CATERPILLAR®

Service Repair Manual

Models

323E L, 323E LN, 323E SA Excavator

Product: EXCAVATOR
Model: 323E LN EXCAVATOR TDW
Configuration: 323E L, 323E LN & 323E SA Excavators TDW00001-UP (MACHINE) POWERED BY C6.6 Engine

Disassembly and Assembly

320E and 323E Excavators Machine Systems

Media Number -KENR9842-01 **Publication Date -01/03/2013** **Date Updated -28/03/2013**

i04609390

Swing Drive

SMCS - 5459

Specifications

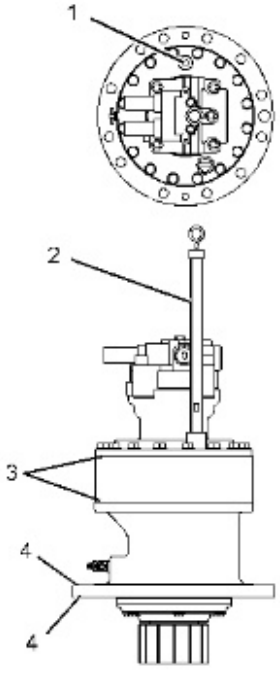

Illustration 1 g02724358

Table 1

Specification for 148-4679 Swing Drive Gp			
Item	**Qty**	**Part**	**Specification Description**
1	1		Torque to 45.0 ± 4.5 N·m (33.2 ± 3.3 lb ft).

		227-6221 Breather As	
2	1	**114-1399** Gauge Pipe	Torque to 60 ± 6 N·m (44 ± 4 lb ft).
3	-	-	Apply blue Loctite High Flex GM to the mating surfaces of the ring gear and the housing.
4	-	-	Surfaces of the mounting area, contact area of the bolt and surfaces of the pinion shaft must be free of paint. Before assembly, the contact surfaces of the bolt, the washer, and the tightened parts must be clean and free of protective coating and oil.

Disassembly Procedure

Table 2

Required Tools			
Tool	Part Number	Part Description	Qty
A	5P-1863	Retaining Ring Pliers	1
B	138-7575	Link Brackets	2
C	4C-5660	Adapter	2
	5F-7369	Puller Leg	2
	3H-0465	Push-Puller Plate	2
	1P-0820	Hydraulic Puller	1
	3H-0468	Puller Plate	2
	350-7768	Electric Hydraulic Pump Gp[1]	1
	1U-9889	Crossblock	1
D	138-7573	Link Brackets	2
E	FT-3023	Sleeve	1
F	5F-7343	Bearing Puller Gp	1
	3H-0465	Push-Puller Plate	4
	5F-7369	Puller Leg	2
	5F-7342	Adapter	2
	1P-0820	Hydraulic Puller	1
	350-7768	Electric Hydraulic Pump Gp[1]	1

[1] 350-7769 (230 V)

Start By:

a. Remove the swing motor and swing drive.

Note: Cleanliness is an important factor. Before the disassembly procedure, the exterior of the component should be thoroughly cleaned. This will prevent dirt from entering the internal mechanism.

NOTICE

Keep all parts clean from contaminants.

Contamination of the hydraulic system with foreign material will reduce the service life of the hydraulic system components.

To prevent contaminants from entering the hydraulic system, always plug or cap the lines, fittings, or hoses as they are disconnected. Cover any disassembled components and clean them properly before assembly.

Clean the hydraulic system properly after any major component exchange or especially after a component failure, to remove any contamination.

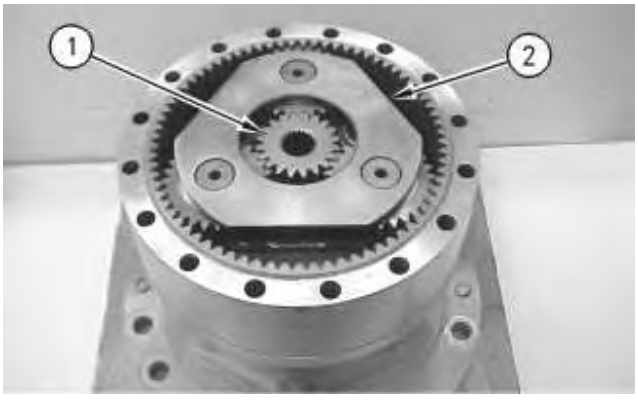

Illustration 2 g00702449

1. Remove sun gear (1) from carrier assembly (2).

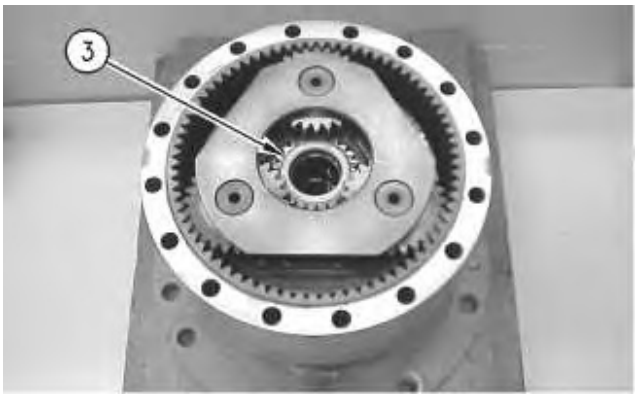

Illustration 3 g00702450

2. Remove spacer (3).

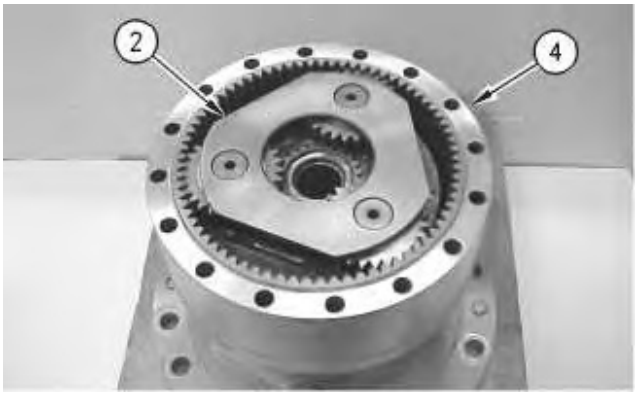

Illustration 4 g00702451

3. Remove carrier assembly (2) from ring gear (4).

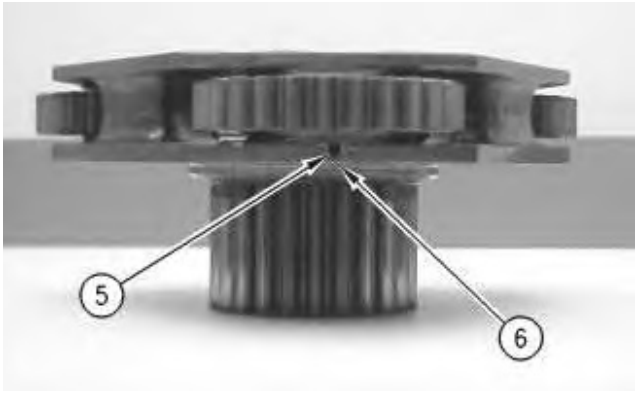

Illustration 5 g00702452

4. Drive roll pin (5) into shaft (6). Remove shaft (6) and the gear assembly.

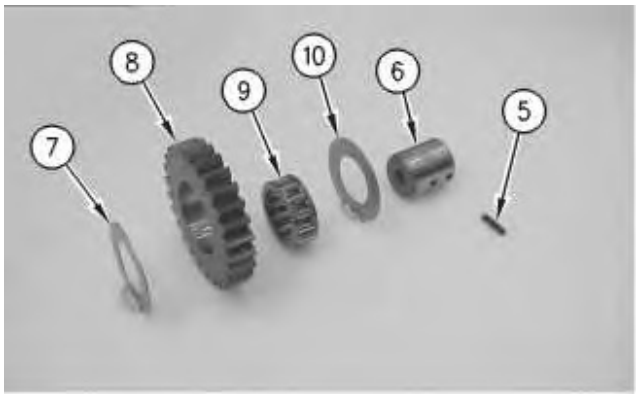

Illustration 6 g00702456

5. Disassemble the gear assembly, as follows: washer (7), gear (8), bearing (9), and washer (10). Remove roll pin (5) from shaft (6).

6. Repeat Step 4 through Step 5 for the remaining gear assemblies.

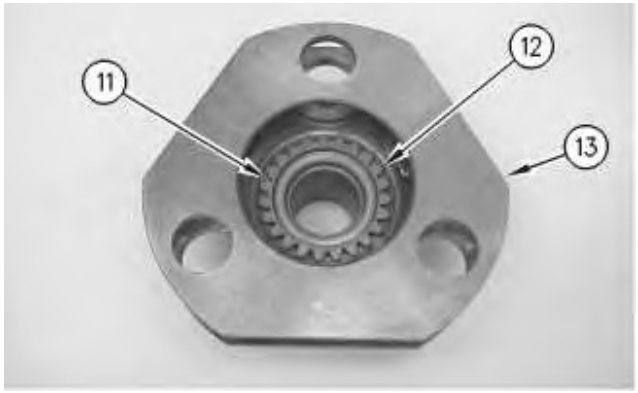

Illustration 7 g00702457

7. Remove retaining ring (11). Remove carrier (13) from the sun gear.

Illustration 8 g00702459

8. Use Tooling (A) in order to remove retaining ring (14).

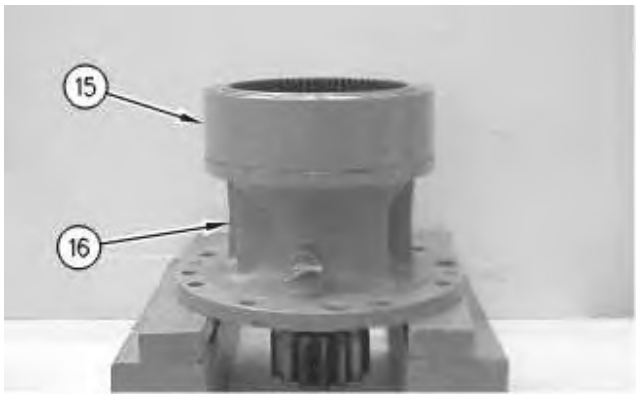

Illustration 9 g00702583

9. Use two people in order to remove ring gear (15) from housing (16). The weight of ring gear (15) is approximately 29 kg (65 lb).

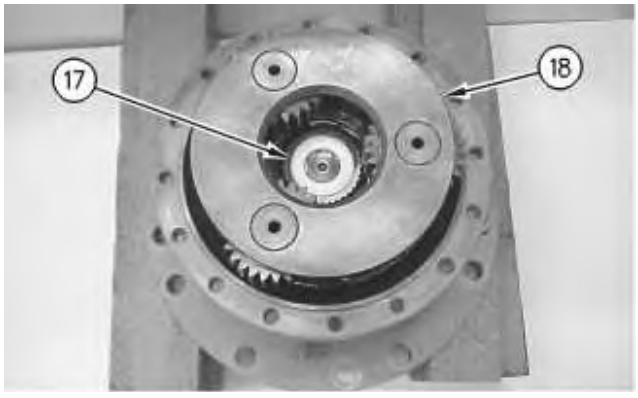

Illustration 10 g00702584

10. Remove spacer (17) from carrier assembly (18).

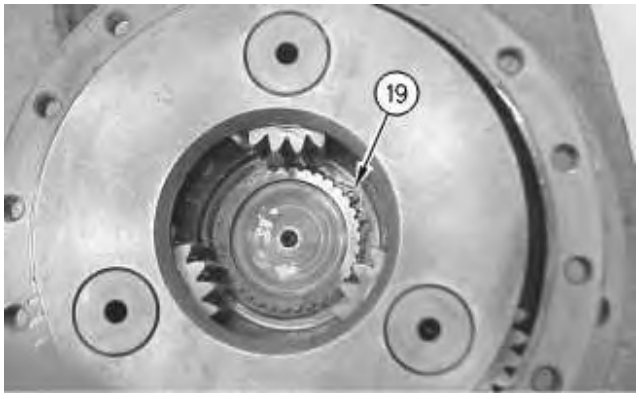

Illustration 11 g00702596

11. Use Tooling (A) to remove retaining ring (19).

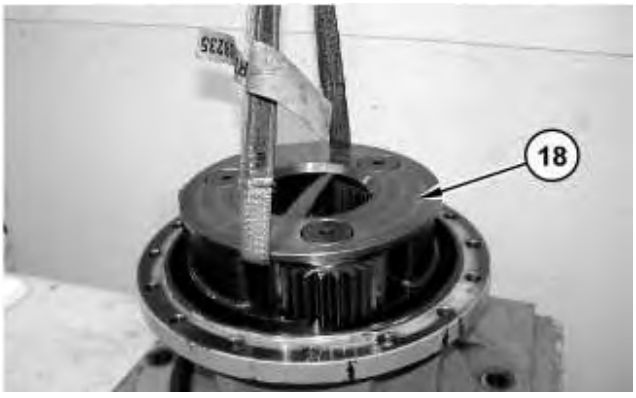

Illustration 12 g01338951

12. Remove carrier assembly (18) from the housing. The weight of carrier assembly (18) is approximately 25 kg (55 lb).

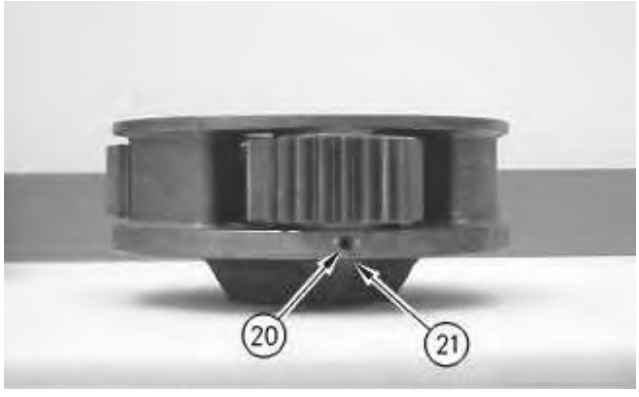

Illustration 13 g00702640

13. Drive roll pin (20) into shaft (21). Remove shaft (21).

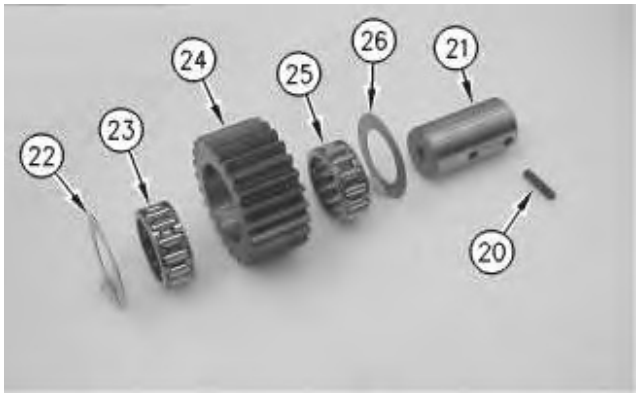

Illustration 14 g00702648

14. Disassemble the gear assembly, as follows: washer (22), bearing (23), gear (24), bearing (25), and washer (26). Remove roll pin (20) from shaft (21).

15. Repeat Step 13 through Step 14 for the remaining gear assemblies.

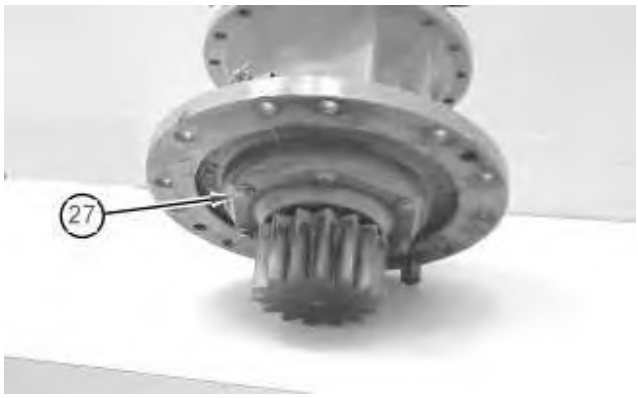

Illustration 15 g01339732

16. Remove bolts (27) from the housing.

Illustration 16 g01339903

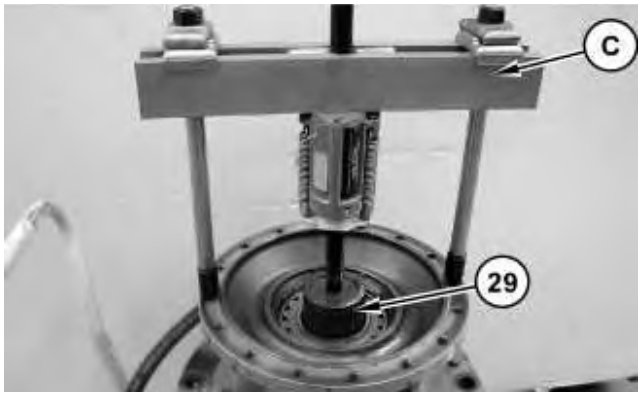

Illustration 17 g01339833

17. Attach Tooling (B) and a suitable lifting device in order to remove housing (28). The weight of housing (28) is approximately 68 kg (150 lb). If shaft assembly (29) is stuck in housing (28) install Tooling (C) in order to remove shaft assembly (29).

Illustration 18 g01338949

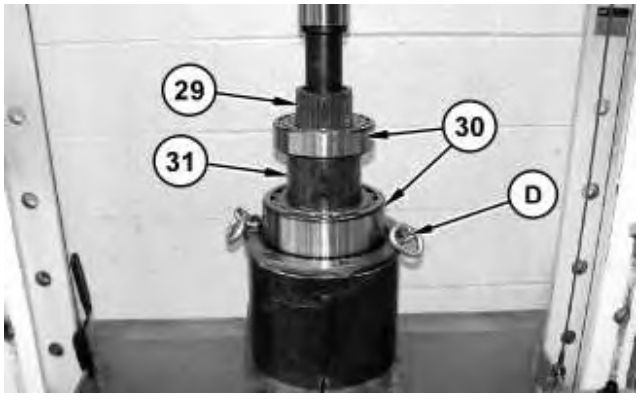

Illustration 19 g01339781

Illustration 20 g01339877

18. Use Tooling (A) in order to install retaining ring (19). Attach a suitable lifting device to shaft assembly (29). The weight of shaft assembly (29) is approximately 45 kg (100 lb). Position shaft assembly (29) onto Tooling (E). Install Tooling (D).

19. Position Tooling (E) and shaft assembly (29) as a unit into a suitable press. The weight of Tooling (E) and the shaft assembly (29) is approximately 93 kg (205 lb). Use Tooling (A) in order to remove retaining ring (19). Remove bearings (30) and spacer (31).

    Note: If excessive force is required to remove bearings, use Tooling (F) in order to remove the top bearing first.

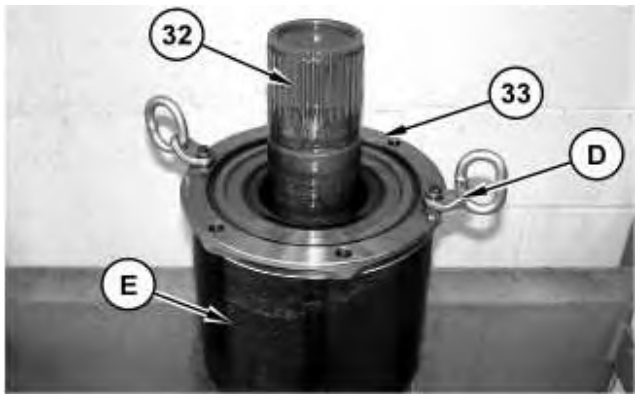

Illustration 21 g01338948

20. Attach a suitable lifting device to Tooling (D) in order to remove cage (33) and Tooling (E). Remove cage (33) and Tooling (E) from shaft (32).

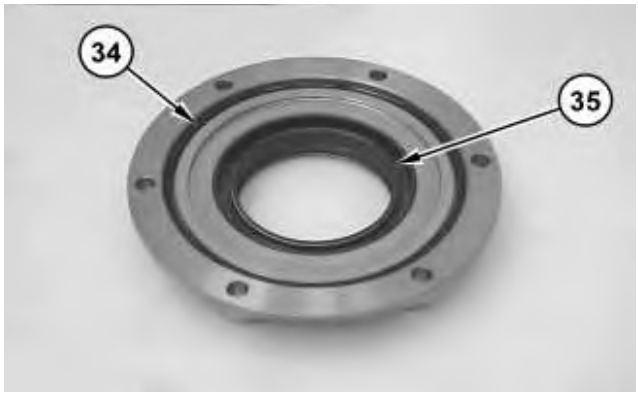

Illustration 22 g01340053

21. Remove O-ring seal (34). Remove lip seals (35).

Assembly Procedure

Table 3

Required Tools			
Tool	Part Number	Part Description	Qty
A	5P-1863	Retaining Ring Pliers	1
B	138-7575	Link Brackets	2
D	138-7573	Link Brackets	2
E	FT-3023	Sleeve	1
G	1P-0520	Driver Gp	1
H	5P-3931	Anti-Seize Compound	1
J	8M-4856 (1)	Sleeve	1

K	-	Guide Stud M16 - 2.00 by 140mm	2
L	-	Loctite Hi Flex GM	1

(1) This part is being discontinued. Replace with **367-6742** Sleeve .

Note: Cleanliness is an important factor. Before assembly, clean all parts in cleaning fluid. Allow the parts to air dry. Wiping cloths or rags should not be used to dry parts. Lint may be deposited on the parts which may cause later trouble. Inspect all parts. If any parts are worn or damaged, use new parts for replacement.

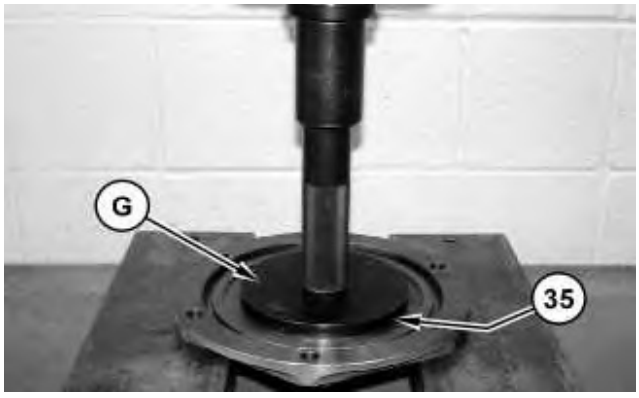

Illustration 23 g01339794

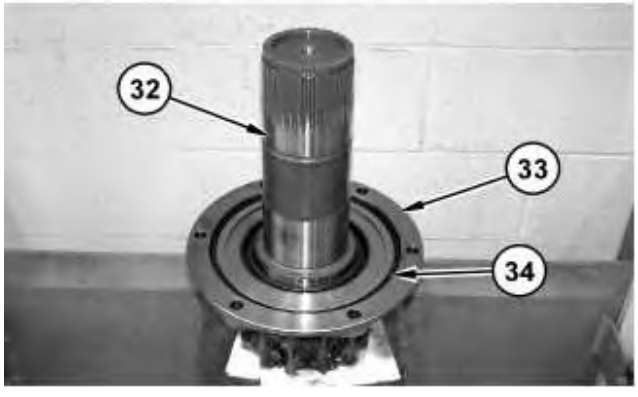

Illustration 24 g01339807

1. Use a suitable press and Tooling (G) in order to install lip seal (35) into cage (33).
2. Use two people to place shaft (32) in a suitable press. The weight of shaft (32) is approximately 30 kg (65 lb). Install cage (33). Install O-ring seal (34).

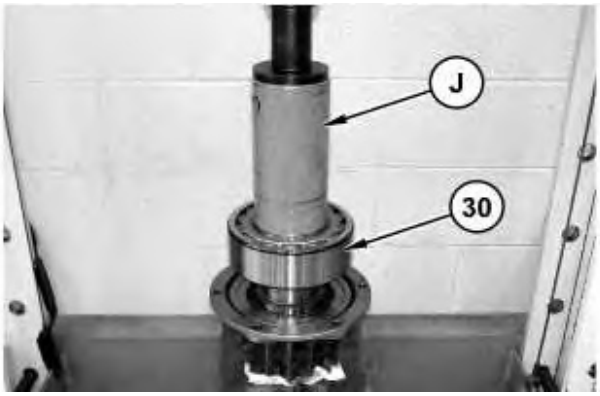

Illustration 25 g01339812

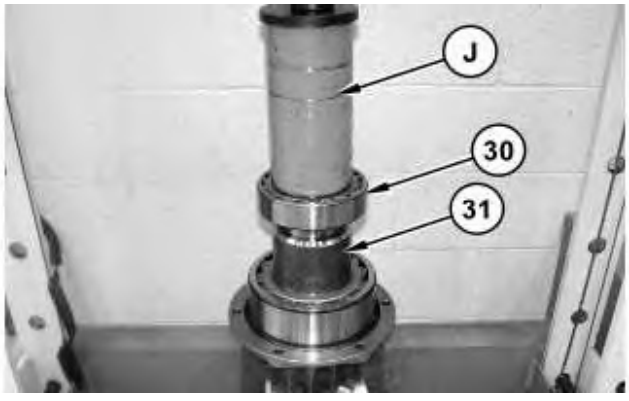

Illustration 26 g01339149

3. Apply Tooling (H) to inner diameter of the bearing and the shaft. Use a suitable press and Tooling (J) in order to install bearing (30). Install spacer (31). The bevel of the spacer must face upward.

4. Install bearing (30).

Illustration 27 g01339824

Illustration 28 g01339903

5. Attach a suitable lifting device to shaft assembly (29). Use Tooling (A) in order to install retaining ring (19). Install shaft assembly (29) onto Tooling (E). Remove the suitable lifting device.

6. Attach Tooling (B) and a suitable lifting device to housing (28). Install housing (28) on the shaft assembly. Position the shaft assembly to the side by 90 degrees. Remove tooling (E).

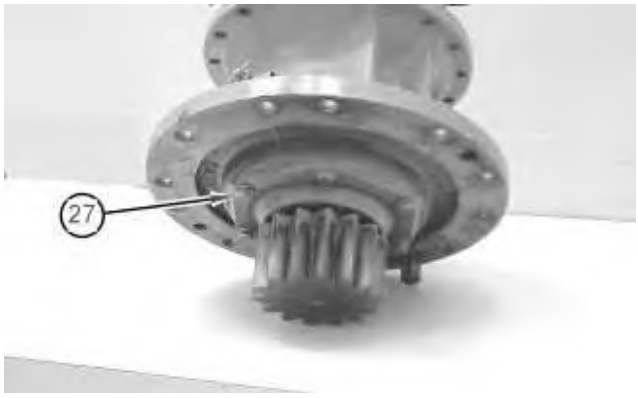

Illustration 29 g01339732

7. Install bolts (27).

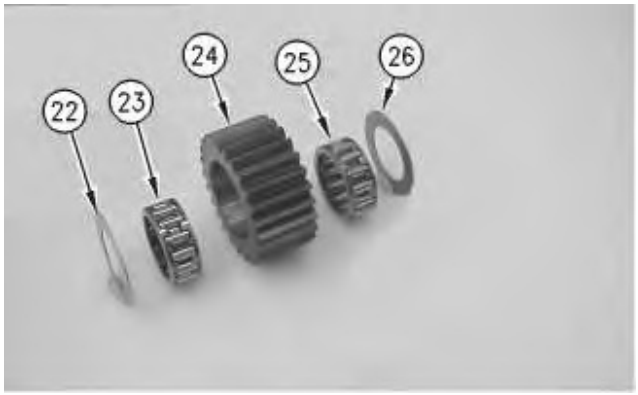

Illustration 30 g00703698

8. Assemble the gear assembly, as follows: washer (22), bearing (23), gear (24), bearing (25), and washer (26).

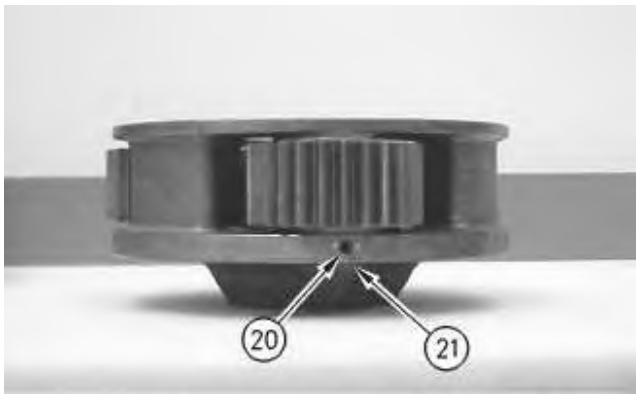

Illustration 31 g00702640

Illustration 32 g00703700

9. Use a deburring tool in order to remove the metal burr from the openings in the carrier. Install shaft (21) and the gear assembly into the carrier assembly. Drive roll pin (20) into shaft (21). Orient the split in roll pin (20) vertically to the carrier. Align the split in the roll pin to the top or to the bottom. Make a stake mark on each side of the roll pin hole in the carrier. Each stake mark should be approximately 2.25 ± 0.75 mm (0.090 ± 0.030 inch) from the outside diameter of the roll pin hole.

10. Repeat Step 8 through Step 9 for the remaining gear assemblies.

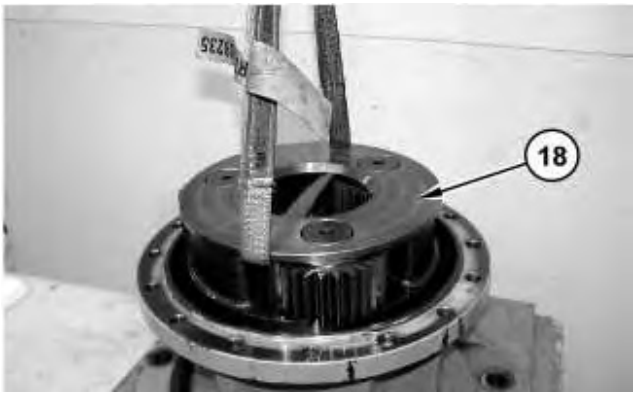

Illustration 33 g01338951

11. Install carrier assembly (18) into the housing. The weight of carrier assembly (18) is approximately 25 kg (55 lb).

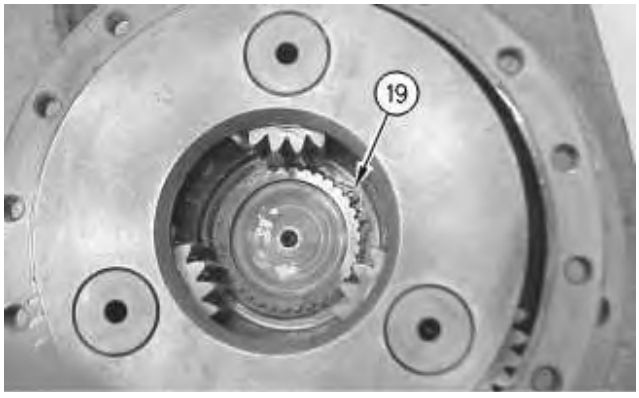

Illustration 34 g00702596

12. Use Tooling (A) to install retaining ring (19).

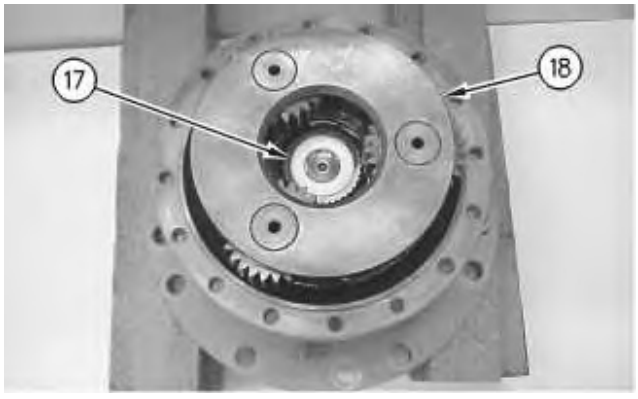

Illustration 35 g00702584

13. Install spacer (17) into carrier assembly (18).

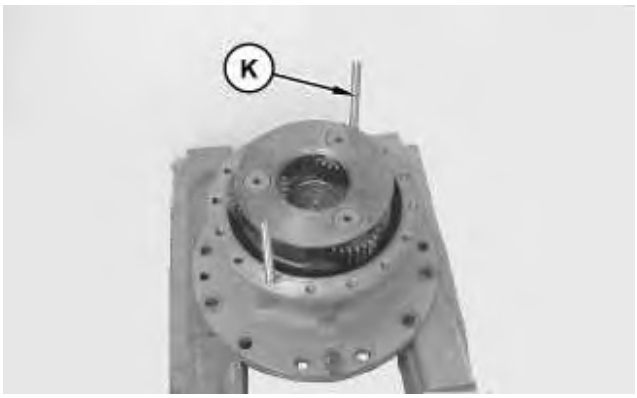

Illustration 36 g01340279

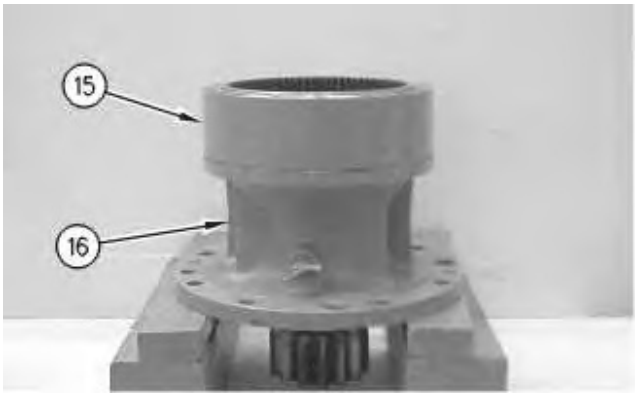

Illustration 37 g00702583

14. Apply Tooling (L) to the face of housing (16). Install Tooling (K) in order to help align the housing and the ring gear. Use two people in order to install ring gear (15) onto housing (16). The weight of ring gear (15) is approximately 29 kg (65 lb).

Illustration 38 g00702459

15. Install retaining ring (14) into the sun gear.

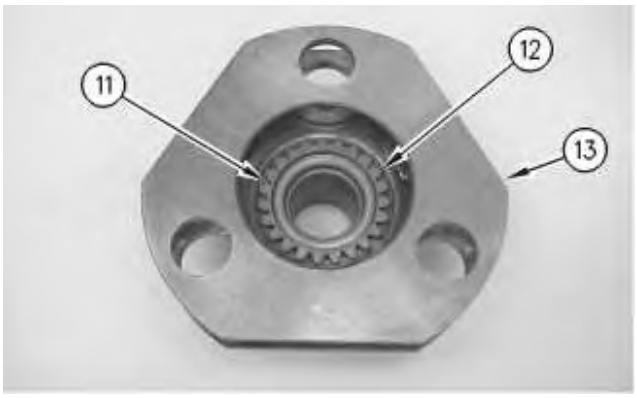

Illustration 39 g00702457

16. Install carrier (13) into the sun gear. Install retaining ring (11) into sun gear (12).

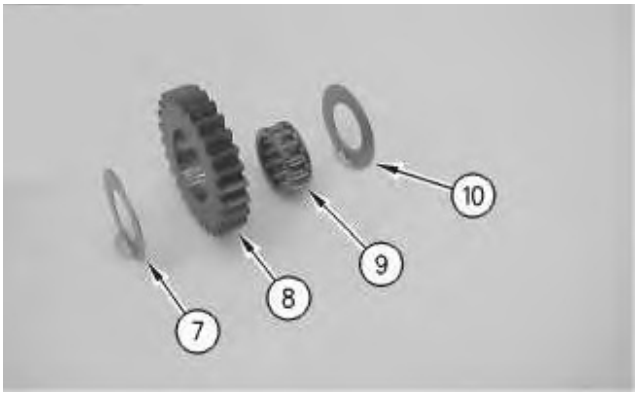

Illustration 40 g00703707

17. Assemble the gear assembly, as follows: washer (7), gear (8), bearing (9), and washer (10)

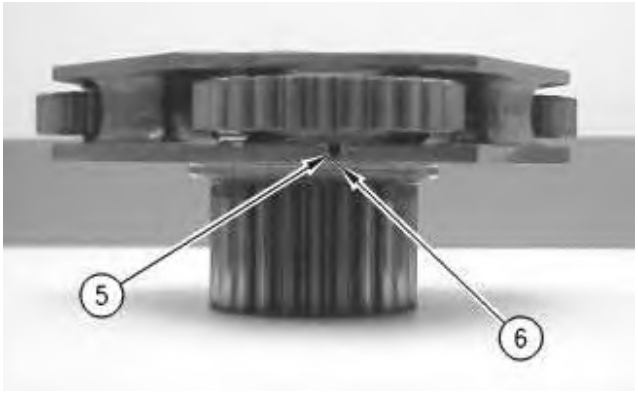

Illustration 41 g00702452

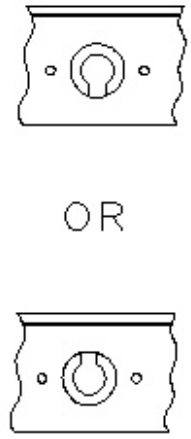

Illustration 42 g00703700

18. Use a deburring tool in order to remove the metal burr from the openings in the carrier. Install shaft (6) and the gear assembly into the carrier assembly. Drive roll pin (5) into shaft (6). Orient the split in roll pin (5) vertically to the carrier. Align the split in the roll pin to the top or to the bottom. Make a stake mark on each side of the roll pin hole in the carrier. Each stake mark should be approximately 2.25 ± 0.75 mm (0.090 ± 0.030 inch) from the outside diameter of the roll pin hole.

19. Repeat Step 17 through Step 18 for the remaining gear assemblies.

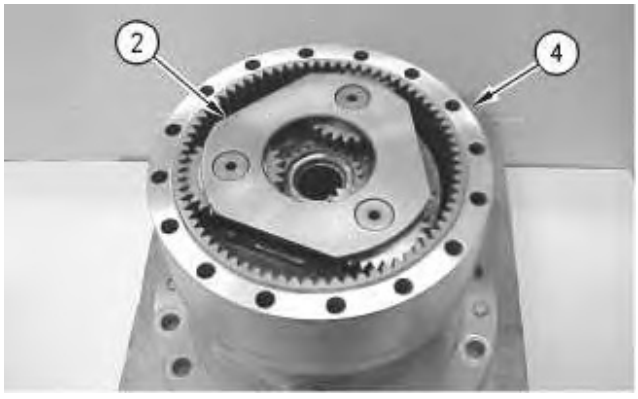

Illustration 43 g00702451

20. Install carrier assembly (2) into ring gear (4).

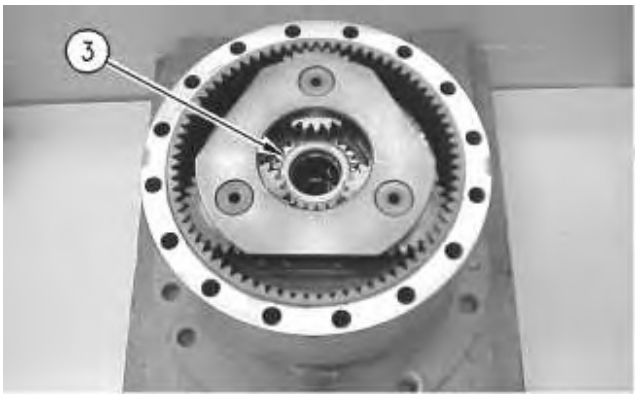

Illustration 44 g00702450

21. Install spacer (3).

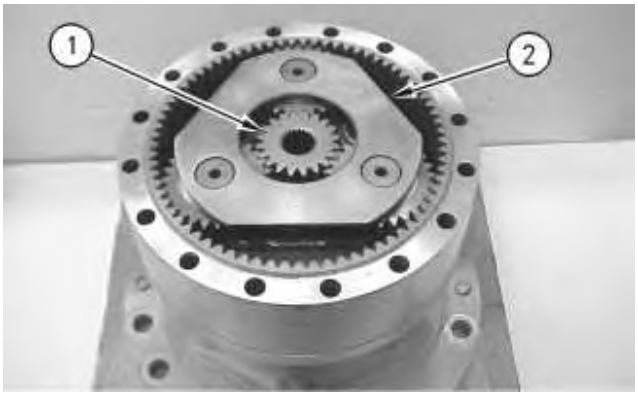

Illustration 45 g00702449

22. Install sun gear (1) into carrier assembly (2).

End By:

a. Install the swing motor and swing drive.

Product: EXCAVATOR
Model: 323E LN EXCAVATOR TDW
Configuration: 323E L, 323E LN & 323E SA Excavators TDW00001-UP (MACHINE) POWERED BY C6.6 Engine

Disassembly and Assembly
320E and 323E Excavators Machine Systems

Media Number -KENR9842-01 **Publication Date -01/03/2013** **Date Updated -28/03/2013**

i04491082

Swing Gear and Bearing

SMCS - 7063

Specifications

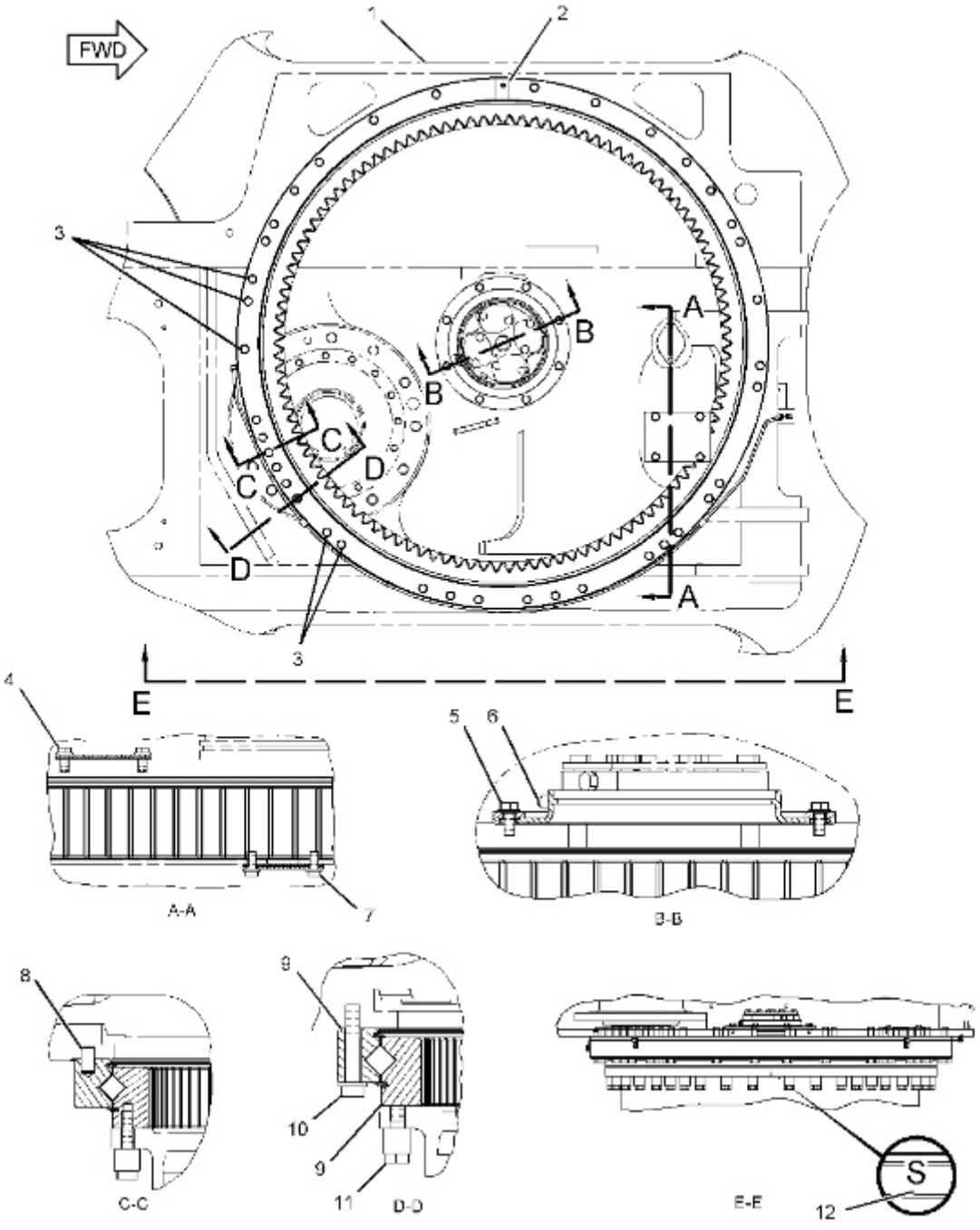

Illustration 1 g02724727

Typical example

Table 1

Specification for 333-2969 Gear and Bearing Gp and 333-2966 Gear and Bearing Gp			
Item	**Qty**	**Part**	**Specification Description**
-	-	-	Position "S" that is on inner race (12) relative to the carbody assembly (1) and bearing stopper (2). Refer to Illustration 1.
-	-	-	The five holes which are marked “3” are not for use.
4	4	**8T-4136** Bolt	Apply blue Loctite 242 to the threads. Torque to 20 ± 2 N·m (177 ± 18 lb in).

5	8	**8T-4136** Bolt	Apply blue Loctite 242 to the threads. Torque to 37 ± 4 N·m (27 ± 3 lb ft).
6	1	**7Y-1650** Hose Clamp	Torque to 5.39 ± 0.49 N·m (47.71 ± 4.34 lb in).
7	2	**8T-4137** Bolt	Apply blue Loctite 242 to the threads. Torque to 37 ± 4 N·m (27 ± 3 lb ft).
8	1	**096-4902** Dowel	Apply Loctite C5A Cooper Anti-Seize to the dowel holes.
9	-	-	Apply blue Loctite High Flex GM between the mating surfaces of the gear group and upper frame assembly. Apply blue Loctite High Flex GM between the mating surfaces of the gear group and carbody assembly.
10	37	**8T-0362** Bolt	Apply Loctite C5A Cooper Anti-Seize to the threads. Omit the bolt seats and surfaces of the washers. Torque for the bolts except for the Akashi facility to 568 ± 59 N·m (419 ± 44 lb ft). Torque for the bolts for the Akashi facility to 294 ± 29 N·m (217 ± 21 lb ft). Additional torque for the bolts for the Akashi facility to 50 ± 5 degrees.
11	40	**8T-0360** Bolt	Apply Loctite C5A Cooper Anti-Seize to the threads. Omit the bolt seats and surfaces of the washers. Torque for the bolts except for the Akashi facility to 568 ± 59 N·m (419 ± 44 lb ft). Torque for the bolts for the Akashi facility to 294 ± 29 N·m (217 ± 21 lb ft). Additional torque for the bolts for the Akashi facility to 50 ± 5 degrees.

Removal Procedure

Table 2

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	138-7576	Link Bracket	4
B	-	Guide Bolts M20 x 2.5 by 150mm	2

Start By:

a. Separate the upper frame from the undercarriage frame.

1. Remove all the grease from the swing gear and bearing. Put the grease in a suitable container for storage or disposal.

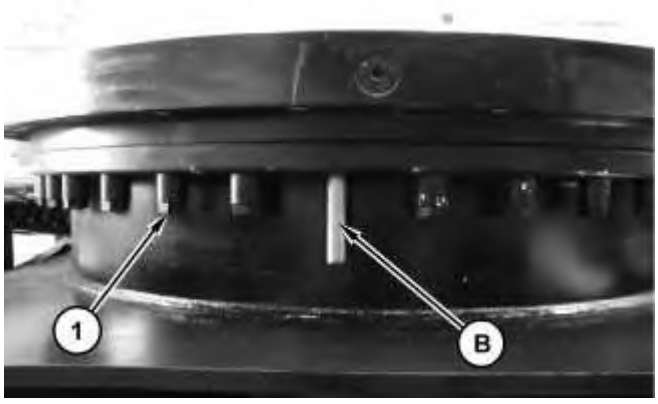

Illustration 2 g02672179

2. Remove bolts (1). Install bolts and mark swing gear and bearing (2) or alignment purposes

Illustration 3 g02672908

3. Attach Tooling (A) and a suitable lifting device in order to remove swing gear and bearing (2) from the undercarriage (3).

Installation Procedure

1. Install swing gear and bearings (2) in reverse order of removal.

End By:

a. Connect the upper frame from the undercarriage frame.

Product: EXCAVATOR
Model: 323E LN EXCAVATOR TDW
Configuration: 323E L, 323E LN & 323E SA Excavators TDW00001-UP (MACHINE) POWERED BY C6.6 Engine

Disassembly and Assembly
320E and 323E Excavators Machine Systems
Media Number -KENR9842-01 **Publication Date -01/03/2013** **Date Updated -28/03/2013**

i04507920

Pilot Valve

SMCS - 5059

Removal Procedure

Start By:

a. Release the hydraulic system pressure.

Illustration 1 g02686500

1. Disconnect all hose assemblies (1). Disconnect all harness assemblies (2).

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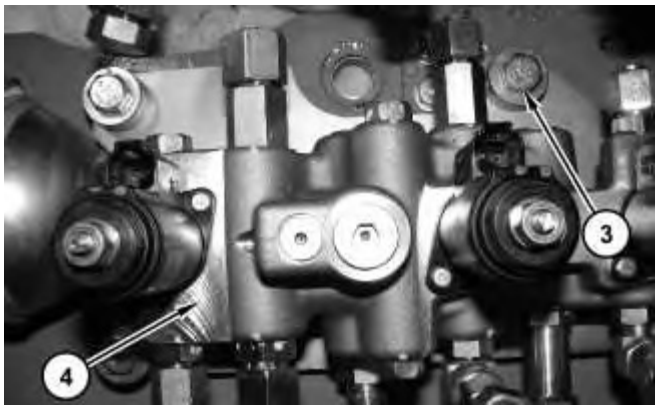

Illustration 2 g02686503

2. Remove four bolts (3) and pilot valve (4).

Installation Procedure

1. Install pilot valve (4) in reverse order of removal.