Product: WHEEL LOADER
Model: 988F WHEEL LOADER 8YG
Configuration: 988F Wheel Loader 8YG00001-UP (MACHINE) POWERED BY 3408 Engine

Disassembly and Assembly

988F and 988F Series II Wheel Loaders Power Train

Media Number -SENR5729-09 **Publication Date -01/08/2008** **Date Updated -18/08/2008**

i02360730

Output Transfer Gears - Disassemble

SMCS - 3075-015-OJ

Disassembly Procedure

Table 1

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	1H-3107	Bearing Puller	1
	1H-3108	Leg	2
	1H-3110	Puller Assembly	1
	5F-7366	Screw	1
	5F-7351	Nut	1
	5F-7353	Washer	1
	6V-3160	Puller	1
	4C-4865	Manual Hydraulic Pump	1
B	5F-7353	Washer	1
	6V-3160	Puller	1
	4C-4865	Manual Hydraulic Pump	1
	1P-1839	Bearing Puller Adapter	1
	8S-6587	Adapter	1
	9S-5559	Stud	1
	1M-6756	Sleeve Assembly	1

	9H-3992	Head	1
	1P-9543	Nut	1
C	8B-7554	Puller Assembly	1
	8B-7548	Bearing Puller	1
	8H-0684	Ratchet Wrench	1
D	8B-7548	Bearing Puller	1
	8B-7551	Puller	1
	9S-9154	Step Plate	1
	8H-0684	Ratchet Wrench	1
E	8B-7554	Puller Assembly	1
	8B-7548	Bearing Puller	1
	8B-7549	Leg	2
	8H-0684	Ratchet Wrench	1
F	8B-7548	Bearing Puller	1
	8B-7551	Puller	1
	5P-4170	Step Plate	1
	8H-0684	Ratchet Wrench	1
G	5B-4274	Bolt	2

Start By:

A. Remove the transfer gears. Refer to Disassembly and Assembly, "Transmission from Transfer Gears - Separate".

1. Put the output transfer gears on wood blocks.

2. Remove the yoke from the bottom of the output shaft.

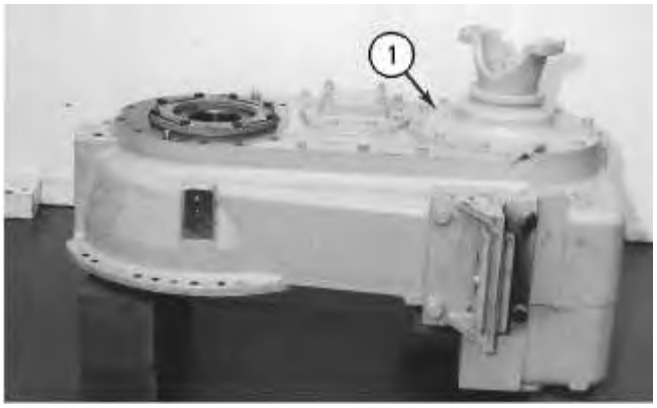

Illustration 1 g00513285

Note: Bolts (1) are not all the same size. Note the locations of the different bolt sizes.

3. Remove eleven bolts (1) and the washers.

Illustration 2 g00513288

4. Attach a hoist to the bearing cage and transfer shaft assembly. Remove the bearing cage and transfer shaft assembly from the transfer case. The weight of the unit is 95 kg (210 lb).

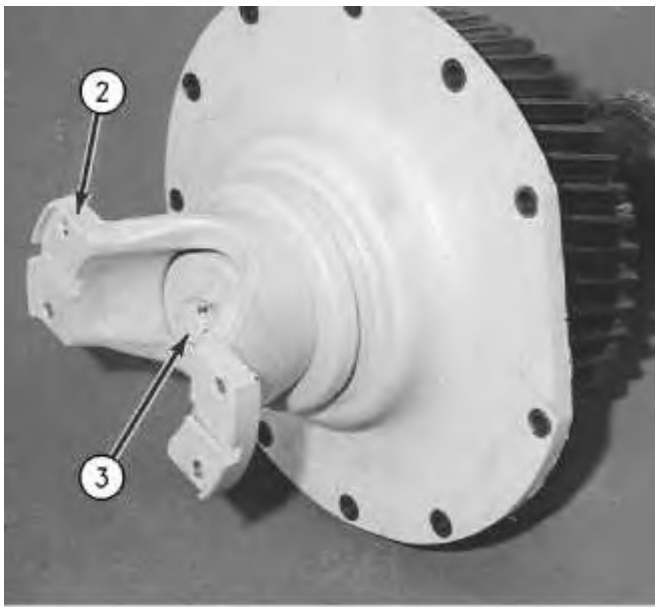

Illustration 3 g00513441

5. Remove bolt (3) and the retainer plate from the end of the shaft. Remove the O-ring seal from the end of the shaft. Remove yoke (2) . Remove the dirt guard from the shaft.

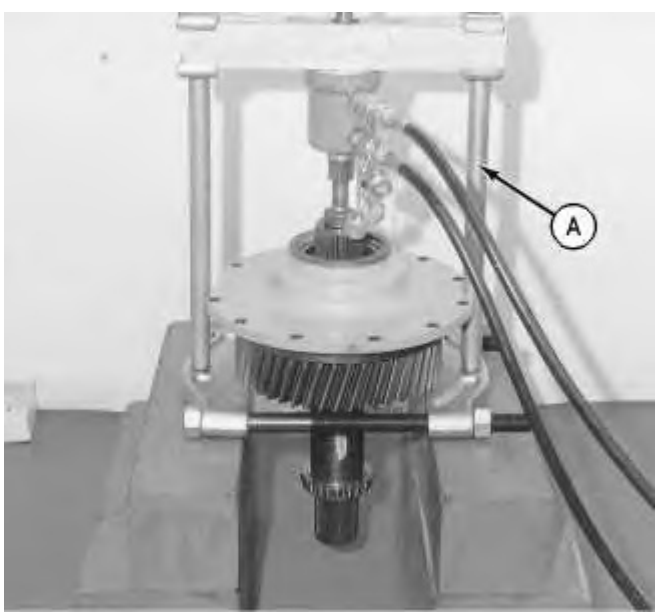

Illustration 4 g00513452

6. Use Tooling (A) to remove the bearing cage with the bearings, the spacer and the gear from the shaft.

7. Remove the O-ring seal from the bearing cage.

Illustration 5 g00513461

8. Remove lip seal (4) from the bearing cage.

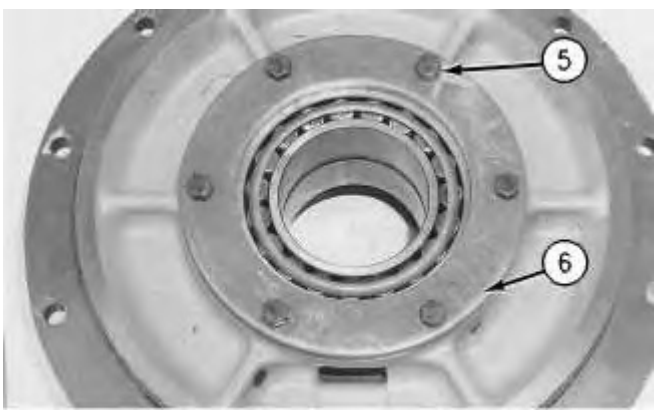

Illustration 6 g00513488

9. Invert the bearing cage. Remove six bolts (5) , the washers, and retainer (6) .

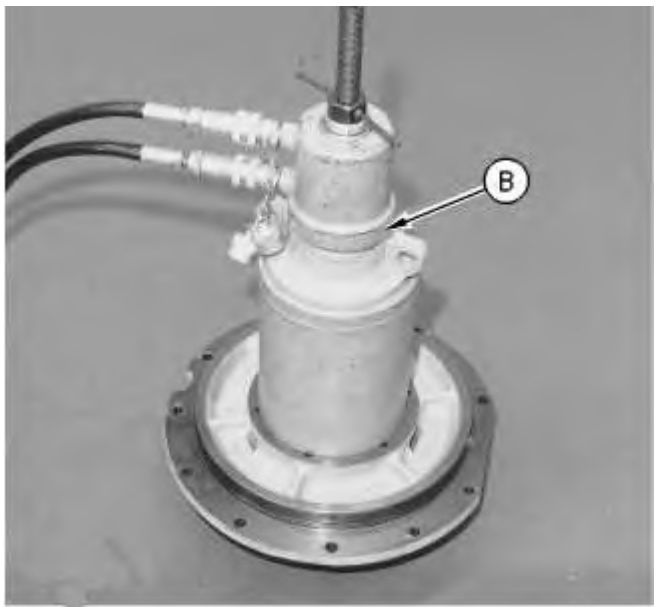

Illustration 7 g00513505

10. Use Tooling (B) to remove two bearing cones and the bearing cup from the bearing cage.

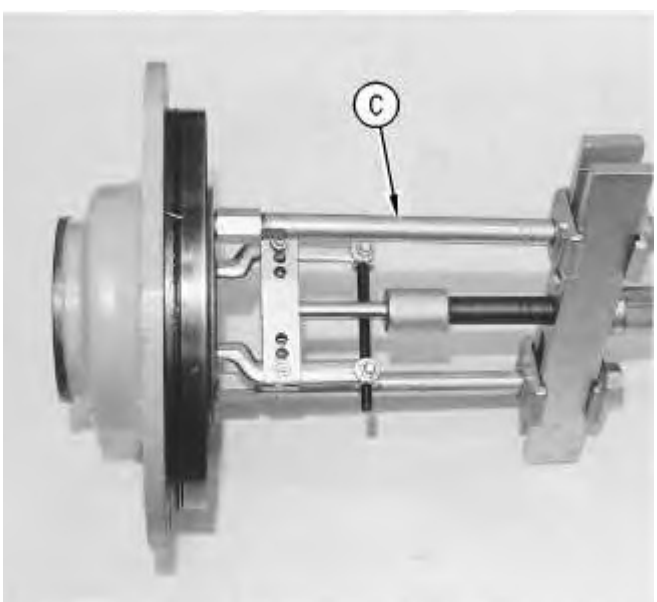

Illustration 8 g00513508

11. Use Tooling (C) in order to remove the other bearing cup from the bearing cage.

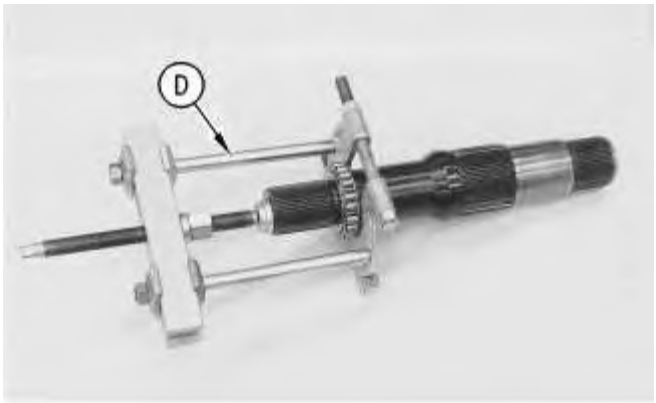

Illustration 9 g00513510

12. Use Tooling (D) to remove the bearing race and the inner bearing from the shaft.

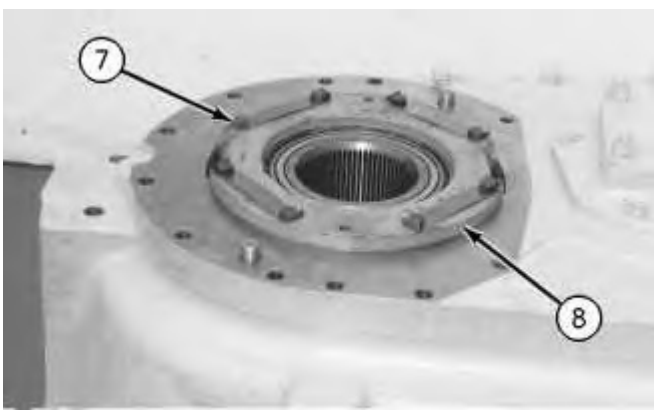

Illustration 10 g00513627

13. Remove bolts (7) and the washers that hold bearing cage (8) .
14. Use two bolts (7) as forcing screws to loosen bearing cage (8) . Install the two bolts in the threaded holes. Tighten the bolts evenly until the bearing cage is loose.
15. Remove bearing cage (8) and the shims from the transfer case.

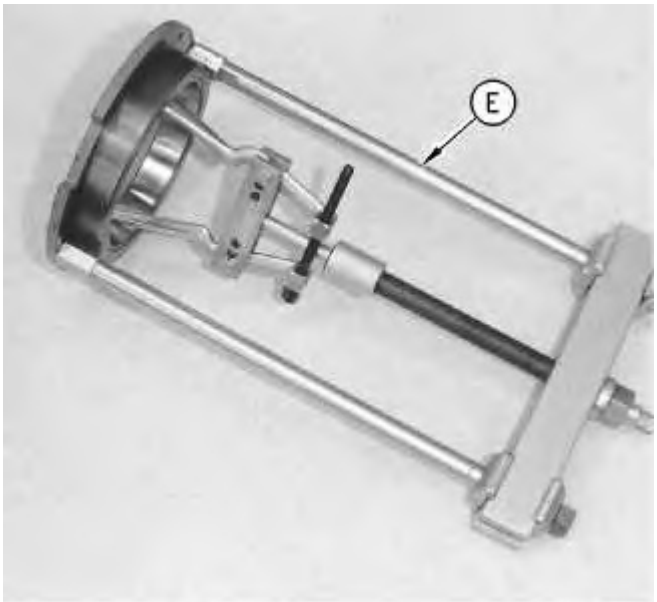

Illustration 11 g00513642

16. Use Tooling (E) in order to remove the bearing cup from bearing cage (8) .

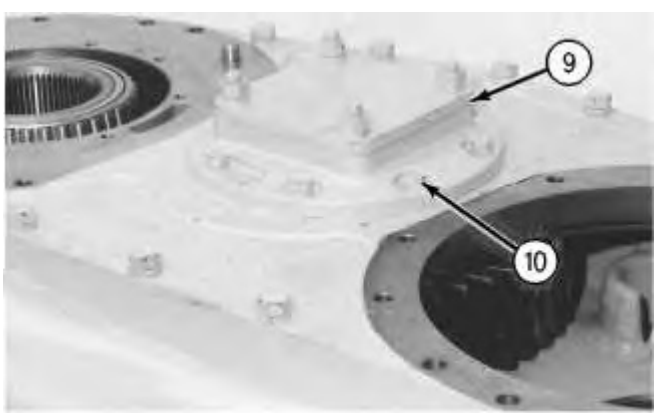

Illustration 12 g00513647

17. Remove bolts (10) and the washers from bearing cage assembly (9) .
18. Use two bolts (10) as forcing screws to loosen bearing cage (9) . Install the two bolts in the threaded holes. Tighten the bolts evenly until the bearing cage is loose.
19. Remove bearing cage assembly (9) and the shims from the transfer case.

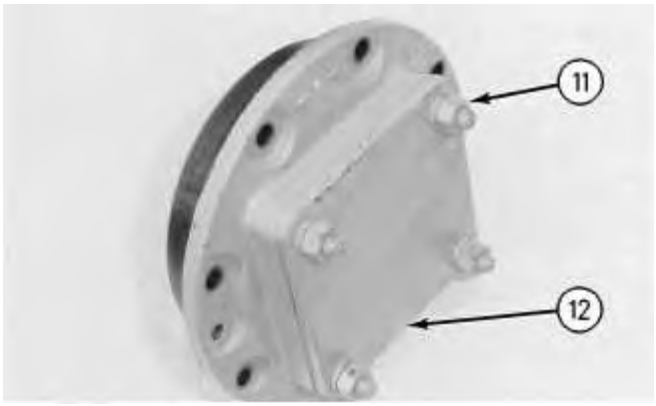

Illustration 13 g00513651

20. Remove four nuts (11) and the washers. Remove cover (12) . Remove the O-ring seal from underneath cover (12) .

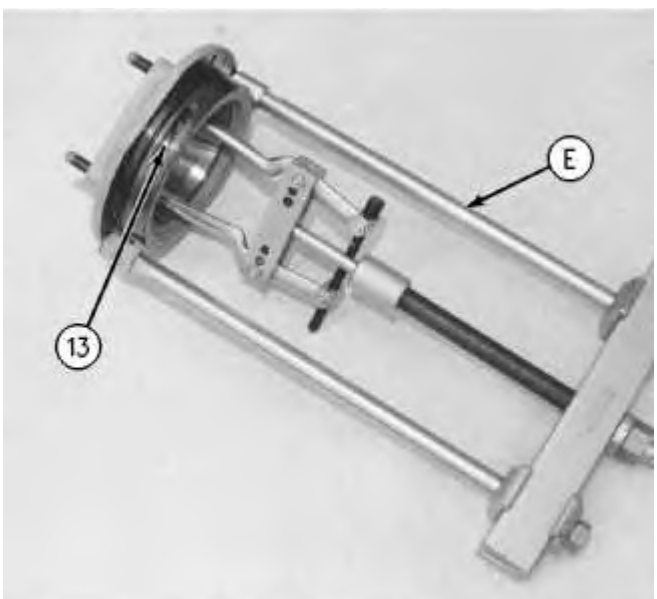

Illustration 14 g00513656

21. Remove O-ring seal (13) from the bearing cage assembly.

22. Use Tooling (E) in order to remove the bearing cup from the bearing cage.

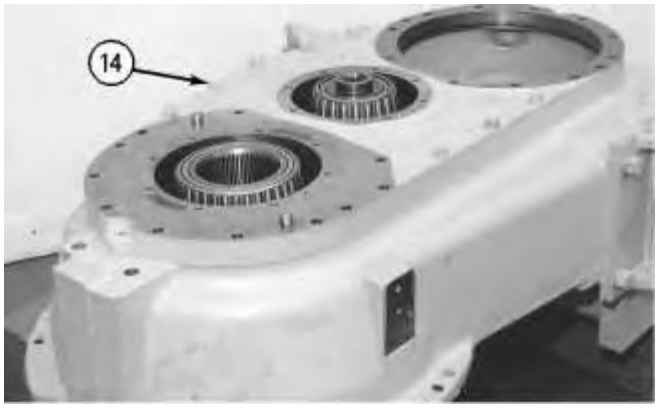

Illustration 15 g00513660

23. Remove bolts (14) and the washers that hold the gear case cover to the transfer case.

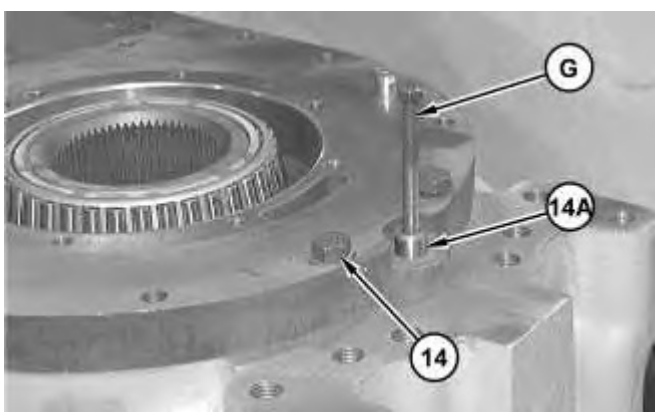

Illustration 16 g01179615

24. Install two bolts (14) and the washers in the gear case cover to the transfer case.
25. Use Tooling (G) to remove dowel (14A) from the gear case cover.
26. Remove two bolts (14) and the washers.
27. Repeat Steps 24 through 26 on the opposite end of the transfer case.

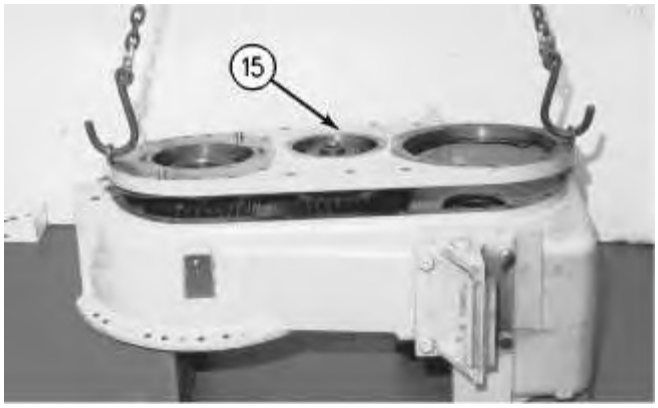

Illustration 17 g00513663

28. Install two 3/8" - 16 NC forged eyebolts into gear case cover (15) . Attach suitable lifting chains and a hoist to the gear case cover. Remove the cover from the transfer case. The weight of the cover is 45 kg (100 lb).

Illustration 18 g00513666

29. Attach a suitable lifting sling and a hoist to gear (16) . Remove gear (16) from the transfer case. The weight of the gear is 39 kg (86 lb).

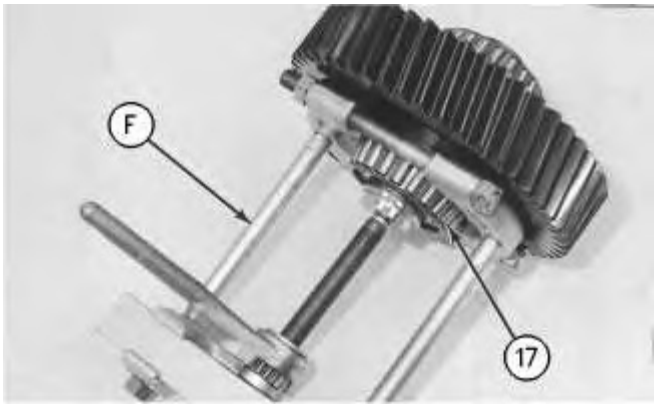

Illustration 19 g00513709

30. Use Tooling (F) in order to remove two bearing cones (17) from gear (16) .

Illustration 20 g00513724

31. Attach a suitable lifting sling and a hoist to gear (18) . Remove gear (18) from the transfer case. The weight of the gear is 29 kg (64 lb).

Illustration 21 g00513726

32. Remove two bearing cones (19) from gear (18) .
33. Use Tooling (C) to remove the two bearing cups from the transfer case.
34. Invert the transfer case. Remove the small O-ring seal from the transfer case.

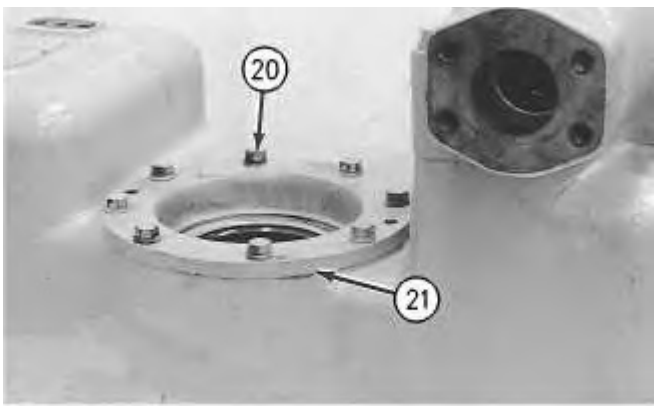

Illustration 22 g00513884

35. Remove bolts (20) and the washers from bearing cage assembly (21) .
36. Use two bolts (20) as forcing screws to loosen bearing cage (21) . Install the two bolts in the threaded holes. Tighten the bolts evenly until the bearing cage is loose.
37. Remove bearing cage assembly (21) from the transfer case.
38. Remove the O-ring seal from bearing cage (21) .

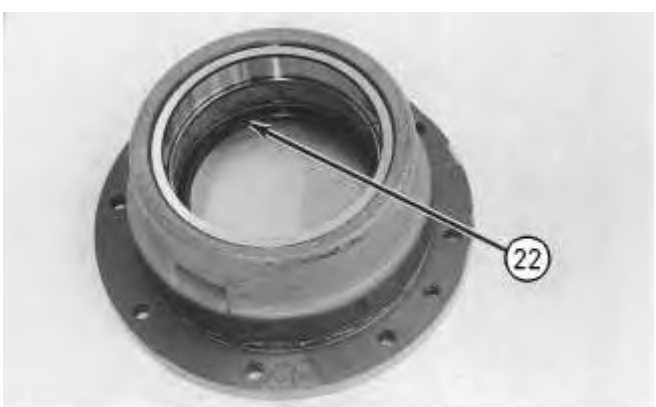

Illustration 23 g00513743

39. Remove lip seal (22) from bearing cage (21) .

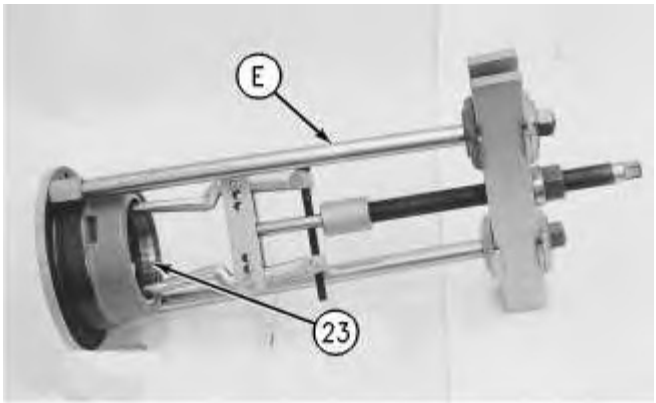

Illustration 24 g00513746

40. Use Tooling (E) to remove bearing race (23) from bearing cage (21) .

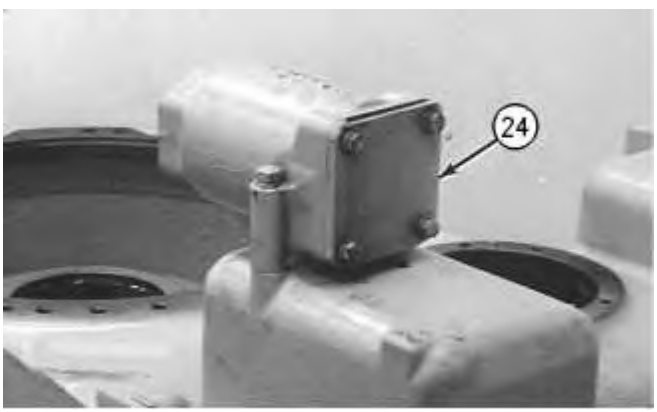

Illustration 25 g00513747

41. Remove plate assembly (24) , the O-ring seal, the screen and the tube assembly from the transfer case.

Product: WHEEL LOADER
Model: 988F WHEEL LOADER 8YG
Configuration: 988F Wheel Loader 8YG00001-UP (MACHINE) POWERED BY 3408 Engine

Disassembly and Assembly
988F and 988F Series II Wheel Loaders Power Train
Media Number -SENR5729-09 **Publication Date -01/08/2008** **Date Updated -18/08/2008**

i04058253

Output Transfer Gears - Assemble

SMCS - 3075-016-OJ

Assembly Procedure

Table 1

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	1P-0520	Driver Group	1
B	8S-2328	Hydraulic Transmission Indicator Group	1
C	6V-6640	Sealant	1

1. Verify that the magnets on the tube assembly and the screen are free of dirt and debris.

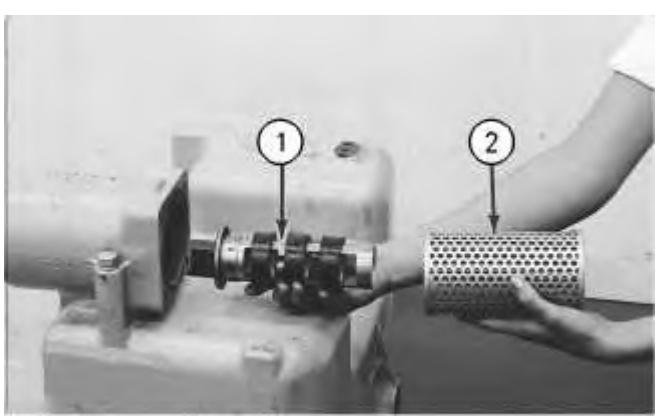

Illustration 1 g00514010

2. Install tube assembly (1) and screen (2) in the screen housing.

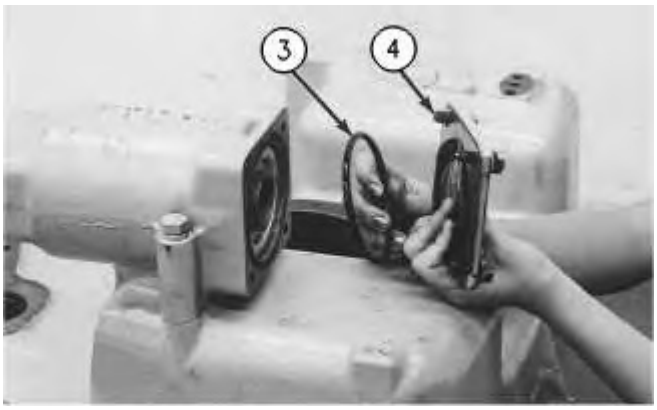

Illustration 2 g00514015

3. Install O-ring seal (3) and plate (4) on the screen housing.

Illustration 3 g00514017

4. Lower the temperature of bearing cup (5) . Install the bearing cup in the bearing cage.

Illustration 4 g00514018

5. Install O-ring seal (6) on the bearing cage.

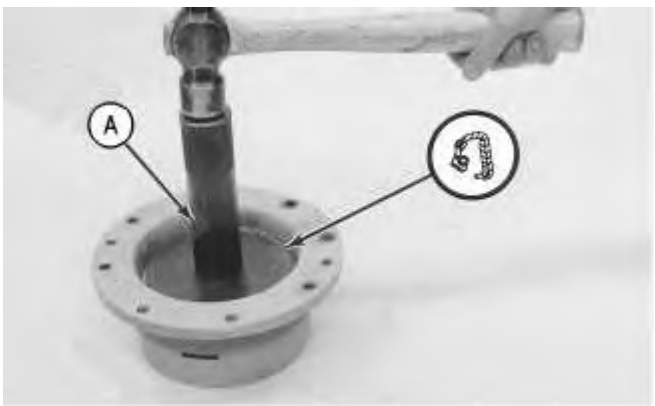

Illustration 5 g00514020

6. Use Tooling (A) to install the lip seal in the bearing cage. The seal must contact with the counterbore in the bearing cage. The lip of the seal must face toward the inside of the bearing cage.

7. Place **1P-0808** Multipurpose Grease on the lip of the seal and on the O-ring seal.

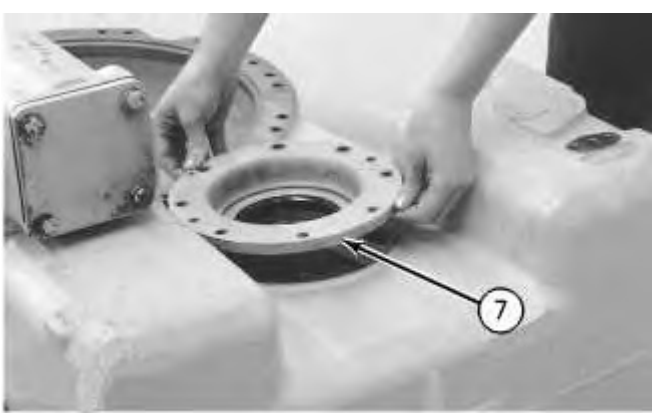

Illustration 6 g00514021

8. Install bearing cage (7) in the transfer case. Install the bolts and the washers that hold the cage in position.

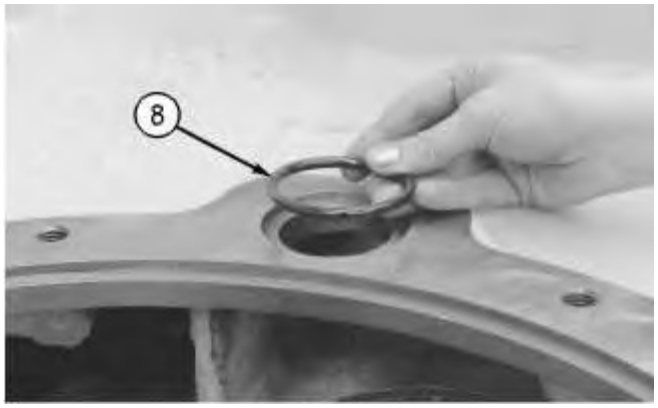

Illustration 7 g00514029

9. Install O-ring seal (8) in the transfer case.

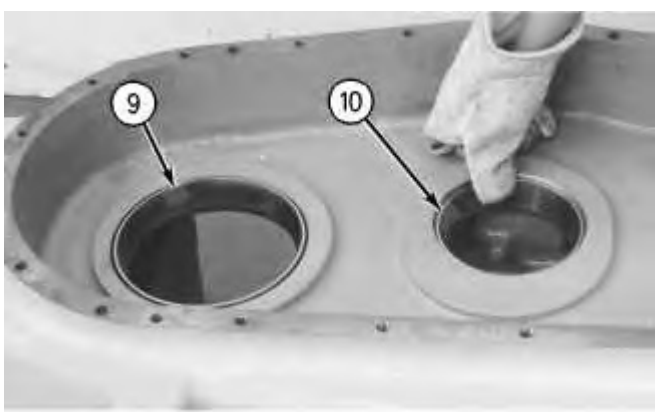

Illustration 8 g00514030

10. Lower the temperature of bearing cup (9) and bearing cup (10) . Install the bearing cups in the transfer case.

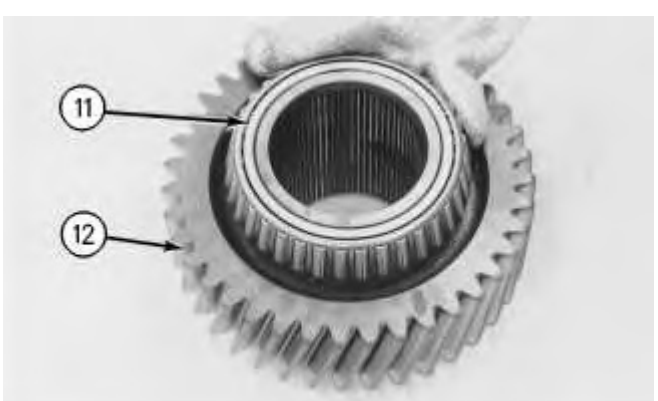

Illustration 9 g00514033

11. Heat two bearing cones (11) to a maximum temperature of 135 °C (275 °F). Install the bearing cones on gear (12) .

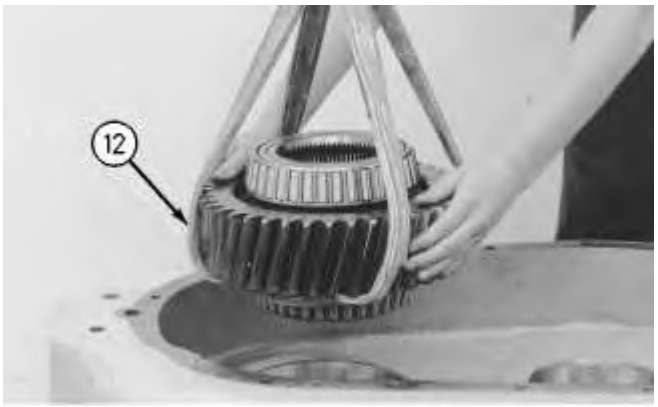

Illustration 10 g00514042

12. Attach a suitable lifting sling and a hoist to gear (12) . The weight of gear (12) is 29 kg (64 lb). Place gear (12) in position in the transfer case.

Illustration 11 g00514067

13. Heat two bearing cones (13) to a maximum temperature of 135 °C (275 °F). Install the bearing cones on gear (14) .

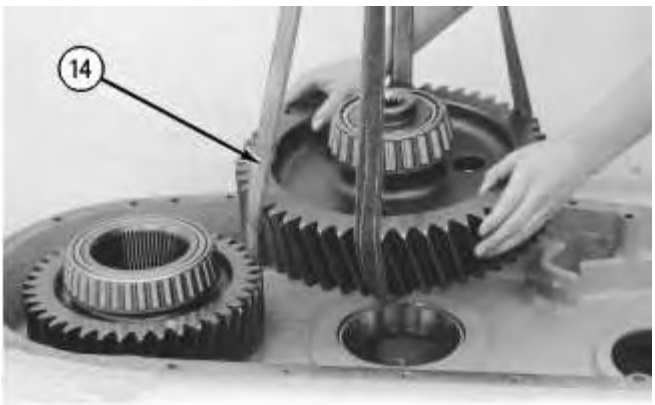

Illustration 12 g00514071

14. Attach a suitable lifting sling and a hoist to gear (14) . The weight of gear (14) is 39 kg (86 lb). Place gear (14) in position in the transfer case.

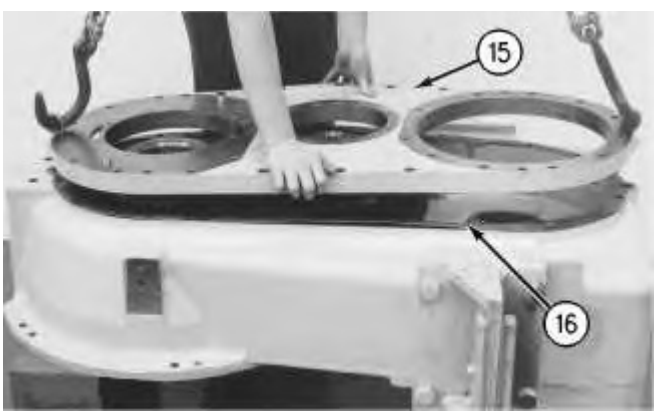

Illustration 13 g00514077

15. Use Tooling (C) on the mating surface of the transfer case.

16. Attach a hoist to gear case cover (15) . Place the gear case cover in position on the transfer case. Install the eight bolts and the washers that hold the cover to the transfer case.

Illustration 14 g00514080

17. Lower the temperature of bearing cup (17) . Install the bearing cup in bearing cage (18) .

18. Install bearing cage (18) in the transfer case. DO NOT install the O-ring seal or the shims at this time. Install two bolts that are evenly spaced. Tighten the bolts finger tight.

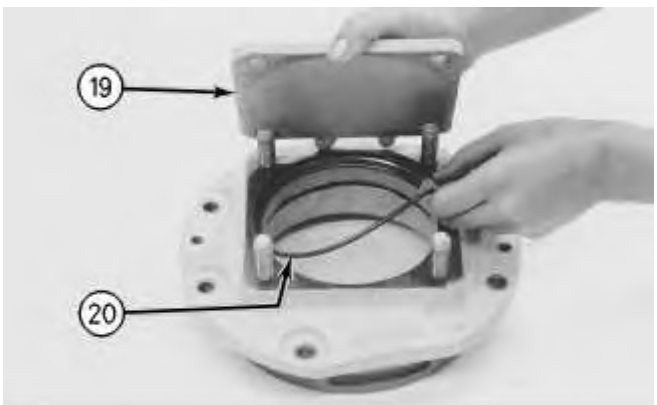

Illustration 15 g00514086

19. Install O-ring seal (20) on the bearing cage. Install cover (19) . Install the washers and the nuts that hold the cover in place.

Illustration 16 g00514089

20. Lower the temperature of bearing cup (21) . Install bearing cup (21) in bearing cage (22) .

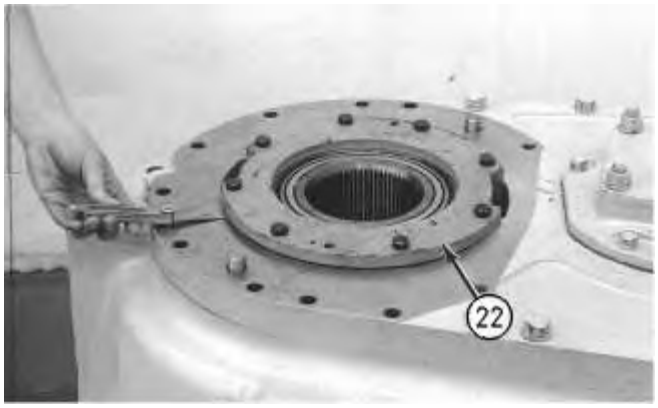

Illustration 17 g00514096

21. Install bearing cage (22) in the transfer case. DO NOT install the shims at this time. Install two bolts that are evenly spaced. Tighten the bolts finger tight.

22. Perform the following steps in order to properly tighten the bolts that hold bearing cage (18) .

    a. Tighten the bolts that hold bearing cage (18) and bearing cage (22) to a torque of 2.25 N·m (20 lb in).

    b. Gears (12) and (14) should be rotated three times.

    c. Tighten the bolts that hold bearing cage (18) and bearing cage (22) to a torque of 4.5 N·m (40 lb in).

    d. Gears (12) and (14) should be rotated three times.

    e. Tighten the bolts that hold bearing cage (18) and bearing cage (22) to a torque of 4.5 N·m (40 lb in).

23. Measure the gap between each bearing cage and the transfer case in two different locations.

24. Average the two readings for each bearing cage. Add 0.18 mm (0.007 inch) to each dimension. This dimension is the thickness of the shim.

25. Remove bearing cage (18) and bearing cage (22) from the transfer case.

26. Install the O-ring seal on bearing cage (22) .

27. Install bearing cage (18) and bearing cage (22) with the correct thickness of shims. Install the bolts and the washers that hold the bearing cages in position. Tighten the bolts to a torque of 135 ± 20 N·m (100 ± 15 lb ft).

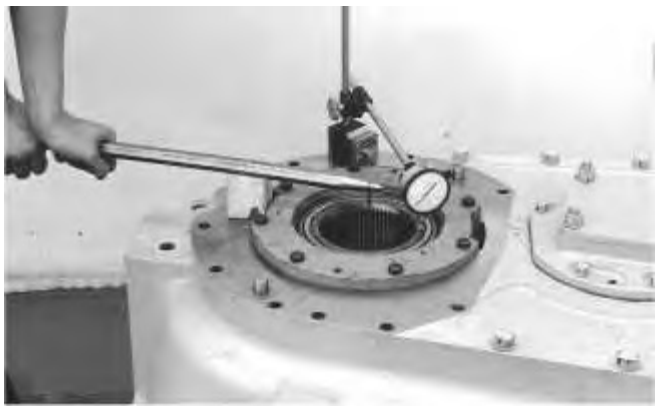

Illustration 18 g00514106

28. Attach Tooling (B) to the transfer case. Check the end play of gears (12) and (14) . Move each gear up and down and record the readings. the end play must be 0.05 mm (0.002 inch) to 0.11 mm (0.004 inch).

29. If the end play is less than 0.05 mm (0.002 inch), add shims. If the end play is more than 0.11 mm (0.004 inch), remove shims.

Illustration 19 g00514110

30. Heat inner bearing (23) to a maximum temperature of 135 °C (275 °F). Install the inner bearing on the shaft.

Illustration 20 g00514111

31. Lower the temperature of the two bearing cups and bearing cones (24) . Install the bearing cups and the bearing cones in bearing cage (25) .

Illustration 21 g00514114

32. Install retainer (26) on bearing cage (25) . The part number should be visible. Install the six bolts and the washers that hold the retainers in position. Tighten the bolts to a torque of 54 ± 7 N·m (40 ± 5 lb ft).

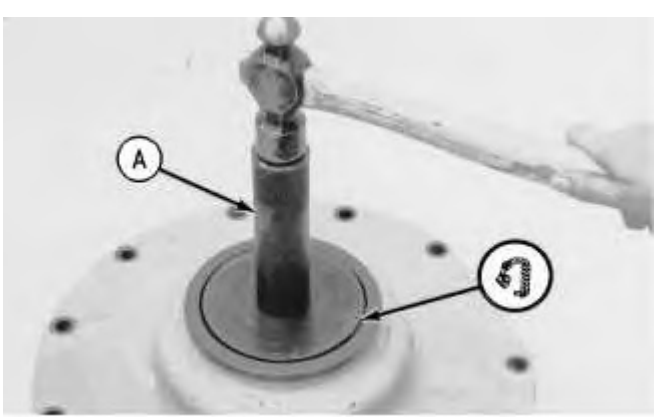

Illustration 22 g00514118

33. Use Tooling (A) to install the lip seal in bearing cage (25) . The seal must make contact with the counterbore in the bearing cage. The lip of the seal must face toward the inside of the bearing cage.

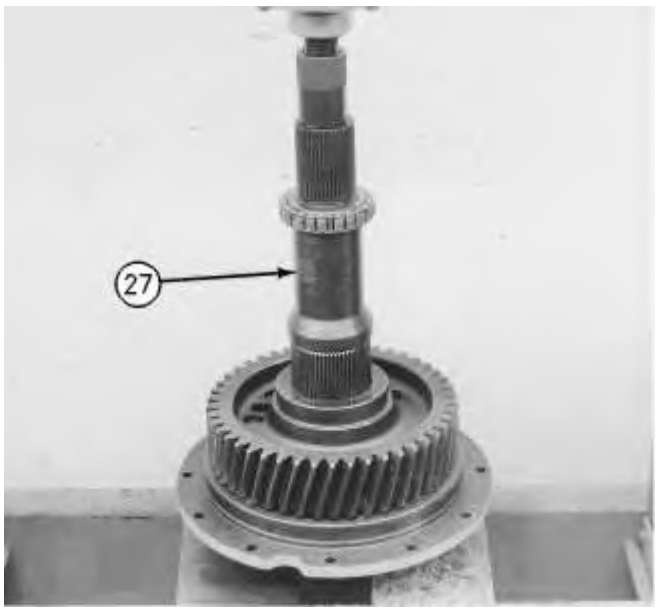

Illustration 23 g00514120

34. Place the bearing cage, the spacer, and the gear in position on a press. Install shaft (27) through the gear, the spacer, and the bearing cage with the press.

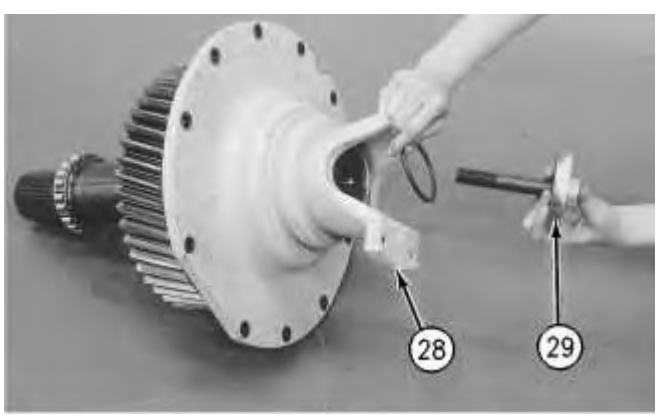

Illustration 24 g00514122

35. Install the dirt guard, yoke (28) , the O-ring seal, retainer (29) , and the bolt. Tighten the bolt to a torque of 480 ± 52 N·m (350 ± 38 lb ft).

36. Install the large O-ring seal on bearing cage (25) . Apply **1P-0808** Multipurpose Grease on the O-ring seal.

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