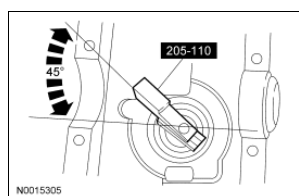


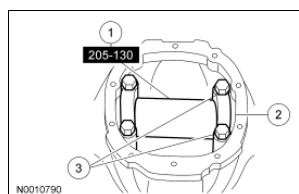
6. **NOTE:** The gauge block must be offset to obtain an accurate reading.

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



7. Install the Adapter.

1. Position the gauge tube and the paper shipping tabs.
2. Install the 2 differential bearing caps.
3. Install the 4 differential bearing cap bolts.
  - ◆ Tighten to 112 Nm (83 lb-ft).

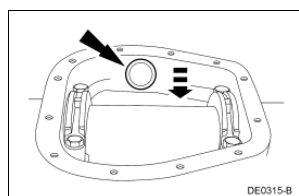


8. **NOTE:** Drive pinion bearing adjustment shims must be flat and clean.

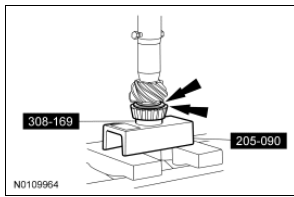
**NOTE:** A slight drag should be felt for correct drive pinion bearing adjustment shim selection. Do not attempt to force the drive pinion bearing adjustment shim between gauge block and gauge tube. This will minimize selection of a drive pinion bearing adjustment shim thicker than required, which results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

Use a drive pinion bearing adjustment shim as a gauge for drive pinion bearing adjustment shim selection.

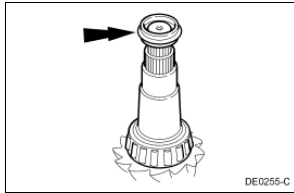
- After the correct drive pinion bearing adjustment shim thickness has been determined, remove all of the Adapters.



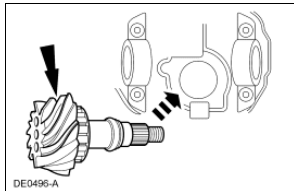
9. Using the Shaft Bearing Cone Installer and Bearing Oil Seal Plate and a shop press, drive the inner drive pinion bearing and drive pinion bearing adjustment shim until they are firmly seated on the pinion shaft.



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

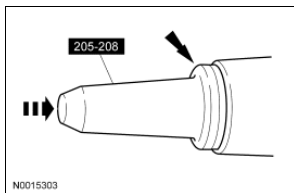


11. Install the drive pinion assembly into the axle housing.

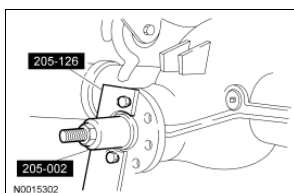


12. Install the outer drive pinion bearing and the drive pinion shaft oil slinger.

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



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

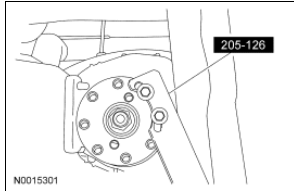


15. **NOTICE:** Do not, under any circumstance, loosen the drive pinion nut to reduce pinion bearing preload or damage to the component may occur. If it is necessary to reduce the preload, install a new drive pinion collapsible spacer and drive pinion nut.

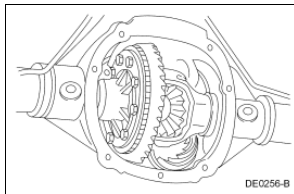
**NOTE:** Remove the Drive Pinion Flange Holding Fixture while taking rotational pinion bearing preload checks with the Nm (lb-in) torque wrench.

Use the Drive Pinion Flange Holding Fixture to hold the pinion flange while tightening the pinion nut.

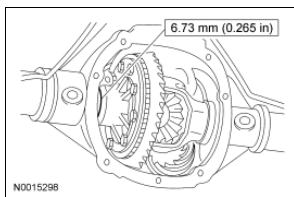
- Rotate the pinion occasionally to make sure the differential pinion bearings are seating correctly. Take frequent differential pinion bearing preload checks by rotating the differential pinion with a Nm (lb-in) torque wrench. Tighten the pinion nut in small increments to avoid excessive pinion bearing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



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

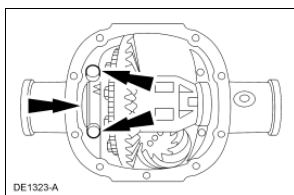


17. Install a differential bearing shim on the LH side.

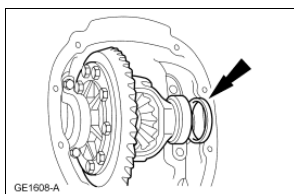


18. **NOTE:** Apply pressure toward the LH side to make sure the left differential bearing cup is seated.

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

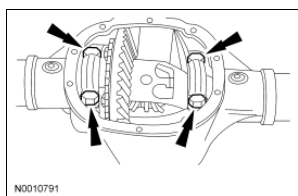


19. Install progressively larger differential bearing shims on the RH side until the largest differential bearing shim selected can be inserted by hand.

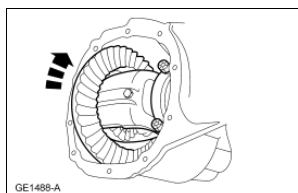


20. Install the RH side differential bearing cap and tighten the 4 differential bearing cap bolts.

- Tighten to 112 Nm (83 lb-ft).

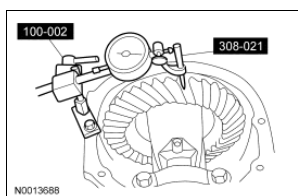


21. Rotate the differential assembly to make sure it rotates freely.



22. Install the Dial Indicator Gauge with Holding Fixture and Clutch Housing Gauge and measure the ring gear backlash.

- If the backlash is within specification, proceed to Step 25.
- If a zero backlash condition occurs, proceed to Step 23.
- If the backlash is not within specification, proceed to Step 24.



23. 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.

24. 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.

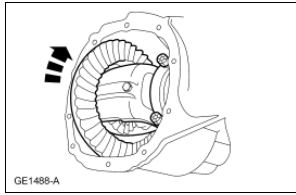
Backlash Change Required		Thickness Change Required	
mm	In	mm	In
0.025	0.001	0.050	0.002
0.050	0.002	0.050	0.002
0.076	0.003	0.101	0.004
0.101	0.004	0.152	0.006
0.127	0.005	0.152	0.006
0.152	0.006	0.203	0.008
0.177	0.007	0.254	0.010
0.203	0.008	0.254	0.010
0.228	0.009	0.304	0.012
0.254	0.010	0.355	0.014
0.279	0.011	0.355	0.014
0.304	0.012	0.406	0.016

0.330	0.013	0.457	0.018
0.335	0.014	0.457	0.018
0.381	0.015	0.508	0.020

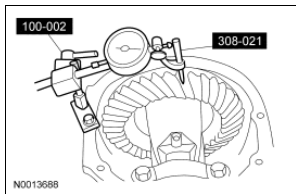
**Differential Shim Size Chart 4067**

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

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

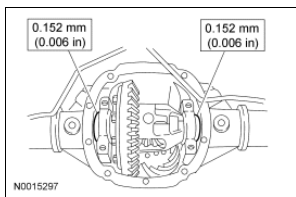


26. Using the Dial Indicator Gauge with Holding Fixture and Clutch Housing Gauge, recheck the ring gear backlash.

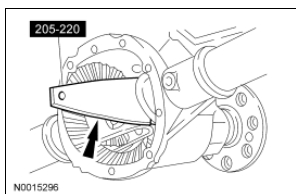


27. Remove the 4 differential bearing cap bolts and 2 differential bearing caps.

28. To establish differential bearing preload, increase both LH and RH differential bearing shim sizes as shown.

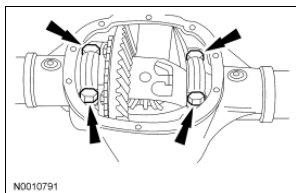


29. Using the Shim Driver, fully seat the differential bearing shims. Make sure the assembly rotates freely.

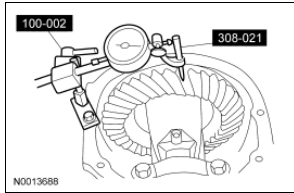


30. Install the 2 differential bearing caps and 4 differential bearing cap bolts.

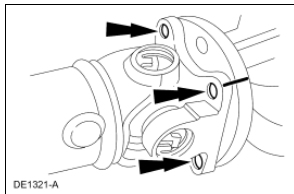
- Tighten to 112 Nm (83 lb-ft).



31. Using the Dial Indicator Gauge with Holding Fixture and Clutch Housing Gauge, recheck the backlash.



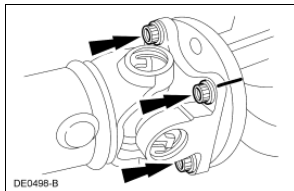
32. Apply gear marking compound and rotate the differential assembly 5 complete revolutions.
33. Check and verify an acceptable pattern.
34. Install the axle shafts. For additional information, refer to [Axle Shaft](#) in this section
35. Position the driveshaft and align the index marks on the pinion flange.



36. **NOTICE:** The driveshaft centering socket yoke fits tightly on the pinion flange pilot. To make sure that the driveshaft centering socket yoke seats squarely on the pinion flange, tighten the driveshaft flange bolts evenly in a cross pattern or damage to the component may occur.














Install the 4 driveshaft flange bolts.

- Tighten to 112 Nm (83 lb-ft).





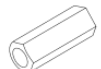




### Differential Ring And Pinion

#### Special Tool(s)

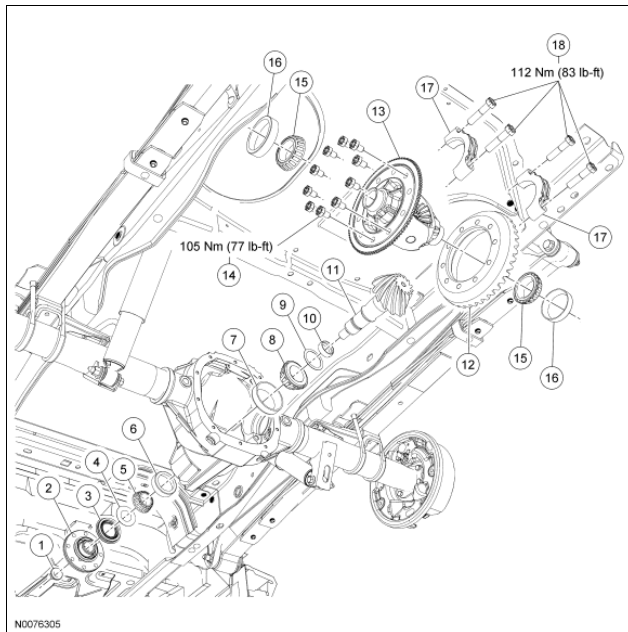
 <small>ST2026-A</small>	2-Jaw Puller 205-D072 (D79L-4221-A1) or equivalent
 <small>ST1743-A</small>	Adapter For 205-S127 205-105 (T76P-4020-A3)
 <small>ST1429-A</small>	Adapter For 205-S127 205-109 (T76P-4020-A9)
 <small>ST1431-A</small>	Adapter For 205-S127 205-110 (T76P-4020-A10)
 <small>ST1432-A</small>	Adapter For 205-S127 205-111 (T76P-4020-A11)
 <small>ST1743-A</small>	Adapter For 205-S127 205-129 (T79P-4020-A18)
 <small>ST1434-A</small>	Adapter For 205-S127 205-130 (T79P-4020-A19)
 <small>ST1214-A</small>	Dial Indicator Gauge With Bracketry 100-002 (TOOL-4201-C) or equivalent
 <small>ST1348-A</small>	Gauge, Clutch Housing 308-021 (T57L-4201-A)
 <small>ST1257-A</small>	Holding Fixture, Drive Pinion Flange 205-126 (T78P-4851-A)
 <small>ST1485-A</small>	Installer, Differential Shim 205-220 (T85L-4067-AH)
 <small>ST1375-A</small>	Installer, Differential Side Bearing 205-010 (T57L-4221-A2)
 <small>ST1678-A</small>	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)
 ST1367-A	Installer, Shaft Bearing Cone 308-169 (T88T-7025-B)
 ST1254-A	Plate, Bearing Oil Seal 205-090 (T75L-1165-B)
 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

Material

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

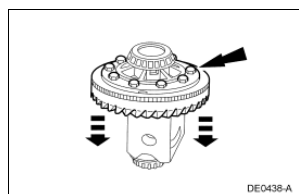


Item	Part Number	Description
1	389546-S	Pinion nut
2	4851	Pinion flange
3	4676	Pinion oil seal

4	4670	Pinion oil slinger
5	4621	Outer pinion bearing
6	4616	Outer pinion bearing cup
7	4628	Inner pinion bearing cup
8	4630	Inner pinion bearing
9	4663	Pinion bearing adjustment shim
10	4662	Collapsible spacer
11	4209	Drive pinion
12	4209	Ring gear
13	4204	Differential case
14	4216	Differential ring gear bolt (10 required)
15	4221	Differential bearings (2 required)
16	4222	Differential bearing cups (2 required)
17	—	Differential bearing caps (part of 4010)
18	—	Differential bearing cap bolts (part of 4010)

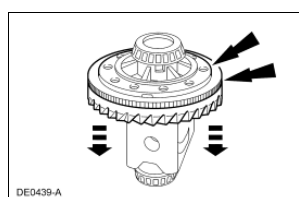
**Removal**

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



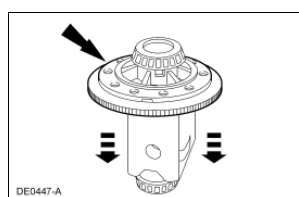
3. **NOTE:** Care should be taken not to damage the differential ring gear bolt hole threads.

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

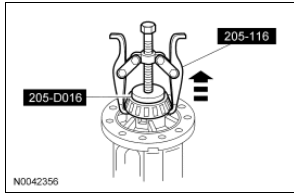


4. **NOTE:** The anti-lock ring cannot be reused once removed. Remove the anti-lock ring only if damaged.

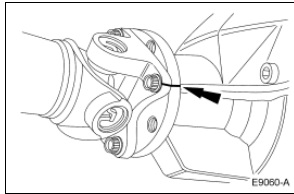
If necessary, remove the anti-lock ring.



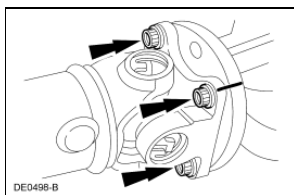
5. Using the Differential Bearing Remover and Step Plate, remove the differential bearings.



6. Index-mark the driveshaft flange and pinion flange for correct alignment during installation.



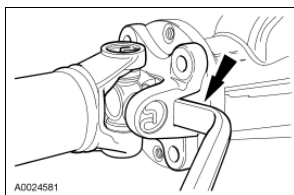
7. Remove the 4 driveshaft flange bolts.



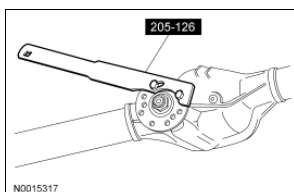
8. **NOTICE:** The driveshaft centering socket yoke fits tightly on the pinion flange pilot. Never hammer on the driveshaft or any of its components to disconnect the driveshaft centering socket yoke from the pinion flange. Pry only in the area shown with a suitable tool to disconnect the driveshaft centering socket yoke from the pinion flange or damage to the component may occur.

Using a suitable tool as shown, disconnect the driveshaft centering socket yoke from the pinion flange.

- Using mechanic's wire, position the driveshaft aside.



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



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