

Product: EXCAVATOR

Model: 336E LH EXCAVATOR GNY

Configuration: 336E LH & 336E LNH (Hybrid) Excavators GNY00001-UP (MACHINE) POWERED BY C9.3 Engine

Disassembly and Assembly 336E Excavator Machine Systems

Media Number -UENR0190-01

Publication Date -01/10/2014

Date Updated -04/11/2014

i07175112

Travel Motor - Assemble

SMCS - 4351-016

Assembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1U-7506	Adapter	1
	8T-4244	Nut	6
	8T-4223	Hard Washer	6
	-	M12 x 1.75 X 250 mm (10 inch) Threaded Rod	1
C	3E-3882	Eyebolt	1
D	1P-1859	Retaining Ring Pliers	1
E	1P-0510	Driver Gp	1
	9S-9152	Bearing Puller Gp	1
F	1P-1861	Retaining Ring Pliers	1
G	-	Loctite 242	-



Illustration 1

g00887762

1. Install O-ring seal (35) onto the housing of the travel motor.



Illustration 2

g00887754

2. Install seal (34) and piston actuator (33). Lubricate the surfaces of piston actuator (33) with lubricant that is being sealed.



Illustration 3

g00887729

3. Install backup ring (32) and seal (31).

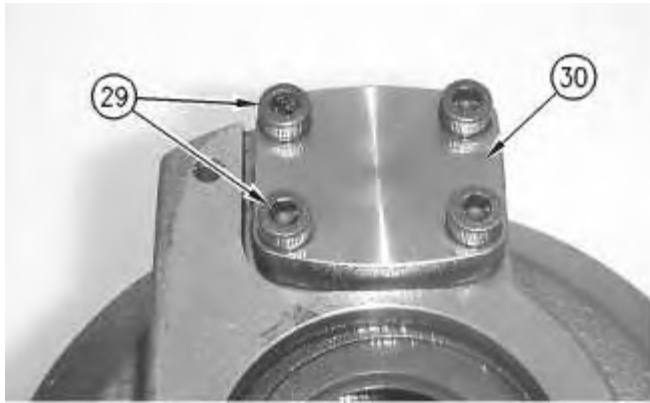


Illustration 4

g00887619

4. Install cover (30) and bolts (29). Tighten bolts (29) to a torque of 28 ± 7 N·m (21 ± 5 lb ft).



Illustration 5

g00887589

5. Apply Tooling (G) to the mating surface of lip seal (28). Use Tooling (E) to install lip seal (28). Lubricate the sealing lip of lip seal (28) with lubricant that is being sealed.
6. Use Tooling (F) to install retaining ring (27).

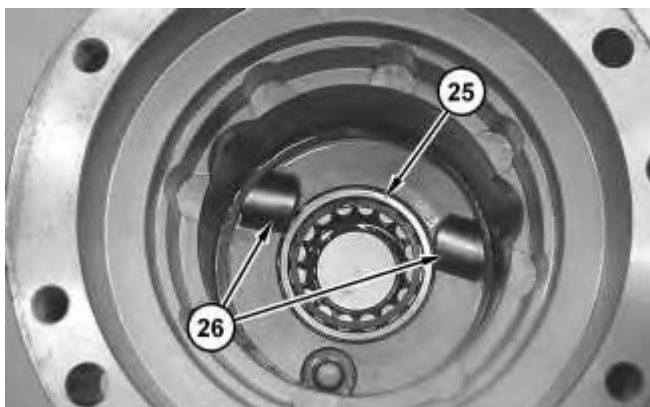


Illustration 6

g02107975

7. Rotate the housing.

8. Install keys (26) and locating pins (not shown) into the body of the travel motor.
9. Install bearing (25).



Illustration 7

g00887558



WARNING

Improper assembly of parts that are spring loaded can cause bodily injury.

To prevent possible injury, follow the established assembly procedure and wear protective equipment.

10. Install springs (24) into the barrel assembly. Install ball (23) onto springs (24). Lubricate ball (23) with lubricant that is being sealed.



Illustration 8

g00887520

11. Lubricate the piston assemblies with lubricant that is being sealed. Install piston assemblies and retainer plate (22) into barrel assembly (21).

Note: Take note of the mark on the piston assembly and the barrel assembly. The pistons must be returned to the same position.

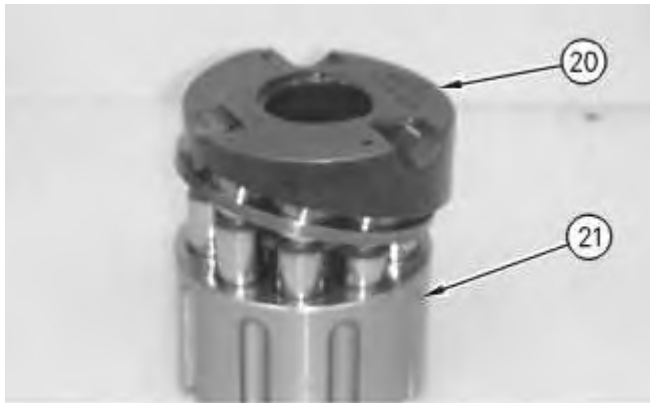


Illustration 9

g00887501

12. Lubricate cam plate (20) with lubricant that is being sealed. Install cam plate (20) onto barrel assembly (21).

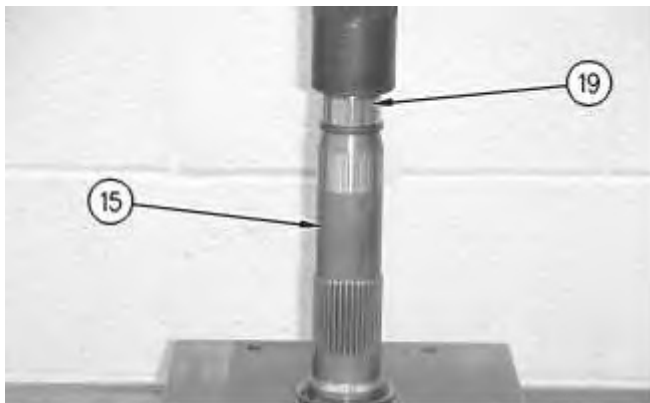


Illustration 10

g00888697

13. Install shaft (15) into a suitable press. Install bearing race (17) onto shaft (15).

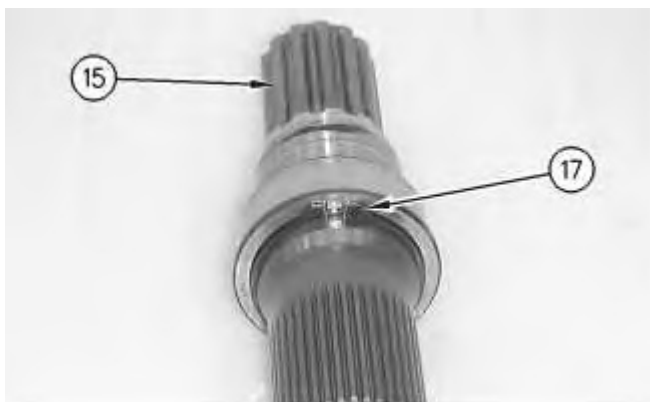


Illustration 11

g00887426

14. Rotate shaft (15) in the suitable press. Use Tooling (D) to install retaining ring (17) onto shaft (15).

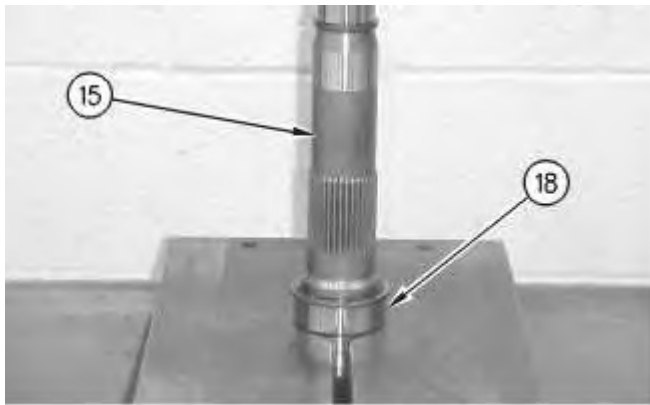


Illustration 12

g00888710

15. Install bearing race (18) onto shaft (15).

Note: Bearing race (18) must contact retaining ring (17).

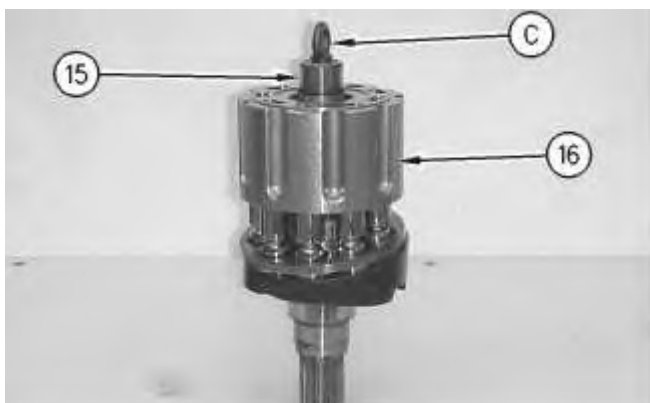


Illustration 13

g00887405

16. Install Tooling (C) into shaft (15). Install shaft (15) into rotating assembly (16).

17. Place the pump housing into Tooling (A).

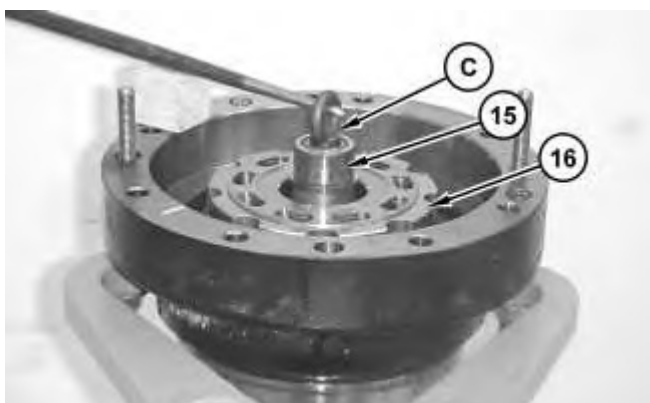


Illustration 14

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18. Use Tooling (C) to install rotating assembly (16) into the housing.

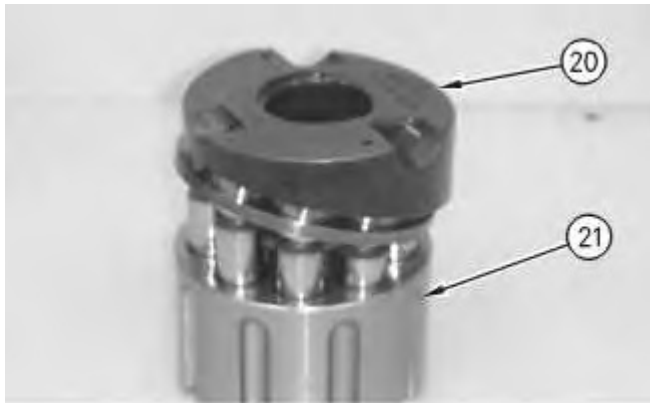


Illustration 15

g00887501

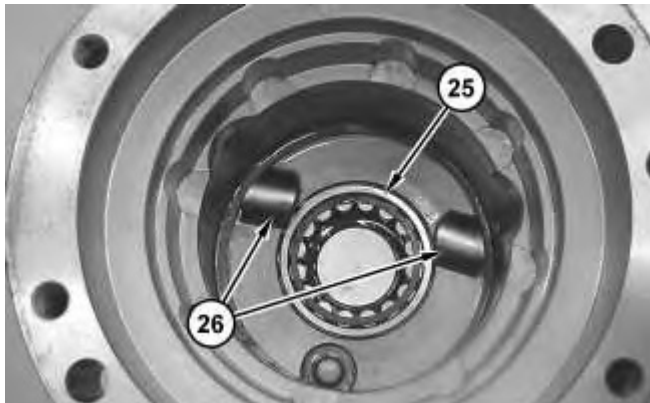


Illustration 16

g02107975

19. The notches in cam plate (20) must align with keys (26). The keys are located in the bottom of the housing of the travel motor.

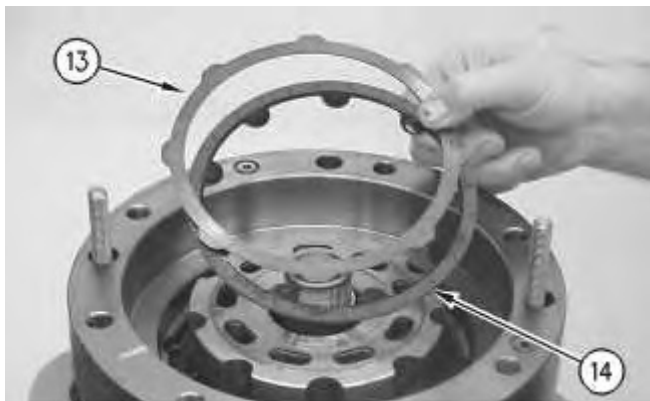


Illustration 17

g00887355

20. Install plates (13) and friction discs (14) into the housing.

Note: Install the plates and the discs alternately.



Illustration 18

g00887336

21. Install backup ring (12) and seal (11) onto the brake piston.

22. Install backup ring (10) and seal (9) onto the brake piston.



Illustration 19

g00888967

23. Rotate brake piston (8).

24. Install brake piston (8) into the housing so that the cast mark on brake piston (8) is aligned with the brake supply passage in the housing.

Note: Brake piston (8) must be level upon installation. The brake piston must be level to prevent damage to the O-ring seals.

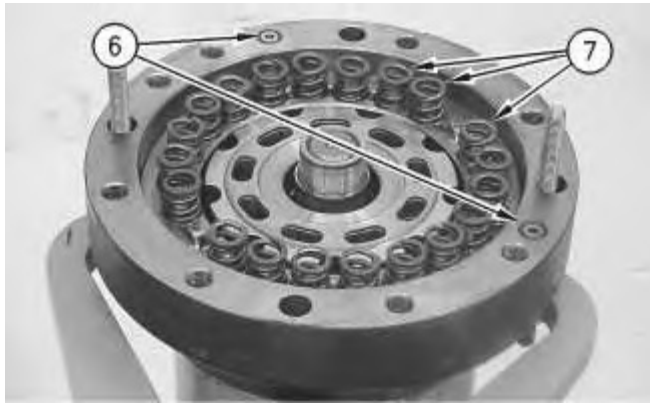


Illustration 20

g00887311

25. Install springs (7) and O-ring seals (6).

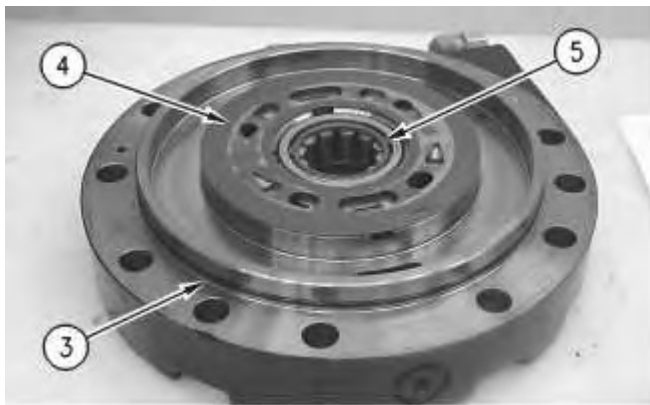


Illustration 21

g00887302

26. Lubricate port plate (4) with lubricant that is being sealed. Install O-ring seal (3), port plate (4), and bearing (5).



Illustration 22

g00887295

 **WARNING**

Improper assembly of parts that are spring loaded can cause bodily injury.

To prevent possible injury, follow the established assembly procedure and wear protective equipment.

27. Install head (2) onto the body of the travel motor.

Note: During the installation of head (2) onto the travel motor, be careful not to damage the mating surfaces of the components.

28. Install bolts (1). Tighten bolts (1) to a torque of 240 ± 40 N·m (177 ± 30 lb ft).

End By:

a. Install the travel motor.

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Disassembly and Assembly 336E Excavator Machine Systems

Media Number -UENR0190-01

Publication Date -01/10/2014

Date Updated -04/11/2014

i07191698

Final Drive and Travel Motor - Remove and Install

SMCS - 4050; 4351

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1U-9200	Lever Puller Hoist	1
B	439-3938	Link Bracket	1



WARNING

Personal injury can result from hydraulic oil pressure and hot oil.

Hydraulic oil pressure can remain in the hydraulic system after the engine has been stopped. Serious injury can be caused if this pressure is not released before any service is done on the hydraulic system.

Make sure all of the work tools have been lowered to the ground, and the oil is cool before removing any components or lines. Remove the oil filler cap only when the engine is stopped, and the filler cap is cool enough to touch with your bare hand.

-
1. Refer to Operation and Maintenance Manual, "Final Drive Oil - Change" for the correct draining and filling procedures.
-

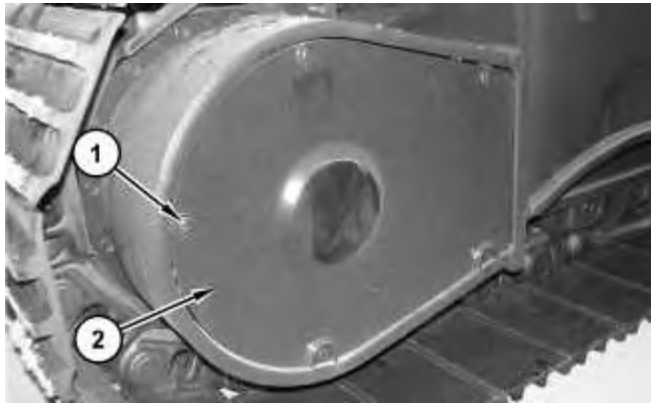


Illustration 1

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2. Remove bolts (1) and cover (2).
3. Separate the track.

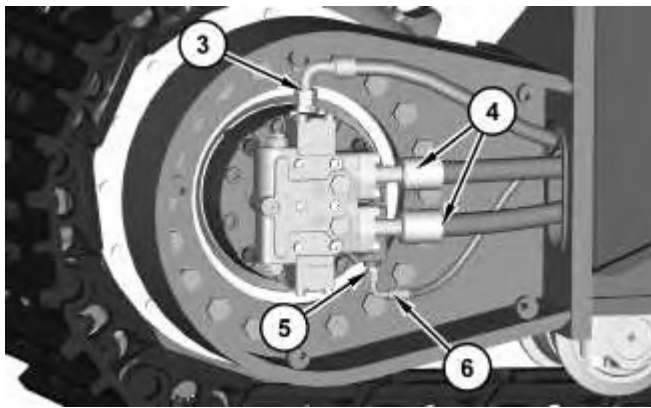
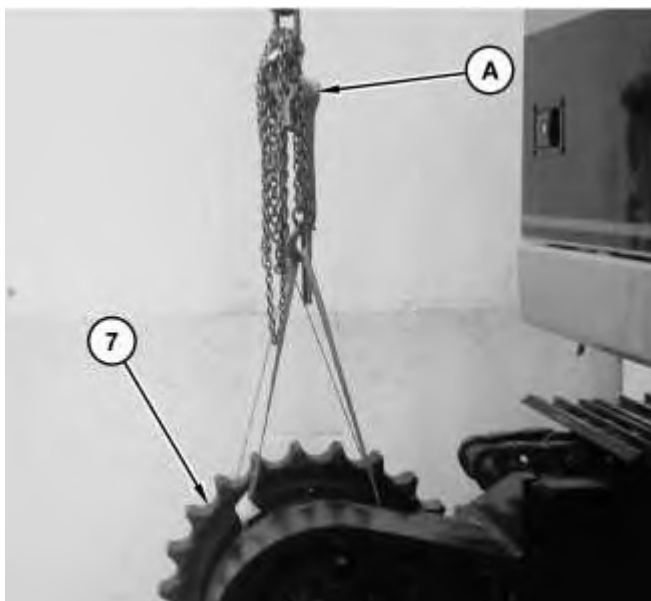


Illustration 2

g02108762

4. Disconnect hose assemblies (3) (4), and (6). Remove fitting (5).



5. Attach Tooling (A) and a suitable lifting device to final drive and travel motor (7). The weight of final drive and travel motor (7) is approximately 860 kg (1896 lb). Put a slight lifting tension on final drive and travel motor (7).

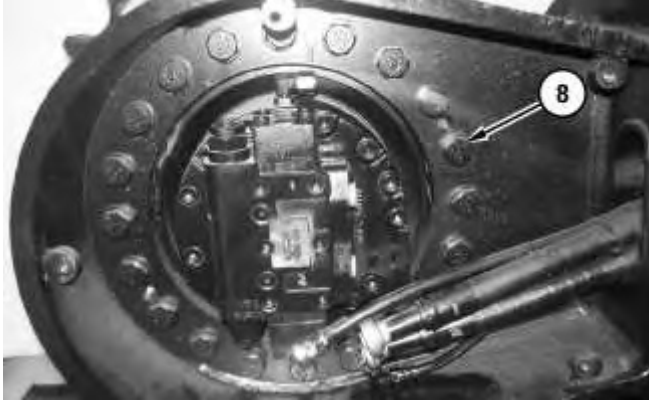


Illustration 4

Note: Mark the orientation of the final drive and travel motor assembly for installation purposes.

6. Remove bolts (8).

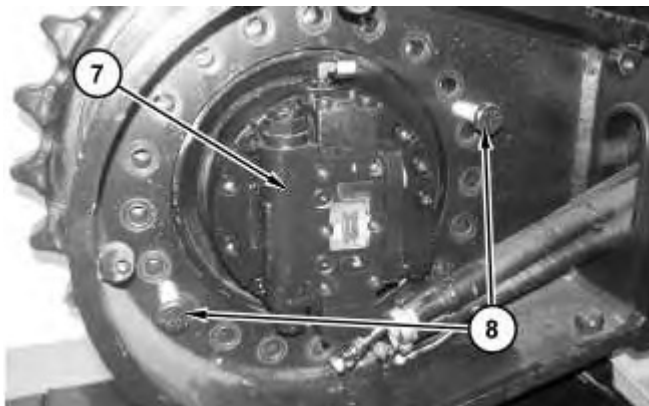


Illustration 5

7. Use two bolts (8) to remove final drive and travel motor (7).
 8. Carefully remove final drive and travel motor (7).
 9. Remove bolts (8) from the frame.
-

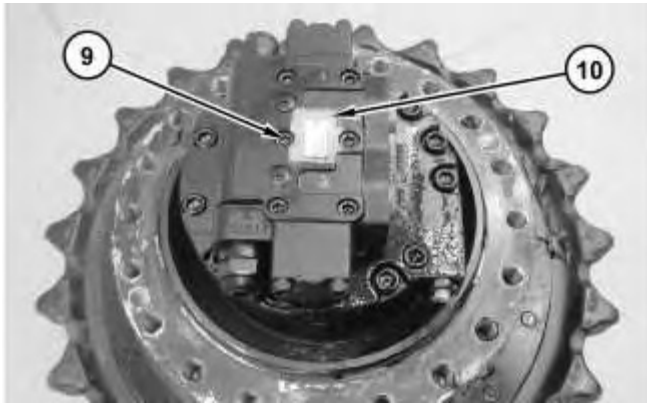


Illustration 6

g02108793

10. Remove bolts (9), counterbalance valve (10), and the O-ring seals.

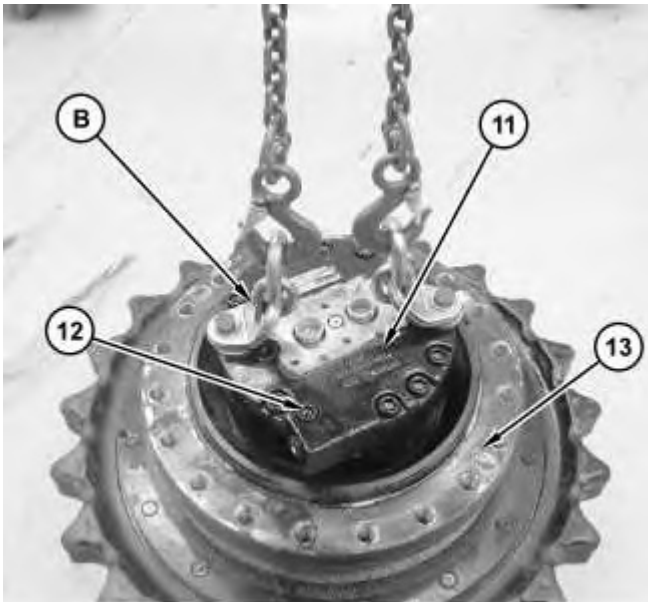


Illustration 7

g02108794

11. Attach Tooling (B) and a suitable lifting device to travel motor (11). The weight of travel motor (11) is approximately 84 kg (185 lb).
 12. Remove four bolts (12) and travel motor (11) from final drive (13).
-

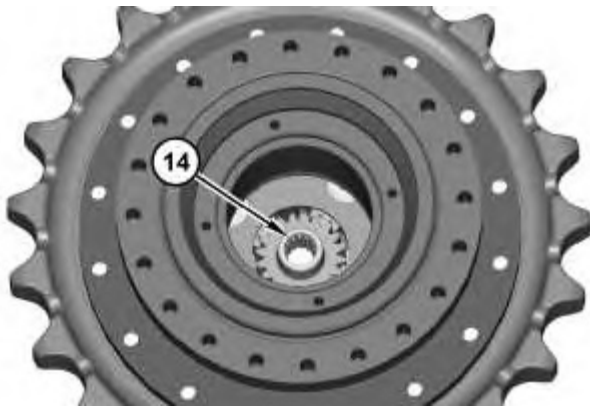


Illustration 8

g02108914

13. Remove coupling (14).

Installation Procedure

Table 2

Required Tools			
Tool	Part Number	Part Description	Qty
A	1U-9200	Lever Puller Hoist	1
B	439-3938	Link Bracket	1
C	-	Loctite C5A Copper Anti-Seize	-

1. Before assembly remove all compounds, oil, and dust.
2. Install final drive and travel motor (7) in the reverse order of removal.
 - a. Tighten bolts (9) to a torque of $80 \pm 8 \text{ N}\cdot\text{m}$ ($60 \pm 6 \text{ lb ft}$).
 - b. Apply Tooling (C) to the threads of bolt (8).
 - c. Tighten bolts (8) to a torque of $250 \pm 25 \text{ N}\cdot\text{m}$ ($184 \pm 18 \text{ lb ft}$) and turn an additional angle of 45 ± 5 degrees. Refer to Service Magazine, M0083843, "An Improved Bolt Tightening Procedure for the Critical Joints Is Now Used on All Excavators" for more detail information.
 - d. Tighten hose assembly (3) to a torque of $160 \pm 16 \text{ N}\cdot\text{m}$ ($120 \pm 12 \text{ lb ft}$).
 - e. Tighten bolts (1) to a torque of $130 \pm 10 \text{ N}\cdot\text{m}$ ($95 \pm 7 \text{ lb ft}$).

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Disassembly and Assembly 336E Excavator Machine Systems

Media Number -UENR0190-01

Publication Date -01/10/2014

Date Updated -04/11/2014

i03885522

Final Drive - Disassemble

SMCS - 4050-015

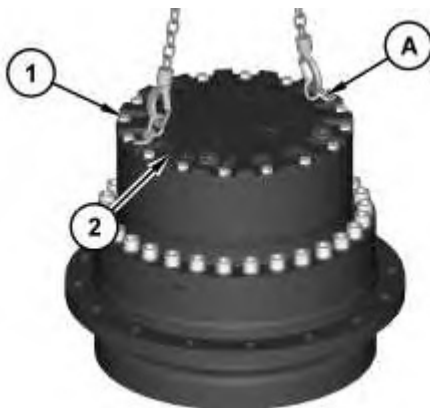
Disassembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	138-7575	Link Brackets	3
B	154-6183	Forcing Bolts	3
C	138-7576	Link Brackets	3

Start By:

- a. Remove the final drive and the travel motor.



1. Attach Tooling (A) and a suitable lifting device to cover (2). The weight of cover (2) is approximately 20 kg (45 lb). Remove bolts (1) and cover (2).
-



Illustration 2

g02131414

2. Remove plate (3) from cover (2).
-

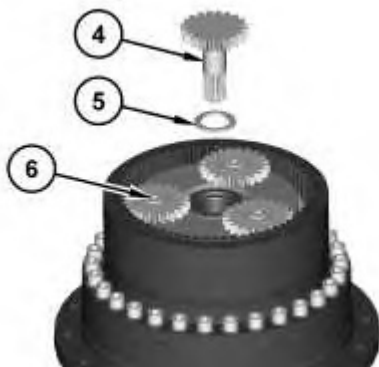


Illustration 3

g02131415

3. Remove sun gear (4), spacer (5), and planetary gear assembly (6).
-

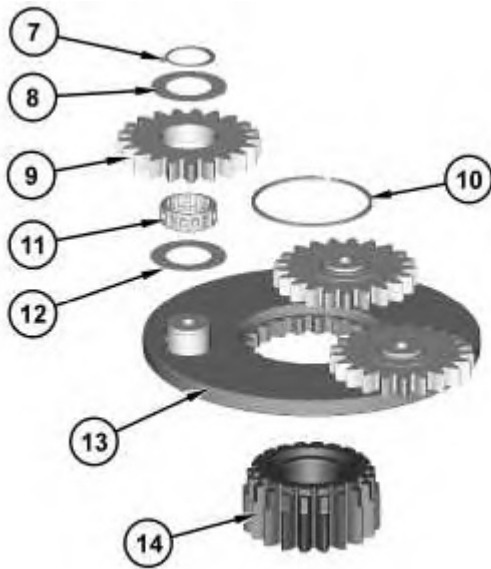


Illustration 4

g02131875

4. Remove retaining ring (7), washer (8), planetary gear (9), roller bearing (11), and washer (12) from carrier assembly (13).
 5. Remove retaining ring (10) and sun gear (14) from carrier assembly (13).
-

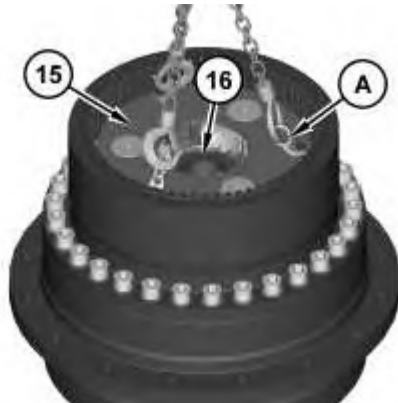


Illustration 5

g02131876

6. Remove spacer (16).
 7. Attach Tooling (A) and a suitable lifting device to planetary gear assembly (15). The weight of planetary gear assembly (15) is approximately 32 kg (70 lb). Remove planetary gear assembly (15).
-

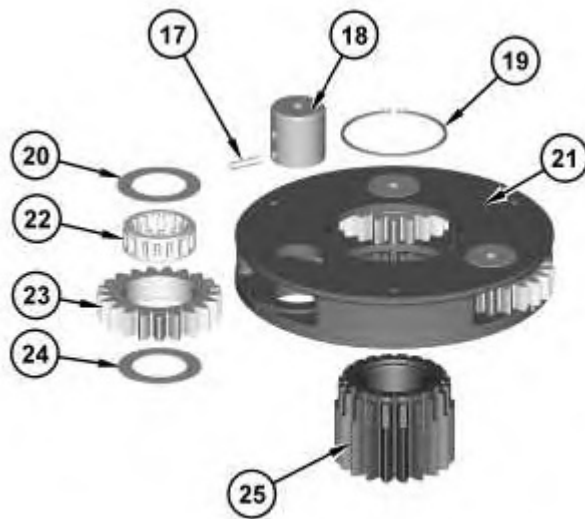


Illustration 6

g02131877

8. Drive spring pin (17) into planetary shaft (18) with a suitable hammer and a suitable punch.
9. Remove planetary shaft (18), washer (20), roller bearing (20), planetary gear (23), and washer (24) from the carrier assembly (21).
10. Remove spring pin (17) from planetary shaft (18) with a suitable hammer and a suitable punch.
11. Remove retaining ring (19) and sun gear (25) from carrier assembly (21).



Illustration 7

g02131878

12. Remove spacer (26).
 13. Attach Tooling (A) and a suitable lifting device to ring gear (27). The weight of ring gear (27) is approximately 70 kg (155 lb). Remove bolts (28) and ring gear (27).
-



Illustration 8

g02131879

14. Remove O-ring seal (29).
 15. Attach Tooling (A) and a suitable lifting device to planetary gear assembly (30). The weight of planetary gear assembly (30) is approximately 57 kg (125 lb). Remove planetary gear assembly (30).
-

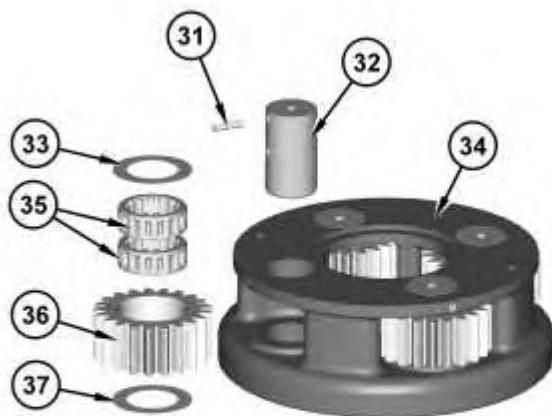


Illustration 9

g02131881

16. Drive spring pin (31) into planetary shaft (32) with a suitable hammer and a suitable punch.
 17. Remove planetary shaft (32), washer (33), roller bearings (35), planetary gear (36), and washer (36) from the carrier assembly (34).
 18. Remove spring pin (31) from planetary shaft (32) with a suitable hammer and a suitable punch.
-



Illustration 10

g02131882



Illustration 11

g02131885

19. Remove bolts (38). Use Tooling (B) in order to remove gear (39).



Illustration 12

g02131886

20. Remove shims (40).

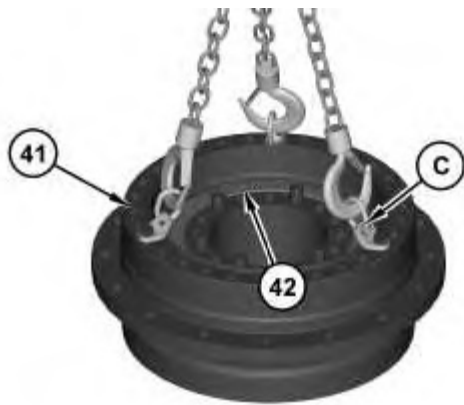


Illustration 13

g02131887

21. Attach Tooling (C) and a suitable lifting device to sprocket housing (41). The weight of sprocket housing (41) is approximately 107 kg (235 lb). Remove sprocket housing (41) and roller bearing (42).



Illustration 14

g02131888

22. Remove bearing races (43) and Duo-Cone seal (44) from sprocket housing (41).



23. Remove Duo-Cone seal (45) and roller bearing (47) from motor housing (48). The weight of motor housing (48) is approximately 91 kg (200 lb).
 24. If necessary, remove dowels (46) from motor housing (48).
-

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Disassembly and Assembly 336E Excavator Machine Systems

Media Number -UENR0190-01

Publication Date -01/10/2014

Date Updated -04/11/2014

i05103849

Final Drive - Assemble

SMCS - 4050-016

Assembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	138-7575	Link Brackets	3
B	154-6183	Forcing Bolts	3
C	138-7576	Link Brackets	3
D	5P-3931	Anti-Seize Compound	-
E	1U-9895	Crossblock	1
F	6V-2012	Depth Micrometer	1
G	6V-7059	Micrometer ()	1
H	-	Loctite 242	-
J	6V-2055	Grease	-
K	-	Loctite 17430	-
L	8T-9206	Seal Installer	1



Illustration 1

g02132155

1. Apply Tooling (D) to the surface of dowels (46) . Install dowels (46) .
2. Raise the temperature of roller bearing (47) . Install the roller bearing (47) on motor housing (48) .
3. Install Duo-Cone seal (45) .



Illustration 2

g02131888

4. Lower the temperature of bearing races (43) . Install bearing races (43) in sprocket housing (41) .
 5. Install Duo-Cone seal (44) .
-

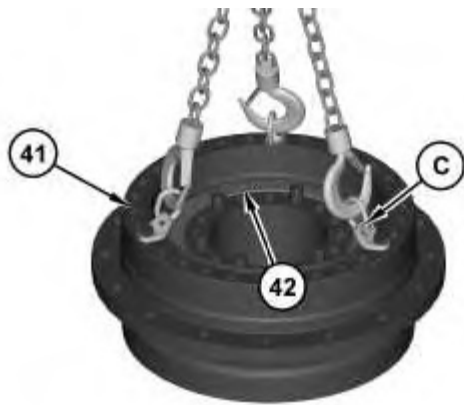


Illustration 3

g02131887

6. Attach Tooling (C) and a suitable lifting device to sprocket housing (41) . The weight of sprocket housing (41) is approximately 107 kg (235 lb). Install sprocket housing (41) .
7. Raise the temperature of roller bearing (42) . Install the roller bearing (42) .

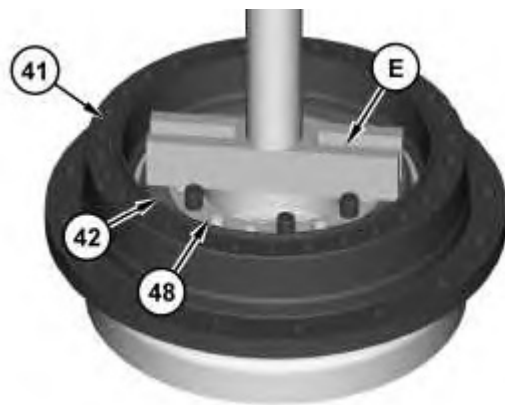


Illustration 4

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