



Service Repair Manual

Models

326F and 326F L Excavator

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Product: EXCAVATOR

Model: 326F EXCAVATOR EBK

Configuration: 326F L Excavators EBK00001-UP (MACHINE) POWERED BY C7.1 Engine

Disassembly and Assembly 326F, 329F and 330F Excavators Machine Systems

Media Number -UENR3313-07

Publication Date -01/09/2015

Date Updated -12/09/2018

i05436085

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	138-7573	Link Bracket	2
C	1P-1863	Retaining Ring Pliers	1
D	138-7575	Link Bracket	3
E	4C-8359	Eyebolt	2
F	138-7574	Link Bracket	2
G	138-7576	Link Bracket	2
H	154-6181	Forcing Screw	3

Start By:

- a. Remove the final drive.
 1. Put an alignment mark across the sections of the final drive for assembly purposes. The parts must be reinstalled to the original locations.
-



Illustration 1

g00892878

2. Use Tooling (G) and a suitable lifting device to position the final drive assembly onto Tooling (A). The weight of the final drive assembly is approximately 550 kg (1200 lb).
3. Remove bolts (1).

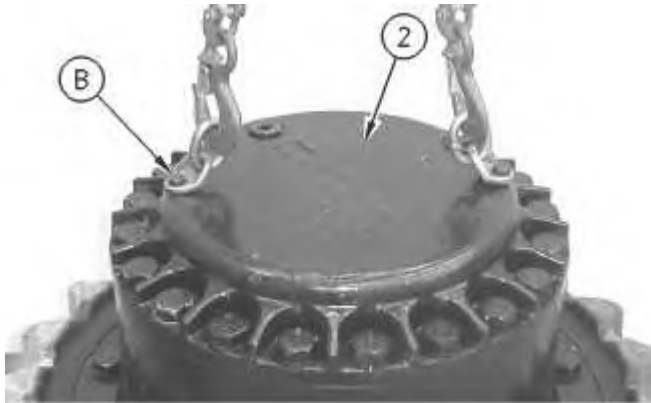


Illustration 2

g00892883

4. Use Tooling (B) and a suitable lifting device to remove cover (2). The weight of cover (2) is approximately 32 kg (70 lb).



Illustration 3

g00892888

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- Remove bolts (3) and gear (4). Check plate (6). Replace plate (6) if plate (6) is worn. Remove plugs (5) from cover (2).

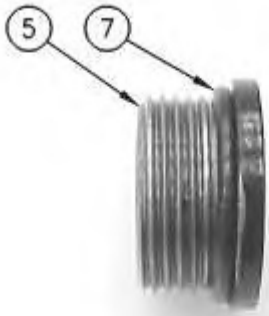


Illustration 4

g00892906

- Remove O-ring seals (7) from plugs (5).



Illustration 5

g00892930

- Remove gear (8) and spacer (9).



Illustration 6

g00892965

8. Use Tooling (C) to remove retaining ring (10). Remove washer (11) and gear (12). Remove bearing assembly (13) and washer (14).
9. Repeat Step 8 for the other two gear assemblies.

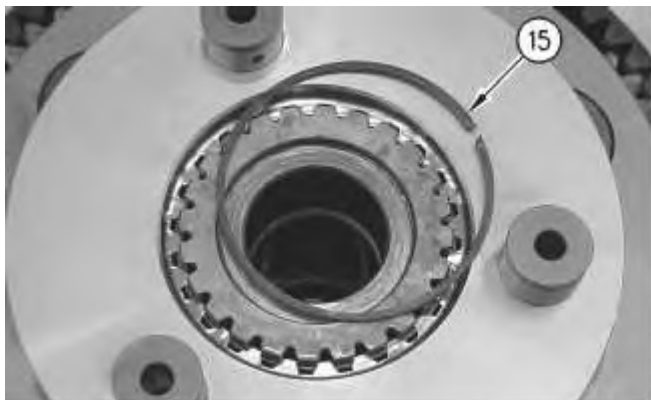


Illustration 7

g00892968

10. Remove retaining ring (15).



Illustration 8

g00892975

11. Remove carrier assembly (16).
-

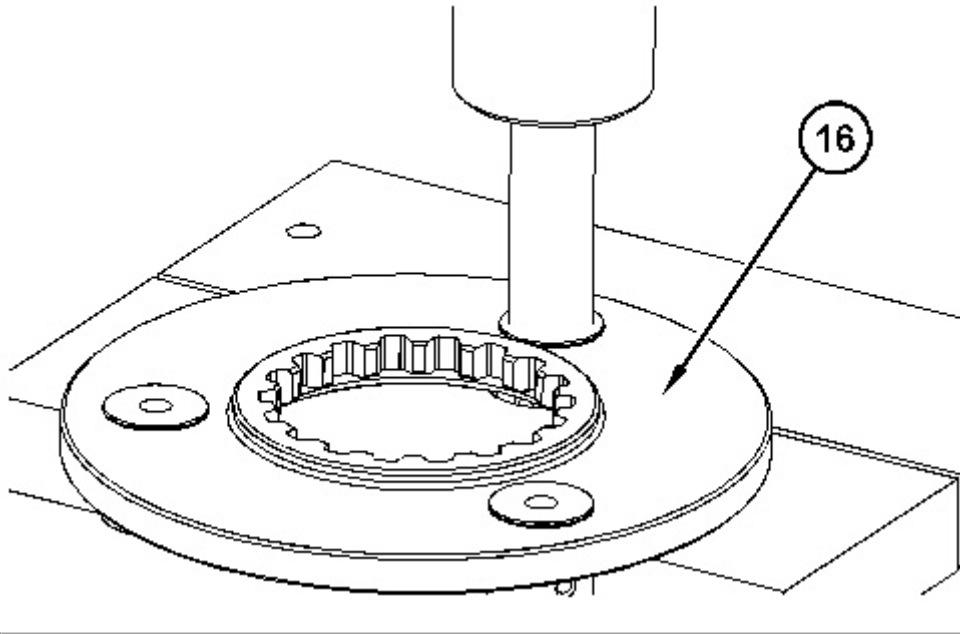


Illustration 9

g02408860

12. Use a suitable press to remove the shafts from carrier assembly (16).

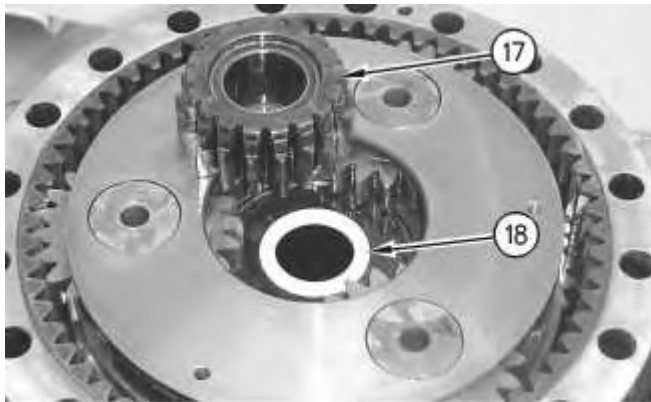


Illustration 10

g00892977

13. Remove gear (17) and spacer (18).

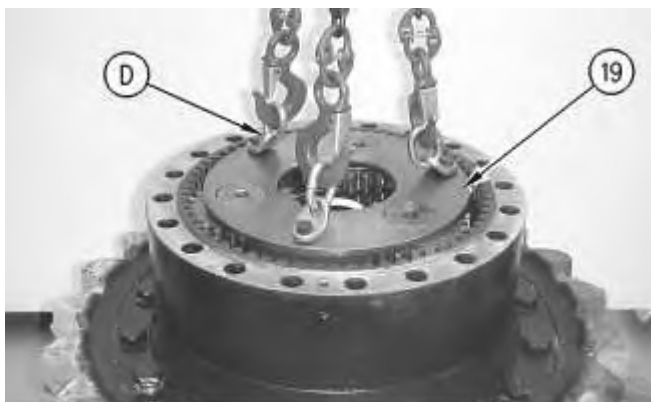


Illustration 11

g00892997

14. Use Tooling (D) and a suitable lifting device to remove planetary carrier (19). The weight of planetary carrier (19) is approximately 48 kg (105 lb).

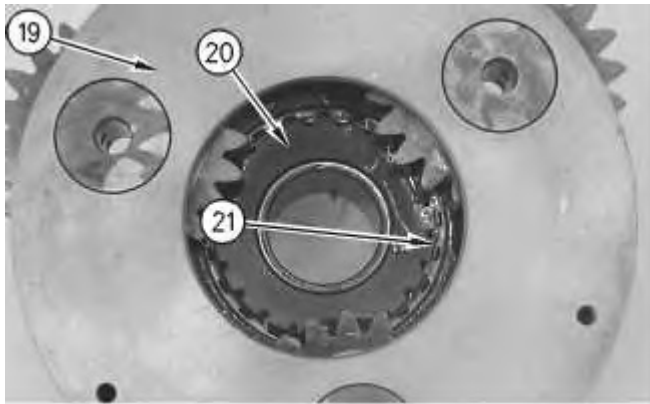


Illustration 12

g00893019

15. Remove retaining ring (21). Lift planetary carrier (19) off sun gear (20).



Illustration 13

g00896860

16. Drive spring pin (23) into planetary shaft (22).



Illustration 14

g00893043

17. Remove planetary shaft (22). Use a suitable punch to remove spring pin (23) from planetary shaft (22).

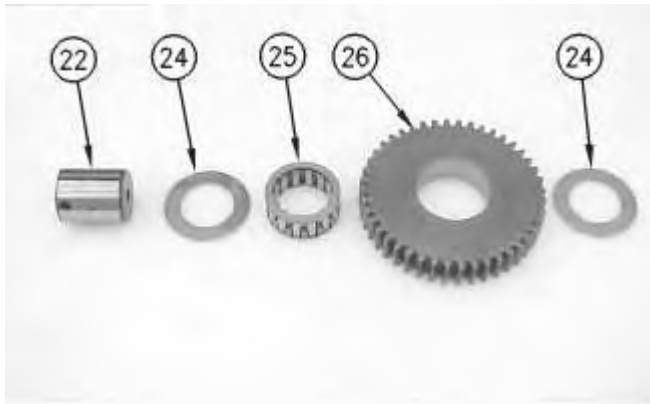


Illustration 15

g00896863

18. Remove washers (24) and bearing (25) from planetary gear (26).
19. Repeat Steps 16 through 18 for the other two planetary gears.

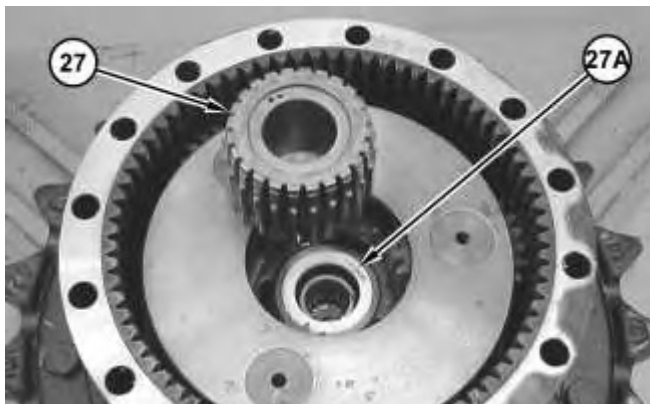


Illustration 16

g01842853

20. Remove gear (27). Remove spacer (27A).



Illustration 17

g01842974

21. Use two people to remove carrier assembly (28). The weight of carrier assembly (28) is approximately 38 kg (85 lb).



Illustration 18

g01843140

22. Drive spring pin (30) into shaft (29).



Illustration 19

g00893658

23. Remove shaft (29). Use a suitable punch to remove spring pin (30) from shaft (29).

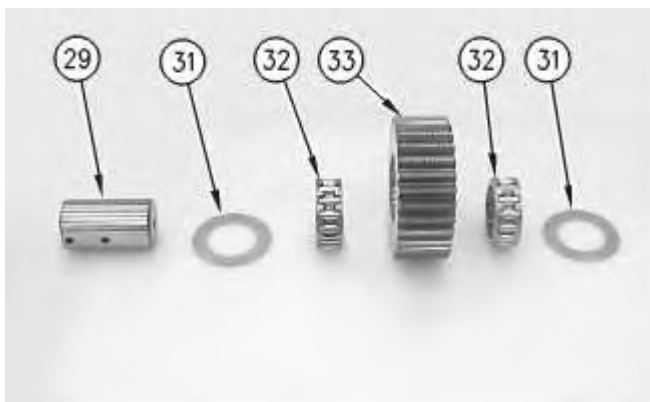


Illustration 20

g00893674

24. Remove washers (31) and bearings (32) from planetary gear (33).

25. Repeat Steps 22 through 24 for the other three planetary gears.



Illustration 21

g01208300

26. Fasten Tooling (E) and a suitable lifting device to ring gear (34), as shown. Remove ring gear (34) from sprocket housing (35). The weight of ring gear (34) is approximately 66 kg (146 lb).

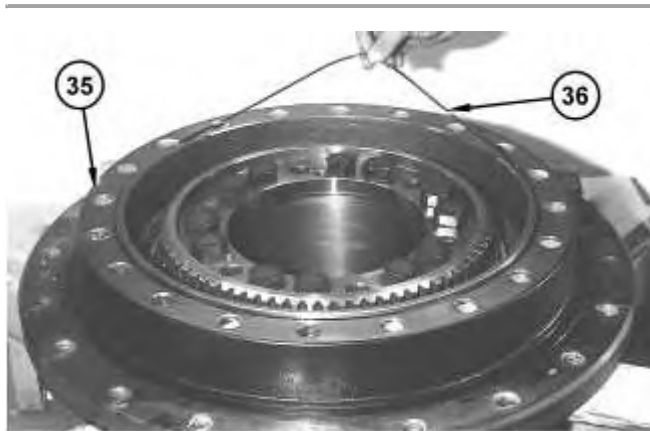


Illustration 22

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27. Remove O-ring seal (36) from sprocket housing (35).

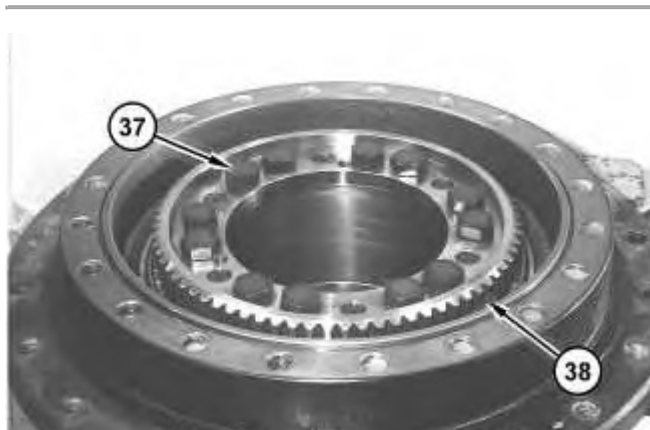


Illustration 23

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28. Remove bolts (37) from coupling gear (38).

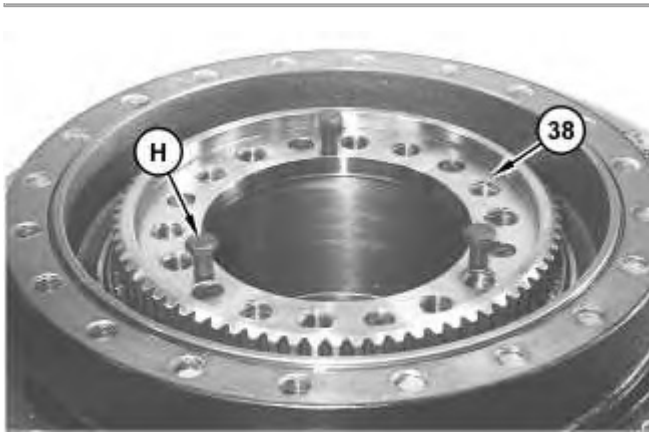


Illustration 24

g03431447

29. Install Tooling (H) in coupling gear (38). Tighten the Tooling (H) evenly in order to loosen coupling gear (38). Remove the coupling gear from the motor housing.



Illustration 25

g01208578



Illustration 26

g01208625

30. Remove shims (40) from the motor housing.

Note: Inner cones and outer bearing cones (42) and (44) are a slip fit on the motor housing. While you remove sprocket housing (35) from the motor housing, inner bearing cone (42) and outer bearing cones (44) may stay with the sprocket housing or the inner bearing cone may stay on the motor housing.

31. Fasten Tooling (F) and a suitable lifting device to sprocket housing (35). Separate the sprocket housing from the motor housing. The weight of sprocket housing (35) is approximately 109 kg (240 lb).



Illustration 27

g01208626

32. Remove the locating pins from the motor housing.
33. Remove Duo-Cone seal (41) from the motor housing.
34. If inner bearing cone (42) remained on the motor housing, then remove the inner bearing cone.



Illustration 28

g03431456

35. Remove Duo-Cone seal (43) from the sprocket housing.
 36. If outer bearing cone (44) remained on the sprocket housing, then remove the outer bearing cone.
 37. Remove the bearing cups from the sprocket housing.
-

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Product: EXCAVATOR

Model: 326F EXCAVATOR EBK

Configuration: 326F L Excavators EBK00001-UP (MACHINE) POWERED BY C7.1 Engine

Disassembly and Assembly 326F, 329F and 330F Excavators Machine Systems

Media Number -UENR3313-07

Publication Date -01/09/2015

Date Updated -12/09/2018

i07332931

Final Drive - Assemble

SMCS - 4050-016

Assembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-2420	Transmission Stand Group	1
B	138-7573	Link Bracket	2
C	1P-1863	Retaining Ring Pliers	1
D	138-7575	Link Bracket	3
E	4C-8359	Eyebolt	2
F	138-7574	Link Bracket	2
G	8T-9206	Duo-Cone Seal Installer As	1
	169-0503	Installation Kit	1
H	-	Loctite C5A Copper Antiseize	-
J	-	Loctite 242 Threadlocker	-
K	-	Loctite Highflex GM	-
L	FT-2770	Leak down Test Tool	1

1. Make sure that all parts of the final drive are thoroughly clean and free of dirt and debris prior to assembly. Check the condition of all O-ring seals that are used in the final drive. If any of the seals are damaged, use new parts for replacement. Reassemble the final drive on Tooling (A).

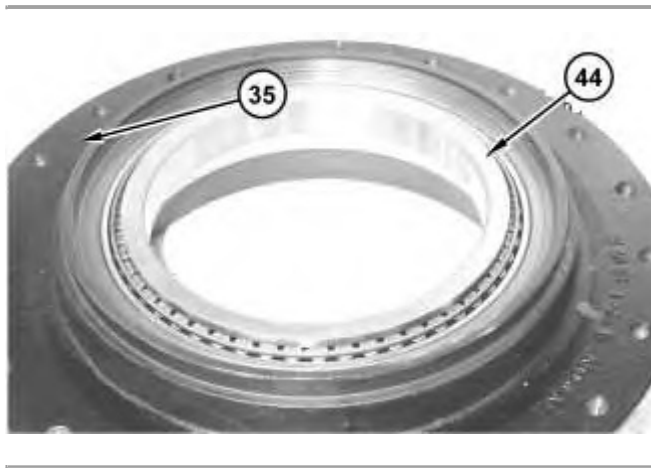


Illustration 1

g03431464

Note: New final drives are equipped with angular contact ball bearings.

2. Apply Tooling (H) to the surfaces inside sprocket housing (35) that contacts the bearing cups. Install a bearing cup that is in each side of the sprocket housing with a press. Make sure that the bearing cups are properly seated.
3. Apply Tooling (H) to the surfaces inside the sprocket housing that contacts bearing cones (44).
4. Install outer bearing cone (44) in the sprocket housing.



Illustration 2

g01208625

5. Attach Tooling (F) and a suitable lifting device to sprocket housing (35). The weight of sprocket housing (35) is approximately 109 kg (240 lb). Install sprocket housing (35) on the motor housing. Carefully install inner bearing cone (42) on the sprocket housing.
-



Illustration 3

g01208578

6. Adjust the bearing preload of the final drive. Determine the correct number of shims (40) that are required for the proper bearing preload, as follows:

Note: New final drives are equipped with angular contact ball bearings that require pre-load like the old roller bearings.



Illustration 4

g01208987

- a. Use a depth micrometer to measure the step height of coupling gear (38) at several locations around the gear. Find the average for the measured dimensions around the gear and record the dimension. Call this Dimension (X).
- b. Apply a load of 4000 kg (8820 lb) to the bearing cones.
- c. Rotate sprocket housing (35) several times to seat the bearing cones.
- d. Reduce the load to 1000 ± 100 kg (2205 ± 220 lb).



Illustration 5

g00631001

- e. With the bearing cones loaded, measure the distance between the top face of the motor housing and the top face of the bearing cone. Take measurements in several locations around the motor housing. Find the average of the measured dimensions, and record the dimensions. Call this Dimension (Y).
- f. Determine the correct thickness of the shims which are used between the bearing cones and the coupling gear . Use the following equation to determine the shim pack thickness.

Shim pack thickness ... $(Y) - (X) \pm 0.05 \text{ mm (0.002 inch)}$

Note: If two shims are required, install the thinnest shim next to the coupling gear during final assembly.



Illustration 6

g03431699

7. Attach Tooling (F) and a suitable lifting device to sprocket housing (35). Separate sprocket housing (35) from the motor housing.

Reference: Refer to Disassembly and Assembly, "Duo-Cone Conventional Seals - Install".

Note: The rubber seals and all surfaces that contacts the seals must be clean and dry. After installation of the seals, put clean SAE 30 oil on the contact surfaces of the metal seals.



Illustration 7

g00631006



Illustration 8

g01208999

8. Use Tooling (G) to install Duo-Cone seal (43) in the sprocket housing.



Illustration 9

g00631014



Illustration 10

g03431475

9. Use Tooling (G) to install Duo-Cone seal (41) in the motor housing.
10. Apply Tooling (H) in the bores for the locating pins that are in the motor housing. Reinstall the locating pins in the motor housing.



Illustration 11

g01208625

11. Make sure that inner bearing cone (42) is seated properly on the motor housing.
Note: Do not scratch Duo-Cone seal (41) or damage the Duo-Cone seal in the main housing, or the motor housing during assembly of the two components. After installation of the main housing on the motor housing, there will be a small gap between the components. The gap between the components is caused by the Duo-Cone seal. The gap will be eliminated during the installation of the coupling gear .
12. Fasten Tooling (F) and a suitable lifting device to sprocket housing (35). Carefully install the sprocket housing on the motor housing.
13. Install the outer bearing cone on the sprocket housing. Make sure that the outer bearing cone is properly seated.



Illustration 12

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14. Install shims (40) that were determined in Steps 6.a through 6.f on the end of the sprocket housing. If shims were required, make sure that the thinnest shim is installed on top.



Illustration 13

g01208553

15. Put coupling gear (38) in the original position on the motor housing.
16. Apply Tooling (J) on the threads of bolts (37) that hold coupling gear (38) in position. Tighten bolts (37) evenly and tighten the bolts in diagonally opposite pairs to a torque of $570 \pm 80 \text{ N}\cdot\text{m}$ ($420 \pm 60 \text{ lb}\cdot\text{ft}$).



Illustration 14

g01208542

17. Install O-ring seal (36) in sprocket housing (35).



Illustration 15

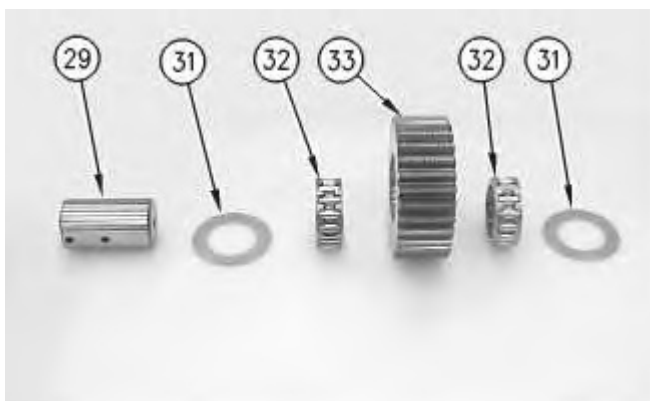
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18. Thoroughly clean the mating surface of sprocket housing (35) that contacts ring gear (34).
19. Apply a bead of Tooling (K) on the mating surface of ring gear (34).
20. Attach Tooling (E) and a suitable lifting device to ring gear (34). Put ring gear (34) in position on the sprocket housing. The weight of ring gear (34) is approximately 66 kg (146 lb). Make sure that the alignment mark upon the sprocket housing and the ring gear line with each other.



Illustration 16

g01843479



21. Assemble carrier assembly (28), as follows.
 - a. Install bearings (32) in planetary gear (33).
 - b. Install thrust washers (31) and planetary gear (33) in the carrier assembly.
 - c. Use a deburring tool to remove the metal burr from the openings in the carrier. Install planetary shaft (29) in the carrier assembly.
 - d. Drive spring pin (30) into planetary shaft (29).
-

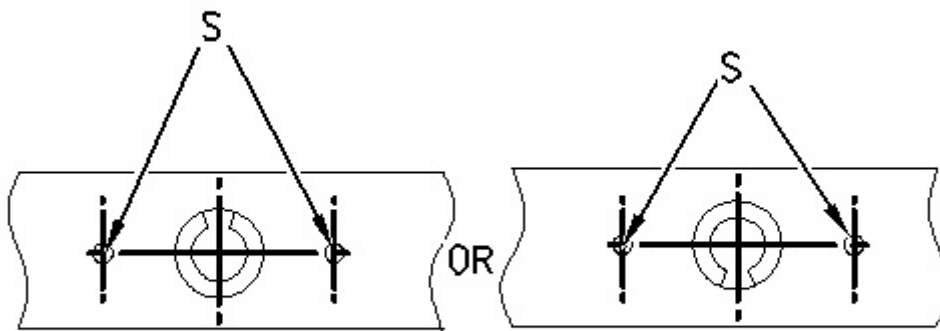


Illustration 18

g00941047

The stake mark is at position (S).

- e. Orient the split in spring pin (30) vertically to the carrier. Align the split in the spring pin to the top or to the bottom. Make a stake mark on each side of the spring pin hole in the carrier. Each stake mark should be approximately 2.25 ± 0.75 mm (0.089 ± 0.030 inch) from the outside diameter of the spring pin hole.
 22. Repeat Steps 21.a through 21.e to install the other two planetary gears in the carrier assembly.
-

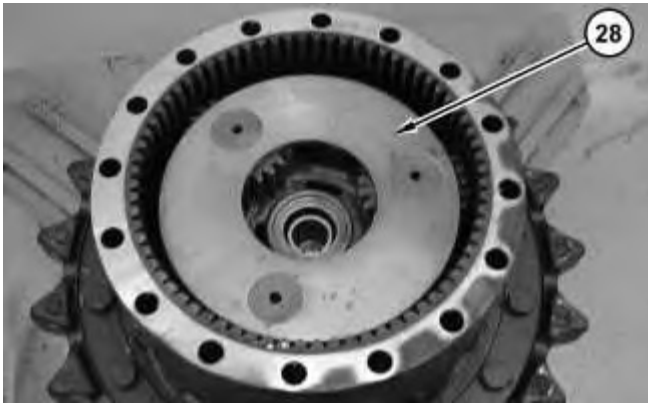


Illustration 19

g01842974

23. Use two people to install carrier assembly (28). The weight of carrier assembly (28) is approximately 38 kg (85 lb).

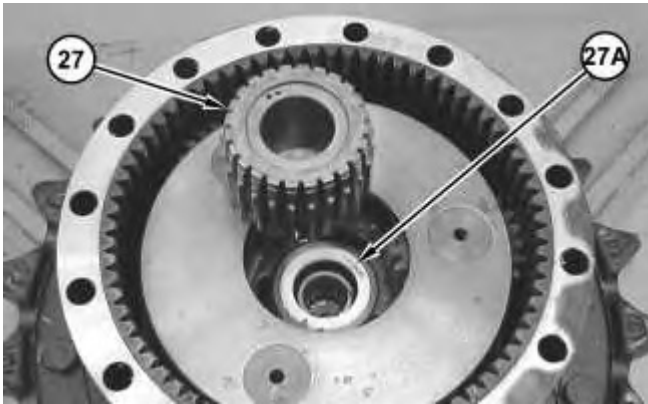


Illustration 20

g01842853

24. Install spacer (27A). Install gear (27).



Illustration 21

g00897548

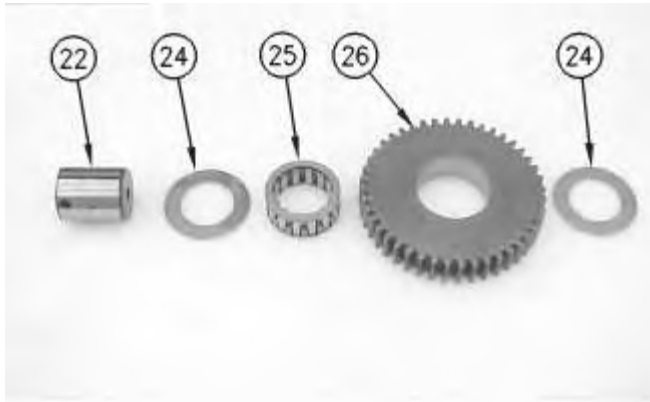


Illustration 22

g00896863

25. Assemble planetary carrier (19), as follows.
 - a. Install bearing (25) in planetary gear (26).
 - b. Install thrust washers (24) and planetary gear (26) in the planetary carrier.
 - c. Use a deburring tool to remove the metal burr from the openings in the carrier. Install planetary shaft (22) in planetary carrier (19).
 - d. Drive spring pin (23) into planetary shaft (22).

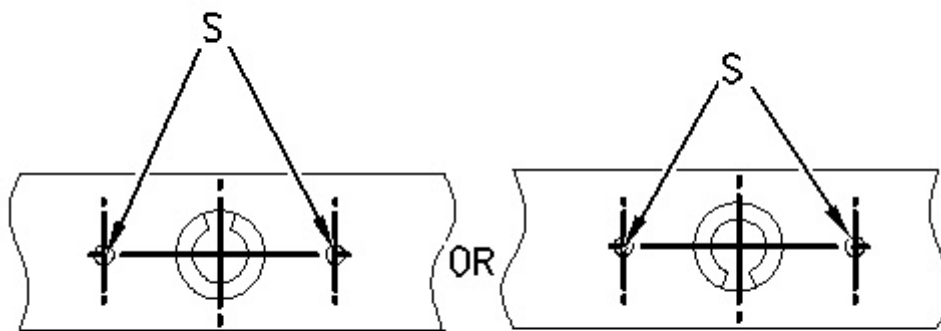


Illustration 23

g00941047

The stake mark is at position (S).

- e. Orient the split in spring pin (23) vertically to the carrier. Align the split in the spring pin to the top or to the bottom. Make a stake mark on each side of the spring pin hole in the carrier. Each stake mark should be approximately 2.25 ± 0.75 mm (0.089 ± 0.030 inch) from the outside diameter of the spring pin hole.
- f. Repeat Steps 25.a through 25.e to install the other two planetary gears in the carrier.

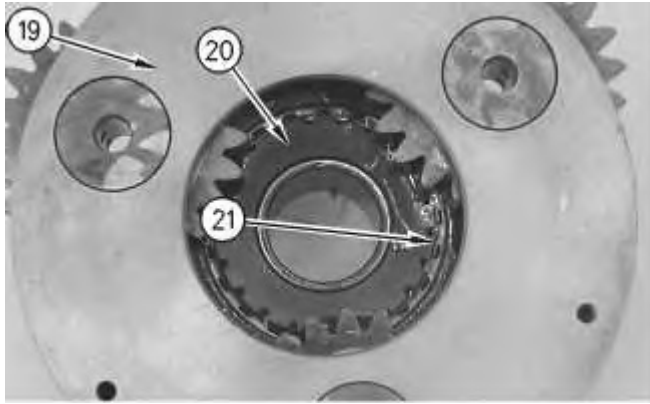


Illustration 24

g00893019

26. Position sun gear (20) in planetary carrier (19) and install retaining ring (21).

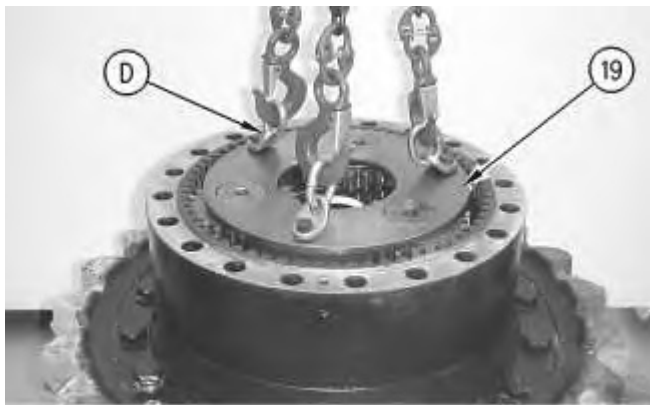


Illustration 25

g00892997

27. Use Tooling (D) and a suitable lifting device to install planetary carrier (19) into gear (34). The weight of planetary carrier (19) is approximately 48 kg (105 lb).

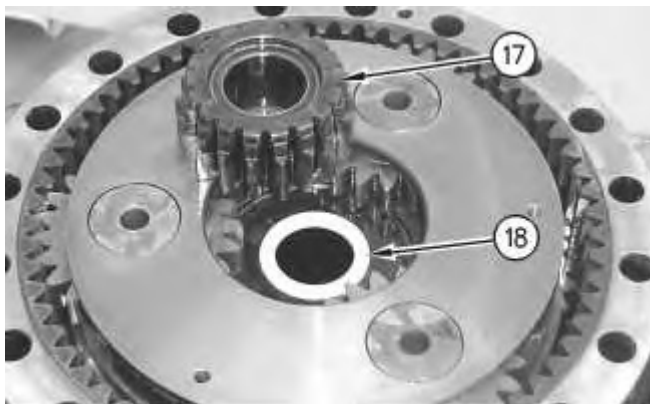


Illustration 26

g00892977

28. Install spacer (18) and gear (17).

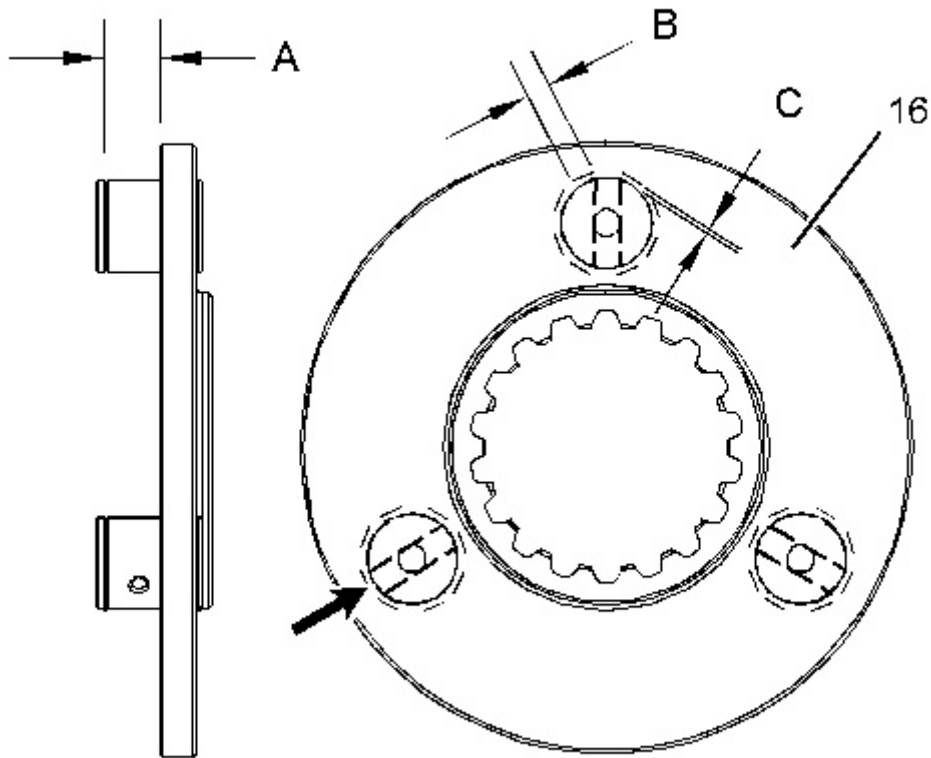


Illustration 27

g01389807

Note: Make sure that the oil passages in the shafts are oriented toward the center of carrier assembly (16).

29. Raise the temperature of carrier assembly (16). Lower the temperature of the shafts. Install the shafts into carrier assembly (16) until the groove of the shafts is at Dimension (A). Dimension (A) equals 25.00 ± 0.10 mm (0.984 ± 0.004 inch).
30. Make eight stake marks at distance of Dimension (C) from each shaft. Dimension (C) equals 2.0 ± 1.0 mm (0.08 ± 0.04 inch). The width of each stake mark should be equal to Dimension (B). Dimension (B) equals 4.0 ± 1.0 mm (0.16 ± 0.04 inch).



Illustration 28

g00892975



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31. Install carrier assembly (16).

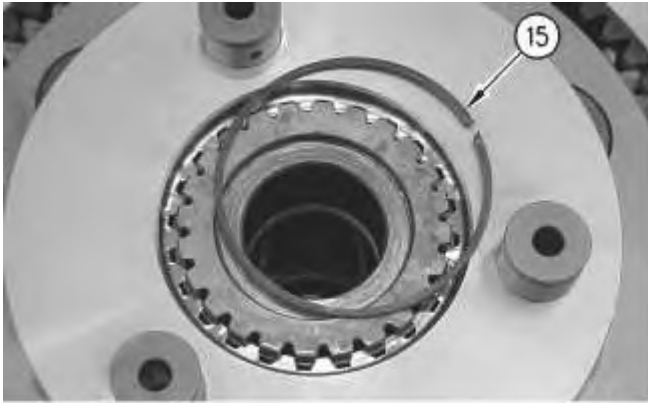


Illustration 29

g00892968

32. Install retaining ring (15).



Illustration 30

g00892965

33. Install washer (14) and bearing assembly (13). Install gear (12) and washer (11). Use Tooling (C) to install retaining ring (10).

34. Repeat Step 33 for the other two planetary gears.



Illustration 31

g00780428

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