

2008 Ford Mustang

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

2008 DRIVELINE/AXLES

Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear - 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	1.89-2.01L (4.0-4.25 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	-
Stud and Bearing Mount TA-27	WSK-M2G349-A1	-
Threadlock and Sealer TA-25	WSK-M2G351-A5	-

GENERAL SPECIFICATIONS

Item	Specification
Clearance, Tolerance and Adjustments	
Differential pinion gear thrust washer thickness	0.762-0.813 mm (0.030-0.032 in)
Differential side gear thrust washer thickness	0.762-0.813 mm (0.030-0.032 in)
Maximum axle shaft end play	0.762 mm (0.030 in)
Maximum differential case runout	0.076 mm (0.003 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

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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	-
Front support brace bolts (convertible)	63	46	-
Handle adapter for 205-S127	2.2	-	20
Lower control arm rear bolt	175	129	-
Lower shock absorber nuts and bolt	115	85	-
Rear support brace bolts (convertible)	63	46	-
Tool 205-135 nut	6.7	-	60
Trailing arm nut and bolts	175	129	-
Upper control arm nut and bolt	175	129	-
Upper support brace bolts (convertible)	63	46	-
Upper suspension arm 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 consists of 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 assembly of the internal components and 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 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

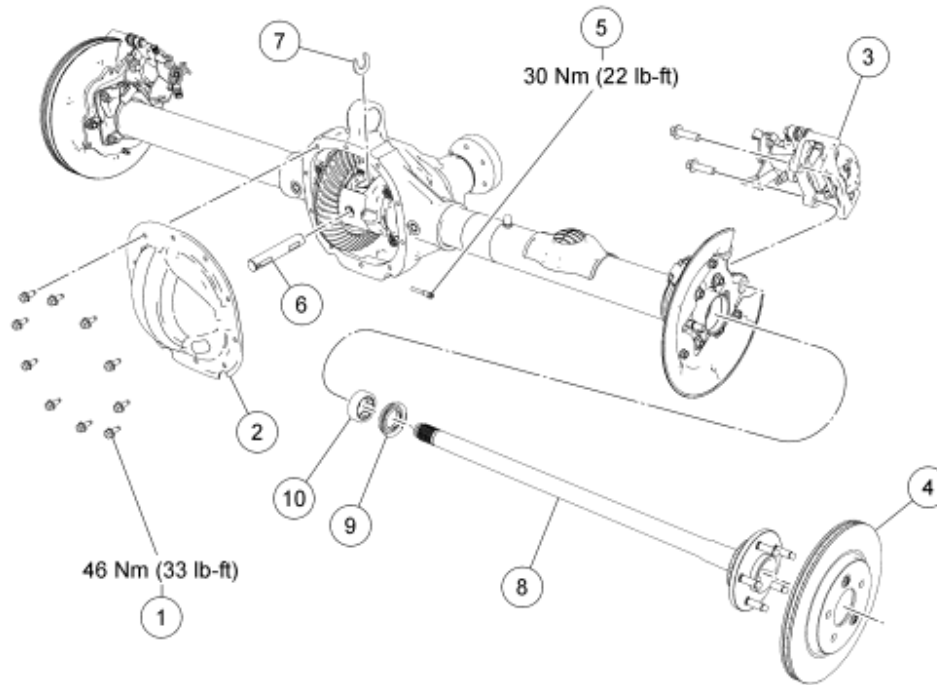
AXLE SHAFT

Material

Item	Specification
High Temperature Nickel Anti-Seize Lubricant XL-2	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	-	Disc brake caliper
4	-	Brake disc
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.

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

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

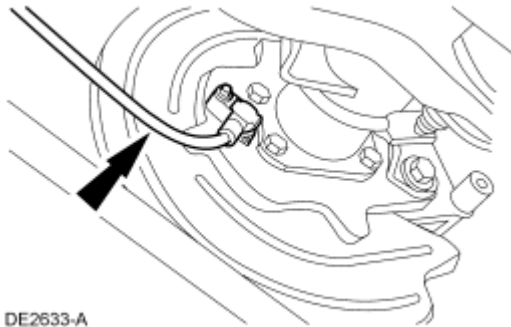


Fig. 2: Identifying Anti-Lock Sensor & Bolt
Courtesy of FORD MOTOR CO.

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.

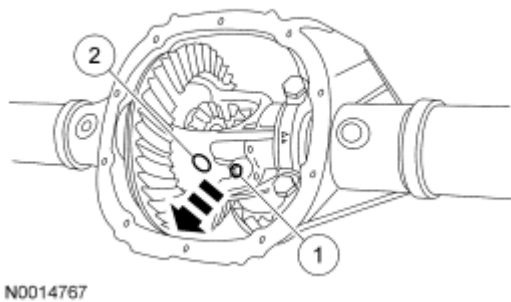


Fig. 3: Locating Differential Pinion Shaft And Lock Bolt
Courtesy of FORD MOTOR CO.

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.
 2. Remove the U-washer.

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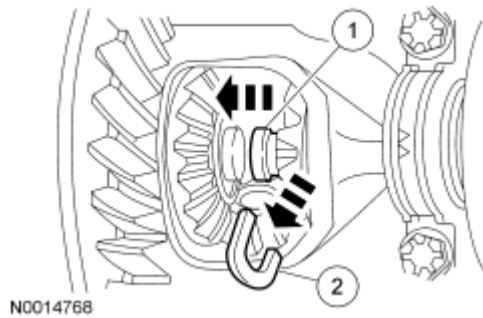


Fig. 4: Removing The U-Washer
Courtesy of FORD MOTOR CO.

NOTE: Do not damage the axle shaft oil seal.

7. Remove the axle shaft.

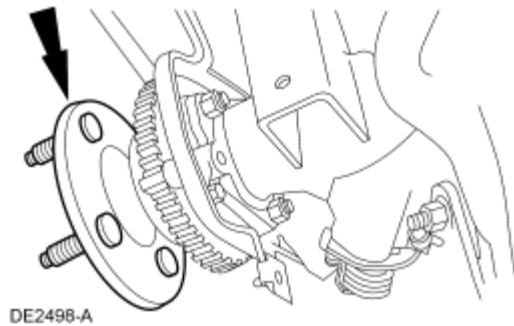


Fig. 5: Locating Axle Shaft
Courtesy of FORD MOTOR CO.

INSTALLATION

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

NOTE: Do not damage the axle shaft oil seal.

2. Install the axle shaft.

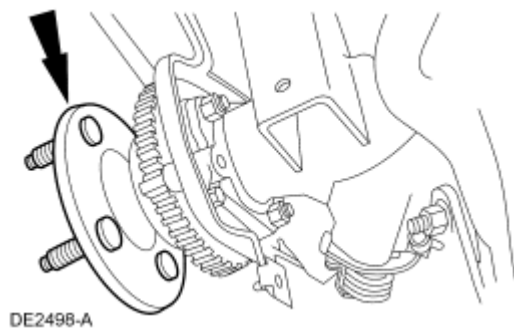


Fig. 6: Locating Axle Shaft
Courtesy of FORD MOTOR CO.

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.

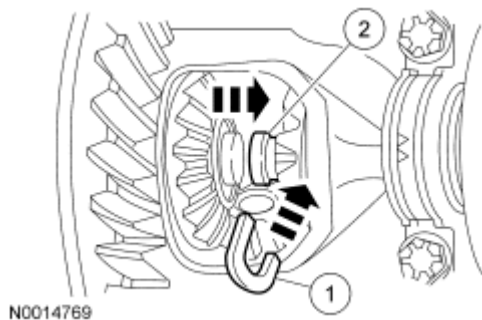
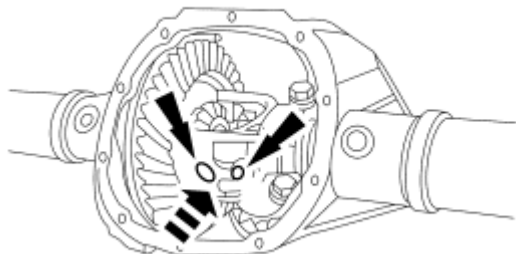


Fig. 7: Installing Axle Shaft U-Washer
Courtesy of FORD MOTOR CO.

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).

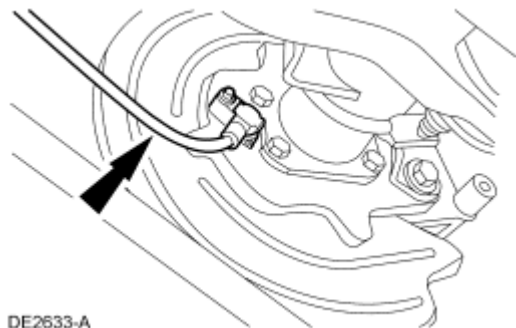


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Fig. 8: Identifying Differential Pinion Shaft Lock Bolt
Courtesy of FORD MOTOR CO.

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.
 - To install, 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**.

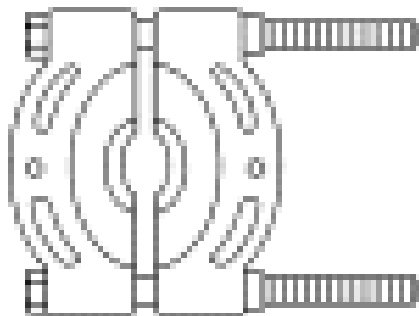
REAR WHEEL BEARING AND AXLE SHAFT SEAL

Special Tools

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

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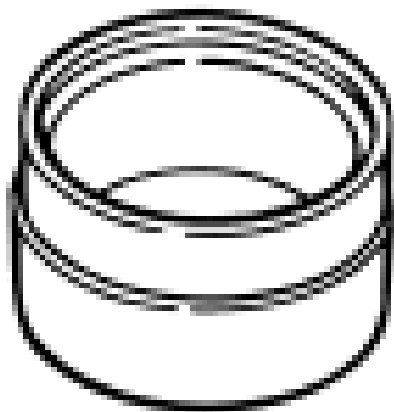
ST1895-A



ST1713-A

Installer, Axle Shaft Bearing

205-124 (T78P-1225-A)



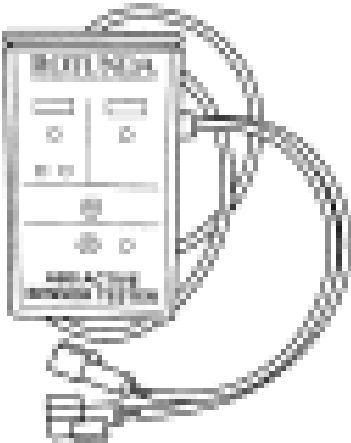
ST2039-A

Installer, Rear Axle Oil Seal

205-390 (T97T-1177-B)

Remover, Axle Bearing

205-219 (T85L-1225-AH)

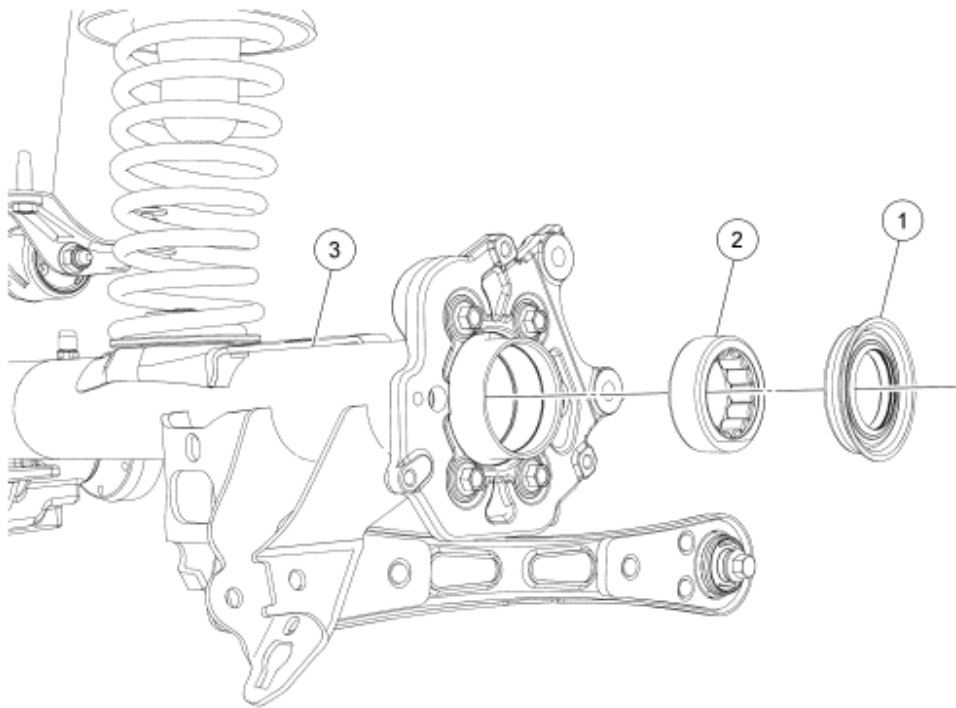
 ST3030-A		
 ST1185-A	Slide Hammer	100-001 (T50T-100-A)

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
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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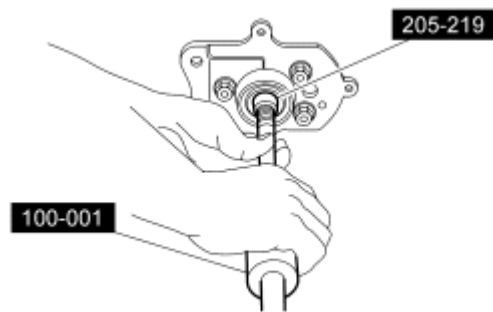


Fig. 11: Removing Rear Wheel Bearing & Axle Shaft Oil Seal Using Special Tools 100-001 & 205-219

Courtesy of FORD MOTOR CO.

INSTALLATION

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

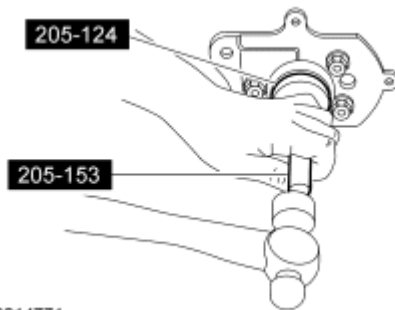


Fig. 12: Installing New Rear Wheel Bearing Using Special Tools 205-153 & 205-124

Courtesy of FORD MOTOR CO.

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

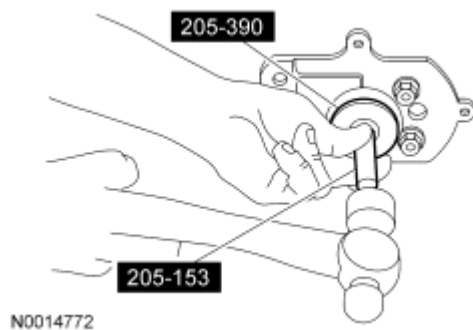


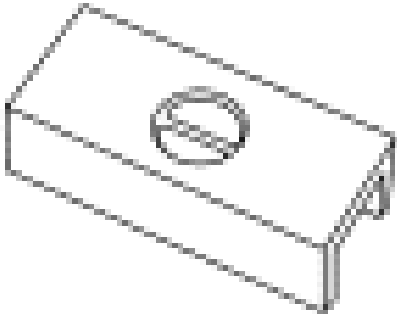
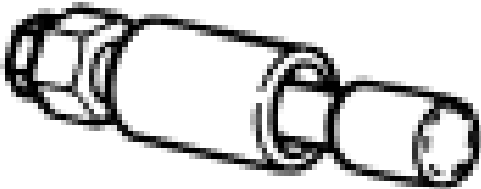
Fig. 13: Installing New Axle Shaft Oil Seal Using Special Tools 205-153 & 205-390

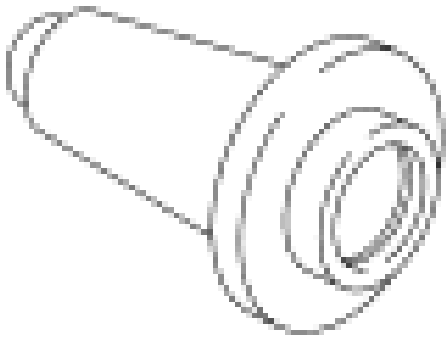
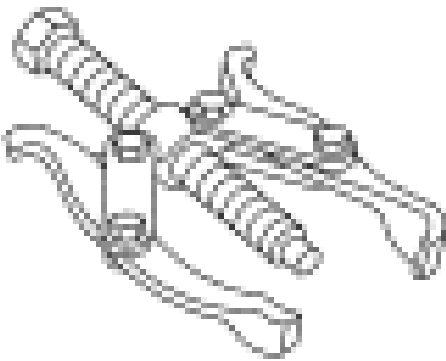
Courtesy of FORD MOTOR CO.

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
 ST1254-A	Holding Fixture, Drive Pinion Flange	205-126 (T78P-4851-A)
	Installer, Drive Pinion Flange	205-002 (TOOL-4858-E)
	Installer, Drive Pinion Oil Seal	205-208 (T83T-4676-A)

 ST1325-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
Threadlock and Sealer TA-25	WSK-M2G351-A5

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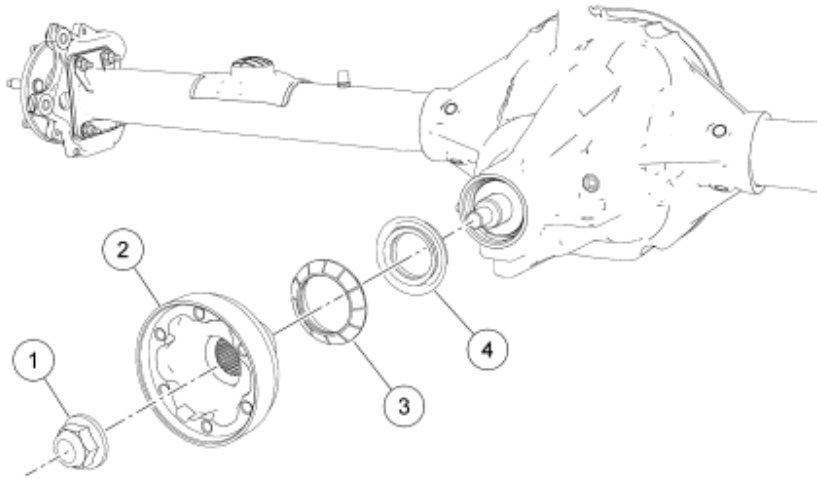


Fig. 14: Exploded View Of Drive Pinion Flange & Drive Pinion Seal
Courtesy of FORD MOTOR CO.

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

REMOVAL

CAUTION: This operation disturbs the pinion bearing preload. 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 pinion nut in the kit or damage to the component may occur.

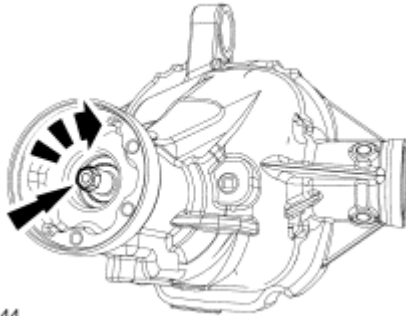
1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING AND LIFTING** article.
2. Remove the driveshaft. For additional information, refer to **DRIVESHAFT** article.

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 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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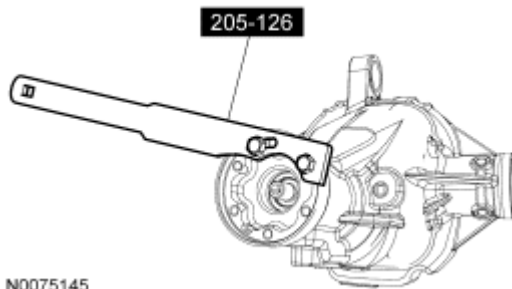
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N0075144

Fig. 15: Recording Torque Required To Maintain Rotation Of Pinion Gear Through Several Revolutions
Courtesy of FORD MOTOR CO.

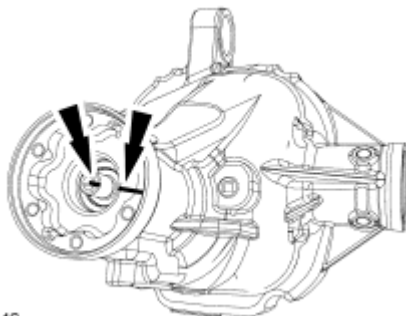
5. Using the special tool to hold the pinion flange, remove and discard the pinion nut.



N0075145

Fig. 16: Using Special Tool 205-126 To Hold Pinion Flange While Removing/Installing Drive Pinion Nut
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.



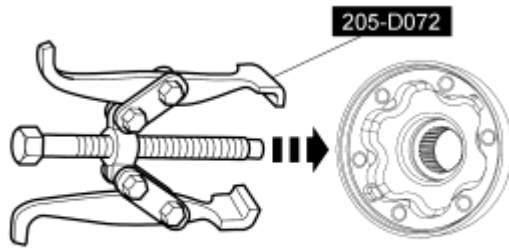
N0075146

Fig. 17: Identifying Index-Mark On Drive Pinion Stem
Courtesy of FORD MOTOR CO.

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

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N0075147

Fig. 18: 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.



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Fig. 19: Removing Drive Pinion Oil Seal And Slinger
Courtesy of FORD MOTOR CO.

INSTALLATION

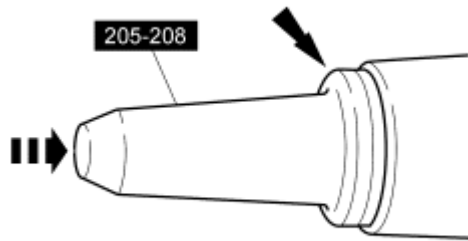
1. Lubricate the new drive pinion seal with grease.

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 special tool, install a new drive pinion seal.

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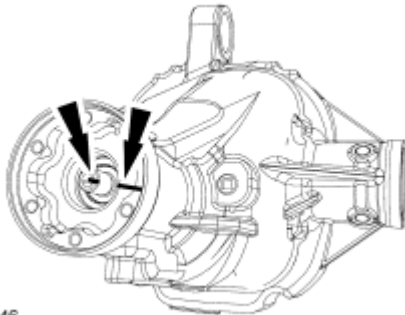
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Fig. 20: Using Special Tool (205-208) To Install Drive Pinion Seal
Courtesy of FORD MOTOR CO.

3. Lubricate the pinion flange splines with axle lubricant.

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

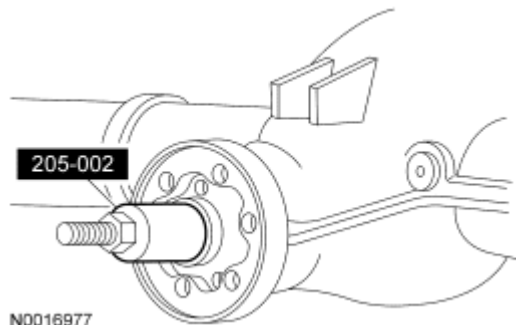
4. Align the pinion flange with the drive pinion shaft.



N0075146

Fig. 21: Identifying Index-Mark On Drive Pinion Stem
Courtesy of FORD MOTOR CO.

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



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Fig. 22: Installing Pinion Flange Using Special Tool 205-002
Courtesy of FORD MOTOR CO.

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CAUTION: 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.

6. Using the chart below, determine the pinion nut to be installed.

8.8-INCH DRIVE PINION NUT

Part Number	Color Description	Application
19G405	Orange/Yellow	Axles built before 7/16/07
4320	Purple	Axles built after 7/16/07
4C121	Purple	Kit with spacer for all 8.8-in axles

7. Position the new pinion nut.

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

8. 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 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**.
9. Install the driveshaft. For additional information, refer to **DRIVESHAFT** article.
10. 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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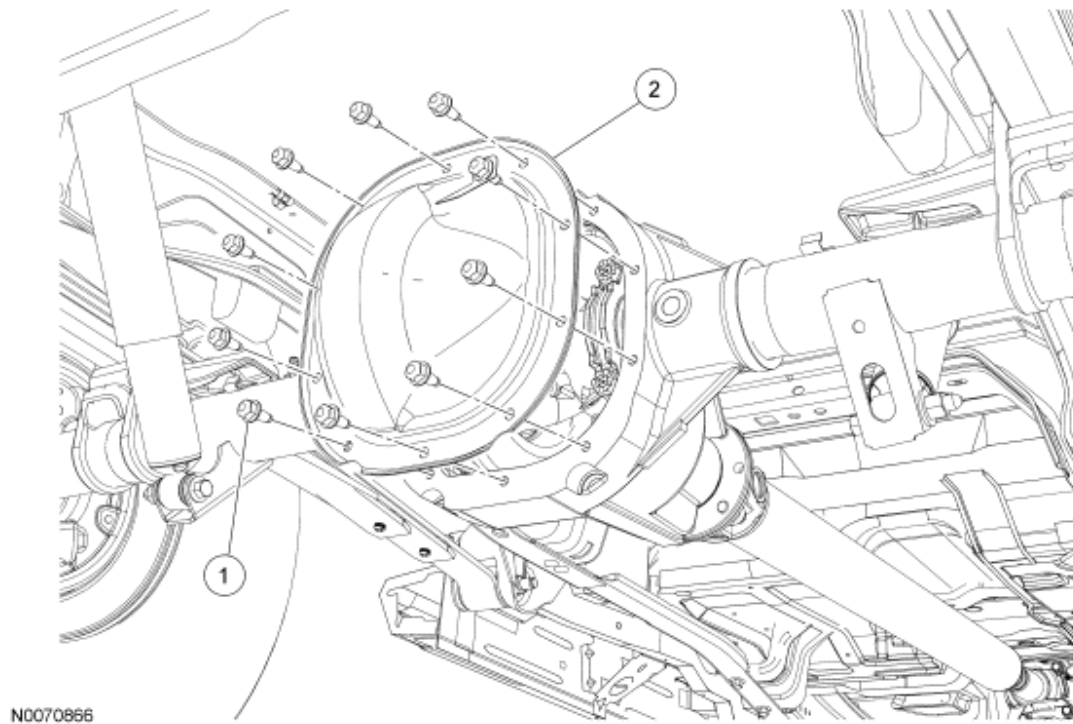


Fig. 23: Exploded View Of Differential Housing Cover
Courtesy of FORD MOTOR CO.

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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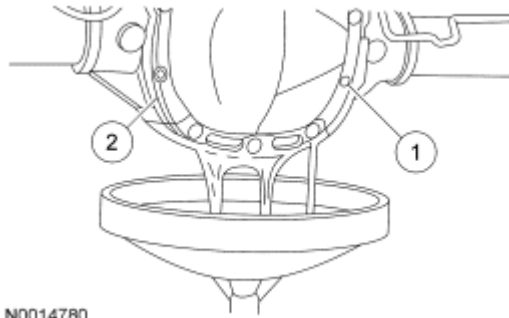


Fig. 24: Identifying Differential Housing Cover And Bolts
Courtesy of FORD MOTOR CO.

INSTALLATION

NOTE: 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.

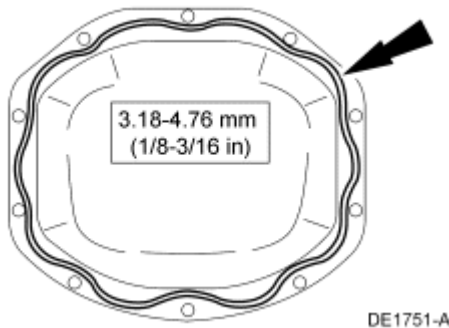


Fig. 25: Applying Sealer To Cover
Courtesy of FORD MOTOR CO.

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

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

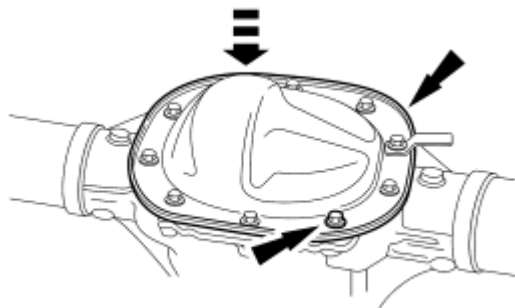


Fig. 26: Identifying Differential Housing Cover Bolts
 Courtesy of FORD MOTOR CO.

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

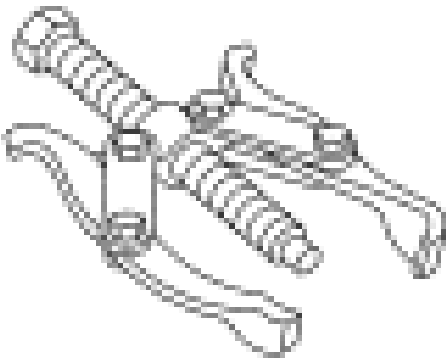
4. Remove the axle plug, fill the axle with 1.89-2.01L (4-4.25 pt) of axle lubricant and install the filler plug.
 - Tighten to 30 Nm (22 lb-ft).

AXLE HOUSING BUSHING

1. To remove the axle housing bushing, refer to Upper Arm Bushing in [REAR SUSPENSION](#) article.

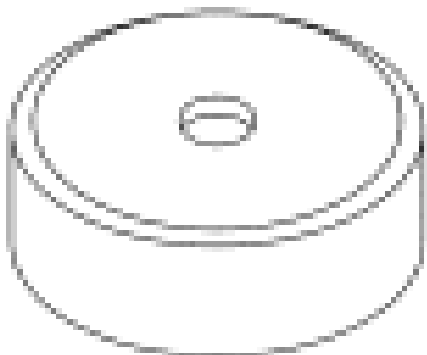
DIFFERENTIAL BEARINGS

Special Tools

Illustration	Tool Name	Tool Number
 ST2026-A	2-Jaw Puller	205-D072 (D79L-4221-A1) or equivalent
	Adapter For 205-S127	205-105 (T76P-4020-A3)

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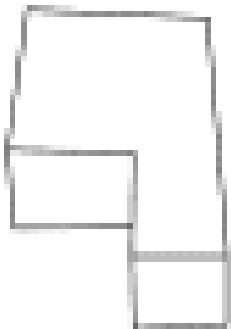
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear - Mustang



ST1743-A



ST1429-A



ST1431-A

Adapter For 205-S127

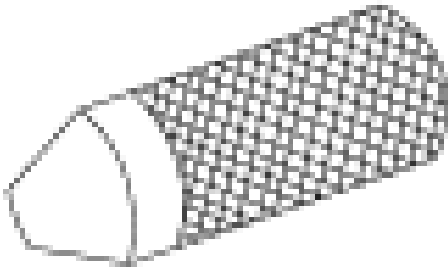
205-109 (T76P-4020-A9)

Adapter For 205-S127

205-110 (T76P-4020-A10)

2008 Ford Mustang

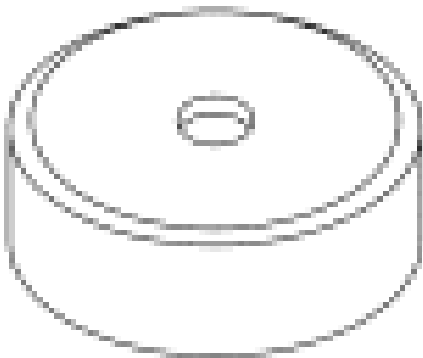
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear - Mustang



ST1432-A

Adapter For 205-S127

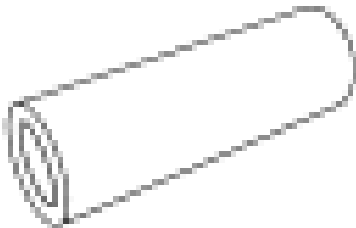
205-111 (T76P-4020-A11)



ST1743-A

Adapter For 205-S127

205-129 (T79P-4020-A18)



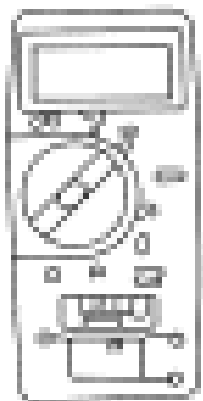
ST1434-A

Adapter For 205-S127

205-130 (T79P-4020-A19)

2008 Ford Mustang

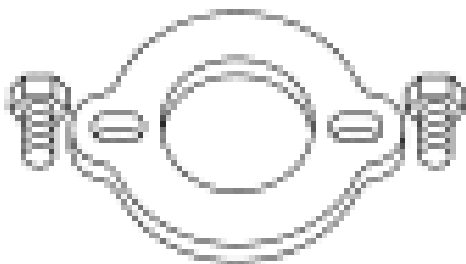
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear - Mustang



ST1137-A

Dial Indicator With Holding
Fixture

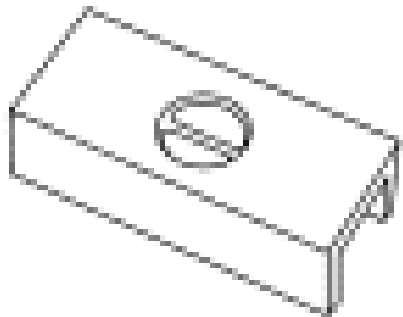
100-002 (TOOL-4201-C) or
equivalent



ST1268-A

Gauge, Clutch Housing

308-021 (T57L-4201-A)



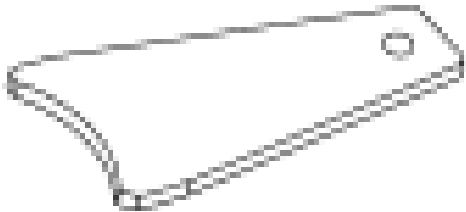
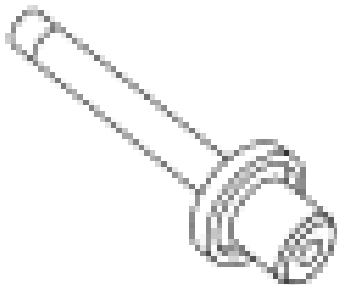
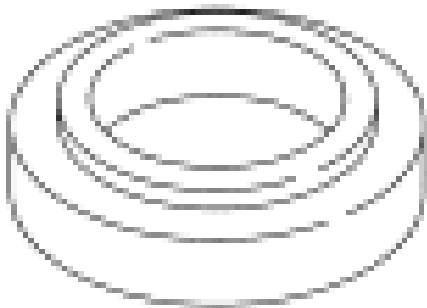
ST1254-A

Holding Fixture, Drive Pinion
Flange

205-126 (T78P-4851-A)

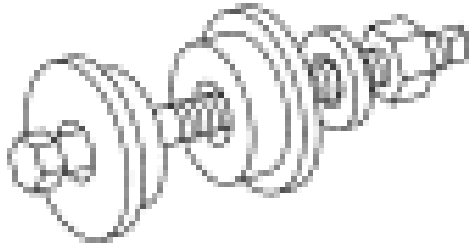
2008 Ford Mustang

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 ST1485-A	Installer, Differential Shim	205-220 (T85L-4067-AH)
 ST1375-A	Installer, Differential Side Bearing	205-010 (T57L-4221-A2)
 ST1367-A	Installer, Drive Pinion Bearing Cone	205-005 (T53T-4621-C)

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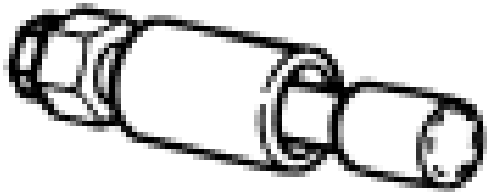
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear - Mustang



ST167B-A

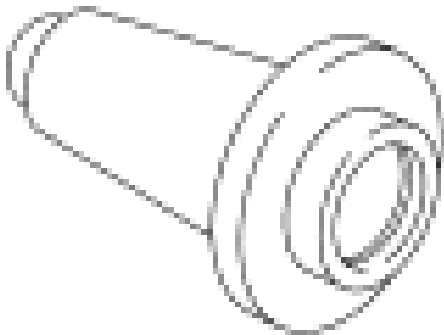
Installer, Drive Pinion Bearing
Cup

205-024 (T67P-4616-A)



Installer, Drive Pinion Flange

205-002 (TOOL-4858-E) or
equivalent



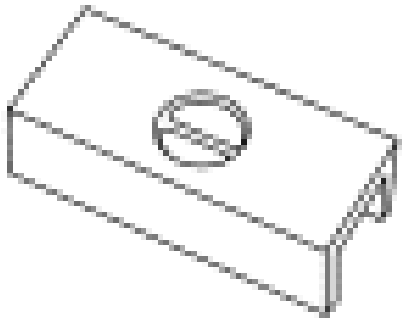
ST1325-A

Installer, Drive Pinion Oil Seal

205-208 (T83T-4676-A)

2008 Ford Mustang

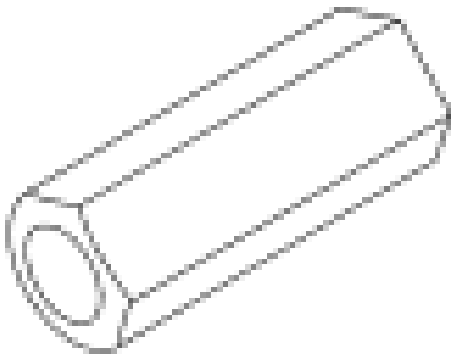
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear - Mustang



Plate, Bearing Oil Seal

205-090 (T75L-1165-B)

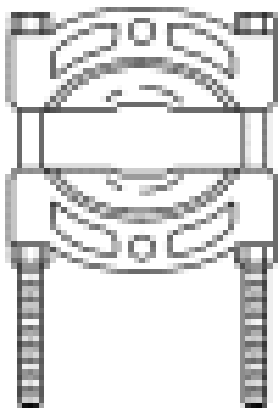
ST1254-A



Protector, Drive Pinion Thread

205-460 or equivalent

ST1744-A



Puller, Bearing

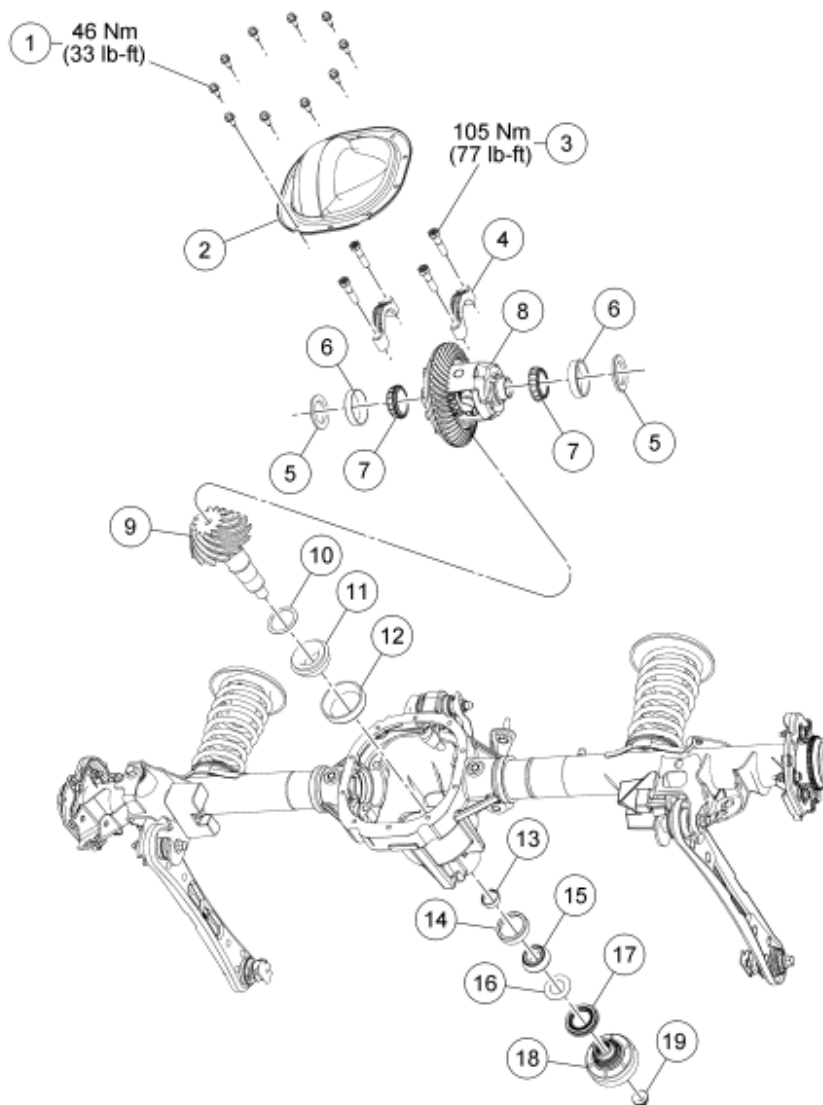
205-D064 (D84L-1123-A) or equivalent

ST1368-A

 ST1220-A	Remover, Differential Bearing	205-116 (T77F-4220-B1)
 ST1543-A	Step Plate	205-D016 (D80L-630-5) or equivalent

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N0071954

Fig. 27: 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	4205	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 assembly. For additional information, refer to **Differential Carrier**.
3. Using the Differential Bearing Remover and Step Plate, remove the 2 differential bearings.

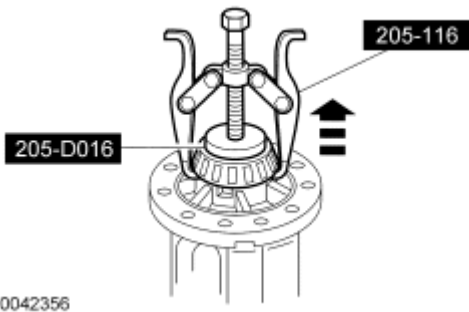


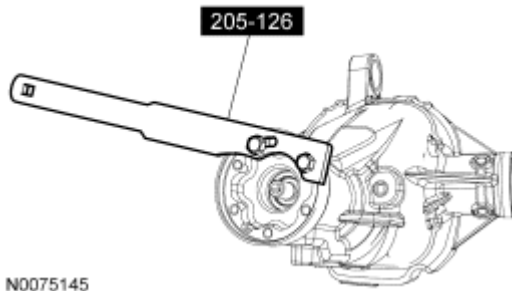
Fig. 28: Removing Differential Bearings
Courtesy of FORD MOTOR CO.

NOTE: Discard the nut after removal. Use a new nut during installation.

4. Use the Drive Pinion Flange Holding Fixture to hold the pinion flange while removing the drive pinion nut.

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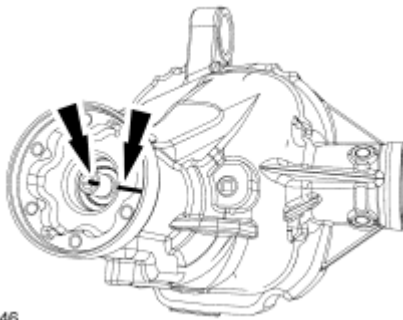
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear - Mustang



N0075145

Fig. 29: Using Special Tool 205-126 To Hold Pinion Flange While Removing/Installing Drive Pinion Nut
Courtesy of FORD MOTOR CO.

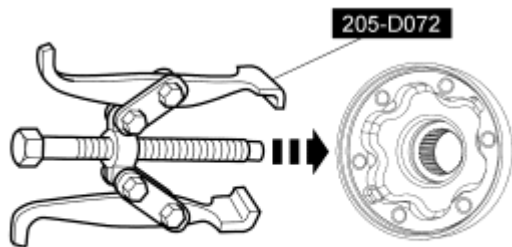
5. Index-mark the pinion flange and the drive pinion stem for correct alignment during installation.



N0075146

Fig. 30: Identifying Index-Mark On Drive Pinion Stem
Courtesy of FORD MOTOR CO.

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



N0075147

Fig. 31: Removing Pinion Flange Using Special Tool 205-D072
Courtesy of FORD MOTOR CO.

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

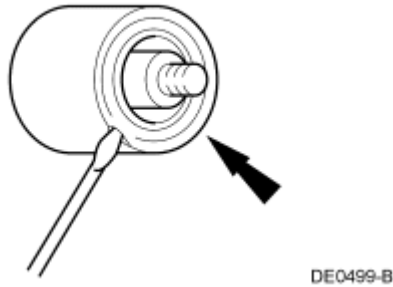


Fig. 32: Forcing Up The Rear Axle Drive Pinion Seal Metal Flange
Courtesy of FORD MOTOR CO.

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

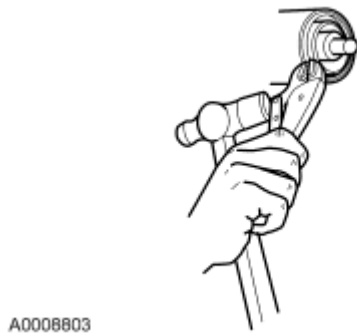


Fig. 33: Removing Drive Pinion Oil Seal And Slinger
Courtesy of FORD MOTOR CO.

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

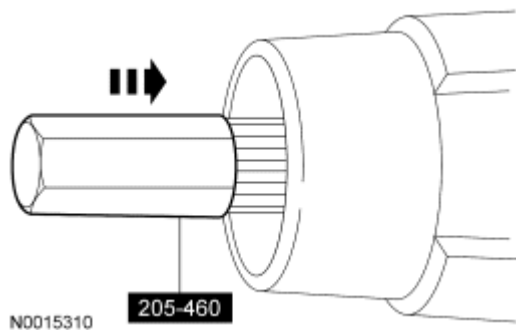


Fig. 34: Driving Pinion Assembly Out Of Axle Housing Using Special Tool (205-460)
Courtesy of FORD MOTOR CO.

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

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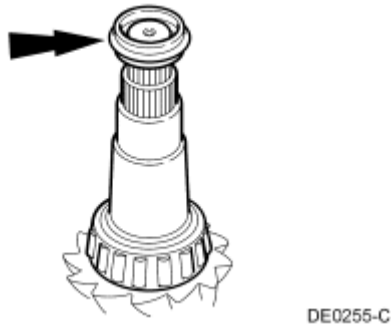


Fig. 35: Identifying Drive Pinion Collapsible Spacer
Courtesy of FORD MOTOR CO.

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

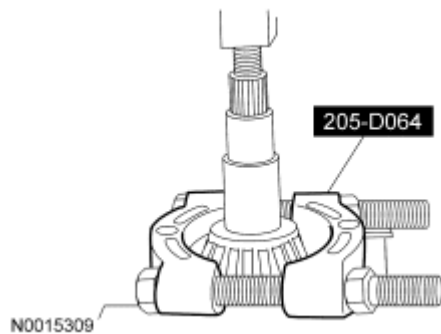


Fig. 36: Inner Pinion Bearing & Special Tool (205-D064)
Courtesy of FORD MOTOR CO.

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

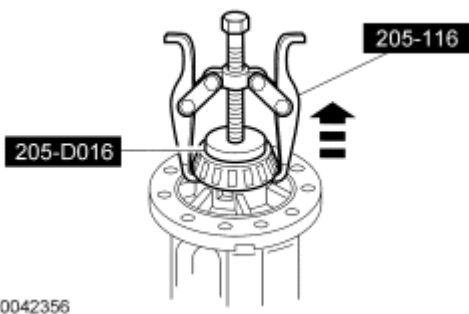


Fig. 37: Removing Differential Bearings
Courtesy of FORD MOTOR CO.

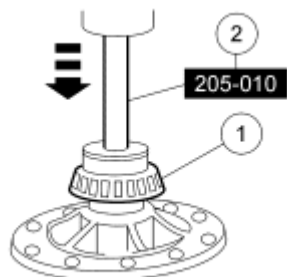
INSTALLATION

1. Press the left and right differential bearing on the differential assembly.

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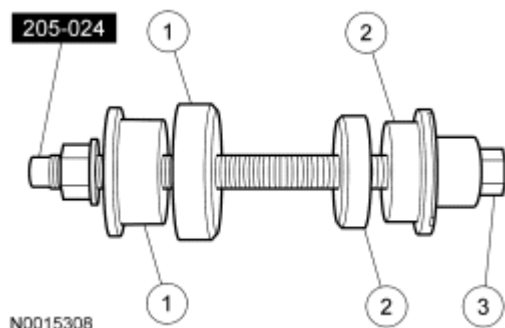
1. Position the differential bearings.
2. Using the Differential Side Bearing Installer, press the differential bearings on the differential assembly.



N0014139

Fig. 38: Installing Differential Bearings
Courtesy of FORD MOTOR CO.

2. 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.



N0015308

Fig. 39: Identifying Special Tool (205-024) Components
Courtesy of FORD MOTOR CO.

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

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N0015307

Fig. 40: 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.

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

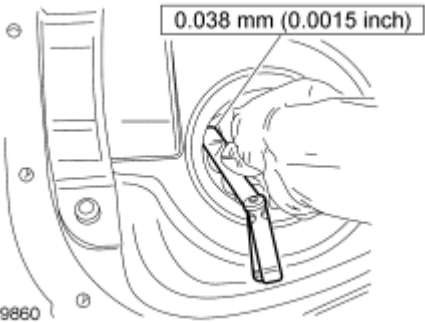


Fig. 41: Checking Clearance Between Cup And Bore
Courtesy of FORD MOTOR CO.

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.

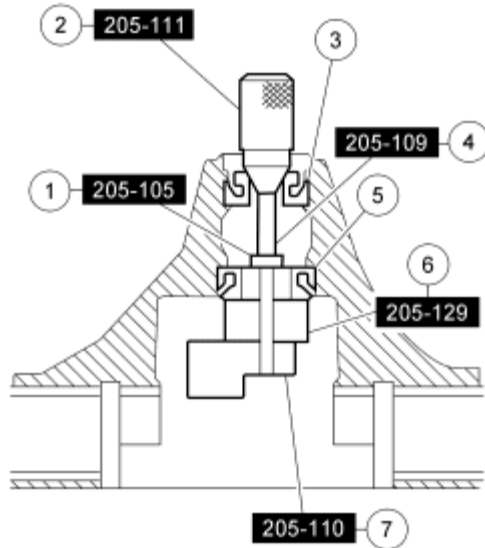
5. Assemble and position the Adapters for 205-S127.

Item	Part Number	Description
1	205-105	Adapter for 205-S127 (1.612 inch OD) (T76P-4020-A3)
2	205-111	Adapter for 205-S127 (T76P-4020-A11)
3	4621	Drive pinion bearing (outer)
4	205-109	Adapter for 205-S127 (T76P-4020-A9)
5	4630	Drive pinion bearing (inner)

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6	205-129	Adapter for 105-S127 (1.1884 inch thick) (T79P-4020-A18)
7	205-110	Adapter for 205-S127 (1.7 inch thick) (T76P-4020-A10)

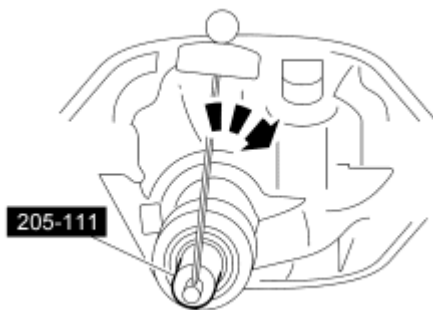


N0015306

Fig. 42: Identifying Drive Pinion Depth Gauge Set
Courtesy of FORD MOTOR CO.

NOTE: This step duplicates final drive pinion bearing preload.

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



N0003075

Fig. 43: Checking Differential Pinion Bearing Preload
Courtesy of FORD MOTOR CO.

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

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

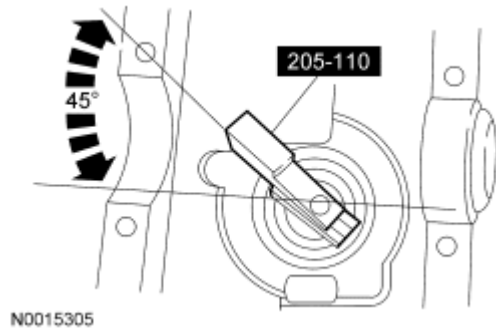


Fig. 44: Rotating Gauge Block For Correct Seating Of Drive Pinion Bearings
Courtesy of FORD MOTOR CO.

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

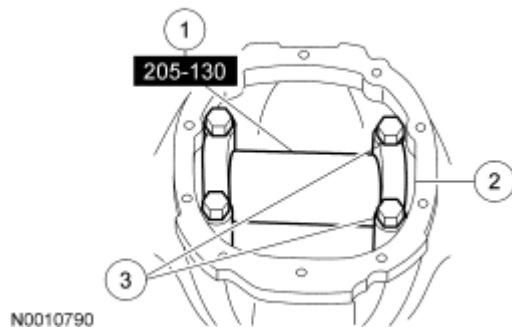


Fig. 45: Identifying Special Tool (205-130)
Courtesy of FORD MOTOR CO.

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.

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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 Adapters.

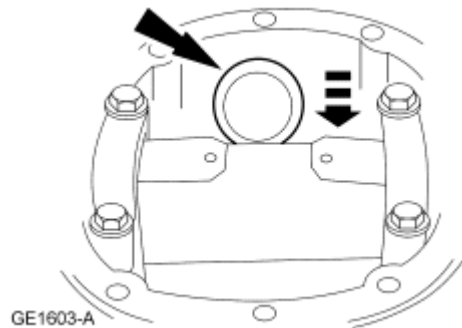


Fig. 46: Identifying Drive Pinion Bearing Adjustment Shim
Courtesy of FORD MOTOR CO.

10. Using the Drive Pinion Bearing Cone Installer and Bearing Oil Seal Plate with a shop press, drive the inner drive pinion bearing and the selected drive pinion bearing adjustment shim until they are firmly seated on the pinion shaft.

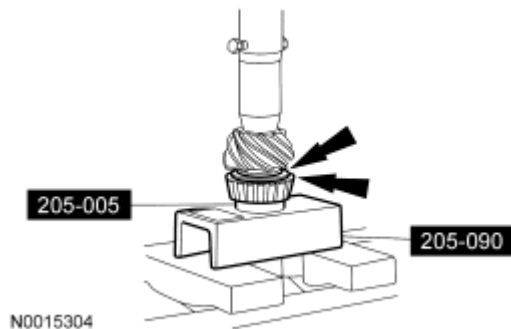


Fig. 47: Locating Inner Drive Pinion Bearing
Courtesy of FORD MOTOR CO.

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



Fig. 48: Identifying Drive Pinion Collapsible Spacer
Courtesy of FORD MOTOR CO.

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

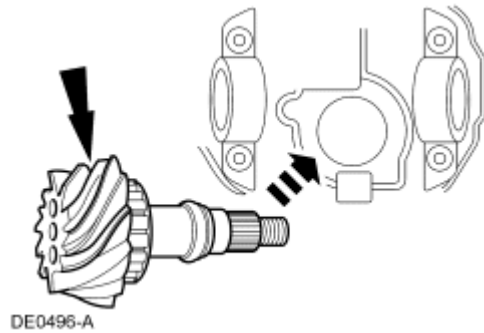


Fig. 49: Locating Drive Pinion Gear
Courtesy of FORD MOTOR CO.

13. Install the outer drive pinion bearing and the drive pinion shaft oil slinger.
14. Using the Drive Pinion Oil Seal Installer, install the drive pinion seal.

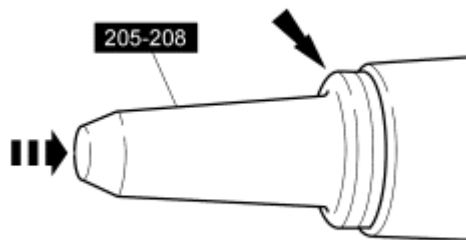


Fig. 50: Using Special Tool (205-208) To Install Drive Pinion Seal
Courtesy of FORD MOTOR CO.

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

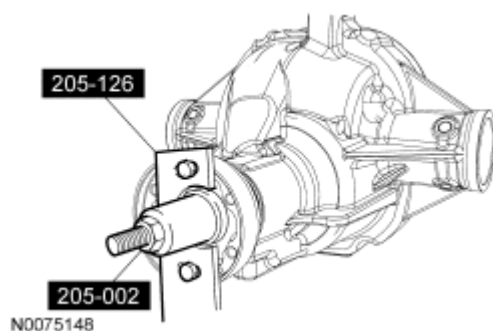


Fig. 51: Installing Drive Pinion Flange Using Special Tools 205-126 & 205-002

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.

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

16. 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.

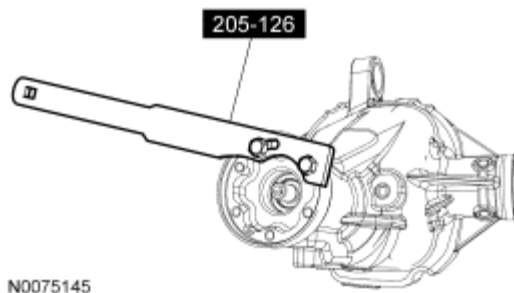


Fig. 52: Using Special Tool 205-126 To Hold Pinion Flange While Removing/Installing Drive Pinion Nut

Courtesy of FORD MOTOR CO.

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

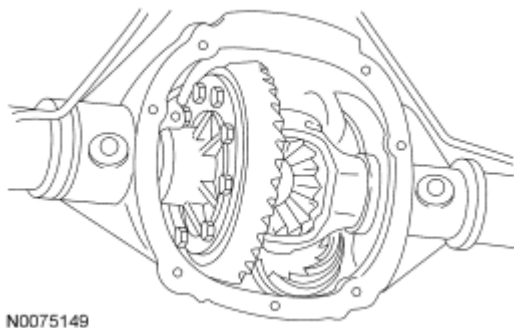


Fig. 53: Identifying Differential Carrier Assembly

Courtesy of FORD MOTOR CO.

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

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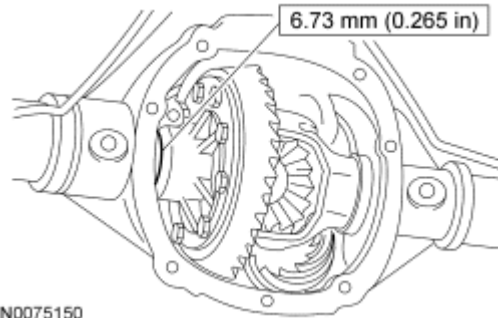


Fig. 54: Identifying Differential Bearing Shim
Courtesy of FORD MOTOR CO.

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.

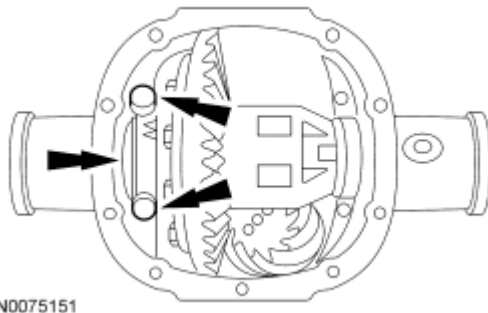


Fig. 55: Locating LH Bearing Cap & Bolts
Courtesy of FORD MOTOR CO.

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

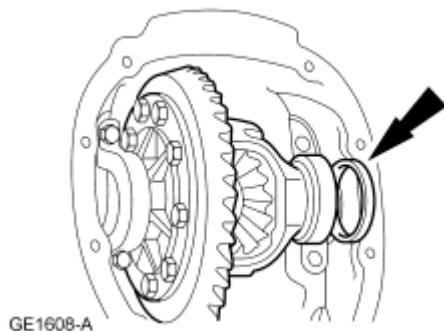
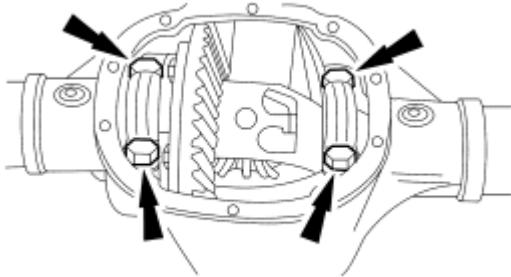


Fig. 56: Differential Bearing Shim
Courtesy of FORD MOTOR CO.

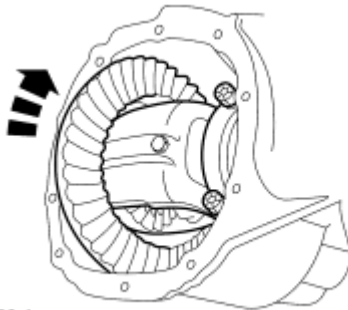
21. Install the RH side differential bearing cap and tighten the 4 differential bearing cap bolts.
- Tighten to 105 Nm (77 lb-ft).



N0075152

Fig. 57: Locating Bearing Caps & Bolts
Courtesy of FORD MOTOR CO.

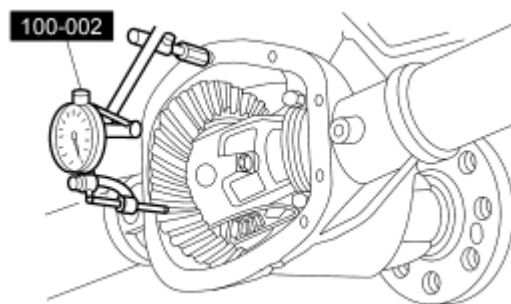
22. Rotate the differential assembly to make sure it rotates freely.



GE1488-A

Fig. 58: Rotating Differential Assembly
Courtesy of FORD MOTOR CO.

23. Install the Dial Indicator With Holding Fixture 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.



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Fig. 59: 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 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 25.

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

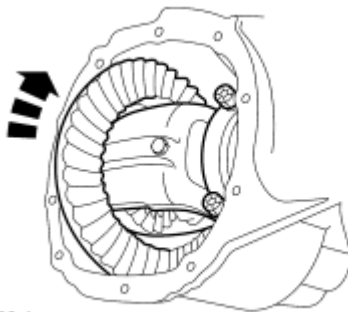
Stripes and Color Code	Dimension A	
	mm	Inch
2 - C-COAL	7.7978-7.8105	0.3070-0.3075
1 - C-COAL	7.7470-7.7597	0.3050-0.3055
5 - BLU	7.6962-7.7089	0.3030-0.3035
4 - BLU	7.6454-7.6581	0.3010-0.3015
3 - BLU	7.5946-7.6073	0.2990-0.2995
2 - BLU	7.5458-7.5565	0.2970-0.2975
5 - PINK	7.4422-7.4549	0.2930-0.2935
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

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



GE1488-A

Fig. 60: Rotating Differential Assembly
Courtesy of FORD MOTOR CO.

27. Using the Dial Indicator With Holding Fixture, recheck the ring gear backlash.

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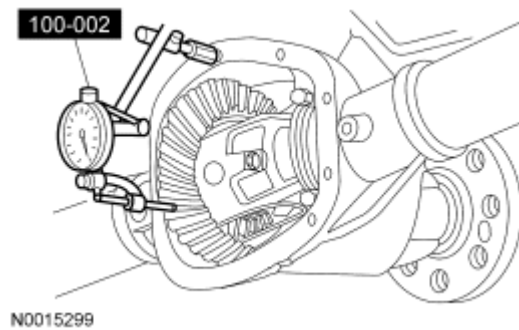


Fig. 61: Measuring Ring Gear Backlash
Courtesy of FORD MOTOR CO.

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

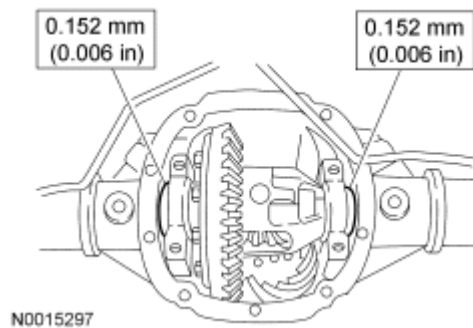


Fig. 62: Identifying Differential Bearing Shim For Preload With Specifications
Courtesy of FORD MOTOR CO.

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

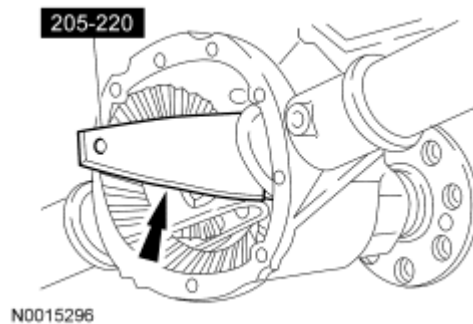


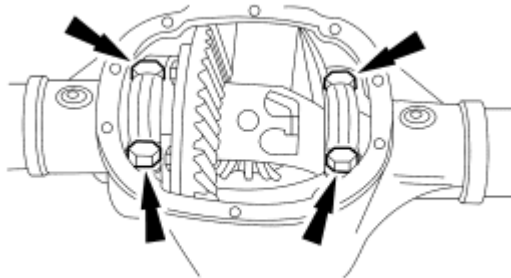
Fig. 63: Seating Differential Bearing Shims Using Special Tool (205-220)
Courtesy of FORD MOTOR CO.

31. Install the 2 differential bearing caps and 4 differential bearing cap bolts.

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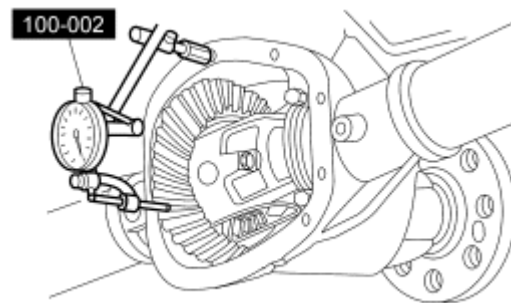
- Tighten to 105 Nm (77 lb-ft).



N0075152

Fig. 64: Locating Bearing Caps & Bolts
Courtesy of FORD MOTOR CO.

32. Using the Dial Indicator with Holding Fixture, recheck the ring gear backlash.



N0015299

Fig. 65: Measuring 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.
35. Install the axle shafts. For additional information, refer to **Axle Shaft**.
36. Install the driveshaft. For additional information, refer to **DRIVESHAFT** article.

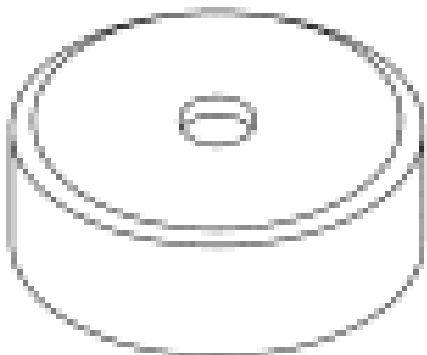
DIFFERENTIAL RING AND PINION

Special Tools

Illustration	Tool Name	Tool Number
	Adapter For 205-S127	205-105 (T76P-4020-A3)

2008 Ford Mustang

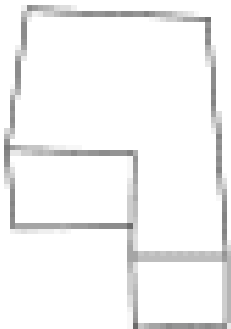
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear - Mustang



ST1743-A



ST1429-A



ST1431-A

Adapter For 205-S127

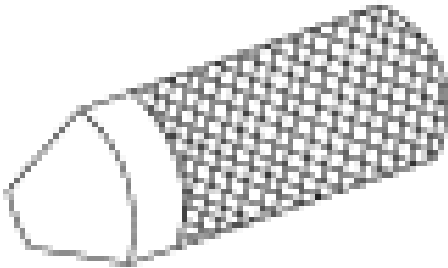
205-109 (T76P-4020-A9)

Adapter For 205-S127

205-110 (T76P-4020-A10)

2008 Ford Mustang

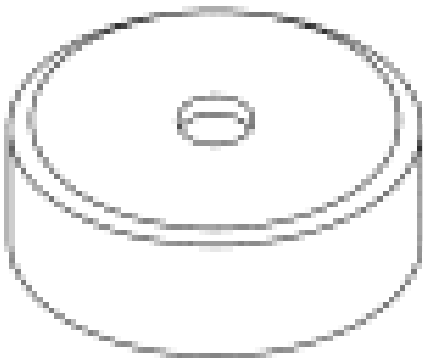
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear - Mustang



ST1432-A

Adapter For 205-S127

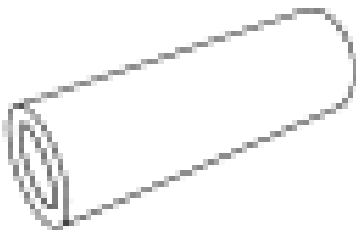
205-111 (T76P-4020-A11)



ST1743-A

Adapter For 205-S127

205-129 (T79P-4020-A18)



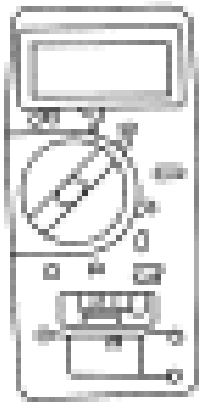
ST1434-A

Adapter For 205-S127

205-130 (T79P-4020-A19)

2008 Ford Mustang

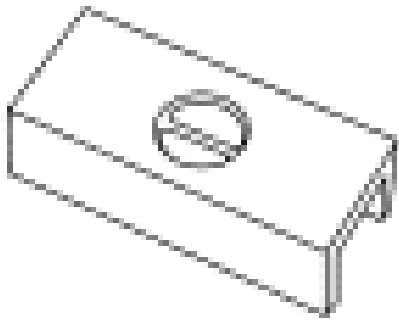
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear - Mustang



ST1137-A

Dial Indicator Gauge With Brackets

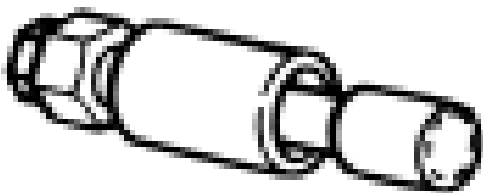
100-002 (TOOL-4201-C) or equivalent



ST1254-A

Holding Fixture, Drive Pinion Flange

205-126 (T78P-4851-A)

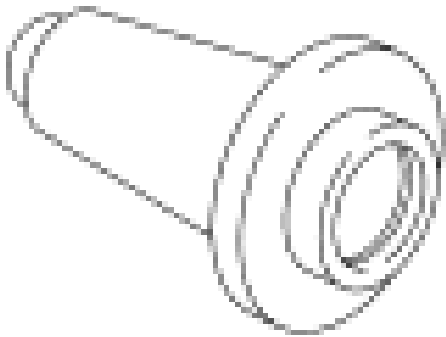
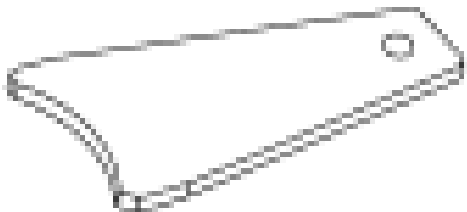
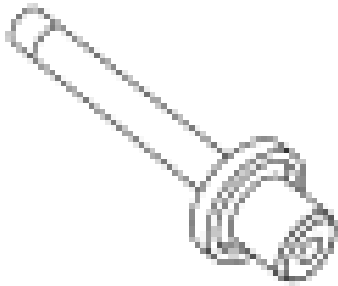


Installer, Drive Pinion Flange

205-002 (TOOL-4858-E) or equivalent

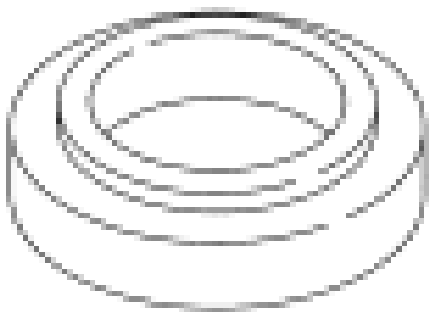
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 ST1325-A	Installer, Drive Pinion Oil Seal	205-208 (T83T-4676-A)
 ST1485-A	Installer, Differential Shim	205-220 (T85L-4067-AH)
 ST1375-A	Installer, Differential Side Bearing	205-010 (T57L-4221-A2)

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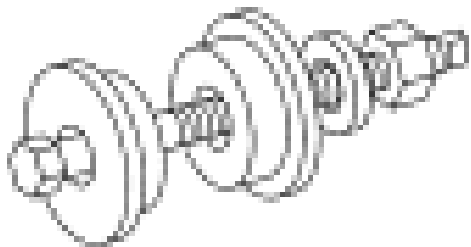
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ST1367-A

Installer, Drive Pinion Bearing
Cone

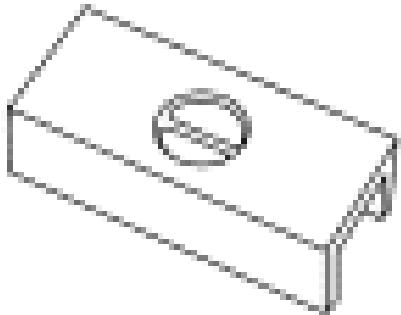
205-005 (T53T-4621-C)



ST1678-A

Installer, Drive Pinion Bearing
Cup

205-024 (T67P-4616-A)



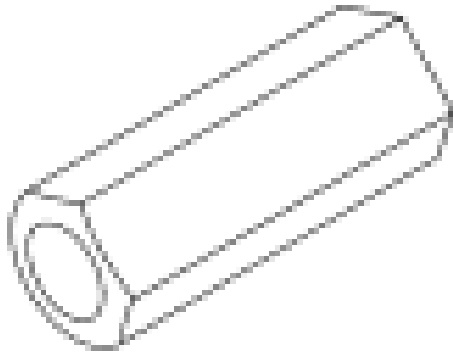
ST1254-A

Plate, Bearing Oil Seal

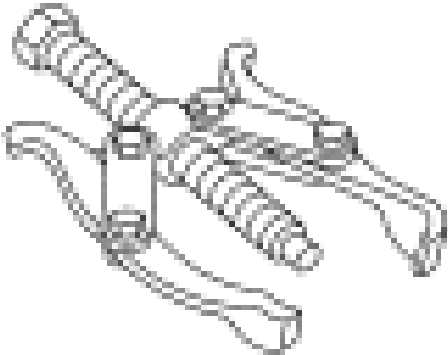
205-090 (T75L-1165-B)

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 ST1744-A	Protector, Drive Pinion Thread	205-460 or equivalent
 ST1220-A	Remover, Differential Bearing	205-116 (T77F-4220-B1)
 ST1543-A	Step Plate	205-D016 (D80L-630-5) or equivalent

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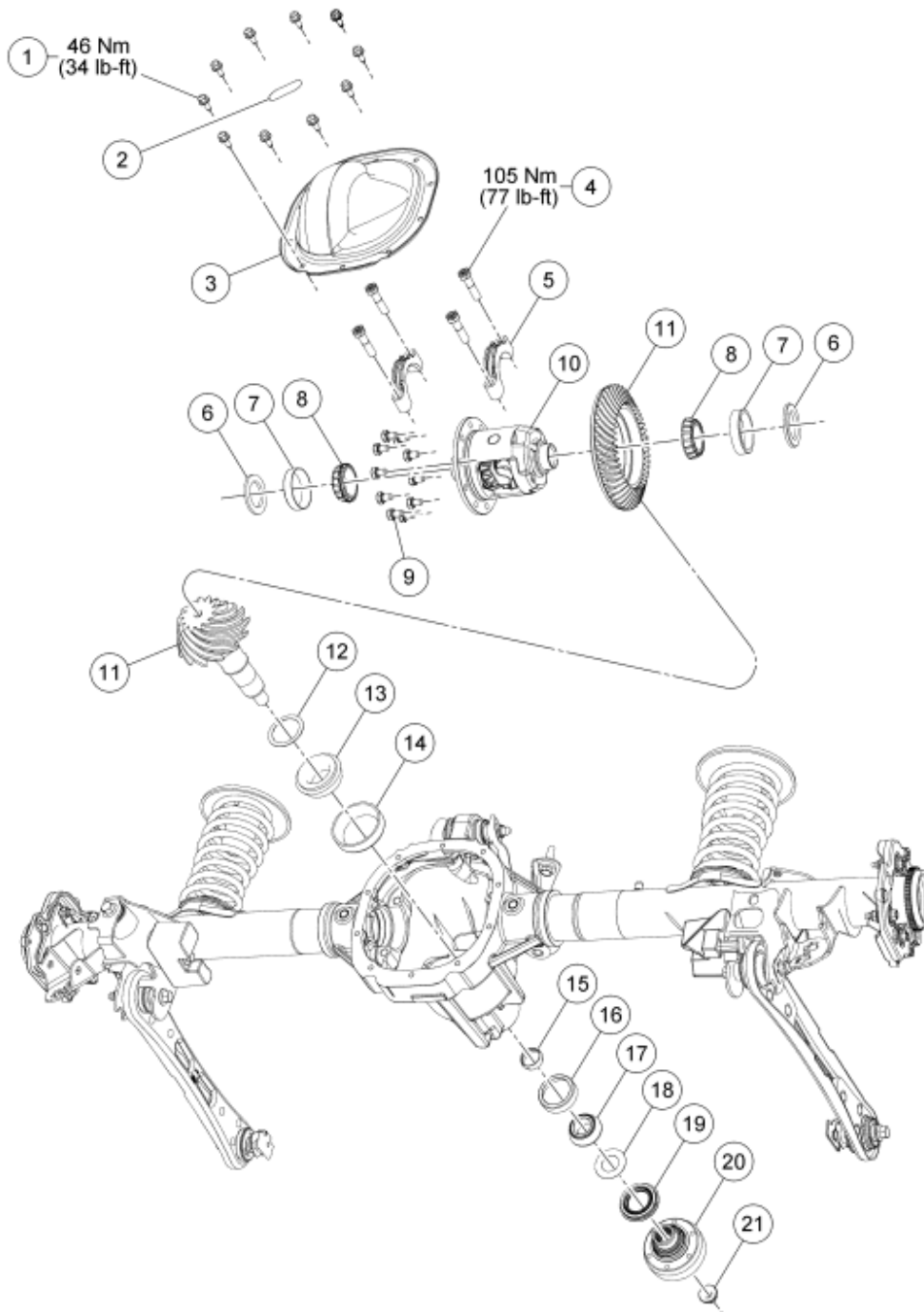
 ST2026-A	2-Jaw Puller	205-D072 (D79L-4221-A1) or equivalent
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Material

Item	Specification
Additive Friction Modifier XL-3 (US); CXL-3 (Canada)	EST-M2C118-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
Silicone Gasket and Sealant TA-30	WSE-M4G323-A4
Stud and Bearing Mount TA-27	WSK-M2G349-A1

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N0072036

Fig. 66: Exploded View Of Differential Ring & Pinion With Torque Specifications
 Courtesy of FORD MOTOR CO.

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

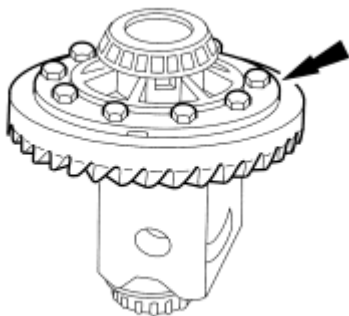
2008 Ford Mustang

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

3	4033	Differential housing cover
4	-	Differential bearing cap bolts (part of 4010)
5	-	Differential bearing caps (part of 4010)
6	4067	Differential bearing shims (2 required)
7	4222	Differential bearing cups (2 required)
8	4221	Differential bearings (2 required)
9	4216	Differential ring gear bolts (10 required)
10	4205	Differential case
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 assembly. 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.



N0075153

Fig. 67: Locating Differential Ring Gear Bolts
Courtesy of FORD MOTOR CO.

NOTE: Care should be taken not to 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.

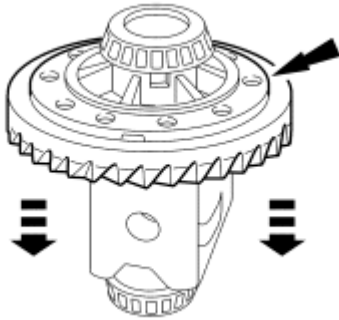


Fig. 68: Locating Differential Ring Gear Bolt Holes
Courtesy of FORD MOTOR CO.

5. Using the special tools, remove the 2 differential bearings.

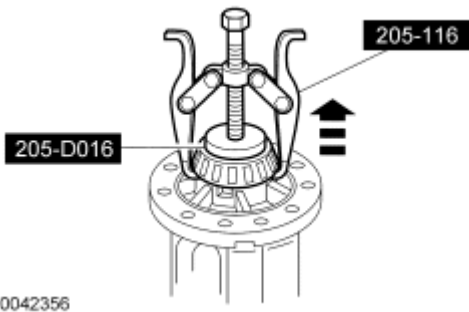


Fig. 69: Removing Differential Bearings
Courtesy of FORD MOTOR CO.

6. Using the special tool to hold the pinion flange, remove and discard the pinion nut.

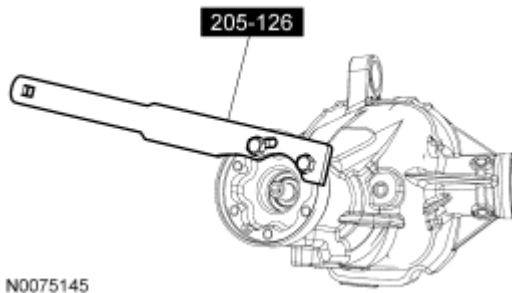
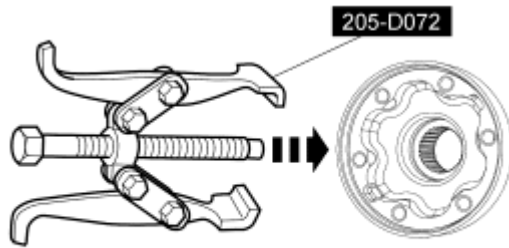


Fig. 70: Using Special Tool 205-126 To Hold Pinion Flange While Removing/Installing Drive Pinion Nut
Courtesy of FORD MOTOR CO.

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

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N0075147

Fig. 71: Removing Pinion Flange Using Special Tool 205-D072
Courtesy of FORD MOTOR CO.

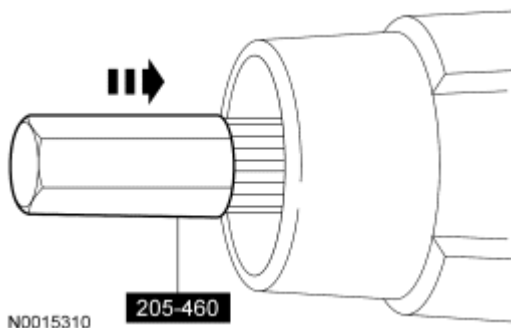
8. Force up on the metal flange of the drive pinion seal. Install gripping pliers and strike with a hammer until the drive pinion seal is removed.



A0008803

Fig. 72: 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 special tool. Using a soft-faced hammer, drive the pinion assembly out of the axle housing.



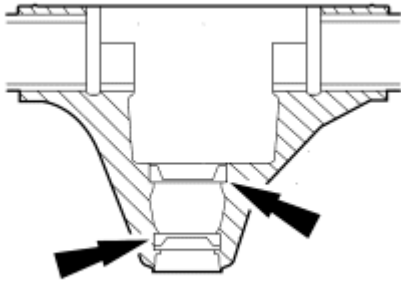
N0015310

Fig. 73: Driving Pinion Assembly Out Of Axle Housing Using Special Tool (205-460)
Courtesy of FORD MOTOR CO.

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

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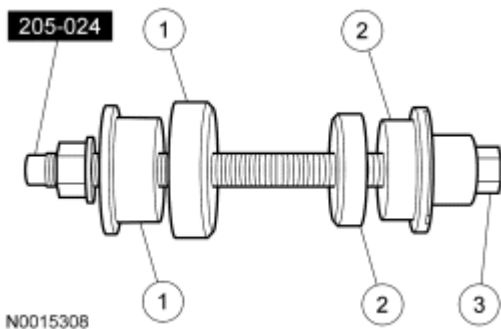


DE2511-A

Fig. 74: Identifying Pinion Bearing Cups
Courtesy of FORD MOTOR CO.

INSTALLATION

1. Position the special tool 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 special tool (inner) on the inner drive pinion bearing cup.
 2. Place the special tool (outer) on the outer drive pinion bearing cup.
 3. Install the special tool.



N0015308

Fig. 75: Identifying Special Tool (205-024) Components
Courtesy of FORD MOTOR CO.

2. Tighten the special tool to seat the drive pinion bearing cups into their bores.



N0015307

Fig. 76: Identifying Special Tool (205-024) To Seat Pinion Bearing Cups

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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.

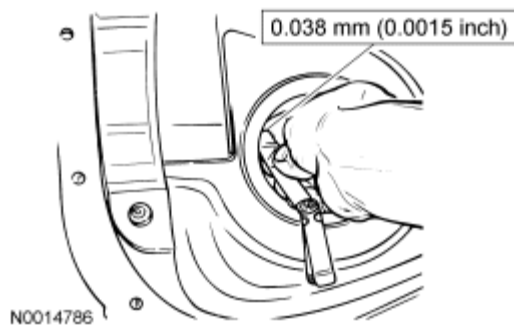


Fig. 77: Measuring Clearance Between Cup And Bottom Of Its Bore
Courtesy of FORD MOTOR CO.

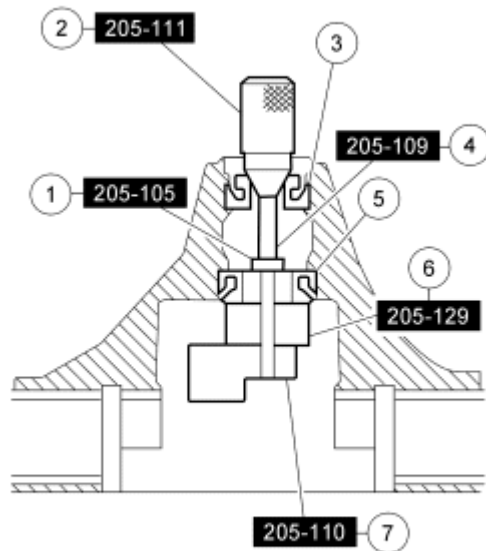
NOTE: Install new drive pinion bearings without any additional lubricant since the anti-rust oil provides adequate lubricant without upsetting the drive pinion bearing preload settings.

4. Assemble and position the special tools.

Item	Part Number	Description
1	205-105	Adapter for 205-S127 (1.612 inch O.D.) (T76P-4020-A3)
2	205-111	Adapter for 205-S127 (T76P-4020-A11)
3	4621	Drive pinion bearing (outer)
4	205-109	Adapter for 205-S127 (T76P-4020-A9)
5	4630	Drive pinion bearing (inner)
6	205-129	Adapter for 105-S127 (1.1884 inch thick) (T79P-4020-A18)
7	205-110	Adapter for 205-S127 (1.7 inch thick) (T76P-4020-A10)

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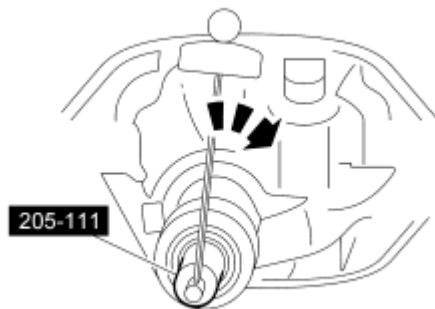


N0015306

Fig. 78: Identifying Drive Pinion Depth Gauge Set
Courtesy of FORD MOTOR CO.

NOTE: This step duplicates final drive pinion bearing preload.

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



N0003075

Fig. 79: Checking Differential Pinion Bearing Preload
Courtesy of FORD MOTOR CO.

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

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

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

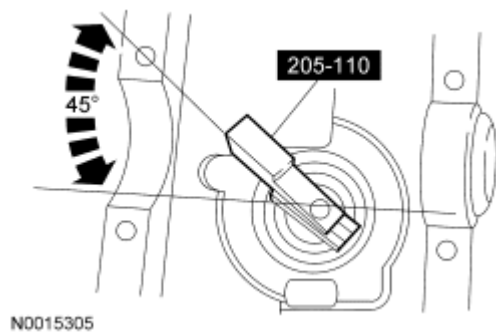


Fig. 80: Rotating Gauge Block For Correct Seating Of Drive Pinion Bearings
Courtesy of FORD MOTOR CO.

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

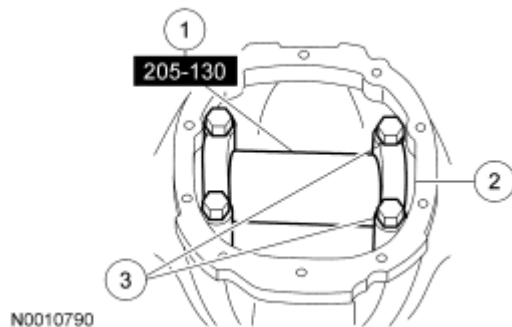


Fig. 81: Identifying Special Tool (205-130)
Courtesy of FORD MOTOR CO.

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 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 special tools.

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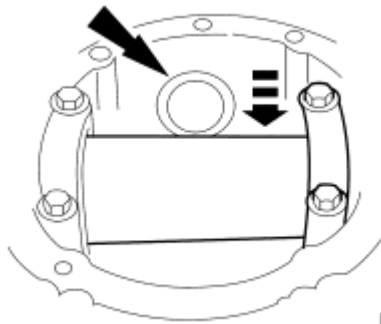


Fig. 82: Identifying Drive Pinion Bearing Adjustment Shim
Courtesy of FORD MOTOR CO.

9. Using the special tool and a shop press, drive the inner drive pinion bearing and the selected drive pinion bearing adjustment shim until they are firmly seated on the pinion shaft.

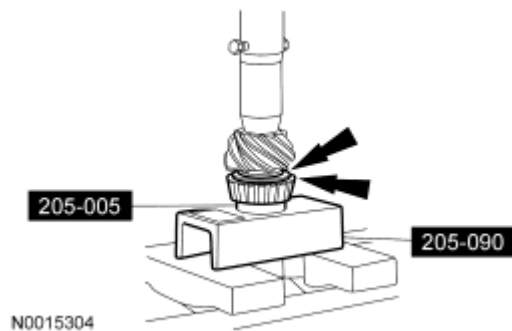


Fig. 83: Locating Inner Drive Pinion Bearing
Courtesy of FORD MOTOR CO.

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



Fig. 84: Identifying Drive Pinion Collapsible Spacer
Courtesy of FORD MOTOR CO.

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

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

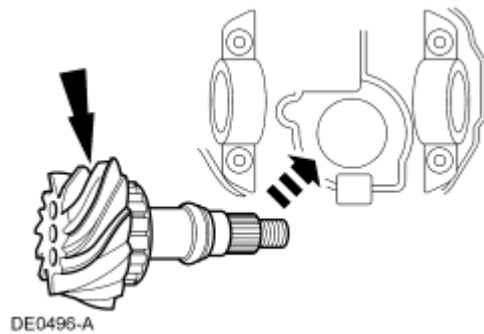
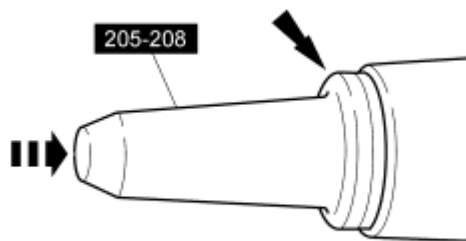


Fig. 85: Locating Drive Pinion Gear
Courtesy of FORD MOTOR CO.

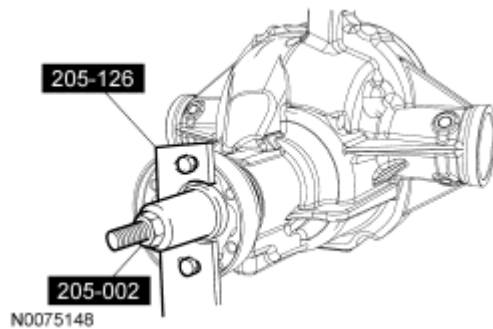
12. Install the outer drive pinion bearing and the drive pinion shaft oil slinger.
13. Using the special tools, install the drive pinion seal.



N0015303

Fig. 86: Using Special Tool (205-208) To Install Drive Pinion Seal
Courtesy of FORD MOTOR CO.

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



N0075148

Fig. 87: Installing Drive Pinion Flange Using Special Tools 205-126 & 205-002
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.

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

15. 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.

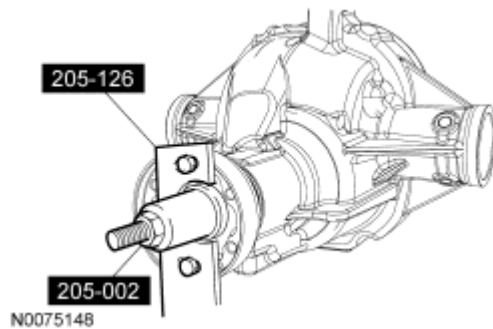


Fig. 88: Installing Drive Pinion Flange Using Special Tools 205-126 & 205-002
Courtesy of FORD MOTOR CO.

16. Using the special tool, install the 2 new differential bearings.

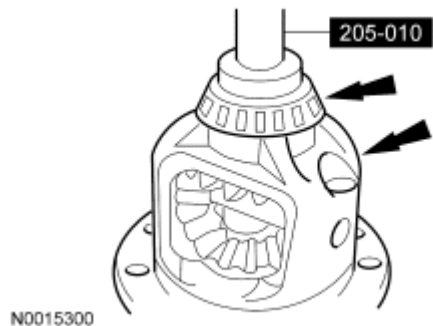
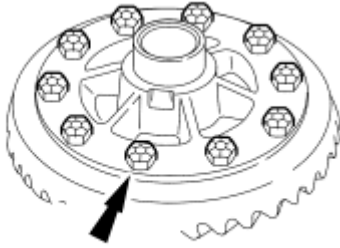


Fig. 89: Installing Differential Bearings On Differential Case
Courtesy of FORD MOTOR CO.

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

2008 Ford Mustang

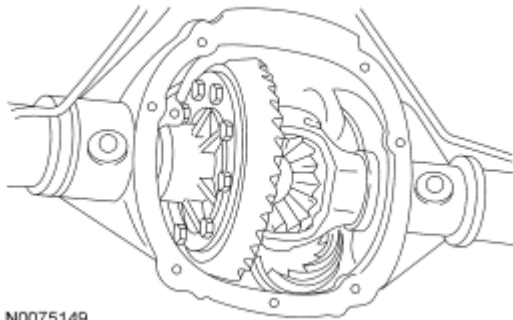
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear - Mustang



N0008702

Fig. 90: Identifying Differential Ring Gear Bolts
Courtesy of FORD MOTOR CO.

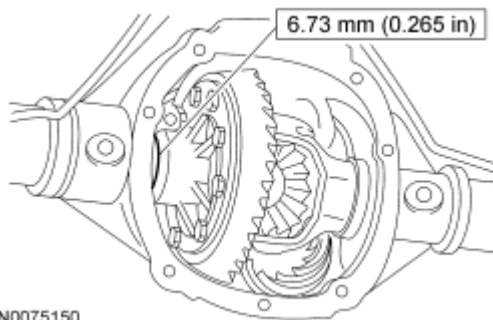
18. Position the differential carrier assembly and the 2 new differential bearing cups in the differential housing.



N0075149

Fig. 91: Identifying Differential Carrier Assembly
Courtesy of FORD MOTOR CO.

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



N0075150

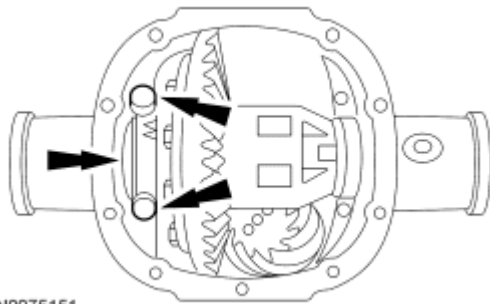
Fig. 92: Identifying Differential Bearing Shim
Courtesy of FORD MOTOR CO.

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.

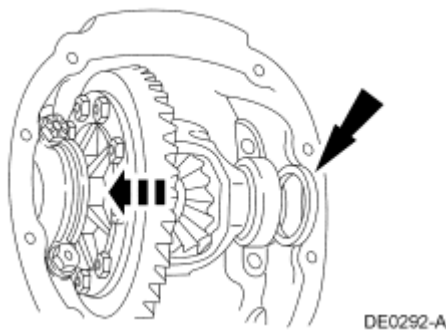
20. Install the LH bearing cap and loosely install the 2 bolts.



N0075151

Fig. 93: Locating LH Bearing Cap & Bolts
Courtesy of FORD MOTOR CO.

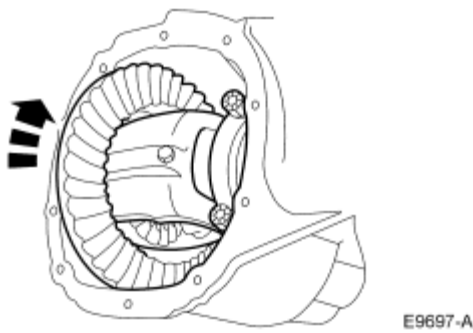
21. Install progressively larger differential bearing shims on the RH side until the largest shim is installed by hand.



DE0292-A

Fig. 94: Identifying Differential Bearing Shim
Courtesy of FORD MOTOR CO.

22. 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).
23. Rotate the differential carrier several times to verify the differential bearings have seated correctly.



E9697-A

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

Fig. 95: Rotating Differential Assembly
Courtesy of FORD MOTOR CO.

24. Install the special tools and measure the ring gear backlash.
- If the backlash is within specification, proceed to Step 27.
 - If a zero backlash condition occurs, proceed to Step 25.
 - If the backlash is not within specification, proceed to Step 26.

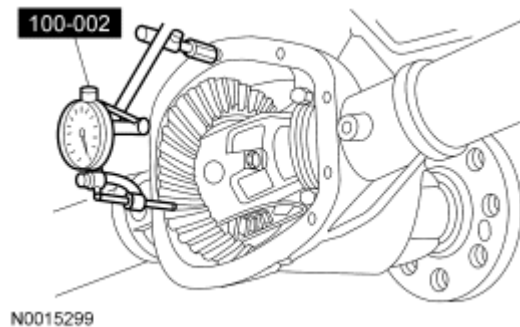


Fig. 96: Measuring Ring Gear Backlash
Courtesy of FORD MOTOR CO.

25. 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 24.
26. 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 27.

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

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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
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

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

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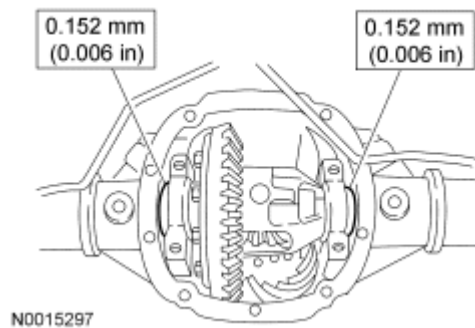


Fig. 97: Identifying Differential Bearing Shim For Preload With Specifications
Courtesy of FORD MOTOR CO.

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

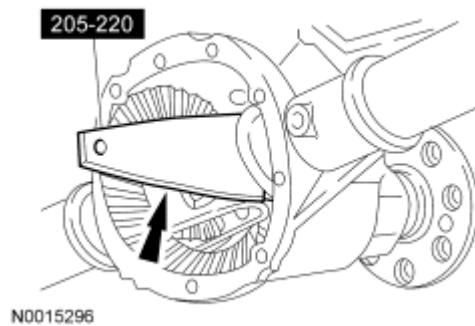


Fig. 98: Seating Differential Bearing Shims Using Special Tool (205-220)
Courtesy of FORD MOTOR CO.

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

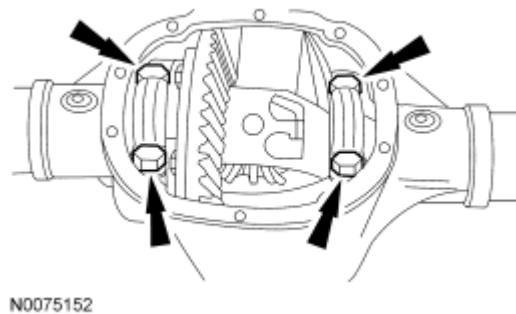


Fig. 99: Locating Bearing Caps & Bolts
Courtesy of FORD MOTOR CO.

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

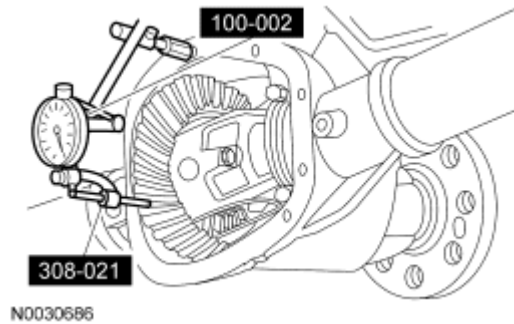


Fig. 100: Checking Differential Ring Gear Backlash
Courtesy of FORD MOTOR CO.

32. Apply marking compound and rotate the differential assembly 5 complete revolutions.
33. Check for an acceptable pattern.
34. Install the axle shafts. For additional information, refer to [Axle Shaft](#).
35. Install the driveshaft. For additional information, refer to [DRIVESHAFT](#) article.

REMOVAL AND INSTALLATION

AXLE HOUSING

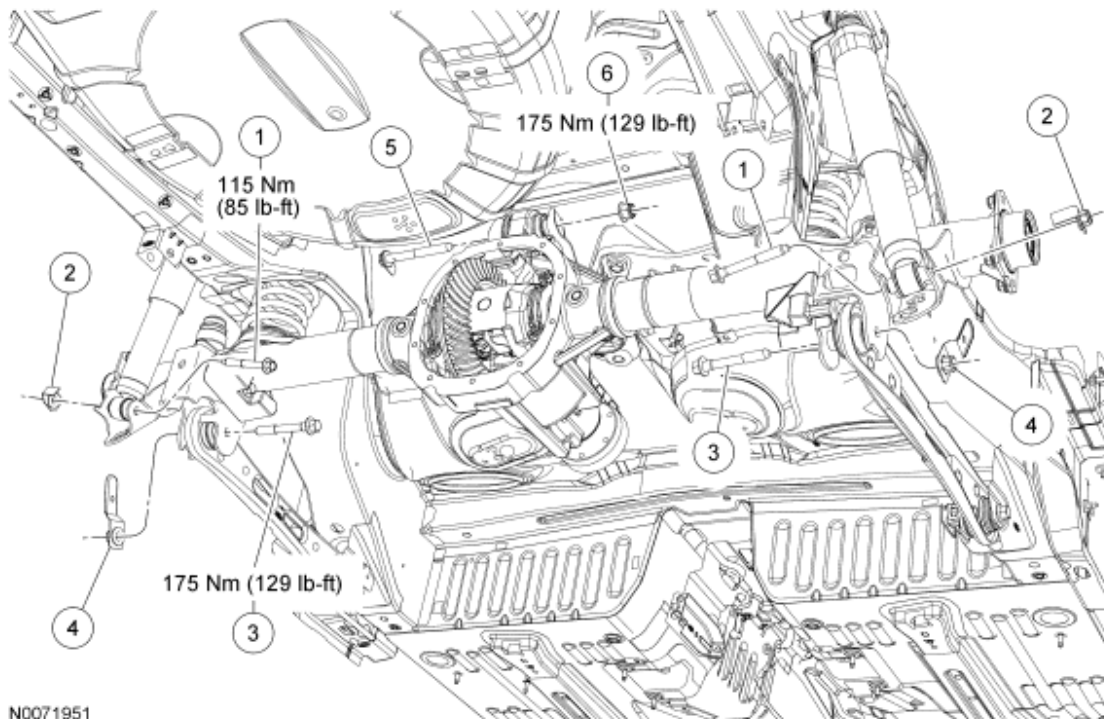


Fig. 101: Exploded View Of Axle Housing With Torque Specifications
Courtesy of FORD MOTOR CO.

2008 Ford Mustang

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

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

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 panhard 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.

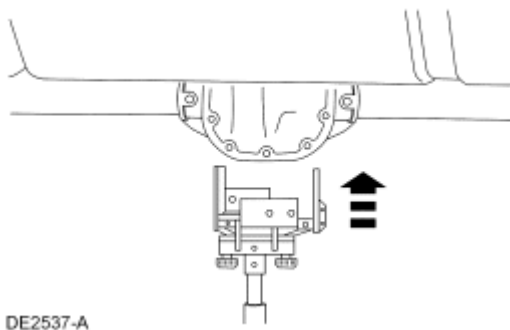


Fig. 102: Supporting Differential Housing With A Suitable Transmission Jack
Courtesy of FORD MOTOR CO.

6. Remove and discard the 2 shock absorber nuts and 2 shock absorber bolts.

2008 Ford Mustang

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

- To install, tighten new nuts and bolts to 115 Nm (85 lb-ft).

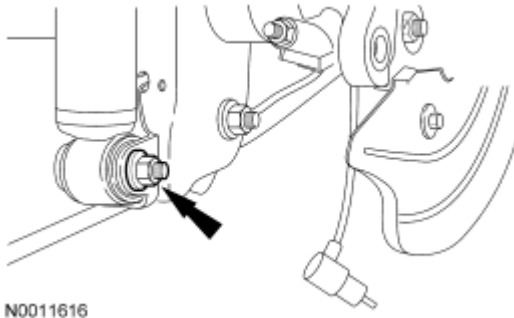


Fig. 103: Locating Shock Absorber Nuts
Courtesy of FORD MOTOR CO.

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

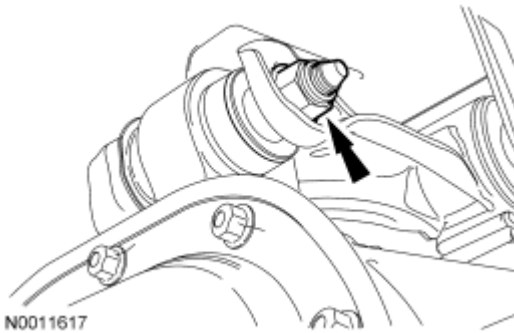


Fig. 104: Locating Upper Suspension Arm Nut
Courtesy of FORD MOTOR CO.

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

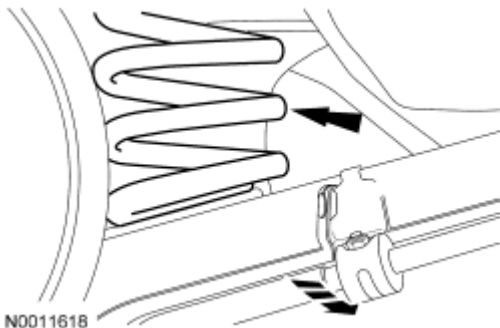


Fig. 105: Lowering Axle & Removing Springs
Courtesy of FORD MOTOR CO.

9. Remove and discard the trailing arm nuts and trailing arm bolts.

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- To install, tighten new nuts and bolts to 175 Nm (129 lb-ft).

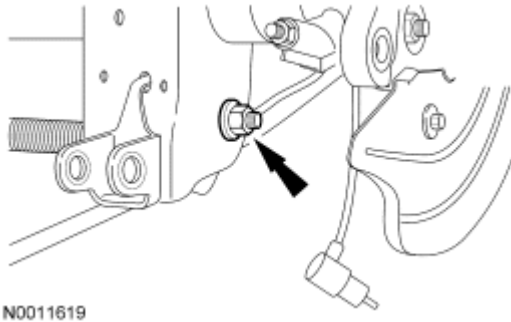


Fig. 106: Locating Trailing Arm Nuts
Courtesy of FORD MOTOR CO.

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

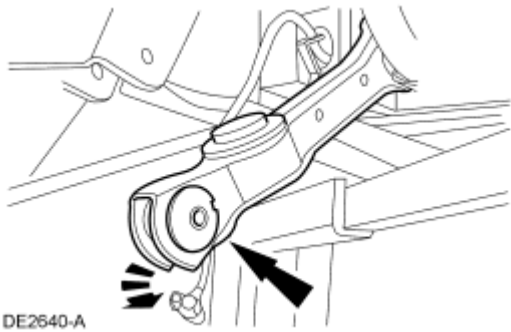


Fig. 107: Locating Lower Control Arms From Axle Housing
Courtesy of FORD MOTOR CO.

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

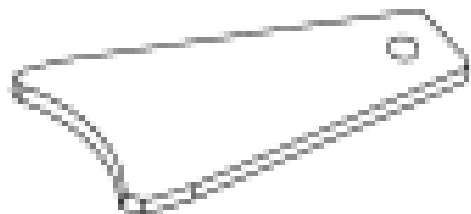
DIFFERENTIAL CARRIER

Special Tools

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

2008 Ford Mustang

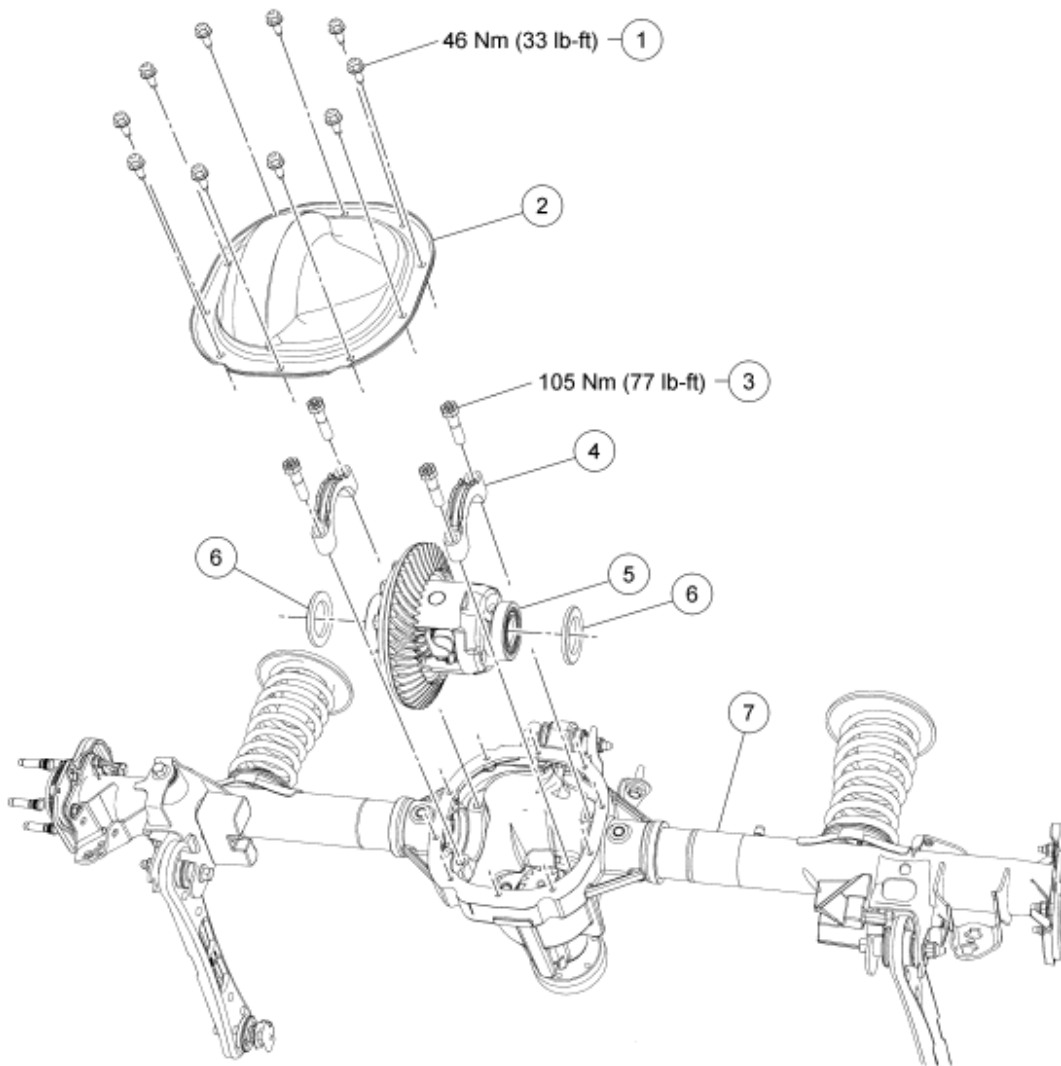
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear - Mustang



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2008 Ford Mustang

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



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Fig. 108: 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 shims (2 required)
7	4010	Axle housing

REMOVAL

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2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-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.

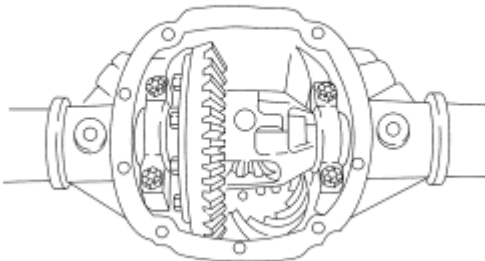


Fig. 109: Identifying Differential Carrier
Courtesy of FORD MOTOR CO.

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.

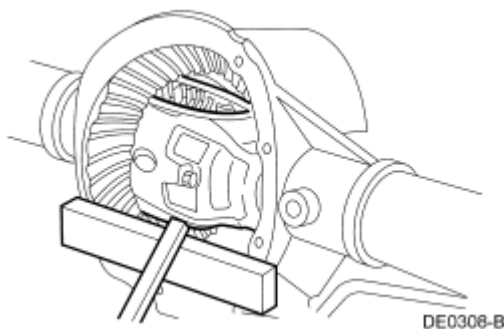


Fig. 110: Removing Differential Carrier Assembly From Axle Housing
Courtesy of FORD MOTOR CO.

INSTALLATION

1. Position the differential assembly in the axle housing.

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

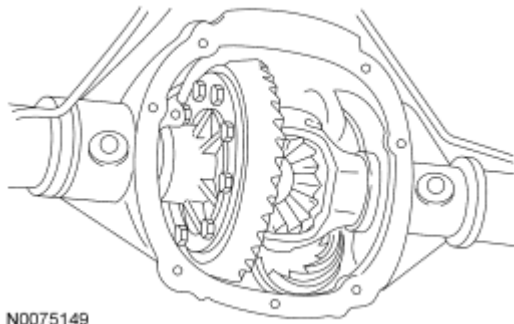


Fig. 111: Identifying Differential Carrier Assembly
Courtesy of FORD MOTOR CO.

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.

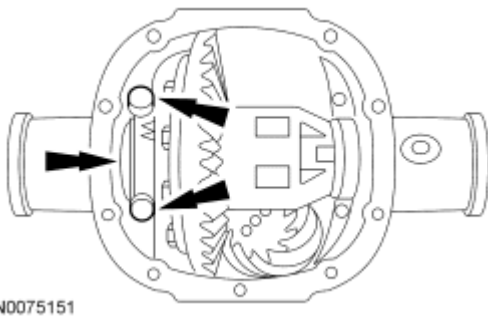


Fig. 112: Locating LH Bearing Cap & Bolts
Courtesy of FORD MOTOR CO.

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

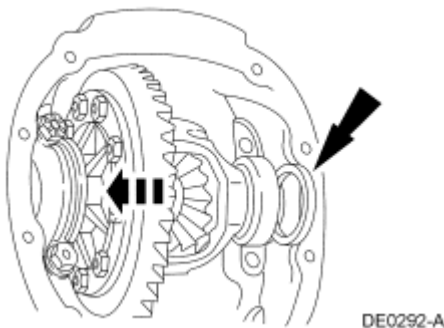


Fig. 113: Identifying Differential Bearing Shim
Courtesy of FORD MOTOR CO.

2008 Ford Mustang

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

5. Using the Shim Driver, fully seat the differential bearing shims.

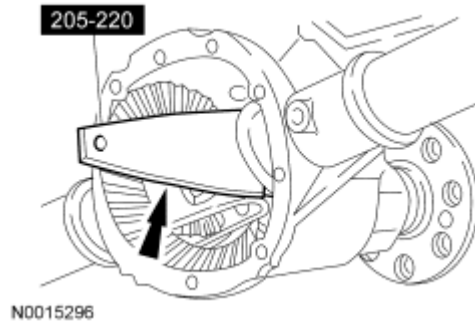


Fig. 114: Seating Differential Bearing Shims Using Special Tool (205-220)
Courtesy of FORD MOTOR CO.

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).

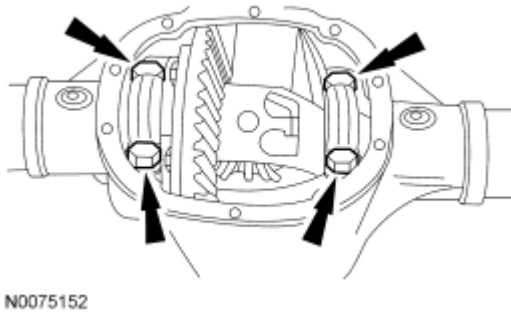


Fig. 115: Locating Bearing Caps & Bolts
Courtesy of FORD MOTOR CO.

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

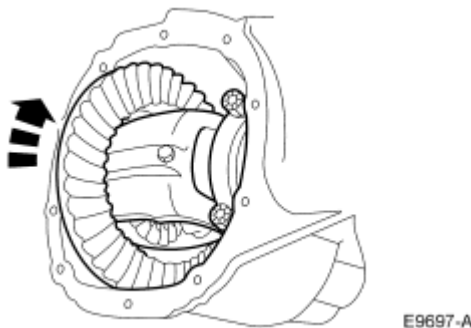


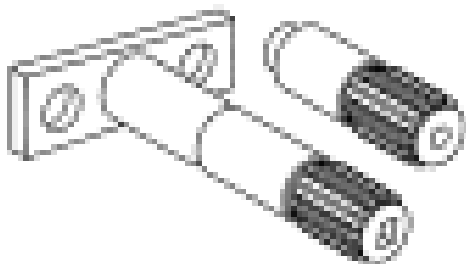
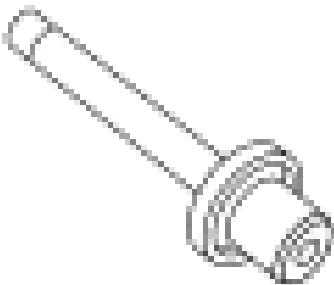
Fig. 116: Rotating Differential Assembly
Courtesy of FORD MOTOR CO.

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

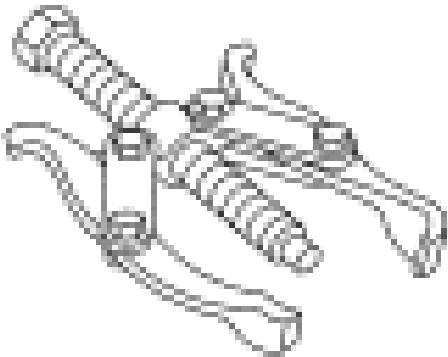
DISASSEMBLY AND ASSEMBLY

DIFFERENTIAL CASE AND RING GEAR

Special Tools

Illustration	Tool Name	Tool Number
 ST1265-A	Gauge, Differential Clutch	205-022 (T66L-4204-A)
 ST1375-A	Installer, Differential Side Bearing	205-010 (T57L-4221-A2)
	Step Plate	205-D016 (D80L-630-5) or equivalent

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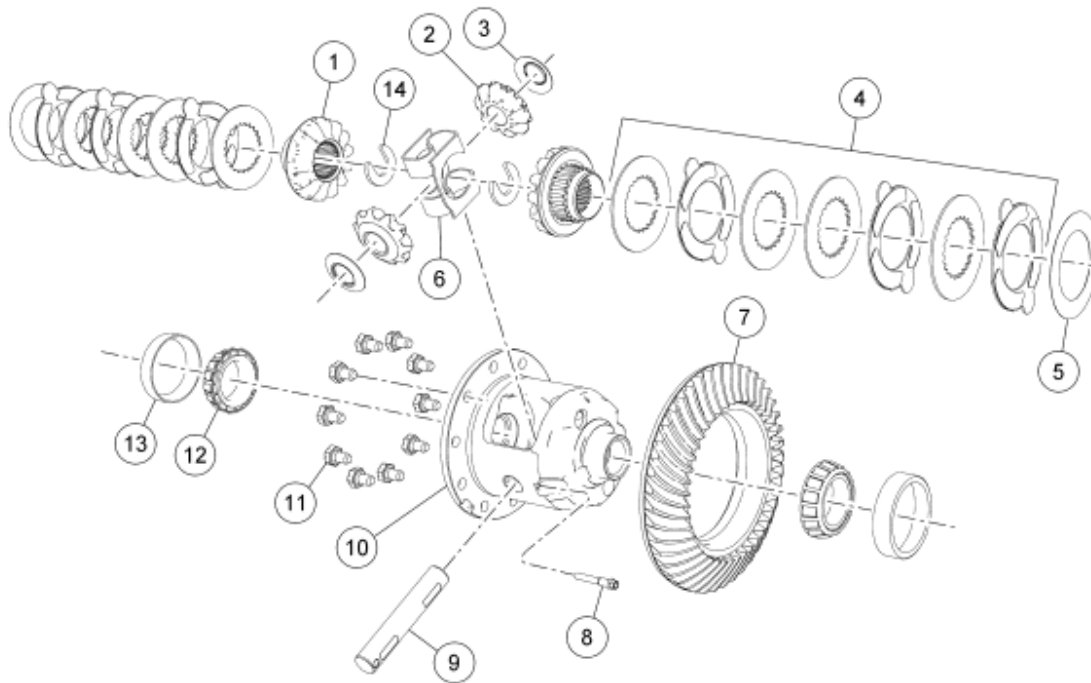
 ST1543-A		
 ST2026-A	2-Jaw Puller	205-D072 (D97L-4221-A) or equivalent

Material

Item	Specification
Stud and Bearing Mount TA-27	WSK-M2G349-A1
Threadlock and Sealer TA-25	WSK-M2G351-A5

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N0037420

Fig. 117: Exploded View Of Differential Case & Ring Gear
Courtesy of FORD MOTOR CO.

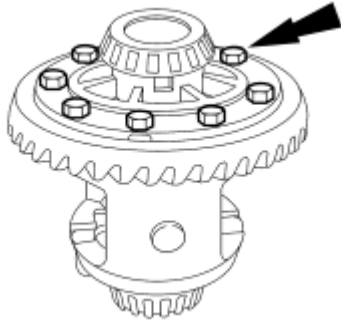
Item	Part Number	Description
1	4236	Differential side gear
2	4215	Differential pinion gear
3	4230	Differential pinion gear thrust washer
4	4947	Differential clutch pack
5	4A324	Rear axle differential clutch shim
6	4214	Differential clutch spring
7	4209	Differential ring gear
8	4241	Differential pinion shaft lock bolt
9	4211	Differential pinion shaft
10	4204	Differential case
11	4216	Differential ring gear bolts
12	4221	Differential bearing
13	4222	Differential bearing cup
14	4N237	Axle shaft U-washer

DISASSEMBLY

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

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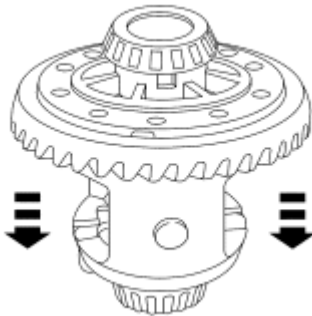


DE2845-A

Fig. 118: Locating Differential Ring Gear Bolts
Courtesy of FORD MOTOR CO.

NOTE: Care should be taken not to damage the differential ring gear bolt hole threads.

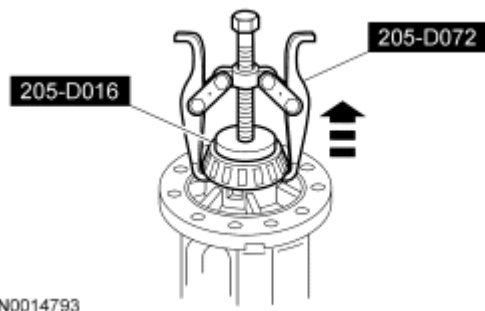
3. Insert a punch in the differential ring gear bolt holes and drive the differential ring gear off.



DE2846-A

Fig. 119: Locating Differential Ring Gear Bolt Hole
Courtesy of FORD MOTOR CO.

4. Using the special tools, remove the 2 differential bearings.



N0014793

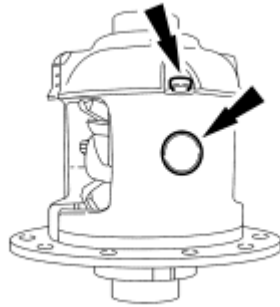
Fig. 120: Identifying Special Tools (205-D016) And (205-D072)
Courtesy of FORD MOTOR CO.

5. Remove the differential pinion shaft lock bolt and remove the differential pinion shaft.

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- Discard the differential pinion shaft lock bolt.

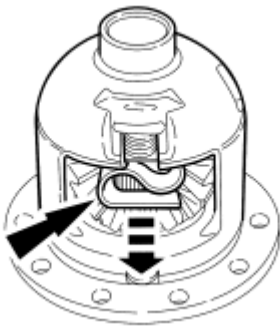


DE0263-B

Fig. 121: Identifying Differential Pinion Shaft Lock Bolt
Courtesy of FORD MOTOR CO.

NOTE: Due to the spring tension, care must be used when removing the differential clutch spring.

6. Remove the differential clutch spring.



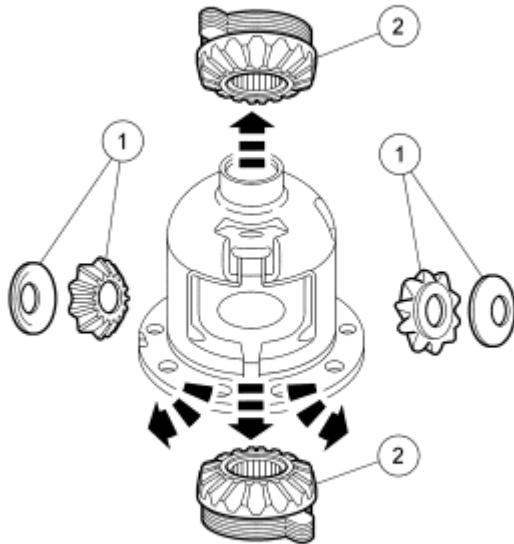
DE0265-A

Fig. 122: Identifying Differential Clutch Spring
Courtesy of FORD MOTOR CO.

7. Remove the differential gears.
 1. Remove the 2 differential pinion gear and 2 thrust washers.
 2. Remove the 2 differential side gears.

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N0014146

Fig. 123: Identifying Differential Pinion Gear, Thrust Washers & Differential Gears
Courtesy of FORD MOTOR CO.

NOTE: Keep the differential clutch packs in order. Do not mix the differential clutch packs. The differential clutch packs must be reassembled in the same sequence.

8. Remove the differential clutch packs and differential side gears and tag them "RH" and "LH" with the selective shim.
 - Clean and inspect the remaining components of the differential case for wear or damage and install new components as necessary.

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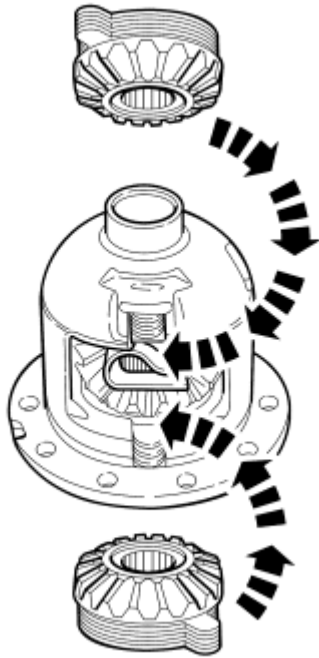
Fig. 124: Identifying Differential Clutch Packs & Differential Side Gears
Courtesy of FORD MOTOR CO.

NOTE: Do not use acids or solvents when cleaning the differential clutch pack. Wipe components with a clean, lint-free cloth only.

9. Clean and inspect the differential clutch packs for wear or damage and install new components as necessary.

ASSEMBLY

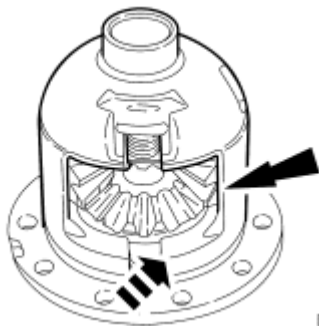
1. Install selective shims on the clutch pack and the 2 differential side gear assemblies.
2. Install the 2 differential side gears in the differential case.



DE0267-A

Fig. 125: Identifying Differential Side Gears
Courtesy of FORD MOTOR CO.

3. Install the 2 differential pinion gears with the 2 differential pinion gear thrust washers in the differential case.



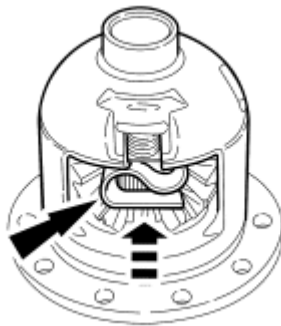
DE0268-B

Fig. 126: Identifying Differential Pinion Gears
Courtesy of FORD MOTOR CO.

4. Using a soft-faced hammer, install the differential clutch spring.

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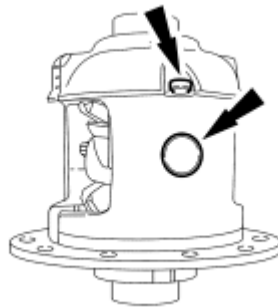
2008 DRIVELINE/AXLES Rear Drive Axle/Differential - Ford 8.8-Inch Ring Gear - Mustang



DE0269-A

Fig. 127: Installing Differential Clutch Spring
Courtesy of FORD MOTOR CO.

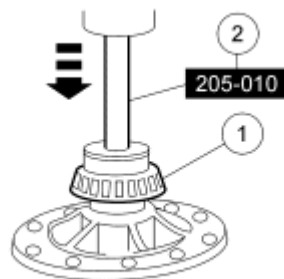
5. Install the differential pinion shaft and install a new differential pinion shaft lock bolt finger-tight.



DE0270-C

Fig. 128: Install A New Differential Pinion Shaft Lock Bolt
Courtesy of FORD MOTOR CO.

6. Using the special tool, install the 2 differential bearings on the differential case.
 1. Position the differential bearings.
 2. Using the special tool, press on the differential bearings.



N0014139

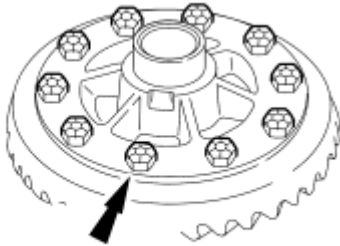
Fig. 129: Installing Differential Bearings
Courtesy of FORD MOTOR CO.

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

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



N0008702

Fig. 130: Identifying Differential Ring Gear Bolts
Courtesy of FORD MOTOR CO.

9. Using the special tools, check the torque required to rotate one differential side gear.
 - Mount the differential assembly and special tool in a vise.
 - The initial minimum break-away torque, if original clutch plates are used, must be within specification. The minimum rotating torque required to keep the differential side gear turning with new clutch plates may vary.



N0014150

Fig. 131: Mounting Differential Assembly & Special Tool 205-022 In A Vise
Courtesy of FORD MOTOR CO.

10. Install the differential carrier. For additional information, refer to **Differential Carrier**.