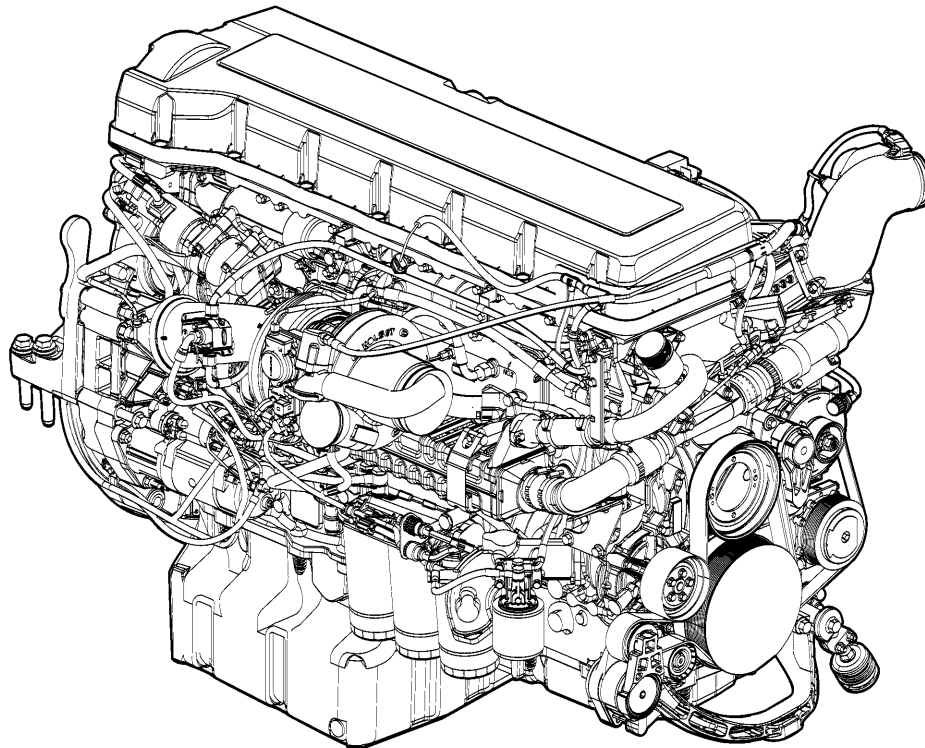


## Oil Pan Replacement D16F

### Oil Pan, Replacement



W2005772

This information covers the proper replacement procedure for the oil pan on the Volvo D16F engine.

### Contents

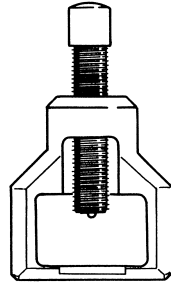
- "Oil Pan, Replacement" page 3

**Note:** Information is subject to change without notice. Illustrations are used for reference only, and can differ slightly from the actual vehicle being serviced. However, key components addressed in this information are represented as accurately as possible.

# Tools

## Special Tools

For special tools ordering information, refer to Tool Information, group 08.



W0001240

**9996201**

Tie Rod Separator

# Service Procedures

2171-03-02-01

## Oil Pan, Replacement

You must read and understand the precautions and guidelines in Service Information, group 20, "General Safety Practices, Engine" before performing this procedure. If you are not properly trained and certified in this procedure, ask your supervisor for training before you perform it.

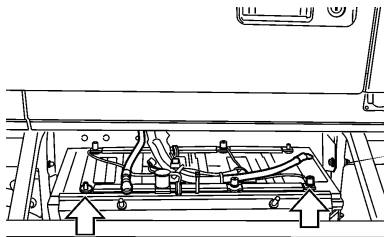
### Removal

**1**

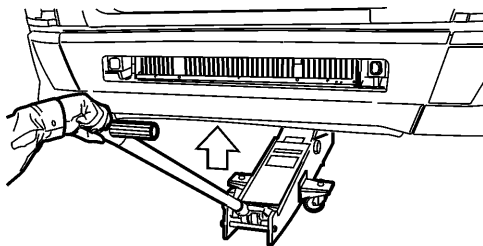
Apply the parking brake and place the shift lever in neutral.

**2**

Remove all cables from ground (negative) battery terminals to prevent personal injury from electrical shock.



W2003815

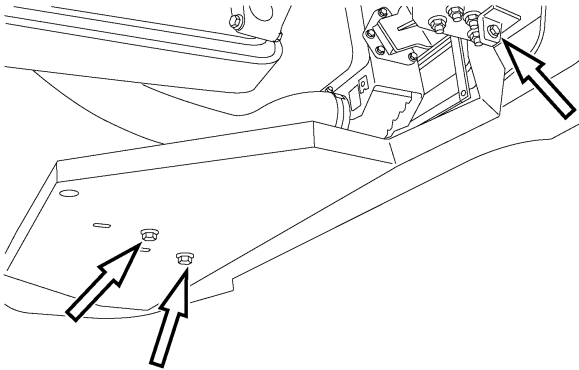


W2003873

**3**

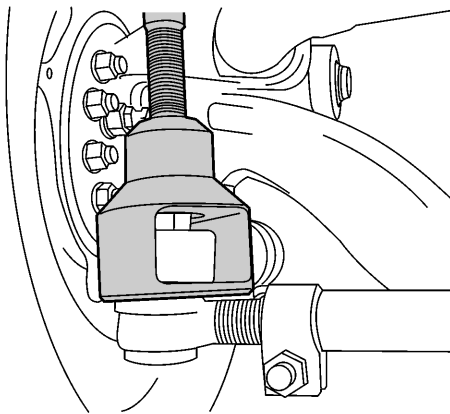
Using a hydraulic jack, lift the front axle until the front wheels are off the ground. Position jackstands of a suitable capacity under the frame in a position which will allow the front axle to hang free.

**4**  
If required, remove the skid plate to allow access for oil pan removal.



W2006077

**5**  
Vehicles equipped with the sump located behind the front steering axle, require removal of the tie rod from the left-side steering knuckle using the tie rod separating tool. Disconnecting the tie rod provides adequate clearance for oil pan removal.



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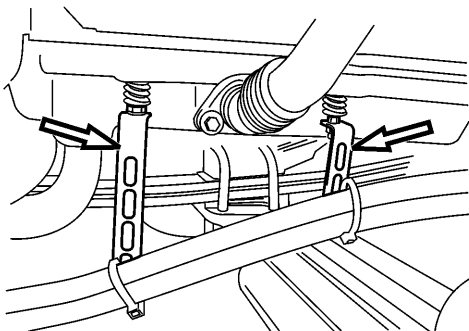
9996201

**6**  
Place an approved container under the oil pan and remove the oil drain plug.

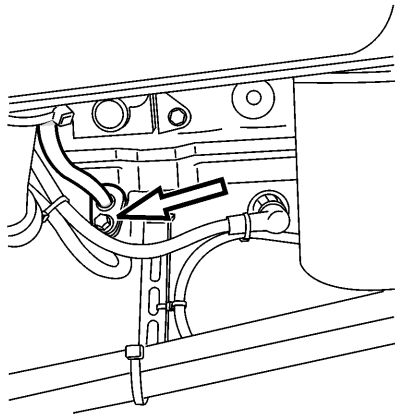
**Note:** Use only hand tools when removing or tightening the drain plug. Do not use an air ratchet or similar air tool.

**7**  
If the vehicle is equipped with a transmission oil cooler, remove the transmission cooler line bracket nuts and separate the brackets from the oil pan fasteners. Position the cooler lines and brackets to the side.

**Note:** Mark the transmission oil cooler bracket stud locations to aid in reassembly.

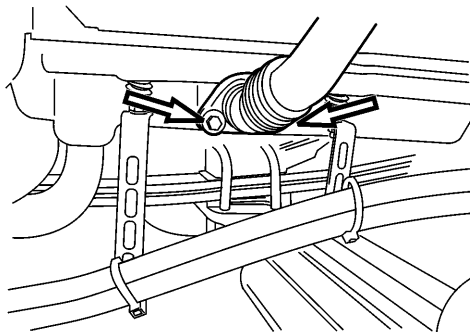


W2004874



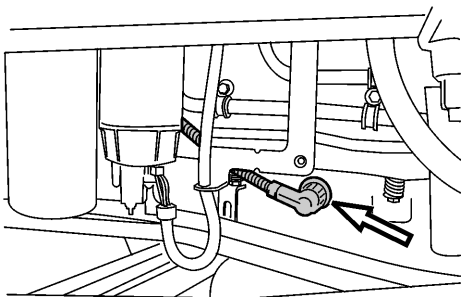
W2005086

**8**  
Pull the dipstick partially out of the dipstick tube, then remove the dipstick tube fastener and tube from the oil pan. Remove and discard the O-ring.



W2004884

**9**  
Remove the oil fill tube fasteners and tube from the oil pan. Remove and discard the tube O-ring.

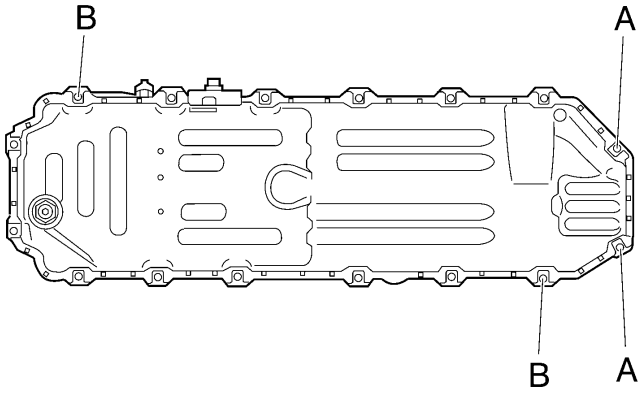


W2004876

**10**  
Disconnect the oil level/temperature sensor connector.

**11**

Remove the two bolts marked A. Loosen the two bolts marked B, but do not remove. Remove all other bolts.



W2005226

**12**

With the aid of an assistant, support the oil pan and remove the two bolts marked B. Carefully lower the pan to avoid contact with the oil pickup tube and the oil pump gear.

**13**

Clean the oil pan contact surface on the cylinder block, flywheel housing and front seal cover. All surfaces must be completely free of any grease or oil.

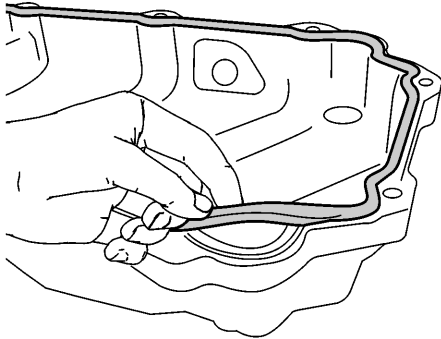
**14**

Transfer all sensors, plugs, and fittings to the replacement pan, as required.

## Installation

1

Install the new oil pan seal into the groove of the oil pan. Check that the seal locating tabs are properly aligned and seated in the locating holes on the mounting flange.

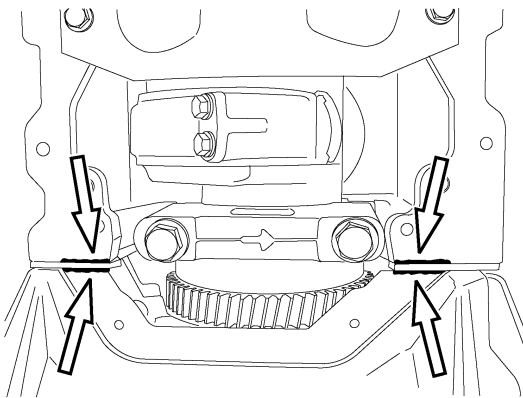


W2004878

2

Apply a two mm (0.079 inch) bead of Volvo sealant to the seam between the flywheel housing and the timing gear mounting plate and between the timing gear mounting plate and the engine block.

**Note:** Make sure that the block flange is flush with the flywheel housing to prevent leaking. If not flush, flywheel housing must be realigned.

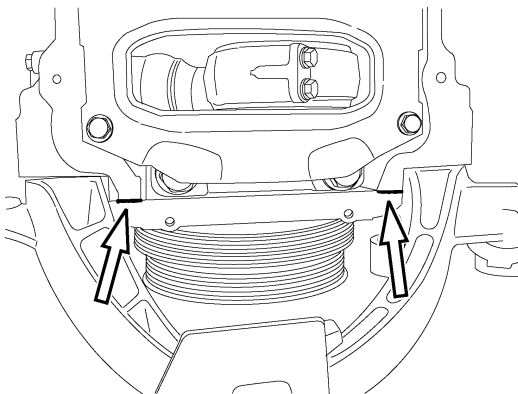


W2006078

3

Apply a two mm (0.079 inch) bead of Volvo sealant to the seam between the front seal cover and the engine block.

**Note:** Make sure that the block flange is flush with the crankshaft front cover to prevent leaking. If not flush, front cover must be realigned.



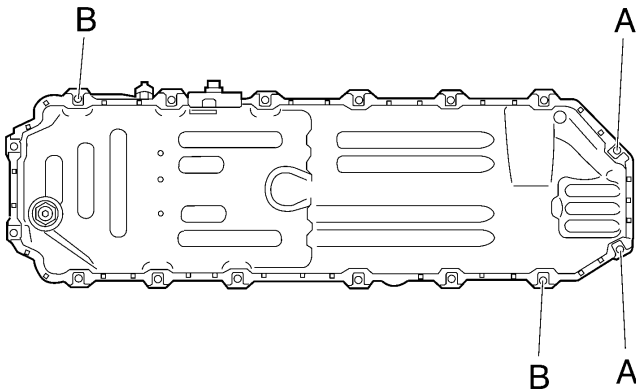
W2006079

**4**  
With assistance, position the oil pan to the engine block and install the bolts marked B. Install all other bolts, except those marked A, which should be installed last.

**Note:** Press the oil pan rearward as far as possible before tightening the bolts.

**Note:** Use care to prevent damage to the oil pickup.

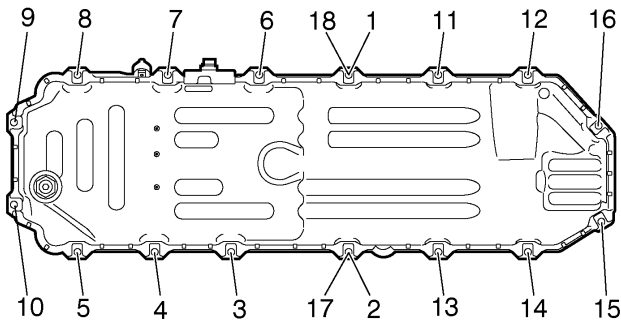
**Note:** Install transmission oil cooler bracket studs in locations marked previously.



W2005226


**5**  
Torque-tighten the bolts to  $24 \pm 4$  Nm ( $18 \pm 3$  ft-lb) following the numbered sequence.

$24 \pm 4$  Nm  
( $18 \pm 3$  ft-lb)



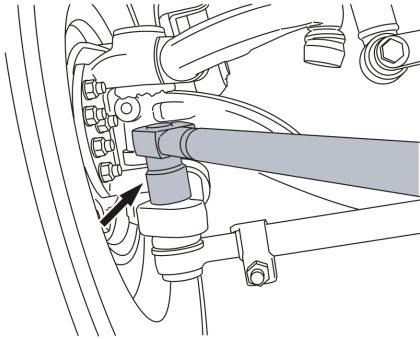
W2005985

**6**  
Install the oil drain plug and tighten to specification.

 <b>CAUTION</b>
Do not use a copper washer with the hex-head oil drain plug. Always use the steel washer.

**Note:** Do not use air tools when installing the oil drain plug.

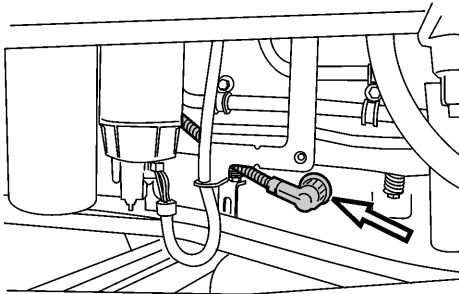




W2005190

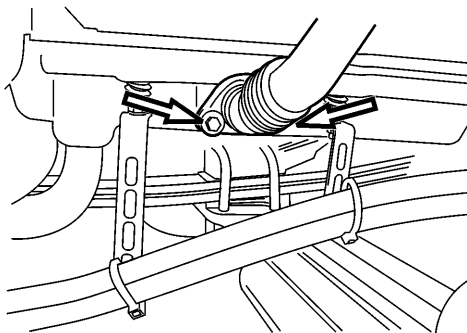
**7**  
If removed, reconnect the tie rod into the left-side steering knuckle and torque-tighten the nut to  $200 \pm 30$  Nm ( $148 \pm 22$  ft-lb). Insert and bend the cotter pin to lock in place.

$200 \pm 30$  Nm  
( $148 \pm 22$  ft-lb)



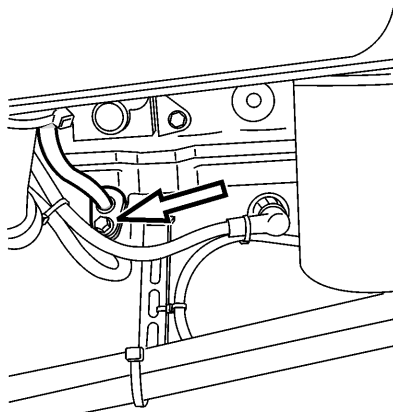
W2004876

**8**  
Reconnect the oil level/temperature sensor connector.



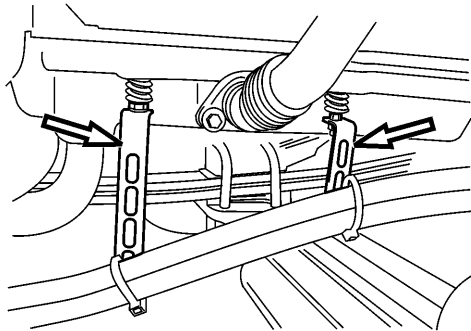
W2004884

**9**  
Install a new O-ring on the oil fill tube and install the tube to the side of the oil pan. Install the oil fill tube fasteners and tighten to secure.



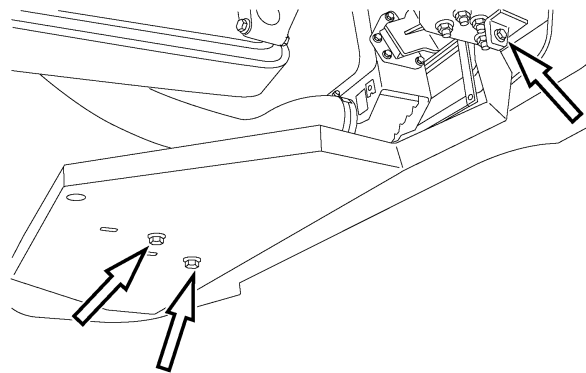
W2005086

**10**  
Install a new O-ring on the dipstick tube, then install the tube and secure with the fastener. Install the dipstick.



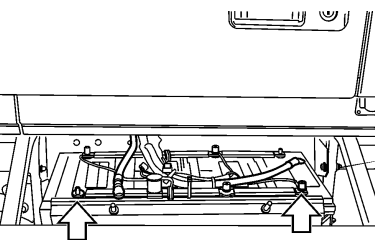
W2004874

**11**  
Position the transmission cooler line brackets onto the oil pan fastener studs and install the bracket nuts to secure.



W2006077

**12**  
Install skid plate if removed for access.



W2003815

**13**  
Using a hydraulic jack, raise the front axle and remove the jackstands. Lower the vehicle and remove the hydraulic jack.

**14**  
Fill the engine with the specified amount of approved engine oil. Do not overfill.

**15**  
Install all previously removed cables to the ground (negative) battery terminals.

**16**  
Start the engine, check for leaks and proper operation. After shutdown, replenish fluids as necessary.