

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

2008 DRIVELINE/AXLES

Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

SPECIFICATIONS

Material

Item	Specification	Fill Capacity
High Temperature Nickel Anti-Seize Lubricant XL-2	ESE-M12A4-A	-
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	-
Silicone Gasket and Sealant TA-30	WSE-M4G323-A4	-
Stud and Bearing Mount TA-27	WSK-M2G349-A1	-
Threadlock and Sealer TA-25	WSK-M2G351-A5	-

GENERAL SPECIFICATIONS

Item	Specification
Differential pinion gear thrust washer thickness	0.762-0.813 mm (0.030-0.032 in)
Differential side gear thrust washer thickness	1.016-1.067 mm (0.040-0.042 in)
Maximum axle shaft end play	0.762 mm (0.030 in)
Maximum differential flange ring gear runout	0.076 mm (0.003 in)
Maximum variation between ring gear teeth	0.102 mm (0.004 in)
Pinion bearing preload	1.8-3.3 Nm (16-29 lb-in)
Ring gear backlash	0.203-0.304 mm (0.008-0.012 in)

TORQUE SPECIFICATIONS

Description	Nm	lb-ft	lb-in
Differential bearing cap bolts	105	77	-
Differential housing cover bolts	46	33	-
Differential pinion shaft lock bolt	30	22	-
Differential ring gear bolts	105	77	-
Filler plug	30	22	-
Front support brace bolts (convertible)	63	46	-
Handle adapter for 205-S127	2.2	-	20
Lower control arm rear bolt	175	129	-

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Lower shock absorber bolts and nuts	115	85	-
Rear support brace bolts (convertible)	63	46	-
Trackbar nuts	175	129	-
Trailing arm nut	175	129	-
Upper support brace bolts (convertible)	63	46	-
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:

- Axle housing with a cast center section and 2 steel tube assemblies and a stamped differential housing cover
- Differential housing cover that uses silicone sealant as a gasket
- Hypoid-design gearset consisting of 7.5-in ring gear and a drive pinion gear
- Two opposed tapered roller bearings (drive pinion bearings) that support the drive pinion in the axle housing
- Drive pinion collapsible spacer, located on the differential pinion shaft that maintains drive pinion bearing preload
- Pinion nut that adjusts the drive pinion bearing preload
- Differential bearing shims that control the differential bearing preload and the differential ring gear backlash
- Two opposed tapered roller bearings (differential bearings) that support the differential assembly in the axle housing
- Removable bearing caps that retain the differential assembly in the axle housing
- Differential case that is a one-piece design with 2 openings to allow for assembly of the internal components and lubricant flow
- Differential pinion shaft that supports 2 differential pinion gears inside the differential assembly
- Pinion gears that engage the differential side gears, to which the axle shafts are splined
- Differential pinion shaft lock bolt that retains the differential pinion shaft in the differential case
- Semi-floating axle shafts held in the housing by U-washers positioned in the slot on the axle shaft splined end
- U-washers which also fit into a recess in the differential side gears within the differential case

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.

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

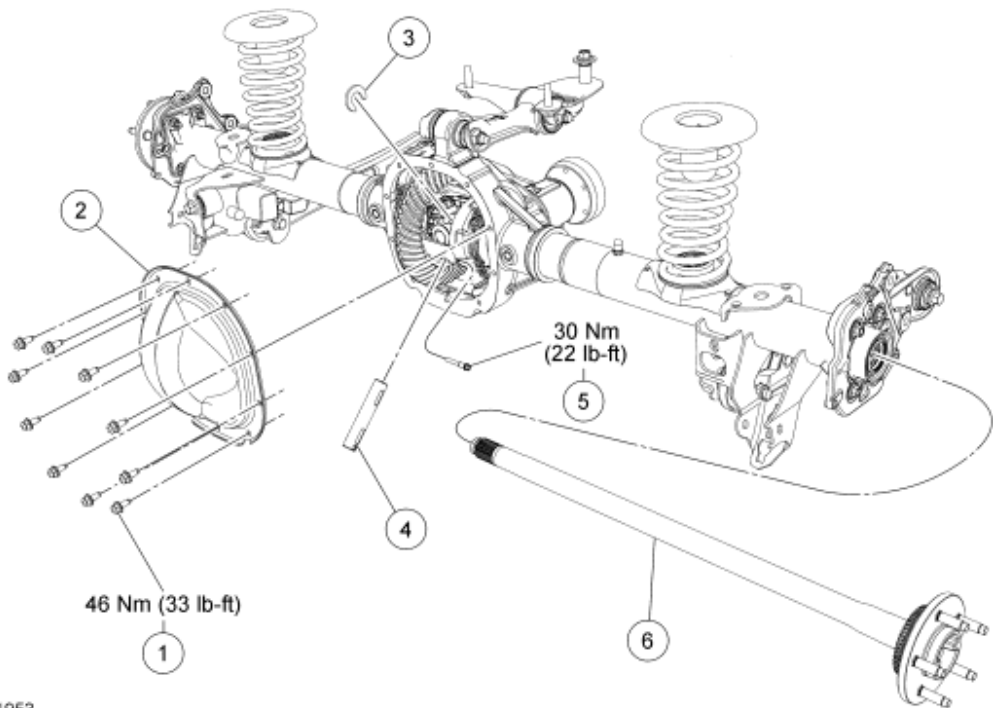
Refer to **DRIVELINE SYSTEM - GENERAL INFORMATION** article.

IN-VEHICLE SERVICING

AXLE SHAFT

Material

Item	Specification
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

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Courtesy of FORD MOTOR CO.

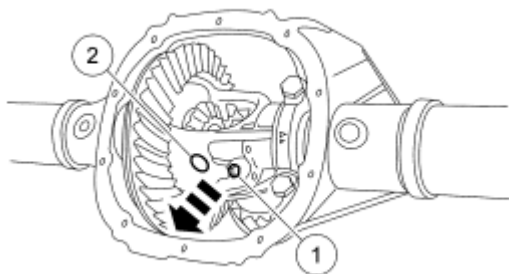
Item	Part Number	Description
1	4346	Differential housing cover bolt (10 required)
2	4033	Differential housing cover
3	4N237	Axle shaft U-washer
4	4211	Differential pinion shaft
5	4241	Differential pinion shaft lock bolt
6	4234	Axle shaft

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. For additional information, refer to **Differential Housing Cover**.
3. Remove the rear brake disc. For additional information, refer to **REAR DISC BRAKE** article.

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

4. Remove the rear wheel speed sensor. For additional information, refer to **VEHICLE DYNAMIC SYSTEMS** article.
5. Remove the differential pinion shaft.
 1. Remove and discard the differential pinion shaft lock bolt.
 2. Remove the differential pinion shaft.



N0014767

Fig. 2: Locating Differential Pinion Shaft And Lock Bolt
Courtesy of FORD MOTOR CO.

NOTE: **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.

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2. Remove the U-washer.

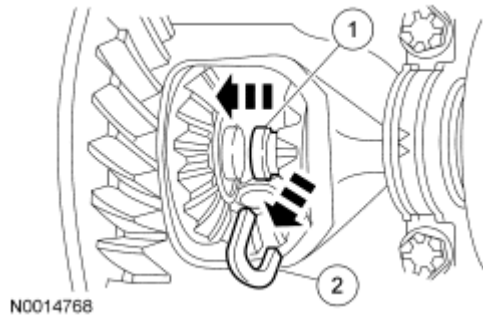


Fig. 3: Removing The U-Washer
Courtesy of FORD MOTOR CO.

NOTE: Do not damage the axle shaft oil seal.

7. Remove the axle shaft.

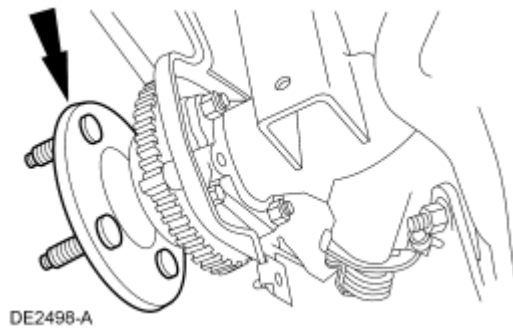


Fig. 4: Locating Axle Shaft
Courtesy of FORD MOTOR CO.

INSTALLATION

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

NOTE: Do not damage the axle shaft oil seal when installing the axle shaft.

2. Install the axle shaft.

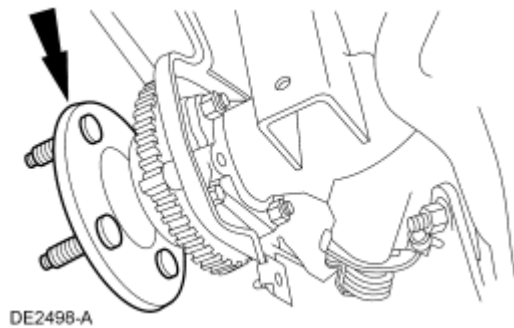


Fig. 5: Locating Axle Shaft
Courtesy of FORD MOTOR CO.

NOTE: 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.

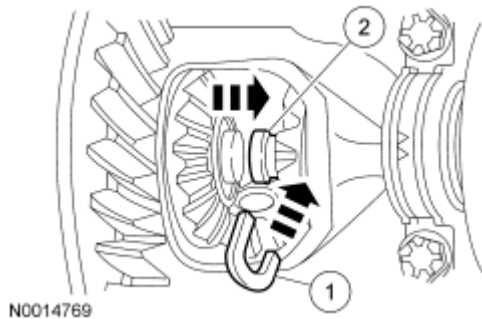
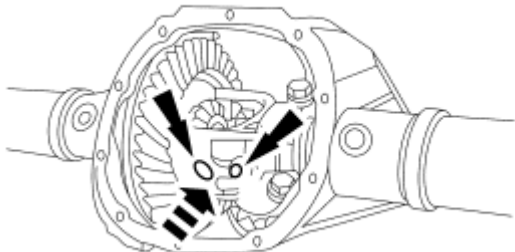


Fig. 6: Installing Axle Shaft U-Washer
Courtesy of FORD MOTOR CO.

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.

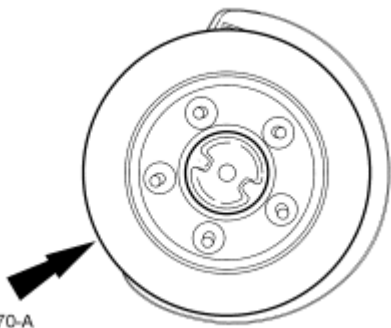
4. Install the differential pinion shaft.
 - Align the hole in the differential pinion shaft with the differential case lock bolt hole.
 - Install a new differential pinion shaft lock bolt.
 - Tighten to 30 Nm (22 lb-ft).



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Fig. 7: Identifying Differential Pinion Shaft Lock Bolt
 Courtesy of FORD MOTOR CO.

5. Install the rear wheel speed sensor. For additional information, refer to [VEHICLE DYNAMIC SYSTEMS](#) article.
6. Install the rear brake disc. For additional information, refer to [REAR DISC BRAKE](#) article.



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Fig. 8: Locating Rear Brake Discs
 Courtesy of FORD MOTOR CO.

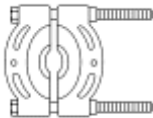
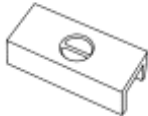
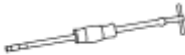
7. Install the differential housing cover. For additional information, refer to [Differential Housing Cover](#).

REAR WHEEL BEARING AND AXLE SHAFT SEAL

Special Tools

Illustration	Tool Name	Tool Number
 ST3030-A	Adapter for 303-224	205-153 (T80T-4000-W)
	Installer, Axle Shaft Bearing	205-124 (T78P-1225-A)

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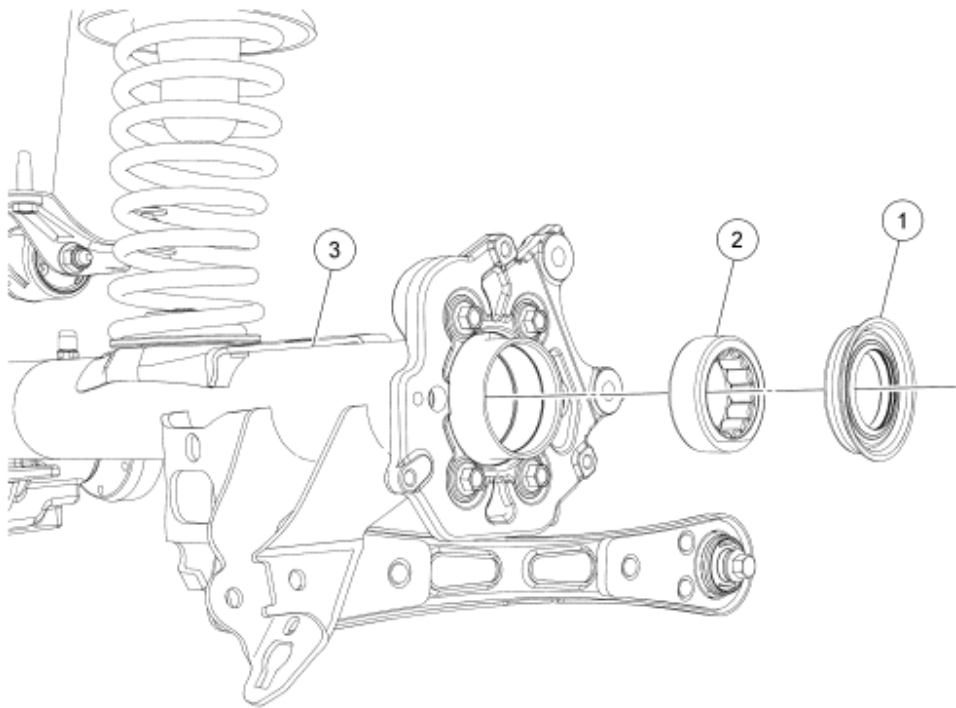
 ST1895-A		
 ST1713-A	Installer, Rear Axle Oil Seal	205-390 (T97T-1177-B)
 ST1254-A	Remover, Axle Bearing	205-219 (T85L-1225-AH)
 ST1185-A	Slide Hammer	100-001 (T50T-100-A)

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. 9: 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
3	4010	Axle housing

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 Slide Hammer and Axle Bearing Remover, remove the rear wheel bearing and axle shaft oil seal.

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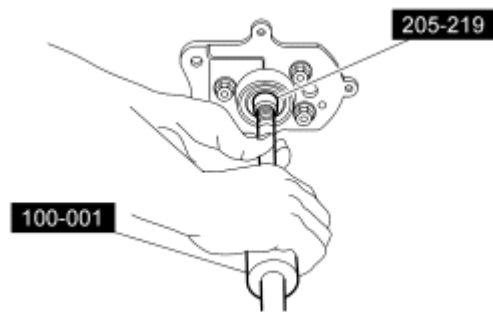


Fig. 10: Removing Rear Wheel Bearing & Axle Shaft Oil Seal Using Special Tools 100-001 & 205-219

Courtesy of FORD MOTOR CO.

INSTALLATION

1. Lubricate the new rear wheel bearing with the axle lubricant.
2. Using the Axle Shaft Bearing Installer and Adapter, install the new rear wheel bearing.

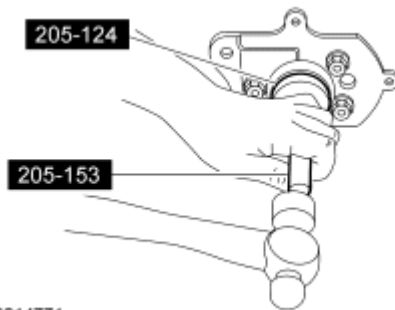


Fig. 11: Installing New Rear Wheel Bearing Using Special Tools 205-153 & 205-124

Courtesy of FORD MOTOR CO.

3. Lubricate the lip of the new axle shaft oil seal with grease.
4. Using the Rear Axle Oil Seal Installer and Adapter, install the new axle shaft oil seal.

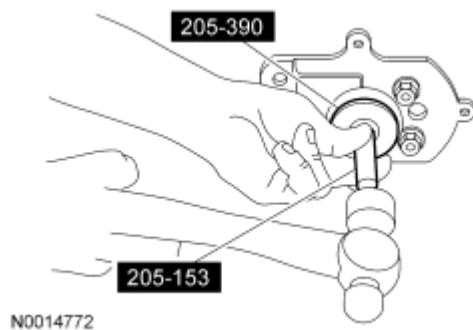


Fig. 12: Installing New Axle Shaft Oil Seal Using Special Tools 205-153 & 205-390

Courtesy of FORD MOTOR CO.

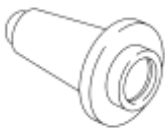
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5. Install the axle shaft. For additional information, refer to **Axle Shaft**.

DRIVE PINION FLANGE AND DRIVE PINION SEAL

Special Tools

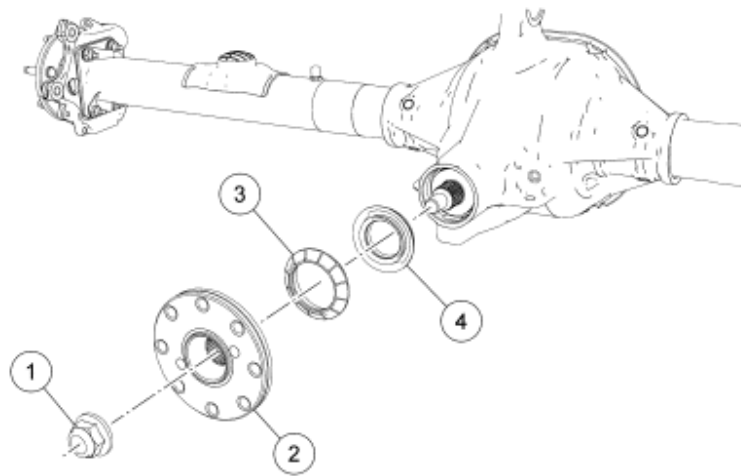
Illustration	Tool Name	Tool Number
 ST2039-A	2-Jaw Puller	205-D072 (D97L-4221-A) or equivalent
 ST1268-A	Holding Fixture, Drive Pinion Flange	205-126 (T78P-4851-A)
 ST1325-A	Installer, Drive Pinion Flange	205-002 (TOOL-4858-E)
 ST2026-A	Installer, Drive Pinion Oil Seal	205-133 (T79P-4676-A)

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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N0037385

Fig. 13: Exploded View Of Drive Pinion Flange & Drive Pinion Seal
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	389546-S100	Pinion nut
2	4851	Pinion flange
3	4859	Deflector
4	4676	Drive pinion seal

REMOVAL

NOTE: The color on the rear face of the drive pinion nut is critical to this repair. Use the same color new drive pinion nut for installation. If a new collapsible spacer must be installed for pinion bearing preload reduction, install the nut supplied with the new spacer or damage to the component may occur.

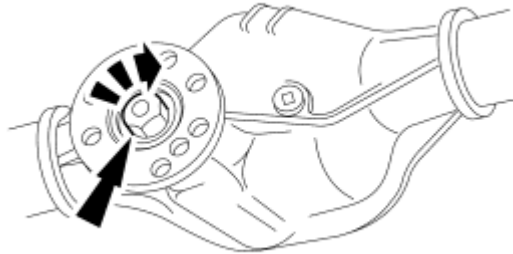
1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING AND LIFTING** article.
2. Remove the driveshaft. For additional information, refer to **DRIVESHAFT** article.

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

3. Remove the rear brake discs. For additional information, refer to **REAR DISC BRAKE** article.
4. Using a Nm (lb-in) torque wrench on the pinion nut, record the torque required to maintain rotation of the pinion gear through several revolutions.

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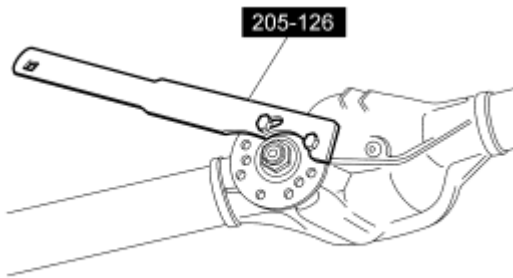
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DE1407-A

Fig. 14: Rotating Pinion Gear
Courtesy of FORD MOTOR CO.

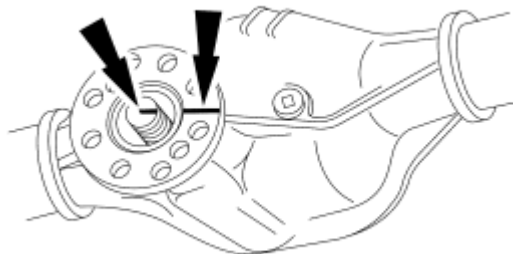
5. Using the Drive Pinion Flange Holding Fixture to hold the pinion flange, remove and discard the pinion nut.



N0014773

Fig. 15: Identifying Special Tools (205-126)
Courtesy of FORD MOTOR CO.

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



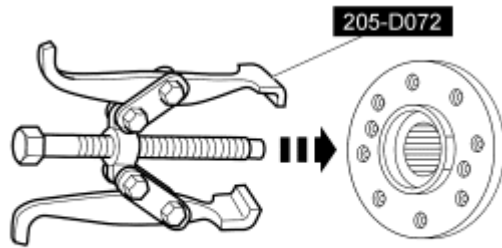
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Fig. 16: Placing Index Marks On Pinion Flange
Courtesy of FORD MOTOR CO.

7. Using the 2-Jaw Puller, remove the pinion flange.

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N0014774

Fig. 17: Identifying Special Tools (205-D072)
Courtesy of FORD MOTOR CO.

8. 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.



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

INSTALLATION

1. 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.

2. Using the Drive Pinion Oil Seal Installer, install a new drive pinion seal.

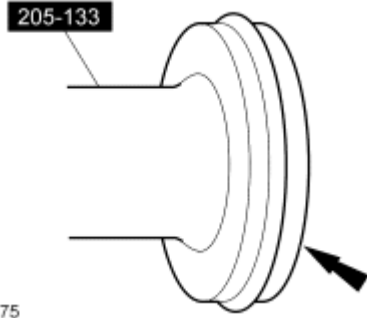


Fig. 19: Identifying Special Tools (205-133)
Courtesy of FORD MOTOR CO.

3. Lubricate the pinion flange splines with axle lubricant.

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

4. Align the index marks on the pinion flange with the drive pinion shaft.

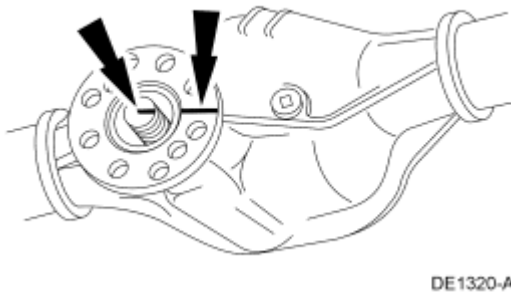


Fig. 20: Placing Index Marks On Pinion Flange
Courtesy of FORD MOTOR CO.

5. Using the Drive Pinion Flange Installer, install the pinion flange.

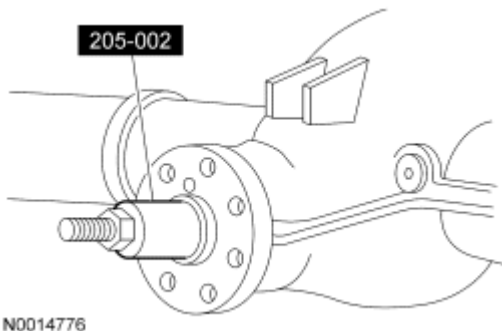


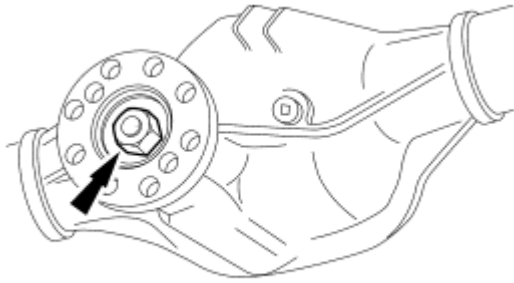
Fig. 21: Identifying Special Tools (205-002)
Courtesy of FORD MOTOR CO.

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NOTE: Install a new pinion nut with the same color as the original if not replacing the collapsible spacer. If a new collapsible spacer is installed, install the nut in the kit or damage to the component may occur.

6. Position the new pinion nut.



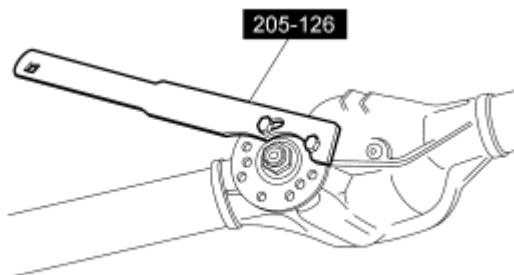
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Fig. 22: Identifying Pinion Nut
Courtesy of FORD MOTOR CO.

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 kit must be installed.

NOTE: Remove the Drive Pinion Flange Holding Fixture while taking drive pinion bearing preload readings with the Nm (lb-in) torque wrench.

7. Using the Drive Pinion Flange Holding Fixture 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 original recorded drive pinion bearing preload reading is obtained.
 - If the original recorded drive pinion bearing preload is lower than specifications, tighten to the specification. If the drive pinion bearing preload is higher than specification, tighten the pinion nut to the original reading as recorded. For additional information, refer to the **SPECIFICATIONS**.



N0014773

Fig. 23: Identifying Special Tools (205-126)
Courtesy of FORD MOTOR CO.

- 8. Install the driveshaft. For additional information, refer to **DRIVESHAFT** article.
- 9. Install the rear brake discs. For additional information, refer to **REAR DISC BRAKE** article.

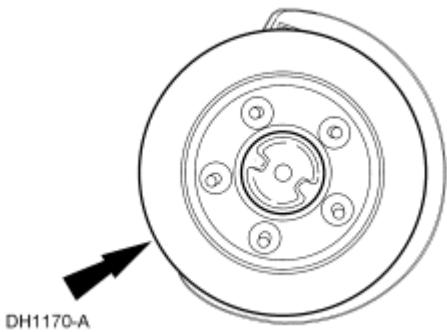


Fig. 24: Locating Rear Brake Discs
Courtesy of FORD MOTOR CO.

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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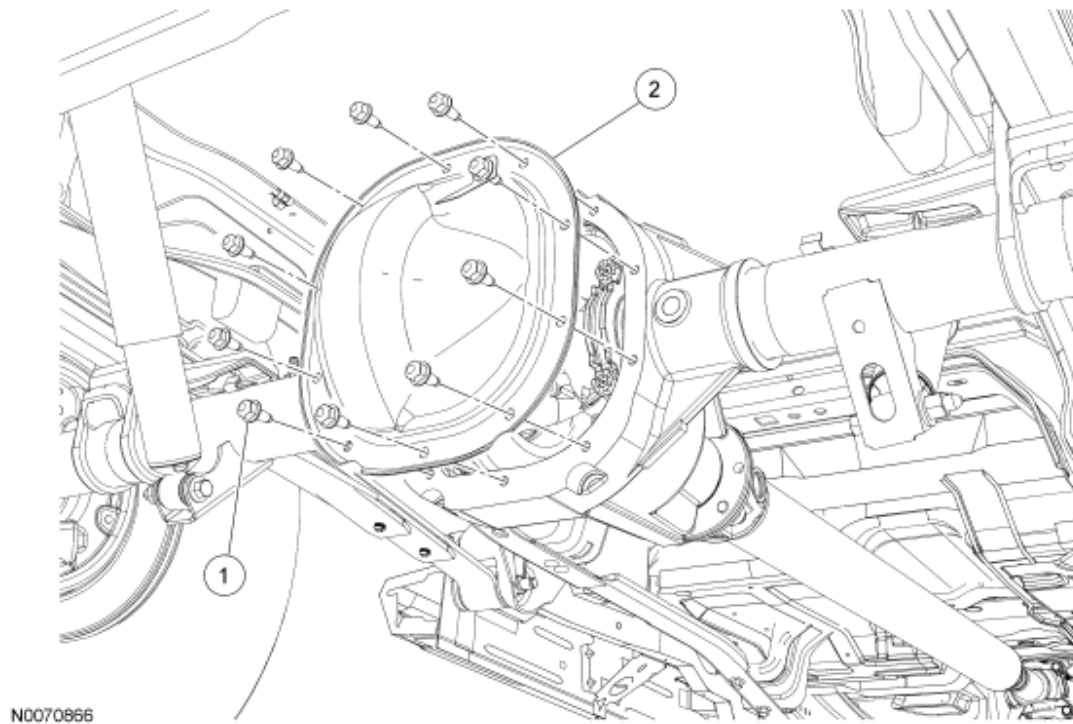


Fig. 25: Exploded View Of Differential Housing Cover
Courtesy of FORD MOTOR CO.

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.

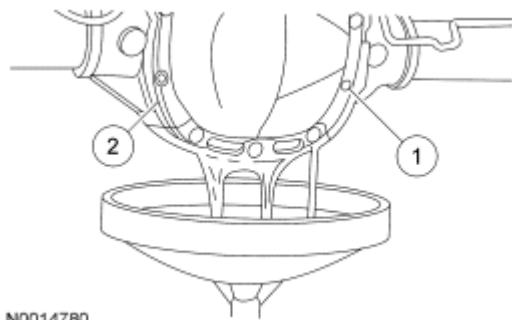


Fig. 26: Identifying Differential Housing Cover And Bolts
Courtesy of FORD MOTOR CO.

INSTALLATION

NOTE: Make sure the machined surfaces on both the differential housing and the differential housing cover are clean and free of oil before applying the new silicone sealant. To prevent contamination, cover the inside of the axle prior to cleaning the machined surface.

1. Clean the differential housing and the differential housing cover gasket mating surfaces.

NOTE: Install the differential housing cover within 15 minutes of applying the silicone sealant, or it will be necessary to remove and reapply new silicone sealant.

2. Apply a continuous bead of silicone sealant of the specified thickness to the differential housing cover.

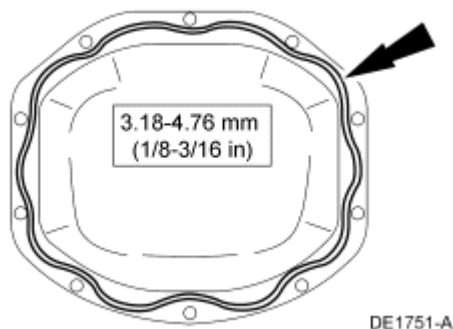
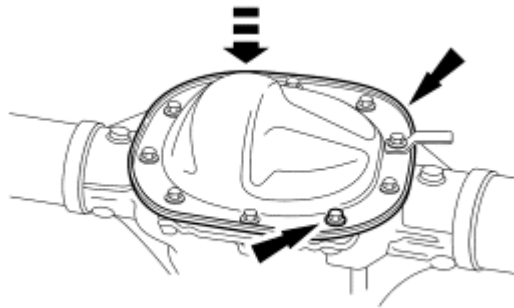


Fig. 27: Applying Sealer To Cover
Courtesy of FORD MOTOR CO.

NOTE: The differential housing cover must be installed within 15 minutes of application of the silicone sealant, or new silicone sealant must be applied. If possible, allow one hour before filling the axle housing with axle lubricant to make sure the silicone sealant has correctly cured.

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



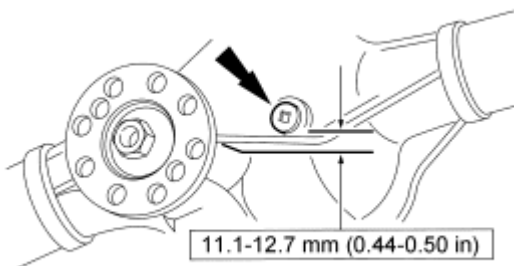
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Fig. 28: Identifying Differential Housing Cover Bolts
Courtesy of FORD MOTOR CO.

NOTE: When filling the axle it must be done on a level surface with the vehicle at ride height.

NOTE: In-vehicle repair refill capacities are determined by filling the axle with the specified lubricant to 11.1-12.7 mm (7/16-1/2 in) below the bottom of the fill hole.

4. Remove the axle plug, fill the axle to the level shown, approximately 1.42L (3.0 pt) of axle lubricant, and install the filler plug.
 - Tighten to 30 Nm (22 lb-ft).



N0015617

Fig. 29: Locating Filler Plug
Courtesy of FORD MOTOR CO.

AXLE HOUSING BUSHING

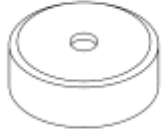
1. Refer to Upper Arm Bushing in **REAR SUSPENSION** article.

DIFFERENTIAL BEARINGS

2008 Ford Mustang

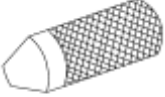
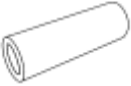
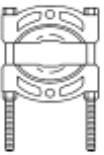
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

Special Tools

Illustration	Tool Name	Tool Number
 ST2039-A	2-Jaw Puller	205-D072 (D79L-4221-A1) or equivalent
 ST1678-A	Adapter for 205-S127	205-105 (T76P-4020-A3)
 ST1429-A	Adapter for 205-S127	205-109 (T76P-4020-A9)
 ST1743-A	Adapter for 205-S127	205-110 (T76P-4020-A10)
 ST1431-A	Adapter for 205-S127	205-111 (T76P-4020-A11)
 ST1678-A	Adapter for 205-S127	205-125 (T78P-4020-A15)
 ST1137-A	Dial Indicator Gauge With Brackets	100-002 (TOOL-4201-C)
	Gauge Tube	205-D034 (D80T-4020-F49) or equivalent

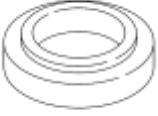
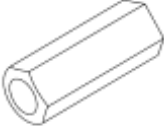
2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

 ST1432-A		
 ST1268-A	Holding Fixture, Drive Pinion Flange	205-126 (T78P-4851-A)
 ST1375-A	Installer, Differential Shim	205-220 (T85L-4067-AH)
 ST1543-A	Installer, Differential Side Bearing	205-009 (T57L-4221-A1)
 ST1434-A	Installer, Drive Pinion Bearing Cone	205-005 (T53T-4621-C)
 ST1368-A	Installer, Drive Pinion Bearing Cup	205-054 (T71P-4616-A)
 ST1325-A	Installer, Drive Pinion Flange	205-002 (TOOL-4858-E)
 ST2026-A	Installer, Drive Pinion Oil Seal	205-208 (T83T-4676-A)

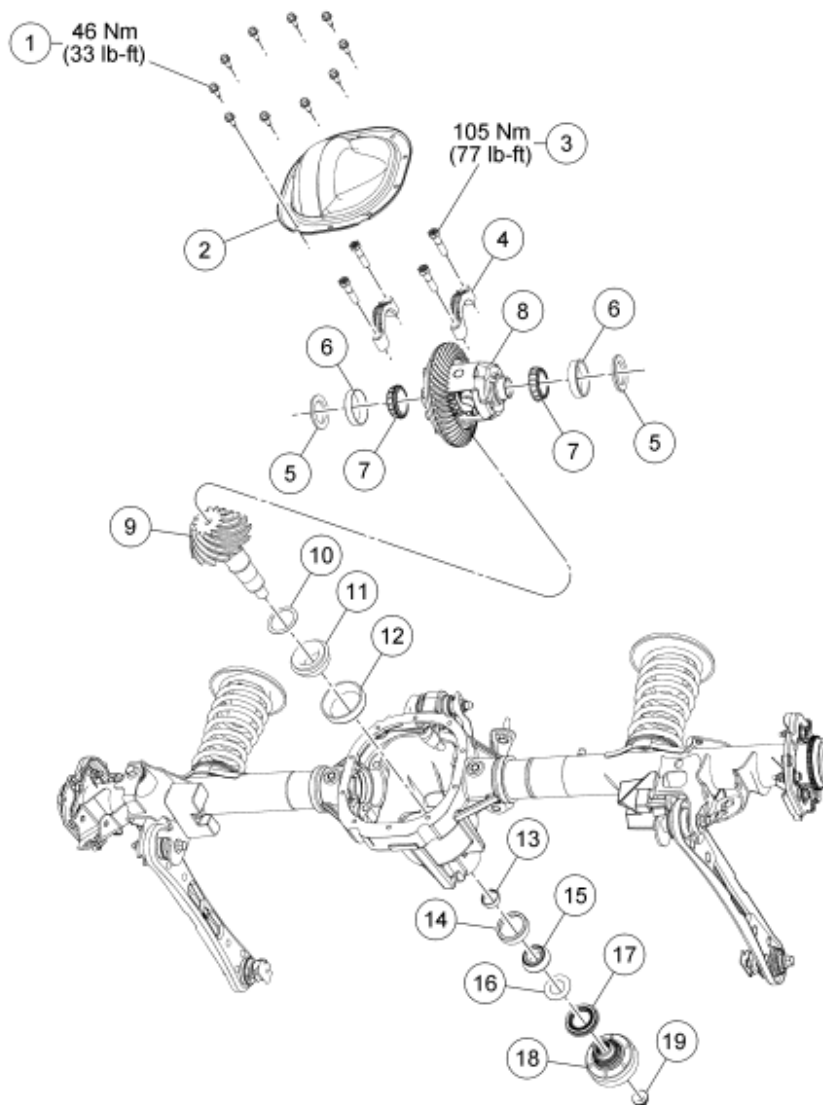
2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

 ST1367-A	Plate, Bearing/Oil Seal	205-090 (T75L-1165-B)
	Protector, Drive Pinion Thread	205-460
 ST1485-A	Puller, Bearing	205-D064 (D84L-1123-A) or equivalent
 ST1744-A	Step Plate	205-D016 (D80L-630-5) or equivalent

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2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang



N0071954

Fig. 30: Exploded View Of Differential Bearings 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	-	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	4204	Differential assembly

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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	4616	Outer pinion bearing cup
15	4621	Outer pinion bearing
16	4670	Pinion oil slinger
17	4676	Pinion oil seal
18	4851	Pinion flange
19	389546-S	Pinion nut

REMOVAL

1. Remove the driveshaft. For additional information, refer to **DRIVESHAFT** article.
2. Remove the differential carrier. For additional information, refer to **Differential Carrier**.
3. Use the Drive Pinion Flange Holding Fixture to hold the pinion flange while removing the drive pinion nut.
 - Discard the pinion nut.

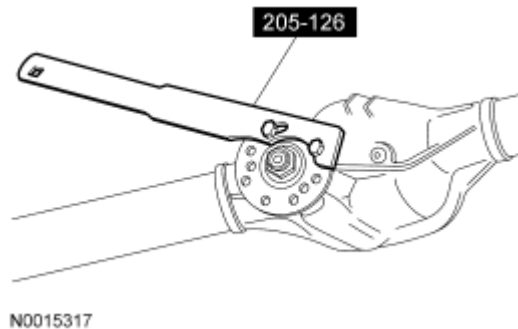


Fig. 31: Holding Pinion Flange Using Special Tool (205-126)
Courtesy of FORD MOTOR CO.

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

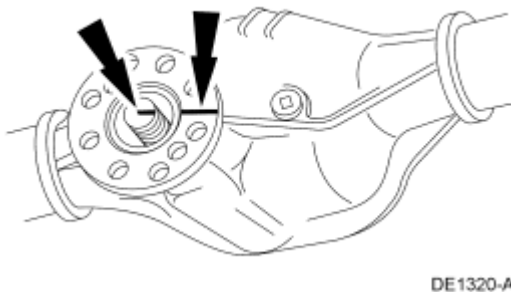
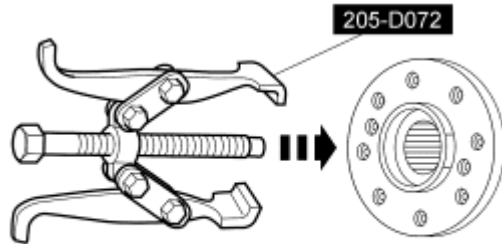


Fig. 32: Placing Index Marks On Pinion Flange
Courtesy of FORD MOTOR CO.

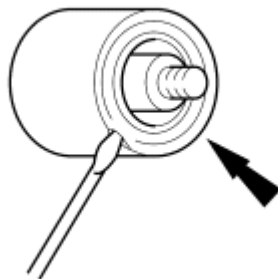
5. Using the 2-Jaw Puller, remove the pinion flange.



N0015316

Fig. 33: 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. 34: 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. 35: Removing Drive Pinion Oil Seal And Slinger
Courtesy of FORD MOTOR CO.

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8. Remove the axle drive pinion shaft oil slinger.
9. Using the Drive Pinion Thread Remover 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.

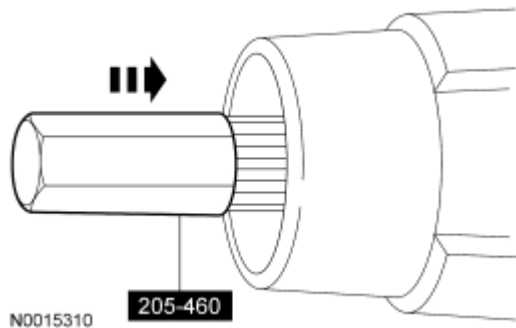


Fig. 36: Driving Pinion Assembly Out Of Axle Housing Using Special Tool (205-460)
Courtesy of FORD MOTOR CO.

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

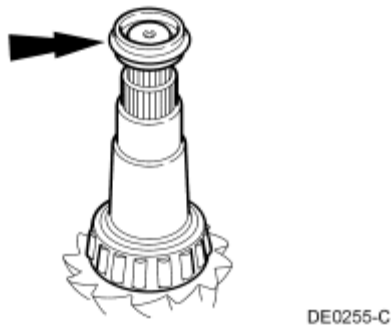


Fig. 37: Identifying Drive Pinion Collapsible Spacer
Courtesy of FORD MOTOR CO.

12. Using the Bearing Puller and a suitable press, remove the inner pinion bearing.

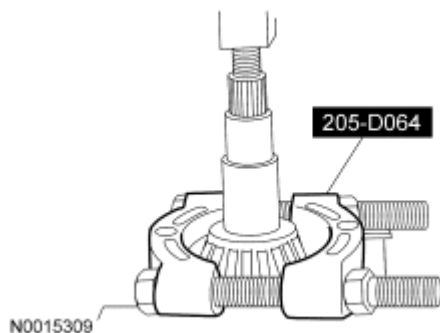


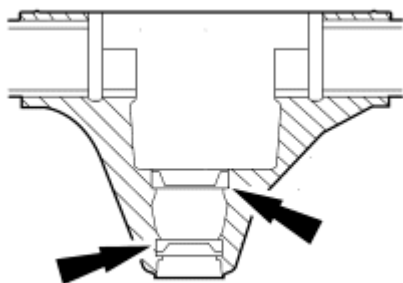
Fig. 38: Inner Pinion Bearing And Special Tool

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Courtesy of FORD MOTOR CO.

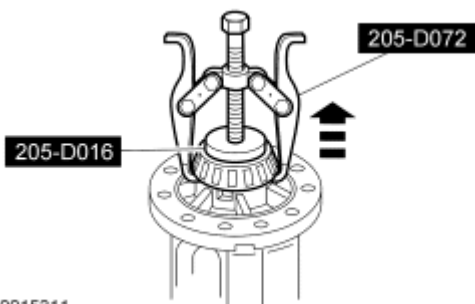
13. Using a brass drift, remove the pinion bearing cups by tapping alternately on opposite sides of the bearing cups.



DE2511-A

Fig. 39: Identifying Pinion Bearing Cups
Courtesy of FORD MOTOR CO.

14. Using the 2-Jaw Puller and Step Plate, remove the 2 differential bearings.



N0015311

Fig. 40: Removing Differential Bearings Using Special Tool
Courtesy of FORD MOTOR CO.

INSTALLATION

1. Position the Drive Pinion Bearing Cup Installer and the new inner and outer drive pinion bearing cups in their respective bores.
 1. After placing the inner and outer drive pinion bearing cups in their bores, place the Drive Pinion Bearing Cup Installer (inner) on the inner drive pinion bearing cup.
 2. Place the Drive Pinion Bearing Cup Installer (outer) on the outer drive pinion bearing cup.
 3. Install the Drive Pinion Bearing Cup Installer.

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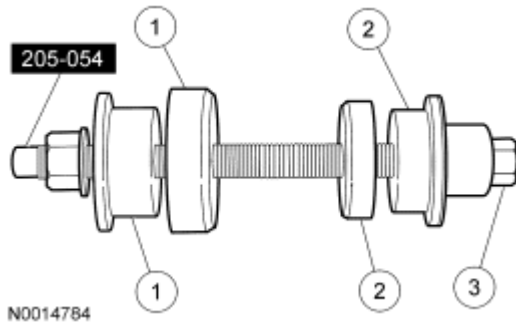


Fig. 41: Identifying Special Tool (205-054)
Courtesy of FORD MOTOR CO.

2. Tighten the Drive Pinion Bearing Cup Installer to seat the drive pinion bearing cups into their bores.

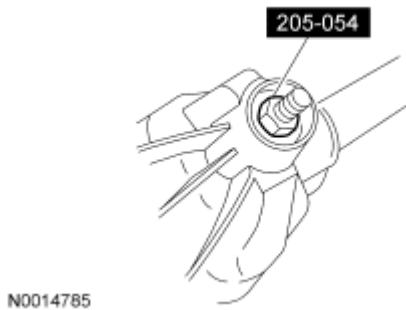


Fig. 42: Tightening Special Tool (205-054)
Courtesy of FORD MOTOR CO.

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

3. Make sure the drive pinion bearing cups are correctly seated in their bores.

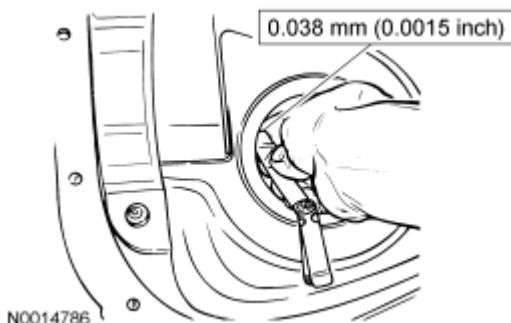


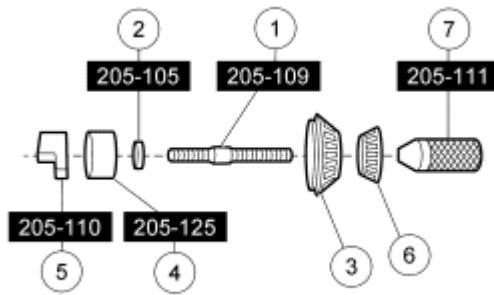
Fig. 43: Measuring Clearance Between Cup And Bottom Of Its Bore
Courtesy of FORD MOTOR CO.

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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.

4. Assemble and position the Adapters in the sequence shown.

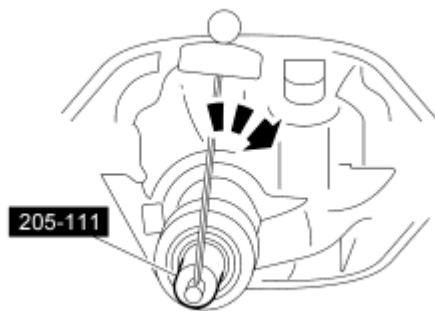


N0014787

Fig. 44: Identifying Special Tools (205-105) And (205-109)
Courtesy of FORD MOTOR CO.

NOTE: This step duplicates final drive pinion bearing preload.

5. Tighten the Adapter.
 - Tighten to 2.2 Nm (20 lb-in).



N0003075

Fig. 45: Checking Differential Pinion Bearing Preload
Courtesy of FORD MOTOR CO.

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

6. Rotate the Adapter several half-turns to make sure of correct seating of the drive pinion bearings and position the special tool.

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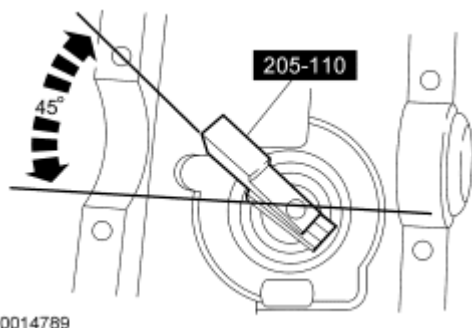


Fig. 46: Rotating Special Tool (205-110) To Seat Bearings
Courtesy of FORD MOTOR CO.

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

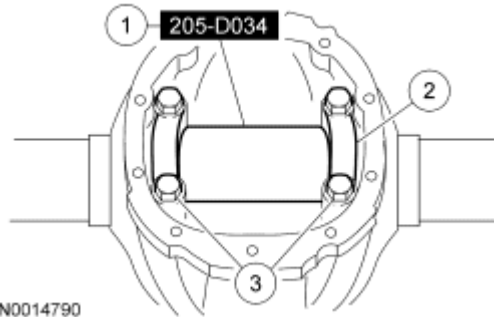


Fig. 47: Identifying Special Tool (205-D034)
Courtesy of FORD MOTOR CO.

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 the gauge block and the 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.

8. 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 Adapters.

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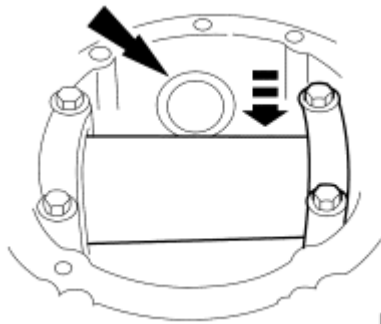


Fig. 48: Identifying Drive Pinion Bearing Adjustment Shim
Courtesy of FORD MOTOR CO.

9. Using the Drive Pinion Bearing Cone Installer and Bearing/Oil Seal Plate, press the inner drive pinion bearing and drive pinion bearing adjustment shim until it is firmly seated on the pinion shaft.

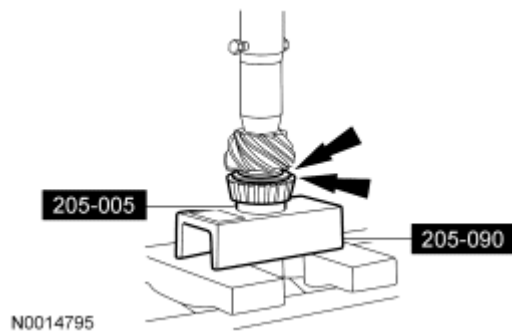


Fig. 49: Identifying Special Tools (205-005) & (205-090)
Courtesy of FORD MOTOR CO.

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

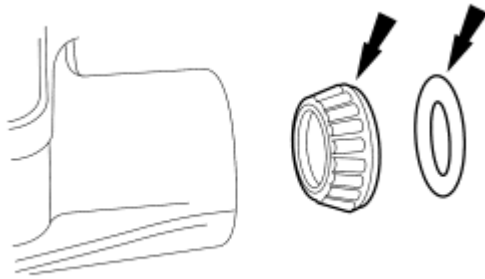


Fig. 50: Identifying Drive Pinion Collapsible Spacer
Courtesy of FORD MOTOR CO.

11. Install the outer drive pinion bearing and the drive pinion shaft oil slinger.

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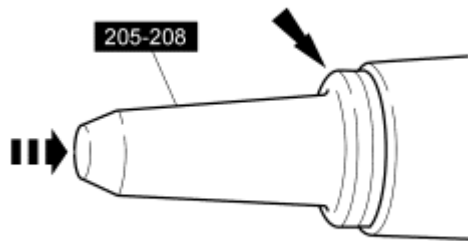
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang



GE1074-A

Fig. 51: Identifying Outer Drive Pinion Bearing And Drive Pinion Shaft Oil Slinger
Courtesy of FORD MOTOR CO.

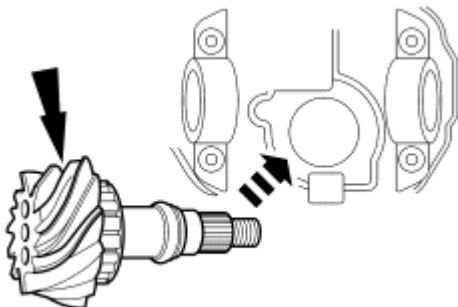
12. Using the Drive Pinion Oil Seal Installer, install the drive pinion seal.



N0015303

Fig. 52: Using Special Tool (205-208) To Install Drive Pinion Seal
Courtesy of FORD MOTOR CO.

13. Position the drive pinion assembly into the axle housing.



DE0496-A

Fig. 53: Locating Drive Pinion Gear
Courtesy of FORD MOTOR CO.

14. Using the Drive Pinion Flange Holding Fixture and Drive Pinion Flange Installer, install the drive pinion flange.

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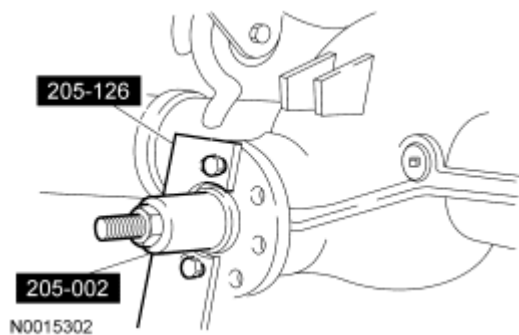


Fig. 54: Using Special Tools (205-126, 205-002) To Hold Drive Pinion Flange
Courtesy of FORD MOTOR CO.

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

NOTE: Remove the Drive Pinion Flange Holding Fixture while taking rotational pinion bearing preload checks with the Nm (lb-in) torque wrench.

15. Use the Drive Pinion Flange Holding Fixture 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.
 - Tighten to a rotational torque of 1.8-3.3 Nm (16-29 lb-in).

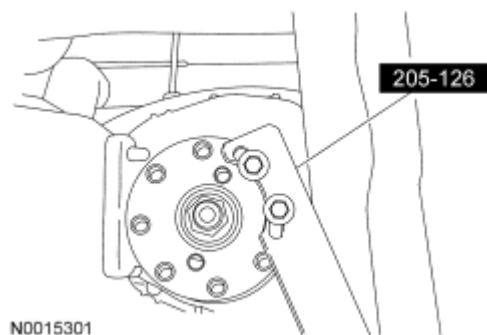


Fig. 55: Using Special Tool (205-126) To Hold Pinion Flange
Courtesy of FORD MOTOR CO.

16. Using the Differential Side Bearing Installer, install the new differential bearings.

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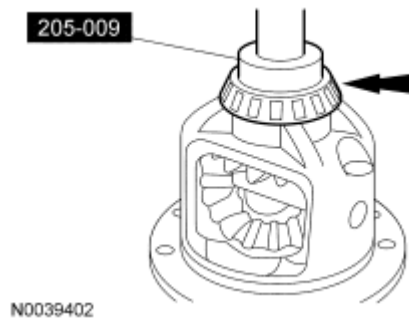


Fig. 56: Identifying Special Tools (205-009)
Courtesy of FORD MOTOR CO.

17. Position the differential carrier assembly and the new differential bearing cups in the differential housing.

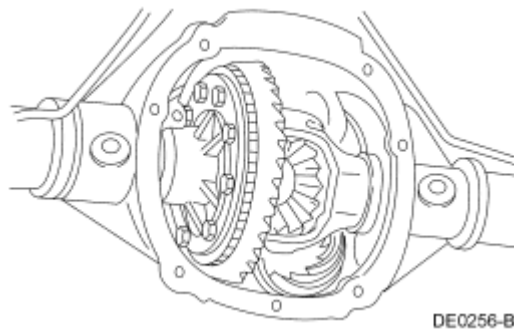


Fig. 57: Positioning Differential Assembly In Axle Housing
Courtesy of FORD MOTOR CO.

18. Install a differential bearing shim of the shown dimension on the left side.

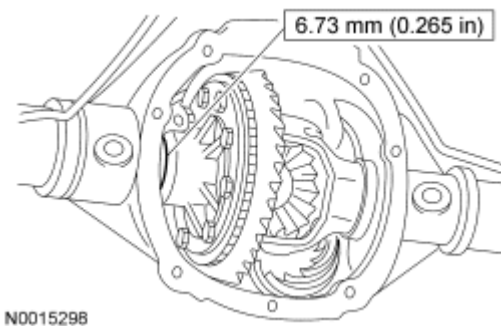


Fig. 58: Locating Differential Bearing Shim
Courtesy of FORD MOTOR CO.

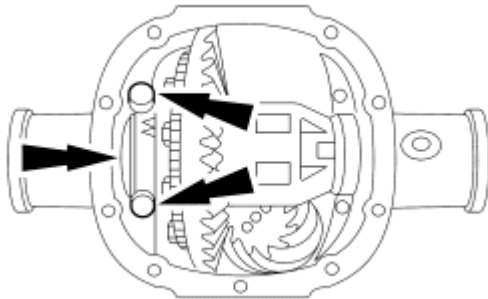
NOTE: Always install the bearing caps in their original locations and positions.

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

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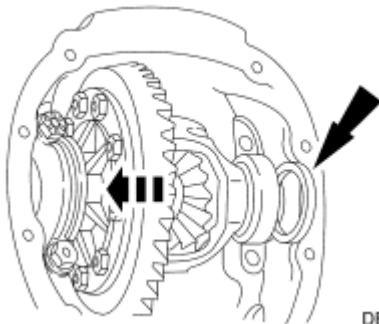
19. Install the LH bearing cap and loosely install the 2 bolts.



DE1323-A

Fig. 59: Identifying LH Differential Bearing Cap And Bolts
Courtesy of FORD MOTOR CO.

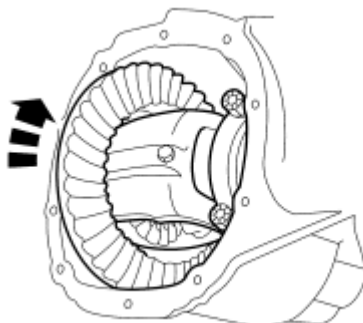
20. Install progressively larger differential bearing shims on the RH side until the largest shim is installed by hand.



DE0292-A

Fig. 60: Identifying Differential Bearing Shim
Courtesy of FORD MOTOR CO.

21. Install the RH side bearing cap and 2 bolts. Tighten the 4 left and right bearing cap bolts.
- Tighten to 105 Nm (77 lb-ft).
22. Rotate the differential carrier several times to verify the differential bearings have seated correctly.



E9697-A

Fig. 61: Rotating Differential Assembly

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Courtesy of FORD MOTOR CO.

23. Install the Dial Indicator Gauge with Brackets and measure the ring gear backlash.
- If the backlash is within specification, proceed to Step 26.
 - If a zero backlash condition occurs, proceed to Step 24.
 - If the backlash is not within specification, proceed to Step 25.

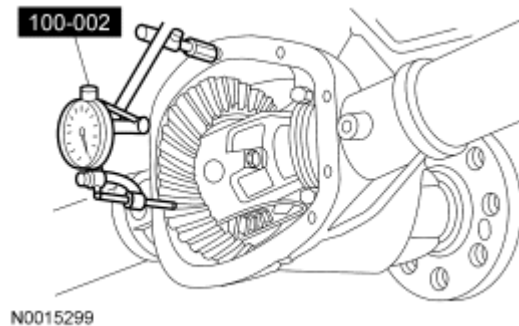


Fig. 62: Measuring Ring Gear Backlash
Courtesy of FORD MOTOR CO.

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 23.
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 specification, proceed to Step 26.

Backlash Change Required		Thickness Change Required	
mm	Inch	mm	Inch
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
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

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0.381|0.015|0.508|0.020|

DIFFERENTIAL SHIM SIZE CHART 4067

Stripes and Color Code	Dimension A	
	mm	Inch
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 - GRN	7.0866- 7.0993	0.2790- 0.2795
2 - GRN	7.0358- 7.0485	0.2770- 0.2775
1 - GRN	6.9850- 7.0485	0.2750- 0.2755
5 - WH	6.9342- 6.9469	0.2730- 0.2735
4 - WH	6.8834- 6.8961	0.2710- 0.2715
3 - WH	6.8326- 6.8453	0.2690- 0.2695

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2 - WH	6.7818- 6.7945	0.2670- 0.2675
1 - WH	6.7310- 6.7437	0.2650- 0.2655
5 - YEL	6.6802- 6.6929	0.2630- 0.2635
4 - YEL	6.6294- 6.6421	0.2610- 0.2615
3 - YEL	6.5786- 6.5913	0.2590- 0.2595
2 - YEL	6.5278- 6.5405	0.2570- 0.2575
1 - YEL	6.4770- 6.4897	0.2550- 0.2555
5 - ORNG	6.4262- 6.4389	0.2530- 0.2535
4 - ORNG	6.3754- 6.3881	0.2510- 0.2515
3 - ORNG	6.3246- 6.3373	0.2490- 0.2495
2 - ORNG	6.2738- 6.2865	0.2470- 0.2475
1 - ORNG	6.2223- 6.2357	0.2450- 0.2455
2 - RED	6.1722- 6.1849	0.2430- 0.2435
1 - RED	6.1214- 6.1341	0.2410- 0.2415

26. Remove the 4 bearing cap bolts and 2 bearing caps.
27. To establish differential bearing preload, increase both LH and RH differential bearing shim size by the thickness shown.

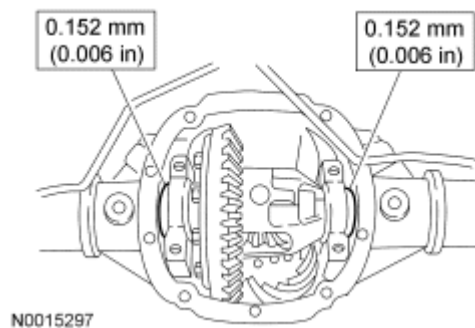


Fig. 63: Identifying Differential Bearing Shim For Preload With Specifications
 Courtesy of FORD MOTOR CO.

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28. Using the Differential Shim Installer, fully seat the differential bearing shims. Make sure the assembly rotates freely.

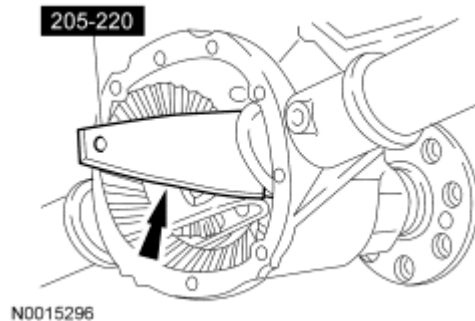


Fig. 64: Seating Differential Bearing Shims Using Special Tool (205-220)
Courtesy of FORD MOTOR CO.

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

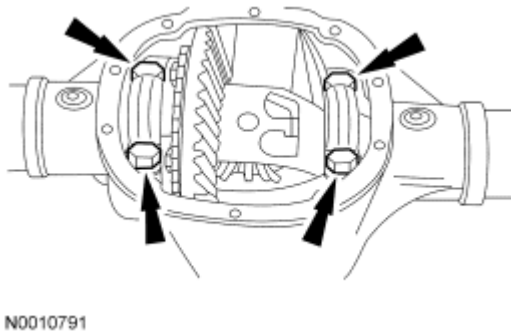


Fig. 65: Identifying Differential Bearing Cap And Differential Bearing Cap Bolts
Courtesy of FORD MOTOR CO.

30. Using the Dial Indicator Gauge with Brackets, recheck the ring gear backlash.

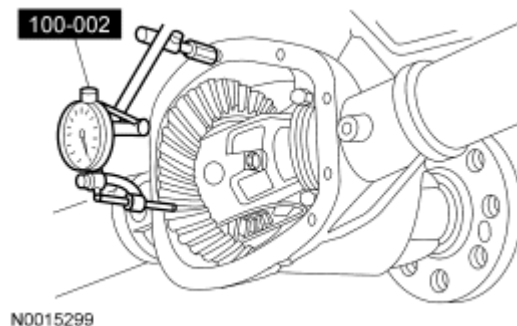


Fig. 66: Measuring Ring Gear Backlash
Courtesy of FORD MOTOR CO.

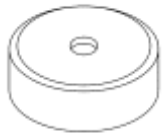
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31. Apply marking compound and rotate the differential assembly 5 complete revolutions.
32. Verify an acceptable pattern check.
33. Install the axle shafts. For additional information, refer to **Axle Shaft**.
34. Install the driveshaft. For additional information, refer to **DRIVESHIFT** article.

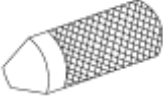
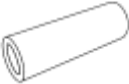
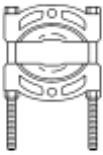
DIFFERENTIAL RING AND PINION

Special Tools

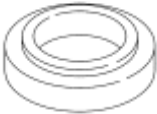
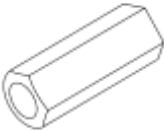
Illustration	Tool Name	Tool Number
 ST2039-A	2-Jaw Puller	205-D072 (D79L-4221-A1) or equivalent
 ST1678-A	Adapter for 205-S127	205-105 (T76P-4020-A3)
 ST1429-A	Adapter for 205-S127	205-109 (T76P-4020-A9)
 ST1743-A	Adapter for 205-S127	205-110 (T76P-4020-A10)
 ST1431-A	Adapter for 205-S127	205-111 (T76P-4020-A11)
 ST1678-A	Adapter for 205-S127	205-125 (T78P-4020-A15)

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 ST1137-A	Dial Indicator Gauge With Brackets	100-002 (TOOL-4201-C)
 ST1432-A	Gauge Tube	205-D034 (D80T-4020-F49) or equivalent
 ST1268-A	Holding Fixture, Drive Pinion Flange	205-126 (T78P-4851-A)
 ST1375-A	Installer, Differential Shim	205-220 (T85L-4067-AH)
 ST1543-A	Installer, Differential Side Bearing	205-009 (T57L-4221-A1)
 ST1434-A	Installer, Drive Pinion Bearing Cone	205-005 (T53T-4621-C)
 ST1368-A	Installer, Drive Pinion Bearing Cup	205-054 (T71P-4616-A)
 ST1325-A	Installer, Drive Pinion Flange	205-002 (TOOL-4858-E)

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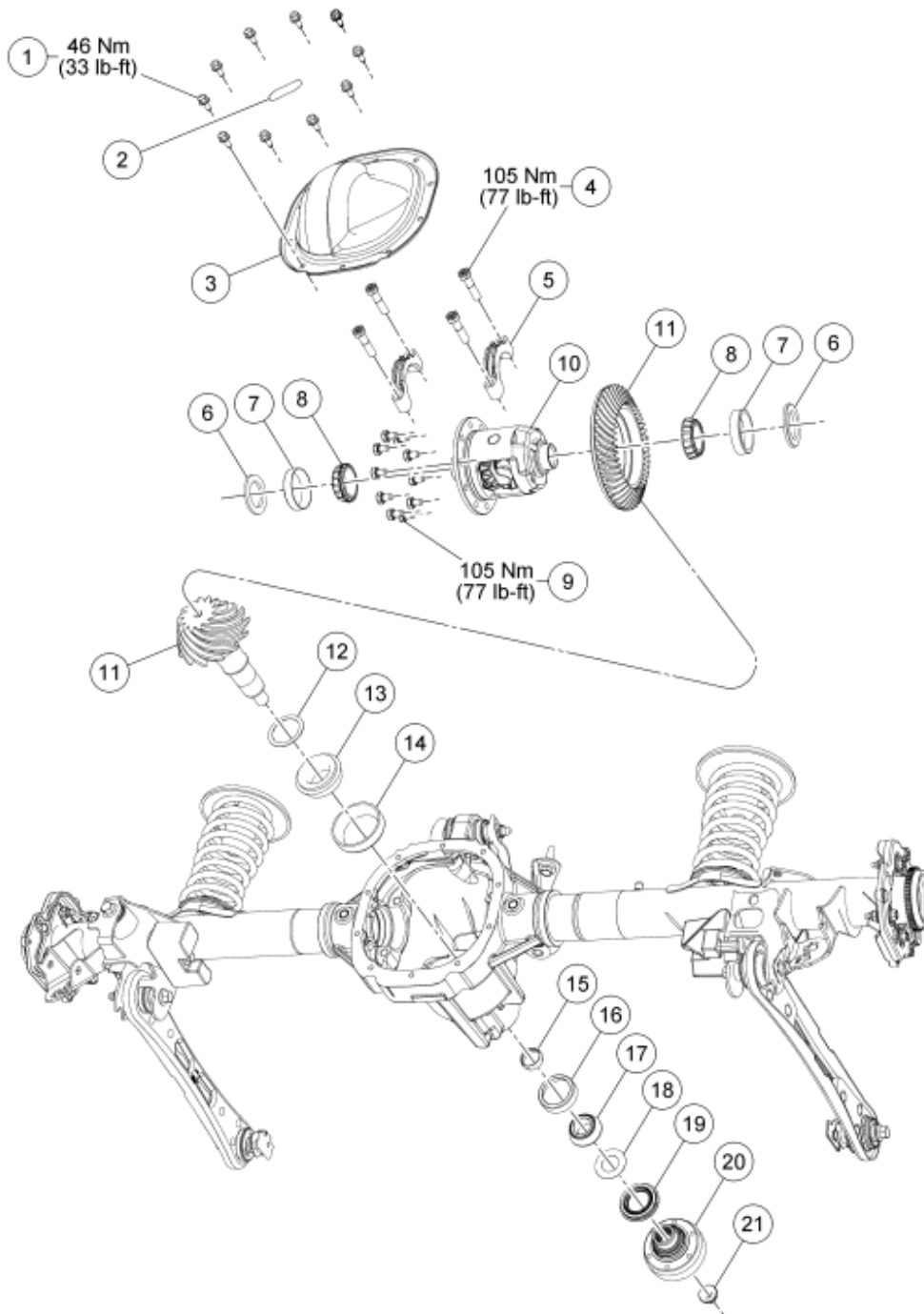
 ST2026-A	Installer, Drive Pinion Oil Seal	205-208 (T83T-4676-A)
 ST1367-A	Plate, Bearing/Oil Seal	205-090 (T75L-1165-B)
 ST1744-A	Protector, Drive Pinion Thread	205-460
 ST1744-A	Step Plate	205-D016 (D80L-630-5) or equivalent

Material

Item	Specification
Stud and Bearing Mount TA-27	WSK-M2G349-A1

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N0071958

Fig. 67: Exploded View Of Differential Ring & Pinion With Torque Specifications
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	383548	Differential housing cover bolt (10 required)
2	-	Axle identification label

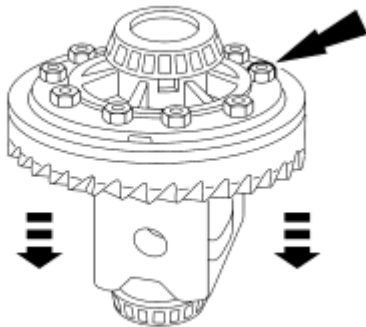
2008 Ford Mustang

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3	4033	Differential housing cover
4	-	Differential bearing cap bolt (part of 4010)
5	-	Differential bearing cap (part of 4010)
6	4067	Differential bearing shims (2 required)
7	4221	Differential bearing cups (2 required)
8	4222	Differential bearing cones (2 required)
9	4216	Differential ring gear bolt (10 required)
10	-	Differential carrier assembly
11	4209	Ring gear (set with drive pinion)
11	4209	Drive pinion (set with ring gear)
12	4663	Pinion bearing adjustment shim
13	4630	Inner pinion bearing
14	4628	Inner pinion bearing cup
15	4662	Collapsible spacer
16	4616	Outer pinion bearing cup
17	4621	Outer pinion bearing
18	4670	Pinion oil slinger
19	4676	Pinion oil seal
20	4851	Pinion flange
21	389546-S	Pinion nut

REMOVAL

1. Remove the differential carrier. For additional information, refer to **Differential Carrier**.
2. Remove the driveshaft. For additional information, refer to **DRIVESHAFT** article.
3. Remove and discard the 10 differential ring gear bolts.



DE2109-A

Fig. 68: Removing & Discarding Differential Ring Gear Bolts
Courtesy of FORD MOTOR CO.

NOTE: Do not damage the differential ring gear bolt hole threads.

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4. Insert a punch in the differential ring gear bolt holes and drive the differential ring gear off.

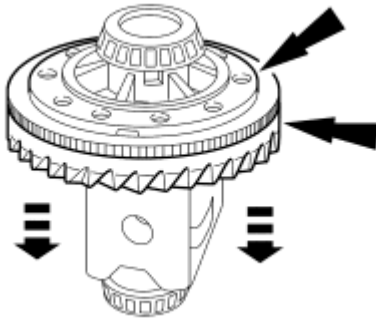


Fig. 69: Removing Differential Ring Gear
Courtesy of FORD MOTOR CO.

5. Using the 2-Jaw Puller and Step Plate, remove the differential bearings.

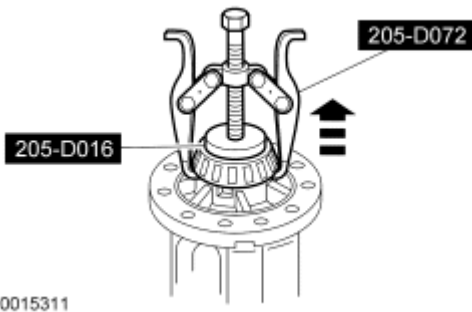


Fig. 70: Removing Differential Bearings Using Special Tool
Courtesy of FORD MOTOR CO.

6. Using the Drive Pinion Flange Holding Fixture to hold the pinion flange, remove and discard the pinion nut.

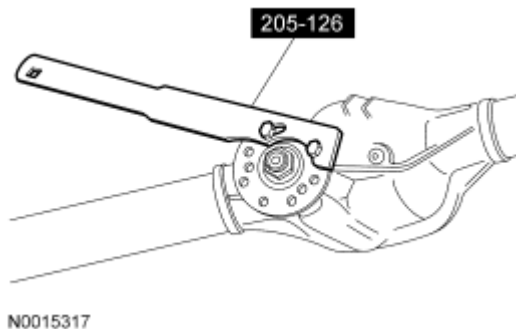
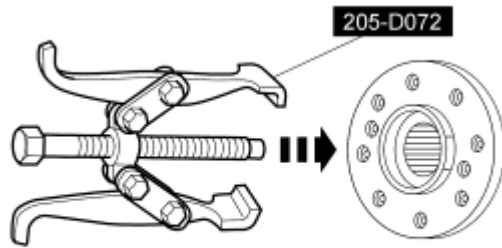


Fig. 71: Holding Pinion Flange Using Special Tool (205-126)
Courtesy of FORD MOTOR CO.

7. Using the 2-Jaw Puller, remove the pinion flange.

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N0015316

Fig. 72: Removing Pinion Flange Using Special Tool (205-D072)
Courtesy of FORD MOTOR CO.

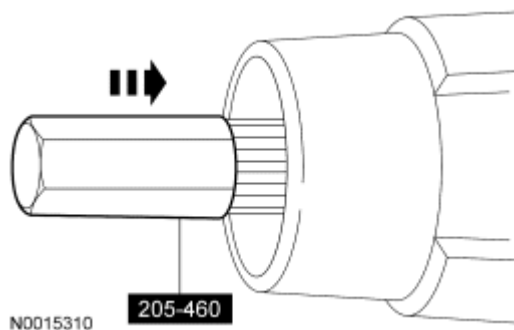
8. Force up on the metal flange of the drive pinion seal. Install gripping pliers and strike with a hammer until the drive pinion seal is removed.



A0008803

Fig. 73: Removing Drive Pinion Oil Seal And Slinger
Courtesy of FORD MOTOR CO.

9. Remove the drive pinion shaft oil slinger and the outer drive pinion bearing.
10. Install the Drive Pinion Thread Protector. Using a soft-faced hammer, drive the pinion assembly out of the axle housing.



N0015310

Fig. 74: Driving Pinion Assembly Out Of Axle Housing Using Special Tool (205-460)
Courtesy of FORD MOTOR CO.

11. Remove and discard the drive pinion collapsible spacer.

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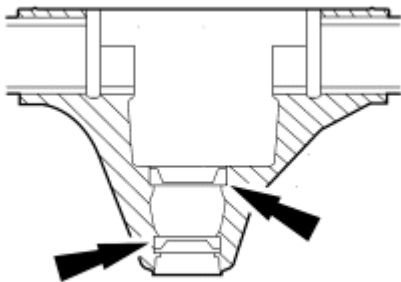
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang



DE0255-C

Fig. 75: Identifying Drive Pinion Collapsible Spacer
Courtesy of FORD MOTOR CO.

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



DE2511-A

Fig. 76: Identifying Pinion Bearing Cups
Courtesy of FORD MOTOR CO.

INSTALLATION

1. Position the Drive Pinion Bearing Cup Installer and the inner and outer drive pinion bearing cups in their respective bores.
 1. After placing the inner and outer drive pinion bearing cups in their bores, place the Drive Pinion Bearing Cup Installer (inner) on the inner drive pinion bearing cup.
 2. Place the Drive Pinion Bearing Cup Installer (outer) on the outer drive pinion bearing cup.
 3. Install the Drive Pinion Bearing Cup Installer.

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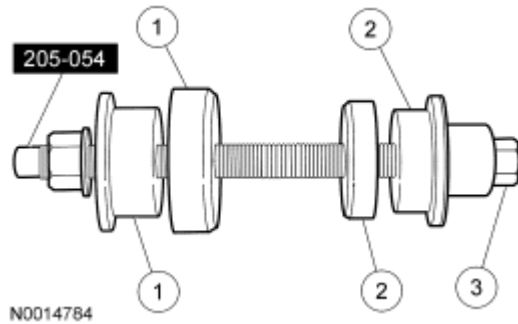


Fig. 77: Identifying Special Tool (205-054)
Courtesy of FORD MOTOR CO.

2. Tighten the Drive Pinion Bearing Cup Installer to seat the drive pinion bearing cups into their bores.

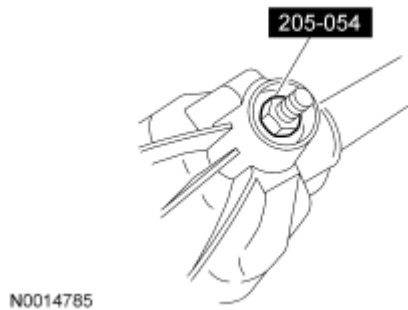


Fig. 78: Tightening Special Tool (205-054)
Courtesy of FORD MOTOR CO.

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

3. Make sure the drive pinion bearing cups are correctly seated in their bores.

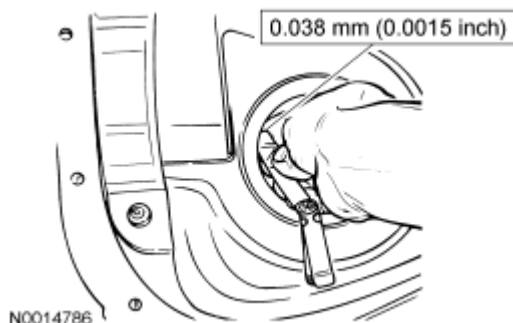


Fig. 79: Measuring Clearance Between Cup And Bottom Of Its Bore
Courtesy of FORD MOTOR CO.

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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.

4. Assemble and position the Adapters in the sequence shown.

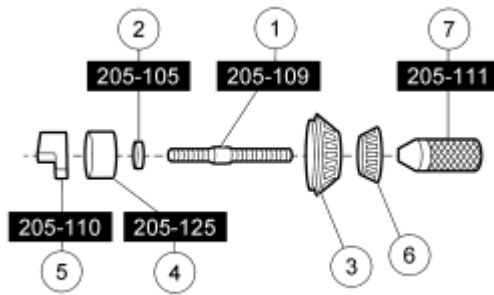


Fig. 80: Identifying Special Tools (205-105) And (205-109)
Courtesy of FORD MOTOR CO.

NOTE: This step duplicates final drive pinion bearing preload.

5. Tighten the Adapter.
 - Tighten to 2.2 Nm (20 lb-in).

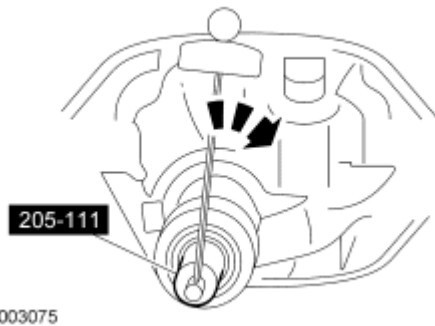


Fig. 81: Checking Differential Pinion Bearing Preload
Courtesy of FORD MOTOR CO.

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

6. Rotate the Adapter several half-turns to make sure of correct seating of the drive pinion bearings and position the Adapter.

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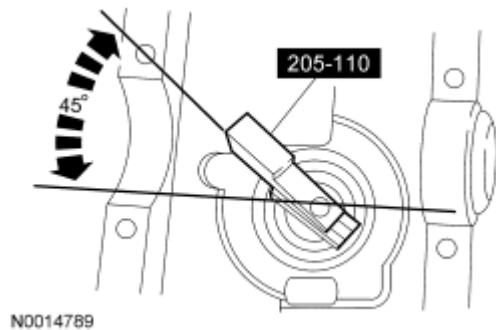


Fig. 82: Rotating Special Tool (205-110) To Seat Bearings
Courtesy of FORD MOTOR CO.

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

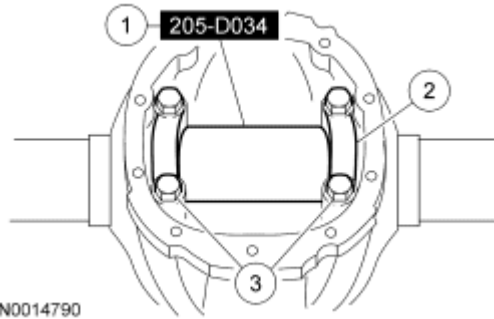


Fig. 83: Identifying Special Tool (205-D034)
Courtesy of FORD MOTOR CO.

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 the gauge block and the 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.

8. 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 Adapters.

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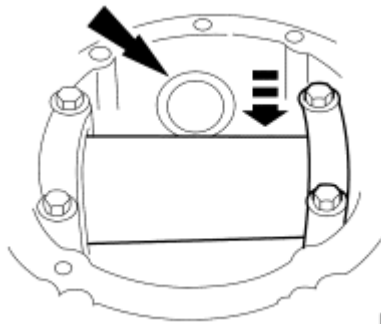


Fig. 84: Identifying Drive Pinion Bearing Adjustment Shim
Courtesy of FORD MOTOR CO.

9. Using the Drive Pinion Bearing Cone Installer and Bearing/Oil Seal Plate, press the inner drive pinion bearing and drive pinion bearing adjustment shim until it is firmly seated on the pinion shaft.

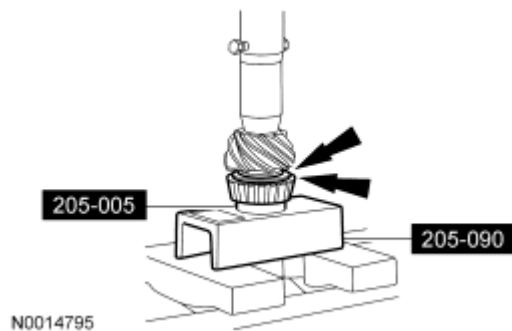


Fig. 85: Identifying Special Tools (205-005) & (205-090)
Courtesy of FORD MOTOR CO.

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

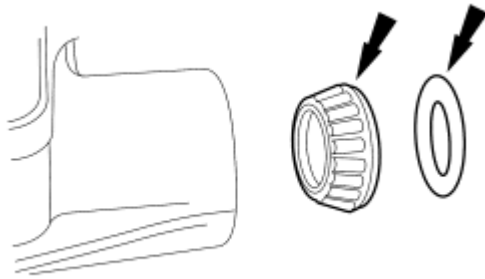


Fig. 86: Identifying Drive Pinion Collapsible Spacer
Courtesy of FORD MOTOR CO.

11. Install the outer drive pinion bearing and the drive pinion shaft oil slinger.

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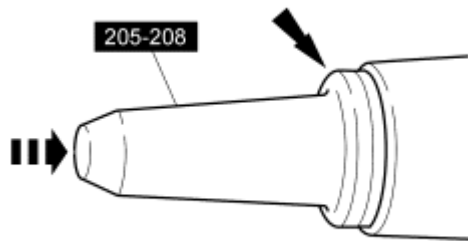
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang



GE1074-A

Fig. 87: Identifying Outer Drive Pinion Bearing And Drive Pinion Shaft Oil Slinger
Courtesy of FORD MOTOR CO.

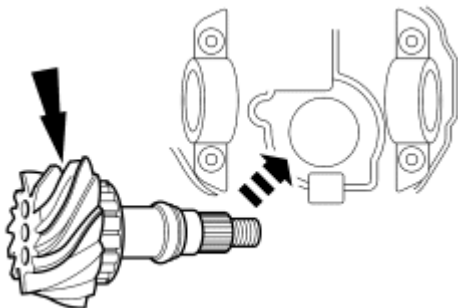
12. Using the Drive Pinion Oil Seal Installer, install the drive pinion seal.



N0015303

Fig. 88: Using Special Tool (205-208) To Install Drive Pinion Seal
Courtesy of FORD MOTOR CO.

13. Position the drive pinion assembly into the axle housing.



DE0496-A

Fig. 89: Locating Drive Pinion Gear
Courtesy of FORD MOTOR CO.

14. Using the Drive Pinion Flange Holding Fixture and Drive Pinion Flange Installer, install the drive pinion flange.

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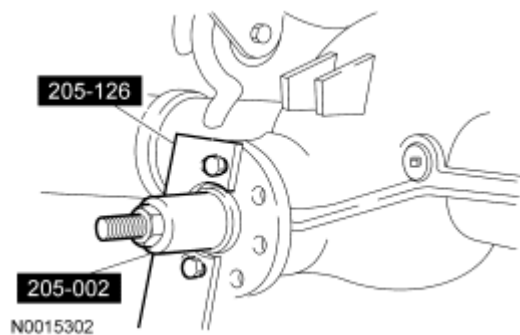


Fig. 90: Using Special Tools (205-126, 205-002) To Hold Drive Pinion Flange
Courtesy of FORD MOTOR CO.

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

NOTE: Remove the Drive Pinion Flange Holding Fixture while taking rotational pinion bearing preload checks with the Nm (lb-in) torque wrench.

15. Use the Drive Pinion Flange Holding Fixture 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.
 - Tighten to a rotational torque of 1.8-3.3 Nm (16-29 lb-in).

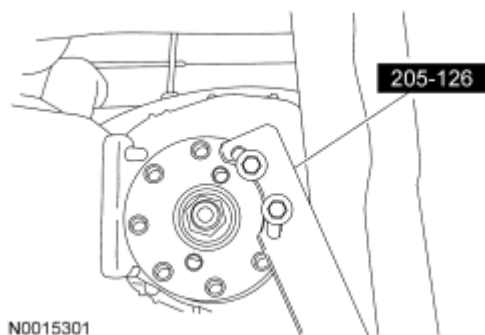


Fig. 91: Using Special Tool (205-126) To Hold Pinion Flange
Courtesy of FORD MOTOR CO.

16. Using the Differential Side Bearing Installer, install the 2 new differential bearings.

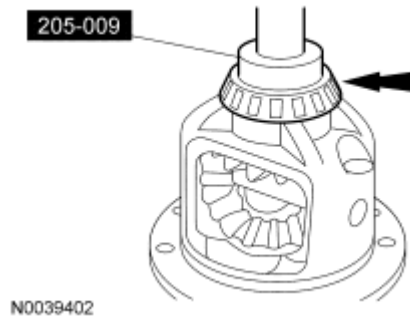


Fig. 92: Identifying Special Tools (205-009)
Courtesy of FORD MOTOR CO.

17. Press the differential ring gear on the differential assembly.

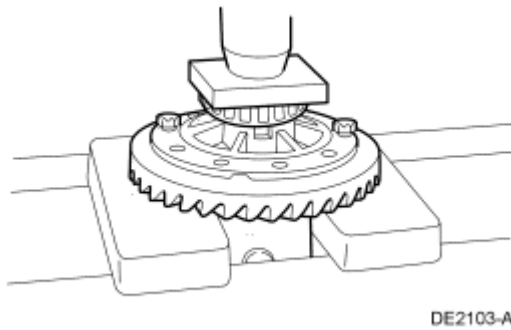


Fig. 93: Pressing Differential Ring Gear On Differential Case
Courtesy of FORD MOTOR CO.

NOTE: Apply stud and bearing mount to the new differential ring gear bolts.

18. Install the 10 new differential ring gear bolts.
- Tighten to 105 Nm (77 lb-ft).

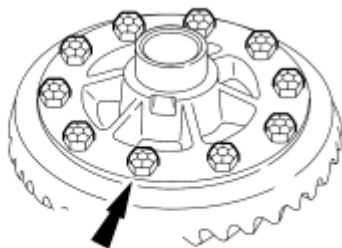


Fig. 94: Identifying Differential Ring Gear Bolts
Courtesy of FORD MOTOR CO.

19. Position the differential carrier assembly and the new differential bearing cups in the differential housing.

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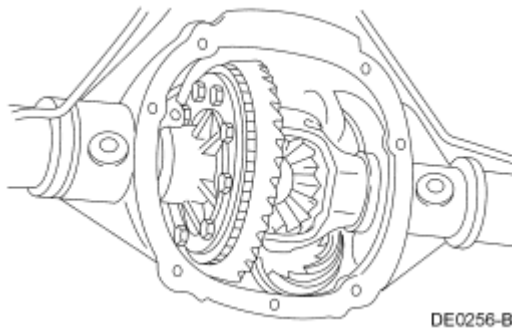


Fig. 95: Positioning Differential Assembly In Axle Housing
Courtesy of FORD MOTOR CO.

20. Install a differential bearing shim of the shown dimension on the LH side.

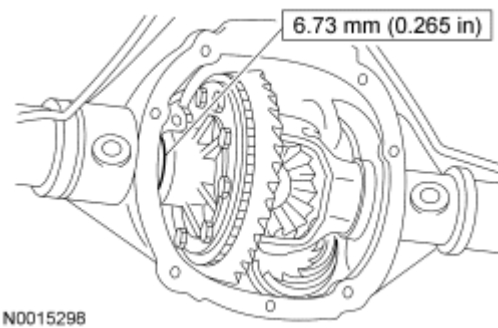


Fig. 96: Locating Differential Bearing Shim
Courtesy of FORD MOTOR CO.

NOTE: Always install the bearing caps in their original locations and positions.

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

21. Install the LH bearing cap and loosely install the 2 bolts.

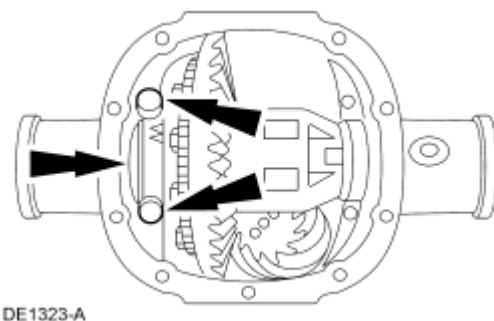


Fig. 97: Identifying LH Differential Bearing Cap And Bolts
Courtesy of FORD MOTOR CO.

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22. Install progressively larger differential bearing shims on the RH side until the largest shim is installed by hand.

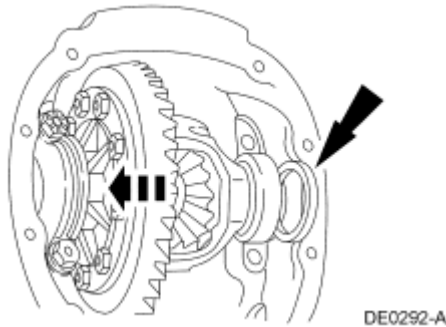


Fig. 98: Identifying Differential Bearing Shim
Courtesy of FORD MOTOR CO.

23. Install the right side bearing cap and 2 bolts. Tighten the 4 LH and RH bearing cap bolts.
- Tighten to 105 Nm (77 lb-ft).
24. Rotate the differential carrier several times to verify the differential bearings have seated correctly.

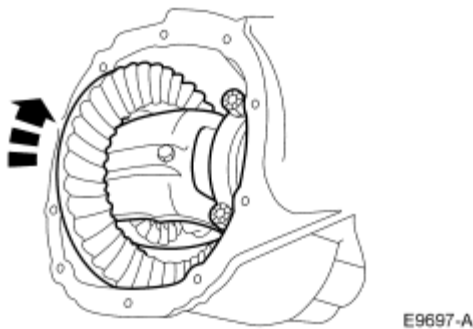


Fig. 99: Rotating Differential Assembly
Courtesy of FORD MOTOR CO.

25. Install the Dial Indicator Gauge with Brackets 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 26.
 - If the backlash is not within specification, proceed to Step 27.

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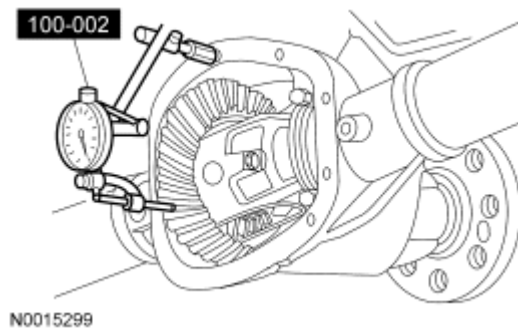


Fig. 100: Measuring Ring Gear Backlash
Courtesy of FORD MOTOR CO.

26. 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 25.
27. 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 specification, proceed to Step 28.

Backlash Change Required		Thickness Change Required	
mm	Inch	mm	Inch
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
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	Inch
2 - C-	7.7978-	0.3070-

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

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

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

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

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

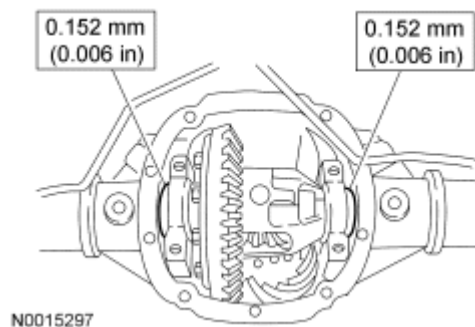


Fig. 101: Identifying Differential Bearing Shim For Preload With Specifications
Courtesy of FORD MOTOR CO.

30. Using the Differential Shim Installer, fully seat the differential bearing shims. Make sure the assembly rotates freely.

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

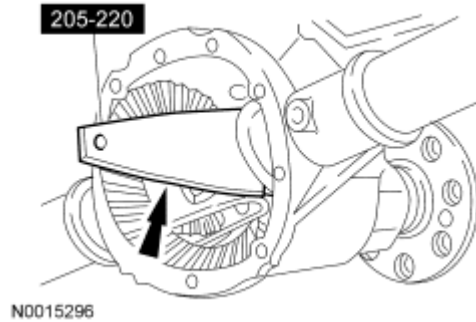


Fig. 102: Seating Differential Bearing Shims Using Special Tool (205-220)
Courtesy of FORD MOTOR CO.

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

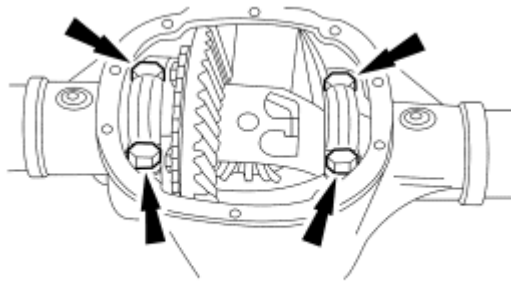


Fig. 103: Identifying Differential Bearing Cap And Differential Bearing Cap Bolts
Courtesy of FORD MOTOR CO.

32. Using the Dial Indicator Gauge with Brackets, recheck the ring gear backlash.

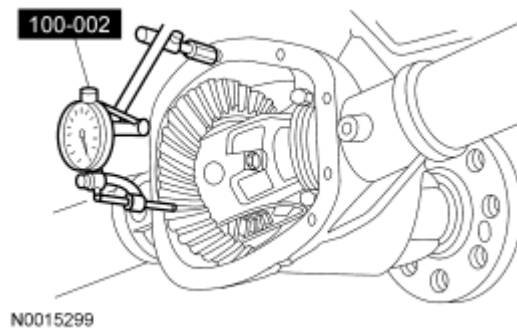


Fig. 104: Measuring Ring Gear Backlash
Courtesy of FORD MOTOR CO.

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

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

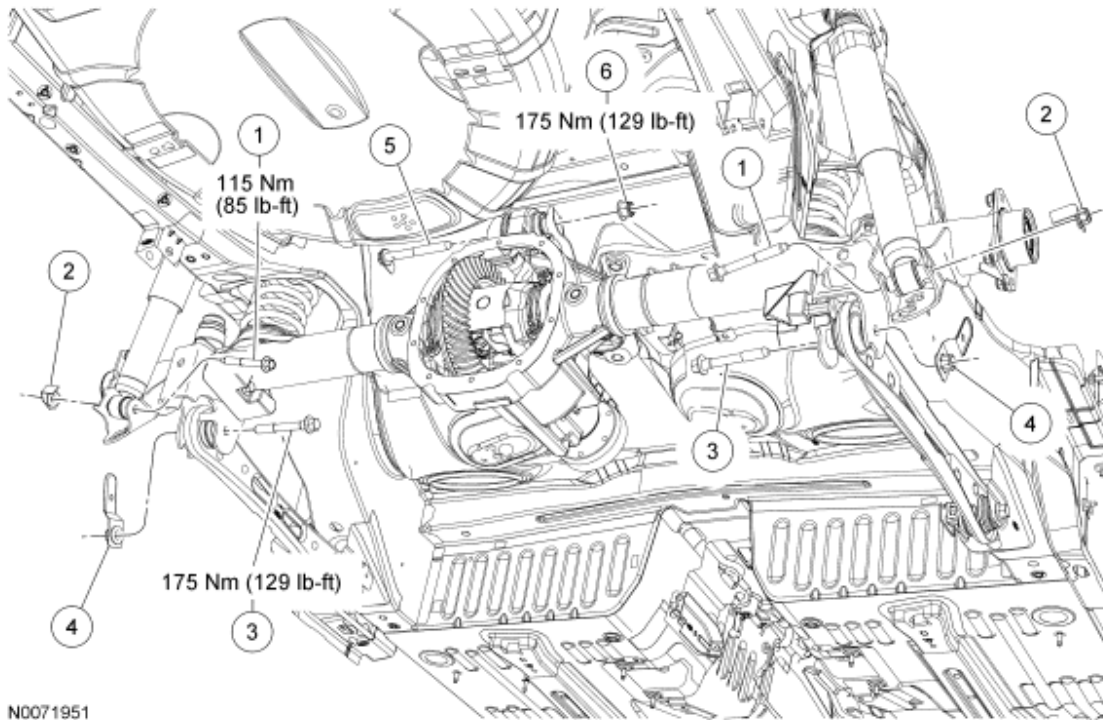


Fig. 105: Identifying Axle Housing With Torque Specifications
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	-	Shock absorber lower bolts (part of service kit 18008) (2 required)
2	-	Shock absorber lower nuts (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

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

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 stabilizer bar. For additional information, refer to **REAR SUSPENSION** article.

Convertibles

4. Remove the rear support braces. For additional information, refer to **UNI-BODY, SUBFRAME AND MOUNTING SYSTEM** 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.

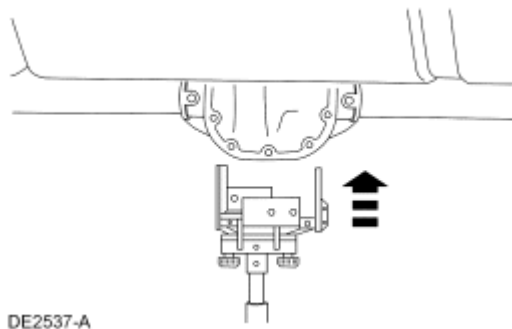


Fig. 106: Supporting Differential Housing With A Suitable Transmission Jack
Courtesy of FORD MOTOR CO.

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

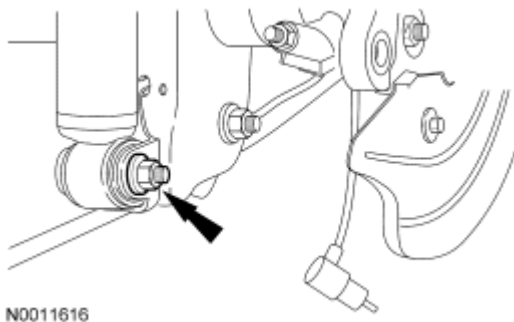


Fig. 107: Locating Shock Absorber Nuts
Courtesy of FORD MOTOR CO.

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

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).

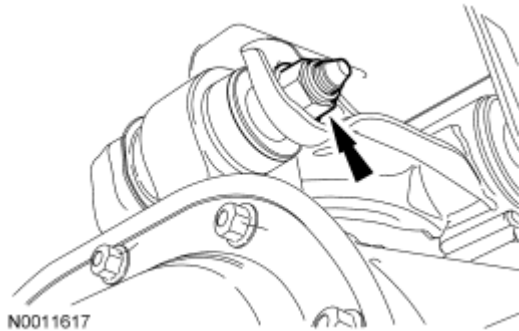


Fig. 108: Locating Upper Suspension Arm Nut
Courtesy of FORD MOTOR CO.

8. Lower the axle slightly and remove the springs.

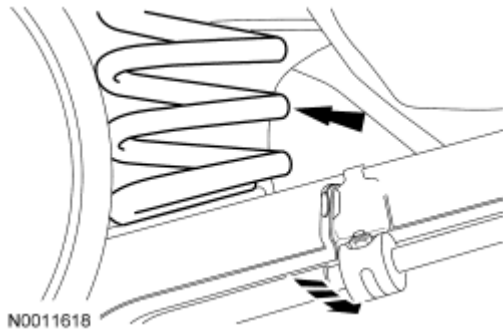


Fig. 109: Lowering Axle & Removing Springs
Courtesy of FORD MOTOR CO.

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

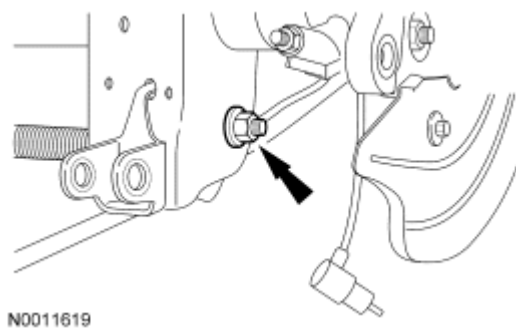


Fig. 110: Locating Trailing Arm Nuts
Courtesy of FORD MOTOR CO.

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

10. Disconnect the lower suspension arms from the axle housing.

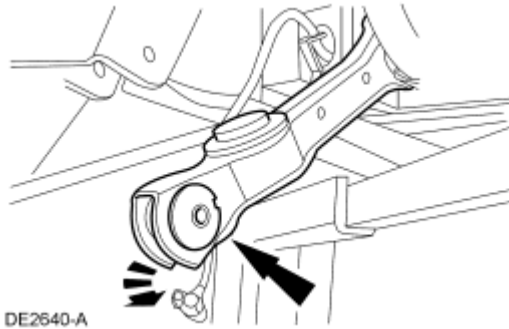


Fig. 111: Locating Lower Control Arms From Axle Housing
Courtesy of FORD MOTOR CO.

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

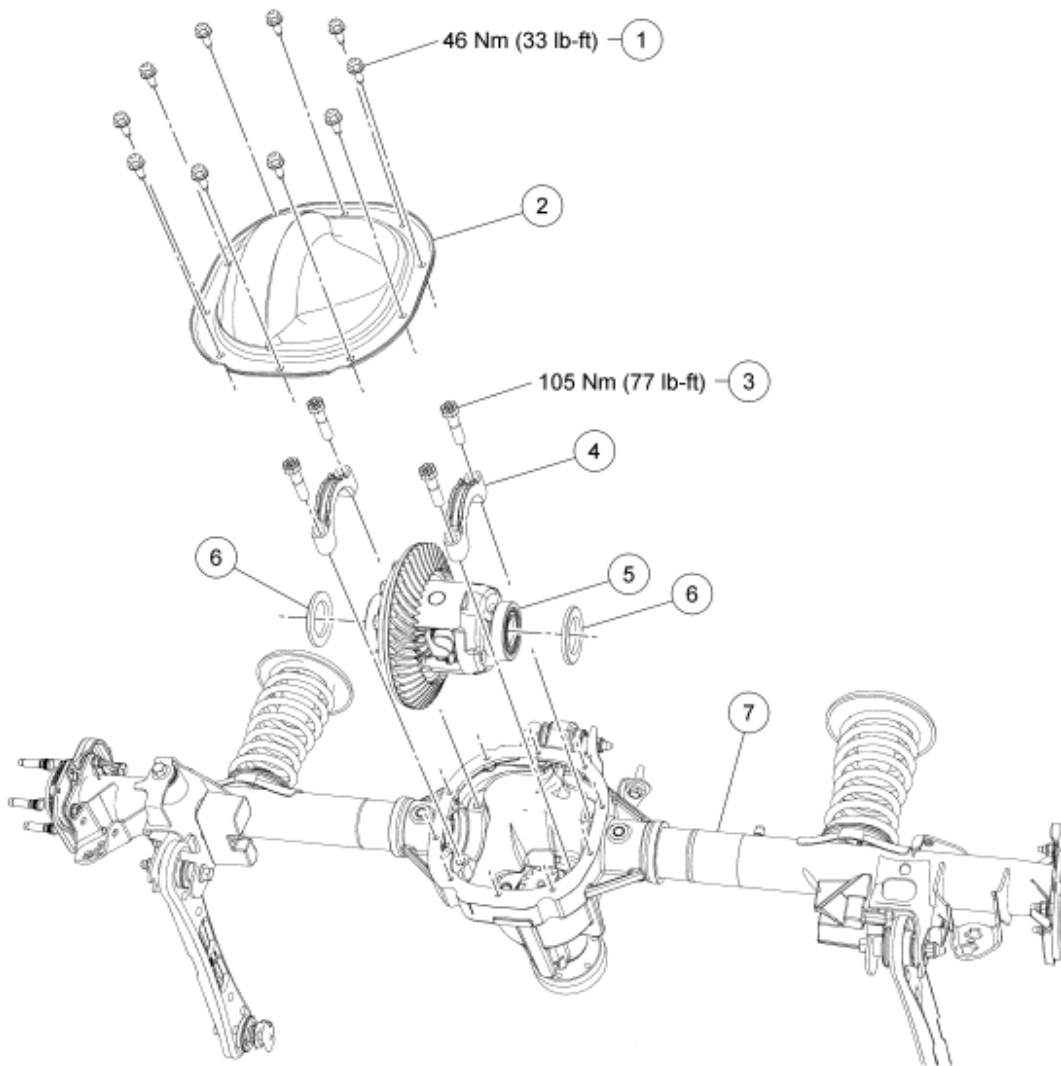
DIFFERENTIAL CARRIER

Special Tools

Illustration	Tool Name	Tool Number
 ST1137-A	Dial Indicator Gauge With Brackets	100-002 (TOOL-4201-C)
 ST1375-A	Installer, Differential Shim	205-220 (T85L-4067-AH)

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang



N0071955

Fig. 112: 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	4204	Differential assembly
6	4067	Differential bearing shims (2 required)
7	4010	Axle housing

REMOVAL

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - 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.

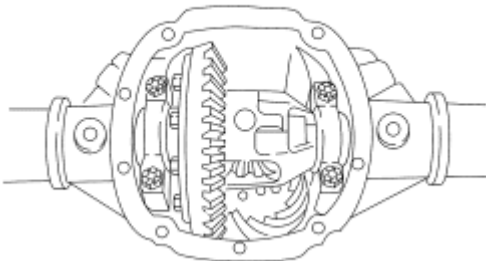


Fig. 113: Identifying Differential Carrier
Courtesy of FORD MOTOR CO.

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.

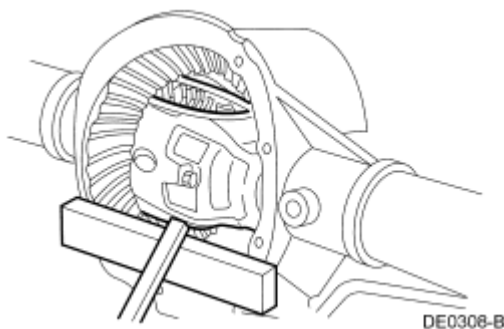


Fig. 114: Removing Differential Carrier Assembly From Axle Housing
Courtesy of FORD MOTOR CO.

INSTALLATION

1. Position the differential assembly in the axle housing.

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

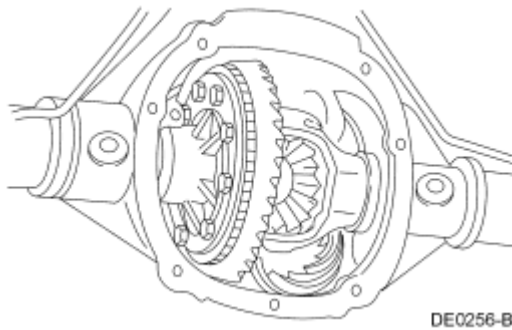


Fig. 115: Positioning Differential Assembly In Axle Housing
Courtesy of FORD MOTOR CO.

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

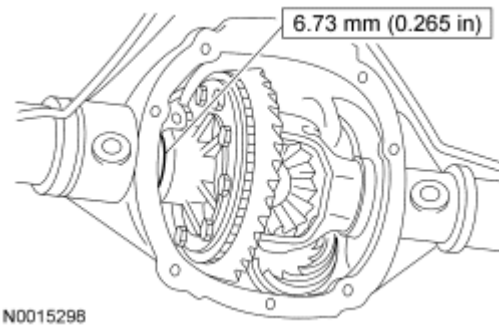


Fig. 116: Locating Differential Bearing Shim
Courtesy of FORD MOTOR CO.

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.

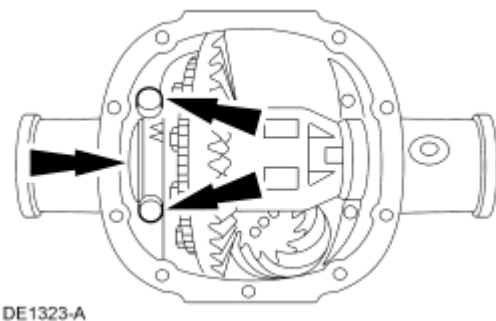


Fig. 117: Identifying LH Differential Bearing Cap And Bolts
Courtesy of FORD MOTOR CO.

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

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

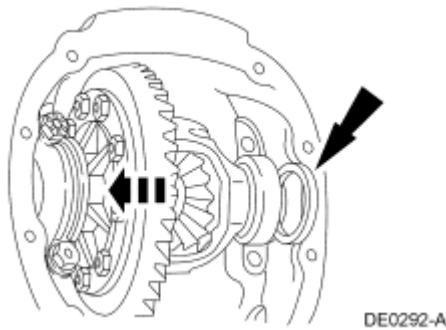


Fig. 118: Identifying Differential Bearing Shim
Courtesy of FORD MOTOR CO.

5. Using the Differential Shim Installer, fully seat the differential bearing shims.

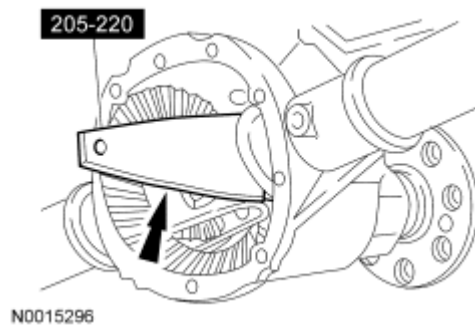


Fig. 119: Seating Differential Bearing Shims Using Special Tool (205-220)
Courtesy of FORD MOTOR CO.

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).

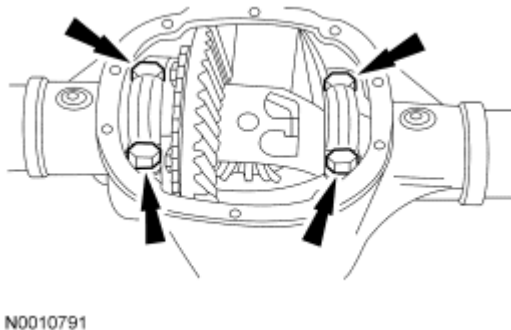


Fig. 120: Identifying Differential Bearing Cap And Differential Bearing Cap Bolts
Courtesy of FORD MOTOR CO.

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

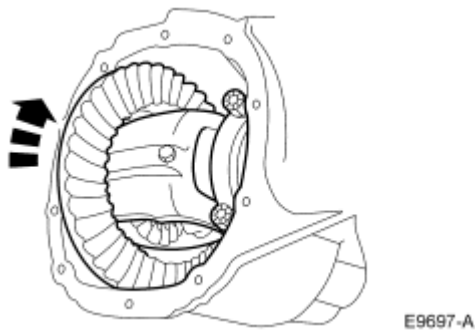


Fig. 121: Rotating Differential Assembly
Courtesy of FORD MOTOR CO.

8. Using the Dial Indicator Gauge with Brackets, measure the ring and pinion backlash.

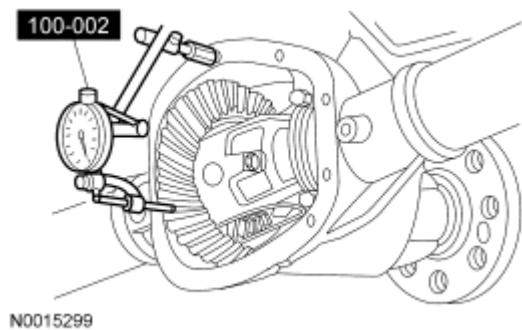


Fig. 122: Measuring Ring Gear Backlash
Courtesy of FORD MOTOR CO.

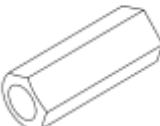
9. Install the axle shafts. For additional information, refer to **Axle Shaft**.

DISASSEMBLY AND ASSEMBLY

DIFFERENTIAL CASE AND RING GEAR

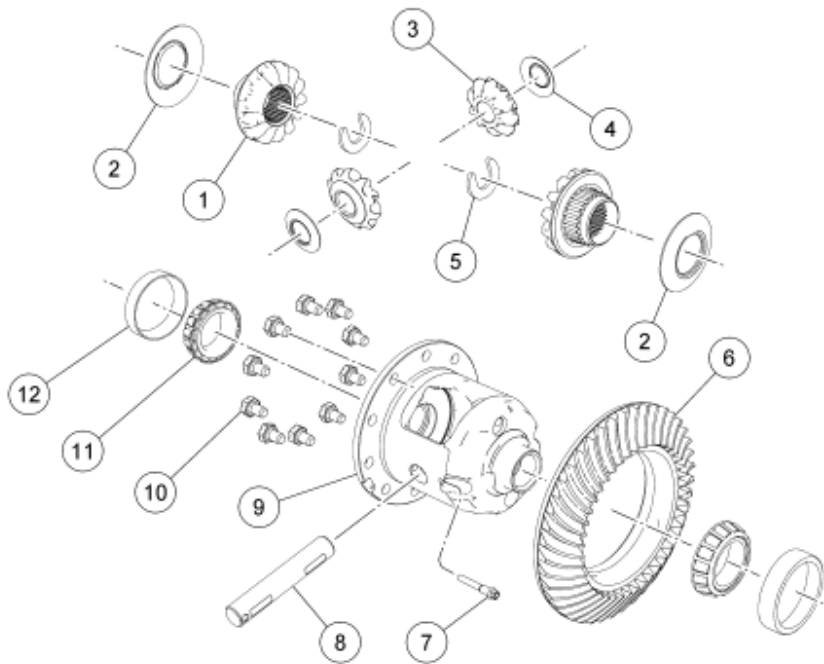
Special Tools

Illustration	Tool Name	Tool Number
 ST2039-A	2-Jaw Puller	205-D072 (D97L-4221-A) or equivalent
	Installer, Differential Side Bearing	205-009 (T57L-4221-A1)

 ST1543-A		
 ST1744-A	Step Plate	205-D016 (D80L-630-5) or equivalent

Material

Item	Specification
Motorcraft SAE 75W-140 Synthetic Rear Axle Lubricant XY-75W140-QL (US); CXY-75W140-1L (Canada)	WSL-M2C192-A
Stud and Bearing Mount TA-27	WSK-M2G349-A1
Threadlock and Sealer TA-25	WSK-M2G351-A5



N0037387

Fig. 123: Exploded View Of Differential Case & Ring Gear
 Courtesy of FORD MOTOR CO.

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

Item	Part Number	Description
1	4236	Differential side gear
2	4228	Differential side gear thrust washers
3	4215	Differential pinion gear
4	4230	Differential pinion thrust washer
5	4N237	Axle shaft U-washer (2 required)
6	4209	Differential ring gear
7	4241	Differential pinion shaft lock bolt
8	4211	Differential pinion shaft
9	4204	Differential case
10	4216	Differential ring gear bolt (10 required)
11	4221	Differential bearing (2 required)
12	4222	Differential bearing cup (2 required)

DISASSEMBLY

1. Remove the differential case. For additional information, refer to **Differential Carrier**.
2. Remove and discard the 10 differential ring gear bolts.

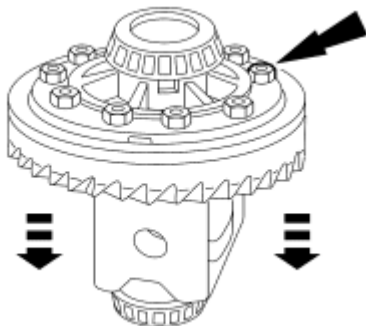


Fig. 124: Removing & Discarding Differential Ring Gear Bolts
Courtesy of FORD MOTOR CO.

NOTE: Do not damage the differential ring gear bolt hole threads.

3. Insert a punch in the differential ring gear bolt holes and drive the differential ring gear off.

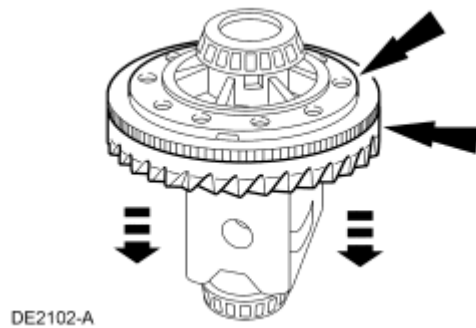


Fig. 125: Removing Differential Ring Gear
Courtesy of FORD MOTOR CO.

4. Using the 2-Jaw Puller and Step Plate, remove the differential bearings.

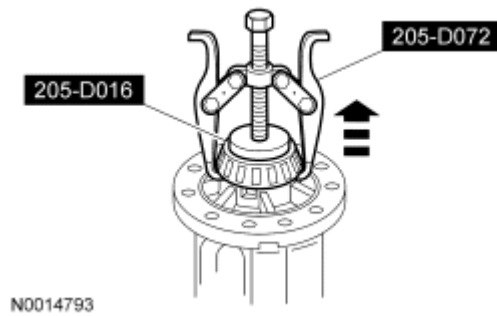


Fig. 126: Identifying Special Tools (205-D016) And (205-D072)
Courtesy of FORD MOTOR CO.

5. Rotate and remove the differential pinion gears and differential pinion gear thrust washers.

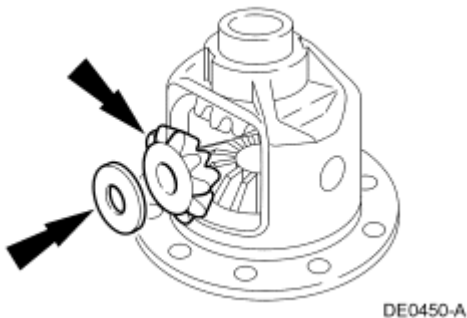
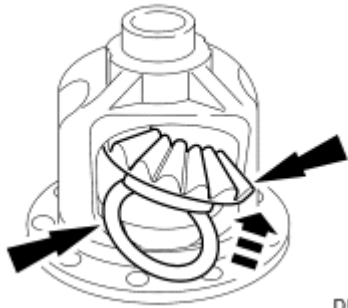


Fig. 127: Identifying Differential Pinion Gears & Differential Pinion Gear Thrust Washers
Courtesy of FORD MOTOR CO.

6. Remove the differential side gears and the differential side gear thrust washers.

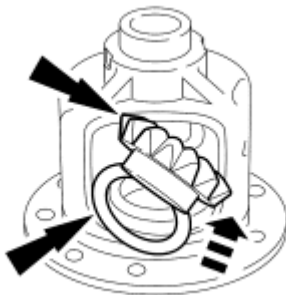


DE0451-A

Fig. 128: Identifying Differential Side Gears & Differential Side Gear Thrust Washers
Courtesy of FORD MOTOR CO.

ASSEMBLY

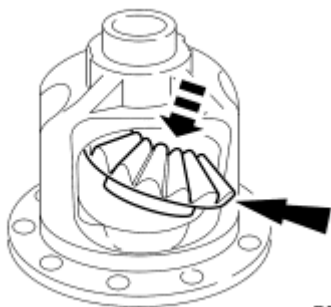
1. Lubricate the differential side gear thrust washer and the differential side gear journals with axle lube, then position the differential side gear thrust washers on the differential side gears.



DE0452-A

Fig. 129: Positioning Differential Side Gear Thrust Washers
Courtesy of FORD MOTOR CO.

2. Install the differential side gears.



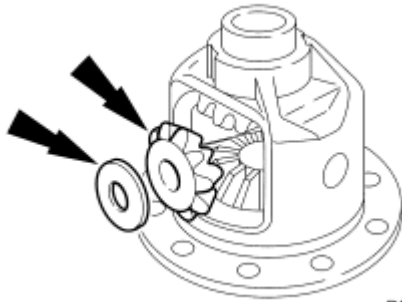
DE0453-A

Fig. 130: Identifying Differential Side Gears & Differential Side Gear Thrust Washers
Courtesy of FORD MOTOR CO.

3. Using axle lubricant, lubricate the differential pinion gear thrust washers and the differential pinion gears.

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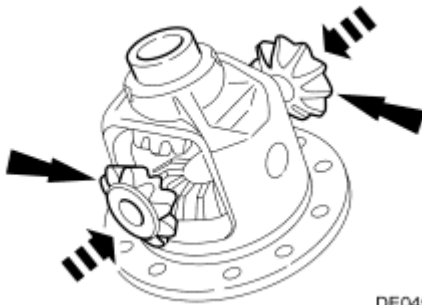
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang



DE0454-A

Fig. 131: Lubricating Differential Pinion Gear Thrust Washers
Courtesy of FORD MOTOR CO.

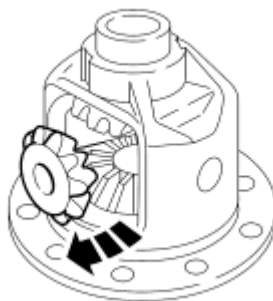
4. Install the differential pinion gears and differential pinion gear thrust washers opposite the differential side gears.



DE0455-A

Fig. 132: Identifying Differential Pinion Gears & Differential Pinion Gear Thrust Washers
Courtesy of FORD MOTOR CO.

5. Rotate the differential pinion gears to align with the differential pinion shaft bore.



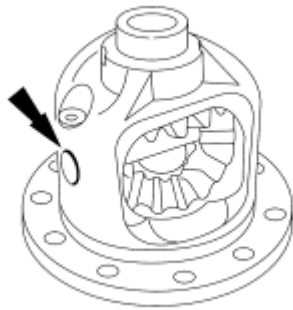
DE0456-A

Fig. 133: Rotating Differential Pinion Gears
Courtesy of FORD MOTOR CO.

6. Insert the pinion shaft.

2008 Ford Mustang

2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang

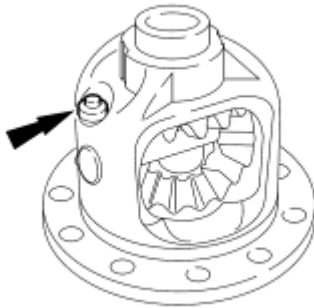


DE0275-B

Fig. 134: Identifying Differential Pinion Shaft
Courtesy of FORD MOTOR CO.

NOTE: If a new pinion shaft lock bolt is unavailable, coat the original bolt threads with threadlock and sealer prior to installation.

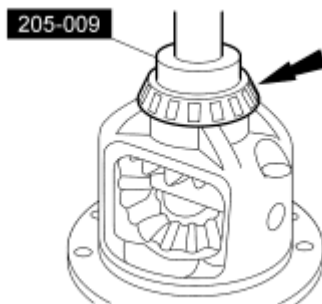
7. Install a new differential pinion shaft lock bolt and tighten to 30 Nm (22 lb-ft).



DE0457-A

Fig. 135: Identifying Differential Pinion Shaft Lock Bolt
Courtesy of FORD MOTOR CO.

8. Using the Differential Side Bearing Installer, install new differential bearings.



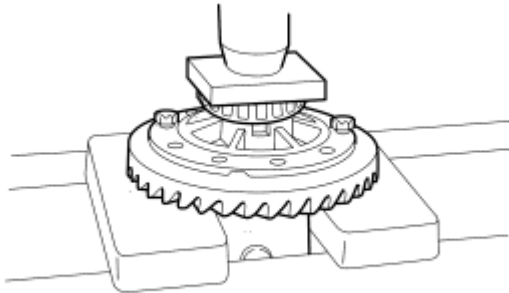
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Fig. 136: Identifying Special Tools (205-009)
Courtesy of FORD MOTOR CO.

9. Press the differential ring gear on the differential assembly.

2008 Ford Mustang

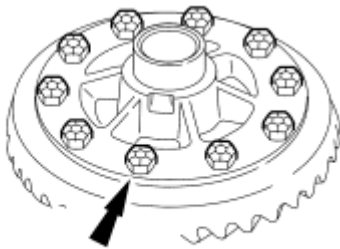
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 7.5-Inch Ring Gear - Mustang



DE2103-A

Fig. 137: Pressing Differential Ring Gear On Differential Case
Courtesy of FORD MOTOR CO.

10. Apply stud and bearing mount to the 10 new differential ring gear bolt threads and install the new differential ring gear bolts.
 - Tighten to 105 Nm (77 lb-ft).



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Fig. 138: Identifying Differential Ring Gear Bolts
Courtesy of FORD MOTOR CO.

11. Install the differential case. For additional information, refer to **Differential Carrier**.