CATERPILLAR®

Service Repair Manual

Models

349E L-VG Excavator

Product: EXCAVATOR
Model: 349E L VG EXCAVATOR DGE
Configuration: 349E L-VG Excavators DGE00001-UP (MACHINE) POWERED BY C13 Engine

Disassembly and Assembly
349E Excavator Machine Systems
Media Number -KENR9848-04 **Publication Date -01/10/2012** **Date Updated -23/10/2012**

i05331849

Final Drive - Disassemble

SMCS - 4050-015

Disassembly Procedure

Table 1

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	1P-2420	Transmission Repair Stand	1
B	138-7575	Link Brackets	2
C	4C-8359	Eyebolt	3
D	138-7574	Link Brackets	2
E	154-6182	Forcing Bolts	3

Start By:

A. Remove the final drive and travel motor.
B. Remove the sprocket.

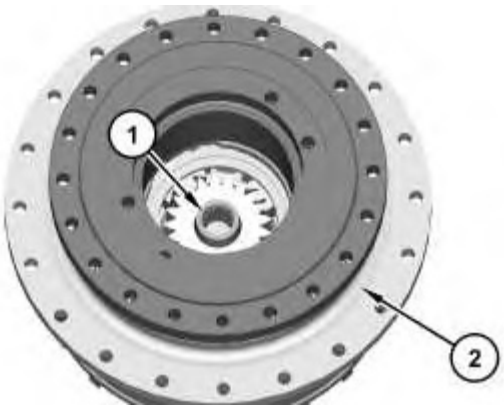

Illustration 1 g02431160

1. Remove coupling (1) from final drive (2) .
2. Attach a suitable lifting device to the final drive, and turn final drive (2) over 180 degrees. The weight of final drive (2) is approximately 590 kg (1300 lb).

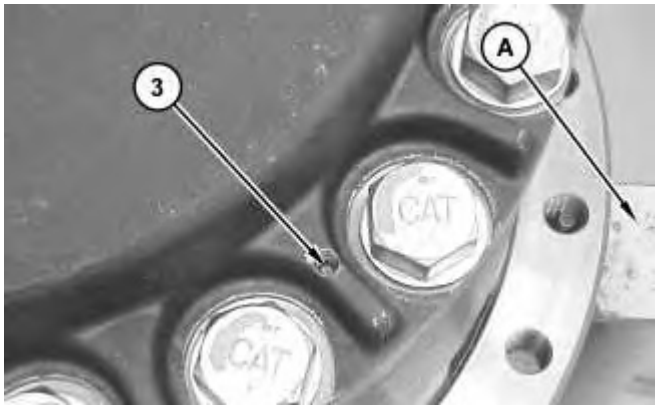

Illustration 2 g01207796

3. Attach the final drive to Tooling (A) . Put an alignment mark across the sections of the final drive for assembly purposes. All parts must be reinstalled in the original locations.
4. Remove setscrews (3) .

Illustration 3 g01207801

5. Attach Tooling (B) and a suitable lifting device to cover (5) . The weight of cover (5) is approximately 52 kg (115 lb).

   Note: Use a soft faced hammer in order to break the seal between cover (5) and the ring gear.

6. Remove bolts (4) , the washers, and cover (5) .

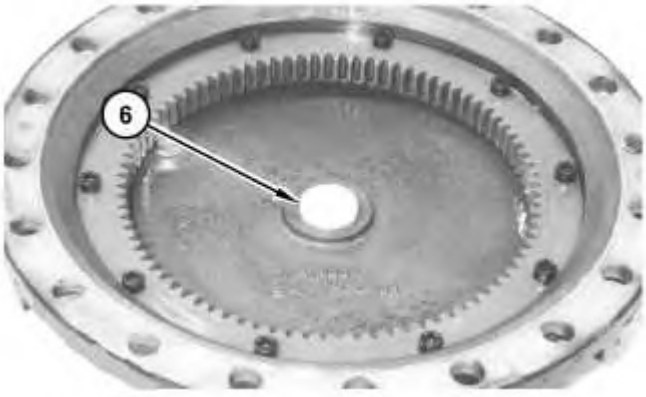

Illustration 4 g01207835

7. Remove spacer (6) .

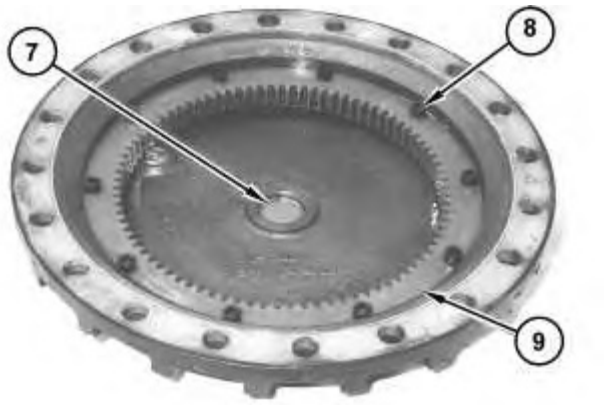

Illustration 5 g02431238

8. Remove shims (7) .
9. Remove socket head bolts (8) and ring gear (9) .

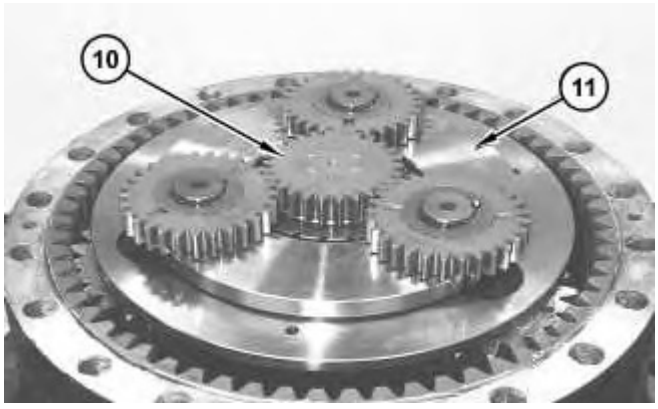

Illustration 6 g01207864

10. Remove sun gear (10) .
11. Remove carrier assembly (11) .

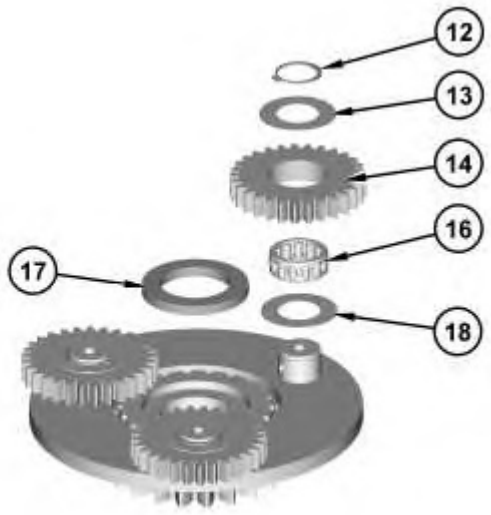

Illustration 7 g02431405

12. Remove spacer (17) .

13. Remove retaining ring (12) , thrust washer (13) , planetary gear (14) , bearing (16) , and thrust washer (18) . Repeat for the remaining planetary gears.

Illustration 8 g02431518

14. Remove retaining ring (19) and sun gear (20) from the carrier.

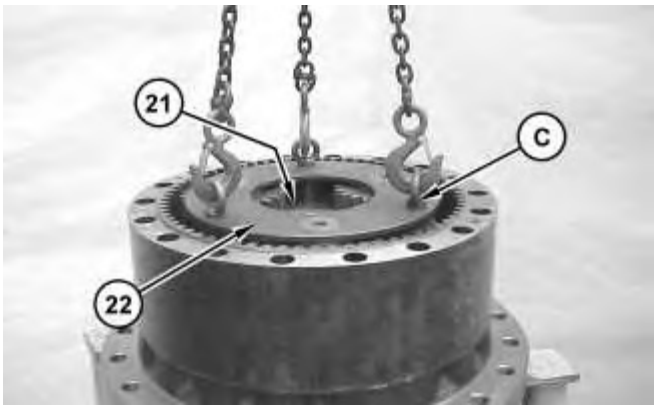

Illustration 9 g02431519

15. Remove spacer (21) .

16. Attach Tooling (C) and a suitable lifting device to carrier assembly (19) . The weight of carrier assembly (19) is approximately 45 kg (100 lb). Remove carrier assembly (22) .

Illustration 10 g02431600

17. Use a suitable punch and a suitable hammer to drive spring pin (24) into planetary shaft (23) . Remove planetary shaft (23) , thrust washer (25) , planetary gear (26) , bearing (27) , and thrust washer (28) . Remove spring pin (24) from planetary shaft (23) . Repeat for the remaining planetary gears.

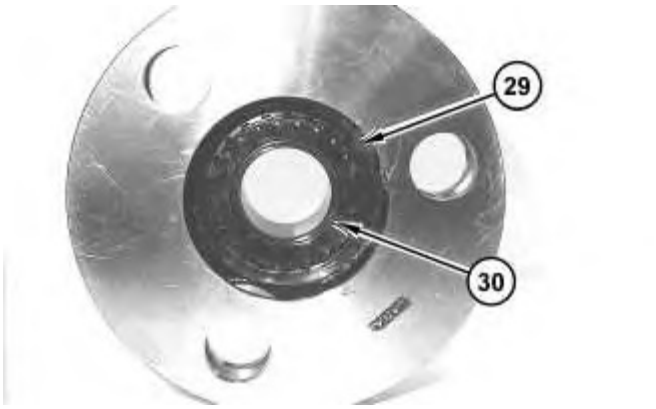

Illustration 11 g02431636

18. Remove retaining ring (29) and sun gear (30) from the carrier.

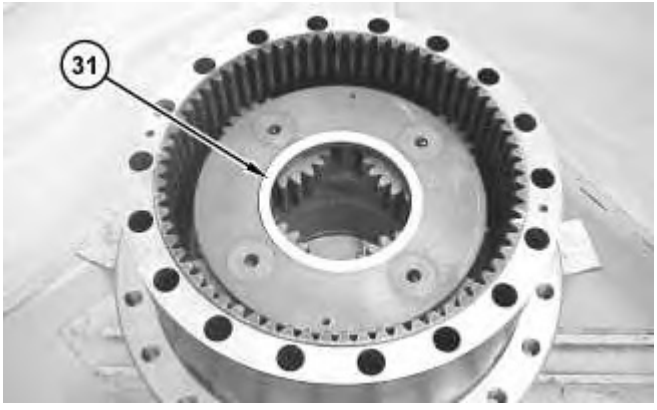

Illustration 12 g02431639

19. Remove spacer (31) .

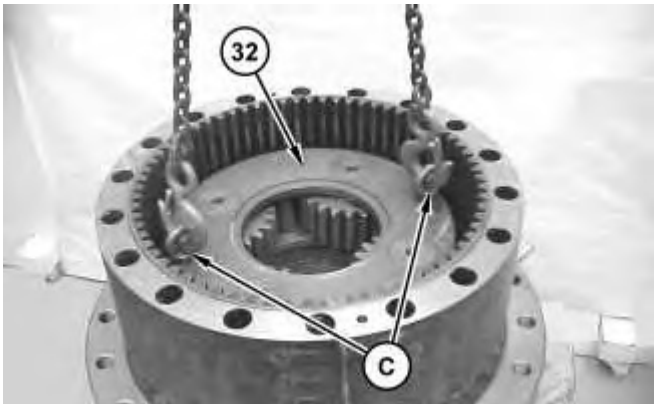

Illustration 13 g02431641

20. Attach Tooling (C) and a suitable lifting device to carrier assembly (32) . The weight of carrier assembly (32) is approximately 64 kg (140 lb). Remove carrier assembly (32) .

Illustration 14 g02431642

21. Use a suitable punch and a suitable hammer to drive spring pin (34) into planetary shaft (33) . Remove planetary shaft (33) , thrust washer (35) , planetary gear (36) , bearings (37) , and thrust washer (38) . Remove spring pin (34) from planetary shaft (33) . Repeat for the remaining planetary gears.

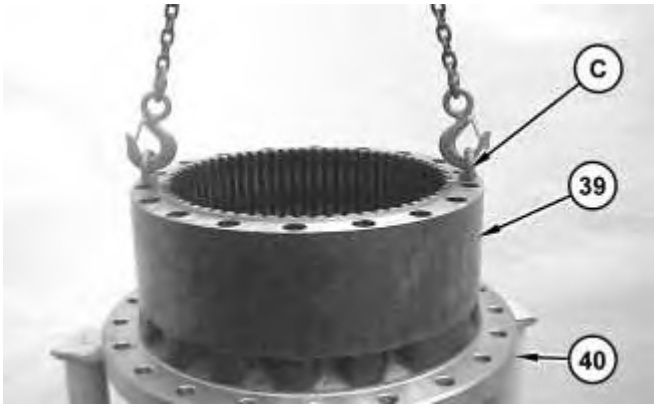

Illustration 15 g02431649

22. Attach Tooling (C) and a suitable lifting device to ring gear (39) . The weight of ring gear (39) is approximately 82 kg (180 lb). Remove ring gear (39) from sprocket housing (40) .

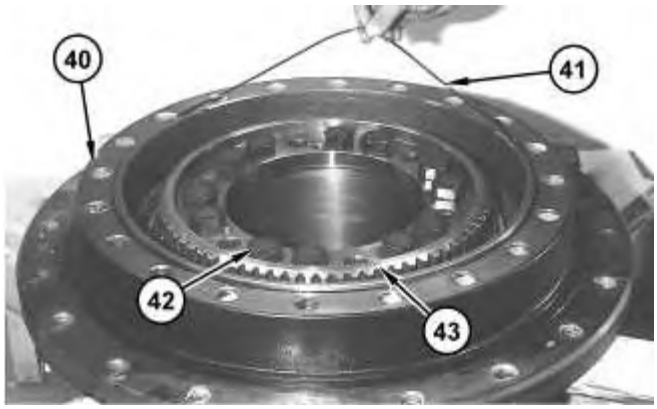

Illustration 16 g02431650

23. Remove O-ring seal (41) from sprocket housing (40) .

    Note: Mark coupling gear (43) for assembly purposes.

24. Remove bolts (42) from coupling gear (43) .

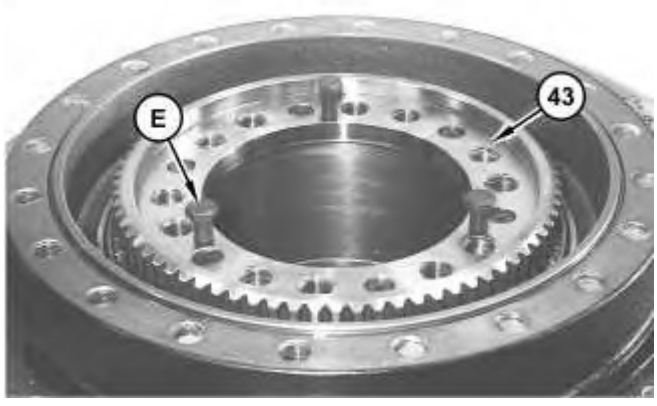

Illustration 17 g02431651

Note: Mark the orientation of coupling gear (43) for assembly purposes.

25. Use Tooling (E) to remove coupling gear (43) . Remove coupling gear (43) .

Illustration 18 g02431653

Illustration 19 g02431654

26. Remove shims (44) from the motor housing.

27. Attach Tooling (D) and a suitable lifting device to sprocket housing (40) . The weight of sprocket housing (40) is 127 kg (280 lb). Remove the sprocket housing (40) and bearing cone (45) .

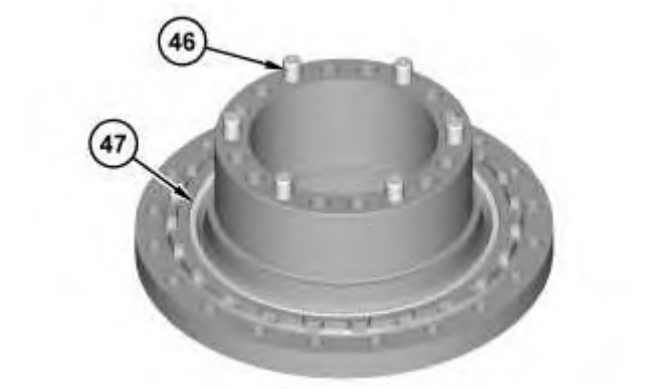

Illustration 20 g02431676

28. If necessary, remove dowel pins (46) .
29. Remove Duo-Cone seal (47) from the motor housing.

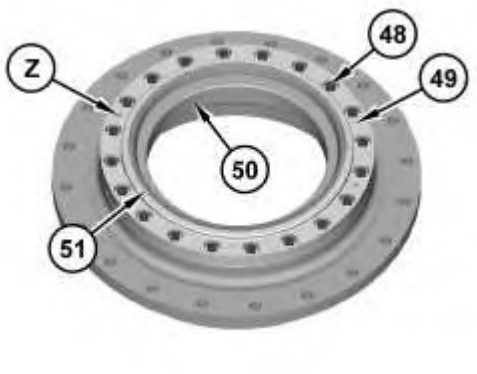

Illustration 21 g02431677

30. Remove Duo-Cone seal (51) from the sprocket housing.
31. Remove bolts (48) . Use Tooling (E) in Holes (Z) to remove plate (49) . Remove plate (49) .
32. Remove bearing cone (50) .

Illustration 22 g02431679

33. Remove bearing cups (52) from the sprocket housing.
34. Remove O-ring seal (53) .

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Configuration: 349E L-VG Excavators DGE00001-UP (MACHINE) POWERED BY C13 Engine

Disassembly and Assembly
349E Excavator Machine Systems
Media Number -KENR9848-04 **Publication Date -01/10/2012** **Date Updated -23/10/2012**

i07287647

Final Drive - Assemble

SMCS - 4050-016

Specifications

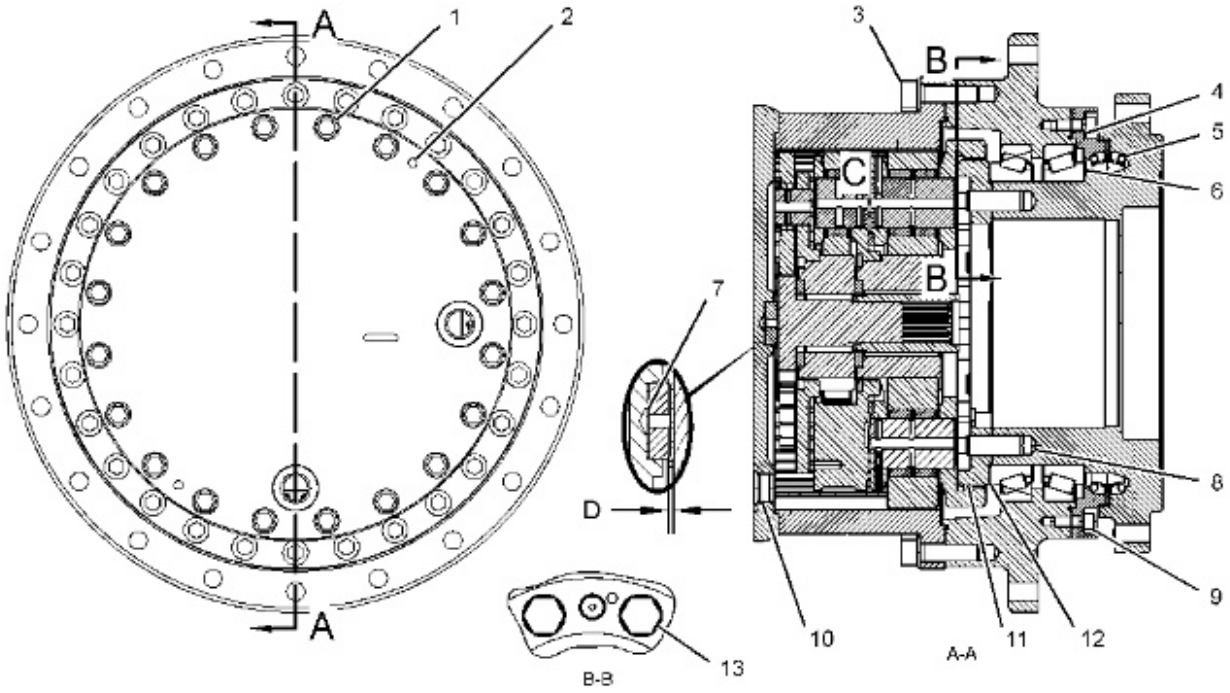


Illustration 1 g03844910

Table 1

Specification for 480-7429 Final Drive Gp			
Item	**Qty**	**Part**	**Specification Description**
1	20		

		143-0811 Bolt	Before assembly, the contact surfaces of the bolts, the washers, and the tightened parts must be clean and free from protective coating and oil. Torque to 120 ± 20 N·m (89 ± 15 lb ft).
2	2	**096-3216** Socket Setscrew	Before assembly, apply blue Loctite 243 to the threads. Torque to 105 ± 20 N·m (77 ± 15 lb ft).
3	28	**7Y-5217** Bolt	Torque to 530 ± 70 N·m (391 ± 52 lb ft).
4	2	**2R-0525** Bearing Cup	Apply Loctite C5A Copper Anti-Seize to the inside diameter and outside diameter of the mating parts.
5	1	**255-2272** Duo-Cone Seal Gp	Rubber toric seals and all surfaces in contact with the seals must be clean and dry at assembly. Apply a thin layer of **6V-4876** Lubricant on the surfaces of the metal seals that are in contact just before installation. The metal seal must be assembled square with the bore. The rubber toric seals must not bulge. The rubber toric seals must not be twisted.
6	2	**346-5556** Bearing Cone	Apply Loctite C5A Copper Anti-Seize to the inside diameter and outside diameter of the mating parts.
7	1	**7Y-0808** Shim	As required, use the following shim to adjust the clearance (D) from 1.0 to 2.6 mm (0.04 to 0.10 inch). Thickness is 1.6 (0.06 inch).
8	6	**114-1541** Dowel Pin	Before assembly, apply Loctite C5A Copper Anti-Seize to the inside diameter and outside diameter of the mating parts.
9	20	**6V-8200** Bolt	Torque to 105 ± 20 N·m (77 ± 15 lb ft).
10	2	**3E-2338** Pipe Plug	Torque to 80 ± 10 N·m (59 ± 7 lb ft).
12	As required, use the following shims. If two shims are required, install the thinner shim next to coupling gear (11).		
	1	**7Y-1472** Shim	Thickness is 0.15 ± 0.03 mm (0.006 ± 0.001 inch).
	1	**7Y-1473** Shim	Thickness is 0.30 ± 0.04 mm (0.012 ± 0.002 inch).
	1	**7Y-1474** Shim	Thickness is 0.40 ± 0.05 mm (0.016 ± 0.002 inch).
	1	**7Y-1475** Shim	Thickness is 0.50 ± 0.05 mm (0.020 ± 0.002 inch).
	1	**7Y-1476** Shim	Thickness is 0.60 ± 0.06 mm (0.024 ± 0.002 inch).
	1		Thickness is 0.70 ± 0.06 mm (0.028 ± 0.002 inch).

		7Y-1477 Shim	
	1	**7Y-1478** Shim	Thickness is 0.80 ± 0.07 mm (0.031 ± 0.003 inch).
	1	**7Y-1479** Shim	Thickness is 1.00 ± 0.08 mm (0.039 ± 0.003 inch).
	1	**7Y-1480** Shim	Thickness is 1.60 ± 0.10 mm (0.063 ± 0.004 inch).
13	12	**6V-8133** Bolt	Before assembly, the contact surfaces of the bolts, the washers, and the tightened parts must be clean and free from protective coating and oil. Apply blue Loctite 243 to the threads. Torque to 900 ± 100 N·m (664 ± 74 lb ft).

Assembly Procedure

Table 2

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	1P-2420	Transmission Repair Stand	1
B	138-7575	Link Brackets	2
C	4C-8359	Eyebolt	3
D	138-7574	Link Brackets	2
E	8T-9206	Duo-Cone Seal Installer As	1
F	5P-3931	Anti-Seize Compound	-
G	-	Loctite 242	-
H	-	Loctite High Flex GM	-
J	6V-2012	Depth Micrometer	1
K	-	Bar Stock 2 inch x 2 inch by 17 inch	1
L	6V-7059	Micrometer	1

Illustration 2 g02431679

1. Apply Tooling (F) to the outside surface of bearing cups (52). Install bearing cups (52). Make sure that bearing cups (52) are properly seated.
2. Install O-ring seal (53).

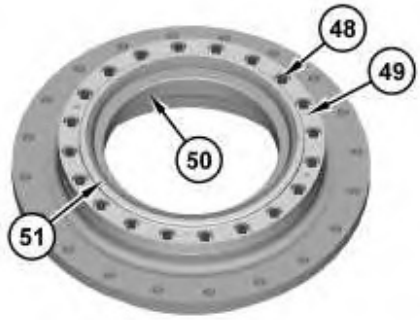


Illustration 3 g02431696

3. Apply Tooling (F) to the inside surface of bearing cone (50). Install bearing cone (50).

   Note: Make sure the contact surfaces of bolts (48) and plate (49) are free of oil and debris.

4. Install plate (49) and bolts (48).
5. Use Tooling (E) to install Duo-Cone seal (51). Install Duo-Cone seal (51).

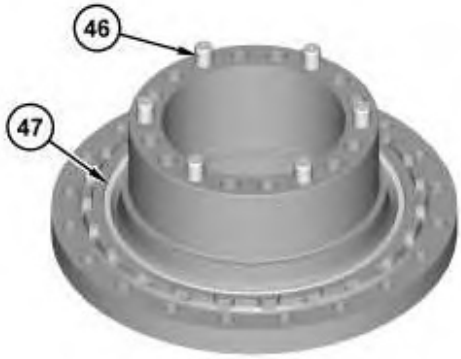


Illustration 4 g02431676

6. Apply Tooling (F) to dowel pins (46). Install dowel pins (46).
7. Use Tooling (E) to install Duo-Cone seal (47). Install Duo-Cone seal (47).

Illustration 5 g02431654

8. Attach Tooling (D) and a suitable lifting device to sprocket housing (40). The weight of sprocket housing (40) is 127 kg (280 lb). Install sprocket housing (40).
9. Apply Tooling (F) to the outside surface of bearing cone (45). Install bearing cone (45).

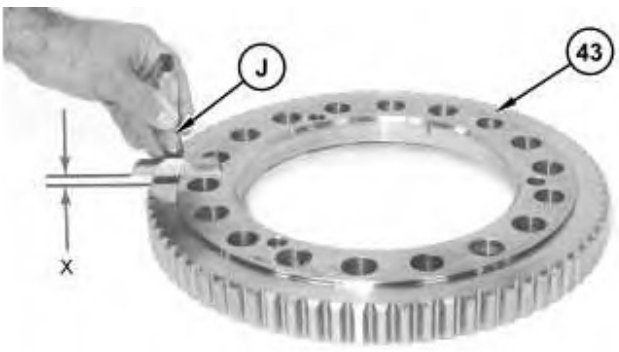


Illustration 6 g02433384

10. Use Tooling (J) to measure Dimension (X) on coupling gear (43). Record Dimension (X).

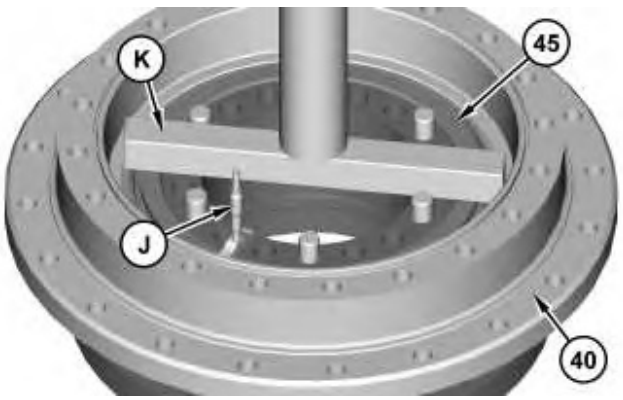


Illustration 7 g02433416

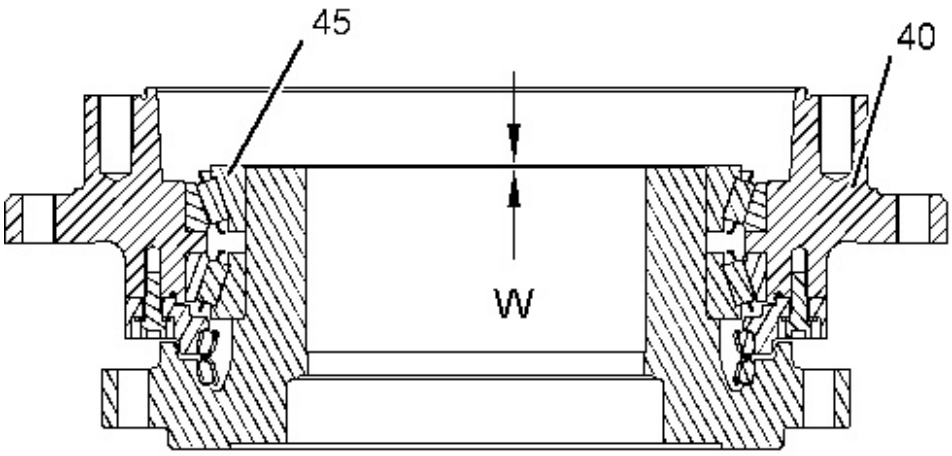


Illustration 8 g02433419

11. Use Tooling (K) and a suitable press to apply force to bearing cone (45). Apply a force of 10000 kg (22045 lb) to the top of Tooling (K). Rotate sprocket housing (40) to seat the bearings.

12. Reduce the force on top of Tooling (K) to 3500 ± 350 kg (7715 ± 770 lb). Use Tooling (J) to measure Dimension (W). Record Dimension (W).

Illustration 9 g02431653

13. Subtract Dimension (W) from Dimension (X) and record the difference as Dimension (V). The correct shim thickness is Dimension (V). Use Tooling (L) to measure the correct thickness of shims (44). The tolerance of Dimension (V) is 0 ± 0.05 mm (0 ± 0.002 inch). Install shims (44).

    Note: Use a maximum of two shims (44). If two shims (44) are used to achieve the proper dimension, install the thinner of the two shims toward the coupling gear.

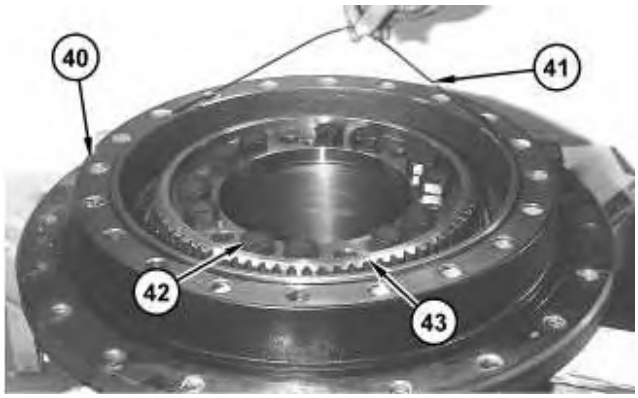


Illustration 10 g02431650

14. Apply Tooling (G) to the threads of bolts (42) Tighten bolts (42) evenly and tighten the bolts in crisscross pattern. Install coupling gear (43) and bolts (42). Tighten bolts (42) to a torque of 900 ± 100 N·m (665 ± 75 lb ft).

15. Install O-ring seal (41) on sprocket housing (40).

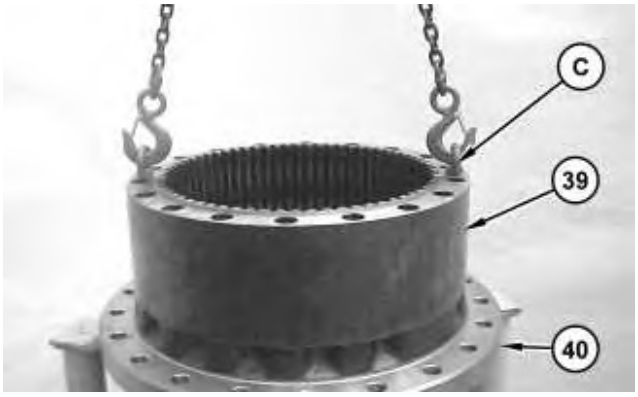


Illustration 11 g02431649

16. Thoroughly clean the mating surface of sprocket housing (40) and ring gear (39).

17. Apply Tooling (H) on the mating surface of ring gear (39). Attach Tooling (C) and a suitable lifting device to ring gear (39). The weight of ring gear (39) is approximately 82 kg (180 lb). Install ring gear (39).

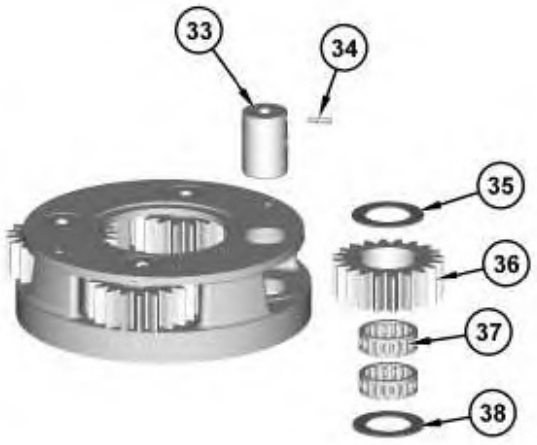


Illustration 12 g02431642

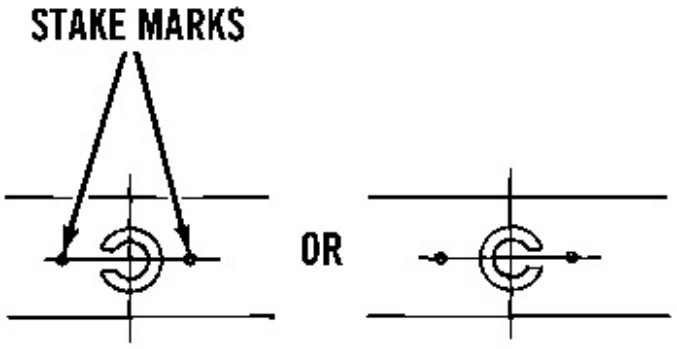


Illustration 13 g00513451

18. Install thrust washer (38), bearings (37), planetary gear (36), thrust washer (35), planetary shaft (33). Install spring pin (34) even with the outside surface of the carrier. Orient the split in the spring pin horizontally to the carrier. Use a suitable punch and a suitable hammer to install spring pin (34). Make a stake mark on each side of the spring pin hole in the carrier. Each stake mark should be approximately 1.5 to 3.00 mm (0.59 to 0.118 inch) from the spring pin hole. Repeat for the remaining planetary gears.

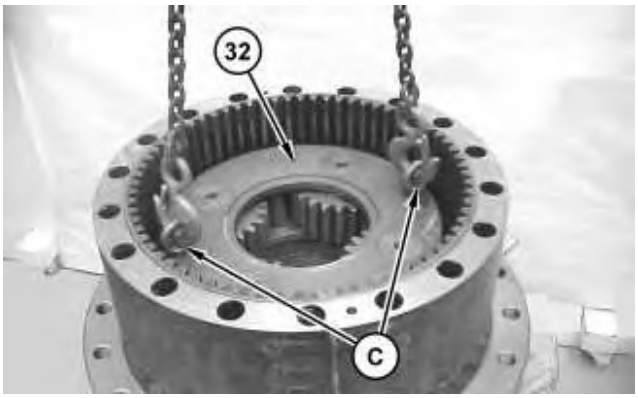


Illustration 14 g02431641

19. Attach Tooling (C) and a suitable lifting device to carrier assembly (32). The weight of carrier assembly (32) is approximately 64 kg (140 lb). Remove carrier assembly (32).

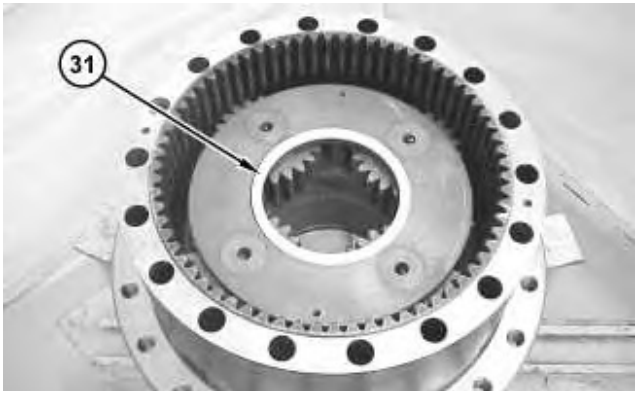


Illustration 15 g02431639

20. Install spacer (31).

Illustration 16 g02431636

21. Install sun gear (30) and retaining ring (29).

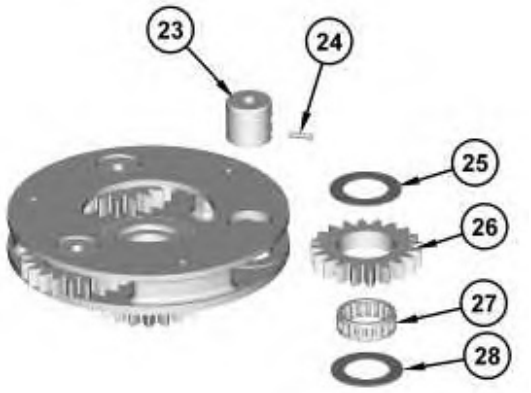


Illustration 17 g02431600

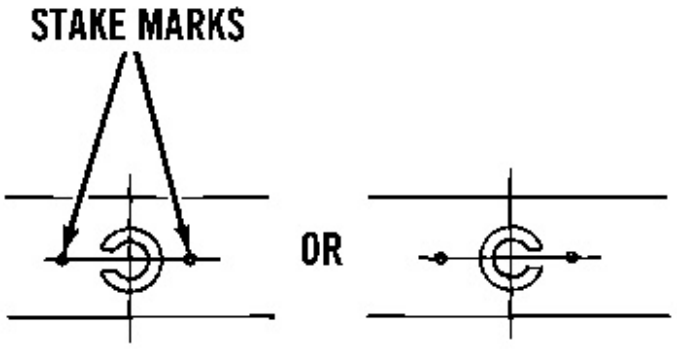


Illustration 18 g00513451

22. Install thrust washer (28), bearing (27), planetary gear (26), thrust washer (25), planetary shaft (23). Install spring pin (24) even with the outside surface of the carrier. Orient the split in the spring pin horizontally to the carrier. Use a suitable punch and a suitable hammer to install spring pin (24). Make a stake mark on each side of the spring pin hole in the carrier. Each stake mark should be approximately 1.5 to 3.00 mm (0.59 to 0.118 inch) from the spring pin hole. Repeat for the remaining planetary gears.

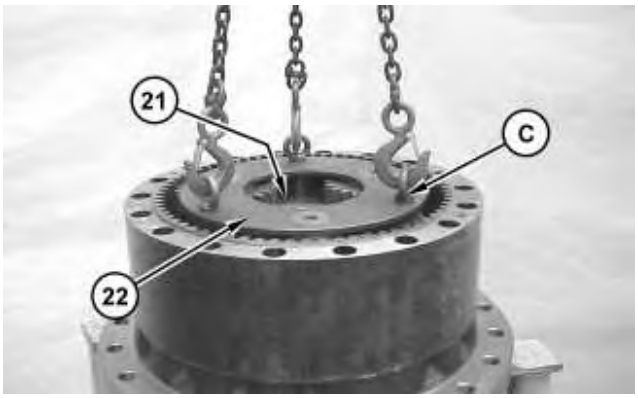


Illustration 19 g02431519

23. Attach Tooling (C) and a suitable lifting device to carrier assembly (22). The weight of carrier assembly (22) is approximately 45 kg (100 lb). Install carrier assembly (22).

24. Install spacer (21).

Illustration 20 g02431518

25. Install sun gear (20) and retaining ring (19).

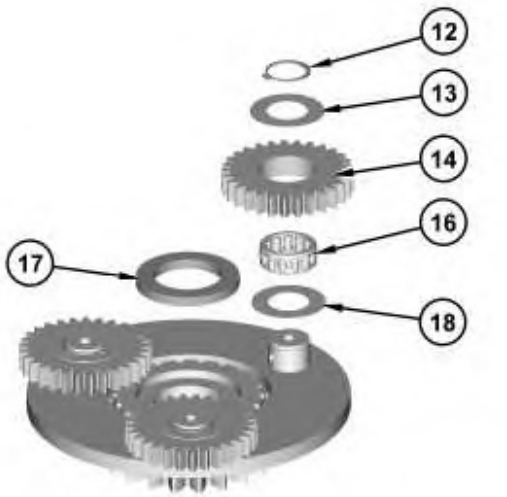


Illustration 21 g02431405

26. Install thrust washer (18), bearing (16), planetary gear (14), thrust washer (13), and retaining ring (12). Repeat for the remaining planetary gears.

27. Install spacer (17).

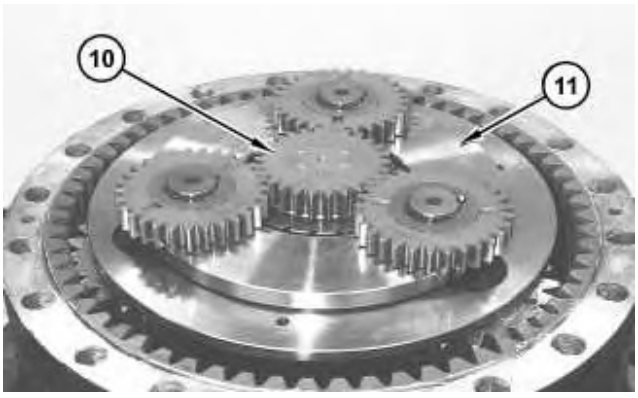


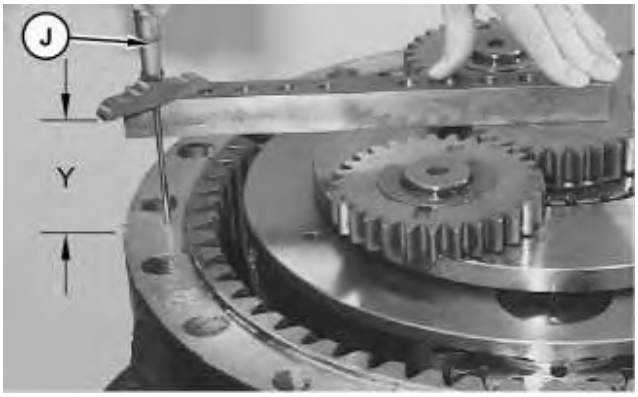
Illustration 22 g01207864

28. Install carrier assembly (11).

29. Install sun gear (10).

Illustration 23 g02433426

30. Install ring gear (9) and socket head bolts (8).



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to download the complete manual.

Thank you so much for reading

Illustration 24 g02433423

31. Use a suitable straight edge and Tooling (J) to measure Dimension (Y). Subtract the thickness of the suitable straight edge from Dimension (Y) and record this measurement as Dimension (R).

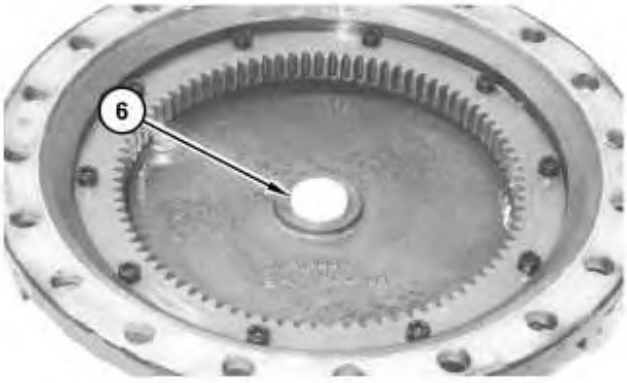

Illustration 25 g01207835

32. Install spacer (6).

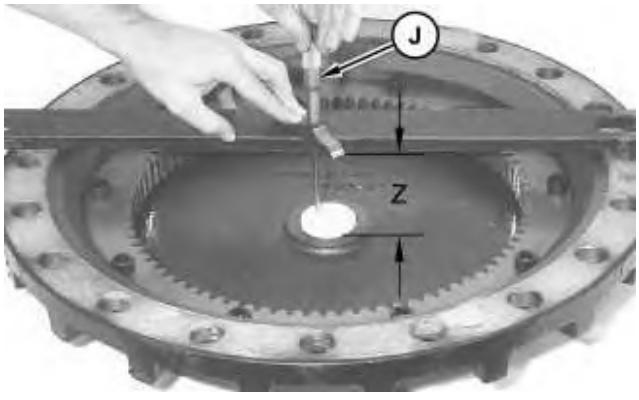

Illustration 26 g02433424

33. Use a suitable straight edge and Tooling (J) to measure Dimension (Z). Subtract the thickness of the suitable straight edge from Dimension (Z) and record this measurement as Dimension (S).