



Service Repair Manual

Models

994D WHEEL LOADER

Previous Screen

Product: WHEEL LOADER

Model: 994D WHEEL LOADER 3TZ

Configuration: 994D WHEEL LOADER 3TZ00001-UP (MACHINE) POWERED BY 3516B Engine

Disassembly and Assembly

3500 and 3500B High Displacement Engines for Caterpillar Built Machines

Media Number -SEN1126-33

Publication Date -01/07/2015

Date Updated -14/09/2018

i06151950

Engine Oil Pump - Remove

SMCS - 1304-011

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	138-7573	Link Bracket	1

Start By:

- A. Remove the fuel transfer pump. Refer to Disassembly and Assembly, "Fuel Transfer Pump - Remove".

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.

1. Drain the coolant from the cooling system into a suitable container for storage or disposal. Refer to the Operation and Maintenance Manual.

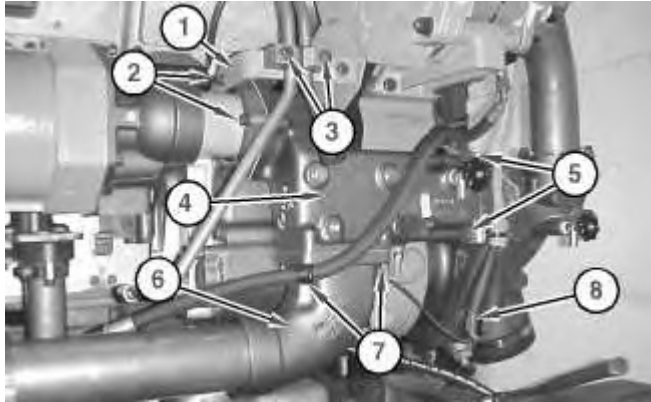


Illustration 1

g01052034

2. Disconnect harness assembly (8) .
3. Remove bolts (7) from elbow (6) .
4. Remove bolts (3) from the clamps.
5. Remove bolts (2) and remove bracket (1) .
6. Remove bolts (5) that hold housing (4) to the water pump. Remove housing (4) .

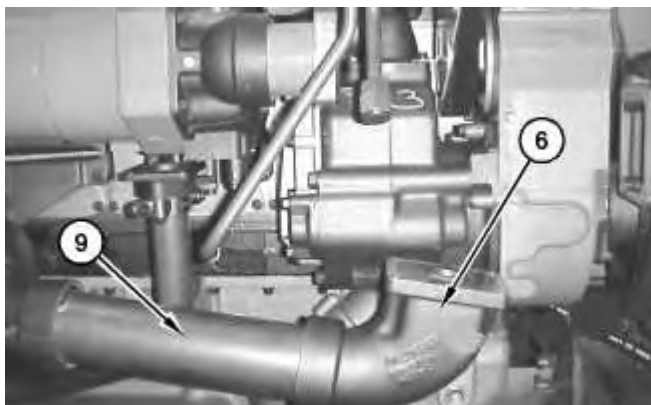


Illustration 2

g01052037

7. Remove elbow (6) and tube (9) .
-

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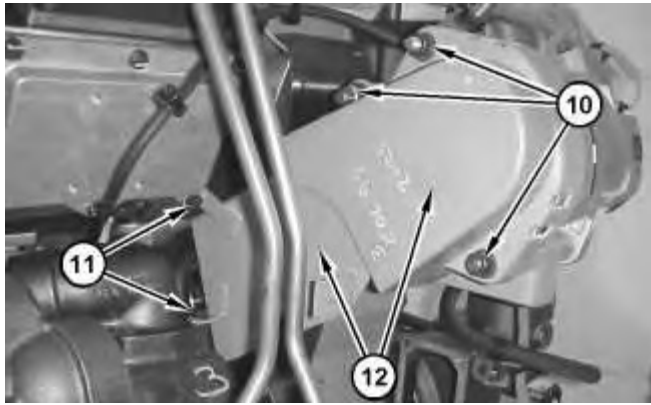


Illustration 3

g01052039

8. Remove bolts (11) and nuts (10) . Remove guards (12) .

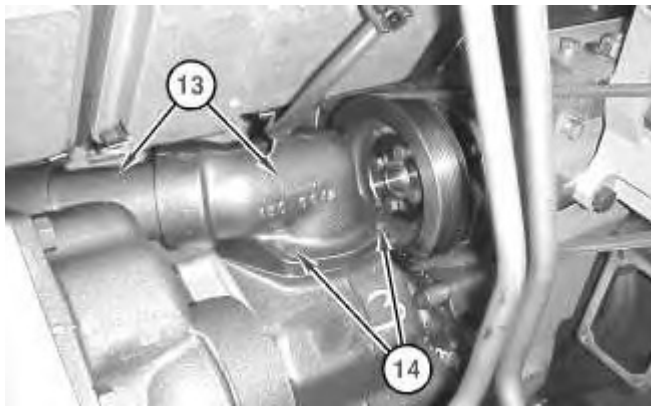


Illustration 4

g01052041

9. Remove bolts (14) and remove the elbow and tube (13) .

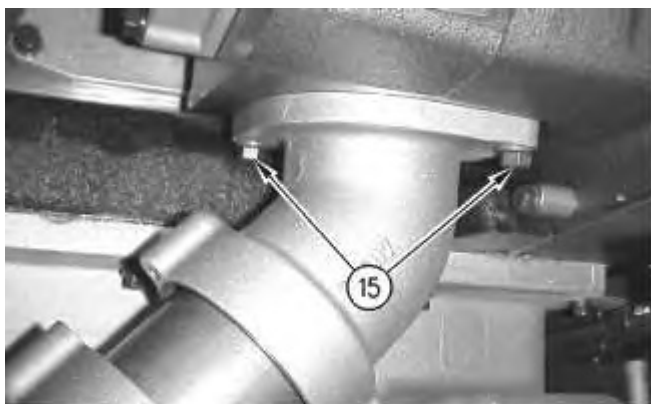


Illustration 5

g00916836

10. Remove bolts (15) .

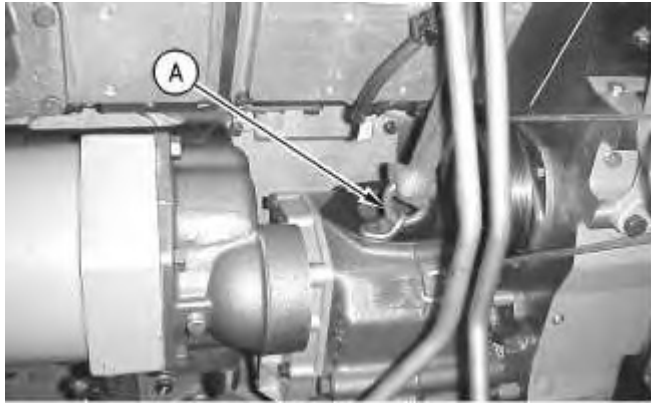


Illustration 6

g00916838

11. Install Tooling (A) and a suitable lifting device onto the oil pump.

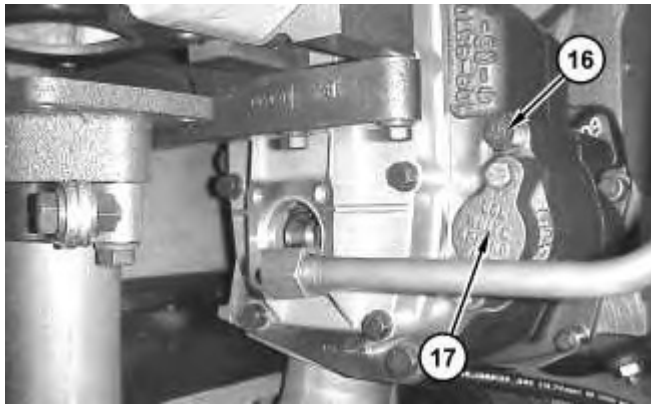


Illustration 7

g03830107

12. Remove bolts (16) and slide the oil pump away from the drive. Remove oil pump (17) . The weight of oil pump (17) is approximately 45 kg (100 lb).

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Model: 994D WHEEL LOADER 3TZ

Configuration: 994D WHEEL LOADER 3TZ00001-UP (MACHINE) POWERED BY 3516B Engine

Disassembly and Assembly

3500 and 3500B High Displacement Engines for Caterpillar Built Machines

Media Number -SEN1126-33

Publication Date -01/07/2015

Date Updated -14/09/2018

i03392900

Engine Oil Pump - Disassemble

SMCS - 1304-015

Disassembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-0510	Driver Group	1
B	156-7100	Slide Hammer Puller Gp	1

Start By:

- A. Remove the engine oil pump. Refer to Disassembly and Assembly, "Engine Oil Pump - Remove".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.



Illustration 1

g00921216

1. Remove adapter (1) .

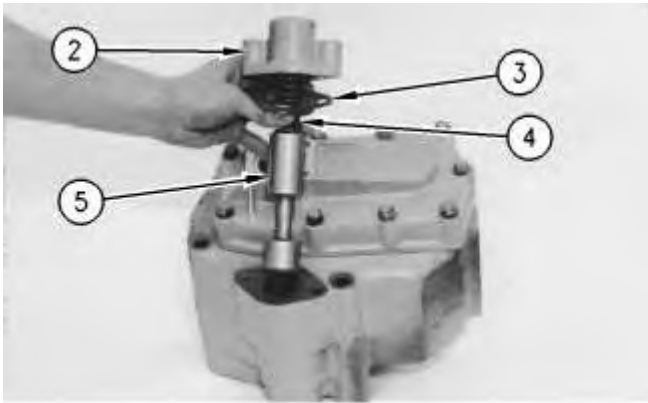


Illustration 2

g00921219

WARNING

Personal injury can result from parts and/or covers under spring pressure.

Spring force will be released when covers are removed.

Be prepared to hold spring loaded covers as the bolts are loosened.

2. Remove cover (2) , gasket (3) , spring (4) , and valve spool (5) .



Illustration 3

g00921232

3. Remove cover assembly (6) and the gasket.



Illustration 4

g00921234

4. Remove cover assembly (7) .

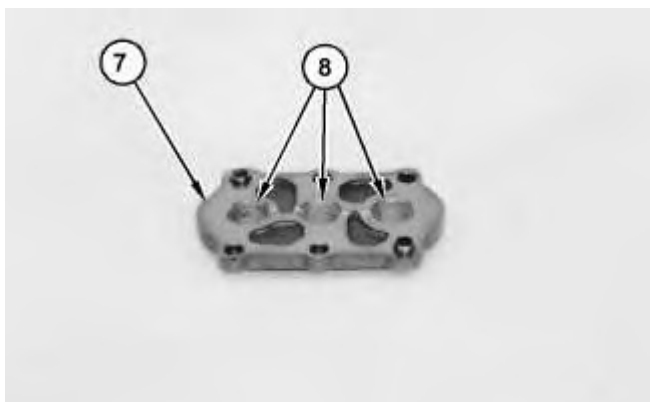


Illustration 5

g01050749

5. Use Tooling (A) to remove bearings (8) from cover assembly (7) .

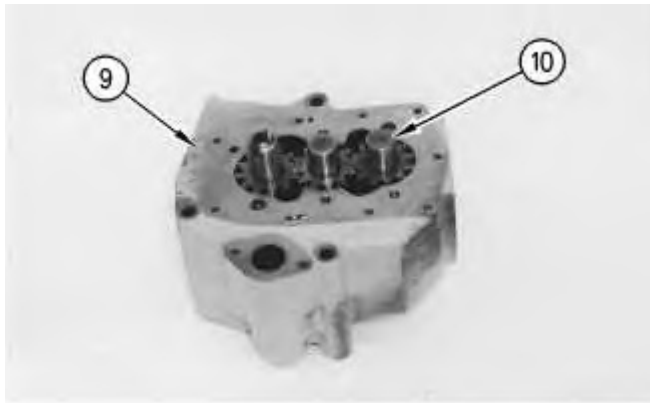


Illustration 6

g00921264

6. Remove shaft assemblies (10) from body (9) .

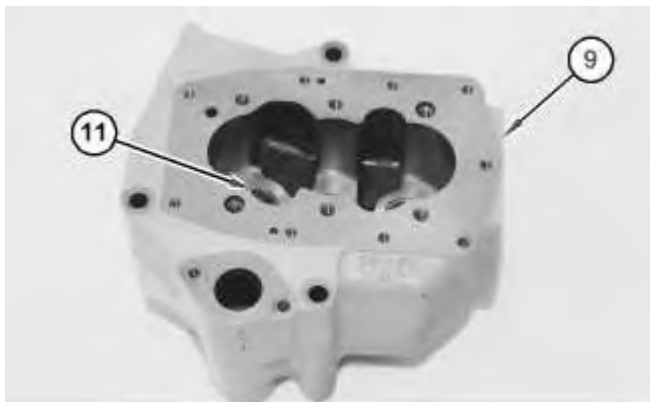


Illustration 7

g01052070

7. Remove bearings (11) from body (9) . Tooling (B) may be necessary in order to remove bearing (8) that is located in the blind hole.

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Product: WHEEL LOADER

Model: 994D WHEEL LOADER 3TZ

Configuration: 994D WHEEL LOADER 3TZ00001-UP (MACHINE) POWERED BY 3516B Engine

Disassembly and Assembly

3500 and 3500B High Displacement Engines for Caterpillar Built Machines

Media Number -SEN1126-33

Publication Date -01/07/2015

Date Updated -14/09/2018

i02046966

Engine Oil Pump - Assemble

SMCS - 1304-016

Assembly Procedure

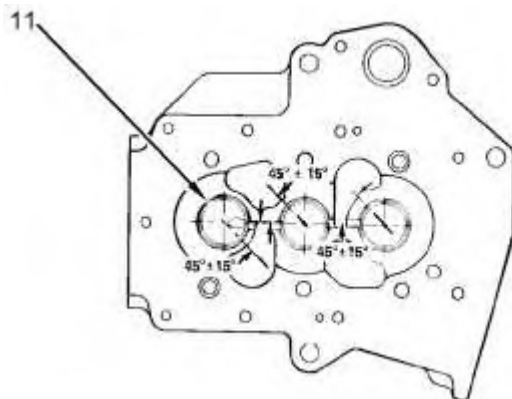
Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-0510	Driver Group	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.



1. Align bearings (11) in the body of the engine oil pump. Align the joints of the bearings to 45 ± 15 degrees from the centerline of the bearing bores.
2. Use Tooling (A) to install bearing (11). The bearings must be 1.5 ± 0.5 mm (0.06 ± 0.02 inch) below the gear bore.

Measure the inside diameter of the bearings after installation. The inside diameter of the bearings must be 31.81 ± 0.01 mm (1.250 ± 0.000 inch) after installation. Machine the bearing, if necessary.

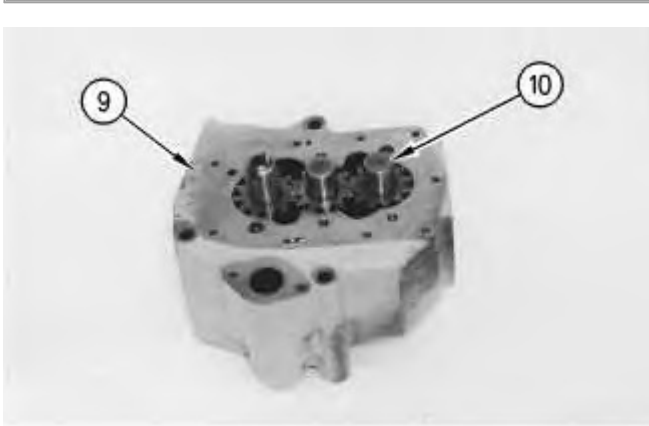


Illustration 2

g00921264

3. Install shaft assemblies (10) in body (9).

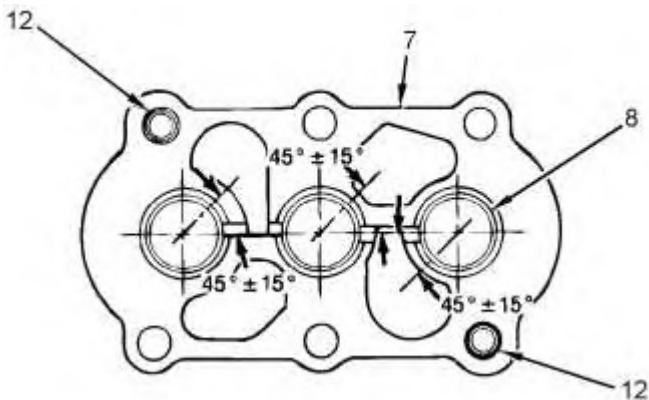


Illustration 3

g01050761

4. Ensure that dowels (12) are installed in cover assembly (7) at a distance of 6.0 ± 0.5 mm (0.24 ± 0.02 inch) above the surface of the cover.
 5. Use Tooling (A) to install bearings (8) in cover assembly (7) with the bearing joints in the correct position.
-



Illustration 4

g00921234

6. Place cover assembly (7) into position and install the bolts.



Illustration 5

g00921232

7. Ensure that the two pins in cover assembly (6) are installed at a distance of 6.0 ± 1.0 mm (0.24 ± 0.04 inch) above the surface of the cover. Install cover assembly (6).



Illustration 6

g00921219

 **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.

8. Place clean engine oil on valve spool (5). Install valve spool (5), spring (4), gasket (3), cover (2), and the bolts.



Illustration 7

g00921216

9. Install the gasket and adapter (1).

Note: Refer to Specifications, "Engine Oil Pump" for more information.

End By:

- a. Install the engine oil pump. Refer to Disassembly and Assembly, "Engine Oil Pump - Install".

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Product: WHEEL LOADER

Model: 994D WHEEL LOADER 3TZ

Configuration: 994D WHEEL LOADER 3TZ00001-UP (MACHINE) POWERED BY 3516B Engine

Disassembly and Assembly

3500 and 3500B High Displacement Engines for Caterpillar Built Machines

Media Number -SEN1126-33

Publication Date -01/07/2015

Date Updated -14/09/2018

i02411353

Engine Oil Pump - Install

SMCS - 1304-012

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	138-7573	Link Bracket	1

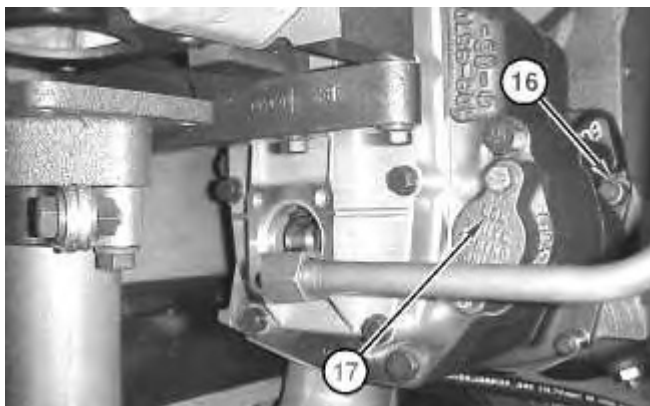


Illustration 1

g01052043

1. Install Tooling (A) and a suitable lifting device onto oil pump (17). Install oil pump (17) into the drive. The weight of oil pump (17) is approximately 45 kg (100 lb).
2. Install bolts (16).

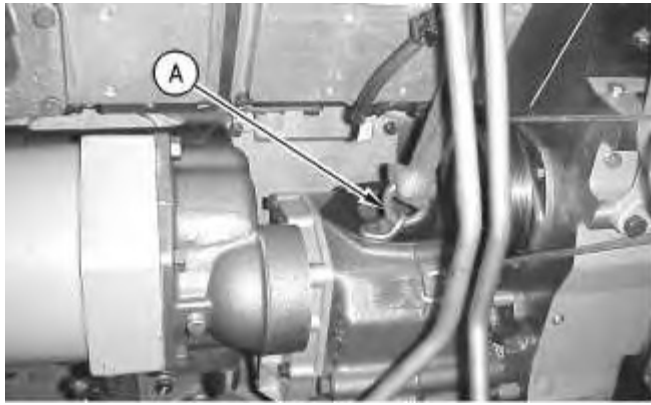


Illustration 2

g00916838

3. Remove the suitable lifting device and Tooling (A) from the oil pump.

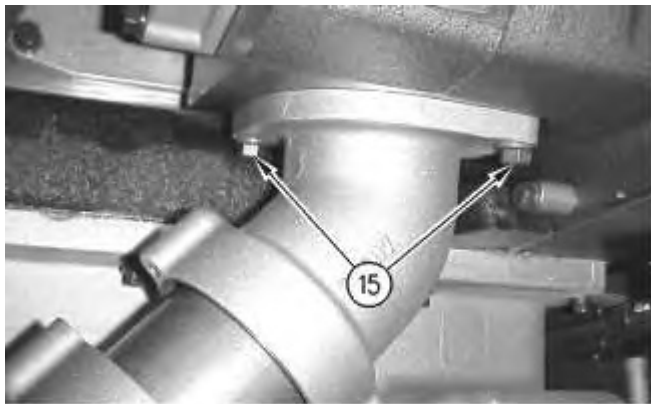


Illustration 3

g00916836

4. Install bolts (15).

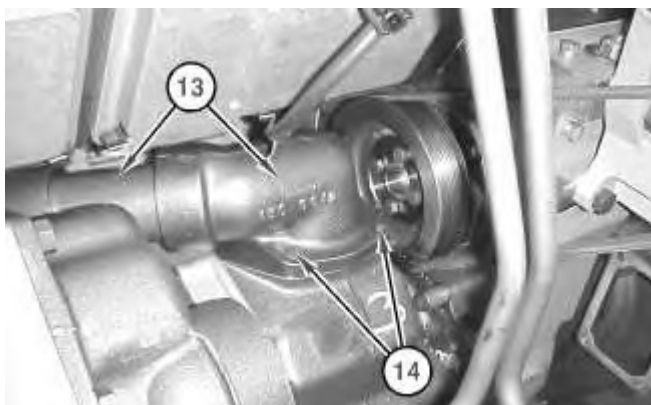


Illustration 4

g01052041

5. Install the elbow and tube (13) and install bolts (14).

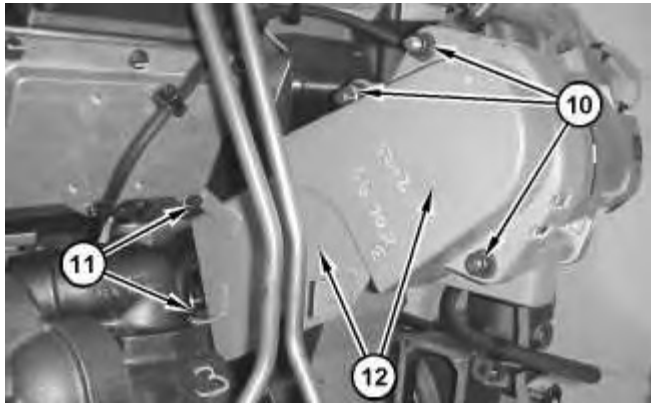


Illustration 5

g01052039

6. Install guards (12). Install nuts (10) and bolts (11).

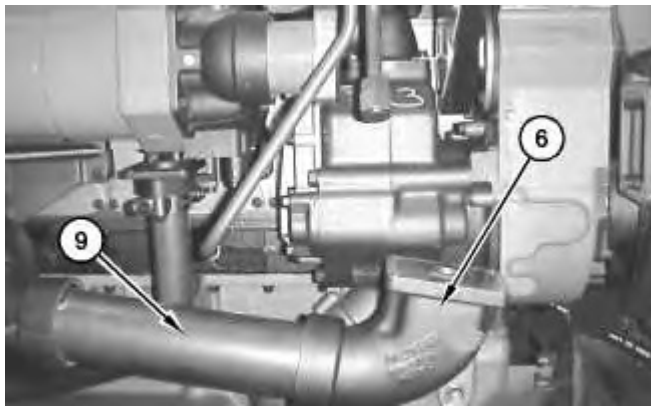


Illustration 6

g01052037

7. Install tube (9) and elbow (6).

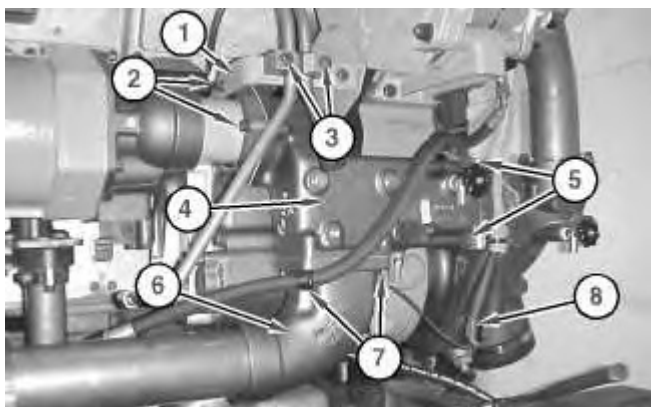


Illustration 7

g01052034

8. Install housing (4). Install bolts (5) that hold housing (4) to the water pump.
9. Install bracket (1) and bolts (2).
10. Install bolts (3) onto the clamps.

11. Install elbow (6) and bolts (7).
12. Connect harness assembly (8).
13. Fill the cooling system with coolant. Refer to the Operation and Maintenance Manual.

End By:

- a. Install the fuel transfer pump. Refer to Disassembly and Assembly, "Fuel Transfer Pump - Install".

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Product: WHEEL LOADER

Model: 994D WHEEL LOADER 3TZ

Configuration: 994D WHEEL LOADER 3TZ00001-UP (MACHINE) POWERED BY 3516B Engine

Disassembly and Assembly

3500 and 3500B High Displacement Engines for Caterpillar Built Machines

Media Number -SEN1126-33

Publication Date -01/07/2015

Date Updated -14/09/2018

i02896842

Engine Oil Filter Base - Remove

SMCS - 1306-011

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	138-7573	Link Bracket	2
B	187-2718	Filter Wrench Assembly	1

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.



Illustration 1

g00891250

1. Remove fuel filters (1) with Tooling (B).

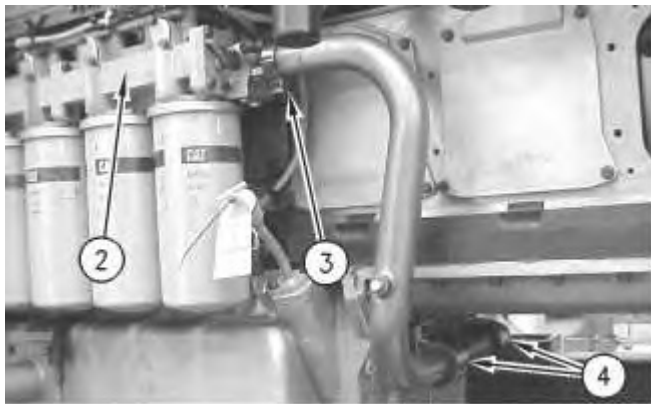


Illustration 2

g00891255

2. Remove bolts (3) at oil filter base (2). Remove clamps (4).

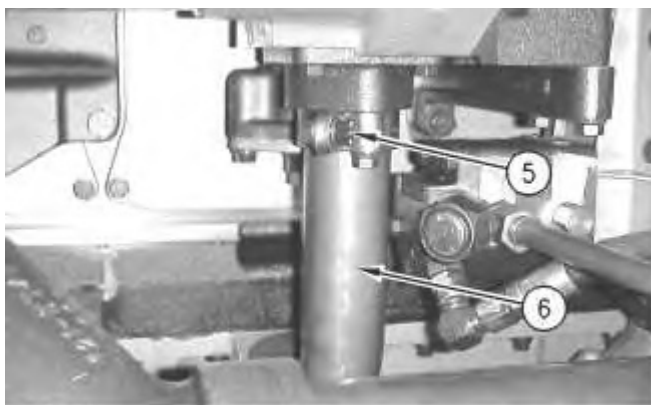


Illustration 3

g00891466

3. Loosen bolts (5) in order to allow tube (6) to rotate. Disconnect tube (6).



Illustration 4

g00891470

4. Disconnect harness assemblies (7) and remove harness assembly (8). Remove oil filters (9) with Tooling (B).



Illustration 5

g00891476

5. Remove bolts (10).

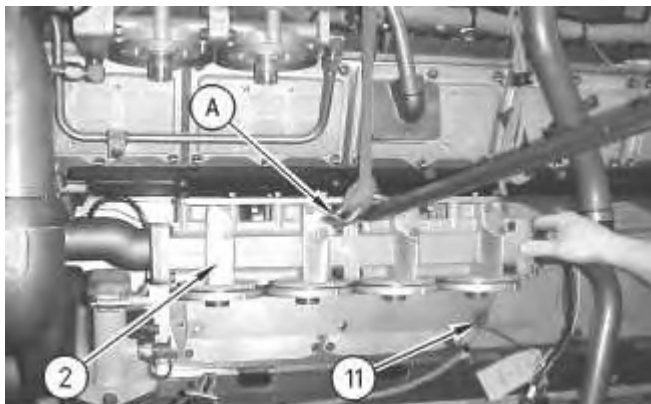


Illustration 6

g00891483

6. Install Tooling (A) and a suitable lifting device to oil filter base (2). Use a pry bar for balance as oil filter base (2) is removed. Remove bolts (11). The weight of oil filter base (2) is approximately 55 kg (120 lb).



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Product: WHEEL LOADER

Model: 994D WHEEL LOADER 3TZ

Configuration: 994D WHEEL LOADER 3TZ00001-UP (MACHINE) POWERED BY 3516B Engine

Disassembly and Assembly

3500 and 3500B High Displacement Engines for Caterpillar Built Machines

Media Number -SEN1126-33

Publication Date -01/07/2015

Date Updated -14/09/2018

i07037442

Engine Oil Filter Base - Disassemble

SMCS - 1306-015

Disassembly Procedure

Start By:

- a. Remove the engine oil filter base.

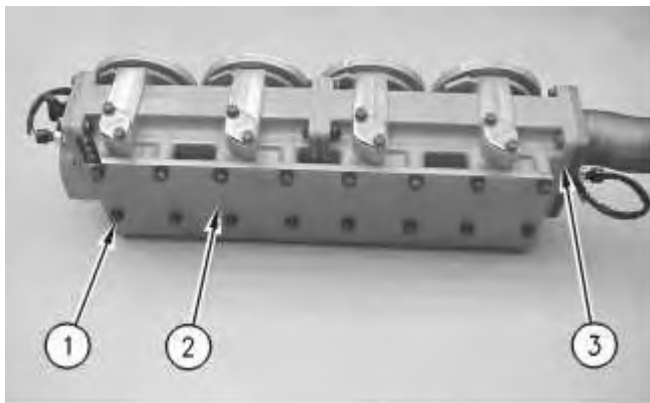


Illustration 1

g00892312

1. Remove bolts (1) and support (2) from engine oil filter base (3).

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