



# Service Repair Manual

## **Models**

311C and 311C U Excavator

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Previous Screen

Product: EXCAVATOR

Model: 311C EXCAVATOR PAD

Configuration: 311C U Excavator PAD00001-UP (MACHINE) POWERED BY 3064 Engine

**Disassembly and Assembly  
311C Excavator Machine Systems**

Media Number -REN5536-01

Publication Date -01/05/2008

Date Updated -27/05/2008

i04125150

## Final Drive and Travel Motor - Disassemble

SMCS - 4050-015; 4351-015

### Disassembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	138-7573	Link Bracket	3
B	1P-2420	Transmission Repair Stand	1
C	8T-6699	Bolts	2
D	1P-0074	Slide Hammer Puller Gp	1
	4C-5666	Threaded Adapter	1
	123-6702	Backlash Gauge Gp	1
E	1P-0510	Driver Gp	1
F	8H-0663	Bearing Puller Gp	1
G	1P-1863	Retaining Ring Pliers	1
H	9U-7346	Spanner Wrench As	1

**Start By:**

- A. Remove the final drive and the travel motor as a unit. Refer to Disassembly and Assembly, "Final Drive and Travel Motor - Remove".

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**NOTICE**

**Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.**

**Refer to Special Publication, NENG2500, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat products.**

**Dispose of all fluids according to local regulations and mandates.**

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1. Thoroughly clean the outside of the travel motor and the final drive prior to disassembly.
2. Remove the sprocket from the final drive. The sprocket weighs approximately 36 kg (79 lb).
3. Put an alignment mark across the section of the travel motor and the final drive for assembly purposes. The parts must be installed in the original locations.

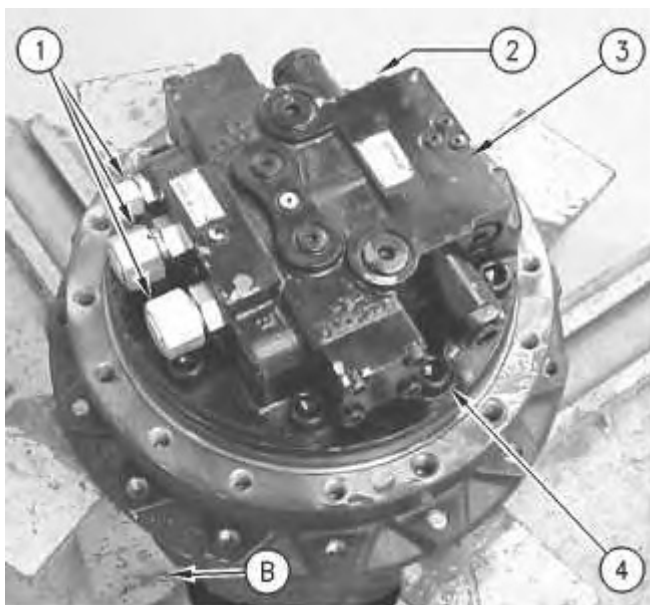


Illustration 1

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4. Use Tooling (A) and a suitable lifting device to position the final drive and the travel motor in Tooling (B) . The final drive and the travel motor together weigh approximately 200 kg (440 lb).
5. Remove fittings (1) and remove plug (2) from travel brake valve (3) .

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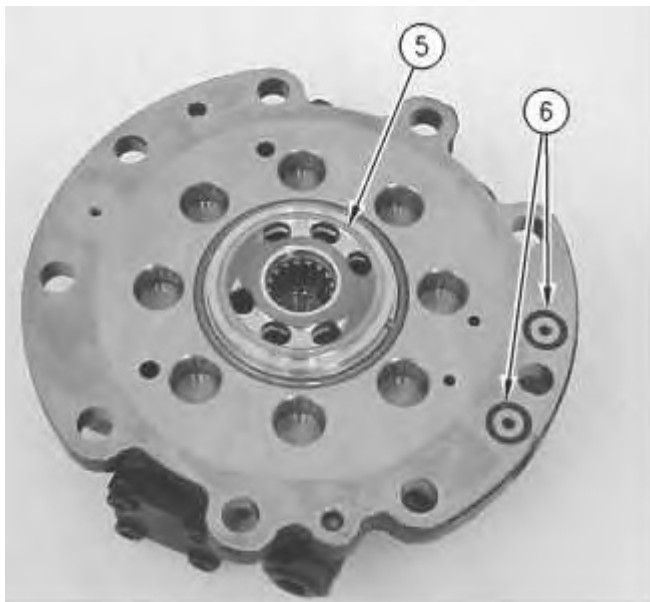
**Personal injury can result from being struck by parts propelled by a released spring force.**

**Make sure to wear all necessary protective equipment.**

**Follow the recommended procedure and use all recommended tooling to release the spring force.**

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6. Remove nine bolts (4) that fasten travel brake valve (3) to the final drive.
7. Use two people to remove travel brake valve (3) from the final drive. The travel brake valve weighs approximately 27 kg (60 lb).



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Illustration 2

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8. Remove valve plate (5) and remove O-ring seals (6) .
-

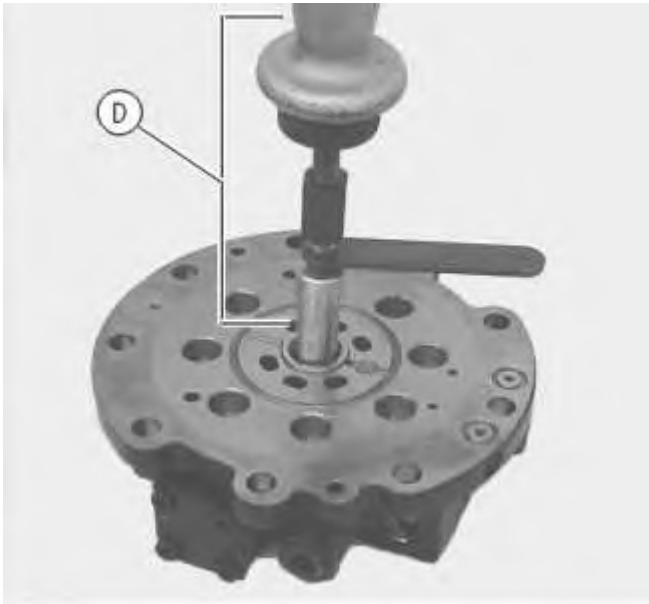


Illustration 3

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9. Use Tooling (D) to remove the bearing.

## Disassembly Procedure for the Travel Brake Valve



Illustration 4

g00940805



Illustration 5

g00940808

## **WARNING**

**Personal injury can result from being struck by parts propelled by a released spring force.**

**Make sure to wear all necessary protective equipment.**

**Follow the recommended procedure and use all recommended tooling to release the spring force.**

1. Reposition the travel brake valve, as shown. Remove plug (1) and remove adapter (2) .
2. Remove rod (3) , spring (4) , piston (5) , and spool (6) .



## 3. Remove relief valves (7) .

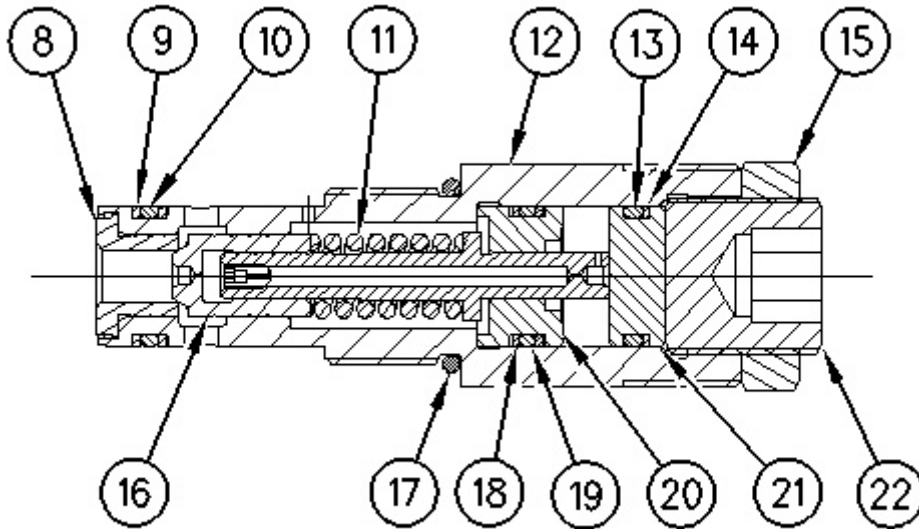


Illustration 7

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**! WARNING**

**Personal injury can result from being struck by parts propelled by a released spring force.**

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**Follow the recommended procedure and use all recommended tooling to release the spring force.**

4. Inspect seat (8) . Seat (8) is crimped into valve group (12) . If either seat (8) or valve group (12) is damaged, new parts must be used. Do not separate these components and attempt to reuse either component.
5. Remove backup rings (9) and O-ring seal (10) .
6. Remove O-ring seal (17) .
7. Remove nut (15) .
8. Remove screw (22) .
9. Remove stopper (21) . Remove backup ring (14) and O-ring seal (13) from stopper (21) .

10. Remove valve group (16) , piston (20) , and spring (11) from the housing.

11. Remove backup rings (18) and O-ring seal (19) from piston (20) .



Illustration 8

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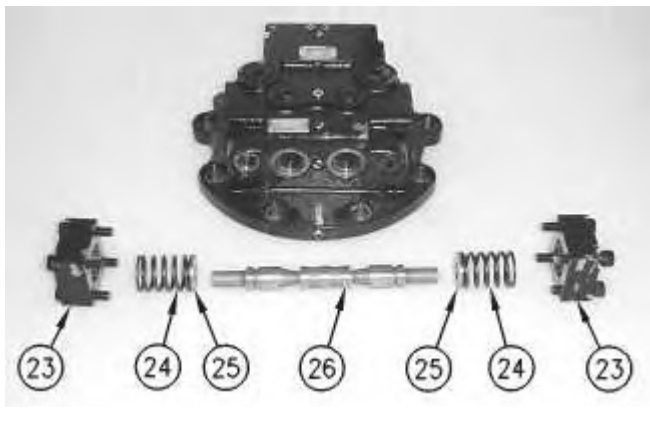


Illustration 9

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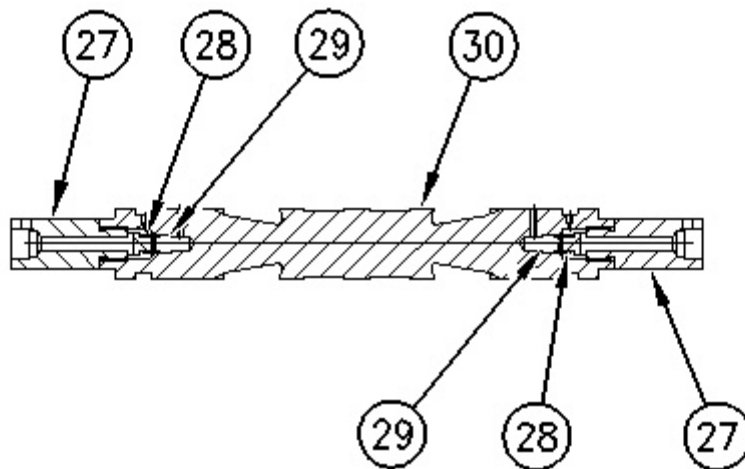
 **WARNING**

**Personal injury can result from being struck by parts propelled by a released spring force.**

**Make sure to wear all necessary protective equipment.**

**Follow the recommended procedure and use all recommended tooling to release the spring force.**

- 
12. Remove bolts, cover (23) , and the O-ring seal from each side of the traction control valve.
  13. Remove two springs (24) , two guides (25) , and the assembled spool (26) from the traction control valve.
- 



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Illustration 10

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**! WARNING**

**Personal injury can result from being struck by parts propelled by a released spring force.**

**Make sure to wear all necessary protective equipment.**

**Follow the recommended procedure and use all recommended tooling to release the spring force.**

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14. Remove guide (27) , spring (28) , and ball (29) from one end of spool (30) . Remove guide (27) , spring (28) , and ball (29) from the other end of the spool.
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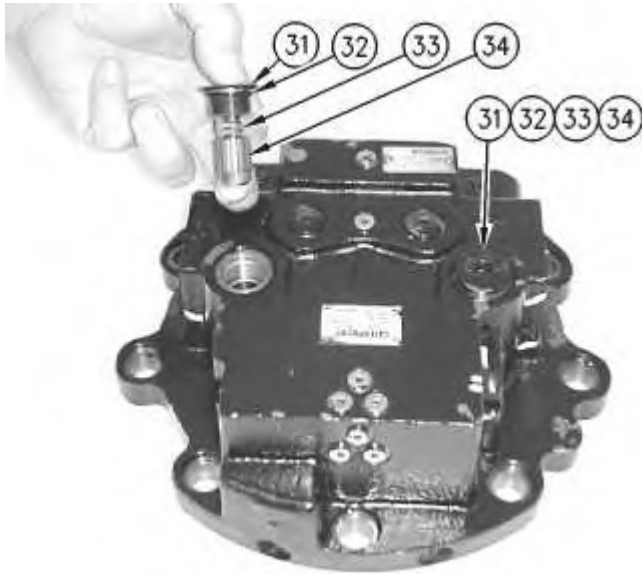


Illustration 11

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## **WARNING**

**Personal injury can result from being struck by parts propelled by a released spring force.**

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**Follow the recommended procedure and use all recommended tooling to release the spring force.**

15. Remove plug (31) , spring (33) , and piston (34) from each side of the housing.
16. Remove O-ring seal (32) from each plug (31) .

**Note:** If necessary, remove the remaining allen head bolts from the housing for cleaning purposes. Each allen head bolt has an O-ring seal that must be inspected for wear or for damage. Replace the O-ring seals, if necessary.

## **Disassembly Procedure for the Travel Motor**

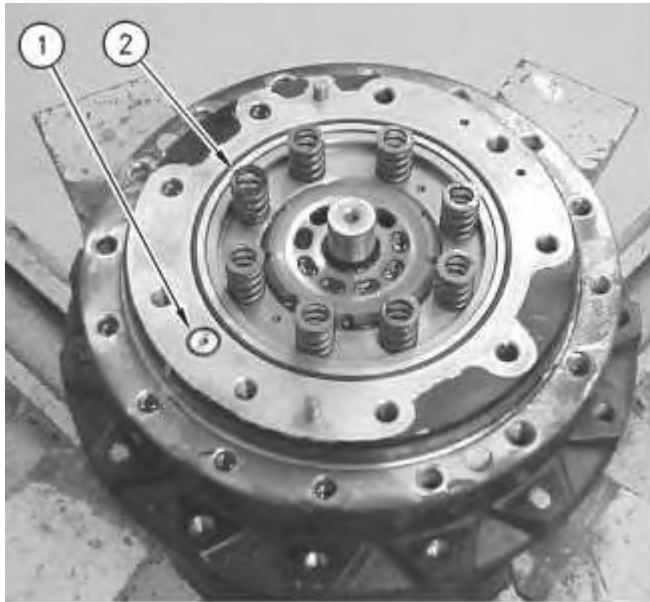


Illustration 12

g00941810

1. Remove O-ring seals (1) and springs (2) .

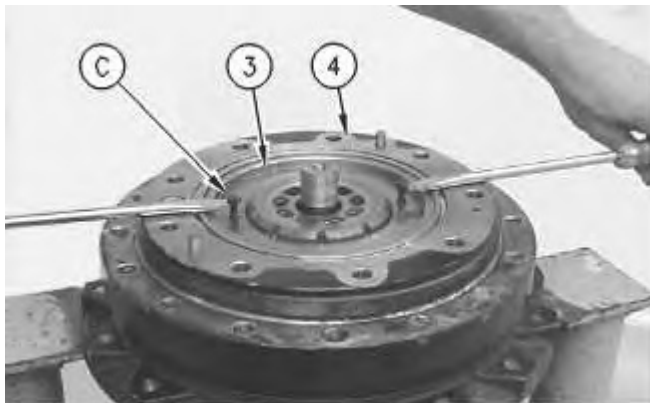


Illustration 13

g00941899

2. Install Tooling (C) in piston (3) . Use suitable prybars to remove piston (3) from body (4) .

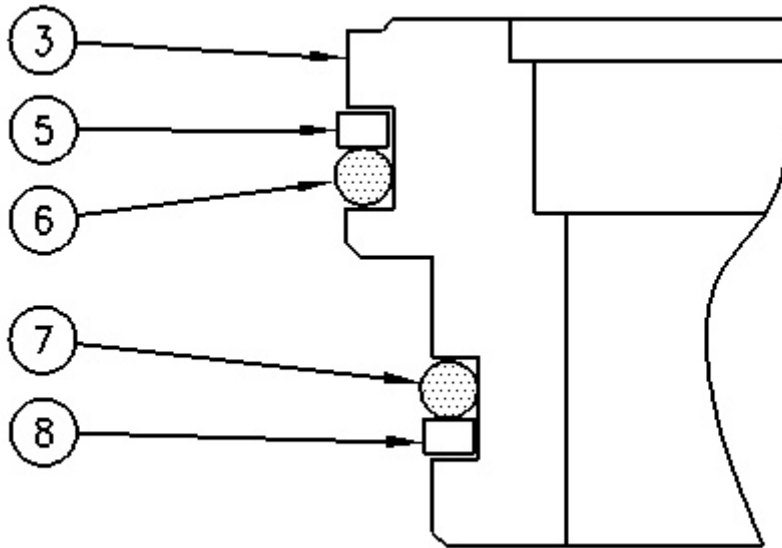


Illustration 14

g00941913

3. Remove O-ring seals (6) and (7) from piston (3) . Remove backup rings (5) and (8) from the piston.



Illustration 15

g00941928

4. Use suitable prybars to remove guide (9) .



Illustration 16

g00941964

5. Remove O-ring seal (10) and backup ring (11) from guide (9) .

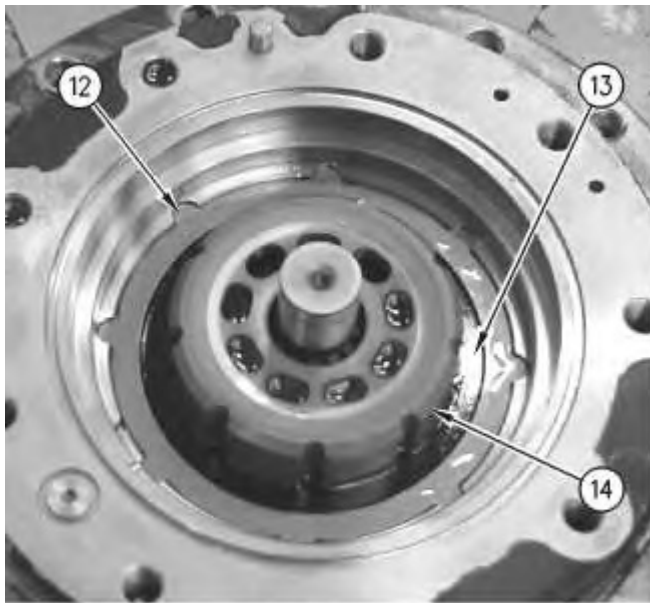


Illustration 17

g00942161

6. Remove four separator plates (12) and four friction plates (13) .
7. Do not allow the individual components to separate during the removal of barrel assembly (14) . Position the final drive on a side in order to remove the barrel assembly. Oil will drain from the final drive. Place a suitable container under the final drive for storage or disposal of the oil.
8. Remove barrel assembly (14) .

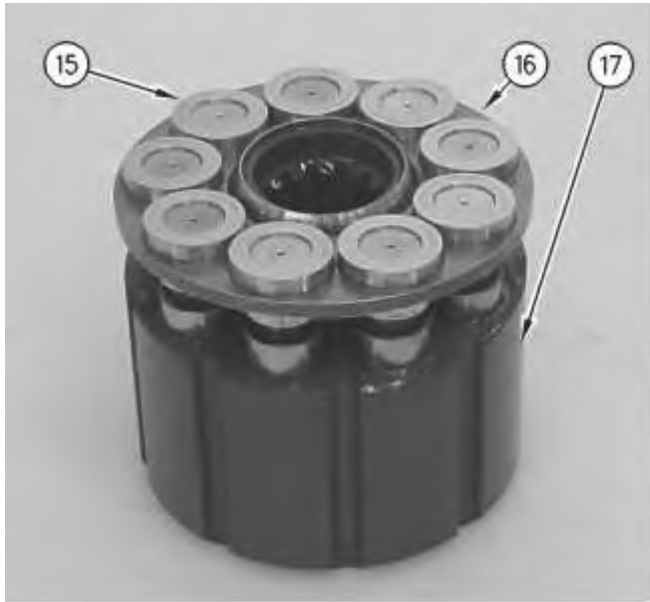


Illustration 18

g00942301

9. Before the disassembly of barrel assembly (14) , mark the individual components for reassembly. Put identification marks on piston assemblies (15) , retainer (16) , and barrel (17) . Remove piston assemblies (15) and retainer (16) from barrel (17) .

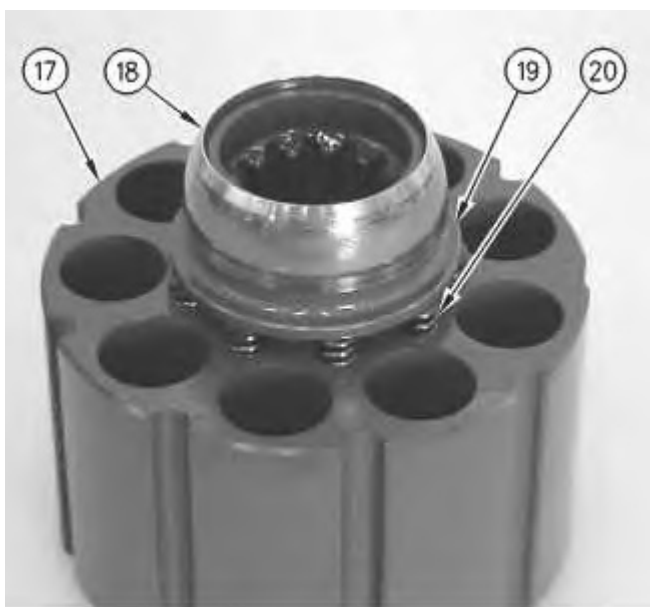


Illustration 19

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 **WARNING**

**Personal injury can result from being struck by parts propelled by a released spring force.**

**Make sure to wear all necessary protective equipment.**

**Follow the recommended procedure and use all recommended tooling to release the spring force.**

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10. Remove retainer (18) , spacer (19) and nine springs (20) from barrel (17) .

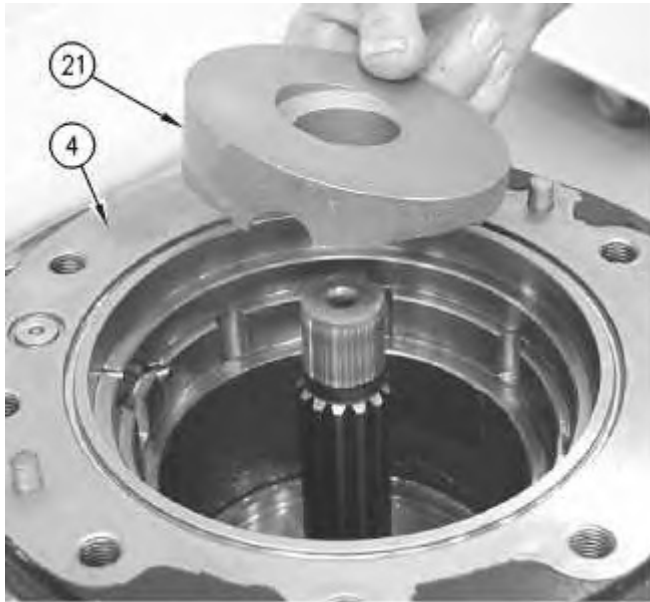


Illustration 20

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11. Mark the orientation cam plate (21) for reassembly. The thick edge of the cam plate is adjacent to the cross-drilled holes in body (4) .



Illustration 21

g00942377

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Illustration 22

g00942378

## **WARNING**

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**Make sure to wear all necessary protective equipment.**

**Follow the recommended procedure and use all recommended tooling to release the spring force.**

12. Remove pistons (22) and springs (24) .
13. Remove keys (23) .

## **Disassembly Procedure for the Final Drive**



Illustration 23

g00942473

1. Use a suitable lifting device to place the final drive on Tooling (B) . The final drive weighs approximately 200 kg (440 lb). Fasten the final drive to Tooling (B) .
2. Remove plugs (1) . Inspect the O-ring seals on the plugs. Replace the O-ring seals, if necessary.
3. Remove bolts (2) .
4. Use a chisel in order to remove cover (3) .



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Illustration 24

g00942510

5. Heat bolts (4) in order to loosen the thread sealant.
  6. Remove bolts (4) and remove plate (5) .
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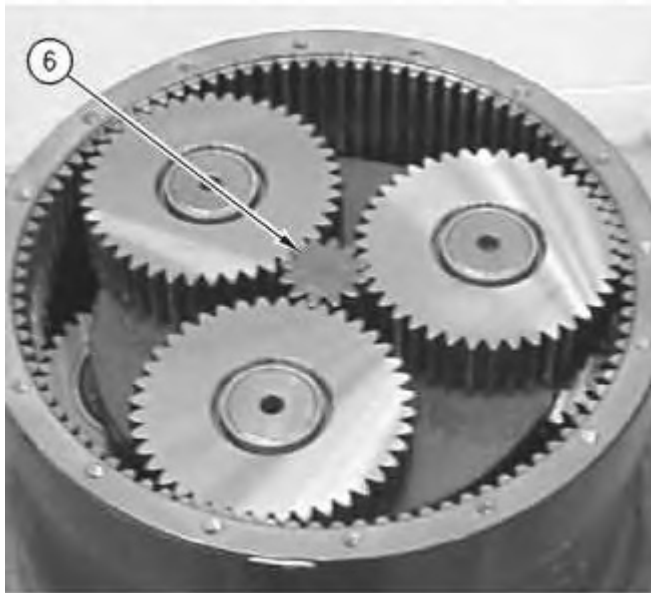


Illustration 25

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7. Remove sun gear (6) .



Illustration 26

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8. Install Tooling (A) on carrier (7) . Attach a suitable lifting device to Tooling (A) . Remove carrier (7) , planet gears (8) , and bearings (9) as a unit.

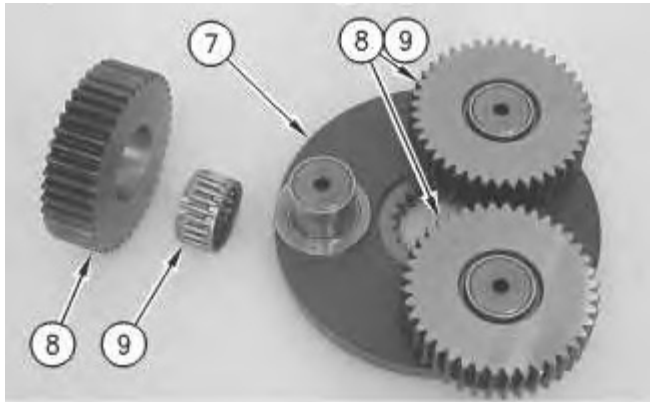


Illustration 27

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9. Remove planet gears (8) and bearings (9) from carrier (7) .

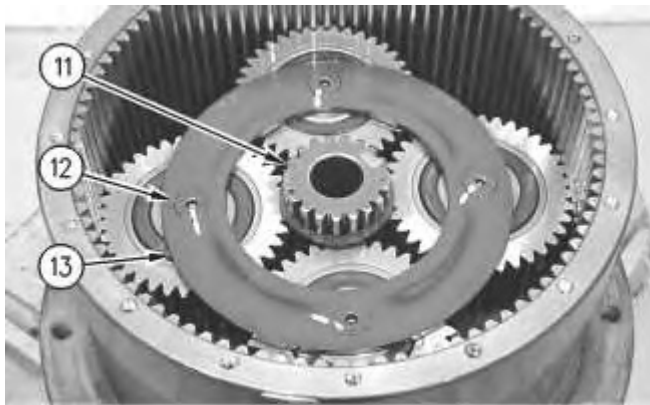


Illustration 28

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10. Remove sun gear (11) .
11. Heat bolts (12) in order to loosen the thread sealant on the bolts. Remove bolts (12) .
12. Remove plate (13) .

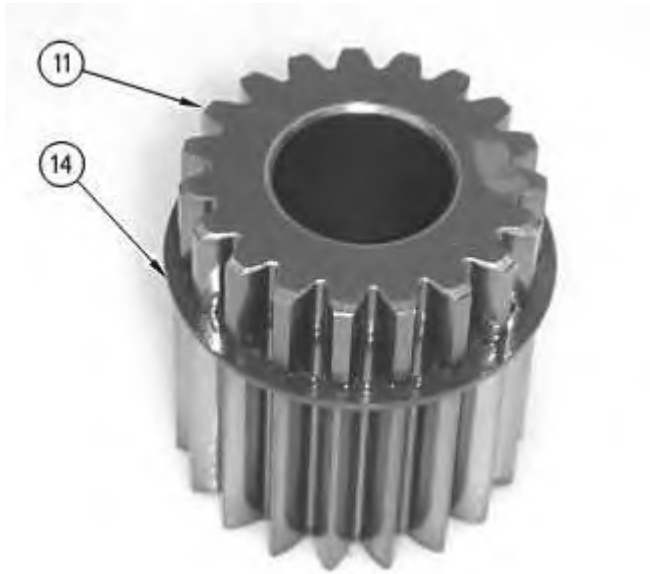


Illustration 29

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13. Inspect retaining ring (14) . Replace the retaining ring, if necessary. Remove the retaining ring if sun gear ( 11) must be replaced.

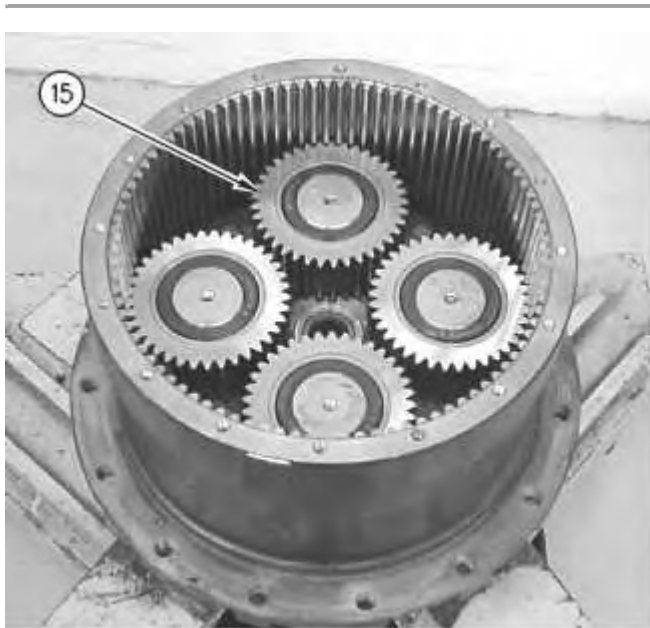


Illustration 30

g00942997

14. Remove planet gear (15) .
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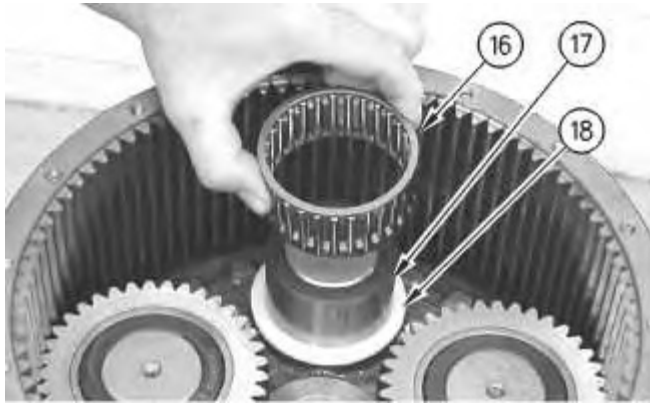


Illustration 31

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15. Remove bearing (16) , race (17) , and thrust washer (18) .
16. Remove the remaining planet gears, bearings, races, and thrust washers.

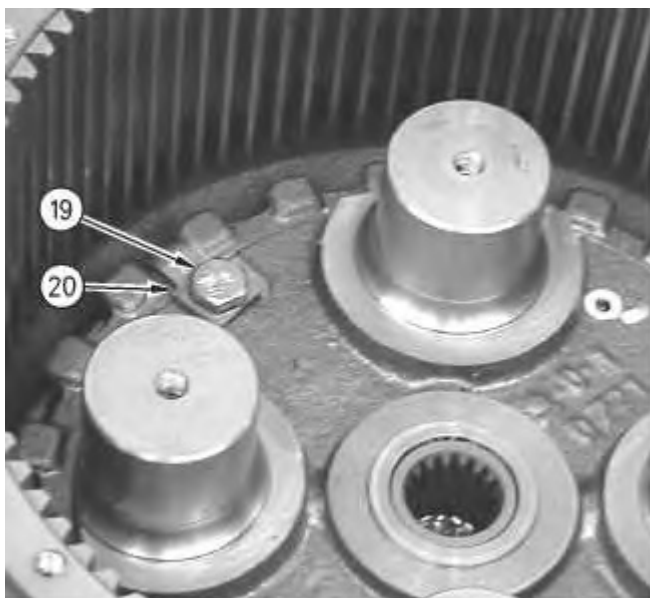


Illustration 32

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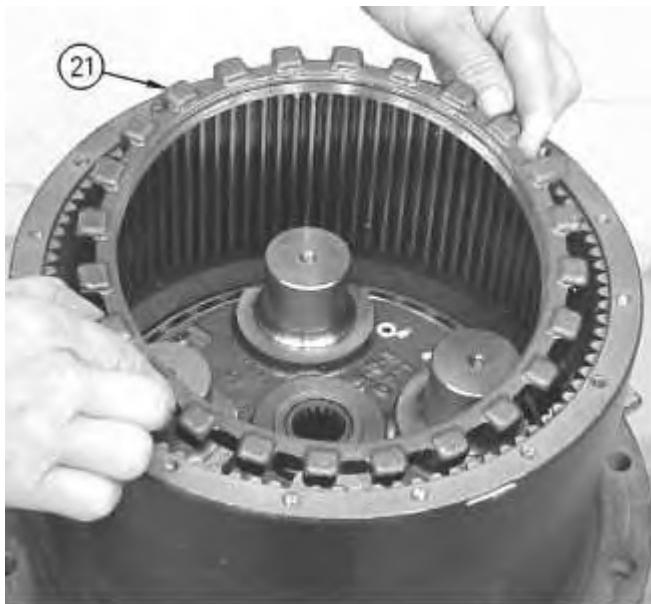
17. Remove bolt (19) and plate (20) .



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Illustration 33

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Illustration 34

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18. Install Tooling (H) . Use Tooling (H) to loosen nut (21) . Remove nut (21) .
-

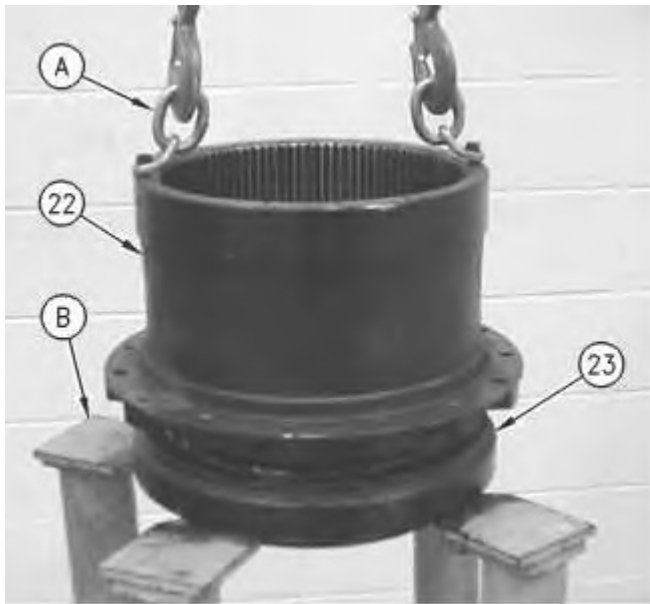


Illustration 35

g00943367

19. Install Tooling (A) and a suitable lifting device on housing (22) . The housing weighs approximately 35 kg (77 lb).
20. Remove housing (22) from body (23) .



Illustration 36

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21. Remove Duo-cone seal gp (24) from the body and from the housing.

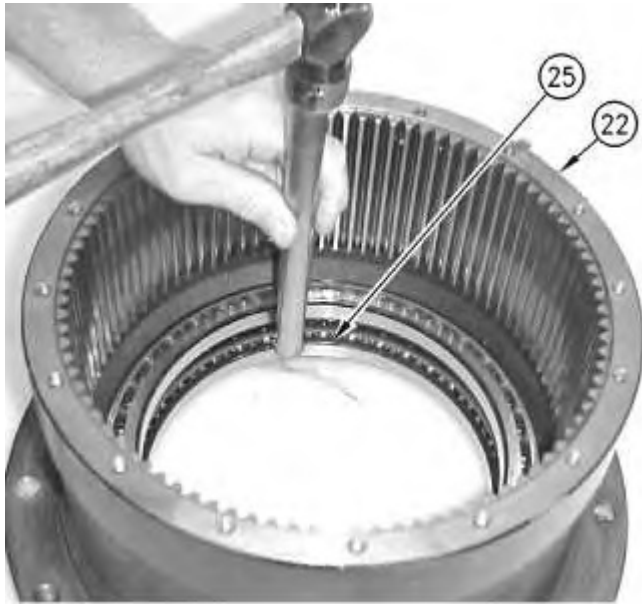


Illustration 37

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22. Use a brass punch to remove both bearings (25) from housing (22) .

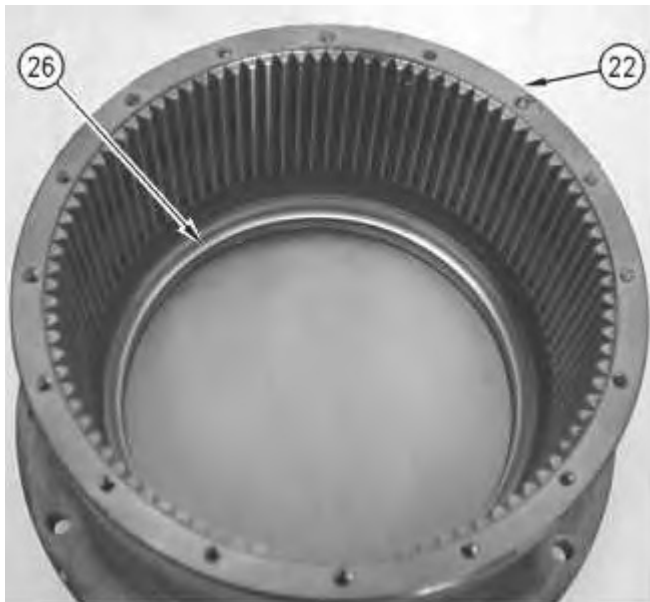


Illustration 38

g00943386

23. Remove both bearing races (26) from housing (22) .



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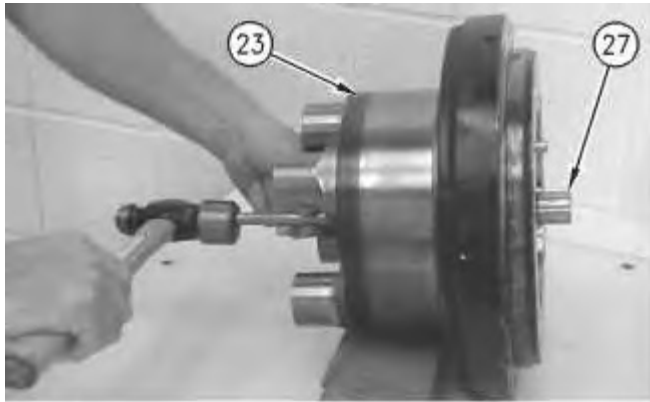


Illustration 39

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24. Position body (23) on the side. Remove shaft (27) with the bearing and the retaining ring as a unit.



Illustration 40

g00943506

25. Use Tooling (G) to remove retaining ring (28) from shaft (27) .

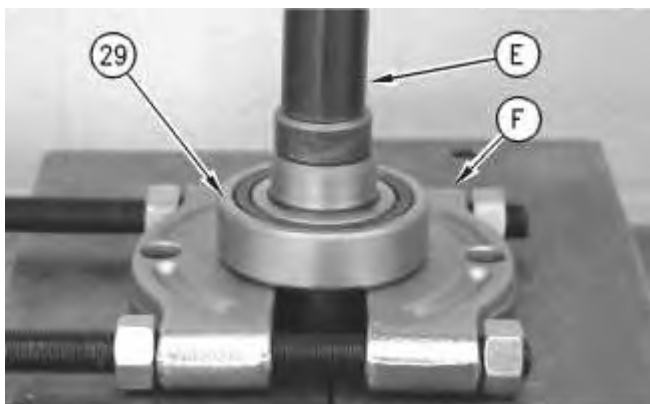


Illustration 41

g00943552

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