

Product: LOCOMOTIVE ENGINE  
Model: 3512 LOCOMOTIVE ENGINE 2WK  
Configuration: 3512 Locomotive Engine 2WK00001-UP

## Disassembly and Assembly 3512 & 3516 Locomotive Engines

Media Number -SEN4638-00

Publication Date -01/10/1990

Date Updated -11/10/2001

# Fuel Filter Housing

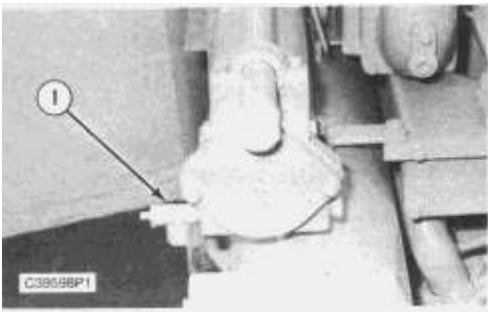
SMCS - 1262-010; 1262-017

## Remove And Install fuel filter Housing

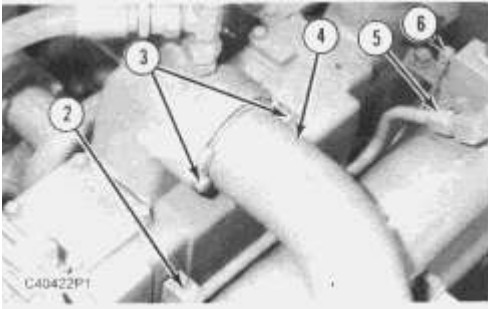


**Do not attempt to perform any work on the fuel filter housing until the engine has sufficiently cooled. Raw fuel in contact with hot engine parts can ignite, causing bodily injury.**

1. Drain the coolant in the cooling system to a level below the exhaust manifold.
2. Close the fuel supply line to the engine.

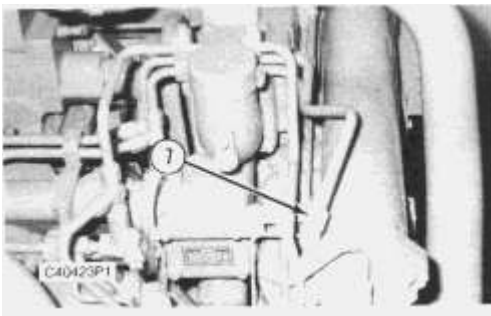


3. To prevent spillage of fuel, open drain port (1) and drain fuel into an appropriate container.

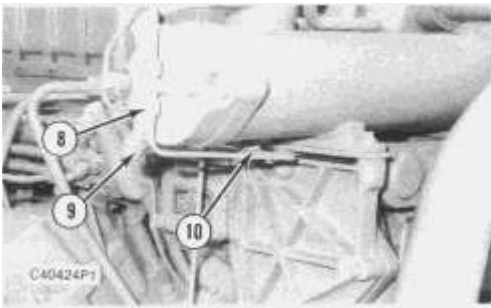


4. Remove two bolts and flanges (3) and remove water pipe (4). Remove fuel priming pump line (5). Remove clamp (2) which holds fuel line (5).

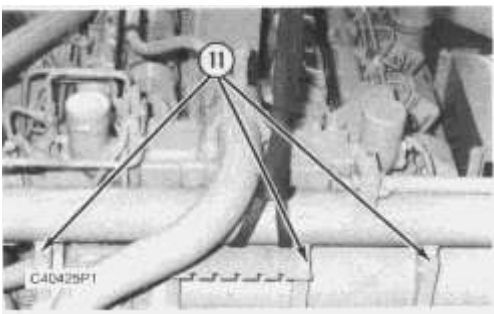
**NOTE:** Small bleeder line (6) does not have to be disconnected to remove and install the fuel filter housing.



5. Remove fuel line (7) on top of the fuel filter housing.



6. Remove bleeder line (8), fuel line (9) and clamp (10) from the end of the fuel filter housing.



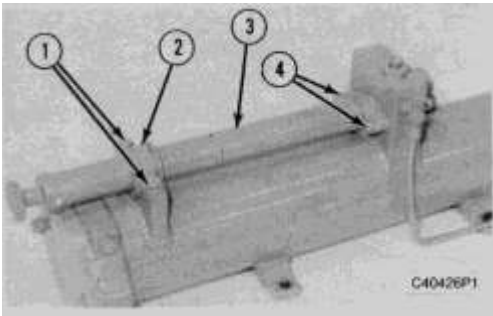
7. Attach a hoist and strap to the fuel filter housing and remove eight bolts (11) from the bottom of the fuel filter housing. Remove the fuel filter housing. Weight of the fuel filter housing is **23 kg (51 lb)**.

**NOTE:** Installation of the fuel filter housing is accomplished in the exact reverse order from removal.

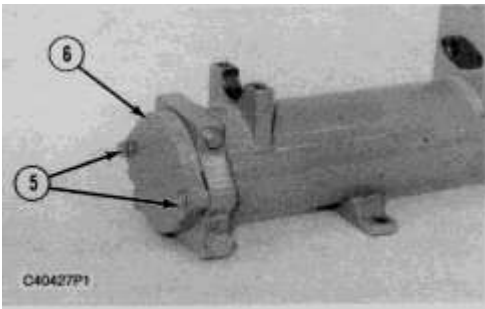
## Disassemble And Assemble Fuel Filter Housing

Start By:

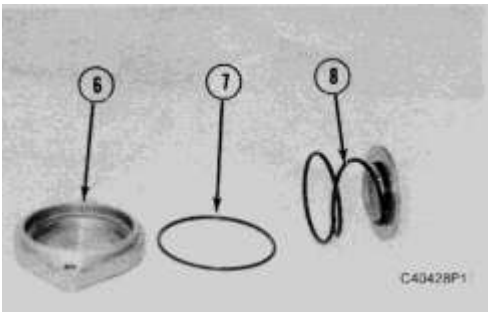
### a. Remove fuel filter housing



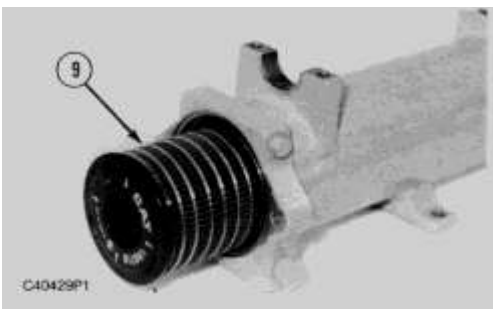
1. Remove two bolts (1) and clamp (2). Remove two bolts (4) and priming pump (3).



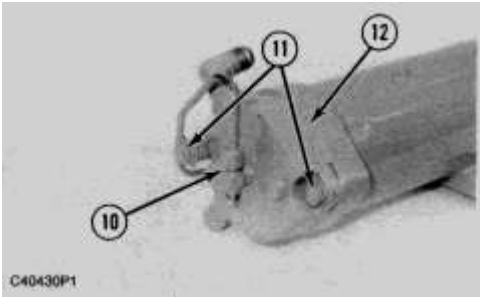
2. Remove two bolts (5) and remove cover (6) from the end of the fuel filter housing.



3. Remove O-ring (7) and spring and retainer (8) from cover (6).



4. Remove five fuel filters (9) from fuel filter housing.



5. Disconnect line (10), remove two bolts (11) and remove cover (12).

**NOTE:** Assembly of the fuel filter housing is accomplished in the exact reverse order from disassembly.

6. Replace O-rings and put a light coating of oil on them as they are assembled.

End By:

a. install fuel filter housing.

---

Product: LOCOMOTIVE ENGINE  
Model: 3512 LOCOMOTIVE ENGINE 2WK  
Configuration: 3512 Locomotive Engine 2WK00001-UP

## Disassembly and Assembly 3512 & 3516 Locomotive Engines

Media Number -SEN4638-00

Publication Date -01/10/1990

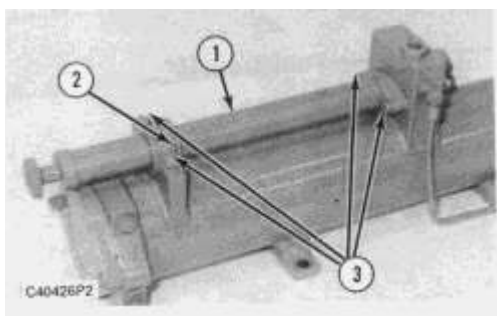
Date Updated -11/10/2001

### Fuel Priming Pump

SMCS - 1258-010

## Remove and Install Fuel Priming Pump

1. Shut off the fuel supply to the engine.



2. Remove four bolts (3), one clamp (2) and remove priming pump (1) from the top of the fuel filter housing.



3. Remove and replace gasket (4) on the end of the fuel priming pump.

**NOTE:** The following steps are for the installation of the fuel priming pump.

4. Install fuel priming pump in position on top of the fuel filter housing.
5. Install clamp (2) and four bolts (3) which secure the fuel priming pump (1) to the fuel filter housing.

**6.** Reconnect the fuel lines if they were previously disconnected and open the fuel supply to the engine.

---

Product: LOCOMOTIVE ENGINE  
Model: 3512 LOCOMOTIVE ENGINE 2WK  
Configuration: 3512 Locomotive Engine 2WK00001-UP

## Disassembly and Assembly 3512 & 3516 Locomotive Engines

Media Number -SEN4638-00

Publication Date -01/10/1990

Date Updated -11/10/2001

# Fuel Transfer Pump

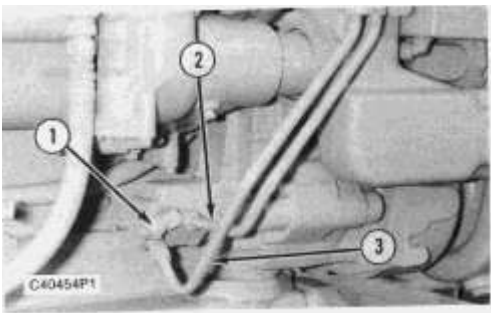
SMCS - 1256-016; 1256-011; 1256-012; 1256-015

## Remove Fuel Transfer Pump

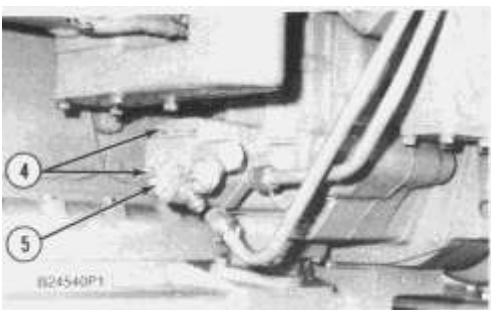


**Do not attempt to perform any work on the fuel filter housing until the engine has sufficiently cooled. Raw fuel in contact with hot engine parts can ignite, causing bodily injury.**

1. Close the fuel supply line to the engine, and disconnect the fuel supply line from the elbow (1).

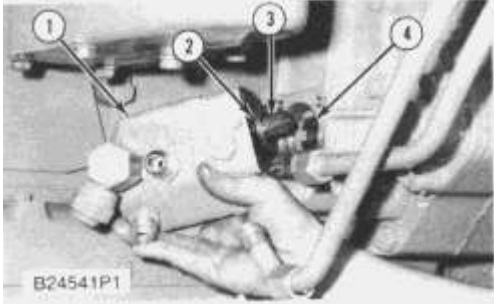


2. Disconnect fuel lines (3) and priming pump fuel line (2) from the fuel transfer pump.

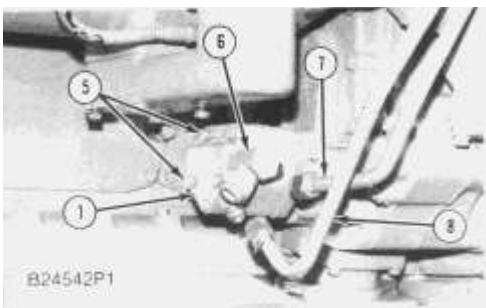


3. Remove the four bolts (4) that hold fuel transfer pump (5) to the engine oil pump cover.
4. Pull fuel transfer pump (5), the O-ring seal and coupling from the engine oil pump, and remove the unit from the engine.

## Install Fuel Transfer Pump



1. Install O-ring seal (2) on the pump body, and put clean engine oil on it.
2. Install coupling (3) on the pump shaft, and put fuel transfer pump (1) in position. Make sure coupling (3) is engaged correctly with oil pump shaft (4).

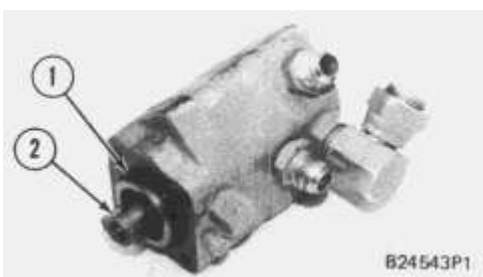


3. Install four bolts (5) to hold fuel transfer pump (1) to the engine oil pump cover.
4. Connect priming pump fuel line (7) and fuel line (6) to fuel transfer pump (1).
5. Connect the fuel supply line to elbow (6), and open the fuel supply to the engine.

## Disassemble Fuel Transfer Pump

Start By:

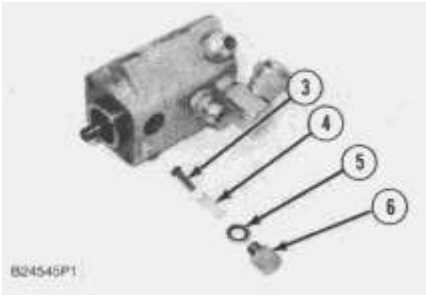
- a. remove fuel transfer pump



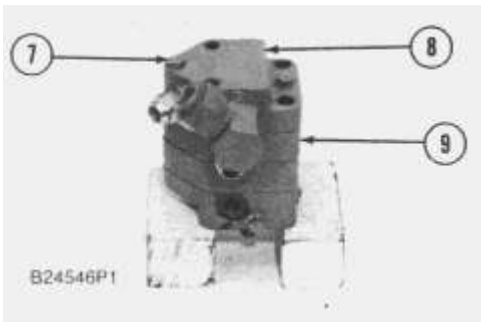
1. Pull drive coupling (2) from the pump shaft.



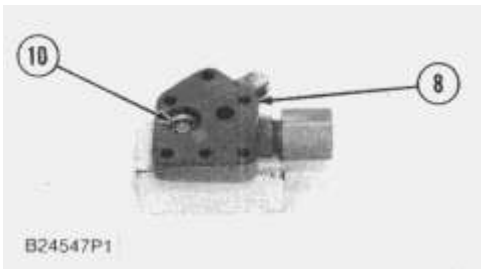
2. Remove O-ring seal (1) from the pump.



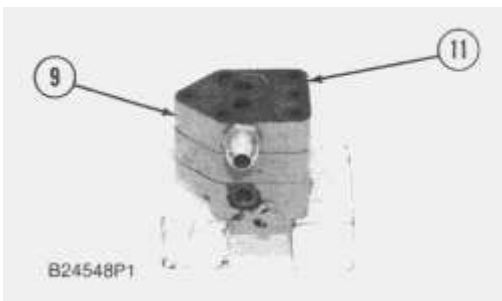
3. Remove cap (6), seal washer (5), spring (4) and relief valve poppet (3) from the pump bracket assembly.



4. Remove bolts (7), and remove pump head (8) from plate (9).



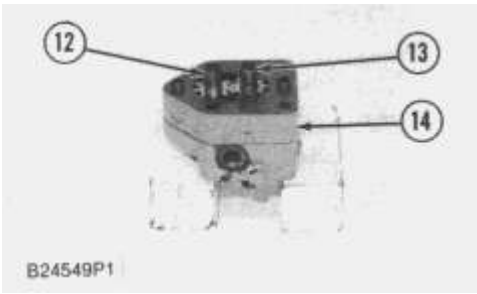
5. If necessary, remove check valve (10) from head (8).



6. Remove plate (9) from the pump casing.

7. Remove gasket (11) and the O-ring seal from the opposite side of plate (9).

8. If necessary, remove the bearings from plate (9).

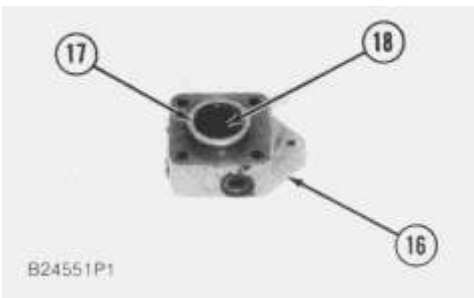


9. Remove gear assembly (12) and shaft assembly (13) from the pump bracket and casing (14).



10. Remove casing (14) and sleeves (15) from pump bracket (16).

11. Remove the O-ring seal from casing (14).

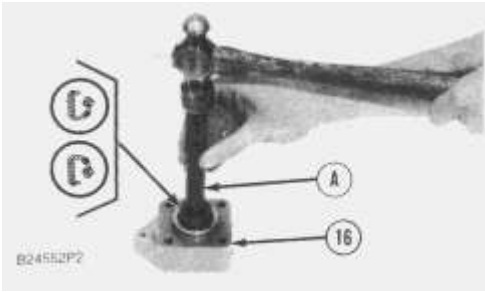


12. Remove outer seal (17) and inner seal (18) from bracket (16).

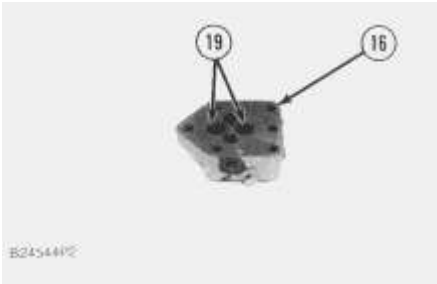
13. If necessary, remove the bearings from bracket (16).

## Assemble Fuel Transfer Pump

Tools Needed		A	B
1P0510	Driver Group	1	
FT1987	Driver		1



1. Use tool group (A) to install the inner and outer lip-type seals in bracket (16). Make sure the lips of the seals are in the position shown at assembly. Put clean engine oil on the lips of the seals.



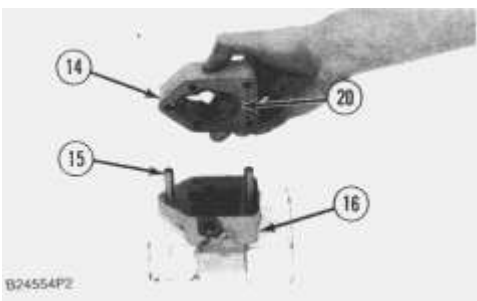
---

### NOTICE

**Use an arbor press to install bearings (19) in the bracket. The bearings must be installed in one continuous stroke of the press to prevent damage to the bearings.**

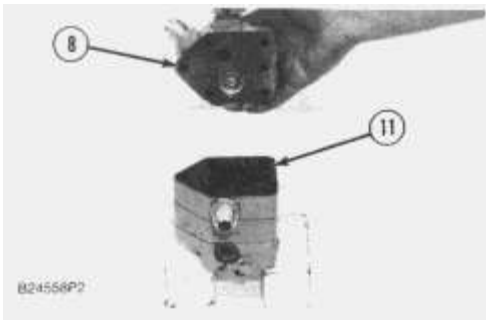
---

2. Use tool (B) and an arbor press, and install bearings (19) in bracket (16) in one continuous stroke. Install the bearings until they are  $1.5 \pm 0.5 \text{ mm}$  ( $.06 \pm .02 \text{ in}$ ) below the surface of the bracket. The inside diameter of the bearings must be  $12.736 \text{ mm}$  ( $.501 \text{ in}$ ) after installation.



3. Install sleeves (15) in bracket (16).

4. Install O-ring seal (20) in casing (14), and put casing (14) over sleeves (15) on bracket (16).



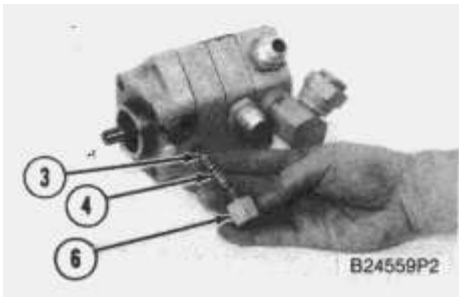
---

## NOTICE

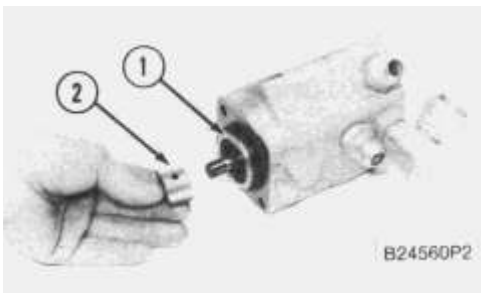
**When head (8) is installed, be sure the drain hole (weep hole) is open.**

---

**9.** Put gasket (11) and head (8) in position on the plate, and install the two bolts that hold the pump together.



**10.** Install relief valve poppet (3), spring (4), the seal washer, and cap (6) in the pump.



**11.** Install O-ring seal (1) around the pump, and put clean engine oil on it.

**12.** Install drive coupling (2) on the pump shaft.

End By:

**a.** install fuel transfer pump

---

Product: LOCOMOTIVE ENGINE  
Model: 3512 LOCOMOTIVE ENGINE 2WK  
Configuration: 3512 Locomotive Engine 2WK00001-UP

## Disassembly and Assembly 3512 & 3516 Locomotive Engines

Media Number -SEN4638-00

Publication Date -01/10/1990

Date Updated -11/10/2001

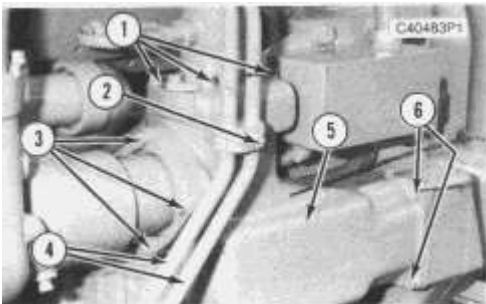
### Oil Pump

SMCS - 1304-010; 1304-017

### Remove And Install Oil Pump

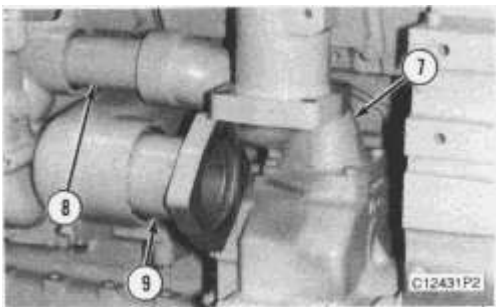
Tools Needed		A
6V2156	Link Bracket	1

1. Drain the coolant from the cooling system.



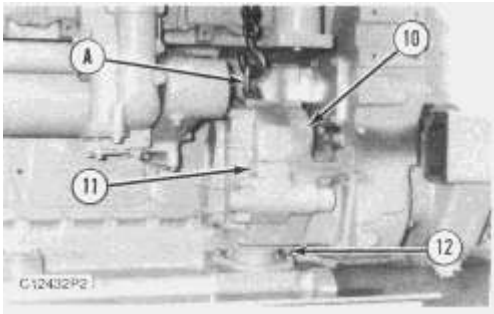
2. Remove bolts (1), (2), (3) and (6) to remove adapter (5) from the engine.

**NOTE:** It may be desirable to remove two fuel lines (4), however it is not necessary to remove adapter (5). If fuel lines are removed, remember to first shut off fuel supply.



3. Remove elbow (7) and tube (8) from the oil pump.

4. Remove the flange and tube (9) from the oil cooler bonnet.



Typical Example

5. Use tool (A) to fasten a hoist to oil pump (10).

6. Remove bolts (11) and (12). Remove oil pump (10). The weight of the oil pump is **39 kg (85 lb)**.

**NOTE:** The following steps are for the installation of the oil pump.

---

### NOTICE

**The oil pump must turn freely by hand, and the pump must have oil for lubrication before it is installed.**

---

7. Put clean engine oil on the O-ring seals. Use tool (A) and a hoist to position oil pump (10). Make sure the splines on the pump shaft are correctly engaged with the splines of the oil pump drive. Install bolts (11) and (12) that hold the pump in position.

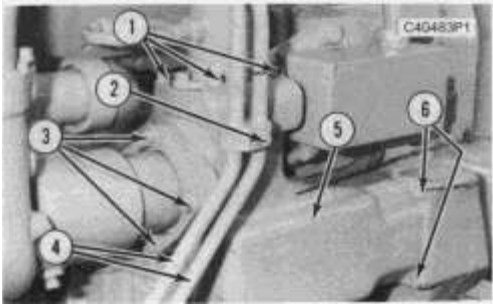
8. Put clean engine oil on the O-ring seals and install tube (8) in the by-pass elbow. Put elbow (7) in position on tube (8) and the oil pump. Install the bolts to hold it in place.

9. Put clean engine oil on the O-ring seals and install tube (9) and the flange as a unit in the oil cooler bonnet.

10. Put the gaskets and adapter (5) in position. Install bolts (1), (2), (3) and (6) to hold them in position.

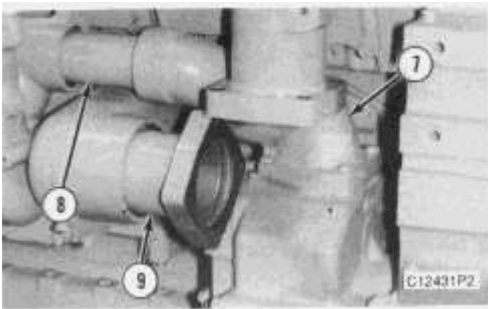
11. If fuel lines (4) were removed, install them and open the fuel supply.

12. Fill the cooling system with coolant to the correct level. See the Maintenance Manual.



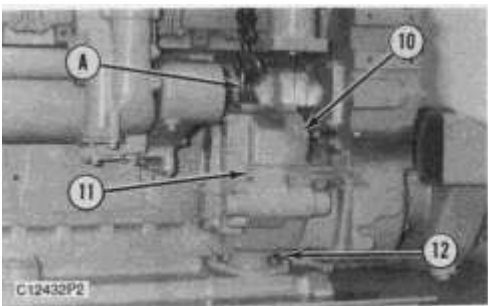
2. Remove bolts (1), (2), (3) and (6) to remove adapter (5) from the engine.

**NOTE:** It may be desirable to remove two fuel lines (4), however it is not necessary to remove adapter (5). If fuel lines are removed, remember to first shut off fuel supply.



3. Remove elbow (7) and tube (8) from the oil pump.

4. Remove the flange and tube (9) from the oil cooler bonnet.



Typical Example

5. Use tool (A) to fasten a hoist to oil pump (10).

6. Remove bolts (11) and (12). Remove oil pump (10). The weight of the oil pump is **39 kg (85 lb)**.

**NOTE:** The following steps are for the installation of the oil pump.

---

## NOTICE

**The oil pump must turn freely by hand, and the pump must have oil for lubrication before it is installed.**

---

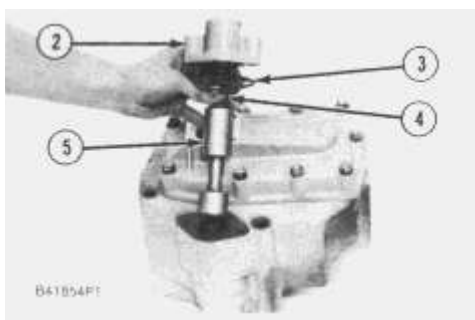
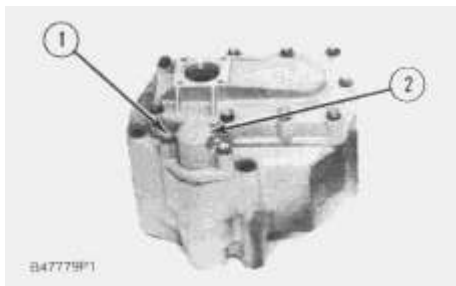
7. Put clean engine oil on the O-ring seals. Use tool (A) and a hoist to position oil pump (10). Make sure the splines on the pump shaft are correctly engaged with the splines of the oil pump drive. Install bolts (11) and (12) that hold the pump in position.
8. Put clean engine oil on the O-ring seals and install tube (8) in the by-pass elbow. Put elbow (7) in position on tube (8) and the oil pump. Install the bolts to hold it in place.
9. Put clean engine oil on the O-ring seals and install tube (9) and the flange as a unit in the oil cooler bonnet.
10. Put the gaskets and adapter (5) in position. Install bolts (1), (2), (3) and (6) to hold them in position.
11. If fuel lines (4) were removed, install them and open the fuel supply.
12. Fill the cooling system with coolant to the correct level. See the Maintenance Manual.

## Disassemble And Assemble Oil Pump

Tools Needed		A
1P0510	Driver Group	1

Start By:

- a. remove oil pump



**WARNING**



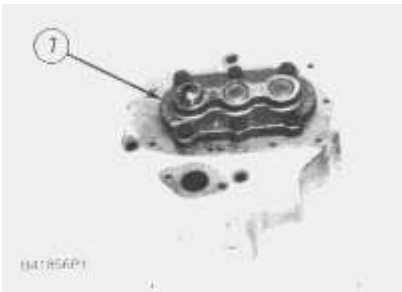
**Cover (2) has spring tension under it. To prevent personal injury, loosen bolts (1) slowly and the same amount to remove the tension under the cover.**

---

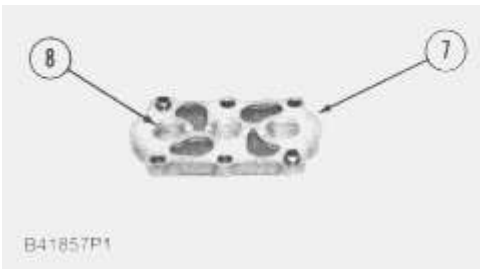
1. Remove bolts (1), cover (2), gasket (3), spring (4) and valve spool (5) from the pump body.



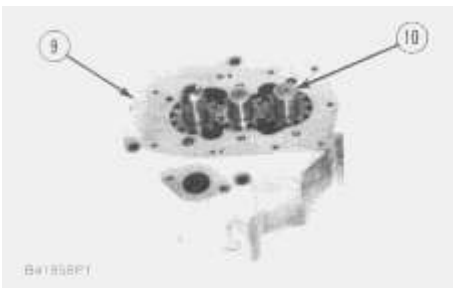
2. Remove cover assembly (6) and the gasket from the pump body.



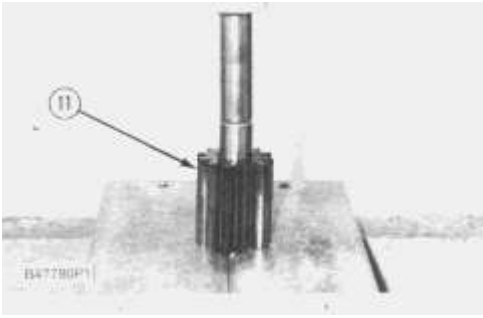
3. Remove cover assembly (7) from the pump body.



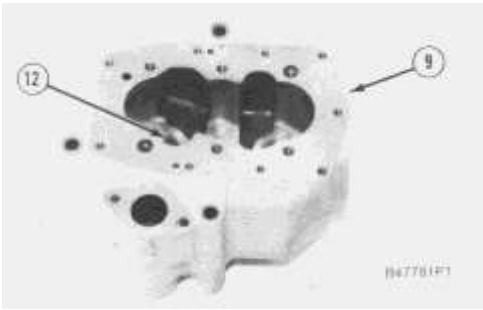
4. Use tooling (A) to remove bearings (8) from cover assembly (7).



5. Remove shaft assemblies (10) from body assembly (9).

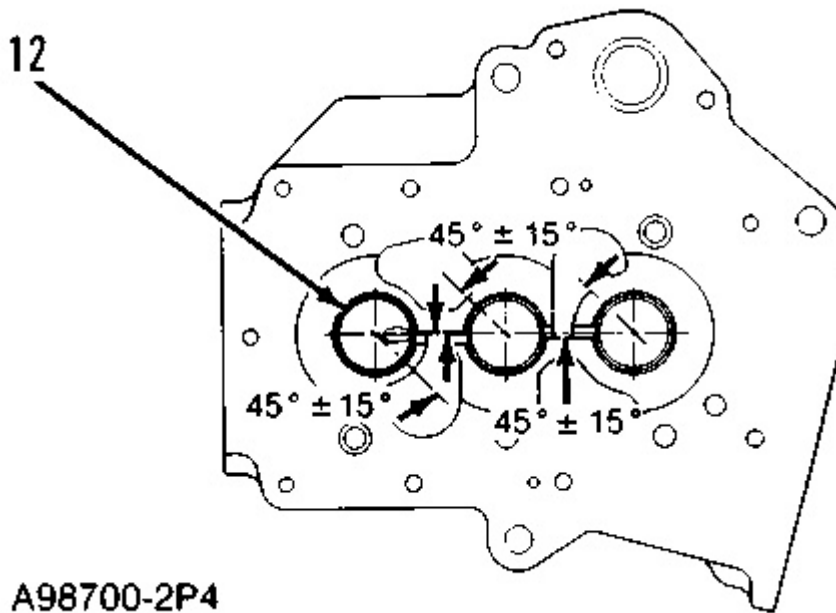


6. Use a press to remove gears (11) from the shaft assemblies.



7. Use tooling (A) to remove bearings (12) from body assembly (9).

**NOTE:** The following steps are for assembly of the oil pump.

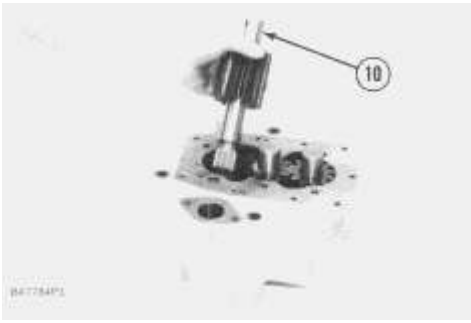


8. Make an alignment of bearings (12) so that the joints are  $45 \pm 15^\circ$  from a line through the center of the bearing bores as shown.

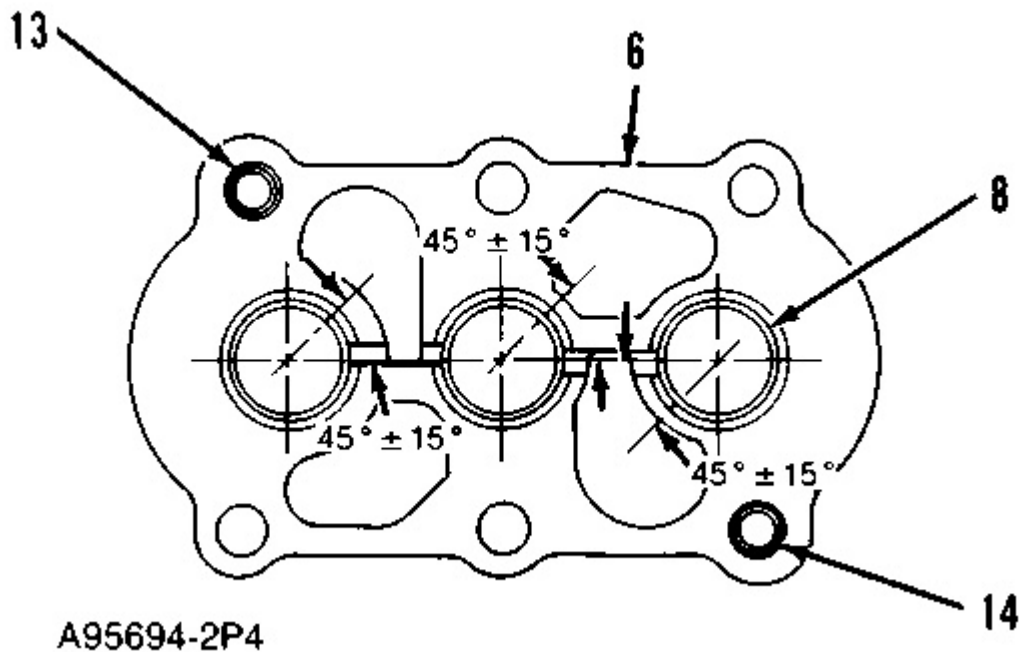
9. Use tooling (A) to install bearing (12) in the body assembly until they are  $1.5 \pm 0.5 \text{ mm}$  ( $.06 \pm .02 \text{ in}$ ) below the gear bore in the body assembly. Check the inside diameter of the bearings after installation. The diameter must be  $31.811 \pm 0.013 \text{ mm}$  ( $1.2524 \pm .0005 \text{ in}$ ).

10. Heat gears (11) to a maximum temperature of  $316^\circ \text{ C}$  ( $600^\circ \text{ F}$ ).

11. Install the gears on shaft assemblies (10) until they are  $34.0 \pm 0.5 \text{ mm}$  ( $1.34 \pm .02 \text{ in}$ ) from the cover end of the shaft assemblies to the face of the gears and  $47.0 \pm 0.5 \text{ mm}$  ( $1.85 \pm .02 \text{ in}$ ) from the fuel pump drive end of shaft assembly (10).



12. Install shaft assemblies (10) in the body assembly.



13. Make sure dowels (13) and (14) are installed in cover assembly (8) so they extend  $6.0 \pm 0.5 \text{ mm}$  ( $.24 \pm .02 \text{ in}$ ) above the surface of the cover assembly.

14. Use tooling (A) to install bearings (8) in cover assembly (6) with the joints of the bearings in the positions as shown. Put cover assembly (6) in position, and tighten the bolts to hold it to the body assembly.

15. Make sure the two pins in cover assembly (6) are installed so they extend  $6.0 \pm 1.0 \text{ mm}$  ( $.24 \pm .04 \text{ in}$ ) above the surface of the cover assembly. Install the gasket and cover assembly (6) on the body assembly.

16. Put clean engine oil on valve spool (5). Install valve spool (5), spring (4), gasket (3), cover (2) and the bolts in the body assembly.

End By:

a. install oil pump

---

Product: LOCOMOTIVE ENGINE  
Model: 3512 LOCOMOTIVE ENGINE 2WK  
Configuration: 3512 Locomotive Engine 2WK00001-UP

## Disassembly and Assembly 3512 & 3516 Locomotive Engines

Media Number -SEN4638-00

Publication Date -01/10/1990

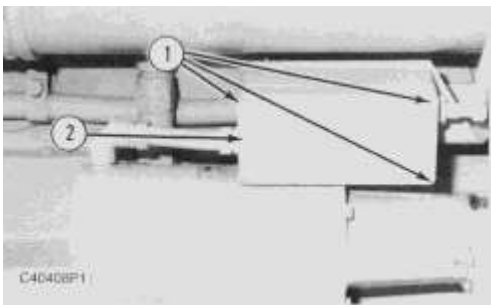
Date Updated -11/10/2001

### Pre-lubrication Oil Pump

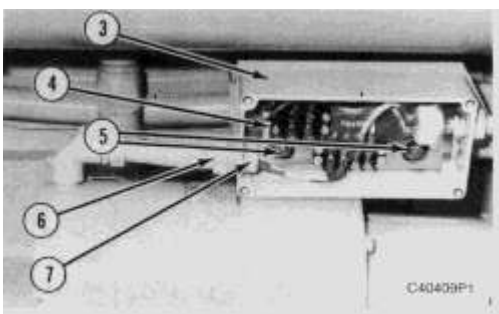
SMCS - 1319-010; 1319-017

## Remove And Install Pre-lubrication Oil Pump

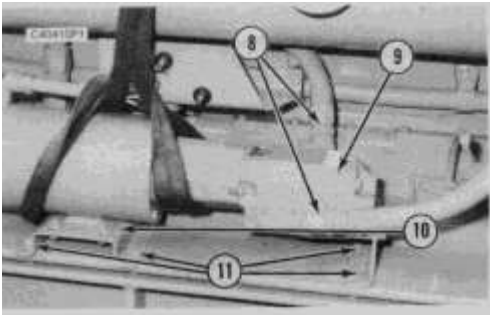
1. Disconnect the batteries.



2. Remove four screws (1) from cover (2) of electrical box mounted on top of pre-lube pump



3. Identify and mark four terminals and wires (4) in electrical box (3). Remove two nuts (7) from conduit connector (6). Remove three nuts (5) and remove electrical box (3).



4. Disconnect two hose assemblies (8) from pre-lube pump (9). Remove six bolts (11) from mounting bracket (10). Attach hoist and strap as illustrated. Remove pre-lube pump and motor. Weight of pump and motor is **43 kg (95 lb)**.

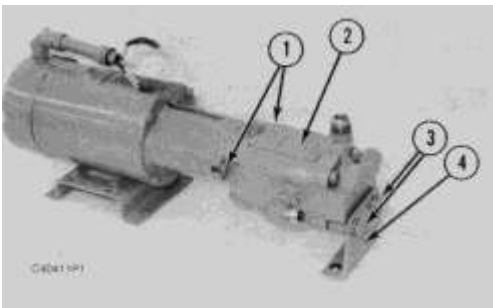
**NOTE:** Installation of the Pre-lubrication oil pump is accomplished in the exact reverse order from removal.

5. Prior to reconnecting the batteries, recheck the wire and terminal connections for correctness and good connection.

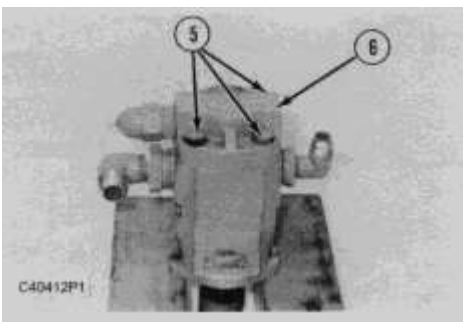
## Disassemble And Assemble Pre-lubrication Oil Pump

Start By:

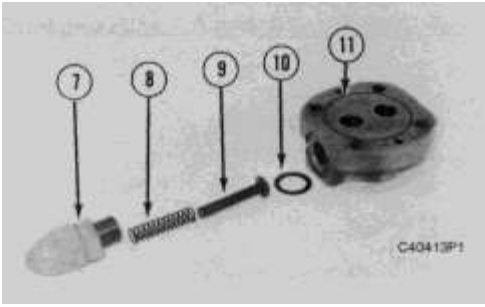
a. remove pre-lubrication oil pump



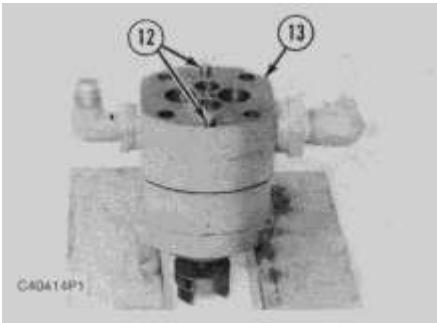
1. Remove two bolts (3) from bracket (4). Remove bracket (4). Remove two bolts (1) connecting pre-lube pump (2) to the pre-lube pump motor. Remove the pre-lube pump.



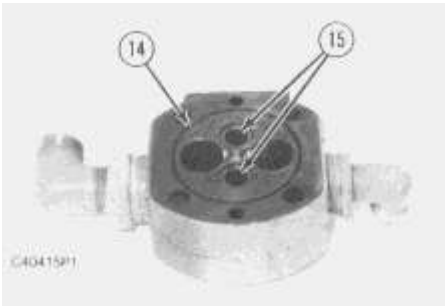
2. Place alignment marks on the side of the pre-lube pump and remove four bolts (5) and remove cover (6) from the rear of the pre-lube pump.



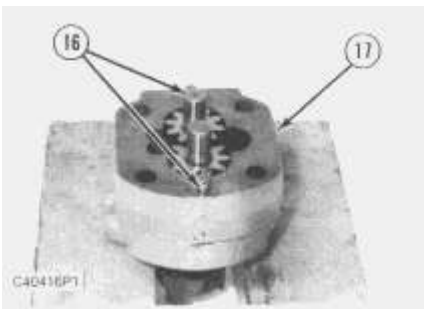
3. Remove cap (7), spring (8), relief valve (9) washer (10) and O-ring (11) from the cover.



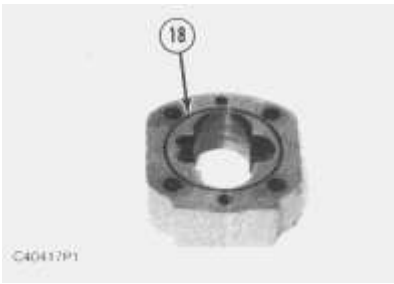
4. Remove two dowels (12) and remove second section (13) of pump.



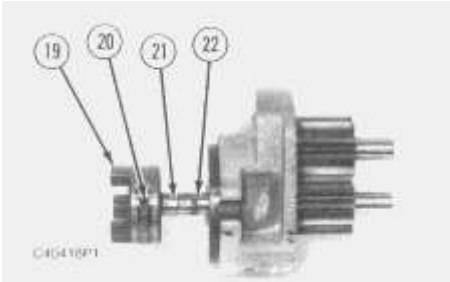
5. Turn second section of pump over and remove O-ring (14). Measure and record the depth of the two bearings (15) prior to removal. This will be needed for assembly. Remove two bearings (15).



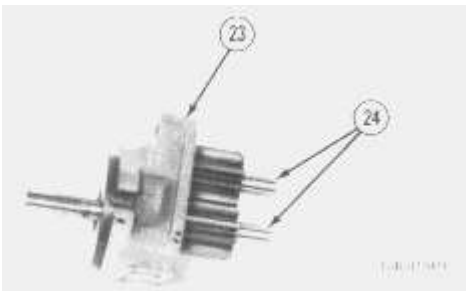
6. Remove two dowels (16) and remove third section (17) of pump.



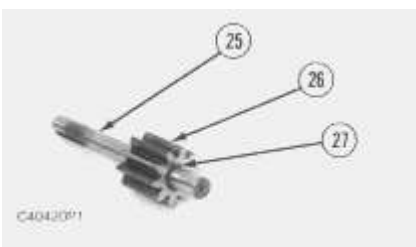
7. Turn third section of pump over and remove O-ring (18)



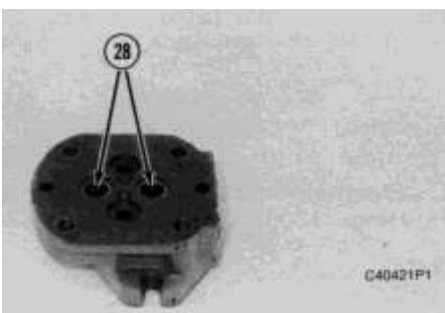
8. Loosen set screw (19) in coupling (20). Remove coupling (20) and woodruff Key (21) from shaft (22).



9. Remove two shaft assemblies (24) from the fourth pump section (23).



10. Remove two keeper rings (27) and remove gear (26) from shaft (25).



Thank you so much for reading.  
Please click the “Buy Now!”  
button below to download the  
complete manual.



After you pay.

You can download the most  
perfect and complete manual in  
the world immediately.

Our support email:

[ebooklibonline@outlook.com](mailto:ebooklibonline@outlook.com)