10. Install the driveshaft. For additional information, refer to **DRIVESHAFT** article.
- 11. Install the rear brake disc. For additional information, refer to **REAR DISC BRAKE** article.

DIFFERENTIAL HOUSING COVER

Material

Item	Specification
Motorcraft SAE 75W-140 Synthetic Rear Axle Lubricant XY-75W140-QL (US); CXY-75W140-1L (Canada)	WSL-M2C192-A
Silicone Gasket and Sealant TA-30	WSE-M4G323-A4

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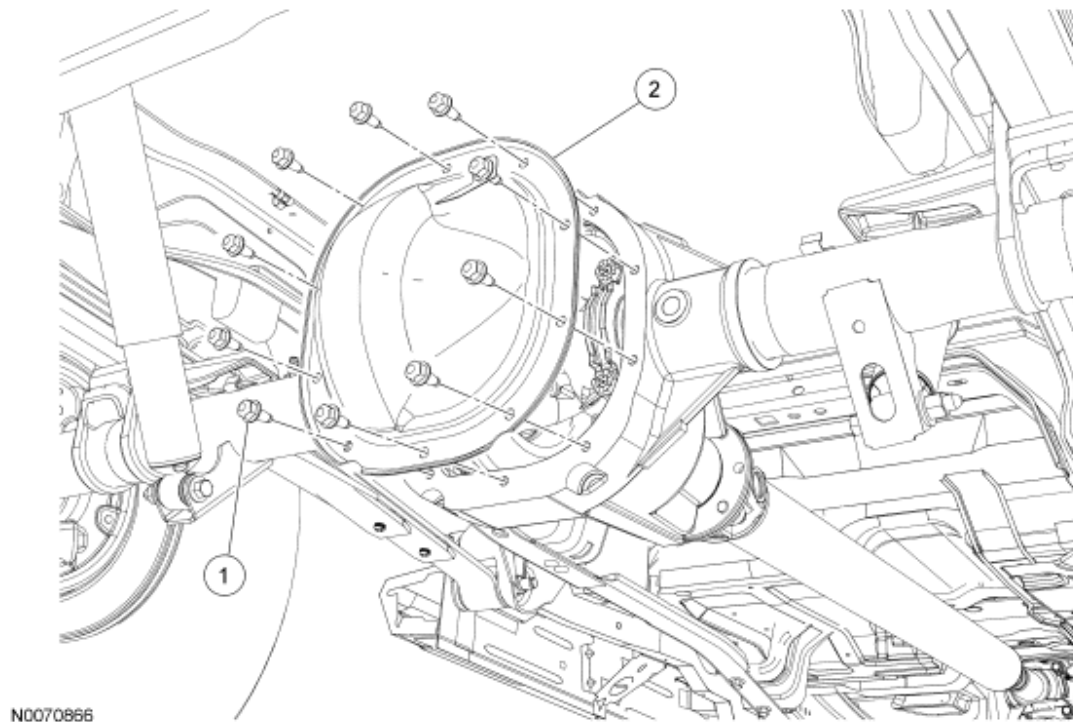


Fig. 25: Exploded View Of Differential Housing Cover
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	4346	Differential housing cover bolt (10 required)
2	4033	Differential housing cover

REMOVAL

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING AND LIFTING** article.
2. Remove the differential housing cover.
 1. Remove the 10 differential housing cover bolts and drain the lubricant from the axle housing.
 2. Remove the differential housing cover.

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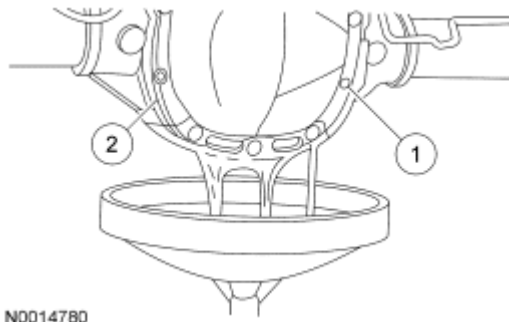


Fig. 26: Identifying Differential Housing Cover And Bolts
Courtesy of FORD MOTOR CO.

INSTALLATION

CAUTION: Make sure the machined surfaces on both the axle housing and the differential housing cover are clean and free of oil before installing the new silicone sealant. The inside of the axle housing must be covered when cleaning the machined surface to prevent contamination.

1. Clean the gasket mating surface of the axle housing and the differential housing cover.
2. Apply a new continuous bead of sealant to the differential housing cover.

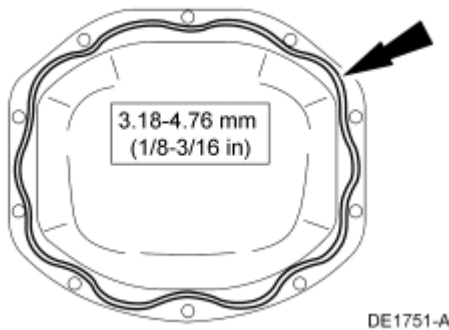


Fig. 27: Applying Sealer To Cover
Courtesy of FORD MOTOR CO.

NOTE: The differential housing cover must be installed within 5 minutes of application of the silicone sealant, or new sealant must be applied. If possible, allow 4 hours before filling the axle housing with axle lubricant to make sure the silicone sealant has cured.

3. Install the differential housing cover and the 10 differential housing cover bolts in the sequence shown.
 - Tighten to 46 Nm (33 lb-ft).

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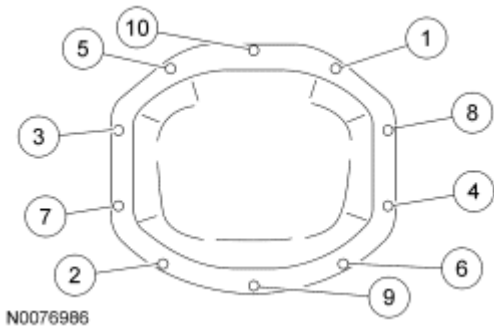


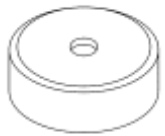
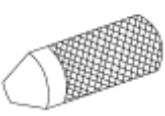
Fig. 28: Installing Differential Housing Cover & Differential Housing Cover Bolts In Sequence
Courtesy of FORD MOTOR CO.

NOTE: Service refill capacities are determined by filling the axle to the bottom of the fill hole with the axle at ride height.

4. Remove the axle plug, fill the axle with 2.0L (4.25 pt) of axle lubricant and install the filler plug.
- Tighten to 30 Nm (22 lb-ft).

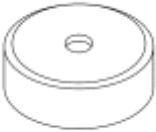
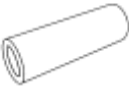
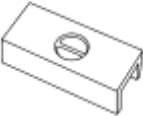
DIFFERENTIAL BEARINGS

Special Tools

Illustration	Tool Name	Tool Number
 ST1743-A	Adapter For 205-S127	205-105 (T76P-4020-A3)
 ST1429-A	Adapter For 205-S127	205-109 (T76P-4020-A9)
 ST1431-A	Adapter For 205-S127	205-110 (T76P-4020-A10)
 ST1432-A	Adapter For 205-S127	205-111 (T76P-4020-A11)

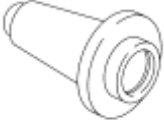
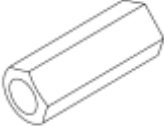
2008 Ford Mustang

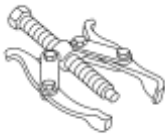
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear High Torque - Mustang

 ST1743-A	Adapter For 205-S127	205-129 (T79P-4020-A18)
 ST1434-A	Adapter For 205-S127	205-130 (T79P-4020-A19)
 ST1137-A	Dial Indicator With Holding Fixture	100-002 (TOOL-4201-C) or equivalent
 ST1268-A	Gauge, Clutch Housing	308-021 (T57L-4201-A)
 ST1254-A	Holding Fixture, Drive Pinion Flange	205-126 (T78P-4851-A)
 ST1375-A	Installer, Differential Side Bearing	205-010 (T57L-4221-A2)
 ST1367-A	Installer, Drive Pinion Bearing Cone	205-005 (T53T-4621-C)
 ST1678-A	Installer, Drive Pinion Bearing Cup	205-024 (T67P-4616-A)

2008 Ford Mustang

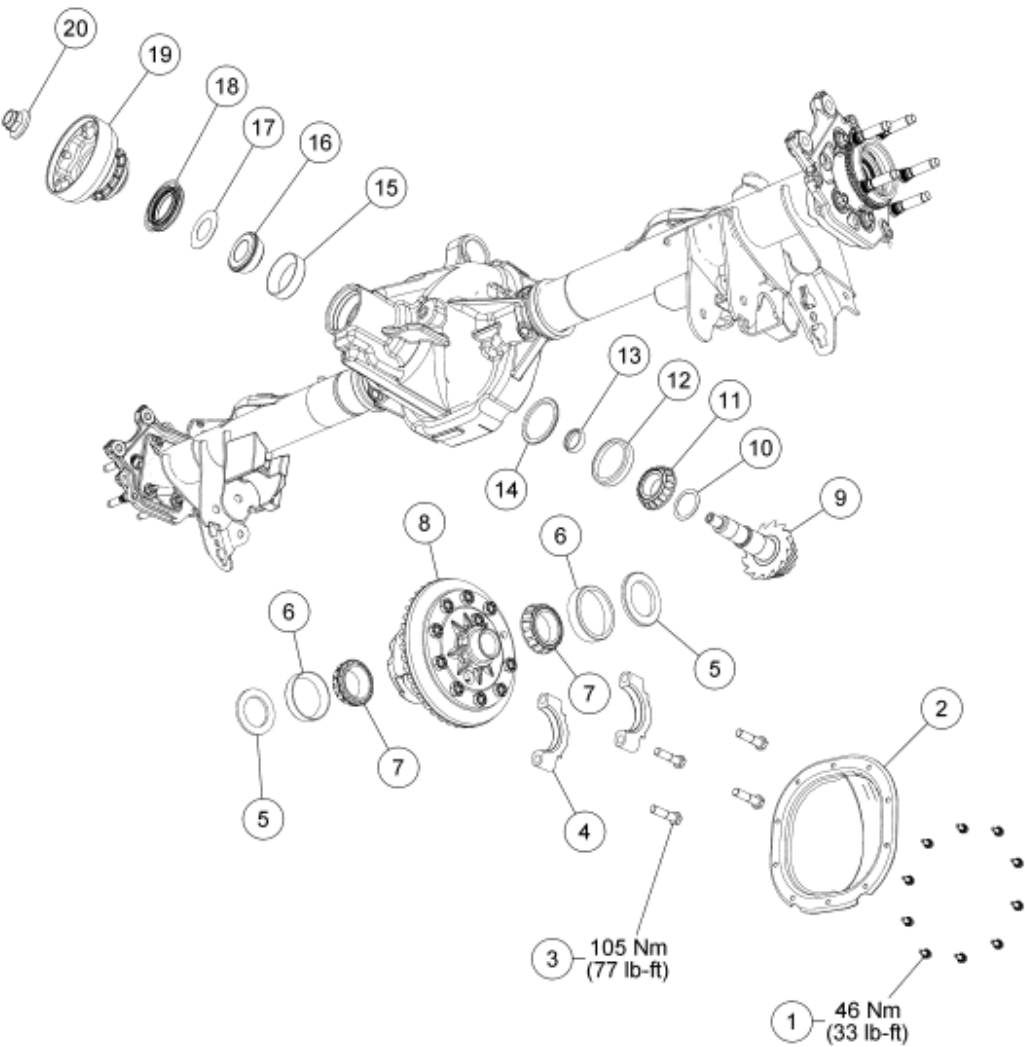
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear High Torque - Mustang

 ST1325-A	Installer, Drive Pinion Flange	205-002 (TOOL-4858-E) or equivalent
 ST1325-A	Installer, Drive Pinion Oil Seal	205-208 (T83T-4676-A)
 ST1254-A	Plate, Bearing Oil Seal	205-090 (T75L-1165-B)
 ST1744-A	Protector, Drive Pinion Thread	205-460 or equivalent
 ST1368-A	Puller, Bearing	205-D064 (D84L-1123-A) or equivalent
 ST1220-A	Remover, Differential Bearing	205-116 (T77F-4220-B1)
 ST1485-A	Shim Driver	205-220 (T85L-4067-AH)
 ST1543-A	Step Plate	205-D016 (D83T-4205-C2) or equivalent

 ST2026-A	2-Jaw Puller	205-D072 (D79L-4221-A1) or equivalent
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Material

Item	Specification
Motorcraft High Contrast Hypoid Gear Marking Compound XG-14	-



N0076274

Fig. 29: Exploded View Of Differential Bearings With Torque Specifications
 Courtesy of FORD MOTOR CO.

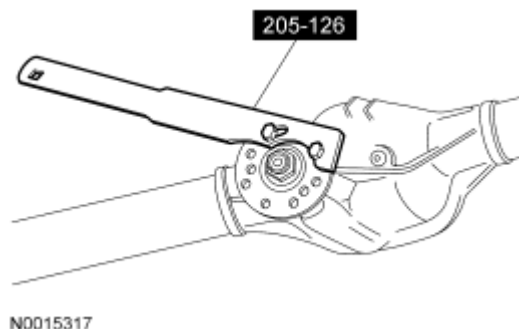
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2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear High Torque - Mustang

Item	Part Number	Description
1	4346	Differential housing cover bolt (10 required)
2	4033	Differential housing cover
3	-	Differential bearing cap bolt (part of 4010)
4	-	Differential bearing cap (part of 4010)
5	4067	Differential bearing shims (2 required)
6	4222	Differential bearing cups (2 required)
7	4221	Differential bearings (2 required)
8	4205	Differential assembly
9	4209	Drive pinion
10	4663	Pinion bearing adjustment shim
11	4630	Inner pinion bearing
12	4628	Inner pinion bearing cup
13	4662	Collapsible spacer
14	4264	Inner pinion bearing cup shim
15	4616	Outer pinion bearing cup
16	4621	Outer pinion bearing
17	4670	Pinion oil slinger
18	4676	Pinion oil seal
19	4851	Pinion flange
20	4320	Pinion nut

REMOVAL

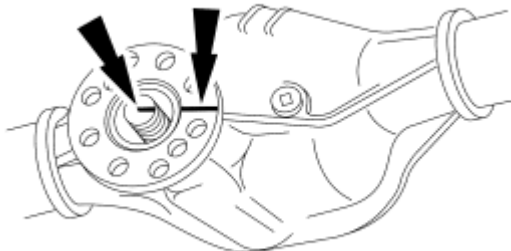
1. Remove the driveshaft. For additional information, refer to **DRIVESHAFT** article.
2. Remove the differential carrier assembly. For additional information, refer to **Differential Carrier**.
3. Use the special tool to hold the pinion flange while removing the drive pinion nut.
 - Discard the drive pinion nut.



N0015317

Fig. 30: Holding Pinion Flange Using Special Tool
Courtesy of FORD MOTOR CO.

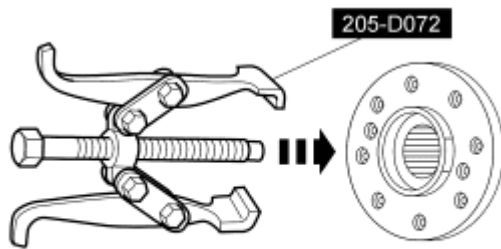
4. Index-mark the pinion flange and the drive pinion stem for correct alignment during installation.



DE1320-A

Fig. 31: Placing Index Marks On Pinion Flange
Courtesy of FORD MOTOR CO.

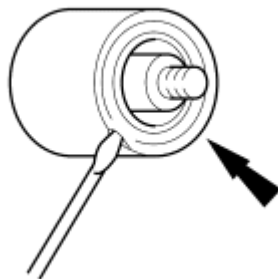
5. Using the special tool, remove the pinion flange.



N0015316

Fig. 32: Removing Pinion Flange Using Special Tool (205-D072)
Courtesy of FORD MOTOR CO.

6. Using a screwdriver, force up the rear axle drive pinion seal metal flange.



DE0499-B

Fig. 33: Forcing Up The Rear Axle Drive Pinion Seal Metal Flange
Courtesy of FORD MOTOR CO.

7. Using gripping pliers and a hammer, remove the axle drive pinion seal.



A0008803

Fig. 34: Removing Drive Pinion Oil Seal And Slinger
Courtesy of FORD MOTOR CO.

8. Remove the axle drive pinion shaft oil slinger.
9. Using the special tool and a soft-faced hammer, drive the pinion assembly out of the outer pinion bearing and remove it through the rear of the differential housing.

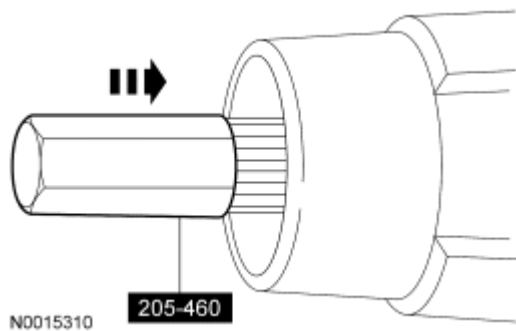
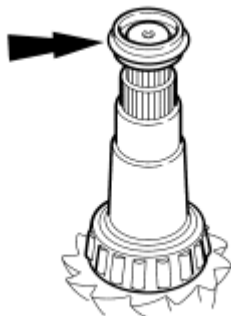


Fig. 35: Driving Pinion Assembly Out Of Axle Housing Using Special Tool (205-460)
Courtesy of FORD MOTOR CO.

10. Remove the outer pinion bearing.
11. Remove the drive pinion collapsible spacer and discard it.



DE0255-C

Fig. 36: Identifying Drive Pinion Collapsible Spacer
Courtesy of FORD MOTOR CO.

12. Using the special tool and a suitable press, remove the inner pinion bearing.

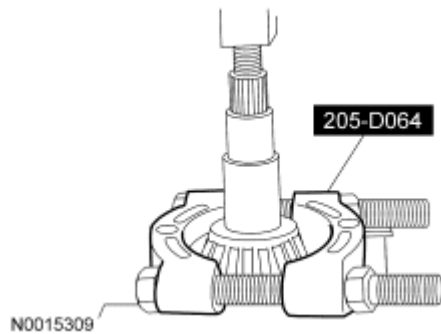
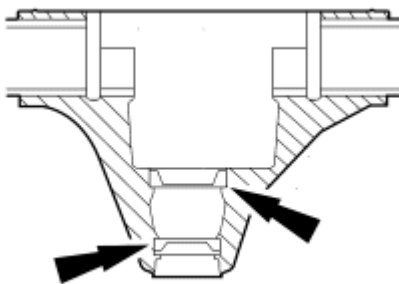


Fig. 37: Inner Pinion Bearing & Special Tool (205-D064)
Courtesy of FORD MOTOR CO.

13. Using a brass drift, remove the pinion bearing cups by tapping alternately on opposite sides of the bearing cups.



DE2511-A

Fig. 38: Identifying Pinion Bearing Cups
Courtesy of FORD MOTOR CO.

14. Remove the inner pinion cup shim from the housing.
15. Using the special tools, remove the 2 differential bearings.

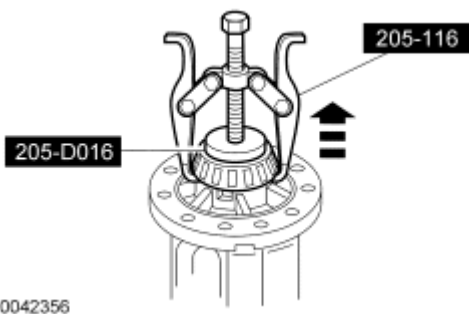
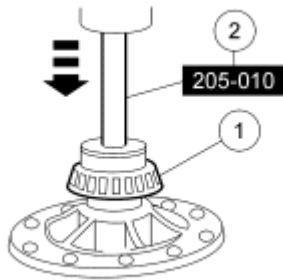


Fig. 39: Removing Differential Bearings
Courtesy of FORD MOTOR CO.

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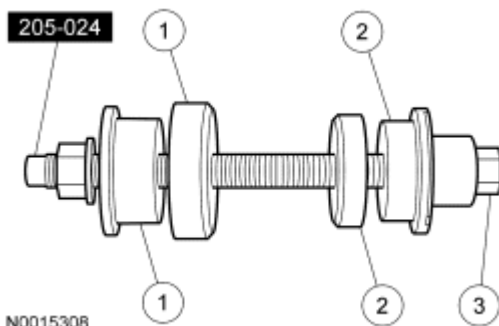
1. Press the 2 differential bearings on the differential assembly.
 1. Position the differential bearings.
 2. Using the special tool, press the differential bearings on the differential assembly.



N0014139

Fig. 40: Installing Differential Bearings
Courtesy of FORD MOTOR CO.

2. Install the inner pinion bearing cup shim in the housing.
3. Position the special tool and the inner and outer bearing cups in their respective bores.
 1. After placing the inner and outer bearing cups in their respective bores, place the special tool on the inner bearing cup.
 2. Place the special tool on the outer bearing cup.
 3. Install the special tool.



N0015308

Fig. 41: Identifying Special Tool (205-024) Components
Courtesy of FORD MOTOR CO.

4. Tighten the special tool to seat the pinion bearing cups in their bores.

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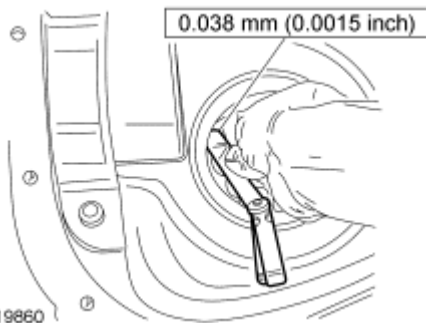


N0015307

Fig. 42: Identifying Special Tool (205-024) To Seat Pinion Bearing Cups
Courtesy of FORD MOTOR CO.

NOTE: If a feeler gauge of the specification shown can be inserted between a cup and the bottom of its bore at any point around the cup, the cup is not correctly seated.

5. Make sure the differential pinion bearing cups are correctly seated.



N0019860

Fig. 43: Checking Clearance Between Cup And Bore
Courtesy of FORD MOTOR CO.

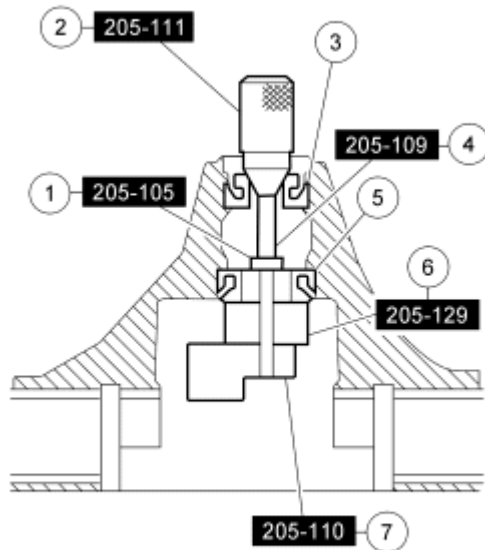
NOTE: Install new drive pinion bearings without any additional lubricant since the anti-rust oil provides adequate lubricant without upsetting the drive pinion bearing preload settings.

6. Assemble and position the drive pinion depth gauge set.
 1. Position the screw.
 2. Position the aligning adapter.
 3. Position the gauge disc.
 4. Position the gauge block.
 5. Position the inner drive pinion bearing.
 6. Position the outer drive pinion bearing.
 7. Thread on the handle and tighten.

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- Tighten to 2.2 Nm (20 lb-in).

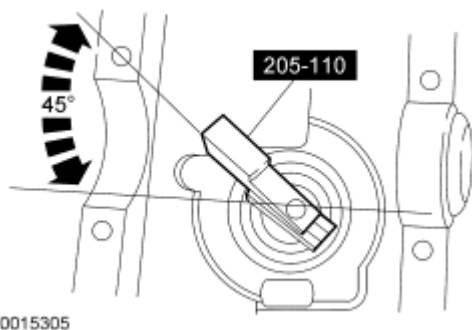


N0015306

Fig. 44: Identifying Drive Pinion Depth Gauge Set
Courtesy of FORD MOTOR CO.

NOTE: The gauge block must be offset to obtain an accurate reading.

7. Rotate the gauge block several half turns to make sure of correct seating of the drive pinion bearings and position the gauge block.



N0015305

Fig. 45: Rotating Gauge Block For Correct Seating Of Drive Pinion Bearings
Courtesy of FORD MOTOR CO.

8. Install the special tool.
 1. Position the gauge tube and the paper shipping tabs.

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2. Install the 2 differential bearing caps.
3. Install the 4 differential bearing cap bolts.
 - Tighten to 105 Nm (77 lb-ft).

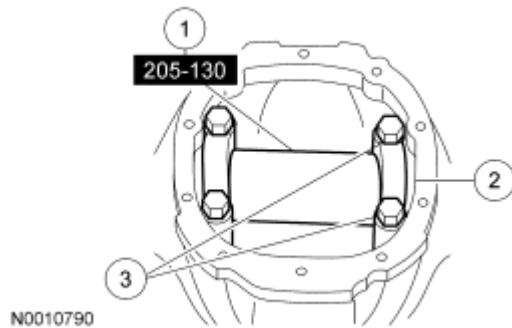


Fig. 46: Identifying Special Tool (205-130)
Courtesy of FORD MOTOR CO.

NOTE: Drive pinion bearing adjustment shims must be flat and clean.

NOTE: A slight drag should be felt for correct drive pinion bearing adjustment shim selection. Do not attempt to force the drive pinion bearing adjustment shim between gauge block and gauge tube. This will minimize selection of a drive pinion bearing adjustment shim thicker than required, which results in a deep tooth contact in final assembly of integral axle assemblies.

9. Use a drive pinion bearing adjustment shim as a gauge for drive pinion bearing adjustment shim selection.
 - After the correct drive pinion bearing adjustment shim thickness has been determined, remove all of the special tools.

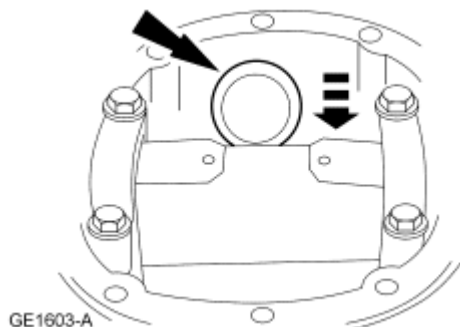


Fig. 47: Identifying Drive Pinion Bearing Adjustment Shim
Courtesy of FORD MOTOR CO.

10. Using the special tool and a shop press, drive the inner drive pinion bearing and drive pinion bearing

adjustment shim until they are firmly seated on the pinion shaft.

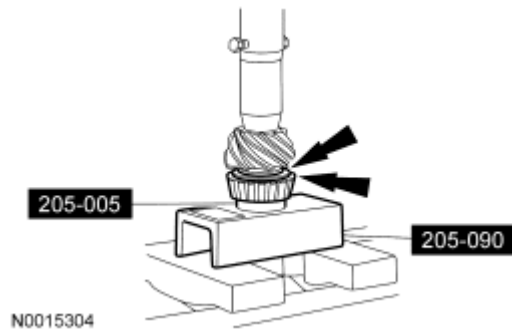


Fig. 48: Locating Inner Drive Pinion Bearing
Courtesy of FORD MOTOR CO.

11. Install a new drive pinion collapsible spacer on the pinion shaft against the pinion shaft shoulder.

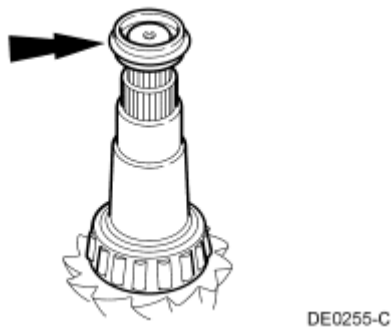


Fig. 49: Identifying Drive Pinion Collapsible Spacer
Courtesy of FORD MOTOR CO.

12. Install the drive pinion assembly into the axle housing.

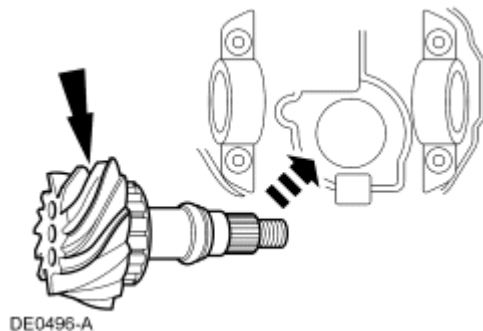
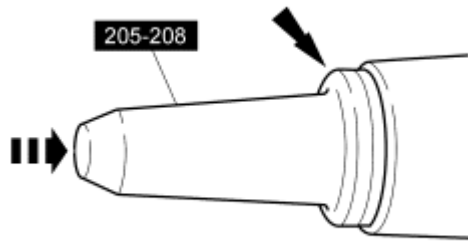


Fig. 50: Locating Drive Pinion Gear
Courtesy of FORD MOTOR CO.

13. Install the outer drive pinion bearing and the drive pinion shaft oil slinger.
14. Using the special tool, install the drive pinion seal.

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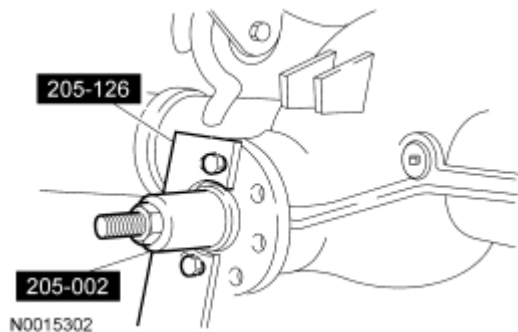
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear High Torque - Mustang



N0015303

Fig. 51: Using Special Tool (205-208) To Install Drive Pinion Seal
Courtesy of FORD MOTOR CO.

15. Using the special tools, install the drive pinion flange.



N0015302

Fig. 52: Using Special Tools (205-126, 205-002) To Hold Drive Pinion Flange
Courtesy of FORD MOTOR CO.

NOTE: Do not, under any circumstance, loosen the drive pinion nut to reduce pinion bearing preload. If it is necessary to reduce the preload, install a new drive pinion collapsible spacer and drive pinion nut or damage to the component may occur.

NOTE: Remove the special tool while taking rotational pinion bearing preload checks with the Nm (lb-in) torque wrench.

16. Use the special tool to hold the pinion flange while tightening the pinion nut.
- Rotate the pinion occasionally to make sure the differential pinion bearings are seating correctly. Take frequent differential pinion bearing preload checks by rotating the differential pinion with a Nm (lb-in) torque wrench. Tighten the pinion nut in small increments to avoid excessive pinion bearing preload. Tighten the pinion nut until the drive pinion bearing preload is in specification.

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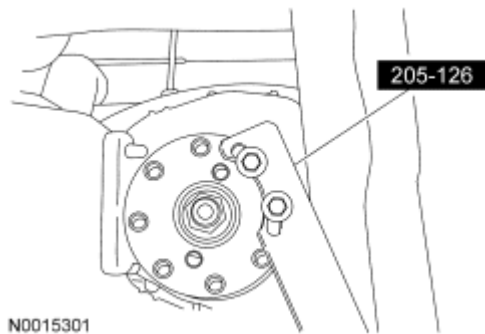


Fig. 53: Using Special Tool (205-126) To Hold Pinion Flange
Courtesy of FORD MOTOR CO.

17. Place the differential carrier assembly with the new differential carrier bearing cups in the axle housing.

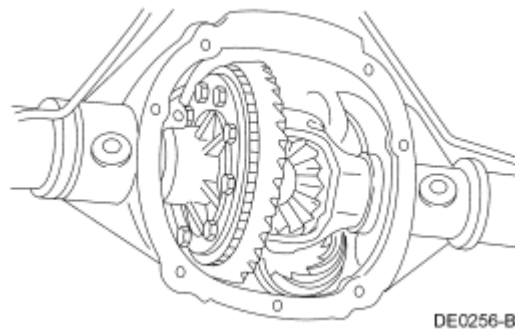


Fig. 54: Positioning Differential Assembly In Axle Housing
Courtesy of FORD MOTOR CO.

18. Install a differential bearing shim on the LH side.

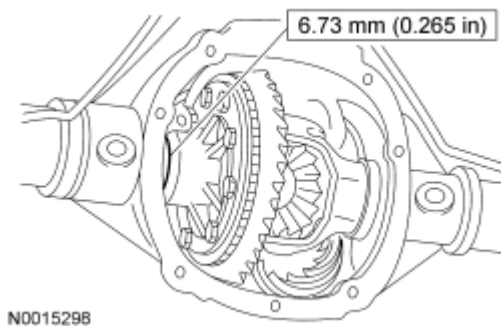


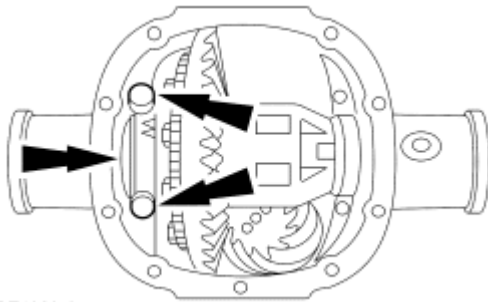
Fig. 55: Locating Differential Bearing Shim
Courtesy of FORD MOTOR CO.

NOTE: Apply pressure toward the LH side to make sure the left differential bearing cup is seated.

19. Install the LH differential bearing cap and loosely install the 2 differential bearing cap bolts.

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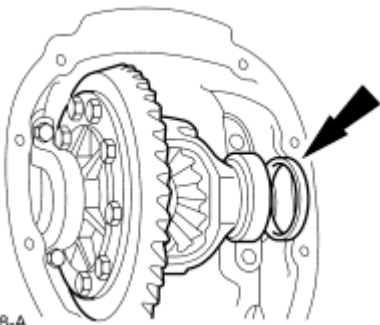
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DE1323-A

Fig. 56: Identifying LH Differential Bearing Cap And Bolts
Courtesy of FORD MOTOR CO.

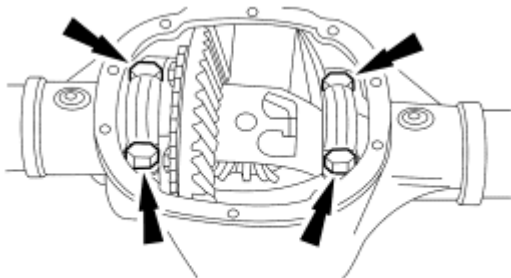
20. Install progressively larger differential bearing shims on the RH side until the largest differential bearing shim selected can be inserted by hand.



GE1608-A

Fig. 57: Differential Bearing Shim
Courtesy of FORD MOTOR CO.

21. Install the RH side differential bearing cap and tighten the 2 differential bearing cap bolts.
 - Tighten to 105 Nm (77 lb-ft).



N0010791

Fig. 58: Identifying Differential Bearing Cap And Differential Bearing Cap Bolts
Courtesy of FORD MOTOR CO.

22. Rotate the differential assembly to make sure it rotates freely.

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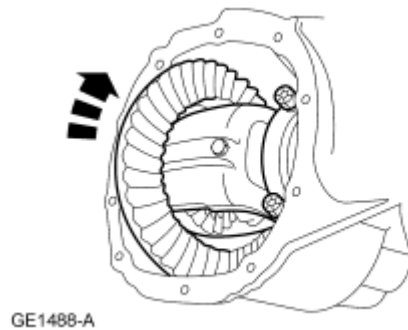


Fig. 59: Rotating Differential Assembly
Courtesy of FORD MOTOR CO.

23. Install the special tools and measure the ring gear backlash.
- If the backlash is within specification, proceed to Step 28.
 - If a zero backlash condition occurs, proceed to Step 24.
 - If the backlash is not within specification, proceed to Step 25.

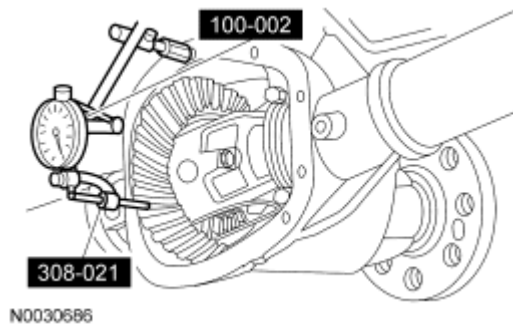


Fig. 60: Checking Differential Ring Gear Backlash
Courtesy of FORD MOTOR CO.

24. If a zero backlash condition occurs, add 0.50 mm (0.020 in) to the RH side shim and subtract 0.50 mm (0.020 in) from the LH side shim to allow a backlash indication. Go back to Step 22.
25. To correct for high or low backlash, increase the thickness of one differential bearing shim and decrease the thickness of the other differential bearing shim by the same amount. Refer to the following tables when adjusting the backlash. When the backlash is within specifications, proceed to Step 28.

Backlash Change Required		Thickness Change Required	
mm	In	mm	In
0.025	0.001	0.050	0.002
0.050	0.002	0.050	0.002
0.076	0.003	0.101	0.004
0.101	0.004	0.152	0.006

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0.127	0.005	0.152	0.006
0.152	0.006	0.203	0.008
0.177	0.007	0.254	0.010
0.203	0.008	0.254	0.010
0.228	0.009	0.304	0.012
0.254	0.010	0.355	0.014
0.279	0.011	0.355	0.014
0.304	0.012	0.406	0.016
0.330	0.013	0.457	0.018
0.335	0.014	0.457	0.018
0.381	0.015	0.508	0.020

DIFFERENTIAL SHIM SIZE CHART 4067

Stripes and Color Code	Dimension A	
	mm	In
2 - C- COAL	7.7978- 7.8105	0.3070- 0.3075
1 - C- COAL	7.7470- 7.7597	0.3050- 0.3055
5 - BLU	7.6962- 7.7089	0.3030- 0.3035
4 - BLU	7.6454- 7.6581	0.3010- 0.3015
3 - BLU	7.5946- 7.6073	0.2990- 0.2995
2 - BLU	7.5458- 7.5565	0.2970- 0.2975
5 - PINK	7.4422- 7.4549	0.2930- 0.2935
4 - PINK	7.3914- 7.4041	0.2910- 0.2915
3 - PINK	7.3406- 7.3533	0.2890- 0.2895
2 - PINK	7.2898- 7.3025	0.2870- 0.2875
1 - PINK	7.2390- 7.2517	0.2850- 0.2855
5 - GRN	7.1882- 7.2009	0.2830- 0.2835
4 - GRN	7.1374- 7.1501	0.2810- 0.2815
3 -	7.0866-	0.2790-

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GRN	7.0993	0.2795
2 -	7.0358	0.2770
GRN	7.0485	0.2775
1 -	6.9850	0.2750
GRN	7.0485	0.2755
5 - WH	6.9342	0.2730
	6.9469	0.2735
4 - WH	6.8834	0.2710
	6.8961	0.2715
3 - WH	6.8326	0.2690
	6.8453	0.2695
2 - WH	6.7818	0.2670
	6.7945	0.2675
1 - WH	6.7310	0.2650
	6.7437	0.2655
5 -	6.6802	0.2630
YEL	6.6929	0.2635
4 -	6.6294	0.2610
YEL	6.6421	0.2615
3 -	6.5786	0.2590
YEL	6.5913	0.2595
2 -	6.5278	0.2570
YEL	6.5405	0.2575
1 -	6.4770	0.2550
YEL	6.4897	0.2555
5 -	6.4262	0.2530
ORNG	6.4389	0.2535
4 -	6.3754	0.2510
ORNG	6.3881	0.2515
3 -	6.3246	0.2490
ORNG	6.3373	0.2495
2 -	6.2738	0.2470
ORNG	6.2865	0.2475
1 -	6.2223	0.2450
ORNG	6.2357	0.2455
2 -	6.1722	0.2430
RED	6.1849	0.2435
1 -	6.1214	0.2410
RED	6.1341	0.2415

26. Rotate the differential assembly several times to make sure the differential bearings are seated.

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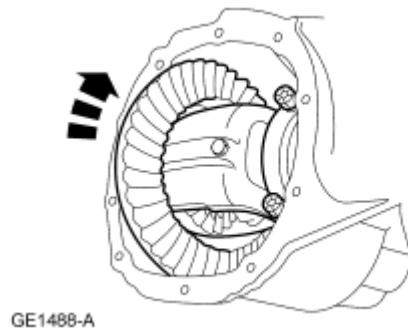


Fig. 61: Rotating Differential Assembly
Courtesy of FORD MOTOR CO.

27. Using the special tools, recheck the ring gear backlash.

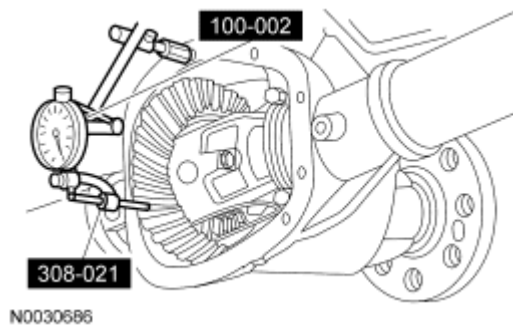


Fig. 62: Checking Differential Ring Gear Backlash
Courtesy of FORD MOTOR CO.

28. Remove the 4 differential bearing cap bolts and 2 differential bearing caps.
29. To establish differential bearing preload, increase both LH and RH differential bearing shim sizes as shown.

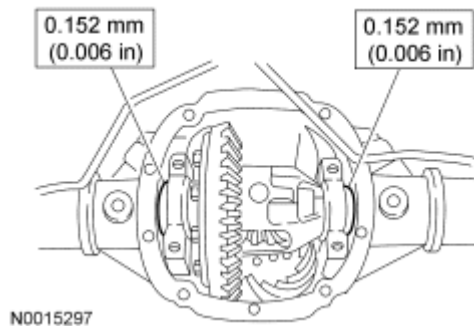


Fig. 63: Identifying Differential Bearing Shim For Preload (With Specifications)
Courtesy of FORD MOTOR CO.

30. Using the special tool, fully seat the differential bearing shims. Make sure the assembly rotates freely.

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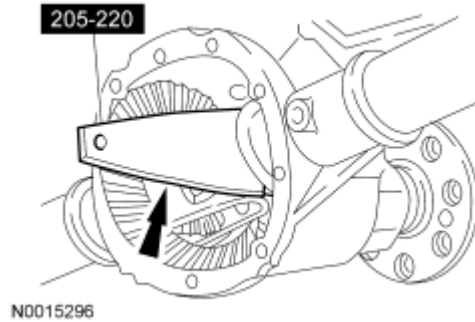


Fig. 64: Seating Differential Bearing Shims Using Special Tool (205-220)
Courtesy of FORD MOTOR CO.

31. Install the 2 differential bearing caps and 4 differential bearing cap bolts.
 - Tighten to 105 Nm (77 lb-ft).

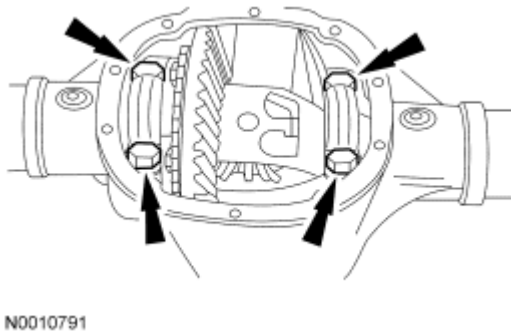


Fig. 65: Identifying Differential Bearing Cap And Differential Bearing Cap Bolts
Courtesy of FORD MOTOR CO.

32. Using the special tools, recheck the backlash.

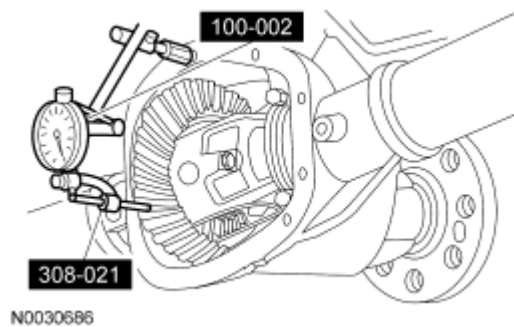


Fig. 66: Checking Differential Ring Gear Backlash
Courtesy of FORD MOTOR CO.

33. Apply marking compound and rotate the differential assembly 5 complete revolutions.
34. Check and verify an acceptable pattern.

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35. Install the axle shafts. For additional information, refer to [Axle Shaft](#).
36. Install the driveshaft. For additional information, refer to [DRIVESHAFT](#) article.

REMOVAL AND INSTALLATION

AXLE HOUSING

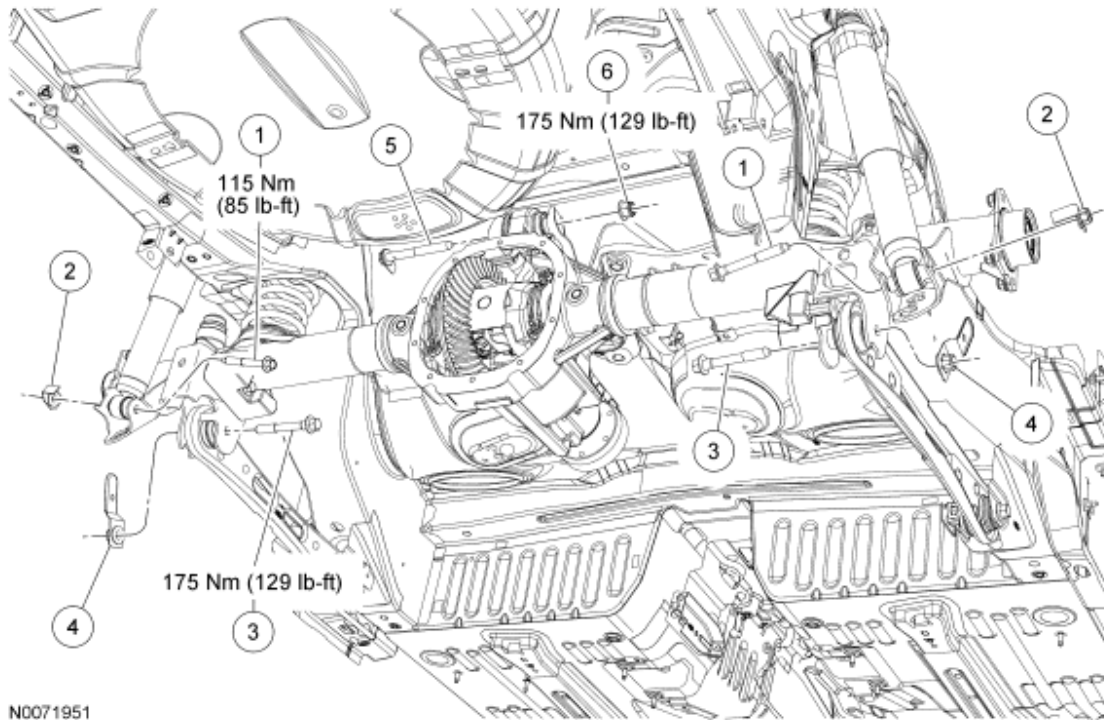


Fig. 67: Exploded View Of Axle Housing With Torque Specifications
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	-	Shock absorber lower bolt (part of service kit 18008) (2 required)
2	-	Shock absorber lower nut (part of service kit 18008) (2 required)
3	W704888	Lower control arm rear bolts (2 required)
4	W704991	Lower control arm rear nuts (2 required)
5	W710051	Upper control arm bushing bolt
6	W520215	Upper control arm bushing nut

REMOVAL AND INSTALLATION

All vehicles

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING AND LIFTING** article.
2. Remove the driveshaft. For additional information, refer to **DRIVESHAFT** article.
3. Remove the pan hard bar. For additional information, refer to **REAR SUSPENSION** article.

Convertibles

4. Remove the rear support braces. For additional information, refer to **BODY SYSTEM - GENERAL INFORMATION** article.

All vehicles

NOTE: **Secure the differential housing to the transmission jack with a suitable strap.**

5. Support the differential housing with a suitable transmission jack.

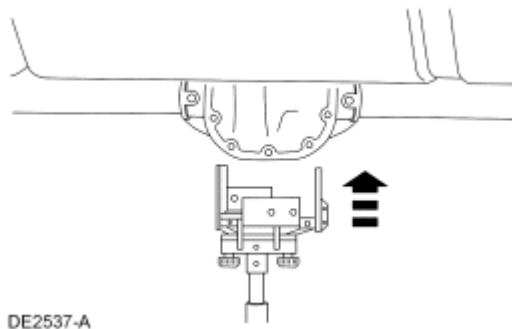


Fig. 68: Supporting Differential Housing With A Suitable Transmission Jack
Courtesy of FORD MOTOR CO.

6. Remove and discard the 2 shock absorber nuts and 2 shock absorber bolts.
 - To install, tighten the new bolts to 115 Nm (85 lb-ft).

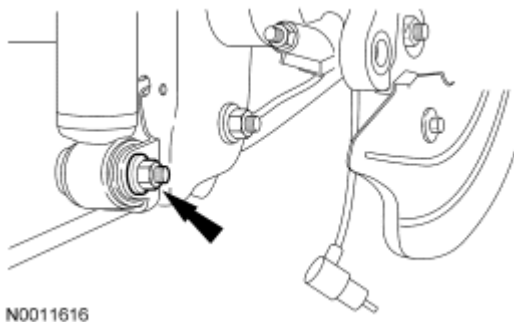


Fig. 69: Locating Shock Absorber Nuts
Courtesy of FORD MOTOR CO.

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7. Remove and discard the upper control arm nut and upper control arm bolt.
 - To install, tighten the new nut and bolt to 175 Nm (129 lb-ft).

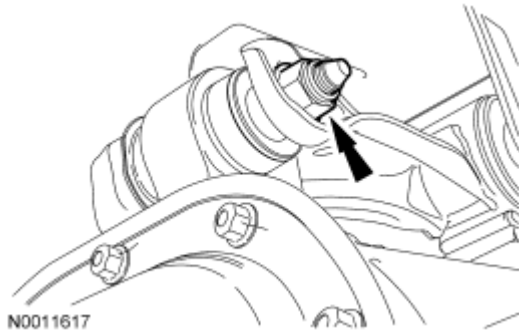


Fig. 70: Locating Upper Suspension Arm Nut
Courtesy of FORD MOTOR CO.

8. Lower the axle slightly, and remove the springs.

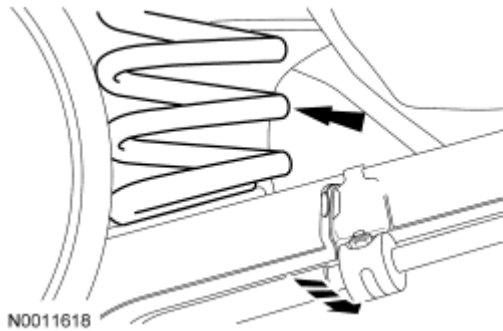


Fig. 71: Lowering Axle & Removing Springs
Courtesy of FORD MOTOR CO.

9. Remove and discard the 2 trailing arm nuts and 2 trailing arm bolts.
 - To install, tighten the new nuts and bolts to 175 Nm (129 lb-ft).

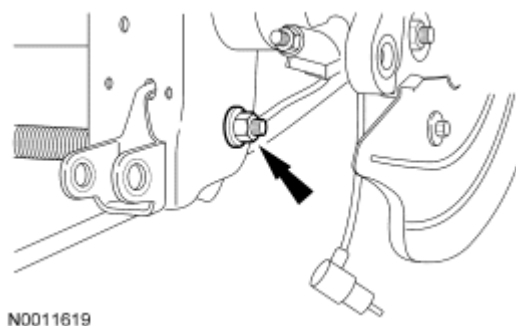


Fig. 72: Locating Trailing Arm Nuts
Courtesy of FORD MOTOR CO.

10. Disconnect the lower control arms from the axle housing.
- To install, tighten to 175Nm (129 lb-ft).

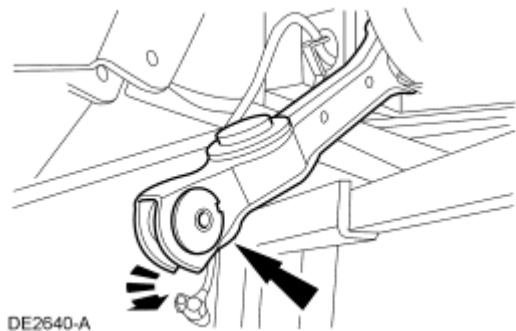


Fig. 73: Locating Lower Control Arms From Axle Housing
Courtesy of FORD MOTOR CO.

11. Lower the axle housing from the vehicle.
12. To install, reverse the removal procedure.

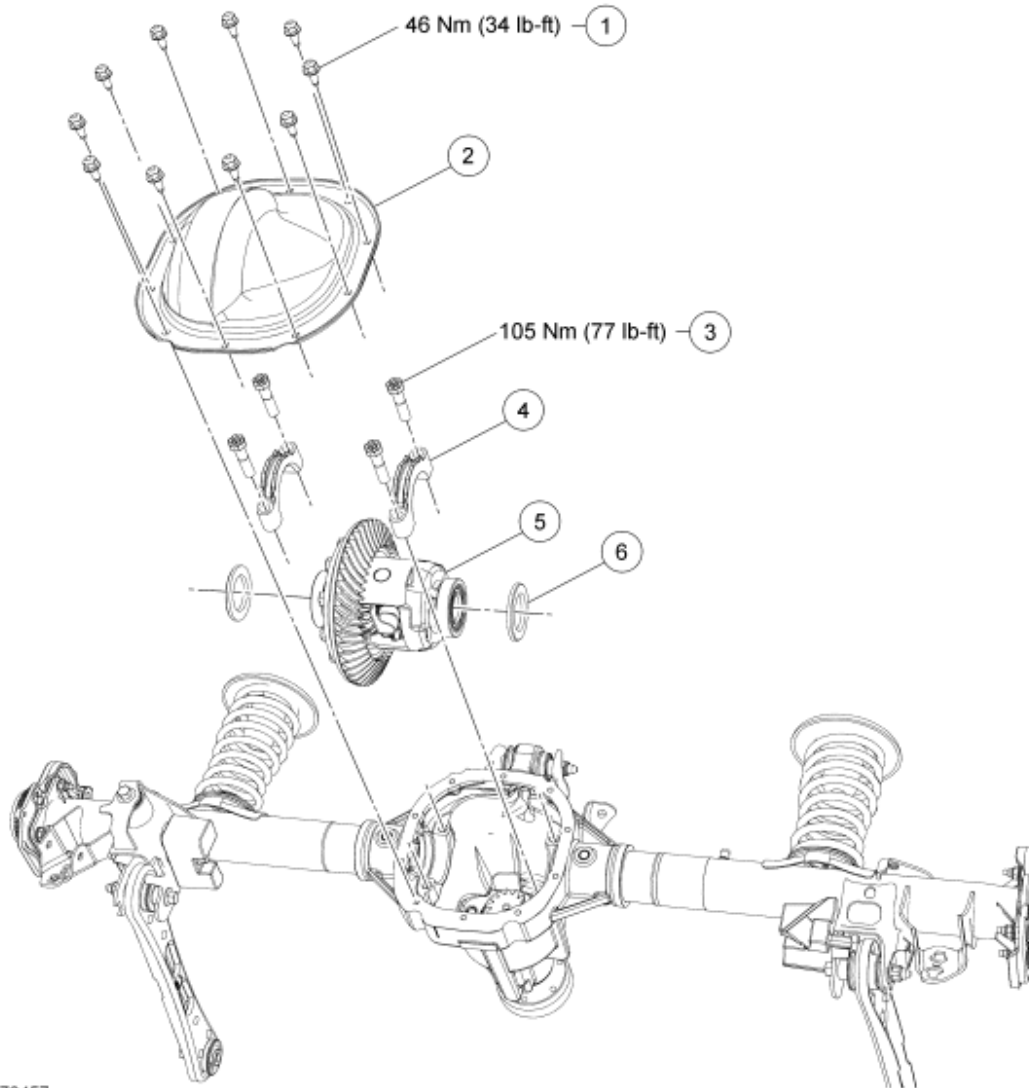
DIFFERENTIAL CARRIER

Special Tools

Illustration	Tool Name	Tool Number
ST1485-A	Shim Driver	205-220 (T85L-4067-AH)

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N0076457

Fig. 74: Exploded View Of Differential Carrier With Torque Specifications
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	383548	Differential housing cover bolt (10 required)
2	4033	Differential housing cover
3	-	Differential bearing cap bolt (4 required)
4	-	Differential bearing cap (2 required)
5	4205	Differential assembly
6	4067	Differential bearing shim (2 required)

REMOVAL

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2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear High Torque - Mustang

1. Remove the axle shafts. For additional information, refer to [Axle Shaft](#).

NOTE: Index-mark the position of the differential bearing caps, as arrows may not be visible. The differential bearing caps must be installed in their original locations and positions.

2. Remove the 4 differential bearing cap bolts and the 2 differential bearing caps.

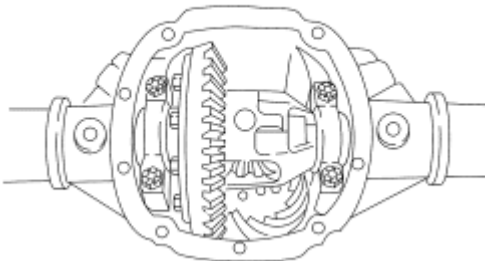


Fig. 75: Identifying Differential Carrier
Courtesy of FORD MOTOR CO.

NOTE: Place a wood block between the pry bar and the axle housing to protect the machined surface from damage.

NOTE: Index-mark the position of the differential bearing shims. The differential bearing shims must be installed in their original locations and positions.

3. Using pry bars and wood blocks, remove the differential carrier assembly from the axle housing.

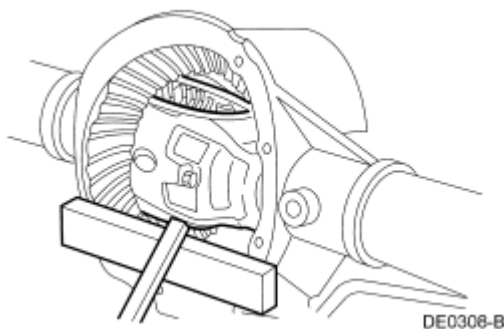


Fig. 76: Removing Differential Carrier Assembly From Axle Housing
Courtesy of FORD MOTOR CO.

INSTALLATION

1. Position the differential assembly in the axle housing.

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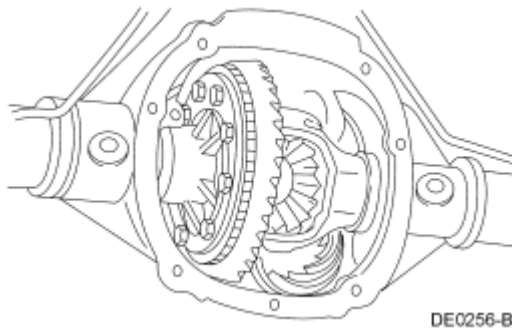


Fig. 77: Positioning Differential Assembly In Axle Housing
Courtesy of FORD MOTOR CO.

2. Install the originally removed differential bearing shim on the LH side.

NOTE: Apply pressure toward the LH side to make sure the LH differential bearing cap is seated.

3. Install the LH differential bearing cap and loosely install the 2 differential bearing cap bolts.

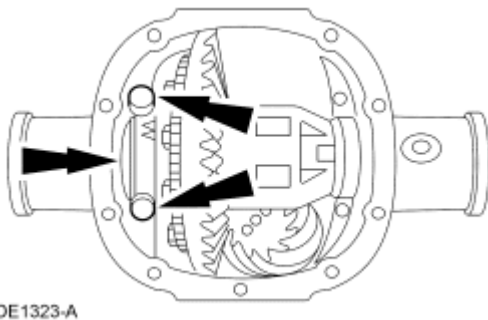


Fig. 78: Identifying LH Differential Bearing Cap And Bolts
Courtesy of FORD MOTOR CO.

4. Install the original differential bearing shim on the RH side.

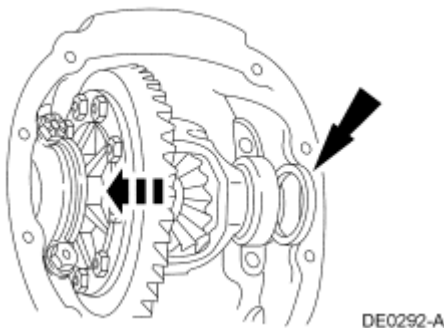


Fig. 79: Identifying Differential Bearing Shim
Courtesy of FORD MOTOR CO.

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5. Using the special tool, fully seat the differential bearing shims.

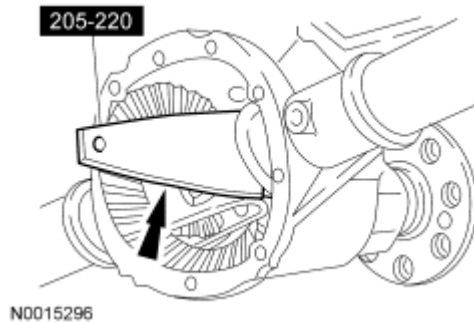


Fig. 80: Seating Differential Bearing Shims Using Special Tool (205-220)
Courtesy of FORD MOTOR CO.

6. Install the RH side differential bearing cap and tighten the 4 LH side and RH side differential bearing cap bolts.
 - Tighten to 105 Nm (77 lb-ft).

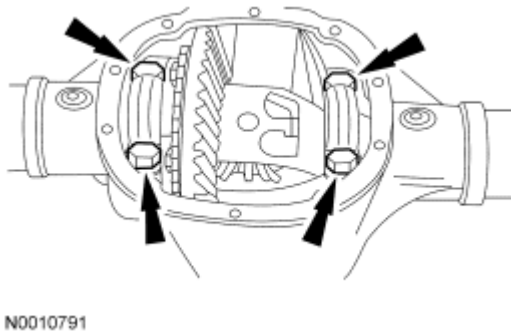


Fig. 81: Identifying Differential Bearing Cap And Differential Bearing Cap Bolts
Courtesy of FORD MOTOR CO.

7. Rotate the differential assembly to make sure it rotates freely.

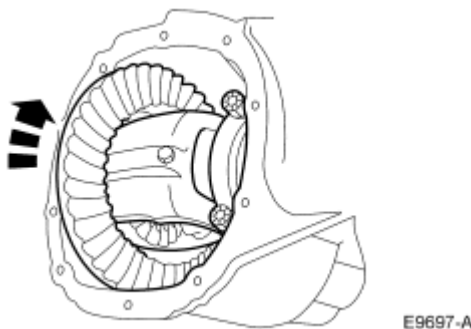


Fig. 82: Rotating Differential Assembly
Courtesy of FORD MOTOR CO.

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8. Measure the ring and pinion backlash.
9. Install the axle shafts. For additional information, refer to **Axle Shaft**.